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1978 Bibliography of Atomic and Molecular Processes

March 1980



U.S. Department of Energy
Office of Energy Research
Office of Basic Energy Sciences
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FOREWARD

IT IS A PLEASURE FOR THE DEPARTMENT OF ENERGY, OFFICE OF BASIC ENERGY SCIENCES, TO MAKE AVAILABLE THIS 1978 BIBLIOGRAPHY OF ATOMIC AND MOLECULAR PROCESSES. THE WORK WAS COMPILED BY A GROUP OF ACTIVE AND OUTSTANDING SCIENTISTS IN THE PHYSICS DIVISION OF THE OAK RIDGE NATIONAL LABORATORY UNDER THE ABLE LEADERSHIP OF C. F. BARNETT. ON BEHALF OF THE DEPARTMENT, I WISH TO EXPRESS OUR GRATITUDE TO THESE RESEARCHERS FOR SHARING THIS WORK WITH THE SCIENTIFIC COMMUNITY.

THE DEPARTMENT APPRECIATES THE VALUE OF THIS WORK TO RESEARCHERS IN THE ENERGY AREA. IT ALSO UNDERSTANDS THAT BIBLIOGRAPHIC WORK PROVIDES SCIENTISTS AN INDISPENSABLE TOOL TO MAINTAIN A QUALITY RESEARCH EFFORT.

J. V. MARTINEZ, MANAGER
ATOMIC PHYSICS PROGRAM
MARCH, 1980

BIBLIOGRAPHY OF ATOMIC AND MOLECULAR PROCESSES

1978

compiled by

C. F. Barnett
D. H. Crandall
B. J. Farmer
H. B. Gilbody

S. W. Hawthorne
M. I. Kirkpatrick
E. W. McDaniel
R. H. McKnight

F. W. Meyer
T. J. Morgan
R. A. Phaneuf
E. W. Thomas

Oak Ridge National Laboratory
Physics Division
March 1980

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Abstract

This annotated bibliography lists 2,557 works on atomic and molecular processes reported in publications dated 1978. Sources include scientific journals, conference proceedings, and books. Each entry is designated by one or more of the 114 categories of atomic and molecular processes used by the Controlled Fusion Atomic Data Center to classify data. Also indicated is whether the work was experimental or theoretical, what energy range was covered, what reactants were investigated, and the country of origin of the first author. Following the bibliographical listing are indexes of reactants and authors.

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Introduction

This annotated bibliography lists 2,557 works on atomic and molecular processes reported in publications dated 1978. It is the first such bibliography to be formatted under an open-field computer code recently developed for the Controlled Fusion Atomic Data Center. Unlike previous bibliographies in which entries were arranged alphabetically by first author, there is no significance to the ordering of entries in this publication. The benefits of such alphabetical arrangement by author are delegated to the author index. Also unlike bibliographies formatted using our earlier computer code, the entries in this bibliography are not grouped according to a particular atomic or molecular process (i.e., there is no independent section on electron transfer, ionization, etc.). Instead each entry is labeled by one or more of the 114 categories of atomic and molecular processes used by the Controlled Fusion Atomic Data Center to classify data. (A list of these categories follows this Introduction.) Grouping according to specific categories may be found in the reactants index. The author index is likewise arranged by assigned category. The absence of an author and reactants index for any one of these 114 categories indicates that there were no entries designated to that category in 1978.

Each entry indicates whether the work was experimental (E) or theoretical (T), what energy range was covered, and what reactants were investigated.

The following remarks are offered to facilitate the use of the bibliography.

1. The entries have been edited for incorrect categorization. Misplaced reactants were removed from their original reactants index category.

and added to the correct index. Authors listed for these entries were similarly removed to the appropriate index. The addition of a reactant to the reactants index is indicated by an asterisk beside the entry's alphabetically correct position; the reactant is given at the end of the appropriate column. The same method is used to add authors to the author index. When necessary, double asterisks, triple asterisks, and daggers are used to show second, third, or fourth additions to a column.

2. Due to computer manipulation, any differences in symbolic representation or formatting resulted in different entries in the index. For example, a superscript ++ is handled differently from a superscript 2+. All attempts have been made to minimize these discrepancies. However, the user should keep these possible differences in mind when performing searches.

3. Sequencing of reactants in the index follows the order
N, N* (excited state), N⁺, N²⁺, N₂, N⁻, NO, Na, Ne, etc.

4. Many papers do not refer to a particular collision system. The reactants in these cases are listed as undefined, denoted as Undef. Review papers are labeled Review rather than list all reactants discussed in the paper. The abbreviation Seq preceded by an atom indicates all members of the isoelectronic sequence for that particular atom. PERT symbolizes "periodic table"; this notation is used when reactions involving a large number of the elements are covered by a publication. All of these codes are used in a more or less general sense to avoid handling thousands of additional reactants at every stage in the production of these bibliographies.

5. The country listed at the end of each bibliographic entry is derived from the address of the first author given in the original publication.

Categorization List

A. HEAVY PARTICLE - HEAVY PARTICLE INTERACTIONS

1. General
2. Elastic Scattering Collisions
3. Excitation
4. Dissociation
5. Chemiluminescence, Fluorescence, and Luminescence (photon emission by unspecified processes)
6. Electron Capture
7. Ionization
8. Stripping
9. Recombination or Mutual Neutralization Leading to Neutral Products (ion-ion)
10. Electronic, Vibrational, and Rotational Energy Transfer (process unknown)
11. Collisional De-Excitation (total)
12. Collisional Line Broadening
13. Heavy Particle Interchange, Rearrangement, and Association (one or more ionic reactants)
14. Heavy Particle Interchange, Rearrangement, and Association (only neutral reactants)
15. Spin Exchange
16. Electron Detachment from Negative Ions into Continuum
17. Interaction Potentials
18. Angular Scattering (specified process or otherwise)
19. Inner-Shell Interactions (not covered under other specific categories)
20. Attenuation (unspecified process)

B. INTERACTIONS WITH STATIC OR TIME-VARYING ELECTRIC AND MAGNETIC FIELDS

1. General
2. Dissociation
3. Ionization
4. Detachment
5. Quenching
6. Excitation
7. Collisions in Presence of Intense Electromagnetic Fields

C. PARTICLE PENETRATION IN MACROSCOPIC MATTER (IONS, NEUTRALS, AND ELECTRONS)

1. General
2. Energy Loss
3. Energy to Create an Ion Pair
4. Particle Range
5. Multiple Scattering
6. Charge State Population
7. Excited State Population
8. Channeling

D. PARTICLE INTERACTIONS WITH SOLIDS

1. General
2. Sputtering by Electrons, Neutrons, and Heavy Particles (total removal coefficients)
3. Sputtered Particle Charge and Quantum (Excited) State Distribution
4. Secondary Electron Ejection by Heavy Particle and Electrons
5. Photoelectric Ejection of Electrons (coefficients)
6. Reflection of Electrons from Surfaces (coefficients)
7. Reflection of Heavy Particles from Surfaces (total reflection coefficients)
8. Charge and Quantum State Distributions of Reflected Heavy Particles at Macroscopic Distances from Surfaces
9. De-Excitation, Neutralization, Ionization, or Dissociation of Particles Interacting with Surfaces

10. Interaction Potentials Between Surfaces and Free Particles Located External to the Surface (electrons and heavy particles)
11. Sticking Coefficients (thermal energies)
12. Electromagnetic Radiation Induced by Electron or Heavy Particle Impact on Surfaces
13. Desorption of Gases from Surfaces
14. Blistering, Voids, and Surface Strain in Metals
15. Radiation Damage in Metals
16. Particle Implantation in Metals
17. Electron-, Ion-, and Photon-Induced Chemical Changes to Surfaces

E. ELECTRON-PARTICLE INTERACTION

1. General
2. Elastic Collisions
3. Excitation
4. Dissociation
5. Ionization
6. Recombination (electron-ion)
7. Collisional De-Excitation
8. Collisional Line Broadening
9. Negative Ion Formation
10. Spin Exchange
11. Free-Free Transitions (Bremsstrahlung)
12. Positron Collisions
13. Electron Detachment from Negative Ions
14. Binary Electron-Electron Collisions
15. Inner-Shell Interactions
16. Fluorescence and Luminescence
17. Angular Scattering (specified process)
18. Attenuation (unspecified process)

G. TRANSPORT PHENOMENA AND AVERAGE PROPERTIES IN GASES

1. General
2. Diffusion of Neutrals
3. Diffusion of Electrons
4. Diffusion of Ions
5. Drift Velocity of Electrons
6. Drift Velocity of Ions
7. Scattering and Energy Loss Parameters of Electrons, Neutrals, and Ions in Gases
8. Energy Distribution (energy distribution of ions and electrons with applied electric and magnetic fields)
9. Momentum Transfer
10. First and Second Townsend Coefficients
11. Electron Attachment Coefficients

H. PHOTON COLLISIONS WITH HEAVY PARTICLES, ELECTRONS, AND PHOTONS IN GASES ($h\nu < 100$ keV)

1. General
2. Total Absorption
3. Elastic Scattering
4. Excitation
5. Dissociation
6. Ionization
7. Photodetachment
8. Fluorescence and Luminescence Yields
10. Photochemistry
11. Free-Free Absorption or Inverse Bremsstrahlung
12. Photon-Electron Scattering
13. Photon-Photon Collisions
14. Photo-De-Excitation, Quenching, and Stimulated Emission (cross sections)

J. DATA COMPILATION

1. Heavy Particle
2. Electrons
3. Photons
4. Particles on Surfaces and Solids
5. Transport
6. Structure

K. REVIEWS AND BOOKS

1. Heavy Particle
2. Electrons
3. Photons
4. Particles on Surfaces and Solids
5. Transport
6. Structure
7. General

L. BIBLIOGRAPHIES

1. Heavy Particle
2. Electrons
3. Photons
4. Particles on Surfaces and Solids
5. Transport
6. Structure

ABBREVIATIONS:

- L1 Seq - sequence (L1)
 PERT - periodic table
 Undef - undefined

BIBLIOGRAPHY OF ATOMIC AND MOLECULAR PROCESSES

1978

BIBLIOGRAPHY

REF. NO.	REACTANTS	EXP. CR. TECH.	ENERGY RANGE	REFERENCE
1	A04 $H_2^+ + H_2$ A06 $H_2^+ + H_2$	E	5 keV	Meierjohann, B.; Vogler, M. Vibrationally resolved predissociation of the $c^3\pi_u$ and $e^3\Sigma_u^+$ states of H_2 by flight-time-difference spectroscopy. <i>Phys. Rev. A</i> 17, 47 (1978) West Germany
2	H01 Under	T	Under	Le Gouet, J.-L.; Berman, P. R. Effect of velocity-changing collisions upon optical coherences in a three-level system. <i>Phys. Rev. A</i> 17, 52 (1978) France
3	A06 $H^+ + Kr; H^+ + Xe$ A03 $H^+ + Kr; H^+ + Xe$	E	10-150 keV	Doughty, B. M.; Brandon, F. L.; Bray, C. W.; Carnosek, R. W.; Goad, M. L. Electron capture into the 3s state of atomic hydrogen by H^+ on Kr and Xe. <i>Phys. Rev. A</i> 17, 59 (1978) United States
4	A06 $He^{2+} + H$	T	0.1-20 keV	Winter, T. G.; Lane, N. F. Electron transfer in collisions of He^{2+} ions with H atoms at He^{2+} impact energies of 0.1-20.0 keV. <i>Phys. Rev. A</i> 17, 66 (1978) United States
5	A03 $H + N_2; H + CO; H + O_2; He + N_2; He + CO; He + O_2$	E	0.15-2.4 keV	Bearman, G. H.; Leventhal, J. J. Excited-state production in collisions of H and He with N_2 , CO , and O_2 over the energy range 150-2400 eV. <i>Phys. Rev. A</i> 17, 80 (1978) United States
6	A19 $H^+ + Al; H^+ + Si; H^+ + B; H^+ + Co;$ $H_2^+ + Al; H_2^+ + Si; H_2^+ + B; H_2^+ + Co$	E	300-2400 keV	Lurio, A.; Andersen, H. H.; Feldman, L. C. Search for cluster effects in x-ray production by fast hydrogen molecules. <i>Phys. Rev. A</i> 17, 90 (1978) United States
7	E03 $e + He$	E	80 eV	Sutcliffe, V. C.; Haddad, G. N.; Steph, N. C.; Golden, D. E. Electron-photon angular correlation measurements for the 2^1P state of helium. <i>Phys. Rev. A</i> 17, 100 (1978) United States
8	A19 $Br^+ + PERT; I^+ + PERT; Ni^+ + PERT$	E T	45-110 MeV	Meyerhof, W. E.; Anholt, R.; Eichler, J.; Selop, A. K-vacancy production in heavy-ion collisions. IV. K-L level matching. <i>Phys. Rev. A</i> 17, 108 (1978) United States
9	A11 $Na^+ + N_2$	E	300 K	Gallagher, T. F.; Cooke, W. E.; Edelstein, S. A. Collisional deactivation of the 5s and 4p states of Na by N_2 . <i>Phys. Rev. A</i> 17, 125 (1978) United States

REF. NO.	REACTANTS	EXP OR THEOR	ENERGY RANGE	REFERENCE
10	C02 H + H; H + He; H + Li; H + Be; H + B; H + C; H + N; H + O; H + F; H + Ne; He + H; He + He; He + Li; He + Be; He + B; He + C; He + N; He + O; He + F; He + Ne; Li + H; Li + He; Li + Li; Li + Be; Li + B; Li + C; Li + N; Li + O; Li + F; Li + Ne; Be + H; Be + He; Be + Li; Be + Be; Be + B; Be + C; Be + N; Be + O; Be + F; Be + Ne; B + H; B + He; B + Li; B + Be; B + B; B + C; B + N; B + O; B + F; B + Ne; C + H; C + He; C + Li; C + Be; C + E; C + C; C + N; C + O; C + F; C + Ne; N + H; N + He; N + Li; N + Be; N + B; N + C; N + N; N + O; N + F; N + Ne; O + H; O + He; O + Li; O + Be; O + B; O + C; O + N; O + O; O + F; O + Ne; F + H; F + He; F + Li; F + Be; F + B; F + C; F + N; F + O; F + F; F + Ne; Ne + H; Ne + He; Ne + Li; Ne + Be; Ne + B; Ne + C; Ne + N; Ne + O; Ne + F; Ne + Ne; He ⁺ + H; He ⁺ + He; He ⁺ + Li; He ⁺ + Be; He ⁺ + B; He ⁺ + C; He ⁺ + N; He ⁺ + O; He ⁺ + F; He ⁺ + Ne; Li ⁺ + H; Li ⁺ + He; Li ⁺ + Li; Li ⁺ + Be; Li ⁺ + B; Li ⁺ + C; Li ⁺ + N; Li ⁺ + O; Li ⁺ + F; Li ⁺ + Ne; Be ⁺ + H; Be ⁺ + He; Be ⁺ + Li; Be ⁺ + Be; Be ⁺ + B; Be ⁺ + C; Be ⁺ + N; Be ⁺ + O; Be ⁺ + F; Be ⁺ + Ne; B ⁺ + H; B ⁺ + He; B ⁺ + Li; B ⁺ + Be; B ⁺ + B; B ⁺ + C; B ⁺ + N; B ⁺ + O; B ⁺ + F; B ⁺ + Ne; C ⁺ + H; C ⁺ + He; C ⁺ + Li; C ⁺ + Be; C ⁺ + E; C ⁺ + C; C ⁺ + N; C ⁺ + O; C ⁺ + F; C ⁺ + Ne; N ⁺ + H; N ⁺ + He; N ⁺ + Li; N ⁺ + Be; N ⁺ + B; N ⁺ + C; N ⁺ + N; N ⁺ + O; N ⁺ + F; N ⁺ + Ne; O ⁺ + H; O ⁺ + He; O ⁺ + Li; O ⁺ + Be; O ⁺ + B; O ⁺ + C; O ⁺ + N; O ⁺ + O; O ⁺ + F; O ⁺ + Ne; F ⁺ + H; F ⁺ + He; F ⁺ + Li; F ⁺ + Be; F ⁺ + B; F ⁺ + C; F ⁺ + N; F ⁺ + O; F ⁺ + F; F ⁺ + Ne; Ne ⁺ + H; Ne ⁺ + He; Ne ⁺ + Li; Ne ⁺ + Be; Ne ⁺ + B; Ne ⁺ + C; Ne ⁺ + N; Ne ⁺ + O; Ne ⁺ + F; Ne ⁺ + Ne; He ⁺ + H; He ⁺ + He; He ⁺ + Li; He ⁺ + Be; He ⁺ + B; He ⁺ + C; He ⁺ + N; He ⁺ + O; He ⁺ + F; He ⁺ + Ne; Li ⁺ + H; Li ⁺ + He; Li ⁺ + Li; Li ⁺ + Be; Li ⁺ + B; Li ⁺ + C; Li ⁺ + N; Li ⁺ + O; Li ⁺ + F; Li ⁺ + Ne; Be ⁺ + H; Be ⁺ + He; Be ⁺ + Li; Be ⁺ + Be; Be ⁺ + B; Be ⁺ + C; Be ⁺ + N; Be ⁺ + O; Be ⁺ + F; Be ⁺ + Ne; B ⁺ + H; B ⁺ + He; B ⁺ + Li; B ⁺ + Be; B ⁺ + B; B ⁺ + C; B ⁺ + N; B ⁺ + O; B ⁺ + F; B ⁺ + Ne; C ⁺ + H; C ⁺ + He; C ⁺ + Li; C ⁺ + Be; C ⁺ + E; C ⁺ + C; C ⁺ + N; C ⁺ + O; C ⁺ + F; C ⁺ + Ne; N ⁺ + H; N ⁺ + He; N ⁺ + Li; N ⁺ + Be; N ⁺ + B; N ⁺ + C; N ⁺ + N; N ⁺ + O; N ⁺ + F; N ⁺ + Ne; O ⁺ + H; O ⁺ + He; O ⁺ + Li; O ⁺ + Be; O ⁺ + B; O ⁺ + C; O ⁺ + N; O ⁺ + O; O ⁺ + F; O ⁺ + Ne; F ⁺ + H; F ⁺ + He; F ⁺ + Li; F ⁺ + Be; F ⁺ + B; F ⁺ + C; F ⁺ + N; F ⁺ + O; F ⁺ + F; F ⁺ + Ne; Ne ⁺ + H; Ne ⁺ + He; Ne ⁺ + Li; Ne ⁺ + Be; Ne ⁺ + B; Ne ⁺ + C; Ne ⁺ + N; Ne ⁺ + O; Ne ⁺ + F; Ne ⁺ + Ne; Na ⁺ + H; Na ⁺ + He; Na ⁺ + Li; Na ⁺ + Be; Na ⁺ + B; Na ⁺ + C; Na ⁺ + N; Na ⁺ + O; Na ⁺ + F; Na ⁺ + Ne	T	Undef	Cruz, S. A.; Cisneros, C.; Alvarez, I. Individual orbital contribution to the electronic stopping cross section in the low-velocity region. Phys. Rev. A 17, 132. (1978) Mexico
11	A19 Al ⁺ + Al; Al ⁺ + Cu; Al ⁺ + S; Al ⁺ + Ar; Si ⁺ + Al; Si ⁺ + Cu; Si ⁺ + S; Si ⁺ + Ar; Cl ⁺ + Al; Cl ⁺ + Cu; Cl ⁺ + S; Cl ⁺ + Ar; Ar ⁺ + Al; Ar ⁺ + Cu; Ar ⁺ + S; Ar ⁺ + Ar	E	0.7-16 MeV	Middleworth, F. M., Jr.; Donahue, D. J.; McIntyre, L. C., Jr.; Bernstein, E. M. K-shell vacancy production in collisions of aluminum, silicon, chlorine, and argon ions with solid and gas targets. Phys. Rev. A 17, 141 (1978) United States
12	A07 H ⁺ + He; H ⁺ + Ne; H ⁺ + Ar	E T	0.1-1.5 MeV	Toburen, L. H.; Marson, S. I.; Kim, Y.-K. Energy distributions of secondary electrons. III. Projectile energy dependence for ionization of He, Ne, and Ar by protons. Phys. Rev. A 17, 148 (1978) United States
13	E02 e + N _p E03 e + N _p E17 e + N _p G09 e + N _p	T	0.5-10 eV	Filiflet, A. W.; Levin, D. A.; Ma, P.; McKay, V. Discrete-basis-set calculation for e-N _p scattering cross sections in the static-exchange approximation. Phys. Rev. A 17, 160 (1978) United States
14	E02 e + He E12 e + He	T	100-700 eV	Byron, F. W., Jr. Total cross sections in electron- and positron-helium scattering. Phys. Rev. A 17, 170 (1978) United States
15	H06 hv + CO ₂	E	20-40 eV	Gustafsson, T.; Plummer, E. W.; Eastman, D. E.; Gudat, W. Partial photoionization cross sections of CO ₂ between 20 and 40 eV studied with synchrotron radiation. Phys. Rev. A 17, 175 (1978) United States

REF. NO.	REACTANTS	EXP OR THEOR	ENERGY RANGE	REFERENCE
16	H07 $h\nu + H^-$	T	10.9-11.1 eV	Wendoloski, J. J.; Reinhardt, W. P. Effects of an external electric field on $1P^0$ resonances of H^- . Phys. Rev. A 17, 195 (1978) United States
17	H07 $h\nu + Cs^-; h\nu + K^-$	E	1-2 eV	Slater, J.; Read, F. H.; Novick, S. E.; Lineberger, W. C. Alkali negative ions. III. Multichannel photodetachment study of Cs^- and K^- . Phys. Rev. A 17, 201 (1978) United States
18	H07 $h\nu + Li^-; h\nu + Na^-; h\nu + K^-$	T	0-24000 A0	Lamm, G.; Szabo, A.; Adelman, S. A. Extended asymptotic model for the alkali-anion photodetachment cross sections and multiple polarizabilities. Phys. Rev. A 17, 238 (1978) United States
19	A03 $Cl^+ + He$	E	24 keV	King, D. B.; Head, C. E. Experimental lifetimes of some laser levels of Cl^+ . Phys. Rev. A 17, 243 (1978) United States
20	H05 Undef	T	Undef	Ackerhalt, J. R. Resonant pulse excitation leading to ionization. Phys. Rev. A 17, 293 (1978) United States
21	H12 $h\nu + e$ H14 $h\nu + e$	T	Undef	Kroll, N. M.; McMullin, W. A. Stimulated emission from relativistic electrons passing through a spatially periodic transverse magnetic field. Phys. Rev. A 17, 300 (1978) United States
22	H08 Undef	T	Undef	Ackerhalt, J. R. Comment on theory of resonance fluorescence. Phys. Rev. A 17, 471 (1978) United States
23	D08 $H^+ + Mo; H^+ + Cu; H^+ + SS; H_p^+ + Mo; H_p^+ + Cu; H_p^+ + SS; H_n^+ + Mo; H_n^+ + SS$	E	2-200 keV	Rausch, E. O.; Inouye, H.; Senol, A. J.; Thomas, E. W. Excited H formation by 2-200-keV H_p^+ , H_n^+ , and H_n^+ ion impact on metal surfaces. Phys. Rev. A 17, 473 (1978) United States
24	E03 $e + He^*$	T	3-1000 eV	Kheyralah, G. A.; Chen, S. T.; Rustie, J. R., Jr. Inelastic scattering of electrons by metastable helium: First Born and Glauber cross sections for 2^3S-3^3S excitation. Phys. Rev. A 17, 513 (1978) United States
25	A19 $Si^{2+} + He; Si^{3+} + He; Si^{4+} + He; Si^{5+} + He; Si^{6+} + He; Si^{7+} + He; Si^{8+} + He; Si^{9+} + He; Si^{10+} + He; Si^{11+} + He$	E	15-60 MeV	Doyle, B. L.; Schiebel, U.; Macdonald, J. R.; Ellsworth, L. D. Charge-state dependence of the mean K-shell fluorescence yields of Si(super q ⁺) ions. Phys. Rev. A 17, 523 (1978) United States
26	E02 $e + H^*$	T	20-500 eV	Ho, T. S.; Chan, F. T. Elastic scattering of electrons by metastable 2s atomic hydrogen. Phys. Rev. A 17, 529 (1978) United States
27	A06 $N^+ + H; N^{2+} + H; N^{3+} + H; N^{4+} + H; N^{5+} + H; O^+ + H; O^{2+} + H; O^{3+} + H; O^{4+} + H; C^+ + H; C^{2+} + H; C^{3+} + H; C^{4+} + H; H^+ + H; N^+ + H_p; N^{2+} + H_p; N^{3+} + H_p; N^{4+} + H_p; N^{5+} + H_p; O^+ + H_p; O^{2+} + H_p; O^{3+} + H_p; O^{4+} + H_p; O^{5+} + H_p; C^+ + H_p; C^{2+} + H_p; C^{3+} + H_p; C^{4+} + H_p; N^{2+} + H_p; N^{3+} + H_p; N^{4+} + H_p$	E	9-1650 keV	Pheneuf, R. A.; Meyer, F. W.; McKnight, R. h. Single-electron capture by multiply charged ions of carbon, nitrogen, and oxygen in atomic and molecular hydrogen. Phys. Rev. A 17, 534 (1978) United States
28	B07 $F^* + Xe$	T		DeVries, P. L.; Mahlab, M. S.; George, T. F. Computational study of a molecular collision process in the presence of an intense radiation field: Enhanced quenching of F by Xe in the 248-nm light of the KrF laser. Phys. Rev. A 17, 546 (1978) United States
29	E03 $e + K; e + Rb; e + Cs$	E	1.5-1500 eV	Chen, S. T.; Gallagher, A. C. Electron excitation of the resonance lines of the alkali-metal atoms. Phys. Rev. A 17, 551 (1978) United States

REF. NO.	REACTANTS	EXP OR THEOR	ENERGY RANGE	REFERENCE
30	A06 H ⁺ + H; U ²⁺ + N; U ²⁺ + Ne; U ²⁺ + Ar; U ²⁺ + Kr; U ³⁶⁺ + N; U ³⁶⁺ + Ne; U ³⁶⁺ + Ar; U ³⁶⁺ + Kr; U ⁹²⁺ + N; U ⁹²⁺ + Ne; U ⁹²⁺ + Ar; U ⁹²⁺ + Kr	T	1-7.2 x 10 ⁶ MeV	Lee, C. M. Radiative charge-exchange process in high-energy ion-atom collisions. Phys. Rev. A 17, 566 (1978) United States
31	E03 e + N ₂	E	1-4 eV	Wong, S. F.; Dube, L. Rotational excitation of N ₂ by electron impact: 1-4 eV. Phys. Rev. A 17, 570 (1978) United States
32	A06 H ⁺ + H	T	1-90 keV	Tripathy, D. N.; Rao, B. K. Charge transfer in proton-hydrogen collisions. Phys. Rev. A 17, 587 (1978) India
33	E05 e + Ne; e + Xe	E T	0.4-2.5 keV	Dixon, A. J.; McCarthy, I. E.; Noble, C. J.; Weigold, E. Factorized distorted-wave approximation for the (e,2e) reaction on atoms: Noncoplanar symmetric. Phys. Rev. A 17, 557 (1978) Australia
34	E05 e + He; e + Ar; e + Ne	E T	0.2-1.2 keV	Fuss, I.; McCarthy, I. E.; Noble, C. J.; Weigold, E. Factorized distorted-wave approximation for the (e,2e) reaction on atoms: Coplanar symmetric. Phys. Rev. A 17, 604 (1978) Australia
35	A12 He + Ne ⁹ ; Ne + Ne ⁸	E	300 K	Salour, M. M. Isotopic shift, pressure shift, and pressure broadening of the 7d ¹ states of neon using Doppler-free two-photon absorption spectroscopy. Phys. Rev. A 17, 614 (1978) United States
36	H07 hν + F ⁻	T	3.5-10 eV	Rescigno, T. N.; Bender, C. F.; McKoy, B. V. Study of the photodetachment cross section of F ⁻ . Phys. Rev. A 17, 645 (1978) United States
37	H03 hν + H ₂ ; hν + He	E	5-12 keV	Ice, G. E.; Chen, M. H.; Crasemann, B. Photon-scattering cross sections of H ₂ and He measured with synchrotron radiation. Phys. Rev. A 17, 650 (1978) United States
38	H06 hν + H	T	10.1-10.5 eV	Ritshie, D. Calculation of resonant cross sections for multiphoton ionization using very-narrow-bandwidth sources. Phys. Rev. A 17, 659 (1978) United States
39	E03 e + Be ⁺	T	26-500 eV	Henry, F. J. W.; van Wyngaarden, W.-L.; Matese, J. J. Excitation of Be ⁺ by electron impact. Phys. Rev. A 17, 798 (1978) United States
40	E05 e + He	E	Undef	Oda, N.; Ishira, S.; Nishimura, F.; Koike, F. *Erratum Energy and angular distribution of electrons ejected from autoionization states in helium by electron impact [Phys. Rev. A 15, 574 (1977)]. Phys. Rev. A 17, 801 (1978) Japan
41	A19 Xe ⁺ + U1	E T	460 MeV	Anholt, R. Analysis of Doppler-broadened Bi K-α x-ray lines observed in 460-MeV Xe + U1 collisions. Phys. Rev. A 17, 834 (1978) United States
42	D04 O* + [Cu + Be + O]	E	0.05-3 eV	Borst, L. L.; Nowak, G.; Fricke, J. Kinetic-energy dependence of the secondary-electron yield for low-energy (e ⁻) metastables on a Cu-Be-O surface. Phys. Rev. A 17, 838 (1978) West Germany
43	E05 e + Ne; e + Ar; e + H ₂ ; e + N ₂	E	100-500 eV	DuBois, R. D.; Rudd, M. E. Absolute doubly differential cross sections for ejection of secondary electrons from gases by electron impact. II. 100-500-eV electrons on neon, argon, molecular hydrogen, and molecular nitrogen. Phys. Rev. A 17, 843 (1978) United States
44	D07 He ⁺ + Ta ₂ O ₅ ; He ⁺ + Ag; Ne ⁺ + Ta ₂ O ₅ ; Ne ⁺ + Ta; He ⁺ + WO ₃ ; He ⁺ + Nb ₂ O ₅ ; He ⁺ + TiO ₂ ; He ⁺ + ZrO ₂ ; Ne ⁺ + WO ₃ ; Ne ⁺ + Nb ₂ O ₅ ; Ne ⁺ + TiO ₂ ; Ne ⁺ + ZrO ₂	E	0.25-2.5 keV	Baun, W. L. Ion scattering spectral features in oxides caused by inelastic energy losses. Phys. Rev. A 17, 849 (1978) United States

REF. NO.	REACTANTS	EXP CR THEOR	ENERGY RANGE	REFERENCE
45	A06 $Si^{2+} + H; Si^{2+} + H_2; Si^{3+} + H; Si^{3+} + H_2; Si^{4+} + H; Si^{4+} + H_2; Si^{5+} + H; Si^{5+} + H_2; Si^{6+} + H; Si^{6+} + H_2; Si^{7+} + H; Si^{7+} + H_2; Si^{8+} + H; Si^{8+} + H_2; Si^{9+} + H; Si^{9+} + H_2$	E	1.4-5.7 MeV	Kim, H. J.; Phaneuf, R. A.; Meyer, F. W.; Stelson, P. H. Single electron capture by multiply charged ^{28}Si ions in atomic and molecular hydrogen. Phys. Rev. A 17, 854 (1978) United States
46	C02 $O^+ + Al$ C05 $O^+ + Al$ A06 $O^{2+} + Al$ A07 $O^{7+} + Al$	E	5-50 MeV	Soffield, C. J.; Cowern, N. E. B.; Fetty, R. J.; Freeman, J. M.; Mason, J. P. Charge-exchange effects in the energy-loss straggling of ^{16}O ions in Al. Phys. Rev. A 17, 869 (1978) United Kingdom
47	E06 $e + Ar_p^+$ E04 $e + Ar_p^+$	E	300-8500 K	Shiu, Y.-J.; Biondi, M. A. Dissociative recombination in argon: Dependence of the total rate coefficient and excited-state production on electron temperature. Phys. Rev. A 17, 668 (1978) United States
48	E03 $e + He^+$	T	20-1000 eV	Oh, S. E.; Macek, J.; Kelsey, E. Electron excitation of hydrogenlike ions in the Coulomb Born approximation. Phys. Rev. A 17, 873 (1978) United States
49	A06 $H^+ Seq + H; H^+ Seq + Cs; H^+ Seq + Rb; H^+ Seq + K; H^+ Seq + Na; H^+ Seq + Li; H^+ Seq + He; H^+ Seq + Ne; H^+ Seq + Ar; H^+ Seq + Kr; Kr^{30+} + Ar; Xe^{30+} + Ar; H^+ Seq + Xe; Ar^{16+} + Ar$	T	0.004-50000 keV	Grozdanov, T. P.; Janev, R. K. Charge-exchange collisions of multiply charged ions with atoms. Phys. Rev. A 17, 880 (1978) Yugoslavia
50	A17 $H + Li^+; H + Na^+; H + K^+; H + Rb^+; H + Cs^+$ A06 $H^- + Na^+; H^- + Cs^+; H^- + Li^+; H^- + K^+; H^- + Rb^+$ A09 $H^- + Na^+; H^- + Cs^+; H^- + Li^+; H^- + K^+; H^- + Rb^+$ A07 $D + Li; D + Na; D + K; D + Rb; D + Cs$	T	0.01-10 keV	Janev, R. K.; Radulovic, Z. M. Ion-ion recombination and ion-pair formation processes in alkali-hydrogen diatomic systems. Phys. Rev. A 17, 869 (1978) Yugoslavia
51	A19 $Kr^{20+} + Ge$	E	33.6 MeV	Liesen, D.; Macdonald, J. R.; Mckler, P.; Werczak, A. Mechanisms of K-vacancy production determined from the impact-parameter dependence of K x-ray production in 1.4-MeV/amu Kr + Ge collisions. Phys. Rev. A 17, 897 (1978) West Germany
52	A03 $Na^* + He; Na^* + Ne; Na^* + Ar$ A10 $Na^* + He; Na^* + Ne; Na^* + Ar$	E	300 K	Gallagher, T. F.; Cooke, W. E.; Edelstein, S. A. Collisional angular momentum mixing of f states of Na. Phys. Rev. A 17, 904 (1978) United States
53	E02 $e + H_2; e + N_2$ G09 $e + N_2$	T	0.01-14.0 keV	Morrison, M. A.; Collins, L. A. Exchange in low-energy electron-molecule scattering: Free-electron-gas model exchange potentials and applications to e-H ₂ and e-N ₂ collisions. Phys. Rev. A 17, 918 (1978) United States
54	E02 $e + CsF; e + KI$; Review E03 $e + CsF; e + KI$; Review	T	Undef	Mukherjee, D.; Smith, F. T. Semiclassical perturbation theory of electron-polar-molecule collisions: Total excitation and scattering cross sections. Phys. Rev. A 17, 954 (1978) United States
55	G09 $e + CsF; e + LiF$; Review E03 $e + CsF; e + LiF$; Review	T	0.01-10000 eV	Hickman, A. F.; Smith, F. T. Momentum transfer in electron-polar-molecule collisions: Results of semiclassical perturbation scattering theory. Phys. Rev. A 17, 968 (1978) United States

REF. NO.	REACTANTS	EXP OR THEOR	ENERGY RANGE	REFERENCE
56	A15 $H^+ + Ca; H^+ + Zn; H^+ + Zr; H^+ + Sn;$ $H^+ + Nd; H^+ + Yb; H^+ + Au; H^+ + U;$ $He^{2+} + Ca; He^{2+} + Zn; He^{2+} + Zr;$ $He^{2+} + Sn; He^{2+} + Nd; He^{2+} + Yb;$ $He^{2+} + Au; He^{2+} + U$ A03 $H^+ + Ca; H^+ + Zn; H^+ + Zr; H^+ + Sn;$ $H^+ + Nd; H^+ + Yb; H^+ + Au; H^+ + U;$ $He^{2+} + Ca; He^{2+} + Zn; He^{2+} + Zr;$ $He^{2+} + Sn; He^{2+} + Nd; He^{2+} + Yb;$ $He^{2+} + Au; He^{2+} + U$	T	Undef	Anholt, R. Theoretical investigation of electronic relativistic effects on K-vacancy production by charged particles. Phys. Rev. A 17, 976 (1978) United States
57	A19 $H^+ + Y; H^+ + Mo; H^+ + Ag; H^+ + Sn;$ $H^+ + Pr; H^+ + Sm; H^+ + Ho; H^+ + Hf;$ $H^+ + Ta; H^+ + Re; H^+ + Pt; H^+ + Au;$ $H^+ + Pb; H^+ + Bi; H^+ + U; H^+ + Th;$ $He^{2+} + Y; He^{2+} + Mo; He^{2+} + Ag;$ $He^{2+} + Sn; He^{2+} + Pr; He^{2+} + Sm;$ $He^{2+} + Ho; He^{2+} + Hf; He^{2+} + Ta;$ $He^{2+} + Re; He^{2+} + Pt; He^{2+} + Au;$ $He^{2+} + Pb; He^{2+} + Bi; He^{2+} + U;$ $He^{2+} + Th; O^+ + Y; O^+ + Mo; O^+ +$ $Ag; O^+ + Sn; O^+ + Pr; O^+ + Sm; O^+ +$ $Ho; O^+ + Hf; O^+ + Ta; O^+ + Re; O^+ +$ $Pt; O^+ + Au; O^+ + Pb; O^+ + Bi; O^+ +$ $U; O^+ + Th; F^+ + Y; F^+ + Mo; F^+ +$ $Ag; F^+ + Sn; F^+ + Pr; F^+ + Sm; F^+ +$ $Ho; F^+ + Hf; F^+ + Ta; F^+ + Re; F^+ +$ $Pt; F^+ + Au; F^+ + Pb; F^+ + Bi; F^+ +$ $U; F^+ + Th; Cl^+ + Y; Cl^+ + Mo; Cl^+ +$ $Ag; Cl^+ + Sn; Cl^+ + Pr; Cl^+ + Sm;$ $Cl^+ + Ho; Cl^+ + Hf; Cl^+ + Ta; Cl^+ +$ $Re; Cl^+ + Pt; Cl^+ + Au; Cl^+ + Pb;$ $Cl^+ + Bi; Cl^+ + U; Cl^+ + Th$	E T	0.5-70 MeV	Anholt, R. Electronic relativistic and Coulomb deflection effects on 1s sigma-vacancy production. Phys. Rev. A 17, 983 (1978) United States
58	E06 $e + Ar^{17+}; e + Ar^{18+}; e + Ar^{19+}; e +$ $Ar^{20+}; e + Ar^{21+}; e + Ar^{22+}; e +$ $Ar^{23+}; e + Ar^{24+}; e + Fe^{25+}; e +$ $Fe^{26+}; e + Fe^{27+}; e + Fe^{28+}; e +$ $Fe^{29+}; e + Fe^{30+}; e + Fe^{31+}; e +$ $Fe^{32+}; e + Mn^{31+}; e + Mn^{32+}; e +$ $Mo^{33+}; e + Mo^{34+}; e + Mo^{35+}; e +$ $Mo^{36+}; e + Mo^{37+}; e + Mo^{38+}; e +$ $Mo^{39+}; e + Mo^{40+}; e + Mo^{41+}; e +$ $W^{73+}; e + W^{74+}; e + W^{75+}; e + W^{76+};$ $e + W^{77+}; e + W^{78+}; e + W^{79+}; e +$ W^{80+}	T	Undef	Retter, J. A.; Gau, J. N.; Hahn, Y. Scaling properties of the dielectronic recombination amplitudes. Phys. Rev. A 17, 558 (1978) United States
59	E02 $e + H$	T	1-10 eV	Klar, H.; Klar, M. Elastic phase shift of e-H(1s) and ground-state energy of H ⁻ calculated in the post-adiabatic approximation. Phys. Rev. A 17, 1007 (1978) West Germany
60	A06 $H^+ Seq + H Seq$	T	Undef	Shakeshaft, R. Asymptotic form of the third Born amplitude for forward electron capture by a bare ion incident on a hydrogenlike ion. Phys. Rev. A 17, 1011 (1978) United States
61	E16 $e + Sn; e + Te; e + I$	E	15 keV	LaVilla, E. F. Unusually broad x-ray emission lines: L _γ _{2,3} (L ₁ N _{2,3}) spectra of ¹¹⁸ Sn, ¹³² Te, and ¹³¹ I. Phys. Rev. A 17, 1018 (1978) United States
62	H04 $h\nu + O$	T	5.5 eV	Pindzola, M. S. Two-photon excitation of atomic oxygen. Phys. Rev. A 17, 1021 (1978) United States
63	H03 $h\nu + Y; h\nu + Zr; h\nu + Mo; h\nu + Ag;$ $h\nu + Cd; h\nu + Sn$	E	662 keV	Allawadhi, K. L.; Verma, S. L.; Ghuman, B. S.; Sood, B. S. Determination of integral Compton-scattering cross sections of 662-keV γ-rays from K-shell electrons in intermediate Z elements. Phys. Rev. A 17, 1058 (1978) India
64	H06 $h\nu + C; h\nu + Sn; h\nu + U; h\nu + Hg;$ $h\nu + Al; h\nu + Ne; h\nu + Au; h\nu + Pb;$ $h\nu + Nd; h\nu + Bi; h\nu + Ag; h\nu + Kr;$ $h\nu + Ge; h\nu + Ar; h\nu + Xe$	T	0.5-1400 keV	Tseng, H. K.; Pratt, R. H.; Yu, S.; Ren, A. Photoelectron angular distributions. Phys. Rev. A 17, 1061 (1978) China

REF. NO.	REACTANTS	EXP CR THEOR	ENERGY RANGE	REFERENCE
65	B03 Na*	T		Cooke, W. E.; Gallagher, T. F. Dependence of Rydberg-state field-ionization thresholds on [s.], Phys. Rev. A 17, 1226 (1978) United States
66	C05 H + Ar; He + Ar; Li + Ar; Be + Ar; B + Ar; C + Ar; N + Ar; O + Ar; F + Ar; Ne + Ar; Na + Ar; Mg + Ar; Al + Ar; Si + Ar; P + Ar; S + Ar; Cl + Ar; Ar + Ar C02 H + Ar; He + Ar; Li + Ar; Be + Ar; B + Ar; C + Ar; N + Ar; O + Ar; F + Ar; Ne + Ar; Na + Ar; Mg + Ar; Al + Ar; Si + Ar; P + Ar; S + Ar; Cl + Ar; Ar + Ar	T	10-10 ⁵ eV	Inokuti, M.; Baer, T.; Lehner, J. L. Addendum: Systematics of moments of dipole oscillator-strength distributions for atoms in the first and second row. Phys. Rev. A 17, 1229 (1978) United States
67	E02 e + N _p E03 e + N _p	T	1-5 eV	Teskin, A. Internuclear dependence of the polarizability of N _p . Phys. Rev. A 17, 1232 (1978) United States
68	C02 Review	T	0.1-10 ⁶ MeV	Ahlen, S. P. Z ₁ ⁷ stopping-power formula for fast heavy ions. Phys. Rev. A 17, 1236 (1978) United States
69	H04 hν + H	T	5-10 eV	Selzman, W. R. *Erratum Semiclassical calculations on one-, two-, three-, and four-photon absorption in truncated models of the hydrogen atom [Phys. Rev. A16, 1552 (1977)]. Phys. Rev. A 17, 1240 (1978) United States
70	A03 Li ⁺ + H; Li ⁺ + H ₂ ; Li ⁺ + He; Li ⁺ + C; Li ⁺ + N; Li ⁺ + O; Cs ⁺ + H; Cs ⁺ + H ₂ ; Cs ⁺ + He; Cs ⁺ + C; Cs ⁺ + N; Cs ⁺ + O; Au ⁺ + H; Au ⁺ + H ₂ ; Au ⁺ + He; Au ⁺ + C; Au ⁺ + N; Au ⁺ + O A07 Li ⁺ + H; Li ⁺ + H ₂ ; Li ⁺ + He; Li ⁺ + C; Li ⁺ + N; Li ⁺ + O; Cs ⁺ + H; Cs ⁺ + H ₂ ; Cs ⁺ + He; Cs ⁺ + C; Cs ⁺ + N; Cs ⁺ + O; Au ⁺ + H; Au ⁺ + H ₂ ; Au ⁺ + He; Au ⁺ + C; Au ⁺ + N; Au ⁺ + O A18 Li ⁺ + H; Li ⁺ + H ₂ ; Li ⁺ + He; Li ⁺ + C; Li ⁺ + N; Li ⁺ + O; Cs ⁺ + H; Cs ⁺ + H ₂ ; Cs ⁺ + He; Cs ⁺ + C; Cs ⁺ + N; Cs ⁺ + O; Au ⁺ + H; Au ⁺ + H ₂ ; Au ⁺ + He; Au ⁺ + C; Au ⁺ + N; Au ⁺ + O	T	0.05-30 MeV	Gillespie, G. H.; Kim, Y.-K.; Cheng, K. Born cross sections for ion-atom collisions. Phys. Rev. A 17, 1284 (1978) United States
71	A03 He ⁺ + H ₂ A06 He ⁺ + H ₂	E	1.5-3.0 keV	Eriksen, F. J.; Jaecks, D. H. He(3P) excitation in 1.5- and 3.0-keV He ⁺ + H ₂ collisions. Phys. Rev. A 17, 1256 (1978) United States
72	A03 O ₂ ⁺ + Si; O ₂ ⁺ + S; O ₂ ⁺ + Cl; O ₂ ⁺ + Ar; O ₂ ⁺ + SiH ₄ ; O ₂ ⁺ + SiF ₄ ; O ₂ ⁺ + H ₂ S; O ₂ ⁺ + SU ₂ ; O ₂ ⁺ + SF ₆ ; O ₂ ⁺ + HCl; O ₂ ⁺ + Cl ₂ ; O ₂ ⁺ + CCl ₄ ; O ₂ ⁺ + NaCl; O ₂ ⁺ + KCl; O ₂ ⁺ + P ₄ ; O ₂ ⁺ + S ₈	E	32 MeV	Demarest, J. A.; Watson, R. L. Ion-excited K α x-ray satellite spectra of Si, S, Cl, and Ar in the gas phase. Phys. Rev. A 19, 1302 (1978) United States
73	E06 e + NH ₄ ⁺	E	0.065-2.0 eV	DuBois, R. D.; Jeffries, J. B.; Durn, G. H. Dissociative recombination cross sections for NH ₄ ⁺ ions and electrons. Phys. Rev. A 17, 1314 (1978) United States
74	A02 He ⁺ + He A06 He ⁺ + He	E	0.4-30 eV	Vestal, M. L.; Blakley, C. R.; Futrell, J. H. Crossed-beam measurements of differential cross sections for elastic scattering and charge exchange in low-energy He ⁺ -He collisions. Phys. Rev. A 17, 1321 (1978) United States
75	A12 Kr + Na*; Xe + Na* H08 hν + Na + Kr; hν + Na + Xe	E	A12 300 K H08 2 eV	West, W. P.; Gallagher, A. Pressure dependence of Na resonance line broadening by Kr and Xe. Phys. Rev. A 17, 1431 (1978) United States
76	H06 hν + K*	E	3.5 eV	Nygaard, K. J.; Corbin, R. J.; Jones, J. D. Two-step photoionization of potassium atoms. Phys. Rev. A 17, 1543 (1978) United States

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77	E02 e + H	T	Undef	Byron, F. W., Jr. Comment on dispersion relations for the static-exchange amplitude. Phys. Rev. A 17, 1545 (1978) United States
78	H08 Undef	T	Undef	Knight, P. L.; Molander, W. A.; Stroud, C. F., Jr. Asymmetric resonance fluorescence spectra in partially coherent fields. Phys. Rev. A 17, 1547 (1978) United Kingdom
79	B01 Undef	T		Moloney, J. V.; Meeth, W. J. Induced transition probabilities and energies for the strongly coupled two-level system. Phys. Rev. A 17, 1550 (1978) Canada
80	H06 hv + Ti; hv + V; hv + Mn; hv + Fe; hv + Ni	T	Undef	Yin, L. I.; Adler, I.; Tsang, T.; Chen, M. H.; Ringers, D. A.; Crasemann, B. *Erratum Widths of atomic M-shell vacancy states and quasistatic aspects of radiationless transitions in solids [Phys. Rev. A9, 1070 (1974)]. Phys. Rev. A 17, 1556 (1978) United States
81	A02 Ar+ + Ar A06 Ar+ + Ar A18 Ar+ + Ar	E	2.7-20 eV	Vestaly, H. L.; Hahlay, C. H.; Furrill, J. H. Crossed-beam measurements of differential cross sections for elastic scattering and charge exchange in low-energy Ar+-Ar collisions. Phys. Rev. A 17, 1337 (1978) United States
82	A03 Ne+ + Ne; Ne + Ne	T	0.01-10 eV	Cohen, J. S.; Collins, L. A.; Lane, N. F. Theory in inelastic collisions between low-lying excited- and ground-state Ne atoms. Phys. Rev. A 17, 1343 (1978) United States
83	E03 u + CO E74 e + CO	E	0-300 eV	Wells, L. C.; Borst, W. L.; Zipf, E. C. Translational spectroscopy of metastable fragments produced by dissociative excitation of atmospheric gases by electron impact: II. Carbon monoxide. Phys. Rev. A 17, 1357 (1978) United States
84	B05 D	E		van Wijngaarden, A.; Drake, G. W. F. Deuterium Lamb shift via quenching-radiation anisotropy measurements. Phys. Rev. A 17, 1366 (1978) Canada
85	A10 CH ₃ I+ + CH ₃ I	E	300 K	Arimonde, E.; Glorieux, P.; Oka, T. Radio-frequency spectroscopy inside a laser cavity; pure nuclear quadrupole resonance of gaseous CH ₃ I. Phys. Rev. A 17, 1375 (1978) Canada
86	H02 hv + H- H07 hv + H-	E	11 eV	Behringer, K.; Thoma, P. Observation of the H- shape resonance in the hydrogen-arc emission spectrum. Phys. Rev. A 17, 140E (1978) West Germany
87	H06 Undef	T	Undef	de Meljere, J. L. F.; Eberly, J. H. Rate of resonant two-photon ionization in the presence of a partially coherent radiation field. Phys. Rev. A 17, 1416 (1978) United States
88	A17 H + He; H + Ar; H + Cl A16 H- + He; H- + Ar; Cl- + Ar	T	0-40 eV	Olson, R. E.; Liu, B. Self-consistent-field potential energies for the ground negative-ion and neutral states of HeH, ArH, and ArCl. Phys. Rev. A 17, 1568 (1978) United States
89	F01 HeH; ArH; ArCl E05 e + He E17 e + He	E	100 eV	Beatty, E. C.; Hesselbacher, K. H.; Hong, S. P.; Moore, J. H. Measurements of the triple-differential cross section for low-energy electron-impact ionization of helium. Phys. Rev. A 17, 1552 (1978) United States
90	E02 e + He; e + Ne E12 e+ + He; e+ + Ne	E	0-30 eV	Stein, T. S.; Kaupilla, W. E.; Piel, V.; Smert, J. H.; Jesion, G. Measurements of total scattering cross sections for low-energy positrons and electrons colliding with helium and neon atoms. Phys. Rev. A 17, 1600 (1978) United States

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91	H02 hv + Kr* + He; hv + Kr* + Ar A12 Kr* + He; Kr* + Ar	E	300 K	Brechignac, C.; Vetter, R.; Berman, P. R. Study of velocity-changing collisions in excited Kr using saturation spectroscopy. Phys. Rev. A 17, 1605 (1978) France
92	A06 Undef	T	Undef	Arora, I.; Turner, J. E. Theoretical method for solving a two-level collision system. Phys. Rev. A 17, 1614 (1978) India
93	E03 e + He Seq E05 e + He Seq	T	40-400 eV	Sampson, D. H.; Parks, A. D.; Clark, R. E. H. Intermediate-coupling collision strengths for fine-structure transitions between S and P levels and S and D levels in highly charged He-like ions. Phys. Rev. A 17, 1619 (1978) United States
94	E05 e + He	E	400-800 eV	Casilloni, R.; Guidoni, A. G.; McCarthy, I. E.; Stefani, G. Mechanism of the (e,2e) reaction with atoms. Phys. Rev. A 17, 1634 (1978) Italy
95	A19 He* + Al; Li* + Al; O* + Al	E	4-26 MeV	Jamison, K. A.; Richard, P.; Hopkins, F.; Matthews, D. L. Nonstatistical population of magnetic substates of the (1s-12p-1)1F, state in Al. Phys. Rev. A 17, 1642 (1978) United States
96	A06 H* + C; H* + N; H* + O; H* + Ne; H* + Ar; H* + H A19 H* + C; H* + N; H* + O; H* + Ne; H* + Ar; H* + H	T	0.4-12 MeV	Lin, C. D.; Sccng, S. C.; Tunnell, L. N. Two-state atomic expansion methods for electron capture from multielectron atoms by fast protons. Phys. Rev. A 17, 1646 (1978) United States
97	A07 H* + Al; H* + Ni; D* + Al; D* + Ni; He* + Al; He* + Ni; Li* + Al; Li* + Ni; C* + Ni; O* + Ni; F* + Ni A06 H* + Al; H* + Ni; D* + Al; D* + Ni; He* + Al; He* + Ni; Li* + Al; Li* + Ni; C* + Ni; O* + Ni; F* + Ni	E T	2-90 MeV	Basbas, G.; Brandt, W.; Leubert, R. Universal cross sections for K-shell ionization by heavy charged particles. II. Intermediate particle velocities. Phys. Rev. A 17, 1655 (1978) United States
98	E11 e + C	E	300 keV	Behncke, H.-H.; Nakel, W. Angular dependence of the photon linear polarization in the elementary process of atomic-field bremsstrahlung. Phys. Rev. A 17, 1675 (1978) West Germany
99	B01 H	E		Ehrich, H.; Kelleher, J. E. Hydrogen fine-structure effects at low electron densities. Phys. Rev. A 17, 1666 (1978) United States
100	B07 Undef H06 Undef	T	Undef	Nayfeh, M. H.; Payne, M. G. Radiative collision-induced photoionization. Phys. Rev. A 17, 1655 (1978) United States
101	B07 Undef H11 Undef	T	Undef	Kruger, H.; Jung, C. Low-frequency approach to multiphoton free-free transitions induced by realistic laser pulses. Phys. Rev. A 17, 1706 (1978) West Germany
102	A12 CF _n + CF _n H04 hv + CF _n + CF _n	E	300 K	Le Duff, Y.; Gharbi, A. Collision-induced scattering at a vibrational Raman frequency. Phys. Rev. A 17, 1729 (1978) United States
103	D11 He + Pd; CO + Pd; O ₂ + Pd D07 He + Pd; CO + Pd; O ₂ + Pd	E	300-1020 K	Engel, T. A molecular beam investigation of He, CO, and O ₂ scattering from Pd(111). J. Chem. Phys. 65, 373 (1978) West Germany
104	F01 LiH	T		Zeske, W. T.; Way, K. R.; Stwalley, W. C. Radiative transition probabilities for the B ¹ Σ ⁺ and B ¹ Σ ⁺ bands of ⁷ LiH. J. Chem. Phys. 65, 402 (1978) United States
105	F01 LiH	T		Zeske, W. T.; Stwalley, W. C. Radiative lifetimes for vibrational levels of the B ¹ Σ ⁺ state of ⁷ LiH. J. Chem. Phys. 65, 405 (1978) United States

REF. NO.	REACTANTS	EXP CR THEOR	ENERGY RANGE	REFERENCE
106	A01 Undef	T	Undef	Choi, E. H.; Poe, R. T.; Tang, K. I. Theory of collisions between an atom and a diatomic molecule in the body-fixed coordinate system. I. Coupled differential equation and asymptotic boundary conditions. J. Chem. Phys. 69, 411 (1978) United States
107	A03 H + H ₂	T	0.4 eV	Choi, E. H.; Poe, R. T.; Tang, K. I. Theory of collisions between an atom and a diatomic molecule in the body-fixed coordinate system. II. Close-coupling calculation for rotational transitions. J. Chem. Phys. 69, 422 (1978) United States
108	A05 H + Li; H + Li, A07 H + Li; H + Li,	E	1-10 eV	Crooks, J. E.; Way, K. R.; Yang, S.-C.; Wu, C.-Y. R.; Stwalley, W. C. Photon and positive ion production from collisions of superthermal hydrogen atoms with lithium atoms and molecules. J. Chem. Phys. 65, 450 (1978) United States
109	E06 e + NO ⁺	E	1820-2650 K	Burdett, N. A.; Hayhurst, A. N. Kinetics of gas phase electron-ion recombination by NG ⁺ +e ⁻ → N+O from measurements in flames. J. Chem. Soc., Faraday Trans., I 74, 53 (1978) United Kingdom
110	A09 NO ⁺ + Cl ⁻ ; NO ⁺ + Br ⁻ ; NO ⁺ + I ⁻	E	2200-2650 K	Burdett, N. A.; Hayhurst, A. N. Kinetics of gas phase ion-ion recombination in NG ⁺ +X ⁻ → N+X for X being chlorine, bromine and iodine. J. Chem. Soc., Faraday Trans., I 74, 63 (1978) United Kingdom
111	A14 Review	E	315-490 K	Campbell, I. M.; Hendy, B. J. Studies of reactions of atoms in a discharge flow stirred reactor. Part 2. -O+H, +CO system. J. Chem. Soc., Faraday Trans., I 74, 316 (1978) United States
112	D15 e + Nb	E	3 MeV	Dausinger, F.; Fuss, J.; Schweikhardt, J.; Schultz, H. Free migration of self-interstitials in BCC refractory metals. J. Nucl. Mater. 69-70, 665 (1978) West Germany
113	D15 n + Bi; n + [Bi + Te]	E	Undef	Quelard, G.; Lesueur, D. Neutron radiation defects in bismuth and tellurium-doped bismuth. J. Nucl. Mater. 69-70, 711 (1978) France
114	D15 e + Ag; e + [Ag + Zn]; e + [Ag + Cd]	E	2.2 MeV	Ivanov, L. I.; Platev, Y. P.; Pletnev, M. N.; Sadykhov, S. I. C. Production and annealing of radiation defects in dilute alloys of silver at stage II of recovery. J. Nucl. Mater. 69-70, 754 (1978) Soviet Union
115	D15 Al ²⁺ + Al	E	5 MeV	Noggle, T. E.; Appleton, B. R.; Williams, J. M.; Cen, O. S.; Eiggerstaff, J. A.; Iwata, I. Ionization production rates of 5 MeV Al ions in Al. J. Nucl. Mater. 69-70, 757 (1978) United States
116	D15 e + [Cu + Al]	E	300-575 keV	Dread, F.; Kösel, T.; Washburn, J. Subthreshold displacement damage in copper-aluminum alloys during electron irradiation. J. Nucl. Mater. 69-70, 801 (1978) United States
117	D15 e + Cu	E	375-660 keV	Dread, F.; Kösel, T.; Washburn, J. Temperature dependence of threshold energy for Frenkel pair production in copper. J. Nucl. Mater. 69-70, 804 (1978) United States
118	D15 C ²⁺ + SS; e + SS.	T	1-22 MeV	Ghoniem, N.; Kulcinski, G. L. Swelling of metals during pulsed irradiation. J. Nucl. Mater. 69-70, 816 (1978) United States
119	D15 e + Cu	E	Undef	Ohr, S. M. Electron microscopy studies of nature of defect clusters in copper. J. Nucl. Mater. 69-70, 830 (1978) United States

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120	A02 NO + Ar; H ₂ + Ar; H ₂ + Kr; H ₂ + Xe	T	200-3000 m/sec	Klaassen, D.; Thuis, H.; Stelte, S.; Reuss, J. Calculation of the glory scattering with anisotropic molecule-atom interactions in sudden approximation. Chem. Phys. 27, 107 (1978) The Netherlands
121	A02 Ar + N ₂	T	300 K	Alexander, M. H. Polarization in elastic scattering: close-coupling studies on Ar-N ₂ . Chem. Phys. 27, 229 (1978) United States
122	A03 Li ⁺ + CD A17 Li ⁺ + CO	T	1 eV	Thomas, L. D.; Kraemer, W. F.; Dierksen, G. H. F.; McGuire, F. Comparison of classical mechanics and the coupled states approximation for Li ⁺ -CO scattering on an ab initio calculated CI potential energy surface. Chem. Phys. 27, 237 (1978) West Germany
123	A03 He + HD	T	0.26-1.8 kcal/mole	Gelb, A. Classical trajectory study of rotational excitation of HD by collisions with He. Chem. Phys. 27, 245 (1978) Mexico
124	A14 Review	T	300 K	Fischer, S.; Venzl, G.; Robin, J.; Ratner, M. A. Product energy distribution for exothermic reactive collisions. Chem. Phys. 27, 251 (1978) West Germany
125	A11 H ₂ + He; H ₂ + Ar G09 H ₂ + He; H ₂ + Ar	T	25-700 K	Liu, W.-K.; McCurt, F. R. DWBA calculations of relaxation and kinetic cross sections. II. Application to ortho-H ₂ -He and ortho-H ₂ -Ar. Chem. Phys. 27, 281 (1978) The Netherlands
126	A01 Undef	T	Undef	Eu, B. C. A stochastic theory of collision phenomena, distribution of observables and information entropy. Chem. Phys. 27, 301 (1978) Canada
127	A17 CO + H ₂	T	Undef	Prissett, J.; Kochanski, E.; Flower, I. R. Theoretical study of the anisotropy of the CO + H ₂ potential energy surface in the non-reactive region. Chem. Phys. 27, 373 (1978) France
128	A05 NO + O ₂	E	0-1 eV	Redpath, A. E.; Menzinger, P.; Carrington, T. Molecular beam chemiluminescence XI: kinetic and internal energy dependence of the NO + O ₂ + NO ₂ [*] + NO ₂ [*] reaction. Chem. Phys. 27, 469 (1978) Canada
129	A03 HCl + He; HCl + Ar A11 HCl + He; HCl + Ar	T	5-30 kcal/mole	Polanyi, J. C.; Sathyamurthy, N. Rotational energy transfer (theory). II. HCl + He, Ar. Chem. Phys. 29, 9 (1978) Canada
130	H05 hν + H ₃ ⁺	T	12-20 eV	Kulander, K. C.; Eottcher, C. Photofragmentation of H ₃ ⁺ . Chem. Phys. 29, 141 (1978) United Kingdom
131	A02 Li ⁺ + Na; Na ⁺ + Li A06 Li ⁺ + Na; Na ⁺ + Li	E	200-1200 eV	Wijnaendts van Resandt, R. W.; de Vreugd, C.; Champion, R. L.; Lee, J. Differential scattering cross sections for collisions of alkali ions and atoms. III. Li ⁺ + Na and Na ⁺ + Li. Chem. Phys. 29, 151 (1978) The Netherlands
132	A17 Ne + He ₂ ⁺	T	Undef	Schmidt, H. M.; von Hirschhausen, F.; Helfrich, K. Ab initio potential surfaces for NeHe ₂ ⁺ in the frozen orbital approximation. Chem. Phys. 29, 219 (1978) West Germany
133	A11 H ₂ ⁺ + H ₂ ; NO ⁺ + NO; N ₂ ⁺ + N ₂	T	300 K	Ewing, G. The role of van der Waals molecules in vibrational relaxation processes. Chem. Phys. 29, 253 (1978) France
134	H02 hν + H ₂ O H05 hν + H ₂ O H06 hν + H ₂ O	E	10-60 eV	Tan, K. H.; Brion, C. E.; van der Leeuw, Ph. E.; van der Wiel, M. J. Absolute oscillator strengths (10-60 eV) for the photoabsorption, photoionisation and fragmentation of H ₂ O. Chem. Phys. 29, 295 (1978) Canada
135	F01 A10	T		Murty, F. S. Electronic transitions of aluminum monoxide. Chem. Phys. 29, 351 (1978) India

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136	A13 K + Br ₂	E	0-10 eV	Evers, C. W. A.; de Vries, A. E.; Lca, J. Nonreactive scattering of K by Br ₂ in the energy range of 0-10 eV. Chem. Phys. 29, 399 (1978) The Netherlands
137	A03 He + H ₂	T	0.05-7.0 eV	Eno, L.; Balint-Kurti, G. G.; Saktreger, R. Analytic approximations to distorted wave integrals, for inelastic molecular collision cross sections. Chem. Phys. 29, 453 (1978) United Kingdom
138	A14 K + Br ₂ A03 K + Br ₂ A04 K + Br ₂ A06 K + Br ₂	T	0-8000 eV	Evers, C. W. A. Total cross sections for K + Br ₂ at relative energies between 0 and 8000 eV. Chem. Phys. 30, 27 (1978) The Netherlands
139	A17 Li ⁺ + CO A02 Li ⁺ + CO	T	4 eV	Thomas, L. E.; Kraemer, W. P.; Eiercksen, G. H. P. Classical trajectory study on an ab initio CI vibrator potential energy surface for Li ⁺ -CO differential cross sections. Chem. Phys. 30, 33 (1978) West Germany
140	H06 hν + H ₂	T	736-584 Å	Itikawa, Y. Vibrational-rotational structure in the angular distribution and intensity of photoelectrons from diatomic molecules. Chem. Phys. 30, 105 (1978) Japan
141	H05 hν + HN ₃ H10 hν + HN ₃	E	266 nm	Beronavski, A. P.; Miller, R. G.; McDonald, J. R. Laser induced photodissociation of HN ₃ at 266 nm. I. Primary products, photofragment energy distributions and reactions of intermediates. Chem. Phys. 30, 119 (1978) United States
142	H08 hν + HN ₃ H10 hν + HN ₃	E	266 nm	McDonald, J. R.; Miller, R. G.; Beronavski, A. P. Laser induced photodissociation of HN ₃ at 266 nm. II. Reactions of NH(¹ Δ) with HN ₃ , HCl and hydrocarbon species. Chem. Phys. 30, 133 (1978) United States
143	A17 CH ₂ ⁺	T	Undef	Galloy, C.; Lorquet, J. C. Excited states of gaseous ions. VI. Potential energy surfaces of CH ₂ ⁺ . Chem. Phys. 30, 165 (1978) Belgium
144	A02 Li ⁺ + Na A06 Li ⁺ + Na	T	384-767 eV	Grosser, J. Nonresonant charge transfer: semiclassical calculation of differential cross sections. Chem. Phys. 30, 187 (1978) The Netherlands
145	A10 Undef	T	Undef	Bhattacharjee, R. C.; Forst, W. A modified statistical theory of collisional energy transfer in thermal reactions. Chem. Phys. 30, 217 (1978) Canada
146	A14 D + HI	T	1.0-1.5 eV	Fung, K. H.; Freed, K. F. Franck-Condon theory of reactive scattering. Chem. Phys. 30, 249 (1978) United States
147	A14 HF + Na; HCl + Na	E	300 K	Blackwell, E. A.; Polanyi, J. C.; Eloan, J. J. Effect of changing reagent energy. IX. Dependence of reaction rate on rotational excitation in hν(J;v)+Na + H+NaX(X=F,Cl). Chem. Phys. 30, 255 (1978) Canada
148	E03 o + NO	E	25-50 eV	Frühholz, R. P.; Riande, R.; Kuppermann, A. Doublet-singlet transitions in nitric oxide by low-energy variable-angle electron scattering. Chem. Phys. 30, 315 (1978) United States
149	A14 Review	T	Undef	Korsch, H. J.; Levine, R. D. Joint products' state distributions in molecular collisions. Chem. Phys. 30, 333 (1978) Israel
150	A03 Li ⁺ + N ₂	T	1-7 eV	Poppe, E.; Bottner, R. Inelastic collisions of Li ⁺ with N ₂ -molecules: a comparison of experimental results with trajectory studies. Chem. Phys. 30, 375 (1978) West Germany

REF. NO.	REACTANTS	EXP OR THEOR	ENERGY RANGE	REFERENCE
151	A03 H ₂ ⁺ + He; D ₂ ⁺ + He A11 H ₂ ⁺ + He; D ₂ ⁺ + He	T	0.3-1.5 eV	Billing, G. D. Cross sections and rate constants for rotational and vibrational excitation of H ₂ and D ₂ colliding with ⁴ He. Chem. Phys. 30, 387 (1978) Denmark
152	A11 N ₂ ⁺ + N ₂ ; Cl ₂ ⁺ + Cl ₂	T	100-600 K	Nyeland, C.; Billing, G. D. Rotational relaxation of homonuclear diatomic molecules by classical trajectory computation. Chem. Phys. 30, 401 (1978) Denmark
153	H05 hν + Br ₂ ; hν + IBr	E	568-444 nm	Petersen, A. B.; Smith, I. W. M. Yield of Br*(4 ² P _{1/2}) as a function of wavelength in the photodissociation of Br ₂ and IBr. Chem. Phys. 30, 407 (1978) United Kingdom
154	A17 Review	T	Undef	Benguria, R.; Lieb, E. H. Many-body atomic potentials in Thomas-Fermi theory. Ann. Phys. (NY) 110, 34 (1978) United States
155	G04 Review G06 Review	T	0-20 eV	Viehland, L. W.; Mason, E. A. Gaseous ion mobility and diffusion in electric fields of arbitrary strengths. Ann. Phys. (NY) 110, 267 (1978) United States
156	A17 H + F	T	Undef	Wilson, S. Diagrammatic perturbation theory. Potential curves for the hydrogen fluoride molecule. Mol. Phys. 35, 1 (1978) United States
157	A06 Undef	T	Undef	Shipsey, E. J. Approximation methods for certain charge-transfer collisions. Mol. Phys. 35, E1 (1978) United States
158	E05 e + H ₂ ; e + H ₂ ⁺ H06 hν + H ₂ ; hν + H ₂ ⁺	T	Undef	Liu, J. W.; Smith, V. H., Jr. Theoretical Compton profiles and momentum distributions for H ₂ ⁺ (2 ² σ ⁺) and H ₂ (1 ² σ ⁺). Mol. Phys. 35, 145 (1978) West Germany
159	H02 Undef	T	Undef	Brickmann, J. Vibronic coupling in molecular excited states. Model approach to emission and absorption spectra. Mol. Phys. 35, 185 (1978) West Germany
160	A03 He + H ₂ ; He + CD ₂	T	0.4-1.2 eV	Schatz, G. C. A direct method for determining accents of final state distributions in molecular collisions. Mol. Phys. 35, 477 (1978) United States
161	A03 Undef A14 Undef	T	Undef	Case, D. A.; McClelland, G. M.; Herschtch, D. R. Angular momentum polarization in molecular collisions: Classical and quantum theory for measurements using resonance fluorescence. Mol. Phys. 35, 541 (1978) United States
162	A03 He + H ₂	T	0.5-7.0 eV	Eno, L.; Sektreger, R. The stationary-point structure and calculation of distorted wave integrals in atom-diatom scattering. Mol. Phys. 35, 601 (1978) United Kingdom
163	H08 hν + I ₂	E	5145 Å ⁰	Clark, R.; McCaffery, A. J. Laser fluorescence studies of molecular iodine. I. Spectral assignments of the 5145 Å ⁰ fluorescence. Mol. Phys. 35, 605 (1978) United Kingdom
164	H10 hν + I ₂	E	5145 Å ⁰	Clark, R.; McCaffery, A. J. Laser fluorescence studies of molecular iodine. II. Relaxation of oriented ground and excited molecules. Mol. Phys. 35, 617 (1978) United Kingdom
165	H06 hν + SiO	E	10-18 eV	Colbourn, E. A.; Dyke, J. M.; Lee, E. F. F.; Morris, A.; Trickle, I. F. The vacuum ultra-violet photoelectron spectrum of the SiO(X ¹ Σ ⁺) molecule. Mol. Phys. 35, 273 (1978) United Kingdom
166	A02 Ar* + CO ₂ A11 Ar* + CO ₂	E	58-126 meV	Fraites, J. L.; Winicur, D. H. Differential elastic and quenching cross sections for Ar*(³ F) and CO ₂ (X ¹ Σ ⁺). Mol. Phys. 35, 927 (1978) United States
167	A02 H ⁺ + Ar; CH ₄ + Ar; He + Ne	T	300 K	Cannon, J. A. L.; Jakubetz, W. Rainbow scattering in atomic collisions: A Regge pole analysis. Mol. Phys. 35, 949 (1978) United Kingdom

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168	E03 e + He* E07 e + He*	T	30-300 eV	Herrick, D. R. l -changing electron impact cross sections for high Rydberg atoms with application to helium experiments. <i>Mol. Phys.</i> 35, 1211 (1978) United States
169	A11 He + H ₂ ; He + D ₂ ; He + T ₂	T	0-100 eV	Gerber, R. E.; Zaritsky, N. C.; Minglegrin, C. Optical potential approach to the calculation of vib-rotational relaxation rates. <i>Mol. Phys.</i> 35, 1247 (1978) Israel
170	A11 Li + N ₂	T	0-10 eV	Zaritsky, N. C.; Minglegrin, U.; Gerber, R. B. Vib-rotational relaxation in Li + N ₂ collisions. Calculations with the optical-potential method. <i>Mol. Phys.</i> 35, 1269 (1978) Israel
171	A14 F + H ₂	T	300 K	Connor, J. N. L.; Jakubetz, W.; Marz, J. The F + H ₂ (v=C) + FH (v'<3) + H reaction: Quantum collinear reaction probabilities on three different potential energy surfaces. <i>Mol. Phys.</i> 35, 1301 (1978) United Kingdom
172	A13 Review	E	50-75 °C	Polley, C. W.; Munson, E. The proton affinities of the halogen acids. <i>Int. J. Mass Spectrom. Ion Phys.</i> 26, 49 (1978) United States
173	G08 N ₂ ⁺ + He; O ₂ ⁺ + He	E	0-50 eV	Naveed-Ullah, K.; Mathur, D.; Hasted, J. B. Energy distributions of diatomic molecular positive ions in a drift tube. <i>Int. J. Mass Spectrom. Ion Phys.</i> 26, 51 (1978) United Kingdom
174	A04 SF ₆ ⁻ + He	E	0-2 eV	Refaey, K. M. A.; Franklin, J. L. Collisional decomposition of SF ₆ ⁻ . <i>Int. J. Mass Spectrom. Ion Phys.</i> 26, 125 (1978) United States
175	H06 hv + CS ₂ ; hv + CCS	E	1230-670 Å	Frey, F.; Gatchev, E.; Feston, W. E.; Follek, H.; Schlag, E. W. Photoionization resonance study of the X tilde (2π), A tilde (2π ²), B tilde (2Σ ⁺) and C tilde (2Σ ⁺) states of CS ₂ ⁺ and CCS ⁺ . <i>Int. J. Mass Spectrom. Ion Phys.</i> 26, 137 (1978) West Germany
176	A13 H ₂ O ⁺ + H ₂	E	0.1-2.0 eV	Yencha, A. J.; Pácek, V.; Herman, Z. Kinematics of the reaction H ₂ C ⁺ (H ₂ , H)H ₂ C ⁺ . <i>Int. J. Mass Spectrom. Ion Phys.</i> 26, 205 (1978) Czechoslovakia
177	D02 Review	F	Undef	Plivin, J. C.; Rogues-Cormos, C.; Sloczian, G. Variation des rendements d'émission ionique secondaire des alliages Ni-Cr, Fe-Cr, Fe-Ni en fonction de la tension en chute. <i>Int. J. Mass Spectrom. Ion Phys.</i> 26, 219 (1978) France
178	E05 e + H ₂ ; e + N ₂ ; e + O ₂ ; e + CO; e + NO	E	0.04-1.0 keV	Breha, E.; de Frenes, G. Investigation of ion pairs from fast decay processes of doubly-charged molecular ions. <i>Int. J. Mass Spectrom. Ion Phys.</i> 26, 251 (1978) West Germany
179	A06 He ⁺ + CH ₄ ; He ⁺ + H ₂ O; Ne ⁺ + H ₂ O; Ar ⁺ + H ₂ O	F	300 K	Mauersberg, G.; Dorst, R.; Mera, R. IGH determination of kinetically excited ions produced in water and methane by charge transfer from thermal rare gas ions. <i>Int. J. Mass Spectrom. Ion Phys.</i> 26, 269 (1978) France
180	A15 O ⁻ + N ₂	E	0.03-0.8 eV	Rayment, G. W.; Moruzzi, J. L. Electron detachment studies between C ⁻ ions and nitrogen. <i>Int. J. Mass Spectrom. Ion Phys.</i> 26, 321 (1978) United Kingdom
181	A13 Review	E	300 K	Adams, N. G.; Smith, D.; Grief, D. Reactions of H(n)CC ⁺ ions with molecules at 300 K. <i>Int. J. Mass Spectrom. Ion Phys.</i> 26, 405 (1978) United Kingdom
182	B03 H Seq	T		Banks, D.; Leopold, J. G. Classical Stark ionisation threshold electric field and energy for hydrogenic ions. <i>J. Phys. B</i> 11, L5 (1978) United Kingdom

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183	E02 e + He E03 e + He	T	22-23 eV	Nesbet, R. K. Resonances, cusp effects and a virtual state in e-He scattering near the n=3 thresholds. J. Phys. E 11, 121 (1978) United States
184	E03 e + K; e + Rb; e + Cs E05 e + K; e + Rb; e + Cs	T	30-600 eV	Peterkop, R.; Liepinsh, A. Electron impact excitation of autoionising levels in heavy alkali atoms. J. Phys. B 11, 127 (1978) Soviet Union
185	A17 Ba + Xe	E	Undef	Kielkopf, J. The interaction of excited states of barium with xenon atoms determined by spectral-line contour measurements. J. Phys. E 11, 25 (1978) United States
186	B03 H Seq	T		Banks, D.; Leopold, J. G. Ionisation of highly-excited atoms by electric fields I. Classical theory of the critical electric field for hydrogenic ions. J. Phys. B 11, 37 (1978) United Kingdom
187	H05 hv + H ₂ O H08 hv + H ₂ O	E	2800-3300 A ⁰	Lee, L. C.; Oren, L.; Phillips, E.; Judge, D. L. Cross sections for production of the OH($\beta^2\Sigma^+ + X^2\Pi$) fluorescence by photodissociation of H ₂ O vapour. J. Phys. E 11, 47 (1978) United States
188	A10 Li + He	T	0.005-0.01 eV	Reid, R. H. G.; Rankin, R. F. The eigenphase formulation of fine-structure transition cross sections. J. Phys. B 11, 88 (1978) United Kingdom
189	A10 C ⁺ + H	T	50-1000 K	Harel, C.; Lopez, V.; McCarroll, R.; Fiera, A.; Wahnon, F. Collision models of intramultiplet transitions at thermal energies. J. Phys. E 11, 71 (1978) France
190	A03 Ne + Ne	T	500-2000 eV	Gauyacq, J. P. Theoretical study of Ne-Ne collisions. J. Phys. B 11, 85 (1978) France
191	A03 He ²⁺ + H; He ⁺ + H A06 He ²⁺ + H; He ⁺ + H	E	4-343 keV	Shah, M. B.; Gilbody, H. B. Electron capture and He ⁺ (2s) formation in fast He ²⁺ -H and He ⁺ -H collisions. J. Phys. B 11, 121 (1978) United Kingdom
192	A06 He ⁺ + He; Ar ⁺ + Ar	E T	1-10 keV	Hegerberg, R.; Stefansson, I.; Elford, M. T. Measurement of the symmetric charge-exchange cross section in helium and argon in the impact energy range 1-10 keV. J. Phys. E 11, 133 (1978) Norway
193	E03 e + H	T	100-300 eV	Winters, K. H. On distorted-wave approximations for excitation. J. Phys. B 11, 145 (1978) Belgium
194	E05 e + Mg	E	30-280 eV	Karstensen, F.; Schneider, M. Absolute cross sections for single and double ionisation of Mg atoms by electron impact. J. Phys. B 11, 167 (1978) West Germany
195	E02 e + N ₂ ; e + CO E03 e + N ₂ ; e + CO E04 e + N ₂ ; e + CO E05 e + N ₂ ; e + CO	E	6-16 eV	Brunt, J. N. H.; King, G. C.; Read, F. E. Excitation of carbon monoxide and nitrogen molecules by electron impact at energies below 16 eV: studies of resonances in the excitation functions of metastable and ultraviolet-emitting levels. J. Phys. E 11, 173 (1978) United Kingdom
196	A03 H ⁺ + H	T	10-700 keV	Dewangan, D. P. A model for ion-atom collisions at interatomic energies. J. Phys. B 11, L37 (1978) India
197	A03 Ne ⁺ + Ne	T	0-1 a.u.	Fritsch, W.; Wille, U. Approximate closed-form solution of a two-state model for rotationally induced excitation in atomic collisions. J. Phys. E 11, L43 (1978) West Germany
198	A06 H ⁺ + He ⁺ A07 H ⁺ + He ⁺	E	40-386 keV	Angel, G. C.; Dunn, K. F.; Sewell, E. C.; Gilbody, H. B. Ionisation and charge transfer in fast H ⁺ -He ⁺ collisions: further measurements of improved accuracy. J. Phys. B 11, L45 (1978) United Kingdom

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199	B01 Undef	T		Propin, R. Stark effect for the rotational levels of a diatomic polar molecule in a strong field. J. Phys. B 11, 257 (1978) Soviet Union
200	E02 e + H; e + He	T	100-400 eV	Vanderpooten, R.; Winters, K. H. A comparison of local optical potentials for elastic electron-atom scattering. J. Phys. E 11, 281 (1978) Belgium
201	E02 e + H	T	0.1-10.0 eV	Seaton, M. J.; Steenman-Clark, L. Effective potentials for electron-atom scattering below inelastic thresholds II. The finite-range problem. J. Phys. B 11, 292 (1978) United Kingdom
202	E03 e + H; e + He	T	20-1000 eV	Srivastava, K.; Rai, D. K. Electron-impact excitation of H and He. J. Phys. B 11, 305 (1978) India
203	E03 e + He	T	20-22 eV	Fon, W. C.; Berrington, K. A.; Burke, P. G.; Kingston, A. E. Electron excitation functions for the 2 ³ S, 2 ¹ S, 2 ³ F and 2 ¹ F states of helium between the n=2 and n=3 excitation thresholds. J. Phys. E 11, 325 (1978) United Kingdom
204	E05 e + C ⁺ ; e + C ²⁺ ; e + O ⁺ ; e + O ²⁺	E	40-500 eV	Hamdan, M.; Birkinshaw, K.; Hasted, J. B. Ionisation of positive ions by electrons in the hollow-beam trap. J. Phys. B 11, 331 (1978) United Kingdom
205	E04 e + H ₂ E05 e + H ₂	E	23-40 eV	Kollmann, K. Energetic protons from autoionising states of H ₂ . J. Phys. B 11, 339 (1978) West Germany
206	E03 e + H ₂ ; e + D ₂ E04 e + H ₂ ; e + D ₂	E	15-100 eV	Karolis, C.; Harting, E. Electron impact dissociation cross sections in hydrogen and deuterium, leading to Balmer alpha and beta emission. J. Phys. E 11, 357 (1978) Australia
207	H06 hv + H ₂	T	Undef	Chang, E. S. Angular distributions of photoelectrons with analysis on the rotational states of H ₂ . J. Phys. B 11, 169 (1978) United Kingdom
208	E03 e + H Seq	T	Undef	Hayes, M. A.; Seaton, M. J. Resonances in 1s-2s and 1s-2p collision strengths for electron impact excitation of hydrogenic ions. J. Phys. B 11, L75 (1978) United Kingdom
209	E03 e + H ₂ E16 e + H ₂	E	12-17 eV	Bose, N. Excitation function of a ² I(g) ⁺ + b ² I(u) ⁺ light emission in H ₂ measured by submicroscopic electrons. J. Phys. B 11, 182 (1978) West Germany
210	E03 e + H ₂ ; e + D ₂ E04 e + H ₂ ; e + D ₂	E	20-40 eV	Glass-Maujean, M. Electron impact dissociation of H ₂ and D ₂ studied from the anticrossing signals and by the Doppler-profile technique. J. Phys. B 11, 431 (1978) France
211	H06 hv + H	T	Undef	Karule, E. Two-photon ionisation of atomic hydrogen simultaneously with one-photon ionisation. J. Phys. B 11, 441 (1978) Soviet Union
212	A02 Cl ²⁺ + Au; Cl ³⁺ + Au; Br ²⁺ + Au; Br ³⁺ + Au; Au ³⁺ + Au; Au ⁵⁺ + Au A18 Cl ²⁺ + Au; Cl ³⁺ + Au; Br ²⁺ + Au; Br ³⁺ + Au; Au ³⁺ + Au; Au ⁵⁺ + Au	E	2-15 MeV	Knudsen, H.; Petersen, P. M. Measurements of differential single-scattering cross sections of heavy ions at MeV energies on solid targets. J. Phys. B 11, 455 (1978) Denmark
213	A03 H ⁺ + H; He ²⁺ + H A06 H ⁺ + H; He ²⁺ + H	T	25-60 keV	Morrisson, H. G.; Cplik, U. An impact-parameter method for heavy-particle collisions involving one electron I. Theory and sample results on H ⁺ -H and He ²⁺ -H collisions. J. Phys. E 11, 473 (1978) United Kingdom
214	A03 H ⁺ + H ₂ A18 H ⁺ + H ₂	E	10 eV	Herman, V.; Schmidt, H.; Linder, F. Rotational and vibrational excitation in low-energy H ⁺ -H ₂ scattering experiments. J. Phys. E 11, 493 (1978) West Germany

REF. NO.	REACTANTS	EXP CR THEOR	ENERGY RANGE	REFERENCE
215	A06 Li ⁺ + Na; Li ⁺ + K; Li ⁺ + Rb; Li ⁺ + Cs; Li ⁺ + H; Li ⁺ + Hg; Na ⁺ + K; Na ⁺ + Rb; Na ⁺ + Cs; Na ⁺ + H; Na ⁺ + Hg; K ⁺ + Rb; K ⁺ + Cs; K ⁺ + H; K ⁺ + Hg; Rb ⁺ + Cs; Rb ⁺ + H; Rb ⁺ + Hg; Cs ⁺ + H; Cs ⁺ + Hg	T	Undef	Bottcher, C. A simple theory of nearly symmetric charge transfer. J. Phys. E 11, 507 (1978) United Kingdom
216	E02 e + H	T	1-200 eV	Fon, W. C.; Burke, P. G.; Kingston, A. E. Elastic scattering of electrons by atomic hydrogen. J. Phys. E 11, 521 (1978) United Kingdom
217	E05 e + Ca	E	30-500 eV	Pejcev, V.; Ottley, T. W.; Fassi, I.; Ross, K. J. High-resolution ejected-electron spectrum of calcium vapour autoionising levels excited by low-energy electron impact. J. Phys. B 11, 531 (1978) United Kingdom
218	E05 e + B ³⁺ ; e + C ⁴⁺ ; e + C ⁵⁺ ; e + N ⁶⁺ ; e + O ⁷⁺ ; e + Ne ⁷⁺ ; e + O ⁸⁺ ; e + Ne ⁸⁺	T	Undef	Sawson, D. H.; Golden, L. E. Electron impact ionisation results by the Z = infinity method. J. Phys. B 11, 541 (1978) United States
219	E05 e + He E17 e + He	E	2-5 keV	Yagishita, A.; Comcto, H.; Sekiya, K.; Suzuki, H.; Koike, F. Ejected-electron spectroscopy of helium by low-energy lithium-ion impact. J. Phys. B 11, L111 (1978) Japan
220	A07 H ⁺ + He; H ⁺ + Ar; H ₂ ⁺ + He; H ₂ ⁺ + Ar	E	0.2-0.5 MeV	Chiu, K. C. R.; McGowan, J. W.; Mitchell, J. B. A. Support for the charge transfer to the continuum theory for H ⁺ and H ₂ ⁺ -He collisions. J. Phys. B 11, L117 (1978) Canada
221	A03 He ⁺ + He A06 He ⁺ + He	T	2-3 keV	Stern, E.; Gauyaco, J. F.; Elidis, V. Quantal treatment of one-electron (n = 2 levels) and two-electron excitations of He in He ⁺ or He collisions at a few keV. J. Phys. B 11, 653 (1978) France
222	A07 He ²⁺ + Ni; He ²⁺ + Cu; H ⁺ + Cu	T	0.5-2.0 MeV	Pauli, M.; Trautmann, D. On the Coulomb ionisation of K-shell electrons. J. Phys. B 11, 667 (1978) Switzerland
223	A01 Undef	T	Undef	Campos, D.; Kruger, H. On the impact-parameter treatment of atomic collisions. J. Phys. B 11, 687 (1978) West Germany
224	A06 B ³⁺ + H; C ⁴⁺ + H	T	0.1-6.0 keV	Dixon, R. E.; Shipsey, E. J.; Browne, J. C. Charge-transfer cross sections for B ³⁺ , C ⁴⁺ + H collisions. J. Phys. E 11, 699 (1978) United States
225	E03 e + H; e + He ⁺	T	54-300 eV	Baluja, K. L.; McDowell, M. R. C.; McLean, L. A.; Myerscough, V. F. Electron impact excitation of hydrogenic systems in a distorted-wave model. J. Phys. B 11, 715 (1978) United Kingdom
226	H06 hν + He	E	24-200 eV	Marr, G. V. The absolute photoionisation cross section curve for atomic helium. J. Phys. E 11, L121 (1978) United Kingdom
227	H06 hν + Xe	E T	30-80 eV	van der Wiel, M. J.; Chang, T. N. Intershell correlation in double-electron ejection from the outermost shell of Xe. J. Phys. B 11, L125 (1978) The Netherlands
228	H06 hν + Ca	T	Undef	Gontier, Y.; Trahin, M. Four-photon resonant ionisation of caesium. J. Phys. E 11, L131 (1978) France
229	H05 hν + O ₂ H06 hν + O ₂	E	10-40 eV	Guyon, F. M.; Boer, T.; Ferreira, L. F. A.; Nenner, I.; Tatche-Fouhaille, A.; Botter, F.; Coovers, T. R. Observation of dissociative states of O ₂ ⁺ by threshold photoelectron-photoion coincidence. J. Phys. B 11, L141 (1978) France
230	E05 e + H; e + He ⁺	T	20-68 eV	Rudge, P. F. H. Spin effects in e-H ionisation. J. Phys. B 11, L149 (1978) United Kingdom

REF. NO.	REACTANTS	EXP CR THEOR	ENERGY RANGE	REFERENCE
231	A10 K ⁺ + N _p A18 K ⁺ + N _p	T	0.1-1.0 keV	Sigmund, P. Scaling law for electronically elastic ion-molecule collisions in the sudden approximation. J. Phys. B 11, L145 (1978) Denmark
232	H06 hv + Na	E	24000-29000 cm ⁻¹	Ducng, H. T.; Pinerd, J.; Vialle, J.-L. Experimental separation and study of the two partial photoionisation cross sections $\sigma_{\text{p,s}}$ and $\sigma_{\text{p,d}}$ from the 3p state of sodium. J. Phys. E 11, 757 (1978) France
233	A07 H ⁺ + Al; H ⁺ + PERT	T	0.16-4.6 GeV	Davidovic, D. M.; Moiseiwitsch, B. L.; Norrington, P. H. The K-shell ionisation of atoms by relativistic protons. J. Phys. B 11, E47 (1978) United Kingdom
234	A03 N ⁺ + N _p	E	35-200 keV	Hoogkamer, T. P.; Woerlee, P. H.; Saris, F. W.; Myerhof, W. E. The production mechanism and spectral distribution of K MO X-rays in collisions of 35-200 keV N ⁺ -N. J. Phys. E 11, 865 (1978) The Netherlands
235	A06 Fe ⁹⁺ + H; Fe ¹⁰⁺ + H; Fe ¹¹⁺ + H; Fe ¹²⁺ + H; Fe ¹³⁺ + H; Fe ¹⁴⁺ + H; Fe ¹⁵⁺ + H; Fe ¹⁶⁺ + H; Fe ¹⁷⁺ + H; Fe ¹⁸⁺ + H; Fe ¹⁹⁺ + H; Fe ²⁰⁺ + H; Fe ²¹⁺ + H; Fe ²²⁺ + H; Fe ²³⁺ + H; Fe ²⁴⁺ + H; Fe ²⁵⁺ + H; Fe ⁹⁺ + H _p ; Fe ¹⁰⁺ + H _p ; Fe ¹¹⁺ + H _p ; Fe ¹²⁺ + H _p ; Fe ¹³⁺ + H _p ; Fe ¹⁴⁺ + H _p ; Fe ¹⁵⁺ + H _p ; Fe ¹⁶⁺ + H _p ; Fe ¹⁷⁺ + H _p ; Fe ¹⁸⁺ + H _p ; Fe ¹⁹⁺ + H _p ; Fe ²⁰⁺ + H _p ; Fe ²¹⁺ + H _p ; Fe ²²⁺ + H _p ; Fe ²³⁺ + H _p ; Fe ²⁴⁺ + H _p ; Fe ²⁵⁺ + H _p A07 Fe ⁹⁺ + H; Fe ¹⁰⁺ + H; Fe ¹¹⁺ + H; Fe ¹²⁺ + H; Fe ¹³⁺ + H; Fe ¹⁴⁺ + H; Fe ¹⁵⁺ + H; Fe ¹⁶⁺ + H; Fe ¹⁷⁺ + H; Fe ¹⁸⁺ + H; Fe ¹⁹⁺ + H; Fe ²⁰⁺ + H; Fe ²¹⁺ + H; Fe ²²⁺ + H; Fe ²³⁺ + H; Fe ²⁴⁺ + H; Fe ²⁵⁺ + H; Fe ⁹⁺ + H _p ; Fe ¹⁰⁺ + H _p ; Fe ¹¹⁺ + H _p ; Fe ¹²⁺ + H _p ; Fe ¹³⁺ + H _p ; Fe ¹⁴⁺ + H _p ; Fe ¹⁵⁺ + H _p ; Fe ¹⁶⁺ + H _p ; Fe ¹⁷⁺ + H _p ; Fe ¹⁸⁺ + H _p ; Fe ¹⁹⁺ + H _p ; Fe ²⁰⁺ + H _p ; Fe ²¹⁺ + H _p ; Fe ²²⁺ + H _p ; Fe ²³⁺ + H _p ; Fe ²⁴⁺ + H _p ; Fe ²⁵⁺ + H _p	E T	15.5-62.8 MeV	Berkner, K. H.; Graham, W. G.; Pyle, F. V.; Schlachter, A. S.; Störns, J. W.; Glaser, R. E. Electron-capture and impact-ionisation cross sections for partially stripped iron ions colliding with atomic and molecular hydrogen. J. Phys. B 11, 876 (1978) United States
236	E02 e + Ne	T	100-1000 eV	Jhanwar, B. L.; Khare, S. F.; Kumar, A., Jr. Elastic scattering of electrons on Ne atoms at intermediate energies. J. Phys. B 11, 867 (1978) India
237	E03 e + He E05 e + He E17 e + He	E	57-61 eV	Roy, D.; Delage, A.; Carotte, J.-D. Further data on the post-collision interaction in electron scattering by helium. J. Phys. E 11, 855 (1978) Canada
238	A06 C ²⁺ + H; Ti ²⁺ + H; C ²⁺ + H _p ; Ti ²⁺ + H _p	E	0.5-14.0 keV	Mutt, B. L.; McCullough, R. W.; Giltsoy, H. B. Electron capture by C ²⁺ and Ti ²⁺ ions in H and H _p . J. Phys. B 11, L161 (1978) United Kingdom
239	A06 N ⁷⁺ + Ne; O ⁸⁺ + Ne; F ⁹⁺ + Ne; C ⁶⁺ + Ar; N ⁷⁺ + Ar; F ⁹⁺ + Ar; F ⁹⁺ + Kr; Cl ¹⁷⁺ + Kr	T	14-160 MeV	Lin, C. D. Electron capture for ion-atom collisions at intermediate energies. J. Phys. B 11, L165 (1978) United States
240	A06 C ⁶⁺ + H	T	0.1-1.0 a.u.	Greenland, F. T. Low-velocity C ⁶⁺ + H(1s) charge transfer: the two-state approximation. J. Phys. E 11, L191 (1978) United Kingdom
241	H02 hv + N _p ; hv + O _p ; hv + NO; hv + N _p O H06 hv + N _p ; hv + O _p ; hv + NO; hv + N _p O	E	50-340 Å	Cole, E. E.; Dexter, R. N. Photoabsorption and photoionisation measurements on some atmospheric gases in the wavelength region 50-340 Å. J. Phys. E 11, 1011 (1978) United States
242	A03 Undef A06 Undef	T	Undef	Crothers, D. E. F. Stueckelberg phases: the three-parameter exponential model. J. Phys. B 11, 1025 (1978) United Kingdom

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243	A07 H ⁺ + H ⁺	T	1-50 keV	Shirai, T.; Nakamura, H.; Iguchi, K.; Nakai, Y. Energy dependence of the cross sections for ionisation collisions between two excited hydrogen atoms. J. Phys. E 11, 1035 (1978) Japan
244	A03 H ⁻ + He; H ⁻ + Ne; H ⁻ + Ar A16 H ⁻ + He; H ⁻ + Ne; H ⁻ + Ar	E T	0.08-2.0 keV	Eseulov, V.; Dhuicq, E.; Gouyacq, J. P. Differential study of H ⁻ -inert-gas collisions. J. Phys. B 11, 1049 (1978) France
245	A07 H ⁺ + Cu; O ⁶⁺ + Cu; O ⁸⁺ + Cu	T	0.5-45.0 MeV	Kleber, M. Variational calculation of K-shell ionisation in slow ion-atom collisions. J. Phys. B 11, 1065 (1978) West Germany
246	B07 Undef H11 Undef	T	Undef	Pert, G. J. Inverse bremsstrahlung absorption in large radiation fields during binary collisions in the Born approximation II. Inelastic collisions. J. Phys. B 11, 1101 (1978) United Kingdom
247	A17 O ⁺ + H ₂	T	Undef	Chambaud, G.; Millie, P.; Levy, B. Potential energy surface of H ₂ O ⁺ : linear approach. J. Phys. B 11, L211 (1978) France
248	A17 Ne + Ne	T	Undef	Gouyacq, J. P. A distorted frozen-orbital method for the determination of diabatic molecular orbitals. J. Phys. B 11, L217 (1978) France
249	A08 He ⁺ + He; Li ²⁺ + He; Be ³⁺ + He; B ⁺ + He; B ²⁺ + He; K ⁺ + He; N ²⁺ + He; N ³⁺ + He; N ⁴⁺ + He; Ne ⁺ + He; Ne ²⁺ + He; Ne ³⁺ + He; Ne ⁴⁺ + He; Ne ⁵⁺ + He; Ne ⁶⁺ + He; Ne ⁷⁺ + He; Na ⁺ + He; Na ²⁺ + He; Na ³⁺ + He; He ⁺ + N ₂ ; Li ²⁺ + N ₂ ; Be ³⁺ + N ₂ ; B ⁺ + N ₂ ; B ²⁺ + N ₂ ; N ⁺ + N ₂ ; N ²⁺ + N ₂ ; N ³⁺ + N ₂ ; N ⁴⁺ + N ₂ ; Ne ⁺ + N ₂ ; Ne ²⁺ + N ₂ ; Ne ³⁺ + N ₂ ; Ne ⁴⁺ + N ₂ ; Ne ⁵⁺ + N ₂ ; Ne ⁶⁺ + N ₂ ; Ne ⁷⁺ + N ₂ ; Na ⁺ + N ₂ ; Na ²⁺ + N ₂ ; Na ³⁺ + N ₂ ; He ⁺ + Ne; Li ²⁺ + Ne; Be ³⁺ + Ne; B ⁺ + Ne; B ²⁺ + Ne; N ⁺ + Ne; N ²⁺ + Ne; N ³⁺ + Ne; N ⁴⁺ + Ne; Ne ⁺ + Ne; Ne ²⁺ + Ne; Ne ³⁺ + Ne; Ne ⁴⁺ + Ne; Ne ⁵⁺ + Ne; Ne ⁶⁺ + Ne; Ne ⁷⁺ + Ne; Na ⁺ + Ne; Na ²⁺ + Ne; Na ³⁺ + Ne; He ⁺ + Ar; Li ²⁺ + Ar; Be ³⁺ + Ar; B ⁺ + Ar; B ²⁺ + Ar; N ⁺ + Ar; N ²⁺ + Ar; N ³⁺ + Ar; N ⁴⁺ + Ar; Ne ⁺ + Ar; Ne ²⁺ + Ar; Ne ³⁺ + Ar; Ne ⁴⁺ + Ar; Ne ⁵⁺ + Ar; Ne ⁶⁺ + Ar; Ne ⁷⁺ + Ar; Na ⁺ + Ar; Na ²⁺ + Ar; Na ³⁺ + Ar	E	2.7-8 x 10 ⁸ cm ⁻¹	Tashaev, Y. A.; Dmitriev, I. S.; Nikolsev, V. S.; Teplova, Y. A. Cross sections for the loss of the outer 1s, 2s and 2p electrons for fast multicharged ions. J. Phys. B 11, L223 (1978) Soviet Union
250	A06 H ⁺ + He ⁺ ; He ²⁺ + He ⁺ A07 H ⁺ + He ⁺ ; He ²⁺ + He ⁺	T	100-2000 keV	Gilson, F. E. Ionisation and charge-transfer cross sections for H ⁺ , He ²⁺ + He ⁺ . J. Phys. E 11, L227 (1978) United States
251	A06 Li ⁺ + H; Li ²⁺ + H; Li ³⁺ + H; Li ⁺ + H ₂ ; Li ²⁺ + H ₂ ; Li ³⁺ + H ₂ A08 Li ⁺ + H; Li ²⁺ + H; Li ³⁺ + H; Li ⁺ + H ₂ ; Li ²⁺ + H ₂ ; Li ³⁺ + H ₂	E	65-1500 keV	Shah, M. B.; Goffe, T. V.; Gilbody, H. E. Electron capture and loss by fast lithium ions in H and H ₂ . J. Phys. B 11, L233 (1978) United Kingdom
252	E03 e + He	T	80 eV	Meneses, G. D.; Padial, N. T.; Casnak, G. The calculation of orientation and alignment parameters for the electron impact excitation of the 2 ¹ P state of He in the first-order many-body theory. J. Phys. E 11, L237 (1978) Brazil
253	E02 e + H	T	Undef	Gerjuoy, E.; Lee, C. M. On the dispersion relations for electron-atom scattering. J. Phys. B 11, 1137 (1978) United States

	REACTANTS	EXP CR THEOR	ENERGY RANGE	REFERENCE
254	H06 2hν + Li; 2hν + Na; 2hν + K; 2hν + Cs; 2hν + Rb	T	Undef	Niehuis, G.; Greneman, E. H. A.; van der Wiel, M. J. Formalism for two-photon ionisation of alkali atoms via a resonant intermediate state. J. Phys. B 11, 1203 (1978) The Netherlands
255	A10 Na + N ₂	T	0.004-0.05 eV	Amee, E.; Bottcher, C. Collisions between sodium atoms and nitrogen molecules: rotational excitation and fine-structure-changing collisions. J. Phys. B 11, 1249 (1978) United Kingdom
256	A03 He ⁺ + H A08 He ⁺ + H	T	4-4000 keV	Bell, K. L.; Kingston, A. E. Excitation and ionisation processes in He ^{+(1s)} + H(1s) collisions. J. Phys. B 11, 1255 (1978) United Kingdom
257	A16 Cl ⁻ + Ne; Cl ⁻ + Ar; Cl ⁻ + Kr; Cl ⁻ + Xe	T	80-2000 eV	Fayeton, J.; Dhulcq, E.; Berat, M. Study of electron-detachment and inelastic processes in Cl ⁻ -rare-gas collisions. J. Phys. E 11, 1267 (1978) France
258	C06 B + C; N + C; O + C; F + C; Ne + C; Na + C; Mg + C; Al + C; Ar + C; Fe + C	T	10-300 keV/amu	Baudinet-Robinet, Y.; Dumont, P. E.; Garnir, H. P. Analysis of charge-state distributions of heavy ions in carbon foils and gases. J. Phys. E 11, 1251 (1978) Belgium
259	E03 e + Be ⁺ ; e + Mg ⁺ ; e + Ca ⁺	T	3-100 eV	Kennedy, J. V.; Myeracough, V. G.; McDowell, M. H. G. Electron impact excitation of the resonance lines of Be ⁺ , Mg ⁺ and Ca ⁺ . J. Phys. E 11, 1303 (1978) United Kingdom
260	E02 e + H* E17 e + H*	T	0.1-30.0 eV	Gallitis, M. The angular dependence of electron scattering by excited hydrogen atoms. J. Phys. B 11, L279 (1978) Soviet Union
261	E05 e + K	E	6-80 eV	Hills, D.; Kleinpoppen, H. The ionisation of polarised potassium atoms by polarised electrons. J. Phys. E 11, L283 (1978) United Kingdom
262	H06 hν + Na*; 2hν + Na*	T	2400-1100 Å ⁰	Laughlin, C. One- and two-photon ionisation of the 3s and 3p states of Ne I. J. Phys. E 11, 1395 (1978) United States
263	H06 hν + Na	T	0-0.5 Ry	Aymar, M. Influence of core-polarisation effects on the photoionisation cross sections of the ground level and excited ns levels of neutral sodium. J. Phys. B 11, 1413 (1978) France
264	A07 Undef	T	Undef	Langenberg, A.; van Eck, J. A binary-encounter calculation with realistic velocity distribution of the target electron. J. Phys. B 11, 1425 (1978) The Netherlands
265	A07 H ⁺ + C; H ⁺ + O; H ⁺ + Mg; H ⁺ + Al; H ⁺ + Fe; H ⁺ + Co; H ⁺ + Cu; H ⁺ + Zn; H ⁺ + Ga; H ⁺ + Ge; H ⁺ + As	T	10-10 ⁴ keV	Kumar, A.; Roy, E. N. Modified binary encounter model for proton impact K-shell ionisation of atoms. J. Phys. E 11, 1435 (1978) India
266	A03 Ne + Ne; Ne ⁺ + Ne; Ne ²⁺ + Ne	E	0.3-400 keV	Andersen, T.; Boving, E.; Hedegaard, P.; Ulsen, J. U. Production of 2s vacancies in collisions of 0.3-400 keV Ne ⁰ , Ne ⁺ and Ne ²⁺ with Ne. J. Phys. E 11, 1445 (1978) Denmark
267	A06 He ²⁺ + H ₂ ; He ²⁺ + H	E	0.4-10.0 keV	Nutt, W. L.; McCullough, F. W.; Erady, K.; Shah, M. B.; Gilbody, H. B. Electron capture by He ²⁺ ions in collisions with H and H ₂ at impact energies below 10 keV. J. Phys. E 11, 1457 (1978) United Kingdom
268	A06 Ne ²⁺ + He; Ne ²⁺ + Ne; Ne ²⁺ + Ar; Ne ²⁺ + Kr; Ne ²⁺ + Xe	E	60-200 keV	Suk, H. C.; Guilbaud, A.; Hird, B. Cross sections for electron capture by Ne ²⁺ in He, Ne, Ar, Kr and Xe between 60 and 200 keV. J. Phys. E 11, 1463 (1978) Canada
269	A06 H ⁺ + He ⁺ A07 H ⁺ + He ⁺	E	60-180 keV	Angel, G. C.; Sewell, E. C.; Dunn, K. F.; Gilbody, H. B. Charge transfer and ionisation in fast H ⁺ -He ⁺ collisions: further measurements using a coincidence technique. J. Phys. E 11, 1257 (1978) United Kingdom

REF. NO.	REACTANTS	EXP CR THEOR	ENERGY RANGE	REFERENCE
270	E05 e + Ar ⁺	E	15-1000 eV	Woodruff, F. F.; Hublet, M. C.; Harrison, M. F. A. measurement of the cross section for electron impact ionisation of Ar ⁺ . J. Phys. B 11, L365 (1978) United Kingdom
271	E03 e + D _p E04 e + D _p	E	200 eV	Bose, N. Direct coincident detection of two D(2p) dissociation products from a doubly excited state of D _p . J. Phys. B 11, L305 (1978) West Germany
272	A09 H ⁺ + H ⁻	T	5-2000 keV	Moore, J. C.; Banyard, K. E. Continuous-distorted-wave calculations for electron capture from hydrogen negative ions by fast protons. J. Phys. B 11, L613 (1978) United Kingdom
273	E02 e + H _p E03 e + H _p	T	0.6-10.0 eV	Kionover, A.; Keldor, U. Ab initio electron-molecule scattering theory including polarisation: elastic scattering and rotational excitation of H _p . J. Phys. B 11, 1623 (1978) Israel
274	A14 H + O _p	E	300 K	Washida, N.; Akizoto, H.; Okuda, M. Formation of singlet state molecular oxygen in the reaction of H + O _p . J. Phys. Chem. 82, 18 (1978) Japan
275	A17 H + Na; H + K H02 hν + NO ₂ ; hν + NO ₃ ; hν + HNO ₃ ; hν + N _p D _n A14 Review	T	H02 1-15 eV A14 158-1000 K A17 Undef	Numerich, R. W.; Truhlar, D. G. Detailed study of the interaction of covalent and ionic states in collisions of Na and K with H. J. Phys. Chem. 82, 166 (1978) United States
276	A06 Mg + H ₂ O ⁺ ; Mg + NH ₃ ⁺ ; Mg + H ₃ ⁺ A13 Mg + H ₂ O ⁺ ; Mg + H ₃ S ⁺	E	1-20 eV	Radus, T. F.; Porter, R. F. An energy dependent kinetic study of the reactions of Mg(g) atoms with a series of protonated ions. J. Phys. Chem. 82, 513 (1978) United States
277	A13 Zn + H ₃ ⁺ ; Zn + D ₃ ⁺ ; Zn + CH ₃ D ⁺ A06 Zn + H ₃ ⁺ ; Zn + D ₃ ⁺	E	0.04-20 eV	Po, P. L.; Radus, T. P.; Porter, R. F. An energy dependent kinetic study of the reactions of Zn(g) atoms with H ₃ ⁺ (D ₃ ⁺) and CH ₃ D ⁺ . J. Phys. Chem. 82, 520 (1978) United States
278	A14 Undef	T	Undef	Thakur, A. K.; Rescigno, A.; Lelisi, C. Stochastic theory of second-order chemical reactions. J. Phys. Chem. 82, 552 (1978) United States
279	A14 Cl + H ₂ ; Cl + D _p	E	0.16-10.0 eV	Stevens, D. J.; Spicer, L. I. Characterization of hot chlorine atom reactions with hydrogen. J. Phys. Chem. 82, 627 (1978) United States
280	A14 Review E04 Review E05 Review	E	A14 785-825 °C E04; E05 10-60 eV	Grimley, R. T.; Forsman, J. A.; Grindstaff, Q. G. A mass spectrometric study of the fragmentation of the lithium fluoride vapor system. J. Phys. Chem. 82, 632 (1978) United States
281	A13 Review	E	300 K	Hasegawa, K.; Neta, P. Rate constants and mechanisms of reaction of Cl ₂ ⁻ radicals. J. Phys. Chem. 82, 854 (1978) United States
282	A11 Review	E	230 °C	Breckenridge, W. H.; Reilund, A. M. Quenching of excited cadmium (¹³¹ F) atoms by several molecules. Cross sections and chemical and physical exit channels. J. Phys. Chem. 82, 1474 (1978) United States
283	A11 Cd* + H ₂ ; Cd* + HD; Cd* + D _p A14 Cd* + H ₂ ; Cd* + HD; Cd* + D _p	E	190-280 °C	Breckenridge, W. H.; Reilund, A. M. Reaction of excited cadmium (¹³¹ F[1]) and cadmium (¹³¹ F) atoms with H ₂ , HD, and D _p . Quenching cross sections and CdH(CdD) fields. J. Phys. Chem. 82, 1484 (1978) United States
284	E02 Undef	T	Undef	Bonham, R. A.; Krcaka, S. The second Born approximation for electron scattering. I. The high energy limit for small angle elastic scattering from atoms. J. Chem. Phys. 65, 525 (1976) West Germany

REF. NO.	REACTANTS	EXP CR THEOR	ENERGY RANGE	REFERENCE
285	A02 He + HCl; He + CC	T	50-400 1/cm	Goldflaw, R.; Greer, S.; Kcun, E. J.; Monchick, L. Effect of molecular anisotropy on beam scattering measurements. J. Chem. Phys. 65, 55E (1978) United States
286	A11 I* + I ₂ ; I* + Br ₂ ; I* + Cl ₂ ; I* + IBr; I* + ICl; I* + BrCl A14 I* + I ₂ ; I* + Br ₂ ; I* + Cl ₂ ; I* + IBr; I* + ICl; I* + BrCl	E	300 K	Hofmann, H.; Lecne, S. F. Quenching and reactions of laser-excited I(² P _{1/2}) atoms with halogen and interhalogen molecules. J. Chem. Phys. 65, 641 (1978) United States
287	H04 hν + CO	E	124 nm	Vikis, A. C. Monochromatic excitation of the A ¹ Σ ⁺ (13,0) band of ¹³ C ¹⁸ O and ¹² C ¹⁸ O. J. Chem. Phys. 65, 657 (1978) Canada
288	A11 CO* + CO; CO* + CO ₂ ; CO* + O ₂ ; CO* + N ₂ ; CO* + H ₂ ; CO* + D ₂ ; CO* + He; CO* + Ar; CO* + Xe	E	300 K	Vikis, A. C. Energy transfer in monochromatically excited ¹³ C ¹⁸ O and ¹² C ¹⁸ O(A ¹ Σ ⁺ v=13) molecules. J. Chem. Phys. 69, 703 (1978) Canada
289	F01 O ₂ ⁺ H05 hν + O ₂ ⁺	E	5270-5750 Å ⁰	Tadjeddine, M.; Abouaf, R.; Cosby, P. C.; Huber, B. A.; Moseley, J. T. Predissociation photofragment spectroscopy of O ₂ ⁺ quartet states. J. Chem. Phys. 69, 710 (1978) United States
290	A14 T + HT	T	0-2 eV	Wright, J. S. Reactivity bands in atom-molecule collisions. IV. Coplanar and 3D studies of T + HT. J. Chem. Phys. 69, 720 (1978) Canada
291	F01 H _v	T		Vance, R. L.; Galleup, G. A. Representation of ab initio energy surfaces by analytic functions. J. Chem. Phys. 69, 736 (1978) United States
292	A14 Cl + HO ₂ ; Cl + HNO ₂ ; Cl + H ₂ O ₂	E	258-633 K	Poulet, G.; LeBres, G.; Combarieu, J. Kinetic study of the reactions of Cl atoms with HNO ₂ , H ₂ O ₂ , and HO ₂ . J. Chem. Phys. 65, 767 (1978) France
293	A03 S* + He; S* + Ar; S* + N ₂ ; S* + Kr; S* + Xe; S* + H ₂	E	300 K	Black, G.; Sharpless, F. L.; Slenger, I. G. Spectra of the collision-induced emission from S(¹ S). J. Chem. Phys. 65, 754 (1978) United States
294	A14 Cl + H ₂ S	E	296 K	Breithwaite, M.; Leone, S. R. Laser-initiated chemical reactions: Cl + H ₂ S → HCl + HS; Rate constant, product energy distribution, and direct detection of a chain mechanism. J. Chem. Phys. 69, 835 (1978) United States
295	A03 H _v + Ar	T	1620-4500 K	Biels, N. C.; Truhlar, D. G. Ab initio calculation of the vibrational energy transfer rate of H _v in Ar using Monte Carlo classical trajectories and the forced quantum oscillator model. J. Chem. Phys. 69, 846 (1978) United States
296	A14 HF + D	E	10-70 kcal/mole	Bartoszek, F. E.; Menos, D. M.; Folan, J. C. Effect of changing reagent energy on vibrational threshold energies for alternative reaction paths HF(v) + D → F + HD and → H + DF. J. Chem. Phys. 65, 533 (1978) Canada
297	A17 HF + HF	T	Undef	Klein, P. L.; McDonald, I. R.; C'Shea, S. F. An intermolecular force model for (HF) ₂ . J. Chem. Phys. 69, 63 (1978) Canada
298	A17 Cl + HBr; F + H ₂ ; H ⁺ + H ₂	T	Undef	Wright, J. S.; Gray, S. K. Rotated Morse curve-spline potential function for A + BC reaction dynamics: Application to (Cl, HBr), (F, H ₂), and (H ⁺ , H ₂). J. Chem. Phys. 69, 67 (1978) Canada
299	A14 Xe + 2Xe	E	300 K	Millet, P.; Birat, A.; Brunet, H.; Galy, J.; Pons-Germain, B.; Leyssier, J. L. Time resolved study of the uv and near uv continuum of xenon. J. Chem. Phys. 69, 92 (1978) France

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300.	A17 H ⁺ + He F01 HeH ⁺	T	Undef	Green, T. A.; Michels, H. H.; Broene, J. C. Configuration interaction studies of the HeH ⁺ molecular ion. IV. The triplet sigma, pi, and delta states. J. Chem. Phys. 69, 101 (1978) United States
301	H06 hv + Ar ₂ ; hv + Kr ₂ A17 Ar + Ar ⁺ ; Kr + Kr ⁺	E	584 Å ⁰	Dehmer, P. M.; Dehmer, J. L. Photoelectron spectra of Ar ₂ and Kr ₂ and dissociation energies of the rare gas dimers ions. J. Chem. Phys. 69, 125 (1978) United States
302	A17 Ne + F; Ar + F; Kr + F; Xe + F	T	Undef	Dunning, T. H., Jr.; Hay, F. J. The covalent and ionic states of the rare gas monofluorides. J. Chem. Phys. 69, 134 (1978) United States
303	A14 Undef	T	Undef	Case, D. A.; Herschbach, D. R. Information theory analysis of angular momentum disposal in chemical reactions. J. Chem. Phys. 69, 150 (1978) United States
304	A17 C + O F01 CO	T	Undef	Kirby, K.; Liu, E. Theoretical study of molecular dipole moment functions. II. The d ³ Δ and a ³ Σ ⁺ states of CO. J. Chem. Phys. 69, 200 (1978) United States
305	A14 Cl + CH ₄	E	220-423 K	Keyser, L. F. Absolute rate and temperature dependence of the reaction between chlorine (² F) atoms and methane. J. Chem. Phys. 69, 214 (1978) United States
306	A02 Ar + CH ₄ A03 Ar + CH ₄	T	300 K	Heil, T. G.; Secret, D. A comparison of close coupling and coupled states for low energy spherical top-atom collisions: Ar-CH ₄ . J. Chem. Phys. 69, 219 (1978) United States
307	A05 La + O ₂ ; Y + O ₂ ; Sc + O ₂	E	Undef	Manos, E. M.; Parsen, J. M. Chemiluminescent reactions of group IIIb atoms with O ₂ : Spectral simulations and extended energy dependence. J. Chem. Phys. 69, 231 (1978) United States
308	A14 I + H ₂	T	300-4000 K	Gray, J. C.; Truhlar, D. G.; Clemens, I.; Duff, J. W.; Chapman, F. M., Jr.; McReel, G. C.; Hayes, E. F. Quasiclassical trajectory calculations compared to quantum mechanical reaction probabilities, rate constants, and activation energies for two different potential surfaces for the collinear reaction H ₂ + I → H + HI, including dependence on initial vibrational state. J. Chem. Phys. 69, 240 (1978) United States

REF. NO.	REACTANTS	EXP OR THEOR	ENERGY RANGE	REFERENCE
309	A06 $N^+ + NH_3; N^+ + H_2S; N^+ + H_2CO; N^+ +$ $COS; N^+ + O_2; N^+ + H_2O; N^+ + CH_4;$ $N^+ + CO_2; N^+ + CC; N^+ + H_2; N^+ +$ $N_2; N_2^+ + NH_3; N_2^+ + H_2S; N_2^+ + H_2CO;$ $N_2^+ + COS; N_2^+ + O_2; N_2^+ + H_2O; N_2^+ +$ $CH_4; N_2^+ + CO_2; N_2^+ + CO; N_2^+ +$ $H_2; N_2^+ + N_2; N_2^+ + NH_3; N_2^+ + H_2S;$ $N_2^+ + H_2CO; N_2^+ + COS; N_2^+ + O_2;$ $N_2^+ + H_2O; N_2^+ + CH_4; N_2^+ + CO_2;$ $N_2^+ + CO; N_2^+ + F_2; N_2^+ + N_2; N_2^+ +$ $NH_3; N_2^+ + H_2S; N_2^+ + H_2CO; N_2^+ +$ $COS; N_2^+ + O_2; N_2^+ + H_2O; N_2^+ +$ $CH_4; N_2^+ + CO_2; N_2^+ + CO; N_2^+ + H_2;$ $N_2^+ + N_2; O^+ + NH_3; O^+ + H_2S; O^+ +$ $H_2CO; O^+ + COS; C^+ + O_2; O^+ + H_2O;$ $O^+ + CH_4; O^+ + CO_2; O^+ + CO; O^+ +$ $H_2; O^+ + N_2; O_2^+ + NH_3; O_2^+ + H_2S;$ $O_2^+ + H_2CO; O_2^+ + COS; O_2^+ + O_2;$ $O_2^+ + H_2O; O_2^+ + CH_4; O_2^+ + CO_2;$ $O_2^+ + CO; O_2^+ + H_2; O_2^+ + N_2; NO^+ +$ $NH_3; NO^+ + H_2S; NO^+ + H_2CO; NO^+ +$ $COS; NO^+ + O_2; NO^+ + H_2O; NO^+ +$ $CH_4; NO^+ + CO_2; NO^+ + CO; NO^+ + H_2;$ $NO^+ + N_2$ A13 $N^+ + NH_3; N^+ + H_2S; N^+ + H_2CO; N^+ +$ $COS; N^+ + O_2; N^+ + H_2O; N^+ + CH_4;$ $N^+ + CO_2; N^+ + CO; N^+ + H_2; N^+ +$ $N_2; N_2^+ + NH_3; N_2^+ + H_2S; N_2^+ +$ $H_2CO; N_2^+ + COS; N_2^+ + O_2; N_2^+ +$ $H_2O; N_2^+ + CH_4; N_2^+ + CO_2; N_2^+ +$ $CO; N_2^+ + H_2; N_2^+ + N_2; N_2^+ + NH_3;$ $N_2^+ + H_2S; N_2^+ + H_2CO; N_2^+ + COS;$ $N_2^+ + O_2; N_2^+ + H_2O; N_2^+ + CH_4; N_2^+ +$ $CO_2; N_2^+ + CO; N_2^+ + H_2; N_2^+ +$ $N_2; N_2^+ + NH_3; N_2^+ + H_2S; N_2^+ +$ $H_2CO; N_2^+ + COS; N_2^+ + O_2; N_2^+ +$ $H_2O; N_2^+ + CH_4; N_2^+ + CO_2; N_2^+ +$ $CO; N_2^+ + H_2; N_2^+ + N_2; O^+ + NH_3;$ $O^+ + H_2S; O^+ + H_2CO; O^+ + COS; O^+ +$ $H_2O; O^+ + CH_4; O^+ + CO_2;$ $O^+ + CO; C^+ + H_2; O^+ + N_2; O_2^+ +$ $NH_3; O_2^+ + H_2S; O_2^+ + H_2CO; O_2^+ +$ $COS; O_2^+ + O_2; O_2^+ + H_2O; O_2^+ +$ $CH_4; O_2^+ + CO_2; O_2^+ + CO; O_2^+ + H_2;$ $O_2^+ + N_2; NO^+ + NH_3; NO^+ + H_2S; NO^+ +$ $H_2CO; NO^+ + COS; NO^+ + O_2; NO^+ +$ $H_2O; NO^+ + CH_4; NO^+ + CO_2; NO^+ +$ $CO; NO^+ + H_2; NO^+ + N_2$	E	300 K	Smith, E.; Adams, N. G.; Miller, T. M. A laboratory study of the reactions of $N^+, N_2^+, N_3^+, N_4^+, E^+, C_2^+$, and NC^+ ions with several molecules at 300 K. J. Chem. Phys. 65, 206 (1978) United Kingdom
310	A06 $O^+ + U; O^+ + Th; N^+ + U; N^+ + Th;$ $N_2^+ + U; N_2^+ + Th; CO_2^+ + U; CO_2^+ +$ Th	E	1-500 eV	Rutherford, J. A.; Vroom, D. A. Production of uranium and thorium ions by charge transfer from U^+, N^+, N_2^+ , and CC_2^+ . J. Chem. Phys. 65, 332 (1978) United States
311	A04 $NO^+ + N_2$ A11 $NO^+ + NO; NO^+ + He; NO^+ + H_2; NO^+ +$ $CO; NO^+ + CF_4; NO^+ + N_2; NO^+ + CO_2$	E	300 K	Hikida, T.; Mori, Y. Induced dissociation of $NO(E^2\Sigma, v^m=9)$ by N_2 . J. Chem. Phys. 65, 346 (1978) Japan
312	A14 $H + O_2$	E	219-360 K	Lee, J. H.; Michael, J. V.; Payne, W. A.; Stief, L. J. Absolute rate of the reaction of hydrogen atoms with o_2 from 219-360 K. J. Chem. Phys. 62, 360 (1970) United States
313	A17 $K^+ + Na; Rb^+ + Na; Cs^+ + Na; Na^+ +$ $Na; Rb^+ + K; Cs^+ + K; Cs^+ + Rb; K^+ +$ $K; Rb^+ + Rb; Cs^+ + Cs$	T	Undef	Valance, A. Adiabatic potential energies for $NaK^+, NaRb^+, NaCs^+, KRb^+, KCs^+, RbCs^+, Na_2^+, K_2^+, Rb_2^+$, and Cs_2^+ molecular ions. J. Chem. Phys. 65, 355 (1978) France
314	G02 $He + Xe; Ne + Xe; Ar + Xe; Kr + Xe$	E	25-505 °C	Kestin, J.; Khalifa, H. E.; Wakeham, W. A. The viscosity and diffusion coefficients of the binary mixtures of xenon with the other noble gases. Physica A 90, 215 (1978) United States
315	G02 $Kr + Kr$	E	293 K	Codastefano, P.; Ricci, M. A.; Zanzu, V. Behavior of the self-diffusion coefficient of Kr at low densities. Physica A 52, 315 (1978) Italy

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316	G07 Undef	T	Undef	Kan, Y.-H. An estimate of the first logarithmic term in the density expansions of transport coefficients of moderately dense gases. <i>Physica A</i> 53, 151 (1978) United States
317	A07 Kr + Bi; Xe + Bi A18 Kr + Bi; Xe + Bi A20 Kr + Bi; Xe + Bi	E T	712-1130 MeV	De, J. M.; Sperber, D. The role of deformation and transfer in the analysis of strongly damped collisions. <i>Phys. Lett.</i> 72B, 253 (1978) United States
318	A19 Pb + Pb	T	900-1000 MeV	Kirsch, J.; Betz, W.; Reinhardt, J.; Schiff, G.; Muller, B.; Greiner, W. K-X-ray spectrum of the Pb + Pb quasimolecules. <i>Phys. Lett.</i> 72B, 256 (1978) West Germany
319	A02 H ⁺ + He	E T	561-1730 MeV	Mercer, F. L.; Arnold, L. G.; Clark, E. C. Phenomenological optical model for p- ⁴ He elastic scattering. <i>Phys. Lett.</i> 72B, 9 (1978) United States
320	A02 H ⁺ + Ca	T	14-55 MeV	Georgiev, E. Z.; MacKintosh, F. S. Evaluation of local equivalent methods for treating exchange in elastic proton scattering. <i>Phys. Lett.</i> 73E, 250 (1978) United Kingdom
321	A02 H ⁺ + D ⁺	E	10 MeV	Gruebler, W.; Konig, V.; Schmelzbach, F. A.; Jenny, B.; Burgi, H. R.; Doleschall, F.; Heidenreich, G.; Moser, H.; Sailer, F.; Reichart, B. Proton-deuteron elastic scattering. <i>Phys. Lett.</i> 74E, 173 (1978) Switzerland
322	A02 He ²⁺ + Ca	E	26-47 MeV	Gubler, H. P.; Kietele, U.; Meyer, H. C.; Flattner, G. R.; Sick, I. Large-angle alpha scattering from ⁴⁰ Ca is not anomalous. <i>Phys. Lett.</i> 74E, 202 (1978) Switzerland
323	E05 e + He E17 e + He	E	200-4000 eV	Stefani, G.; Camillon, R.; Giardini Guidoni, A. Absolute (e, 2e) differential cross section measured in coplanar conditions: He. <i>Phys. Lett.</i> 64A, 364 (1978) Italy
324	E03 e + H E17 e + H	T	100-200 eV	Gien, I. T. Glauber exchange effect in the excitation of hydrogen by electron impact. <i>Phys. Lett.</i> 64A, 365 (1978) Canada
325	E03 e + Li; e + Na; e + K	T	2-136 eV	Roy, D. N. Electron excitation cross sections of Li, Na and K. <i>Phys. Lett.</i> 64A, 373 (1978) India
326	A07 Xe + Au; Xe + Pb; Xe + Bi; Xe + Th	E T	625 MeV	Anholt, R.; Meyerhof, W. E. Probability of forming 1s sigma vacancies in 625 MeV Xe + Au, Pt, Bi, and Th collisions at small impact parameters. <i>Phys. Lett.</i> 64A, 381 (1978) United States
327	A07 Undef	T	Undef	Kruglova, I. M.; Nikolaev, V. S.; Sergeev, V. A. About the effect of a bound state on ionization cross sections in ion-atom collisions. <i>Phys. Lett.</i> 64A, 384 (1978) Soviet Union
328	C02 Undef	T	Undef	Mukoyama, T.; Watanabe, Y. On the energy loss of fast electrons in thin absorbers. <i>Phys. Lett.</i> 64A, 442 (1978) Japan
329	B01 Undef	T	Undef	Valli, A.; Stenholm, S. Multi-photon processes in a strong field. <i>Phys. Lett.</i> 64A, 447 (1978) Finland
330	A07 Pb + Pb	T	1210 MeV	Soff, G.; Betz, W.; Muller, E.; Greiner, W.; Merzbacher, E. Inner shell ionization in the Pb-Pb quasimolecule. <i>Phys. Lett.</i> 65A, 15 (1978) West Germany
331	B07 Undef	T	Undef	Fogliis, C. Electron-atom collisions in an electric field in the eikonal approximation. <i>Phys. Lett.</i> 65A, 99 (1978) Italy

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332	F01 Mo	E	Undef	Dubke, M.; Jitschin, W.; Meisel, G.; Childs, W. J. Laser-RF double-resonance measurement of the quadrupole moments of ⁹⁵ Mo and ⁹⁷ Mo. Phys. Lett. 65A, 169 (1978) West Germany
333	E03 e + H E17 e + H	T	100 eV	Gien, T. T. Excitation of atomic hydrogen by electron impact in the modified Glauber method with exchange. Phys. Lett. 65A, 201 (1978) Canada
334	F02 He ⁺	T	Undef	Deris, F.; Lesesquelles, J. Widths of hydrogenic levels in low electric fields. Phys. Lett. 65A, 204 (1978) France
335	F01 He	E	Undef	Khayrallah, G. A. Determination of the 4 ¹ F and 5 ¹ F lifetimes of HeI. Phys. Lett. 65A, 207 (1978) United States
336	H06 hv + Xe	T	54 Ry	Amusia, M. Y.; Ivanov, V. K. On the existence of a collective level in the Xe-atom. Phys. Lett. 65A, 217 (1978) Soviet Union
337	A06 H ⁺ + He ⁺	T	40-100 keV	Mukherjee, S.; Bhadra, K.; Gil, N. C.; Easu, D. Capture in proton-He ⁺ collisions. Phys. Lett. 65A, 285 (1978) India
338	F01 Mo ¹²⁺ ; Mo ³⁰⁺	T	Undef	Beck, D. R.; Nicolais, C. A. Transition probabilities for the VUV resonance lines of Mg- and Zn-like molybdenum ions. Phys. Lett. 65A, 253 (1978) Greece
339	E05 e + PERT	E	15-65 MeV	Hoffmann, D. H. H.; Genz, H.; Lcw, W.; Richter, A. Z and E dependence and scaling behavior of the K-shell ionization cross section for relativistic impact. Phys. Lett. 65A, 304 (1978) West Germany
340	D09 H + Cu; He + Cu; Cu + Cu	T	Undef	Grzdancov, T. P.; Janev, R. K. Survival probabilities of excited atoms emerging from a metal surface. Phys. Lett. 65A, 396 (1978) Yugoslavia
341	B07 e + H	T	100-500 eV	Mohan, M.; Chand, P. Electron-impact ionization of the hydrogen atom in the presence of an intense laser beam. Phys. Lett. 65A, 399 (1978) India
342	F01 W ¹⁹⁺ ; W ²⁰⁺ ; W ²¹⁺ ; W ²²⁺ ; W ²³⁺ ; W ²⁴⁺ ; W ²⁵⁺ ; W ²⁶⁺ ; W ²⁷⁺ ; W ²⁸⁺ ; W ²⁹⁺ ; W ³⁰⁺ ; W ³¹⁺ ; W ³²⁺ ; W ³³⁺ ; W ³⁴⁺	E	Undef	Hinnov, E.; Hettlich, M. Observations of multiply ionized tungsten radiation in the FLI discharges. Phys. Lett. 66A, 109 (1978) United States
343	F01 Ne Seq	T	Undef	Safronova, U. I.; Senashenko, V. S. One-electron and two-electron one-photon transitions in atomic systems with two K-shell vacancies. Phys. Lett. 66A, 188 (1978) Soviet Union
344	A06 Ar ⁶⁺ + Ar; Ar ⁷⁺ + Ar; Ar ⁸⁺ + He; Ar ³⁺ + Ne; Ar ³⁺ + Xe; Ar ⁴⁺ + He; Ar ⁴⁺ + Ne; Ar ⁴⁺ + Xe; Ar ⁵⁺ + He; Ar ⁵⁺ + Ne; Ar ⁵⁺ + Xe; Ar ⁶⁺ + He; Ar ⁶⁺ + Ne; Ar ⁶⁺ + Xe; Ar ⁷⁺ + He; Ar ⁷⁺ + Ne; Ar ⁷⁺ + Xe; Ar ⁸⁺ + He; Ar ⁸⁺ + Ne; Ar ⁸⁺ + Xe; Ar ⁹⁺ + He; Ar ⁹⁺ + Ne; Ar ⁹⁺ + Xe; Xe ³⁺ + Kr; Xe ⁴⁺ + Kr; Xe ⁵⁺ + Kr; Xe ⁶⁺ + Kr; Xe ⁷⁺ + Kr; Xe ⁸⁺ + Kr; Xe ⁹⁺ + Kr	T	2-160 keV	Grzdancov, T. P.; Janev, R. K. One-electron capture in slow collisions of highly charged ions with atoms. Phys. Lett. 66A, 191 (1978) Yugoslavia
345	A06 H ⁺ + Mg	E	1-80 keV	Morgan, T. J.; Eriksen, F. Double electron capture in H ⁺ + Mg collisions. Phys. Lett. 66A, 198 (1978) United States
346	F01 He	T	Undef	Callaway, J. Two electron excited states of helium. Phys. Lett. 66A, 201 (1978) United States
347	B01 H ₂ F02 H ₂	T	Undef	Lozovik, Y. E.; Klyuchnik, P. V. Change of binding type and dissociation of molecules and biexcitons in a strong magnetic field. Phys. Lett. 66A, 282 (1978) Soviet Union

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348	A07 H ⁺ + Xe	T	0.1-10 MeV	Kosarov, F. F.; Novikov, A. P. Ionization cross section of M-subshell electrons in the binary-encounter approximation. Phys. Lett. 66A, 287 (1978) Soviet Union
349	H06 hv + Cl	T	13-50 eV	Brown, E. R.; Carter, S. L.; Kelly, H. F. Photoionization cross section of chlorine I. Phys. Lett. 66A, 250 (1978) United States
350	A07 H ⁺ + C; He ²⁺ + C	E	100 keV/amu	Jank, W.; Bell, F.; Water, K.-H. The impact parameter dependence of carbon K-shell ionization by proton and helium impact. Phys. Lett. 66A, 253 (1978) West Germany
351	E05 e + C ⁺ ; e + N ⁺ ; e + N ²⁺ ; e + O ⁺ ; e + O ²⁺	T	50-5000 eV	Kumar, A.; Roy, B. N. Electron impact ionization of positive ions. Phys. Lett. 66A, 362 (1978) India
352	F02 H	T	Undef	Virtanen, J. I.; Simola, J. I. A. The spreading of the proton of a hydrogen atom in strong magnetic fields. Phys. Lett. 66A, 271 (1978) Finland
353	A07 H ⁺ + Ag; H ⁺ + Au	T	1-2 MeV	Pauli, P.; Foesel, F.; Trautmann, L. Screening effects in the Coulomb ionization of inner shell electrons. Phys. Lett. 67A, 28 (1978) Switzerland
354	E02 e + He	T	200 eV	Singh, S. N.; Tripathi, A. N. Application of the modified Glauber approximation to the study of elastic scattering of electrons by helium atoms. Phys. Lett. 67A, 31 (1978) India
355	A07 H ⁺ + Cu; D ⁺ + Cu; He ⁺ + Cu A18 H ⁺ + Cu; D ⁺ + Cu; He ⁺ + Cu	E T	0.5-2.0 MeV	Chemin, J. F.; Andriessen, S.; Rcturier, J.; Sebaya, B.; Gayet, R.; Salin, A. Projectile charge and mass dependence of large angle K-shell ionization probabilities on copper. Phys. Lett. 67A, 116 (1978) France
356	F01 Li Seq	T	Undef	Tunnell, T. W.; Eshola, C. F. Theoretical lifetimes and line fluorescence yields of 1s2p ² F levels. Phys. Lett. 67A, 119 (1978) United States
357	A05 Cl ¹⁸⁺ + Cu D12 Cl ¹⁸⁺ + Cu	E	20-80 MeV	Tanis, J. A.; Shafrath, S. M. Projectile fluorescence yields in heavy ion collisions. Phys. Lett. 67A, 124 (1978) United States
358	D02 Ar ⁺ + Cu	T	0.1-10 keV	Falcone, G.; Piperno, F. On the use of the Ericksan cross section for sputtering yields of argon ions on a polycrystalline copper target. Phys. Lett. 67A, 138 (1978) Italy
359	D04 H ⁺ + Al; H ⁺ + Cu; H ⁺ + Ag; D ⁺ + Al; D ⁺ + Cu; D ⁺ + Ag; H _p ⁺ + Al; H _p ⁺ + Cu; H _p ⁺ + Ag; D _p ⁺ + Al; D _p ⁺ + Cu; D _p ⁺ + Ag	E	2-50 keV	Baragiale, R. A.; Alcnsc, E. V.; Auciello, G.; Ferron, J.; Lentschner, G.; Oliva Floric, A. Molecular effects in ion-electron emission from clean metal surfaces. Phys. Lett. 67A, 211 (1978) Argentina
360	C01 S ⁺ + PERT; S ²⁺ + PERT; S ³⁺ + PERT; S ⁴⁺ + PERT; S ⁵⁺ + PERT; S ⁶⁺ + PERT; S ⁷⁺ + PERT; S ⁸⁺ + PERT; S ⁹⁺ + PERT; S ¹⁰⁺ + PERT; S ¹¹⁺ + PERT; S ¹²⁺ + PERT; S ¹³⁺ + PERT; S ¹⁴⁺ + PERT; S ¹⁵⁺ + PERT; S ¹⁶⁺ + PERT	E T	64 MeV	Watson, R. L.; White, J. R.; Jenson, F. E. Yield ratios for K a satellite and hyperatellite X-ray emission from 64 MeV sulfur ions penetrating thick solid targets. Phys. Lett. 67A, 265 (1978) United States
361	A07 H ⁺ + Au	T	0.4-1.0 MeV	Aashamar, O.; Amundsen, P. A.; Kockach, L. Proton-induced L-shell ionization at large scattering angles. Phys. Lett. 67A, 345 (1978) Norway
362	A07 H ⁺ + Na; H ⁺ + Mg; H ⁺ + Al; H ⁺ + Si; H ⁺ + Ti	E	15-65 keV	Shima, K. Na, Mg, Al, Si and Ti K-shell ionization cross sections for 15-65 keV protons. Phys. Lett. 67A, 351 (1978) Japan

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363	A03 Ne ⁺ + Ne	E	292 K	Coolen, F. C. M.; van Schaik, A.; Smits, R. M. M.; Prins, M.; Steenhuyzen, L. W. G. Transfer of excitation between 2p levels of neon induced by collisions with neutral neon atoms. <i>Physica E+C</i> 93, 131 (1978) The Netherlands
364	A17 Na ⁺ + Ne; K ⁺ + Ne; Li ⁺ + Ne G07 Na ⁺ + Ne; K ⁺ + Ne; Li ⁺ + Ne	T	200-900 K	Gianturco, F. A.; Lamanna, U. T. Atomic neon interactions with alkali ions: EGM potentials and collision integrals. <i>Physica E+C</i> 53, 279 (1978) Italy
365	A07 H ⁺ + He; H ⁺ + Ne; H ⁺ + Ar; H ⁺ + Kr	T	100-1200 keV	Tiwary, S. K.; Chatterjee, F. A. Outer S-shell ionization of noble gas atoms by proton impact. <i>Physica B+C</i> 53, 265 (1978) India
366	E06 e + F ⁺ ; e + N ²⁺ ; e + O ²⁺ ; e + F ²⁺ ; e + Ne ²⁺ ; e + Na ²⁺ ; e + N ³⁺ ; e + O ³⁺ ; e + Ne ³⁺ ; e + Na ³⁺	T	200-4000 K	Chandra, S.; Gupta, V.; Narain, U. Rate of radiative recombination of some atoms and ions of the upper atmosphere. <i>Physica B+C</i> 52, 418 (1978) India
367	D05 hν + Ni	E	16.8-21.2 eV	Petersson, L.-G.; Eriandsson, R. The ferromagnetic to paramagnetic transition in nickel studied by angular-resolved photoemission from single crystals. <i>Phys. Rev. E</i> 17, 3006 (1978) Sweden
368	E02 e + H ₂ ; e + N ₂ ; e + CO E03 e + H ₂ ; e + N ₂ ; e + CO E17 e + H ₂ ; e + N ₂ ; e + CO	T	0.5-10 eV	Davenport, J. W.; Ho, W.; Schrieffer, J. R. Theory of vibrationally inelastic electron scattering from oriented molecules. <i>Phys. Rev. E</i> 17, 3118 (1978) United States
369	D05 hν + O + Ni; hν + S + Ni	T	21.2 eV	Li, C. H.; Lubinsky, A. H.; Tong, S. Y. Multiple-scattering approach to angle-resolved photoemission. <i>Phys. Rev. E</i> 17, 2128 (1978) United States
370	C02 PERT ⁺ + PERT	T	0-90 MeV	Yarlagadda, B. S.; Robinson, J. E.; Brandt, W. Effective-charge theory and the electronic stopping power of solids. <i>Phys. Rev. E</i> 17, 3473 (1978) United States
371	C02 H ⁺ + Si C08 H ⁺ + Si	E T	30-1000 keV	Carnera, A.; Della Mea, G.; Drigo, A. V.; Lo Russo, S.; Mazzoldi, F.; Bantini, G. G. Charged and random proton stopping power in the 30-1000 keV energy range. <i>Phys. Rev. E</i> 17, 3492 (1978) Italy
372	C08 H ⁺ + LiF; H ⁺ + NaF; H ⁺ + NaCl; H ⁺ + KCl; He ⁺ + LiF; He ⁺ + NaF; He ⁺ +NaCl; He ⁺ + KCl	E	0.7-1.3 MeV	Price, F. B.; Kelly, J. C. Channeling of protons and ⁴ He ⁺ in alkali halides in radiation-damaged conditions. <i>Phys. Rev. E</i> 17, 4237 (1978) AustP8118
373	D05 hν + Pb; hν + PbCl ₂ ; hν + PbS; hν + PbSe H06 hν + Pb	E	32-40 eV	Bancroft, G. M.; Gudat, W.; Eastman, D. E. Photoionization-cross-section studies of atomic and final-state effects on the Pb 5d core levels using synchrotron radiation. <i>Phys. Rev. B</i> 17, 4499 (1978) Canada
374	D05 hν + Co + Ni H06 hν + Co; hν + C ₆ H ₆	T	10-1000 eV	Grubman, W. D. Angle-resolved photoemission from molecules in the independent-atomic-center approximation. <i>Phys. Rev. E</i> 17, 4573 (1978) United States
375	D02 Ar ⁺ + [Cu + Ni]	E	500 eV	Seeki, A.; Shimizu, R. Auger study of preferential sputtering for Cu-Ni alloy sample. <i>Jap. J. Appl. Phys.</i> 17, 59 (1978) Japan
376	D07 H ⁺ + Mo; H ⁺ + Cu; H ⁺ + Al; H ⁺ + SS; H ₂ ⁺ + Mo; H ₂ ⁺ + Cu; H ₂ ⁺ + Al; H ₂ ⁺ + SS; H ₃ ⁺ + Mo; H ₃ ⁺ + Cu; H ₃ ⁺ + Al; H _n ⁺ + SS	E	10-30 keV	Tanaka, S.; Murakami, Y.; Shitetsu, I. Measurement of energy reflection from metals bombarded by 10-30 keV hydrogen ion beam. <i>Jap. J. Appl. Phys.</i> 17, 183 (1978) Japan
377	D05 hν + GaAs	E	1.2 keV	Kudo, M.; Nihel, Y.; Kamada, H. Quantitative X-ray photoelectron spectroscopic (XPS) measurement on the surfaces of GaAs(111), (111) and (110) single crystals--determination of relative photo-Auger ionization cross sections and electron mean free paths by using the crystal regularity of compound semiconductors. <i>Jap. J. Appl. Phys.</i> 17, 757 (1978) Japan

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378	A13 He ⁺ + 2He	E	3000 K	Matsura, Y.; Fukuda, K. Formation of He ₂ molecules in the early afterglow of He pulsed discharge. Jap. J. Appl. Phys. 17, S77 (1978) Japan
379	G08 e + N ₂	T	0-80 eV	Govinda Raju, G. R.; Gurumurthy, G. R. Electron energy distributions and transport coefficients in N ₂ in E x B fields. Int. J. Electron. 44, 355 (1978) India
380	D04 Ar ⁺ + [MgO + Ag]	E	300-1000 eV	Koshida, N.; Yoshida, S. High-efficiency secondary electron emission produced by ions incident on a porous MgO-Ag layer. Appl. Phys. Lett. 22, 708 (1978) Japan
381	D02 Ar ⁺ + PtSi D14 Ar ⁺ + PtSi	E	20-160 keV	Liau, Z. L.; Sheng, T. T. Argon bubble formation in the sputtering of PtSi. Appl. Phys. Lett. 32, 716 (1978) United States
382	A11 KrF ⁺ + Ar; KrF ⁺ + Kr; KrF ⁺ + F ₂	E	300 K	Eden, J. G.; Wynnant, R. W.; Searles, S. K.; Eurnhas, R. New quenching rates applicable to the KrF laser. Appl. Phys. Lett. 32, 733 (1978) United States
383	D05 hν + Au	E	1.058-1.062 μm	Lcspre, L. A.; Mainfray, G.; Manus, C.; Thebault, J.; Farkas, G.; Horvath, Z. A new effect in multiphoton photoeffect of a gold surface induced by picosecond laser pulses. Appl. Phys. Lett. 23, 124 (1978) France
384	A13 HgCl [*] + He; HgCl [*] + Ar; HgCl [*] + Xe; HgCl [*] + N ₂ ; HgCl [*] + Cl ₂ ; HgCl [*] + HCl; HgCl [*] + CCl ₄ H08 hν + HgCl ₂	E	A13 300 K H08 1810 Å	Mendl, A.; Farkas, J. H. Collisional quenching kinetics for the HgCl [*] (B 1/2) state. Appl. Phys. Lett. 33, 498 (1978) United States
385	E16 e + Ar A14 Ar ⁺ + Ar + Ar	E	E16 600 keV A13 300 K	Diegelmann, M.; Wrcbel, W. C.; hchle, K. Time-resolved spectroscopy of the Ar ⁺ -excimer emission. Appl. Phys. Lett. 33, 528 (1978) West Germany
386	D02 He ⁺ + C; H ⁺ + C D14 He ⁺ + C; H ⁺ + C	E	100 keV	Sone, K.; Abe, T.; Ebara, K.; Yamace, R.; Ohtsuka, H. Graphite surface erosion by 100 keV helium and hydrogen bombardment. J. Nucl. Mater. 71, 82 (1978) Japan
387	D15 Cu ⁺ + Cu; Ni ⁺ + Cu; He ⁺ + Cu	E	4-58 MeV	Narayan, J.; Cen, C. S.; Ncggie, T. S. Ion radiation damage in copper. J. Nucl. Mater. 71, 160 (1978) United States
388	D14 Ne ⁺ + C	E	350-850 keV	Kazumata, Y. Surface erosion of pyrolytic graphite and glassy carbons by ion bombardment. J. Nucl. Mater. 71, 178 (1978) Japan
389	D14 H ⁺ + Mo	E	0.5 MeV	Keefor, D. W.; Ford, A. G. Void formation in proton-irradiated molybdenum. J. Nucl. Mater. 71, 187 (1978) United States
390	D14 Ar ⁺ + Mo D02 Ar ⁺ + Mo; He ⁺ + Mo	E	300 keV	Kesada, K.; Haragoto, H.; Kazumata, Y. Room temperature aging effects of blistering and surface roughening after Ar ⁺ ion bombardment on Mo single crystals. J. Nucl. Mater. 71, 245 (1978) Japan
391	D02 e + SS D14 e + SS	E	1 MeV	Makin, M. J. Void shrinkage and disappearance in stainless steel during electron irradiation. J. Nucl. Mater. 71, 300 (1978) United Kingdom
392	D14 Ni ⁺ + Nb; Ni ⁺ + Ti + Nb	E	3.2 MeV	Locnis, B. A.; Gerber, S. E.; Busch, E. E. Reduction of void number density and size in ion-irradiated Ti-coated Nb. J. Nucl. Mater. 72, 58 (1978) United States
393	D14 n + Al ₂ O ₃	E	100 keV	Bunch, J. P.; Hoffmann, J. G.; Zeltmann, A. H. On the nature of features seen by TEM in fast neutron irradiation Al ₂ O ₃ . J. Nucl. Mater. 73, 65 (1978) United States

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394	C04 Ar ⁺ + Li ₂ O	E	300-450 keV	Nasu, S.; Shiozawa, K.; Tanifuji, T.; Iwada, K.; Uchida, K. Depth distribution of argon implanted into lithium oxide. J. Nucl. Mater. 73, 132 (1978) Japan
395	D15 e + Zr ₃ Al	E	1 MeV	Carpenter, G. J. C.; Schulson, E. P. The disordering of Zr ₃ Al by 1 MeV electron irradiation. J. Nucl. Mater. 73, 160 (1978) Canada
396	D14 He ⁺ + Nb; He ⁺ + [Nb + Zr]	E	50-220 keV	Tyler, S. K.; Goodhew, P. J. The growth of helium bubbles in niobium and Nb-1% Zr. J. Nucl. Mater. 74, 27 (1978) United Kingdom
397	D15 e + [Cu + Zn]	E	0.4-3 MeV	Poerschke, R.; Hollenberger, H. Defect production and interdiffusion in electron irradiated α-brass. J. Nucl. Mater. 74, 48 (1978) Wend Germany
398	D14 e + SS	E	1 MeV	Arkel, D. R.; Williams, T. M. Void-swelling in FV607 ferritic steel- I. Irradiation with 1 MeV electrons. J. Nucl. Mater. 74, 144 (1978) United Kingdom
399	D14 e + SS	T	1 MeV	Hayns, P. E.; Williams, T. P. Void-swelling in FV607 ferritic steel- II. A theoretic model. J. Nucl. Mater. 74, 151 (1978) United Kingdom
400	D14 He ⁺ + SS; Si ⁴⁺ + SS	E	1 MeV/amu	McGruer, J. N.; Chyke, W. J.; Tcurseuc, J. R.; Chang, J. H.; Yesso, J. D.; Spitznagel, J. A.; Doyle, N. J.; Venakytis, F. J. The effects of sequential and simultaneous helium implantation on void formation in a 304 stainless steel. J. Nucl. Mater. 74, 174 (1978) United States
401	D16 D ⁺ + SS; D ₂ ⁺ + SS	E T	1 keV	Wilson, K. L.; Esskes, M. I. Thermal desorption of deuterium-implanted stainless steel. J. Nucl. Mater. 74, 175 (1978) United States
402	D14 Ne ⁺ + Nb	E	850 keV	Naramoto, H.; Kasada, K. Elster formation in a niobium single crystal on Ne ⁺ ion bombardment. J. Nucl. Mater. 74, 186 (1978) Japan
403	D14 Undef	T	Undef	Mansur, L. K.; Yoc, M. H. The effects of impurity trapping on irradiation-induced swelling and creep. J. Nucl. Mater. 74, 228 (1978) United States
404	C05 He ⁺ + SS; O ⁺ + SS D15 He ⁺ + SS; O ⁺ + SS D16 He ⁺ + SS; O ⁺ + SS D14 He ⁺ + SS; O ⁺ + SS	E	0.8-2.0 MeV	Chyke, W. J.; Spitznagel, J. A.; McGruer, J. N.; Lally, J. E. Momentum transfer and damage energy gradient effects on helium distributions in type 304 stainless steel. J. Nucl. Mater. 74, 303 (1978) United States
405	D02 D ⁺ + SiC; Ar ⁺ + SiC	E	0.7-100 keV	Mohri, P.; Watanabe, K.; Yasashino, T. Sputtering process of a silicon carbide surface with energetic ions by means of an AEE-SiPE-FDS combined system. J. Nucl. Mater. 75, 7 (1978) Japan
406	D15 H ⁺ + Cu; D16 ⁺ + Cu; Ar ²⁺ + Cu; e + Cu	E	150-600 keV; 2.0 MeV	Birtcher, R. C.; Averback, R. S.; Elowitz, T. H. Saturation behavior of cascade damage production using fission fragment and ion irradiations. J. Nucl. Mater. 75, 167 (1978) United States
407	D14 Ne ⁺ + [Ni + Al]	E	400 keV	Chen, L. J.; Ardell, A. J. Void ordering in nitrogen irradiated nickel-aluminum solid solutions. J. Nucl. Mater. 75, 177 (1978) United States
408	D17 D ⁺ + C; H ⁺ + C D02 H ⁺ + [C + D]	E	5-30 keV	Braganze, C. M.; Erents, S. K.; McCracken, G. M. Interactions of 5-30 keV deuterons with a carbon surface. J. Nucl. Mater. 75, 220 (1978) United Kingdom

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409	D02 H ⁺ + SiC; D ⁺ + SiC; Ar ⁺ + SiC	E	5-15 keV	Mohri, K.; Watanabe, K.; Yamashina, T.; Doi, H.; Hayakawa, K. Measurement of erosion yields for a SiC surface on H ⁺ , D ⁺ and Ar ⁺ . J. Nucl. Mater. 75, 309 (1978) Japan
410	A14 OH + COS; OH + CS ₂	E	299-430 K	Atkinson, R.; Perry, R. A.; Fitts, J. N., Jr. Rate constants for the reaction of OH radicals with COS, CS ₂ , and CH ₃ SCH ₃ over the temperature range 295-430 K. Chem. Phys. Lett. 54, 14 (1978) United States
411	A14 CO + OH	E	32 °C	Butler, R.; Scimmon, I. J.; Snelsch, A. Pressure dependence of the CO + OH rate constant in O ₂ + N ₂ mixtures. Chem. Phys. Lett. 54, 15 (1978) United States
412	H08 hν + Kr; hν + Xe	E	1470-1236 Å	Matthias, E.; White, M. G.; Poliakoff, E. E.; Rosenberg, F. A.; Lee, S.-I.; Shirley, E. A. Time-resolved VUV spectroscopy using synchrotron radiation. Zeeman beats in resonance fluorescence of the ³ p ₁ states in krypton and xenon. Chem. Phys. Lett. 54, 30 (1978) United States
413	D09 HD + W	T	Undef	Wolken, G., Jr.; McCreery, J. H. Gas-solid energy transfer: effect of internal vibrational energy. Chem. Phys. Lett. 54, 35 (1978) United States
414	A17 He + He + He	T	Undef	Lloyd, J.; Fugh, D. Some observations on the electron gas model for three-body interatomic forces. Chem. Phys. Lett. 54, 65 (1978) United Kingdom
415	A14 U + D ₂ A07 U + D ₂	E	300 K	Vasu, P.; Lo, H. H.; Fite, W. L. Energy distribution of electrons from U + C ₂ associative ionization. Chem. Phys. Lett. 54, 85 (1978) United States
416	A11 I [*] + HBr	E	253-427 K	Fotakis, C.; Donovan, R. J. Temperature dependence for the removal of I(5 ² P _{1/2}) by HBr. Chem. Phys. Lett. 54, 91 (1978) United Kingdom
417	A17 Ne + Ar; Ar + Kr G02 Ne + Ar; Ar + Kr	E T	277-323 K	Arcara, F. S.; Carson, F. J.; Dunlop, P. J. Determination of potential parameters for the systems Ne-Ar and Ar-Kr from the temperature dependence of their binary diffusion coefficients. Chem. Phys. Lett. 54, 117 (1978) Australia
418	A14 Xe [*] + Br ₂	E	20-120 kJ/mol	Levy, M. F.; Rettner, C. I.; Simons, J. P. Molecular beam kinetics: the excitation function of the reaction Xe(³ P _{2,1}) + Br ₂ → XeBr [*] + Br. Chem. Phys. Lett. 54, 120 (1978) United Kingdom
419	H06 Review	E	11-21 eV	de Leeuw, D. M.; Mooyman, F.; de Lange, C. A. He(I) photoelectron spectroscopy of halogen atoms. Chem. Phys. Lett. 54, 231 (1978) The Netherlands
420	A05 Cl ₂ + Mg [*] ; Cl ₂ + Sr [*]	E	900-1000 K	Kowalski, A.; Heldt, J. Chemiluminescent studies of excited Mg and Sr atoms with Cl ₂ in the beam-gas arrangement. Chem. Phys. Lett. 54, 240 (1978) Poland
421	A14 Undef	T	Undef	Northrup, S. H.; Hynes, J. I. Cr reaction rate constants and rate kernels. Chem. Phys. Lett. 54, 248 (1978) United States
422	A14 N + N	E	10-300 K	Gordon, E. E.; Mezhev-Deglin, L. P.; Pugachev, O. F.; Khmelenko, V. V. Gas-phase spectra of the radiative recombination of nitrogen atoms at helium temperatures. Chem. Phys. Lett. 54, 282 (1978) Soviet Union
423	A11 Br [*] + I ₂ ; Br [*] + Br ₂ ; Br [*] + Cl ₂ ; Br [*] + IBr; Br [*] + ICl; Br [*] + BrCl	E	300 K	Hofmann, H.; Leone, S. R. Collisional deactivation of laser-excited Br(² P _{1/2}) atoms with halogen and interhalogen molecules. Chem. Phys. Lett. 54, 314 (1978) United States

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424	A03 He + H ₂ A14 F + H ₂	T	A03 0.5 eV A14 0.1 eV	Schatz, G. C.; Vaughn, C. The direct histogram method for quasiclassical collision dynamics: application to collinear atom-diatom scattering. Chem. Phys. Lett. 54, 327 (1978) United States
425	H06 2hν + H	T	1700-975 Å ⁰	Chu, S.-I. Quasienergy formalism for intense field multiphoton ionization of atoms induced by circularly polarized radiation. Chem. Phys. Lett. 54, 367 (1978) United States
426	A14 Undef	T	Undef	Kaufman, F.; Levine, R. D. The thermal rate constant of elementary reactions: does specificity of energy disposal require a concomitant lowering of its magnitude. Chem. Phys. Lett. 54, 407 (1978) United States
427	H08 hν + SF ₆	E	10 μm	Frankel, D. S., Jr.; Manuella, I. J. Collisionless 16 μm fluorescence in SF ₆ following 10 μm CO ₂ laser pumping: comments on the vibrational quasicontinuum. Chem. Phys. Lett. 54, 451 (1978) United States
428	A13 Review	E	300 K	Adams, A. G.; Smith, E. Reactions of CH (sub n) ⁺ ions with molecules at 300 K. Chem. Phys. Lett. 54, 530 (1978) United Kingdom
429	A13 Review	E	225-300 K	Smith, E.; Adams, A. G. Binary and ternary reactions of CH ₂ ⁺ ions with several molecules at thermal energies. Chem. Phys. Lett. 54, 538 (1978) United Kingdom
430	A10 H ₂ O + NH ₃	E	300 K	Herlemont, F.; Lyszyk, M.; Lesaire, J. Collision induced energy transfer between H ₂ O and NH ₃ molecules. Chem. Phys. Lett. 54, 603 (1978) France
431	A17 Review	T	Undef	Murrell, J. N. Potential energy surfaces for clusters of main group elements. Chem. Phys. Lett. 55, 1 (1978) Israël
432	A14 O + Cl ₂ ; O + Cs ₂	E	13 kJ/mol	Gorry, P. A.; Nowikow, C. V.; Grice, R. Reactive scattering of a neon seeded oxygen atom beam. Chem. Phys. Lett. 55, 15 (1978) United Kingdom
433	A11 Review	F	300 K	Brcm, J. M., Jr.; Kaito, J. H.; Getser, D. W. Quenching rate constants for Ne(² F ₃) metastable atoms at room temperature. Chem. Phys. Lett. 55, 44 (1978) United States
434	A06 Review A07 Review	E	20-380 eV	Aberle, W.; Brahm, B.; Grosser, J. Integral cross sections for ion pair and free electron production in collisions with hydrogen atoms. Chem. Phys. Lett. 55, 71 (1978) West Germany
435	A04 I ₂ + Ar	T	2000 K	Stace, P. J. A computer simulation of the iodine molecule dissociation reaction. Chem. Phys. Lett. 55, 77 (1978) United Kingdom
436	H05 hν + HCN: hν + DCN	T	147-141 nm	Ashfold, M. N. F.; Macpherson, M. I.; Simons, J. F. The dynamics of photodissociation of HCN and DCN; theoretical predictions and experimental observations. Chem. Phys. Lett. 55, 84 (1978) United Kingdom
437	A10 He + CO ₂ ; Ar + CO ₂	T	0.069 eV	Peck, R. I. Anisotropic potentials and the damping of rainbow and diffraction oscillations in differential cross sections. Chem. Phys. Lett. 55, 157 (1978) United States
438	A03 Ar + N ₂	T	209 cm ⁻¹	Fitz, D. E. On the choice of partial wave parameter for IOS calculations of m-dependent rotationally inelastic cross sections. Chem. Phys. Lett. 55, 202 (1978) Canada

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439	A17 C + N ⁺	T	Undef	Shimakura, A.; Inouye, H.; Itojou, N.; Sagara, M.; Ohno, K. Valence full configuration interaction calculation of the CN ⁺ ion. Chem. Phys. Lett. 55, 221 (1978) Japan
440	A13 C ⁺ + H ₂	T	1.25-3.0 eV	Sullivan, J. F.; Herbst, E. A classical trajectory study of the ion-molecule reaction between C ⁺ and H ₂ . Chem. Phys. Lett. 55, 226 (1978) United States
441	A10 He + O ₂	T	0.1-2 eV	Gordon, R. J. On the relation between three-dimensional and collinear rate constants for vibrational energy transfer. Chem. Phys. Lett. 55, 230 (1978) United States
442	A14 Ca + N ₂ O	E	300 K	Doddigian, F. J. Determination of the absolute chemiluminescence cross section and photon yield for the Ca(4s4p ³ P) + N ₂ O reaction. Chem. Phys. Lett. 55, 239 (1978) United States
443	A14 Ge + O ₂ ; Ge + NO; Ge + N ₂ O; Si + O ₂ ; Si + NO; Si + N ₂ O	E	300 K	Swearengen, P. M.; Davis, S. J.; Niemczyk, T. M. Reaction rate studies of atomic germanium (⁷⁶ Ge _{1s}) and silicon (³¹ P sub J) with various oxidizers. Chem. Phys. Lett. 55, 274 (1978) United States
444	D09 CO ₂ ⁺ + C; N ₂ O ⁺ + C	E	3.5 MeV	Gessell, D. S.; Karter, E. F.; Pietsch, W. J. Structure effects seen in the dissociation of 3.5-MeV beams of CO ₂ ⁺ and N ₂ O ⁺ in thin foils. Chem. Phys. Lett. 55, 331 (1978) United States
445	A02 H + H ₂	E	300 K	Torellic, F.; Dondi, M. G. H-H ₂ elastic differential cross section. Chem. Phys. Lett. 55, 339 (1978) West Germany
446	E06 e + H ₂ ⁺ ; e + H ₃ ⁺	E	300 K	Trainor, D. W. Electron-ion dissociative recombination rate constant for the reaction e + H (sub n) ⁺ . Chem. Phys. Lett. 55, 361 (1978) United States
447	A14 Br + Br ₂	T	300-600 K	Thompson, E. L. On the rate and activation energy of the Br + Br ₂ atom-exchange reaction. Chem. Phys. Lett. 55, 424 (1978) United States
448	A14 H ₂ + H	T	0.1-1.0 eV	Osharov, V. I.; Ushakov, V. G.; Isakir, L. A. The exchange reaction H ₂ (v=1) + H = H + H ₂ . Chem. Phys. Lett. 55, 513 (1978) Soviet Union
449	A02 Ne + Ar; Ne + Kr; Ne + Xe	E	0.5-1.4 km/s	Brunetti, B.; Pirani, F.; Vecchiocattivi, F.; Luzzatti, E. Absolute total cross sections for elastic scattering of Ne by Ar, Kr, and Xe: characterization of long range interactions. Chem. Phys. Lett. 55, 565 (1978) Italy
450	K01 Review K04 Review	E T	Undef	Stephens, K. G.; Wilson, I. H.; Percuzzi, J. L. Low-energy Ion Beams, 1977 The Institute of Physics, London, 1978 France
451	K01 Review A03 Review B03 Review B04 Review B06 Review C07 Review	E	10-200 keV	Gilbody, H. B. Excited state populations of beams: preparation, measurement and control. p. 156 in Low-energy Ion Beams, 1977, Stephens, K. G., et al., ed. The Institute of Physics, London, 1978 United Kingdom
452	A06 Review	E T	30 keV	Muller, A.; Selzborn, E. Highly charged ions: production and charge exchange. p. 165 in low-energy Ion Beams, 1977, Stephens, K. G., et al., ed. The Institute of Physics, London, 1978 West Germany

REF. NO.	REACTANTS	EXP CR THEOR	ENERGY RANGE	REFERENCE
453	A06 Ar ⁺ + Ar; Kr ⁺ + Kr; Ne ⁺ + Ne; He ⁺ + He; He ⁺ + Ar; B ⁺ + Ar; C ⁺ + Ar; Ne ⁺ + Ar; Al ⁺ + Ar; Cl ⁺ + Ar; Cr ⁺ + Ar; Ni ⁺ + Ar; Cu ⁺ + Ar; Kr ⁺ + Ar; Cd ⁺ + Ar; Te ⁺ + Ar; Cs ⁺ + Ar; W ⁺ + Ar	E	10-40 keV	Leyland, K.; Armour, D. G.; Carter, G.; Freeman, J. H. Charge transfer cross sections in high-flux, low-energy accelerators. p. 175, in <i>Low-energy Ion Beams, 1977</i> , Stephens, K. G., et al., ed. The Institute of Physics, London, 1978 United Kingdom
454	A13 I ⁺ + CH ₄	E	Undef	Becker, M.; Heilgeist, M.; Wolf, G. K. An apparatus for the investigation of the interaction between ion beams and gases. p. 185 in <i>Low-energy Ion Beams, 1977</i> , Stephens, K. G., et al., ed. The Institute of Physics, London, 1978 West Germany
455	D07 Ne ⁺ + Ni; He ⁺ + Ni; Ne ⁺ + Ag D13 Ar ⁺ + CO + Ni; Ar ⁺ + O + Ni; Ne ⁺ + S + Ni; Ne ⁺ + CO + Ni D02 He ⁺ + Ag; He ⁺ + Ta; Ne ⁺ + Ta; Ne ⁺ + W; Ne ⁺ + Hf; He ⁺ + W; He ⁺ + Hf; He ⁺ + Pb	E	D07 200-600 eV D13 700-2000 eV D02 100-2000 eV	Helland, W.; Tagleuer, E. Scattering of ion beams from surfaces. p. 287 in <i>Low-energy Ion Beams, 1977</i> , Stephens, K. G., et al., ed. The Institute of Physics, London, 1978 West Germany
456	D07 Ne ⁺ + Ni; Ne ⁺ + O + Ni	E	6 keV	van den Berg, J. A.; Armour, D. G.; Verheij, L. K. A 2-100 keV, UHV ion impact spectrometer for ion-solid interaction studies. p. 258 in <i>Low-energy Ion Beams, 1977</i> , Stephens, K. G., et al., ed. The Institute of Physics, London, 1978 United Kingdom
457	C04 D ⁺ + Ni; He ⁺ + Ni D14 D ⁺ + Ni; He ⁺ + Ni	E	50-100 keV	Kasinsky, M.; Das, S. K.; Ekern, F.; Hess, E. C. An accelerator system for producing two-component beams for studies of interactive surface effects. p. 305 in <i>Low-energy Ion Beams, 1977</i> , Stephens, K. G., et al., ed. The Institute of Physics, London, 1978 United States
458	D07 Ar ⁺ + Cu	E	5-35 keV	Mashkov, E. E.; Melchenov, V. A. Surface analysis using the double-scattering effect. p. 313 in <i>Low-energy Ion Beams, 1977</i> , Stephens, K. G., et al., ed. The Institute of Physics, London, 1977 Soviet Union
459	F01 O ⁺ ; O ²⁺ ; O ³⁺	E	Undef	Pinnington, E. H.; Donnelly, K. E.; Kernahan, J. A.; Irwin, I. J. G. Eeem-toil spectroscopy of oxygen in the wavelength region from 270 to 450 Å. <i>Can. J. Phys.</i> 56, 508 (1978) Canada
460	E12 e ⁺ + H	T	26-136 eV	Kulhar, V. E.; Shastry, C. S. Excited states of positronium in positron-hydrogen charge exchange. <i>Can. J. Phys.</i> 56, 565 (1978) India
461	A18 H ₂ ⁺ + Ar; H ₂ ⁺ + Kr; H ₂ ⁺ + Xe A17 H ₂ ⁺ + Ar; H ₂ ⁺ + Kr; H ₂ ⁺ + Xe	E	207-778 K	Rulis, A. M.; Smith, K. M.; Scoles, G. Intermolecular forces in hydrogen-noble gas mixtures. <i>Can. J. Phys.</i> 56, 753 (1978) Canada
462	F01 H ₂ ⁺	E	Undef	Chien, C. W. T.; Dalby, F. W.; van der Linde, J. Radiative lifetimes and hyperfine constants for the 3σ complex of molecular hydrogen. <i>Can. J. Phys.</i> 56, 821 (1978) Canada
463	A05 Hg + Tl A03 Hg + Tl A11 Hg + Tl	E	710-815 K	Wace, M. K.; Czajkowski, M.; Krause, L. Sensitized fluorescence in thallium induced in collisions with Hg(6 ³ P ₁) atoms. <i>Can. J. Phys.</i> 56, 861 (1978) Canada
464	A02 H ⁺ + H; H ⁺ + D A06 H ⁺ + H; H ⁺ + D A18 H ⁺ + H; H ⁺ + D	T	0.0-0.1 eV	Davis, J. P.; Thorsen, W. R. Very low energy scattering in HH ⁺ and HD ⁺ . <i>Can. J. Phys.</i> 56, 996 (1978) Canada
465	H02 hv + N ₂ ; hv + CO ₂ A12 N ₂ + N ₂ ; CO ₂ + CO ₂	E	4.6 cm ⁻¹	Dagg, I. R.; Reesor, G. E.; Wong, P. A microwave cavity measurement of collision-induced absorption in N ₂ and CO ₂ at 4.6 cm ⁻¹ . <i>Can. J. Phys.</i> 56, 1037 (1978) Canada

REF. NO.	REACTANTS	EXP CR THEOR	ENERGY RANGE	REFERENCE
466	H02 hv + [Ne + Xe]; hv + [Ar + Xe] A12 Ne + Xe; Ar + Xe	E	4.4 cm ⁻¹	Dagg, I. R.; Reesor, G. E.; Wong, P. Collision-induced microwave absorption in Ne-Xe and Ar-Xe gaseous mixtures. Can. J. Phys. 56, 1046 (1978) Canada
467	A03 He ⁺ + He	T	20-10000 keV	Djha, S. P.; Tiwari, P.; Srivastava, K. F. Cross section for the excitation of helium by He ⁺ . Can. J. Phys. 56, 1232 (1978) India
468	E05 e + Ne; e + Ar; e + Kr; e + Xe	T	70-1000 eV	Kumar, A.; Roy, B. N. Binary encounter calculations on electron impact double ionization of noble gas atoms. Can. J. Phys. 56, 1255 (1978) India
469	G10 e + CO ₂ ; e + [CO ₂ + N ₂ + He]	E	46-95 Td	Davies, D. K. Ionization and attachment coefficients in CO ₂ , N ₂ , He and pure CCl ₄ . J. Appl. Phys. 49, 127 (1978) United States
470	D14 He ⁺ + Ni	E	500 keV	Sinha, M. K.; Das, S. K.; Kowinsky, M. Temperature dependence of helium blistering in nickel monocrystals. J. Appl. Phys. 49, 170 (1978) United States
471	C04 e + H ₂ ; e + D ₂ D06 e + H ₂ ; e + D ₂ D04 e + H ₂ ; e + D ₂	E	0.5-3 keV	Schou, J.; Sorensen, H. The penetration depth of 0.5-3-keV electrons in solid hydrogen and deuterium. J. Appl. Phys. 49, 816 (1978) Denmark
472	C04 He ⁺ + C; He ⁺ + Al; He ⁺ + Si; He ⁺ + V; He ⁺ + Ni; He ⁺ + Zr	E	20-60 keV	Bottiger, J.; Jensen, P. S.; Littmark, U. Depth profiles of ³ He ions implanted into solids at energies between 20 and 60 keV. J. Appl. Phys. 49, 565 (1978) Denmark
473	A11 He ⁺ + Pb; He ⁺ + Pb	E	920 K	Cross, L. A.; Cem Gokay, M. Excitator processes in a Pb-He discharge. J. Appl. Phys. 49, 2635 (1978) United States
474	E02 e + Cd E03 e + Cd E05 e + Cd G08 e + Ar G07 e + Cd G05 e + Ar	T	E02; E03; E05; G08 0-15 eV G07; G05 0.1-100 Td	Fournier, G. R.; McGeoch, P. W. Kinetic model of the sustained discharge excitation of the cadmium mercury excimer. J. Appl. Phys. 49, 2651 (1978) United Kingdom
475	D08 B ⁺ + Cu; B ⁺ + Mo D03 B ⁺ + Cu; B ⁺ + Mo	E	60-200 keV	Thomas, E. W.; Inouye, H.; Fauch, E. C. Excited state formed by B ⁺ impact on metallic Cu and Mo. J. Appl. Phys. 49, 2911 (1978) United States
476	A06 H ⁺ + Cs; H + Cs A20 H ⁺ + Cs; H + Cs	E	0.5-1.1 keV	Kasperchroer, J. H.; Foat, R. S. Use of a Hall accelerator in the production of negative hydrogen ions in cesium vapor. J. Appl. Phys. 49, 3055 (1978) United States
477	A11 He ⁺ + Ca; He ⁺ + Sr A06 Xe ⁺ + Ca; Xe ⁺ + Sr	E	Undef	Butterfield, K. B.; Gerstenther, D. C.; Shay, T.; Little, W. L.; Collins, G. J. Collisional quenching of Xe*(² P) and He 2 ³ S metastates by calcium and strontium metal vapors. J. Appl. Phys. 49, 3086 (1978) United States
478	D04 Undef	E T	850-2600 eV	Aliq, R. C.; Bicos, S. Secondary-electron-escape probabilities. J. Appl. Phys. 49, 3476 (1978) United States
479	D08 e + Si	E	15-35 keV	Muller, H. b.; Schroder, B. Electron backscattering from thin silicon crystals. J. Appl. Phys. 49, 3555 (1978) West Germany

REF. NO.	REACTANTS	EXP OR THEOR	ENERGY RANGE	REFERENCE
480	E02 e + N ₂ E03 e + N ₂ E05 e + N ₂ E17 e + N ₂ G09 e + N ₂	E T	E02; E03; E05; E17 3-70 eV G09 5-60 eV	Cartwright, D. C. Rate coefficients and inelastic momentum transfer cross sections for electronic excitation of N ₂ by electrons. J. Appl. Phys. 45, 3855 (1974) United States
481	C04 D ⁺ + C; D ⁺ + Al; D ⁺ + Ni; D ⁺ + Zr	E	10-30 keV	Borgesen, P.; Bottiger, J.; Moller, W. Ranges of 10-30-keV deuterons implanted into solids. J. Appl. Phys. 49, 4401 (1978) Denmark
482	D04 e + [Cs + K + Na + Sb]	E	400-2500 eV	Ghosh, C.; Varma, B. P. Secondary emission from multialkali photocathodes. J. Appl. Phys. 49, 4554 (1978) India
483	D04 e + N ₂ D06 e + N ₂ ; e + C C04 e + N ₂	E	1-3 keV	Sorensen, H.; Schou, J. Interaction between solid nitrogen and 1-3-keV electrons. J. Appl. Phys. 49, 5311 (1978) Denmark
484	C01 H ₃ ⁺ + C C05 H ₃ ⁺ + C A04 H ₃ ⁺ + C	E	2.1 MeV	Gaillard, M. J.; Gemell, D. S.; Goldring, G.; Levine, I.; Pletsch, W. J.; Polzat, J. C.; Rotkewski, A. J.; Remillieux, J.; Veger, Z.; Zabransky, E. J. Experimental determination of the structure of H ₃ ⁺ . Phys. Rev. A 17, 1797 (1978) United States
485	E03 e + He ⁺	T	50-1000 eV	Williamson, W., Jr.; Foster, G.; Keong, R. Glauber exchange amplitudes for the scattering of electrons from hydrogenlike ions. Phys. Rev. A 17, 1823 (1978) United States
486	E05 e + Ar E17 e + Ar	E	100 eV	Hong, S. P.; Beatty, E. C. Measurements of the triple-differential cross section for low-energy electron-impact ionization of argon. Phys. Rev. A 17, 1829 (1978) United States
487	A11 F ⁶⁺ + He; F ⁶⁺ + Ne; F ⁶⁺ + Ar; F ⁶⁺ + Kr; F ⁶⁺ + Xe; F ⁶⁺ + N ₂ ; F ⁷⁺ + He; F ⁷⁺ + Ne; F ⁷⁺ + Ar; F ⁷⁺ + Kr; F ⁷⁺ + Xe; F ⁷⁺ + N ₂ ; F ⁸⁺ + He; F ⁸⁺ + Ne; F ⁸⁺ + Ar; F ⁸⁺ + Kr; F ⁸⁺ + Xe; F ⁸⁺ + N ₂ ; F ⁹⁺ + He; F ⁹⁺ + Ne; F ⁹⁺ + Ar; F ⁹⁺ + Kr; F ⁹⁺ + Xe; F ⁹⁺ + N ₂	E	35-55 MeV	Brenn, F.; Hopkins, F.; Sprague, G. D. Hyperfine interactions in few-electron fluorine ions receding in gases. Phys. Rev. A 17, 1637 (1978) West Germany
488	E17 e + He	E	0.5-50 eV	Kennerly, R. E.; Bonham, F. A. Electron-helium absolute total scattering cross sections from 0.5-50 eV. Phys. Rev. A 17, 1844 (1978) United States
489	E02 e + CO ₂ C00 e + CO ₂ E17 e + CO ₂	E	3-90 eV	Shyn, T. W.; Sharp, W. E.; Carignan, G. R. Angular distribution of electrons elastically scattered from CO ₂ . Phys. Rev. A 17, 1855 (1978) United States
490	A11 Cs ⁺ + Cs A03 Cs ⁺ + Cs A05 Cs ⁺ + Cs H08 hv + Cs	E	A03; A05; A11 300 K H08 5636-8761 A0	Tan, A. C.; Yabuzaki, T.; Curry, S. M.; Hou, M.; Happer, W. Inelastic cross sections in Cs(n ² D sub j) + Cs(6 ² S, _{1/2}) collisions. Phys. Rev. A 17, 1662 (1978) United States
491	E03 e + H	T	2-1361 eV	Chan, F. T.; Chang, C. H.; Lieber, M.; Kim, Y.-K. Comparison of the Born and Glauber generalized oscillator strengths for the 2s-3p transition of atomic hydrogen. Phys. Rev. A 17, 1865 (1978) United States

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492	E03 e + H ₂ E04 e + H ₂	T	10-40 eV	Chung, S.; Lin, C. C. Application of the close-coupling method to excitation of electronic states and dissociation of H ₂ by electron impact. Phys. Rev. A 17, 1874 (1978) United States
493	A07 Undef A03 Undef	T	Undef	Nakamura, H.; Shirai, T.; Nakai, Y. Improved impulse approximation for ionization collisions between atoms. Phys. Rev. A 17, 1892 (1978) France
494	B07 e + H	T	Undef	Brandt, H. S.; Koeller, B.; Lins de Barros, H. G. P.; Miranda, L. C. M.; Castro, J. J. Theory of electron-hydrogen-atom collisions in the presence of a laser field. Phys. Rev. A 17, 1560 (1978) Brazil
495	H06 hν + N; hν + N ₂ ; hν + N ₂ O H02 hν + Ar; hν + N ₂ ; hν + N ₂ O	E	390-450 eV	Bianconi, A.; Petersen, H.; Brown, F. C.; Bachrach, R. Z. K-shell photoabsorption spectra of N ₂ and N ₂ O using synchrotron radiation. Phys. Rev. A 17, 1907 (1978) United States
496	H12 Undef	T	Undef	Barwick, J. Classical theory of radiative transitions. Phys. Rev. A 17, 1512 (1978) United States
497	E03 e + D ₂ E04 e + D ₂ F01 O*	E	E03; E04 27 eV	Nowak, C.; Borst, H. L.; Fricke, J. Lifetime determination of the O(³ S ₀) metastable state via 1356-Å using a time-of-flight technique. Phys. Rev. A 17, 1921 (1978) West Germany
498	H06 hν + Be Seq	T	60-1600 eV	Watson, D. K.; Dalgaard, A.; Stewart, F. F. Inner-shell photoionization of the beryllium isoelectronic sequence. Phys. Rev. A 17, 1928 (1978) United States
499	E02 e + Be	T	0-50 eV	Rescigno, T. N.; McCurdy, C. W., Jr.; Crei, A. E. Extensions of the complex-coordinate method to the study of resonances in many-electron systems. Phys. Rev. A 17, 1931 (1978) United States
500	C07 Kr* + C; Ge* + C	T	Undef	Younger, S. M.; Wiese, W. L. Theoretical simulation of beam-foil decay curves for resonance transitions of heavy ions. Phys. Rev. A 17, 1644 (1978) United States
501	F01 Zn Seq	T		Fischer, C. F.; Hanson, J. E. Theoretical oscillator strengths for the resonance transitions in the ZnI isoelectronic sequence. Phys. Rev. A 17, 1566 (1978) United States
502	C07 C* + C; N* + C; O* + C F01 C ³⁺ ; N ²⁺	T	C07 2-4 MeV	Livingston, A. E.; Berry, H. G. Fine structure of the 1s2s2p ² P ^o and 1s2p ² P doubly excited states in lithiumlike carbon, nitrogen, and oxygen. Phys. Rev. A 17, 1566 (1978) United States
503	H01 Undef	T	Undef	Srivastava, K. P. Theoretical investigation of energy-trapping mechanism by atomic systems. Phys. Rev. A 17, 1576 (1978) Canada
504	B01 Undef F02 Undef	T		O'Connell, E. F. Rydberg states in strong electric and magnetic fields. Phys. Rev. A 17, 1564 (1978) United States
505	H02 hν + Ar ₂ ⁺ ; hν + Kr ₂ ⁺ ; hν + Xe ₂ ⁺ H05 hν + Ar ₂ ⁺ ; hν + Kr ₂ ⁺ ; hν + Xe ₂ ⁺	E	6200-8600 Å ^o	Lee, L. C.; Smith, G. F.; Miller, T. M.; Cosby, P. C. Photodissociation cross sections of Ar ₂ ⁺ , Kr ₂ ⁺ , and Xe ₂ ⁺ from 6200 to 8600 Angstroms. Phys. Rev. A 17, 2005 (1978) United States
506	H02 hν + Mn	T	45-60 eV	Davis, L. C.; Feldkamp, L. A. P _{3/2} spectrum of atomic Mn. Phys. Rev. A 17, 2012 (1978) United States
507	C02 H* + PERT; He* + PERT; Li* + PERT; Be* + PERT; B* + PERT; C* + PERT; N* + PERT; O* + PERT; F* + PERT	T	Undef	Ritchie, R. H.; Brandt, W. Projectile-charge dependence of stopping powers. Phys. Rev. A 17, 2102 (1978) United States

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508	E02 e + N ₂ E17 e + N ₂	T	0-30 eV	Siegel, J.; Dill, D.; Dehaer, J. L. Differential elastic electron scattering cross sections for N ₂ from 0 to 30 eV. Phys. Rev. A 17, 2106 (1978) United States
509	E02 e + Ar; e + Kr	T	Undef	Roy, A. C.; Sil, N. C. *Erratum Elastic scattering of electrons from Ar and Kr in the second-order eikonal approximation [Phys. Rev. A 16, 536 (1977)]. Phys. Rev. A 17, 2119 (1978) India
510	H03 Undef H08 Undef	T	Undef	Courtens, E.; Szoke, A. *Erratum Time and spectral resolution in resonance scattering and resonance fluorescence [Phys. Rev. A 16, 1586 (1977)]. Phys. Rev. A 17, 2115 (1978) Switzerland
511	D15 Ar ⁺ + Pd ₂ Si; Ar ⁺ + NiSi ₂ C08 He ⁺ + Pd ₂ Si; He ⁺ + NiSi ₂	E	D15 100 keV C08 1.6 MeV	Ishiwara, H.; Hikosaka, K.; Furukawa, S. Channeling studies of radiation damage in metal-silicides. Appl. Phys. Lett. 32, 23 (1978) Japan
512	H02 hν + CH ₃ OCH ₃ ; hν + CCl ₃ F A11 CH ₃ OCH ₃ * + CH ₃ OCH ₃ ; CCl ₃ F* + CCl ₃ F	E	H02 10.6 μm A11 300 K	Kung, F. T. V.; Sirchis, M. Optical saturation characteristics of CH ₃ OCH ₃ and CCl ₃ F. Appl. Phys. Lett. 32, 38 (1978) United States
513	H02 hν + PH ₃ ; hν + AsH ₃ ; hν + B ₂ H ₆ ; hν + SiH ₄ H05 hν + PH ₃ ; hν + AsH ₃ ; hν + B ₂ H ₆ ; hν + SiH ₄ H10 hν + PH ₃ ; hν + AsH ₃ ; hν + B ₂ H ₆ ; hν + SiH ₄	E	6 eV	Clark, J. H.; Anderson, R. G. Silane purification via laser-induced chemistry. Appl. Phys. Lett. 32, 46 (1978) United States
514	D17 O ⁺ + GaAs	E	400 K	Yokoyama, N.; Miyabe, T.; Odani, K.; Fukuta, M. Low-temperature plasma oxidation of GaAs. Appl. Phys. Lett. 32, 58 (1978) Japan
515	A09 Ar ⁺ + F ⁻ ; Ar ₂ ⁺ + F ⁻ ; Kr ⁺ + F ⁻ ; Kr ₂ ⁺ + F ⁻ ; Ar ⁺ + Cl ⁻ ; Hg ⁺ + Cl ⁻	T	300 K	Wadehra, J. M.; Bardsley, J. N. Calculations in ion-ion recombination rates at high pressures. Appl. Phys. Lett. 32, 76 (1978) United States
516	D07 He ⁺ + Si; He ⁺ + W C08 He ⁺ + Si; He ⁺ + W	E	0.4-3 MeV	Kauffman, R. L.; Feldman, L. C.; Silverman, F. J.; Zuhr, R. A. Significance of the channeling surface peak in thin-film analysis. Appl. Phys. Lett. 32, 93 (1978) United States
517	A09 Kr ⁺ + F ⁻ A11 KrF ⁺ + F ₂ ; KrF ⁺ + Kr E16 e + [Kr + F ₂]	E	A09 300 K A11 300 K E16 150 keV	Jacob, J. H.; Rokni, M.; Mangano, J. A.; Ercchu, R. Formation and quenching processes in e-beam-pumped Kr/F ₂ mixtures. Appl. Phys. Lett. 32, 109 (1978) United States
518	D16 R ⁺ + Si	E	35 keV	Young, F. I.; White, C. W.; Clark, G. W.; Nerayan, J.; Christie, W. H.; Murakami, M.; King, P. W.; Kraber, S. D. Laser annealing of boron-implanted silicon. Appl. Phys. Lett. 32, 139 (1978) United States
519	D16 BF ₃ ⁺ + Si	E	150 keV	Isel, M. Y.; Streetman, B. G.; Williams, P.; Evans, C. A., Jr. Anomalous migration of fluorine and electrical activation of boron in BF ₃ ⁺ -implanted silicon. Appl. Phys. Lett. 32, 144 (1978) United States
520	D16 Te ⁺ + GaAs	E	50 keV	Golovchenko, J. A.; Venkatesan, I. N. C. Annealing of Te-implanted GaAs by ruby laser irradiation. Appl. Phys. Lett. 32, 147 (1978) United States
521	H06 hν + U	E	3.5 eV	Mochizuki, T.; Morikawa, M.; Yasenaka, C. Photoionization of uranium atoms by an argon ion laser. Appl. Phys. Lett. 32, 212 (1978) Japan

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522	H04 $h\nu + CH_3F$	E	9.4 μm	Prosnitz, D.; Jacobs, R. F.; Bischel, W. K.; Rhodes, C. K. Stimulated emission at 9.75 μm following two-photon excitation of methyl fluoride. Appl. Phys. Lett. 32, 221 (1978) United States
523	A11 $XeF^* + Ne$; $XeF^* + F_2$; $XeF^* + Xe$; $XeF^* + [Xe + Ne]$	E	300 K	Rokni, M.; Jacob, J. H.; Mengenc, J. F.; Ercchu, R. Formation and quenching of XeF^* in Ne/Xe/F ₂ mixtures. Appl. Phys. Lett. 32, 223 (1978) United States
524	E16 $e + [Hg + Cl_2 + Xe + Ar]$	E	150 keV	Tang, K. Y.; Hunter, R. D., Jr.; Oldenettel, J.; Howton, C.; Huestis, D.; Eckstrom, D.; Ferry, E.; McCusker, M. Electron-beam-controlled discharge HgCl* laser. Appl. Phys. Lett. 32, 226 (1978) United States
525	H05 $h\nu + SeF_6$	E	13.1 μm	Tice, J. J.; Wittig, C. Isotopically selective infrared photodissociation of SeF_6 . Appl. Phys. Lett. 32, 236 (1978) United States
526	E16 $e + [Ar + Hg + Cl_2]$; $e + [Ar + Hg + BrCCl_3]$	E	50 keV	Whitney, W. T. Sustained discharge excitation of HgCl and HgBr B ² γ^+ , δ^+ , and CH ₂ γ^+ , δ^+ lasers. Appl. Phys. Lett. 32, 239 (1978) United States
527	H06 $h\nu + CO_2$	E	10.4 μm	Chin, S. L.; Faubert, D. Energy dependence of collisionless multiphoton ionization of D ₂ O molecules by a TEA-CO ₂ laser. Appl. Phys. Lett. 32, 302 (1978) Canada
528	A06 $H^+ + Cs$; $H^+ + Na$ A03 $H^+ + Cs$; $H^+ + Na$	E	500 eV	Hauelsen, D. C.; Mehr, H.; Cassidy, J. C.; Tang, C. L.; Copeland, D. A.; Hartson, P. L. Lyman- α radiation from Cs-H ⁺ and Na-H ⁺ charge transfer processes with a plasma gun. Appl. Phys. Lett. 32, 306 (1978) United States
529	A09 $He^+ + F^-$; $Ne^+ + F^-$; $Ar^+ + F^-$; $Kr^+ + F^-$; $Xe^+ + F^-$	E	300 K	Flannery, M. F.; Yang, T. P. Ionic recombination of rare-gas atomic ions X ⁺ with F ⁻ in a dense-gas X. Appl. Phys. Lett. 32, 327 (1978) United States
530	E04 $e + F_2$ E09 $e + F_2$	E	5 eV	Nygaard, K. J.; Hunter, S. R.; Fletcher, J.; Felty, S. R. Electron attachment in dilute fluorine-helium mixtures. Appl. Phys. Lett. 32, 351 (1978) United States
531	A09 $He_2^+ + F^-$; $Ne_2^+ + F^-$; $Ar_2^+ + F^-$; $Kr_2^+ + F^-$; $Xe_2^+ + F^-$	I	300 K	Flannery, M. F.; Yang, T. P. Ionic recombination of rare-gas molecular ions X ₂ ⁺ with F ⁻ in a dense gas X. Appl. Phys. Lett. 32, 356 (1978) United States
532	A11 $ArF^* + F_2$	E	300 K	Chen, C. H.; Payne, M. G. Ar ₂ F ⁺ radiative lifetime measurement. Appl. Phys. Lett. 32, 358 (1978) United States
533	D17 $N^+ + Si_3N_4$; $He^+ + Si_3N_4$	E	75 keV	Stein, H. J. Ion-impact-induced transfer of H from N to Si in amorphous Si ₃ N ₄ . Appl. Phys. Lett. 32, 379 (1978) United States
534	D03 $Ar^+ + GdF_3$	E	15-20 keV	Tsong, I. S. T.; Bhalla, A. S. Hydrogen and fluorine profiles in GdF ₃ films measured by sputter-induced optical emission. Appl. Phys. Lett. 32, 361 (1978) United States
535	H02 $h\nu + CF_3I$ H10 $h\nu + CF_3I$	E	9.6 μm	Pummer, H.; Eggleston, J.; Bischel, W. K.; Rhodes, C. K. Ultraviolet absorption of CF ₃ I induced by excitation of the ν_3 vibrational mode at 9.6 μm . Appl. Phys. Lett. 32, 427 (1978) United States
536	D15 $Ge^+ + Ge$ D16 $Ge^+ + Ge$	E	10-40 keV	Graczyk, J. F.; Choudhari, F. Effects of ion implantation on the structure of amorphous germanium. Appl. Phys. Lett. 32, 466 (1978) United States
537	H05 $h\nu + TlI$; $h\nu + InI$; $h\nu + HgI_2$; $h\nu + HgBr_2$; $h\nu + ZnI_2$; $h\nu + CdI_2$ H08 $h\nu + TlI$; $h\nu + InI$; $h\nu + HgI_2$; $h\nu + HgBr_2$; $h\nu + ZnI_2$; $h\nu + CdI_2$	E	0.2 μm	Mays, J. Fluorescence yields of metal halide vapors excited by photodissociation. Appl. Phys. Lett. 32, 484 (1978) United States

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538	D14 Ar ⁺ + Si	E	100-270 keV	Wittmaack, K.; Wach, W. Flistering effects in argon-berberded silicon. Appl. Phys. Lett. 32, 832 (1978) West Germany
539	A11 CO ₂ ⁺ + HBr	E	300 K	Osgood, R. M., Jr. 1-w line-tunetic optically pumped 16 μm laser. Appl. Phys. Lett. 32, 864 (1978) United States
540	E16 e + [Ne + Xe + NF ₃]	E	300 K	Forestier, E.; Fontaine, E. Long-pulse ultraviolet laser emission in an electron-beam-excited supersonic flow. Appl. Phys. Lett. 32, 865 (1978) France
541	E04 e + HBr; e + Br ₂ E09 e + HBr; e + Br ₂	E	0-1.2 eV	Trelnor, D. W.; Egress, M. J. W. Dissociative attachment of electrons to Br ₂ and HBr. Appl. Phys. Lett. 32, 804 (1978) United States
542	H11 hv + [e + Ne]; hv + [e + He]	E	10.6 μm	Alroy, S.; Christensen, W. H. Observation of electron-neutral inverse bremsstrahlung in an electron-beam-sustained discharge. Appl. Phys. Lett. 32, 607 (1978) United States
543	G05 e + [He + F ₂]; e + He	E	300 K	Nygaard, K. J.; Fletcher, J.; Hunter, S. R.; Fcityn, S. R. Electron drift velocities in helium-fluorine gas mixtures. Appl. Phys. Lett. 32, 812 (1978) United States
544	H02 hv + Ar ₂ ⁺ ; hv + Xe ₂ ⁺ ; hv + Ne ₂ ⁺	E	340 nm	Rokni, M.; Jacob, J. H.; Mangano, J. A. Absorption in Ne- and Ar-rich XeF ₂ laser mixtures. Appl. Phys. Lett. 32, 622 (1978) United States
545	A11 KrF ⁺ + F ₂ ; KrF ⁺ + [Kr + Kr]	E	300 K	Quigley, G. P.; Hughes, W. M. The radiative lifetime and quenching of KrF. Appl. Phys. Lett. 32, 827 (1978) United States
546	A11 Kr ₂ F ⁺ + F ₂ ; Kr ₂ F ⁺ + Kr; Kr ₂ ⁺ + F ₂ ; Kr ₂ ⁺ + Kr	E	300 K	Quigley, G. P.; Hughes, W. M. Lifetime and quenching rate constants for Kr ₂ F ⁺ and Kr ₂ ⁺ . Appl. Phys. Lett. 32, 649 (1978) United States
547	H08 hv + I ₂	E	0.6 μm	Davis, S. J. Dye laser pumped steric iodine laser. Appl. Phys. Lett. 32, 856 (1978) United States
548	F02 H ₂ ⁺	T		de Mello, L. C.; Lás, T. K.; Héffelfá, H. C.; Hirãndã, L. C. P.; Erãndi, E. S. The H ₂ ⁺ molecule in strong magnetic fields, studied by the method of linear combinations of orbitals. Phys. Rev. A 18, 12 (1978) Brazil
549	A17 Undef	T	Undef	Kelsey, E. J.; Spruch, L. Retardation effects on high Rydberg states: A retarded R ⁻³ polarization potential. Phys. Rev. A 18, 15 (1978) United States
550	A03 H ⁺ + He; H ⁺ + Ne; H ⁺ + Ar; H ⁺ + Kr; H ⁺ + Xe A06 H ⁺ + He; H ⁺ + Ne; H ⁺ + Ar; H ⁺ + Kr; H ⁺ + Xe	E	10-150 keV	Doughly, B. M.; Good, M. L.; Cernosek, R. W. Electron capture into the 4s state of atomic hydrogen by H ⁺ impact on noble gases. Phys. Rev. A 18, 25 (1978) United States
551	E03 e + Na Dea E05 e + Na Seq	T	0-50 keV	Kis, Y.-K.; Cheng, K.-T. Bethe cross sections for the sodium isoelectronic sequence. Phys. Rev. A 18, 30 (1978) United States
552	A03 H ⁺ + He A18 H ⁺ + He	E	25-100 keV	Park, J. I.; George, J. M.; Peacher, J. L.; Aldag, J. E. Angular differential cross sections for 2E-, 50-, and 100-keV-proton excitation of helium to the n=2 level. Phys. Rev. A 18, 48 (1978) United States
553	A03 He ⁺ + Na; He ⁺ + K; H ⁺ + Na; H ⁺ + K A06 He ⁺ + Na; He ⁺ + K; H ⁺ + Na; H ⁺ + K	E	10-800 eV	Bearman, G. H.; Aispach, S. D.; Leventhal, J. J. Inelastic processes leading to excited-state formation in He ⁺ and H ⁺ collisions with Na and K. Phys. Rev. A 18, 68 (1978) United States

REF. NO.	REACTANTS	EXP CR THEOR	ENERGY RANGE	REFERENCE
554	E03 e + N ₂ E17 e + N ₂	T	3.9-39.3 eV	Rahman, N. K.; Giunterco, F. A.; Lemanna, U. I. Glauber amplitudes for rotational excitation in e ⁻ -molecule scattering via quadrupole potentials. Phys. Rev. A 18, 74 (1978) Italy
555	E05 e + Rb ⁺	E	27-2000 eV	Feeney, R. K.; Sayle, W. E., II; Divine, T. F. Absolute experimental cross sections for the electron-impact ionization of Rb ⁺ ions. Phys. Rev. A 18, 82 (1978) United States
556	A03 He ²⁺ + He; He ²⁺ + Ne; He ²⁺ + H ₂ ; He ²⁺ + C ₂ A06 He ²⁺ + He; He ²⁺ + Ne; He ²⁺ + H ₂ ; He ²⁺ + C ₂	E	4-600 eV	Myers, G. E.; Ambrase, J. G.; James, P. B.; Leventhal, J. J. Spin conservation in electron-capture collisions. Phys. Rev. A 18, 85 (1978) United States
557	A01 Undef	T	Undef	Thorson, W. R.; Delos, J. E. Theory of near-adiabatic collisions. I. Electron transition factor method. Phys. Rev. A 18, 117 (1978) Canada
558	A01 Undef	T	Undef	Thorson, W. R.; Delos, J. E. Theory of near-adiabatic collisions. II. Scattering coordinate method. Phys. Rev. A 18, 125 (1978) Canada
559	A04 H ₃ ⁺ + Ar; H ₃ ⁺ + H ₂ ; H ₃ ⁺ + Air A06 H ₃ ⁺ + Ar; H ₃ ⁺ + H ₂ ; H ₃ ⁺ + Air A07 H ₃ ⁺ + Ar; H ₃ ⁺ + H ₂ ; H ₃ ⁺ + Air	E	400-800 keV	Nir, D.; Rosner, E.; Mann, A.; Kantor, J. Charge-state distribution of products from dissociative collisions of 400-800-keV H ₃ ⁺ ions: Experiment and semiempirical model. Phys. Rev. A 18, 156 (1978) Israel
560	H05 hν + H ₂ H06 hν + H ₂	E	40 eV	Dehmer, J. L.; Dill, D. Photocion angular distributions in dissociative photoionization of H ₂ at 304 Å. Phys. Rev. A 18, 164 (1978) United States
561	B02 Undef H05 Undef	T	H05 Undef	Lau, A. M. F. Laser-induced molecular predissociation without absorption or emission of laser photons. Phys. Rev. A 18, 172 (1978) United States
562	B07 Undef	T		Mavroyannis, C. Two-atom resonance fluorescence. Phys. Rev. A 18, 185 (1978) Canada
563	F01 Au	T		Kim, Y. S.; Oh, S. D.; Frett, R. H. Analytic description of inner-shell bound-bound transitions. Phys. Rev. A 18, 194 (1978) United States
564	F01 Fe ²³⁺ ; Fe ²²⁺	E		Dietrich, L. E.; Leavitt, J. A.; Eshkin, S.; Conway, J. G.; Gould, H.; MacDonald, L.; Marrus, R.; Johnson, B. M.; Fegh, D. J. Oscillator strengths of the 2s ² S _{1/2} - 2p ² F _{3/2} transitions in Fe XXIV and the 2s ² S _{1/2} - 2s2p ³ P _{1,0} transition in Fe XXIII. Phys. Rev. A 18, 208 (1978) United States
565	F01 He A11 He ⁺ + He	E	A11 300 K	Kramer, P. B.; Pipkin, F. M. New measurement of the fine structure in the 3 ² P state of ⁴ He. Phys. Rev. A 18, 212 (1978) United States
566	F01 H ₂	E		Reid, J.; McKellar, A. R. W. Observation of the S ₀ (3) pure rotational quadrupole transition of H ₂ with a tunable diode laser. Phys. Rev. A 18, 224 (1978) Canada
567	A06 H ⁺ + H A18 H ⁺ + H	T	15-200 keV	Shakestaff, R. Angular distribution for electron capture by protons from hydrogen atoms in the energy range 15-200 keV. Phys. Rev. A 18, 247 (1978) United States
568	F01 He Se _q	T		Kelsey, E. J.; Sucher, J. *Erratum 2 ³ S _{1/2} + 1 ¹ S ₀ + one photon in heliumlike ions: Exact result for the lowest-order effect of the electron-electron interaction [Phys. Rev. A 11, 1829 (1975)]. Phys. Rev. A 18, 305 (1978) United States

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569	A06 H ⁺ + H A18 H ⁺ + H	T	Undef	Glenbocki, O.; Halpern, A. P. *Erratum Angular distribution in proton-hydrogen charge-transfer collisions [Phys. Rev. A 16, 5E1 (1977)]. Phys. Rev. A 18, 305 (1978) United States
570	H06 Undef	T	Undef	McGuire, E. J. *Erratum Multiplet effects on the widths of photoelectron peaks [Phys. Rev. A 10, 32 (1974)]. Phys. Rev. A 18, 305 (1978) United States
571	D06 e + C; e + Al; e + Ti; e + Cu; e + Ag; e + Au C02 e + C; e + Al; e + Ti; e + Cu; e + Ag; e + Au	E T	5-30 keV	Love, G.; Cox, M. G.; Scott, V. D. A versatile atomic number correction for electron-probe microanalysis. J. Phys. D 11, 7 (1978) United Kingdom
572	D04 e + Ni; e + Ti; e + Al D06 e + Ni; e + Ti; e + Al	T	1.5-30 keV	Love, G.; Cox, M. G.; Scott, V. D. The surface ionisation function Phi(0) derived using a Monte Carlo method. J. Phys. D 11, 23 (1978) United Kingdom
573	E06 e + Kr, + E04 e + Kr, +	E	Thermal	Mikus, L. Electron temperature dependence of the dissociative recombination coefficient in krypton. J. Phys. D 11, L39 (1978) Czechoslovakia
574	G05 e + Hg; e + Na; e + Tl	E	Thermal	Nakamura, Y.; Lucas, J. Electron drift velocities in mercury, sodium and thallium vapours: I. Experimental. J. Phys. D 11, 325 (1978) United Kingdom
575	G05 e + Hg; e + Na; e + Tl G09 e + Hg; e + Na; e + Tl	T	Thermal	Nakamura, Y.; Lucas, J. Electron drift velocity and momentum cross-section in mercury, sodium and thallium vapours: II. Theoretical. J. Phys. D 11, 337 (1978) United Kingdom
576	D15 H ₂ ⁺ + Si D07 H ⁺ + Si	T	D15 0.8-1.2 MeV D07 1.0 MeV	Nashiyama, I. Depth profile analysis of proton damage by channeling. Phys. Rev. B 17, 104 (1978) Japan
577	D15 He ⁺ + Cu	T	Undef	Baske, M. I.; Holtrook, J. H. Volume changes in copper due to point defects. Phys. Rev. B 17, 422 (1978) United States
578	D05 hv + [Cu + Ni]	E	21 eV	Heilmann, P.; Noddermeyer, H.; Fesses, P. High-resolution photoemission study of the surface and bulk electronic structure of copper-nickel alloys. Phys. Rev. B 17, 427 (1978) West Germany
579	D05 hv + Ag	E	7-11.6 eV	Hansson, G. V.; Flodstrom, S. A. Angular-resolved photoemission from low-index crystal faces of silver--bulk and surface contributions. Phys. Rev. B 17, 472 (1978) Sweden
580	D05 hv + Cu	E	32-100 eV	Stopp, J.; Wahnner, P. S.; Williams, M. S.; Apsel, G.; Shirley, D. A. Bulk versus surface effects in normal photoemission from Cu(110) in the range 32 less than or equal to hv less than or equal to 160 eV. Phys. Rev. B 17, 567 (1978) United States
581	D06 e + Be	E T	200 keV	Meixner, A. E.; Schluter, M.; Platzman, F. M.; Bruns, G. B. Inelastic electron scattering near the K edge in Be. Phys. Rev. B 17, 686 (1978) United States
582	D04 e + Si	T	Undef	Feibelman, F. J.; McGuire, E. J. Valence-band Auger line shapes for Si surfaces: Simplified theory and corrected numerical results. Phys. Rev. B 17, 650 (1978) United States
583	D04 e + W D06 e + W	E T	Undef	McRae, E. G. Measurement of surface resonance bands on W(001). Phys. Rev. B 17, 507 (1978) United States

REF. NO.	REACTANTS	EXP CR THEOR	ENERGY RANGE	REFERENCE
584	D04 e + W D06 e + W	E T	Undef	Willis, R. F. Surface-resonance-band fine structure in low-energy-electron diffraction from W(001). Phys. Rev. B 17, 909 (1978) The Netherlands
585	D07 He ⁺ + Be C08 He ⁺ + Be	E	1.9 MeV	Kaufmann, E. A. Oscillatory channeled-ion scattering yield in beryllium. Phys. Rev. B 17, 1024 (1978) United States
586	D04 Kr ⁺ + Ti; Kr ⁺ + Cu; Xe ⁺ + Ti; Xe ⁺ + Cu; Ar ⁺ + Ti; Ar ⁺ + Ni; Ar ⁺ + Cu; Ar ⁺ + Zr; Ar ⁺ + Nb; Ar ⁺ + Mo; Ar ⁺ + Pd; Ar ⁺ + Ag; Ar ⁺ + Ta; Ar ⁺ + W; Ar ⁺ + Au	E	1.05 keV	Oechsner, H. Electron yields from clean polycrystalline metal surfaces by noble-gas-ion bombardment at energies around 1 keV. Phys. Rev. B 17, 1052 (1978) West Germany
587	D06 e + W	E	20-150 eV	Kalisvaart, M.; C'Neill, M. R.; Riddle, T. W.; Dunning, F. B.; Walters, G. K. Electron-spin polarization in low-energy electron diffraction from tungsten (001). Phys. Rev. B 17, 1570 (1978) United States
588	D05 Undef	T	Undef	Wallace, S.; Dill, D. Detector-integrated angular distribution: Chemisorption-site geometry, axial-recoil photofragmentation, and molecular-beam orientation. Phys. Rev. B 17, 1692 (1978) United States
589	D05 hν + Ni	E	16.8 eV	Weeks, S. P. Final-state effects in angle-resolved photoemission from Ni(100). Phys. Rev. B 17, 1738 (1978) United States
590	H06 hν + Ne H04 hν + Mg ²⁺ ; hν + Al ³⁺	T	H06 10-90 eV H04 70-140 eV	Bryant, G. W.; Mahan, G. D. Atoms in jellium. Phys. Rev. B 17, 1744 (1978) United States
591	D05 hν + As	T	1.0 keV	Pollard, W. B.; Joannopoulos, J. I. Excitations in amorphous pyramidally bonded solids. I. Electrons. Phys. Rev. B 17, 1770 (1978) United States
592	H06 hν + CO	T	10 eV	Wallace, S.; Dill, D.; Dehmer, J. L. Fixed-structure photoelectron angular distributions: K-shell cross sections of CO at fixed detection angles. Phys. Rev. B 17, 2004 (1978) United States
593	D05 hν + BaTiO ₃ ; hν + KNbO ₃	E T	1.0 keV	Fertosa, F.; Michel-Calendari, F. M. X-ray photoelectron spectra, theoretical band structures, and densities of states for BaTiO ₃ and KNbO ₃ . Phys. Rev. B 17, 2011 (1978) France
594	D05 hν + H + W; hν + W	E	13-20 eV	Andersen, J.; Lapeyre, G. J.; Smith, F. J. Symmetry-related polarization effects in angle-resolved synchrotron photoemission from W(001) and W(001) + H. Phys. Rev. B 17, 2436 (1978) United States
595	D04 Undef	T	Undef	Cini, M. Theory of the Auger effect in solids: Plasmon effects in electron spectroscopies of valence states. Phys. Rev. B 17, 2486 (1978) Italy
596	D05 hν + NaCl	E	15-30 eV	Himpel, F.-J.; Steinsmann, W. Angle-resolved photoemission from the NaCl(100) face. Phys. Rev. B 17, 2537 (1978) West Germany
597	D05 hν + Cl + Si; hν + Si	E	20 eV	Lassen, P. K.; Smith, N. V.; Schluter, M.; Ho, K. M.; Cohen, M. L.; Farrell, H. H. Surface energy bands and atomic position of Cl chemisorbed on cleaved Si(111). Phys. Rev. B 17, 2612 (1978) The Netherlands
598	F01 He	T		Jankowski, K.; Malinowski, F.; Folesik, M. Application of a modified interelectronic potential to the calculation of the energy of some helium S states (E-SUM). Acta Phys. Pol. A 53A, 123 (1976) Poland

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599	F01 H _p	T		Kolos, W.; Rychlewski, J. Improved ground state dissociation energy for the hydrogen molecule (E,SUM). Acta Phys. Pol. A 53A, 281 (1978) Poland
602	F01 Si ⁺	T		Brzezowska, J. SCF treatment of higher excited states of atoms. Transition probabilities between excited states of Si II (E,SUM). Acta Phys. Pol. A 54A, 243 (1978) Poland
603	E03 e + H	T	2-300 E/ΔE	Sobeslavsky, E. Vergleich von klassischen und Born-Wirkungsquerschnitten bei Elektronenstoßen am H-Atom. Mit 3 Abbildungen. Ann. Phys. (Germany) 35, 81 (1978) East Germany
604	H02 Review	E	9.2-10.6 μm	Mayer, A.; Comera, J.; Cherpentier, R.; Jaussaud, C. Absorption coefficients of various pollutant gases at CO ₂ laser wavelengths: application to the remote sensing of those pollutants. Appl. Opt. 17, 251 (1978) France
605	H08 hν + NU _p	E	6600-4200 Å ⁰	Barnes, R. H.; Kircher, J. F. Laser NO ₂ fluorescence measurements in flames. Appl. Opt. 19, 1899 (1978) United States
606	H02 hν + NO	E	2262 Å ⁰	Tajima, T.; Seheki, T.; Ito, K. Absorption characteristics of the γ-O band of nitric oxide. Appl. Opt. 17, 1290 (1978) Japan
607	H02 hν + H ₂ O	E	1200 cm ⁻¹	Montgomery, G. F., Jr. Temperature dependence of infrared absorption by the water vapor continuum near 1200 cm ⁻¹ . Appl. Opt. 17, 2255 (1978) United States
608	H02 hν + H ₂ O	E	4.0-3.5 μm	White, K. C.; Watkins, W. R.; Bruce, C. W.; Meredith, R. E.; Smith, F. G. Water vapor continuum absorption in the 3.5-4.0-μm region. Appl. Opt. 17, 2711 (1978) United States
609	H02 hν + SO ₂	E	2.10-8.95 μm	Boscher, J.; Schafer, G.; Englisch, W.; Wiesemann, W. Sulfur dioxide absorption cross sections for ¹² C ¹⁶ O ₂ laser lines around 9 μm. Appl. Opt. 17, 3347 (1978) West Germany
610	D13 e + [O ₂ + W] D17 e + [O ₂ + W]	E	100 eV	Steinbruechel, C.; Gomer, R. Oxygen adsorption on the tungsten (110) plane. Electron impact and thermal desorption at high temperatures. Appl. Phys. (Germany) 15, 141 (1978) United States
611	D13 e + [CO + Ru]	E	100 eV	Faulner, F.; Engelhardt, H. A.; Merzel, D. CO on Ru(001): Electron stimulated desorption and its correlation with other measurements. Appl. Phys. (Germany) 15, 355 (1978) West Germany
612	D02 Ni + Ni	E	0.075-3.0 keV	Hechtel, E.; Bay, H. L.; Bohdanský, J. Low energy self-sputtering yields of nickel. Appl. Phys. (Germany) 14, 167 (1978) West Germany
613	D07 H + Cu; H + Fe; H + SS	T	0.1-100 keV	Littmark, U.; Gros-Marti, A. Energy spectra of light ions backscattered from various solids. Appl. Phys. (Germany) 16, 247 (1978) Denmark
614	D02 Ar ⁺ + [O ₂ + Ti]; Ar ⁺ + [O ₂ + V]; N ₂ ⁺ + [O ₂ + Ti]; N ₂ ⁺ + [O ₂ + V]	E	11 keV	Hofer, W. D.; Martin, F. J. On the influence of reactive gases on sputtering and secondary ion emission. Oxidation of titanium and vanadium during energetic particle irradiation. Appl. Phys. (Germany) 16, 271 (1978) West Germany
615	D14 He + Rh	E	21 keV	van Guyse, J.; Nandedkar, R. V.; Stals, L.; Deruytter, A. Blistering of rhodium irradiated with 21 keV helium ions. Appl. Phys. (Germany) 17, 65 (1978) Belgium
616	D07 H + Ni	T	0.1-5 keV	Hou, M.; Robinson, M. T. Mechanisms for the reflection of light atoms from crystal surfaces at kiloelectron volt energies. Appl. Phys. (Germany) 17, 255 (1978) United States

REF. NO.	REACTANTS	EXP CR THEOR	ENERGY RANGE	REFERENCE
617	D07 H + Cu; N + Cu; Ne + Cu; Ar + Cu; Cu + Cu; Xe + Cu; Au + Cu	T	0.1-7.5 keV	Hou, M.; Robinson, M. T. The conditions for total reflection of low-energy atoms from crystal surfaces. <i>Appl. Phys. (Germany)</i> 17, 371 (1978) United States
618	H08 hν + AsH ₃	E	1900 Å ⁰	Heithner, E. M.; Plenkey, F. W. Continuum source atomic fluorescence of arsenic. <i>Appl. Spectrosc.</i> 32, 208 (1978) United States
619	H02 hν + SF ₆	E	940-552 cm ⁻¹	Kia, K. C.; Hillard, R. F.; Filip, H. Infrared spectroscopy in supersonic molecular beams: ν ₃ band of SF ₆ at 10.6 μm. <i>Appl. Spectrosc.</i> 32, 267 (1978) United States
620	H02 hν + Na H08 hν + Na	E	5890 Å ⁰	Hosch, J. W.; Pieppeler, E. H. Laser saturation broadening in flame absorption and fluorescence experiments. <i>Appl. Spectrosc.</i> 32, 444 (1978) United States
621	H02 hν + CH ₄ ; hν + C ₂ H ₂	E	2948 cm ⁻¹	Olson, I. E.; Møller, W. G.; Gardiner, W. C., Jr. High temperature absorption of the 3.35 μm He-Ne laser line by small hydrocarbons. <i>Appl. Spectrosc.</i> 32, 485 (1978) United States
622	E03 e + C ²⁺ ; e + O ⁺⁺ E07 e + C ²⁺ ; e + O ⁺⁺ A03 H ⁺ + O ⁺⁺	T	10 ⁵ K	Dufton, P. L.; Errington, K. A.; Burke, P. G.; Kingston, A. E. The interpretation of CIII and OIV emission line ratios in the sun. <i>Astron. Astrophys.</i> 62, 111 (1978) United Kingdom
623	F01 Si ⁺	E		Jamar, C.; Macau-Hercot, I.; Frederic, F. Absolute ultraviolet spectrophotometry from the ID1 satellite X. The ultraviolet spectrum of the Ar stars. <i>Astron. Astrophys.</i> 63, 155 (1978) Belgium
624	H07 hν + D ⁻	E	2200 Å ⁰	Rudkjobing, M. Interstellar heating by photoelectrons from negative oxygen. <i>Astron. Astrophys.</i> 63, 185 (1978) Denmark
625	H11 hν + e H12 hν + e	T	Undef	Miyamoto, S. Radiative transfer effect in an ionized medium at high temperature. <i>Astron. Astrophys.</i> 63, 65 (1978) Japan
626	A06 C ⁺ + H; C ³⁺ + H; N ⁺ + H; N ²⁺ + H; O ²⁺ + H; Ne ²⁺ + H; S ⁺ + H; S ³⁺ + H	T	10 ⁴ K	Pequignot, D.; Aldrovandi, S. M. V.; Stasinska, G. Charge transfer reactions: A consistent model of the planetary nebula NGC 7027. <i>Astron. Astrophys.</i> 63, 313 (1978) France
627	F01 Ti	E		Kuhne, M.; Danzmann, K.; Kock, F. Oscillator strengths of TiI from Hook and emission measurements. <i>Astron. Astrophys.</i> 64, 111 (1978) West Germany
628	F01 C ²⁺	T		Nussbaumer, H.; Storey, P. J. The CIII transition probabilities. <i>Astron. Astrophys.</i> 64, 139 (1978) Switzerland
629	F01 Ni ⁺	E		Molty, J. Oscillator strengths for some NiII lines in the near-ultraviolet from well-stabilized arc measurements. <i>Astron. Astrophys.</i> 64, 165 (1978) France
630	F01 Ti	E		Gehlsen, M.; Holweger, H.; Danzmann, K.; Kock, M.; Kuhne, M. A solar abundance study using recent TiI oscillator strengths. <i>Astron. Astrophys.</i> 64, 285 (1978) West Germany

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631	E03 e + He Seq E06 e + He Seq E07 e + He Seq H04 hv + He Seq A03 H ⁺ + He Seq; He ⁺ + He Seq E05 e + Li Seq	T	10 ³ -10 ⁶ K	Mewe, R.; Schrijver, J. Heliumlike ion line intensities. I. Stationary plasmas. Astron. Astrophys. 65, 99 (1978) The Netherlands
632	E03 e + He Seq E06 e + He Seq E07 e + He Seq E05 e + Li Seq	T	10 ⁷ K	Mewe, R.; Schrijver, J. Heliumlike ion line intensities. II. Non-stationary plasmas. Astron. Astrophys. 65, 115 (1978) The Netherlands
633	E03 e + C ²⁺ ; e + O ⁺	T	10 ⁵ K	Feldman, U.; Loeschek, G. A. The electron density at 10 ⁵ K in different regions of the solar atmosphere derived from an intersystem line of C IV. Astron. Astrophys. 66, 216 (1978) United States
634	B01 Undef B07 Undef	T		Landi Degl'Innocenti, E. Non-LTE line formation in a magnetic field. The two-level atom with a frequency independent source function. I: Formulation. Astron. Astrophys. 66, 115 (1978) Italy
635	B01 Undef	T		Stenflo, J. C. Resonance-line polarization. III. The Hanle effect in a compact non-LTE radiative transfer formulation. Astron. Astrophys. 66, 241 (1978) Sweden
636	E03 e + OH A03 H + OH; H + OH	T	100 K	Guibert, J.; Elitzur, P.; Nguyen-Q-Rieu OH excitation in interstellar clouds. Astron. Astrophys. 66, 395 (1978) France
637	E03 e + Li E05 e + Li H06 hv + Li	T	E03; E05 2000-5000 K H06 3500-1200 A ⁰	de la Reza, R.; Querci, F. Lithium line formation in carbon stars. Astron. Astrophys. 67, 7 (1978) France
638	E03 e + Fe ¹⁰⁺ ; e + Fe ¹¹⁺ F01 Fe ¹⁰⁺ ; Fe ¹¹⁺ ; Fe ¹²⁺ ; Si ¹⁰⁺ ; Si ¹¹⁺ Si ¹⁰⁺ ; Si ¹¹⁺	E T	E03 10 ⁶ K	Kastner, S. O.; Mason, H. E. Limb-brightening observations for the OGC-7 satellite. III. Comparison of EUV line intensities of Fe XII, Fe XI, Fe X, Si X and S XII, Si IX and S XI with predictions. Astron. Astrophys. 67, 119 (1978) United States
639	E02 e + H ₂ ; e + N ₂ H11 hv + e	T	E02 10 eV H11 2E20-83E0 K	John, T. L. Neutral Bremsstrahlung from molecular hydrogen and nitrogen. Astron. Astrophys. 67, 355 (1978) United Kingdom
640	A06 C ⁺ + H; C + H ⁺	T	10 ⁴ K	Hippelstein, H.; Munch, G. Neutral carbon emission in M42. Astron. Astrophys. 68, 17 (1978) West Germany
641	H05 hv + CO; hv + OH; hv + CH; hv + H ₂ CO; hv + NH ₃	T	5000-1000 A ⁰	Sandell, G. Lifetime of molecules in a dark cloud model. Astron. Astrophys. 65, 65 (1978) Finland
642	A06 H ⁺ + D	T	25-100 K	Watson, W. E.; Christensen, R. E.; Leisler, R. J. Rate coefficient for H ⁺ + D + H + I ⁺ near threshold: Significance for interstellar clouds. Astron. Astrophys. 69, 155 (1978) United States
643	E03 e + Fe ⁵⁺ F01 Fe ⁵⁺	T	E03 0.4-1 Ry	Nussbaumer, H.; Storey, P. J. [Fe VI] emission under nebular conditions. Astron. Astrophys. 70, 37 (1978) Switzerland

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644	A12 He + Al; Ar + Al	E	1400 K	Rondigs, G.; Kusch, H. J. Excitation and shift of neutral aluminum lines by van der Waals-interaction with argon and helium atoms. <i>Astron. Astrophys.</i> 70, 151 (1978) West Germany
645	A03 H + H ₂	T	500-5000 K	Elitzur, M.; Watson, W. D. Cooling by H ₂ molecules in hot interstellar gases. <i>Astron. Astrophys.</i> 70, 443 (1978) United States
646	E05 e + PERT E06 e + PERT	T	10 ⁴ -10 ⁶ K	Jain, N. K.; Narain, U. Ionization equilibrium of some elements of astrophysical importance. <i>Astron. Astrophys., Suppl. Ser.</i> 31, 1 (1978) India
647	H06 hν + C ²⁺	T	5000-70 A ⁰	Sekhibullin, N.; Willis, A. J. Photoionization cross sections for some CIV levels. <i>Astron. Astrophys., Suppl. Ser.</i> 31, 11 (1978) Soviet Union
648	F01 Na Seq	T		Biemont, E. Theoretical f values for sodium-like ions (11 less than or equal to 2 less than or equal to 26). <i>Astron. Astrophys., Suppl. Ser.</i> 31, 265 (1978) Belgium
649	E11 e + PERT E06 e + PERT E07 e + PERT	T	10 ⁴ -10 ⁶ K	Gronenschild, E. H. B. M.; Mewe, R. Calculated X-radiation from optically thin plasmas. III. Abundance effects on continuum emission. <i>Astron. Astrophys., Suppl. Ser.</i> 32, 283 (1978) The Netherlands
650	H06 hν + He; hν + He ⁺ ; hν + He ²⁺ ; hν + C; hν + C ⁺ ; hν + C ²⁺ ; hν + N; hν + N ⁺ ; hν + N ²⁺ ; hν + O; hν + O ⁺ ; hν + O ²⁺ ; hν + Ne; hν + S ²⁺ ; hν + Ne ⁺ ; hν + Ne ²⁺ ; hν + S ⁺ ; hν + S	T	0.1-100 eV	Stasinska, G. Ionization and temperature structure of HII regions: the influence of the star, the gas density and its chemical composition. <i>Astron. Astrophys., Suppl. Ser.</i> 32, 429 (1978) France
651	E03 e + He Seq	T	10 ⁴ -10 ⁶ K	Mewe, R.; Schrijver, J. Heliumlike ion line intensities. III. Results. <i>Astron. Astrophys., Suppl. Ser.</i> 33, 311 (1978) The Netherlands
652	H02 hν + Si ⁺ ; hν + Si ²⁺ ; hν + Si ³⁺	T	5000-1000 A ⁰	Kamp, L. W. On the theory of silicon spectra in C and B stars. <i>Astrophys. J., Suppl. Ser.</i> 36, 143 (1978) United States
653	A03 H ₂ + H ₂	T	2 x 10 ⁴ K	Green, S.; Ramaswamy, R.; Feibitz, H. Collisional excitation of interstellar molecules: H ₂ . <i>Astrophys. J., Suppl. Ser.</i> 36, 483 (1978) United States
654	A03 He + CC; He + CS; He + OCS; He + HC ₃ N; H ₂ + CO; H ₂ + CS; H ₂ + OCS; H ₂ + HC ₃ N	T	10-100 K	Green, S.; Chapman, S. Collisional excitation of interstellar molecules: linear molecules of CO, CS, OCS, and HC ₃ N. <i>Astrophys. J., Suppl. Ser.</i> 37, 165 (1978) United States
655	A03 He + H ₂ CO	T	10-80 K	Green, S.; Garrison, E. J.; Lester, W. A., Jr.; Miller, W. H. Collisional excitation of interstellar formaldehyde. <i>Astrophys. J., Suppl. Ser.</i> 37, 321 (1978) United States
656	F01 PERT	E		Cohen, L.; Feldman, U.; Doschek, G. A. XUV spectra of the 1973 June 15 solar flare observed from Skylab. III. A list of spectral lines from 1000 to 1540 A ⁰ . <i>Astrophys. J., Suppl. Ser.</i> 37, 353 (1978) United States
657	E03 e + H Seq	T	0.1-100 keV	Golden, L. E.; Sassoon, D. F. Scaled Coulomb-Born-Oppenheimer collision strengths for hydrogenic ions in the limit 2 = infinity. <i>Astrophys. J., Suppl. Ser.</i> 38, 19 (1978) United States
658	F01 H Seq; He Seq	T		Vainshtein, L. A.; Safronova, U. I. Wavelengths and transition probabilities of satellites to resonance lines of H- and He-like ions. <i>Atomic Data and Nuclear Data Tables</i> 21, 45 (1978) Soviet Union

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659	G09 e + He; e + O; e + Ne; e + Ar; e + H ₂ ; e + H ₂ ; e + CO; e + H ₂ O; e + CO ₂ ; e + Li; e + K	E T	0.01-10 eV	Itikawa, Y. Momentum-transfer cross sections for electron collisions with atoms and molecules: revision and supplement, 1977. Atomic Data and Nuclear Data Tables 21, 65 (1978) Japan
660	J01 Review	E	0.015-50 MeV/eau	Gardner, F. K.; Gray, T. J. Cross sections for K-shell ionization, x-ray production, or Auger-electron production by ion impact. Atomic Data and Nuclear Data Tables 21, 515 (1978) United States
661	J01 Review	E	Undef	Albritton, D. L. Ion-neutral reaction-rate constants measured in flow reactors through 1977. Atomic Data and Nuclear Data Tables 22, 1 (1978) United States
662	E04 e + [F ₂ + Ar] E09 e + [F ₂ + N ₂]	E	0.9-4.0 eV	Schneider, B. I.; Brau, C. A. Dissociative attachment of electrons to F ₂ . Appl. Phys. Lett. 33, 565 (1978) United States
663	A09 Kr ⁺ + [F ⁻ + He]; Kr ⁺ + [F ⁻ + Ne]; Kr ⁺ + [F ⁻ + Ar]; Kr ⁺ + [F ⁻ + Xe]; Kr ₂ ⁺ + [F ⁻ + He]; Kr ₂ ⁺ + [F ⁻ + Ne]; Kr ₂ ⁺ + [F ⁻ + Ar]; Kr ₂ ⁺ + [F ⁻ + Xe]	T	300 K	Flannery, M. F.; Yang, T. F. Ionic recombination of Kr ⁺ and Kr ₂ ⁺ with F ⁻ in dense buffer rare gases. Appl. Phys. Lett. 33, 574 (1978) United States
664	D13 He ⁺ + [CO + Ni]; Ne ⁺ + [CO + Ni]; Ar ⁺ + [CO + Ni]	E	2 keV	MacDonald, R. J.; Holland, W.; Taglauer, E. A comparison of surface analysis using ion scattering, ion-produced photons, and secondary ion emission. Appl. Phys. Lett. 33, 576 (1978) West Germany
665	D03 Undef	T	Undef	Deline, V. R.; Evans, C. A., Jr.; Williams, P. A unified explanation for secondary ion yields. Appl. Phys. Lett. 33, 578 (1978) United States
666	A03 XeF + CHF ₃ ; XeF + CClF ₃ ; XeF + F ₂ ; XeF + NF ₃ ; XeF + Xe; XeF + CF ₄ ; XeF + Kr; XeF + N ₂ ; XeF + SF ₆ ; XeF + Ar; XeF + He; XeF + Ne A11 XeF + CHF ₃ ; XeF + CClF ₃ ; XeF + F ₂ ; XeF + NF ₃ ; XeF + Xe; XeF + CF ₄ ; XeF + Kr; XeF + N ₂ ; XeF + SF ₆ ; XeF + Ar; XeF + He; XeF + Ne	E	300 K	Brashears, H. C., Jr.; Setser, D. L. Transfer and quenching rate constants for XeF(III,1/2) and XeF(II,3/2). Appl. Phys. Lett. 33, 521 (1978) United States
667	D03 O ⁻ + [B + Sn]; O ⁻ + [B + Ge]; O ⁻ + [B + GaAs]; O ⁻ + [B + Si]; O ⁻ + [Sb + Sn]; O ⁻ + [Sb + Ge]; O ⁻ + [Sb + GaAs]; O ⁻ + [Sb + Si]; O ⁻ + [As + Sn]; O ⁻ + [As + Ge]; O ⁻ + [As + Si]; O ⁻ + [P + Sn]; O ⁻ + [P + Ge]; O ⁻ + [P + GaAs]; O ⁻ + [P + Si]; O ⁻ + [P + C]; Cs ⁺ + [F + Sn]; Cs ⁺ + [F + GaAs]; Cs ⁺ + [F + Ge]; Cs ⁺ + [F + Si]; Cs ⁺ + [Sb + Sn]; Cs ⁺ + [Sb + GaAs]; Cs ⁺ + [Sb + Si]; Cs ⁺ + [C + Sn]; Cs ⁺ + [C + Si]; Cs ⁺ + [As + Sn]; Cs ⁺ + [As + GaAs]; Cs ⁺ + [As + Si]; Cs ⁺ + [P + Sn]; Cs ⁺ + [P + GaAs]; Cs ⁺ + [P + Ge]; Cs ⁺ + [P + Si]; Cs ⁺ + [P + C]; Cs ⁺ + [B + GaAs]; Cs ⁺ + [B + Ge]; Cs ⁺ + [B + Si]; Cs ⁺ + [Pt ₂ Si]; Cs ⁺ + [PtSi]; Cs ⁺ + [Pd ₂ Si]; Cs ⁺ + [Ni ₂ Si]; Cs ⁺ + [NiSi]; Cs ⁺ + Si	E	Undef	Deline, V. R.; Katz, W.; Evans, C. A., Jr.; Williams, P. Mechanism of the SIMS matrix effect. Appl. Phys. Lett. 33, 532 (1978) United States
668	D12 H + Undef	T	1-50 keV	DeRaad, L. L., Jr.; Erber, T. Transition radiation from neutral beams of hydrogen isotopes. Appl. Phys. Lett. 33, 506 (1978) United States
669	D17 He ⁺ + Ta ₂ O ₅ ; Ar ⁺ + Ta ₂ O ₅	E	0.3-1.8 keV	Taglauer, E.; Holland, W. Mass and energy dependence of the equilibrium surface composition of sputtered tantalum oxide. Appl. Phys. Lett. 33, 950 (1978) West Germany

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670	A14 O* + CN	E	298 K	Schaatjko, K. J.; Wolfrum, J. Reactions of molecules in defined vibrational states, VI: energy distribution in the reactions $CN(v) + C(^3P)$, D_2 . <i>Ber. Bunsenges, Phys. Chem.</i> 82, 415 (1978) West Germany
671	A14 OH + CO	E	300 K	Biermann, H. B.; Zetzsch, C.; Stuhl, F. On the pressure dependence of the reaction of HO with CO. <i>Ber. Bunsenges, Phys. Chem.</i> 82, 623 (1978) West Germany
672	A14 H + S ₂ Cl ₂ ; H + SCl ₂ ; H + SCl ₂	E	300 K	Bardorf, W.; Heydtmann, H. Infrared chemiluminescence studies of the reactions H + S ₂ Cl ₂ , H + SCl ₂ , and H + SCl ₂ . <i>Ber. Bunsenges, Phys. Chem.</i> 82, 645 (1978) West Germany
673	A11 O ₂ * + H ₂ ; O ₂ * + D ₂	E	258 K	Kohse-Hainghaus, K.; Stuhl, F. H ₂ -laser photolysis study of the quenching of O ₂ (b ¹ I sub a ⁺) by H ₂ and D ₂ . <i>Ber. Bunsenges, Phys. Chem.</i> 82, 828 (1978) West Germany
674	A14 NH* + O ₂	E	256 K	Zetzsch, C.; Fanser, I. Rate constant for the reaction of NH(X ² E ⁻) with O ₂ , determined by pulsed vacuum uv photolysis of NH ₃ and resonance fluorescence detection of NH. <i>Ber. Bunsenges, Phys. Chem.</i> 82, 820 (1978) West Germany
675	A11 NH* + Xe; ND* + Xe; NH* + NO; ND* + NO	E	300 K	Zetzsch, C. Fast quenching processes for NH(b ¹ I ⁺) and ND(b ¹ I ⁺): the quenching by Xe, NO, benzene, propene, 1-butene, 1,3-butadiene, hydrazine, methylamine and methanol. <i>Ber. Bunsenges, Phys. Chem.</i> 82, 1058 (1978) West Germany
676	A14 Review	E T	300 K	Thrush, B. A. Laboratory kinetic studies in relation to atmospheric chemistry. <i>Ber. Bunsenges, Phys. Chem.</i> 82, 1155 (1978) United Kingdom
677	A14 OH + HO ₂	E	300 K	Hack, B.; Preuss, A. W.; Wagner, H. G. Rate measurement of the reaction of OH and HO ₂ radicals with laser magnetic resonance technique. <i>Ber. Bunsenges, Phys. Chem.</i> 82, 1167 (1978) West Germany
678	A14 OH + NO ₂ ; OH + NO; OH + SO ₂ ; ClO + NO ₂ ; NO ₂ + NO ₂	T	250-258 K	Zellner, F. Recombination reactions in atmospheric chemistry. <i>Ber. Bunsenges, Phys. Chem.</i> 82, 1172 (1978) West Germany
679	F01 D ₂	E		McKellar, A. F. W.; Oke, T. A study of the electric quadrupole fundamental band of D ₂ using an infrared difference frequency laser system. <i>Can. J. Phys.</i> 56, 1315 (1978) Canada
680	B01 H	T		Brandt, H. S.; Koeller, B. Hydrogen atoms in the presence of a homogeneous magnetic field: a variational approach. <i>Can. J. Phys.</i> 52, 1545 (1978) Canada
681	E04 e + H ₂ O; e + D ₂ O E05 e + H ₂ O; e + D ₂ O E09 e + H ₂ O; e + D ₂ O	E	0-31 eV	Lefalvre, D.; Marset, F. Electronization of D ₂ C and H ₂ C and study of fragments H* and CH*. <i>Can. J. Phys.</i> 52, 1545 (1978) Canada
682	H02 hv + [Ne + Xe]; hv + [Ar + Xe] B07 hv + [Ne + Xe]; hv + [Ar + Xe]	E	H02 2.3 cm ⁻¹	Dagg, I. F.; Feeser, G. E.; Wong, P. Collision-induced microwave absorption in Ne-Xe and Ar-Xe gaseous mixtures at 2.3 cm ⁻¹ . <i>Can. J. Phys.</i> 52, 1559 (1978) Canada
683	G07 Hg + N ₂	E	298 K	Oke, K.; Cvjetanovic, R. J. Study of Hg(³ P ₀) + Hg(³ P ₀) excitation induced by collisions with N ₂ using a double modulation technique. <i>Can. J. Phys.</i> 52, 1565 (1978) Canada
684	A14 F + HD	T	1-15 kcal/mol	Polanyi, J. C.; Schreiber, J. L. Test of the information theory of branching ratios by classical trajectory computations. <i>Chem. Phys.</i> 31, 112 (1978) Canada

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685	A17 Li + F; H + F; Li + F ₂ ; Li + HF	T	Undef	Zelri, Y.; Shapiro, M. Semi-empirical potential surfaces for electron transfer reactions: the Li + FH and Li + F ₂ reactions. Chem. Phys. 31, 217 (1978) Israel
686	K01 Review	E	Undef	Alfassi, Z. B.; Giniger, R.; Huler, E.; Reissler, H. Spectroscopy and energy distribution study of the Cl + HI chemical laser. Chem. Phys. 31, 263 (1978) Israel
687	A03 He + H ₂ ; Kr + CO ₂	T	0-1.0 eV	Schatz, G. C. A generalized Langevin equation approach to molecular collision dynamics. Chem. Phys. 31, 295 (1978) United States
688	B01 CO; N ₂	T		Gready, J. E.; Bacskay, G. E.; Hush, N. S. Comparison of multiple moment expansions by direct expansion or finite-field SCF methods with full electrostatic interaction energies: application to CO and N ₂ . Chem. Phys. 21, 376 (1978) Australia
689	A03 H ⁺ + H ₂	T	4.67-10 eV	Schinke, R.; McGuire, F. Combined rotationally sudden and vibrational exact quantum treatment of proton-H ₂ collisions. Chem. Phys. 31, 351 (1978) West Germany
690	A03 Ar + HCl; He + HCl; He + CO; He + HCN; H ₂ + CS; H ₂ + OCS	T	0-300 cm ⁻¹	Green, S. Computational test of the infinite order sudden approximation for excitation of linear rigid rotors by collisions with atoms. Chem. Phys. 31, 425 (1978) United States
691	B01 N ₂ ; CO; CN ⁻ ; HCN	T		Gready, J. E.; Bacskay, G. E.; Hush, N. S. Finite-field method calculations. IV. Higher-order moments, dipole moment gradients, polarizability gradients and field-induced shifts in molecular properties: application to N ₂ , CO, CN ⁻ , HCN and HNC. Chem. Phys. 31, 467 (1978) Australia
692	A11 Br ₂ ⁺ + Ar	T	90-1500 K	Freasier, B. C.; Jolly, D. L.; Archols, S. Ergodic collision theory of interscattering energy transfer. III. The deactivation of bromine in argon. Chem. Phys. 32, 165 (1978) Australia
693	A17 H + CN; H ⁻ + CN	T	Undef	Pacansky, J.; Delai, N. S.; Bagus, P. E. SCF ab-initio ground state potential energy surfaces for HCN and HCN ⁻ . Chem. Phys. 32, 183 (1978) United States
694	A11 He ⁺ + H ₂ O; He ⁺ + H ₂ S	E	A14 300 K	Yenche, A. J.; Wu, K. T. Energy transfer processes in reactions of He(2 ³ S) with triatomic molecules. II. H ₂ O and H ₂ S. Chem. Phys. 32, 247 (1978) United States
695	H05 hv + CH ⁺	T	2800-3500 A ⁰	Uzer, I.; Delgarno, A. The photodissociation of CH ⁺ through absorption into the A ¹ Σ state. Chem. Phys. 32, 301 (1978) United States
696	A17 Undef	T	Undef	Kutzelnigg, W.; Maeder, P. Natural states of interacting systems and their use for the calculation of intermolecular forces. I. General theory of the natural states of interacting systems. Chem. Phys. 32, 451 (1978) West Germany
697	A17 Undef	T	Undef	Maeder, P.; Kutzelnigg, W. Natural states of interacting systems and their use for the calculation of intermolecular forces. II. Natural states in the asymptotic 1/R expansion. Chem. Phys. 32, 457 (1978) West Germany
698	A03 HF + HF	T	500-8000 cm ⁻¹	Alper, J. E.; Carrelli, M. A.; Gelt, A. Classical trajectory study of rotationally inelastic scattering of two HF molecules. Chem. Phys. 32, 471 (1978) United States
699	A14 Ca ⁺ + O ₂ ; Ca ⁺ + CO ₂ F01 CaO ⁺	E	A14 300 K	Pasterneck, L.; Dagdigan, F. J. The reaction of metastable Ca atoms with O ₂ and CO ₂ . Chem. Phys. 33, 1 (1978) United States

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701	E03 e + SF ₆ E15 e + SF ₆	E	2.5 keV	Hitchcock, A. P.; Brion, C. E. Inner shell excitation of SF ₆ by 2.5 keV electron impact. Chem. Phys. 33, 55 (1978) Canada
702	E03 e + N ₂ O E04 e + N ₂ O E05 e + N ₂ O	E	0-2 keV	van Sprang, H. A.; Mohlmann, G. R.; de Heer, F. J. Emission of radiation due to ionization and dissociation of N ₂ O by electron impact. Chem. Phys. 33, 65 (1978) The Netherlands
703	E03 e + HF E04 e + HF	E	0-2 keV	van Sprang, H. A.; de Heer, F. J. A study of the emission spectrum of HF excited by electrons. Chem. Phys. 33, 73 (1978) The Netherlands
704	H08 hν + CO ₂	E	584 Å	Leach, S.; Devoret, M.; Eland, J. H. D. Fluorescence quantum yields of isotopic CO ₂ ⁺ ions. Chem. Phys. 33, 113 (1978) France
705	A07 Ar + He	T	24x10 ⁻⁶ a.u.	Law, K.-S.; Bellus, J. C.; George, T. F. A semiclassical approach to collisional ionization with application to the Ar-He system. Chem. Phys. 33, 219 (1978) United States
706	A10 N ₂ + CO ₂	T	300 K	Billing, G. D. On a semiclassical approach to energy transfer in polyatomic molecules. Chem. Phys. 33, 227 (1978) Denmark
707	A14 H + H ₂	T	300 K	Asker, A.; Cahmak, A. C.; Rebitz, E. A. Finite element methods for reactive scattering. Chem. Phys. 33, 267 (1978) United States
708	A14 H + F ₂ ; D + F ₂ ; H + Cl ₂ ; D + Cl ₂ ; Cl + HI; Cl + DI	T	300 K	Venzi, C.; Fischer, S. F. Detailed product energy distributions for exothermic triatomic exchange reactions from a statistical dynamic model. Chem. Phys. 33, 205 (1978) West Germany
709	A14 H + Cl ₂ ; H + F ₂ ; D + F ₂ ; T + F ₂	T	300 K	Korsch, H. J. Vibrational state distributions for impulsive triatomic reactions. Chem. Phys. 33, 313 (1978) West Germany
710	H06 hν + SF ₆	E	584 Å	Sell, J. A.; Kuppermann, A. Angular distributions in the photoelectron spectroscopy of SF ₆ . Chem. Phys. 33, 379 (1978) United States
711	A17 HF + HF; H ₂ O + H ₂ O	T	Undef	Otto, F. Investigation of the interaction between molecules at medium distances. III. SCF LCAO MO supermolecule, perturbational and MCF calculations for two and three interacting molecules. Chem. Phys. 33, 407 (1978) West Germany
712	A03 Ar + N ₂	T	300-768 K	Eno, L.; Galint-Kurti, G. G. The centrifugally decoupled exponential distorted wave (CEDW) approximation for the calculation of rotationally inelastic molecular collision cross sections. Chem. Phys. 33, 435 (1978) United States
713	A02 H ₂ + Kr	T	300 K	Jacobs, M.; Reuss, J. Calculation of reorientation cross sections for atom-diatom systems. Chem. Phys. 33, 443 (1978) The Netherlands
714	A02 Undef	T	Undef	Gislason, E. A.; Sachs, J. C. Expansion of classical differential cross sections in Legendre polynomials: nonreactive scattering. Chem. Phys. 33, 415 (1978) United States
715	E02 e + HF	E	9-16 eV	Mathur, D.; Hasted, J. E. Electron spectroscopy of hydrogen fluoride resonances. Chem. Phys. 34, 25 (1978) United Kingdom

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716	A06 O ₂ + Na; O ₂ + K; O ₂ + Cs A04 O ₂ + Na; O ₂ + K; O ₂ + Cs	E	10 ⁻³ -2 keV	Kleyn, A. W.; Hubers, M. M.; Los, J. Ion-pair formation in alkali atom-oxygen molecule collisions. Chem. Phys. 34, 65 (1978) The Netherlands
717	A03 Li ⁺ + H ₂	T	5-9 eV	Schinke, R. Theoretical studies of vib-rotational excitation of Li ⁺ -H ₂ collisions at intermediate energies. Chem. Phys. 34, 65 (1978) West Germany
718	A10 CO* + CO	E	100-300 K	Brechignac, P. Near-resonant V-V transfer rates for high-lying vibrational states of CO. Chem. Phys. 34, 115 (1978) France
719	H06 hν + N ₂ O; hν + CO ₂	E	20-60 eV	Brion, C. E.; Tan, K. H. Partial oscillator strengths for the photoionization of N ₂ O and CO ₂ (20-60 eV). Chem. Phys. 34, 141 (1978) Canada
720	E04 e + N ₂ O	E	10-100 eV	Allcock, G.; McConkey, J. W. Dissociation patterns in N ₂ O following electron impact. Chem. Phys. 34, 165 (1978) Canada
721	H06 hν + SF ₂	E	15 eV	de Leeuw, D. M.; Mcoyman, F.; de Lange, C. A. He(I) photoelectron spectroscopy of transient species: the SF ₂ molecule. Chem. Phys. 34, 287 (1978) The Netherlands
722	A17 He + H ₂	T	Undef	Rcvelt, J.; Peyerishoff, S. D.; Buenker, R. J. An SCF and MRI-CI study of the ground and excited states of the He + H ₂ system. I. Calculated potential surfaces. Chem. Phys. 34, 403 (1978) West Germany
723	A14 H + ClF	E	300 K	Brandt, D.; Polanyi, J. C. Energy distribution among reaction products. XI. H + ClF → HF + Cl, CHI + F. Chem. Phys. 35, 23 (1978) Canada
724	A14 H + CO; H + SO ₂	E	305-375 K	Gordon, E. E.; Ivenov, E. I.; Persinov, A. P.; Balalaev, V. E. A measurement of formation rates and lifetimes of intermediate complexes in reversible chemical reactions involving hydrogen atoms. Chem. Phys. 35, 75 (1978) Soviet Union
725	A14 H + F ₂ A17 H + F ₂	T	0.1-1.5 eV	Jakubetz, W. On the potential surface dependence of the H + F ₂ reaction. I. Quantum mechanical and information theoretic investigations for various extended LEPS-surfaces. Chem. Phys. 35, 125 (1978) United Kingdom
726	A14 H + F ₂ A17 H + F ₂	T	0.1-1.5 eV	Jakubetz, W. On the potential surface dependence of the H + F ₂ reaction. II. The influence of shoulder-and corner regions. Chem. Phys. 35, 141 (1978) United Kingdom
727	A05 F + H ₂ ; F + H ₂ S; Cl + H ₂ S	E	300 K	Dill, E.; Heydtmann, H. Infrared chemiluminescent reactions of halogen atoms with hydrogen sulfide and methanethiol. Chem. Phys. 35, 161 (1978) West Germany
728	A11 He* + N ₂ ; He* + CO; He* + NO; He* + O ₂	E	300 K	Cheng, R. S. F.; Eetser, D. W.; Taylor, G. W. Assignment of rate constants to exit channels from quenching of He(2 ³ S) metastable atoms. Chem. Phys. 35, 201 (1978) United States
729	A10 Li ₂ + Li	E	300 K	Vidal, C. R. Collisional depolarization and rotational energy transfer of the ⁷ Li ₂ (B ² _g sub u)-Li(2S _{1/2}) system from laser-induced fluorescence. Chem. Phys. 35, 215 (1978) West Germany
730	E03 e + HgCl; e + HgBr; e + HgI E04 e + HgCl; e + HgBr; e + HgI	E	5-200 eV	Allison, J.; Zare, R. N. Study of excited fragment emission from the electron impact dissociation of volatile mercury (II) halides. Chem. Phys. 35, 263 (1978) United States

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731	A02 H + Ar; D + Ar A18 H + Ar; D + Ar	E	400 K	Este, G. O.; Knight, G.; Scoles, G. Scattering experiments with hydrogen atoms. I. Differential collision cross sections for H + Ar, I + Ar and H + CH ₄ . Chem. Phys. 25, 421 (1978) Canada
732	A03 Li + H ₂	T	0.6-2.5 eV	Gianturco, F. A.; Lamanna, U. T. Rotationally sudden calculations of vibrational excitation for Li + H ₂ collisions. Chem. Phys. 26, 463 (1978) Italy
733	A04 Na ₂ + He; Na ₂ + Ne; Na ₂ + Ar	E	450 K	Huber, R.; Weber, H. G. Collision induced dissociation of Na ₂ : dependence of the dissociation rate on the vibrational distribution. Chem. Phys. 35, 461 (1978) West Germany
734	A17 H ⁺ + Na; H ⁺ + K; H ⁺ + Rb; H ⁺ + Cs	T	Undef	Valence, A. Pseudopotential calculations for NaH ⁺ , KH ⁺ , RbH ⁺ and CsH ⁺ . Chem. Phys. Lett. 56, 285 (1978) France
735	A10 I + Br* H05 hv + IBr	E	A10 10 ⁵ cm/s H05 530-480 nm	de Vries, M. S.; van Veen, M. J. A.; de Vries, A. E. Curve crossing in two excited states of IBr studied by photofragmentation. Chem. Phys. Lett. 56, 15 (1978) The Netherlands
736	A14 H ₂ + D ₂	T	Undef	Lohr, I. L., Jr. A possible transition state for the H ₂ + D ₂ exchange reaction. Chem. Phys. Lett. 56, 28 (1978) United States
737	A14 CH ₂ + H ₂	T	11.8 kcal/mol	Batschlicher, C. W., Jr. Barrier height for the abstraction reaction of methylene with hydrogen, CH ₂ (³ B ₁) + H ₂ → CH ₃ + H. Chem. Phys. Lett. 56, 31 (1978) United States
738	H04 3hv + SF ₆ H05 3hv + SF ₆ H06 3hv + SF ₆	T	10.6 μ	Bar-Ziv, E.; Kafri, O. Multiphoton excitation and dissociative ionization of SF ₆ . Chem. Phys. Lett. 56, 47 (1978) Israel
739	A03 K + Hg	E	50-1500 eV	Duren, F.; Krause, U.; Moritz, G. Integral cross sections for electronic excitation in K-Hg collisions. Chem. Phys. Lett. 56, 62 (1978) West Germany
740	A02 Na + Ar A18 Na + Ar A17 Na + Ar	E	10 ⁻¹³ erg	Duren, F.; Groger, W. A determination of the Na-Ar ground state potential from differential cross section measurements. Chem. Phys. Lett. 56, 67 (1978) West Germany
741	A14 Sn + Cl ₂ ; Sn + Br ₂	E	100-1000 m/s	Parr, T. F.; Behrens, R., Jr.; Freedman, A.; Herm, R. R. Reactive scattering of Sn from Cl ₂ and Br ₂ and a lower limit on D ₀ ⁰ (SnBr). Chem. Phys. Lett. 56, 71 (1978) United States
742	A04 I ₂ ⁺ + N ₂	E	0.65-3.2 keV	Moran, T. F.; Turner, I.; Abbey, L. E. The effect of internal excitation on the collision induced dissociation of I ₂ ⁺ (2v sub g, v) ions. Chem. Phys. Lett. 56, 76 (1978) United States
743	A10 CO + I ₂ ⁺ ; CO + ICl ₂ ⁺ ; CO + NO ₂ ⁺	E	287 K	Hau, D. S. Y.; Lin, M. C. Two-laser studies of E + V energy transfer reactions involving CO and electronically excited I ₂ ⁺ , ICl ₂ ⁺ and NO ₂ ⁺ . Chem. Phys. Lett. 56, 79 (1978) United States
744	A05 O + NO	E	Undef	Kasai, T.; Masui, T.; Nakane, H.; Hanzaki, I.; Kusata, K. Study of chemiluminescence in O + NO elementary reaction by a crossed beam technique. Chem. Phys. Lett. 56, 64 (1978) Japan
745	G02 Undef	T	300 K	Lies-Nielsen, I.; Ejerre, A.; Nyeland, C. Diffusion of atoms in diatomic gases in the dominant coupling limit. Chem. Phys. Lett. 56, 105 (1978) Denmark

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746	A10 Undef	T	400-5000 K	Penner, A. P.; Forst, W. Relaxation times in a system with exponential transition probabilities. Chem. Phys. Lett. 56, 117 (1978) Canada
747	A09 Hg ⁺ + [F ⁻ + Ar]; Hg ⁺ + [Cl ⁻ + Ar]; Hg ⁺ + [Br ⁻ + Ar]; Hg ⁺ + [I ⁻ + Ar]	T	300 K	Flannery, M. R. Three-body ion-ion recombination in mercury-halide lasers. Chem. Phys. Lett. 56, 142 (1978) United States
748	F01 He	T		Warner, J. W.; Blinder, S. P. Relativistic corrections in a series of helium excited states. Chem. Phys. Lett. 56, 164 (1978) United States
749	A10 Kr + CO ₂	T	0.5-1.4 eV	Bowman, J. M.; Leasure, S. Deactivation pathways in collisions of Kr with CO ₂ (001). Chem. Phys. Lett. 56, 183 (1978) United States
750	H05 hv + ICN	E	5-10 x 10 ¹¹ cm ⁻¹	West, G. A.; Ferry, M. J. ICN photodissociation and predissociation: CN*(A ² sub 1) fluorescence excitation spectrum and CN(λ ² Σ ⁺) chemical laser emission. Chem. Phys. Lett. 56, 423 (1978) United States
751	A14 O ₃ ⁺ + C	E	300 K	West, G. A.; Weston, R. E., Jr.; Flynn, G. W. The influence of reactant vibrational excitation on the O(³ P) + C ₂ bimolecular reaction rate. Chem. Phys. Lett. 56, 429 (1978) United States
752	A10 Undef	T	Undef	Fain, E. On the theory of rate processes: Integral equation for nonradiative transition rates. Chem. Phys. Lett. 56, 503 (1978) Israel
753	A17 Ar ⁺ + He	T	Undef	Olson, F. E.; Liu, E. CI potentials for the λ ² Σ and A ² Σ states of Ar ⁺ + He. Chem. Phys. Lett. 56, 537 (1978) United States
754	A12 Ar + HCl	E	295 K	van der Peijl, G. J. G.; Frenkel, L.; van der Elsken, J. Experimental and calculated cross sections for pressure broadening of pure rotational Raman lines of HCl. Chem. Phys. Lett. 56, 602 (1978) The Netherlands
755	A11 CO* + He; CO* + Ar; CO* + Kr	E	300 K	Grimbert, E.; Lovclee, M.; Nitzan, A.; Traiser, A. Mechanism of collision-induced intersystem crossing in CO. Chem. Phys. Lett. 57, 45 (1978) France
756	E02 e + CO; e + CO ₂ ; e + OCS	E	1-6 eV	Szwytkowski, C.; Zubek, M. Absolute total electron scattering cross section of CO, CO ₂ , and OCS in the low energy region. Chem. Phys. Lett. 57, 105 (1978) Poland
757	H02 hv + ClO	E	313-273 nm	Jourdain, J. L.; le Bras, G.; Pculet, G.; Combourieu, J.; Rigaud, P.; Leroy, B. UV absorption spectrum of ClO(A ² Σ ⁺ - X ² Σ ⁺) up to the (1,0) band. Chem. Phys. Lett. 57, 165 (1978) France
758	A17 Ar + Kr	T	Undef	Schramm, D. The Ar-Kr pair potential function. Chem. Phys. Lett. 57, 128 (1978) West Germany
759	A02 Undef A03 Undef	T	Undef	Lin, C. S. Molecular basis sets for atom-molecule collisions. Chem. Phys. Lett. 57, 186 (1978) Canada
760	A02 F + H ₂ A14 F + H ₂	T	1-5 kcal/mcl	Schnabel, F.; Chapman, S. Reactive bands and rebounding trajectories in collinear F + H ₂ . Chem. Phys. Lett. 57, 189 (1978) United States
761	A07 Ar* + I ₂	E	25-133 eV	Gillen, K. I.; Gally, I. D.; Lorents, I. C. Ion-pair formation in fast collisions of metastable argon with iodine. Chem. Phys. Lett. 57, 192 (1978) United States

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762	F01 PH*	E		Nguyen Xuan, C.; di Stefano, G.; Lenzi, M.; Morgani, A.; Mele, A. Radiative lifetime and collisional relaxation of PH($b^1\Pi^+$). Chem. Phys. Lett. 57, 207 (1978) Italy
763	A17 Ar + Ar	T	Undef	Spiegelmann, F.; Malrieu, J.-F. Theoretical calculation of the excited states of the Ar ₂ dimer. Chem. Phys. Lett. 57, 214 (1978) France
764	A17 H ₂ + H ₂ ⁺	T	Undef	Cobb, M.; Mcron, T. F.; Borkman, R. F.; Childs, R. Ab initio potential energy curves for H ₂ -H ₂ ⁺ interactions. Chem. Phys. Lett. 57, 326 (1978) United States
765	A14 H + H ₂	T	0.1-0.5 eV	Orel, A. E.; Miller, W. H. Infrared laser induced chemical reactions. Chem. Phys. Lett. 57, 362 (1978) United States
766	A14 F + HI; F + HBr; F + HCl; F + DI; F + DBr; F + DCI	E	300 K	Wurzberg, E.; Grinley, A. J.; Houston, F. L. Hydrogen abstraction by fluorine atoms: F + HX and F + DX (X=I, Br, Cl). Chem. Phys. Lett. 57, 373 (1978) United States
767	A14 F + H ₂	T	0-1 eV	Shan, Y.; Choi, B. H.; Poe, R. T.; Tang, K. T. Three-dimensional quantum mechanical study of the F + H ₂ reactive scattering. Chem. Phys. Lett. 57, 275 (1978) United States
768	A14 Si + F ₂	E	600 K	Armstrong, R. A.; Davis, S. J. Rate coefficient for the reaction Si + F ₂ → products. Chem. Phys. Lett. 57, 446 (1978) United States
769	A11 HF* + HF	E	293 K	Douglas, D. J.; Moore, C. B. Vibrational relaxation of HF($\nu=3,4$). Chem. Phys. Lett. 57, 485 (1978) United States
770	A14 Sr* + HF; Sr* + HCl	E	300 K	Solarz, R. W.; Johnson, S. A.; Preston, R. K. The deposition of energy from reactions of laser excited atoms: Strontium ³ F ₂ with hydrogen halides. Chem. Phys. Lett. 57, 514 (1978) United States
771	A03 Kr* + CO	E	300 K	Vikis, A. C. Sensitized fluorescence ($A^{1}\Sigma^+ - X^{1}\Sigma^+$ and $b^3\Pi^+ - a^3\Pi_g$) of ¹² C ¹⁶ O, ¹² C ¹⁸ O, and ¹² C ¹⁸ O by Kr(³ F ₂) and Kr(¹ F ₂). Chem. Phys. Lett. 57, 522 (1978) Canada
772	A11 Pb* + H	E	1800 K	Brady, I. J.; Phillips, L. F. Spin-orbit relaxation of Pb(³ F ₂ , ⁰) by atomic hydrogen. Chem. Phys. Lett. 57, 535 (1978) New Zealand
773	A14 OH + HCN	E	258-563 K	Phillips, L. F. Pressure dependence of the rate of reaction of OH with HCN. Chem. Phys. Lett. 57, 538 (1978) New Zealand
774	A10 F + D ₂	T	0-8000 cm ⁻¹	Rebentrost, F. Electronic-to-rotational energy transfer in the system F + D ₂ . Chem. Phys. Lett. 58, 18 (1978) West Germany
775	A17 Na + K	T	Undef	Janoschek, R.; Lee, H. U. Ab initio and pseudopotential energy curves for NaK. Chem. Phys. Lett. 58, 47 (1978) West Germany
776	H08 hν + Xe	E	1550-1400 Å ⁰	Dutuit, O.; Gutcheck, R. A.; Le Calve, J. Spectral and kinetic studies of the second continuous fluorescence of xenon excited by synchrotron radiation. Chem. Phys. Lett. 58, 66 (1978) France
777	A05 H + Cl ₂ ; H + SCl ₂ ; H + S ₂ Cl ₂ ; H + SOCl ₂ ; H + SO ₂ Cl ₂	E	300 K	Sung, J. P.; Setser, E. W. Comparisons of energy disposal by the reactions of H atoms with Cl ₂ , SCl ₂ , S ₂ Cl ₂ , SOCl ₂ , and SO ₂ Cl ₂ from observation of HCl infrared chemiluminescence. Chem. Phys. Lett. 58, 98 (1978) United States

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778	H06 $h\nu + Cl; h\nu + Br$	E	584 Å	Kisura, K.; Yamazaki, T.; Achiba, Y. He I(584 Å) photoelectron spectra and photolionization cross sections of atomic chlorine and bromine. Chem. Phys. Lett. 58, 104 (1978) Japan
779	H05 $h\nu + HgCl_2; h\nu + HgBr_2; h\nu + HgI_2$	E	193 nm	Cocl, T. A.; McGarvey, J. A., Jr.; Erlendson, A. C. Two-photon excitation of mercury atoms by photodissociation of mercury halides. Chem. Phys. Lett. 58, 108 (1978) United States
780	H08 $h\nu + CH$	E	431 nm	Filseth, S. V.; Zacharias, H.; Danon, J.; Wallenstein, R.; Welge, K. H. Laser excited fluorescence of CH in a low pressure flame. Chem. Phys. Lett. 58, 140 (1978) West Germany
781	A04 $Ar^+ + HCl$	E	300 K	Suzuki, K.; Nishiyama, I.; Ozaki, Y.; Kuchitsu, K. Light emission from chlorine atoms formed in the dissociative excitation of HCl in a flowing afterglow of discharged argon. Chem. Phys. Lett. 58, 145 (1978) Japan
782	A14 $O + HO1$	E	300 K	Butler, J. E.; Hudgens, J. W.; Lin, M. C.; Smith, G. K. Observation of CH($v=0,1$) in the reactions of C(3P) with HCl($v=0,1,2$). Chem. Phys. Lett. 58, 216 (1978) United States
783	A14 $OH + [OCS + CS]$	E	296 K	Kurylo, M. J. Flash photolysis resonance fluorescence investigation of the reactions of OH radicals with OCS and CS ₂ . Chem. Phys. Lett. 58, 238 (1978) United States
784	H02 $h\nu + N_2$	E	400-450 eV	Petersen, H.; Bianconi, A.; Ercun, F. C.; Bechrach, H. Z. The absolute K-photoabsorption cross section up to $h\nu = 450$ eV. Chem. Phys. Lett. 58, 263 (1978) United States
785	D07 $Ne + W; He + LiF$	T	0.0002 a.u.	Yinnon, A. I.; Ecsenac, S.; Gerber, R. E.; Murrell, J. N. Coupled-channel calculations and the accuracy of the sudden approximation for atom-surface scattering. Chem. Phys. Lett. 58, 364 (1978) Israel
786	A14 $H + H_2; H + HD; H + D_2$	E	300-1060 K	Gordon, E. E.; Ivenov, E. I.; Perginov, A. P.; Balalaev, V. E.; Ponomarev, A. A.; Filatov, V. V. Measurement of rate constants of hydrogen atom exchange with vibrationally excited H ₂ , HD, and D ₂ molecules. Chem. Phys. Lett. 58, 425 (1978) Soviet Union
787	A02 $H + He$	T	30-10 ⁶ m/s	Gayet, F.; McCarrelli, M.; Velircn, P. Model potential calculation of the H-He interaction: application to low energy elastic scattering. Chem. Phys. Lett. 58, 501 (1978) France
788	A02 $Ne + Ne$ A17 $Ne + Ne$	E	0.5-1.4 km/s	Brunetti, B.; Pirani, F.; Vecchiocattivi, F.; Luzzatti, E. Characterization of Ne-Ne long range interaction by absolute total cross section measurement. Chem. Phys. Lett. 58, 504 (1978) Italy
789	E02 $e + N_2$ E03 $e + N_2$	T	30 eV	Mullaney, K. A.; Truhler, I. G. Rotationally and orbitally adiabatic basis sets for electron-molecule scattering. Chem. Phys. Lett. 58, 512 (1978) United States
790	A14 $OH + H_2$	T	298 K	Light, G. C.; Matsumoto, J. H. The effect of vibrational excitation in the reactions of OH with H ₂ . Chem. Phys. Lett. 58, 578 (1978) United States
791	A11 $CO_2^+ + N_2; CO_2^+ + CO; CO_2^+ + D_2$	E	160-375 K	Taine, J.; Lepoutre, F.; Louis, G. A photoacoustic study of the collisional deactivation of CO ₂ ⁺ by N ₂ , CO and O ₂ between 160 and 375 K. Chem. Phys. Lett. 58, 611 (1978) France
792	A10 $Cd + N_2$	E	300 K	Breckenridge, W. H.; Melmin, G. K.; Nikolai, L. L.; Oba, D. A rapid pump-and-probe laser technique for determining state-resolved product distributions. Chem. Phys. Lett. 58, 38 (1978) United States

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793	A14 C + PbO	E	300 K	Sridharan, L. C.; DiGiuseppe, T. G.; McFadden, L. L.; Davidovits, P. Chemiluminescence from the gas phase reaction of atomic carbon with lead oxide. Chem. Phys. Lett. 59, 43 (1978) United States
794	H08 hv + KXe	E	540-400 nm	Webster, C. R.; Rostas, F. The dye laser induced fluorescence excitation and emission spectrum of the KXe molecule. Chem. Phys. Lett. 55, 57 (1978) France
795	A11 Se* + CO; Se* + CO ₂ ; Se* + N ₂ ; Se* + H ₂ ; Se* + Xe	E	300 K	Powell, H. T.; Hazi, A. U. Quenching of high concentrations of Se(¹ S) produced by photolysis. Chem. Phys. Lett. 59, 71 (1978) United States
796	A14 Cl + NO ₂	E	300 K	Niki, H.; Møker, F. D.; Savage, C. M.; Breitenbach, L. P. Fourier transform IR spectroscopic observation of chlorine nitrite, ClONO, formed via Cl + NO ₂ (+M) + ClONO(+M). Chem. Phys. Lett. 55, 78 (1978) United States
797	A13 Ar* + H ₂ O; N ₂ * + H ₂ O; CO* + H ₂ O; CO ₂ * + H ₂ O; CH ₄ * + H ₂ O; HCO* + H ₂ O; H ₂ S* + H ₂ O; HS* + H ₂ O	E	300 K	Karpas, Z.; Anicich, V. G.; Huntress, W. T., Jr. An ion cyclotron resonance study of reactions of some atomic and simple polyatomic ions with water. Chem. Phys. Lett. 59, 64 (1978) United States
798	A13 OH* + CO; OH* + CO ₂ ; OH* + O ₂ ; OH* + N ₂ ; OH* + NO; CH* + N ₂ O; OH* + H ₂ S; H ₂ O* + NO; H ₂ O* + O ₂ ; H ₂ D* + H ₂ S	E	300 K	Karpas, Z.; Huntress, W. T., Jr. Reactions of CH* and H ₂ C* ions with some diatomic and simple polyatomic molecules. Chem. Phys. Lett. 55, 57 (1978) United States
799	A14 He + H ₂ ⁺	T	0.5-1 eV	Sathyamurthy, N. Effect of potential-well in an endothermic system: reactive and vibrationally inelastic He + H ₂ ⁺ collisions. Chem. Phys. Lett. 59, 55 (1978) Canada
800	A03 H ₂ + N ₂	T	100-300 K	Bergeron, C.; Lefcristier, C.; Lauray, J. M. On the fixed-nuclei approximation as applied to rotational excitation of molecules by atoms. Chem. Phys. Lett. 59, 129 (1978) France
801	A05 Xe + Br ₂	E	0.04-1.3 eV	Rettner, C. T.; Simons, J. F. Rotational polarization in the chemiluminescent reaction Xe(³ F _{4,3}) + Br ₂ + XeBr* + Br. Chem. Phys. Lett. 55, 176 (1978) United Kingdom
802	H06 2hv + Na	E	589-337 nm	Strand, M. P.; Hansen, J.; Chien, F.-I.; Berry, R. S. Influence of nuclear spin on angular distribution and polarization of photoelectrons: resonant two-photon ionization of Na. Chem. Phys. Lett. 59, 205 (1978) United States
803	H08 3hv + I ₂	E	44813-51601 cm ⁻¹	Chen, K.; Steenhack, L. E.; Yeung, E. S. Resonance enhanced three-photon absorption of molecular iodine. Chem. Phys. Lett. 55, 222 (1978) United States
804	H04 2hv + NO	E	4540-3650 nm	Asscher, M.; Haas, Y. Two-photon excitation of nitric oxide to levels near and above the dissociation limit. Chem. Phys. Lett. 55, 231 (1978) Israel
805	E05 e + H ₂ S	E	3.5 keV	Brion, C. E.; Cook, J. F. I.; Ter, K. E. The valence shell binding energy spectrum of H ₂ S(ε-34 eV) by dipole (e,2e) and binary (e,2e) spectroscopy. Chem. Phys. Lett. 55, 241 (1978) Canada
806	A17 He + Ar	E T	Undef	Keil, M.; Kuppermann, A.; Slonkes, J. I. An accurate determination of the He-Ar van der Waals potential. Chem. Phys. Lett. 59, 335 (1978) United States
807	A10 O ₃ + H ₂	E	167-424 K	Mac, C.-R.; Moy, J.; Gordon, R. J. Vibrational relaxation of ozone by para and normal hydrogen. Chem. Phys. Lett. 59, 425 (1978) United States

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808	A14 H + H ₂	T	0.6-0.7E eV	Clery, I. C.; Nesbet, R. K. Quantum dynamical examination of surprisal theory for the three-dimensional hydrogen exchange reaction. Chem. Phys. Lett. 59, 437 (1978) United States
805	A17 He + CO ₂	E T	Undef	Keil, F.; Forker, G. A.; Kuppermann, A. An empirical anisotropic intermolecular potential for He + CO ₂ . Chem. Phys. Lett. 59, 443 (1978) United States
810	A14 H + H ₂ ; D + H ₂	T	0.6 eV	Sverdlik, D. I.; Koepl, G. W. An energy limit of transition state theory. Chem. Phys. Lett. 59, 449 (1978) United States
811	A17 C + N ⁺	T	Undef	Wu, A. A. SCF potential energy curves of CN ⁺ . The identity of the ground state. Chem. Phys. Lett. 59, 457 (1978) West Germany
812	H10 hv + O ₂	F	250-300 nm	Fairchild, P. W.; Lee, E. K. C. Relative quantum yields of C(1D) in ozone photolysis in the region between 250 and 300 nm. Chem. Phys. Lett. 60, 3f (1978) United States
813	H10 hv + O ₂ A11 O* + O ₂	E	H10 248 nm A11 300 K	Amimoto, S. T.; Force, A. P.; Wiesenfeld, J. R. Ozone photochemistry: production and deactivation of O(2D ₂) following photolysis at 248 nm. Chem. Phys. Lett. 60, 40 (1978) United States
814	A10 Ar* + CO ₂	E	65-184 meV	Manzaneros, E. R.; Bentley, J.; Wiercur, D. H. Collisional energy dependence of T-F and T-V energy transfer between Ar*(3F) and CO ₂ (X1Σ sub g+). Chem. Phys. Lett. 60, 72 (1978) United States
815	A14 B + O ₂ ; B + N ₂ O A05 B + O ₂ ; B + N ₂ O	E	300 K	Brzychcy, A.; DeHaven, J.; Frenkel, A. T.; Davidovits, P. Chemiluminescence studies of bromine reactions with O ₂ and N ₂ O. Chem. Phys. Lett. 60, 102 (1978) United States
816	H10 hv + K + Kr	E	404 nm	Lee, L. K.; Scheerer, L. I. Laser initiated afterglow in a high pressure K-Ar mixture. Chem. Phys. Lett. 60, 130 (1978) United States
817	D03 Ar* + Ag; Ar* + Al; Ar* + B; Ar* + Ba; Ar* + Be; Ar* + Ca; Ar* + Cd; Ar* + Co; Ar* + Cr; Ar* + Cs; Ar* + Cu; Ar* + F; Ar* + Fe; Ar* + Ge; Ar* + H; Ar* + In; Ar* + K; Ar* + Li; Ar* + Mg; Ar* + Mn; Ar* + Na; Ar* + Ni; Ar* + P; Ar* + Pb; Ar* + Re; Ar* + Si; Ar* + Sr; Ar* + Ta; Ar* + Ti; Ar* + Tl; Ar* + Zn; Ar* + Zr	E	20 keV	Tsang, I. S. T.; Yusuf, N. A. Absolute photon yields in the sputter-induced optical emission process. Appl. Phys. Lett. 33, 555 (1978) United States
818	G04 Review G06 Review	E	0.04-16 eV	Elilo, M. W.; McDaniel, E. W.; Albright, D. L.; Viehland, L. A.; Lin, S. L.; Mason, E. A. Transport properties of gaseous ions over a wide energy range. Part II. Atomic Data and Nuclear Data Tables 22, 179 (1978) United States
819	E06 e + C ⁺ ; e + C ²⁺ ; e + C ³⁺ ; e + C ⁴⁺ ; e + N ⁺ ; e + N ²⁺ ; e + N ³⁺ ; e + N ⁴⁺ ; e + O ⁺ ; e + O ²⁺ ; e + O ³⁺ ; e + O ⁴⁺ ; e + Ne ⁺ ; e + Ne ²⁺ ; e + Ne ³⁺ ; e + Ne ⁴⁺ ; e + Mg ⁺ ; e + Mg ²⁺ ; e + Mg ³⁺ ; e + Mg ⁴⁺ ; e + Si ⁺ ; e + Si ²⁺ ; e + Si ³⁺ ; e + Si ⁴⁺ ; e + S ⁺ ; e + S ²⁺ ; e + S ³⁺ ; e + S ⁴⁺ ; e + Ar ⁺ ; e + Ar ²⁺ ; e + Ar ³⁺ ; e + Ar ⁴⁺	T	10 ² -10 ⁶ K	Gould, R. J. Radiative recombination of complex ions. Astrophys. J., Part 1 210, 250 (1978) United States
820	H02 hv + Fe ²¹⁺ ; hv + Fe ²²⁺ ; hv + Fe ²³⁺ ; hv + Fe ²⁴⁺ ; hv + Fe ²⁵⁺ ; hv + Fe ²⁶⁺ H03 hv + Fe ²¹⁺ ; hv + Fe ²²⁺ ; hv + Fe ²³⁺ ; hv + Fe ²⁴⁺ ; hv + Fe ²⁵⁺ ; hv + Fe ²⁶⁺	T	2-60 keV	Ross, R. R.; Weaver, R.; McCray, R. The composition of iron x-ray features in compact x-ray sources. Astrophys. J., Part 1 215, 252 (1978) United States

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821	A13 NO + H ₃ ⁺ ; NO ⁺ + H ₂ ; HNO ⁺ + H ₂	T	100 K	Loew, G. H.; Berkwitz, D. S.; Cheng, S. Candidate interstellar molecules formed from ion-molecule reactions of NO. <i>Astrophys. J., Part 1</i> 219, 456 (1978) United States
822	A04 H ⁺ + H ₂ A07 H ⁺ + H ₂	T	1-100 MeV	Cravens, T. E.; Dalgarno, A. Ionization, dissociation, and heating efficiencies of cosmic rays in a gas of molecular hydrogen. <i>Astrophys. J., Part 1</i> 219, 750 (1978) United States
823	F01 Be Seq	T		Lin, D. L.; Fielder, W. Jr.; Armstrong, L. Jr. Multiconfiguration Hartree-Fock calculation of magnetic quadrupole transitions of Fe isoelectronic sequence. <i>Astrophys. J., Part 1</i> 215, 1052 (1978) United States
824	A03 H ⁺ + FeII ⁺	T	10 ⁶ K	Landman, D. A. Proton collisional excitation in the ground configuration of Fe ^{II} . <i>Astrophys. J., Part 1</i> 220, 366 (1978) United States
825	A03 H ₂ + H ₂ A10 H ₂ ⁺ + H ₂ A11 H ₂ ⁺ + H ₂	T	10 ³ K	Shull, J. M.; Hollenbach, D. J. H ₂ cooling, dissociation, and infrared emission in shocked molecular clouds. <i>Astrophys. J., Part 1</i> 220, 525 (1978) United States
826	A13 H ⁺ + He; HeH ⁺ + H; CH ⁺ + H H05 hν + HeH ⁺ ; hν + CH; hν + CH ⁺ E04 e + HeH ⁺ ; e + CH ⁺	T	10 ⁶ K	Black, J. H. Molecules in planetary nebulae. <i>Astrophys. J., Part 1</i> 222, 125 (1978) United States
827	E03 e + Fe ²⁺ ; e + Fe ³⁺ F01 Fe ²⁺ ; Fe ³⁺	T	E03 3-14 eV	Garstang, R. H.; Robb, W. D.; Rountree, S. F. Electron collisional excitation cross sections for Fe III and Fe VI and iron abundances in gaseous nebulae. <i>Astrophys. J., Part 1</i> 222, 364 (1978) United States
828	E04 e + HCNH ⁺ ; e + H ₂ O ⁺ ; e + CH ₃ ⁺ ; e + NH ₄ ⁺	T	10-100 K	Herbst, E. What are the products of polycyclic ion-electron dissociative recombination reactions. <i>Astrophys. J., Part 1</i> 222, 508 (1978) United States
829	F01 FeI ⁺ ; Fe ²⁺ ; FeI ⁺	E		Widing, K. G. Forbidden lines of Fe XIX, Fe XX, and Fe XXI in solar flares. <i>Astrophys. J., Part 1</i> 222, 735 (1978) United States
830	H02 hν + Fe	T	4-10 keV	Langer, S. H.; Ross, R. R.; McCray, R. Optically thick x-ray transfer: the shell game. <i>Astrophys. J., Part 1</i> 222, 915 (1978) United States
831	E03 e + He Seq; e + Ne Seq E06 e + He Seq; e + Ne Seq	T	10 ⁷ K	Raymond, J. C. On dielectronic recombination and resonances in excitation cross sections. <i>Astrophys. J., Part 1</i> 222, 1114 (1978) United States
832	H06 hν + LiH; hν + NaH	T	3000-2500 A ⁰	Kirby, M.; Dalgarno, A. NaH and LiH in diffuse interstellar clouds. <i>Astrophys. J., Part 1</i> 224, 444 (1978) United States
833	H04 hν + H ₂	T	1216 A ⁰	Shull, J. M. H ₂ resonance fluorescence with Lyman-α. <i>Astrophys. J., Part 1</i> 224, 641 (1978) United States
834	F01 NI ¹⁷⁺	E		Pegg, E. J.; Griffin, F. M.; Johnson, E. M.; Jones, K. W.; Kruse, T. H. A measurement of oscillator strengths for solar XUV flare lines in NI XVIII. <i>Astrophys. J., Part 1</i> 224, 1056 (1978) United States
835	F01 N	T		Lugger, P. M.; York, D. G.; Blanchard, I.; Morton, L. C. New oscillator strengths for 16 resonance lines of N I and the interstellar abundance of nitrogen. <i>Astrophys. J., Part 1</i> 224, 1055 (1978) United States

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836	E08 Under	T	10-10 ⁶ K	Freudenstein, S. P.; Cooper, J. A simple formula for estimating Stark widths of neutral lines. <i>Astrophys. J.</i> , Part 1 224, 1079 (1978) United States
837	A13 CS ⁺ + H ₂ ; C ⁺ + H ₂ S	T	150 K	McAllister, T. The formation of interstellar HCS ⁺ . <i>Astrophys. J.</i> , Part 1 226, 657 (1978) United States
838	A13 C ²⁺ + H ₂ ; N ²⁺ + H ₂	T	100 K	Langer, W. L. The formation of molecules in interstellar clouds from singly and multiply ionized atoms. <i>Astrophys. J.</i> , Part 1 225, 860 (1978) United States
839	G09 e + H; e + He	T	10-60 eV	Wu, F.-M.; Judge, D. L. Electron heating of infalling interstellar gas. <i>Astrophys. J.</i> , Part 1 225, 1045 (1978) United States
840	E03 e + O ⁶⁺ E06 e + O ⁷⁺	T	10 ⁶ K	Acton, L. W.; Brown, W. A. Temperature and ionization balance dependence of C VII line ratios. <i>Astrophys. J.</i> , Part 1 225, 1065 (1978) United States
841	H03 hν + O ⁶⁺	T	21.6 eV	Acton, L. W. Radiative transfer of x-rays in the solar corona. <i>Astrophys. J.</i> , Part 1 225, 1065 (1978) United States
842	F02 H	T		Wadehra, J. M. Transition probabilities and some expectation values for the hydrogen atom in intense magnetic fields. <i>Astrophys. J.</i> , Part 1 226, 372 (1978) United States
843	H08 hν + Fe ⁺	T	5 eV	Phillips, M. M. Permitted Fe II emission in Seyfert 1 galaxies and QSOs. II. The excitation mechanism. <i>Astrophys. J.</i> , Part 1 226, 736 (1978) United States
844	A13 Review	T	10 ³ K	Iglesias, E. R.; Silk, J. Nonequilibrium chemistry in shocked molecular clouds. <i>Astrophys. J.</i> , Part 1 226, 851 (1978) Argentina
845	G02 He I II ⁺	T	10 ⁴ K	Michaud, G.; Martel, A.; Fétel, A. Neutral helium diffusion coefficients in stars. <i>Astrophys. J.</i> , Part 1 226, 463 (1978) Canada
846	E03 e + B Seq; e + Li Seq	T	10 ⁶ K	Vernazza, J. E.; Mason, H. E. Density sensitivity of the solar EUV emission from boron-like ions. <i>Astrophys. J.</i> , Part 1 226, 726 (1978) United States
847	A13 CH ₃ ⁺ + H ₂ O; CH ₃ ⁺ + H ₂ ; CH ₃ ⁺ + N ₂ ; CH ₃ ⁺ + O ₂ ; CH ₃ ⁺ + CO; CH ₃ ⁺ + CO ₂ ; CH ₃ ⁺ + NH ₃ ; CH ₃ ⁺ + COS	E T	20-100 K	Smith, L.; Adams, N. G. Molecular synthesis in interstellar clouds: radiative association reactions of CH ₃ ⁺ ions. <i>Astrophys. J.</i> , Part 2 220, L87 (1978) United Kingdom
848	E04 e + CH ⁺ E06 e + CH ⁺	E	130 K	Mitchell, J. E. A.; McGowan, J. W. The dissociative recombination of CH ⁺ X ¹ E ⁺ (v=0). <i>Astrophys. J.</i> , Part 2 222, L77 (1978) Canada
849	A13 C ⁺ + H ₂ A03 H + H ₂	T	4000 K	Elitzur, M.; Watson, W. D. Formation of molecular CH ⁺ in interstellar shocks. <i>Astrophys. J.</i> , Part 2 222, L141 (1978) United States
850	H02 hν + CH ₄ ; hν + C ₂ H ₆	E	1600-1380 A ⁰	Mount, G. H.; Moos, H. W. Photoabsorption cross sections of methane and ethane, 1380-1600 Angstroms, at T = 295 K and T = 200 K. <i>Astrophys. J.</i> , Part 2 224, L36 (1978) United States
851	H02 hν + H ₂	E	10000-5000 A ⁰	Trauger, F. T.; Mickelson, P. E.; Larsen, L. E. Laboratory absorption strengths for the H ₂ (4,0) and (3,0) S(1) lines. <i>Astrophys. J.</i> , Part 2 225, L157 (1978) United States
852	F01 He	T		Ma, W.-T.; Kuriyan, M.; Pritchard, H. G. Variational energies for highly excited states of the helium atom. <i>Can. J. Chem.</i> 56, 884 (1978) Canada

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853	G06 Undef	E	Undef	Sennhauser, E. S.; Armstrong, D. A. Ion mobilities in gaseous ammonia. <i>Can. J. Chem.</i> 56, 2337 (1978) Canada
854	A14 O + HBr; O + HI	E	258-254 K	Singletcn, I. L.; Cveterovic, R. J. Temperature dependence of rate constants for the reactions of oxygen atoms, O(³ P), with HBr and HI. <i>Can. J. Chem.</i> 56, 2534 (1978) Canada
855	A06 Si ²⁺ + H; Mg ²⁺ + H; C ²⁺ + H; C ³⁺ + H; Li ²⁺ + H; N ³⁺ + H; B ³⁺ + He; Li ³⁺ + He; Al ³⁺ + He; Mg ³⁺ + He; Be ³⁺ + He	T	10 ⁴ K	Dalgarno, A.; Butler, S. E. Charge transfer of multiply-ionized species. <i>Comments At. Mol. Phys.</i> 7, 125 (1978) United States
856	E17 e + LiF	E T	20 eV	Schnelder, E. I. Theoretical atomic and molecular physics at X ICPEAC. <i>Comments At. Mol. Phys.</i> 7, 157 (1978) United States
857	E11 e + Ar; e + Ne	E T	0-21 eV	Gavrila, M.; van der Wiel, P. Free-free radiative transitions of electron-atom systems. <i>Comments At. Mol. Phys.</i> 8, 1 (1978) The Netherlands
858	F01 H	T		Reuse, F. A new relativistic model for the hydrogen atom. <i>Helv. Phys. Acta</i> 51, 157 (1978) Switzerland
859	A17 Undef	T	Undef	Dreyfus, T. The number of states bound by non-central potentials. <i>Helv. Phys. Acta</i> 51, 321 (1978) Switzerland
860	G10 e + CO ₂ ; e + Cl ₂ ; e + Br ₂ ; e + SF ₆ G11 e + CO ₂ ; e + Cl ₂ ; e + Br ₂ ; e + SF ₆	E T	10-1000 V/(cm Torr)	Risbud, A. V.; Naicu, M. S. Sparking potentials and ionization coefficients in some electronegative gases and their mixtures. <i>Indian J. Pure Appl. Phys.</i> 16, 32 (1978) India
861	A17 B + BF ₃ ; C + CF ₄ ; N + NF ₃ ; Al + AlF ₃ ; Zr + ZrF ₄ ; B + BCl ₃ ; C + CCl ₄ ; W + WCl ₆ ; B + BBr ₃ ; C + CBr ₄ ; B + BI ₃ ; C + CI ₄	T	Undef	Mohan, S.; Manickavachagan, F. Molecular dynamics of nonlinear XY ₃ system. <i>Indian J. Pure Appl. Phys.</i> 16, 55 (1978) India
862	E03 e + Li; e + Na; e + K; e + Rb; e + Cs	T	1-50 eV	Tilwary, S. N.; Fai, D. K. Electron impact excitation of alkali metal atoms. <i>Indian J. Pure Appl. Phys.</i> 16, 442 (1978) India
863	A14 O + DCI; O + DBr	E	255-489 K	Brown, F. D. H.; Smith, I. W. M. Absolute rate constants for reactions of C(F-3) atoms with DCI and DBr. <i>Int. J. Chem. Kinetics</i> 10, 1 (1978) United Kingdom
864	A14 S + NO	E	258 K	Vanroodseleer, A.; Gbi, K.; Strausz, O. P. Reaction of S(P-3) atoms with nitric oxide. <i>Int. J. Chem. Kinetics</i> 10, 31 (1978) Canada
865	A14 HO ₂ + NO; HO ₂ + NO ₂	E	245-328 K	Simonaitis, R.; Heicklen, J. Temperature dependence of reactions of HO ₂ with NO and NO ₂ . <i>Int. J. Chem. Kinetics</i> 10, 67 (1978) United States
866	H08 hv + SO ₂	E	3273-2975 A0	Su, F.; Bottenheim, J. W.; Sidebottom, H. W.; Calvert, J. G.; Dancn, E. K. Kinetics of fluorescence decay of SO ₂ excited in 2662-3273 Angstrom region. <i>Int. J. Chem. Kinetics</i> 10, 125 (1978) United States
867	A14 Review	E	300 K	Hippler, H.; Luu, S. H.; Teitelbaum, F.; Troe, J. Flash photolysis study of NO-catalyzed recombination of bromine atoms. <i>Int. J. Chem. Kinetics</i> 10, 155 (1978) West Germany
868	A14 H + [H + M]	T	77-1000 K	Stace, A. J.; Murrell, J. N. Computer study of hydrogen atom recombination reaction under high pressure conditions. <i>Int. J. Chem. Kinetics</i> 10, 157 (1978) United Kingdom

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869	A13 Review	E	295 K	Sleek, I. W. Reactions of $(CO_2)^+$ and $(CO)^+$ association ions. <i>Int. J. Chem. Kinetics</i> 10, 335 (1978) United States
870	A14 Review	E	258 K	Clyne, M. A. A.; Nip, W. S. Kinetics of fluorine atom reactions using resonance absorption spectrometry in far vacuum ultraviolet reactions $F + HCl, CH_4, CHCl_3, F_2,$ and $CHClF_2$. <i>Int. J. Chem. Kinetics</i> 10, 367 (1978) United Kingdom
871	A14 $CO + O$	E	1300-2200 K	Hardy, J. E.; Gardiner, W. C.; Burcat, A. Recombination of carbon monoxide and oxygen atoms. <i>Int. J. Chem. Kinetics</i> 10, 503 (1978) United States
872	A14 $2I + NO$	E	258 K	Basco, A.; Hunt, J. E. Recombination of iodine atoms in presence of nitric oxide. <i>Int. J. Chem. Kinetics</i> 10, 733 (1978) Canada
873	H06 $3h\nu + NO$ H04 $3h\nu + NO$	E	3936-3803 A ⁰	Jackson, W. M.; Liu, C. S. Competition between multiphoton fluorescence and multiphoton ionization in NO. <i>Int. J. Chem. Kinetics</i> 10, 946 (1978) United States
874	A14 $O + SO_2 + Ar; O + SO_2 + N_2$	E	299-440 K	Atkinson, R.; Pitts, J. N. Kinetics of reaction $O(^3P) + SO_2 + M \rightarrow SO_3 + M$ over temperature range of 299-degrees-440-degrees K. <i>Int. J. Chem. Kinetics</i> 10, 1081 (1978) United States
875	H10 $h\nu + [Cl_2 + O_2]$	E	300 K	Astford, F. D.; Esau, N.; Hunt, J. E. Kinetics of ClO formation in flash photolysis of chlorine-oxygen mixtures. <i>Int. J. Chem. Kinetics</i> 10, 1233 (1978) Canada
876	A17 $Xe + Xe; Ar + F; Ar_2 + F$	T	Undef	Michels, H. H.; Hobbs, R. H.; Wright, L. A.; Connolly, J. W. D. Electronic structure of excimer molecular lasers. <i>Int. J. Quantum Chem.</i> 12, 165 (1978) United States
877	E02 $e + SF_6$	T	10-60 eV	Benedict, M. G.; Gymerant, I. Total cross section of the SF_6 molecule for elastic electron scattering. <i>Int. J. Quantum Chem.</i> 12, 667 (1978) Hungary
878	F01 B^+	T		Larson, E. G. Comparisons of the FFA, SCRFA, Tamm-Dancoff, and full CI methods by analysis of their transition density matrices, oscillator strengths, and energy moments of oscillator strengths for the electric dipole transitions from the ground state of the B^+ ion (frozen K-shell model). <i>Int. J. Quantum Chem.</i> 12, 743 (1978) United States
879	A17 $F^+ + Ar; F^+ + Kr; F^+ + Xe$	T	Undef	Sannigrahi, A. E.; Lo, E. F. Selected valence-electron split-shell MC calculations on $ArF^+, KrF^+,$ and NeF^+ . <i>Int. J. Quantum Chem.</i> 14, 325 (1978) India
880	A17 $O + ClO; Cl + O_2$ A14 $O + ClO; Cl + O_2$	T	258 K	Farantos, S. C.; Murrell, J. N. Classical dynamics of the $O + ClO \rightarrow Cl + O_2$ and $Cl + O_2 \rightarrow ClO + O$ reactions. <i>Int. J. Quantum Chem.</i> 14, 669 (1978) United Kingdom
881	D05 $h\nu + U; h\nu + Al; h\nu + Cu; h\nu + Sn;$ $h\nu + Pb; h\nu + Mo; h\nu + W$	E	100-1300 keV	Nakamura, M.; Kikuchi, E. The energy spectra of secondary electrons from the metallic elements irradiated with ^{60}Co and ^{137}Cs gamma rays. <i>Jap. J. Appl. Phys.</i> 17, 1463 (1978) Japan
882	F03 $H; Be; B; C; N; O; F$	T		Dewar, M. J. S.; Rzepa, H. S. Calculations of electron affinities using the MNDO semiempirical SCF-MO method. <i>J. Am. Chem. Soc.</i> 100, 784 (1978) United States
883	A13 $O^+ + N_2$	T	0-100 eV	Hopper, D. G. Mechanisms of the reaction of positive atomic oxygen ions with nitrogen. <i>J. Am. Chem. Soc.</i> 100, 1015 (1978) United States
884	A14 $H + NH_2$	T	Thermal	Nakatsuji, H.; Kogo, I.; Kuroki, K.; Yonezawa, T. Force and density study on the chemical reaction process $NH_2 + H \rightarrow NH_3$. <i>J. Am. Chem. Soc.</i> 100, 1025 (1978) Japan

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885	A13 OH ⁻ + CO ₂	T	Undef	Jansson, B.; Karlstrom, G.; Wennerstrom, h. Ab initio molecular orbital calculations on the water-carbon dioxide system. The reaction OH ⁻ + CO ₂ → HCO ₂ ⁻ . J. Am. Chem. Soc. 100, 1658 (1978) Sweden
886	A13 ND ₂ ⁻ + D ₂ ; D ⁻ + H ₂	E	0.3-180 eV	Lifshitz, C.; Wu, F. L. C.; Tiernen, T. O. Excitation functions of slow proton transfer reactions involving negative ions. J. Am. Chem. Soc. 100, 2046 (1978) United States
887	F01 Ni ₂ ; Ni ₂ ⁺	T		Upton, T. H.; Goddard, W. A., III The electron states of Ni ₂ and Ni ₂ ⁺ . J. Am. Chem. Soc. 100, 5659 (1978) United States
888	K01 Review	E T	Undef	Sellin, I. A., Ed. Structure and collisions of ions and atoms (Topics in Current Physics, Volume 5). Springer-Verlag Heidelberg, 1978 United States
889	K01 Review	E T	Undef	Levine, R. D.; Jortner, J., Ed. Molecular energy transfer. John Wiley and Sons New York, 1976 Israel
890	A11 KrF + He; KrF + Ne; KrF + Ar; KrF + Xe	E	Thermal	Eden, J. G.; Baynont, R. W.; Searles, E. K.; Eurnhas, R. KrF(E) quenching by He, Ne, Xe, and NF ₃ . J. Appl. Phys. 49, 5368 (1978) United States
891	C02 Br + Au; Cl + Au; F + Au; O + Au; N + Au D02 Br + Au; Cl + Au; F + Au; O + Au; N + Au D14 Br + Au; Cl + Au; F + Au; O + Au; N + Au	E	10-15 MeV	Andersen, H. H.; Knudsen, H.; Petersen, F. P. Degradation of discontinuous gold films under MeV heavy-ion bombardment. J. Appl. Phys. 49, 5638 (1978) Denmark
892	D14 He ⁺ + V	E	20-500 keV	Kashinsky, M.; Das, S. K. Correlation of blister diameter and blister skin thickness for helium-bombarded V. J. Appl. Phys. 49, 5673 (1978) United States
893	A03 SF ₆ + He; SF ₆ + Ar	E	150-300 K	Woodroffe, J. A.; Kivel, B. Energy rescued from vibration in V-V collisions between SF ₆ and helium or argon. J. Appl. Phys. 49, 5702 (1978) United States
894	G05 e + CD G07 e + CD G08 e + CD G09 e + CD G10 e + CD E03 e + CD E05 e + CD	E	0-100 eV	Land, J. E. Electron scattering cross sections for momentum transfer and inelastic excitation in carbon monoxide. J. Appl. Phys. 49, 5716 (1978) United States
895	D02 H ⁺ + B; He ⁺ + B	E	20-200 keV	Miyagawa, S.; Ato, Y.; Moriye, Y. Sputtering yields of boron bombarded by light ions. J. Appl. Phys. 49, 6154 (1978) Japan
896	A12 H ₂ O ⁺ + N ₂ ; H ₂ O ⁺ + CO ₂ ; H ₂ O + Ar	E	Undef	Goclevskii, A. P.; Kapitanov, V. A. Changes in the line shapes of water vapor due to broadening by foreign gases. J. Appl. Spectrosc. 28, 142 (1978) Soviet Union
897	G08 e + [Al + N ₂]	E	26000 K	Shalkauskas, Y. S. Estimation of radial temperature distribution and determination of relative chemical composition in the plasma of a low-voltage pulse discharge. J. Appl. Spectrosc. 28, 266 (1978) Soviet Union
898	H02 Undef	T	Undef	Gaisench, V. A.; Zhicharevich, I. I.; Serzhevskii, A. M. Role of diffusion rotation of molecules during absorption from excited states. J. Appl. Spectrosc. 28, 562 (1978) Soviet Union

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899	D07 P ⁺ + [H + SiO ₂]; P ⁺ + [H ₂ O + SiO ₂] D16 P ⁺ + [H + SiO ₂]; P ⁺ + [H ₂ O + SiO ₂]	E	80 keV	Gerasimenko, N. N.; Kovalevskaya, T. I.; Tseltlin, G. M. Investigation of hydrogen capture in ion-beam-etched silicon dioxide films by the ATF method. J. Appl. Spectrosc. 28, 600 (1978) Soviet Union
900	A04 He ⁺ + H ₂ A06 He ⁺ + H ₂	T	0.005-0.28 eV	Preston, F. K.; Thompson, I. L.; McLaughlin, D. R. A theoretical prediction of vibrational enhancement for dissociative charge transfer in the He ₂ ⁺ system. J. Chem. Phys. 68, 13 (1978) United States
901	A11 O + He; O + Ne; O + Ar; O + Kr; O + Xe; S + He; S + Ne; S + Ar; S + Kr; S + Xe; Se + He; Se + Ne; Se + Ar; Se + Kr; Se + Xe	T	300 K	Julienne, P. S. Theory of rare gas-group VI ¹ S- ¹ I collision-induced transitions. J. Chem. Phys. 68, 32 (1978) United States
902	A03 I ₂ ⁺ + I ₂ A11 I ₂ ⁺ + I ₂	E T	300 K	Keto, H. Molecular collisions and depolarization of emission from I ₂ in the gas phase excited by circularly polarized light. J. Chem. Phys. 68, 66 (1978) Japan
903	B07 Undef	T		Bellum, J. C.; George, T. F. Quantum mechanical theory of collisional ionization in the presence of intense laser radiation. J. Chem. Phys. 68, 134 (1978) United States
904	A04 HF + Ar; HCl + Ar; CO + Ar	T	2500-9500 K	Razakrishna, M.; Babu, S. V. Steady state dissociation of shock heated HF, HCl, and CO in excess Ar. J. Chem. Phys. 68, 163 (1978) India
905	A17 H ₂ ⁺ + H ₂	T	Undef	Stine, J. R.; Muckerman, J. T. Charge exchange and chemical reaction in the H ₂ ⁺ + H ₂ system. I. Characterization of the potential energy surfaces and nonadiabatic regions. J. Chem. Phys. 68, 185 (1978) United States
906	A06 O ⁻ + O ₃ ; OH ⁻ + O ₃ ; F ⁻ + O ₃ ; Cl ⁻ + O ₃ ; Br ⁻ + O ₃ ; I ⁻ + O ₃ ; S ⁻ + O ₃ ; SH ⁻ + O ₃ ; Cl ₂ ⁻ + O ₃ ; C ₂ H ⁻ + O ₃ ; NO ₂ ⁻ + O ₃ ; CO ₃ ⁻ + O ₃ ; O ₂ ⁻ + O ₃ ; NO ₃ ⁻ + O ₃ ; NO ₂ ⁻ + O ₃ A13 O ⁻ + O ₃ ; OH ⁻ + O ₃ ; F ⁻ + O ₃ ; Cl ⁻ + O ₃ ; Br ⁻ + O ₃ ; I ⁻ + O ₃ ; S ⁻ + O ₃ ; SH ⁻ + O ₃ ; Cl ₂ ⁻ + O ₃ ; C ₂ H ⁻ + O ₃ ; NO ₂ ⁻ + O ₃ ; CO ₃ ⁻ + O ₃ ; NO ₃ ⁻ + O ₃ ; O ₂ ⁻ + O ₃ ; NO ₂ ⁻ + O ₃	E	0.1-12 eV	Lifshitz, C.; Wu, F. L. C.; Tierner, T. O.; Terwilliger, D. T. Negative ion-molecule reactions of ozone and their implications on the thermochemistry of O ₃ ⁻ . J. Chem. Phys. 68, 247 (1978) United States
907	A04 CO ⁺ + CO	E	0.65-3.2 keV	Moran, T. F.; Wilcox, J. B.; Atkey, L. E. Collision-induced dissociation of CO ⁺ in X ²⁺ and metastable states in C ⁺ -CO interactions. J. Chem. Phys. 68, 261 (1978) United States
908	A13 Kr ⁺ + H ₂ ; Kr ⁺ + D ₂ ; Kr ⁺ + HD	E	100-400 K	Kemper, P. R.; Neilson, P. V.; Parent, D.; Echers, M. T. Temperature dependence of the reaction of Kr ⁺ with H ₂ , D ₂ , and HD: an unusual isotope effect. J. Chem. Phys. 68, 322 (1978) United States
909	A05 Cl + K ₂	E	1200 K	Krenos, J. On electronic emission intensity in chemiluminescent reactions. J. Chem. Phys. 68, 342 (1978) United States
910	A14 Undef	T	300 K	Xystris, N.; Dahler, J. S. A reactive collision model for use in kinetic theory. J. Chem. Phys. 68, 345 (1978) United States
911	G02 Undef G09 Undef	T	300 K	Xystris, N.; Dahler, J. S. Mass and momentum transport in dilute reacting gases. J. Chem. Phys. 68, 254 (1978) United States
912	A17 Ar + Ar ⁺ ; Kr + Kr ⁺ ; Xe + Xe ⁺	T	Undef	Wadt, W. F. The electronic states of Ar ₂ ⁺ , Kr ₂ ⁺ , Xe ₂ ⁺ . I. Potential curves with and without spin-orbit coupling. J. Chem. Phys. 68, 402 (1978) United States

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913	A03 CO ₂ + Ne; CO ₂ + Ar; CO ₂ + Kr	T	0.1-10 eV	Suzukawa, H. H., Jr.; Wolfsberg, M.; Thompson, D. L. A quasiklassical trajectory study of the energy transfer in CO ₂ -rare gas systems. J. Chem. Phys. 66, 465 (1978) United States
914	A11 HCl + O A14 HCl + O	E	296 K	Macdonald, F. G.; Moore, C. E. Reaction and deactivation of HCl (V=1,2) by O atoms. J. Chem. Phys. 68, 513 (1978) United States
915	A05 He ₂ ⁺ + H ₂ O; He ₂ ⁺ + CH ₃ CN A11 He ₂ ⁺ + H ₂ O; He ₂ ⁺ + CH ₃ CN A13 He ₂ ⁺ + H ₂ O; He ₂ ⁺ + CH ₃ CN	E	300 K	Binns, W. F.; Ahl, J. L. Excitation and quenching reactions in E-beam excited He/H ₂ O and He/CH ₃ CN systems. J. Chem. Phys. 68, 538 (1978) United States
916	A14 K + NaCl; K + NaD	T	300 K	Pollak, E. Prior statistical distributions for the collision of an atom with a diatom. J. Chem. Phys. 68, 547 (1978) United States
917	H06 hv + Ne; hv + Ar; hv + CH ₄ ; hv + NH ₃ ; hv + H ₂ O; hv + CO; hv + N ₂ ; hv + CO ₂	E	21-1253 eV	Allison, D. A.; Cavell, R. G. Photoelectron spectroscopy with Zr M(sub alpha) (151 eV) radiation. A study of the variation of relative photoionization cross sections of molecules containing first row atoms (C,N,O) with exciting radiation from He I to Mg (sub alpha) limits. J. Chem. Phys. 66, 553 (1978) Canada
918	A03 He + H ₂ ; He + D ₂ ; Ar + N ₂	T	0.05-9.4 eV	Tarr, S. M.; Fabitz, H. Rapid and accurate evaluation of inelastic molecular cross sections. J. Chem. Phys. 68, 642 (1978) United States
919	A11 He + H ₂	T	3000 K	Tarr, S. M.; Fabitz, H. High-temperature vibrational-rotational relaxation in He-H ₂ . J. Chem. Phys. 68, 647 (1978) United States
920	A02 He + 2He	T	300 K	Liu, T. K.; Duffy, K. Faddeev-UPE theory and the three He-atom system: bound states and zero-energy atom-diatom scattering. J. Chem. Phys. 66, 655 (1978) United States
921	H06 hv + Zn; hv + Cd	E	412-1052 eV	Banna, M. S.; Frost, D. C.; McDowell, C. A.; Wellbank, B. Free-atom core binding energies from x-ray photoelectron spectroscopy. I. Zinc and cadmium. J. Chem. Phys. 68, 656 (1978) Canada
922	A17 H ₂ + Ar; H ₂ + Kr; H ₂ + Xe; D ₂ + Ne	T	Undef	Dunker, A. P.; Gordon, F. G. Bound atom-diatom molecule complexes. Anisotropic intermolecular potentials for the hydrogen-rare gas systems. J. Chem. Phys. 68, 700 (1978) United States
923	H06 hv + H ₂	T	1.11-14 eV	Ritchie, B.; Tambe, B. R. Theoretical studies in photoelectron spectroscopy: extraction of dynamical and structural information from the angular distributions for oriented or rotationally resolved unoriented molecular samples. J. Chem. Phys. 68, 755 (1978) United States
924	E03 e + NO	E	5-7.4 eV	Frueholz, R. P.; Riande, R.; Kuppersmann, A. Doublet + quartet transitions in nitric oxide as detected by electron-impact spectroscopy. J. Chem. Phys. 68, 775 (1978) United States
925	A17 F ⁺ + H ₂	T	Undef	Mahan, E. H.; Schaefer, H. F., III; Ungemach, S. S. Some features of the potential energy surfaces for the F ⁺ + H ₂ ion-molecule reaction. J. Chem. Phys. 66, 781 (1978) United States
926	A17 Cs + Cs; Rb + Rb H02 hv + Cs ₂ ; hv + Rb ₂	E	4230-7860 A ⁰	Gupta, F.; Happer, W.; Wagner, J.; Werrisyr, E. Absorption studies of Cs ₂ and Rb ₂ molecular bands in the visible and near visible. J. Chem. Phys. 68, 799 (1978) United States

REF. NO.	REACTANTS	EXP CR THEOR	ENERGY RANGE	REFERENCE
927	A04 Ar ⁺ + N ₂ ; Ar ⁺ + O ₂ ; Ar ²⁺ + N ₂ ; Ar ²⁺ + O ₂ A06 Ar ⁺ + N ₂ ; Ar ⁺ + C ₂ ; Ar ²⁺ + N ₂ ; Ar ²⁺ + O ₂	E	300 K	Howorka, F. Reactions of singly and doubly charged argon ions with N ₂ and O ₂ in a steady state hollow cathode discharge. J. Chem. Phys. 66, 804 (1978) Austria
928	A13 CO ₂ ⁺ + 2CO ₂	E	300 K	Melissis, G. G.; Illies, A. J.; Stredling, F. S.; Jennings, K. F. Time resolved measurements in high pressure mass spectrometry: an analysis of assumptions. J. Chem. Phys. 68, 866 (1978) United States
929	A13 C ⁺ + D ₂ ; H ₂ O ⁺ + H ₂ ; D ₃ O ⁺ + D ₂	T	1-5 eV	Chesnovich, V. J.; Bowers, P. I. Threshold behavior of endoergic bimolecular reactions: a statistical phase space approach. J. Chem. Phys. 68, 561 (1978) United States
930	A06 K + H ₂ O; K + D ₂ O; Cs + H ₂ O; Cs + D ₂ O A07 K + H ₂ O; K + D ₂ O; Cs + H ₂ O; Cs + D ₂ O	E	10-200 eV	Warmack, R. J.; Stockdale, J. A. D.; Capton, F. A. Ionizing collisions of cesium and potassium atoms with water. J. Chem. Phys. 68, 516 (1978) United States
931	A11 CO* + H ₂	T	250-2000 K	Stricker, J. Vibrational deactivation of carbon monoxide by hydrogen from 250 to 2000 K. J. Chem. Phys. 68, 534 (1978) Israel
932	H04 hv + N ₂ H06 hv + N ₂	T	18-50 eV	Reaiganc, T. N.; Bender, C. F.; McKay, E. V.; Langhoff, P. W. Photoabsorption in molecular nitrogen: a moment analysis of discrete-basis-set calculations in the static-exchange approximation. J. Chem. Phys. 68, 470 (1978) United States
933	A11 O* + N ₂ O; O* + CO ₂ ; O* + H ₂ O; O* + NO A14 O* + N ₂ O; O* + CO ₂ ; O* + H ₂ O; O* + NO	E	300 K	Slanger, T. G.; Black, G. C(1S) interactions—the product channels. J. Chem. Phys. 68, 585 (1978) United States
934	A11 O* + O ₂	E	300 K	Slanger, T. G.; Black, G. Products of the C(1S)-O ₂ interaction. J. Chem. Phys. 68, 558 (1978) United States
935	A11 NO + O ₃ * A14 NO + O ₃ *	E	158-437 K	Bar-Ziv, E.; Moy, J.; Gordon, R. J. Temperature dependence of the laser-enhanced reaction NO + O ₃ (001); II. Contributions from reactive and nonreactive channels. J. Chem. Phys. 68, 1012 (1978) United States
936	A11 NO + O ₃ * A14 NO + O ₃ *	E	138-410 K	Hui, K.-K.; Cool, T. A. Experiments concerning the laser-enhanced reaction between vibrationally excited O ₃ and NO. J. Chem. Phys. 68, 1022 (1978) United States
937	A14 CH ₃ I + K; CH ₃ I + Rb	E	0.077-1.7 eV	Wu, K. T.; Fang, H. F.; Bernstein, R. L. Comparison of the cross sections for reaction of methyl iodide with potassium and rubidium. J. Chem. Phys. 68, 1064 (1978) United States
938	A14 NO ₂ * + CO	E	300 K	Herman, I. F.; Meriello, R. P., Jr.; Javan, A. Analysis of the laser-stimulated reactions: NO ₂ * + CO + NO + CO ₂ . J. Chem. Phys. 68, 1070 (1978) United States
939	A04 Undef	T	Undef	Rusinek, I.; Roberts, F. E. Semiclassical calculation for collision induced dissociation. II. Morse oscillator model. J. Chem. Phys. 68, 1147 (1978) United States
940	A07 He* + Ar; He ₂ * + Ar A14 He* + Ar; He ₂ * + Ar	E	300 K	Pitchford, L. C.; Deloche, H. Destruction rates of metastable helium atoms and molecules in collisions with argon atoms. J. Chem. Phys. 68, 1165 (1978) France
941	A13 NO ⁺ + NO ₂ ⁻ ; NO ⁺ + NO ₃ ⁻ ; CCl ₄ ⁺ + Cl ⁻ ; NH ₄ ⁺ + Cl ⁻	E	220-430 K	Smith, I.; Church, M. J.; Miller, T. M. Mutual neutralization of simple and clustered positive and negative ions. J. Chem. Phys. 68, 1224 (1978) United Kingdom

REF. NO.	REACTANTS	EXP OR THEOR	ENERGY RANGE	REFERENCE
942	A04 Undef	T	Undef	Band, Y. E.; Freed, K. F. Design of natural collision coordinates to describe dissociation of polyatomic molecules. <i>J. Chem. Phys.</i> 68, 1252 (1978) United States
943	H05 $h\nu + CF_3Cl$; $h\nu + CF_3Br$; $h\nu + CF_3I$; $h\nu + SF_6$	E	929-1090 cm^{-1}	Sudbo, A. S.; Schulz, P. A.; Grant, E. F.; Shen, Y. R.; Lee, Y. I. Multiphoton dissociation products from halogenated hydrocarbons. <i>J. Chem. Phys.</i> 68, 1306 (1978) United States
944	A07 $Xe^* + CH_3I$; $Xe^* + C_2F_4$; $Xe^* + C_6F_6$; $Xe^* + CH_3Br$	E	300 K	Hildebrandt, G. F.; Kellert, F. G.; Lunning, F. B.; Smith, K. A.; Stebbins, R. F. Ionization of xenon atoms in selected high Rydberg states by collision with CH_3I , C_2F_4 , C_6F_6 , and CH_3Br . <i>J. Chem. Phys.</i> 68, 1345 (1978) United States
945	G05 $e + Xe$	E	0.05-5 eV	Huang, S. S.-S.; Freeman, G. R. Electron mobilities in gaseous, critical, and liquid xenon: density, electric field, and temperature effects: quasicollimation. <i>J. Chem. Phys.</i> 68, 1355 (1978) Canada
946	A06 $He_2^+ + Kr$; $He_2^+ + H_2$; $He_2^+ + O_2$; $He_2^+ + NO$; $He_2^+ + HBr$; $He_2^+ + HCl$; $He_2^+ + H_2O$; $He_2^+ + N_2O$; $He_2^+ + CCl_2F_2$; $He_2^+ + NC$; $He_2^+ + C_2H_6$; $He_2^+ + NH_3$	E	300 K	Collins, C. B.; Lee, F. W. Measurement of the rate coefficients for the bimolecular and termolecular ion-molecule reactions of He_2^+ with selected atomic and molecular species. <i>J. Chem. Phys.</i> 68, 1391 (1978) United States
947	A17 $H + H$; $H + He$; $H + Li$; $H + N$; $H + O$; $H + H_2$; $H + N_2$; $H + O_2$; $H + NO$; $H + N_2O$; $H + H_2O$; $H + NH_3$; $H + CH_4$; $He + Li$; $He + N$; $He + O$; $He + H_2$; $He + N_2$; $He + O_2$; $He + NO$; $He + N_2O$; $He + H_2O$; $He + NH_3$; $He + CH_4$; $Li + N$; $Li + O$; $Li + H_2$; $Li + N_2$; $Li + O_2$; $Li + NO$; $Li + N_2O$; $Li + H_2O$; $Li + NH_3$; $Li + CH_4$; $Li + H$; $Li + He$; $Li + Li$; $N + H$; $N + He$; $N + Li$; $N + N$; $N + O$; $N + H_2$; $N + N_2$; $N + O_2$; $N + NO$; $N + N_2O$; $N + H_2O$; $N + NH_3$; $N + CH_4$; $O + H$; $O + He$; $O + Li$; $O + N$; $O + O$; $O + H_2$; $O + N_2$; $O + O_2$; $O + NO$; $O + N_2O$; $O + H_2O$; $O + NH_3$; $O + CH_4$; $H_2 + H$; $H_2 + He$; $H_2 + Li$; $H_2 + N$; $H_2 + O$; $H_2 + H_2$; $H_2 + N_2$; $H_2 + O_2$; $H_2 + NO$; $H_2 + N_2O$; $H_2 + H_2O$; $H_2 + NH_3$; $H_2 + CH_4$; $N_2 + H$; $N_2 + He$; $N_2 + Li$; $N_2 + N$; $N_2 + O$; $N_2 + NO$; $N_2 + H_2$; $N_2 + N_2$; $N_2 + O_2$; $N_2 + N_2O$; $N_2 + N_2O$; $N_2 + H_2O$; $N_2 + NH_3$; $N_2 + CH_4$; $O_2 + H$; $O_2 + He$; $O_2 + Li$; $O_2 + N$; $O_2 + O$; $O_2 + H_2$; $O_2 + N_2$; $O_2 + O_2$; $O_2 + NO$; $O_2 + N_2O$; $O_2 + H_2O$; $O_2 + NH_3$; $O_2 + CH_4$; $NO + H$; $NO + He$; $NO + Li$; $NO + N$; $NO + O$; $NO + H_2$; $NO + N_2$; $NO + O_2$; $NO + NO$; $NO + N_2O$; $NO + H_2O$; $NO + NH_3$; $NO + CH_4$; $N_2O + H$; $N_2O + He$; $N_2O + Li$; $N_2O + N$; $N_2O + O$; $N_2O + H_2$; $N_2O + N_2$; $N_2O + O_2$; $N_2O + NO$; $N_2O + N_2O$; $N_2O + H_2O$; $N_2O + NH_3$; $N_2O + CH_4$; $H_2O + H$; $H_2O + He$; $H_2O + Li$; $H_2O + N$; $H_2O + O$; $H_2O + H_2$; $H_2O + N_2$; $H_2O + O_2$; $H_2O + NO$; $H_2O + N_2O$; $H_2O + H_2O$; $H_2O + NH_3$; $H_2O + CH_4$; $NH_3 + H$; $NH_3 + He$; $NH_3 + Li$; $NH_3 + N$; $NH_3 + O$; $NH_3 + H_2$; $NH_3 + N_2$; $NH_3 + O_2$; $NH_3 + NO$; $NH_3 + N_2O$; $NH_3 + H_2O$; $NH_3 + NH_3$; $NH_3 + CH_4$; $CH_4 + H$; $CH_4 + He$; $CH_4 + Li$; $CH_4 + N$; $CH_4 + O$; $CH_4 + H_2$; $CH_4 + N_2$; $CH_4 + O_2$; $CH_4 + NO$; $CH_4 + N_2O$; $CH_4 + H_2O$; $CH_4 + NH_3$; $CH_4 + CH_4$; $He + H$; $He + He$	T	Undef	Margolis, D. J.; Meath, W. J. Pseudospectral dipole oscillator strength distributions and some related two body interaction coefficients for H , He , Li , N , O , H_2 , N_2 , O_2 , NO , N_2O , H_2O , NH_3 , and CH_4 . <i>J. Chem. Phys.</i> 68, 1426 (1978) Canada
948	A13 $O^- + D_2$	E	1.2-4.7 eV	Johnson, S. G.; Kresner, L. N.; Petral, C. J.; Cross, R. J., Jr. Crossed beam studies of $O^- + I_2$, $O^- + D_2$. <i>J. Chem. Phys.</i> 68, 1444 (1978) United States

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949	A17 Cs + H	T	Undef	Hsieh, Y.-K.; Yang, S.-C.; Tam, A. C.; Stwalley, H. C. The potential energy curves of the X $1\Sigma^+$ and A $1\Sigma^+$ states of CsH. J. Chem. Phys. 68, 1446 (1978) United States
950	A04 H ₂ ⁻ + He; H ₂ ⁻ + Ar; H ₂ ⁻ + H ₂ ; H ₂ ⁻ + Kr; H ₂ ⁻ + N ₂ ; HD ⁻ + He; HD ⁻ + Ar; HD ⁻ + H ₂ ; HD ⁻ + Kr; HD ⁻ + N ₂ ; D ₂ ⁻ + He; D ₂ ⁻ + Ar; D ₂ ⁻ + Kr; D ₂ ⁻ + H ₂ ; D ₂ ⁻ + N ₂ ; H ₃ ⁻ + He; H ₃ ⁻ + Ar; H ₃ ⁻ + Kr; H ₃ ⁻ + H ₂ ; H ₃ ⁻ + N ₂ ; HD ₂ ⁻ + He; HD ₂ ⁻ + Ar; HD ₂ ⁻ + H ₂ ; HD ₂ ⁻ + Kr; HD ₂ ⁻ + N ₂ ; D ₃ ⁻ + He; D ₃ ⁻ + Ar; D ₃ ⁻ + H ₂ ; D ₃ ⁻ + Kr; D ₃ ⁻ + N ₂ A16 H ₂ ⁻ + He; H ₂ ⁻ + Ar; H ₂ ⁻ + H ₂ ; H ₂ ⁻ + Kr; H ₂ ⁻ + N ₂ ; HD ⁻ + He; HD ⁻ + Ar; HD ⁻ + H ₂ ; HD ⁻ + Kr; HD ⁻ + N ₂ ; D ₂ ⁻ + He; D ₂ ⁻ + Ar; D ₂ ⁻ + H ₂ ; D ₂ ⁻ + Kr; D ₂ ⁻ + N ₂ ; H ₃ ⁻ + He; H ₃ ⁻ + Ar; H ₃ ⁻ + H ₂ ; H ₃ ⁻ + Kr; H ₃ ⁻ + N ₂ ; HD ₂ ⁻ + He; HD ₂ ⁻ + Ar; HD ₂ ⁻ + H ₂ ; HD ₂ ⁻ + Kr; HD ₂ ⁻ + N ₂ ; D ₃ ⁻ + He; D ₃ ⁻ + Ar; D ₃ ⁻ + H ₂ ; D ₃ ⁻ + Kr; D ₃ ⁻ + N ₂	E	5-15 keV	Schnitzer, R.; Odow, R. W.; Anbar, M. Collision-induced formation of positive and negative ions from diatomic and triatomic negative hydrogen ions. J. Chem. Phys. 68, 1485 (1978) United States
951	A03 Li ⁺ + Ha; Na ⁺ + Ha; K ⁺ + Ha	E	0.05-3 keV	Aquilanti, V.; Casavecchio, P.; Grassi, G. Excitation of Ha (2P ₁) by low energy alkali ion impact: optical polarization and cross sections for magnetic sublevels. J. Chem. Phys. 68, 1499 (1978) Italy
952	E03 e + H	T	11-218 eV	Truhlar, D. G.; Mullaney, A. A. Semiclassical exchange approximation for inelastic electron scattering. J. Chem. Phys. 68, 1574 (1978) United States
953	A03 He + CO ₂ G02 He + CC ₂	T	100-1000 K	Parker, G. A.; Pack, R. T. Rotationally and vibrationally inelastic scattering in the rotational IOS approximation. Ultrasimple calculation of total (differential, integral, and transport) cross sections for nonspherical molecules. J. Chem. Phys. 66, 1585 (1978) United States
954	H05 hv + HOCl	T	400-200 nm	Jaffe, F. L.; Lenghoff, S. R. Theoretical study of the photodissociation of HOCl. J. Chem. Phys. 68, 1638 (1978) United States
955	A14 H + O ₂ A17 H + O ₂	T	1600-2500 K	Gauss, F., Jr. Trajectory calculations on the H + O ₂ + OH + O combustion reaction. J. Chem. Phys. 66, 1689 (1978) United States
956	A11 H + HF*; D + HF* A14 H + HF*; D + HF*	E	200-295 K	Bott, J. F.; Heidner, R. F., III Kinetic study of H + HF(v=3); kinetic isotope effect and temperature dependence. J. Chem. Phys. 68, 1708 (1978) United States
957	A11 S ₂ ⁺ + He; S ₂ ⁺ + Ar; S ₂ ⁺ + Xe; S ₂ ⁺ + N ₂ ; S ₂ ⁺ + S ₂ ; S ₂ ⁺ + CF ₄ ; S ₂ ⁺ + C ₂ F ₆ A10 S ₂ ⁺ + He; S ₂ ⁺ + Ar; S ₂ ⁺ + Xe; S ₂ ⁺ + N ₂ ; S ₂ ⁺ + S ₂ ; S ₂ ⁺ + CF ₄ ; S ₂ ⁺ + C ₂ F ₆	E	300 K	McGeo, T. H.; Weston, R. E., Jr. Collisional quenching of fluorescence from S ₂ (B $^3\Sigma^-$ sub u-). J. Chem. Phys. 68, 1736 (1978) United States
958	A17 Xe + F; Xe + Xe; Xe + Xe*	T	Undef	Wadt, W. R.; Hay, P. J.; Kahn, L. F. Relativistic and nonrelativistic effective core potentials for xenon. Applications to XeF, Xe ₂ , and Xe ₂ ⁺ . J. Chem. Phys. 68, 1752 (1978) United States
959	A13 Undef	T	Undef	Castleman, A. W., Jr.; Holland, F. M.; Keesee, R. G. The properties of ion clusters and their relationship to heteromolecular nucleation. J. Chem. Phys. 66, 1760 (1978) United States
960	H05 hv + CO ₂ ; hv + 2CO ₂ H06 hv + CC ₂ ; hv + 2CO ₂	E	1000-500 Å	Jones, G. G.; Taylor, J. W. A photoionization study of carbon dioxide dimers in a supersonic molecular beam. J. Chem. Phys. 68, 1768 (1978) United States

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961	D09 N ₂ ⁺ + Si; N ₂ ⁺ + SiO; N ₂ ⁺ + SiO, D17 N ₂ ⁺ + Si; N ₂ ⁺ + SiO; N ₂ ⁺ + SiO,	E	30-3000 eV	Taylor, J. A.; Lancaster, G. M.; Ignatiev, A.; Rabalais, J. W. Interactions of ion beams with surfaces. Reactions of nitrogen with silicon and its oxides. J. Chem. Phys. 68, 1776 (1978) United States
962	H08 hν + Hg ₂	E	250 nm	Stock, P.; Smith, E. W.; Erullinger, R. E.; Hessel, M. M.; Pourcin, J. Analysis of the decay of molecular fluorescence in optically excited mercury vapor. J. Chem. Phys. 68, 1785 (1978) United States
963	A14 La + H ₂ C; La + D ₂ O; Sc + H ₂ O; Sc + D ₂ O; Y + H ₂ O; Y + D ₂ O	E	300 K	Liu, K.; Parson, J. M. Mechanisms of central O-atom abstraction reactions: a molecular beam, laser-induced fluorescence study of group IIIE + ROH systems. J. Chem. Phys. 68, 1754 (1978) United States
964	E09 e + F ₂ E03 e + F ₂	T	0.05-5 eV	Hall, F. J. Dissociative attachment and vibrational excitation of F ₂ by slow electrons. J. Chem. Phys. 68, 1802 (1978) United States
965	H10 hν + CO ₂	E	1470-1302 Å	Slinger, T. G.; Black, G. CO ₂ photolysis revisited. J. Chem. Phys. 68, 1844 (1978) United States
966	H02 hν + O ₂	E	350-55 Å	Mehlman, G.; Ederer, D. L.; Selczer, E. B. The photoabsorption cross section of O ₂ from 55-250 Å. J. Chem. Phys. 68, 1862 (1978) United States
967	B03 N* F01 N*	E		Kocher, C. A.; Fairchild, C. E. Time-of-flight determination of radiative decay rates for high Rydberg states in atomic nitrogen. J. Chem. Phys. 68, 1884 (1978) United States
968	A17 H ⁻ + Li; H ⁻ + Na; H ⁻ + Cs	T	Undef	Karo, A. M.; Gardner, M. A.; Hiskes, J. F. Ab initio MC-SCF ground-state potential energy curves for LiH ⁻ , NaH ⁻ , and CsH ⁻ . J. Chem. Phys. 68, 1542 (1978) United States
969	A10 Kr + CO ₂	T	Undef	Schatz, G. C.; Moser, P. D. The importance of anharmonicity on the rates of energy transfer in rare gas/CO ₂ systems. J. Chem. Phys. 68, 1592 (1978) United States
970	A17 Undef	T	Undef	Gray, S. K.; Wright, J. S. On the spline interpolation of potential energy data. J. Chem. Phys. 68, 2002 (1978) United States
971	A14 CHF + O ₂ ; CHF + NO	E	300 K	Lin, M. C. Energy distribution in HF from the reaction of CHF with O ₂ and NO. J. Chem. Phys. 68, 2004 (1978) United States
972	A11 N ₂ ⁺ + SO ₂	E	300 K	Whitson, M. E., Jr.; McNeal, R. J. Quenching of vibrationally excited N ₂ by SO ₂ . J. Chem. Phys. 68, 2014 (1978) United States
973	A11 NH ₃ + NH ₃	E	Undef	Kano, S.; Mrita, N.; Iwano, T.; Shiozaki, T. Note on infrared-microwave double resonance study of collisional relaxation of NH ₃ . J. Chem. Phys. 68, 2020 (1978) Japan
974	A02 Br + I A03 Br + I	T	Undef	Faist, M. B.; Bernstein, R. B. *Erratum Computational study of elastic and electronically inelastic scattering of Br by ground state I atoms: role of potential curve crossing [J. Chem. Phys. 64, 2571 (1976)]. J. Chem. Phys. 68, 2022 (1978) United States
975	A06 Na + SF ₆ ; Na + SeF ₆ ; Na + TeF ₆ ; Na + MoF ₆ ; Na + WF ₆ ; Na + ReF ₆ ; Na + IrF ₆ ; Na + PtF ₆ ; K + SF ₆ ; K + SeF ₆ ; K + TeF ₆ ; K + MoF ₆ ; K + WF ₆ ; K + ReF ₆ ; K + IrF ₆ ; K + PtF ₆ ; Cs + SF ₆ ; Cs + SeF ₆ ; Cs + TeF ₆ ; Cs + MoF ₆ ; Cs + WF ₆ ; Cs + ReF ₆ ; Cs + IrF ₆ ; Cs + PtF ₆	E	0-40 eV	Campton, R. N.; Reinhardt, F. W.; Cooper, C. L. Collisional ionization between fast alkali atoms and selected hexafluoride molecules. J. Chem. Phys. 68, 2023 (1978) United States

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976	E05 e + He	E	300-500 eV	Dillon, M. A. Generalized differential oscillator strengths for the electron impact ionization of helium determined for large and intermediate momentum transfers at 300 to 500 eV incident energies. J. Chem. Phys. 68, 2037 (1978) United States
977	H05 Undef	T	Undef	Heller, E. J. Quantum corrections to classical photodissociation models. J. Chem. Phys. 68, 2066 (1978) United States
978	A13 CO ₂ ⁻ + N ₂ O ₄ ; NO ₂ ⁻ + N ₂ O ₄ ; F ⁻ + N ₂ O ₄ ; Cl ⁻ + N ₂ O ₄ ; Br ⁻ + N ₂ O ₄ ; I ⁻ + N ₂ O ₄ ; O ₂ ⁺ + N ₂ O ₄ ; NO ⁺ + N ₂ O ₄ ; H ₂ O ⁺ + N ₂ O ₄ ; NO ₂ ⁺ + N ₂ O ₄	E	300 K	Davidson, J. A.; Viggiano, A. A.; Howard, C. J.; Iotan, I.; Fehsenfeld, F. C.; Albritton, I. L.; Ferguson, E. E. Rate constants for the reactions of O ₂ ⁺ , NO ₂ ⁺ , NO ⁺ , H ₂ O ⁺ , CO ₂ ⁻ , NO ₂ ⁻ , and halide ions with N ₂ O ₄ at 300 K. J. Chem. Phys. 68, 2085 (1978) United States
979	A10 Br* + H ₂ O A11 Br* + H ₂ O	E	300 K	Mazur, A.; Wittig, C. Electronic to vibrational energy transfer from Br(4 ² F _{7/2}) to H ₂ O. J. Chem. Phys. 68, 2109 (1978) United States
980	A17 Mg + Mg	T	Undef	Purvis, G. L.; Bartlett, R. J. The potential energy curve for the X ¹ Σ ⁺ (sub g) ⁺ state of Mg ₂ , calculated with many-body perturbation theory. J. Chem. Phys. 68, 2114 (1978) United States
981	E02 e + H ₂	T	100-2000 eV	Gupta, F.; Khare, S. P. Elastic scattering of electrons by molecular hydrogen for incident energies 100-2000 eV. J. Chem. Phys. 68, 2192 (1978) India
982	A02 B ⁺ + He; B ⁺ + Ne; B ⁺ + Ar; B ⁺ + Kr; B ⁺ + Xe A17 B ⁺ + He; B ⁺ + Ne; B ⁺ + Ar; B ⁺ + Kr; B ⁺ + Xe	E T	4-64 eV	Ding, A.; Kerlau, J.; Weise, J.; Kendrick, J.; Kurtz, P. J.; Hillier, I. H.; Guest, M. F. Potential interactions between boron ions and rare gases. J. Chem. Phys. 68, 2206 (1978) West Germany
983	A13 F ⁺ + H ₂ A17 H ⁺ + F; F ⁺ + H; F ⁺ + H ₂	T	300 K	Kendrick, J.; Kurtz, P. J.; Hillier, I. H. Theoretical study of reactive processes in the FH ₂ ⁺ system by ab initio MCSCF-CL and diatomics-in-molecules calculations. J. Chem. Phys. 68, 2373 (1978) West Germany
984	H05 hv + Kr ₂ ⁺ A17 Kr + Kr ⁺	E	7993-4620 A ⁰	Abouaf, R.; Huber, B. A.; Cosby, F. C.; Saxen, R. P.; Museley, J. T. Photoionization spectroscopy and potential curves of Kr ₂ ⁺ . J. Chem. Phys. 68, 2406 (1978) United States
985	A14 Cl + D ₂	T	4-15 kcal/mol	Persky, A. Quasiclassical trajectory studies of the chlorine-hydrogen system. II. Cl + D ₂ → DCl + D. J. Chem. Phys. 68, 2411 (1978) Israel
986	A07 He ⁺ + Li; He ⁺ + Na; He ⁺ + K; He ⁺ + Rb; He ⁺ + Cs	T	10-100 keV	Tiwary, S. N.; Faj, D. K. Ionization of alkali-metal atoms by He ⁺ impact. J. Chem. Phys. 68, 2427 (1978) India
987	D09 UF ₆ + C; UF ₆ + Pt; UF ₆ + W	E	300 K	Dittner, P. F.; Datz, S. Molecular negative surface ionization of UF ₆ . J. Chem. Phys. 68, 2451 (1978) United States
988	A17 H + [H + H]	T	Undef	Siegbahn, P.; Liu, B. An accurate three-dimensional potential energy surface for H ₃ . J. Chem. Phys. 68, 2467 (1978) United States
989	A17 H + H ₂	T	Undef	Truhlar, D. G.; Horowitz, C. J. Functional representation of Liu and Siegbahn's accurate ab initio potential energy calculations for H + H ₂ . J. Chem. Phys. 68, 2466 (1978) United States
990	H06 hv + Na ₂	E	515-458 nm	Mathur, E. F.; Rotte, E. W.; Reck, G. F. Two-photon ionization of Na ₂ by an Ar ⁺ laser. J. Chem. Phys. 68, 2518 (1978) United States

REF. NO.	REACTANTS	EXP CR THEOR	ENERGY RANGE	REFERENCE
991	A04 He ⁺ + H ₂ O; O ⁺ + H ₂ O; N ₂ ⁺ + H ₂ O; O ₂ ⁺ + H ₂ O; Ar ⁺ + H ₂ O	E	50-250 keV	Nussebaun, G. H.; Cathers, A. F. Production of the excited CH radical in collisions of 50-250 keV He ⁺ , O ⁺ , N ₂ ⁺ , O ₂ ⁺ , and Ar ⁺ ions with H ₂ C molecules in water vapor. J. Chem. Phys. 68, 2521 (1978) United States
992	A17 NH ₃ + NH ₃ A02 NH ₃ + NH ₃	T	300-1307 K	Duquette, G.; Ellis, T. H.; Scoles, G.; Watts, R. O.; Klein, M. L. An intermolecular potential for (NH ₃) ₂ . J. Chem. Phys. 68, 2544 (1978) Canada
993	A17 H ₂ + H ₂ ; H ₂ + HCl A02 H ₂ + H ₂ ; H ₂ + HCl	T	200-14000 cm ⁻¹	Heil, I. G.; Green, S.; Kouri, D. J. The coupled states approximation for scattering of two diatoms. J. Chem. Phys. 68, 2562 (1978) United States
994	H08 hv + Na ₂ A17 Na + Na	E	H08 5145-4765 A0 A17 Undef	Kusch, P.; Hessel, M. M. An analysis of the B ¹ _u (sub u)-X ¹ I(sub g) ⁺ band system of Na ₂ . J. Chem. Phys. 68, 2551 (1978) United States
995	A13 N ₂ ⁺ + O ₂ ; N ₂ ⁺ + CO ₂ ; N ₂ ⁺ + H ₂ ; N ₂ ⁺ + D ₂ G06 N ₂ ⁺ + N ₂	E	0.04-0.16 eV	Lindinger, W.; Dotan, I.; Albritton, D. L.; Fehsenfeld, F. C. Reactions of N ₂ ⁺ with O ₂ , CO ₂ , H ₂ , and D ₂ and mobilities of N ₂ ⁺ in nitrogen. J. Chem. Phys. 68, 2607 (1978) United States
996	H05 hv + HCN; hv + ICN; hv + CO ₂	T	5-30 eV	Band, Y. B.; Morse, M. D.; Freed, K. F. Comparison of semiclassical treatments for evaluating Franck-Condon transition amplitudes for molecular dissociation. J. Chem. Phys. 68, 2702 (1978) United States
997	A13 Undef	T	Undef	Verboos, G. M. L.; Meisels, G. C. Angular momentum distributions in collision processes and the location of the transition state in ion-molecule reactions. J. Chem. Phys. 68, 2714 (1978) United States
998	A14 N ₂ + CO; N ₂ + NO; N ₂ + CH ₄ ; N ₂ + CO ₂ ; CO + CO A06 N ₂ + CO; N ₂ + NO; N ₂ + CH ₄ ; N ₂ + CO ₂ ; CO + CO A07 N ₂ + CO; N ₂ + NO; N ₂ + CH ₄ ; N ₂ + CO ₂ ; CO + CO D04 N ₂ + Au; CO + Au	E	A14; A06; A07 50-1000 eV E04 22-1200 eV	Utterback, N. G.; van Zyl, E. Low energy ionizing collisions between N ₂ and CO target molecules and CO, N ₂ , NO, CH ₄ , and C ₂ target molecules. J. Chem. Phys. 68, 2742 (1978) United States
999	H06 hv + NO	E	1337-1232 A0	Miescher, E.; Lee, Y. I.; Gurtler, P. Autoionization structure of nitric oxide (NO) at the first ionization limit. J. Chem. Phys. 68, 2753 (1978) Switzerland
1000	E09 e + N ₂ O	E	300 K	Shiomi, H.; Fessenden, R. W. Mechanism of thermal electron attachment in N ₂ O and N ₂ O-hydrocarbon mixtures in the gas phase. J. Chem. Phys. 68, 2757 (1978) United States
1001	A17 Al + H; Al + H ⁺	T	Undef	Satelli, N. H.; Kertor, M.; Benedek, R.; Gilbert, J. L. SCF potential curves for AlH and AlH ⁺ in the attractive and repulsive regions. J. Chem. Phys. 68, 2767 (1978) United States
1002	A17 Cs ⁺ + Ar; Cs ⁺ + Kr; Cs ⁺ + Xe G06 Cs ⁺ + Ar; Cs ⁺ + Kr; Cs ⁺ + Xe	E T	Undef	Thackston, M. G.; Pope, W. P.; Eisele, F. L.; Ellis, H. W.; McDaniel, E. W. Mobilities and interaction potentials for Cs ⁺ -Ar, Cs ⁺ -Kr, and Cs ⁺ -Xe. J. Chem. Phys. 68, 2775 (1978) United States
1003	H05 hv + CH H06 hv + CH	T	5-85 eV	Bersohn, J.; Nesbet, R. K. The photoionization and photodissociation of CH in the vicinity of the ionization threshold. J. Chem. Phys. 68, 2783 (1978) United States
1004	A14 O + H ₂	E	302 K	Light, G. C. The effect of vibrational excitation on the reaction of O(³ P) with H ₂ and the distribution of vibrational energy in the product OH. J. Chem. Phys. 68, 2831 (1978) United States

REF. NO.	REACTANTS	EXP CR THEOR	ENERGY RANGE	REFERENCE
1005	A11 XeF* + He; XeF* + Xe; XeF* + NF ₃ ; XeF* + F ₂	E	300 K	Eden, J. G.; Waynant, R. W. Collisional deactivation studies of the XeF*(B) state by He, Xe, NF ₃ , and F ₂ . J. Chem. Phys. 6E, 2850 (1976) United States
1006	A06 C* + Ar; C* + H ₂ ; C* + N ₂ ; C* + CO; C* + CO ₂ ; C* + O ₂	E	9.7-2.4 keV	Moran, T. F.; Wilcox, J. E. Charge transfer reactions of ground C*(² P) and excited C*(⁴ P) state ions with neutral molecules. J. Chem. Phys. 6E, 2855 (1978) United States
1007	A17 B + B	T	Undef	Dupuis, P.; Liu, E. The ground electronic state of B ₂ . J. Chem. Phys. 6E, 2502 (1978) United States
1008	E05 e + Ne	E	40-50 eV	Spence, D. The effects of post-collision interactions on near-threshold measurements of autoionizing states in Ne from scattered electron spectra. J. Chem. Phys. 68, 2580 (1978) United States
1009	H05 hν + HCN; hν + DCN	E	3893-3842 Å ⁰	Stein, I.; Gedanken, A. The photodissociation of HCN and DCN. J. Chem. Phys. 68, 2982 (1978) United States
1010	E03 e + HF	E	14-17 eV	Foner, S. N.; Hudson, F. L. Mass spectrometry of excited state molecules: observation of highly vibrationally excited HF by ionization potential measurement. J. Chem. Phys. 6E, 2587 (1978) United States
1011	A06 Ne* + Kr; Ne ₂ * + Kr; Ar* + Kr; Ar ₂ * + Kr; Ne* + Xe; Ne ₂ * + Xe; Ar* + Xe; Ar ₂ * + Xe	E	300 K	Johnsen, F.; Macdonald, J.; Eicndi, M. A. Thermal energy charge transfer rates for Ne*, Ne ₂ *, Ar*, and Ar ₂ * ions with Kr and Xe atoms. J. Chem. Phys. 68, 2951 (1978) United States
1012	A04 NF ₃ + NF ₃	E	1330-2000 K	Bresheers, W. D.; Bird, P. F. Dissociation of NF ₃ in shock waves. J. Chem. Phys. 68, 2956 (1978) United States
1013	G03 e + CH ₄ ; e + CD ₄ . G05 e + CH ₄ ; e + CD ₄ .	T	Undef	Kleban, F.; Davis, H. T. Electron drift and diffusion in polyatomic gases: calculations for CH ₄ , CD ₄ , and related acids. J. Chem. Phys. 6E, 2559 (1978) United States
1014	H05 hν + SF ₆	T	0.1-2.0 eV	Shultz, M. J.; Yablouovitch, E. A statistical theory for collisionless multiphoton dissociation of SF ₆ . J. Chem. Phys. 68, 3007 (1978) United States
1015	A11 He ₂ * + Ar	E	300 K	Lee, F. W.; Collins, C. B.; Fitchford, L. C.; Felcche, R. Pressure dependence of the reaction of He ₂ (³ Σ) metastable molecules with Ar. J. Chem. Phys. 6E, 3025 (1978) United States
1016	A11 O ₂ + He; O ₂ + Ar; O ₂ + Xe; H ₂ D + Ar	T	300-10000 K	Stace, A. J.; Murrell, J. K. A classical trajectory study of collisional energy transfer in thermal unimolecular reactions. J. Chem. Phys. 68, 3025 (1978) United Kingdom
1017	H05 Undef	T	Undef	Yuan, J.-M.; George, I. F. Semiclassical theory of unimolecular dissociation induced by a laser field. J. Chem. Phys. 68, 3040 (1978) United States
1018	A17 H + F; F + F; H + Cl; Li + Cl; Cl + Cl	T	Undef	Hay, P. J.; Wadt, W. R.; Kohn, L. F. At initic effective core potentials for molecular calculations. II. All-electron comparisons and modifications of the procedure. J. Chem. Phys. 6E, 3055 (1978) United States
1019	A11 GeF + He; GeF + N ₂ ; GeF + SF ₆ ; SiF + He H08 hν + GeF	E	A11 300 K H08 4500-4100 Å ⁰	Andersson, R. A.; Ranko, L.; Davis, S. J. Time resolved fluorescence of the A ² I ⁺ state of GeF. J. Chem. Phys. 68, 3286 (1978) United States
1020	A11 Br* + CO ₂ ; Br* + HCl	E	300-600 K	Reisler, H.; Wittig, C. Temperature dependence of the quenching of Br(4 ² F _{7/2}) by CO ₂ and HCl with accompanying vibrational excitation. J. Chem. Phys. 68, 330E (1978) United States

REF. NO.	REACTANTS	EXP OR THEOR	ENERGY RANGE	REFERENCE
1021	E09 $e + SF_6$	E	0.1 eV	Rains, L. J.; McCre, H. W.; McIver, R. I., Jr. Equilibrium electron-transfer reactions in the gas phase involving long-lived negative ionic radicals. <i>J. Chem. Phys.</i> 68, 3309 (1978) United States
1022	H05 $h\nu + Ar_2^+; h\nu + Kr_2^+; h\nu + Xe_2^+$	E	3.0-3.5 eV	Vanderhoff, J. A. Photodissociation cross sections for Ar_2^+ , Kr_2^+ , and Xe_2^+ at 3.0 and 3.5 eV. <i>J. Chem. Phys.</i> 68, 3311 (1978) United States
1023	A03 $Ar + HCl$	T	0.030-0.056 eV	Pattengill, M. D. Comparison of planar trajectory and classical centrifugal decoupling cross sections for rotationally inelastic Ar-HCl collisions. <i>J. Chem. Phys.</i> 68, 3315 (1978) United States
1024	A11 $N_2^+ + H_2O$	E	1600-3100 K	Center, R. E.; Newton, J. F. Vibrational relaxation of N_2^+ by H_2O . <i>J. Chem. Phys.</i> 68, 3327 (1978) United States
1025	A17 $Ar + Kr$	E	Undef	Buck, U.; Huisken, F.; Pauly, H.; Schluessener, J. Intermolecular potentials by the inversion of differential cross sections. V. ArKr. <i>J. Chem. Phys.</i> 68, 3334 (1978) West Germany
1026	A06 $Ar^+ + N_2; H^+ + O_2$ A03 $N_2^+ + He; N_2^+ + Ar; N_2^+ + Xe$	E	100-1000 eV	Kelley, J. D.; Fearman, G. H.; Harris, H. H.; Leventhal, J. J. Energy transfer in atom-diatom collisions: vibronic excitation. <i>J. Chem. Phys.</i> 68, 3345 (1978) United States
1027	A14 $Ca + HF; Ca + DF; Sr + HF; Sr + DF$	E	300 K	Karny, Z.; Zare, R. N. Effect of vibrational excitation on the molecular beam reactions of Ca and Sr with HF and DF. <i>J. Chem. Phys.</i> 68, 3360 (1978) United States
1028	A11 $I^+ + HCl; I^+ + HBr; I^+ + NO$	E	300 K	Grimley, A. J.; Huston, F. L. Electronic to vibrational energy transfer from $I(5^2P_{3/2})$. I. HCl, HBr, and NO. <i>J. Chem. Phys.</i> 68, 3266 (1978) United States
1029	A02 $H + Cl_2; H + Br_2$ A17 $H + Cl_2; H + Br_2$	E	0.01-1.2 eV	Bauer, W.; Shobstake, K.; Toennies, J. P.; Walaschewski, K. Determination of the long range nonreactive anisotropic potential of $F + Cl_2$ and $H + Br_2$ from nonreactive scattering experiments. <i>J. Chem. Phys.</i> 68, 3413 (1978) West Germany
1030	A11 $N_2 + O_2$	T	0-2 eV	Jolicard, G. Vibrational transitions in N_2-O_2 collisions: a theoretical treatment and comparison with computer calculations. <i>J. Chem. Phys.</i> 68, 3454 (1978) France
1031	H06 $h\nu + Xe_2$ A17 $Xe^+ + Xe$	E	H06 584 Å Undef	Dehmer, P. M.; Dehmer, J. L. Photoelectron spectrum of Xe_2 and potential energy curves for Xe_2^+ . <i>J. Chem. Phys.</i> 68, 3462 (1978) United States
1032	H05 Undef	T	Undef	Heller, E. J. Photofragmentation of symmetric triatomic molecules: time dependent picture. <i>J. Chem. Phys.</i> 68, 3891 (1978) United States
1033	A11 $NH_3 + He; NH_3 + H_2$	E	0-5 eV	Morita, N.; Keno, S.; Shimizu, I. Double and triple resonance studies of rotational relaxation in NH_3-He and NH_3-H_2 collisions. <i>J. Chem. Phys.</i> 68, 3857 (1978) Japan
1034	D03 $Ar^+ + PbF_2; Ar^+ + PbCl_2; Ar^+ + PbBr_2; Ar^+ + PbI_2; Ar^+ + PbO; Ar^+ + NaCl; Ar^+ + Bi_2O_3$	E	6 keV	Morgan, A. E.; Werner, H. W. Molecular versus atomic secondary ion emission from solids. <i>J. Chem. Phys.</i> 68, 3900 (1978) The Netherlands
1035	A14 $H + H_2$	T	0.4-1.0 eV	Bowman, J. M.; Lee, K. T. Sudden approximation calculations of reactive scattering: the $H + H_2$ reaction. <i>J. Chem. Phys.</i> 68, 3540 (1978) United States
1036	H05 $h\nu + CH_4^+$	E	1.7-2.7 eV	McGilvery, I. C.; Morrison, J. D.; Smith, D. L. Photodissociation of CH_4^+ . <i>J. Chem. Phys.</i> 68, 3949 (1978) Australia

REF. NO.	REACTANTS	EXP CR THEOR	ENERGY RANGE	REFERENCE
1037	G04 Ca ⁺ + Ar; Cs ⁺ + Kr; Cs ⁺ + Xe	E	0.02-4.7 eV	Thackston, P. G.; Eisele, F. L.; Pepe, W. M.; Ellis, H. W.; McDaniel, E. W. Further tests of the generalized Einstein relation: Ca ⁺ ions in Ar, Kr, and Xe. J. Chem. Phys. 68, 3950 (1978) United States
1038	A10 Undef	T	Undef	Altick, P. L.; Shin, H. K. A model calculation of vibrational-translation energy transfer. J. Chem. Phys. 68, 3973 (1978) United States
1039	F01 Cd; Hg	T	Undef	Besch, H.; Newton, M. D.; Jeffri, J.; Mckowitz, J. W.; Topiol, S. Effective core potentials for the cadmium and mercury atoms. J. Chem. Phys. 68, 4008 (1978) United States
1040	A17 MgF ₂	T	Undef	Pendergest, P.; Hayes, E. F. All-electron nonempirical study of the ground state of MgF ₂ . J. Chem. Phys. 68, 4022 (1978) United States
1041	H10 hv + [N ₂ + Hg] A03 Hg* + N ₂	E	H10 253.7 mμ A03 300 K	Degani, J.; Rosenfeld, E.; Yatsiv, E. Vibrational excitation of N ₂ during optical pumping of Hg by 253.7 mμ resonance radiation. J. Chem. Phys. 68, 4041 (1978) Israel
1042	A14 H + H ₂	T	300 K	Garrett, B. C.; Miller, W. E. Quantum mechanical reactive scattering via exchange kernels; application to the collinear H + H ₂ reaction. J. Chem. Phys. 68, 4051 (1978) United States
1043	A14 Br + O ₃	E	200-360 K	Michael, J. V.; Lee, J. H.; Payne, W. A.; Stief, L. J. Absolute rate of the reaction of bromine atoms with ozone from 200 to 360 K. J. Chem. Phys. 68, 4052 (1978) United States
1044	A17 HCN ⁺ H06 hv + HCN	T	Undef	Hansoul, J. P.; Galloy, C.; Lacroet, J. C. Anomalous effects in photoelectron spectroscopy. The third electronic state of HCN ⁺ . J. Chem. Phys. 68, 4105 (1978) Belgium
1045	G02 Cl + Ar; O + He	E	295 K	Judelkis, H. E.; Wun, K. Measurement of chlorine atom diffusion. J. Chem. Phys. 68, 4123 (1978) United States
1046	A11 Hg ₂ * + Hg	E	473-1073 K	Stuck, M.; Smith, E. W.; Drullinger, F. E.; Hessel, M. M. Relaxation of the first excited 1(sub u) state of Hg ₂ . J. Chem. Phys. 68, 4167 (1978) United States
1047	H05 hv + SF ₆	E	944 1/cm	Bado, P.; van den Bergh, H. Pressure dependence in the multiphoton dissociation of ³² SF ₆ . J. Chem. Phys. 68, 4188 (1978) Switzerland
1048	H05 hv + UF ₆	E	266 nm	Kroger, P. M.; Riley, S. J.; Kwei, G. H. Polyhalide photofragment spectra. II. Ultraviolet photodissociation dynamics of UF ₆ . J. Chem. Phys. 68, 4156 (1978) United States
1049	A02 Undef	T	Undef	Budenzlizer, F. E.; Gislason, E. A. Classical differential cross sections for anisotropic potentials. J. Chem. Phys. 68, 4222 (1978) United States
1050	A06 He ²⁺ + He; He ²⁺ + Ne; He ²⁺ + Ar; He ²⁺ + Kr; N ²⁺ + He; N ²⁺ + Ne; N ²⁺ + Ar; N ²⁺ + Kr; O ²⁺ + He; O ²⁺ + Ne; O ²⁺ + Ar; O ²⁺ + Kr; Ne ²⁺ + He; Ne ²⁺ + Ne; Ne ²⁺ + Ar; Ne ²⁺ + Kr; Ar ²⁺ + He; Ar ²⁺ + Ne; Ar ²⁺ + Ar; Ar ²⁺ + Kr; Ar ²⁺ + He; Ar ²⁺ + Ne; Ar ²⁺ + Ar; Ar ²⁺ + Kr; Kr ²⁺ + He; Kr ²⁺ + Ne; Kr ²⁺ + Ar; Kr ²⁺ + Kr	E	0-40 eV	Maier, W. B., II; Stewart, E. Electron transfer in collisions of doubly charged atomic ions with rare-gas atoms for primary-ion energies below 100 eV. J. Chem. Phys. 68, 4228 (1978) United States
1051	A17 O ₂ ⁻	T	Undef	Das, G.; Wahl, A. C.; Zemke, W. T.; Stalloy, B. C. Accurate ab initio potential curves for the X ² _g (sub g), A ² _g (sub u), a ² Σ ⁻ (sub u), and ² Σ ⁻ (sub u) states of the O ₂ ⁻ ion. J. Chem. Phys. 68, 4252 (1978) United States

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1052	A10 HCl + HCl	T	0.025 eV	Bhattacharyya, S. S.; Saha, S. Resonant and inelastic transitions in collision between HCl molecules. J. Chem. Phys. 68, 4292 (1978) India
1053	E04 Undef.	T	Undef	Goursaud, S.; Sizun, M.; Fiquet-Fayard, F. Translational energies from triatomic negative ions fragmentation. J. Chem. Phys. 68, 4310 (1978) France
1054	A10 Xe* + N ₂ G02 Xe* + Xe; Xe* + 2Xe A11 Xe* + Xe; Xe* + 2Xe	E	300 K	Treacy, C. J.; Brindle, R. C.; Oskam, H. J. Properties of metastable xenon atoms in afterglows produced in xenon and xenon-nitrogen mixtures. J. Chem. Phys. 68, 4321 (1978) United States
1055	A06 Ar* + N ₂	E	6 eV	Rothwell, H. L., Jr.; Asano, R. C.; van Zyl, E. Excited hydrogen and argon atom production by charge transfer of metastable Ar* ions in H ₂ molecules. J. Chem. Phys. 68, 4326 (1978) United States
1056	D10 H ₂ + Fe	T	Undef	Wolken, G., Jr. Model potential for reactions with solid surfaces: H ₂ + Fe(001). J. Chem. Phys. 68, 4338 (1978) United States
1057	A11 N ₂ ⁺ + C ₂ ; N ₂ ⁺ + H ₂ ; N ₂ ⁺ + He	E	6.5-12 keV	Sheridan, J. R.; Merlo, T. A.; Enzeiler, J. Deactivation of N ₂ ⁺ (A 2 _g sup u) at above thermal energies. J. Chem. Phys. 68, 4343 (1978) United States
1058	A14 Sn + O ₂	E	1000 K	Freedman, A.; Behrens, R., Jr.; Farr, T. F.; Hers, R. R. Crossed molecular beam kinetics: SnO recoil velocity spectra from Sn + O ₂ . J. Chem. Phys. 68, 4368 (1978) United States
1059	A13 HCl + N ₂	E	300 K	Corbin, R. J.; Nygaard, K. J.; Snow, W. R.; Scheerer, L. D. Production of Cl-HCl cluster ions in HCl-N ₂ mixtures. J. Chem. Phys. 68, 4373 (1978) United States
1060	A14 HgH + NO; HgH + H ₂	E	298-473 K	Oka, K.; Cvatanovic, R. J. Temperature dependence of the rates of reactions HgH + NO + HNC + Hg and HgH + H ₂ + Hg + F + M. J. Chem. Phys. 68, 4391 (1978) Canada
1061	A17 Hg + Xe	E	Undef	Lau, L. K.; Gallagher, A.; Irullinger, H. Measurement of HgXe excimer potentials. J. Chem. Phys. 68, 4411 (1978) United States
1062	A11 F + Xe; F + H ⁺ ; F + H ₂ ; Hg + H ₂ ; Hg + D ₂ ; Hg + CO ₂ ; Hg + CO; Hg + N ₂ A03 F + Xe; F + H ⁺ ; F + H ₂ ; Hg + H ₂ ; Hg + D ₂ ; Hg + CO; Hg + CO ₂ ; Hg + N ₂	T	0-1 eV	Zvijac, D. J.; Ross, J. Franck-Condon factors in studies of dynamics of chemical reactions. IV. Nonadiabatic collisions. J. Chem. Phys. 68, 4468 (1978) United States
1063	H08 hv + ArI ₂	E	8000-4000 A ⁰	Kutiak, G.; Fitch, P. S. H.; Wharton, L.; Levy, D. H. The fluorescence excitation spectrum of the ArI ₂ Van der Waals complex. J. Chem. Phys. 68, 4477 (1978) United States
1064	A14 D + HCl; D + HBr; D + HI	E	1000 K	Bauer, W.; Rusin, L. Y.; Icennies, J. F. Molecular beam scattering experiments on the abstraction and exchange reactions of deuterium atoms with the hydrogen halides HCl, HBr, and HI. J. Chem. Phys. 68, 4450 (1978) West Germany
1065	H02 hv + Ne ₂ ⁺ ; hv + Ar ₂ ⁺ ; hv + Kr ₂ ⁺ ; hv + Xe ₂ ⁺	E	14000-8000 A ⁰	Arai, S.; Oka, T.; Kogoma, M.; Imamura, M. Near infrared absorption of neon, argon, krypton, and xenon excited diatomic molecules. J. Chem. Phys. 68, 4555 (1978) Japan
1066	A03 Ar + N ₂ ; Ar + TIF	T	300 K	Khare, V. On the I (sub z)-conserving energy sudden approximation for atom-diatom scattering. J. Chem. Phys. 68, 4631 (1978) West Germany

REF. NO.	REACTANTS	EXP OR THEOR	ENERGY RANGE	REFERENCE
1067	E16 e + [F ₂ + Ar]; e + [F ₂ + Kr]; e + [Cl ₂ + Ar]; e + [Cl ₂ + Xe]	E	500 K	Lorents, D. C.; Huestis, D. L.; McCusker, M. V.; Nakano, H. H.; Hill, R. M. Optical emissions of triatomic rare gas halides. <i>J. Chem. Phys.</i> 66, 4657 (1978) United States
1068	A17 Ne ₂ + H; Ne ₂ + H ⁺ ; Ne + H; Ne + H ⁺	T	Undef	Matcha, R. I.; Milleur, M. E.; Meier, F. F. Theoretical studies of hydrogen rare gas complexes. II. Ne (sub n)H and Ne (sub n)H ⁺ clusters. <i>J. Chem. Phys.</i> 68, 4748 (1978) United States
1069	H05 hv + O ₂ ⁺	E	1.6-2.8 eV	McGilveray, D. C.; Morrison, J. D.; Smith, D. L. The photodissociation of O ₂ ⁺ . <i>J. Chem. Phys.</i> 68, 4755 (1978) Australia
1070	G04 Cs ⁺ + He; Cs ⁺ + Ne G06 Cs ⁺ + He; Cs ⁺ + Ne	E	0.04-10 eV	Pope, W. M.; Ellis, H. W.; Eisele, F. L.; Thackston, M. G.; McDaniel, E. W.; Langley, R. A. Potentials and longitudinal diffusion coefficients for Cs ⁺ ions in He and Ne gas. <i>J. Chem. Phys.</i> 66, 4761 (1978) United States
1071	A17 He + Ar; He + Kr; He + Xe	T	Undef	Hize, M. J.; Robinson, R. L., Jr. Comments on intermolecular forces in mixtures of helium with the heavier noble gases. <i>J. Chem. Phys.</i> 60, 4960 (1970) United States
1072	A17 H + Br ₂	T	Undef	Baybutt, F.; Botrcwicz, F. W.; Kehn, L. R.; Truhler, D. G. Generalized valence-bond investigation of the reaction H + Br ₂ → HBr + Br. <i>J. Chem. Phys.</i> 68, 4809 (1978) United States
1073	G02 Ar* + Ar; Kr* + Ar; Xe* + Ar A11 Ar* + Ar; Kr* + Ar; Xe* + Ar A14 Ar* + Ar; Kr* + Ar; Xe* + Ar	E	300 K	Kcits, J. H.; Setser, D. W. Decay rates of Ar(4s, ³ P ₂), Ar(4s, ³ P ₀), Kr(5s, ³ P ₂), and Xe(6s, ³ P ₂) atoms in argon. <i>J. Chem. Phys.</i> 68, 4848 (1978) United States
1074	A17 K ⁺ + OH ⁻	T	Undef	England, W. B. Theoretical studies of MHD plasma molecules. I. Potential energy curves and dipole moments of linear KOH. <i>J. Chem. Phys.</i> 68, 4856 (1978) United States
1075	A06 O ₂ ⁺ + O ₂	E	1-40 eV	Beer, T.; Murray, F. T.; Squires, L. Total cross sections for symmetric charge transfer reactions of O ₂ ⁺ in selected translational and internal energy states. <i>J. Chem. Phys.</i> 68, 4501 (1978) United States
1076	A02 H + He; H + Ne; H + Ar; H + Kr; H + Xe A17 H + He; H + Ne; H + Ar; H + Kr; H + Xe	T	Undef	Das, G.; Wagner, A. F.; Wahl, A. C. Calculated long-range interactions and low energy scattering in He + h, Ne + H, Ar + H, Kr + H, and Xe + h. <i>J. Chem. Phys.</i> 68, 4917 (1978) United States
1077	A07 CsCl + Ar; CsCl + Kr; CsCl + Xe; Cs ₂ Cl ₂ + Ar; Cs ₂ Cl ₂ + Kr; Cs ₂ Cl ₂ + Xe	E	3-18 eV	Sheen, S. H.; Disclon, G.; Parks, E. K.; Wexler, S. Collision-induced ion-pair formation of CsCl and Cs ₂ Cl ₂ . <i>J. Chem. Phys.</i> 66, 4550 (1978) United States
1078	A17 Ar + N ₂	T	Undef	Kim, Y. S. Study of the Ar-N ₂ interaction. I. Electron gas model (Gordon-Kim) potential calculation. <i>J. Chem. Phys.</i> 68, 5001 (1978) Korea
1079	H06 hv + Na	E	1487 eV	Martin, R. L.; Davidson, E. R.; Earns, M. S.; Hellbank, B.; Fest, D. L.; McDobeli, C. A. The X-ray photoelectron spectrum of atomic sodium. <i>J. Chem. Phys.</i> 68, 5006 (1978) United States
1080	A17 H ₂ + He; HCl + Ar; ClF + Kr	T	Undef	Liu, W.-K.; Grabenstetter, J. E.; Le Fey, R. J.; McCourt, F. R. Effect of asymmetric isotopic substitution on atom-diatom potentials. <i>J. Chem. Phys.</i> 68, 5028 (1978) Canada

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1081	A07 He* + He*	E	0.01-10 eV	Neynaber, R. H.; Magnuson, G. D.; Tang, S. Y. Chemi-ionization in collisions of metastable helium with metastable helium. J. Chem. Phys. 68, 1112 (1978) United States
1082	A11 HF + HF	T	300-3500 K	Poulsen, L. L.; Billing, G. D.; Steinfield, J. I. Temperature dependence of HF vibrational relaxation. J. Chem. Phys. 68, 5121 (1978) United States
1083	A11 HF* + HF	T	200-1000 K	Billing, G. D.; Poulsen, L. L. Theory of V-V and V-T/R energy transfer for HF (n=1 to 7) + HF (0). J. Chem. Phys. 68, 5128 (1978) Denmark
1084	E16 e + [Ar + Xe + F ₂]	E	1.2 MeV	Tellinghuisen, J.; Tellinghuisen, F. G.; Tisone, G. C.; Hoffman, J. M.; Hays, A. K. Spectroscopic studies of diatomic noble gas halides. II. Analysis of XeF 3E00 A ^o band system. J. Chem. Phys. 66, 1177 (1978) United States
1085	A20 XeF ₂ + Ar*; XeF ₂ + Kr*; XeF ₂ + Xe*	E	300 K	Tellinghuisen, P. C.; Tellinghuisen, J.; Coxon, J. A.; Velazco, J. E.; Setser, D. W. Spectroscopic studies of diatomic noble gas halides. IV. Vibrational and rotational constants for the X, B, and D states of XeF. J. Chem. Phys. 68, 5187 (1978) United States
1086	A11 HCl* + Cl	T	100-1000 K	Shin, H. K. Transfer of vibrational energy to oscillatory, restricted rotational, and translational motion in HCl + Cl. J. Chem. Phys. 66, 5265 (1978) United States
1087	H06 hv + Ar ₂ *	T	3-14 eV	Rescigno, T. N.; Hazi, A. U.; Grei, A. E. Calculation of the photoionization cross section of the 1Σ (sub u) ⁺ excimer state of Ar ₂ . J. Chem. Phys. 68, 5283 (1978) United States
1088	A11 Ar* + H ₂ O; Ar* + D ₂ O; Kr* + H ₂ O; Kr* + D ₂ O	E	650-1050 m/s	Sheldon, J. W.; Muschlitz, E. E., Jr. Quenching cross sections for Ar(3F _{0,2}) and Kr(3F _{0,2}) by H ₂ O and D ₂ O. J. Chem. Phys. 68, 5288 (1978) United States
1089	A17 He* + He; He* + H; He* + Ne; He* + Ar; He* + Kr; He* + Xe	T	Undef	Proctor, T. R.; Stwalley, B. C. The long-range interactions of metastable helium atoms (2 ¹ S, 2 ³ S) with rare gas and hydrogen atoms. J. Chem. Phys. 68, 5252 (1978) United States
1090	A03 He + H ₂	T	4-10 eV	Olsen, E. P.; Martell, M. A. Inelastic scattering at moderate collision energies. J. Chem. Phys. 68, 5294 (1978) United States
1091	H08 hv + Cd ₂	E	325 nm	Drullinger, R. E.; Stock, M. The Cd ₂ ⁺ excimer: fluorescence band shape and decay rates. J. Chem. Phys. 68, 1259 (1978) United States
1092	A13 Ne* + Ne; Ar* + Ar; Kr* + Kr; Xe* + Xe	E	77-300 K	Helm, H.; Varney, F. N. On the conversion of atomic rare gas ions X* (2P _{1/2}) into rare gas dimers. J. Chem. Phys. 68, 5301 (1978) Austria
1093	A11 OH* + He; OH* + Ar; OH* + H ₂ ; OH* + D ₂ ; OH* + N ₂ ; OD* + He; OD* + Ar; OD* + H ₂ ; OD* + D ₂ ; OD* + N ₂	E	300 K	Lengel, R. K.; Crosley, D. R. Energy transfer in A ² I ⁺ OH. II. Vibrational. J. Chem. Phys. 68, 5309 (1978) United States
1094	A14 BCl ₂ + H ₂	T	Undef	Kivel, E. Theory for BCl ₂ + H ₂ laser induced chemistry. J. Chem. Phys. 68, 5378 (1978) United States
1095	A14 Cl + NO + N ₂	E	200-400 K	Lee, J. H.; Michael, J. V.; Payne, W. A., Jr.; Stief, L. J. The temperature dependence of the rate constant for Cl + NO + N ₂ → NOCl + N ₂ . J. Chem. Phys. 66, 5410 (1978) United States
1096	A13 O ⁻ + HCl; O ₂ ⁻ + HCl; NO ₂ ⁻ + HCl; CO ₃ ⁻ + HCl; CO ₃ ⁻ + HCl; ClO ⁻ + NO; ClO ⁻ + NO ₂ ; ClO ⁻ + SO ₂ ; ClO ⁻ + CO ₂	E	300 K	Dotan, I.; Albritton, D. L.; Fehsenfeld, F. C.; Streit, G. E.; Ferguson, E. E. Rate constants for the reactions of C ⁻ , C ₂ ⁻ , NO ₂ ⁻ , CO ₂ ⁻ , and CO ₃ ⁻ with HCl and ClO ⁻ with NO, NO ₂ , SO ₂ , and CO ₂ at 300 K. J. Chem. Phys. 68, 5414 (1978) United States

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1097	H06 hν + Na; hν + K; hν + Rb; hν + Cs; hν + Mg	E	1500 eV	Banna, P. S.; Wellbank, B.; Frost, D. C.; McDowell, C. A.; Perera, J. S. H. Q. Free atom core binding energies from x-ray photoelectron spectroscopy. II. Na, K, Rb, Cs, and Mg. J. Chem. Phys. 68, 5455 (1978) Canada
1098	A20 Ho + N ₂ O A18 Ho + N ₂ O A14 Ho + N ₂ O	E	0.1-1.0 eV	Tang, S. F.; Wicke, B. G.; Friichtenicht, J. F. Studies of the chemiluminescent reaction Ho + N ₂ O + HoC* + N ₂ . J. Chem. Phys. 68, 5471 (1978) United States
1099	A17 He + H ₂ ; Ne + H ₂	T	Undef	Tang, K. T.; Toennies, J. F. A simple theoretical model for the van der Waals potential at interatomic distances. II. Anisotropic potentials of He-H ₂ and Ne-H ₂ . J. Chem. Phys. 68, 5501 (1978) West Germany
1100	E03 Undef	T	Undef	Gianturco, F. A.; Lamanna, U. T.; Fehsen, N. K. The Glauber approximation in molecular scattering. II. Rotational excitation by electron impact. J. Chem. Phys. 68, 5538 (1978) Italy
1101	A14 Undef	T	Undef	Metropoulos, A.; Chiu, Y.-N. Rotation-vibration symmetry correlation in bimolecular reactions: building-up principle from molecular fragments. J. Chem. Phys. 68, 5607 (1978) United States
1102	E09 e + I ₂ ; e + Br ₂ ; e + Cl ₂ ; e + F ₂	E	0-8.0 eV	Tan, W.-C.; Wong, S. F. Dissociative attachment of halogen molecules by 0-8 eV electrons. J. Chem. Phys. 68, 5626 (1978) United States
1103	A03 HD + D ₂	E	45 meV	Buck, U.; Hulsken, F.; Schlausener, J. Diffraction oscillations in rotationally inelastic differential cross sections: HD + D ₂ . J. Chem. Phys. 68, 5654 (1978) West Germany
1104	H06 hν + NH ₃	E	Undef	Nieman, G. C.; Colson, S. D. A new electronic state of ammonia observed by multiphoton ionization. J. Chem. Phys. 68, 5656 (1978) United States
1105	A13 O ₂ ⁺ + CH ₄	E	0.04-1.0 eV	Dotan, I.; Fehsenfeld, F. C.; Albritton, D. L. Energy dependence of the reaction of O ₂ ⁺ with CH ₄ . J. Chem. Phys. 68, 5665 (1978) United States
1106	B05 NO ₂	E		Levy, E. H. Comment on Mechanism of NC ₂ fluorescence quenching. J. Chem. Phys. 68, 5665 (1978) United States
1107	B05 NO ₂	E		Donnelly, V. M.; Kaufman, F. Reply to comment on Mechanism of NC ₂ fluorescence quenching. J. Chem. Phys. 68, 5671 (1978) United States
1108	H06 hν + O ₂ ; hν + N ₂ ; hν + CO	E	745-304 Å	Gardner, J. L.; Samson, J. A. F. Vibrational intensity distributions for the various electronic states of C ₂ ⁺ , N ₂ ⁺ , and CO ⁺ produced by photoionization. J. Electron. Spectrosc. Relat. Phenomena 13, 7 (1978) United States
1109	H06 hν + Ar	E	3.5 keV	Tan, K. H.; Brion, C. E. Branching ratios and the partial photoionization cross-section for the 2s electron of argon. J. Electron. Spectrosc. Relat. Phenomena 13, 77 (1978) Canada
1110	E05 e + Ne H06 hν + Ne	T	0-4 a.u.	Chatterji, B.; Mehlhorn, W.; Schmidt, V. Electron shake-off in neon and the interaction of continuum states. J. Electron. Spectrosc. Relat. Phenomena 13, 57 (1978) West Germany
1111	D09 N ₂ ⁺ + C; N ₂ ⁺ + Si; N ₂ ⁺ + SiO; N ₂ ⁺ + SiO ₂ ; N ₂ ⁺ + Ge; N ₂ ⁺ + Sn; N ₂ ⁺ + SnO; N ₂ ⁺ + SnO ₂ ; N ₂ ⁺ + Pb; N ₂ ⁺ + PbO; N ₂ ⁺ + PbO ₂	E	500 eV	Taylor, J. A.; Lancaster, G. M.; Fetaleis, J. W. Chemical reactions of N ₂ ⁺ ion beams with group IV elements and their oxides. J. Electron. Spectrosc. Relat. Phenomena 13, 435 (1978) United States

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1112	E15 e + Ne	E	10 keV	Agren, E.; Nordgren, J.; Selander, L.; Nordling, C.; Stegbahn, K. Multiplet structure in the high-resolution x-ray emission spectrum of neon. J. Electron. Spectrosc. Relat. Phenomena 14, 27 (1978) Sweden
1113	C04 e + Ge	E	70-1400 eV	Szajman, J.; Jenkin, J. G.; Liesegang, J.; Leckey, R. C. G. Electron mean free paths in Ge in the range 70-1400 eV. J. Electron. Spectrosc. Relat. Phenomena 14, 41 (1978) Australia
1114	H06 hv + H ₂ S; hv + PH ₃ E15 e + H ₂ S; e + PH ₃	E T	40 eV	Doacke, W.; Cedertaus, L. S.; Schirmer, J.; von Niessen, W.; Maier, J. P. Breakdown of the molecular orbital picture of ionization for inner valence electrons: experimental and theoretical study of H ₂ S and PH ₃ . J. Electron. Spectrosc. Relat. Phenomena 14, 59 (1978) West Germany
1115	E03 e + CO ₂	E	300-500 eV	Klupp, K. N.; Lassette, E. N. Generalized oscillator strengths for two transitions in CO ₂ at incident electron energies of 300, 400 and 500 eV. J. Electron. Spectrosc. Relat. Phenomena 14, 215 (1978) United States
1116	H06 hv + PERT	E	1 keV	Evans, S.; Fritchard, R. G.; Thomas, J. M. Relative differential subshell photoionisation cross-sections (M _K α) from lithium to uranium. J. Electron. Spectrosc. Relat. Phenomena 14, 341 (1978) United Kingdom
1117	F01 D ₂ F02 D ₂	E		Miller, T. A.; Zeperski, D. R.; Freund, R. S. Singlet-triplet anticrossings between the G(3d) ¹ I(sub q) ⁺ and g(3d) ³ I(sub q) ⁺ states of D ₂ . J. Mol. Spectrosc. 65, 155 (1978) United States
1118	A11 NO* + He; NO* + Ne	E	300 K	Miladi, M.; Rencin, J.-Y.; Ismany, h. Pressure induced configuration demixing in the electronic spectrum of NO. J. Mol. Spectrosc. 65, 260 (1978) France
1119	E03 e + NO	E	30 eV	Vichon, D.; Hall, F. I.; Gresteau, F.; Mazeeu, J. Observation of the a ⁺ and b ⁺ states of NO by electron-impact spectroscopy. J. Mol. Spectrosc. 69, 341 (1978) France
1120	H08 hv + YG	E	620-570 nm	Linton, C. Photoluminescence of the A ² Σ-X ² Σ ⁺ system of the yttrium oxide molecule. J. Mol. Spectrosc. 65, 351 (1978) Canada
1121	H08 hv + IBr	E	13000-17000 cm ⁻¹	Weinstock, E. M.; Freston, A. A laser fluorescence study of the IBr B ² O ⁺ - X ² I ⁺ system. J. Mol. Spectrosc. 70, 188 (1978) United States
1122	H05 hv + D ₂ A17 O + O	E	4 eV	Albritton, E. L.; Moseley, J. I.; Costy, P. C.; Tadjeddine, M. The dissociation energy of O ₂ (X ³ Σ sub g ⁻). J. Mol. Spectrosc. 70, 326 (1978) United States
1123	A10 Undef	E	300 K	Glorieux, F.; Hillis, G. W. Double resonance and collision-induced transitions in the radiofrequency spectra of H ₂ CO and HDCO observed inside the cavity of a CO ₂ laser. J. Mol. Spectrosc. 70, 4E9 (1978) Canada
1124	A12 Undef	T	300 K	Depristo, A. E.; Rabitz, H. Direct inversion of pressure-broadened half-widths to yield rotationally inelastic rate constants. J. Mol. Spectrosc. 70, 476 (1978) United States
1125	A12 CO ₂ + Ar; CO ₂ + N ₂ ; CO ₂ + CO ₂	E	157-294 K	Suarez, C. E.; Valero, F. F. J. Intensities, self-broadening, and broadening by Ar and N ₂ for the 301(sub III) cooling from 000 band of CO ₂ measured at different temperatures. J. Mol. Spectrosc. 71, 46 (1978) United States

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1126	A17 C + O; C + CO	T	Undef	Huffaker, J. N. High-accuracy analytic potential function for diatomic molecules; application to CO. J. Mol. Spectrosc. 71, 160 (1978) United States
1127	F01 H ₂	T		Wolniewicz, L.; Poll, J. D. Ab initio nonadiabatic vibrational energies of the hydrogen molecule ion. J. Mol. Spectrosc. 72, 264 (1978) Canada
1128	A17 Hg ₂	T	Undef	Mies, F. H.; Stevens, G. J.; Krauss, R. Model calculation of the electronic structure and spectroscopy of Hg ₂ . J. Mol. Spectrosc. 72, 303 (1978) United States
1129	F01 Fe ²²⁺	E		Bronage, G. E.; Cowan, R. D.; Fawcett, E. C.; Fidgeley, A. Classification of Fe I-like and B I-like iron and vanadium spectra from laser-produced plasmas. J. Opt. Soc. Am. 66, 46 (1978) United Kingdom
1130	H06 hv + Ce; hv + Pr; hv + Nd; hv + Sm; hv + Eu; hv + Dy; hv + Ho; hv + Er	E	H06 5-7 eV	Worden, E. F.; Solarz, F. W.; Peisner, J. A.; Conway, J. G. First ionization potentials of lanthanides by laser spectroscopy. J. Opt. Soc. Am. 66, 62 (1978) United States
1131	F01 Si ¹⁰⁺ ; Si ¹¹⁺	E		Gardner, F. K.; Cocco, C. L.; Seyler, I. K.; Curnutte, B. Lifetimes of some L-x-ray emitting levels in silicon, sulfur, and chlorine. J. Opt. Soc. Am. 68, 830 (1978) United States
1132	F01 Na Se ₂	T		Kio, Y.-K.; Cheng, K.-I. Transition probabilities for the resonance transitions of Na-like ions. J. Opt. Soc. Am. 66, 836 (1978) United States
1133	F01 B ³⁺ ; B ⁴⁺	E		Donahue, D. J.; McIntyre, I. C., Jr.; Fathmann, F. Beam-foil measurements of mean lives for B IV and B V below 4E0 Å. J. Opt. Soc. Am. 66, 558 (1978) United States
1134	F01 C ²⁺ ; C ³⁺ ; C ⁴⁺	E		Donnelly, K. E.; Kernahan, J. A.; Finnington, E. H. Mean-life measurements for some ions in C II, C III, and C IV. J. Opt. Soc. Am. 66, 1600 (1978) Canada
1135	F01 Fe ¹⁵⁺ ; Mo ¹⁵⁺ ; Mo ¹⁶⁺ ; Mo ¹⁷⁺ ; Mo ¹⁸⁺	T		Bauche-Arnoult, C.; Bauche, J. Mean wavelength and spectral width of transition arrays in X-ray atomic spectra. J. Opt. Soc. Am. 68, 1136 (1978) France
1136	A14 OH + HO ₂	E	295 K	Cheng, J. S.; Keufman, F. Upper bound and probable value of the rate constant of the reaction OH + HO ₂ + H ₂ O + O ₂ . J. Phys. Chem. 82, 1683 (1978) United States
1137	A14 Ar + F ₂ ; Ar + ClF; Ar + CF ₂ OF; Ar + OF ₂ ; Ar + NF ₃ ; Ar + N ₂ F ₄ ; Ar + CCl ₂ F ₂ ; Ar + CCl ₂ F; Ar + CClF ₃ ; Ar + CF ₃ ; Ar + CF ₃ N; Ar + CH ₃ F; Ar + COF ₂ ; Ar + SiF ₄ ; Ar + SO ₂ F ₂ ; Ar + SOF ₂ ; Ar + SF ₆ ; Ar + BrF ₃ ; Ar + IF ₅ ; Ar + BF ₃	E	300 K	Koits, J. H.; Setser, I. W. Rate constants for ArF _n formation from reactions of Ar(³ F _{2,0}) with fluorine containing molecules and the pressure dependence of the C to B state ratios for ArF _n , KrF _n , and XeF _n . J. Phys. Chem. 82, 1766 (1978) United States
1138	A14 O + Cl ₂ O	E	236-295 K	Miziolet, A. W.; Melius, M. J. The rate constant for the reaction of oxygen (³ P) atoms with dichlorine monoxide. J. Phys. Chem. 82, 1765 (1978) United States
1139	A14 ClO + NO	E	227-415 K	Lev, M. I.; DeMore, W. B. Rate constant for the reaction ClO + NO + Cl + NO ₂ . J. Phys. Chem. 82, 2045 (1978) United States
1140	A14 H + NO ₂	E	300 K	Smith, G. K.; Fisher, E. F. Vibrationally excited OH in the products of the H + NO ₂ reaction. J. Phys. Chem. 82, 2139 (1978) United States

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1141	A05 Ar* + H ₂ O; Ar* + HCOOH	E	0-1.4 eV	Farr, T. P.; Martin, R. M. Energy dependence of ionization and dissociative fluorescence of water and formic acid by metastable argon. <i>J. Phys. Chem.</i> 82, 2226 (1978) United States
1142	A14 H + HNO	E	300 K	Washida, N.; Akiyoto, H.; Okuda, M. HNO formed in the H + NO + M reaction system. <i>J. Phys. Chem.</i> 82, 2293 (1978) Japan
1143	H10 hν + [O ₂ + NH ₃]	E	106000 Å ⁰	Lin, C. T.; Bertram, C. A. Single-pulse carbon dioxide laser photochemistry of ammonia and oxygen. <i>J. Phys. Chem.</i> 82, 2299 (1978) Brazil
1144	A14 Hg + 2HI; Hg + 2NH ₄ I	E	623-693 K	Jeannotte, A.; Appelman, E. H.; Schreiner, F.; Abraham, B. M. Gas-phase reaction of mercury with ammonium iodide and hydrogen iodide. <i>J. Phys. Chem.</i> 82, 2353 (1978) United States
1145	A14 Cl + O ₂ F A05 Cl + O ₂ F	E	300 K	Coombe, R. E.; Filipovich, I.; Herr, R. K. Chemical generation of electronically excited ClF*(B ² , n ⁺) and the B + X emission spectrum. <i>J. Phys. Chem.</i> 82, 2484 (1978) United States
1146	D05 hν + Cu	T	1.2 keV	Lindsay, R. N.; Pendry, J. E. The application of the chain method to electron emission. <i>J. Phys. C</i> 11, 1021 (1978) United Kingdom
1147	D05 hν + Cu	E T	Undef	Sagurten, M.; Shevchik, N. J. Polarisation dependence of the angle resolved photoemission spectra of Cu. <i>J. Phys. C</i> 11, 1353 (1978) United States
1148	D12 e + GaAs	E	50 keV	Lightcblers, E. C.; Perchira, C. M. Fine structure in the cathodoluminescence spectrum from chromium-doped gallium arsenide. <i>J. Phys. C</i> 11, L405 (1978) United Kingdom
1149	D05 Undef	T	Undef	Hartstein, A.; Weirberg, Z. A. On the nature of the image force in quantum mechanics with application to photon assisted tunnelling and photoemission. <i>J. Phys. C</i> 11, L469 (1978) United States
1150	D12 e + Ag	T	0.25-6.4 MeV	Marvin, A. M.; Tolgo, F. Optical emissions from rough surfaces irradiated by charged particles. <i>J. Phys. C</i> 11, 2371 (1978) Italy
1151	D06 e + Ni	T	20-350 eV	Kinniburgh, C. G.; Pendry, J. B. The phase problem in LEED. <i>J. Phys. C</i> 11, 2415 (1978) United Kingdom
1152	D12 e + C	E	2 MeV	Collins, A. T. Fine structure in the CH1 cathodoluminescence from natural semiconducting diamond. <i>J. Phys. C</i> 11, 2453 (1978) United Kingdom
1153	C02 H ₂ ⁺ + C; H ₂ ⁺ + Si	T	50-300 keV	Steinbeck, J.; Dettmann, K. Energy loss of fast H ₂ ⁺ molecules in solids: I. <i>J. Phys. C</i> 11, 2507 (1978) West Germany
1154	C02 H ⁺ + C; H ₂ ⁺ + C	E	100-600 keV	Nyalesh, A. R.; Steckelmacher, W.; Lucas, M. W. Energy loss of fast H ₂ ⁺ molecules in solids: II. <i>J. Phys. C</i> 11, 2917 (1978) United Kingdom
1155	C02 He ²⁺ + Ge	E	160 MeV	Jarvis, D. N.; Sherwood, A. C.; Whitehead, C.; Lucas, M. W. The stopping power for fast channelled alpha particles in germanium. <i>J. Phys. C</i> 11, 2523 (1978) United Kingdom
1156	D05 hν + Cu	E	8.4-9.5 keV	Martens, G.; Rabe, P.; Schwenner, N.; Werner, A. EXAFS in photoelectron yield spectra and optimisation of photon glancing angle. <i>J. Phys. C</i> 11, 3125 (1978) West Germany
1157	D05 Undef	T	Undef	Shevchik, N. J. Atomic dipole theory of photoemission from molecules adsorbed on surfaces. <i>J. Phys. C</i> 11, 3521 (1978) United States

REF. NO.	REACTANTS	EXP OR THEOR	ENERGY RANGE	REFERENCE
1158	C02 H ⁺ + C; H ⁺ + Al; H ₂ ⁺ + C; H ₂ ⁺ + Al	E	12.5-260 keV	Eckardt, J. C.; Lentschner, G.; Arista, N. R.; Baragüela, R. A. Electronic stopping of slow molecular ions in solids. J. Phys. (C) 11, L451 (1978) Argentina
1159	D05 hv + Cu	E	20 eV	Richardson, N. V.; Sasse, J. K. The symmetry properties of energy bands in solids determined by UV photoemission with unpolarised radiation. J. Phys. F 8, L99 (1978) United Kingdom
1160	D05 hv + Cu; hv + Ni	E	16.8-21.2 eV	Pendry, J. E.; Hopkins, J. F. L. Photoemission from transition metal surfaces. J. Phys. F 8, 1009 (1978) United Kingdom
1161	H06 hv + Xe	E	75.5-87.7 eV	Adam, M. Y.; Mulletier, F.; Senderer, A.; Schmidt, V.; Wendin, G. Satellite lines in the 5s-5p photoelectron spectrum of xenon. J. Phys. (Paris) 39, 129 (1978) France
1162	A12 Hg* + Ar A17 Hg* + He; Hg* + Ne; Hg* + Ar; Hg* + Kr; Hg* + Xe	E T	300 K	Ben Lakdar, Z.; Perrin, E.; Lennuyer, R. On the interatomic potentials of Hg(6 ¹ S _{1/2}) and Hg(6 ³ P _{1/2}) in presence of rare gases. J. Phys. (Paris) 39, 137 (1978) France
1163	H11 hv + Ar; hv + Xe	T	10600 Å	Blanc, A.; Ecocher, A.; Louis-Jacquet, M. Experimental study of neutral-atom inverse bremsstrahlung and theoretical study of the laser-induced electron cascade in a gas. J. Phys. (Paris) 39, 153 (1978) France
1164	A12 Na + Ar; Na + Kr; Na + Xe; K + Ar; K + Kr; K + Xe; Cs + Ar; Cs + Kr; Cs + Xe; Cs + Ne A17 Na + Ar; Na + Kr; Na + Xe; K + Ar; K + Kr; K + Xe; Cs + Ar; Cs + Kr; Cs + Xe; Cs + Ne	T	423-573 K	Sayer, B.; Visticot, J. P.; Pascale, J. Band profiles associated with induced dipole transitions in alkali-rare gas systems. J. Phys. (Paris) 35, 361 (1978) France
1165	A10 Ne* + Ne	T	300 K	Stoeckel, F.; Costardi, M. Electron pumping of the ground state of ²¹ Ne. Transfers and multiple diffusion processes. J. Phys. (Paris) 35, 485 (1978) France
1166	H06 4hv + Cs	E	10600 Å	Lempere, L. A.; Mainfray, C.; Manus, C.; Thebaud, J. Resonant multiphoton ionization of caesium atoms by ultra-short laser pulses at 1.06 μm. J. Phys. (Paris) 39, 810 (1978) France
1167	A10 N ₂ + N ₂	T	310 K	Berruo, J.; Chave, A.; Eusebi, E.; Thibaut, M. Measurements of depolarized light scattering from compressed nitrogen and theoretical calculations of different contributing processes. J. Phys. (Paris) 39, 815 (1978) France
1168	A10 Ar* + He; Ar* + Ne; Ar* + Ar; Ar* + Kr	E	300 K	Grondin, J. P.; Husson, X. Depolarization by collision of the 2p levels of argon selectively excited in a discharge by a tunable dye laser. J. Phys. (Paris) 39, 900 (1978) France
1169	H05 hv + HD	T	Undef	Durup, J. On isotope effects in the predissociations of HD. J. Phys. (Paris) 35, 541 (1978) France
1170	A10 Ne* + Ne; Ne* + He	E	77-600 K	Hennecart, E. Thermal dependence of excitation transfers between 2p levels of neon induced by collisions with neon or helium atoms in their ground state. J. Phys. (Paris) 35, 1065 (1978) France
1171	A11 H* + H ₂ ; H ₂ * + H ₂	E	3-10 eV	Dubreuil, B.; Catherinot, A. Laser perturbation study of a hydrogen glow discharge: atomic and molecular relaxations and dissociation rate. J. Phys. (Paris) 39, 1071 (1978) France
1172	A17 He + He; H + H	T	Undef	Easa, S. I.; Shukla, G. C. Frequency-dependent multiple polarizabilities of atomic systems. J. Phys. (Paris) 39, 1259 (1978) Iraq

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1173	G03 e + Ar	T	0.046-0.010 Id	Braglia, G. L.; Esicchi, A. The diffusion and drift of electrons in gases. <i>Physica E+C</i> 5E, 227 (1978) Italy
1174	A10 Undef	T	300 K	Nienhuis, G. Multiplet-mixing collisions and nearly resonant light scattering. <i>Physica B+C</i> 9E, 266 (1978) Italy
1175	E11 Undef	T	Undef	Geltman, S. Stimulated multiphoton bremsstrahlung in electron-ion collisions. <i>J. Res. Eur. Stand. Phys. Chem.</i> E2, 173 (1977) United States
1176	D13 e + [F + SS]; e + [H + SS]	E	0.2-6.0 keV	Drinkwine, M. J.; Lichtman, D. Study of ESD from type 304 stainless steel in relation to CTR first wall applications. <i>J. Vac. Sci. Technol.</i> 15, 74 (1978) United States
1177	D02 H ⁺ + [C + Cu]; H ⁺ + [O + Cu]; H ⁺ + [S + Cu]; H ⁺ + [C + SS]; H ⁺ + [O + SS]; H ₂ ⁺ + [C + Cu]; H ₂ ⁺ + [O + Cu]; H ₂ ⁺ + [S + Cu]; H ₂ ⁺ + [C + SS]; H ₂ ⁺ + [O + SS]; H ₃ ⁺ + [C + Cu]; H ₃ ⁺ + [O + Cu]; H ₃ ⁺ + [S + Cu]; H ₃ ⁺ + [C + SS]; H ₃ ⁺ + [O + SS] D13 H ⁺ + [C + Cu]; H ⁺ + [O + Cu]; H ⁺ + [S + Cu]; H ⁺ + [C + SS]; H ⁺ + [O + SS]; H ₂ ⁺ + [C + Cu]; H ₂ ⁺ + [O + Cu]; H ₂ ⁺ + [S + Cu]; H ₂ ⁺ + [C + SS]; H ₂ ⁺ + [O + SS]; H ₃ ⁺ + [C + Cu]; H ₃ ⁺ + [O + Cu]; H ₃ ⁺ + [S + Cu]; H ₃ ⁺ + [C + SS]; H ₃ ⁺ + [O + SS]	E	0.6 keV	Bouman, R.; van Mechelen, J. B.; Hulscher, A. A. Surface cleaning by low-temperature bombardment with hydrogen particles: an AES investigation on copper and Fe-Cr-Ni steel surfaces. <i>J. Vac. Sci. Technol.</i> 15, 91 (1978) The Netherlands
1178	D07 He + Pt; O ₂ + Pt; CO ₂ + Pt	E	300 K	Cardillo, M. J.; Ching, C. S. Y.; Greene, E. F.; Becker, G. E. Molecular-beam apparatus for the study of gas-surface interactions. <i>J. Vac. Sci. Technol.</i> 15, 423 (1978) United States
1179	D05 hv + [CO + Ni] H06 hv + CO; hv + N ₂	T	D05 21 eV H06 14-16 eV	Davenport, J. W. Determination of adsorbate bond geometry using photoemission. <i>J. Vac. Sci. Technol.</i> 15, 433 (1978) Sweden
1180	D04 e + TiC; e + Ti; e + Al; e + Fe D06 e + TiC; e + Ti; e + Al; e + Fe	E	0-600 eV	den Boer, M. L.; Cohen, P. I.; Park, F. L. Elastic and inelastic contributions to secondary electron yield structure. <i>J. Vac. Sci. Technol.</i> 15, 502 (1978) United States
1181	D03 Ar ⁺ + [O + Mo]; Ar ⁺ + [O + Co]	E	3 keV	Berninghoven, A.; Ganschow, C.; Wiedmann, L. Quasimultaneous SIMS, AES, and XPS investigations of the oxidation of Mo, Ti, and Co in the monolayer range. <i>J. Vac. Sci. Technol.</i> 15, 506 (1978) West Germany
1182	D15 H ⁺ + Ni; H ⁺ + Cu; H ⁺ + Nb; n + Ni; n + Cu; n + Nb	E	10-16 MeV	Styris, D. I.; Jones, F. M. Abstract: Experimental studies using light ions to simulate fusion neutron damage effects on mechanical properties. <i>J. Vac. Sci. Technol.</i> 15, 661 (1978) United States
1183	D02 Ne ⁺ + [C + W]; Ne ⁺ + [O + Mo]	E	0.15-2.0 keV	Yu, M. L. Effect of primary ion energy and surface chemistry on the secondary ion yields in low-energy SIPS experiments. <i>J. Vac. Sci. Technol.</i> 1E, 668 (1978) United States
1184	D14 He ⁺ + Mo	E	75-350 keV	Fahlstrom, C. R.; Sinha, M. K. Surface blistering of molybdenum irradiated with 75-350-keV helium ions. <i>J. Vac. Sci. Technol.</i> 1E, 678 (1978) United States
1185	D02 Ar ⁺ + Cu	E	1-3 keV	Lundquist, T. R. Energy distributions of sputtered copper neutrals and ions. <i>J. Vac. Sci. Technol.</i> 15, 684 (1978) United States
1186	D07 He ⁺ + Ta ₂ O ₅ ; He ⁺ + CuO	E T	0.5-3.0 keV	Nelson, G. C. Combined low-energy ion scattering and x-ray photoelectron spectroscopy study of Ta ₂ O ₅ bombarded by 500-2000-eV He ions. <i>J. Vac. Sci. Technol.</i> 1E, 702 (1978) United States

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1187	D16 D ⁺ + SS	E	7 keV	Altstetter, C. J.; Behrisch, R.; Scherzer, E. M. L. Trapping of deuterium implanted into stainless steel at low temperatures. J. Vac. Sci. Technol. 15, 706 (1978) West Germany
1188	D14 D ⁺ + Mo	E	40-120 keV	Das, S. K.; Kaminsky, M.; Dusza, P. Surface damage of molybdenum and TZM alloy under D ⁺ impact. J. Vac. Sci. Technol. 15, 710 (1978) United States
1189	D02 Ar ⁺ + Fe ₃ O ₄	E	1-15 keV	Hart, F. G.; Simmons, C. W. Determination of quantitative sputter rates of iron oxide by Auger electron spectroscopy (AES) and ellipsometry. J. Vac. Sci. Technol. 15, 714 (1978) United States
1190	D16 Cr ⁺ + Fe; Cu ⁺ + Fe	E	150 keV	Iwaki, M.; Namba, S.; Yoshida, K.; Sode, N.; Satc, T.; Yukawa, K. Annealing and rolling behaviors of concentration profiles of Cr and Cu implanted into mild steel. J. Vac. Sci. Technol. 15, 1065 (1978) Japan
1191	D13 Ar ⁺ + [H ₂ + Al]; Ar ⁺ + [CO + Al]; Ar ⁺ + [CO ₂ + Al]; Ar ⁺ + [CH ₄ + Al]; e + [H ₂ + Al]; e + [CO + Al]; e + [CO ₂ + Al]; e + [CH ₄ + Al]	E	0.5-1.0 keV	Edwards, L. Jr. Desorption of neutral molecules from Al(6061) by electron and ion bombardment. J. Vac. Sci. Technol. 15, 1566 (1978) United States
1192	D16 Au ⁺ + Fe; Au ⁺ + Cu	E	150 keV	Liau, Z. L.; Mayer, J. W. Limits of composition achievable by ion implantation. J. Vac. Sci. Technol. 15, 1629 (1978) United States
1193	D16 Review	E T	Undef	Poate, J. M. Metastable alloy formation. J. Vac. Sci. Technol. 15, 1636 (1978) United States
1194	D16 Review	E	Undef	Grant, W. A. Amorphous metals and ion implantation. J. Vac. Sci. Technol. 15, 1644 (1978) United Kingdom
1195	D16 Review	E	Undef	Myers, S. M. Annealing behavior and selected applications of ion-implanted alloys. J. Vac. Sci. Technol. 15, 1650 (1978) United States
1196	D04 Ar ⁺ + Si; He ⁺ + Si; Ne ⁺ + Si; Xe ⁺ + Si	E	1-3 keV	Powell, R. A. Ion-excited Auger electron emission from silicon. J. Vac. Sci. Technol. 15, 1757 (1978) United States
1197	A17 H + CN; H + NSI	T	Undef	Murrell, J. N.; Carter, S.; Verences, A. J. C. Analytical potentials for triatomic molecules from spectroscopic data. IV. Application to linear molecules. Mol. Phys. 35, 1325 (1978) United Kingdom
1198	A17 Kr + Xe; Ar + Xe; Ne + Xe; Ar + Kr; Ne + Kr; Ne + Ar	T	Undef	Maitland, G. C.; Wakeham, W. A. Direct determination of intermolecular potentials from gaseous transport coefficients alone. Part II. Application to unlike monatomic interactions. Mol. Phys. 35, 1443 (1978) United Kingdom
1199	A17 NH ₃ ⁺	T	Undef	Hirst, I. M. Ab initio potential energy surfaces for triplet states of NH ₃ ⁺ . Mol. Phys. 35, 1555 (1978) United Kingdom
1200	H06 hv + O, A17 O, O ₂	T	Undef	Honjou, N.; Tanaka, K.; Ohno, K.; Taketa, H. Configuration interaction calculation of the C ₂ ⁺ ion and study of the photoelectron spectra of O ₂ . Mol. Phys. 35, 1569 (1978) Japan
1201	A13 Ar ⁺ + H ₂	T	0.5-0.7 eV	Baer, M. Electronic non-adiabatic transitions in the reaction Ar ⁺ + H ₂ (v sub i = 0) → Arh ⁺ + H. A comparison between exact collinear results and a two-state model calculation. Mol. Phys. 35, 1637 (1978) United Kingdom
1202	H02 hv + Ba	E	15000 Å	Cahuzac, P.; Dragc, X. Time-resolved saturated-absorption experiment. Effect of velocity-changing collisions upon non-thermal-equilibrium atomic velocities. Opt. Commun. 24, 63 (1978) France

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1203	G07 Na* + Ar; Na* + He	E	410 K	Flusber, A.; Mosberg, T.; Hartmann, S. R. Excited-state photo-echo relaxation in Na vapor. Opt. Commun. 24, 207 (1978) United States
1204	B03 Undef	T		Damburg, R. J.; Kclovov, V. V. An ionization threshold for excited atomic states in a uniform electric field. Opt. Commun. 24, 211 (1978) Soviet Union
1205	A03 Cs* + Cs	E	200 °C	Yatuzeki, T.; Tam, A. C.; Iou, M.; Happer, W.; Curry, S. M. Preferential excitation transfer in Cs*(6D _{3/2})-Cs(6S _{1/2}) collisions. Opt. Commun. 24, 305 (1978) United States
1206	H05 hv + SF ₆	E	940 cm ⁻¹	Rothschild, M.; Issy, W.-S.; Ham, E. C. Threshold behavior of multiple photo dissociation of SF ₆ . Opt. Commun. 24, 327 (1978) United States
1207	G07 CO + CO	E	300 K	Brechignac, P. Transfer of rotational population in CO by IR laser double resonance. Opt. Commun. 25, 53 (1978) France
1208	A03 Hg* + He	E	400 K	Lukaszewski, M.; Leciev, E. Laser excitation of 6s6d 6 ³ D ₃ level of mercury: transition probabilities and collisional excitation transfer. Opt. Commun. 25, 189 (1978) France
1209	D12 e + Ag	E	77 keV	Heilmann, D.; Permien, V. Transition radiation from rough surfaces. Opt. Commun. 25, 156 (1978) West Germany
1210	B01 Undef	T		Felone, G. A.; Grinchuk, V. A.; Kazantsev, A. F.; Surdutchich, G. I. Scattering of atoms and molecules by an electromagnetic field. Opt. Commun. 25, 355 (1978) Soviet Union
1211	A07 H* + Eu; H* + Eu*	E	100 eV	Boerner, H.; Harzer, H.; Jitschin, W.; Meisel, G.; Matthews, E. G.; Fenselin, S. Laser isotope enrichment using charge transfer ionization. Opt. Commun. 26, 351 (1978) West Germany
1212	B01 Undef B07 Undef	T		Ehlotzky, F. Laser-induced bremsstrahlung beyond the dipole-approximation. Opt. Commun. 27, 65 (1978) Canada
1213	A12 Na + He; Na + Ar; Na + N ₂	E	340 °C	Bruce, D. M.; Mirza, M. Y.; Duley, W. W. Collision broadening and shift of the sodium 2S-4D and 3S-5S lines. Opt. Commun. 27, 76 (1978) Canada
1214	F01 Cu	E		Khan, M. A. New classifications in the spectra of highly ionized Cu and Zn in the region below 5E Å ⁰ . Opt. Commun. 27, 242 (1978) Pakistan
1215	D12 e + LIF	E	75 keV	Heilmann, D. Excitation of guided waves by fast electrons. Opt. Commun. 27, 365 (1978) West Germany
1216	D05 hv + Y; hv + Zr; hv + Mo; hv + Ag; hv + Cd; hv + Sn	E	662 keV	Allawadhi, K. L.; Verma, S. L.; Ghuman, B. S.; Sood, B. S. Measurement of K shell photoelectric cross section of Ba K x-rays in Y, Zr, Mo, Ag, Cd, and Sn. Physica B+C 95, 424 (1978) India
1217	A11 NO* + NO; N ₂ * + NO; N ₂ * + NO; N ₂ * + N ₂ ; N ₂ * + O ₂	E	300 K	Prasad, J.; Dixit, S. D.; Ghosh, S. A. High frequency discharge through nitric oxide. Ann. Geophys. 34, 321 (1978) India
1218	A11 XeF* + Ne; XeF* + Ar; XeF* + Xe; XeF* + XeF ₂	E	Undef	Eden, J. G.; Waynant, R. W. Lifetime and collisional quenching measurements of XeF*(E) by photolysis of XeF ₂ . Opt. Lett. 2, 13 (1978) United States

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1219	H02 hν + [Sr + Ar] A12 Sr* + Sr B07 Sr*	E	H02 4607 Å ⁰ A12 300 K	Szcke, A. Optical collisions in an intense laser field. Opt. Lett. 2, 36 (1978) United States
1220	H04 2hν + Sr H06 2hν + Sr	E	2680 Å ⁰	Green, W. R.; Falcone, R. L. Inversion of the resonance line of Sr* produced by optically pumping Sr atoms. Opt. Lett. 2, 115 (1978) United States
1221	H04 nhν + SF ₆	T	945 cm ⁻¹	Cantrell, C. D.; Fox, K. Effects of molecular rotation and vibration-rotation interaction on collisionless multiple-photon excitation of SF ₆ . Opt. Lett. 2, 151 (1978) United States
1222	H06 Undef	T	Undef	Ben-Aryeh, Y. Molecular ionization by absorption of spontaneous emission. Opt. Lett. 2, 114 (1978) United States
1223	H06 2hν + NO ₂	E	4700-4400 Å ⁰	Antonov, V. S.; Knyazev, I. N.; Letokhov, V. S.; Matluk, V. M.; Movshev, V. G.; Fetisov, V. K. Stepwise laser photoionization of molecules in a mass spectrometer: a new method for probing and detection of polyatomic molecules. Opt. Lett. 2, 27 (1978) Soviet Union
1224	H02 nhν + SF ₆	E	10.6 μ	Quigley, G. P. Collisional effects in multiple infrared photon absorption in SF ₆ . Opt. Lett. 3, 106 (1978) United States
1225	H02 nhν + SF ₆ H04 nhν + SF ₆	E	10.6 μ	Galbraith, H. W.; Ackerhalt, J. R. Calculation of the temperature dependence of the multiphoton absorption spectrum of SF ₆ . Opt. Lett. 3, 105 (1978) United States
1226	H02 nhν + SF ₆ H04 nhν + SF ₆	T	10.6 μ	Galbraith, H. W.; Ackerhalt, J. R. Comparison of multiple-photon excitation excels. Opt. Lett. 3, 152 (1978) United States
1227	A07 Sr* + Sr A14 Sr* + Sr	E	Undef	Worden, E. F.; Paisner, J. A.; Conway, J. G. Associative ionization of laser-excited Rydberg states in strontium vapor. Opt. Lett. 3, 156 (1978) United States
1228	H04 3hν + Yb B03 Yb*	E	6000 Å ⁰	Bekov, G. I.; Letokhov, V. S.; Metueev, D. I.; Mishin, V. I. Single-atom detection of ytterbium by selective laser excitation and field ionization from Rydberg states. Opt. Lett. 3, 155 (1978) Soviet Union
1229	F01 He	E		Falcone, R. W.; Willison, J. F.; Young, J. F.; Harris, S. E. Measurement of the He 1s2s ¹ S _n isotopic shift using a tunable VUV anti-Stokes light source. Opt. Lett. 3, 162 (1978) United States
1230	A11 He* + He H14 hν + [He* + He] B05 He* B07 He*	E	A11 300 K H14; 3628 Å ⁰	Daer, T.; Abella, I. D. Photon echoes in plasmas: collisional relaxation in helium on 2 ³ S ₁ -3 ³ P ₀₁ . Opt. Lett. 3, 170 (1978) United States
1331	H04 4hν + Sr	E	4550-4900 Å ⁰	Economou, A. F.; Freeman, R. W.; Ejcklund, G. C. Effects of magnetic fields on four-wave mixing processes in atomic vapors. Opt. Lett. 3, 209 (1978) United States
1232	H04 hν + Ba; hν + Tl; hν + Pb; hν + Bi	E	3080 Å ⁰	Burnham, R.; Ejeu, N. Efficient Raman conversion of XeCl-laser radiation in metal vapors. Opt. Lett. 3, 218 (1978) United States
1233	H02 nhν + SF ₆	E	10.6 μ	Lyman, J. L.; Anderson, R. E.; Fisher, R. A.; Feldman, B. J. Absorption of pulsed CO ₂ -laser radiation by SF ₆ at 140 K. Opt. Lett. 3, 236 (1978) United States

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1234	F01 He Seq	T		Ivanov, L. N.; Ivanova, E. F.; Sefronova, U. I.; Shavtvalishvili, I. A. Relativistic calculation of the level-widths of two-electron atomic systems. Opt. Spectrosc. 44, 6 (1978) Soviet Union
1235	F01 He	T		Anisimova, G. P.; Fyzhekova, E. I.; Semenov, R. I. Fine structure of the triplet term of the 1s2d configuration of He I. Opt. Spectrosc. 44, 10 (1978) Soviet Union
1236	E03 e + Eu	E	0-300 eV	Golovtsek, N. V.; Garga, I. I.; Shiman, L. I. Experimental study on electron-impact excitation of spectral lines of europium. Opt. Spectrosc. 44, 13 (1978) Soviet Union
1237	D03 Ar ⁺ + Cu; Ar ⁺ + [Cu + O ₂] D08 Ar ⁺ + Cu; Ar ⁺ + [Cu + O ₂]	E	25 keV	Koval, A. G.; Logachev, Y. E.; Fizgeer, B. P. Luminescence spectra of excited particles produced on bombardment on copper target by an Ar ⁺ -ion beam. Opt. Spectrosc. 44, 22 (1978) Soviet Union
1238	H02 hv + Na	T	2000-18000 A ⁰	Andreev, S. I.; Verlaacv, Y. V. Optical properties of a sodium plasma. Opt. Spectrosc. 44, 29 (1978) Soviet Union
1239	A17 H + Cl; C + O	T	Undef	Makushkin, Y. S.; Ulenikov, G. N. Potential function of a diatomic molecule. Opt. Spectrosc. 44, 41 (1978) Soviet Union
1240	F01 Cu	E		Malakhov, Y. I. Lifetimes of CuI levels. Opt. Spectrosc. 44, 125 (1978) Soviet Union
1241	B01 Undef	T		Minaev, B. F. Spin-orbital interaction in molecules and mechanism of the effect of an external magnetic field on luminescence. Opt. Spectrosc. 44, 148 (1978) Soviet Union
1242	E03 e + Hg E05 e + Hg	E	47-400 eV	Semenova, I. V.; Smirnov, Y. M. Determination of excitation cross sections and transition probabilities of Hg II. Opt. Spectrosc. 44, 245 (1978) Soviet Union
1243	F02 H	T		Shestakov, A. F. General formula for dipole polarizability of a hydrogen atom in a spectroscopic state. Opt. Spectrosc. 44, 357 (1978) Soviet Union
1244	E03 e + N ₂	T	10-1000 eV	Kosoruchkina, A. D.; Trekhev, E. S. Electron-impact excitation function of the C ³ II(sub u) state of N ₂ . Opt. Spectrosc. 44, 355 (1978) Soviet Union
1245	F01 H ₂	E		Lavrov, B. F.; Oterbaev, I. K. Identification of various lines of the Fulcher system of the H ₂ molecule. Opt. Spectrosc. 44, 360 (1978) Soviet Union
1246	A06 Ne ⁺ + Zn A07 Ne ⁺ + Zn; Ne ⁺ + Zn	E	Thermal	Kartazhev, V. A.; Flitrovskii, Y. A.; Iclmachev, Y. A. Charge exchange and Penning ionization in a pulsed discharge in a mixture of neon and zinc. Opt. Spectrosc. 44, 362 (1978) Soviet Union
1247	F01 Mo ¹⁺⁺	T		Driker, M. N.; Ivanov, L. N. Calculation of complex atomic ions using relativistic perturbation theory with a model potential. Opt. Spectrosc. 44, 365 (1978) Soviet Union
1248	E03 e + Ar	E	0-100 eV	Bogdanova, I. P.; Marusin, V. D.; Yekhentovs, V. E. Some special features of the excitation of argon atoms by slow electrons. Opt. Spectrosc. 44, 368 (1978) Soviet Union
1249	A12 Rb + He; Rb + Ne; Rb + Ar; Rb + Kr; Rb + Xe	E	450 K	Kazantsev, S. A.; Kalitseevskii, N. I.; Fish, C. M. Application of the magnetic scanning technique for measuring the broadenings and shifts of the D ₂ resonance line of rubidium caused by inert gases. Opt. Spectrosc. 44, 372 (1978) Soviet Union

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1250	A12 Rb + Ar; Rb + Kr; Rb + Xe; Cs + Ar; Cs + Kr; Cs + Xe	T	450 K	Rebane, V. A. Calculation of the collisional broadening and shift of the hyperfine components of the D ₂ lines of rubidium and cesium during collisions with atoms of heavy inert gases. Opt. Spectrosc. 44, 376 (1978) Soviet Union
1251	A03 Undef B07 Undef	T	Undef	Bakaev, D. S.; Udcvin, Y. A. Line shape of radiative collisions in an external magnetic field. Opt. Spectrosc. 44, 380 (1978) Soviet Union
1252	A12 Zn + Zn; Cd + Cd	E	650 K	Yablochkev, E. Y.; Muradov, V. G. Determination of atomic vapor pressure by an optical absorption method using two resonance lines of the element investigated. Opt. Spectrosc. 44, 382 (1978) Soviet Union
1253	H05 hν + Na ₂ ; hν + K ₂ ; hν + Rb ₂ ; hν + Cs ₂	E	5000 Å ⁰	Grushevskii, V. B.; Papernov, S. P.; Yansen, M. L. Some characteristic features of the photodecomposition of alkali metal dimers. Opt. Spectrosc. 44, 475 (1978) Soviet Union
1254	A11 He* + He	E	Thermal	Bakaev, S. A.; Galnets, O. V.; Smirnov, V. E.; Tolmachev, Y. A. Role of the triplet states of He I in processes of excitational energy transfer among upper levels. Opt. Spectrosc. 44, 482 (1978) Soviet Union
1255	A06 Li ⁻ + Li; Li ⁻ + Na; Li ⁻ + K; Li ⁻ + Rb; Na ⁻ + Li; Na ⁻ + Na; Na ⁻ + K; Na ⁻ + Rb; K ⁻ + Li; K ⁻ + Na; K ⁻ + K; K ⁻ + Rb; Rb ⁻ + Li; Rb ⁻ + Na; Rb ⁻ + K; Rb ⁻ + Rb	T	0.1-10000 eV	Evseev, A. V.; Redtsig, A. A.; Smirnov, B. M. Asymptotic form of the wave function of an electron in an atom or ion. Opt. Spectrosc. 44, 495 (1978) Soviet Union
1256	F01 Fe ¹⁷⁺	E		Boiko, V. A.; Pikuz, S. A.; Safronova, A. S.; Faycnov, A. Y. Transitions between 1s ² 2s 2p 5-1s 2s ² 2p ³ 3d and 1s ² 2s ² 2p ⁵ -1s ² 2p ³ 3s configurations in the spectra of Fe XVIII-ZnXXII, GeXXIV, and Se XXVI ions. Opt. Spectrosc. 44, 498 (1978) Soviet Union
1257	B07 Undef	T		Vetchinkin, S. I.; Bakhrakh, V. I.; Usenskii, I. M. Resonance charge exchange in a laser emission field. Opt. Spectrosc. 44, 507 (1978) Soviet Union
1258	B07 Undef	T		Trakhtenberg, L. I. Resonance emission and absorption of photons in a threefold collision of an electron, a photon, and an atom. Opt. Spectrosc. 44, 510 (1978) Soviet Union
1259	A02 Undef	T	Undef	Alekseev, A. I.; Eshatov, A. M. Photon echo as a method of investigating the resonance interaction of like atoms. Opt. Spectrosc. 44, 513 (1978) Soviet Union
1260	H06 hν + Na; hν + K	T	Threshold	Avilova, I. V.; Podlubnyi, L. I. Calculation of photoionization cross sections by the model-potential method. Opt. Spectrosc. 44, 517 (1978) Soviet Union
1261	H06 Undef	T	Undef	Elyutin, P. V. Multiphoton resonant ionization in an incoherent field. Opt. Spectrosc. 44, 520 (1978) Soviet Union
1262	B01 H Seq	T		Zapryagaev, S. A. Stark effect of fine-structure levels of a hydrogenlike atom. Opt. Spectrosc. 44, 527 (1978) Soviet Union
1263	G07 Xe* + 2Xe; Xe ₂ * + Xe	E	Undef	Belousova, I. M.; Lyashits, Y. I.; Kavetskii, A. G.; Korobitsyn, V. A.; Neverov, V. G. Radiation of compressed xenon excited by a beam of fast electrons. Opt. Spectrosc. 44, 535 (1978) Soviet Union
1264	H04 hν + Rb	T	Undef	Besedina, A. N.; Anvostenko, G. I.; Chaika, M. F. Calculation of optical pumping of an atomic beam. Opt. Spectrosc. 44, 571 (1978) Soviet Union

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1265	E02 e + H ₂	T	100 eV	Gien, T. T. Elastic scattering of electrons by hydrogen molecule in a modified Glauber theory. Phys. Lett. 68A, 32 (1978) Canada
1266	A19 I ⁺ + Ag	E	47-100 MeV	Guillaume, G.; Fintz, P.; Jundt, F. C.; Jones, K. W.; Johnson, B. M. Impact-parameter dependence of Ag K x-rays produced by bombardment of Ag by I. Phys. Lett. 68A, 35 (1978) France
1267	A17 Undef	T	Undef	Plindov, G. I.; Pogrebnya, S. K. On the interaction potential between two equal ions. Phys. Lett. 68A, 42 (1978) Soviet Union
1268	B07 Undef	T		Mohan, P.; Chand, F. Collinear collision of a molecule with a diatomic molecule in the presence of an intense laser beam. Phys. Lett. 68A, 45 (1978) India
1269	F01 Mo ³⁰⁺	T		Gau, J. N.; Hehn, Y. Auger and radiative transition probabilities of high Rydberg states. Phys. Lett. 68A, 197 (1978) United States
1270	A06 Ar ⁺ + He; Ar ²⁺ + He; Ar ²⁺ + Ar; Ar ²⁺ + Kr; Ar ²⁺ + Xe; Ar ²⁺ + Ne; Ar ⁺ + Ne; Ar ⁺ + Ar; Ar ⁺ + Kr; Ar ⁺ + Xe; Ar ³⁺ + He; Ar ³⁺ + Ne; Ar ³⁺ + Ar; Ar ³⁺ + Kr; Ar ³⁺ + Xe; Ar ⁴⁺ + He; Ar ⁴⁺ + Ne; Ar ⁴⁺ + Ar; Ar ⁴⁺ + Kr; Ar ⁴⁺ + Xe; Ar ⁵⁺ + He; Ar ⁵⁺ + Ne; Ar ⁵⁺ + Ar; Ar ⁵⁺ + Kr; Ar ⁵⁺ + Xe; Ar ⁶⁺ + He; Ar ⁶⁺ + Ne; Ar ⁶⁺ + Ar; Ar ⁶⁺ + Kr; Ar ⁶⁺ + Xe; Ar ⁷⁺ + He; Ar ⁷⁺ + Ne; Ar ⁷⁺ + Ar; Ar ⁷⁺ + Kr; Ar ⁷⁺ + Xe; Ar ⁸⁺ + He; Ar ⁸⁺ + Ne; Ar ⁸⁺ + Ar; Ar ⁸⁺ + Kr; Ar ⁸⁺ + Xe A07 Ar ⁺ + He; Ar ⁺ + He; Ar ⁺ + Ar; Ar ⁺ + Kr; Ar ⁺ + Xe; Ar ²⁺ + He; Ar ²⁺ + Ne; Ar ²⁺ + Ar; Ar ²⁺ + Kr; Ar ²⁺ + Xe; Ar ³⁺ + He; Ar ³⁺ + Ne; Ar ³⁺ + Ar; Ar ³⁺ + Kr; Ar ³⁺ + Xe; Ar ⁴⁺ + He; Ar ⁴⁺ + Ne; Ar ⁴⁺ + Ar; Ar ⁴⁺ + Kr; Ar ⁴⁺ + Xe; Ar ⁵⁺ + He; Ar ⁵⁺ + Ne; Ar ⁵⁺ + Ar; Ar ⁵⁺ + Kr; Ar ⁵⁺ + Xe; Ar ⁶⁺ + He; Ar ⁶⁺ + Ne; Ar ⁶⁺ + Ar; Ar ⁶⁺ + Kr; Ar ⁶⁺ + Xe; Ar ⁷⁺ + He; Ar ⁷⁺ + Ne; Ar ⁷⁺ + Ar; Ar ⁷⁺ + Kr; Ar ⁷⁺ + Xe; Ar ⁸⁺ + He; Ar ⁸⁺ + Ne; Ar ⁸⁺ + Ar; Ar ⁸⁺ + Kr; Ar ⁸⁺ + Xe	E	200 keV	Winter, H.; El-Sherbini, T. M.; Elcemen, E.; de Heer, F. J.; Jabor, A. A comparison between radiative and non-radiative deexcitation after electron capture by multiply charged ions. Phys. Lett. 68A, 211 (1978) The Netherlands
1271	A06 H + Cs A07 H + Cs	T	0.1-2.5 keV	Hiskas, J. R.; Kero, A. M.; Willmann, F. A.; Stevens, W. J. Negative ion formation by charge exchange between hydrogen and cesium. Phys. Lett. 68A, 221 (1978) United States
1272	F01 H ⁻	T		Callaway, J. Energies and widths of the ¹ P ₀ (1) and ¹ S(2) resonant states of H ⁻ . Phys. Lett. 68A, 315 (1978) United States
1273	F01 Mo	E		Baumann, M.; Lioning, H.; Lindel, I. Lifetime measurements of some excited states of the 4d ⁵ 5p and 4d ⁴ 5s5p configurations in the Mo-I spectrum. Phys. Lett. 68A, 319 (1978) West Germany
1274	H06 H Seq	T	19436-22002 cm ⁻¹	Rechman, A.; Laplanche, G.; Jacuen, M. Multiphoton ionization of atoms: comparison between theoretical and experimental probability rates. Phys. Lett. 68A, 433 (1978) France
1275	A03 Ar ⁺ + He; Ar ⁺ + Ar A07 Ar ⁺ + He; Ar ⁺ + Ar	E	100-500 keV	Hippler, F.; Schartner, K.-H.; Eeyer, F. F. 3s vacancy production in Ar ⁺⁻ Ar and Ar ⁺⁻ He collisions. Phys. Lett. 69A, 6 (1978) West Germany

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1276	H04 hv + Mn	E	45-60 eV	Bruhn, F.; Sonntag, B.; Wcliff, F. W. 3p-excitation of atomic Mn; experimental evidence for the super Coster-Kronig decay. Phys. Lett. 65A, 9 (1978) West Germany
1277	F01 Cr ¹⁴⁺ ; Fe ¹⁶⁺ ; Ni ¹⁸⁺	E		Klapiach, M.; Bar Shalom, A.; Schwab, J. L.; Fraenkel, B. S.; Bretcn, C.; de Michelis, C.; Firkenthal, M.; Mattioli, M. Identification of magnetic quadrupole lines of highly ionized Ni, Cr, Fe in the IFR600 Tokamak plasma. Phys. Lett. 69A, 34 (1978) Israel
1278	F01 N ⁴⁺	T		Hartung, H.; Fricke, B.; Morovic, I.; Sepp, W.-D.; Rosen, A. An ab-initio calculation of the Coulomb explosion of N ₂ after heavy-ion bombardment. Phys. Lett. 65A, 87 (1978) West Germany
1279	A06 S ⁶⁺ + Ne; S ⁶⁺ + Ar; S ⁶⁺ + Kr; S ⁶⁺ + Xe; S ⁷⁺ + Ne; S ⁷⁺ + Ar; S ⁷⁺ + Kr; S ⁷⁺ + Xe; S ⁸⁺ + Ne; S ⁸⁺ + Ar; S ⁸⁺ + Kr; S ⁸⁺ + Xe; S ⁹⁺ + Ne; S ⁹⁺ + Ar; S ⁹⁺ + Kr; S ⁹⁺ + Xe A07 S ⁶⁺ + Ne; S ⁶⁺ + Ar; S ⁶⁺ + Kr; S ⁶⁺ + Xe; S ⁷⁺ + Ne; S ⁷⁺ + Ar; S ⁷⁺ + Kr; S ⁷⁺ + Xe; S ⁸⁺ + Ne; S ⁸⁺ + Ar; S ⁸⁺ + Kr; S ⁸⁺ + Xe; S ⁹⁺ + Ne; S ⁹⁺ + Ar; S ⁹⁺ + Kr; S ⁹⁺ + Xe	E	32-48 MeV	Maor, E.; Resner, E. Electron production effects in small impact parameter S ^q (sup 6) + Fe ^q collisions. Phys. Lett. 65A, 100 (1978) Israel
1280	A03 H ⁺ + H; He ²⁺ + H	T	1-2000 keV	Saha, H. P.; Saha, B. C. Asymptotic cross sections for the excitation of atomic hydrogen by proton and alpha-particle impact. Phys. Lett. 65A, 180 (1978) India
1281	C07 Zn ⁺ + C	E	50-700 keV	Hultberg, S.; Liljeby, L.; Lindgarc, A.; Mornervik, S.; Nielsen, S. E.; Veje, E. Population inversion observed for beam-foil excited Zn II levels. Phys. Lett. 69A, 185 (1978) Sweden
1282	A07 H ⁺ + Au; H ⁺ + Eu; H ⁺ + Ag; H ⁺ + Rb; H ⁺ + Cu	E	20-50 MeV	Russay, L. D.; Al-Ghazi, M. S. A. I.; Eirchall, J.; McKee, J. S. C. Atomic K-shell ionization induced by 20-50 MeV protons. Phys. Lett. 65A, 268 (1978) Canada
1283	D04 e + Al	E	5 keV	Krasil'nikova, N. A.; Persiantseva, A. M. Measurement of the angular correlation functions in the (e,2e) reaction on aluminum films. Phys. Lett. 65A, 287 (1978) Soviet Union
1284	A02 Li + Ni; Li + C	E	9-12.7 MeV	Dreves, W.; Zupranski, F.; Egelhof, P.; Kassen, D.; Steffens, E.; Weiss, W.; Fick, E. Shape effects in heavy ion (Li) elastic scattering. Phys. Lett. 78B, 36 (1978) West Germany
1285	A02 H ⁺ + He	E	788 MeV	Fong, J.; Bauer, T. S.; Igo, G. J.; Foulatta, G.; Ridge, F.; Ralfe, R.; Sankup, J.; Whitten, C. A., Jr.; Hoffmann, G. W.; Hintz, N.; Oothoudt, M.; Blangsted, G.; Liljestrand, R. L.; Kozlowski, T. p-He elastic scattering at 788 MeV. Phys. Lett. 78B, 205 (1978) United States
1286	A07 O ⁺ + Pb; S ⁺ + Zr; O ⁺ + Ta; O ⁺ + Au; S ⁺ + U; O ⁺ + Pb; O ⁺ + Zr	E	56-120 MeV	Bosch, F.; Krimm, H.; Martin, B.; Fovh, B.; Balcher, T.; Traxel, K. Electrons from quasi-atomic ions in heavy-ion collisions. Phys. Lett. 78E, 568 (1978) West Germany
1287	A02 H ⁺ + Ni; H ⁺ + C; H ⁺ + Pb	E	1 GeV	Ray, L.; Coker, W. R. Spin-orbit deformation in inelastic scattering of protons at sodium energies. Phys. Lett. 78B, 182 (1978) United States
1288	A02 H ⁺ + Fe; H ⁺ + Ni	E	800 MeV	Hoffman, G. W., et al. Elastic differential cross sections and analyzing powers for p(vector) + ⁵⁶ Fe, ⁵⁸ Ni at 800 MeV. Phys. Lett. 79B, 376 (1978) United States
1289	C02 H ⁺ + C; H ₂ ⁺ + C	T	175 keV	Arista, A. F. Energy loss of correlated charges in an electron gas. Phys. Rev. E 18, 1 (1978) Argentina

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1290	C08 H ⁺ + Ti; H ₂ ⁺ + Ti; H ₃ ⁺ + Ti; H ⁺ + Cu	E	730-2190 keV	Alexander, R. B.; Petty, R. J. Experimental study of flux peaking for channeled ions using ¹⁸⁰ Ti. Phys. Rev. B 18, 561 (1978) Denmark
1291	C02 C ⁺ + W; O ⁺ + W; D ⁺ + W C08 C ⁺ + W; O ⁺ + W; D ⁺ + W	E	80 eV	Brice, D. K. Effect of surface impurities on low-energy implanted-ion depth distributions. Phys. Rev. B 18, 990 (1978) United States
1292	D02 He ⁺ + Au; Ar ⁺ + Au; Ag ⁺ + Au; Bi ⁺ + Au	E	50-560 eV	Ecker, K. H.; Merkle, K. L. Transmission sputtering by heavy ions. Phys. Rev. B 18, 1020 (1978) United States
1293	C08 He ⁺ + Si	T	1 MeV	Ellis, J. A.; Picraux, S. T. Planar-channeling spatial density under statistical equilibrium. Phys. Rev. B 18, 1026 (1978) United States
1294	C08 H ⁺ + Si	E	3.2 MeV	Rosner, J. S.; Gibson, W. M.; Gloukcherko, J. A.; Goland, A. N.; Wagner, H. E. Quantitative study of the transmission of axially channeled protons in thin silicon crystals. Phys. Rev. E 18, 1666 (1978) United States
1295	D05 hν + Al	E	7-11.6 eV	Hansson, G. V.; Flodstrom, S. A. Photoemission from surface states and surface resonances on the (100), (110), and (111) crystal faces of aluminum. Phys. Rev. B 18, 1562 (1978) Sweden
1296	D05 hν + Au	E	7-11.6 eV	Hansson, G. V.; Flodstrom, S. A. Photoemission study of the bulk and surface electronic structure of single crystals of gold. Phys. Rev. B 18, 1572 (1978) Sweden
1297	D05 Undef	T	Undef	Shevchik, N. J.; Liebowitz, D. Theory of angle-resolved photoemission from the bulk bands of solids. I. Formalism. Phys. Rev. E 18, 1618 (1978) United States
1298	D05 hν + Ag	E T	16.9-40.8 eV	Liebowitz, D.; Shevchik, N. J. Theory of angle-resolved photoemission from the bulk bands of solids. II. Application to Ag(111). Phys. Rev. E 18, 1630 (1978) United States
1299	H06 hν + CO	E	1254 eV	Plummer, E. W.; Selaneck, W. R.; Miller, J. S. Photoelectron spectra of transition-metal carbonyl complexes: comparison with the spectra of adsorbed CO. Phys. Rev. E 18, 1673 (1978) United States
1300	D05 hν + W; hν + Mo	E	19-35 eV	Weng, S.-L.; Flusser, E. W.; Gustafsson, T. Experimental and theoretical study of the surface resonances on the (100) faces of W and Mo. Phys. Rev. B 18, 1718 (1978) United States
1301	C08 H ⁺ + Al; He ⁺ + Al	E	0.5-7.8 MeV	Picraux, S. T.; Rimini, E.; Foti, G.; Campisano, E. U. Dechanneling by dislocations in ion-implanted Al. Phys. Rev. E 18, 2078 (1978) United States
1302	D05 hν + Au; hν + In; hν + [Au + In]; hν + Ga; hν + [Au + Ga]; hν + Cd; hν + [Au + Cd]; hν + [Ag + In]; hν + [Ag + Cd]	E	40.8 eV	Nicholson, J. A.; Riley, J. D.; Leckey, R. C. G.; Jerkin, J. G.; Liesegang, J.; Azcuys, J. Ultraviolet photoelectron spectroscopy of the valence bands of some Au alloys. Phys. Rev. B 18, 2561 (1978) Australia
1303	D15 e + Al	E	3 MeV	Robert, J. B.; Schoenfeld, E.; Ehrhart, F. Investigation of interstitial clustering in Al following electron irradiation at low temperature. Phys. Rev. E 18, 2591 (1978) West Germany
1304	D12 Undef	T	Undef	DeRaad, L. L., Jr.; Tsai, W.-Y.; Erber, T. Interference between transition and Cherenkov radiation. Phys. Rev. E 18, 2152 (1978) United States
1305	C02 Fe ⁺ + Gd	E	25 MeV	Fahlender, C.; Johansson, K.; Karlsson, E.; Nordin, L. G.; Possnert, G. Velocity- and Z-dependence of transient magnetic fields in ferromagnetic Gd. Phys. Scripta 17, 31 (1978) Finland

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1306	F01 C; N; O	E		Bromander, J.; Duric, N.; Erman, F.; Lorrson, M. Lifetimes of some levels in neutral carbon, nitrogen and oxygen and nitrogen and oxygen. Phys. Scripta 17, 115 (1978) Sweden
1307	F01 Fe ²⁴⁺ ; Fe ²³⁺ ; Si ¹²⁺ ; Ti ²⁰⁺ ; Fe ¹⁷⁺ ; Fe ¹⁸⁺ ; Fe ²⁰⁺ ; Fe ²¹⁺ ; Fe ¹³⁺ ; Ti ¹⁹⁺ ; Fe ²⁵⁺ ; Mo ¹⁴⁺ ; Mo ¹⁵⁺ ; Mo ¹⁶⁺ ; Mo ¹⁷⁺ ; Mo ¹⁸⁺ ; Mo ¹⁹⁺ ; Mo ²⁰⁺ ; Mo ²¹⁺ ; Mo ²²⁺ ; Mo ²³⁺ ; Li Seq; C Seq; O Seq	E		Kononov, E. Y. Spectra of very highly ionized atoms. Phys. Scripta 17, 425 (1978) Soviet Union
1308	E05 e + Cr; e + Fe	E	15-75 keV	Saionmaa, S.; Keski-Nehkonen, C. Measurement of the electron double ionization cross section of the K-shell in Cr and Fe. Phys. Scripta 17, 4E1 (1978) Finland
1309	E05 e + Cr; e + Fe	T	15-100 keV	Saionmaa, J. Calculation of the electron double ionization cross section of the K-shell in Cr and Fe. Phys. Scripta 17, 457 (1978) Finland
1310	F01 O ⁷⁺ ; O ⁶⁺ ; O ⁵⁺ ; O ⁴⁺	E		Hannebauer, F.; Buttler, H. V.; Heckmann, P. H. The quartet term system of doubly excited G VI. Phys. Scripta 17, 479 (1978) West Germany
1311	F05 h ν + OH	E		Brzozowski, J.; Erman, P.; Lyyra, M. Precision estimates of the predissociation rates of the CH A ² Σ (v less than 2). Phys. Scripta 17, 507 (1978) Sweden
1312	F01 Si ⁺	E		Smith, W. H. Radiative lifetimes for selected astrophysically important resonance transitions of F I, Si II, S I, II, III, P II and Cc. Phys. Scripta 17, 513 (1978) United States
1313	F01 Fe ²⁰⁺	T		Bogdanovich, F. D.; Merklis, G. V.; Rudzikas, Z. B.; Sedziuvience, S. D.; Safronova, U. I. Theoretical investigation of transition probabilities for 2s ² 2p ² -2s2p ² -2p ⁴ of Ca XV, Fe XXI. Phys. Scripta 17, 545 (1978) Soviet Union
1314	F01 Na Seq	E T		Edlen, B. The transitions 3s-2f and 2f-3d, and the ionization energy in the Na I iso-electronic sequence. Phys. Scripta 17, 965 (1978) Sweden
1315	C07 Si ⁺ + C F01 Si ¹¹⁺ ; Si ¹⁰⁺ ; Be Seq	E	C07 28-45 MeV	Pegg, D. J.; Griffin, P. M.; Alton, G. L.; Elston, S. B.; Forester, J. P.; Suter, M.; Thce, F. S.; Vane, C. R.; Johnson, B. M. Radiative lifetimes and oscillator strengths for allowed transitions in Li-like and Be-like Si. Phys. Scripta 18, 18 (1978) United States
1316	C07 Cl ⁺ + C	E	42 MeV	Ishii, M.; Alvarez, E.; Hellin, R.; Lirskova, J.; Marelius, A.; Pihl, J.; Sjodin, R.; Derne, B.; Engstrom, L.; Hultdt, S.; Martinson, I. Lifetime measurements for some $\Delta n = 0$ transitions in ClXII-ClXV. Phys. Scripta 18, 57 (1978) Sweden
1317	H04 3h ν + CaCl	E	623-616 nm	Berg, L.-E.; Klyning, L.; Martin, H. Observations of the photon absorption in gaseous CaCl. A study of the D ² I and X ² I states. Phys. Scripta 18, 61 (1978) Sweden
1318	F01 Nb ⁷⁺ ; Nb ⁶⁺ ; Nb ⁵⁺ ; Mo ⁶⁺ ; Mo ⁵⁺ ; Mo ¹⁰⁺	E		Rahimullah, K.; Chagtal, M. S. Z.; Khatcon, S. The 4p-4d transitions of Y VI, VII, VIII, Zr VII, VIII, IX, Nb VIII, IX, X and Mo IX, X, XI. Phys. Scripta 18, 96 (1978) India
1319	F01 Fe ³⁺	E T		Ekberg, J. C.; Edlen, B. Term analysis of Fe IV. Phys. Scripta 18, 107 (1978) Sweden
1320	F01 H ⁻	T		Erkoc, S.; Oksuz, I. S autoionizing states of H ⁻ . Phys. Scripta 18, 175 (1978) Turkey

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1321	H06 3hν + K	E	3.4x10 ⁹ -2.5 x10 ⁸ cm ⁻¹	Wheatley, S. E.; Agostini, F.; Dixit, S. N.; Levenson, M. D. Saturation effects in resonant three photoionization of potassium. Phys. Scripta 18, 177 (1978) United States
1322	F01 Fe ⁺	E		Johansson, S. The spectrum and term system of Fe II. Phys. Scripta 18, 217 (1978) Sweden
1323	C08 e + W	E	1-2 MeV	Fujimoto, F.; Suide, N.; Fujita, H.; Uchida, Y. Electron channeling in (111) direction of tungsten crystals. II. Energy range of 1000 to 2000 keV. Phys. Status Solidi A 45, 411 (1978) Japan
1324	D15 He ²⁺ + Zn	E	6.1 MeV	Roggen, J.; Nihoul, J.; Stals, L.; Cornelis, J. α-particle irradiation damage and stage I recovery in zinc. Phys. Status Solidi A 45, 435 (1978) Belgium
1325	D12 e + [Cd + Hg + Te]	E	Undef	Ivanov-Omskii, V. I.; Moltseva, V. A.; Eritcv, A. E.; Sivachenko, S. E. Photo- and cathodoluminescence of Cd, Hg, Te alloys. Phys. Status Solidi A 46, 77 (1978) Soviet Union
1326	D02 He ⁺ + SiO ₂ ; Ne ⁺ + SiO ₂ ; Ar ⁺ + SiO ₂	E	20-60 keV	Rauschenbach, B.; Hinz, W. Sputtering of flat glass surfaces with noble gas ions. Phys. Status Solidi A 47, 79 (1978) East Germany
1327	C04 D ⁺ + Si	E	2 MeV	Kappert, H. F.; Heidemann, K. F.; Grabe, B.; Te Kaat, E. Range and damage profiling after heavy ion implantation in the MeV region. Phys. Status Solidi A 47, 751 (1978) West Germany
1328	D07 H ⁺ + Si; H ⁺ + Fe; H ⁺ + Cu; H ⁺ + Au; D ⁺ + Si; D ⁺ + Fe; D ⁺ + Cu; D ⁺ + Au; T ⁺ + Si; T ⁺ + Fe; T ⁺ + Cu; T ⁺ + Au; H ⁺ + Nb; H ⁺ + Ti; D ⁺ + Nb; D ⁺ + Ti; He ⁺ + Nb; He ⁺ + Ti	T	2-15 keV	Akkerman, A. F. Reflection of slow hydrogen and helium ions from solid surfaces. Phys. Status Solidi A 46, K47 (1978) Soviet Union
1329	D12 e + MgO; e + GaP	E	20 keV	Licpis, J.; Piqueras, J. Cathodoluminescence from grain boundaries in MgO and GaP. Phys. Status Solidi A 45, K5 (1978) Spain
1330	C08 e + Si	T	1.5 MeV	Karlin, V. V.; Focov, E. E.; Vercbev, S. A. Quantum-mechanical treatment of anelastic Rutherford scattering of swift electrons in crystals. Phys. Status Solidi B 86, K38 (1978) Soviet Union
1331	C08 He ²⁺ + Au; He ²⁺ + Ag; He ²⁺ + Cu C02 He ²⁺ + Au; He ²⁺ + Ag; He ²⁺ + Cu	T	1-5 MeV	Pathak, A. F. Stopping power of solids in planar channeling. Phys. Status Solidi E 86, 751 (1978) India
1332	D05 Undef	T	Undef	Paasch, G. Theory of angle-resolved photoemission: the role of electron diffraction in the XPS spectra. Phys. Status Solidi B 87, 151 (1978) East Germany
1333	C08 e + Si; e + Cu; e + Ge; e + W; e ⁺ + Si; e ⁺ + Cu; e ⁺ + Ge; e ⁺ + W	T	Undef	Wedell, R. Radiative damping effect for ultrarelativistic channelled particles. Phys. Status Solidi B 87, 451 (1978) Soviet Union
1334	D08 H ⁺ + Au D09 H ⁺ + Au	T	100-1000 eV	Horiguchi, S.; Koyama, K.; Chitaki, Y. Auger neutralization of slow protons at solid surfaces. Phys. Status Solidi B 87, 757 (1978) Japan
1335	C02 e + C; e + Be; e + Mg; e + Al; e + Si; e + K; e + Ge; e + Sb; e + Bi	T	0.1-20 keV	Akkerman, A. F.; Chernov, G. Y. Mean free paths by inelastic interactions, stopping powers, and energy straggling for electrons of energies up to 20 keV in various solids. Phys. Status Solidi E 85, 325 (1978) Soviet Union
1336	D05 hν + Cs	E	3.0-4.9 eV	Husberg, H.; Merz, H. Polarization dependence of the photoelectron energy distribution curves of cesium. Phys. Status Solidi B 89, 357 (1978) West Germany

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1337	C02 N ⁺ + C; Ne ⁺ + C C05 N ⁺ + C; Ne ⁺ + C	E	15-63 keV	Ellmer, K.; Sturm, J. Energy-angle distributions of ¹⁴ N and ²⁰ Ne ions after passage through thin carbon foils. Phys. Status Solidi B 69, 611 (1978) West Germany
1338	D05 hv + PbI ₂ ; hv + GaAs	E	2-6 eV	Kasuya, A.; Tcgashi, S.; Goto, T.; Nishina, Y. Two-photon photoemission in PbI ₂ and GaAs. Phys. Status Solidi B 65, K145 (1978) Japan
1339	A09 Undef	T	Thermal	Bates, D. R.; Mendes, I. Ionic recombination in an ambient gas. I. Extension of quasi-equilibrium statistical method into nonlinear region. Proc. Roy. Soc., London A 355, 275 (1978) United Kingdom
1340	A09 O ₂ ⁺ + O ₂ ⁻ ; O ₂ ⁺ + {O ₂ ⁻ + O ₂ }	T	Thermal	Bates, D. R.; Mendes, I. Ionic recombination in an ambient gas. II. Computer experiment with specific allowance for binary recombination. Proc. Roy. Soc., London A 359, 287 (1978) United Kingdom
1341	A06 H ⁺ + H	T	0.78-20.1 keV	Crothers, D. S. F.; Hughes, J. G. Proton hydrogen clog-capture collision spectroscopy. Proc. Roy. Soc., London A 359, 345 (1978) United Kingdom
1342	A13 O ₂ ⁺ + O ₂ ; N ₂ ⁺ + N ₂	T	Thermal	Bates, D. R. Transition state theory for ion-molecule reactions. Proc. Roy. Soc., London A 360, 1 (1978) United Kingdom
1343	A17 H ⁺ + H	T	Undef	Engelke, F. Diatomic molecule vibrational potentials: accuracy of representations. J. Chem. Phys. 68, 3514 (1978) United States
1344	E09 e + HCl	E	1730-2472 K	Miller, W. J.; Gould, F. K. Electron attachment kinetics in phases. II. Dissociative attachment to HCl. J. Chem. Phys. 68, 3542 (1978) United States
1345	A10 Na ⁺ + Na ₂ ; Na ⁺ + Na A11 Na ⁺ + Na ₂ ; Na ⁺ + Na	E	300 K	Lee, L. K.; Fujimoto, T.; Gallagher, A. C.; Hessel, M. M. Collisional excitation transfer between Na and Na ₂ . J. Chem. Phys. 68, 3553 (1978) United States
1346	E02 e + H ₂ ⁺	T	1-74 eV	Tambo, B. R.; Ritchie, B. Continuum states for hydrogen molecule: a study of convergence in e ⁻ -H ₂ ⁺ scattering equations. J. Chem. Phys. 68, 3555 (1978) United States
1347	A03 H ₂ + D ₂ A04 H ₂ + D ₂ A14 H ₂ + D ₂	T	0-50 eV	Brown, N. J.; Silver, D. M. Reactive and inelastic scattering of H ₂ + D ₂ using a repulsive model potential energy surface. J. Chem. Phys. 68, 3607 (1978) United States
1348	A17 Cs + Ar	E	Undef	Daye, E.; Ferray, M.; Viefont, J. F.; Lozinck, J. Bands associated with Cs(6S _{1/2})-Ar(7S _{1/2}) and 5 ² D _{3/2} transitions perturbed by helium. J. Chem. Phys. 68, 3618 (1978) France
1349	H06 4hv + NO	E	490-400 nm	Zakheim, D.; Johnson, F. Two- and three-photon resonances in the four-photon ionization spectrum of nitric oxide at low temperature. J. Chem. Phys. 68, 3644 (1978) United States
1350	A14 RbF + K	E	3.0-4.5 kcal/mole	Zandee, L.; Bernstein, R. F. Rotational energy effect upon the branching fraction for reactive decay of the RbF + K collision complex. J. Chem. Phys. 68, 3760 (1978) United States

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1351	H05 $h\nu + O_3^-$; $h\nu + O_2H_2O^-$; $h\nu + CO_3^-$; $h\nu + CO_2^-$; $h\nu + CO_2H_2O^-$; $h\nu + HCO_3^-$; $h\nu + HCO_2H_2O^-$; $h\nu + O_2NO^-$; $h\nu + O_2NOH_2O^-$; $h\nu + NO_2H_2O^-$; $h\nu + CO_2H_2O^-$ H07 $h\nu + O_3^-$; $h\nu + O_2H_2O^-$; $h\nu + O_2H_2O^-$; $h\nu + CO_3^-$; $h\nu + CO_2^-$; $h\nu + CO_2H_2O^-$; $h\nu + HCO_3^-$; $h\nu + HCO_2H_2O^-$; $h\nu + O_2NO^-$; O_2NO^- ; $h\nu + O_2NOH_2O^-$; $h\nu + NO_2H_2O^-$; $h\nu + CO_2H_2O^-$	E	8400-7000 Å ⁰	Smith, G. F.; Lee, L. C.; Ccsby, P. C.; Petersen, J. R.; Moseley, J. T. Photodissociation and photodetachment of molecular negative ions. V. Atmospheric ions from 7000 to 8400 Å ⁰ . J. Chem. Phys. 68, 3818 (1978) United States
1352	A19 Undef E15 Undef	T	Undef	Martin, R. L.; Kowalczyk, E. F.; Shirley, D. A. The relation between satellite peaks in x-ray emission and x-ray photoemission spectra. J. Chem. Phys. 68, 3829 (1978) United States
1353	A17 Ar _p + F; Kr _p + F	T	Undef	Wadt, W. R.; Hay, F. J. Electronic states of Ar _p F and Kr _p F. J. Chem. Phys. 68, 3880 (1978) United States
1354	D02 Ar ⁺ + Cu	T	0.25-5.0 keV	Giber, J.; Kazsoki, J.; Kottlinger, L. Computer modelling of sputtering processes. Acta Phys. Acad. Sci., Hung. 44, 227 (1978) Hungary
1355	G07 e + N ₂ ; e + H ₂ ; N ₂ + Ne; N ₂ + H ₂	T	Undef	Michel, P.; Peau, S.; Winkler, R. Greifswald: Der Einfluss der Stoßkennlinien auf die Elektronenkinetik in schwachionisierten Mischplasma. Ann. Phys. (Germany) 35, 441 (1978) East Germany
1356	F01 He; Li ⁺ ; Be ²⁺ ; B ³⁺ ; C ⁴⁺ F03 H ⁻	T		Mukherjee, P. K.; Roy, H. F.; Gupta, A. Correlation energy in two electron atomic systems. Indian J. Phys. B 51, 383 (1977) India
1357	A10 CO ₂ ⁺ + CO ₂	E	300-1600 K	Leshenyuk, N. S.; Nevdkh, V. V.; Criv, L. N.; Trushin, S. A.; Churakov, V. V. Investigation of the rate of relaxation of the energy of the antisymmetric vibrational mode of CO ₂ molecules as a function of the temperature. J. Appl. Spectrosc. 28, 664 (1978) Soviet Union
1358	E09 e + [O ₂ + N ₂]	E	0.1-3.0 eV	Aleksandrov, N. L. Mechanism of electron binding of oxygen molecules in nitrogen plasma. High Temp. 16, 192 (1978) Soviet Union
1359	E02 e + H ₂ O; e + OH; e + KOH; e + O ₂ ; e + CO ₂ ; e + CO; e + H ₂ ; e + K; e + H; e + N ₂ ; e + NO; e + Cs; e + CS ₂ ; e + Na; e + CsOH	T	0.01-4.0 eV	Atrazhev, V. A.; Zelener, E. V.; Yakutov, I. I. The electric conductivity of a plasma of combustion products of hydrocarbon fuels with alkali impurity. High Temp. 16, 326 (1978) Soviet Union
1360	D02 Ar ⁺ + W	E	10-18 eV	Kovalev, V. N.; Lyepin, A. A.; Chursin, M. M. Sputtering of a high-current tungsten cathode. High Temp. 16, 349 (1978) Soviet Union
1361	E02 e + N ₂	E	0.04-3.7 eV	Gus'kov, Y. K.; Savvov, R. V.; Slobodyanyuk, V. A. Scattering of electrons with E=0.04-3.7 eV by N ₂ molecules. High Temp. 16, 381 (1978) Soviet Union
1362	A14 Cs + CO ₂	E	700-760 K	Stetskii, G. I.; Ivancu, R. S.; Korolev, N. M.; Malikov, M. M. Fate of interaction of cesium and CO ₂ in a gaseous mixture in a rapidly circulating laser. High Temp. 16, 572 (1978) Soviet Union
1363	E03 e + N ₂	E	11-16 eV	Vichon, D.; Gresteau, F.; Huetz, A.; Hazeau, J. Resonant excitation of a new valence state in N ₂ by electron impact. J. Mol. Spectrosc. 73, 405 (1978) France
1364	D02 PERT + Si; PERT + Cu; PERT + Ag; PERT + Au; PERT + Nb	T	45 keV	Imada, M. Mass dependence of the sputtering yield-boundary effect. J. Phys. Soc., Jap. 45, 1557 (1978) Japan

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1365	E04 e + N ₂ H05 hν + N ₂	E	10-300 eV	Zipf, E. C.; McLaughlin, R. W. On the dissociation of nitrogen by electron impact and by e.u.v. photo-absorption. Planet. Space Sci. 26, 449 (1978) United States
1366	C04 N ⁺ + Al; N ⁺ + Ti; N ⁺ + Ni; N ⁺ + Cu; N ⁺ + Zn; N ⁺ + Mo; N ⁺ + Ag; N ⁺ + Ta; N ⁺ + W; N ⁺ + Au	E T	20-100 keV	Lucmajarvi, M.; Keinonen, J.; Bister, P.; Anttila, A. Ranges of ¹⁵ N ⁺ ions in ten metals measured by (p,α) resonance broadening. Phys. Rev. E 18, 4657 (1978) Finland
1367	C02 H ⁺ + Be; H ⁺ + C; H ⁺ + Al; H ⁺ + Si C05 H ⁺ + Be; H ⁺ + C; H ⁺ + Al; H ⁺ + Si D07 H ⁺ + Be; H ⁺ + C; H ⁺ + Al; H ⁺ + Si	E	100-3000 keV	Langley, R. A.; Erice, L. K. Energy straggling of protons in Be, C, Al, and Si. Phys. Rev. E 18, 4673 (1978) United States
1368	D03 Ar ⁺ + TiC; Ar ⁺ + VC; Ar ⁺ + Cr ₃ C ₂ ; Ar ⁺ + ZrC; Ar ⁺ + NbC; Ar ⁺ + Mo ₂ C; Ar ⁺ + HfC; Ar ⁺ + TaC; Ar ⁺ + WC	E	8 keV	Cherepin, V. I.; Kopylov, A. A.; Vasiliev, M. A. Secondary ion emission of transition metal carbides. Phys. Status Solidi A 50, 1113 (1978) Soviet Union
1369	C08 Undef	T	Undef	Baryshnetskii, V. G.; Grubich, A. G.; Durovskaya, I. Y. Diffraction of radiation from channelled charged particles. Phys. Status Solidi B 88, 351 (1978) Soviet Union
1370	D12 e + Ag	T	30 keV	Heilmann, D. Theory and experiment of the light emission of surface plasmons induced by fast electrons on modulated surfaces. Phys. Status Solidi B 88, 493 (1978) West Germany
1371	C02 e + Li	T	1 keV	Zhivopistsev, F. A.; Hernandez, F. C. Fast electron scattering in metals with the excitation of a core electron. Phys. Status Solidi E 50, 441 (1978) Soviet Union
1372	A17 Ar + Cu; Xe + Cu C08 Ar ⁺ + Cu; H ⁺ + W	T	2-6 MeV	Pathak, A. P.; Srivastava, M. F. Channeling and a semi-statistical model for the interatomic potential. Phys. Status Solidi B 50, 703 (1978) India
1373	H04 hν + Cd	E	Undef	Khodovoi, V. A.; Chigir, N. A. Investigation of the absorption spectrum of a two-level system subjected to intense two-photon excitation. Sov. Phys.-JETP 47, 3 (1978) Soviet Union
1374	E04 e + H ₂ ⁺ ; e + D ₂ ⁺ E06 e + H ₂ ⁺ ; e + D ₂ ⁺	T	1-10 eV	Zhcanov, V. P.; Chibisov, P. I. Dissociative recombination of electrons on the molecular ions H ₂ ⁺ and D ₂ ⁺ with production of strongly excited atoms. Sov. Phys.-JETP 47, 36 (1978) Soviet Union
1375	D09 Undef	T	Undef	Kagan, Y.; Krcrnets, Y. V.; Dzhamerkyzov, A. K. Dynamic-interaction effects in the decay of fast molecules in thin films. Sov. Phys.-JETP 47, 148 (1978) Soviet Union
1376	H05 Undef B07 Undef	T	H05 50-300 K	Akulin, V. M.; Alimpiev, S. S.; Karlov, N. V. Mechanism of collisional dissociation of polyatomic molecules. Sov. Phys.-JETP 47, 257 (1978) Soviet Union
1377	A01 H + H ₂ O; H + H ₂ A04 H + H ₂ O; H + H ₂	T	500 eV	Neudachin, V. G.; Levin, V. G.; Smirnov, Y. F. Quasielastic knockout of atoms from molecules by high-energy atoms. Sov. Phys.-JETP 47, 267 (1978) Soviet Union
1378	D09 Undef	T	600 K	Kogan, E. Y.; Mel'nev, V. A. Accommodation coefficient of a diatomic molecular gas. Sov. Phys.-JETP 47, 276 (1978) Soviet Union
1379	A06 H + C ⁴⁺ ; H + O ⁸⁺	T	0.2-1 a.u.	Abramov, V. A.; Baryshnikov, F. F.; Lisitsa, V. S. Charge transfer between hydrogen atoms and the nuclei of multicharged ions with allowance for the degeneracy of the final states. Sov. Phys.-JETP 47, 465 (1978) Soviet Union
1380	E02 Undef	T	Undef	Amus'ya, M. Y.; Kuchiev, M. Y. Analytic properties of the amplitude for elastic forward scattering of electrons by atoms. Sov. Phys.-JETP 47, 484 (1978) Soviet Union

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1381	D02 Undef	T	Undef	Kuvakin, M. V.; Kharlamchkin, E. S.; Yurasova, V. E. Calculation of sputtering based on focuson [sic] model. Sov. Phys.-Solid State 20, 1166 (1978) Soviet Union
1382	A10 CO ₂ * + CO ₂	T	300 K	Vargin, A. N.; Gogckhiys, V. V.; Konyukhov, V. K.; Lukovnikov, A. I. Model of the kinetic cooling of carbon dioxide gas. Sov. J. Quantum Electron. 8, 801 (1978) Soviet Union
1383	A14 CF ₃ + I	E	300 K	Kuznetsova, S. V.; Maslov, A. I. New reaction rate constants of CF ₃ , n-C ₂ F ₅ , and /-C ₂ F ₅ radicals. Sov. J. Quantum Electron. 8, 506 (1978) Soviet Union
1384	A10 UF ₆ * + UF ₆	E	300 K	Ambarisumyan, R. V.; Zubarev, I. G.; Iccansen, A. A.; Kotov, A. V. Investigation of the kinetics of the vibrational excitation of the UF ₆ molecule by the IR-UV resonance method. Sov. J. Quantum Electron. 8, 910 (1978) Soviet Union
1385	A10 SF ₆ * + SF ₆ B07 SF ₆ * + SF ₆	E	A10 300 K	Gordienko, V. M.; Mikheenko, A. V.; Fanchenko, V. Y. Vibrational-translational relaxation in SF ₆ at high excitation rates. Sov. J. Quantum Electron. 8, 1013 (1978) Soviet Union
1386	K01 Review	T	10 ⁵ -10 ⁹ cm/s	Nikitin, E. E.; Svirnov, E. M. Quasi-resonant processes in slow collisions. Scv. Phys.-Usp. 21, 96 (1978) Soviet Union
1387	G11 e + Air; O ₂ + He; O ₂ + N ₂ ; O ₂ + CO ₂	E	Undef	Grunberg, F. Electron attachment in air and mixtures of O ₂ with He, N ₂ , and CO ₂ . Z. Naturforsch. A 33, 1346 (1978) West Germany
1388	A12 Hg + Ar A17 Hg + Ar	E	473-1273 K	Petzold, H. C.; Eshenbourg, W. Interaction potentials of Hg-Ar from temperature dependent absorption spectra. Z. Naturforsch. A 33, 1461 (1978) West Germany
1389	D01 Review K04 Review	E T	10 ² -10 ⁶ eV	Bauer, W. Surface processes in plasma wall interactions. J. Nucl. Mater. 76-77, 3 (1978) United States
1390	D01 Review K04 Review	E T	Undef	Ginot, F. Review of plasma wall interactions in tokamaks. J. Nucl. Mater. 76-77, 30 (1978) France
1391	D01 Review K04 Review	E	Undef	Steib, F.; Staudenmaier, G. Surface effects and impurity production in tokamak machines. J. Nucl. Mater. 76-77, 78 (1978) West Germany
1392	D02 He ⁺ + Mo; He ⁺ + Ag; Ar ⁺ + Mo; Ar ⁺ + Ag	E	15-80 keV	Emsoth, B.; Fried, T.; Braun, M. Angular distributions of sputtered Mo and Ag during He ⁺ and Ar ⁺ ion bombardment. J. Nucl. Mater. 76-77, 129 (1978) Sweden
1393	D02 H ⁺ + Au; He ⁺ + Au; Ar ⁺ + Au; Ar ⁺ + Cu	E	15-30 keV	Hucks, P.; Stocklin, G.; Vietzke, E.; Vogelbruch, K. Energy and angular distribution of gold and copper atoms sputtered with either 15 or 20 keV H ⁺ , He ⁺ and Ar ⁺ ions. J. Nucl. Mater. 76-77, 136 (1978) West Germany
1394	D02 He ⁺ + Fe; He ⁺ + SS; D ⁺ + Fe; D ⁺ + SS; Ar ⁺ + Fe; Ar ⁺ + SS	E	10 keV	Elbern, A.; Hintz, E.; Schweer, E. Measurement of the velocity distribution of metal atoms sputtered by light and heavy particles. J. Nucl. Mater. 76-77, 143 (1978) West Germany
1395	D02 H ⁺ + C; H ⁺ + Ni; H ⁺ + Mo; H ⁺ + Au; D ⁺ + C; D ⁺ + Ni; D ⁺ + Mo; D ⁺ + Au; T ⁺ + C; T ⁺ + Ni; T ⁺ + Mo; T ⁺ + Au; He ⁺ + C; He ⁺ + Ni; He ⁺ + Mo; He ⁺ + Au	T	0.04-10 keV	Haggmark, L. G.; Wilson, W. D. Monte Carlo studies of sputtering. J. Nucl. Mater. 76-77, 145 (1978) United States
1396	D02 Ar ⁺ + Ti; Ar ⁺ + V; N ₂ ⁺ + Ti; N ₂ ⁺ + V	E	0.5-11 keV	Hofer, L. O.; Bay, H. L.; Martin, F. J. Sputter-erosion and impurity emission from titanium and vanadium at low-energy ion bombardment. J. Nucl. Mater. 76-77, 156 (1978) West Germany

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1397	D02 H ⁺ + B ₂ C; H ⁺ + SiC; H ⁺ + TiC; H ⁺ + C; D ⁺ + B ₂ C; D ⁺ + SiC; D ⁺ + TiC; D ⁺ + C; He ⁺ + B ₂ C; He ⁺ + SiC; He ⁺ + TiC; He ⁺ + C	E	0.1-8 keV	Bohdansky, J.; Bay, H. L.; Cittenberger, W. Sputtering yields of graphite and carbides and their potential use as first wall materials. J. Nucl. Mater. 76-77, 163 (1978) West Germany
1398	D02 H ⁺ + SS; H ⁺ + C; H ⁺ + BeO; D ⁺ + SS; D ⁺ + C; D ⁺ + BeO	E	0.33-9 keV	Borders, J. A.; Lorgley, R. A.; Wilson, K. L. Low-energy hydrogen and deuterium sputtering measurements of stainless steel graphite and beryllium oxide. J. Nucl. Mater. 76-77, 166 (1978) United States
1399	D02 Undef	T	Undef	Dzioba, S.; Kelly, R. Recoil implantation from a thin source. J. Nucl. Mater. 76-77, 175 (1978) Canada
1400	D17 H ⁺ + SS; Ar ⁺ + SS	E	3 keV	Bastasz, F. J.; Thomas, G. J. Surface analysis of sputtered stainless steel. J. Nucl. Mater. 76-77, 183 (1978) United States
1401	D02 H ⁺ + Mo	E	0.2-10 keV	Ohtsuka, H.; Yamada, R.; Esano, M.; Abe, T. Measurement of the sputtering yield by Auger electron spectroscopy. J. Nucl. Mater. 76-77, 188 (1978) Japan
1402	D02 Undef	T	Undef	Andersen, H. M. A note on neutron-sputtering measurements. J. Nucl. Mater. 76-77, 190 (1978) Denmark
1403	D02 H ₂ ⁺ + [C + Pt]	E	5 keV	Smith, J. N., Jr.; Mayer, C. H., Jr. Temperature dependence of hydrogen sputtering of carbon coatings on platinum. J. Nucl. Mater. 76-77, 193 (1978) United States
1404	D02 H ⁺ + Al; H ⁺ + Au; H ⁺ + SS	E	100-200 eV	Clausing, R. E.; Emerson, L. C.; Heatherly, L. Sputtering and chemical attack of 304 stainless steel, aluminum and gold by hydrogen ions of 100-eV energy. J. Nucl. Mater. 76-77, 195 (1978) United States
1405	D17 D ⁺ + SiC	E	0.7 keV	Yasashina, T.; Mohri, M.; Iwanabe, K.; Doi, H.; Hayakawa, K. Application of AES--EIMS (IMA)--FDS combined systems of physical and chemical sputtering processes of graphite and silicon carbide surfaces with energetic ions. J. Nucl. Mater. 76-77, 202 (1978) Japan
1406	D03 D ⁺ + C; D ⁺ + [D + C] D13 D ⁺ + C; D ⁺ + [D + C]	E	5-30 keV	Braganza, C. M.; Erents, S. K.; McCracken, G. M. Energy dependence of methane production during deuteron bombardment of pyrolytic carbon. J. Nucl. Mater. 76-77, 204 (1978) United Kingdom
1407	D03 H ⁺ + Be; D ⁺ + Be; He ⁺ + Be; N ⁺ + Be; O ⁺ + Be; Ne ⁺ + Be; Kr ⁺ + Be; Ar ⁺ + Be	E	0.2-15 keV	Wright, R. E.; Liu, M.-B.; Gruen, E. M. Chemical effects on secondary photon and ion emission of ion bombarded beryllium, carbon and boron carbide surfaces. J. Nucl. Mater. 76-77, 205 (1978) United States
1408	D14 He ⁺ + SS	E	175 keV	Ivanov, L. I.; Komissarov, A. P.; Machlin, N. A.; Mainikau, V. M.; Chensauky, V. P. Straggled state blistering of stainless steel. J. Nucl. Mater. 76-77, 211 (1978) Soviet Union
1409	D14 He ⁺ + Ni; He ⁺ + Ba	E	20-500 keV	Das, S. K.; Kaminsky, M.; Fenske, G. The significance of a correlation of blister diameter with skin thickness for Ni and Ba for blistering models. J. Nucl. Mater. 76-77, 216 (1978) United States
1410	D14 He ⁺ + V	E	2 MeV	Kaletta, D. Low-cycle irradiations of vanadium with 2-MeV helium ions at elevated temperatures. J. Nucl. Mater. 76-77, 221 (1978) West Germany
1411	D14 H ⁺ + V; H ⁺ + Ti; He ⁺ + V; He ⁺ + Ti	E	10-40 keV	Guseva, M. I.; Ircova, E. S.; Zykhova, N. M.; Kcitygin, V. M.; Kressulin, Y. L.; Kurakina, T. S.; Nedospasov, A. V.; Rosina, I. A. Influence of target structure on blister formation by helium and hydrogen ion bombardment. J. Nucl. Mater. 76-77, 224 (1978) Soviet Union

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1412	D14 Undef	T	Undef	Evans, J. H. The role of implanted gas and lateral stress in blister formation mechanisms. J. Nucl. Mater. 76-77, 228 (1978) United Kingdom
1413	D14 D ⁺ + C; D ⁺ + SiC; D ⁺ + Mo	E	100 keV	Watanabe, K.; Sasaki, K.; Pohri, M.; Yasashina, T. Quantitative measurement of surface roughness of graphite, silicon carbide and molybdenum irradiated with energetic deuterons. J. Nucl. Mater. 76-77, 235 (1978) Japan
1414	D13 He ⁺ [He + Mo] D14 He ⁺ + Mo D16 He ⁺ + Mo	T	100-400 keV	Sone, K.; Seidoh, M.; Yamada, F.; Chisuka, H. Reduction of erosion by blistering in silytzenum surfaces with a multi-groove microstructure. J. Nucl. Mater. 76-77, 240 (1978) Japan
1415	D14 He ⁺ + Ni	E	20-500 keV	Fenske, G.; Das, S. K.; Kaminsky, M.; Milev, G. H. Depth distribution of bubbles in ⁴ He ⁺ -ion irradiated nickel and the mechanism of blister formation. J. Nucl. Mater. 76-77, 247 (1978) United States
1416	D14 He ⁺ + Cu	E	20 keV	Terreault, B.; Abel, G.; Martel, J. G.; St-Jacques, R. G.; Labrie, J. F.; L'Ecuyer, J. Further measurements of helium concentration profiles in copper and their relation to blistering. J. Nucl. Mater. 76-77, 245 (1978) Canada
1417	D14 He ⁺ + W	E	0.2-3.0 keV	Nicholson, R. J. K.; Wells, J. M. FIP studies of the lattice damage in tungsten following low-energy helium ion bombardment. J. Nucl. Mater. 76-77, 251 (1978) United Kingdom
1418	D14 He ⁺ + SS; He ⁺ + Ni	E	10-12 keV	Navinsek, E.; Peternel, M.; Zebker, A. Equilibrium surface of technological materials bombarded with high dose He ⁺ ion bombardment. J. Nucl. Mater. 76-77, 253 (1978) Yugoslavia
1419	D14 He ⁺ + SS	E	100 keV	Kaminsky, M.; Das, S. K. Surface damage of 316 stainless steel irradiated with ⁴ He ⁺ to high doses. J. Nucl. Mater. 76-77, 256 (1978) United States
1420	D14 He ⁺ + [Pt + Rh]	E	Undef	McDonell, L. R. Whisker growth—a new mechanism for helium blistering of surfaces in complex radiation environments. J. Nucl. Mater. 76-77, 258 (1978) United States
1421	D14 He ⁺ + V	E	80 keV	Langley, F. A.; Elewer, R. E.; Peercy, P. S. Surface preparation effects on blister formation and stress buildup in polycrystalline vanadium. J. Nucl. Mater. 76-77, 261 (1978) United States
1422	D16 D ⁺ + Zr	E	10-30 keV	Moller, W.; Borgesen, P.; Ecttiger, J. Temperature-dependent depth profiles of deuterons implanted into zirconium. J. Nucl. Mater. 76-77, 287 (1978) Denmark
1423	D16 D ⁺ + SS	E	1-10 keV	Wilson, K. L.; Baskes, M. I. Deuterium trapping in irradiated 316 stainless steel. J. Nucl. Mater. 76-77, 291 (1978) United States
1424	D13 H ⁺ + [D + SS] D16 D ⁺ + SS	E T	5-30 keV	Braganza, C. M.; Erents, S. K.; Hotstet, E. S.; McCracken, G. M. Ion-induced release of deuterium trapped in stainless steel. J. Nucl. Mater. 76-77, 298 (1978) United Kingdom
1425	D13 H ⁺ + [D + SS] D16 D ⁺ + SS	E	1-14 keV	Elewer, R. E.; Behrisch, R.; Scherzer, E. M. G.; Schulz, R. Trapping and replacement of 1-14-keV hydrogen and deuterium in stainless steel. J. Nucl. Mater. 76-77, 305 (1978) United States
1426	C04 D ⁺ + C; He ⁺ + C D16 H ⁺ + C; He ⁺ + C	E	8 keV	Langley, F. A.; Elewer, R. E.; Rott, J. Behaviour of implanted D and He in pyrolytic graphite. J. Nucl. Mater. 76-77, 313 (1978) United States

REF. NO.	REACTANTS	EXP OR THEOR	ENERGY RANGE	REFERENCE
1427	D13 D ⁺ + [D + SS] D16 D ⁺ + SS	E	15-750 eV	Farrell, G.; Donnelly, S. E. Thermal desorption and bombardment-induced release of deuterium implanted into stainless steels at low energy. J. Nucl. Mater. 76-77, 322 (1978) United Kingdom
1428	D13 He ⁺ + [H + W]; He ⁺ + [O + Ti]; He ⁺ + [O + W]; He ⁺ + [O + Ni]; He ⁺ + [O + Pd]	E	500-2000 eV	Taglauer, E.; Heiland, W. Ion impact desorption cross sections of hydrogen and oxygen from metals by light ion bombardment. J. Nucl. Mater. 76-77, 328 (1978) West Germany
1429	D15 D ⁺ + SS	E	0.3-5.0 keV	Thomas, G. J.; Wilson, K. L. Microstructure of low energy deuterium implanted stainless steel. J. Nucl. Mater. 76-77, 332 (1978) United States
1430	D07 He ⁺ + Si; He ⁺ + SiO ₂ ; H ⁺ + Si; H ⁺ + SiO ₂	E T	2.5-5.0 keV	Robinson, J. E.; Jackson, I. P. Scattering of keV hydrogen and helium ions and neutrals from oxygen covered surfaces. J. Nucl. Mater. 76-77, 353 (1978) Canada
1431	D07 He ⁺ + Cu; He ⁺ + Ag; He ⁺ + Au	E	5-10 keV	Schou, J.; Sorensen, H.; Littmark, U. Energy reflection coefficients for 5-10 keV He ions incident on Au, Ag, and Cu. J. Nucl. Mater. 76-77, 355 (1978) Denmark
1432	D07 H ⁺ + C; H ⁺ + Ti; H ⁺ + Mo; H ⁺ + W; H ⁺ + Au; H ⁺ + TiD ₂ ; H ⁺ + TiH ₂ ; D ⁺ + C; D ⁺ + Ti; D ⁺ + Mo; D ⁺ + W; D ⁺ + Au; D ⁺ + TiD ₂ ; D ⁺ + TiH ₂ ; He ⁺ + C; He ⁺ + Ti; He ⁺ + Mo; He ⁺ + W; He ⁺ + Au; He ⁺ + TiD ₂ ; He ⁺ + TiH ₂	E	0.2-20 keV	Eckstein, W.; Verbeek, H. Reflection of H, D and He from C, Ti, Ni, Mo, W, and Au. J. Nucl. Mater. 76-77, 365 (1978) West Germany
1433	D07 T ⁺ + Ti; T ⁺ + Fe; T ⁺ + TiH ₂ ; T ⁺ + FeH ₂ ; T ⁺ + FeH; T ⁺ + FeT; T ⁺ + FeH ₂ ; H ⁺ + Ti; H ⁺ + Fe; H ⁺ + TiH ₂ ; H ⁺ + FeH ₂ ; H ⁺ + FeH; H ⁺ + FeT; H ⁺ + FeH ₂ D02 T ⁺ + Ti; T ⁺ + Fe; T ⁺ + TiH ₂ ; T ⁺ + FeH ₂ ; T ⁺ + FeH; T ⁺ + FeT; T ⁺ + FeH ₂ ; H ⁺ + Ti; H ⁺ + Fe; H ⁺ + TiH ₂ ; H ⁺ + FeH ₂ ; H ⁺ + FeH; H ⁺ + FeT; H ⁺ + FeH ₂	T	0.1-2.0 keV	Oen, D. S.; Robinson, M. T. Computer simulation of the reflection of hydrogen and the sputtering of hydrogen from metal hydrides. J. Nucl. Mater. 76-77, 370 (1978) West Germany
1434	D13 He ⁺ + [D + Mo]	F	1-1.5 keV	Akashi, K.; Miyahara, A.; Ogura, A. Low-energy ion scattering study of adsorbed layers on silytized surface. J. Nucl. Mater. 76-77, 378 (1978) Japan
1435	D06 e + H ₂ ; e + D ₂ D04 e + H ₂ ; e + D ₂	E	1-3 keV	Sorensen, H.; Schou, J. In secondary electron emission from solid H ₂ and D ₂ . J. Nucl. Mater. 76-77, 624 (1978) Denmark
1436	D13 e + [H ₂ + SS]; e + [CO + SS]; e + [CH ₄ + SS]; e + [H ₂ + Al]; e + [CO + Al]; e + [H ₂ + C]; e + [CH ₄ + Al]; e + [CO + C]; e + [CH ₄ + C]; e + [H ₂ + Inconel]; e + [CO + Inconel]; e + [CH ₄ + Inconel]	E	100-150 eV	Lelegard, J.; Schram, A. Induced desorption, diffusion or production of gases by 100 eV electron bombardment on some wall materials for tokamaks. J. Nucl. Mater. 76-77, 637 (1978) France
1437	C04 Nb ⁺ + Nb D15 Nb ⁺ + Nb	E	45-675 keV	Biersack, J. P.; Koczerowski, W.; Ney, J.; Rahm, B. K. H.; Riccato, A.; Thacker, G. R.; Uecker, H. Simulation of 14 MeV neutrons by protons of higher energies. J. Nucl. Mater. 76-77, 640 (1978) West Germany
1438	D03 H ⁺ + SS; H ⁺ + Inconel; H ₂ ⁺ + SS; H ₂ ⁺ + Inconel; H ₃ ⁺ + SS; H ₃ ⁺ + Inconel	E	5 keV	Smith, J. N., Jr. Secondary ion emission from stainless steel and inconel due to hydrogen ion bombardment. J. Nucl. Mater. 78, 117 (1978) United States
1439	D14 Ta ³⁺ + Mo; He ⁺ + Mo	E	0.3-7.2 MeV	Kissinger, H. E.; Brinshell, J. L.; Simons, E. P.; Charlot, L. A. Dual-beam ion bombardment of molybdenum. J. Nucl. Mater. 78, 210 (1978) United States
1440	D14 Ni ⁺ + SS	T	46 MeV	Hayns, M. R. Numerical evaluation of combined self-ion, injection and vacancy loop production in heavy-ion irradiations. J. Nucl. Mater. 78, 225 (1978) United Kingdom

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1441	D14 Undef	T	Undef	Hayns, M. R.; Gallagher, J.; Bullough, F. The derivation of a simple void-swelling equation for cold-worked 316 austenitic steel. J. Nucl. Mater. 78, 236 (1978) United Kingdom
1442	D14 $V^+ + [V + Cr]$	E	3.5 MeV	Agarwal, S. C.; Rehn, L. E.; Nclfi, F. V., Jr. Irradiation-induced void swelling and solute segregation in a V-ion-irradiated-15 wt % Cr bcc alloy. J. Nucl. Mater. 78, 336 (1978) United States
1443	D15 $Ni^+ + Ni$; $Ni^+ + [Ni + Al]$; $Ni^+ + [Ni + Si]$; $Ni^+ + [Ni + Mo]$	T	75-1000 keV	Lau, N. Q.; Okenoto, P. R.; Johnson, F. A. Solute segregation and precipitation under heavy-ion bombardment. J. Nucl. Mater. 78, 406 (1978) United States
1444	D15 $Cu^+ + [Ti + Al + V]$	E	17.5 MeV	Wilkes, P.; Kulcinski, G. L. Heavy ion irradiation of a Ti-6Al-4V alloy. J. Nucl. Mater. 78, 427 (1978) United States
1445	A03 Na + Ne	E T	1-10 keV	Pedersen, E. H.; Wahnon, P.; Gausscrgues, C.; Andersen, N.; Andersen, T.; Bahr, K.; Barat, M.; Cocks, C. I.; Olsen, J. C.; Pomsler, J.; Sldis, V. Impact-parameter dependence of Na(3s + 3p) excitation in Na-Ne collisions. J. Phys. B 11, L317 (1978) Denmark
1446	A06 $H^+ + H_2$	T	1-20 keV	Piscentini, R. D.; Salin, A. Electron capture by protons in molecular hydrogen. J. Phys. B 11, L323 (1978) France
1447	E03 $e + He^+$	T	80 eV	Sinha, C.; Sil, N. C. Electron impact excitation of hydrogenic ions to arbitrary s states including exchange effects. J. Phys. B 11, L333 (1978) India
1448	A12 Ca + He; Ca + Ar; $Ca^+ + He$; $Ca^+ + Ar$	E	520-640 K	Bowman, N. J.; Lewis, E. L. Collisional broadening and shifts in the spectra of neutral and singly ionised calcium. J. Phys. B 11, 1703 (1978) United Kingdom
1449	H02 $h\nu + Cd$	E	40-250 eV	Codling, K.; Hawley, J. R.; West, J. E. The absolute photoabsorption cross section of atomic cadmium from the 4d threshold to 250 eV. J. Phys. E 11, 1713 (1978) United Kingdom
1450	H06 $3h\nu + Na$	T	Undef	Agostini, F.; Georges, A. I.; Wheatley, S. E.; Lambropoulos, P.; Levenson, M. D. Saturation effects in resonant three-photon ionisation of sodium with a non-monochromatic field. J. Phys. E 11, 1733 (1978) United States
1451	H06 $h\nu + Ca$; $h\nu + Zn$; $h\nu + Ge$; $h\nu + Kr$; $h\nu + Cd$; $h\nu + Mg$; $h\nu + Ba$; $h\nu + Xe$; $h\nu + Hg$; $h\nu + Y$	T	Undef	Berezhko, E. G.; Kabachnik, M. N.; Rostovsky, V. S. Potential-barrier effects in inner-shell photoionisation and their influence on the anisotropy of x-rays and Auger electrons. J. Phys. B 11, 1745 (1978) Soviet Union
1452	A03 $H^+ + He$; $H^+ + Ar$ A06 $H^+ + He$; $H^+ + Ar$	E	2-15 keV	Risley, J. S.; de Heer, F. J.; Kerkdijk, C. B. Electron-transfer cross sections to low-lying excited states of hydrogen in collisions of protons with helium and argon. J. Phys. B 11, 1765 (1978) The Netherlands
1453	A03 $H^- + He$; $H^- + Ar$ A16 $H^- + He$; $H^- + Ar$	E	1-6 keV	Risley, J. S.; de Heer, F. J.; Kerkdijk, C. B. Electron-detachment cross sections to low-lying excited states of hydrogen in collisions of negative hydrogen ions with helium and argon. J. Phys. E 11, 1783 (1978) The Netherlands
1454	A06 $He^{2+} + H_2$; $He^+ + H_2$ A11 $He^+ + H_2$	E	200 keV	Dunn, K. F.; Gilmore, B. J.; Simpson, F. R.; Gilbody, H. B. $He(2^3S)$ and He^- formation in fast charge-changing collisions and evidence for a long-lived doublet state of He^- . J. Phys. E 11, 1797 (1978) United Kingdom
1455	E03 $e + H$ Seq	T	Undef	Sinha, C.; Roy, N.; Sil, N. C. Excitation of ground-state hydrogenic ions to an arbitrary s state. J. Phys. B 11, 1807 (1978) India

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1456	E05 e + Ar; e + Kr; e + Xe E17 e + Ar; e + Kr; e + Xe	T	0.01-5 Ry	Berezhko, E. G.; Kabachnik, M. A.; Sizov, V. V. The theory of coincidence experiments on electron impact ionisation of inner atomic shells. J. Phys. E 11, 1819 (1978) Soviet Union
1457	E05 e + Ar E17 e + Ar	E	350-50000 eV	Sandner, W.; Schmitt, W. Energy-dependence of the L _{2,3} -shell alignment of argon following electron impact ionisation. J. Phys. B 11, 1823 (1978) West Germany
1458	E02 e + HBr E03 e + HBr E17 e + HBr	T	0.3-7.5 eV	Rohr, K. Interaction mechanisms and cross sections for the scattering of low-energy electrons from HBr. J. Phys. E 11, 1849 (1978) West Germany
1459	A03 He ⁺ + He A06 He ⁺ + He	E	150-1000 keV	Hippler, R.; Schertner, K.-H.; Beyer, H. F. Direct and charge-exchange excitation of the 2 ¹ F level in He ⁺ -He collisions. J. Phys. E 11, L337 (1978) West Germany
1460	E12 e ⁺ + He	E T	2 eV	Humberston, J. W. A comparison of experimental and theoretical total cross sections for low-energy positron-helium scattering. J. Phys. E 11, L342 (1978) United Kingdom
1461	E03 e + Kr	E	9.7-14.0 eV	Jureta, J.; Cvejancvic, S.; Erunt, J. N. H.; Read, F. H. Threshold electron spectroscopy of krypton atoms. J. Phys. B 11, L347 (1978) United Kingdom
1462	H04 hν + Cs	E	Undef	Mirza, P. Y.; Duley, W. W. Energy levels for highly excited 2F states in Cs. J. Phys. B 11, 1917 (1978) Canada
1463	H06 4hν + Cs	T	Undef	Crance, M. Four-photon ionisation in Cs I near the 6f resonance. J. Phys. B 11, L531 (1978) France
1464	A11 HD ⁺ + He	T	0.10-0.25 eV	Ray, S.; Saha, S.; Barua, A. K. Rotational transitions of HD ⁺ in collisions with He. J. Phys. B 11, 1953 (1978) India
1465	A03 TlF + Ar	T	300 K	Bhattacharyya, S. S.; Saha, S.; Barua, A. K. Small-angle scattering in atom-molecule collisions: an interpretation of experimental results for the Ar-TlF system. J. Phys. B 11, L565 (1978) India
1466	A03 H ⁺ + He; H ₂ ⁺ + He; H ₃ ⁺ + He	E	100-1000 keV	Hasselkamp, D.; Schermann, P.; Schertner, K.-H. The polarisation degree of some prominent helium lines after collisional excitation by fast ions. J. Phys. E 11, 1975 (1978) West Germany
1467	A03 Ne + Ne	E	50-700 eV	Martin, P. J.; Riecke, G.; Hermann, J.; Zehle, L.; Kempter, V. Study of the simultaneous emission of two photons in collisions between neon atoms using photon coincidence techniques. J. Phys. E 11, 1991 (1978) West Germany
1468	B07 e + [hν + H]	E		Rehman, N. K.; Faisal, F. H. M. High-energy resonant cross sections for simultaneous electron-photon excitation of the 3s state of hydrogen. J. Phys. E 11, 2003 (1978) Italy
1469	E05 e + Ar E17 e + Ar	E	150 eV	Williams, J. F. High-resolution energy and angular correlations of the scattered and ejected electrons in electron impact ionisation of argon atoms. J. Phys. B 11, 201E (1978) United Kingdom
1470	E03 e + Mg	E	10-40 eV	Williams, W.; Trajmar, S. Electron impact excitation of magnesium at 10, 20 and 40 eV impact energies. J. Phys. B 11, 2021 (1978) United States

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1471	E02 e + Mn E03 e + Mn E17 e + Mn	E	10-100 eV	Williams, W.; Cheeseborough, J. C., III; Trajmar, S. Elastic and inelastic scattering of electrons by atomic manganese. J. Phys. E 11, 2031 (1978) United States
1472	A03 Ar ¹²⁺ + Ne; Xe ²⁺ + Ne; Pb ⁸⁺ + Ne	E	1.4 MeV/amu	Beyer, K. F.; Schartner, K.-H.; Folkmann, F.; Mckler, P. H. X-ray transitions in few-electron Ne ions excited by 1.4 MeV/amu very heavy ion impact on Ne atoms. J. Phys. B 11, L363 (1978) West Germany
1473	E03 e + CO ₂ E07 e + CO ₂	T	2.2-5.6 eV	Szaytkowski, C.; Zubek, M.; Drewka, J. Calculation of cross sections for vibrational excitation and de-excitation of CO ₂ by electronic collisions. J. Phys. E 11, L371 (1978) Poland
1474	G04 H ⁺ + He	T	10-700 K	Dickinson, A. S.; Lee, M. S. The mobility of protons in helium. J. Phys. B 11, L377 (1978) United Kingdom
1475	H06 hv + He; hv + Ne; hv + Ar; hv + Kr; hv + Xe; hv + He ₂	T	Undef	Hartquist, T. W. Photoionization cross sections of excited noble-gas atoms and dimers. J. Phys. E 11, 2101 (1978) United States
1476	A17 He* + He; He* + Ne	T	Undef	Peach, G. Low-energy scattering of excited helium atoms by rare gases. I. The model potential. J. Phys. B 11, 2107 (1978) United Kingdom
1477	A03 K + He; K + Ne; K + Ar; K + Kr A18 K + He; K + Ne; K + Ar; K + Kr	E	42-770 eV	Zehnie, L.; Ciemens, E.; Martin, P. J.; Schauble, W.; Kempter, V. Differential cross sections for collisional excitation of the potassium 4 ² P states by noble-gas atoms. J. Phys. E 11, 2133 (1978) West Germany
1478	A11 Na* + Hg A17 Na* + Hg A18 Na* + Hg	E	8.26x10 ⁻³ a.u.	Duren, R.; Hoppe, E.-O. Measurement and evaluation of differential scattering cross sections for Na ² P _{3/2} with Hg. J. Phys. E 11, 2143 (1978) West Germany
1479	A19 N ⁺ + N ₂	T	35-200 keV	Meyerhof, W. E. Recoil effects in N ⁺ + N ₂ molecular-orbital x-rays. J. Phys. B 11, 2165 (1978) United States
1480	A03 H ⁺ + Ca; H ⁺ + Sc; H ⁺ + Ti; H ⁺ + V; H ⁺ + Cr; H ⁺ + Mn; H ⁺ + Fe	E	0.5-2 MeV	Lopes, J. S.; Jesus, A. P.; Ferreira, G. F.; Gil, F. B. X-ray production in Ca, Sc, Ti, V, Cr, Mn, and Fe by protons of C.E-2 MeV energy. J. Phys. E 11, 2181 (1978) Portugal
1481	A11 Ar* + Xe; Ar* + F ₂	E	Undef	Chen, C. H.; Judish, J. P.; Payne, M. G. Energy-transfer processes in proton-excited Ar-Xe and Ar-F ₂ mixtures. J. Phys. E 11, 2185 (1978) United States
1482	A06 He ⁺ + He	E	2-100 eV	Hinds, E. A.; Novick, R. Precise resonant charge-transfer cross sections for He-He ⁺ between 2 and 100 eV. J. Phys. E 11, 2201 (1978) United States
1483	E05 e + He ⁺ Seq	T	Undef	Banks, D.; Eoesten, L. G. J. Ionisation of He ⁺ ions by electron impact. J. Phys. E 11, 2205 (1978) United Kingdom
1484	E03 e + LiH; e + LiCl; e + CaF; e + NaCl; e + CsCl; e + KI	T	0.25-8.0 eV	Rudge, M. R. H. Electron collisions with strongly polar molecules. J. Phys. B 11, 2221 (1978) United Kingdom
1485	F01 He Seq	T		Laughlin, C. 2 ³ P ₀₋₁ ¹ S _n and 3 ³ F ₀₋₁ ¹ S _n intercombination-line transitions in helium-like ions. J. Phys. B 11, L351 (1978) United Kingdom
1486	H02 2hv + Yb	E	Undef	Camus, F.; Eterre, A.; Merillon, C. Two-photon absorption spectroscopy in ytterbium. J. Phys. B 11, L395 (1978) France

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1487	E05 e + C ³⁺ ; e + N ⁴⁺ ; e + C ²⁺ ; e + N ³⁺	T	60-5000 eV	Mocres, D. I. Electron impact ionisation of Li-like and Be-like carbon and nitrogen ions. J. Phys. E 11, L403 (1978) United Kingdom
1488	F01 Be Seq	T		Laughlin, C.; Constantinides, E. R.; Victor, G. A. Two-valence-electron self-potential studies of the Be I isoelectronic sequence. J. Phys. E 11, 2243 (1978) United Kingdom
1489	F01 B; C; N; O; F	T		Glass, R.; Hibbert, A. The hyperfine structure of the ground states of first-row atoms. J. Phys. B 11, 2257 (1978) United Kingdom
1490	A02 He ²⁺ + N _p ; He ²⁺ + Ne; He ²⁺ + Ar A03 He ²⁺ + N _p ; He ²⁺ + Ne; He ²⁺ + Ar A06 He ²⁺ + N _p ; He ²⁺ + Ne; He ²⁺ + Ar A18 He ²⁺ + N _p ; He ²⁺ + Ne; He ²⁺ + Ar	E	200-600 eV	Rogers, W. T.; Eoring, J. W.; Johnson, R. E. Scattering of He ²⁺ from N _p ; comparison of He ²⁺ + N _p with He ²⁺ + Ne and Ar. J. Phys. E 11, 2319 (1978) United States
1491	A03 He ⁺ + Na; He ⁺ + K; He ⁺ + Cs A06 He ⁺ + Na; He ⁺ + K; He ⁺ + Cs A11 He ⁺ + H _p ; He ⁺ + He; He ⁺ + Ar; He ⁺ + N _p	E	5-100 keV	McCullough, R. W.; Goffe, I. V.; Gilbey, H. B. Formation of fast metastable helium atoms in electron capture by He ⁺ ions in alkali-metal vapours. J. Phys. B 11, 2333 (1978) United Kingdom
1492	E02 e + Na E17 e + Na	E	54-150 eV	Taubner, P. J. G.; Buckman, S. J.; Noble, C. J. Differential cross sections for the elastic scattering of intermediate-energy electrons from sodium. J. Phys. B 11, 2345 (1978) Australia
1493	E11 e + Ar	E		Andrick, D.; Langhans, L. Measurement of the free-free cross section of e-Ar scattering. J. Phys. B 11, 2355 (1978) West Germany
1494	E02 e + Ba E03 e + Ba E17 e + Ba	E	20-100 eV	Jensen, S.; Register, L.; Trajner, S. Elastic and inelastic (C ¹³ D, G ¹³ P) electron scattering cross sections for barium. J. Phys. E 11, 2367 (1978) United States
1495	E03 e + He E17 e + He	T	65-110 eV	Hickerson, I. L.; Modinow, L.; Dahler, J. S. Influence of electronic correlation on the electron impact excitation of the doubly excited ³ P(sub g) and ¹ D(sub u) states of helium. I. The Fern-Oppenheimer approximation. J. Phys. E 11, 2377 (1978) United States
1496	E03 e + He E17 e + He	T	65-110 eV	Hickerson, I. L.; Leung, C. N.; Kwong, B. K.; Dahler, J. S. Influence of electronic correlation on the electron impact excitation of the doubly excited ³ P(sub g) and ¹ D(sub u) states of helium. II. Ruden-lyum approximations. J. Phys. E 11, 2391 (1978) United States
1497	H06 hv + Ar	E	40-80 eV	Adam, M. Y.; Wullemier, F.; Krussacher, E.; Schmidt, V.; Mehlhorn, W. Correlation satellites in the outer-shell photoelectron spectra of argon. J. Phys. B 11, L413 (1978) France
1498	A07 H ⁺ + Mg; He ⁺ + Mg	T	Undef	Berezhko, E. G.; Kabachnik, N. M.; Sizov, V. V. On the alignment of ions in inner-shell ionisation by heavy particle impact. J. Phys. B 11, L421 (1978) Soviet Union
1499	A03 Ne + Kr	E	100-1100 keV	Woerlee, P. H.; Fortner, R. J.; Deern, S.; Hoogkamer, T. P.; Saris, F. W. Enhanced K-L vacancy-sharing ratios observed in low-velocity Ne-Kr collisions. J. Phys. E 11, L425 (1978) The Netherlands
1500	F01 Be Seq	T		Glass, F.; Hibbert, A. The use of the Breit interaction: the ³ F ₄ + ³ S ₀ intercombination line in beryllium-like systems. J. Phys. E 11, 2413 (1978) United Kingdom

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1501	H06 $h\nu + He$	T	Undef	Stewart, A. L. The photoionisation of helium using perturbation theory. <i>J. Phys. E</i> 11, 2449 (1978) United Kingdom
1502	H06 $h\nu + Ne$ H04 $h\nu + Ne$	T	Undef	Luke, T. M. Low-energy singly and doubly excited resonances in neon: behaviour of the complex photoionisation amplitudes at the resonances. <i>J. Phys. B</i> 11, 2457 (1978) Canada
1503	H06 $h\nu + Cd$	T	Undef	Carter, S. L.; Kelly, H. F. Photoionisation cross section for the $4d^{10}$ subshell of cadmium I. <i>J. Phys. E</i> 11, 2467 (1978) United States
1504	A11 $Hg^* + N_2$	E	Undef	Barrat-Rambosson, M.; Kucal, H. Inelastic collisions between N_2 molecules and Hg atoms in the 6^3D_2 state. <i>J. Phys. E</i> 11, 2491 (1978) France
1505	A07 $H^+ + Ag; He^{2+} + Pb$ A18 $H^+ + Ag; He^{2+} + Pb$	T	10-25 MeV	Pauli, M.; Rosel, F.; Trautmann, L. Electronic relativistic effects in the semiclassical theory of K-shell ionisation. <i>J. Phys. E</i> 11, 2511 (1978) Switzerland
1506	A03 $Xe + Ag$	E	1-10 MeV	Lutz, H. O.; McMurray, W. F.; Fretorius, R.; Mccrivic, T.; Fricke, B.; Sepp, W. L.; van Heerden, I. J. Threshold behaviour of L α -ray excitation in Xe-Ag collisions. <i>J. Phys. B</i> 11, 2527 (1978) South Africa
1507	E02 $e + H$ E10 $e + H$	T	Undef	Byron, F. W., Jr.; Joachain, C. J. Exchange amplitudes and forward dispersion relations for electron-atomic hydrogen scattering. <i>J. Phys. B</i> 11, 2533 (1978) United States
1508	E13 $e + H^-$	T	1.5-1000 eV	Bell, K. L.; Kingston, A. E.; Madden, F. J. Ionisation of H^- by electron impact. <i>J. Phys. B</i> 11, 2547 (1978) United Kingdom
1509	E12 $e^+ + [He + Ar]$	E	Undef	Govver, P. S. Computer-aided study of slow positron annihilation in He + Ar mixtures. <i>J. Phys. B</i> 11, 2555 (1978) India
1510	F01 He^* H06 $h\nu + He^*$	T	H06 1-29 eV	Stewart, A. L. A calculation on the photoionisation of the $1s2s^1S$ metastable state of helium using perturbation theory. <i>J. Phys. E</i> 11, 1431 (1978) United Kingdom
1511	H06 $h\nu + Ar; h\nu + Xe$	T	Undef	Cherepkov, N. A. Spin polarisation of electron ejected from unpolarised atoms by unpolarised and linearly polarised light. <i>J. Phys. E</i> 11, 143E (1978) Soviet Union
1512	H06 $3h\nu + Cs; 4h\nu + Cs$	T	Undef	Gontier, Y.; Trahin, P. Temporal effects on the amplitude of the resonance peaks in multiphoton ionisation. <i>J. Phys. E</i> 11, 1441 (1978) France
1513	A06 $H^+ + H; H^+ + He$ A18 $H^+ + H; H^+ + He$	T	10-80 MeV/amu	Shakeshaft, R.; Spruch, L. Possibility of observing the second Born contribution to electron capture at high impact velocities. <i>J. Phys. E</i> 11, 1457 (1978) United States
1514	E05 $e + H; e + He^+; e + Li^{2+}$	T	Undef	van de Water, W.; Kets, F. E.; Ecesten, L. G. J.; Heideman, H. G. M. Angular momentum exchange between escaping electrons in the case of electron impact ionisation of hydrogenic targets. <i>J. Phys. B</i> 11, 1465 (1978) The Netherlands
1515	E12 $e^+ + H$	T	Undef	Arsour, E. A. G.; Schrader, E. M. Low-energy E-wave phaseshifts for positron-hydrogen elastic scattering using an adiabatic approximation. <i>J. Phys. E</i> 11, 1469 (1978) United Kingdom
1516	A02 $H^+ + Cs$ A03 $H^+ + Cs$ A06 $H^+ + Cs$ A18 $H^+ + Cs$	E	13.4-24.2 eV	Scheidt, H.; Spiess, G.; Valance, A.; Fradel, F. Determination of $H^+ + Cs(6s)$ potential from differential cross section measurements at energies 13.4-24.2 eV. <i>J. Phys. B</i> 11, 2665 (1978) France

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1517	A02 H ⁺ + Cs A03 H ⁺ + Cs A06 H ⁺ + Cs A18 H ⁺ + Cs	T	0.05-4 keV	Sidis, V.; Kubach, C. Theoretical study of the elastic and charge exchange processes in H ⁺ + Cs collisions. J. Phys. B 11, 2667 (1978) France
1518	D12 H ⁺ + Al	T	450 keV	Ward, T. F.; Lyson, N. A. On the bremsstrahlung continuum generated by proton bombardment. J. Phys. B 11, 2705 (1978) United Kingdom
1519	A96 He ²⁺ + Hg A07 He ²⁺ + Hg A18 He ²⁺ + Hg	E	5-20 eV	Niehaus, A.; Ruf, P. W. An experimental study of autoionisation processes in He ²⁺ -Hg collisions. II. Electron and ion angular distributions formed at E=20 eV collision energies. J. Phys. E 11, 2715 (1978) West Germany
1520	E02 e + H; e + Ar E12 e ⁺ + H; e ⁺ + Ar E17 e + H; e + Ar	T	100-500 eV	Roy, A. C.; Sil, N. C. Elastic scattering of electrons and positrons from H and Ar in the second-order eikonal approximation. J. Phys. F 11, 2725 (1978) India
1521	A02 Ne ⁺ + D ₂ A18 Ne ⁺ + D ₂	E T	1.5-3.5 keV	Andersen, N.; Vedder, M.; Fussack, A.; Pcllack, E. Experimental test of a scaling law for ion-molecule collisions: Ne ⁺ -D ₂ , 1.5-3.5 keV. J. Phys. B 11, L453 (1978) United States
1522	F01 H Seq	T		Miersfeld, S. Asymptotic expansions for dipole transitions in hydrogenic atoms. J. Phys. B 11, 2793 (1978) France
1523	E12 e ⁺ + H F01 H	T	E12 Undef	Arnour, E. A. G. Justification of the absence of a positron-hydrogen-atom bound state. J. Phys. B 11, 2803 (1978) United Kingdom
1524	P01 Be; B ⁺ ; C ²⁺	T		Mukherjee, F. K.; Mohtra, R. K. Coupled Hartree-Fock calculation of the dynamic polarisabilities of the beryllium sequence. J. Phys. B 11, 2813 (1978) India
1525	B03 H*	T		Banks, L.; Leopold, J. C. Ionisation of highly excited atoms by electric fields. II. Classical theory of the Stark effect. J. Phys. B 11, 2832 (1978) United Kingdom
1526	H06 hv + K ²⁺	T	Undef	Cobet Fernoux, F.; Lesoureaux, M.; Taylor, K. T. Photoionisation of K ²⁺ using R-matrix theory. J. Phys. B 11, 2855 (1978) France
1527	A03 K + He A18 K + He	E	93 eV	Zehle, L.; Ciemens, E.; Martin, F. J.; Schauble, W.; Kuepfer, V. Photon-scattered-atom coincidence study on K-He with vector polarisation analysis. J. Phys. B 11, 2866 (1978) West Germany
1528	A07 H ⁺ + Ag; H ⁺ + Gd; H ⁺ + Yb; H ⁺ + Ta; H ⁺ + Au; H ⁺ + Pb; H ⁺ + Th	E	7-15 MeV	Berinde, A.; Deberth, C.; Neagu, I.; Protop, C.; Scintei, N.; Zoran, V.; Dost, M.; Fohl, S. Relativistic effect in K-shell ionisation by 7-15 MeV proton bombardment on heavy elements. J. Phys. B 11, 2878 (1978) Romania
1529	A02 He ²⁺ + He A06 He ²⁺ + He A18 He ²⁺ + He	T	5-100 keV	Lopez, V.; Macias, A.; Piacentini, R. I.; Fiere, A.; Yanez, P. Molecular treatment of elastic and double charge-exchange He ²⁺ -He collisions. J. Phys. F 11, 2889 (1978) Spain
1530	A03 Mg ¹¹⁺ + Mg ¹²⁺ E03 e + Mg ¹¹⁺	T	100-600 eV	Skobelev, I. Y.; Vinogradov, A. V. Coulomb-Born and unitarised Coulomb-Born cross sections and rates of inelastic transitions in ion-ion collisions. J. Phys. B 11, 2899 (1978) Soviet Union

REF. NO.	REACTANTS	EXP CR THEOR	ENERGY RANGE	REFERENCE
1531	E02 e + He; e + Ne; e + Ar	T	2-30 eV	Yau, A. W.; McEachran, R. F.; Stauffer, A. I. Electron scattering from noble gases. J. Phys. B 11, 2907 (1978) Canada
1532	E03 e + He Seq	T	20-300 eV	Tully, J. A. Total cross sections for electron impact excitation of the 1 ¹ S-2 ³ S transition in He-like ions. J. Phys. B 11, 2923 (1978) France
1533	E03 e + Ne; e + Ar	T	25-2000 eV	Mileev, V. A.; Safin, V. I.; Strakhovs, S. I. The excitation of heavy atoms by electrons in multiple-collision diffraction theory. J. Phys. E 11, 2941 (1978) Soviet Union
1534	E04 e + I _p E09 e + I _p	E	290-450 K	Birtwistle, D. T.; Modinos, A. Dissociative attachment in iodine. J. Phys. B 11, 2945 (1978) United Kingdom
1535	F01 Cu; Au	T		Migdalek, J.; Baylis, W. E. Influence of atomic core polarisation on oscillator strengths for ² S _{1/2} - ² F _{1/2,3/2} and ² F _{1/2,3/2} - ² D _{1/2,3/2} transitions in Cu I, Ag I and Au I spectra. J. Phys. E 11, 1457 (1978) Canada
1536	F01 Mo ³⁺	E		Boiko, V. A.; Pikuz, S. A.; Seifonova, A. S.; Faenov, A. Y. X-ray spectra of Y XXXI and Mo XXIV ions from laser-produced plasmas. J. Phys. E 11, L603 (1978) Soviet Union
1537	H06 hv + C	T	Undef	Chang, E. S.; Taylor, K. I. Angular distribution of photoelectrons ejected from the 2s shell of carbon. J. Phys. E 11, L507 (1978) United Kingdom
1538	H06 Undef	T	Undef	McClellan, W. A.; Swain, S. Theory of N-photon ionisation with short laser pulses. J. Phys. B 11, L515 (1978) United Kingdom
1539	E03 e + H E12 e ⁺ + H E17 e + H	T	54.4-200 eV	Gupta, G. F.; Mathur, K. C. Differential cross section for the excitation of the 2s state of atomic hydrogen by electron and positron impact at intermediate energies. J. Phys. B 11, L521 (1978) India
1540	F01 C; N; O; B	T		Eggarter, E.; Eggarter, T. P. Atomic correlation energies III: second-order corrections to the Hartree-Fock ground state of B, C, N, O and F. J. Phys. B 11, 2969 (1978) France
1541	F01 Cu; Au	T		Hafner, P.; Schwarz, W. H. E. Atomic transition probabilities from the relativistic pseudopotential approach. J. Phys. B 11, 2975 (1978) West Germany
1542	H01 Undef	T	Undef	Lee, H. W.; Stehle, P. Interaction of an atom with a laser pulse. J. Phys. E 11, 3015 (1978) United States
1543	H04 2hv + Na	E	Undef	Marx, B. R.; Allen, L. The wavelength dependence of the polarisation selection rules of the 3s-6s two-photon transition in atomic sodium. J. Phys. B 11, 3022 (1978) United Kingdom
1544	A03 He ⁺ + H A15 He ⁺ + H	T	0.001-1 eV	Falcon, C.; Cappelletto, L.; Piacentini, F. D. Unpolarised and spin-change collisions between He ⁺ and H at low energies. J. Phys. B 11, 3033 (1978) Argentina

REF. NO.	REACTANTS	EXP OR THEOR	ENERGY RANGE	REFERENCE
1545	A04 Ar ¹²⁺ + CH ₄ ; Ar ¹²⁺ + CO ₂ ; Ar ¹²⁺ + CO; Ar ¹²⁺ + NH ₃ ; Ar ¹²⁺ + N ₂ ; Ar ¹²⁺ + O ₂ ; Ar ¹³⁺ + CH ₄ ; Ar ¹³⁺ + CO ₂ ; Ar ¹³⁺ + CO; Ar ¹³⁺ + NH ₃ ; Ar ¹³⁺ + N ₂ ; Ar ¹³⁺ + O ₂ ; Kr ²⁵⁺ + CH ₄ ; Kr ²⁵⁺ + CO ₂ ; Kr ²⁵⁺ + CO; Kr ²⁵⁺ + NH ₃ ; Kr ²⁵⁺ + N ₂ ; Kr ²⁵⁺ + O ₂ ; Xe ³¹⁺ + CH ₄ ; Xe ³¹⁺ + CO ₂ ; Xe ³¹⁺ + CO; Xe ³¹⁺ + NH ₃ ; Xe ³¹⁺ + N ₂ ; Xe ³¹⁺ + O ₂ A07 Ar ¹²⁺ + CH ₄ ; Ar ¹²⁺ + CO ₂ ; Ar ¹²⁺ + CO; Ar ¹²⁺ + NH ₃ ; Ar ¹²⁺ + N ₂ ; Ar ¹²⁺ + O ₂ ; Ar ¹³⁺ + CH ₄ ; Ar ¹³⁺ + CO ₂ ; Ar ¹³⁺ + CO; Ar ¹³⁺ + NH ₃ ; Ar ¹³⁺ + N ₂ ; Ar ¹³⁺ + O ₂ ; Kr ²⁵⁺ + CH ₄ ; Kr ²⁵⁺ + CO ₂ ; Kr ²⁵⁺ + CO; Kr ²⁵⁺ + NH ₃ ; Kr ²⁵⁺ + N ₂ ; Kr ²⁵⁺ + O ₂ ; Xe ³¹⁺ + CH ₄ ; Xe ³¹⁺ + CO ₂ ; Xe ³¹⁺ + CO; Xe ³¹⁺ + NH ₃ ; Xe ³¹⁺ + N ₂ ; Xe ³¹⁺ + O ₂ A18 Ar ¹²⁺ + CH ₄ ; Ar ¹²⁺ + CO ₂ ; Ar ¹²⁺ + CO; Ar ¹²⁺ + NH ₃ ; Ar ¹²⁺ + N ₂ ; Ar ¹²⁺ + O ₂ ; Ar ¹³⁺ + CH ₄ ; Ar ¹³⁺ + CO ₂ ; Ar ¹³⁺ + CO; Ar ¹³⁺ + NH ₃ ; Ar ¹³⁺ + N ₂ ; Ar ¹³⁺ + O ₂ ; Kr ²⁵⁺ + CH ₄ ; Kr ²⁵⁺ + CO ₂ ; Kr ²⁵⁺ + CO; Kr ²⁵⁺ + NH ₃ ; Kr ²⁵⁺ + N ₂ ; Kr ²⁵⁺ + O ₂ ; Xe ³¹⁺ + CH ₄ ; Xe ³¹⁺ + CO ₂ ; Xe ³¹⁺ + CO; Xe ³¹⁺ + NH ₃ ; Xe ³¹⁺ + N ₂ ; Xe ³¹⁺ + O ₂	E	56 MeV	Mann, R.; Folkmann, F.; Peterson, F. S.; Szabo, G.; Greeneveld, K.-D. Auger electron emission from target ions under heavy-ion impact after molecular dissociation. J. Phys. B 11, 3045 (1978) West Germany
1546	E02 e + He ⁺ E17 e + He ⁺	T	100-200 eV	Singh, S. N.; Kumar, S.; Srivastava, M. K. e ⁻ -He ⁺ elastic scattering in a modified Coulomb-Glauber approximation. J. Phys. E 11, 3061 (1978) India
1547	E02 e + CH ₄ ; e + C ₂ H ₆ ; e + C ₃ H ₈ ; e + C ₄ H ₁₀ ; e + C(CH ₃) ₄ ; e + C ₄ H ₁₀ G05 e + CH ₄ ; e + C ₂ H ₆ ; e + C ₃ H ₈ ; e + C ₄ H ₁₀ ; e + C(CH ₃) ₄ ; e + C ₄ H ₁₀	E	257-673 K	McCorkle, D. L.; Christopherson, L. G.; Moxey, D. V.; Carter, J. G. Ramsauer-Townsend minima in the electron-scattering cross sections of polyatomic gases: methane, ethane, propane, butane and neopentane. J. Phys. E 11, 3067 (1978) United States
1548	E02 e + H	T	0.25-2.25 Ry	Poet, R. The exact solution for a simplified model of electron scattering by hydrogen atoms. J. Phys. E 11, 3081 (1978) United Kingdom
1549	E05 e + He F17 e + He	T	80-256 eV	Bransden, B. H.; Smith, J. J.; Winters, K. H. Distorted-wave approximations for the triple-differential cross section for ionisation of helium by electron impact. J. Phys. E 11, 3055 (1978) United Kingdom
1550	E06 e + He; e + C; e + O; e + N	E	7-1000 eV	Brook, E.; Harrison, M. F. A.; Smith, P. C. H. Measurements of the electron impact ionisation cross sections of He, C, O and N atoms. J. Phys. B 11, 3115 (1978) United Kingdom
1551	F01 Cu	T		Curtis, L. J.; Ellis, I. G. A formula for cancellation discrepancies of atomic oscillator strengths. J. Phys. E 11, 1543 (1978) United States
1552	H06 hv + O ₂	E	20-45 eV	McCoy, L. G.; Morton, J. M.; Marr, G. V. The angular distribution of photoelectrons as a function of photon energy for the ground state photoionisation of molecular oxygen. J. Phys. E 11, 1547 (1978) United Kingdom
1553	A07 He ⁺ + Mg; H ⁺ + Mg E05 e + Mg	E	Undef	Rodbro, M.; Dubois, R.; Schmidt, V. L.-M.M. Auger electron study of collisionally induced alignment for e ⁻ , H ⁺ and He impact ionisation in atomic magnesium. J. Phys. E 11, 1551 (1978) Denmark
1554	E04 e + N ₂ ; e + NO E09 e + N ₂ ; e + NO	E	8-12 eV	Mazeau, J.; Gresteau, F.; Fall, R. I.; Huetz, A. Energy and width of N(³ P) from observation of its formation by dissociative attachment to N ₂ and NO. J. Phys. E 11, 1557 (1978) France

REF. NC.	REACTANTS	EXP CR THEOR	ENERGY RANGE	REFERENCE
1555	E03 e + SO ₂ E09 e + SO ₂	E	2.6-4 eV	Simon, L.; Azria, F.; Ironé, M. Interferences in the resonant vibrational excitation of SO ₂ . J. Phys. B 11, L561 (1978) France
1556	E12 e ⁺ + Ne	T	0-14 eV	Compeanu, R. I.; Iubau, J. Positron-neon elastic scattering. J. Phys. B 11, L567 (1978) Romania
1557	F01 H ₂ ⁺	T		Bishop, D. M.; Cheung, L. P. Measurments functions (including static dipole polarisabilities) and radiative corrections for H ₂ ⁺ . J. Phys. E 11, 3133 (1978) Canada
1558	A11 Undef	T	Undef	Sire, E. D.; Kohlsmaier, G. H.; Novak, E. A classical trajectory study of T-V energy transfer of a highly vibrationally excited Morse oscillator in collinear collision with an atom. I. De-excitation processes. J. Phys. E 11, 3145 (1978) West Germany
1559	A03 Undef A04 Undef	T	Undef	Sire, E. D.; Kohlsmaier, G. H.; Novak, E. A classical trajectory study of T-V energy transfer of a highly vibrationally excited Morse oscillator in collinear collision with an atom. II. Excitation and dissociation processes. J. Phys. E 11, 3165 (1978) West Germany
1560	A03 Li + He	E	1-100 keV	Nielsen, S. E.; Andersen, N.; Andersen, T.; Olsen, J. O.; Dahler, J. S. Direct excitation of Li I (rl) levels in keV Li-He collisions. J. Phys. B 11, 2187 (1978) Denmark
1561	A07 H ⁺ + Pb; H ⁺ + Au; H ⁺ + Ag; H ⁺ + Mo; O ²⁺ + Cu	T	0.7-35 keV	Amundsen, F. A. On the role of dipole transitions in the semiclassical approximation for K-shell ionisation. J. Phys. B 11, 3157 (1978) Norway
1562	E05 Undef	E	Undef	Golden, L. B.; Sampson, D. H.; Dolévar, K. Ionisation from the 3s sub-level of highly charged ions. J. Phys. B 11, 3235 (1978) United States
1563	E04 e + SF ₆ E05 e + SF ₆	E	160-230 eV	Hitchcock, A. P.; Erion, C. E.; van der Wiel, M. J. Ionic fragmentation of SF ₆ ionised in the sulphur 2p shell. J. Phys. E 11, 3245 (1978) Canada
1564	G04 D ₂ ⁺ + D ₂ ; N ₂ ⁺ + N ₂ ; N ₂ ⁺ + N ₂ ; C ₂ O ₂ ⁺ + CO	E	Thermal	Alger, S. R.; Stefansson, T.; Rees, J. A. Measurements of the lateral diffusion of C ₂ ⁺ ions in oxygen, N ₂ ⁺ , and N ₂ ⁺ ions in nitrogen, and CO ⁺ ions in carbon monoxide. J. Phys. B 11, 3265 (1978) United Kingdom
1565	H07 hν + Rb ⁻	E	Undef	Frey, F.; Breyer, F.; Hotop, F. High resolution photodetachment from the rubidium negative ion around the Rb(SP _{1/2}) threshold. J. Phys. E 11, L585 (1978) West Germany
1566	A06 F ⁹⁺ + Si	T	0.4-2.4 MeV/amu	Lin, C. D. Quasi-molecular binding corrections to the two-state atomic expansion method for electron capture at low energies. J. Phys. B 11, L595 (1978) United States
1567	E05 e + Ar H06 hν + Ar	T	Undef	McCarthy, I. E.; Uylings, F.; Feppe, F. Comparison of (e,2e), photoelectron and conventional spectroscopies for the Ar II ion. J. Phys. E 11, 3255 (1978) The Netherlands
1568	F02 H	T		Sizola, J.; Virtasc, J. Energy levels of hydrogen atoms in a strong magnetic field. J. Phys. B 11, 3305 (1978) Finland
1569	B03 Undef	T		Geltner, S. Ionisation dynamics of a cold atom in an electrostatic field. J. Phys. E 11, 3323 (1978) United States
1570	H06 Undef	T	Undef	Goldberg, A.; Shore, E. W. Modelling laser ionisation. J. Phys. B 11, 3329 (1978) United States

REF. NO.	REACTANTS	EXP CR THEOR	ENERGY RANGE	REFERENCE
1571	H05 h ν + HeH ⁺	T	Undef	Saha, S.; Datta, K. K.; Barua, A. K. Photodissociation of HeH ⁺ by both electronic and vibrational transitions. J. Phys. B 11, 3349 (1978) India
1572	A16 H ⁻ + H; H ⁻ + He	T	5-100 keV	Bell, K. I.; Kingston, A. E.; Madden, F. J. One-electron detachment from H ⁻ in collisions with atomic hydrogen and helium. J. Phys. E 11, 3357 (1978) United Kingdom
1573	A06 O ₂ ⁺ + N ₂ ; O ₂ ⁺ + O ₂ ; O ₂ ⁺ + H ₂ ; O ₂ ⁺ + NO; O ₂ ⁺ + CO ₂ ; O ₂ ⁺ + CO; O ₂ ⁺ + Ar; NO ⁺ + N ₂ ; NO ⁺ + C ₂ ; NO ⁺ + H ₂ ; NO ⁺ + NO; NO ⁺ + CO ₂ ; NO ⁺ + CO; NO ⁺ + Ar; O ⁺ + N ₂ ; O ⁺ + O ₂ ; O ⁺ + H ₂ ; O ⁺ + NO; O ⁺ + CO ₂ ; O ⁺ + CO; O ⁺ + Ar A11 O ₂ ⁺ + N ₂ ; O ₂ ⁺ + O ₂ ; O ₂ ⁺ + H ₂ ; O ₂ ⁺ + NO; O ₂ ⁺ + CO ₂ ; O ₂ ⁺ + CO; O ₂ ⁺ + Ar; NO ⁺ + N ₂ ; NO ⁺ + O ₂ ; NO ⁺ + H ₂ ; NO ⁺ + NO; NO ⁺ + CO ₂ ; NO ⁺ + CO; NO ⁺ + Ar; O ⁺ + N ₂ ; O ⁺ + O ₂ ; O ⁺ + H ₂ ; O ⁺ + NO; O ⁺ + CO ₂ ; O ⁺ + CO; O ⁺ + Ar A13 O ₂ ⁺ + N ₂ ; O ₂ ⁺ + O ₂ ; O ₂ ⁺ + H ₂ ; O ₂ ⁺ + NO; O ₂ ⁺ + CO ₂ ; O ₂ ⁺ + CO; O ₂ ⁺ + Ar; NO ⁺ + N ₂ ; NO ⁺ + O ₂ ; NO ⁺ + H ₂ ; NO ⁺ + NO; NO ⁺ + CO ₂ ; NO ⁺ + CO; NO ⁺ + Ar; O ⁺ + N ₂ ; O ⁺ + O ₂ ; O ⁺ + H ₂ ; O ⁺ + NO; O ⁺ + CO ₂ ; O ⁺ + CO; O ⁺ + Ar	E	Thermal	Giesik, J.; Rakshit, A. B.; Twiddy, N. D.; Adams, N. G.; Smith, E. Measurement of the rates of reaction of the ground and metastable excited states of O ₂ ⁺ , NO ⁺ and O ⁺ with atmospheric gases at thermal energy. J. Phys. B 11, 3365 (1978) United Kingdom
1574	E03 e + He; e + H ₂ E17 e + He; e + H ₂	E	1.5-12.5 a.u.	Barlas, A. D.; Rueckner, W. H. E.; Wellenstein, H. F. A critical evaluation of high energy electron impact spectroscopy of measured Compton profiles. J. Phys. B 11, 3361 (1978) United States
1575	E02 e + H E17 e + H	T	50-680 eV	Gupta, G. F.; Mathur, K. C. Differential cross sections for the elastic scattering of electrons by hydrogen atoms at intermediate energies. J. Phys. E 11, 3401 (1978) India
1576	F03 e + H; e + He ⁺	T	1.2-4 a.u.	Bransden, B. H.; Crocker, P.; McCarthy, I. E.; McCowell, M. F. C.; Morgan, L. A. Effective exchange potentials for inelastic scattering. J. Phys. B 11, 3411 (1978) United Kingdom
1577	E03 e + He	T	29-100 eV	Bransden, B. H.; Dawangan, L. P. Partial-wave analysis of the 2 ¹ S and 2 ³ S excitation cross sections of helium by electron impact. J. Phys. E 11, 3425 (1978) United Kingdom
1578	E03 e + Kr E05 e + Kr E17 e + Kr	E	21-29 eV	Srivastava, S. K.; Trajmar, S. Electron impact excitation of autoionising states of krypton. J. Phys. B 11, 3433 (1978) United States
1679	F01 N ₂ ; CO	T		Kendrick, J. Ab initio calculations of the derivative of the static polarisability of N ₂ and CO. J. Phys. E 11, 1601 (1978) United Kingdom
1580	H04 Undef B07 Undef	T	H04 Undef	Eberly, J. H. Application of extended two-level model theory to Doppler-, laser- and collision-broadened bound-bound multiphoton absorption. J. Phys. B 11, 1611 (1978) United States
1581	A03 F ⁸⁺ + He A06 F ⁸⁺ + He	E	7.5-35 MeV	Tawara, H.; Richard, P.; Jamieson, A. A.; Gray, T. J. Experimental differentiation between electron excitation and electron capture by one electron (F ⁸⁺) ions in He. J. Phys. B 11, 1615 (1978) United States
1582	A06 H ⁺ + H	T	13 MeV/amu	Shakeshaft, R.; Spruch, L. Continuum electron capture at high impact velocities. J. Phys. E 11, 1621 (1978) United States

REF. NO.	REACTANTS	EXP OR THEOR	ENERGY RANGE	REFERENCE
1583	E12 e ⁺ + He	E	1.0-6.0 eV	Wilson, W. G. Scattering of low-energy positrons from helium atoms. <i>J. Phys. B</i> 11, L625 (1978) West Germany
1584	E12 e ⁺ + He	E	1-20 eV	Griffith, T. C.; Heyland, G. R.; Lines, K. S.; Twosey, T. R. A reappraisal of the experimental cross sections for low-energy positron-helium scattering. <i>J. Phys. B</i> 11, L635 (1978) United Kingdom
1585	E03 e + Na	E	2-500 eV	Stumpf, E.; Becker, K.; Schulz, G. Electron impact excitation of the spectral resolved Na-I lines. <i>J. Phys. E</i> 11, L639 (1978) West Germany
1586	F01 Cr; Fe; Ni	T		Abbott, D. C. The structure and transition probabilities of ionised Cr, Mn, Fe and Ni. <i>J. Phys. E</i> 11, 3475 (1978) United States
1587	A03 H ⁺ + H ₂ ; Ar + TlF	T	3.7 eV	Dickinson, A. D.; Richards, D. On an <i>P</i> -conserving approximation in time-dependent theories of rotational excitation in atom-molecule collisions. <i>J. Phys. B</i> 11, 3512 (1978) United Kingdom
1588	A07 H ⁺ + H	T	25-200 keV	Belkic, D. A quantum theory of ionisation in fast collisions between ions and atomic systems. <i>J. Phys. B</i> 11, 3525 (1978) Yugoslavia
1589	A17 He ²⁺ + He; Kr ⁺ + Kr	T	Undef	Nikulic, V. K.; Guschins, N. A. Adiabatic correlation diagrams for the quasi-molecular description of ion-atom collisions. <i>J. Phys. B</i> 11, 3553 (1978) Soviet Union
1590	A06 B ⁵⁺ + H; C ⁶⁺ + H; N ⁷⁺ + H; O ⁸⁺ + H; Ne ¹⁰⁺ + H; Si ¹⁴⁺ + H	T	Undef	Greenland, F. T. Highly stripped ions on hydrogen atoms: the adiabatic approach. I. Energy gap and couplings at pseudocrossings. <i>J. Phys. B</i> 11, 3562 (1978) United Kingdom
1591	A06 He ²⁺ + H	T	3-1000 keV	Greenland, F. T. Highly stripped ions on hydrogen atoms: the adiabatic approach II. Energy gap and couplings at pseudocrossings. <i>J. Phys. B</i> 11, 3573 (1978) United Kingdom
1592	H06 Undef	T	Undef	Smirnov, Y. F.; Pavlitchenkov, A. V.; Levin, V. G.; Neudatchin, V. G. A study of the two-electron Fourier amplitudes of atomic and molecular wave functions using the (γ, 2e) and (e, 3e) processes at high energies. <i>J. Phys. B</i> 11, 3587 (1978) Soviet Union
1593	B07 e + Ne H11 hv + Ne	E	H11 510-480 nm	Langendam, F. J. K.; van der Wiel, M. J. Fine structure of the neon 16.5-16.7 eV resonances resolved by means of resonant free-free radiative absorptions. <i>J. Phys. B</i> 11, 3603 (1978) The Netherlands
1594	E04 e + H ₂ ⁺ ; e + H ₃ ⁺ E06 e + H ₂ ⁺ ; e + H ₃ ⁺	E	0.3-1.0 eV	Mathur, D.; Khan, S. U.; Hasted, J. B. Dissociative recombination in low-energy e-H ₂ ⁺ collisions. <i>J. Phys. B</i> 11, 3615 (1978) United Kingdom
1595	E03 e + HCl; e + HF	T	0-5 eV	Fabrikant, I. I. The influence of long-range interaction on the vibrational excitation of polar molecules by electrons. <i>J. Phys. E</i> 11, 3621 (1978) Soviet Union
1596	F01 Undef			Picart, J.; Edmonds, A. R.; Tran Minh, N. Extrapolation to high principal quantum numbers of radial integrals in the Coulomb approximation. <i>J. Phys. E</i> 11, L651 (1978) France
1597	A06 Be ⁺ + H ⁺	T	0.1-1000 keV	Crothers, E. S. F.; Todd, N. R. Response to Nitikin and Reznikov: total cross sections for proton-Be ⁺ charge transfer. <i>J. Phys. E</i> 11, L663 (1978) United Kingdom
1598	A06 He ²⁺ + He ⁺	E	10-1700 eV	Jocaux, A.; Erouillard, F.; Szucs, S. Charge exchange in low energy He ⁺ -He ²⁺ collisions. <i>J. Phys. B</i> 11, L669 (1978) Belgium

REF. NO.	REACTANTS	EXP OR THEOR	ENERGY RANGE	REFERENCE
1599	A13 H ⁺ + H ⁻	E	0.001-3.0 eV	Poulaert, G.; Brouillard, F.; Claeys, B.; McGowan, J. W.; van Wassenhove, G. H ₂ ⁺ formation in low energy H ⁺ -H ⁻ collisions. J. Phys. B 11, L671 (1978) Belgium
1600	E02 e + H ₂ ⁺	T	0.2-1.0 Ry	Takagi, H.; Nakamura, H. Elastic scattering of electrons from H ₂ ⁺ : two-centre variational calculation of s-wave phaseshift. J. Phys. E 11, L678 (1978) Japan
1601	E05 e + C ²⁺	E	30-1000 eV	Woodruff, P. R.; Hublet, M.-C.; Harrison, M. F. A.; Brook, E. A measurement of the cross section for electron impact ionisation of C ²⁺ . J. Phys. B 11, L679 (1978) United Kingdom
1602	F01 Be; B; C	T		Eggarter, I. F.; Eggarter, E. Atomic correlation energies IV: perturbations and near degeneracy. J. Phys. B 11, 2625 (1978) France
1003	E02 e + H ₂	T	11-11.75 eV	Bardsley, J. N.; Cohen, J. S. Variational calculations of resonant states of H ₂ ⁻ . J. Phys. E 11, 3645 (1978) United States
1604	H02 hv + SF ₆	E	vuv	Sasanuma, M.; Ishiguro, E.; Masuko, H.; Moricke, Y.; Nakamura, M. Absorption structures of SF ₆ in the VUV region. J. Phys. E 11, 3655 (1978) Japan
1605	E02 e + H E12 e ⁺ + H	T	0.01-0.7 a.u.	Abdel-Raouf, M. A.; Beischnor, D. Least-squares calculations for e ⁺ -H elastic scattering. J. Phys. B 11, 3677 (1978) West Germany
1606	E05 e + He	E	24-30 eV	Pichou, F.; Huetz, A.; Joyez, G.; Landou, M. Near threshold ionisation of helium by electron impact. J. Phys. B 11, 2663 (1978) France
1607	H06 hv + CO	E	Undef	Wilden, D. G.; Hicks, P. J.; Cozer, J.; Weingartshofer, A. Ejected-electron spectroscopy of autoionising states of CO using an electron-electron coincidence technique. J. Phys. E 11, 3693 (1978) United Kingdom
1608	E05 e + CH ₄ ; e + CD ₄ E03 e + CH ₄ ; e + CD ₄	E	18-22 eV	Marmet, P.; Binette, L. Excited states of CH ₄ and CD ₄ between 18 and 22 eV. J. Phys. B 11, 3707 (1978) Canada
1609	E05 e + Cl ₂ E09 e + Cl ₂	E	0-100 eV	Kurepa, M. V.; Belic, D. S. Electron-chlorine molecule total ionisation and electron attachment cross sections. J. Phys. B 11, 2719 (1978) Yugoslavia
1610	G08 e + Xe	E	304-612 10 ⁻¹⁷ V/cm ²	Makabe, T.; Mori, I. Experimental and theoretical analysis of the electron energy distribution functions in Townsend discharges in xenon. J. Phys. E 11, 3785 (1978) Japan
1611	H02 hv + Li	E	200-172 Å	Mehlman, G.; Ederer, D. L.; Selinger, E. B.; Cooper, J. W. The K-edge photoabsorption cross section of lithium vapour. J. Phys. E 11, L685 (1978) United States
1612	A19 Kr v Kr; Kr + Xe	T	300-2000 keV	Fortner, R. J.; Woerlee, P.; Saria, F. W. Production of krypton L vacancies in Kr-Kr and Kr-Xe collisions. J. Phys. E 11, L697 (1978) United States
1613	A06 Na ⁺ + Fe	E	Undef	Johansson, S.; Litzen, U. Observations of charge transfer reactions through enhancement of spectral lines. J. Phys. E 11, L703 (1978) Sweden
1614	E05 e + O	T	500 eV	Burnott, T.; Rountree, S. F. Triple-differential cross sections for electron impact ionisation of atomic oxygen. J. Phys. B 11, L707 (1978) United States

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1615	E02 e + Hg	E	5.2 eV	Heddle, D. W. O. The 5.2 eV resonance in electron-mercury scattering. J. Phys. B 11, L711 (1978) United Kingdom
1616	A12 K + Ar; K + Kr; K + Xe; K + He; K + Ne	E	Thermal	Lwin, A.; McCartan, D. G. Collision broadening of the potassium resonance lines by noble gases. J. Phys. B 11, 3841 (1978) United Kingdom
1617	H07 hν + H ⁻	T	0.001-0.7 Ry	Stewart, A. L. A perturbation-variational study of photodetachment from H ⁻ . J. Phys. B 11, 3851 (1978) United Kingdom
1618	A11 Na* + He; Na* + Ne	T	Undef	Derouard, J.; Lombardi, M. Theoretical cross sections for collisional angular momentum transfer in atomic Rydberg states. J. Phys. B 11, 3E75 (1978) West Germany
1619	A06 He ²⁺ + H ⁻	T	100-8000 keV	Banyard, K. E.; McCre, J. C. Electron capture from H ⁻ by fast alpha particles. J. Phys. B 11, 3895 (1978) United Kingdom
1620	A06 H ⁺ + He; H ⁺ + Ar	T	293-6000 keV	Belkic, D.; Selin, A. Differential cross sections for charge exchange at high energies. J. Phys. B 11, 3905 (1978) Yugoslavia
1621	E03 e + O ₂	E	20-500 eV	Wakiya, K. Differential and integral cross sections for the electron impact excitation of O ₂ . I. Optically allowed transitions from the ground state. J. Phys. B 11, 3913 (1978) Japan
1622	E03 e + O ₂	E	4.5-7.1 eV	Wakiya, K. Differential and integral cross sections for the electron impact excitation of O ₂ . II. Optically forbidden transitions from the ground state. J. Phys. B 11, 3931 (1978) Japan
1623	G06 He ₂ ⁺ + He; Ne ₂ ⁺ + Ne; Ar ₂ ⁺ + Ar; Kr ₂ ⁺ + Kr	E	77-255 K	Helm, H.; Elford, M. T. Mobilities and reactions of diatomic rare-gas ions in their parent gases, helium, neon, argon and krypton. J. Phys. B 11, 3939 (1978) Australia
1624	H06 hν + O	T	Undef	Pradhan, A. K. Photoionisation cross section of atomic oxygen. J. Phys. B 11, L725 (1978) United Kingdom
1625	H08 hν + Pb	E	Undef	Lochet, J. Fluorescence induite par laser de la molecule Pb ₂ . J. Phys. B 11, L735 (1978) France
1626	A07 Xe + Pb	E	640 MeV	Amundsen, P. A. Impact-parameter dependence of K-shell vacancy production in the heavy partner in ion-atom collisions. J. Phys. B 11, L737 (1978) Norway
1627	A07 He* + Ar; He + Ar; Li* + Ar; Li + Ar; Ne* + Ar; Ne + Ar; Na* + Ar; Na + Ar; K* + Ar; K + Ar; Ar* + He	E	1-15 keV	Jorgensen, K.; Andersen, N.; Olsen, J. C. Autoionising levels in argon excited by low-energy heavy-ion impact. J. Phys. B 11, 3951 (1978) Denmark
1628	H03 hν + Pb; hν + Ta; hν + Sn; hν + Zr	E	145 keV	Prasad, M. S.; Faju, G. K.; Nevisinha Murty, K.; Narasimha Murty, V. A.; Lakshminarayana, V. Elastic scattering of 145 keV gamma rays. J. Phys. B 11, 3969 (1978) India
1629	A16 H ⁺ + H ⁻	T	1.5-1000 keV	Bell, K. L.; Kingston, A. E.; Madden, F. J. Electron detachment from H ⁻ ions by proton impact. J. Phys. B 11, 3977 (1978) United Kingdom
1630	A08 H + He; H + Ne; H + Ar; H + Kr; H + Xe; H* + He; H* + Ne; H* + Ar; H* + Kr; H* + Xe; He + He; He + Ne; He + Ar; He + Kr; He + Xe; He* + He; He* + Ne; He* + Ar; He* + Kr; He* + Xe; Li* + He; Li* + Ne; Li* + Ar; Li* + Kr; Li* + Xe A16 H ⁻ + He; H ⁻ + Ne; H ⁻ + Ar; H ⁻ + Kr; H ⁻ + Xe; He ⁻ + He; He ⁻ + Ne; He ⁻ + Ar; He ⁻ + Kr; He ⁻ + Xe	T	14-100000 keV/amu	Dewangan, D. P.; Walters, H. F. J. Electron loss from H(2s), H(1s), He(1 ¹ S), He(2 ³ S), Li(2 ² S), H ⁻ and He ⁻ projectiles passing through the inert gases-- the free-collision model. J. Phys. B 11, 3983 (1978) United Kingdom

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1631	A03 Ne ⁺ + Ne	T	10-300 keV	Fritsch, H.; Wille, U. Coupled-state calculations in a molecular basis: 2s vacancy production in slow Ne ⁺ + Ne collisions. J. Phys. B 11, 4015 (1978) West Germany
1632	A07 He ⁺ + He	T	0.4-3.4 MeV	Briggs, J. S.; Dregger, F. Asymptotic form of the cross section for electron loss into the forward direction. J. Phys. B 11, 4033 (1978) United Kingdom
1633	A05 NO ⁺ + NO ₂ ⁻ A13 NO ⁺ + NC ₂ ⁻	E	300 K	Smith, I.; Adams, N. G.; Church, M. J. On the emission of radiation from the neutralisation reaction NO ⁺ + NO ₂ ⁻ . J. Phys. B 11, 4041 (1978) United Kingdom
1634	E03 e + He	E	57-60 eV	Roy, D.; Delage, A.; Carotte, J.-L. Influence of the He ⁻ resonances in the post-collision interaction process. J. Phys. B 11, 4055 (1978) France
1635	E01 Undef	T	Undef	Seaton, M. J. Quantum defect theory. XI. Clarification of some aspects of the theory. J. Phys. B 11, 4067 (1978) United Kingdom
1636	E01 e + He ⁺	T	Undef	Duban, J. Quantum defect theory. XII. Complex quantum defects for the He ⁺ + e ⁻ system. J. Phys. E 11, 4095 (1978) France
1637	E02 e + H ₂ S E03 e + H ₂ S E17 e + H ₂ S	E	0.2-10 eV	Rohr, K. Differential scattering experiments for e-H ₂ S collisions in the low-energy range. J. Phys. B 11, 4109 (1978) West Germany
1638	E08 e + Ar ⁺	E	Undef	Chiang, W. I.; Griem, H. F. Observations of line-continuum interference effect in the wings of argon ion lines. J. Phys. B 11, 1761 (1978) United Kingdom
1639	H06 hv + Xe	T	70-100 eV	Johnson, W. R.; Redojevic, V. Photoelectron branching ratio in the 4d subshell of xenon. J. Phys. E 11, 1773 (1978) United States
1640	E02 e + H ₂ ; e + N ₂	T	0.01-1 Ry	Cullins, L. A.; Robb, W. D.; Parrison, M. A. Low-energy electron scattering by H ₂ and N ₂ : an iterative static-exchange calculation. J. Phys. B 11, 1777 (1978) United States
1641	F01 H ⁻ ; He; Be ²⁺ ; B ³⁺	T		Conneely, M. J.; Lipsky, L. Widths and configuration mixings of two-electron systems below the N=2 threshold. J. Phys. B 11, 4135 (1978) Ireland
1642	H06 hv + Li; hv + Na	T	1-14 eV	Sukumar, C. V.; Kulander, K. C. Complex-coordinate study of photoionisation of Li and Na using one-electron pseudo-potentials. J. Phys. B 11, 4155 (1978) United Kingdom
1643	H06 3hv + He ⁺	T	Undef	Olsen, T.; Lambropoulos, P.; Wheatley, S. E.; Runtree, S. P. Theory of three-photon ionisation of 2S metastable helium. J. Phys. E 11, 4167 (1978) United States
1644	A03 He ²⁺ + He	T	0.3-30 keV	Koike, F.; Nakamura, H.; Hara, S.; Itikawa, Y.; Matsuzaki, M.; Sato, M.; Shimamura, I. Theoretical study of two-electron excitation in He ²⁺ + He collisions. J. Phys. B 11, 4153 (1978) Japan
1645	A03 Ne ⁺ + Ne; Ne ²⁺ + Ne; Ne ³⁺ + Ne; Ne ⁴⁺ + Ne; Ne ⁺ + Ar; Ne ²⁺ + Ar; Ne ³⁺ + Ar; Ne ⁴⁺ + Ar; Ne ⁵⁺ + Ar; Ne ⁶⁺ + Ar.	E	25-800 keV	Blecken, E.; Winter, H.; de Heer, F. J.; Fortner, R.; Salop, A. Outer s-subshell vacancy production in collisions of multiply charged neon and argon ions with neon and argon. J. Phys. E 11, 4207 (1978) The Netherlands

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1646	A03 He ²⁺ + Au A07 He ²⁺ + Au A18 He ²⁺ + Au	E	15-20 MeV	Bauer, K. G.; Fazly, Q.; Mcassen, E.; Schurkes, P. L. shell ionisation probability of gold by alpha particles of 12-50 MeV. J. Phys. B 11, 4227 (1978) West Germany
1647	A13 He ⁺ + N ₂ O; N ⁺ + C ₂ ; O ⁺ + O ₂ ; C ⁺ + O ₂ ; C ⁺ + CO ₂ ; N ₂ H ⁺ + CO ₂	E	100-300 K	Rakshit, A. B.; Stock, H. M. P.; Waring, D. P.; Twiddy, N. D. Some ion-molecule reaction rate coefficient measurements at 300 and 100 K in a temperature-variable flowing-afterglow apparatus. J. Phys. B 11, 4237 (1978) United Kingdom
1648	A06 H ⁺ + H; H ⁺ + He ⁺ ; H ⁺ + Li ²⁺ ; H ⁺ + Be ³⁺ ; H ⁺ + B ⁴⁺ ; H ⁺ + C ⁵⁺ ; H ⁺ + N ⁶⁺ ; H ⁺ + O ⁷⁺ ; H ⁺ + Fe ²⁵⁺ A18 H ⁺ + H; H ⁺ + He ⁺ ; H ⁺ + Li ²⁺ ; H ⁺ + Be ³⁺ ; H ⁺ + B ⁴⁺ ; H ⁺ + C ⁵⁺ ; H ⁺ + N ⁶⁺ ; H ⁺ + O ⁷⁺ ; H ⁺ + Fe ²⁵⁺	T	20-10000 keV	Lai, M.; Tripathi, A. N.; Srivastava, P. K. Charge-transfer cross sections for protons colliding with hydrogenic ions I. J. Phys. E 11, 4249 (1978) India
1649	F01 He	T		Winkler, P.; Vais, R. Electron scattering resonances using dilatation transformations. III. Variational study of the stability of resonance eigenvalues. J. Phys. E 11, 4257 (1978) West Germany
1650	E02 e + Mg ⁺ ; e + Ca ⁺ ; e + Sr ⁺ ; e + Ba ⁺ E03 e + Mg ⁺ ; e + Ca ⁺ ; e + Sr ⁺ ; e + Ba ⁺	T	Undef	Burgess, A.; Tully, J. A. On the Bethe approximation. J. Phys. B 11, 4271 (1978) United Kingdom
1651	E03 e + Sm; e + Ho; e + Er; e + Bi	E	300-600 keV	Ricz, S.; Schlenk, B.; Eerenyi, D.; Velek, A.; Hock, G.; Seif el Nasr, S. A. H. L X-ray production cross section for Sm, Ho, Er and Bi at several hundred keV electron impact. J. Phys. E 11, 4283 (1978) Hungary
1652	F01 H Seq; He Seq; Li Seq; Be Seq; Ne Seq; Co Seq; Fe ¹⁶⁺ ; Fe ¹⁷⁺ ; Fe ¹⁸⁺ ; Fe ¹⁹⁺ ; Fe ²⁰⁺ ; Fe ²¹⁺ ; Fe ²²⁺ ; Fe ²³⁺ ; Ta ⁵⁵⁺ ; Ta ⁵⁶⁺	E		Boiko, V. A.; Feencv, A. Y.; Pikhov, S. A. X-ray spectroscopy of multiply-charged ions from laser plasmas. J. Quant. Spectrosc. Radiat. Transfer 19, 11 (1978) Soviet Union
1653	A12 H ₂ + He H02 hν + H ₂ ; hν + [H ₂ + He]	E	A12 300 K H02 20-900 cm ⁻¹	Birnbaum, G. Far-infrared absorption in H ₂ and H ₂ -He mixtures. J. Quant. Spectrosc. Radiat. Transfer 19, 51 (1978) United States
1654	H02 hν + O ₂ A12 O ₂ + O ₂	T	H02 9-60 GHz A12 300 K	Mizushima, M. Pressure-induced absorption of microwave radiation by the oxygen molecule. J. Quant. Spectrosc. Radiat. Transfer 19, 63 (1978) United States
1655	F01 N	E		Abdallah, M. H.; Hermet, J. M. The behavior of nitrogen excited in an inductively coupled argon plasma. J. Quant. Spectrosc. Radiat. Transfer 15, 83 (1978) France
1656	H06 hν + Fe ⁺ ; hν + Fe ²⁺ ; hν + Fe ¹⁷⁺ ; hν + Fe ²¹⁺ ; hν + Fe ¹⁸⁺	T	0.1-10.0 keV	Huebner, W. F.; Argo, M. F.; Ghisen, L. D. Photoelectric cross sections for ions scaled from their neutral atoms. J. Quant. Spectrosc. Radiat. Transfer 19, 93 (1978) United States
1657	E11 e + N	T	0-1.4 eV	John, T. L.; Willies, R. J. Emissionstrahlung by neutral atomic nitrogen. J. Quant. Spectrosc. Radiat. Transfer 19, 99 (1978) United Kingdom
1658	E03 e + Ca ⁹⁺ ; e + Fe ¹³⁺ ; e + Zn ¹⁹⁺ ; e + Kr ²⁵⁺ ; e + Mo ³¹⁺	T	0.04-20.0 keV	Bleha, P.; Javis, J. Electron impact excitation of highly charged sodium-like ions. J. Quant. Spectrosc. Radiat. Transfer 19, 227 (1978) United States
1659	A12 Li ⁺ + Ar; Li ⁺ + He A17 Li ⁺ + Ar; Li ⁺ + He	E	400-1100 K	Ebty, N.; Weniger, S. Excitation and shift of lines of the principal series of neutral lithium atoms produced by collision with helium and argon. J. Quant. Spectrosc. Radiat. Transfer 15, 247 (1978) France

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1660	H02 hv + CH ₄	E	4350-10600 A ⁰	Giver, L. F. Intensity measurements of the CH ₄ bands in the region 4350 A ⁰ to 10,600 A ⁰ . J. Quant. Spectrosc. Radiat. Transfer 15, 311 (1978) United States
1661	H02 hv + SO ₂ A12 SO ₂ * + SO ₂ ; SO ₂ * + N ₂ ; SO ₂ * + H ₂ O	E	H02 91.5-95.5 GHz A12 295 K	Meler, E. Linewidth and intensity measurements of SO ₂ lines at 54 GHz with self-broadening and broadening by H ₂ O and N ₂ . J. Quant. Spectrosc. Radiat. Transfer 19, 323 (1978) Switzerland
1662	H04 hv + He; hv + Ne; hv + Ar; hv + Kr; hv + Xe H02 hv + He; hv + Ne; hv + Ar; hv + Kr; hv + Xe	T	10000-300 A ⁰	Hofsaess, D. Emission continua of rare gas plasmas. J. Quant. Spectrosc. Radiat. Transfer 19, 335 (1978) West Germany
1663	A02 Undef	T	300 K	Berard, M.; Lallemand, P. Influence of the use of approximate trajectories for binary collision calculations. J. Quant. Spectrosc. Radiat. Transfer 19, 387 (1978) France
1664	B01 N F02 N	T		Dimitrijevic, M. S.; Grujic, P. Long-range potentials and Stark broadening of neutral lines. J. Quant. Spectrosc. Radiat. Transfer 15, 467 (1978) Yugoslavia
1665	A12 Cs* + Ar	T	300 K	Postan, A.; Ben-Aryeh, Y. A translational heat bath model for foreign gas broadening of spectral lines--III. W. K. B. approximation for satellite bands. J. Quant. Spectrosc. Radiat. Transfer 15, 431 (1978) Israel
1666	A17 Al + O	T	Undef	Murthy, N. S.; Egere, S. P.; Murthy, L. N. Dissociation energy for the ground state of AlO from true potential energy curve. J. Quant. Spectrosc. Radiat. Transfer 19, 455 (1978) India
1667	H02 hv + N ₂ ; hv + O ₂ ; hv + NO; hv + N ₂ O; hv + C; hv + N; hv + O; hv + F; hv + Cl	E	50-340 A ⁰	Cole, B. E.; Dexter, R. N. Empirical photoabsorption cross sections for C, N, O, F and Cl obtained from molecular measurements between 50 and 340 A ⁰ . J. Quant. Spectrosc. Radiat. Transfer 19, 467 (1978) United States
1668	H13 hv + hv	T	Undef	Elsöri, U. Photon-photon scattering in effective-photon theory. J. Quant. Spectrosc. Radiat. Transfer 15, 473 (1978) United States
1669	F02 Al	E		Bach, I. Stark broadening of the Al resonance lines. J. Quant. Spectrosc. Radiat. Transfer 19, 483 (1978) France
1670	A12 CO ₂ * + Ar; CO ₂ * + N ₂ ; CO ₂ * + CO ₂	E	197-294 K	Valero, F. P. J.; Suarez, C. B. Measurement at different temperatures of absolute intensities, line half-widths, and broadening by Ar and N ₂ for the 3000 _{1,1} (left arrow) 000 band of CO ₂ . J. Quant. Spectrosc. Radiat. Transfer 15, 575 (1978) United States
1671	F02 Undef A12 Undef	T	A12 Undef	Rozsnyai, B. F. Spectrum profiles in the presence of Stark, Lorentz and Doppler broadening. J. Quant. Spectrosc. Radiat. Transfer 19, 641 (1978) United States
1672	A12 Cs* + Xe A17 Cs* + Xe	E	298 K	Exton, R. J.; Snow, W. L. Line shapes (absorption coefficients) for satellites and inversion of the data to obtain interaction potentials. J. Quant. Spectrosc. Radiat. Transfer 20, 1 (1978) United States
1673	A12 HCl + HCl; HCl + HF; HF + HCl; HF + HF	E	258 K	Guelachvili, G.; Smith, M. A. E. Measurements of pressure-induced shifts in the 1-0 and 2-0 bands of HF and in the 2-0 bands of H ³⁵ Cl and H ³⁷ Cl. J. Quant. Spectrosc. Radiat. Transfer 20, 38 (1978) France
1674	H04 2hv + Na	E	1800 K	van Dijk, C. A.; Zeegers, F. J. I.; Nienhuis, G.; Alkemade, C. I. J. Two-photon excitation of Na atoms in a flame by broad-band laser irradiation. J. Quant. Spectrosc. Radiat. Transfer 20, 55 (1978) The Netherlands

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1675	F01 Cu; Au	T		Migdalek, J. Relativistic oscillator strengths for some transitions in Cu(I), Ag(I) and Au(I). J. Quant. Spectrosc. Radiat. Transfer 20, 81 (1978) Poland
1676	A12 H ₂ O* + N ₂ ; H ₂ O* + Air	T	300 K	Davies, R. W.; Gili, B. A. Theoretical calculations of H ₂ O linewidths and pressure shifts: comparison of the Anderson theory with quantum many-body theory for N ₂ and air-broadened lines. J. Quant. Spectrosc. Radiat. Transfer 20, 95 (1978) United States
1677	A12 NO ₂ * + NO ₂ H02 hν + NO ₂	E	A12 300 K H02 93 GHz	Meyer, D. Pressure broadening of the NO ₂ hyperfine multiplet at 93 GHz. J. Quant. Spectrosc. Radiat. Transfer 20, 129 (1978) Switzerland
1678	A12 CH ₄ + CH ₄ H02 hν + CH ₄	E	A12 300-2400 K H02 3.39 μm	Mailard, W. G.; Gardiner, W. C., Jr. Absorption of the 3.39 μm He-Ne laser line by methane from 300 to 2400 K. J. Phys. Chem. 20, 135 (1978) United States
1679	F02 N	E		Cullmann, E.; Labuhn, F. Stark broadening of nitrogen (I) vacuum-u.v. lines using a well-stabilized arc. J. Quant. Spectrosc. Radiat. Transfer 20, 205 (1978) West Germany
1680	A12 Cs + Ar; Rb + Ar; Cs + Kr; Rb + Kr; Cs + Xe; Rb + Xe	T	300-553 K	Wu, C. Y. R.; Stwalley, W. C. Calculated pressure effects on spectral lines for long-range interatomic potentials: Rb and Cs with heavy rare gases. J. Quant. Spectrosc. Radiat. Transfer 20, 211 (1978) United States
1681	H04 hν + CsXe; hν + Cs ₂	E	450-475 K	Exton, F. J.; Snow, W. L.; Hillard, M. E. Laser excited fluorescence in the cesium-xenon excimer and the cesium dimer. J. Quant. Spectrosc. Radiat. Transfer 20, 235 (1978) United States
1682	H02 hν + [O ₂ + N ₂] A12 O ₂ * + N ₂	E	H02 2500-2050 Å ⁰ A12 200-354 K	Shardanand Temperature effect on nitrogen-induced absorption of oxygen in the Herzberg continuum. J. Quant. Spectrosc. Radiat. Transfer 20, 265 (1978) United States
1683	A12 NH ₃ * + He; NH ₃ * + Ar	T	300 K	Yasumoto, Y.; Cattani, M. Pressure broadening of the ammonia inversion spectrum by inert gases (He, Ar). J. Quant. Spectrosc. Radiat. Transfer 20, 271 (1978) Brazil
1684	A12 Undef	T	Undef	Nienhuis, G. Effects of the radiator motion in the classical and quantum-mechanical theories of collisional spectral-line broadening. J. Quant. Spectrosc. Radiat. Transfer 20, 275 (1978) The Netherlands
1685	F01 C	T		Cohen, M.; McEachran, F. F. Theoretical ionization energies and oscillator strengths for carbon. J. Quant. Spectrosc. Radiat. Transfer 20, 295 (1978) Canada
1686	F02 H	T		Sutton, K. Approximate line shapes for hydrogen. J. Quant. Spectrosc. Radiat. Transfer 20, 332 (1978) United States
1687	A12 Undef	T	Undef	Boulet, C.; Robert, D.; Galatry, L. On calculation of the molecular line shape in the wings. J. Quant. Spectrosc. Radiat. Transfer 20, 371 (1978) France
1688	H02 hν + O ₂ F02 O ₂	T	H02 7620 Å ⁰	Karp, A. H. Efficient computation spectral line shapes. J. Quant. Spectrosc. Radiat. Transfer 20, 375 (1978) United States
1689	E08 Undef	T	Undef	Hay, J. D. On the variation of spectral line widths within Stark-broadened multiplets. J. Quant. Spectrosc. Radiat. Transfer 20, 403 (1978) South Africa
1690	F02 C ⁺	E		Platisa, M.; Popovic, M.; Kenjevic, K. Experimental Stark widths of C(II) u.v. lines. J. Quant. Spectrosc. Radiat. Transfer 20, 477 (1978) Yugoslavia

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1681	E03 e + Ar+ E07 e + Ar+	E	2.6-3 eV	Jolly, J. Determination of the rate coefficients for the collisional excitation and de-excitation of the upper laser levels of Ar+. J. Quant. Spectrosc. Radiat. Transfer 20, 803 (1978) United States
1692	A12 CO ₂ * + CO ₂	E	200-300 K	Planet, W. G.; Tetteser, G. L.; Knell, J. S. Temperature dependence of intensities and widths of N ₂ -broadened lines in the 15 μm CO ₂ band from tunable laser measurements. J. Quant. Spectrosc. Radiat. Transfer 20, 547 (1978) United States
1693	F02 N+	T		Hey, J. D.; Blaha, M. Stark broadening of nitrogen ion lines from states of high orbital angular momentum. J. Quant. Spectrosc. Radiat. Transfer 20, 557 (1978) United States
1694	F01 Li Seq	T		All, M. A. Hartree-Fock energies of ⁶ D (sup e) and ⁶ D ⁰ doubly excited states of the lithium isoelectronic sequence. J. Quant. Spectrosc. Radiat. Transfer 20, 565 (1978) United States
1695	A12 Na* + Ne	E	1860-2270 K	Jongerius, M. J.; Hollander, I.; Alkemade, C. T. J. Wing profile measurements of the He-d doublet lines in C ₂ H ₂ /O ₂ /N ₂ , H ₂ /O ₂ /N ₂ , and H ₂ /O ₂ //Ar flames at 1 atm. J. Quant. Spectrosc. Radiat. Transfer 20, 599 (1978) The Netherlands
1696	H03 hv + Na	E	5890 Å ⁰	Jongerius, M. J.; van der Eij, J. J.; Hollander, I.; Alkemade, C. T. J. Rayleigh scattering by sodium vapour in flames. J. Quant. Spectrosc. Radiat. Transfer 20, 609 (1978) The Netherlands
1697	E08 e + Ar+	E	20000 K	Behringer, K.; Thoms, F. Electron impact widths of some Ar(II)-u.v.-multiplets. J. Quant. Spectrosc. Radiat. Transfer 20, 615 (1978) West Germany
1698	F01 H-; He- E02 e + H; e + He	T	E02 20 eV	Junker, B. R.; Huang, C. L. Complex-coordinate method. Structure of the wave function. Phys. Rev. A 18, 313 (1978) United States
1699	F01 He	T		Wadehra, J. M.; Spruch, L.; Shakeshaft, R. Application of an extension principle to the variational determination of the generalized oscillator strengths of helium. Phys. Rev. A 18, 344 (1978) United States
1700	A07 B* + P; B* + K; B* + Ca; B* + Sc; B* + Ti; B* + V; B* + Mn; B* + Fe; B* + Co; B* + Ni	E	4-38 MeV	Monigold, G.; McDaniel, F. E.; Euggan, J. L.; Rice, R.; Tuten, A.; Mehta, R.; Miller, F. D. M-shell ionization of elements up to ²⁸ Ni for 0.4 to 3.8 MeV/amu ¹⁶ O-ion bombardment. Phys. Rev. A 18, 360 (1978) United States
1701	A07 He* + H A17 He* + H; He* + H+	T	A07 0.05 eV A17 0-0.32 nattree	Bieniek, R. J. Complex potential and electron spectrum in atomic collisions involving fast electronic transitions: Penning and associative ionization. Phys. Rev. A 18, 392 (1978) United States
1702	A07 Kr + Xe	T	42 MeV	Meyerhof, W. E. Ionization of the 3d molecular orbital in heavy-ion collisions. Phys. Rev. A 18, 414 (1978) United States
1703	C02 H* + Ge; H* + Se; H* + Pd; H* + Ag; H* + Sb; H* + Bi; He* + Ge; He* + Se; He* + Pd; He* + Ag; He* + Sb; He* + Bi C05 H* + Ge; H* + Se; H* + Pd; H* + Ag; H* + Sb; H* + Bi; He* + Ge; He* + Se; He* + Pd; He* + Ag; He* + Sb; He* + Bi	E	20-260 keV	Eckardt, J. C. Energy loss and straggling of protons and helium ions traversing some thin solid foils. Phys. Rev. A 18, 426 (1978) Argentina
1704	A03 He* + Mg; He* + Zn; He ₂ * + Mg; He ₂ * + Zn	E	2-800 eV	Myers, G. D.; Leventhal, J. J. Inelastic collisions of 2-800-eV He* and He ₂ * and Mg and Zn atoms. Phys. Rev. A 18, 434 (1978) United States

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1705	E03 e + Ar*; e + Kr*	T	3-100 eV	Hyman, H. A. Electron-impact excitation of metastable argon and krypton. Phys. Rev. A 18, 441 (1978) United States
1706	D08 H* + Mo; H- + Mo; H2+ + Mo; Hn* + Mo	E	0.2-10.0 keV	Leung, S. Y.; Tolk, N. H.; Holland, W.; Tully, J. C.; Kreuz, J. S.; Hill, P. Optical radiation from low-energy hydrogen atomic and molecular ion-surface collisions. Phys. Rev. A 18, 447 (1978) United States
1707	E03 e + H Seq; e + He+	T	40-1000 eV	Thomas, B. K. Applications of the Coulomb-modified Glauber approximation to n=2 and n=3 excitation of hydrogenlike ions by incident electrons. II. Phys. Rev. A 18, 452 (1978) United States
1708	E02 e + CsF; e + KI; e + LiF; e + NaF; e + NaCl; e + LiCl E17 e + CsF; e + KI; e + LiF; e + NaF; e + NaCl; e + LiCl G09 e + CsF; e + KI; e + LiF; e + NaF; e + NaCl; e + LiCl	T	E02; E17 0.13-20.0 eV G09 1.0 eV	Collins, L. A.; Nercrcas, L. W. Electron collisions with highly polar molecules: Comparison of model, static, and static-exchange calculations for alkali-metal halides. Phys. Rev. A 18, 467 (1978) United States
1709	A06 H* + He; H* + Ar; H* + H A17 H* + He; H* + Ar; H* + H	T	120-600 keV	Lin, C. D.; Soong, S. C. Differential cross sections for electron capture in fast proton-multielectron-atom collisions. Phys. Rev. A 18, 499 (1978) United States
1710	A07 H + N2; H + O2 A18 H + N2; H + O2	E	50-3000 eV	van Zyle, B.; Neumann, H.; Le, T. Q.; Asme, R. C. H + N2 and H + O2 collisions: experimental charge-production cross sections and differential scattering calculation. Phys. Rev. A 18, 506 (1978) United States
1711	B07 hv + e	T		Jain, M.; Tzoar, N. Compton scattering in the presence of coherent electromagnetic radiation. Phys. Rev. A 18, 536 (1978) United States
1712	H03 hv + Ne; hv + Ar; hv + Kr	T	Under	Tong, B. Y.; Lam, L. Compton profiles of Ne, Ar, and Kr. Phys. Rev. A 18, 552 (1978) Canada
1713	F01 He	E		Khayrallah, G. A.; Smith, S. J. Radiative lifetime measurement of the 3 1S, 3 1D, 4 1I, 4 1F, and 5 1F excited states of helium. Phys. Rev. A 18, 559 (1978) United States
1714	H06 hv + O; hv + H	E	90-76 nm	Kohl, J. L.; Lefyatis, G. F.; Felenius, H. F.; Parkinsch, W. H. Absolute cross section for photoionization of atomic oxygen. Phys. Rev. A 18, 571 (1978) United States
1715	F01 He	E		Fleurier, C.; Coulaud, G.; Chapelle, J. Observation of an ion effect in the profile of the 4471-A line of He I. Phys. Rev. A 18, 575 (1978) France
1716	H06 hv + Fe; hv + Fe2+; hv + Fe3+; hv + Fe4+; hv + Fe21+; hv + Fe22+; hv + Fe23+; hv + Fe20+; hv + Fe22+; hv + Fe23+	T	0.8-11 keV	Botto, I. J.; McEnnan, J.; Pratt, R. E. Analytic description of photoeffect from atomic ions. Phys. Rev. A 18, 580 (1978) United States
1717	H06 Under	T	H06 Under	Georges, A. T.; Lambropoulos, P. dc Stark splitting in doubly resonant three-photon ionization with nonresonant fields. Phys. Rev. A 18, 587 (1978) United States
1718	A11 Rb* + He; Rb* + Ne; Rb* + Ar; Cs* + Ar; Cs* + Ne; Cs* + He; Cs* + N2	E	300 K	Frenz, F. A.; Volk, C. Spin relaxation in Rb-He and Rb-Ne via scattering of the F1 hyperfine interaction in Van der Waals molecules. Phys. Rev. A 18, 555 (1978) United States
1719	H08 Under	T	Under	Altara, M. Transient polarization characteristics associated with resonant light scattering by a degenerate two-level system. Phys. Rev. A 18, 606 (1978) Japan

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1720	H06 $h\nu + Na$	E	10000 Å	Miyazaki, K.; Keshiwagi, H. Multiphoton ionization of Na atoms in third-harmonic generation by a mode-locked Nd: YAG laser. Phys. Rev. A 18, 635 (1978) Japan
1721	B07 Undef	T		Mittlesen, P. H. Electron scattering from atoms in the presence of a laser field. IV. Phys. Rev. A 18, 685 (1978) United States
1722	E06 $e + Fe^{10+}; e + Fe^{9+}; e + Fe^{8+}; e + Fe^{7+}; e + Fe^{6+}; e + Fe^{5+}; e + Fe^{4+}; e + Fe^{3+}$	T	10-1000 eV	Jacobs, V. L.; Davis, J. Effects of collisions on level populations and dielectronic recombination rates of multiply charged ions. Phys. Rev. A 18, 697 (1978) United States
1723	G05 $e + He; e + H_2; e + N_2; e + Ar$ G09 $e + He; e + H_2; e + N_2; e + Ar$	T	300 K	Breglia, G. L.; Dellacasa, V. Theory of the density dependence of electron drift velocity in gases. Phys. Rev. A 18, 771 (1978) Italy
1724	F01 $Mo^{30+}; Mo^{31+}; Mo^{32+}; Mo^{33+}$	E		Burkhalter, P. G.; Schneider, R.; Izquier, C. M.; Cowan, R. D. Spectra of Mo XXXI-XXXIV from exploded-Mc-wire plasmas. Phys. Rev. A 18, 716 (1978) United States
1725	A19 $Xe^+ + Xe$	E	0.3-1.2 MeV	Spicuzza, F. A.; Antar, A. A.; Kessler, Q. C. Inelastic-energy-loss measurements of multiple N- and M-shell excitations in 0.3- to 1.2-MeV Xe^+-Xe collisions. Phys. Rev. A 18, 776 (1978) United States
1726	E03 Undef E05 Undef	T	Undef	Oh, S. D.; Macek, J. Relativistic effect on electron excitation and ionization of atoms. Phys. Rev. A 18, 781 (1978) United States
1727	F01 $He; H^-; Be^{2+}$	T		Lie, S. G.; Nogomi, Y.; Preston, M. A. Three-body problem of two-electron atoms. Phys. Rev. A 18, 787 (1978) Canada
1728	E03 $e + He$	T	Undef	Teskin, A.; Bhatia, A. K. Inelastic-resonance quasiprojection operators. Phys. Rev. A 18, 792 (1978) United States
1729	F02 H Seq	T		Dexter, D. L. Energy and polarizability of atoms in a weak magnetic field: hydrogenic atoms. Phys. Rev. A 18, 862 (1978) United States
1730	F01 He	T		Lewis, E. I.; Serafino, P. H. Second-order contributions to the fine structure of helium from all intermediate states. Phys. Rev. A 18, 867 (1978) United States
1731	E05 $e + He; e + H_2; e + D_2; e + N_2; e + Ne$	E	20-40 keV	Rueckner, W. H. E.; Barlas, A. D.; Wellenstein, H. F. Electron Compton defect observed in He, H ₂ , D ₂ , N ₂ , and Ne profiles. Phys. Rev. A 18, 895 (1978) United States
1732	E12 $e^+ + H$	T	0-42 eV	Winick, J. F.; Reinhardt, W. F. Moment T-matrix approach to e^+-H scattering. I. Angular distribution and total cross section for energies below the pickup threshold. Phys. Rev. A 18, 510 (1978) United States
1733	E12 $e^+ + H$	T	7-34 eV	Winick, J. F.; Reinhardt, W. F. Moment T-matrix approach to e^+-H scattering. II. Elastic scattering and total cross section at intermediate energies. Phys. Rev. A 18, 936 (1978) United States
1734	A06 $C^+ + N_2; C^+ + H_2; N^+ + N_2; N^+ + H_2; O^+ + N_2; O^+ + H_2$	E	5-100 keV	Lockwood, G. J.; Miller, G. H.; Hoffner, J. M. Charge transfer of C ⁺ , N ⁺ , and O ⁺ in N ₂ and H ₂ . Phys. Rev. A 18, 93E (1978) United States
1735	A19 $Cl^{15+} + Ca; Cl^{15+} + Sc; Cl^{15+} + Ti$	E	30 MeV	Richard, F.; Hall, J. M.; Schriedekamp, C.; Jamison, K. A. Double-K-vacancy sharing in near-symmetry collisions. Phys. Rev. A 18, 540 (1978) United States

REF. NO.	REACTANTS	EXP OR THEOR	ENERGY RANGE	REFERENCE
1736	A16 Cl ⁻ + Ne; Cl ⁻ + Ar; Cl ⁻ + Kr; Cl ⁻ + Xe; Br ⁻ + Ne; Br ⁻ + Ar; Br ⁻ + Kr; Br ⁻ + Xe	E	7-180 eV	Smith, E. T.; Edwards, W. F., III; Doverspike, L. L.; Champick, R. L. Total electron-detachment cross sections for collisions of negative halogen ions and rare gases for energies around threshold. Phys. Rev. A 18, 945 (1978) United States
1737	E01 Undef	T	Undef	Nesbet, R. K. Variational methods for multichannel scattering. II. New variant of customized asymptotically-free method and restricted interpolated asymptotically-free method. Phys. Rev. A 18, 555 (1978) United States
1738	E05 e + Ar; e + Ni; e + Y; e + Ag; e + Ba; e + Ho; e + Au; e + Bi; e + U	T	5x10 ⁴ -10 ⁹ eV	Scofield, J. H. K- and L-shell ionization of atoms by relativistic electrons. Phys. Rev. A 18, 563 (1978) United States
1739	C01 Undef C02 Undef C03 Undef	T	Undef	Rau, A. R. P.; Inokuti, M.; Douthett, D. A. Variational treatment of electron degradation and yields of initial molecular species. Phys. Rev. A 18, 571 (1978) United States
1740	G06 He ²⁺ + He; Ne ²⁺ + Ne; Ar ²⁺ + Ar; Kr ²⁺ + Kr; Xe ²⁺ + Xe	E	300 K	Johnson, R.; Biondi, M. A. Mobilities of doubly charged rare-gas ions in their parent gases. Phys. Rev. A 18, 589 (1978) United States
1741	A06 He ²⁺ + He; Ne ²⁺ + Ne; Ar ²⁺ + Ar; Kr ²⁺ + Kr; Xe ²⁺ + Xe; He ²⁺ + [He + He]; Ne ²⁺ + [Ne + Ne]; Ar ²⁺ + [Ar + Ar]; Kr ²⁺ + [Kr + Kr]; Xe ²⁺ + [Xe + Xe]	E	300 K	Johnson, R.; Biondi, M. A. Measurements of radiative charge-transfer reactions of doubly and singly charged rare-gas ions with rare-gas atoms at thermal energies. Phys. Rev. A 18, 596 (1978) United States
1742	A06 He ²⁺ + He A17 He ⁺ + He ⁺ ; He ²⁺ + He F01 He ₂ ²⁺	T	A06; A17 0.001-10 eV	Cohen, J. S.; Bardsley, J. N. Calculation of radiative single-charge-transfer cross sections for collisions of He ²⁺ with He at low energy. Phys. Rev. A 18, 1004 (1978) United States
1743	G06 He ²⁺ + He G09 He ²⁺ + He	T	G06 80-2000 K G09 2-80 meV	Wadehra, J. M.; Cohen, J. S.; Bardsley, J. N. Mobility of a particle in helium. Phys. Rev. A 18, 1005 (1978) United States
1744	E03 e + Fe; e + Fe ⁹⁺ ; e + Fe ¹⁰⁺ ; e + Fe ²²⁺ ; e + Mo ¹⁰⁺ ; e + Mo ²⁰⁺ ; e + Mo ³²⁺ E05 e + Fe; e + Fe ⁹⁺ ; e + Fe ¹⁰⁺ ; e + Fe ²²⁺ ; e + Mo ¹⁰⁺ ; e + Mo ²⁰⁺ ; e + Mo ³²⁺	T	4-36 keV	Hahn, Y. Distorted-wave theory of electron-ion collisions. II. Auger ionization and excitations fluorescence. Phys. Rev. A 18, 1028 (1978) United States
1745	A17 LiF + He; LiF + Ne; LiF + Ar; LiF + Kr; LiF + Xe	E T	1300 K	Menotti, F. R.; Bedding, D.; Moran, T. I. Measurement of the anisotropy of the interaction between LiF and the inert gases. Phys. Rev. A 18, 1038 (1978) United States
1746	E02 e + H ₂	T	Undef	Fliflet, A. W.; McCoy, V. Variationally corrected discrete-basis-set calculation for electron-molecule scattering in the static-exchange approximation. Phys. Rev. A 18, 1048 (1978) United States
1747	F01 Mo ¹²⁺ ; W ¹⁴⁺	T		Shorer, F. Effects of 3d subshells on resonance oscillator strengths for the zinc isoelectronic sequence. Phys. Rev. A 18, 1060 (1978) United States
1748	A12 H + H; H + He; H + Ne; H + Ar; H + Kr; H + Xe; Li + H; Li + He; Li + Ne; Li + Ar; Li + Kr; Li + Xe; Na + H; Na + He; Na + Ne; Na + Ar; Na + Kr; Na + Xe; K + H; K + He; K + Ne; K + Ar; K + Kr; K + Xe; Rb + H; Rb + He; Rb + Ne; Rb + Ar; Rb + Kr; Rb + Xe; Cs + H; Cs + He; Cs + Ne; Cs + Ar; Cs + Kr; Cs + Xe	T	300 K	Wu, C. Y. R.; Stwalley, W. C. Calculated pressure broadening and shift for alkali-metal atoms perturbed by rare gases: two-photon S-S transitions. Phys. Rev. A 18, 1066 (1978) United States

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1749	H06 Undef	T	Undef	Georges, A. T.; Lambropoulos, F. Quantum beats in photoionization from a coherent superposition of fine-structure levels. Phys. Rev. A 18, 1072 (1978) United States
1750	A11 H* + H ₂	E	300 K	Catherinet, A.; Dubreuil, E.; Gard, M. Quenching of atomic states in a low-pressure hydrogen glow discharge. Phys. Rev. A 18, 1057 (1978) France
1751	F01 He	E		Rosenbluh, M.; Fancck, R.; Lox, B.; Miller, T. A. Motional-Stark-effect spectroscopy: 7 ¹ S-9 ¹ P energy separation and Zeeman tuning parameters for ⁴ He. Phys. Rev. A 18, 1103 (1978) United States
1752	F02 Si ⁺	E		Chiang, W. I.; Griem, H. F. Measurements of the Stark broadening of ionized silicon lines from a plasma. Phys. Rev. A 18, 1169 (1978) United States
1753	C04 e + Au	T	400 keV	Nardi, E.; Zinamon, Z. Energy deposition by relativistic electrons in high-temperature targets. Phys. Rev. A 18, 1246 (1978) Israel
1754	F01 C; B; N	T		Nicolaides, C. A.; Beck, E. R. Comment on the Luken-Sinenoglu paper Theory of atomic structures including electron correlation. V. Excited states not lowest of their symmetry and oscillator strengths in neutral and singly ionized atoms. Phys. Rev. A 18, 1307 (1978) Greece
1755	F01 C; N; N ⁺ ; Be; B; O; O ⁺	T		Luken, W. L.; Sinenoglu, C. Reply to Comment on Theory of atomic structures including electron correlation. V. Phys. Rev. A 18, 1213 (1978) United States
1756	F02 H ₂ ; H ₂ ⁺	T		Zaucer, M.; Azman, A. Molecules in strong magnetic fields. Phys. Rev. A 18, 1320 (1978) Yugoslavia
1757	F01 C ³⁺	T		Ahlenius, T.; Larsson, S. Variational calculation of the lowest ² P ^o and ⁴ P ^o states of Li and C ³⁺ by the Hylleraas method. Phys. Rev. A 18, 1329 (1978) Sweden
1758	A03 Na* + He A11 Na* + He	T	0.04 eV	Hickman, A. P. Theory of angular momentum mixing in Rydberg-atom-rare-gas collisions. Phys. Rev. A 18, 1329 (1978) United States
1759	E03 e + Li ⁺	E	61-162 eV	Rogers, W. I.; Eisen, J. G.; Dunn, G. E. Absolute emission cross section for electron-impact excitation of Li ⁺ to the (2 ³ P) level. Phys. Rev. A 18, 1363 (1978) United States
1760	D07 Sr + Ar	T		Light, J.; Szoke, A. Four-state model of optical collisions: Sr + Ar. Phys. Rev. A 18, 1362 (1978) United States
1761	A06 F ³⁺ + Si; F ⁴⁺ + Si; F ⁵⁺ + Si; F ⁶⁺ + Si Si; F ⁷⁺ + Si; F ⁸⁺ + Si; F ⁹⁺ + Si A07 F ³⁺ + Si; F ⁴⁺ + Si; F ⁵⁺ + Si; F ⁶⁺ + Si Si; F ⁷⁺ + Si; F ⁸⁺ + Si; F ⁹⁺ + Si A19 F ³⁺ + Si; F ⁴⁺ + Si; F ⁵⁺ + Si; F ⁶⁺ + Si Si; F ⁷⁺ + Si; F ⁸⁺ + Si; F ⁹⁺ + Si	E	8-52 MeV	Tawara, H.; Richard, P.; Gray, T. J.; Newcomb, J.; Jamison, K. M.; SEMMÉDÉKÉSP, C.; Hall, J. H. Si K-shell ionization and electron transfer cross sections: solid targets. Phys. Rev. A 18, 1373 (1978) United States
1762	A11 Na* + N ₂	E	300 K	Humphrey, L. M.; Gallagher, T. F.; Cooke, W. E.; Edelstein, E. A. Collisional deactivation of higher Na s and semicd states by N ₂ . Phys. Rev. A 18, 1363 (1978) United States
1763	A03 Ar* + Ar A11 Ar* + Ar	E	300 K	Nguyen, T. D.; Sadeghi, N. Rate coefficients for collisional population transfer between 3p ⁴ p argon levels at 300 °K. Phys. Rev. A 18, 1368 (1978) France

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1764	A03 Xe* + H ₂ O; Xe* + SO ₂ A11 Xe* + H ₂ O; Xe* + SO ₂	E	300 K	Matsuzawa, M. 1-changing collision of a high-Rydberg atom with a polar molecule. Phys. Rev. A 18, 1396 (1978) Japan
1765	A04 H ₂ * + Air	E	400 keV	Nir, D.; Weintberg, A.; Mann, A.; Meron, M.; Gordon, S. Angular distributions in dissociative collisions of H ₂ * ions at 400 keV and effects of the vibrational states. Phys. Rev. A 18, 1399 (1978) Israel
1766	E03 e + He* E17 e + He*	E	15.9-20.4 eV	Zajonc, A. G.; Weinreich, C.; Pearl, J. C.; Zorn, J. C. Differential cross section for electron impact excitation of metastable helium. Phys. Rev. A 18, 1408 (1978) United States
1767	B07 Undef	T		Brandl, H. S.; Koellner, B.; Lins de Barros, H. G. F.; Miranda, L. C. M. Charged-particle scattering in the presence of a homogeneous magnetic field. Phys. Rev. A 18, 1415 (1978) Brazil
1768	E03 Undef H04 Undef	T	Undef	Kelsey, E. J. Effects of long-range forces in excitations of simple atomic and molecular systems. Phys. Rev. A 18, 1420 (1978) United States
1769	E12 e* + N ₂	E	77-292 K	Sherma, S. C.; McNutt, J. E. Positron annihilation in gaseous nitrogen and nitrogen-neon mixtures at 77 K. Phys. Rev. A 18, 1426 (1978) United States
1770	A07 He* + Ar A17 He* + Ar	T	0.065 eV	Bellum, J. C.; Micho, D. A. Coupling of discrete and continuum electronic states in atom-atom collisions: a coupled-channels investigation of Penning ionization in He*(1s2s, 3S)+Ar. Phys. Rev. A 18, 1435 (1978) United States
1771	H06 hv + Ar	T	30-70 eV	Chang, T. A. Quantitative assessment of the many-body interactions in the M-shell photoionization of argon. Phys. Rev. A 18, 1448 (1978) United States
1772	C07 He* + C	E	350 keV	Brooks, R. L.; Fittington, E. H. Polarization measurements of He I singlet transitions following beam-tilted-foil excitation. Phys. Rev. A 18, 1454 (1978) Canada
1773	F02 He	E		Neumann, G. C.; Zegorski, E. F.; Miller, T. A.; Rosenbluh, P.; Fancick, R.; Iax, E. Motional-Stark-effect-induced anticrossings. Phys. Rev. A 18, 1464 (1978) United States
1774	H08 hv + H ₂	E	12 eV	Schmoranzler, H.; Zietz, R. Observation of selectively excited continuous vacuum ultraviolet emission in molecular hydrogen. Phys. Rev. A 18, 1472 (1978) West Germany
1775	H06 hv + SF ₆	E	20-54 eV	Gustafsson, T. Partial photoionization cross sections of SF ₆ between 20 and 54 eV: an interpretation of the photoelectron spectrum. Phys. Rev. A 18, 1481 (1978) United States
1776	C07 Undef	T	Undef	DeVries, P. L.; George, T. F. Is photon angular momentum important in molecular collision processes occurring in a laser field. Phys. Rev. A 18, 1751 (1978) United States
1777	E02 e + H	T	50 eV	Srivastava, M. K.; Tripathi, A. N. Comments on the fixed-scatterer approximation to e-H scattering. Phys. Rev. A 18, 1756 (1978) India
1778	E03 e + H Seq	T	50-5000 eV	Mitra, C.; Sill, N. C. Excitation of hydrogenlike ions by electron impact. II. Phys. Rev. A 18, 1758 (1978) India
1779	A07 Cl* + Sn; Cl* + Sb; Cl* + Xe; Ar* + Sn; Ar* + Sb; Ar* + Xe	E	1-16 MeV	Middleworth, E. M., Jr.; Icenhue, D. J.; McIntyre, L. C., Jr.; Bernstein, E. M. Sharing of vacancies between closely matched K and L shells. Phys. Rev. A 18, 1765 (1978) United States

REF. NO.	REACTANTS	EXP CR THEOR	ENERGY RANGE	REFERENCE
1780	F01 Si	T		Tatewaki, H. Electronic structure of silicon Rydberg series. I. The (3pnd) $1D^0$, $3D^0$, $1F^0$, and $3F^0$ series. Phys. Rev. A 18, 1826 (1978) Japan
1781	F01 Si	T		Tatewaki, H.; Sasaki, F. Electronic structure of silicon Rydberg series. II. The (3pna) $1P^0$, $3P^0$ and (3pnd) $1P^0$, $3P^0$ series. Phys. Rev. A 18, 1837 (1978) Japan
1782	F01 H_p	T		Bishop, D. M.; Cheung, L. M. Rigorous theoretical investigation of the ground state of H_p . Phys. Rev. A 18, 1846 (1978) Canada
1783	F02 H	T		Silverstone, H. J. Perturbation theory of the Stark effect in hydrogen to arbitrarily high order. Phys. Rev. A 18, 1853 (1978) United States
1784	E02 $e + H_p$ E03 $e + H_p$ E17 $e + H_p$ G09 $e + H_p$	T	20-200 eV	Bhattacharyya, P. K.; Goswami, K. K.; Ghosh, A. S. Elastic and pure rotational excitation of the hydrogen molecule by intermediate-energy electrons. Phys. Rev. A 10, 1866 (1979) India
1785	A19 Ni + Ni; Ni + Nb	E	12-67 MeV	Vincent, P.; Davis, C. K.; Greenberg, J. S. Doppler-shift analysis of continuous x radiation from quasicluster systems. Phys. Rev. A 18, 1878 (1978) United States
1786	A07 $H^+ + Ar$; $C^+ + Ar$; $N^+ + Ar$; $O^+ + Ar$; $F^+ + Ar$; $Si^+ + Ar$; $Cl^+ + Ar$	E	1-28 MeV	Schmiedekamp, C.; Doyle, B. L.; Gray, I. J.; Gerdner, R. K.; Jamieson, K. A.; Richard, P. Projectile dependence of single-K multiple-L shell vacancy production in argon: a universal scaling of (1). Phys. Rev. A 18, 1892 (1978) United States
1787	E03 $e + H$ E05 $e + H$ E17 $e + H$	T	1-30 eV	Coulter, P. W.; Garrett, W. R. Electron-hydrogen scattering by complex-optical-potential methods. Phys. Rev. A 18, 1902 (1978) United States
1788	E01 Under	T	Under	Coulter, P. W. Calculation of inelastic cross sections from microscopic-optical-potentials. Phys. Rev. A 18, 1906 (1978) United States
1789	E05 $e + C^{3+}$; $e + N^{4+}$	E	60-530 eV	Crandall, D. H.; Pheneuf, F. A.; Taylor, F. G. Electron-impact ionization of C^{3+} and N^{4+} . Phys. Rev. A 18, 1911 (1978) United States
1790	A06 $He^+ + Ne^+$	E	0.1-500 eV	Tang, S. Y.; Newnaber, F. E. Charge transfer between helium ions and metastable neon. Phys. Rev. A 10, 1928 (1978) United States
1791	A03 $H^+ + H$ A06 $H^+ + H$ A07 $H^+ + H$ A18 $H^+ + H$	T	10-300 keV	Shkedy, R. Coupled-state calculations of proton-hydrogen-atom scattering using a scaled hydrogenic basis set. Phys. Rev. A 18, 1930 (1978) United States
1792	E02 $e + Li$ E10 $e + Li$ E17 $e + Li$	T	0-13.6 eV	Bhatia, A. K.; Tomkin, A.; Silver, A.; Sullivan, E. C. Modification of the method of polarized orbitals for electron-alkali-metal scattering: application to e-Li. Phys. Rev. A 18, 1936 (1978) United States

REF. NG.	REACTANTS	EXP OR THEOR	ENERGY RANGE	REFERENCE
1793	A07 S ⁺ + Ar; Cl ⁺ + Ar; Ar ⁺ + Ar; Mn ⁺ + Ar; Cu ⁺ + Ar; Ni ⁺ + Kr; Cu ⁺ + Kr; Ge ⁺ + Kr; As ⁺ + Kr; Se ⁺ + Kr; Br ⁺ + Kr; I ⁺ + Kr; Br ⁺ + Xe; I ⁺ + Xe A19 S ⁺ + Ar; Cl ⁺ + Ar; Ar ⁺ + Ar; Mn ⁺ + Ar; Cu ⁺ + Ar; Ni ⁺ + Kr; Cu ⁺ + Kr; Ge ⁺ + Kr; As ⁺ + Kr; Se ⁺ + Kr; Br ⁺ + Kr; I ⁺ + Kr; Br ⁺ + Xe; I ⁺ + Xe.	E	0.4-225 MeV	Lennard, W. N.; Mitchell, I. V.; Forster, J. S. Universal scaling law for K-vacancy production in heavy ion-atom single collisions. Phys. Rev. A 18, 1945 (1978) Canada
1794	A06 He ²⁺ + Li A07 He ²⁺ + Li A03 He ²⁺ + Li A17 He ²⁺ + Li; He ⁺ + Li ⁺ ; He + Li ²⁺	T	0.1-1000 keV	Shipsey, E. J.; Redmon, L. T.; Browne, J. C.; Cloon, R. E. Electron-capture and ionization cross sections for collisions of He ²⁺ with Li: production of He ⁺ (3l) at low velocities. Phys. Rev. A 18, 1961 (1978) United States
1795	A07 H Seq + Ne; H Seq + N; H Seq + Ar A03 H Seq + He; H Seq + N; H Seq + Ar A02 H Seq + He; H Seq + N; H Seq + Ar	T	Undef	Gillespie, G. H. Excitation and ionization contributions to sum-rule Born cross sections for collisions of one-electron ions with atoms. Phys. Rev. A 18, 1567 (1978) United States
1796	A06 O ⁸⁺ + H; He ²⁺ + H; H ⁺ + H	T	0.025-1600 keV	Ryufuku, H.; Watanabe, T. Charge transfer in collisions of atomic hydrogen with O ⁸⁺ , He ²⁺ , and He ⁺ . Phys. Rev. A 18, 2005 (1978) Japan
1797	A06 Undef	T	Undef	Spruch, L. High-impact-velocity hard charge transfer from high-Rydberg states as a classical process. Phys. Rev. A 18, 2016 (1978) United States
1798	C02 H ⁺ + Li; H ⁺ + Be; H ⁺ + B; H ⁺ + C; H ⁺ + Ne; H ⁺ + Al; H ⁺ + Si; H ⁺ + Ar; H ⁺ + Ca; D ⁺ + Li; D ⁺ + Be; D ⁺ + B; D ⁺ + C; D ⁺ + Ne; D ⁺ + Al; D ⁺ + Si; D ⁺ + Ar; D ⁺ + Ca	T	20-10 ⁴ keV	Gertner, I.; Meron, M.; Rosner, E. Electronic energy loss of ions in solids in the energy range 10-10 ⁴ keV/nucleon. Phys. Rev. A 18, 2022 (1978) Israel
1799	E12 e ⁺ + H; e ⁺ + He	T	Undef	Jean, Y.-C.; Schrader, L. M. Second-order nonadiabatic polarization potentials for positron-hydrogen and positron-helium elastic scattering. Phys. Rev. A 18, 2030 (1978) United States
1800	C06 H ⁺ + C; C ⁺ + C; N ⁺ + C; O ⁺ + C; Na ⁺ + C; Mg ⁺ + C; S ⁺ + C; Kr ⁺ + C C07 H ⁺ + C; C ⁺ + C; N ⁺ + C; O ⁺ + C; Na ⁺ + C; Mg ⁺ + C; S ⁺ + C; Kr ⁺ + C	E	100-400 keV	Christensen, B.; Veje, E.; Hvelplund, F. Experimental study of charge-state distributions and photon emissions from beam-tilted-fil interactions. Phys. Rev. A 18, 2042 (1978) Denmark
1801	E17 e + H E02 e + H	T	0.5-1.0 keV	Shakeshaft, R. Electron exchange scattering from a hydrogenlike atom at high impact velocities. Phys. Rev. A 18, 2047 (1978) United States
1802	A06 H ⁺ + H A18 H ⁺ + H	T	25 keV	Halpern, A. M. Variationally consistent approximation scheme for charge transfer. Phys. Rev. A 18, 2058 (1978) United States
1803	A07 He ⁺ + H	E	0.015-0.10 eV	Fort, J.; Leucagne, J. J.; Fanelle, A.; Watel, G. Velocity dependence of the cross sections for Penning and associative ionization of H and D atoms by He(2 ³ S) metastable atoms. Phys. Rev. A 18, 2063 (1978) France
1804	A07 He ⁺ + H ₂ ; He ⁺ + D ₂	E	0.04-0.2 eV	Fort, J.; Eclizinger, T.; Corne, L.; Etching, T.; Fanelle, A. Velocity dependence of the cross sections for Penning, rearrangement, and total ionization of H ₂ and D ₂ molecules by He(2 ³ S) and He(2 ¹ S) metastable atoms. Phys. Rev. A 18, 2075 (1978) France
1805	A03 He ⁺ + He A11 He ⁺ + He	E	2.8-4.7 eV	Burrell, C. F.; Kurze, H.-J. Collisional transfer rates between excited levels in helium. Phys. Rev. A 18, 2081 (1978) United States

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1806	A01 Undef	T	Undef	Deskov, Y. A.; Cstrcvskii, V. N.; Solcv'ev, E. A. Two-state approximation in the adiabatic and sudden-perturbative limits. Phys. Rev. A 18, 2089 (1978). Soviet Union
1807	A01 Undef	T	Undef	Deskov, Y. N.; Kunsasz, C. V.; Cstrcvskii, V. N. United-states approximation in the picture of E-II transitions during close atomic collisions. Phys. Rev. A 18, 2057 (1978). Soviet Union
1808	E02 e + H ₂	T	Undef	Fliflet, A. W.; McKoy, V. Discrete-basis-set method for electron-molecule continuum wave functions. Phys. Rev. A 18, 2107 (1978). United States
1809	H06 hv + Fe; hv + Fe ⁺ ; hv + Fe ²⁺ ; hv + Fe ³⁺ ; hv + Fe ⁴⁺ ; hv + Fe ⁵⁺ ; hv + Fe ⁶⁺ ; hv + Fe ⁷⁺ ; hv + Fe ⁸⁺ ; hv + Fe ⁹⁺ ; hv + Fe ¹⁰⁺ ; hv + Fe ¹¹⁺ ; hv + Fe ¹²⁺ ; hv + Fe ¹³⁺ ; hv + Fe ¹⁴⁺ ; hv + Fe ¹⁵⁺ ; hv + Fe ¹⁶⁺ ; hv + Fe ¹⁷⁺ ; hv + Fe ¹⁸⁺ ; hv + Fe ¹⁹⁺ ; hv + Fe ²⁰⁺ ; hv + Fe ²¹⁺ ; hv + Fe ²²⁺ ; hv + Fe ²³⁺ ; hv + Fe ²⁴⁺	T	0-700 Ry	Reilman, R. F.; Mason, S. I. Photoionization of positive ions. II. Iron. Phys. Rev. A 18, 2124 (1978). United States
1810	H06 hv + Fe	E	8.05 eV	Leibardi, G. G.; Smith, P. L.; Parkinson, W. H. Measurement of the photoionization cross section of neutral iron. Phys. Rev. A 18, 2131 (1978). United States
1811	A11 Ba ⁺ + Ba	E	300 K	Kelly, F. M.; Mathur, M. S. 6p ² F levels of ionized barium: lifetimes and depolarization cross sections. Phys. Rev. A 18, 2135 (1978). Canada
1812	F02 H	E		Grutzmacher, K.; Wende, B. Stark broadening of the hydrogen resonance line L(sub β) in a dense equilibrium plasma. Phys. Rev. A 18, 2140 (1978). West Germany
1813	H02 hv + Al; hv + Fe; hv + Mo; hv + Ag; hv + W; hv + Pt	E	52-85 keV	Prasad, R. Total photo-absorption cross-section measurements at 52.4, 60, 72.2, and 84.4 keV in Al, Fe, Mo, Ag, W, and Pt: photoelectric cross sections deduced. Phys. Rev. A 18, 2167 (1978). India
1014	H00 2hv + He ⁺	T	5045-5042 A ⁰	Mathur, K. C. Laser-induced gas breakdown: multipole interference in the two-photon ionization of metastable helium. Phys. Rev. A 18, 2170 (1978). India
1815	A12 Cu ⁺ + He; Cu ⁺ + Ne A11 Cu ⁺ + He; Cu ⁺ + Ne	E	300 K	Chen, C. J. Measurement of induced-emission cross section and line broadening of copper laser lines 4p ² P _{3/2} -4S ² D _{5/2} and 4p ² F _{5/2} -4S ² D _{3/2} . Phys. Rev. A 18, 2152 (1978). United States
1816	C02 He ⁺ + Be; He ⁺ + C; He ⁺ + Al; He ⁺ + Ti; He ⁺ + Ni; He ⁺ + Ge; He ⁺ + Zr; He ⁺ + Ag; He ⁺ + Eu; He ⁺ + Ta; Be ⁺ + Be; Be ⁺ + C; Be ⁺ + Al; Be ⁺ + Ti; Be ⁺ + Ni; Be ⁺ + Ge; Be ⁺ + Zr; Be ⁺ + Ar; Be ⁺ + Eu; Be ⁺ + Ta; C ⁺ + Be; C ⁺ + C; C ⁺ + Al; C ⁺ + Ti; C ⁺ + Ni; C ⁺ + Ge; C ⁺ + Zr; C ⁺ + Ag; C ⁺ + Eu; C ⁺ + Ta; Al ⁺ + Be; Al ⁺ + C; Al ⁺ + Al; Al ⁺ + Ti; Al ⁺ + Ni; Al ⁺ + Ge; Al ⁺ + Zr; Al ⁺ + Ag; Al ⁺ + Eu; Al ⁺ + Ta; Ti ⁺ + Be; Ti ⁺ + C; Ti ⁺ + Al; Ti ⁺ + Ni; Ti ⁺ + Ni; Ti ⁺ + Ge; Ti ⁺ + Zr; Ti ⁺ + Ag; Ti ⁺ + Eu; Ti ⁺ + Ta; Ni ⁺ + Be; Ni ⁺ + C; Ni ⁺ + Al; Ni ⁺ + Ti; Ni ⁺ + Ni; Ni ⁺ + Ge; Ni ⁺ + Zr; Ni ⁺ + Ag; Ni ⁺ + Eu; Ni ⁺ + Ta; PERT + PERT; PERT + PERT	T	Undef	Cruz, S. A.; Cisneros, C.; Alvaroa, I. Addendum to individual orbital contribution to the electronic stopping cross section in the low-velocity region. Phys. Rev. A 18, 2266 (1978). Mexico
1817	A06 H ⁺ + H; He ²⁺ + H; Be ⁺⁺ + H	T	100-800 keV	Golden, J. E.; McGuire, J. H.; Chilver, K. Electron capture from atomic hydrogen into excited n, l levels of projectiles with Z greater than or equal to 1. Phys. Rev. A 18, 2373 (1978). United States

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1818	E02 e + H ₂ E17 e + H ₂ E10 e + H ₂	T	30-200 eV	Srivastava, M. K.; Tripathi, A. N.; Lal, M. Exchange effects in the independent-atom model of electron-molecule scattering. Phys. Rev. A 18, 2377 (1978) India
1819	A07 H ⁺ + He	T	300 K	Shekeshaf, R. Comment on the first-order Faddeev approximation for ionization of atoms by ion impact. Phys. Rev. A 18, 2381 (1978) United States
1820	A01 Undef E01 Undef	T	300 keV	Sur, S. K.; Mukherjee, S. C.; Sii, A. C. Comment on the Glauber scattering amplitude for helium targets. Phys. Rev. A 18, 2384 (1978) India
1821	A12 Na ⁺ + Ar A03 Na ⁺ + Ar A11 Na ⁺ + Ar	E	300 K	Grynberg, G.; Biraben, F.; Kolbas, M.; Cognac, B. Comment on collision-processes involved in two-photon near-resonance light scattering from an atomic level. Phys. Rev. A 18, 2387 (1978) France
1822	E03 e + H E17 e + H	T	54-100 eV	Singh, S. N.; Kumar, S.; Srivastava, M. K. Electron-impact excitation of hydrogen atom in the two-potential eikonal approximation. Phys. Rev. A 18, 2391 (1978) India
1823	E02 e + He F01 He ⁻	T	E02 Undef	Junker, B. R. Complex-coordinate method. II. Resonance calculations with correlated target-state wave functions. Phys. Rev. A 18, 2437 (1978) United States
1824	D04 Ar ⁺ + W; Ar ²⁺ + W; Kr ⁺ + W; Kr ²⁺ + W; Xe ⁺ + W; Xe ²⁺ + W; Xe ³⁺ + W; Kr ³⁺ + W; Ar ³⁺ + W; Ne ³⁺ + W; Xe ⁴⁺ + W; Kr ⁴⁺ + W; Xe ⁵⁺ + W	E	100 eV	Varga, F.; Winter, H. Determination of metastable fractions in noble-gas-ion beams. Phys. Rev. A 18, 2453 (1978) Austria
1825	A08 I ⁵⁺ + Xe; I ⁵⁺ + Ar; I ⁵⁺ + N ₂ ; Cl ¹⁺ + Xe; Cl ¹⁺ + Ar; Cl ¹⁺ + N ₂	E	20 MeV	Scott, H. A.; Bridwell, L. E.; Moak, C. D.; Altch, G. D.; Jones, C. M.; Miller, F. D.; Syer, R. C.; Kessel, Q. C.; Antar, A. Electron-loss cross sections for 20-MeV Cl ¹⁺ and I ⁵⁺ ions incident on thin gaseous targets: experimental measurements and potential-model data analyses. Phys. Rev. A 18, 2459 (1978) United States
1826	A06 H ⁺ + He; He ²⁺ + He; Li ²⁺ + He; Be ²⁺ + He; B ³⁺ + He; C ⁴⁺ + He; N ⁷⁺ + He; O ⁸⁺ + He A07 H ⁺ + He; He ²⁺ + He; Li ²⁺ + He; Be ²⁺ + He; B ³⁺ + He; C ⁴⁺ + He; N ⁷⁺ + He; O ⁸⁺ + He	T	100-8000 keV	Olson, R. E. Electron-capture and impact-ionization cross sections for multiply charged ions colliding with helium. Phys. Rev. A 18, 2464 (1978) United States
1827	C05 O ⁺ + Ne; O ⁺ + Xe; O ⁺ + N ₂ ; O ⁺ + O ₂ ; O ⁺ + CO; O ⁺ + CO ₂ ; O ⁺ + H ₂ O; Xe ⁺ + Ne; Xe ⁺ + Xe; Xe ⁺ + N ₂ ; Xe ⁺ + O ₂ ; Xe ⁺ + CO; Xe ⁺ + CO ₂ ; Xe ⁺ + H ₂ O; Pb ⁺ + Ne; Pb ⁺ + Xe; Pb ⁺ + N ₂ ; Pb ⁺ + O ₂ ; Pb ⁺ + CO; Pb ⁺ + CO ₂ ; Pb ⁺ + H ₂ O	E T	50 keV	Besentecher, F.; Heineseler, J.; Hveiplund, P.; Knudsen, E. Influence of spatial correlation between target atoms on the scattering of energetic ions: multiple scattering in molecular gases. Phys. Rev. A 18, 2470 (1978) Denmark
1828	A07 Cl ¹⁺ + Cl; Cl ¹⁺ + Ti; Cl ¹⁺ + Ni	E	35 MeV	Tserruya, I.; Schmidt-Ecking, H.; Schuch, R. K-shell ionization probability in energetic nearly symmetric heavy-ion collisions. Phys. Rev. A 18, 2482 (1978) Israel
1829	A12 He ⁺ + He ⁺ C08 e + He ⁺	T	Undef	Bassalo, J. M.; Cattani, M. Electron-impact widths and shifts of neutral helium lines in a plasma. Phys. Rev. A 18, 2488 (1978) Brazil
1830	E03 e + CH ⁺	T	0.003-5.0 eV	Mathur, K. C. Rotational excitation of CH ⁺ by electron impact. Phys. Rev. A 18, 2493 (1978) India

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1831	A02 Ca ⁺ + Ca A06 Ca ⁺ + Ca A07 Ca ⁺ + Ca A14 Ca ⁺ + Ca A17 Ca ⁺ + Ca	T	10-10000 eV	Liu, B.; Olson, R. E. Potential energies for Ca ₂ ⁺ ; cross sections for collisions of Ca ⁺ and Rydberg Ca ⁺ with Ca. Phys. Rev. A 18, 2456 (1978) United States
1832	E11 Undef	T	Undef	Olsen, H. A.; Maximon, L. C. High-frequency limit of bremsstrahlung. Phys. Rev. A 18, 2517 (1978) United States
1833	F01 Be ⁺ ; B ²⁺ ; C ³⁺	T		Bhatia, A. K. Autoionization states of Li, Be ⁺ , B ²⁺ , and C ³⁺ . Phys. Rev. A 18, 2523 (1978) United States
1834	A10 Ar ⁺ + N ₂ A11 Ar ⁺ + N ₂ F01 N ₂ ⁺ ; N ₂ ⁺⁺	E	A10; A11 663 K	Bennett, W. H., Jr.; Flint, J. Ar(2P _{1/2})-N ₂ (C ³⁺ sub u) excitation transfer cross section and radiative lifetimes of the nitrogen-molecular-laser transitions. Phys. Rev. A 18, 2527 (1978) United States
1835	B01 Undef	T		Cook, R. J.; Earnhardt, A. F. Deflection of atoms by a resonant standing electromagnetic wave. Phys. Rev. A 18, 2533 (1978) United States
1836	H01 Undef	T	Undef	Rosenberg, L. Continuum level-shift effects in the theory of multiphoton transitions. Phys. Rev. A 18, 2557 (1978) United States
1837	H04 Undef	T	Undef	Baer, T. Spherical-tensor treatment of coherent transients. Phys. Rev. A 18, 2570 (1978) United States
1838	H02 hν + Sr H08 hν + Sr	E T	1920 Å	Scheingraber, H.; Fuell, H.; Vidal, C. F. Quantitative analysis of resonant third harmonic generation in strontium. Phys. Rev. A 18, 2585 (1978) West Germany
1839	A06 B + Mg; Sb + Mg; C + Mg; O + Mg; Cl + Mg; B ⁺ + Mg; Sb ⁺ + Mg; C ⁺ + Mg; O ⁺ + Mg; Cl ⁺ + Mg A16 B ⁻ + Mg; Sb ⁻ + Mg; C ⁻ + Mg; O ⁻ + Mg; Cl ⁻ + Mg C05 PERT + H; PERT + Li; PERT + Mg; PERT + Na; PERT + K; PERT + Ca; PERT + Au C06 Ba ⁺ + Mg; B ⁺ + Mg; C ⁺ + Mg; O ⁺ + Mg; Al ⁺ + Mg; Cl ⁺ + Mg; In ⁺ + Mg; Sb ⁺ + Mg; Te ⁺ + Mg; I ⁺ + Mg; Fe ⁺ + Mg; Au ⁺ + Mg	E T	15-90 keV	Heinemeier, J.; Hvelplund, F. Production of 15-90 keV negative heavy ions by charge exchange with Mg vapour. Nucl. Instrum. Methods 148, 65 (1978) Denmark
1840	D14 D ⁺ + Cu	E	200 keV	Johnson, F. B.; Armstrong, T. R. In-situ detection of radiation blistering and dynamic deuterium depth profiling during D ⁺ bombardment of solids. Nucl. Instrum. Methods 148, 65 (1978) New Zealand
1841	C02 He ²⁺ + Si; He ²⁺ + Ni; He ²⁺ + Ge; He ²⁺ + Y; He ²⁺ + Ag; He ²⁺ + Au C03 He ²⁺ + Si; He ²⁺ + Ni; He ²⁺ + Ge; He ²⁺ + Y; He ²⁺ + Ag; He ²⁺ + Au	E T	1-20 MeV	Porter, L. E. Mean excitation energies of Si, Ni, Ge, Y, Ag and Au based on alpha particle stopping power measurements. Nucl. Instrum. Methods 148, 115 (1978) United States
1842	C05 H ⁺ + Si; D ⁺ + Si; He ²⁺ + Si	E	6.6-24 MeV	Vincour, J.; Ben, F. Multiple scattering of fast charged particles in siliccr. Nucl. Instrum. Methods 148, 365 (1978) Czechoslovakia
1843	C06 Li ⁺ + Na; Be ⁺ + Na; B ⁺ + Na; C ⁺ + Na; O ⁺ + Na; Na ⁺ + Na; Mg ⁺ + Na; Al ⁺ + Na; Cl ⁺ + Na; Ca ⁺ + Na; Fe ⁺ + Na; Au ⁺ + Na	E	10-80 keV	Heinemeier, J.; Hvelplund, F. Production of 10-80 keV negative heavy ions by charge exchange in Na vapour. Nucl. Instrum. Methods 148, 425 (1978) Denmark

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1844	H06 hv + Au	E	18-60 keV	Chang, C.-N.; Su, W.-H. The relative photoionization cross section measurement by x-ray detection. Nucl. Instrum. Methods 148, 561 (1978) Taiwan
1845	D16 He ⁺ + ErD ₂ ; He ⁺ + ErT ₂	E T	20-140 keV	Blewer, R. S. Using the proton backscattering method of light element profiling to achieve tailored low Z impurity distributions in solids. Nucl. Instrum. Methods 149, 47 (1978) United States
1846	D14 He ⁺ + Nb D16 He ⁺ + Nb	E	30-50 keV	Roth, J.; Scherzer, B. M. U.; Ehrisch, R.; Borgesen, P. The replacement of ³ He implanted in Nb by subsequent ⁴ He bombardment and vice versa. Nucl. Instrum. Methods 149, 53 (1978) United States
1847	D16 D ⁺ + SS	E	7 keV	Altstetter, C. J.; Behrisch, F.; Böttiger, J.; Pohl, F.; Scherzer, B. M. U. Depth profiling of certerium implanted into stainless steel at room temperature. Nucl. Instrum. Methods 149, 55 (1978) West Germany
1848	C02 Li ⁺ + PERT; Li ⁺ + HCl; Li ⁺ + LiCl; Li ⁺ + NaCl; Li ⁺ + NK ₂ Cl; Li ⁺ + KCl; Li ⁺ + RbCl; Li ⁺ + LiCl; Li ⁺ + ... ZnCl ₂ ; Li ⁺ + TiB ₂ ; Li ⁺ + TaB; Li ⁺ + TaB ₂ ; Li ⁺ + LiBH ₄ ; Li ⁺ + NaBH ₄ ; Li ⁺ + KBH ₄	E T	75 keV	Newirth, W.; Pietsch, W.; Kreutz, R. Chemical influences on the stopping power. Nucl. Instrum. Methods 149, 105 (1978) West Germany
1849	C02 He ⁺ + Ar; He ⁺ + C ₂ ; He ⁺ + CO ₂	E	0.5-2.0 MeV	Chu, W. K.; Braun, M.; Davies, J. A.; Matsunami, N.; Thompson, D. A. Energy loss of He ions in solidified gases. Nucl. Instrum. Methods 149, 115 (1978) Canada
1850	C02 Li ⁺ + H ₂ ; Li ⁺ + He; Li ⁺ + CO ₂ ; Li ⁺ + N ₂ ; Li ⁺ + O ₂ ; Li ⁺ + Ne; Li ⁺ + Ar; Li ⁺ + Kr; Li ⁺ + Xe C05 Li ⁺ + H ₂ ; Li ⁺ + He; Li ⁺ + CO ₂ ; Li ⁺ + N ₂ ; Li ⁺ + O ₂ ; Li ⁺ + Ne; Li ⁺ + Ar; Li ⁺ + Kr; Li ⁺ + Xe	E	55-500 keV	Andersen, H. H.; Esentbächer, F.; Knudsen, H. Stopping power and straggling of 65-500 keV lithium ions H ₂ , He, CO ₂ , N ₂ , C ₂ , Ne, Ar, Kr, and Xe. Nucl. Instrum. Methods 149, 121 (1978) Denmark
1851	C02 He ⁺ + PERT; H ⁺ + PERT	E T	10-4x10 ⁴ keV	Ziegler, J. F. The calculation of low energy He ion stopping powers. Nucl. Instrum. Methods 149, 125 (1978) United States
1852	C02 H ⁺ + Cu; H ⁺ + Ag; H ⁺ + La; He ⁺ + Cu; He ⁺ + Ag	E	200-2000 keV	Andersen, H. H.; Knudsen, F.; Martini, V. An improved method for measuring relative stopping powers of light ions in solids. Nucl. Instrum. Methods 149, 137 (1978) Denmark
1853	C02 N ⁺ + C; Ne ⁺ + C; Br ⁺ + C; I ⁺ + Ag	T	0-3.3 MeV	Brennan, J. G.; Land, D. J.; Brown, M. D.; Simons, E. G. Theoretical interpretations of the energy dependence of electronic stopping power. Nucl. Instrum. Methods 149, 143 (1978) United States

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1854	C02 H ⁺ + C; H ⁺ + Ni; H ⁺ + Co; H ⁺ + Nb; He ⁺ + C; He ⁺ + Ni; He ⁺ + Co; He ⁺ + Nb; Li ⁺ + C; Li ⁺ + Ni; Li ⁺ + Co; Li ⁺ + Nb; Be ⁺ + C; Be ⁺ + Ni; Be ⁺ + Co; Be ⁺ + Nb; B ⁺ + C; B ⁺ + Ni; B ⁺ + Co; B ⁺ + Nb; C ⁺ + C; C ⁺ + Ni; C ⁺ + Co; C ⁺ + Nb; N ⁺ + C; N ⁺ + Ni; N ⁺ + Co; N ⁺ + Nb; O ⁺ + C; O ⁺ + Ni; O ⁺ + Co; O ⁺ + Nb; F ⁺ + C; F ⁺ + Ni; F ⁺ + Co; F ⁺ + Nb; Ne ⁺ + C; Ne ⁺ + Ni; Ne ⁺ + Co; Ne ⁺ + Nb; N ⁺ + Al; N ⁺ + Cu; N ⁺ + Ag; N ⁺ + Au; N ⁺ + Zn; N ⁺ + Ti; N ⁺ + Si; N ⁺ + Na; O ⁺ + Al; O ⁺ + Cu; O ⁺ + Ag; O ⁺ + Au; O ⁺ + Zn; O ⁺ + Ti; O ⁺ + Si; O ⁺ + Na; F ⁺ + Al; F ⁺ + Cu; F ⁺ + Ag; F ⁺ + Au; F ⁺ + Zn; F ⁺ + Ti; F ⁺ + Si; F ⁺ + Na; Ne ⁺ + Al; Ne ⁺ + Cu; Ne ⁺ + Ag; Ne ⁺ + Au; Ne ⁺ + Zn; Ne ⁺ + Ti; Ne ⁺ + Si; Ne ⁺ + Na; He ⁺ + Al; He ⁺ + Cu; He ⁺ + Ag; He ⁺ + Au; He ⁺ + Zn; He ⁺ + Ti; He ⁺ + Si; He ⁺ + Na D02 Ne ⁺ + Cu	E	0.2-0.3 MeV	Mertens, P. Energy loss of light 300 keV ions in thin metal foils. Nucl. Instrum. Methods 149, 149 (1978) West Germany
1855	C02 D ⁺ + Ni	E	80-280 keV	Lurio, A.; Ziegler, J. F.; Cucuc, J. J. A new method for the determination of low-energy stopping powers of hydrogen and helium. Nucl. Instrum. Methods 149, 155 (1978) United States
1856	C02 H ⁺ + Au	E	360-650 keV	Senrad, D.; Bauer, P. Stopping cross sections for protons of 350-650 keV in Au, by a new method. Nucl. Instrum. Methods 149, 165 (1978) Austria
1857	C02 He ⁺ + Au	E	0.5-2.1 MeV	Mattessen, S.; Morris, J. M.; Fretorius, R.; Nicolet, M.-A. Precision stopping cross section measurement of gold for ⁴ He. Nucl. Instrum. Methods 149, 163 (1978) United States
1858	C02 Li ⁺ + Al; Li ⁺ + Al ₂ O ₃ ; He ²⁺ + Al ₂ O ₃	E	0.3-3.5 MeV	Thomas, J. F.; Fallavier, M. Lithium ion production and use for backscattering analysis in aluminum and aluminum oxide sedie. Nucl. Instrum. Methods 149, 169 (1978) France
1859	C05 H ⁺ + Au; H ⁺ + Ag	E	0.35-1.7E MeV	Meller, W.; Nocken, U. The energy straggling of protons in thin metal foils at 0.3E, 1.0E, and 1.7E MeV. Nucl. Instrum. Methods 149, 177 (1978) West Germany
1860	C05 H ⁺ + C	E	1.7 MeV	Brice, E. K.; Langley, R. A. Analysis of straggling measurements by the backscattering technique. Nucl. Instrum. Methods 149, 191 (1978) United States
1861	C05 H ⁺ + C	E	25-2100 keV	Langley, R. A.; Brice, E. K. Energy straggling of protons in carbon. Nucl. Instrum. Methods 149, 155 (1978) United States
1862	C02 Ne ⁺ + C; Ar ⁺ + C	E	40-240 keV	Beauchemin, G.; Drcuin, R. Study of energy loss ΔE(Theta) as function of emergence angle for neon and argon ions on carbon foils. Nucl. Instrum. Methods 149, 199 (1978) Canada
1863	D10 He ⁺ + Cu; Li ⁺ + Cu; Cl ⁺ + Cu	E	25 keV	L'Ecuyer, J.; Breesard, C.; Cardinal, C.; Terreault, B. The use of 0.1 and ³⁶ Cl ion beams in surface analysis. Nucl. Instrum. Methods 149, 271 (1978) Canada
1864	C08 H ⁺ + Si; H ⁺ + Bi	T	3-5 MeV	Ohtsuki, Y. H.; Osura, T.; Tenaka, H.; Kitagawa, M. Dechanneling theory for axial and planar conditions. Nucl. Instrum. Methods 149, 361 (1978) Japan
1865	D15 Ne ⁺ + V; N ⁺ + V; Ne ⁺ + Mo; C ⁺ + Mo	E	50-320 keV	Linker, G. Channeling analysis of radiation disorder in ion implanted vanadium and molybdenum single crystals. Nucl. Instrum. Methods 149, 365 (1978) West Germany

REF. NO.	REACTANTS	EXP OR THEOR	ENERGY RANGE	REFERENCE
1866	C08 D ⁺ + V ₃ Si; He ⁺ + V ₃ Si	E	1.7-2.0 MeV	Meyer, C. Channeling effect studies in V ₃ Si single crystals. Nucl. Instrum. Methods 149, 377 (1978) West Germany
1867	C08 He ⁺ + Si	E	2.0 MeV	Foti, G.; Caspregi, L.; Kennedy, E. F.; Meyer, J. h.; Prcnko, P. P.; Rehtin, M. D. The effect of twins on dechanneling a charged particle beam. Nucl. Instrum. Methods 149, 381 (1978) United States
1868	C08 He ⁺ + Si	E	0.25-2.0 MeV	Lurio, A.; Keller, J.; Chu, W. K. Channeling dips for Si K and L x-ray yield. Nucl. Instrum. Methods 149, 3E7 (1978) United States
1869	D16 Ti ⁺ + Be; Pb ⁺ + Be; Bi ⁺ + Be; Ga ⁺ + Be; W ⁺ + Be; Os ⁺ + Be	E	100-200 keV	Vianden, F.; Kaufmann, E. N. Recart lattice location results for implanted impurities in beryllium metal. Nucl. Instrum. Methods 145, 353 (1978) United States
1870	C08 H ⁺ + Si; He ⁺ + Si	E	1.5-2.0 MeV	Wiggers, L. W.; Saris, F. W. Displacement of group III, IV, V, and VI impurities in Si by the analyzing beam. Nucl. Instrum. Methods 145, 355 (1978) The Netherlands
1871	C08 D _p ⁺ + VD; D _p ⁺ + VOD	E	2 MeV	Ozawa, M.; Yamaguchi, S.; Fujino, Y.; Yoshinari, G.; Koike, M.; Hirabayashi, M. Channeling studies on the trapping of deuterium in vanadium by oxygen interstitials. Nucl. Instrum. Methods 149, 405 (1978) Japan
1872	C08 He ⁺ + NiCr ₂ O ₄	E	1.5 MeV	Kollewe, E.; Gibson, W. M. Application of particle channeling to the study of a cooperative Jahn-Teller phase transition in nickel chromite. Nucl. Instrum. Methods 149, 411 (1978) United States
1873	C08 He ⁺ + NiSi ₂	E	0.8-1.5 MeV	Ishiwara, H.; Negatomo, M.; Furukawa, S. A structure modeling of metal-silicide layers by using axial and planar channeling techniques. Nucl. Instrum. Methods 145, 417 (1978) Japan
1874	D16 Cu ⁺ + Cu	E	200 keV	Agrawal, M. K.; Socci, D. K. On the determination of the nature of defect clusters in irradiated metals by Rutherford backscattering. Nucl. Instrum. Methods 145, 425 (1978) India
1875	C08 Undef	T	Undef	Ellison, J. A.; Picraux, E. T. Statistical equilibrium spatial density in planar channeling. Nucl. Instrum. Methods 149, 429 (1978) United States
1876	C08 Undef	T	Undef	Matsunami, N.; Goto, T.; Itoh, N. Energy and temperature dependences of dechanneling by displaced atoms. Nucl. Instrum. Methods 145, 430 (1978) Japan
1877	A03 He ⁺ + Pb; He ⁺ + Te D12 He ⁺ + Pb; He ⁺ + Te	E	0.5-2.0 MeV	Baeri, F.; Campisano, S. U.; Ise, G.; Rimini, E.; Della Mea, G. Thick sample analysis by ion induced x-rays. Nucl. Instrum. Methods 145, 435 (1978) Italy

REF. NO.	REACTANTS	EXP CR THEOR	ENERGY RANGE	REFERENCE
1878	A03 H ⁺ + Ti; H ⁺ + Fe; H ⁺ + Cu; H ⁺ + Se; H ⁺ + Y; H ⁺ + Sn; H ⁺ + Cs; H ⁺ + Ce; H ⁺ + Sm; H ⁺ + Ho; H ⁺ + W; H ⁺ + Au; He ²⁺ + Ti; He ²⁺ + Fe; He ²⁺ + Cu; He ²⁺ + Se; He ²⁺ + Y; He ²⁺ + Sn; He ²⁺ + Cs; He ²⁺ + Ce; He ²⁺ + Sm; He ²⁺ + Ho; He ²⁺ + W; He ²⁺ + Au A07 H ⁺ + Ti; H ⁺ + Fe; H ⁺ + Cu; H ⁺ + Se; H ⁺ + Y; H ⁺ + Sn; H ⁺ + Cs; H ⁺ + Ce; H ⁺ + Sm; H ⁺ + Ho; H ⁺ + W; H ⁺ + Au; He ²⁺ + Ti; He ²⁺ + Fe; He ²⁺ + Cu; He ²⁺ + Se; He ²⁺ + Y; He ²⁺ + Sn; He ²⁺ + Cs; He ²⁺ + Ce; He ²⁺ + Sm; He ⁺ + Ho; He ²⁺ + W; He ²⁺ + Au D12 H ⁺ + Ti; H ⁺ + Fe; H ⁺ + Cu; H ⁺ + Se; H ⁺ + Y; H ⁺ + Sn; H ⁺ + Cs; H ⁺ + Ce; H ⁺ + Sm; H ⁺ + Ho; H ⁺ + W; H ⁺ + Au; He ²⁺ + Ti; He ²⁺ + Fe; He ²⁺ + Cu; He ²⁺ + Se; He ²⁺ + Y; He ²⁺ + Sn; He ²⁺ + Cs; He ²⁺ + Ce; He ²⁺ + Sm; He ²⁺ + Ho; He ²⁺ + W; He ²⁺ + Au	E	4-30 MeV	Poncet, M.; Engelsmann, C. Study of the x-ray emission induced by 4 to 30 MeV protons or alpha particles, with a view to analytical application. Nucl. Instrum. Methods 149, 461 (1978) France
1879	A03 H ⁺ + C; C ⁺ + C; N ⁺ + C; O ⁺ + C A07 H ⁺ + C; C ⁺ + C; N ⁺ + C; O ⁺ + C D12 H ⁺ + C; C ⁺ + C; N ⁺ + C; O ⁺ + C	E	0.001-20 MeV	Martin, F. W. Advantages of heavy ions for high-resolution microscopy. Nucl. Instrum. Methods 145, 475 (1978) United States
1880	D03 Review	E	1-100 keV	White, C. b. Ion induced optical emission for surface and depth profile analysis. Nucl. Instrum. Methods 145, 467 (1978) United States
1881	D03 Ar ⁺ + Al; Ar ⁺ + Ni; Ar ⁺ + Cu; Ar ⁺ + Zn; Ar ⁺ + Au; Ar ⁺ + SiC; Ar ⁺ + GaP; Ar ⁺ + GaAs; Ar ⁺ + InAs; Ar ⁺ + InSb	E	50-400 keV	Knudson, A. R.; Nagel, D. J.; Comas, J.; Hill, K. W. Ion-excited UV lines useful for materials analysis. Nucl. Instrum. Methods 145, 507 (1978) United States
1882	D08 H ⁺ + Mo; H ⁺ + [D + Mo]	E	20 keV	Rausch, E. O.; Thomas, E. b. Backscattering of excited hydrogen from Mo in the presence of oxygen. Nucl. Instrum. Methods 145, 511 (1978) United States
1883	D08 He ⁺ + C; Ne ⁺ + C; Ar ⁺ + C	E	0.05-3.0 MeV	Berry, L. G.; Gabrielse, G.; Livingston, A. E. Orientation of fast ions excited in surface collisions. Nucl. Instrum. Methods 145, 517 (1978) United States
1884	C04 H ⁺ + Si; H ₂ ⁺ + Si C05 H ⁺ + Si; H ₂ ⁺ + Si D16 H ⁺ + Si; H ₂ ⁺ + Si	E	30-100 keV	Mogoc, C. W.; Wu, C. P. Hydrogen ion implantation profiles as determined by SIMS. Nucl. Instrum. Methods 145, 525 (1978) United States
1885	D03 Ar ⁺ + K; Ar ⁺ + Al; Ar ⁺ + Ti; O ₂ ⁺ + Ti	E	0.5-2.8 keV	Krause, A. F.; Gruen, I. M. Energy analyzed secondary ion mass spectroscopy and simultaneous Auger and XPS measurements of ion bombarded surfaces. Nucl. Instrum. Methods 149, 547 (1978) United States
1886	D02 Review D17 Review	T	UnDef	Kelly, F. An attempt to understand preferential sputtering. Nucl. Instrum. Methods 149, 563 (1978) Canada
1887	D03 Ne ⁺ + [H + W]; Ne ⁺ + [U + W]; Ne ⁺ + [D + W]	E	0.5 keV	Yu, M. L. Isotope effect in the study of H-w(100) and O-w(100) chemisorption systems using SIMS. Nucl. Instrum. Methods 149, 559 (1978) United States
1888	D03 Kr ⁺ + Be; Kr ⁺ + BeO; Kr ⁺ + Al; Kr ⁺ + Al ₂ O ₃ ; Kr ⁺ + Sc; Kr ⁺ + GaAs; Kr ⁺ + Y; Kr ⁺ + In; Kr ⁺ + Ti	E T	12 keV	Kelly, F.; Good-Zamin, C. J.; Shehata, M. T.; Squires, D. B. An attempt to understand secondary photon emission. Nucl. Instrum. Methods 145, 563 (1978) Canada
1889	D08 H ⁺ + Au; H ⁺ + Si; H ⁺ + Al; H ⁺ + Bi; He ⁺ + Au; He ⁺ + Si; He ⁺ + Al; He ⁺ + Bi; Ne ⁺ + Zr; Ne ⁺ + Cu; Ne ⁺ + Ni	E	1-2 keV	Brcngeress, H. H.; Buck, T. M. Low-energy ion scattering (LEIS) for composition and structure analysis of the outer surface. Nucl. Instrum. Methods 145, 565 (1978) The Netherlands

REF. NO.	REACTANTS	EXP OR THEOR	ENERGY RANGE	REFERENCE
1890	C08 H ⁺ + Si D08 H ⁺ + Si	E T	20-100 keV	Ichinokawa, T.; Kawamura, T.; Nakamura, H.; Fujisaka, F.; Kosaki, K. Angular variations of backscattering yield with 20 keV proton bombardment. Nucl. Instrum. Methods 145, 577 (1978) Japan
1891	D08 He ⁺ + Pb; He ⁺ + Bi; He ⁺ + Bi ₂ O ₃ ; He ⁺ + PbCl ₂ ; He ⁺ + Pb(NO ₃) ₂	E	165-2500 eV	Christensen, E. L.; Mossotti, V. G.; Fusch, T. W.; Erickson, F. L. Oscillatory scattered ion yields from nonconductive materials. Nucl. Instrum. Methods 149, 587 (1978) United States
1892	D08 Ne ⁺ + Au; Ne ⁺ + Si	E	Undef	Buck, T. M.; Wheatley, G. H.; Miller, G. L.; Robinson, D. A. H.; Chen, Y.-S. Comparison of a time-of-flight system with an electrostatic analyzer in low-energy ion scattering. Nucl. Instrum. Methods 149, 591 (1978) United States
1893	D08 H ⁺ + Si; He ⁺ + Si; N ⁺ + Si; H ⁺ + [Ag + Si]; He ⁺ + [Ag + Si]; N ⁺ + [Ag + Si]	E	5-20 keV	Agamy, E. A.; Robinson, J. E. Surface analysis using medium energy ion and neutral scattering. Nucl. Instrum. Methods 145, 895 (1978) Canada
1894	D08 He ⁺ + Ni; Ne ⁺ + Ni	E	1.5-15 keV	Ecksteir, W.; Melchanov, V. A.; Verbeek, H. The charge state of He and Ne backscattering from Ni in the energy range of 1.5-15 keV. Nucl. Instrum. Methods 149, 599 (1978) West Germany
1895	D13 He ⁺ + [CO + Ni]; He ⁺ + [H ₂ + W]; Ne ⁺ + [CO + Ni]; Ne ⁺ + [S + Ni]	E	0.2-2.0 keV	Taglauer, E.; Beltst, L.; Heiland, W. Investigation of ion impact desorption of atoms and molecules by low energy ion scattering (ISS). Nucl. Instrum. Methods 145, 605 (1978) West Germany
1896	C08 H ⁺ + LiF	E	100 keV	Golecki, I.; Jaccard, C. An apparatus for channeling experiments at Torr pressures. Nucl. Instrum. Methods 149, 685 (1978) Switzerland
1897	C02 He ⁺ + Fe; He ⁺ + Ni	E	0.3-2.6 MeV	Baglin, J. E. E.; Chu, W. K. Stopping power of 0.2-2.6 MeV He ions in Fe and Ni. Nucl. Instrum. Methods 145, 655 (1978) United States
1898	C05 Ar ⁺ + Xe	E T	50 keV	Sigmund, F.; Heinewier, J.; Essentcher, F.; Hvelplund, P.; Knudsen, H. Small-angle multiple scattering of ions in the screened-Coulomb region. III. Combined angular and lateral spread. Nucl. Instrum. Methods 150, 221 (1978) Denmark
1899	A19 H ⁺ + Cr; H ⁺ + Cu C02 H ⁺ + Sc; H ⁺ + Ni; H ⁺ + Cu; H ⁺ + Ge	E	A19 30-140 keV C02 100 keV	Marshall, R. E.; El Fici, A. R.; Kliwer, J. K. Measurement of stopping powers using ion-induced x-ray emission. Nucl. Instrum. Methods 150, 241 (1978) United States
1900	A05 He ⁺ + Ar	E	Undef	Kanno, S.; Takahashi, T. Recombination luminescence in the scintillation of high pressure argon gas induced by alpha particles. Nucl. Instrum. Methods 150, 517 (1978) Japan
1901	C06 I ⁺ + N ₂ ; I ⁺ + Ar; I ⁺ + Kr; I ⁺ + Xe	E	20 MeV	Moak, C. D.; Bridwell, L. B.; Scott, H. A.; Aiton, G. D.; Jones, C. M.; Miller, F. L.; Seyer, R. C.; Kessel, Q. C.; Anter, A. Absolute charge state yields of 20 MeV I ⁺ ions emerging from a gas stripper. Nucl. Instrum. Methods 150, 529 (1978) United States
1902	C02 N ⁺ + C; N ⁺ + Al; N ⁺ + Cu; N ⁺ + Ge; N ⁺ + Ag; N ⁺ + Sn; N ⁺ + Bi	E	6.5 MeV	Rud, N.; Bottiger, J.; Jensen, F. E. Measurements of energy-loss distributions for 6.5 MeV ¹⁵ N ions in solids. Nucl. Instrum. Methods 151, 247 (1978) Denmark
1903	C02 He ²⁺ + H ₂ ; He ²⁺ + He; He ²⁺ + N ₂ ; He ²⁺ + O ₂ ; He ²⁺ + Ne; He ²⁺ + Kr; He ²⁺ + Xe	E	1-8.5 MeV	Hanke, C.; Laursen, J. Stopping cross sections for a particles from 1.0 to 8.5 MeV in H ₂ , He, N ₂ , O ₂ , Ne, Kr, and Xe. Nucl. Instrum. Methods 151, 283 (1978) Denmark
1904	D12 e + Ni; H ⁺ + Ni	T	0.013-1000 GeV	Zrelow, V. P.; Ruzicka, J. Some peculiarities of the optical transition radiation from high-energy particles at inclined incidence (III). Nucl. Instrum. Methods 151, 355 (1978) Soviet Union

REF. NO.	REACTANTS	EXP OR THEOR	ENERGY RANGE	REFERENCE
1905	G05 e + Ar; e + CO ₂ ; e + CH ₄	E	0-10 eV	Schultz, G.; Gresser, J. A study of transport coefficients of electron in some gases used in proportional and drift chambers. Nucl. Instrum. Methods 151, 413 (1978) France
1906	D04 H ⁺ + C; He ⁺ + C; N ⁺ + C	E	1-2 MeV	Schader, J.; Kolb, B.; Sevier, K. I.; Groeneveld, K. D. Electron ejection from beam-tilted-foil experiments. Nucl. Instrum. Methods 151, 563 (1978) West Germany
1907	C06 U ⁺ + H ₂ ; U ⁺ + He; U ⁺ + Ne; U ⁺ + Ar; U ⁺ + Kr; U ⁺ + Xe; U ⁺ + N ₂ ; U ⁺ + O ₂ ; U ⁺ + CO ₂ ; U ⁺ + CO; U ⁺ + CH ₄ ; U ⁺ + C ₂ H ₂ ; U ⁺ + Mg; U ⁺ + Na	E	20-60 keV	Heinemeyer, J.; Hvelplund, P.; Ramanujan, P. S. Formation of an energetic neutral uranium beam by charge exchange in gas and metal-vapour targets. Nucl. Instrum. Methods 153, 277 (1978) Denmark
1908	A19 N ⁺ + LiF; Ne ⁺ + LiF	E	1.5-1.75 MeV	Morita, K.; Hara, N.; Mitsuhashi, Y. Life time of inner-shell vacancies of projectile and recoiled ions in solids. Nucl. Instrum. Methods 153, 306 (1978) Japan
1909	C02 Ne ⁺ + CH ₄ ; Cl ⁺ + Si	T	Undef	Sugiyama, H. Nuclear stopping power and interatomic potentials. Nucl. Instrum. Methods 153, 465 (1978) Japan
1910	C07 Fe ⁺ + C; Cu ⁺ + C F03 Fe ¹⁰⁺ ; Fe ¹¹⁺ ; Fe ¹²⁺ ; Fe ¹³⁺ ; Fe ¹⁴⁺ ; Fe ¹⁵⁺ ; Cu ¹⁰⁺ ; Cu ¹¹⁺ ; Cu ¹²⁺ ; Cu ¹³⁺	E	C07 10-110 keV	Bashkin, S.; Leavitt, J. A.; Pisano, D. J.; Jones, K. W.; Griffin, F. M.; Pegg, I. J.; Sellin, I. A.; Kruse, T. H. A survey of problems in beam-foil spectroscopy of iron and copper at energies from 16 to 110 keV. Nucl. Instrum. Methods 154, 169 (1978) United States
1911	C03 e + N ₂ ; e + O ₂ C04 e + N ₂ ; e + O ₂ E02 e + N ₂ ; e + O ₂ E03 e + N ₂ ; e + O ₂ E05 e + N ₂ ; e + O ₂	T	10-5000 keV	Grosswendt, B.; Waibel, E. Transport of low energy electrons in nitrogen and air. Nucl. Instrum. Methods 155, 145 (1978) West Germany
1912	C06 Undef	T	Undef	Nir, D.; Gershon, S.; Mann, A. Systematic features in equilibrium negative-charge state fractions. Nucl. Instrum. Methods 155, 183 (1978) Israel
1913	D16 He ⁺ + Ni; He ⁺ + Nb	E	30 keV	Scherzer, B. M. U.; Bay, H. L.; Behrisch, R.; Ergesen, P.; Roth, J. Depth profiling of helium in Ni and Nb; comparison of different methods. Nucl. Instrum. Methods 157, 75 (1978) West Germany
1914	C05 He ⁺ + C; He ⁺ + Al; He ⁺ + Cu	E	1-2 MeV	Møller, W.; Williams, J. S. The lateral spread of MeV helium ions in carbon, aluminum, and copper. Nucl. Instrum. Methods 157, 205 (1978) Denmark
1915	C02 He ²⁺ + Al; He ²⁺ + Ni; He ²⁺ + Se; He ²⁺ + Ag; He ²⁺ + Au	T	1-9 MeV	Porter, L. E. Mean excitation energies of Al, Ni, Se, Ag and Au extracted from alpha particle stopping power measurements. Nucl. Instrum. Methods 157, 333 (1978) United States
1916	D02 Undef	T	Undef	Webb, F.; Carter, G.; Collins, R. The influence of preferential enhanced diffusion on composition changes in sputtered binary solids. Radiat. Eff. 39, 135 (1978) United Kingdom
1917	D16 Ta ⁺ + Ni; Sn ⁺ + Ni; Er ⁺ + Ni; La ⁺ + Ni	E	200-300 keV	Sood, D. K.; Dearneley, G. Ion implanted surface alloys in nickel. Radiat. Eff. 35, 157 (1978) United Kingdom
1918	D15 n + Mg	E	100 keV	Wolfenden, A.; Herschbach, K.; Müller, K.; Stober, T. Neutron irradiation damage in magnesium single crystals. Radiat. Eff. 39, 177 (1978) West Germany
1919	C08 Undef	T	Undef	Reynaud, F. Separation of the Schrodinger equation in the dynamical theory of electron diffraction, in the case of systematic reflections. Radiat. Eff. 35, 181 (1978) France

REF. NO.	REACTANTS	EXP OR THEOR	ENERGY RANGE	REFERENCE
1920	C04 Al ⁺ + Ti; Al ⁺ + Ni; Al ⁺ + Cu; Al ⁺ + Mo; Al ⁺ + Ag; Al ⁺ + Ta; Al ⁺ + W; Al ⁺ + Au; Al ⁺ + Pb	E	20-100 keV	Keinonen, J.; Hautala, M.; Lutosajarvi, M.; Anttila, A.; Bister, M. Ranges of ²⁷ Al ⁺ ions in nine metals measured by (p, γ) resonance broadening. Radiat. Eff. 39, 185 (1976) Finland
1921	D15 Undef	T	Undef	Lucasson, F.; Lucasson, A. Multiple atom displacements in irradiated metals. Radiat. Eff. 35, 195 (1978) France
1922	C08 He ⁺ + GaAs	E	1.0-3.5 MeV	Price, P. B.; Gadeken, L. L.; Mah, H.-E.; Ewan, G. T. X-ray and futherford backscattering yields from channelled helium ions in GaAs. Radiat. Eff. 39, 205 (1978) Canada
1923	C03 H ⁺ + CH ₄ ; H ⁺ + CCl ₂ ; H ⁺ + N ₂	E	10-60 keV	Sicinius, G. The total ionization of low energy ions in a tissue equivalent gas and its component gases: absolute measurements. Radiat. Eff. 35, 213 (1978) Denmark
1924	D02 Au ⁺ + Au D15 Ar ⁺ + Cu; Ar ⁺ + Au	T	10-1000 keV	Yasamura, Y.; Kitazoe, Y. Computer simulation of cascade developments in amorphous targets. Radiat. Eff. 39, 251 (1978) Japan
1925	E08 e + Ba ⁺	T	16800 K	Gorchakov, L. V.; Demkin, V. P. Stark halfwidths and shifts of ionic spectral lines. Sov. Phys. J. 21, 502 (1978) Soviet Union
1926	C08 Undef	T	Undef	Zimin, N. I.; Vorot'ev, S. A. The possibility of induced radiation from a channelled electron. Sov. Phys. J. 21, 513 (1978) Soviet Union
1927	D12 He ⁺ + Mo; He ⁺ + Cu; He ⁺ + W; He ⁺ + Ti; Ar ⁺ + Mo; Ar ⁺ + Cu; Ar ⁺ + W; Ar ⁺ + Ti	E	35 keV	Bazhin, A. I.; Kozel', V. V.; Labzin, V. G.; Fyzhev, V. N.; Stupak, V. A. Optical radiation above the surface of metals during bombardment with inert-gas ions. Sov. Phys. J. 21, 547 (1978) Soviet Union
1928	E11 Undef	T	Undef	Mazmanishvili, A. S. Effect of coherent synchrotron oscillations on the spectrum of microwave radiation of electrons in storage ring. Sov. Phys. J. 21, 561 (1978) Soviet Union
1929	A10 N ₂ ⁺ + H ₂ O	E	500-1500 K	Zuev, A. P.; Tkachenko, B. K. Determination of relaxation times of N ₂ (v=1) level in presence of water vapor. Sov. Phys. J. 21, 765 (1978) Soviet Union
1930	A05 Undef	E	Undef	Sokolov, V. A.; Sivov, Y. A.; Kurzhanch, M. D. Chemical excitation of organic phosphors by active gases. Sov. Phys. J. 21, 630 (1978) Soviet Union
1931	A10 Undef	T	Undef	Serov, V. V.; Mineev, E. F. On the theory of the electronic energy redistribution during a collision of molecules. Sov. Phys. J. 21, 633 (1978) Soviet Union
1932	C08 Undef	E	Undef	Pictnikov, S. V.; Khalitov, S. K. Experimental investigations of conditions of capture of electrons with energies of 0.2-2.5 MeV in the channeling mode. Sov. Phys. J. 21, 837 (1978) Soviet Union
1933	C08 e + KCl; e + KBr	T	1 MeV	Vorob'ev, A. A.; Kepin, V. V.; Vorob'ev, S. A.; Popov, D. E. Temperature dependence of arcussic futherford scattering of fast electrons in crystals. Sov. Phys. J. 21, 660 (1978) Soviet Union
1934	D06 e + Al; e + Cu; e + Pb	E	300 keV	Tavenov, E. G.; Nesincov, V. L. Measurement of integrated reflection coefficients of metals for high-current electron beams. Sov. Phys. J. 21, 970 (1978) Soviet Union
1935	D02 Ar ⁺ + Cu	E	Undef	Labzin, V. G.; Perestret, V. I.; Filippov, E. I. Features of energy spectra in the case of bombardment of copper target at glancing angles. Sov. Phys. J. 21, 961 (1978) Soviet Union

REF. NO.	REACTANTS	EXP. OR THEOR.	ENERGY RANGE	REFERENCE
1936	E05 e + Xe F01 Xe	E	E05 3 keV	Ogurtsov, G. N.; Mikushkin, V. P.; Flaks, I. P. Coster-Kronig transitions in the M shell of xenon. Sov. Tech. Phys. Lett. 4, 6 (1978) Soviet Union
1937	C02 e + KCl; e + NaCl	E	1-2 MeV	Vorob'ev, S. A.; Plotnikov, S. V.; Rozus, E. I. Distribution of the energy absorbed from an electron beam in a crystal. Sov. Tech. Phys. Lett. 4, 7 (1978) Soviet Union
1938	E16 e + XeCl	E	300 keV	Bychkov, Y. I.; Karlov, N. V.; Losev, V. F.; Mesyats, G. A.; Prokhorov, A. M.; Tarasenko, V. F. XeCl laser with electron-beam-excited discharge. Sov. Tech. Phys. Lett. 4, 34 (1978) Soviet Union
1939	D16 BF ₃ + Si; B ⁺ + Si	E	10 keV/amu	Tyagai, V. A.; Lysenko, V. S.; Krasik, A. A.; Dvaligeev, A. M.; Lukshin, M. P. Anisotropic-electro-reflectance determination of surface lattice defects in ion implantation. Sov. Tech. Phys. Lett. 4, 39 (1978) Soviet Union
1940	D17 Ar ⁺ + VO ₂	E	40 keV	Lanskaya, I. G.; Suvorov, A. V.; Terukov, E. I. Effect of ion bombardment on the metal-dielectric phase transition in VC ₂ . Sov. Tech. Phys. Lett. 4, 45 (1978) Soviet Union
1941	H10 hv + [Br + Ar]	T	10000 A°	Antipenko, E. M.; Leptyarev, Y. L.; Nikolaev, V. E.; Tarasenko, V. V. Photoinduced recombination of atomic bromine. Sov. Tech. Phys. Lett. 4, 66 (1978) Soviet Union
1942	H04 2hv + Rb H08 hv + Rb	E	1.06 μ	Arkhipkin, V. G.; Popov, A. K.; Tisofeev, V. P. Conversion of λ = 1.06 μ light into the 420-nm range in rubidium vapor. Sov. Tech. Phys. Lett. 4, 75 (1978) Soviet Union
1943	C04 e + NaCl	E	20-50 keV	Grachev, B. D.; Gudovskikh, V. A.; Korobochko, Y. S.; Mineev, V. I.; Petrochenko, A. F.; Kozlovskii, S. S. Precise measurements of the average electron range in a dielectric. Sov. Tech. Phys. Lett. 4, 83 (1978) Soviet Union
1944	H06 2hv + Li	T	6000 A°	Delone, N. E.; Zor, E. A.; Fedorov, M. V. Polarization of nuclei in resonant atomic ionization. Sov. Tech. Phys. Lett. 4, 54 (1978) Soviet Union
1945	D09 CO* + Pyrex	E	1 eV	Ionikh, Y. Z.; Kuranov, A. L.; Penkin, N. P.; Sharkov, V. F. Relaxation of vibrationally excited CO at a glass surface in a discharge. Sov. Tech. Phys. Lett. 4, 101 (1978) Soviet Union
1946	A11 CO* + CO	E	Thermal	Ionikh, Y. Z.; Kuranov, A. L.; Penkin, A. F.; Sharkov, V. F. Rate constant for the d3σ state in CO-CO collisions. Sov. Tech. Phys. Lett. 4, 102 (1978) Soviet Union
1947	H06 hv + He	E	53.4-52.2 nm	Belik, V. P.; Bobashev, S. V.; Shmechenk, L. A. Resonance absorption of the emission from a laser-produced plasma. Sov. Tech. Phys. Lett. 4, 108 (1978) Soviet Union
1948	H06 e + Cu	E	5A-6 eV	Grachev, B. D.; Kozlovskii, S. S.; Korobochko, Y. S.; Mineev, V. I.; Petrochenko, A. F. Angular distribution of fast electrons scattered inelastically in copper. Sov. Tech. Phys. Lett. 4, 110 (1978) Soviet Union
1949	D05 hv + Si	E	3.4-5.2 eV	Gritsenko, V. A.; Bogil'nikov, N. F. Features in the photoemission of electrons due to the band structure of silicon. Sov. Tech. Phys. Lett. 4, 122 (1978) Soviet Union
1950	H04 hv + Ti; hv + V; hv + Si; hv + Ge	T	10000-5000 A°	Loskutov, V. F.; Ulyakov, F. I. Spectral-line absorption in the laser evaporation of materials. Sov. Tech. Phys. Lett. 4, 136 (1978) Soviet Union

REF. NO.	REACTANTS	EXP OR THEOR	ENERGY RANGE	REFERENCE
1951	C04 e + Gas	E	200 keV	Didenko, A. N.; Pak, V. S.; Ussov, Y. P.; Tsvetkov, V. I.; Shatanov, A. A.; Shul'ev, N. S. Transport of a high-current microsecond electron beam in a gas. Sov. Tech. Phys. Lett. 4, 167 (1978) Soviet Union
1952	D17 N ⁺ + VO ₂ ; Ar ⁺ + VO ₂	E	30 keV	Abroyan, I. A.; Velichko, V. Y.; Gavril'yuk, A. I.; Zakharchenya, B. F.; Chudnevskii, F. A. Effect of ion bombardment on the optical characteristics of the phase transition in VO ₂ films. Sov. Tech. Phys. Lett. 4, 225 (1978) Soviet Union
1953	D17 B ⁺ + Si	E	100 keV	Gerasimenko, N. N.; Pan'kin, V. G.; Svitashov, K. K.; Tsel'tlin, G. M. Formation of a waveguide layer in the bombardment of silicon dioxide by torcer ions. Sov. Tech. Phys. Lett. 4, 232 (1978) Soviet Union
1954	A07 He ⁺ + H ₂	E	77-300 K	Zhitnikov, R. A.; Kartshkir, V. A.; Klement'ev, G. V. Isotopic effects in the interaction of molecular hydrogen with atomic helium in the 2 ³ S ₁ state. Sov. Tech. Phys. Lett. 4, 272 (1978) Soviet Union
1955	C02 e + Plasma	E	2 MeV	Berezin, A. K.; Grishaev, I. A.; Zeldits, V. P.; Kliselev, V. A.; Safronov, V. G.; Fainberg, Y. E.; Fursov, G. L. Interaction of a highly relativistic monoenergetic electron beam with a dense plasma. Sov. Tech. Phys. Lett. 4, 255 (1978) Soviet Union
1956	A17 Xe + Xe; Xe + Xe ⁺ ; Xe + Xe ⁺	T	Undef	Erstler, W. C.; Lee, Y. S.; Fitzer, K. S.; Winter, N. W. Ab initio effective core potentials including relativistic effects. II. Potential energy curves for Xe ₂ , Xe ₂ ⁺ , and Xe ₂ ⁺ . J. Chem. Phys. 69, 976 (1978) United States
1957	A17 Au + H; Au + Cl; Hg + H; Hg + Cl ₂	T	Undef	Hay, F. J.; Wadt, W. R.; Kahn, L. F.; Ecbrowicz, F. W. Ab initio studies of AuH, AuCl, HgH and HgCl, using relativistic effective core potentials. J. Chem. Phys. 69, 984 (1978) United States
1958	E03 e + O ₂ G02 O ₂ ⁺ + O ₂ A11 O ₂ ⁺ + O ₂	E	0.75-6.0 eV	Lawton, S. A.; Phelps, A. V. Excitation of the b ¹ Π (sub g) ⁺ state of O ₂ by low energy electrons. J. Chem. Phys. 69, 1065 (1978) United States
1959	B07 H ₂ ⁺ + He	T		Brandt, H. S.; Koiller, B.; Lins de Barros, H. G. P.; Miranda, L. C. M. Inert gas atom-molecule collisions in a laser field: vibrational excitations in homopolar molecular ions. J. Chem. Phys. 66, 1096 (1978) Brazil
1960	A14 Sn + N ₂ O	E	300-550 K	Felder, W.; Fontijn, A. HFRF kinetics studies of Sn/N ₂ O, a highly efficient chemiluminescent reaction. J. Chem. Phys. 65, 1112 (1978) United States
1961	A17 He + He; He + Ne; He + Ar; He + Kr; Kr + Kr; Ne + Ne; Ne + Ar; Ne + Kr; Ar + Ar; Ar + Kr	T	Undef	Brual, G., Jr.; Rothstein, S. M. Rare gas interactions using an improved statistical method. J. Chem. Phys. 69, 1177 (1978) Canada
1962	A04 SF ₆ + CsCl; SF ₆ + Cs ₂ Cl ₂	E	0-11 eV	Parke, E. K.; Sheen, S. H.; Wexler, S. Threshold behavior for collision-induced dissociation of CsCl and Cs ₂ Cl ₂ by SF ₆ molecules. J. Chem. Phys. 65, 1150 (1978) United States
1963	H05 nhv + SF ₆ Cl	E	0.1 eV	Karl, R. R., Jr.; Lyman, J. L. Investigation of the multiple-photon dissociation of SF ₆ Cl with a real time chlorine-atom diagnostic. J. Chem. Phys. 69, 1196 (1978) United States
1964	H04 nhv + SF ₆	E	0.1 eV	Ackerhalt, J. R.; Galbreith, H. W. Collisionless multiple photon excitation of SF ₆ : a comparison of anharmonic oscillators with and without octahedral splitting in the presence of rotational effects. J. Chem. Phys. 69, 1200 (1978) United States

REF. NO.	REACTANTS	EXP OR THEOR	ENERGY RANGE	REFERENCE
1965	A11 O* + Ar; O* + Kr; O* + Xe	E	110-330 K	Davidson, J. A.; Schiff, H. I.; Ercun, T. J.; Streit, G. E.; Foward, C. J. Rate constants for the deactivation of O(¹ D) by Xe, Kr, and Ar over the range 110-330 K. J. Chem. Phys. 69, 1213 (1978) United States
1966	A11 O* + CO	E	113-333 K	Davidson, J. A.; Schiff, H. I.; Ercun, T. J.; Howard, C. J. Temperature dependence of the deactivation of O(¹ D) by CO from 113-333 K. J. Chem. Phys. 65, 1216 (1978) United States
1967	A14 H + H ₂ ; F + H ₂	T	0.1-0.5 eV	Pollak, E.; Pechukas, F. Transition states, trapped trajectories, and classical bound states embedded in the continuum. J. Chem. Phys. 65, 1218 (1978) United States
1968	A02 He + HD A03 He + HD	T	300 K	Sharma, R. L.; Hart, R. R. Comparison of distorted wave and close-coupling results for scattering of HD by He at thermal energies. J. Chem. Phys. 69, 1233 (1978) United States
1969	A10 H ₂ O* + H ₂ O	E	200-400 K	Shin, H. K. Vibrational relaxation of water molecules near room temperature. J. Chem. Phys. 69, 1240 (1978) United States
1970	H10 Undef	T	Undef	Quack, M. Theory of unimolecular reactions induced by monochromatic infrared radiation. J. Chem. Phys. 69, 1222 (1978) United States
1971	H04 2hν + CO	E	603.80-603.65 nm	Bernheim, R. A.; Kittrell, C.; Veira, L. K. Doppler-free two-photon laser excitation of the vacuum ultraviolet absorption spectrum of CO. J. Chem. Phys. 69, 130E (1978) United States
1972	A06 Ne* + N ₂ ; He* + N ₂	E	Undef	Govers, T. F. Comments on the use of time resolved N ₂ ⁺ (B + X) emission as a probe of charge-transfer processes in Ne-N ₂ and He-N ₂ mixtures. J. Chem. Phys. 69, 1323 (1978) France
1973	E03 e + N ₂ E03 e + N ₂ F17 e + N ₂ G09 e + N ₂	T	30-50 eV	Onda, K.; Iruhler, D. G. Model potentials for electron scattering: converged close coupling calculations for the differential cross section for e-N ₂ at 30-50 eV. J. Chem. Phys. 65, 1361 (1978) United States
1974	A06 O* + Ar; O* + H ₂ ; O* + O ₂ ; O* + N ₂ ; O* + CO; O* + NO; O* + CO ₂	E	0.6-3.0 keV	Moran, T. F.; Wilcox, J. B. Charge transfer reactions of ground O(⁴ S) and excited O(² D) state ions with neutral molecules. J. Chem. Phys. 65, 1357 (1978) United States
1975	D03 Ar* + Cu	T	600 eV	Garrison, B. J.; Vinograd, N.; Harrison, D. E., Jr. Formation of small metal clusters by ion bombardment of single crystal surfaces. J. Chem. Phys. 69, 1440 (1978) United States
1976	A03 H* + H ₂ O; H ₂ * + H ₂ O A07 H* + H ₂ O; H ₂ * + H ₂ O E03 e + H ₂ O E05 e + H ₂ O E09 e + H ₂ O	E	A03; A07 500-1000 eV E03; E05; E09 10-20 eV	Edmonson, E. A.; Lee, J. S.; Dearing, J. P. Inelastic scattering of positive ions and electrons from water: the 4-6 eV energy loss region. J. Chem. Phys. 69, 1445 (1978) United States
1977	A11 NO ₂ * + NO ₂ F01 NO ₂ *	E	A11 300 K	Donnelly, V. M.; Kaufman, F. Fluorescence lifetime studies of NO ₂ . II. Dependence of the perturbed ² B ₂ state lifetimes on excitation energy. J. Chem. Phys. 69, 1456 (1978) United States
1978	E02 e + HCN	E	3-50 eV	Srivastava, S. K.; Tanaka, H.; Chutjian, A. Elastic scattering of intermediate energy electrons by HCN. J. Chem. Phys. 69, 1493 (1978) United States

REF. NO.	REACTANTS	EXP CR THEOR	ENERGY RANGE	REFERENCE
1979	H06 $nh\nu + I_2$	E	600-360 nm	Lehmann, K. K.; Seclarek, J.; Goodson, L. Multiphoton resonance ionization bands in I_2 . J. Chem. Phys. 69, 1569 (1978) United States
1980	A14 $N + O_2$	E	90-180 K	Kennealy, J. F.; Eel Gracc, F. P.; Caledonia, G. E.; Green, B. D. Nitric oxide chemexcitation occurring in the reaction between metastable nitrogen atoms and oxygen molecules. J. Chem. Phys. 69, 1574 (1978) United States
1981	A03 $Ar^* + N_2$	E	0-0.8 eV	Parr, I. P.; Martin, R. M. Velocity dependence of the sensitized fluorescence of nitrogen by metastable argon. J. Chem. Phys. 69, 1613 (1978) United States
1982	A05 $H^* + [Ar + F_2]$ A11 $ArF^* + F_2; Ar_2F^* + F_2; ArF^* + 2Ar$	E	A05 2 MeV A11 300 K	Chen, C. H.; Payne, M. G.; Judish, J. F. Kinetic studies of ArF^* and Ar_2F^* in preion-excited $Ar-F_2$ mixtures. J. Chem. Phys. 69, 1626 (1978) United States
1983	E09 $e + CO_2; e + N_2O$	E	0-6 eV	Klots, C. E.; Crompton, R. A. Electron attachment to van der Waals polymers of carbon dioxide and nitrous oxide. J. Chem. Phys. 69, 1636 (1978) United States
1984	E09 $e + H_2O$ E05 $e + H_2O$	E	E05 0-20 eV E09 0-14 eV	Klots, C. E.; Crompton, R. A. Electron attachment to van der Waals polymers of water. J. Chem. Phys. 69, 1644 (1978) United States
1985	A17 $Li + 2Li$	T	Undef	Gerber, W. H.; Schumacher, E. The dynamic Jahn-Teller effect in the electronic ground state of Li_3 . An ab initio calculation of the BL hypersurface and the lowest vibrational states of Li_3 . J. Chem. Phys. 69, 1652 (1978) Switzerland
1986	A05 $Sr^* + N_2O$ A14 $Sr^* + N_2O$	E	300 K	Wilcomb, B. E.; Daggdigan, F. J. Visible chemiluminescence from the reaction of metastable Sr with N_2O : absolute cross section and photon yield. J. Chem. Phys. 69, 1779 (1978) United States
1987	A07 $He^* + Ar$ B07 $He^* + Ar$	E	A07 300 K	Bellum, J. C.; Lee, K.-S.; George, T. F. Penning ionization of Ar by He^* ($1s2s, ^3S$) in the presence of intense laser radiation: pronounced laser-modified collisional effects in the excited-electron energy spectrum. J. Chem. Phys. 69, 1781 (1978) United States
1988	A14 $H + F_2$	E	300 K	Jakubetz, W. On experimental vibrational product distributions in the $H + F_2$ reaction. J. Chem. Phys. 69, 1783 (1978) Austria
1989	A11 $ClF^* + Ar; ClF^* + ClF$	E	500-1160 K	Santoro, R. J.; Eisebold, G. J. Density, gradient measurements of vibrational relaxation in $Ar-ClF$ mixtures behind shock waves. J. Chem. Phys. 69, 1787 (1978) United States
1990	A11 $I^* + Br_2; I^* + H_2; I^* + CH_3I$	E	295 K	Wiesenfeld, J. R.; Wolk, G. L. Kinetics of the deactivation of $I(5^2P_{1/2})$ by Br_2 . I. Quenching of excited iodine atoms. J. Chem. Phys. 69, 1797 (1978) United States
1991	A14 $I^* + Br_2$	E	295 K	Wiesenfeld, J. R.; Wolk, G. L. Kinetics of the deactivation of $I(5^2P_{1/2})$ by Br_2 . II. Production of electronically excited bromine atoms, $Br(4^2P_{1/2})$, by chemical reaction. J. Chem. Phys. 69, 1805 (1978) United States
1992	H07 $h\nu + CH_3O^-; h\nu + CD_3O^-; h\nu + CH_3S^-$	E	488 nm	Engelking, F. C.; Ellison, G. E.; Linetberger, L. C. Laser photodetachment electron spectroscopy of methoxide, deuteriomethoxide, and thiomethoxide: electron affinities and vibrational structure of CH_3O^- , CD_3O^- , and CH_3S^- . J. Chem. Phys. 69, 1826 (1978) United States
1993	H10 $h\nu + SO_2$	E	3800-2900 \AA	Marvin, D. C.; Weiss, E. Cloud chamber study of the gas phase photooxidation of sulfur dioxide. J. Chem. Phys. 69, 1897 (1978) United States

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1994	A11 CO* + O	E	265-389 K	Lewittes, M. E.; Davis, C. C.; McFarlane, R. A. Vibrational deactivation of CO(v=1) by oxygen atoms. J. Chem. Phys. 69, 19E2 (1978) United States
1995	A04 H* + CH ₄ ; He* + CH ₄ ; O* + CH ₄ A07 H* + CH ₄ ; He* + CH ₄ ; O* + CH ₄	E	1 MeV	Edwards, A. K.; Graves, J. E.; Wood, F. M.; Steuer, M. F. Dissociation of CH ₄ by 1 MeV H ⁺ , He ⁺ , and C ⁺ projectiles. J. Chem. Phys. 65, 15E5 (1978) United States
1996	A11 XeF* + He; XeF* + Ne; XeF* + Xe; XeF* + F ₂ ; XeF* + NF ₃	E	300 K	Fisher, C. H.; Center, R. E. Radiative lifetime and collisional quenching kinetics for the XeF (B1/2) state. J. Chem. Phys. 65, 2011 (1978) United States
1997	H14 2hν + H ₂ *	E	0-3 eV	Bethune, D. S.; Lankard, J. R.; Sorokin, P. F. Studies of the metastable c ^{3u} (sub u) state of H ₂ : towards a two-photon amplifier. J. Chem. Phys. 69, 207E (1978) United States
1998	H06 hν + N ₂	E	5-42 eV	Peatman, W. B.; Gotchev, B.; Gurtler, F.; Kech, E. E.; Sallé, V. Transition probabilities at threshold for the photoionization of molecular nitrogen. J. Chem. Phys. 69, 2089 (1978) United States
1999	H06 hν + H ₂	T	15-70 eV	O'Neil, S. V.; Reinhardt, W. P. Photoionization of molecular hydrogen. J. Chem. Phys. 65, 212E (1978) United States
2000	A06 U + O ₃ ; Th + O ₃ A07 U + O ₃ ; Th + O ₃ A14 U + O ₃ ; Th + O ₃	E	7.2-10 ⁶ ca/s	Patterson, T. A.; Siegel, M. W.; Fite, W. L. Associative ionization of uranium and thorium in collisions with ozone. J. Chem. Phys. 69, 2163 (1978) United States
2001	H08 hν + UF ₆ H10 hν + UF ₆	E	480-340 nm	Oldenberg, R. C.; Rice, W. B.; Wampler, F. E. Laser-induced fluorescence of gaseous UF ₆ in the A-X tilde band. J. Chem. Phys. 65, 2181 (1978) United States
2002	A17 Xe + F; Xe + Cl; Xe + Br; Xe + I	T	Undef	Hay, P. J.; Dunning, T. H., Jr. The covalent and ionic states of the xenon halides. J. Chem. Phys. 69, 2209 (1978) United States
2003	H05 hν + TlBr	E	2660 A°	White, J. C.; Zdasik, G. A. Branching ratios for TlBr photodissociation with 2660 A° radiation. J. Chem. Phys. 69, 2256 (1978) United States
2004	A11 N ₂ * + N ₂ ; N ₂ * + Ar; N ₂ * + H ₂	E	300 K	Levron, D.; Phelps, A. V. Quenching of N ₂ (A ³ Σ (sub u) ⁺ , v=0,1) by N ₂ , Ar, and H ₂ . J. Chem. Phys. 65, 2260 (1978) United States
2005	A17 Ne + HeH ⁺	T	Undef	Matcha, R. L.; Pettitt, B. M.; Meier, P. F.; Pendergast, P. Potential energy surface for the collinear reaction of Ne and HeH ⁺ . J. Chem. Phys. 69, 2264 (1978) United States
2000	A05 Cu + F ₂ ; Cu + NF ₃ ; Cu + SF ₆ H08 hν + CuF	E	1000-400 nm	Steele, R. E.; Broida, H. F. Chemiluminescence and photoluminescence of CuF. J. Chem. Phys. 69, 2300 (1978) United States
2007	A10 I* + H ₂ O; I* + HDO; I* + D ₂ O; H ₂ O* + H ₂ O; D ₂ O* + D ₂ O	E	300 K	Grimley, A. J.; Houston, P. L. Electronic to vibrational energy transfer from I(5 ² P _{1/2}). II. H ₂ O, HDC, and D ₂ O. J. Chem. Phys. 65, 2335 (1978) United States
2008	A03 He + NH ₃	T	50-1000 1/cm	Davis, S. L.; Boggs, J. E. Rate constants for rotational excitation in NH ₃ -He collisions. J. Chem. Phys. 69, 2355 (1978) United States
2009	A02 F + Xe A17 F + Xe	E	2.1-13.9 kcal/mol	Becker, C. H.; Casavecchia, P.; Lee, Y. T. Crossed molecular beam studies on the interaction potential for F(2F) + Xe(1S). J. Chem. Phys. 65, 2377 (1978) United States

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2010	A17 He + He; He + Ne; He + Ar; Ne + Ne; Ne + Ar; Ar + Ar	T	Undef	Luyckx, R.; Coulen, P.; Lekkerkerker, H. N. W. Dispersion forces between noble gas atoms. J. Chem. Phys. 65, 2424 (1978) Belgium
2011	H05 hν + H ₃ ⁺	T	3-32 eV	Kulander, K. C.; Keller, E. J. Time dependent formulation of polyatomic photofragmentation: application to H ₃ ⁺ . J. Chem. Phys. 65, 2439 (1978) United States
2012	A04 H ₃ ⁺ + H ₂	E	10 keV	Vogler, M.; Meierjohann, E. H ₂ -H fragmentation resulting from collisions of 10 keV H ₃ ⁺ on H ₂ . J. Chem. Phys. 69, 2450 (1978) West Germany
2013	E05 e + CO ₂	E	10-180 eV	Mark, T. D.; Hille, E. Cross section for single and double ionization of carbon dioxide by electron impact from threshold up to 180 eV. J. Chem. Phys. 65, 2492 (1978) Austria
2014	H06 hν + BF ₃	E	6.0-15.7 eV	Batten, C. F.; Taylor, J. A.; Tsai, B. P.; Meisels, G. G. Photoionization processes at threshold. I. Threshold photoelectron, photoionization, and coincidence ion-threshold photoelectron spectra of BF ₃ . J. Chem. Phys. 65, 2547 (1978) United States
2015	A07 Cs + UF ₆ A14 Cs + UF ₆	E	0.2-1.3 eV	Annis, B. K.; Datz, S. Ion pair creation and atom abstraction in collisions of Cs and UF ₆ . J. Chem. Phys. 65, 2553 (1978) United States
2016	B07 Undef	T		Lee, H. W.; DeVries, P. L.; George, T. F. Molecular collisions in a laser field: effect of the laser linewidth. J. Chem. Phys. 65, 2556 (1978) United States
2017	A11 NO ⁺ + N ₂ H02 hν + NO ⁺	E	A11 297 K H02 1350-1125 A ⁰	Bien, F. Measurements of the nitric oxide ion vibrational absorption coefficient and vibrational transfer to N ₂ ⁺ . J. Chem. Phys. 69, 2631 (1978) United States
2018	A17 Ga + Kr; In + Kr; Tl + Kr	T	Undef	Dunning, T. H., Jr.; Valley, P.; Taylor, H. S. Theoretical studies of the low-lying electronic states of GaKr, including extrapolation to InKr and TlKr. J. Chem. Phys. 69, 2672 (1978) United States
2019	A13 O ⁺ + N ₂ ; O ⁺ + O ₂	E	300-900 K	Chen, A.; Johnson, R.; Eicndi, M. A. Measurements of the O ⁺ + N ₂ and O ⁺ + O ₂ reaction rates from 300 to 500 K. J. Chem. Phys. 69, 2666 (1978) United States
2020	A11 H ₂ ⁺ + He	T	50-2000 K	Raczkowski, A. W.; Lester, W. A., Jr.; Miller, L. H. Vibrational relaxation in the para-H ₂ - ³ He system: comparison of coupled-channel, coupled-states, and effective potential methods. J. Chem. Phys. 65, 2692 (1978) United States
2021	H05 hν + I ₂ He	E	0-0.35 1/cm	Johnson, K. E.; Wharton, L.; Levy, D. F. The photodissociation lifetime of the van der Waals molecule I ₂ He. J. Chem. Phys. 65, 2719 (1978) United States
2022	A03 H ⁺ + H ₂	E	4.7-6.0 eV	Schmidt, H.; Herrmann, V.; Linder, F. Crossed beam measurements of rotational quantum transitions in low-energy H ⁺ + H ₂ . J. Chem. Phys. 65, 2734 (1978) West Germany
2023	H05 hν + O ₃ ⁻	E	6400-5060 A ⁰	Cosby, F. C.; Moseley, J. I.; Petersen, J. R.; Ling, J. H. Photodissociation spectroscopy of O ₃ ⁻ . J. Chem. Phys. 69, 2771 (1978) United States
2024	H05 hν + [O ₃ ⁻ + H ₂ O]; hν + [O ₃ ⁻ + 2H ₂ O] H07 hν + [O ₃ ⁻ + H ₂ O]; hν + [O ₃ ⁻ + 2H ₂ O]	E	6400-5080 A ⁰	Cosby, F. C.; Smith, G. P.; Moseley, J. I. Photodissociation and photodetachment of molecular negative ions. IV. Hydrates of O ₃ ⁻ . J. Chem. Phys. 65, 2775 (1978) United States

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2025	A03 Na + He; Na + Ne; Na + Ar; Na + Kr; Na + Xe	T	300 K	Pascals, J. Sodium 4 ² D fine structure transition in collisions with rare gas atoms. J. Chem. Phys. 69, 2788 (1978) France
2026	A11 CO ₂ ⁺ + He; CO ₂ ⁺ + Ar	T	300 K	Preston, R. K.; Pack, R. I. Mechanism and rates of rotational relaxation of CO ₂ (001) in He and Ar. J. Chem. Phys. 69, 2823 (1978) United States
2027	A02 He* + Ar; He* + Kr; He* + Xe A17 He* + Ar; He* + Kr; He* + Xe	E	0.4-2.8 kcal/mol	Martin, D. W.; Gregor, R. W.; Jordan, F. M.; Siska, P. E. Differential elastic scattering of He* (2 ¹ S) by Ar, Kr, and Xe: repulsive rainbows and optical potentials. J. Chem. Phys. 65, 2833 (1978) United States
2028	A14 CN + NO	E	300 K	Lee, L.; Duncan, C. H.; Sadcwski, C. M. The gas phase reactions of CN and NO. J. Chem. Phys. 69, 2877 (1978) Canada
2029	A14 H + H ₂	T	0.4-1.0 eV	Walker, R. E.; Stachel, E. R.; Light, J. C. Accurate H ₂ dynamics on an accurate H ₂ potential surface. J. Chem. Phys. 69, 2922 (1978) United States
2030	A14 HO ₂ + ClO	E	300 K	Reimann, E.; Kaufman, F. Rate constant of the reaction HO ₂ + ClO + HCl + O ₂ . J. Chem. Phys. 69, 2925 (1978) United States
2031	A11 Ar* + N ₂ ; Ar* + Ar	E	296 K	Firestone, R. F.; Chen, M.-C. Bimolecular and three-body quenching of resonance state argon atoms by nitrogen at argon pressures in the 200-700 torr region. J. Chem. Phys. 65, 2543 (1976) United States
2032	A07 He* + Ar; He* + Kr; He* + Xe	E	1-3 km/s	Woodard, M. R.; Sharp, R. C.; Seely, F.; Muschlitz, E. E., Jr. Velocity dependence of the absolute cross sections for the chem-ionization of Ar, Kr, and Xe on impact of 2 ¹ S and 2 ³ S helium atoms. J. Chem. Phys. 69, 2978 (1978) United States
2033	H04 hv + CO H06 hv + CO	T	10-1000 eV	Padial, N.; Csanak, G.; McKoy, E. V.; Langhoff, F. W. Photoabsorption in carbon monoxide: Stieltjes--Tchobycheff calculations in the separated-channel static-exchange approximation. J. Chem. Phys. 69, 2592 (1978) Brazil
2034	B07 Undef	T		Copeland, E. A. Semiclassical theory of near-adiabatic photon-assisted molecular collisions. J. Chem. Phys. 69, 3008 (1978) United States
2035	A14 N + NO	E	196-400 K	Lee, J. H.; Michael, J. V.; Payne, W. A.; Stief, L. J. Absolute rate of the reaction of N(⁴ S) with NO from 196-400 K with DF-RF and FF-RF techniques. J. Chem. Phys. 69, 3069 (1978) United States
2036	A06 H ⁺ + Ar; He ⁺ + Ne; He ⁺ + Ar; Ne ⁺ + He; Ne ⁺ + Ar; Ar ⁺ + Ne; Ar ⁺ + Kr; Ar ⁺ + Xe; Kr ⁺ + Ar; Kr ⁺ + Xe	E	0.4-120 eV	Maier, W. B., II Electron transfer in collisions between atomic ions and rare-gas atoms for primary-ion energies below 200 eV. II. J. Chem. Phys. 65, 2077 (1978) United States
2037	A17 F + Ne ₂ ; F + Ar ₂ ; F + Kr ₂ ; Cl + Kr ₂	T	Undef	Huestis, D. L.; Schlotter, N. E. Diatomic-in-molecules potential surfaces for the triatomic rare gas halides: Fg ₂ X. J. Chem. Phys. 69, 3100 (1978) United States
2038	A10 N ₂ + CO ₂ ; H ₂ + HCl	T	278-3466 K	Eberhardt, L. D.; Stettler, J. D.; Bitriol, N. M.; Sung, C. C. Distorted-wave Ecm calculations of V-V energy transfer. J. Chem. Phys. 69, 3112 (1978) United States
2039	A14 O + I ₂ ; O + CS ₂ ; O + OCS	E	5-30 kJ/mol	Clough, P. M.; O'Neill, G. M.; Geddes, J. Crossed-beam investigation of translational energy effects in oxygen atom reactions. J. Chem. Phys. 69, 3128 (1978) United Kingdom

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2040	A10 NO ⁺ + N ₂	T	250 K	Ruderman, M. A.; Fcley, H. M. Quenching on NG ⁺ - vibrational radiation by N ₂ in the upper atmosphere. J. Chem. Phys. 65, 3214 (1976) United States
2041	A02 He + HCl A03 He + HCl	T	0-1 eV	Monchick, L.; Kouri, D. J. Magnetic transitions in the initial-/ labeled interpretation of the CS approximation. Computations for He + HCl. J. Chem. Phys. 69, 3262 (1978) United States
2042	A17 CO + He; CO + Ne; CO + Ar; CO + Kr; CO + Xe.	T	Undef	Parker, G. A.; Pack, R. T. Intermolecular potential energy surfaces from electron gas methods. III. Angle, distance, and vibrational dependence of the Ar-CO interaction. J. Chem. Phys. 65, 3266 (1978) United States
2043	A11 S ₂ ⁺ + S ₂ ; S ₂ ⁺ + H ₂ ; S ₂ ⁺ + N ₂ ; S ₂ ⁺ + He; S ₂ ⁺ + Ne; S ₂ ⁺ + Ar; S ₂ ⁺ + Kr; S ₂ ⁺ + Xe	E	300 K	Caughy, T. A.; Crossley, E. R. Collision-induced energy transfer in the E 2I (sub u) state of diatomic sulfur. J. Chem. Phys. 65, 3379 (1978) United States
2044	A13 H ₂ ⁺ + H ₂	E	0.38 eV	Tanaka, K.; Kcyanc, I. Threshold electron-secondary ion coincidence technique for the study of internal energy dependence of ion-molecule reactions. J. Chem. Phys. 65, 3422 (1978) Japan
2045	H06 nhv + I ₂	E	590-366 nm	Zandee, L.; Bernstein, R. B.; Lichtin, D. A. Vibronic/mass spectroscopy via multiphoton ionization of a molecular beam: the I ₂ molecule. J. Chem. Phys. 69, 3427 (1978) United States
2046	A11 O ₂ ⁺ + HCl	E	173-415 K	Gordon, R. J.; Brutto, P.; Moy, J. Vibrational relaxation of O ₂ (001) by HCl. J. Chem. Phys. 69, 3439 (1978) United States
2047	D07 Undef	T	Undef	Brady, J. W., Jr.; Doll, J. D.; Thompson, D. L. Velocity dependence of angular distributions in gas/solid-surface collisions: relationship to the interaction potential. J. Chem. Phys. 69, 3458 (1978) United States
2048	A17 Li + O ₂ ; Na + O ₂	T	Undef	Alexander, M. H. Semiempirical potential surfaces and dynamical considerations for collisions between alkali metals and molecular oxygen: Li + O ₂ and Na + O ₂ . J. Chem. Phys. 69, 3502 (1978) United States
2049	A03 Undef	T	Undef	Stechel, E. B.; Walker, R. E.; Light, J. C. R-matrix solution of coupled equations for inelastic scattering. J. Chem. Phys. 65, 3516 (1976) United States
2050	A04 Undef A14 Undef	T	Undef	Snider, A. Classical and near classical rates for bimolecular dissociation and exchange. J. Chem. Phys. 69, 3540 (1978) Canada
2051	E01 e + N ₂ ; e + CO	T	Undef	Truhlar, D. G.; var-Catledge, F. A. Adiabatic polarization potentials for electron scattering by N ₂ and CO. J. Chem. Phys. 65, 3675 (1978) United States
2052	A11 CO ⁺ + He	E	300 K	Bondybey, V. E.; Miller, T. A. Radiative and radiativeless vibronic deactivation rates in selectively excited CO ⁺ . J. Chem. Phys. 65, 3557 (1978) United States
2053	A02 Hg + H; H + H	T	0-2 eV	Le Roy, R. J.; Liu, W.-K. Energies and widths of quasicbound levels (orbiting resonances) for spherical potentials. J. Chem. Phys. 65, 3622 (1976) Canada
2054	H05 hv + O ₃	E	600-270 nm	Fairchild, C. E.; Stone, E. J.; Lawrence, G. M. Photofragment spectroscopy of ozone in the uv region 270-310 nm and at 600 nm. J. Chem. Phys. 69, 3632 (1978) United States

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2055	A10 Br* + CO ₂	E	296-600 K	Reisler, H.; Wittig, C. Temperature dependence of electronic to vibrational energy transfer from Br(4 2P _{1/2}) to ¹² CO ₂ and ¹³ CCO ₂ . J. Chem. Phys. 69, 3729 (1978) United States
2056	H04 hv + H ₂ O H05 hv + H ₂ O	E	813-500 Å ⁰	Mentall, J. E.; Mohimann, G. F.; Guyon, P. M. H Lyman-α emission from photodissociation of H ₂ O. J. Chem. Phys. 69, 3735 (1978) United States
2057	A14 F + H ₂	T	0-0.5 eV	Latham, S. L.; McKett, J. F.; Wyatt, F. E.; Redson, M. J. Quantum dynamics of the F + H ₂ reaction: resonance models, and energy and flux distributions in the transition state. J. Chem. Phys. 69, 3746 (1978) United States
2058	A02 Li + H ₂ A03 Li + H ₂ A17 Li + H ₂ G07 Li + H ₂	T	0-40 kcal/mol	Wagner, A. F.; Wehl, A. C.; Koro, A. M.; Krejci, R. Classical inelastic scattering in Li + H ₂ : a comparison of different potential energy surfaces. J. Chem. Phys. 69, 3756 (1978) United States
2059	A14 Be + HF A17 Be + HF	T	15-40 kcal/mol	Schor, H.; Chapman, S.; Green, S.; Zere, R. N. Theoretical study of collinear Be + FH(v ₂) → BeF(v ₂) + H. J. Chem. Phys. 69, 3750 (1978) United States
2060	A11 I* + HgI ₂ H05 hv + HgI ₂	E	320-265 nm	Hofmann, H.; Leone, S. R. Tunable laser photodissociation of HgI ₂ : quantum yield for formation of excited I(5 2P _{1/2}) atoms. J. Chem. Phys. 69, 3819 (1978) United States
2061	A14 F + HI; F + HBr; F + H ₂ S; F + H ₂ CO; F + SiH ₄ ; F + GeH ₄	E	300 K	Sung, J. F.; Setser, L. W. Observation of high rotational levels of HF formed by chemical reaction in one torr of argon buffer gas. J. Chem. Phys. 69, 3868 (1978) United States
2062	G04 Rb* + Kr; Rb* + Xe; K* + Kr; K* + Xe	E	0-6 eV	Pope, W. M.; Eisele, F. L.; Thackston, M. G.; McDaniel, E. W. Longitudinal diffusion coefficients and test of the generalized Einstein relation for Rb*+Kr, Rb*+Xe, K*+Kr, and K*+Xe. J. Chem. Phys. 69, 3874 (1978) United States
2063	A11 Ar* + Ar	E	300 K	Cheng, F. S. F.; Setser, L. W. Radiative lifetimes and two-body deactivation rate constants for Ar(3c ³ , 4p) and Ar(3p ³ , 4p ³). J. Chem. Phys. 69, 3885 (1978) United States
2064	E03 e + CS ₂ ; e + OCS; e + SO ₂	E	25-70 eV	Flicker, W. M.; Mcsher, D. A.; Kuppermann, A. Electron-impact excitation of low-lying electronic states in CS ₂ , OCS, and SO ₂ . J. Chem. Phys. 69, 3910 (1978) United States
2065	A17 He + Ar	T	Undef	Kell, M.; Kuppermann, A. Scattering of thermal He beams by crossed atomic and molecular beams. I. Sensitivity of the elastic differential cross section to the interatomic potential. J. Chem. Phys. 69, 3917 (1978) United States
2066	H06 hv + N ₂	E	17-24 eV	Mintz, D. M.; Kuppermann, A. Energy dependence of the differential photoelectron cross sections of molecular nitrogen. J. Chem. Phys. 69, 3953 (1978) United States
2067	A11 O* + O ₂ ; O ₂ * + O ₂	E	300 K	Lee, L. C.; Slanger, T. G. Observations on O(1D + 3P) and O ₂ (t 1Σ sub g ⁺ + X 3Σ sub g ⁻) following O ₂ photodissociation. J. Chem. Phys. 69, 4053 (1978) United States
2068	A03 CsF + Ar; CsF + Xe; CsI + Ar; CsI + Xe; KBr + Ar; KBr + Xe	E	0-4 eV	McGinnis, R. F.; Greene, E. F. The inelastic scattering of alkali halides by rare gases. J. Chem. Phys. 69, 4073 (1978) United States

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2069	A11 OCS + He; OCS + Ar	T	300 K	Green, S. On the amount of information in rotational relaxation experiments with application to microwave transient T ₁ and T ₂ rates. <i>J. Chem. Phys.</i> 65, 4076 (1978) United States
2070	A14 F + H ₂	T	300 K	Faist, F. E.; Muckerman, J. T.; Schutert, F. E. Importance sampling and histogrammic representations of reactivity functions and product distributions in Monte Carlo quasiclassical trajectory calculations. <i>J. Chem. Phys.</i> 69, 4087 (1978) United States
2071	A14 Undef.	T	Undef	Augustin, S. D.; Rabitz, H. The classical path approximation in time-dependent quantum collision theory. <i>J. Chem. Phys.</i> 69, 4155 (1978) United States
2072	A17 H + H ₂ ; D + D	T	Undef	Silvers, I. F.; Goldman, V. V. The isotropic intermolecular potentials for H ₂ and D ₂ in the solid and gas phases. <i>J. Chem. Phys.</i> 65, 4205 (1976) The Netherlands
2073	A17 Tl + H ₂ ; Tl + He; Tl + Ne; Tl + Ar; Tl + Kr; Tl + Xe	T	Undef	Wu, C. Y. R.; Stwalley, W. C.; Proctor, T. F. Long-range interactions of the thallium 7 ² S _{1/2} state and broadening and shift of the thallium violet and green lines by rare gases. <i>J. Chem. Phys.</i> 65, 4238 (1978) United States
2074	D11 CO + Ir D13 CO + Ir	E	90-1300 K	Taylor, J. L.; Ibbotson, E. E.; Weinberg, W. H. The chemisorption of CO on clean and oxidized Ir(110). <i>J. Chem. Phys.</i> 69, 4258 (1978) United States
2075	A14 H + Br ₂ ; D + Br ₂	E	0-10 kcal/mol	Hepburn, J. W.; Klimek, D.; Liu, K.; Pclanyi, J. C.; Wallace, S. C. Reactive cross section as a function of collision energy. I. H(D) + Br ₂ + HBr(Ir) + Er. <i>J. Chem. Phys.</i> 69, 4311 (1978) Canada
2076	A04 Kr* + H ₂ O H05 hv + H ₂ O	E	A04 300 K H05 124 nm	Vikis, A. C. The CH (A ² I ⁺) internal energy distribution produced by the Kr(³ F ₄) sensitized decomposition of H ₂ O. <i>J. Chem. Phys.</i> 69, 4314 (1978) Canada
2077	H04 hv + NO H06 hv + NO	T	0-10 eV	Cremaschi, P.; Johnson, P. F.; Whitten, J. L. Multiphoton ionization spectroscopy: a theoretical analysis of the NC spectrum. <i>J. Chem. Phys.</i> 69, 4341 (1978) United States
2078	A11 Ar* + Xe; Ar* + Kr; Ar* + Hg; Ar* H ₂ ; Ar* + D ₂ ; Ar* + CO; Ar* + N ₂ ; Ar* + NO; Ar* + N ₂ O; Ar* + O ₂ ; Ar* + SO ₂ ; Ar* + CO ₂ ; Ar* + COS; Ar* + HCl; Ar* + HBr; Ar* + HI; Ar* + F ₂ ; Ar* + Cl ₂ ; Ar* + Br ₂ ; Ar* + ICl; Ar* + IBr; Ar* + ClF; Ar* + OF ₂ ; Kr* + Xe; Kr* + Kr; Kr* + Hg; Kr* + H ₂ ; Kr* + D ₂ ; Kr* + CO; Kr* + N ₂ ; Kr* + NO; Kr* + N ₂ O; Kr* + O ₂ ; Kr* + SO ₂ ; Kr* + CO ₂ ; Kr* + COS; Kr* + HCl; Kr* + HBr; Kr* + HI; Kr* + F ₂ ; Kr* + Cl ₂ ; Kr* + Br ₂ ; Kr* + ICl; Kr* + IBr; Kr* + ClF; Kr* + OF ₂ ; Xe* + Xe; Xe* + Kr; Xe* + Hg; Xe* + H ₂ ; Xe* + D ₂ ; Xe* + CO; Xe* + N ₂ ; Xe* + NO; Xe* + N ₂ O; Xe* + O ₂ ; Xe* + SO ₂ ; Xe* + CO ₂ ; Xe* + COS; Xe* + HCl; Xe* + HBr; Xe* + HI; Xe* + F ₂ ; Xe* + Cl ₂ ; Xe* + Br ₂ ; Xe* + ICl; Xe* + IBr; Xe* + ClF; Xe* + OF ₂ ; Xe* + SeF ₆ ; Xe* + CS ₂ ; Xe* + H ₂ O; Xe* + H ₂ S; Xe* + NH ₃ ; Xe* + HCN; Xe* + BrCN; Kr* + SeF ₆ ; Kr* + CS ₂ ; Kr* + H ₂ O; Kr* + H ₂ S; Kr* + NH ₃ ; Kr* + HCN; Kr* + BrCN; Ar* + SeF ₆ ; Ar* + CS ₂ ; Ar* + H ₂ O; Ar* + H ₂ S; Ar* + NH ₃ ; Ar* + HCN; Ar* + BrCN	E	300 K	Velazco, J. E.; Kclits, J. H.; Setser, L. B. Rate constants and quenching mechanisms for the metastable states of argon, krypton, and xenon. <i>J. Chem. Phys.</i> 69, 4357 (1978) United States

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2079	A11 OH* + H ₂ O F01 OH*	E	A11 292 K	Quickenden, T. I.; Irvin, J. A.; Sangster, E. F. Time resolved emission from CH(C ² I ⁺) produced by the pulse radiolysis of water vapor. J. Chem. Phys. 65, 4296 (1978) Australia
2080	A04 H* + CO; H* + NO; He* + CO; He* + NO; O* + CO; O* + NO	E	1 MeV	Wood, F. M.; Steuer, M. F.; Edwards, A. K. Dissociation of CO and NO by fast H*, He*, and O* projectiles. J. Chem. Phys. 65, 4487 (1978) United States
2081	A03 He + H ₂	T	0.1-4.2 eV	Cross, F. J., Jr. Semiclassical approximations for low-energy inelastic scattering. J. Chem. Phys. 69, 4465 (1978) United States
2082	E05 e + CO	E	10-180 eV	Hille, E.; Mark, T. D. Cross section for single and double ionization of carbon monoxide by electron impact from threshold up to 180 eV. J. Chem. Phys. 65, 4600 (1978) Austria
2083	A17 HCl + Ar; HCl + Kr	T	Undef	Kircz, J. G.; van der Pijl, G. J. C.; van der Elsken, J.; Frenkel, D. Determination of potential energy surfaces for Ar-HCl and Kr-HCl from rotational linebroadening data. J. Chem. Phys. 69, 4606 (1978) The Netherlands
2084	A02 He* + He A10 He* + He A17 He* + He	T	Undef	Jordan, F. P.; Siska, P. E. Classical and semiclassical theory of symmetric exchange collisions: an inversion procedure for low-energy He*(2 1S, 2 3S) + He differential scattering. J. Chem. Phys. 65, 4634 (1978) United States
2085	H05 2hv + OCS	E	193 nm	Kligler, D. J.; Pummer, H.; Bischof, W. K.; Rhodes, C. K. Photolytic production of S(1S) from OCS by two-quantum and vibrationally dependent mechanisms. J. Chem. Phys. 69, 4662 (1978) United States
2086	A17 Ar + HF; He + HF; He + CO; Li* + CO; Li* + N ₂ ; Li* + H ₂	T	Undef	Ewing, T. F.; Detrich, J.; Conn, R. W. Analytic fits to several diatom ab initio potential hypersurfaces. J. Chem. Phys. 69, 4662 (1978) United States
2087	G06 Cl ⁻ + O ₂ ; Cl ⁻ + N ₂ ; Cl ₂ ⁻ + O ₂ ; Cl ₂ ⁻ + N ₂ ; CO ₂ ⁻ + O ₂	E	Undef	Ellis, H. W.; Eisele, F. L.; McDaniel, E. W. Temperature dependent mobilities of negative ions in N ₂ and O ₂ . J. Chem. Phys. 65, 4710 (1978) United States
2088	F09 e + [N ₂ O + CO ₂]	E	298 K	Shimamura, H.; Fassenden, R. W. Mechanism of thermal electron attachment in N ₂ O-CO ₂ mixtures in the gas phase. J. Chem. Phys. 65, 4732 (1976) United States
2089	H02 hv + CsHe	E	6650-6250 Å ⁰	Tsu, A. C. Absorption bands in a CsHe system associated with forbidden Cs atomic transitions. J. Chem. Phys. 69, 4753 (1978) United States
2090	A07 He* + D	E	0.01-10 eV	Naynaber, R. H.; Tana, S. Y. Penning and associative ionization in the metastable helium-atomic deuterium system. J. Chem. Phys. 65, 48E1 (1978) United States
2091	D03 Ar* + NaF; Ar* + NaCl; Ar* + NaBr; Ar* + NaI; Ar* + CsF; Ar* + CsI; Ar* + CsClO ₄	E	3 keV	Honda, F.; Lancaster, G. M.; Fukuda, Y.; Feibeleis, J. W. SIMS study of the mechanism of cluster formation during ion bombardment of alkali halides. J. Chem. Phys. 65, 4921 (1978) United States
2092	A06 K + Br ₂ ; K + Cl ₂ A07 K + Br ₂ ; K + Cl ₂ A18 K + Br ₂ ; K + Cl ₂	E	4-37 eV	Kisura, M.; Lammann, K. Energy and angular differential cross sections for electron transfer in the systems K + Br ₂ and K + Cl ₂ . J. Chem. Phys. 69, 4938 (1978) West Germany
2093	A11 NH ₃ * + NH ₃ ; NH ₃ * + He; NH ₃ * + Ar; NH ₃ * + N ₂ ; NH ₃ * + O ₂	E	293 K	Hovis, F. E.; Moore, C. B. Vibrational relaxation of NH ₃ (v ₂). J. Chem. Phys. 69, 4947 (1978) United States

REF. NO.	REACTANTS	EXP CR THEOR	ENERGY RANGE	REFERENCE
2094	A17 Rb ⁺ + Ar; Rb ⁺ + Kr; Rb ⁺ + Xe G06 Rb ⁺ + Ar; Rb ⁺ + Kr; Rb ⁺ + Xe	E	300 K	Gatland, I. R.; Lamm, D. R.; Thackston, M. G.; Pope, W. M.; Eisele, F. L.; Ellis, E. W.; McDaniel, E. W. Mobilities and interaction potentials for Rb ⁺ -Ar, Rb ⁺ -Kr, and Rb ⁺ -Xe. <i>J. Chem. Phys.</i> 65, 4951 (1978) United States
2095	A03 H + H ₂ A04 H + H ₂ A14 H + H ₂	T	3-12 eV	Kulander, K. C. Collision induced dissociation in collinear H + H ₂ : quantum mechanical probabilities using the time-dependent wavepacket approach. <i>J. Chem. Phys.</i> 65, E064 (1978) United Kingdom
2096	A17 Kr* + Ar; Xe* + Ar; Ar* + He; Ar* + Ar; Ar; Ar* + Kr; Ar* + Xe; He* + Ar	T	Undef	Vallee, C.; Glasser, J.; Farsen, P.; Chapelle, J. The interactions between excited and ground state rare gas atoms. <i>J. Chem. Phys.</i> 65, 5051 (1978) France
2097	A10 Ne* + [Ne + Xe + NF ₃]; F* + [Ne + Xe + NF ₃]; F ₂ * + [Ne + Xe + NF ₃]; Ne* + [Ne + Xe + F ₂]; F* + [Ne + Xe + F ₂]; F ₂ * + [Ne + Xe + F ₂]	E	300 K	Huestis, D. L.; Hill, F. M.; Nekenc, E. H.; Lorents, D. C. Quenching of Ne*, F*, and F ₂ * in Ne/Xe/NF ₃ and Ne/Xe/F ₂ mixtures. <i>J. Chem. Phys.</i> 65, 5133 (1978) United States
2098	A10 NF* + Bi	E	300 K	Capelle, G. A.; Sutton, D. G.; Steinfeld, J. I. Near-resonant electronic energy transfer from NF(a ¹ Δ) to Bi. <i>J. Chem. Phys.</i> 69, 5140 (1978) United States
2099	H02 hv + ScO; hv + YO; hv + LaO	E	630-360 nm	Schenck, P. K.; Mollard, W. G.; Travis, J. C.; Smyth, K. C. Absorption spectra of metal oxides using optogalvanic spectroscopy. <i>J. Chem. Phys.</i> 65, 5147 (1978) United States
2100	A17 Ne ⁺ + Ne; Ar ⁺ + Ar; Kr ⁺ + Kr; Xe ⁺ + Xe	T	Undef	Michels, H. H.; Hobbs, R. F.; Wright, L. A. Electronic structure of the noble gas dimers. I. Potential energy curves and spectroscopic constants. <i>J. Chem. Phys.</i> 69, 5151 (1978) United States
2101	A11 H ₂ O ⁺ + H ₂ O; H ₂ O ⁺ + He; H ₂ O ⁺ + H ₂ ; H ₂ O ⁺ + N ₂ ; H ₂ O ⁺ + CO	E	300 K	Kasuga, T.; Kuze, H.; Shimizu, I. Determinations of relaxation rate constants on the 22 GHz rotational transition of H ₂ O by coherent transient spectroscopy. <i>J. Chem. Phys.</i> 65, 5155 (1978) Japan
2102	A14 Sr + HF	E	800 K	Karny, Z.; Estler, R. C.; Zere, R. N. Effect of reagent orientation and rotation upon product state distribution in the reaction Sr + HF (v=1, J) → SrF(v', J) + H. <i>J. Chem. Phys.</i> 69, 5155 (1978) United States
2103	E02 e + SF ₆	T	0-40 eV	Dehmer, J. L.; Siegel, J.; Dill, D. Shape resonances in e-SF ₆ scattering. <i>J. Chem. Phys.</i> 65, 5205 (1978) United States
2104	A02 Li ⁺ + H ₂ ; H ⁺ + H ₂ A03 Li ⁺ + H ₂ ; H ⁺ + H ₂ A18 Li ⁺ + H ₂ ; H ⁺ + H ₂	T	0.6-3.7 eV	McCann, K. J.; Flannery, M. F. Elastic scattering and rotational excitation in ion-molecule collisions. II. Li ⁺ -H ₂ and H ⁺ -H ₂ collisions. <i>J. Chem. Phys.</i> 65, 5275 (1978) United States
2105	A17 Mg + H	T	Undef	Saxon, F. F.; Kirby, K.; Liu, E. Ab initio configuration interaction study of the low-lying electronic states of MgH. <i>J. Chem. Phys.</i> 65, 5301 (1978) United States
2106	A10 HCl + HCl; HBr + HBr; DCl + DCl; DBr + DBr	E	300 K	Horwitz, A. B.; Leone, S. F. Laser-excited resonant isotopic v + v energy transfer: H ³⁷ Cl- ³⁷ Cl, H ⁷⁹ Br-H ⁸¹ Br, I ³⁵ Cl-D ³⁷ Cl, and I ⁷⁹ Br-D ⁸¹ Br. <i>J. Chem. Phys.</i> 65, 5319 (1978) United States
2107	E02 e + CO E17 e + CO G09 e + CO	E	3-100 eV	Tanaka, H.; Srivastava, S. K.; Chutjian, A. Absolute elastic differential electron scattering cross sections in the intermediate energy region. IV. CO. <i>J. Chem. Phys.</i> 69, 5329 (1978) United States

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2108	A11 HCl + CO ₂ ; HCl + N ₂ O	E	300-900 K	Doyennette, L.; Acel, F. A.; Chakrcun, A.; Margottin-Maclou, M.; Henry, L. Vibrational relaxation in HCl-CC ₂ and HCl-N ₂ O mixtures studied by the laser-induced fluorescence method. J. Chem. Phys. 69, 5334 (1978) France
2109	H05 hν + O ₂ ⁺ ; hν + [NO ⁺ + NO]; hν + [CO ₂ ⁺ + CO ₂]; hν + N ₂ ⁺ ; hν + CO ₂ ⁺ ; hν + [O ₂ ⁺ + H ₂ O]; hν + [O ₂ ⁺ + 2H ₂ O]	E	8600-3500 Å ⁰	Smith, G. P.; Lee, L. C. Photodissociation of atmospheric positive ions. II. 3500-2600 Å ⁰ . J. Chem. Phys. 65, 2353 (1978) United States
2110	A14 H + NO ₂ ; H + ClO ₂	E	300 K	Marrella, R. P., Jr.; Lantzsch, B.; Maxson, V. T.; Luntz, F. C. Molecular beam-laser induced fluorescence studies on the chemical reactions H + NO ₂ → OH + NO and H + ClO ₂ → OH + ClO. J. Chem. Phys. 69, 5411 (1978) United States
2111	A10 F* + H ₂	T	0-2.4 kcal/mol	Thomas, L. E.; Lester, W. A., Jr.; Rettenrost, F. Classical path study of nonadiabatic transitions in atom-molecule scattering: quenching of F(2F _{3/2}) by H ₂ . J. Chem. Phys. 69, 5489 (1978) United States
2112	F01 H ₂ ⁺	E		Day, R. L.; Anderson, R. J.; Sharpton, F. A. Radiative decay constants of the H ₂ ⁺ Fulcher bands. J. Chem. Phys. 69, 5518 (1978) United States
2113	A13 H ₂ ⁺ + He	T	30 eV	Guha, M.; Rai Deshidar, T. K. Angular distribution of product ions in the ion-molecule reaction H ₂ ⁺ (He, h) HeH ⁺ by quantum mechanical impulse approximation. J. Chem. Phys. 68, 5860 (1978) India
2114	A03 Na ⁺ + Ne	E	10 keV	Botashev, S. V.; Kharchenko, V. A. Population inversion of 2s states in neon in low-energy collisions with sodium ions. Sov. Tech. Phys. Lett. 3, 542 (1977) Soviet Union
2115	H07 hν + H ⁻ B07 hν + H ⁻	E	H07 10.9 eV	Gram, P. A. M.; Frett, J. C.; Yates-Williams, P. A.; Bryant, H. C.; Croshaw, J.; Sharifien, H.; Tootoonchi, H. Effect of an electric field upon resonances in the H ⁻ ion. Phys. Rev. Lett. 40, 107 (1978) United States
2116	H06 H ⁻ def	T	Undef	Dixit, S. N.; Lambropoulos, P. New photon-correlation effects in near-resonant multiphoton ionization. Phys. Rev. Lett. 40, 111 (1978) United States
2117	H05 nhν + SF ₆	T	Undef	Grant, E. R.; Schulz, F. A.; Sudbc, A. S.; Shen, Y. R.; Lee, Y. T. Is multiphoton dissociation of molecules a statistical thermal process? Phys. Rev. Lett. 40, 115 (1978) United States
2118	B03 SF ₆ ⁺	E		Freeman, R. R.; Bjorklund, G. C. Effects of electric fields upon autoionizing states of SF ₆ ⁺ . Phys. Rev. Lett. 40, 118 (1978) United States
2119	C02 H ₂ ⁺ + C; HeH ⁺ + C C06 H ₂ ⁺ + C; HeH ⁺ + C D09 H ₂ ⁺ + C; HeH ⁺ + C	E	75-300 keV	Laubort, R.; Chen, F.-K. Experimental method for testing the potential of sputtering ions in solids. Phys. Rev. Lett. 40, 174 (1978) United States
2120	H02 hν + H ₂	E	850-805 Å ⁰	Glass-Maujean, M.; Breton, J.; Guyon, P. M. Accidental predissociation of the 4pσ _g ^{1/2} (sub u) ⁺ state of H ₂ ⁺ . Phys. Rev. Lett. 40, 181 (1978) France
2121	D07 He + LiF	T	Undef	Harvie, C. E.; Weare, J. H. Theoretical analysis of bound-state resonance data in He-LiF scattering. Phys. Rev. Lett. 40, 167 (1978) United States
2122	A11 H ₂ ⁺ + H ₂ ; H ₂ ⁺ + He H04 2hν + H ₂	E	A11 300 K H04 1930 Å ⁰	Kligler, D. J.; Rhodes, C. K. Observation of two-photon excitation of the H ₂ ⁺ E ₁ F ₁ ¹ Σ (sub g) ⁺ state. Phys. Rev. Lett. 40, 309 (1978) United States

REF. NO.	REACTANTS	EXP CR THEOR	ENERGY RANGE	REFERENCE
2123	A03 He ⁺ + Ne; Li ⁺ + Ne; Be ⁺ + Ne; B ⁺ + Ne; C ⁺ + Ne; N ⁺ + Ne; O ⁺ + Ne; F ⁺ + Ne; Ne ⁺ + Ne; Na ⁺ + Ne; Mg ⁺ + Ne; Al ⁺ + Ne; Si ⁺ + Ne; P ⁺ + Ne; S ⁺ + Ne; Cl ⁺ + Ne; Ar ⁺ + Ne; K ⁺ + Ne	E	100 keV	Boving, E. G.; Sorensen, G. 2 oscillations in the excitation of 2s vacancies in Ne III measured by the radiative decay. Phys. Rev. Lett. 40, 315 (1978) Denmark
2124	H03 hν + Ta; hν + Zn; hν + Sn; hν + Au; hν + Pb	T	0.01-10 MeV	Kissel, L.; Pratt, R. H. New predictions for Rayleigh scattering: 10 keV-10 MeV. Phys. Rev. Lett. 40, 387 (1978) United States
2125	A10 NO + NO	E	300 K	Patel, C. K. N. Use of vibrational energy transfer for excited-state opto-acoustic spectroscopy of molecules. Phys. Rev. Lett. 40, 535 (1978) United States
2126	H02 2hν + H	T	Undef	Kote, D. H. Question of gauge: nonresonant two-photon absorption. Phys. Rev. Lett. 40, 538 (1978) United States
2127	D02 Ne ⁺ + Mo	E	150-3500 eV	Yu, M. L. Work-function dependence of negative-ion production during sputtering. Phys. Rev. Lett. 40, 574 (1978) United States
2128	A07 He ⁺ + He	E	2 keV	Kessel, G. C.; Morgenstern, R.; Muller, B.; Nishaus, A.; Thielmann, U. Ion-electron coincidence measurements of the azimuthal dependence of electrons from autoionizing Fe atoms excited in 2000-eV He ⁺ -He collisions. Phys. Rev. Lett. 40, 645 (1978) West Germany
2129	C06 B ⁺ + Au; B ⁺ + Ag; C ⁺ + Au; C ⁺ + Ag; N ⁺ + Au; N ⁺ + Ag; O ⁺ + Au; O ⁺ + Ag; F ⁺ + Au; F ⁺ + Ag; F ⁺ + Au; F ⁺ + Ag C07 B ⁺ + Au; B ⁺ + Ag; C ⁺ + Au; C ⁺ + Ag; N ⁺ + Au; N ⁺ + Ag; O ⁺ + Au; O ⁺ + Ag; F ⁺ + Au; F ⁺ + Ag; F ⁺ + Au; F ⁺ + Ag C08 B ⁺ + Au; B ⁺ + Ag; C ⁺ + Au; C ⁺ + Ag; N ⁺ + Au; N ⁺ + Ag; O ⁺ + Au; O ⁺ + Ag; F ⁺ + Au; F ⁺ + Ag; F ⁺ + Au; F ⁺ + Ag	E	10-35 MeV	Datz, S.; Moak, C. D.; Crawford, C. H.; Kratse, H. F.; Dittner, F. F.; Gomez del Camo, J.; Eiggersteiff, J. A.; Miller, P. E.; Hvelplund, P.; Knudsen, E. Resonant coherent excitation of channeled ions. Phys. Rev. Lett. 40, 843 (1978) United States
2130	D11 Undef	T	Undef	Knowles, I. F.; Suhl, F. *Erratum Sticking coefficient of atoms on solid surfaces at low temperatures. Phys. Rev. Lett. 40, 511 (1978) United States
2131	D13 e + TiO ₂ ; e + V ₂ O ₅ ; e + WO ₃ ; e + Cr ₂ O ₃ ; e + NiO	E	4-50 eV	Knotek, M. L.; Fetteisen, P. J. Ion desorption by core-hole Auger decay. Phys. Rev. Lett. 40, 964 (1978) United States
2132	A06 C ⁺ + Ar; O ⁺ + Ar; O ⁺ + Ar; F ⁺ + Ar; Ar; O ⁺ + Ar; O ⁺ + Ar	E	1.6-2.8 MeV/amu	Vane, C. R.; Sellin, I. A.; Suter, M.; Aitcn, G. D.; Elston, S. B.; Griffin, P. M.; Thoe, R. S. 2, velocity, and charge dependence of zero-degree electron cusps from charge transfer to continuous states of bare and highly ionized projectiles. Phys. Rev. Lett. 40, 1020 (1978) United States
2133	D02 H ⁺ + H ₂ O; He ⁺ + H ₂ O; C ⁺ + H ₂ O; O ⁺ + H ₂ O; e + H ₂ O	E	0.5-1.5 MeV	Brown, W. L.; Lanzerotti, L. J.; Pate, J. M.; Augustyniak, W. M. Sputtering of ice by MeV light ions. Phys. Rev. Lett. 40, 1027 (1978) United States
2134	A10 Eu + [Sr + hν]	E	800-1060 °C	Cahuzac, F.; Toschek, F. E. Observation of light-induced collisional energy transfer. Phys. Rev. Lett. 40, 1087 (1978) West Germany
2135	A19 Ar + Ar	E	2.5-8 MeV	Lutz, H. O.; McMurray, W. P.; Fretorius, R.; van Reenen, R. J.; van Heerden, I. J. Impact-parameter dependence of Ar K x-ray excitation in slow Ar-Ar collisions. Phys. Rev. Lett. 40, 1133 (1978) South Africa

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2136	A06 hv + Xe	T	5-100 eV	Johnson, b. R.; Cheng, K. T. Relativistic effects on low-energy 5d + epsilon p photoionization for xenon. Phys. Rev. Lett. 40, 1167 (1978) United States
2137	A06 Cl ⁺ + Cu	E	20-80 MeV	Tanis, J. A.; Shafroth, S. P. Target-thickness dependence of radiative electron capture in heavy-ion collisions. Phys. Rev. Lett. 40, 1174 (1978) United States
2138	A06 H + Cs	E	40 keV	Hennies, D.; Raymond, R. S.; Andersson, L. W.; Haeterli, W.; Glavish, H. F. Production of polarized H ⁻ or D ⁻ ions by a colliding-beam method. Phys. Rev. Lett. 40, 1234 (1978) United States
2139	A02 He ⁺ + Pb D07 He ⁺ + Pb D08 He ⁺ + Pb	E	200-2000 eV	Zartner, A.; Taglauer, E.; Heiland, W. Oscillatory ion yields of He ⁺ scattered from atomic and solid Pt targets. Phys. Rev. Lett. 40, 1285 (1978) West Germany
2140	E03 e + H E17 e + H	E	70-100 eV	Dixon, A. J.; Hood, S. T.; Weigold, E. Electron-photon coincidence measurements in electron scattering from atomic hydrogen. Phys. Rev. Lett. 40, 1262 (1978) Australia
2141	H07 hv + S ⁻ B04 hv + S ⁻	E	H07 557 nm	Blumberg, W. A. M.; Jopson, R. M.; Larson, E. J. Precision laser photodetachment spectroscopy in magnetic fields. Phys. Rev. Lett. 40, 1320 (1978) United States
2142	A07 H ⁺ + H ₂ S; H ⁺ + SO ₂ ; H ⁺ + SF ₆ ; H ⁺ + CH ₄ ; H ⁺ + CCl ₄ ; H ⁺ + CF ₄	E	1.5 MeV	Matthews, D. L.; Hopkins, F. Anomalous spectral and yield features of Auger emission from symmetric molecules. Phys. Rev. Lett. 40, 1326 (1978) United States
2143	A10 Xe + NH ₃	E	300 K	Smith, K. A.; Kellert, F. G.; Fundel, F. D.; Dunning, F. B.; Stebbings, F. F. Discrete energy transfer in collisions of Xe(nf) Rydberg atoms with NH ₃ molecules. Phys. Rev. Lett. 40, 1362 (1978) United States
2144	H06 2hv + Sr; 2hv + Ba	E	41970-42040 1/cm	Fonck, R. J.; Tracy, D. H.; Wright, D. C.; Tompkins, F. S. Atomic diamagnetism: quasi-Landau spectrum near the ionization threshold. Phys. Rev. Lett. 40, 1366 (1978) United States
2145	B07 Li ⁺ + [Li ⁺ + hv]	E		Hellfeld, A. V.; Coddick, J.; Weiner, J. Observation of laser-induced Penning and associative ionization in Li-Li collisions. Phys. Rev. Lett. 40, 1369 (1978) United States
2146	A03 Na ₂ + He; Na ₂ + Ne A18 Na ₂ + He; Na ₂ + Ne	E	98-190 meV	Bergmann, K.; Engelhardt, F.; Hefter, U.; Hering, P.; Witt, J. State-resolved differential cross sections for rotational transitions in Na ₂ + Ne (He) collisions. Phys. Rev. Lett. 40, 1446 (1978) West Germany
3147	A16 H ⁻ + Ar	E	0.5 MeV	Menendez, M. G.; LUNGAN, M. M. Collisional electron detachment of H ⁻ : a complete Auger distribution. Phys. Rev. Lett. 40, 1642 (1978) United States
2148	A03 H ⁺ + H	E	25-100 keV	Park, J. T.; Aldag, J. E.; Peacher, J. L.; George, J. M. Angular differential cross sections for excitation of atomic hydrogen by 25-, 50-, and 100-keV protons. Phys. Rev. Lett. 40, 1646 (1978) United States
2149	A06 Kr ²⁺ + Kr; Xe ²⁺ + Xe; Kr ²⁺ + He; Xe ²⁺ + He	E	0.04-20 eV	Okuno, K.; Koizumi, T.; Kureko, Y. Symmetric resonance double charge transfer in Kr ²⁺ + Kr and Xe ²⁺ + Xe systems. Phys. Rev. Lett. 40, 1708 (1978) Japan
2150	A06 Review	E	60-102 keV/amu	Kis, H. J.; Hvelplund, F.; Meyer, F. W.; Phaneuf, R. A.; Stelcson, F. H.; Bottcher, C. Observation of oscillations in the charge dependence of total electron-capture cross sections. Phys. Rev. Lett. 40, 1635 (1978) United States

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2151	D07 He + LiF	E	Undef	Frankl, D. L.; Wesner, D.; Krishnaswamy, S. V.; Derry, G.; O'Grady, T. Selective-adsorption-induced intensity maxima in ⁶ He/LiF scattering. Phys. Rev. Lett. 41, 60 (1978) United States
2152	B01 H*	E T		Koch, F. M. Resonant states in the nonperturbative regime: the hydrogen atom in an intense electric field. Phys. Rev. Lett. 41, 55 (1978) United States
2153	B03 Li*	E T		Littman, M. G.; Kash, M. M.; Kleppner, D. Field-ionization processes in excited atoms. Phys. Rev. Lett. 41, 102 (1978) United States
2154	E05 e + Fe ²⁰⁺ ; e + Fe ¹⁹⁺ ; e + Fe ¹⁸⁺ E06 e + Fe ²⁰⁺ ; e + Fe ¹⁹⁺ ; e + Fe ¹⁸⁺	E	65-200 eV	Brooks, R. L.; Datta, R. U.; Grier, H. R. Measurement of dielectronic recombination rates for the iron ions Fe IX-XI. Phys. Rev. Lett. 41, 107 (1978) United States
2155	E05 e + Mo ³⁰⁺ ; e + Mo ³¹⁺ E06 e + Mo ³⁰⁺ ; e + Mo ³¹⁺	E	1.6-2.2 keV	Breton, C.; de Michelis, C.; Finderthal, M.; Mettlioli, M. Ionization and recombination rate coefficients of highly ionized molybdenum ions from spectroscopy of tokamak plasmas. Phys. Rev. Lett. 41, 110 (1978) France
2156	H06 hν + Kr; hν + Xe	E	64-118 eV	Eberhardt, W.; Kalkoffen, G.; Kunz, C. Measurement of the Auger decay after resonance excitation of Xe 4d and Kr 3d resonance lines. Phys. Rev. Lett. 41, 156 (1978) West Germany
2157	C01 H ₂ ⁺ + C; H ₃ ⁺ + C C05 H ₂ ⁺ + C; H ₃ ⁺ + C C06 H ₂ ⁺ + C; H ₃ ⁺ + C C07 H ₂ ⁺ + C; H ₃ ⁺ + C	E	2.2-2.4 MeV	Gaillard, M. J.; Feizat, J. C.; Resillieux, J. Observation of MeV dissociative H ₂ ⁺ ions emerging from very thin foils. Phys. Rev. Lett. 41, 159 (1978) France
2158	A08 H + PERT	T	50-5000 keV/amu	Oison, F. E.; Berkner, K. L.; Graham, W. G.; Pyle, R. V.; Schlachter, A. S.; Stearns, J. W. Charge-state dependence of electron loss from H by collisions with heavy, highly stripped ions. Phys. Rev. Lett. 41, 163 (1978) United States
2159	H06 3hν + Na	E	Undef	Hogan, F. B.; Smith, S. J.; Georges, A. T.; Lambropoulos, P. ac Stark splitting in resonant multiphoton ionization with broadband lasers. Phys. Rev. Lett. 41, 229 (1978) United States
2160	A03 He + Ne A17 He + Ne A18 He + Ne	E T	0.064 eV	Gerber, R. B.; Shapiro, M.; Buck, L.; Ichleusener, J. Quantum-mechanical inversion of the differential cross section: determination of the He-Ne potential. Phys. Rev. Lett. 41, 236 (1978) Israel
2161	G05 e + He	E	Undef	Schwarz, K. W. Anomalous electron mobilities in dense helium gas. Phys. Rev. Lett. 41, 239 (1978) United States
2162	H04 hν + [Cs + Ar] H06 hν + [Cs + Ar]	E	4550 Å	Nayfeh, M. H.; Hurst, G. S.; Payne, M. G.; Young, J. P. Observation of new satellites in the Cs-Ar system using resonance ionization spectroscopy. Phys. Rev. Lett. 41, 302 (1978) United States
2163	A17 Na + Ne E03 e + NaNe	T	A17 Undef E02 0-13.6 eV	Masnou-Seeuvs, F.; Philippe, M.; Valliron, F. Model-potential calculations on the molecular system NaNe. Phys. Rev. Lett. 41, 35E (1978) France
2164	A08 O ³⁺ + Ar; O ³⁺ + Ne; D ²⁺ + Ar; O ²⁺ + Ne; O ²⁺ + Ar; O ²⁺ + Ne; O ²⁺ + Ar; O ²⁺ + Ne; Si ¹⁰⁺ + Ar; Si ¹⁰⁺ + Ne; Si ¹¹⁺ + Ar; Si ¹¹⁺ + Ne; Si ¹²⁺ + Ar; Si ¹²⁺ + Ne; Si ¹³⁺ + Ar; Si ¹³⁺ + Ne; Si ¹⁵⁺ + Ar; Si ¹⁵⁺ + Ne	E	1.6-3.9 MeV/amu	Suter, M.; Vane, C. R.; Sellin, I. A.; Elston, S. E.; Alton, C. D.; Thoe, R. S.; Leubert, F. Observation of oscillatory (interference) structure in the forward peak from fast-projectile electron loss. Phys. Rev. Lett. 41, 399 (1978) United States

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2165	A06 N ⁺ + Kr	E	35-124 keV	Hird, B.; Ali, S. P. Existence of the negative ion of atomic nitrogen. Phys. Rev. Lett. 41, 540 (1978) Canada
2166	H10 hν + [K + Xe]	E	4067 Å	Yabuzaki, T.; Tom, A. C.; Curry, S. M.; Happer, W. Visible emission bands of Kr ⁺ (sub n) polyatomic exciplexes. Phys. Rev. Lett. 41, 542 (1978) United States
2167	D04 H ⁺ + C; H ⁺ + Al; H ⁺ + Ag; H ⁺ + Au; O ⁺ + C; O ⁺ + Al; O ⁺ + Ag; O ⁺ + Au; Si ⁺ + C; Si ⁺ + Al; Si ⁺ + Ag; Si ⁺ + Au; Ni ⁺ + C; Ni ⁺ + Al; Ni ⁺ + Ag; Ni ⁺ + Au	E	1-4 MeV/amu	Lambert, R.; Sellin, I. A.; Vane, C. F.; Suter, M.; Elston, S. B.; Altch, G. D.; Thce, N. S. Z, velocity, and target-material dependence of convery electrons from solids. Phys. Rev. Lett. 41, 712 (1978) United States
2168	E03 e + Ba ⁺ E07 e + Ba ⁺	E	30-100 eV	Register, D. F.; Trajmar, S.; Jensen, E. W.; Pce, R. T. Electron scattering by laser-excited barium atoms. Phys. Rev. Lett. 41, 749 (1978) United States
2169	A10 Na ₂ ⁺ + Xe	I	300 K	Brunner, T. A.; Driver, R. L.; Smith, A.; Pritchard, D. E. Simple scaling law for rotational-energy transfer in Na ₂ ⁺ -Xe collisions. Phys. Rev. Lett. 41, 656 (1978) United States
2170	A19 S ⁵⁺ + Ar; S ⁷⁺ + Ar; S ⁹⁺ + Ar; S ¹⁰⁺ + Ar; S ¹¹⁺ + Ar; S ¹²⁺ + Ar; S ¹³⁺ + Ar; Cl ¹¹⁺ + NaCl	E	32 MeV	Schmidt-Bocking, H.; Schuch, R.; Tserruya, J.; Volpp, J.; Lichtenberg, W. Charge-state dependence of molecular K-x-ray production in nearly symmetrical ion-atom collisions. Phys. Rev. Lett. 41, 885 (1978) West Germany
2171	A03 Na ⁺ + Ar A18 Na ⁺ + Ar	E	0.12-0.14 eV	Phillips, W. D.; Serri, J. A.; Ely, D. J.; Fritchard, D. E.; Key, K. R.; Kinsey, J. L. Angular scattering distribution by Doppler spectroscopy: Na(3P ₂ , 3) + Ar + Na(3P ₂ , 3) + Ar. Phys. Rev. Lett. 41, 537 (1978) United States
2172	H04 hν + H ⁺ H06 hν + H ⁺	I	5.6 GHz	Leopold, J. G.; Percival, I. C. Microwave ionization and excitation of Rydberg atoms. Phys. Rev. Lett. 41, 944 (1978) United Kingdom
2173	H02 hν + Li	E	43250-43500 1/cm	Lu, K. T.; Toskins, F. S.; Crosswhite, H. M.; Crosswhite, H. Absorption spectrum of atomic lithium in high magnetic fields. Phys. Rev. Lett. 41, 1034 (1978) United States
2174	A06 C ⁶⁺ + H A07 C ⁶⁺ + H	T	24 MeV	Shakeshaft, R.; Spruch, L. Asymmetry in the cross of the cross section for electron capture to the continuum for a fast bare ion on a hydrogenlike atom. Phys. Rev. Lett. 41, 1037 (1978) United States
2176	D02 Ar ⁺ + [Cu + O]	I	600 eV	Winograd, N.; Garrison, B. J.; Harrison, D. E., Jr. Angular distributions of ejected particles from ion-bombarded clean and etched single-crystal surfaces. Phys. Rev. Lett. 41, 1120 (1978) United States
2176	H06 hν + Na	E	625-275 nm	Rearman, G. H.; Leventhal, J. J. Ionization and energy pooling in laser-excited Na vapor. Phys. Rev. Lett. 41, 1227 (1978) United States
2177	H06 hν + N ₂ ; hν + CO	E	Undef	Dill, D.; Wallace, S.; Siegel, J.; Dehmer, J. L. Molecular-photoelectron angular distributions as a probe of dynamic symmetry breaking. Phys. Rev. Lett. 41, 1230 (1978) United States
2178	A06 H + O ²⁺ ; H + O ³⁺ ; H + O ⁵⁺ ; H + O ⁶⁺ ; H + O ⁷⁺	T	0.1-1 keV	Isler, R. C.; Cruce, E. C. Charge-transfer excitation of impurity ions in tokamaks. Phys. Rev. Lett. 41, 1296 (1978) United States
2179	D05 hν + Al	E	11-30 eV	Petersen, H.; Hagstrom, S. E. M. Optical excitation of the surface photoelectric effect of metals using synchrotron radiation. Phys. Rev. Lett. 41, 1314 (1978) United States

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2180	H06 hν + Rb B06 hν + Rb	E	H06 3005-2560 Å ⁰	Freeman, R. R.; Economou, N. F.; Bjorklund, G. C.; Lu, K. T. Observation of electric-field-induced resonance above the ionization limit in a one-electron atom. Phys. Rev. Lett. 41, 1463 (1978) United States
2181	A06 Mg ⁺ + Mg; Mg ²⁺ + Mg	E	1.2-1600 keV	Pedersen, E. H.; Mikkelsen, J. V.; Vasten, J.; Taubjerg, K. Interference effect in resonant double-charge transfer. Phys. Rev. Lett. 41, 1541 (1978) Denmark
2182	H06 3hν + Ba	E	4555 Å ⁰	Cocke, L. E.; Gallagher, T. F. Observation of pair splittings in the autoionization spectrum of Ba. Phys. Rev. Lett. 41, 1648 (1978) United States
2183	D08 H ⁻ + Pb; H ⁺ + Pb; H ₂ ⁺ + Pb; H ₃ ⁺ + Pb	E	0.6-10 keV/nucleon	Tolk, N. H.; Tully, J. C.; Kraus, J. S.; Heiland, W.; Neff, S. H. Elliptic polarization of laser radiation from low-energy grazing-incidence collisions of hydrogen ions on surfaces. Phys. Rev. Lett. 41, 643 (1978) United States
2184	A11 Ba ⁺ + Ba [*]	E	1/25 eV	White, J. C.; Zdesiuk, G. A.; Young, J. F.; Harris, S. E. Observation of radiative collisional fluorescence. Phys. Rev. Lett. 41, 1705 (1978) United States
2185	A03 H ⁺ + Ni	E	3.15 MeV	Blair, J. E.; Dyer, P.; Snover, K. A.; Trainor, T. A. Nuclear time delay and x-ray-proton coincidences near nuclear scattering resonance. Phys. Rev. Lett. 41, 1712 (1978) United States
2186	E09 e + H ₂ ; e + D ₂	E	1-5 eV	Allan, K.; Wera, S. F. Effect of vibrational and rotational excitation on dissociative attachment in hydrogen. Phys. Rev. Lett. 41, 1751 (1978) United States
2187	E09 e + H ₂	I	0.1-4 eV	Wadhwa, J. M.; Eardsley, J. N. Vibrational-and rotational-state dependence of dissociative attachment in e-H ₂ collisions. Phys. Rev. Lett. 41, 1755 (1978) United States
2188	G02 Xe ⁺ + Ar A11 Xe ⁺ + Ar	E	300 K	Chenevier, M.; Sadeghi, N.; Feby-Feyrcula, J. C. Relaxation processes of Xe ⁺ (³ F ₂) metastable atoms in argon-xenon mixtures. J. Phys. Lett. (Paris) 35, L105 (1978) France
2189	A03 Na ⁺ + Na A10 Na ⁺ + Na H08 2hν + Na	E	270 °C	Biraben, F.; Beroff, K.; Giocchini, E.; Grynberg, G. Relaxation of the 4D _{3/2} and 4D _{5/2} levels of sodium atoms perturbed by noble gases. J. Phys. Lett. (Paris) 39, L108 (1978) France
2190	A02 Kr ⁺ + He	E	Thermal	Brachignac, C.; Vetter, R.; Eerssen, P. R. Persistence of velocity following elastic collisions. J. Phys. Lett. (Paris) 35, L231 (1978) France
2191	A07 He ²⁺ + Air	E	4 MeV	Pointu, A. M.; Fitaire, M. Method for the measurement of the mean ionizing cross-section of fast particles and of the corresponding charge produced. J. Phys. Lett. (Paris) 39, L253 (1978) France
2192	H02 hν + Th; hν + U	E	50-150 eV	Cukler, M.; Dhez, P.; Gauthé, E.; Joegle, F.; Wehenkel, C. L.; Combet Farnoux, F. Photoabsorption of Th and U by direct measurement and fast electron energy loss spectra near the Ed thresholds. J. Phys. Lett. (Paris) 39, L315 (1978) France
2193	B03 Na [*]	E		Vialle, J.-L. Sensitive detection of multiple thresholds for electric field ionization of sodium Rydberg states. J. Phys. Lett. (Paris) 39, L365 (1978) France

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2194	A10 Hg* + Zn; Hg* + Cd	E	Thermal	Cremer, G.; Cheron, B. Etude des transferts d'orientation et d'alignement dans la fluorescence sensibilisee mercure-cadmium et mercure-zinc. J. Phys. Lett. (Paris) 39, L415 (1978) France
2195	H06 Review	T	10-200 eV	Kelly, M. F. Electron correlations in photoionization and vacancy decay processes. J. Phys. (Paris) 39, C4-16 (1978) United States
2196	H06 Review E01 Review E03 Review E09 Review	T	0-1000 eV	Burke, F. G. R-matrix method--advantages and applications. J. Phys. (Paris) 39, C4-27 (1978) United Kingdom
2197	H06 Review	E	2000-10 Å	Shirley, D. A. Correlation effects in photoelectron spectroscopy of atoms. J. Phys. (Paris) 39, C4-35 (1978) United States
2198	H06 Review	E T	0-200 eV	Dahmer, J. L. Angular distributions of photoelectrons and non-thermal photoions from atoms and molecules. J. Phys. (Paris) 39, C4-42 (1978) United States
2199	F01 Review	E		Tramer, A. Decay of excited molecular states. J. Phys. (Paris) 39, C4-51 (1978) France
2200	F01 Review	E		TFR Group Vacuum ultra-violet spectroscopy on T.F.R. tokamak plasmas. J. Phys. (Paris) 39, C4-66 (1978) France
2201	D07 Undef	T	Undef	Dick, D. R.; Doll, J. I. Semiclassical theory of atom/solid surface collisions: solution of Steel's model. Surface Sci. 58, 415 (1976) United States
2202	H06 hv + Be; hv + C; hv + Al; hv + Si; hv + Ti; hv + V; hv + Cr; hv + Mn; hv + Fe; hv + Co; hv + Ni; hv + Cu; hv + Zn; hv + Ge; hv + Y; hv + Zr; hv + Nb; hv + Mo; hv + Pd; hv + Ag; hv + Cd; hv + In; hv + Sn; hv + Te; hv + Hf; hv + Ta; hv + W; hv + Pt; hv + Au; hv + Pb; hv + LiCl; hv + BN; hv + MgO; hv + LiF; hv + CaF ₂ ; hv + NaBr; hv + CsCl; hv + KI; hv + CdSe; hv + BaCl ₂ ; hv + ThO ₂	E	1.2 keV	Brillson, L. J.; Caesar, G. F. X-ray photoionization cross sections for quantitative analysis. Surface Sci. 58, 457 (1976) United States
2203	D05 hv + Ni; hv + [H + Ni]	E	21-27 eV	Conrad, H.; Ertl, G.; Kuppers, J.; Latta, E. E. Ultraviolet photoelectron spectra from hydrogen adsorbed on Ni(111) and Pd(111) surfaces. Surface Sci. 58, 578 (1976) West Germany
2204	D04 Ne* + Mg; Ne* + Al; Ar* + Mg; Ar* + Al; Kr* + Mg; Kr* + Al; Xe* + Mg; Xe* + Al	E	0.8-3.0 keV	Ferrante, J.; Pepper, S. V. Production of Mg and Al Auger electrons by noble gas ion bombardment of Mg and Al surfaces. Surface Sci. 56, 613 (1976) United States
2205	C04 He* + W D15 W* + Pt	F	0.3-30 keV	Seidman, D. N. The study of radiation damage in metals with the field-ion and atom-probe microscopes. Surface Sci. 78, E22 (1978) United States
2206	D07 He + W	T	1300-2200 K	Goodman, F. G. Theory of scattering of He by a W(112) surface. Surface Sci. 70, 578 (1978) Canada
2207	D07 Review	E T	300-3000 K	Cole, M. W.; Frankl, D. R. Atomic and molecular beam scattering from crystal surfaces in the quantum regime. Surface Sci. 70, 565 (1978) United States
2208	D06 Undef	T	Undef	Delanaye, F.; Lucas, A.; Mahan, G. D. Inelastic scattering of electrons by vibrational motion of molecules adsorbed at metal surfaces. Surface Sci. 70, 629 (1978) Belgium

REF. NO.	REACTANTS	EXP OR THEOR	ENERGY RANGE	REFERENCE
2209	D04 e + [Al + Mg]; e + Al ₂ O ₃ ; e + MgO	E	0-800 eV	Goldstein, E.; Dresner, J. Growth of MgO films with high secondary electron emission on Al-Mg alloys. Surface Sci. 71, 15 (1978) United States
2210	C08 He ⁺ + Ni D08 He ⁺ + Ni	E	195 keV	Varelas, C.; Sizmann, F. Light emission by swift He ⁺ ions after focusing and channeling interactions on a monocrystalline nickel surface. Surface Sci. 71, 81 (1978) United States
2211	D03 Ne ⁺ + [O + W]	E	500 eV	Yu, M. I. The SIMS spectrum of the O-W(100) chemisorption system. Surface Sci. 71, 121 (1978) United States
2212	D07 Undef	T	Undef	Garcia, N. Threshold and Lennard-Jones resonances and elastic lifetimes in the scattering of atoms from crystalline surfaces. Surface Sci. 71, 220 (1978) Spain
2213	D03 Ar ⁺ + [CO + Mo] D13 e + [CO + Mo]	E	D03 500 eV D13 200 eV	Dawson, P. H. The adsorption of CO on molybdenum studied by low energy SIMS and EID. Surface Sci. 71, 247 (1978). Canada
2214	D04 e + Si	T	undef	D'Andrea, A.; Del Sole, R. Theory of (e,2e) reaction near solid surfaces: application to Si. Surface Sci. 71, 306 (1978) Italy
2215	D12 e + Th	E	3 keV	Bastasz, F.; Colmereres, C. A.; Sosorjci, G. A. Electron induced luminescence as a technique for studying the adsorption of oxygen and the oxidation of thorium. Surface Sci. 71, 357 (1978) United States
2216	D07 Undef	T	Undef	Lagos, P. Scattering of low-energy atoms by metallic surfaces. Surface Sci. 71, 414 (1978) Chile
2217	D12 O ₂ + MgO	E	300 K	Roose, R. F.; Offergeld, G. Light emission during adsorption and desorption of oxygen on magnesium oxide. Surface Sci. 71, 462 (1978) Belgium
2218	D02 Ar ⁺ + [Cu + Ni] D17 Ar ⁺ + [Cu + Ni]	E	500 eV	Saeki, N.; Shimizu, R. Thickness and in-depth composition profile of altered layer caused on Cu-Ni alloy surface due to preferential sputtering. Surface Sci. 71, 479 (1978) Japan
2219	D03 Ar ⁺ + [Cu + BeO]; Ar ⁺ + [Cu + Al ₂ O ₃] D17 Ar ⁺ + [Cu + BeO]; Ar ⁺ + [Cu + Al ₂ O ₃]	E	6.2 keV	Blaize, G.; Lyon, C.; Roques-Carnes, C. Sputtering and secondary ion emission of a two-phase system composed of small oxide precipitates dispersed in a copper matrix. Surface Sci. 71, 630 (1978) France
2220	D04 e + Ni; e + [S + Ni]	E	2 keV	Matsudaire, T.; Onchi, M. Angular distributions of Auger electron emission; clean and gas-adsorbed polycrystalline Ni surfaces. Surface Sci. 72, 83 (1978) Japan
2221	D04 e + Si; e + Cu	E	Undef	White, S. J.; Woodruff, D. F.; McDonnell, L. Angular dependence of Auger electron emission from Si and Cu(100) surfaces in the presence of overlayers. Surface Sci. 72, 77 (1978) United Kingdom
2222	D02 Undef D17 Undef	T	Undef	Ho, P. S. Effects of enhanced diffusion on preferred sputtering of homogeneous alloy surfaces. Surface Sci. 72, 253 (1978) United States
2223	D08 Undef	T	Undef	Bleas, W.; Hone, D. Theory of charge exchange scattering from surfaces. Surface Sci. 72, 277 (1978) United States
2224	D12 e + GaAs; e + CdS	E T	3-50 keV	Dmitruk, N. L.; Litovchenko, V. G.; Talet, G. H. The effect of the surface space charge region on the cathodoluminescence of semiconductors. Surface Sci. 72, 321 (1978) Soviet Union

REF. NO.	REACTANTS	EXP OR THEOR	ENERGY RANGE	REFERENCE
2225	D07 Ne ⁺ + Cu; Ne ⁺ + Fe; Ne ⁺ + Ni; Ne ⁺ + Ta; Ne ⁺ + Ag; Ne ⁺ + Pd; Ne ⁺ + Rh; Ne ⁺ + Y; Ne ⁺ + Pb; Ne ⁺ + In; Ne ⁺ + Sn; Ne ⁺ + Zr; Ne ⁺ + Cr; Ne ⁺ + Nb	E	0.1-2.5 keV	Baun, W. L. Multiple scattering features in neon ion scattering spectra (ISS) from polycrystalline materials. Surface Sci. 72, 536 (1978) United States
2226	D13 e + [CO + Ir]	E	0.09-2.5 keV	Shek, M.-L.; Withrow, S. P.; Weinberg, W. H. Electron beam induced desorption and dissociation of CO chemisorbed on Ir(111). Surface Sci. 72, 678 (1978) United States
2227	D03 Ar ⁺ + LiF; Ar ⁺ + NaF; Ar ⁺ + KF; Ar ⁺ + NaBF ₄ ; Ar ⁺ + KPF ₆	E	0-3.0 keV	Taylor, J. A.; Rabalais, J. W. Molecular rearrangement and cluster formation in the secondary ion mass spectra (SIMS) of fluoride salts. Surface Sci. 74, 229 (1978) United States
2228	D07 Undef	T	Undef	Barker, J. A.; Steele, W. A. Response functions for crystals and surfaces, with applications to surface scattering. Surface Sci. 74, 556 (1978) United States
2229	D06 e + C; e + Al; e + Ti; e + Cu; e + Si; e + Ge; e + NiPd; e + AlCu; e + CrFe; e + CuNi	T	Undef	Jablonski, A. Estimation of backscattering factor for low atomic number elements and their alloys. Surface Sci. 74, 621 (1978) Poland
2230	D04 N ₂ ⁺ + Si; O ₂ ⁺ + Si; He ⁺ + Si	E	6 keV	Soszka, W. Surface analysis by ion-electron spectroscopy; silicon target. Surface Sci. 74, 636 (1978) Poland
2231	D10 H + LiF; He + LiF; D + LiF; H + NaF; He + NaF; D + NaF	T	0-2.2x10 ⁻³ eV	Schwartz, C.; Cole, M. W.; Fliva, J. Semiempirical determination of the atom-surface interaction. Surface Sci. 75, 1 (1978) United States
2232	D03 Ar ⁺ + GaAs	E	8 keV	Brodzowska-Warczak, B.; Gatla, L.; Pedrys, F.; Szymonaki, M.; Worczak, A. Bombardment-induced photon emission from GaAs as a function of target temperature. Surface Sci. 75, 61 (1978) Poland
2233	D07 He ⁺ + Al; He ⁺ + TiO ₂ ; He ⁺ + Ta; He ⁺ + Ag; He ⁺ + Ta ₂ O ₅ ; Ar ⁺ + Al; Ar ⁺ + TiO ₂ ; Ar ⁺ + Ta; Ar ⁺ + Ag; Ar ⁺ + Ta ₂ O ₅	E	0.1-2.5 keV	Baun, W. L. Multiple scattering features in argon and helium ion scattering spectra (ISS) from polycrystalline materials. Surface Sci. 75, 141 (1978) United States
2234	D03 Ar ⁺ + SS; Ar ⁺ + Invar	T	34 keV	MacDonald, R. J.; Giffert, F. F.; Paffin, P. J. Photon emission from sputtered atoms--the observation of apparent local thermodynamic equilibria in the excitation. Surface Sci. 75, 115E (1978) Australia
2235	D03 Ar ⁺ + SS; Ar ⁺ + Invar	E	54 keV	Tseng, I. S. I. Reply to Photon emission from sputtered atoms--the observation of apparent local thermodynamic equilibrium in the excitation by R. J. MacDonald, F. F. Giffert and P. J. Martin. Surface Sci. 75, L159 (1978) United States
2236	C05 e + Au; e + Ag; e + Mg	E	0-160 eV	Norman, D.; Woodruff, D. P. Energy dependence of electron inelastic scattering mean-free-path using synchrotron radiation photoelectron spectroscopy. Surface Sci. 75, 179 (1978) United Kingdom
2237	D09 H ₂ + Cu D10 H ₂ + Cu	T	6-11 kcal/mol	Gallo, A.; Cardillo, M. J. Classical trajectory calculations of the dissociation of hydrogen on copper. III. The effect of surface roughness. Surface Sci. 75, 195 (1978) Mexico
2238	D04 e + BaO	E	3-40 eV	Thomas, R. E.; Shih, A.; Hees, C. A. Electron energy loss and secondary emission mechanisms in BaO. Surface Sci. 75, 229 (1978) United States
2239	C05 Undef	T	Undef	Fitting, H. J.; Gleefke, K.; Wild, W. Attenuation length and escape depth of excited electrons in acids. Surface Sci. 75, 267 (1978) East Germany

REF. NO.	REACTANTS	EXP OR THEOR	ENERGY RANGE	REFERENCE
2240	D05 Undef	T	Undef	Fauchtwang, T. E.; Cutler, P. H.; Schait, J. A review of the theoretical and experimental analyses of electron spin polarization in ferromagnetic transition metals. I. Field emission, photoemission, magneto-optic Kerr effect and tunneling. Surface Sci. 75, 401 (1978) United States
2241	D05 Undef	T	Undef	Fauchtwang, T. E.; Cutler, P. H.; Nagy, D. A review of the theoretical and experimental analyses of electron spin polarization in ferromagnetic transition metals. II. New theoretical results for the analyses of ESP in field emission, photoemission, and tunneling. Surface Sci. 75, 450 (1978) United States
2242	D07 Undef	T	Undef	Greene, E. F.; Mason, E. A. Cutoffs and shadows in classical scattering of atoms from surfaces. Surface Sci. 75, 445 (1978) United States
2243	D07 He + LiF	T	0.063 eV	Hill, N. R.; Celli, V. Multiple hits in atom-surface diffraction. Surface Sci. 75, 577 (1978) United States
2244	D13 e + [O + W]	E	160 eV	Frigge, S.; Neihus, H.; Bauer, E. Electron stimulated desorption ion energy distribution (ESIED) and surface structure: C on W(100). Surface Sci. 75, 635 (1978) West Germany
2245	D02 H ⁺ + [S + Ni]	E	0.2-1.0 keV	Windawi, H.; Katzer, J. R. H ⁺ ion induced desorption of sulfur adsorbed on polycrystalline Ni surfaces. Surface Sci. 75, 1761 (1978) United States
2246	D13 e + [H ₂ + W]	T	Undef	Janow, F.; Tzoar, N. Calculation of energy spectra for ESD of H ⁺ from H ₂ adsorbed on tungsten. Surface Sci. 75, 1766 (1978) United States
2247	D07 He + Cu; Ne + Cu	E	20 K	Mason, E. F.; Williams, B. F. Scattering of He and Ne atoms from (001) Cu at 20 K. Surface Sci. 75, 1786 (1978) Canada
2248	D08 H ₂ ⁺ + Ag; H ₂ ⁺ + Pd; He ⁺ + Ag; He ⁺ + Pd	E	0.3-2.6 keV	Adelmann, P. J.; Helbig, H. F.; Czanderna, A. W. Yields of H ⁺ and He ⁺ at the energy for elastic scattering from H ₂ ⁺ + ³ He ⁺ incident on Ag and Pd. Surface Sci. 76, 102 (1978) United States
2249	D02 Ar ⁺ + Cu	T	0.6 keV	Harris, D. E., Jr.; Kelly, P. W.; Garrison, E. J.; Winograd, N. Low energy ion impact phenomena on single crystal surfaces. Surface Sci. 76, 311 (1978) United States
2250	D02 Ar ⁺ + Ta ₂ O ₅ D03 Ar ⁺ + Ta ₂ O ₅	E	80-900 eV	Gechsner, H.; Schöck, H.; Stange, E. Sputtering of Ta ₂ O ₅ by Ar ⁺ ions at energies below 1 keV. Surface Sci. 76, 343 (1978) West Germany
2251	D03 Ar ⁺ + Mg; Ar ⁺ + Al; Ar ⁺ + Si; Ar ⁺ + Cr; Ar ⁺ + Cu; Ar ⁺ + Ag; Ar ⁺ + Au. D09 Ar ⁺ + Mg; Ar ⁺ + Al; Ar ⁺ + Cr; Ar ⁺ + Si; Ar ⁺ + Ag; Ar ⁺ + Au; Ar ⁺ + Cu.	T	Undef	Prival, H. G. A model of the ion sputtering process. Surface Sci. 76, 443 (1978) United States
2252	D07 Ar ⁺ + Cu	T	10-30 keV	Balashova, I. L.; Mashova, E. S.; Melichanov, V. A. Argon ion double scattering from polycrystalline copper. Surface Sci. 76, 1550 (1978) Soviet Union
2253	A03 H ₂ + CO; H ₂ + SiO; H ₂ + CS	T	10-100 K	Varshavich, D. A.; Khersonskii, V. K. One mechanism for the creation of a population inversion in the levels of linear molecules. Sov. Astron.-AJ 22, 152 (1978) Soviet Union
2254	B07 Undef	T		Pavlov, G. G.; Shitanov, Y. A. Thermal emission of an optically thick plasma containing a strong magnetic field. Sov. Astron.-AJ 22, 214 (1978) Soviet Union

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2255	D17 Ar ⁺ + CoFe ₂ O ₄	E	1 kV	Chuang, T. J.; Brundie, C. R.; Mandelt, K. An x-ray photoelectron spectroscopy study of the chemical changes in oxide and hydroxide surfaces induced by Ar ⁺ ion bombardment. Thin Solid Films 53, 19 (1978) United States
2256	D16 Review	E	Undef	Dearnaley, G.; Hartley, N. E. Ion implantation into metals and carbides. Thin Solid Films 54, 218 (1978) United Kingdom
2257	D16 Cr ⁺ + Fe; Ni ⁺ + Fe	E	25 keV	Sartwell, B. D. Formation of corrosion-resistant surface alloys by metal ion implantation. Thin Solid Films 54, 233 (1978) United States
2258	C08 Undef	T	Undef	Akhiezer, A. I.; Boldyshev, V. F.; Shul'ga, N. F. Theory of the radiation of relativistic channelled particles. Sov. Phys.-Doklady 22, 565 (1977) Soviet Union
2259	C08 Undef	T	Undef	Beloshitskii, V. V.; Kupakhov, M. A. Effect of amplification of induced emission on a beam of channelled relativistic particles. Sov. Phys.-Doklady 22, 645 (1977) Soviet Union
2260	H05 hv + Na ₂	E T	440-490 nm	Papernov, S. M.; Shlyapnikov, G. V.; Yanson, M. L. Photodissociation of vibrationally excited molecules. Sov. Phys.-Doklady 23, 58 (1978) Soviet Union
2261	H02 hv + H ₂ O B07 hv + [H ₂ O + H ₂ O]	E	H02 694.4 nm	Zuev, V. E.; Lopasov, V. F.; Ponomarev, Y. N. Narrowing of the collision shape of the molecular absorption line of atmospheric water vapor in a strong light field. Sov. Phys.-Doklady 23, 261 (1978) Soviet Union
2262	A17 H ₂ + H ₂	E	600 eV	Leonas, V. E.; Khrcsov, V. N. Experimental investigation of short-range interscolecular forces in hydrogen. Sov. Phys.-Doklady 23, 330 (1978) Soviet Union
2263	A07 Undef	T	Undef	Devdariani, A. Z.; Ostrovskii, V. N.; Sebyakin, Y. N. Electron spectra from the autoionization of quasi-molecules. Sov. Phys.-JETP 46, 215 (1977) Soviet Union
2264	H05 Undef	T	Undef	Kuz'min, M. V.; Sazonov, V. N. Theory of excitation of a quantum nonlinear oscillator by a harmonic force. Sov. Phys.-JETP 46, 220 (1977) Soviet Union
2265	E03 e + N ₂ ; e + H ₂	T	1.8-4 eV	Golubkov, G. V.; Delidchik, F. I.; Ivanov, G. K. Vibrational excitation of molecules during resonance scattering of electrons. Sov. Phys.-JETP 46, 230 (1977) Soviet Union
2266	E03 e + CH ₂ Br ₂ ; e + CHBr ₃ ; e + CH ₂ I ₂ ; e + CH ₂ I ₂ E04 e + CH ₂ Br ₂ ; e + CHBr ₃ ; e + CH ₂ I ₂ ; e + CH ₂ I ₂	E	0.4-6 keV	Danilevskii, N. F.; Koppe, V. I.; Koval, A. G.; Khvanskii, N. A. Formation of excited fragments in the dissociation of halogenated methane compounds by electron impact. Sov. Phys.-JETP 46, 236 (1977) Soviet Union
2267	E03 Undef	T	Undef	Smirnov, E. M.; Firov, O. B. Cross section of excitation of molecular vibrational levels by electron impact. Sov. Phys.-JETP 46, 280 (1977) Soviet Union
2268	B07 Undef	T	Undef	Alekseev, A. L.; Evseev, I. V.; Erzachenko, V. M. Feasibility of investigating atomic collisions by the photon-echo technique. Sov. Phys.-JETP 46, 246 (1977) Soviet Union
2269	A04 H ₂ S ⁺ + Kr; CS ₂ ⁺ + Kr; CH ₃ I ⁺ + Kr; CF ₃ I ⁺ + Kr	E	2.7 keV	Marvelyan, R. V.; Kupriyanov, S. E.; Ferov, A. A.; Potapov, V. K. Impact dissociation of molecular ions produced by photoionization of various molecules. Sov. Phys.-JETP 46, 443 (1977) Soviet Union
2270	E03 Undef	T	Undef	Dezhev, Y. A.; Ostrovskii, V. N. Exchange excitation of an atom by electrons with high angular momenta. Sov. Phys.-JETP 46, 445 (1977) Soviet Union

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2271	H05 hv + SF ₆ B07 hv + SF ₆	T	H05 Undef	Sazonov, V. N.; Finkel'shtein, V. Y. Analysis of models of radiative dissociation of polyatomic molecules in the field of laser radiation. Sov. Phys.-JETP 46, 667 (1977) Soviet Union
2272	E02 Undef E03 Undef	T	Undef	Fabrikant, I. I. Threshold behavior of the cross sections for scattering of electrons by polar molecules. Sov. Phys.-JETP 46, 653 (1977) Soviet Union
2273	H06 hv + H ₂ CO; hv + NO ₂	E	1600 Å ⁰	Antonov, V. S.; Knyazev, I. N.; Letokhov, V. S.; Movshev, V. G. Photoionization of molecules from the ground and selectively-excited states by radiation from a vacuum-ultraviolet laser. Sov. Phys.-JETP 46, 697 (1977) Soviet Union
2274	A06 N ⁺ + He; N ⁺ + N ₂ ; N ⁺ + Ne; N ²⁺ + He; N ²⁺ + N ₂ ; N ²⁺ + Ne; N ³⁺ + He; N ³⁺ + N ₂ ; N ³⁺ + Ne; N ⁴⁺ + He; N ⁴⁺ + N ₂ ; N ⁴⁺ + Ne; N ⁵⁺ + He; N ⁵⁺ + N ₂ ; N ⁵⁺ + Ne; N ⁶⁺ + He; N ⁶⁺ + N ₂ ; N ⁶⁺ + Ne; N ⁷⁺ + He; N ⁷⁺ + N ₂ ; N ⁷⁺ + Ne; Ne ²⁺ + He; Ne ²⁺ + N ₂ ; Ne ²⁺ + Ne; Ne ³⁺ + He; Ne ³⁺ + N ₂ ; Ne ³⁺ + Ne; Ne ⁴⁺ + He; Ne ⁴⁺ + N ₂ ; Ne ⁴⁺ + Ne; Ne ⁵⁺ + He; Ne ⁵⁺ + N ₂ ; Ne ⁵⁺ + Ne; Ne ⁶⁺ + He; Ne ⁶⁺ + N ₂ ; Ne ⁶⁺ + Ne; Ne ⁷⁺ + He; Ne ⁷⁺ + N ₂ ; Ne ⁷⁺ + Ne; Ne ⁸⁺ + He; Ne ⁸⁺ + N ₂ ; Ne ⁸⁺ + Ne A08 N ⁺ + He; N ⁺ + N ₂ ; H ⁺ + Ne; N ⁺ + Ar; N ²⁺ + He; N ²⁺ + N ₂ ; N ²⁺ + Ne; N ²⁺ + Ar; N ³⁺ + He; N ³⁺ + N ₂ ; N ³⁺ + Ne; N ³⁺ + Ar; N ⁴⁺ + He; N ⁴⁺ + N ₂ ; N ⁴⁺ + Ar; N ⁵⁺ + He; N ⁵⁺ + N ₂ ; N ⁵⁺ + Ar; N ⁶⁺ + He; N ⁶⁺ + N ₂ ; N ⁶⁺ + Ar; N ⁷⁺ + He; N ⁷⁺ + N ₂ ; N ⁷⁺ + Ar; Ne ²⁺ + He; Ne ²⁺ + N ₂ ; Ne ²⁺ + Ar; Ne ³⁺ + He; Ne ³⁺ + N ₂ ; Ne ³⁺ + Ar; Ne ⁴⁺ + He; Ne ⁴⁺ + N ₂ ; Ne ⁴⁺ + Ar; Ne ⁵⁺ + He; Ne ⁵⁺ + N ₂ ; Ne ⁵⁺ + Ar; Ne ⁶⁺ + He; Ne ⁶⁺ + N ₂ ; Ne ⁶⁺ + Ar; Ne ⁷⁺ + He; Ne ⁷⁺ + N ₂ ; Ne ⁷⁺ + Ar; Ne ⁸⁺ + He; Ne ⁸⁺ + N ₂ ; Ne ⁸⁺ + Ar	E	2.7-8 10 ⁸ cm/s ⁻¹	Dmitriev, I. S.; Tashaev, Y. A.; Nikolshev, V. S.; Terlova, Y. A.; Popov, B. M. Experimental study of the loss and capture of electrons by fast multiply charged nitrogen and neon ions in various gases. Sov. Phys.-JETP 46, 664 (1977) Soviet Union
2275	A03 Undef	T	2X10 ⁸ cm/s ⁻¹	Beigman, I. L. Cross sections of transitions between highly excited levels as a result of collisions with charged particles. Sov. Phys.-JETP 46, 50E (1977) Soviet Union
2276	A10 He + He	E	300 K	Zhitnikov, R. A.; Kartoshkin, V. A.; Klement'ev, G. V. Coherence transfer in metastability exchange in the mixture of the isotopes He ³ and He ⁴ . Sov. Phys.-JETP 46, 512 (1977) Soviet Union
2277	A05 Xe + F ₂ B07 hv + [Xe + F ₂]	E	A05 300 K	Guczenko, I. I.; Gurvich, L. V.; Eubov, V. E.; Yakovlenko, S. I. Chemical radiative collisions. Sov. Phys.-JETP 46, 1082 (1977) Soviet Union
2278	A12 Undef	T	Undef	Ostrovskii, V. N. Interaction of an excited hydrogenlike atom with a charged particle in the dipole approximation. Sov. Phys.-JETP 46, 1068 (1977) Soviet Union
2279	A10 CH ₃ F + CH ₃ F	E	300 K	Chesnokov, E. N.; Penfilov, V. A. Vibrational energy transfer between the ortho- and para-isomers of ¹² CH ₃ F and ¹³ CH ₃ F molecules. Sov. Phys.-JETP 46, 1112 (1977) Soviet Union
2280	E03 e + H ₂ ; e + D ₂ E04 e + H ₂ ; e + D ₂	E	90-300 eV	Polyakova, G. N.; Fenyuk, A. I.; Erko, V. F. Kinetic-energy distribution of excited atoms produced when H ₂ and D ₂ molecules are dissociated by electron impact. Sov. Phys.-JETP 46, 1117 (1977) Soviet Union

REF. NO.	REACTANTS	EXP OR THEOR	ENERGY RANGE	REFERENCE
2281	C02 e + BaTiO ₃ ; e + TiO ₂ ; e + SiO ₂ ; e + C	E	30 keV	Geiger, J.; Katteree, H. Electron energy loss study of titanium dioxide, titanium titanate and silica in the range between 0.02 and 2 eV. Z. Phys. E 29, 113 (1978) West Germany
2282	C02 e + Si	E	50 keV	Stiebling, J. Optical properties of amorphous crystalline silicon by electron energy loss measurements. Z. Phys. B 31, 255 (1978) West Germany
2283	H02 hv + Na	E	Undef	Dressler, L.; Behnenburg, b.; Uhlenbusch, J. Determination of total absorption of Na 3S _{1/2} n P transitions for 5 less than or equal to n less than or equal to 28. Z. Naturforsch. A 32, 422 (1978) West Germany
2284	D02 Undef	E	Undef	Krueger, F. R.; Wien, K. High energy sputtering from cleaned metal foils. Z. Naturforsch. A 33, 638 (1978) West Germany
2285	E02 E17 e + Al; e + C; e + Cu	T	20-60 keV	Lehmann, H. Electron backscattering rates of light elements in Mott's approximation. Z. Naturforsch. A 33, 955 (1978) West Germany
2286	A14 O + O	E	8800-9400 K	Hoffmann, H.; Neiger, M. Spectroscopic observation radiative recombination of ground state oxygen atoms. Z. Naturforsch. A 33, 1055 (1978) West Germany
2287	A05 Li + Cl ₂ ; Li + SF ₆ ; Li + CF ₃ Cl ₂	E	Thermal	Roeder, M.; Fricke, U.; Neuert, H. Excitation of Li-atoms by chemiluminescence reactions of Li with Cl ₂ , SF ₆ , and CF ₃ Cl ₂ . Z. Naturforsch. A 33, 1103 (1978) West Germany
2288	E05 e + He; e + Ne; e + Ar; e + Kr; e + Xe	E	50-150 eV	Egger, F.; Mark, I. D. Cross section ratios for the electron impact production of singly and multiply ionized rare gas ions. Z. Naturforsch. A 33, 1111 (1978) Austria
2289	D16 N ₂ ⁺ + Fe	E	100 keV	Longworth, G.; Hartley, N. E. W. Mosbauer effect study of nitrogen-implanted iron foils. Thin Solid Films 48, 55 (1978) United Kingdom
2290	D16 Review	E	30-80 keV	Stephens, K. G.; Wilson, I. H. Properties and applications of ion-implanted films. Thin Solid Films 50, 325 (1978) United Kingdom
2291	C02 e + N ₂	T	100-150 keV	Evdokimov, O. B.; Ryzhov, V. V.; Yalovets, A. P. Spatial distribution of the energy of an electron beam in a gas. Sov. Phys.-Tech. Phys. 22, 1460 (1977) Soviet Union
2292	D13 e + [O + Nb]	E	Undef	Ageev, V. N.; Dehaliyov, S. T. Interaction of oxygen with niobium by electron-stimulated desorption. Sov. Phys.-Tech. Phys. 22, 1473 (1977) Soviet Union
2293	C04 e + MgO; e + Al ₂ O ₃	E	1-100 eV	Kal'nitskii, A. P.; Fainshteln, A. I. Absorption of low-energy electrons in thin oxide films. Sov. Phys.-Tech. Phys. 22, 1516 (1977) Soviet Union
2294	A07 He ⁺ + H ₂	E	300 K	Zhitnikov, R. A.; Kartoshkin, V. A.; Klement'ev, G. V. Investigation of the interaction of He ⁺ metastable He atoms with H ₂ molecules by the method of optical orientation of the atoms. Sov. Phys.-JETP Lett. 26, 496 (1977) Soviet Union
2295	A03 Ar ³⁺ + He; Ar ⁴⁺ + He; Ar ⁵⁺ + He; Ar ⁶⁺ + He; Ar ⁷⁺ + He A06 Ar ³⁺ + He; Ar ⁴⁺ + He; Ar ⁵⁺ + He; Ar ⁶⁺ + He; Ar ⁷⁺ + He	E	4-20 keV	Afrosimov, V. V.; Basalaev, A. A.; Farcv, R. N.; Leiko, G. A. Electron capture in different electronic states by multiply charged Ar ⁿ (sup Z) ions in He atoms. Sov. Phys.-JETP Lett. 26, 537 (1977) Soviet Union

REF. NO.	REACTANTS	EXP OR THEOR	ENERGY RANGE	REFERENCE
2296	A06 O ⁷⁺ + H	T	Undef	Abramov, V. A.; Baryshnikov, F. F.; Lisitsa, V. S. Change of intensity of spectral lines of multiply charged ions as a result of charge exchange with atomic hydrogen. <i>Sov. Phys.-JETP Lett.</i> 27, 464 (1976) Soviet Union
2297	B07 Undef	T		Zhukova, N. I.; Kazantsev, A. F. Cooling and heating of atoms colliding in an optical field. <i>Sci. Phys.-JETP Lett.</i> 27, 601 (1978) Soviet Union
2298	J01 Review	E	Undef	Johnston, H. S.; Podolske, J. Interpretations of stratospheric photochemistry. <i>Rev. Geophys. Space Phys.</i> 16, 491 (1978) United States
2299	F01 He Seq	E		Boiko, V. A.; Pikuz, S. A.; Seifronova, U. I.; Feenov, A. Y. Satellites to the He-like ion 1s ² 1S _g -1s3p ¹ F _g lines with Z=12-19 in laser plasmas. <i>Mon. Not. Roy. Astron. Soc.</i> 185, 789 (1978) Soviet Union
2300	D17 He ²⁺ + PbF ₃ ; He ²⁺ + CaF ₂	E	2.5 MeV	Pistre, J. I.; Danto, Y.; Selardene, J.; Sebaya, B.; Chemin, J. F. Comparative observation of ionic migration of PbF ₃ , β and CaF ₂ thin films byutherford scattering. <i>Rev. Phys. Appl. (Paris)</i> 13, 213 (1978) France
2301	D12 e + [GaN + Zn]	E	2-30 keV	Boulou, M.; Jacot, G.; Bois, D. Cathodoluminescence study of Zn doped GaN. <i>Rev. Phys. Appl. (Paris)</i> 13, 555 (1978) France
2302	D07 He ⁺ + [Mo + O ₂]	E	0.5 eV	Boiziau, C.; Nuvoletto, F.; Fousset, J. Reflection of metastable helium atoms on a molybdenum (110) surface: effect of oxygen adsorption. <i>Rev. Phys. Appl. (Paris)</i> 13, 571 (1978) France
2303	C02 H ⁺ + H ₂ O; He ⁺ + H ₂ O; O ⁺ + H ₂ O; Ar ⁺ + H ₂ O; Fe ⁺ + H ₂ O C03 H ⁺ + H ₂ O; He ⁺ + H ₂ O; O ⁺ + H ₂ O; Ar ⁺ + H ₂ O; Fe ⁺ + H ₂ O E05 e + H ₂ O	T	C02; C05 0.1-5600 MeV E05 10-10 ⁵ eV	Peretzke, H. G. On primary damage and secondary electron damage in heavy ion tracks in plastics. <i>Radiat. Eff.</i> 34, 3 (1977) West Germany
2304	C08 He ⁺ + Si; He ⁺ + GaP; He ⁺ + GaAs D15 H ⁺ + Si; H ⁺ + GaF; H ⁺ + GaAs; N ⁺ + Si; N ⁺ + GaP; N ⁺ + GaAs	T	C08 1 MeV D15 40-60 keV	Walker, R. S.; Thompson, E. A.; Fehlsen, S. H. A semiempirical method of applying the dechanneling correction in the extraction of disorder distribution. <i>Radiat. Eff.</i> 34, 157 (1977) Canada
2305	D08 He ⁺ + Cu	E	2-10 keV	Verheij, L. K.; Foelsens, E.; Eoers, A. L. Neutralization and ionization of low energy helium ions scattering from a copper surface. <i>Radiat. Eff.</i> 34, 162 (1977) The Netherlands
2306	D03 Ar ⁺ + Sc; Ar ⁺ + Ti; Ar ⁺ + V; Ar ⁺ + Cr; Ar ⁺ + Fe; Ar ⁺ + Ni; Ar ⁺ + Cu; Ar ⁺ + Zn; Ar ⁺ + Zr; Ar ⁺ + Al; Ar ⁺ + Si; Ar ⁺ + SiO ₂ ; Ar ⁺ + Al ₂ O ₃ ; Ar ⁺ + NaCl; Ar ⁺ + KCl	E	43 keV	Bayly, P. F.; MacDonald, E. J. The energy spectra of secondary ions emitted during ion bombardment. <i>Radiat. Eff.</i> 34, 169 (1977) Australia
2307	D15 He ⁺ + C	E	2 MeV	Veprek, S.; Portmann, A.; Hecht, A. F.; Stuessi, H. Surface morphology changes of graphite irradiated with energetic helium ions. <i>Radiat. Eff.</i> 34, 183 (1977) Switzerland
2308	D15 e + Mo	T	0.5-3.0 MeV	Nishida, T.; Izui, K.; Furuno, S. Localization of electron current density and its effect on damage production in a molybdenum crystal. <i>Radiat. Eff.</i> 34, 217 (1977) Japan
2309	C08 H ⁺ + Si	T	1 MeV	Baeri, F.; Carners, A.; Desalvo, A.; Foca, F. Feeding-in and blocking phenomena explained in terms of a simple diffusion model. <i>Radiat. Eff.</i> 34, 223 (1977) Italy

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2310	D10 PERT + PERT	T	Undef	O'Connor, D. J.; MacDonald, R. J. A correction factor to the interatomic potential screening function for use in computer simulations. Radiat. Eff. 34, 247 (1977) Australia
2311	B01 Undef	T		Andreev, S. P.; Lisitsa, V. S. Resonance broadening in a strong light field. Sov. Phys.-JETP 45, 38 (1977) Soviet Union
2312	H04 Undef H05 Undef	T	Undef	Akulin, V. M.; Alimiev, S. S.; Karlov, N. V.; Sartakov, B. G. Excitation of high vibrational states and dissociation of polyatomic molecules in a laser field. Sov. Phys.-JETP 45, 47 (1977) Soviet Union
2313	H01 Undef B07 Undef	T	H01 Undef	Pusep, A. Y.; Doktsov, A. E.; Eurshtein, A. I. Effect of coherent radiation on the translational motion of atoms. Sov. Phys.-JETP 45, 52 (1977) Soviet Union
2314	E02 Undef	T	Undef	Drukarev, G. F.; Ch'edkov, V. E. Polarization effects in inelastic electron-atom collisions accompanied by a change in the atomic spin. Sov. Phys.-JETP 45, 686 (1977) Soviet Union
2315	H01 Undef B07 Undef	T	H01 Undef	Letokhov, V. S.; Minogin, V. G.; Pavlik, B. D. Cooling and capture of atoms and molecules by a resonant light field. Sov. Phys.-JETP 45, 698 (1977) Soviet Union
2316	A03 Ca ⁺ + Ne; Ca ⁺ + Ar; Ca ⁺ + Kr; Ba ⁺ + Ne; Ba ⁺ + Ar; Sr ⁺ + Ar; Sr ⁺ + Kr A06 Sr ⁺ + Kr; Sr ⁺ + Ar; Ca ⁺ + Kr; Ba ⁺ + Ar	E	0.1-2 keV	Ovchinnikov, V. L.; Kherchenko, V. A.; Voicovich, P. N.; Shpenik, G. B. Manifestation of the interference of quasimolecular states in radiation polarization when Ca ⁺ , Sr ⁺ , and Ba ⁺ ions collide with inert-gas atoms. Sov. Phys.-JETP 45, 705 (1977) Soviet Union
2317	H01 Undef	T	Undef	Kochanov, V. P.; Reutian, S. G.; Shalagin, A. M. Broadening of nonlinear resonances by velocity-changing collisions. Sov. Phys.-JETP 45, 714 (1977) Soviet Union
2318	E04 e + H ₃ ⁺ E06 e + H ₃ ⁺	T	200-500 K	Smirnov, B. M. Recombination of an electron and a complex ion. Sov. Phys.-JETP 45, 731 (1977) Soviet Union
2319	A03 CH ₃ F + CH ₄ A10 CH ₃ F + CH ₄	E	300 K	Chesnokov, E. N.; Panfilov, V. N. Application of the double-resonance method to the study of vibrational energy transfer between CH ₃ F and CH ₄ molecules. Sov. Phys.-JETP 45, 868 (1977) Soviet Union
2320	H13 Undef	T	Undef	Anikin, V. I.; Drabovich, K. A.; Dubovik, A. N. Coherence effects in optical-frequency summation under two-photon resonance conditions. Sov. Phys.-JETP 45, 906 (1977) Soviet Union
2321	A05 Ca + Ca ⁺ D07 hν + [Ca + Ca]; hν + [Rb + Rb]	E	A05 Undef	Bondh-Eruevich, A. M.; P'zitel'skii, S. G.; Khromov, V. V. Inelastic processes of light scattering in alkali-metal vapor. Molecular fluorescence. Sov. Phys.-JETP 45, 912 (1977) Soviet Union
2322	H04 Undef	T	Undef	Makarov, A. A. Coherent excitation of equidistant multilevel systems in a resonant monochromatic field. Sov. Phys.-JETP 45, 918 (1977) Soviet Union
2323	H04 Undef	T	Undef	Shalagin, A. M. Undisplaced resonant scattering line of strong quasimonochromatic field. Sov. Phys.-JETP 45, 931 (1977) Soviet Union
2324	F02 H	T		Baryshnikov, F. F.; Lisitsa, V. S. Classical and quantum treatment of the Stark broadening of hydrogen lines. Sov. Phys.-JETP 45, 943 (1977) Soviet Union

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2325	E11 Undef E12 Undef	T	Undef	Baryshevskii, V. G.; Grubich, A. C.; Nyen, N. E. Angular, spectral, and polarization properties of radiation emitted by high-energy electrons passing through a layer of matter. <i>Sov. Phys.-JETP</i> 45, 1068 (1977) Soviet Union
2326	E13 $e + H^-$	T	4-20 eV	Solov'ev, E. A. Classical approximation for the ionization of a negative ion by electron impact near the threshold. <i>Sov. Phys.-JETP</i> 45, 1689 (1977) Soviet Union
2327	E03 Undef	T	Undef	Ostrovskii, V. N. Excitation of autoionization states by electrons near the threshold. <i>Sov. Phys.-JETP</i> 45, 1052 (1977) Soviet Union
2328	A10 Undef	T	Undef	Borman, V. E.; Brusev, A. S.; Mekisov, L. A.; Nikoleev, B. I. Properties of rotational transitions during collisions between molecules. <i>Sov. Phys.-JETP</i> 45, 1103 (1977) Soviet Union
2329	A04 $D_3^+ + Xe$; $D_3^+ + He$; $D_3^+ + Ne$; $D_3^+ + Ar$; $D_3^+ + Kr$; $D_3^+ + D_2$	E	1-40 eV	Prokof'ev, A. A.; Zhurkin, E. S.; Evseeva, L. V.; Tunitskii, A. N. Decay of D_3^+ ions in collisions with inert-gas atoms at kinetic energies 1-40 eV. <i>Sov. J. Plasma Phys.</i> 4, 526 (1978) Soviet Union
2330	E02 $e + CO$	E	0.05-6.0 eV	Gus'kov, Y. K.; Savvov, R. V.; Slotovanyuk, V. A. Scattering of low-energy electrons by CO molecules. <i>Sov. J. Plasma Phys.</i> 4, 827 (1978) Soviet Union
2331	A06 $H^+ + PERT$	T	10^2-10^5 eV	Dusan, E. L.; Smirnov, B. M. Charge exchange of hydrogen atoms with multiply charged ions. <i>Sov. J. Plasma Phys.</i> 4, 650 (1978) Soviet Union
2332	E03 $e + H^+$	T	Undef	Baryshnikov, F. F.; Lisitsa, V. S. Electron and ion scattering by excited hydrogen atoms. <i>Sov. J. Plasma Phys.</i> 4, 660 (1978) Soviet Union
2333	A17 $Li^+ + He$; $K + Ar$	T	Undef	Bychkov, V. L.; Radtsig, A. A.; Smirnov, B. M. Reconstruction of potential of interaction of ion with atoms and molecules from data on ion mobility in gases. <i>High Temp.</i> 16, 613 (1978) Soviet Union
2334	E09 $e + [O_2 + D_2]$; $e + [CO_2 + CO_2]$; $e + [CO + CO]$; $e + [N_2 + N_2]$	E	77-300 K	Aleksandrov, N. L. Three-body electron attachment to oxygen molecules in a gas discharge. <i>High Temp.</i> 16, 617 (1978) Soviet Union
2335	A16 $NO^- + H_2$; $NO^- + CO_2$	T	200-500 K	Aleksandrov, N. L. Destruction of NO^- ions during collision with excited molecules. <i>High Temp.</i> 16, 928 (1978) Soviet Union
2336	A10 $Br_2^+ + Ar$	T	300-900 K	Antipenko, E. N.; Emirnov, V. A.; Tarasenko, V. V. Effect of molecular rotation on the dynamics and kinetics of vibrational-translational energy transfer. <i>High Temp.</i> 16, 933 (1978) Soviet Union
2337	A17 $Li + F$; $Li + Cl$; $Li + Br$; $Li + I$; $Na + F$; $Na + Cl$; $Na + Br$; $Na + I$; $K + F$; $K + Cl$; $K + Br$; $K + I$; $Rb + F$; $Rb + Cl$; $Rb + Br$; $Rb + I$; $Cs + F$; $Cs + Cl$; $Cs + Br$; $Cs + I$	T	0.68-203 cm^{-1}	Mohamed, S. N. An interaction potential for alkali halide molecules. <i>Indian J. Pure Appl. Phys.</i> 16, 646 (1978) India
2338	E03 $e + H_2O$ E09 $e + H_2O$	T	0.25 eV	Maru, M. F.; Desai, H. S. Capture of slow electron and rotational excitation of polar molecules. <i>Indian J. Pure Appl. Phys.</i> 16, 705 (1978) India
2339	A12 $OCS^+ + He$; $OCS^+ + Ar$	T	60-220 K	Mehrotra, S. C.; Jhri, G. K.; Srivastava, S. L. Collision broadening of rotational lines of OCS^+ by noble gases. <i>Indian J. Pure Appl. Phys.</i> 16, 747 (1978) India

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2340	A17 H + H; N + N; H + F; O + H; C + C; I + I; C + O; N + O; Si + F; Na + Ne; Zn + H; P + N; K + K	T	0.0004-e eV	Mohammad, S. M. On the generalization of the Linnett potential. Indian J. Pure Appl. Phys. 16, 7E2 (1978) India
2341	A10 OCS ⁺ + CCS	T	1 eV	Johri, G. K.; Gupta, S. Comparison of interpolation scheme in the treatment of collisional transfer of rotational energy. Indian J. Pure Appl. Phys. 16, 760 (1978) India
2342	H12 hv + Pt	E	279 keV	Swamy, S. I. P. V. J. Atomic Compton cross-sections due to platinum. Indian J. Pure Appl. Phys. 16, 600 (1978) India
2343	H03 hv + Ta; hv + Sn; hv + Zr; hv + [Hg + Pb]	E	279 keV	Satyaendra Prasad, M.; Kusa Raju, G.; Arasimha Murty, K.; Naresimha Murty, V. A.; Lakshminarayana, V. Elastic scattering of 279 keV gamma rays. Indian J. Pure Appl. Phys. 16, 836 (1978) India
2344	F01 Ti ¹⁰⁺ ; Fe ¹⁴⁺ ; Ni ¹⁶⁺ ; Cu ¹⁷⁺ ; Cr ¹⁰⁺ ; Fe ¹²⁺ ; Ni ¹⁴⁺ ; Cu ¹⁵⁺	E		Kastner, S. D.; Swarty, M.; Bhatia, A. K.; Lapides, J. Observation of n=3 to n=4 transitions in the Mg I and Si I sequences for elements chromium through zinc. J. Opt. Soc. Am. 68, 1566 (1978) United States
2345	E03 e + H ₂ O E04 e + H ₂ O	T	20-500 eV	Fujita, T.; Iwai, I.; Egure, K.; Watanabe, S.; Watanabe, Y. Dissociative excitation of water molecule by electron impacts. III. Core potential correction. J. Phys. Soc., Jap. 44, 286 (1978) Japan
2346	H05 hv + H ₂ O	T	Undef	Akamatsu, R.; Oshata, K. Semiclassical approach to the abnormal rotation of CH(A ² Σ ⁺) resulting from H ₂ O photodissociation. J. Phys. Soc., Jap. 44, 555 (1978) Japan
2347	C02 e + Al	E	2-10.9 keV	Ishigure, N.; Mori, C.; Watanabe, T. Electron stopping power in aluminum in the energy region from 2 to 10.9 keV. J. Phys. Soc., Jap. 44, 573 (1978) Japan
2348	A06 H ⁺ + C	T	0.1-4 MeV	Wei, C.-C. Electron capture from carbon by protons. J. Phys. Soc., Jap. 44, 575 (1978) Taiwan
2349	E03 e + Hg	T	50-500 eV	Yamazaki, Y.; Shimizu, R.; Ueda, K.; Hashimoto, H. Spin-polarization and differential cross section of electron-mercury inelastic scattering. J. Phys. Soc., Jap. 44, 1337 (1978) Japan
2350	E03 e + He Seq	T	0.08-2.0 keV	Nakazaki, S. Electron-impact excitation cross-sections for helium-like ions: C V, N VI, C VII and Ne IX. J. Phys. Soc., Jap. 44, 1384 (1978) Japan
2351	A05 Ar ⁺ + H ₂ S; Ar ⁺ + SO ₂	E	2 keV	Fukutome, H.; Tsuji, M.; Nishimura, Y. Emission spectra of hydrogen sulfide and sulfur dioxide by Ar ⁺ ion impact. J. Phys. Soc., Jap. 44, 1401 (1978) Japan
2352	H05 H ⁺ + N ₂	E	100-160 keV	Itoh, A.; Aenji, M.; Fukuzawa, F. Spatial distribution of excited molecules induced by proton beam in nitrogen gas. J. Phys. Soc., Jap. 44, 1672 (1978) Japan
2353	F12 e ⁺ + He; e ⁺ + Ne; e ⁺ + Ar; e ⁺ + Xe; e ⁺ + O ₂	E	Undef	Shizuma, K.; Nishi, M.; Fujita, T.; Yashizawa, Y. Doppler broadening measurement of positron annihilation in rare gas. J. Phys. Soc., Jap. 44, 1757 (1978) Japan
2354	B07 e + PERT	T		Ono, K. Electron scattering from a center of force in strong magnetic fields. J. Phys. Soc., Jap. 45, 216 (1978) Japan
2355	E03 e + H Seq	T	1-30 E/ΔE	Nakazaki, S. Evaluation of the radial integrals in the Coulomb-Born approximation. J. Phys. Soc., Jap. 45, 225 (1978) Japan

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2356	F01 He ⁺	E		Ishii, K.; Tomita, M. Lifetime measurement of doubly excited states in helium atoms by beam-foil technique. J. Phys. Soc., Jap. 45, 230 (1976) Japan
2357	H06 2hν + Cs*	E	6943 Å	Ohno, T.; Okuda, T.; Yamada, J. Two-photon ionization of excited cesium atoms by ruby laser light. J. Phys. Soc., Jap. 45, 244 (1978) Japan
2358	E02 e + Hg E03 e + Hg E17 e + Hg	E	300-1000 eV	Shimizu, R.; Ueda, K.; Hashimoto, H. Electron impact spectra in mercury in intermediate energies. J. Phys. Soc., Jap. 45, 604 (1978) Japan
2359	A03 Li ⁺ + CO; Li ⁺ + CO ₂ ; Li ⁺ + N ₂ O	E	70-1500 eV	Kobayashi, N.; Itch, Y.; Kerekc, Y. Vibrational excitation of CO, CO ₂ , and N ₂ O by Li ⁺ impact in the energy range from 70 eV to 1500 eV. J. Phys. Soc., Jap. 45, 617 (1978) Japan
2360	A03 H ⁺ + CN	T	Undef	Takayanagi, K. Low-energy ion-polar molecule collision--the perturbed rotational state approach. J. Phys. Soc., Jap. 45, 576 (1978) Japan
2361	A06 Undef	T	Undef	Fujiwara, K. Erratum* Coulomb Born calculation of charge transfer cross sections of highly-ionized atoms. J. Phys. Soc., Jap. 45, 1653 (1978) Japan
2362	A07 H ⁺ + Ti	E	150 keV	Moriya, Y.; Miyegawa, S. Impact-parameter dependence of K-shell ionization probabilities for 150 keV protons on a titanium target. J. Phys. Soc., Jap. 45, 1657 (1978) Japan
2363	F02 H ₂ ⁺	T		Murai, T.; Takatsu, H. Numerical two-center calculations of the polarizabilities of H ₂ . J. Phys. Soc., Jap. 45, 1704 (1978) Japan
2364	F01 Fe ¹¹⁺ ; Fe ¹²⁺	T		Brcmage, G. E.; Cowan, R. D.; Fawcett, E. C. Atomic structure calculations involving optimization of radial integrals: energy levels and oscillator strengths for Fe XII and Fe XIII 3p-3d and 3s-3p transitions. Mon. Not. Roy. Astron. Soc. 182, 15 (1976) United Kingdom
2365	H02 hν + Si ⁻ H07 hν + Si ⁻ H11 hν + Si ⁻	T	0.5-3 eV	John, T. J.; Williams, R. J. Si ⁻ capacity. Mon. Not. Roy. Astron. Soc. 182, 2E7 (1978) United Kingdom
2366	E03 e + H Seq; e + H* E05 e + H; e + He ⁺	T	1-1000 eV	Percival, I. C.; Richards, D. Cross-sections and rates for electron excitation of excited positively-charged hydrogen and hydrogenic ions. Mon. Not. Roy. Astron. Soc. 183, 329 (1978) United Kingdom
2367	A06 Undef	T	10 ⁴ K	Weisheit, J. C.; Upham, R. J., Jr. Electron transfer in ion-dust grain collisions. Mon. Not. Roy. Astron. Soc. 184, 227 (1978) United States
2368	F01 Si ¹⁰⁺ ; Si ¹¹⁺	T		Mason, H. E.; Bhatia, A. K. Theoretical intensity ratios for the UV lines of Mg VII, Si IX and S XI. Mon. Not. Roy. Astron. Soc. 184, 423 (1976) United Kingdom
2369	E06 e + He ⁺	T	10 ⁻² -2x10 ⁴ K	Seaton, M. J. Calculated intensities of He II recombination lines in the ultraviolet. Mon. Not. Roy. Astron. Soc. 185, 5P (1976) United Kingdom
2370	F01 He Seq; Be Seq	E T		Boiko, V. A.; Chugunov, A. Y.; Ivenova, T. G.; Faencv, A. Y.; Melin, I. V.; Pukuz, S. A.; Urrcv, A. M.; Vainshtein, L. A.; Sazonova, U. I. He-like resonance-line satellites radiated from Be-like ions. Mon. Not. Roy. Astron. Soc. 185, 305 (1976) Soviet Union

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2371	D15 n + Cu	E	0.1 MeV	Jackson, P. J.; Kew, K.; Nevin, J.; Spalding, D. The precipitation of point defects near grain-in dislocations during neutron irradiation. Radiat. Eff. 35, 1 (1978) South Africa
2372	D14 He ⁺ + Ag D15 He ⁺ + Ag D16 He ⁺ + Ag	E	7-10 keV	Tishchenko, L. F.; Gamayunova, L. A.; Fogel, Y. M.; Gusev, V. A. Study of processes at helium ion bombardment of thin silver films. Radiat. Eff. 35, 7 (1978) Soviet Union
2373	D15 Cu ⁺ + Ni; Cu ⁺ + Cu; Cu ⁺ + Ag; Cu ⁺ + Pt; Cu ⁺ + Au; Au ²⁺ + Au	E	30 keV	Schindler, R. Unterscheidung zwischen Modellen der Strahlenschädigung mit Hilfe elektronenmikroskopischer Untersuchungen von Ionenschaden in Metallen. Radiat. Eff. 35, 17 (1978) West Germany
2374	D15 O ⁺ + Pb	E	25 MeV	Klaumunzer, S.; Ischenko, G.; Neussler, H. Study of damage rate decrease of lead irradiated with 25 MeV oxygen ions at 7.2 K. Radiat. Eff. 35, 45 (1978) West Germany
2375	C08 H ⁺ + Si	T	300 keV	Treacy, F. E. Diffraction in heavy-particle channeling as a probe for correlated lattice vibrations. Radiat. Eff. 35, 61 (1978) Australia
2376	D15 n + Co; e + Co	E	2.8 MeV	Mansel, W.; Meyer, H.; Vogl, G. Interstitial atom clustering at ⁵⁷ Co impurity atoms in aluminium after electron and neutron irradiation. Radiat. Eff. 35, 69 (1978) West Germany
2377	D15 e + Al	E	1-3 MeV	Dworschak, F.; Schlienger, B.; Wollenberger, H. Di-interstitial formation within small defect cascades in aluminium. Radiat. Eff. 35, 82 (1978) West Germany
2378	D02 N ⁺ + Au; Ar ⁺ + Au	E	70 keV	Lebedev, S. Y.; Lysova, G. V. Analysis of angular distributions of sputtered material by means of autoradiograph technique. Radiat. Eff. 35, 105 (1978) Soviet Union
2379	D10 Ni ⁺ + [Ni + Al]	E	1 MeV	Potter, D. I. Radiation-induced precipitate redistribution in thin foils. Radiat. Eff. 35, 115 (1978) United States
2380	C04 He ⁺ + Ge	E T	0.01-10 MeV	More, R. M.; Venskylis, F. J. Comparison of range and straggles calculations. Radiat. Eff. 35, 125 (1978) United States
2381	D03 Kr ⁺ + Al; Kr ⁺ + Al ₂ O ₃ ; Kr ⁺ + GaAs; Kr ⁺ + In; Kr ⁺ + Ti; Kr ⁺ + Be; Kr ⁺ + BeO; Kr ⁺ + Sc; Kr ⁺ + Y	E T	4-16 keV	Good-Zamin, C. J.; Shehata, M. T.; Squires, D. E.; Kelly, R. On the problem of whether excited states amongst sputtered particles are of thermal origin. Radiat. Eff. 35, 139 (1978) Canada
2382	C07 He ⁺ + C	E	0.3-0.7 MeV	Gardiner, H. E. Non-dependence on ion temperature of light intensity from a beam foil source. Radiat. Eff. 35, 151 (1978) United States
2383	D02 Review D03 Review	T	Undef	Carter, G.; Armour, D. G.; Snowden, K. J. Cascade and quasi thermal processes in excited atoms sputtering. Radiat. Eff. 35, 175 (1978) United Kingdom
2384	D15 e + Cu	E	0.5 MeV	Wiennand, P.; Sonnenberg, K.; Antesperger, G. Additional recovery of copper around 200 K after 0.5 MeV electron irradiation. Radiat. Eff. 35, 165 (1978) West Germany
2385	C08 He ⁺ + Al ₂ O ₃	E	0.6-1.9 MeV	Carnera, A.; Della Moe, G.; Drigo, A. V.; Le Fussi, S.; Mazzoldi, F.; Hartley, N. E. W. Channeling in diatomic crystals: He ions in α-Al ₂ O ₃ . Radiat. Eff. 35, 201 (1978) Italy

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2386	C02 H ⁺ + Si; H ⁺ + Ge C08 H ⁺ + Si; H ⁺ + Ge	T	4 MeV	Beloshitsky, V. V.; Kusakhov, M. A. A theory of energy loss of channeled protons. Radiat. Eff. 35, 205 (1978) Soviet Union
2387	D15 e + Cu	E	3 MeV	Sonnenberg, K.; Wienhold, F. Evidence for vacancy migration in stage III for copper. Radiat. Eff. 36, 217 (1978) West Germany
2388	C08 He ⁺ + [Mg + Bi] D15 He ⁺ + [Mg + Al]	E	1 MeV	Howe, L. M.; Swanson, M. L.; Guenneville, A. F. A channeling investigation of the interaction between solute atoms and irradiation-produced defects in magnesium. Radiat. Eff. 36, 227 (1978) Canada
2389	D02 H ⁺ + U; He ⁺ + U; Ar ⁺ + U	E	13-120 keV	Gregg, F.; Tombrello, T. A. Sputtering of uranium. Radiat. Eff. 35, 243 (1978) United States
2390	D15 Underf	T	Undef	Carter, G.; Armour, D. G.; Connolly, S. E.; Wett, R. Energy spike generation and quenching processes in ion bombardment induced amorphization of solids. Radiat. Eff. 36, 1 (1978) United Kingdom
2391	D14 He ⁺ + Mo; Ni ²⁺ + Mo D15 He ⁺ + Mo; Ni ²⁺ + Mo	E	0.2-5.0 MeV	Henager, C. H., Jr.; Erimheli, J. L.; Simonen, E. P. The damage profile in Mo bombarded with Ni ²⁺ and Ni ³⁺ He ions. Radiat. Eff. 36, 45 (1978) United States
2392	D03 e + LiF; e + RbCl; e + NaBr; e + KBr; e + RbBr; e + CsBr; e + NaI; e + KI; e + RbI; e + CaI; e + ZnBr; e + AgBr; e + CaI ₂ ; e + PbI ₂	E	540 eV	Overeijnder, H.; Szymanski, M.; Haring, A.; de Vries, A. E. Energy distributions of atoms sputtered from alkali halides by 540 eV electrons. Radiat. Eff. 36, 63 (1978) The Netherlands
2393	C08 D ⁺ + NbC	E	1.2 MeV	Lombaard, J. M.; Meyer, O. Channeling studies in carbon implanted NiC-single crystals. Radiat. Eff. 36, 82 (1978) West Germany
2394	C02 H ⁺ + C C05 H ⁺ + C	E	20-100 keV	Kalz, D.; Kreysch, G.; Muller-Jahreis, U. Energy loss straggling of low-energy protons in carbon. Radiat. Eff. 36, 119 (1978) West Germany
2395	C08 D ⁺ + [Pd + Au + D]; D ⁺ + [Ta + D]	E	300-400 keV	Takahashi, J.; Yasaguchi, E.; Kikawa, M.; Fujino, Y.; Yoshinori, G.; Hirabayashi, M. Lattice location studies of deuterium in Pd _{0.4} Au _{0.6} and Ta crystals by ion channeling. Radiat. Eff. 36, 135 (1978) Japan
2396	C04 Ce ⁺ + Al; La ⁺ + Al; Pr ⁺ + Al; Eu ⁺ + Al; Tb ⁺ + Al; Dy ⁺ + Al; Ho ⁺ + Al; Er ⁺ + Al; Lu ⁺ + Al; Hf ⁺ + Al; Pt ⁺ + Al; Au ⁺ + Al; Ti ⁺ + Al; Pb ⁺ + Al; Bi ⁺ + Al; Sm ⁺ + Si; Eu ⁺ + Si; Gd ⁺ + Si; Tb ⁺ + Si; Dy ⁺ + Si C05 Ce ⁺ + Al; La ⁺ + Al; Pr ⁺ + Al; Eu ⁺ + Al; Tb ⁺ + Al; Dy ⁺ + Al; Ho ⁺ + Al; Er ⁺ + Al; Lu ⁺ + Al; Hf ⁺ + Al; Pt ⁺ + Al; Au ⁺ + Al; Ti ⁺ + Al; Pb ⁺ + Al; Bi ⁺ + Al; Sm ⁺ + Si; Eu ⁺ + Si; Gd ⁺ + Si; Tb ⁺ + Si; Dy ⁺ + Si	E T	20-250 keV	Cosbasson, J. L.; Farmery, B. W.; McCulloch, D.; Neilson, G. W.; Thompson, M. W. Heavy ion ranges in aluminium and silicon. Radiat. Eff. 26, 145 (1978) United Kingdom
2397	C03 Xe ⁺ + AgBr; Xe ⁺ + AgF; Xe ⁺ + CdI ₂ ; Xe ⁺ + PbI ₂	E	6 keV	Szymanski, M.; Overeijnder, H.; de Vries, A. E. The sputtering processes during 6 keV Xe ion beam bombardment of halides. Radiat. Eff. 36, 165 (1978) The Netherlands
2398	C03 He ²⁺ + Si	E	160 MeV	Jarvis, O. N.; Sherwood, A. C.; Whitehead, C.; Lucas, M. W. The ionization energy for 160 MeV alpha-particles channelled in silicon. Radiat. Eff. 36, 215 (1978) United Kingdom
2399	D15 n + [Cu + Al]	E	Undef	Papathanasopoulos, C.; Papatriantafillou, C.; Rocafyllou, E.; Theophilou, A. Neutron damage rate of copper alloyed aluminum. Radiat. Eff. 36, 249 (1978) Greece

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2400	C01 Sb ⁺ + SiO ₂ C02 Sb ⁺ + SiO ₂	T	50 keV	Williams, M. H. R. Path length distribution function in a heterogeneous medium. Radiat. Eff. 37, 131 (1978) United Kingdom
2401	D15 n + Ni ₃ Cr	E	Undef	Riviere, J. P.; Eymery, J. F. Production et restauration de défauts dans l'alliage Ni ₃ Cr irradié aux neutrons à la température de l'hydrogène liquide. Radiat. Eff. 37, 155 (1978) France
2402	D16 e + Mg	E	200 keV	Wolfenden, A. In situ observations of electron irradiation damage in magnesium. Radiat. Eff. 37, 153 (1978) West Germany
2403	D02 Xe ⁺ + RbCl; Xe ⁺ + RbBr; Xe ⁺ + RbI; Xe ⁺ + NaI D03 Xe ⁺ + RbCl; Xe ⁺ + RbBr; Xe ⁺ + RbI; Xe ⁺ + NaI	E	6 keV	Overeijnder, H.; Hering, A.; de Vries, A. E. The sputtering processes of alkali halides during 6 keV Xe ⁺ ion bombardment. Radiat. Eff. 37, 205 (1978) The Netherlands
2404	C02 He ⁺ + Ti; He ⁺ + Mn; He ⁺ + Ni; He ⁺ + Zn	E	0.5-2.0 MeV	Luomajarvi, M. Stopping powers of Ti, Mn, Ni, and Zn for 0.5-2.0 MeV He ions relative to those of Al and Cu. Radiat. Eff. 37, 223 (1978) Finland
2405	C04 Fr ⁺ + N ₂ ; Fr ⁺ + Ar; Cs ⁺ + N ₂ ; Cs ⁺ + Ar; Rb ⁺ + N ₂ ; Rb ⁺ + Ar	E	20-120 keV	Sidenius, G. Systematic range measurements with low energy heavy particles in gases. Radiat. Eff. 38, 3 (1978) Switzerland
2406	D02 e + KBr; e + RbBr; e + KI; e + RbI	E	100-640 eV	Overeijnder, H.; Szymanski, M.; Hering, A.; de Vries, A. E. Electron sputtering of alkali halides. A study of its dependence on the beam energy and target temperature. Radiat. Eff. 38, 21 (1978) The Netherlands
2407	D16 Au ⁺ + Si	T	Undef	Fischer, G.; Carter, G.; Webb, P. Focil implantation from a thick film source. Radiat. Eff. 38, 41 (1978) United Kingdom
2408	D03 Ne ⁺ + Mg	E	10 keV	Kerkdijk, C. E.; Kelly, R. Oxygen-dependent photon emission from Ne ⁺ bombarded Mg. Radiat. Eff. 38, 73 (1978) The Netherlands
2409	C02 U ⁺ + UC ₂ ; O ⁺ + UO ₂ C04 U ⁺ + UC ₂ ; O ⁺ + UO ₂	T	10 ⁻⁷ -10 ² MeV	Souillard, J.; Leteurre, J.; Genthon, J. F.; Cance, M. Etude du ralentissement des ions lourds dans une cible diatomique. I. Calcul de la distance parcourue et du nombre d'atomes primaires creés. Radiat. Eff. 38, 119 (1978) France
2410	C08 Undef	T	Undef	Quere, Y. About the dechanneling due to dislocation loops. Radiat. Eff. 38, 131 (1978) France
2411	D15 O + UO ₂ ; U + UO ₂	T	10 ² -10 ⁶ eV	Souillard, J.; Alanc, A. Etude du ralentissement des ions dans une cible diatomique. II. Calcul du nombre d'atomes déplacés. Radiat. Eff. 38, 133 (1978) France
2412	D03 Review	E T	10-100 keV	Snowdon, K. J. A comparison of experimental secondary ion energy spectra of polycrystalline metals with theory. Radiat. Eff. 38, 141 (1978) United Kingdom
2413	D07 He ⁺ + W; Ne ⁺ + Ni	T	3-6 keV	Preuss, C. Computer simulation of the angular dependence of backscattering of low energy noble gas ions from single crystal surfaces. Radiat. Eff. 38, 151 (1978) West Germany
2414	C08 e + Si	T	100-1000 MeV	Wedell, R. Theory of relativistic positron and electron bremsstrahlung under channelling conditions. Radiat. Eff. 38, 165 (1978) East Germany
2415	C02 Ar + Cu; Xe + Cu; Au + Au; Ne + Au	T	0.2-5.0 keV	Sanders, J. B.; Roccandael, H. E.; Vitalis, F. A modified treatment of low energy elastic stopping power in dense structureless media. Radiat. Eff. 38, 201 (1978) The Netherlands

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2416	D15 n + Nb	E	0.1 MeV	Chen, C. W.; Chang, C. P.; Elen, J. E.; Mastentroek, A. Transmission electron microscopy observation of interstitial clusters in neutron-irradiated niobium. Radiat. Eff. 38, 211 (1978) United States
2417	D02 Cu ⁺ + Cu	E	40 keV	van Wyk, G. N.; Smith, H. J. Ion bombardment induced preferential orientation in polycrystalline Cu targets. Radiat. Eff. 38, 245 (1978) South Africa
2418	C04 B ⁺ + Si; Ar ⁺ + Cu	T	60-100 keV	Yasamura, Y.; Inuma, H. Sonine expansion of range and damage distributions. Radiat. Eff. 36, 251 (1978) Japan
2419	D16 Undef	T	Undef	Ddeurs, J.; Coussement, R.; Pattyn, H. Model for the site populations of heavy ions implanted in metals in the case where all defects are inactive. Radiat. Eff. 39, 11 (1978) Belgium
2420	D08 Ar ⁺ + Cu	E	10-35 keV	Balashova, L. L.; Boriscv, A. M.; Peshkova, E. S.; Molchanov, V. A. Energy distributions of fast ionized recoils. Radiat. Eff. 35, 15 (1978) Soviet Union
2421	D16 Undef	T	Undef	Winterbcn, K. B. Ion-implantation distributions in non-uniform targets: projected range. Radiat. Eff. 39, 31 (1978) Canada
2422	D16 Undef	T	Undef	Winterbcn, K. B.; Sanders, J. E. Analytical calculations of some ion-implantation depth distributions. Radiat. Eff. 35, 25 (1978) Canada
2423	D15 e + Bi	E	0.6-1.2 MeV	Quelard, G.; Dural, J.; Ardouneau, J.; Lesueur, D. Energie seuil de déplacement dans le bismuth. Radiat. Eff. 39, 45 (1978) France
2424	D15 e + SS; n + SS	T	1 MeV	Ghoniem, N. M.; Kulcinski, G. L. A rate theory approach to the time dependent microstructural development during irradiation. Radiat. Eff. 35, 47 (1978) United States
2425	D07 H ⁺ + Al; H ⁺ + Au; H ⁺ + SS	E	300-500 keV	Barragan, A.; Garcia Santibanez, F. Surface roughness effects on the energy dispersion of backscattered protons. Radiat. Eff. 39, 61 (1978) Mexico
2426	C02 B ⁺ + Si	E	700 keV	Marcovich, A.; Eshir, G.; Eernstein, I.; Kalish, R. A method for measuring stopping powers of channeled ions: boron in Si. Radiat. Eff. 35, 65 (1978) Israel
2427	D07 H ⁺ + Ni; D ⁺ + Ni; He ⁺ + Ni; Ne ⁺ + Ni	E	1.5-20 keV	Hou, M.; Eckstein, W.; Verbeek, H. Small angle backscattering of hydrogen, deuterium, helium and neon from single and polycrystalline nickel. Radiat. Eff. 39, 107 (1978) West Germany
2428	D15 e + Cu	T	0.5-3.0 MeV	Tenenbaum, A. Formation of Frenkel pairs in electron irradiated copper. Radiat. Eff. 29, 119 (1978) Italy
2429	C02 Undef	T	Undef	Edvabnyi, I. V.; Yelovets, A. F. Ionization losses of fast charged particles in an anisotropic medium. Sov. Phys. J. 21, 7 (1978) Soviet Union
2430	H06 Undef	T	Undef	Andryushin, A. I.; Fedorov, M. V. Resonant interaction between intense electromagnetic waves during ionization of an atom. Sov. Phys. J. 21, 45 (1978) Soviet Union
2431	C08 e + Si D10 e + Si	T	1-5 MeV	Vorob'ev, A. A.; Fcpov, D. E.; Verch'ev, S. A.; Kaplan, V. V. Band structure of transverse-energy eigenvalues and strong electron scattering by atomic planes in single crystals. Sov. Phys. J. 21, 54 (1978) Soviet Union

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2432	C02 e + Cu; e + Al E11 e + Cu; e + Al D12 e + Cu; e + Al	E	4-30 MeV	Lisin, V. A.; Yunda, N. T. An investigation of electron-photon fluxes after two-layer barriers irradiated by a beam of fast monoenergetic electrons. Sov. Phys. J. 21, 240 (1978) Soviet Union
2433	A12 Undef	T	Undef	Cherkasov, M. R. Impact theory of broadening of spectral lines. I. Method of calculating relaxation parameters. Sov. Phys. J. 21, 264 (1978) Soviet Union
2434	A12 NH ₃ ⁺ + NH ₃	T	Undef	Cherkasov, M. R. Impact theory of broadening of spectral lines. II. Self-broadening of inversion lines of the NH ₃ molecule and rotational lines of the CHF ₃ molecule. Sov. Phys. J. 21, 268 (1978) Soviet Union
2435	B01 Undef H01 Undef	T	H01 Undef	Ancsov, M. D. Interaction of an atom with strong classical radiation. Sov. Phys. J. 21, 351 (1978) Soviet Union
2436	F01 Si ⁺ ; Si ⁺	T		Pavlov, A. N.; Vedrinskii, F. E.; Krivitskii, V. V. Green's function method for the calculation of the properties of atoms with two inner holes. I. Absolute ionization energies. Sov. Phys. J. 21, 354 (1978) Soviet Union
2437	F01 Si ⁺ ; Si ²⁺	T		Pavlov, A. N.; Vedrinskii, F. E.; Krivitskii, V. V. Green's function method for the calculation of the properties of atoms with two inner holes. II. Chemical shifts of x-ray lines. Sov. Phys. J. 21, 358 (1978) Soviet Union
2438	H02 Undef	T	Undef	Averbukh, I. S.; Kvarskii, V. A.; Perel'man, N. F. Effects of the Landau-Zener type in the optical spectra of molecules. Sov. Phys.-JETP 47, 646 (1978) Soviet Union
2439	B01 Undef H01 Undef	T	H01 Undef	Letokhov, V. S.; Minogin, V. G. Quantum motion of atoms in the resonant field of a standing light wave. Sov. Phys.-JETP 47, 650 (1978) Soviet Union
2440	H06 Undef	T	Undef	Fedorov, M. V. Polarization of electrons produced as a result of the resonance ionization of atoms by high-intensity electromagnetic radiation. Sov. Phys.-JETP 47, 702 (1978) Soviet Union
2441	D03 He ⁺ + PERT; Ne ⁺ + PERT; Ar ⁺ + PERT D12 He ⁺ + PERT; Ne ⁺ + PERT; Ar ⁺ + PERT	E	30 keV	Kiyas, T. S.; Gritsyna, V. V.; Fegeli, Y. M. On the continuous spectra emitted by particles knocked out by ion beams from metal targets. Sov. Phys.-JETP 47, 730 (1978) Soviet Union
2442	B06 Undef H04 Undef	T	H04 Undef	Neveskii, N. E. Two-level system in a sinusoidal electric field. Sov. Phys.-JETP 47, 819 (1978) Soviet Union
2443	B07 Undef	T		Vartanyan, T. A.; Frzhibel'skii, S. G. Optical excitation of colliding atoms to a state of quasisound motion. Sov. Phys.-JETP 47, 824 (1978) Soviet Union
2444	A06 He ²⁺ + He	E	2-60 keV	Afrosimov, V. V.; Essaliev, A. A.; Lelik, G. A.; Panov, M. N. Formation of He ⁺ ions in various electronic states in He ²⁺ + He collisions. Sov. Phys.-JETP 47, 837 (1978) Soviet Union
2445	E04 e + H ₂ ; e + HD; e + D ₂ E09 e + H ₂ ; e + HD; e + D ₂	T	3-5 eV	Drukarev, G. F.; Pozdnev, S. A. Application of the Faddeev equations to calculations of dissociative attachment cross sections. Sov. Phys.-JETP 47, 1045 (1978) Soviet Union
2446	A03 Li ⁺ + Li; Cs ⁺ + Cs A10 Li ⁺ + Li; Cs ⁺ + Cs	T	Undef	Chibisov, M. I. Contribution of the theory of excitation transfer in slow collisions of like atoms. Sov. Phys.-JETP 46, 22 (1978) Soviet Union

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2447	B03 Undef H06 Undef	T	H06 Undef	Delone, N. B.; Zon, B. A.; Krainov, V. F. Diffusion mechanism of ionization of highly excited atoms in an alternating electromagnetic field. <i>Sov. Phys.-JETP</i> 48, 223 (1978) Soviet Union
2448	A13 COD ⁺ + D ₂ ; COD ⁺ + Ne; D ₃ ⁺ + CO	E	0.1-0.5 eV	Zhurkin, E. S.; Sargsyan, G. N.; Melkhasyan, R. I.; Tunitskii, N. N. Study of the forward and back secondary ion-molecule reactions COD ⁺ + D ₂ going to or coming from D ₃ ⁺ + CO. <i>High Energy Chem.</i> 12, 62 (1978) Soviet Union
2449	A13 H ₃ ⁺ + Ne; H ₃ ⁺ + Kr; D ₃ ⁺ + Ne; D ₃ ⁺ + Kr	E	1-12 eV	Sargsyan, G. N.; Zhurkin, E. S.; Melkhasyan, R. I. Cross sections of secondary ion-molecule reactions of D ₃ ⁺ (H ₃ ⁺) ions with inert gases. <i>High Energy Chem.</i> 12, 62 (1978) Soviet Union
2450	H04 hv + N ₂	T	Thermal	Orsevskii, A. N.; Suchkov, A. F.; Shebeko, Y. N. Possible preparation of chemically active nitrogen in v-v exchange processes in a nonequilibrium medium of vibrationally excited molecules. <i>High Energy Chem.</i> 12, 135 (1978) Soviet Union
2451	E03 e + H ₂ O; e + D ₂ O E04 e + H ₂ O; e + D ₂ O	E	90-1000 eV	Polyakova, G. N.; Fanyuk, A. I.; Erko, V. F.; Pavlichenko, O. S. Formation of hot excited hydrogen atoms by electron impact on water molecules. <i>High Energy Chem.</i> 12, 167 (1978) Soviet Union
2452	A14 N ₂ ⁺ + O ₂ E05 e + [N ₂ + O ₂]	E	2-10 eV	Basov, N. G.; Danilychev, V. A.; Pentel'ev, V. I.; Popovichev, V. I.; Ragul'skii, V. V.; Suchkov, A. F.; Faizullicv, F. S.; Shebeko, Y. A.; Gorozhankin, E. V.; Murenkov, V. V. Electric ionization synthesis of nitrogen oxides. <i>High Energy Chem.</i> 12, 224 (1978) Soviet Union
2453	A14 H + [H + H]	T	2000-5000 K	Levitskii, A. A.; Folak, L. S. Study of the recombination reaction H + H + H + H ₂ + H by the classical trajectories method. <i>High Energy Chem.</i> 12, 245 (1978) Soviet Union
2454	A13 Ar ⁺ + H ₂ O	E	10 keV	Nikolaev, E. N.; Tartsyrev, G. I. Formation of thermodynamically unfavorable (H ₂ O) sub n ⁺ clusters with n = 1-30. <i>High Energy Chem.</i> 12, 253 (1978) Soviet Union
2455	A13 Ar ⁺ + H ₂ O; Xe ⁺ + H ₂ O	T	Undef	Arifov, U. A.; Pozharov, S. L. Mechanism of the formation of H ⁺ (H ₂ O) sub n-OH clusters. <i>High Energy Chem.</i> 12, 327 (1978) Soviet Union
2456	A13 Ar ⁺ + H ₂ O	T	Undef	Arifov, U. A.; Pozharov, S. L. Initial stages of clustering reactions in water vapor. <i>High Energy Chem.</i> 12, 331 (1978) Soviet Union
2457	A11 SF ₆ ⁺ + SF ₆	E	625-802 K	Vasilenko, L. S.; Popova, T. Y.; Fubtseva, N. N.; Skvortsev, M. N. Investigation of molecular relaxation in SF ₆ by the amplitude-modulated wave method. <i>Sov. J. Quantum Electron.</i> 8, 27 (1978) Soviet Union
2458	H01 Undef	T	Undef	Baklanov, E. V.; Dubetskii, E. Y. Two-photon absorption resonance in the presence of transit effects. <i>Sov. J. Quantum Electron.</i> 8, 51 (1978) Soviet Union
2459	B07 Undef	T		Yakovlerkc, S. I. Laser-induced radiative collisions (review). <i>Sov. J. Quantum Electron.</i> 8, 151 (1978) Soviet Union
2460	A11 I ₂ ⁺ + I ₂ ; I ₂ ⁺ + Xe	E	293-413 K	Stcilov, Y. Y. Investigation of the fluorescence of molecular iodine in the 340 nm band. <i>Sov. J. Quantum Electron.</i> 8, 223 (1978) Soviet Union
2461	F01 He Seq	T		Boiko, V. A.; Pikuz, S. A.; Feenov, A. Y. Intensities of resonance line satellites of helium-like ions with Z=12-23 in laser plasma x-ray emission. <i>Sov. J. Quantum Electron.</i> 8, 226 (1978) Soviet Union

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2462	F01 Ne Seq	T		Vainshtein, L. A.; Vinogradov, A. V.; Safronov, U. I.; Skobelev, I. Y. Stimulated emission in far ultraviolet due to transitions in multiply charged neon-like ions. Sov. J. Quantum Electron. 8, 235 (1978) Soviet Union
2463	B07 Undef	T		Bench-Bruevich, A. M.; Frzhibel'skii, E. G.; Khrcov, V. V. Optical processes in close atomic collisions. Sov. J. Quantum Electron. 8, 268 (1978) Soviet Union
2464	A12 I* + He; I* + Ne; I* + Ar; I* + Xe H14 hv + I*	E	A12 400 K H14 1.315 μ	Babkin, V. I.; Kuznetsova, S. V.; Paslov, A. I. Simple method for determination of stimulated emission cross section of $^2P_{1/2}(F=3) + ^2F_{3/2}(F \text{ prime}=4)$ transition in atomic iodine. Sov. J. Quantum Electron. 6, 285 (1978) Soviet Union
2465	H05 Undef	T	0.1 eV	Sazonov, V. N. Influence of transitions between states with similar energies on the dissociation of polyatomic molecules in a laser radiation field. Sov. J. Quantum Electron. 8, 274 (1978) Soviet Union
2466	G08 e + [C + Ne]; e + [C + He]	E	0-10 eV	Mnatsakanyan, A. K.; Naidis, G. V.; Shternov, N. F. Distribution of electron energies in mixtures of copper vapor with neon and helium. Sov. J. Quantum Electron. 8, 343 (1978) Soviet Union
2467	B03 Na*	E		Apatin, V. M.; Letokhov, V. S.; Mishin, V. I. Stark effect in sodium atomic states highly excited by laser radiation. Sov. J. Quantum Electron. 6, 363 (1978) Soviet Union
2468	H05 nhv + BCl ₃	E	10.6 μ	Kolomiskii, Y. R.; Rystov, E. A. Frequency characteristics of isotopically selective dissociation of BCl ₃ in a strong infrared CO ₂ laser field. Sov. J. Quantum Electron. 8, 375 (1978) Soviet Union
2469	A11 HgBr* + SF ₆ ; HgBr* + Xe; HgBr* + He; HgBr* + N ₂ ; HgBr* + O ₂ H05 hv + HgBr ₂	E	210-190 nm	Bazhulin, S. F.; Essov, N. G.; Zuev, V. S.; Leonov, Y. S.; Steliov, Y. Y. Stimulated emission at $\lambda = 502$ nm as a result of prolonged optical pumping of HgBr ₂ vapor. Sov. J. Quantum Electron. 6, 402 (1978) Soviet Union
2470	H04 Undef	T	Undef	Kuz'min, M. V. Dynamics of many-photon excitation of molecular vibrations. Sov. J. Quantum Electron. 8, 438 (1978) Soviet Union
2471	A10 Eu* + Eu; Sm* + Sm H06 hv + Eu; hv + Sm	E	A10 1052-1200 K H06 5765-5916 A ⁰	Karlov, N. V.; Krynetskii, E. E.; Mishin, V. A. Influence of atomic collisions on the selectivity of resonant excitation in isotope separation. Sov. J. Quantum Electron. 8, 502 (1978) Soviet Union
2472	B07 Undef	E		Beterov, I. M.; Chebotaev, V. P.; Fateev, A. V.; Yakovlev, B. V. Influence of laser radiation on electron capture by molecules. Sov. J. Quantum Electron. 8, 533 (1978) Soviet Union
2473	F01 H Seq FU2 H Seq	E		Vinogradov, A. V.; Peregudov, G. V.; Fagozin, E. N.; Skobelev, I. Y.; Yukov, E. A. Dependence of the spectrum of hydrogen-like ions on the electron density in a laser plasma. Sov. J. Quantum Electron. 8, 615 (1978) Soviet Union
2474	A10 I* + Ar; I* + Xe; I* + SF ₆ H05 hv + CF ₃ I H08 hv + CF ₃ I	E	A10 258 K H05; H08 2670 A ⁰	Frehov, L. S.; Zaleskii, V. Y. Collision-induced I($5^2P_{1/2} - 5^2F_{3/2}$) radiative transition. Sov. J. Quantum Electron. 8, 649 (1978) Soviet Union
2475	C08 e + Si	E	1.0 MeV	Kaplin, V. V.; Vorot'ev, S. A. Molecular-type states in fast-electron channeling. Sov. Phys.-Solid State 20, 16 (1978) Soviet Union

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2476	C02 e + Au E18 e + Au	E	5-30 keV	Vyatskin, A. Y.; Smirnov, B. N. Electron-beam energy losses in a bulk gold target. <i>Sov. Phys.-Solid State</i> 20, 143 (1978) Soviet Union
2477	D15 H ⁺ + Al	T	0.2 MeV	Taratin, A. M.; Vorob'ev, S. A. Characteristics of the energy and spatial distributions of primary knocked-out atoms in single crystals. <i>Sov. Phys.-Solid State</i> 20, 566 (1978) Soviet Union
2478	D06 e + [Al + Mo]	E	0-50 eV	Ershova, I. P.; Korabiev, V. V.; Mirozov, Y. A. Characteristics of elastic reflection of slow electrons from a film-single-crystal system. <i>Sov. Phys.-Solid State</i> 20, 710 (1978) Soviet Union
2479	D02 Ar ⁺ + Si	E	150-500 eV	Labunov, V. A.; Borisenko, V. E. Temperature dependence of the sputtering coefficient of silicon. <i>Sov. Phys.-Solid State</i> 20, 712 (1978) Soviet Union
2480	D04 He ⁺ + Si	E	1-10 keV	Dorozhkin, A. A.; Petrov, A. A.; Petrov, N. N. Role of the Auger processes in electron emission due to bombardment with light ions. <i>Sov. Phys.-Solid State</i> 20, 734 (1978) Soviet Union
2481	D04 e + GaP	E	0.2-3.0 keV	Afonina, L. F.; Stuchinskii, G. E. Energy spectra of secondary electrons emitted from gallium phosphide with a reduced work function. <i>Sov. Phys.-Solid State</i> 20, 874 (1978) Soviet Union
2482	D06 e + W	E	2-50 eV	Ershova, I. P.; Korabiev, V. V.; Mirozov, Y. A. Elastic reflection of slow electrons from tungsten single crystal. <i>Sov. Phys.-Solid State</i> 20, 905 (1978) Soviet Union
2483	D06 e + Mo	E	0.5-1.5 keV	Gotyunova, M. V.; Zaslavskii, S. L.; Pronin, I. I. Anisotropy of the elastic reflection of electrons from a molybdenum single crystal. <i>Sov. Phys.-Solid State</i> 20, 919 (1978) Soviet Union
2484	A07 He ²⁺ + He; Kr ⁺ + Kr A17 He ²⁺ + He; Kr ⁺ + Kr	T	Undef	Nikulin, V. K.; Gushchina, N. A. Shielded-orbital model for quasimolecule analysis of ion-atom collisions. <i>Sov. Phys.-Tech. Phys.</i> 23, 7 (1978) Soviet Union
2485	A07 Li ⁺ + He; Li ⁺ + Ne; C ⁺ + He; C ⁺ + Ne; N ⁺ + He; N ⁺ + Ne; Ne ⁺ + He; Ne ⁺ + Ne; Na ⁺ + He; Na ⁺ + Ne; Mg ⁺ + He; Mg ⁺ + Ne	E	100-2000 eV	Latypov, Z. Z.; Sheporenko, A. A. Ionization of atomic He and Ne by slow Li ⁺ , C ⁺ , N ⁺ , Ne ⁺ , Na ⁺ , and Mg ⁺ ions. <i>Sov. Phys.-Tech. Phys.</i> 23, 112 (1978) Soviet Union
2486	A07 Na ⁺ + Ne; Mg ⁺ + Ne	T	100-2000 eV	Latypov, Z. Z.; Sheporenko, A. A. Use of effective ionization cross sections to examine nonadiabatic transitions in the Na ⁺ -Ne and Mg ⁺ -Ne systems. <i>Sov. Phys.-Tech. Phys.</i> 23, 114 (1978) Soviet Union
2487	E02 e + He; e + Ne; e + Ar; e + Kr; e + Xe	E	0.025-1 eV	Gus'kov, Y. K.; Savvov, R. V.; Slobodanyuk, V. A. Time-of-flight measurement of the total cross section for elastic scattering of low-energy electrons (E=0.025-1.0 eV) by He, Ne, Ar, Kr, and Xe. <i>Sov. Phys.-Tech. Phys.</i> 23, 167 (1978) Soviet Union
2488	A03 Ba ⁺ + Kr; Ca ⁺ + Ar; Ca ⁺ + Xe; Sr ⁺ + Xe	E	0.1-2 keV	Borisov, V. B.; Egrov, V. S.; Zetserkvcnyuk, N. M.; Pastor, A. A.; Fares, M. E. Ion composition of a pulsed microwave discharge in an inert gas. <i>Sov. Phys.-Tech. Phys.</i> 23, 171 (1978) Soviet Union
2489	E02 e + Ag; e + Ne E17 e + Ag; e + Ne	T	0.6-8 keV	Akkermann, A. F.; Chernov, G. Y. Elastic scattering of electrons by atoms in the keV range. <i>Sov. Phys.-Tech. Phys.</i> 23, 247 (1978) Soviet Union
2490	D13 H + ZrC	T	300-1500 K	Matskevich, I. L.; Krachino, I. V. Hydrogen adsorption on zirconium carbide and its rhenium alloys. <i>Sov. Phys.-Tech. Phys.</i> 23, 314 (1978) Soviet Union

REF. NO.	REACTANTS	EXP CR THEOR	ENERGY RANGE	REFERENCE
2491	C04 e + Al	T	0.5-500 keV	Makarov, V. V. Spatial distribution of excitation density in a solid bombarded by electrons at 0.5-500 keV. Sov. Phys.-Tech. Phys. 23, 324 (1978) Soviet Union
2492	D09 Undef	T	1-100 eV	Kishinevskii, M. E. Secondary negative-ion emission. Sov. Phys.-Tech. Phys. 23, 456 (1978) Soviet Union
2493	A06 H ⁻ + H ⁺ ; Si ²⁺ + Ca	T	10 ⁶ -10 ⁸ cm/s	Zhdanov, V. P.; Chibisov, M. I. Effect of level degeneracy on charge exchange at a ternary pseudointersection. Sov. Phys.-Tech. Phys. 23, 532 (1978) Soviet Union
2494	G07 e + Ne*	E	470-1600 K	Desidov, V. I.; Kolovolov, N. E. Collisions of the second kind between electrons and excited neon atoms. Sov. Phys.-Tech. Phys. 23, 610 (1978) Soviet Union
2496	D06 Undef	T	Undef	Toimachev, A. I. Elastic reflection of electrons from solids. Sov. Phys.-Tech. Phys. 23, 703 (1978) Soviet Union
2496	A17 N ₂ ; CH ₄ ; C ₂ H ₆ ; CO ₂	E	80-800 K	Darkan, E. S. Second virial coefficient at low temperature. Sov. Phys.-Tech. Phys. 23, 721 (1978) Soviet Union
2497	A07 H + H; H + He; H ⁺ + H; H ⁺ + He; He + H; He + He; He ⁺ + H; He ⁺ + He; He ²⁺ + H; He ²⁺ + He; Li ⁺ + H; Li ⁺ + He; Li ²⁺ + H; Li ²⁺ + He; Li ³⁺ + H; Li ³⁺ + He; Be ²⁺ + H; Be ²⁺ + He; H ₂ ⁺ + H; H ₂ ⁺ + He	T	10 ⁶ -6x10 ⁸ cm/s	Nikolaev, V. S.; Senashenko, V. S.; Sicorovich, V. A.; Shafer, V. Y. Ionization of hydrogen and helium by fast atomic particles with one and two electrons. Sov. Phys.-Tech. Phys. 23, 785 (1978) Soviet Union
2498	A16 O ⁻ + O ₂ *; O ⁻ + N ₂ *; O ₂ ⁻ + O ₂ *; O ₂ ⁻ + N ₂ * E07 e + [O ⁻ + O ₂ *]; e + [O ₂ ⁻ + N ₂ *]; e + [O ₂ ⁻ + O ₂ *]; e + [O ₂ ⁻ + N ₂ *]	T	0.1-10 eV	Aleksandrov, N. L. Electron detachment from O ⁻ and O ₂ ⁻ ions in excited molecules in an air discharge. Sov. Phys.-Tech. Phys. 23, 806 (1978) Soviet Union
2499	A07 H ⁺ + Ar; H ⁺ + Sb	T	10-1000 keV	Kosarov, F. F.; Novikov, A. P. Inner-shell ionization by heavy charged particles in the binary-collision model. I. Effect of the electron momentum distribution on the energy dependence of the ionization cross section. Sov. Phys.-Tech. Phys. 23, 819 (1978) Soviet Union
2500	A17 Ar ⁺ + Kr	T	Undef	Gushchina, N. A.; Nikulin, V. K. Correlation diagram of the Kr-Ar ⁺ heteronuclear system. Interpretation of the quasimolecule Auger spectra. Sov. Phys.-Tech. Phys. 23, 1135 (1978) Soviet Union
2501	A07 H ⁺ + Cu; H ⁺ + Ag; He ⁺ + Cu; He ⁺ + Ag	E	150-800 keV	Benka, O.; Geretschlager, M. Energy dependence of the x-ray production cross sections of Cu and Ag for 150 to 800 keV proton and He ⁺ bombardment. Z. Phys. A 284, 29 (1978) Austria
2502	A05 S ⁺ + NaCl; S ⁺ + Cl ₂ ; S ⁺ + Ar; Cl ⁺ + NaCl; Cl ⁺ + Cl ₂ ; Cl ⁺ + Ar A19 S ⁺ + NaCl; S ⁺ + Cl ₂ ; S ⁺ + Ar; Cl ⁺ + NaCl; Cl ⁺ + Cl ₂ ; Cl ⁺ + Ar	E	3.62-48 MeV	Schmidt-Bocking, H.; Schuch, R.; Iserruya, I.; Schule, R.; Specht, H. J.; Bathge, K. Experimental determination of the production mechanism for noncharacteristic radiation in swift heavy-ion collisions. Z. Phys. A 284, 35 (1978) West Germany
2503	A03 Pb + Ag; Pb + Au A19 Pb + Ag; Pb + Au	E	5.8 MeV/amu	Maddonald, J. R.; Armbruster, F.; Bohneke, H. H.; Folkmann, F.; Hagemann, S.; Liesen, E.; Mckler, F. H.; Warczak, A. An absolute measurement of the probability for 1 s (sigma) and 2 p (sigma) excitation of the lead K shell. Z. Phys. A 284, 57 (1978) West Germany
2504	D08 Ne + Cu; Ar + Cu; Kr + Cu	T	Undef	Schroder, H. Unified description of circular polarization in supermultiplet lines of ions, excited by beam surface interaction. Z. Phys. A 284, 121 (1978) West Germany
2505	A11 Ba ⁺ + He; Ba ⁺ + Ne; Ba ⁺ + Ar; Ba ⁺ + Kr; Ba ⁺ + Xe; Pb ⁺ + He; Pb ⁺ + Ne; Pb ⁺ + Ar; Pb ⁺ + Kr; Pb ⁺ + Xe	E	Thermal	Buttler, W.; Buckel, W.; Weter, E. W. Collisional relaxation of ionic 2P _{3/2} excited states in rare gases. Z. Phys. A 284, 135 (1978) West Germany

REF. NO.	REACTANTS	EXP OR THEOR	ENERGY RANGE	REFERENCE
2506	A15 Cs ₂ + Cs; Na ₂ + Na	E	Thermal	Weber, H. G. Studies of the atom-dimer polarization transfer. Part II. Z. Phys. A 284, 145 (1978) West Germany
2507	A07 S ⁺ + Na; S ⁺ + Mg; S ⁺ + Al; S ⁺ + Si; S ⁺ + NaCl; S ⁺ + Ca; S ⁺ + Sc; S ⁺ + Ti; Cl ⁺ + Ar A19 S ⁺ + Na; S ⁺ + Mg; S ⁺ + Al; S ⁺ + Si; S ⁺ + NaCl; S ⁺ + Ca; S ⁺ + Sc; S ⁺ + Ti; Cl ⁺ + Ar	E	3.9-48 MeV	Schuch, R.; Nolte, G.; Lichtenberg, W.; Schmidt-Bocking, H.; Schule, R.; Iserruya, I. K-shell ionization cross sections in nearly symmetric collisions by S and Cl impact. Z. Phys. A 284, 153 (1978) West Germany
2508	H06 hv + N	T	0.1-1 Ry	Heepe, K. Photoionization cross section of atomic nitrogen calculated by the many-channel quantum defect method. Z. Phys. A 284, 247 (1978) West Germany
2509	A04 Cs ₂ + He; Cs ₂ + Ne; Cs ₂ + Ar; Cs ₂ + Kr; Cs ₂ + N ₂ ; Cs ₂ + CH ₄	E	Thermal	Glas, H.-J.; Weber, H. G. Collision induced dissociation of Cs ₂ studied by atom-molecule-exchange optical pumping. Z. Phys. A 284, 253 (1978) West Germany
2510	H04 hv + Ba ⁺ H08 hv + Ba ⁺	E	585 nm	Hohle, C.; Rühnersmann, H.; Meier, I.; Wegner, H. High resolution spectroscopy of the transition 5d ² D _{3/2} + 6p ² P _{3/2} in a fast Ba ⁺ ion beam. Z. Phys. A 284, 261 (1978) West Germany
2511	A05 H ⁺ + Al; H ⁺ + Si; H ⁺ + Ti; N ⁺ + Al; N ⁺ + Si; N ⁺ + Ti	E	0.6-14 MeV	Bauer, C.; Gippner, P.; Hohmuth, K.; Mann, R.; Nebelung, A.; Rudolph, W. Emission of x-ray continua by bombardment of thick Al, Si and Ti targets with protons and ¹⁵ N ions. Z. Phys. A 284, 275 (1978) East Germany
2512	E15 Undef	E	Undef	Magnier, P.; Bouchard, J.; Blondel, M.; Legrand, J.; Perolat, J. P.; Vatin, R. Precise measurement of the X (sub k) emission rate following the electron capture-decay of ⁵⁴ Mn-fluorescence yield W (sub k) of Cr. Z. Phys. A 284, 389 (1978) France
2513	H08 hv + Cs	E	6231 A°	Fredriksson, K.; Lundberg, H.; Svänberg, S. Fine-structure measurements for highly excited F states of cesium. Z. Phys. A 284, 425 (1976) Sweden
2514	A07 Undef	T	550-1400 MeV	Muller, B.; Soff, G.; Greiner, W.; Ceausescu, V. Scaling behaviour of inner-shell ionization in superheavy quasi-molecules. Z. Phys. A 285, 27 (1978) West Germany
2515	C02 He ²⁺ + Si	E	6.05-8.78 MeV	Rosendahl, E. W.; Monkediek, J. Measurement of the energy loss of non-channelled alpha-particles in transmission and interpretation with the aid of an averaged continuous potential. Z. Phys. A 285, 33 (1978) West Germany
2516	A07 U + U; U + Pb; Pb + U; Pb + Pb	T	4.7 MeV/amu	Heiligerthal, G.; Eitz, W.; Soff, E.; Muller, B.; Greiner, W. The influence of rotational coupling on k-vacancy formation in U-Pt collisions. Z. Phys. A 285, 105 (1978) West Germany
2517	A15 Cs + Rb	E	Thermal	Loli, N.; Violino, P.; Meucci, M. A new technique for measuring the spin-exchange cross-section between different atoms. Z. Phys. A 285, 107 (1978) Italy
2518	H08 hv + Ba	E	4000-5000 A°	Kaiser, D.; Kulino, P.; Livingston, A. E.; Fadic, H.-H.; Tudorache, S. Lifetime measurements of Rydberg states in the 6snd ¹ D ₂ -series of Ba I. Z. Phys. A 285, 111 (1978) West Germany
2519	B07 Undef	T		Mohan, K.; Chand, F. Electron scattering in the presence of an intense electromagnetic field. Z. Phys. A 285, 115 (1978) Italy

REF. NO.	REACTANTS	EXP CR THEOR	ENERGY RANGE	REFERENCE
2520	A03 Ar ¹⁵⁺ + C; Ar ¹⁶⁺ + C	E	1.4 MeV/amu	Dohmann, H.-D.; Liesen, D.; Pfeng, H. High resolution spectroscopy of prompt and metastable decaying levels in highly ionized argon, especially of the metastable ³ P ₂ -state of Ar ¹⁶⁺ and the ⁴ P _{3/2} -state of Ar ¹⁵⁺ . Z. Phys. A 285, 171 (1978) West Germany
2521	A07 Cu ¹⁶⁺ + Kr; Cu ¹⁶⁺ + Xe; Cu ¹⁷⁺ + Kr; Cu ¹⁷⁺ + Xe; Cu ¹⁸⁺ + Kr; Cu ¹⁸⁺ + Xe; Cu ¹⁹⁺ + Kr; Cu ¹⁹⁺ + Xe; Cu ²⁰⁺ + Kr; Cu ²⁰⁺ + Xe; Cu ²¹⁺ + Kr; Cu ²¹⁺ + Xe; Cu ²²⁺ + Kr; Cu ²²⁺ + Xe; Cu ²³⁺ + Kr; Cu ²³⁺ + Xe	E	1.4 MeV/amu	Warczak, A.; Liesen, D.; Macdonald, J. F.; Mokler, P. H. Charge state dependence of characteristic x-ray emission under single collision conditions for 1.4 MeV/amu Cu ions. Z. Phys. A 285, 236 (1978) West Germany
2522	A07 Cu ¹¹⁺ + Ar; Cu ¹²⁺ + Ar; Cu ¹³⁺ + Ar; Cu ¹⁴⁺ + Ar; Cu ¹⁵⁺ + Ar; Cu ¹⁶⁺ + Ar; Cu ¹⁷⁺ + Ar; Cu ¹⁸⁺ + Ar; Cu ¹⁹⁺ + Ar; Cu ²⁰⁺ + Ar; Cu ²¹⁺ + Ar; Cu ²²⁺ + Ar	E	50-70 MeV	Schleibel, U.; Doyle, B. L. Ar K x-ray production cross sections in collisions with highly ionized Cu at 50-70 MeV. Z. Phys. A 285, 241 (1978) United States
2523	A17 H + H; Br + Zr	T	Undef	Jakubassa, D. H. Variational calculation of the 1 s (sigma) orbital in quasi-molecular systems. Z. Phys. A 285, 246 (1978) West Germany
2524	C04 I + Mica; Au + Mica	E	0-1 MeV/amu	Dautet, E.; Pate, E. D. The tracklengths of iodine and gold ions in mica. Z. Phys. A 285, 253 (1978) Canada
2525	A03 Na + Ne; N + Ne	T	1-1000 keV	Gross, E. K. U.; Hrbatsch, M.; Dreizler, R. M. Multi-state impact parameter approximation for many particle excitations in atomic collisions; total cross sections for Na-Ne and N-Ne. Z. Phys. A 285, 353 (1978) West Germany
2526	F01 Mo	E		Aufmuth, P.; Clieves, H.-P.; Heilig, K.; Studel, A.; Wendlandt, E.; Bauche, J. Isotope shift in molybdenum. Z. Phys. A 285, 387 (1978) West Germany
2527	H07 hv + O ⁻ ; hv + S ⁻	E	488-515 nm	Breyer, F.; Frey, P.; Hotop, H. High resolution photoelectron spectrometry of negative ions: fine-structure transitions in O ⁻ and S ⁻ photodetachment. Z. Phys. A 286, 133 (1978) West Germany
2528	C02 Ar + C; Ti + C; Kr + C; Xe + C; Pb + C; U + C	E	0.2-1.4 MeV/amu	Pape, H.; Clerc, H.-G.; Schmidt, K.-H. Energy loss of heavy ions in carbon foils. Z. Phys. A 286, 159 (1978) West Germany
2529	A07 H ⁺ + C; H ⁺ + Cu; H ⁺ + Ge	E	100 keV	Scholer, A.; Bell, F. Angular distribution and polarization fraction of characteristic x-radiation after proton impact. Z. Phys. A 286, 163 (1978) West Germany
2530	A06 C ⁶⁺ + Ar; O ⁸⁺ + Ar	E	1.6-2.8 MeV/amu	Vane, C. R.; Gellin, I. A.; Suter, M.; Alton, G. E.; Elston, S. B.; Griffin, P. M.; Thoe, R. S. Continuum electron capture dependence on projectile Z and velocity. Z. Phys. A 286, 233 (1978) United States
2531	F01 He	E		Oppen, G. V.; Perschmann, W.-D.; Szostek, D. Cascade-free lifetime measurements on the 1 s 2 d-levels of He I. Z. Phys. A 286, 243 (1978) West Germany
2532	A05 F + Al; Al + Al; Cl + Al	E	0.4-2.2 MeV/amu	Welfli, W.; Stoller, C.; Eckenli, G.; Stockli, M.; Suter, M.; Dappen, W. Evidence for a molecular REC-effect in heavy ion collisions. Z. Phys. A 286, 249 (1978) Switzerland
2533	C02 Cl + [Ar + CH ₄]	E	9.4-39.4 MeV	Schmidt-Bocking, H.; Hornung, H. Energy straggling of Cl ions in gases. Z. Phys. A 286, 283 (1978) West Germany
2534	A06 PERT	T	1 a.u.	Shevelko, V. P. One-electron capture in collisions of fast ions with atoms. Z. Phys. A 287, 19 (1978) West Germany

REF. NO.	REACTANTS	EXP OR THEOR	ENERGY RANGE	REFERENCE
2535	A07 H ⁺ + Si; H ⁺ + Ti; H ⁺ + Cu; H ⁺ + Ag; He ⁺ + Si; He ⁺ + Ti; He ⁺ + Cu; He ⁺ + Ag; N ⁺ + Si; N ⁺ + Ti; N ⁺ + Cu; N ⁺ + Ag.	E	0.17-2 MeV/amu	Bauer, C.; Mann, F.; Rudolph, W. K-shell ionization of Si, Ti, Cu and Ag for incident protons, ³ He and ¹⁴ N ions in the energy range of 0.17-2.0 MeV/amu. Z. Phys. A 287, 27 (1978) East Germany
2536	A05 Ag + Ag; Nb + Nb; Br + Br; Ge + Ge; Fe + Fe	E	7-66 MeV	Steller, C.; Wolfli, W.; Bernini, G.; Marenzoni, E.; Stockli, M. The anisotropy of the MD-2p (sigma)-radiation observed in symmetric heavy ion collisions. Z. Phys. A 287, 33 (1978) Switzerland
2537	E03 e + H	T	200-500 eV	Blum, K.; Fitchard, E. E.; Kleinpoppen, H. Coherent excitation of the n=3 level of hydrogen in a field free region. Z. Phys. A 287, 127 (1978) Scotland
2538	A07 H ⁺ + W	E	0.015-2.6 MeV	Tittel, H.; Bell, F. N-shell ionization of tungsten by proton impact. Z. Phys. A 287, 143 (1978) West Germany
2539	A03 Nb + Kr; Kr + Nb A05 Nb + Kr; Kr + Nb	E	43-47 MeV	Frank, W.; Kaun, K.-H.; Manfrass, P. The excitation of the 1s (sigma) and 2p (sigma) quasispherical radiation in Nb + Kr collisions. Z. Phys. A 287, 145 (1978) Soviet Union
2540	H08 2hν + Li	E	5700-6400 Å	Kowalski, J.; Neumann, R.; Suhr, H.; Winkler, K.; zu Putlitz, G. Two-photon intracavity dye laser spectroscopy of the 4S and 3D terms in ^{6,7} Li. Z. Phys. A 287, 247 (1978) West Germany
2541	A03 Ne ³⁺ + N ₂ ; Ne ³⁺⁺ + N ₂	E	18 MeV	Schule, R.; Steinhäuser, A.; Stafast, R.; Bethge, K. Collisional configuration-rearrangement in fast neon projectiles. Z. Phys. A 287, 343 (1978) West Germany
2542	C07 N ⁺ + C F01 N ⁺ ; N ²⁺	E	C07 1-10 MeV	Brink, J. A.; Coetzer, F. J.; Cliver, J. H. I.; van der Westhuizen, P.; Pretorius, F.; McMurray, W. R. Level lifetimes in N II and N III: apparatus and results. Z. Phys. A 288, 1 (1978) South Africa
2543	A06 H ₂ ⁺ + H ₂ ; H ₂ ⁺ + He; H ₂ ⁺ + Ar	E	10 keV	Vogel, M. Dissociative charge exchange in collisions of 10 keV H ₂ ⁺ ions on H ₂ , He, and Ar targets. Z. Phys. A 288, 7 (1978) West Germany
2544	C07 Ar ¹⁵⁺ + C; Ar ¹⁶⁺ + C	E	1.4 MeV/amu	Dohmann, H. D.; Pfeng, H. Measurement of the population of the ¹ F _{7/2} -state in Ar ¹⁵⁺ by cascading processes. Z. Phys. A 288, 29 (1978) West Germany
2545	A06 Cs ⁺ + Cs	E	Thermal	Nienstact, H.; Gawlik, D.; zu Putlitz, G.; Leber, H. G. Cross section for the resonant charge exchange Cs ⁺ + Cs at thermal energies. Z. Phys. A 288, 109 (1978) West Germany
2546	C02 Ar + C; Ar + Al; Ar + Ag; Ar + Au; Ar + Bi; Kr + C; Kr + Al; Kr + Ag; Kr + Au; Kr + Bi; Xe + C; Xe + Al; Xe + Ag; Xe + Au; Xe + Bi; U + C; U + Al; U + Ag; U + Au; U + Bi C05 Ar + C; Ar + Al; Ar + Ag; Ar + Au; Ar + Bi; Kr + C; Kr + Al; Kr + Ag; Kr + Au; Kr + Bi; Xe + C; Xe + Al; Xe + Ag; Xe + Au; Xe + Bi; U + C; U + Al; U + Ag; U + Au; U + Bi	E	1.2 MeV/amu	Nickel, F.; Marx, D.; Guttner, K.; Hofmann, S.; Munzenberg, G. Multiple scattering and energy loss of fast heavy ions in thin solid targets. Z. Phys. A 288, 125 (1978) West Germany
2547	A05 H ⁺ + In; H ⁺ + Sn; H ⁺ + Nd; H ⁺ + Dy; H ⁺ + Pt; H ⁺ + Au	E	1-3 MeV	Khen, M. F.; Hopkins, A. G.; Crompton, D. Proton induced L x-ray cross-sections for In, Sn, Nd, Dy, Pt, and Au. Z. Phys. A 288, 133 (1978) United Kingdom
2548	A07 Ni + Ni	T	12-90 MeV	Antolt, R. Theory of the angular distribution of molecular orbital K x-ray seen in heavy-ion-atom collisions. Z. Phys. A 288, 257 (1978) West Germany
2549	A03 He ⁺ + Ne A06 He ⁺ + Ne	E	10-355 keV	Wittmann, W.; Andre, H. J. Observation of the HeI 3 ³ P polarization after medium energy He ⁺ -Ne collisions with impact parameter selection. Z. Phys. A 288, 335 (1978) West Germany

REF. NO.	REACTANTS	EXP CR THEOR	ENERGY RANGE	REFERENCE
2550	A07 Xe ⁺ + Ag	T	27.2-70.8 MeV	Hartung, H.; Fricke, B. Kinematic dipole model for the anisotropy of quasimolecular x-rays. Z. Phys. A 288, 345 (1978) West Germany
2551	C01 U + Al	T	0.9-MeV/amu	Schafer, W.; Stocker, H.; Müller, E.; Greiner, W. Mach cones induced by fast heavy ions in electron plasma. Z. Phys. A 288, 345 (1978) West Germany
2552	A03 I ⁺ + Ag; I ⁺ + Sn; I ⁺ + Sb; I ⁺ + Te; I ⁺ + Yb; I ⁺ + Au; I ⁺ + Pb; I ⁺ + Th; I ⁺ + U	E	5-50 MeV	Hagmann, S.; Armbruster, P.; Kraft, G.; Mokler, P. H.; Stein, H.-J. Inner-shell x-ray production in adiabatic iodine-2, collisions, with Z ₁ + Z ₂ greater than or equal to 100. I. Vacancy configurations and cross sections. Z. Phys. A 286, 353 (1978) West Germany
2553	A03 Xe + Au	E	4.7 MeV/amu	Liesen, D.; Armbruster, P.; Behncke, H.-H.; Hagmann, S. Measurement of shape and absolute value of 1s (sigma) excitation probability in 4.7 MeV/u Xe + Au collisions. Z. Phys. A 288, 417 (1978) West Germany
2554	A06 K + I	T	0-10 eV	Andriäšer, E.; Kuppermann, A.; de Vries, A. E. Chemi-ionization in K-I collisions. I. Integral cross sections. Z. Phys. A 285, 1 (1978) United States
2555	A06 K + I A18 K + I	T	1.3-3.5 eV	Andresen, E.; Kuppermann, A. Chemi-ionization in K-I collisions. II. Differential cross sections. Z. Phys. A 289, 11 (1978) United States
2556	A12 He + Ne	E	Thermal	Graubner, F.; Hermann, G. Disalignment collision cross sections of the neon levels 2p ₁ and 2s ₁ obtained by mode crossing. Z. Phys. A 289, 21 (1978) West Germany
2557	E15 Undef	E	Undef	Thomas, D. J. The electron capture decay of ⁸⁹ Sr-measurements of the K x-ray emission probability, half-life, and decay scheme. Z. Phys. A 285, 51 (1978) United Kingdom

REACTANT INDEX

A01

HEAVY PARTICLE - HEAVY PARTICLE INTERACTIONS

General

H + H₂
1377

H + H₂O
1377

Undef
106 126 223

557 558 1806
1807 1820

A02

HEAVY PARTICLE - HEAVY PARTICLE INTERACTIONS

Elastic Scattering Collisions

Ar + CH₄
306

Ar + N₂
121

Ar⁺ + CO₂
166

Ar⁺ + Ar
81

Au³⁺ + Au
212

Au⁵⁺ + Au
212

B⁺ + Ar
982

B⁺ + He
982

B⁺ + Kr
982

B⁺ + Ne
982

B⁺ + Xe
982

Br + I
974

Br²⁺ + Au
212

Br³⁺ + Au
212

Ca⁺ + Ca
1831

CH₄ + Ar
167

Cl²⁺ + Au
212

Cl³⁺ + Au
212

D + Ar
731

F + H₂
760

F + Xe
2009

H + Ar
731 1076

H + Br₂
1029

H + Cl₂
1029

H + H
2053

H + H₂
445

H + He
787 1076

H + Kr
1076

H + Ne
1076

H + Xe
1076

H⁺ + Ar
167

H⁺ + C
1287

H⁺ + Ca
320

H⁺ + Cs
1516 1517

H⁺ + D
464

H⁺ + D⁺
321

H⁺ + Fe
1288

H⁺ + H
464

H⁺ + H₂
2104

H⁺ + He
319 1285

H⁺ + Ni
1287 1288

H⁺ + Pb
1287

H Seq + Ar
1795

H Seq + He
1795

H Seq + N
1795

H₂ + Ar
120

H₂ + H₂
993

H₂ + HCl
993

H₂ + Kr
120 713

H₂ + Xe
120

He + CO
285

He + HCl
285 2041

He + HD
1968

He + Ne
167

He + 2He
920

He⁺ + Ar
2027

He⁺ + He
2084

He⁺ + Kr
2027

He⁺ + Xe
2027

He⁺ + He
74

He⁺ + Pb
2139

He²⁺ + Ar
1490

He²⁺ + Ca
322

He²⁺ + He
1529

He²⁺ + N₂
1490

He²⁺ + Ne
1490

Hg + H
2053

Kr⁺ + He
2190

Li + C
1284

Li + H₂
2058

Li + Ni
1284

Li⁺ + CO
139

Li⁺ + H₂
2104

Li⁺ + Na
131 144

Na + Ar
740

Na⁺ + Li
131

Ne + Ar
449

Ne + Kr
449

Ne + Ne
788

Ne + Xe
449

Ne⁺ + D₂
1521

NH₃ + NH₃
992

NO + Ar
120

Undef
714 760 1040
1259 1663

HEAVY PARTICLE - HEAVY PARTICLE
INTERACTIONS

Excitation

$Al^+ + Ne$
2123
 $Ar + CH_4$
306
 $Ar + HCl$
690 1023
 $Ar + N_2$
438 712 918
1066
 $Ar + TlF$
1066 1587
 $Ar^+ + Ar$
1763
 $Ar^+ + N_2$
1981
 $Ar^+ + Ar$
1275
 $Ar^+ + He$
1275
 $Ar^+ + Ne$
2123
 $Ar^{3+} + He$
2295
 $Ar^{4+} + He$
2295
 $Ar^{5+} + He$
2295
 $Ar^{6+} + He$
2295
 $Ar^{7+} + He$
2295
 $Ar^{12+} + Ne$
1472
 $Ar^{15+} + C$
2520
 $Ar^{16+} + C$
2520
 $Au^+ + C$
70
 $Au^+ + H$
70
 $Au^+ + H_2$
70
 $Au^+ + He$
70
 $Au^+ + N$
70
 $Au^+ + O$
70
 $B^+ + Ne$
2123
 $Da^+ + Ar$
2316
 $Ba^+ + Kr$
2488

$Ba^+ + Ne$
2316
 $Be^+ + Ne$
2123
 $Br + I$
974
 $C^+ + C$
1879
 $C^+ + Ne$
2123
 $Ca^+ + Ar$
2316 2488
 $Ca^+ + Kr$
2316
 $Ca^+ + Ne$
2316
 $Ca^+ + Xe$
2488
 $CH_3F + CH_4$
2319
 $Cl^+ + He$
19
 $Cl^+ + Ne$
2123
 $CO_2 + Ar$
913
 $CO_2 + Kr$
913
 $CO_2 + Ne$
913
 $Cs^+ + Cs$
490 1205 2446
 $Cs^+ + C$
70
 $Cs^+ + H$
70
 $Cs^+ + H_2$
70
 $Cs^+ + He$
70
 $Cs^+ + N$
70
 $Cs^+ + O$
70
 $CsF + Ar$
2068
 $CsF + Xe$
2068
 $CsI + Ar$
2068
 $CsI + Xe$
2068
 $D_2^+ + He$
151
 $F + H^+$
1062
 $F + H_2$
1062
 $F + Xe$
1062
 $F^+ + Ne$
2123
 $F^{2+} + He$
1581

$H + CO$
5
 $H + H_2$
107 645 849
2095
 $H + N_2$
5
 $H + O_2$
5
 $H + OH$
636
 $H^+ + Ar$
550 1452
 $H^+ + Au$
56 1878
 $H^+ + C$
1879
 $H^+ + Ca$
56 1480
 $H^+ + Ce$
1878
 $H^+ + CN$
2300
 $H^+ + Cr$
1480
 $H^+ + Cs$
528 1516 1517
1878
 $H^+ + Cu$
1878
 $H^+ + Fe$
1480 1878
 $H^+ + Fe^{11+}$
824
 $H^+ + H$
196 213 1280
1791 2148
 $H^+ + H_2$
214 689 1587
2022 2104
 $H^+ + H_2O$
1976
 $H^+ + He$
550 552 1452
1466
 $H^+ + He Seq$
631
 $H^+ + Ho$
1878
 $H^+ + K$
553
 $H^+ + Kr$
3 550
 $H^+ + Mn$
1480
 $H^+ + Na$
528 553
 $H^+ + Nd$
56
 $H^+ + Ne$
550
 $H^+ + Ni$
2185
 $H^+ + O^{*+}$
622

H ⁺ + Sc 1480	HCl + Ar 129	He ²⁺ + Au 56	1646	1878
H ⁺ + Se 1878	HCl + He 129	He ²⁺ + Ca 56		
H ⁺ + Sm 1878	HD + D ₂ 1103	He ²⁺ + Ce 1878		
H ⁺ + Sn 56	He + CO 5	He ²⁺ + Cs 1878		
	654			
	690			
H ⁺ + Ti 1480	He + CO ₂ 160	He ²⁺ + Cu 1878		
	953			
H ⁺ + U 56	He + CS 654	He ²⁺ + Fe 1878		
H ⁺ + V 1480	He + H ₂ 137	He ²⁺ + H 191	213	1280
H ⁺ + W 1878	424			
	1090	He ²⁺ + H ₂ 556		
	2081			
H ⁺ + Xe 3	He + H ₂ CO 655	He ²⁺ + He 556	1644	
H ⁺ + Y 1878	He + HC ₃ N 654	He ²⁺ + Ho 1878		
H ⁺ + Yb 56	He + HCl 690	He ²⁺ + Li 1794		
	2041			
H ⁺ + Zn 56	He + HCN 690	He ²⁺ + N ₂ 1490		
H ⁺ + Zr 56	He + HD 123	He ²⁺ + Nd 56		
	1968			
H Seq + Ar 1795	He + N ₂ 5	He ²⁺ + Ne 556	1490	
H Seq + He 1795	He + Ne 2160	He ²⁺ + O ₂ 556		
H Seq + N 1795	He + NH ₃ 2008	He ²⁺ + Se 1878		
H ₂ + Ar 295	He + O ₂ 5	He ²⁺ + Sm 1878		
	918			
H ₂ + CO 654	He + OCS 654	He ²⁺ + Sn 56	1878	
H ₂ + CS 654	He ⁺ + He 1805	He ²⁺ + Ti 1878		
H ₂ + D ₂ 1347	He ⁺ + Cs 1491	He ²⁺ + U 56		
H ₂ + H ₂ 653	He ⁺ + H 191	He ²⁺ + W 1878		
	256			
	1544			
H ₂ + HC ₃ N 654	He ⁺ + H ₂ 71	He ²⁺ + Y 1878		
H ₂ + N ₂ 800	He ⁺ + He 221	He ²⁺ + Yb 56		
	487			
	1459			
H ₂ + OCS 654	He ⁺ + He Seq 631	He ²⁺ + Zn 56		
H ₂ + SiO 2253	He ⁺ + K 553	He ²⁺ + Zr 56		
H ₂ * + He 151	He ⁺ + Mg 1704	He ₂ * + Mg 1704		
H ₂ * + H ₂ D 1976	He ⁺ + Na 553	He ₂ * + Zn 1704		
H ₂ * + He 1466	He ⁺ + Ne 3133	HF + HF 698		
	2649			
H ₃ * + He 1466	He ⁺ + Pb 1877	Hg + CO 1062		
H ⁻ + Ar 244	He ⁺ + Te 1877	Hg + CO ₂ 1062		
H ⁻ + He 244	He ⁺ + Zn 1704	Hg + D ₂ 1062		
H ⁻ + Ne 244	He ²⁺ + Ar 1490	Hg + H ₂ 1062		

Hg + N ₂ 1062	Li ⁺ + CO ₂ 2359	Nb + Kr 2539
Hg + Ti 463	Li ⁺ + H 70	Ne + Kr 1499
Hg* + He 1208	Li ⁺ + H ₂ 70	Ne + Ne 82 190 266 1467
Hg* + N ₂ 1041	Li ⁺ + He 70	Ne* + Ne 82 363
I ⁺ + Ag 2552	Li ⁺ + Hg 951	Ne* + Ar 1645
I ⁺ + Au 2552	Li ⁺ + N 70	Ne* + Ne 197 266 1631 1645 2123
I ⁺ + Pb 2552	Li ⁺ + N ₂ 150	Ne ²⁺ + Ar 1645
I ⁺ + Sb 2552	Li ⁺ + N ₂ O 2359	Ne ²⁺ + Ne 266 1645
I ⁺ + Sn 2552	Li ⁺ + Ne 2123	Ne ³⁺ + Ar 1645
I ⁺ + Te 2552	Li ⁺ + O 70	Ne ³⁺ + N ₂ 2641
I ⁺ + Th 2552	Mg ⁺ + Ne 2123	Ne ³⁺ + Ne 1645
I ⁺ + U 2552	Mg ¹¹⁺ + Mg ¹²⁺ 1530	Ne ³⁺⁺ + N ₂ 2541
I ⁺ + Yb 2552	N + Ne 2525	Ne ⁴⁺ + Ar 1645
I ₂ * + I ₂ 902	N ⁺ + C 1879	Ne ⁴⁺ + Ne 1645
K + Ar 1477	N ⁺ + N ₂ 234	Ne ⁵⁺ + Ar 1645
K + Br ₂ 138	N ⁺ + Ne 2123	Ne ⁶⁺ + Ar 1645
K + He 1477 1527	N ₂ ⁺ + Ar 1026	O ⁺ + C 1079
K + Hg 739	N ₂ ⁺ + He 1026	O ⁺ + Ne 2123
K + Kr 1477	N ₂ ⁺ + Xe 1026	O ²⁺ + Ar 72
K + Ne 1477	Na + Ar 2025	O ²⁺ + CCl ₄ 72
K ⁺ + Hg 951	Na + He 2025	O ²⁺ + Cl 72
K ⁺ + Ne 2123	Na + Kr 2025	O ²⁺ + Cl ₂ 72
KBr + Ar 2068	Na + Ne 1445 2025 2525	O ²⁺ + H ₂ S 72
KBr + Xe 2068	Na + Xe 2025	O ²⁺ + HCl 72
Kr + CO ₂ 687	Na* + Ar 52 1821 2171	O ²⁺ + KCl 72
Kr + Nb 2539	Na* + He 52 1758	O ²⁺ + NaCl 72
Kr* + CO 771	Na* + Na 2189	O ²⁺ + P ₄ 72
Li + H ₂ 732 2058	Na* + Ne 52	O ²⁺ + S 72
Li + He 1560	Na* + Hg 951	O ²⁺ + S ₈ 72
Li* + Li 2446	Na* + Ne 2114 2123	O ²⁺ + SF ₆ 72
Li ⁺ + C 70	Na ₂ + He 2146	O ²⁺ + Si 72
Li ⁺ + CO 122 2359	Na ₂ + Ne 2146	

$O_2^+ + SiF_4$
 72
 $O_2^+ + SiH_4$
 72
 $O_2^+ + SO_2$
 72
 $P^+ + Ne$
 2123
 $Pb^+ + Ag$
 2503
 $Pb^+ + Au$
 2503
 $Pb^{*0+} + Ne$
 1472
 $S^+ + Ar$
 293
 $S^+ + H_2$
 293
 $S^+ + He$
 293
 $S^+ + Kr$
 293
 $S^+ + N_2$
 293
 $S^+ + Xe$
 293
 $S^+ + Ne$
 2123

$SF_4 + Ar$
 893
 $SF_4 + He$
 893
 $Si^+ + Ne$
 2123
 $Sr^+ + Ar$
 2316
 $Sr^+ + Kr$
 2316
 $Sr^+ + Xe$
 2488
 $TlF + Ar$
 1465
 $Xe + Ag$
 1506
 $Xe + Au$
 2553
 $Xe^+ + H_2O$
 1764
 $Xe^+ + SO_2$
 1764
 $Xe^{2++} + Ne$
 1472
 $XeF + Ar$
 666
 $XeF + CClF_3$
 666

$XeF + CF_4$
 666
 $XeF + CHF_3$
 666
 $XeF + F_2$
 666
 $XeF + He$
 666
 $XeF + Kr$
 666
 $XeF + N_2$
 666
 $XeF + Ne$
 666
 $XeF + NF_3$
 666
 $XeF + SF_6$
 666
 $XeF + Xe$
 666
 Review
 451
 Undef
 161 242 493
 759 1251 1559
 2049 2275

HEAVY PARTICLE - HEAVY PARTICLE
INTERACTIONS

Dissociation

Ar⁺ + H₂O
991Ar⁺ + HCl
781Ar⁺ + N₂
927Ar⁺ + O₂
927Ar²⁺ + N₂
927Ar²⁺ + O₂
927Ar¹²⁺ + CH₄
1545Ar¹²⁺ + CO
1545Ar¹²⁺ + CO₂
1545Ar¹²⁺ + N₂
1545Ar¹²⁺ + NH₃
1545Ar¹²⁺ + D₂
1545Ar¹³⁺ + CH₄
1545Ar¹³⁺ + CO
1545Ar¹³⁺ + CO₂
1545Ar¹³⁺ + N₂
1545Ar¹³⁺ + NH₃
1545Ar¹³⁺ + D₂
1545CF₃I⁺ + Kr
2269CH₃I⁺ + Kr
2269CO + Ar
904CO + CO
907Cs₂ + Ar
2509Cs₂ + CH₄
2509Cs₂ + He
2509Cs₂ + Kr
2509Cs₂ + N₂
2509Cs₂ + Ne
2509CS₂⁺ + Kr
2269D₂⁻ + Ar
950D₂⁻ + H₂
950D₂⁻ + He
950D₂⁻ + Kr
950D₂⁻ + N₂
950D₃⁺ + Ar
2329D₃⁺ + D₂
2329D₃⁺ + He
2329D₃⁺ + Kr
2329D₃⁺ + Ne
2329D₃⁺ + Xe
2329D₃⁻ + Ar
950D₃⁻ + H₂
950D₃⁻ + He
950D₃⁻ + Kr
950D₃⁻ + N₂
950H + H₁
1377H + H₂O
1377H⁺ + CH₄
1995H⁺ + CO
2080H⁺ + H₂
822H⁺ + NO
3080H₂ + D₂
1347H₂⁺ + Air
1765H₂⁺ + H₂
1H₂⁻ + Ar
950H₂⁻ + H₂
950H₂⁻ + He
950H₂⁻ + Kr
950H₂⁻ + N₂
950H₂S⁺ + Kr
2269H₃⁺ + Air
559H₃⁺ + Ar
559H₃⁺ + C
484H₃⁺ + H₂
559H₃⁻ + Ar
950H₃⁻ + H₂
950H₃⁻ + He
950H₃⁻ + Kr
950H₃⁻ + N₂
950HCl + Ar
904HD₂⁻ + Ar
550HD₂⁻ + H₂
950HD₂⁻ + He
950HD₂⁻ + Kr
950HD₂⁻ + N₂
950HD⁻ + Ar
950HD⁻ + H₂
950HD⁻ + He
550HD⁻ + Kr
950HD⁻ + N₂
950He⁺ + CH₄
1995He⁺ + CO
2080He⁺ + H₂
900He⁺ + H₂O
991He⁺ + NO
2080HF + Ar
904I₂ + Ar
435I₂⁺ + N₂
742K + Br₂
138Kr⁺ + H₂O
2076Kr²⁵⁺ + CH₄
1545Kr²⁵⁺ + CO
1545

2012

2095

Kr²⁵⁺ + CO₂
1545

Kr²⁵⁺ + N₂
1545

Kr²⁵⁺ + NH₃
1545

Kr²⁵⁺ + O₂
1545

N₂⁺ + H₂O
991

Na₂ + Ar
733

Na₂ + He
733

Na₂ + Ne
733

NF₃ + NF₃
1012

NO⁺ + N₂
311

O⁺ + CH₄
1995

O⁺ + CO
2080

O⁺ + H₂O
991

O⁺ + NO
2080

O₂ + Cs
716

O₂ + K
716

O₂ + Na
716

O₂⁺ + H₂O
991

SF₆ + C₂Cl₂
1962

SF₆ + CaCl
1962

SF₆⁻ + He
174

Xe³¹⁺ + CH₄
1545

Xe³¹⁺ + CO
1545

Xe³¹⁺ + CO₂
1545

Xe³¹⁺ + N₂
1545

Xe³¹⁺ + NH₃
1545

Xe³¹⁺ + O₂
1545

Undef
939 942 1559
2050

A05

HEAVY PARTICLE - HEAVY PARTICLE
INTERACTIONSChemiluminescence, Fluorescence, and
Luminescence (photon emission by
unspecified processes)Ag + Ag
2536Al + Al
2532Ar* + H₂O
1141Ar* + HCOOH
1141Ar* + H₂S
2351Ar* + SO₂
2351B + N₂O
815B + O₂
815Br + Br
2536Cl + Al
2532Cl + H₂S
727Cl + K₂
909Cl + O₂F
1146Cl + Ar
2502Cl + Cl₂
2502Cl + NaCl
2502Cl⁶⁺ + Cu
357Cl₂ + Mg*
420Cl₂ + Sr*
420Cs + Cs*
2321Cs* + Cs
490Cu + F₂
2006Cu + NF₃
2006Cu + SF₆
2006F + Al
2532F + H₂
727F + H₂S
727Fe + Fe
2536Ge + Ge
2536H + Cl₂
777H + I₂
108H + Li₂
108H + S₂Cl₂
777H + SCl₂
777H + SO₂Cl₂
777H + SOCl₂
777H⁺ + [Ar + F₂]
1982H⁺ + Al
2511H⁺ + Au
2547H⁺ + Dv
2547H⁺ + In
3647H⁺ + N₂
2352H⁺ + Nd
2547H⁺ + Pt
2547H⁺ + Si
2511H⁺ + Sn
2547H⁺ + Ti
2511He⁺ + Ar
1900He₂⁺ + CH₃CN
915He₂⁺ + H₂O
915Hg + Tl
463Kr + Nb
2539La + O₂
307Li + CF₂Cl₂
2287Li + Cl₂
2287Li + SF₆
2287N⁺ + Al
2511N⁺ + Si
2511N⁺ + Ti
2511Nb + Kr
2539Nb + Nb
2536NO + O₂
128NO⁺ + NO₂⁻
1633O + NO
744S⁺ + Ar
2502S⁺ + Cl₂
2502S⁺ + NaCl
2502Sc + O₂
307Sr* + N₂O
1986Xe + Br₂
801Xe + I₂
2277Y + O₂
307Undef
1930

HEAVY PARTICLE - HEAVY PARTICLE
INTERACTIONS

Electron Capture

Al ⁺ + Ar	453		
Al ³⁺ + He	855		
Ar ⁺ + Ar	81	192	453
	1270		
Ar ⁺ + H ₂ O	179		
Ar ⁺ + He	1270		
Ar ⁺ + Kr	1011	1270	2036
Ar ⁺ + N ₂	927	1026	1055
Ar ⁺ + Ne	1270	2036	
Ar ⁺ + O ₂	927		
Ar ⁺ + Xe	1011	1270	2036
Ar ²⁺ + [Ar + Ar]	1741		
Ar ²⁺ + Ar	1050	1270	1741
Ar ²⁺ + He	1050	1270	
Ar ²⁺ + Kr	1050	1270	
Ar ²⁺ + N ₂	927		
Ar ²⁺ + Ne	1050	1270	
Ar ²⁺ + O ₂	927		
Ar ²⁺ + Xe	1370		
Ar ³⁺ + Ar	1050	1270	
Ar ³⁺ + He	344	1050	1270
	2295		
Ar ³⁺ + Kr	1050	1270	
Ar ³⁺ + Ne	344	1050	1270
Ar ³⁺ + Xe	344	1270	
Ar ⁴⁺ + Ar	1270		
Ar ⁴⁺ + He	344	1270	2295
Ar ⁴⁺ + Kr	1270		
Ar ⁴⁺ + Ne	344	1270	

Ar ⁴⁺ + Xe	344	1270	
Ar ⁵⁺ + Ar	1270		
Ar ⁵⁺ + He	344	1270	2295
Ar ⁵⁺ + Kr	1270		
Ar ⁵⁺ + Ne	344	1270	
Ar ⁵⁺ + Xe	344	1270	
Ar ⁶⁺ + Ar	344	1270	
Ar ⁶⁺ + He	344	1270	2295
Ar ⁶⁺ + Kr	1270		
Ar ⁶⁺ + Ne	344	1270	
Ar ⁶⁺ + Xe	344	1270	
Ar ⁷⁺ + Ar	344	1270	
Ar ⁷⁺ + He	344	1270	2295
Ar ⁷⁺ + Kr	1270		
Ar ⁷⁺ + Ne	344	1270	
Ar ⁷⁺ + Xe	344	1270	
Ar ⁸⁺ + Ar	1270		
Ar ⁸⁺ + He	344	1270	
Ar ⁸⁺ + Kr	1270		
Ar ⁸⁺ + Ne	344	1270	
Ar ⁸⁺ + Xe	344	1270	
Ar ⁹⁺ + He	344		
Ar ⁹⁺ + Ne	344		
Ar ⁹⁺ + Xe	344		
Ar ¹⁰⁺ + Ar	49		
Ar ₂ ⁺ + Kr	1011		
Ar ₂ ⁺ + Xe	1011		
B + Mg	1839		
B ⁺ + Ar	453		
B ⁺ + Mg	1839		
B ³⁺ + H	224		
B ³⁺ + He	855		

B ⁵⁺ + H	1590		
B ⁵⁺ + He	1826		
Ba ⁺ + Ar	2316		
Be ⁺ + H ⁺	1597		
Be ³⁺ + He	855		
Be ⁴⁺ + H	1817		
Be ⁴⁺ + He	1826		
Br ⁻ + O ₂	506		
C + H ⁺	640		
C + Mg	1835		
C ⁺ + Ar	453	1006	
C ⁺ + CO	1006		
C ⁺ + CO ₂	1006		
C ⁺ + H	27	626	640
C ⁺ + H ₂	27	1006	1734
C ⁺ + Mg	1839		
C ⁺ + N ₂	1006	1734	
C ⁺ + Ni	97		
C ⁺ + O ₂	1006		
C ²⁺ + H	27	238	855
C ²⁺ + H ₂	27	238	
C ³⁺ + H	27	626	855
C ³⁺ + H ₂	27		
C ⁴⁺ + H	27	224	
C ⁴⁺ + H ₂	27		
C ⁶⁺ + Ar	239	2132	2530
C ⁶⁺ + H	240	2174	1590
C ⁶⁺ + He	1826		
C ₂ H ⁻ + O ₂	506		
Ca ⁺ + Ca	1831		
Cn ⁺ + Kr	2316		
Cd ⁺ + Ar	453		

Cl + Mg
1839
 Cl⁺ + Ar
453
 Cl⁺ + Cu
2137
 Cl⁺ + Mg
1839
 Cl¹⁷⁺ + Kr
239
 Cl₂⁻ + O₂
906
 Cl⁻ + O₂
906
 CO + CO
998
 CO₂⁺ + Th
310
 CO₂⁺ + U
310
 CO₃⁻ + O₂
906
 CO₃⁻ + O₂
906
 Cr⁺ + Ar
453
 Cs + D₂O
930
 CS + H₂O
930
 Cs + IrF₆
975
 Cs + MoF₆
975
 Cs + P₂F₆
975
 Cs + ReF₆
975
 Cs + SeF₆
975
 Cs + SF₆
975
 Cs + TeF₆
975
 Cs + WF₆
975
 Cs⁺ + Ar
453
 Cs⁺ + Cs
2545
 Cs⁺ + H
215
 Cs⁺ + Hg
215
 Cu⁺ + Ar
453
 D⁺ + Al
97
 D⁺ + Ni
97
 F⁺ + Ni
97
 F³⁺ + Si
1761

F⁴⁺ + Si
1761
 F⁶⁺ + Si
1761
 F⁶⁺ + Si
1761
 F⁷⁺ + Si
1761
 F⁸⁺ + He
1581
 F⁸⁺ + Si
1761
 F⁸⁺ + Ar
239
 F⁸⁺ + Kr
239
 F⁸⁺ + Ne
239
 F⁸⁺ + Si
1566 1761
 F⁻ + O₂
906
 Fe⁹⁺ + H
235
 Fe⁹⁺ + H₂
235
 Fe¹⁰⁺ + H
235
 Fe¹⁰⁺ + H₂
235
 Fe¹¹⁺ + H
235
 Fe¹¹⁺ + H₂
235
 Fe¹²⁺ + H
235
 Fe¹²⁺ + H₂
235
 Fe¹³⁺ + H
235
 Fe¹³⁺ + H₂
235
 Fe¹⁴⁺ + H
235
 Fe¹⁴⁺ + H₂
235
 Fe¹⁵⁺ + H
235
 Fe¹⁵⁺ + H₂
235
 Fe¹⁶⁺ + H
235
 Fe¹⁶⁺ + H₂
235
 Fe¹⁷⁺ + H
235
 Fe¹⁷⁺ + H₂
235
 Fe¹⁸⁺ + H
235
 Fe¹⁸⁺ + H₂
235
 Fe¹⁹⁺ + H
235

Fe¹⁹⁺ + He
235
 Fe²⁰⁺ + H
235
 Fe²⁰⁺ + H₂
235
 Fe²¹⁺ + H
235
 Fe²¹⁺ + H₂
235
 Fe²²⁺ + H
235
 Fe²²⁺ + H₂
235
 Fe²³⁺ + H
235
 Fe²³⁺ + H₂
235
 Fe²⁴⁺ + H
235
 Fe²⁴⁺ + H₂
235
 Fe²⁵⁺ + H
235
 Fe²⁵⁺ + H₂
235
 H + C⁶⁺
1379
 H + Cs
476 1271 2138
 H + O²⁺
2178
 H + O⁴⁺
2178
 H + O⁶⁺
2178
 H + O⁸⁺
2178
 H + O⁷⁺
2178
 H + O⁸⁺
1379
 H⁺ + Al
97
 H⁺ + Ar
56 550 1452
1620 1709 2036
 H⁺ + B²⁺
1648
 H⁺ + Be²⁺
1648
 H⁺ + C
96 2348
 H⁺ + C⁵⁺
1648
 H⁺ + Cs
476 528 1516
1517
 H⁺ + D
464 642
 H⁺ + Fe²⁵⁺
1648
 H⁺ + H
27 30 32
96 213 464

567	569	1341
1513	1582	1648
1709	1791	1796
1802	1817	
H ⁺ + H ₂		
1446		
H ⁺ + He		
550	1452	1513
1620	1709	1826
H ⁺ + He ⁺		
198	250	269
337	1648	
H ⁺ + K		
553		
H ⁺ + Kr		
3	550	
H ⁺ + Li ²⁺		
1648		
H ⁺ + Mg		
345		
H ⁺ + N		
96		
H ⁺ + N ⁺		
1648		
H ⁺ + Na		
528	553	
H ⁺ + Ne		
96	550	
H ⁺ + Ni		
97		
H ⁺ + O		
96		
H ⁺ + O ⁺		
1648		
H ⁺ + O ₂		
1026		
H ⁺ + PERT		
2331		
H ⁺ + Xe		
3	550	
H ⁺ Seq + Ar		
49		
H ⁺ Seq + Cs		
49		
H ⁺ Seq + H		
49		
H ⁺ Seq + H Seq		
60		
H ⁺ Seq + He		
49		
H ⁺ Seq + K		
49		
H ⁺ Seq + Kr		
49		
H ⁺ Seq + Li		
49		
H ⁺ Seq + Na		
49		
H ⁺ Seq + Ne		
49		
H ⁺ Seq + Rb		
49		
H ⁺ Seq + Xe		
49		
H ₂ ⁺ + Ar		
2543		

H ₂ ⁺ + H ₂			
1	2543		
H ₂ ⁺ + He			
2543			
H ₂ ⁺ + Air			
559			
H ₂ ⁺ + Ar			
559			
H ₂ ⁺ + H ₂			
559			
H ⁻ + Cs ⁺			
50			
H ⁻ + H ⁺			
2493			
H ⁻ + K ⁺			
50			
H ⁻ + Li ⁺			
50			
H ⁻ + Na ⁺			
50			
H ⁻ + Rb ⁺			
50			
He ⁺ + H ₂			
1454			
He ⁺ + Al			
97			
He ⁺ + Ar			
453	2036		
He ⁺ + CH ₄			
179			
He ⁺ + Cs			
1491			
He ⁺ + H			
191			
He ⁺ + H ₂			
71	900		
He ⁺ + H ₂ O			
179			
He ⁺ + He			
74	192	221	
453	1459	1482	
He ⁺ + K			
553	1491		
He ⁺ + N ₂			
1972			
He ⁺ + Na			
553	1491		
He ⁺ + Ne			
2036	2549		
He ⁺ + Ne [*]			
1790			
He ⁺ + Ni			
97			
He ²⁺ + [He + He]			
1741			
He ²⁺ + Ar			
1050	1490		
He ²⁺ + H			
4	191	213	
267	1591	1796	
1817			
He ²⁺ + H ₂			
267	556	1454	
He ²⁺ + H ⁻			
1619			

He ²⁺ + He			
556	1050	1529	
1741	1742	1826	
2444			
He ²⁺ + He ⁺			
250	1598		
He ²⁺ + Hg			
1519			
He ²⁺ + Kr			
1050			
He ²⁺ + Li			
1794			
He ²⁺ + N ₂			
1490			
He ²⁺ + Ne			
556	1050	1490	
He ²⁺ + O ₂			
556			
He ₂ ⁺ + C ₂ H ₆			
946			
He ₂ ⁺ + CCl ₂ F ₂			
946			
He ₂ ⁺ + H ₂			
946			
He ₂ ⁺ + H ₂ O			
546			
He ₂ ⁺ + HBr			
546			
He ₂ ⁺ + HCl			
546			
He ₂ ⁺ + Kr			
946			
He ₂ ⁺ + N ₂ O			
946			
He ₂ ⁺ + NH ₃			
946			
He ₂ ⁺ + NO			
946			
He ₂ ⁺ + NO ₂			
946			
He ₂ ⁺ + O ₂			
946			
I ⁻ + O ₂			
906			
K + Br ₂			
138	2092		
K + Cl ₂			
2092			
K + D ₂ O			
530			
K + H ₂ O			
530			
K + I			
2554	2555		
K + IrF ₆			
575			
K + MoF ₆			
575			
K + PtF ₆			
575			
K + ReF ₆			
975			
K + SeF ₆			
975			

K + SF ₆ 975	Li ³⁺ + H ₂ 251	N ²⁺ + H ₂ 27
K + TeF ₆ 975	Li ³⁺ + He 855 1826	N ²⁺ + He 1050 2274
K + WF ₆ 975	Li ⁻ + K 1255	N ²⁺ + Kr 1050
K ⁺ + Cs 215	Li ⁻ + Li 1255	N ²⁺ + N ₂ 2274
K ⁺ + H 215	Li ⁻ + Na 1255	N ²⁺ + Ne 1050 2274
K ⁺ + Hg 215	Li ⁻ + Rb 1255	N ³⁺ + H 27 855
K ⁺ + Rb 215	Mg + H ₂ O ⁺ 276	N ³⁺ + H ₂ 27
K ⁻ + K 1255	Mg + H ₃ ⁺ 276	N ³⁺ + He 2274
K ⁻ + Li 1255	Mg + NH ₃ ⁺ 276	N ³⁺ + N ₂ 2274
K ⁻ + Na 1255b	Mg ⁺ + Mg 2181	N ³⁺ + Ne 2274
K ⁻ + Ph 1255	Mg ²⁺ + H 855	N ⁴⁺ + H 27
Kr ⁺ + Ar 453 2036	Mg ²⁺ + Mg 2181	N ⁴⁺ + H ₂ 27
Kr ⁺ + Kr 453	Mg ³⁺ + He 855	N ⁴⁺ + He 2274
Kr ⁺ + Xe 2036	N ⁺ + CH ₄ 309	N ⁴⁺ + N ₂ 2274
Kr ²⁺ + [Kr + Kr] 1741	N ⁺ + CO 309	N ⁴⁺ + Ne 2274
Kr ²⁺ + Ar 1050	N ⁺ + CO ₂ 309	N ⁵⁺ + H 27
Kr ²⁺ + He 1050 2149	N ⁺ + COS 309	N ⁵⁺ + H ₂ 27
Kr ²⁺ + Kr 1050 1741 2149	N ⁺ + H 27 626	N ⁵⁺ + He 2274
Kr ²⁺ + Ne 1050	N ⁺ + H ₂ 27 309 1734	N ⁵⁺ + N ₂ 2274
Kr ³⁺ + Ar 49	N ⁺ + H ₂ CO 309	N ⁵⁺ + Ne 2274
Li ⁺ + Al 97	N ⁺ + H ₂ O 309	N ⁶⁺ + He 2274
Li ⁺ + Cs 215	N ⁺ + H ₂ S 309	N ⁶⁺ + N ₂ 2274
Li ⁺ + H 216 351	N ⁺ + He 2274	N ⁶⁺ + Ne 2274
Li ⁺ + H ₂ 291	N ⁺ + Kr 2168	N ⁷⁺ + Ar 239
Li ⁺ + Hg 215	N ⁺ + N ₂ 309 1734 2274	N ⁷⁺ + He 1826 2274
Li ⁺ + K 215	N ⁺ + Ne 2274	N ⁷⁺ + N ₂ 2274
Li ⁺ + Na 131 144 215	N ⁺ + NH ₃ 309	N ⁷⁺ + Ne 239 2274
Li ⁺ + Ni 97	N ⁺ + O ₂ 309	N ₂ + CH ₄ 998
Li ⁺ + Ru 215	N ⁺ + Th 310	N ₂ + CO 998
Li ²⁺ + H 251 855	N ⁺ + U 310	N ₂ + CO ₂ 998
Li ²⁺ + H ₂ 251	N ²⁺ + Ar 1050	N ₂ + NO 998
Li ³⁺ + H 251	N ²⁺ + H 27 626	N ₂ + CH ₄ 309
		N ⁷⁺ + H 1590

$N_2^+ + CO$
309
 $N_2^+ + CO_2$
309
 $N_2^+ + COS$
309
 $N_2^+ + H_2$
309
 $N_2^+ + H_2CO$
309
 $N_2^+ + H_2O$
309
 $N_2^+ + H_2S$
309
 $N_2^+ + N_2$
309
 $N_2^+ + O_2$
309
 $N_2^+ + Th$
310
 $N_2^+ + U$
310
 $N_2^+ + NH_3$
309
 $N_3^+ + CH_4$
309
 $N_3^+ + CO$
309
 $N_3^+ + CO_2$
309
 $N_3^+ + COS$
309
 $N_3^+ + H_2$
309
 $N_3^+ + H_2CO$
309
 $N_3^+ + H_2O$
309
 $N_3^+ + H_2S$
309
 $N_3^+ + N_2$
309
 $N_3^+ + NH_3$
309
 $N_3^+ + O_2$
309
 $N_4^+ + CH_4$
309
 $N_4^+ + CO$
309
 $N_4^+ + CO_2$
309
 $H_4^+ + CO_2$
309
 $N_4^+ + H_2$
309
 $N_4^+ + H_2CO$
309
 $N_4^+ + H_2O$
309
 $N_4^+ + H_2S$
309
 $H_4^+ + N_2$
309

$N_4^+ + NH_3$
309
 $N_4^+ + O_2$
309
 $Na + IrF_6$
975
 $Na + MoF_6$
975
 $Na + PtF_6$
975
 $Na + ReF_6$
975
 $Na + SeF_6$
975
 $Na + SF_6$
975
 $Na + TeF_6$
975
 $Na + WF_6$
975
 $Na^+ + Cs$
215
 $Na^+ + H$
215
 $Na^+ + Hg$
215
 $Na^+ + K$
215
 $Na^+ + Li$
131
 $Na^+ + Rb$
215
 $Na^- + K$
1255
 $Na^- + Li$
1255
 $Na^- + Na$
1265
 $Na^- + Rb$
1255
 $Ne^+ + Ar$
453 2036
 $Ne^+ + Fe$
1613
 $Ne^+ + H_2O$
179
 $Ne^+ + He$
2036
 $Ne^+ + Kr$
1011
 $Ne^+ + N_2$
1972
 $Ne^+ + Ne$
453
 $Ne^+ + Xe$
1011
 $Ne^+ + Zn$
1246
 $Ne^{2+} + [Na + Ne]$
1741
 $Ne^{2+} + Ar$
268 1050
 $Ne^{3+} + H$
626

$Ne^{2+} + He$
268 1050 2274
 $Ne^{2+} + Kr$
268 1050
 $Ne^{2+} + N_2$
2274
 $Ne^{2+} + Ne$
268 1050 1741
 2274
 $Ne^{2+} + Xe$
268
 $Ne^{3+} + He$
2274
 $Ne^{3+} + N_2$
2274
 $Ne^{3+} + Ne$
2274
 $Ne^{4+} + He$
2274
 $Ne^{4+} + N_2$
2274
 $Ne^{4+} + Ne$
2274
 $Ne^{5+} + He$
2274
 $Ne^{5+} + N_2$
2274
 $Ne^{5+} + Ne$
2274
 $Ne^{6+} + He$
2274
 $Ne^{6+} + N_2$
2274
 $Ne^{6+} + Ne$
2274
 $Ne^{7+} + He$
2274
 $Ne^{7+} + N_2$
2274
 $Ne^{7+} + Ne$
2274
 $Ne^{8+} + He$
2274
 $Ne^{8+} + N_2$
2274
 $Ne^{8+} + Ne$
2274
 $Ne_2^+ + Kr$
1011
 $Ne_2^+ + Xe$
1011
 $Ni^+ + Ar$
453
 $NO^+ + Ar$
1573
 $NO^+ + CH_4$
309
 $NO^+ + CO$
309 1573
 $NO^+ + CO_2$
309 1573
 $NO^+ + COS$
309
 $Ne^{10+} + H$
1590

S⁹⁺ + Xe
1279

S⁻ + O₃
906

Sb + Mg
1839

Sb⁺ + Mg
1839

SH⁻ + O₃
906

Si²⁺ + Ca
2493

Si²⁺ + H
45 855

Si²⁺ + H₂
45

Si³⁺ + H
45

Si³⁺ + H₂
45

Si⁴⁺ + H
45

Si⁴⁺ + H₂
45

Si⁵⁺ + H
45

Si⁵⁺ + H₂
45

Si⁶⁺ + H
45

Si⁶⁺ + H₂
45

Si⁷⁺ + H
45

Si⁷⁺ + H₂
45

Si⁸⁺ + H
45

Si⁸⁺ + H₂
45

Si⁹⁺ + H
45

Si⁹⁺ + H₂
45

Sr⁺ + Ar
2316

Sr⁺ + Kr
2316

Te⁺ + Ar
453

Th + O₃
2000

Ti²⁺ + H
238

Ti²⁺ + H₂
238

U + O₃
2000

U²⁺ + Ar
30

U²⁺ + Kr
30

U²⁺ + N
30

U²⁺ + Ne
30

U³⁺ + Ar
30

U³⁺ + Kr
30

U³⁺ + N
30

U³⁺ + Ne
30

U⁹²⁺ + Ar
30

U⁹²⁺ + Kr
30

U⁹²⁺ + N
30

Si¹⁴⁺ + H
1590

U⁹²⁺ + Ne
30

W⁺ + Ar
453

Xe⁺ + Ca
477

Xe⁺ + Sr
477

Xe²⁺ + [Xe + Xe]
1741

Xe²⁺ + He
2149

Xe²⁺ + Xe
1741 2149

Xe³⁺ + Kr
344

Xe⁴⁺ + Kr
344

Xe⁵⁺ + Kr
344

Xe⁶⁺ + Kr
344

Xe⁷⁺ + Kr
344

Xe⁸⁺ + Kr
344

Xe⁹⁺ + Kr
344

Xe⁵⁴⁺ + Ar
49

Zn + D₃⁺
277

Zn + H₃⁺
277

Review
434 452 2150

Undef
92 157 242
1797 2361 2367

HEAVY PARTICLE - HEAVY PARTICLE
INTERACTIONS

Ionization

Ar + He	705		
Ar* + I ₂	761		
Ar ⁺ + Ar	1270	1275	1793
Ar ⁺ + He	1270	1275	1627
Ar ⁺ + Kr	1270		
Ar ⁺ + Ne	1270		
Ar ⁺ + Sb	1779		
Ar ⁺ + O ₂	1779		
Ar ⁺ + Xe	1270	1779	
Ar ²⁺ + Ar	1270		
Ar ²⁺ + He	1270		
Ar ²⁺ + Kr	1270		
Ar ²⁺ + Ne	1270		
Ar ²⁺ + Xe	1270		
Ar ³⁺ + Ar	1270		
Ar ³⁺ + He	1270		
Ar ³⁺ + Kr	1270		
Ar ³⁺ + Ne	1270		
Ar ³⁺ + Xe	1270		
Ar ⁴⁺ + Ar	1370		
Ar ⁴⁺ + He	1270		
Ar ⁴⁺ + Kr	1270		
Ar ⁴⁺ + Ne	1270		
Ar ⁴⁺ + Xe	1270		
Ar ⁵⁺ + Ar	1270		
Ar ⁵⁺ + He	1270		
Ar ⁵⁺ + Kr	1270		
Ar ⁵⁺ + Ne	1270		

Ar ⁵⁺ + Xe	1270
Ar ⁶⁺ + Ar	1270
Ar ⁶⁺ + He	1270
Ar ⁶⁺ + Kr	1270
Ar ⁶⁺ + Ne	1270
Ar ⁶⁺ + Xe	1270
Ar ⁷⁺ + Ar	1270
Ar ⁷⁺ + He	1270
Ar ⁷⁺ + Kr	1270
Ar ⁷⁺ + Ne	1270
Ar ⁷⁺ + Xe	1270
Ar ⁸⁺ + Ar	1270
Ar ⁸⁺ + He	1270
Ar ⁸⁺ + Kr	1270
Ar ⁸⁺ + Ne	1270
Ar ⁸⁺ + Xe	1270
Ar ⁹⁺ + Ar	1270
Ar ⁹⁺ + He	1270
Ar ⁹⁺ + Kr	1270
Ar ⁹⁺ + Ne	1270
Ar ⁹⁺ + Xe	1270
Ar ¹⁰⁺ + Ar	1270
Ar ¹⁰⁺ + He	1270
Ar ¹⁰⁺ + Kr	1270
Ar ¹⁰⁺ + Ne	1270
Ar ¹⁰⁺ + Xe	1270
Ar ¹²⁺ + CH ₄	1545
Ar ¹²⁺ + CO	1545
Ar ¹²⁺ + CO ₂	1545
Ar ¹²⁺ + N ₂	1545
Ar ¹²⁺ + Ni ₃	1545
Ar ¹²⁺ + O ₂	1545
Ar ¹³⁺ + CH ₄	1545
Ar ¹³⁺ + CO	1646
Ar ¹³⁺ + CO ₂	1545
Ar ¹³⁺ + N ₂	1545
Ar ¹³⁺ + NH ₃	1545
Ar ¹³⁺ + O ₂	1545
As ⁺ + Kr	1793
Au ⁺ + C	70
Au ⁺ + H	70
Au ⁺ + H ₂	70

Au ⁺ + He	70		
Au ⁺ + N	70		
Au ⁺ + O	70		
B ⁺ + Ca	1700		
B ⁺ + Co	1700		
B ⁺ + Fe	1700		
B ⁺ + K	1700		
B ⁺ + Mn	1700		
B ⁺ + Ni	1700		
B ⁺ + P	1700		
B ⁺ + Sc	1700		
B ⁺ + Ti	1700		
B ⁺ + V	1700		
Be ²⁺ + H	2497		
Be ²⁺ + He	2497		
Br ⁺ + Kr	1793		
Br ⁺ + Xe	1793		
C ⁺ + Ar	1786		
C ⁺ + C	1879		
C ⁺ + He	2485		
C ⁺ + Ne	2400		
C ⁺ + Ni	97		
C ⁺ + H	2174		
Ca ⁺ + Ca	1831		
Cl ⁺ + Ar	1786	1793	2507
Cl ⁺ + Cl	1828		
Cl ⁺ + Ni	1828		
Cl ⁺ + Sb	1779		
Cl ⁺ + Sn	1779		
Cl ⁺ + Ti	1828		
Cl ⁺ + Xe	1779		
CO + CO	998		
B ⁵⁺ + He	1826		
He ⁴⁺ + He	1826		
C ⁶⁺ + He	1826		

Cs + D₂O
930
 Cs + H₂O
930
 Cs + UF₆
2015
 Cs⁺ + C
70
 Cs⁺ + H
70
 Cs⁺ + H₂
70
 Cs⁺ + He
70
 Cs⁺ + N
70
 Cs⁺ + O
70
 Cs₂Cl₂ + Ar
1077
 Cs₂Cl₂ + Kr
1077
 Cs₂Cl₂ + Xe
1077
 CsCl + Kr
1077
 CsCl + Xe
1077
 CsCl + Ar
1077
 Cu⁺ + Ar
1793
 2522
 Cu¹⁺ + Ar
2522
 Cu¹⁵⁺ + Ar
2522
 Cu¹⁶⁺ + Ar
2522
 Cu¹⁶⁺ + Kr
2521
 Cu¹⁶⁺ + Xe
2521
 Cu¹⁷⁺ + Ar
2522
 Cu¹⁷⁺ + Kr
2521
 Cu¹⁷⁺ + Xe
2521
 Cu¹⁸⁺ + Ar
2522
 Cu¹⁸⁺ + Kr
2521
 Cu¹⁸⁺ + Xe
2521
 Cu¹⁹⁺ + Ar
2522

Cu¹⁹⁺ + Kr
2521
 Cu¹⁹⁺ + Xe
2521
 Cu²⁰⁺ + Ar
2522
 Cu²⁰⁺ + Kr
2521
 Cu²⁰⁺ + Xe
2521
 Cu²¹⁺ + Ar
2522
 Cu²¹⁺ + Kr
2521
 Cu²¹⁺ + Xe
2521
 Cu²²⁺ + Ar
2522
 Cu²²⁺ + Kr
2521
 Cu²²⁺ + Xe
2521
 Cu²³⁺ + Kr
2521
 Cu²³⁺ + Xe
2521
 D + Cs
50
 D + K
50
 D + Li
50
 355
 D⁺ + Ni
97
 F⁺ + Ar
1786
 F⁺ + Ni
97
 F³⁺ + Si
1761
 F⁴⁺ + Si
1761
 F⁵⁺ + Si
1761
 F⁶⁺ + Si
1761
 F⁷⁺ + Si
1761
 F⁸⁺ + Si
1761
 F⁹⁺ + Si
1761
 Fe⁹⁺ + H
235
 Fe⁹⁺ + H₂
235

Fe¹⁰⁺ + H
235
 Fe¹⁰⁺ + H₂
235
 Fe¹¹⁺ + H
235
 Fe¹¹⁺ + H₂
235
 Fe¹²⁺ + H
235
 Fe¹²⁺ + H₂
235
 Fe¹³⁺ + H
235
 Fe¹³⁺ + H₂
235
 Fe¹⁴⁺ + H
235
 Fe¹⁴⁺ + H₂
235
 Fe¹⁵⁺ + H
235
 Fe¹⁵⁺ + H₂
235
 Fe¹⁶⁺ + H
235
 Fe¹⁶⁺ + H₂
235
 Fe¹⁷⁺ + H
235
 Fe¹⁷⁺ + H₂
235
 235
 Fe²⁰⁺ + H
235
 Fe²⁰⁺ + H₂
235
 Fe²¹⁺ + H
235
 Fe²¹⁺ + H₂
235
 Fe²²⁺ + H
235
 Fe²²⁺ + H₂
235
 Fe²³⁺ + H
235
 Fe²³⁺ + H₂
235
 Fe²⁴⁺ + H
235
 Fe²⁴⁺ + H₂
235
 Fe²⁵⁺ + H
235
 Fe²⁵⁺ + H₂
235

Ge⁺ + Kr
 1793
 H + Cs
 1271
 H + H
 2497
 H + He
 2497
 H + Li
 108
 H + Li₂
 108
 H + N₂
 1710
 H + O₂
 1710
 H* + H*
 243
 H* + Ag
 353 1282 1505
 1528 1561 2501
 2535
 H* + Al
 97 233 265
 362
 H* + Ar
 12 220 365
 1786 2499
 H* + As
 265
 H* + Au
 353 361 1282
 1528 1561 1878
 H* + C
 265 350 1879
 2529
 H* + CCl₄
 2142
 H* + Ce
 1878
 H* + CF₄
 2142
 H* + CH₄
 1995 2142
 H* + Co
 265
 H* + Cs
 1878
 H* + Cu
 227 245 265
 355 1282 1878
 2501 2529 2535
 H* + Eu
 1211 1282
 H* + Eu*
 1211
 H* + Fe
 265 1878
 H* + Ga
 265
 H* + Gd
 1528
 H* + Ge
 265 2529
 H* + H
 1588 1791 2497
 H* + He
 1826

H* + H₂
 822
 H* + H₂O
 1976
 H* + H₂S
 2142
 H* + He
 12 220 365
 1819 2497
 H* + He*
 198 250 269
 H* + Ho
 1878
 H* + Kr
 365
 H* + Mg
 265 362 1498
 1553
 H* + Mo
 1561
 H* + Na
 362
 H* + Ne
 12 365
 H* + Ni
 97
 H* + O
 265
 H* + Pb
 1528 1561
 H* + PERT
 233
 H* + Rb
 1282
 H* + Sb
 2499
 H* + Se
 1878
 H* + SF₆
 2142
 H* + Si
 362 2535
 H* + Sm
 1878
 H* + Sn
 1878
 H* + SU₂
 2142
 H* + Ta
 1528
 H* + Th
 1528
 H* + Ti
 362 1878 2362
 2535
 H* + W
 1878 2538
 H* + Xe
 348
 H* + Y
 1878
 H* + Yb
 1528
 H* + Zn
 265

H Seq + Ar
 1795
 H Seq + N
 1795
 H Seq + Ne
 1795
 H₂⁺ + Ar
 220
 H₂⁺ + H
 2497
 H₂⁺ + H₂O
 1976
 H₂⁺ + He
 220 2497
 H₃⁺ + Air
 559
 H₃⁺ + Ar
 559
 H₃⁺ + H₂
 559
 He + Ar
 1627
 He + H
 2497
 He + He
 2497
 He* + Ar
 540 1770 1987
 2032
 He* + D
 2050
 He* + D₂
 1804
 He* + H
 1701 1803
 He* + H₂
 1804 1954 2294
 He* + He*
 1081
 He* + Kr
 2032
 He* + Xe
 2032
 He* + Ag
 2501 2535
 He* + Al
 67
 He* + Ar
 1627
 He* + CH₄
 1995
 He* + Cs
 986
 He* + Cu
 355 2501 2535
 He* + H
 2497
 He* + He
 1632 2128 2497
 He* + Ho
 1878
 He* + K
 986

He ⁺ + Li 986		K + Cl ₂ 2092		N ⁺ + Ar 1786	
He ⁺ + Mg 1498	1553	K + D ₂ O 930		N ⁺ + C 1879	
He ⁺ + Na 986		K + H ₂ O 930		N ⁺ + Cu 2535	
He ⁺ + Ni 97		K ⁺ + Ar 1627		N ⁺ + He 2485	
He ⁺ + Rb 986		Kr + Bi 317		N ⁺ + Ne 2485	
He ⁺ + Si 2535		Kr + Xe 1702		N ⁺ + Si 2535	
He ⁺ + Ti 2535		Kr ⁺ + Kr 2484		N ⁺ + Ti 2535	
He ²⁺ + Air 2191		Kr ²⁵⁺ + CH ₄ 1545		N ₂ + CH ₄ 998	
He ²⁺ + Au 1646	1878	Kr ²⁵⁺ + CO 1545		N ₂ + CO 998	
He ²⁺ + C 350		Kr ²⁵⁺ + CO ₂ 1545		N ₂ + CO ₂ 998	
He ²⁺ + Ce 1878		Kr ²⁵⁺ + N ₂ 1545		N ₂ + NO 998	
He ²⁺ + Cs 1878		Kr ²⁵⁺ + NH ₃ 1545		Na + Ar 1627	
He ²⁺ + Cu 222	1878	Kr ²⁵⁺ + O ₂ 1545		Na ⁺ + Ar 1627	
He ²⁺ + Fe 1878		Li + Ar 1627		Na ⁺ + He 2485	
He ²⁺ + H 2497		Li ⁺ + Al 97		Na ⁺ + Ne 2485	2486
He ²⁺ + He 2484	2497 1826	Li ⁺ + Ar 1627		Ne + Ar 1627	
He ²⁺ + He ⁺ 250		Li ⁺ + C 70		Ne ⁺ + Zn 1246	
He ²⁺ + Hg 1519		Li ⁺ + H 70	2497	Ne ⁺ + Ar 1627	
He ²⁺ + Li 1794		Li ⁺ + H ₂ 70		Ne ⁺ + He 2485	
He ²⁺ + Ni 222		Li ⁺ + He 70	2485 2497	Ne ⁺ + Ne 2485	
He ²⁺ + Pb 1505		Li ⁺ + N 70		Ne ⁺ + Zn 1246	
He ²⁺ + Se 1878		Li ⁺ + Ne 2485		Ni + Ni 2548	
He ²⁺ + Sm 1878		Li ⁺ + Ni 97		Ni ⁺ + Kr 1793	
He ²⁺ + Sn 1878		Li ⁺ + O 70		O ⁺ + Ar 1786	
He ²⁺ + Ti 1878		Li ²⁺ + H 2497		O ⁺ + C 1879	
He ²⁺ + W 1878		Li ²⁺ + He 2497		O ⁺ + CH ₄ 1995	
He ²⁺ + Y 1878		Li ²⁺ + H 2497		O ⁺ + Ni 97	
He ₂ ⁺ + Ar 940		Li ³⁺ + He 2497	1826	O ⁺ + Ph 1286	
I ⁺ + Kr 1793		Mg ⁺ + He 2485		O ⁺ + Zr 1286	
I ⁺ + Xe 1793		Mg ⁺ + Ne 2485	2486	O ⁺ + Cu 245	
K + Ar 1627		Mn ⁺ + Ar 1793		O ⁺ + Al 46	
K + Br ₂ 2092		N ⁺ + Au 2535		O ⁺ + Cu 245	1561
				O ⁸⁺ + He 1826	
				N ⁷⁺ + He 1826	

Pb + Pb 330 2516
 Pb + U 2516
 S+ + Al 2507
 S+ + Ar 1793
 S+ + Au 1286
 S+ + Ca 2507
 S+ + Mg 2507
 S+ + Na 2507
 S+ + NaCl 2507
 S+ + Pb 1286
 S+ + Sc 2507
 S+ + Si 2507
 S+ + Ta 1286
 S+ + Ti 2507
 S+ + U 1286
 S+ + Zr 1286
 S++ + Ar 1279
 S++ + Kr 1279
 S++ + Ne 1279
 S++ + Xe 1279

S7+ + Ar 1279
 S7+ + Kr 1279
 S7+ + Ne 1279
 S7+ + Xe 1279
 S8+ + Ar 1279
 S8+ + Kr 1279
 S8+ + Ne 1279
 S8+ + Xe 1279
 C8+ + Ar 1279
 S9+ + Kr 1279
 S9+ + Ne 1279
 S9+ + Xe 1279
 Se+ + Kr 1793
 Si+ + Ar 1786
 Sr+ + Sr 1227
 Th + O₃ 2000
 U + O₂ 415
 U + O₃ 2000
 U + Pb 2516

U + U 2516
 Xe + Au 326
 Xe + Bi 317 326
 Xe + Pb 326 1626
 Xe + Th 326
 Xe* + C₆F₆ 944
 Xe* + C₇F₁₀ 944
 Xe* + CH₃Br 944
 Xe* + CH₃I 944
 Xe+ + Ag 2550
 Xe³¹⁺ + CH₄ 1545
 Xe³¹⁺ + CO 1545
 Xe³¹⁺ + CO₂ 1545
 Xe³¹⁺ + N₂ 1545
 Xe³¹⁺ + NH₃ 1545
 Xe³¹⁺ + U₂ 1545
 Review 434
 Undef 264 327 493
 2263 2514

HEAVY PARTICLE - HEAVY PARTICLE
INTERACTIONS

Stripping

$B^+ + Ar$
249
 $B^+ + He$
249
 $B^+ + N_2$
249
 $B^+ + Ne$
249
 $B^{2+} + Ar$
249
 $B^{2+} + He$
249
 $B^{2+} + N_2$
249
 $B^{2+} + Ne$
249

 $Be^{3+} + Ar$
249
 $Be^{3+} + He$
249
 $Be^{3+} + N_2$
249
 $Be^{3+} + Ne$
249

 $Cl^{16+} + Ar$
1825
 $Cl^{16+} + N_2$
1825
 $Cl^{16+} + Xe$
1825
 $H + Ar$
1630
 $H + He$
1630
 $H + Kr$
1630
 $H + Ne$
1630
 $H + PERT$
2158
 $H + Xe$
1630
 $H^* + Ar$
1630
 $H^* + He$
1630
 $H^* + Kr$
1630
 $H^* + Ne$
1630

$H^* + Xe$
1630

 $H^+ + Ne$
2274
 $He + Ar$
1630
 $He + He$
1630
 $He + Kr$
1630
 $He + Ne$
1630
 $He + Xe$
1630
 $He^* + Ar$
1630
 $He^* + He$
1630
 $He^* + Kr$
1630
 $He^* + Ne$
1630
 $He^* + Xe$
1630
 $He^+ + Ar$
249
 $He^+ + H$
256
 $He^+ + He$
249
 $He^+ + N_2$
249
 $He^+ + Ne$
249

 $Is^+ + Ar$
1825
 $Is^+ + N_2$
1825
 $Is^+ + Xe$
1825
 $Li^* + Ar$
1630
 $Li^* + He$
1630
 $Li^* + Kr$
1630
 $Li^* + Ne$
1630
 $Li^* + Xe$
1630
 $Li^+ + H$
361
 $Li^+ + H_2$
251
 $Li^{2+} + Ar$
249
 $Li^{2+} + H$
251
 $Li^{2+} + H_2$
251

$Li^{2+} + He$
249
 $Li^{2+} + N_2$
249
 $Li^{2+} + Ne$
249
 $Li^{3+} + H$
251
 $Li^{3+} + H_2$
251

 $N^+ + Ar$
249 2274
 $N^+ + He$
249 2274
 $N^+ + N_2$
249 2274
 $N^+ + Ne$
249
 $N^{2+} + Ar$
249 2274
 $N^{2+} + He$
249 2274
 $N^{2+} + N_2$
249 2274
 $N^{2+} + Ne$
249 2274
 $N^{3+} + Ar$
249 2274
 $N^{3+} + He$
249 2274
 $N^{3+} + N_2$
249 2274
 $N^{3+} + Ne$
249 2274
 $N^{4+} + Ar$
249 2274
 $N^{4+} + He$
249 2274
 $N^{4+} + N_2$
249 2274
 $N^{4+} + Ne$
249 2274
 $N^{5+} + Ar$
2274
 $N^{5+} + He$
2274
 $N^{5+} + N_2$
2274
 $N^{5+} + Ne$
2274
 $N^{6+} + Ar$
2274
 $N^{6+} + He$
3374
 $N^{6+} + N_2$
2274
 $N^{6+} + Ne$
2274

 $Na^+ + Ar$
249

$\text{Na}^+ + \text{He}$
 249
 $\text{Na}^+ + \text{N}_2$
 249
 $\text{Na}^+ + \text{Ne}$
 249
 $\text{Na}^{2+} + \text{Ar}$
 249
 $\text{Na}^{2+} + \text{He}$
 249
 $\text{Na}^{2+} + \text{N}_2$
 249
 $\text{Na}^{2+} + \text{Ne}$
 249
 $\text{Na}^{3+} + \text{Ar}$
 249
 $\text{Na}^{3+} + \text{He}$
 249
 $\text{Na}^{3+} + \text{N}_2$
 249
 $\text{Na}^{3+} + \text{Ne}$
 249
 $\text{Ne}^+ + \text{Ar}$
 249 2274
 $\text{Ne}^+ + \text{He}$
 249 2274
 $\text{Ne}^+ + \text{N}_2$
 249 2274
 $\text{Ne}^+ + \text{Ne}$
 249 2274
 $\text{Ne}^{2+} + \text{Ar}$
 249 2274
 $\text{Ne}^{2+} + \text{He}$
 249 2274
 $\text{Ne}^{2+} + \text{N}_2$
 249 2274
 $\text{Ne}^{2+} + \text{Ne}$
 249 2274
 $\text{Ne}^{3+} + \text{Ar}$
 249 2274

$\text{Ne}^{3+} + \text{He}$
 249 2274
 $\text{Ne}^{3+} + \text{N}_2$
 249 2274
 $\text{Ne}^{3+} + \text{Ne}$
 249 2274
 $\text{Ne}^{4+} + \text{Ar}$
 249 2274
 $\text{Ne}^{4+} + \text{He}$
 249 2274
 $\text{Ne}^{4+} + \text{N}_2$
 249 2274
 $\text{Ne}^{4+} + \text{Ne}$
 249 2274
 $\text{Ne}^{5+} + \text{Ar}$
 249 2274
 $\text{Ne}^{5+} + \text{He}$
 249 2274
 $\text{Ne}^{5+} + \text{N}_2$
 249 2274
 $\text{Ne}^{5+} + \text{Ne}$
 249 2274
 $\text{Ne}^{6+} + \text{Ar}$
 249 2274
 $\text{Ne}^{6+} + \text{He}$
 249 2274
 $\text{Ne}^{6+} + \text{N}_2$
 249 2274
 $\text{Ne}^{6+} + \text{Ne}$
 249 2274
 $\text{Ne}^{7+} + \text{Ar}$
 249 2274
 $\text{Ne}^{7+} + \text{He}$
 249 2274
 $\text{Ne}^{7+} + \text{N}_2$
 249 2274
 $\text{Ne}^{7+} + \text{Ne}$
 249 2274

$\text{O}^{3+} + \text{Ar}$
 2164
 $\text{O}^{3+} + \text{Ne}$
 2164
 $\text{O}^{4+} + \text{Ar}$
 2164
 $\text{O}^{4+} + \text{Ne}$
 2164
 $\text{O}^{5+} + \text{Ar}$
 2164
 $\text{O}^{5+} + \text{Ne}$
 2164
 $\text{O}^{6+} + \text{Ar}$
 2164
 $\text{O}^{6+} + \text{Ne}$
 2164
 $\text{Si}^{10+} + \text{Ar}$
 2164
 $\text{Si}^{10+} + \text{Ne}$
 2164
 $\text{Si}^{11+} + \text{Ar}$
 2164
 $\text{Si}^{11+} + \text{Ne}$
 2164
 $\text{Si}^{12+} + \text{Ar}$
 2164
 $\text{Si}^{12+} + \text{Ne}$
 2164
 $\text{Si}^{13+} + \text{Ar}$
 2164
 $\text{Si}^{13+} + \text{Ne}$
 2164
 $\text{Si}^{14+} + \text{Ar}$
 2164
 $\text{Si}^{14+} + \text{Ne}$
 2164

HEAVY PARTICLE - HEAVY PARTICLE
INTERACTIONSRecombination or Mutual Neutralization
Leading to Neutral Products (ion-ion)Ar⁺ + Cl⁻
515Ar⁺ + F⁻
515 529Ar₂⁺ + F⁻
515 531H⁺ + H⁻
272H⁺ + Cs⁺
50H⁺ + K⁺
50H⁺ + Li⁺
50H⁺ + Na⁺
50H⁺ + Rb⁺
50He⁺ + F⁻
529He₂⁺ + F⁻
531Hg⁺ + [Br⁻ + Ar]
747Hg⁺ + [Cl⁻ + Ar]
747Hg⁺ + [F⁻ + Ar]
747Hg⁺ + [I⁻ + Ar]
747Hg⁺ + Cl⁻
515Kr⁺ + [F⁻ + Ar]
663Kr⁺ + [F⁻ + He]
663Kr⁺ + [F⁻ + Ne]
663Kr⁺ + [F⁻ + Xe]
663Kr⁺ + F⁻
515 517 529Kr₂⁺ + [F⁻ + Ar]
663Kr₂⁺ + [F⁻ + He]
663Kr₂⁺ + [F⁻ + Ne]
663Kr₂⁺ + [F⁻ + Xe]
663Kr₂⁺ + F⁻
515 531Ne⁺ + F⁻
529Ne₂⁺ + F⁻
531NO⁺ + Br⁻
110NO⁺ + Cl⁻
110NO⁺ + I⁻
110O₂⁺ + [O₂⁻ + O₂]
1340O₂⁺ + O₂⁻
1340Xe⁺ + F⁻
529Xe₂⁺ + F⁻
531Undef
1339

HEAVY PARTICLE - HEAVY PARTICLE
INTERACTIONSElectronic, Vibrational, and Rotational
Energy Transfer (process unknown)

$\text{Ar}^* + \text{Ar}$
1168
 $\text{Ar}^* + \text{CO}_2$
814
 $\text{Ar}^* + \text{He}$
1168
 $\text{Ar}^* + \text{Kr}$
1168
 $\text{Ar}^* + \text{N}_2$
1834
 $\text{Ar}^* + \text{Ne}$
1168
 $\text{Ar}^* + \text{CO}_2$
2055
 $\text{Br}^* + \text{H}_2\text{O}$
979
 $\text{Br}_2^* + \text{Ar}$
2336
 $\text{C}^* + \text{H}$
189
 $\text{Cd} + \text{N}_2$
792
 $\text{CH}_3\text{F} + \text{CH}_3\text{F}$
2279
 $\text{CH}_3\text{F} + \text{CH}_4$
2319
 $\text{CH}_2\text{I}^* + \text{CH}_3\text{I}$
85
 $\text{CO} + \text{I}_2^*$
743
 $\text{CO} + \text{ICl}^*$
743
 $\text{CO} + \text{NO}_2^*$
743
 $\text{CO}^* + \text{CO}$
718
 $\text{CO}_2^* + \text{CO}_2$
1357 1382
 $\text{Cs}^* + \text{Cs}$
2446
 $\text{D}_2\text{O}^* + \text{D}_2\text{O}$
2007
 $\text{DBr} + \text{DBr}$
2106
 $\text{DCI} + \text{DCI}$
2106
 $\text{Eu} + [\text{Sr} + h\nu]$
2134
 $\text{Eu}^* + \text{Eu}$
2471
 $\text{F} + \text{D}_2$
774
 $\text{F}^* + [\text{Ne} + \text{Xe} + \text{F}_2]$
2097

$\text{F}^* + [\text{Ne} + \text{Xe} + \text{NF}_3]$
2097
 $\text{F}^* + \text{H}_2$
2111
 $\text{F}_2^* + [\text{Ne} + \text{Xe} + \text{F}_2]$
2097
 $\text{F}_2^* + [\text{Ne} + \text{Xe} + \text{NF}_3]$
2097
 $\text{H}_2 + \text{HCl}$
2038
 $\text{H}_2^* + \text{H}_2$
825
 $\text{H}_2\text{O} + \text{NH}_3$
430
 $\text{H}_2\text{O}^* + \text{H}_2\text{O}$
1969 2007
 $\text{HBr} + \text{HBr}$
2106
 $\text{HCl} + \text{HCl}$
1052 2106
 $\text{He} + \text{He}$
2276
 $\text{He} + \text{O}_2$
441
 $\text{He}^* + \text{He}$
2084
 $\text{Hg}^* + \text{Cd}$
2194
 $\text{Hg}^* + \text{Zn}$
2194
 $\text{I} + \text{Br}^*$
735
 $\text{I}^* + \text{Ar}$
2474
 $\text{I}^* + \text{D}_2\text{O}$
2007
 $\text{I}^* + \text{H}_2\text{O}$
2007
 $\text{I}^* + \text{HDD}$
3007
 $\text{I}^* + \text{SF}_6$
2474
 $\text{I}^* + \text{Xe}$
2474
 $\text{K}^* + \text{N}_2$
231
 $\text{Kr} + \text{CO}_2$
749 969
 $\text{Li} + \text{He}$
188
 $\text{Li}^* + \text{Li}$
2446
 $\text{Li}_2 + \text{Li}$
729
 $\text{N}_2 + \text{CO}_2$
706 2038
 $\text{N}_2 + \text{N}_2$
1167
 $\text{N}_2^* + \text{H}_2\text{O}$
1929

$\text{Na} + \text{N}_2$
255
 $\text{Na}^* + \text{Ar}$
52
 $\text{Na}^* + \text{He}$
52
 $\text{Na}^* + \text{Na}$
1345 2189
 $\text{Na}^* + \text{Na}_2$
1345
 $\text{Na}^* + \text{Ne}$
52
 $\text{Na}_2^* + \text{Xe}$
2169
 $\text{Ne}^* + [\text{Ne} + \text{Xe} + \text{F}_2]$
2057
 $\text{Ne}^* + [\text{Ne} + \text{Xe} + \text{NF}_3]$
2057
 $\text{Ne}^* + \text{He}$
1170
 $\text{Ne}^* + \text{Ne}$
1165 1170
 $\text{NF}^* + \text{Bi}$
2058
 $\text{NO} + \text{NO}$
2125
 $\text{NO}^* + \text{N}_2$
2040
 $\text{O}_3 + \text{H}_2$
807
 $\text{OCS}^* + \text{OCS}$
2341
 $\text{S}_2^* + \text{Ar}$
557
 $\text{S}_2^* + \text{C}_2\text{F}_6$
957
 $\text{S}_2^* + \text{CF}_4$
557
 $\text{S}_2^* + \text{He}$
957
 $\text{S}_2^* + \text{N}_2$
557
 $\text{S}_2^* + \text{S}_2$
557
 $\text{S}_2^* + \text{Xe}$
557
 $\text{SF}_6^* + \text{CF}_4$
1385
 $\text{Sm}^* + \text{Sm}$
2471
 $\text{UF}_6^* + \text{UF}_6$
1384
 $\text{Xe} + \text{NH}_3$
2143
 $\text{Xe}^* + \text{N}_2$
1054

 Undef
145 746 752
1038 1128 1174
1931 2328

All

HEAVY PARTICLE - HEAVY PARTICLE INTERACTIONS

Collisional De-Excitation (total)

Ar* + Ar
1073 1763 2031
2063

Ar* + Br₂
2078

Ar* + BrCN
2078

Ar* + Cl₂
2078

Ar* + ClF
2078

Ar* + CO
2078

Ar* + CO₂
166 2078

Ar* + COS
2078

Ar* + CS₂
2078

Ar* + D₂
2078

Ar* + D₂O
1088

Ar* + F₂
1481 2078

Ar* + H₂
2078

Ar* + H₂O
1088 2078

Ar* + H₂S
2078

Ar* + HBr
2078

Ar* + HCl
2078

Ar* + HCN
2078

Ar* + Hg
2078

Ar* + HI
2078

Ar* + IBr
2078

Ar* + ICl
2078

Ar* + Kr
2078

Ar* + N₂
1834 2031 2078

Ar* + N₂O
2078

Ar* + NH₃
2078

Ar* + NO
2078

Ar* + O₂
2078

Ar* + OF₂
2078

Ar* + SeF₆
2078

Ar* + SO₂
2078

Ar* + Xe
1481 2078

Ar₂F* + F₂
1982

ArF* + F₂
532 1982

ArF* + 2Ar
1982

Ba* + Ba
1811

Ba* + Ba*
2184

Ba* + Ar
2505

Ba* + He
2505

Ba* + Kr
2505

Ba* + Ne
2505

Ba* + Xe
2505

Br* + Br₂
423

Br* + BrCl
423

Br* + Cl₂
423

Br* + CO₂
1020

Br* + H₂O
979

Br* + HCl
1020

Br* + I₂
423

Br* + IBr
423

Br* + ICl
423

Br₂* + Ar
692

CCl₃F* + CCl₃F
512

Cd* + D₂
283

Cd* + H₂
283

Cd* + HD
283

CH₃OCH₃* + CH₃OCH₃
512

Cl₂* + Cl₂
182

ClF* + Ar
1989

ClF* + ClF
1989

CO* + Ar
288 755

CO* + CO
288 1946

CO* + CO₂
288

CO* + D₂
288

CO* + H₂
288 931

CO* + He
288 755

CO* + Kr
755

CO* + N₂
288

CO* + O
1994

CO* + O₂
288

CO* + Xe
288

CO₂* + Ar
2026

CO₂* + CO
751

CO₂* + HBr
539

CO₂* + He
2026

CU₂* + N₂
791

CO₂* + O₂
791

Cs* + Ar
1718

Cs* + Cs
490

Cs* + He
1718

Cs* + N₂
1718

Cs* + Ne
1718

Cu* + He
1815

Cu* + Ne
1815

D + HF*
556

D₂* + He
151

F + H*
1062

F + H₂
1062

F + Xe 1062
 F⁶⁺ + Ar 487
 F⁶⁺ + He 487
 F⁶⁺ + Kr 487
 F⁶⁺ + N₂ 487
 F⁶⁺ + Ne 487
 F⁶⁺ + Xe 487
 F⁷⁺ + Ar 487
 F⁷⁺ + He 487
 F⁷⁺ + Kr 487
 F⁷⁺ + N₂ 407
 F⁷⁺ + Ne 487
 F⁷⁺ + Xe 487
 F⁸⁺ + Ar 487
 F⁸⁺ + He 487
 F⁸⁺ + Kr 487
 F⁸⁺ + N₂ 487
 F⁸⁺ + Ne 407
 F⁸⁺ + Xe 487
 F⁹⁺ + Ar 487
 F⁹⁺ + He 487
 F⁹⁺ + Kr 487
 F⁹⁺ + N₂ 487
 F⁹⁺ + Ne 487
 F⁹⁺ + Xe 487
 GeF + He 1019
 GeF + N₂ 1019
 GeF + SF₆ 1019
 H + HF* 956
 H* + H₂ 1171 1750
 H₂ + Ar 125
 H₂ + He 125

H₂* + H₂ 133 825 1171
 2122
 H₂* + He 151 2020 2122
 H₂O + Ar 1016
 H₂O* + CO 2101
 H₂O* + H₂ 2101
 H₂O* + H₂O 2101
 H₂O* + He 2101
 H₂O* + N₂ 2101
 HCl + Ar 129
 HCl + CO₂ 2108
 HCl + He 129
 HCl + N₂O 2108
 HCl + O 914
 HCl* + Cl 1086
 HD* + He 1464
 He + D₂ 169
 He + H₂ 169 919
 He + T₂ 169
 He* + Ar 1491
 He* + Ca 477
 He* + CO 728
 He* + H₂ 1454 1491
 He* + H₂O 694
 He* + H₂S 694
 He* + He 565 1230 1254
 1491 1805
 He* + N₂ 728 1491
 He* + NO 728
 He* + O₂ 728
 He* + Pb 473
 He* + Sr 477
 He** + Pb 473

He₂* + Ar 1015
 He₂* + CH₃CN 915
 He₂* + H₂O 515
 HF + HF 1082
 HF* + HF 769 1083
 Hg + CO 1062
 Hg + CO₂ 1062
 Hg + D₂ 1062
 Hg + H₂ 1062
 Hg + N₂ 1062
 Hg + Tl 463
 Hg* + N₂ 1504
 Hg₂* + Hg 1046
 HgBr* + He 2469
 HgBr* + N₂ 2469
 HgBr* + O₂ 2469
 HgBr* + SF₆ 2469
 HgBr* + Xe 2469
 I* + Br₂ 286 1990
 I* + BrCl 286
 I* + CH₃I 1990
 I* + Cl₂ 286
 I* + H₂ 1990
 I* + HBr 416 1028
 I* + HCl 1028

I* + HgI₂
2060

I* + I₂
286

I* + IBr
286

I* + ICl
286

I* + NO
1028

I₂* + I₂ 2460

I₂* + Xe
2460

Kr* + Ar
1073

Kr* + Br₂
2078

Kr* + BrCN
2078

Kr* + Cl₂
2078

Kr* + ClF
2078

Kr* + CO
2078

Kr* + CO₂
2078

Kr* + COS
2078

Kr* + CS₂
2078

Kr* + D₂
2078

Kr* + D₂O
1088

Kr* + F₂
2078

Kr* + H₂
2078

Kr* + H₂O 2078

Kr* + H₂S
2078

Kr* + HBr
2078

Kr* + HCl
2078

Kr* + HCN
2078

Kr* + Hg
2078

Kr* + HI
2078

Kr* + IBr
2078

Kr* + ICl
2078

Kr* + Kr
2078

Kr* + N₂
2078

Kr* + N₂O
2078

Kr* + NH₃
2078

Kr* + NO
2078

Kr* + O₂
2078

Kr* + OF₂
2078

Kr* + SeF₆
2078

Kr* + SO₂
2078

Kr* + Xe
2078

Kr₂* + F₂
546

Kr₂* + Kr
546

Kr₂F* + F₂
546

Kr₂F* + Kr
546

KrF + Ar
890

KrF + He
890

KrF + Ne
890

KrF + Xe
890

KrF* + [Kr + Kr]
545

KrF* + Ar
382

KrF* + F₂ 382 517 545

KrF* + Kr 382 517

Li + N₂
170

N₂ + O₂
1030

N₂* + Ar
2004

N₂* + H₂
2004

N₂* + H₂O
1024

N₂* + N₂ 133 162 1217
2004

N₂* + NO
1217

N₂* + O₂
1217

N₂* + SO₂
972

N₂* + H₂
1057

N₂* + He
1057

N₂* + O₂
1057

N₂* + NO
1217

Na* + Ar
1821

Na* + He 1758
1618

Na* + Hg
1478

Na* + N₂ 1762
9

Na* + Na
1345

Na* + Na₂
1345

Na* + Ne
1618

ND* + NO
675

ND* + Xe
675

NH* + NO
675

NH* + Xe
675

NH₃ + H₂
1033

NH₃ + He
1033

NH₃ + NH₃
573

NH₃* + Ar
2093

NH₃* + He
2093

NH₃* + N₂
2093

NH₃* + NH₃
2093

NH₃* + O₂
2093

NO + O₃* 536
635

NO* + CF₄
311

NO* + CO
311

NO* + CO₂
311

NO* + H₂
311

NO* + He 1118
311

NO* + N₂
311

NO* + Ne
1118

NO* + NO 311 1217
133

NO* + Ar
1573

NO* + CO
1573

NO ⁺ + CO ₂ 1573		O ₂ ⁺ + NO 1573		S + Xe 901
NO ⁺ + H ₂ 1573		O ₂ ⁺ + O ₂ 1573		S ₂ ⁺ + Ar 957 2043
NO ⁺ + N ₂ 1573 2017		O ₂ ⁺ + Ar 1016		S ₂ ⁺ + C ₂ F ₆ 957
NO ⁺ + NO 1573		O ₃ ⁺ + He 1016		S ₂ ⁺ + CF ₄ 957
NO ⁺ + O ₂ 1573		O ₃ ⁺ + Xe 1016		S ₂ ⁺ + H ₂ 2043
NO ₂ ⁺ + NO ₂ 1977		O ₃ ⁺ + HCl 2046		S ₂ ⁺ + He 957 2043
O + Ar 901		OCS + Ar 2069		S ₂ ⁺ + Kr 2043
O + He 901		OCS + He 2069		S ₂ ⁺ + N ₂ 957 2043
O + Kr 901		OD ⁺ + Ar 1093		S ₂ ⁺ + Ne 2043
O + Ne 901		OD ⁺ + D ₂ 1093		S ₂ ⁺ + S ₂ 957 2043
* O + Xe 901		OD ⁺ + H ₂ 1093		S ₂ ⁺ + Xe 957 2043
** O* + CO ₂ 933		OD ⁺ + He 1093		Se + Ar 901
O* + H ₂ O 933		OD* + N ₂ 1093		Se + He 901
*** O* + N ₂ O 933		OH* + Ar 1093		Se + Kr 901
O* + NO 933		OH* + D ₂ 1093		Se + Ne 901
O* + O ₂ 934 2067		OH* + H ₂ 1093		Se + Xe 901
O* + O ₃ 813		OH* + H ₂ O 2079		Se* + CO 795
† O* + Ar 1573		OH* + He 1093		Se* + CO ₂ 795
O* + CO 1573		OH* + N ₂ 1093		Se* + H ₂ 795
O* + CO ₂ 1673		Pb* + H 773		Se* + N ₂ 795
U* + H ₂ 1573		Pb* + Ar 2505		Se* + Xe 795
O* + N ₂ 1573		Pb* + He 2505		SF ₄ ⁺ + SF ₆ 2457
O* + NO 1573		Pb* + Kr 2505		SIF + He 1019
O* + O ₂ 1573		Pb* + Ne 2505		
O ₂ ⁺ + D ₂ 673		Pb* + Xe 2505		Xe* + Ar 1073 2188
O ₂ ⁺ + H ₂ 673		Rb* + Ar 1718		Xe* + Br ₂ 2078
O ₂ ⁺ + O ₂ 1968 3067		Rb* + He 1718		Xe* + BrCN 2078
O ₂ ⁺ + Ar 1573		Rb* + Ne 1718		Xe* + Cl ₂ 2078
O ₂ ⁺ + CO 1573		S + Ar 901		Xe* + ClF 2078
O ₂ ⁺ + CO ₂ 1573		S + He 901		Xe* + CO 2078
O ₂ ⁺ + H ₂ 1573		S + Kr 901		Xe* + CO ₂ 2078
O ₂ ⁺ + N ₂ 1573		S + Ne 901		Xe* + COS 2078
* O* + Ar 1965	*** O* + Kr 1965			
** O* + CO 1966	† O* + Xe 1965			

$Xe^* + CS_2$
 2078
 $Xe^* + D_2$
 2078
 $Xe^* + F_2$
 2078
 $Xe^* + H_2$
 2078
 $Xe^* + H_2O$
 1764 2078
 $Xe^* + H_2S$
 2078
 $Xe^* + HBr$
 2078
 $Xe^* + HCl$
 2078
 $Xe^* + HCN$
 2078
 $Xe^* + Hg$
 2078
 $Xe^* + HI$
 2078
 $Xe^* + IBr$
 2078
 $Xe^* + ICl$
 2078
 $Xe^* + Kr$
 2078
 $Xe^* + N_2$
 2078
 $Xe^* + N_2O$
 2078

$Xe^* + NH_3$
 2078
 $Xe^* + NO$
 2078
 $Xe^* + O_2$
 2078
 $Xe^* + OF_2$
 2078
 $Xe^* + SeF_6$
 2078
 $Xe^* + SO_2$
 1764 2078
 $Xe^* + Xe$
 1054 2078
 $Xe^* + 2Xe$
 1054
 $XeF + Ar$
 666
 $XeF + CClF_3$
 666
 $XeF + CF_4$
 666
 $XeF + CHF_3$
 666
 $XeF + F_2$
 666
 $XeF + He$
 666
 $XeF + Kr$
 666

$XeF + N_2$
 666
 $XeF + Ne$
 666
 $XeF + NF_3$
 666
 $XeF + SF_6$
 666
 $XeF + Xe$
 666
 $XeF^* + [Xe + Ne]$
 523
 $XeF^* + Ar$
 1218
 $XeF^* + F_2$
 523 1005 1996
 $XeF^* + He$
 1005 1996
 $XeF^* + Ne$
 523 1218 1996
 $XeF^* + NF_3$
 1005 1996
 $XeF^* + Xe$
 523 1005 1218
 1556
 $XeF^* + XeF_2$
 1218
 Review
 262 433
 Undef
 1558

HEAVY PARTICLE - HEAVY PARTICLE
INTERACTIONS

Collisional Line Broadening

Ar + Al	644			H + H	1748			Kr* + He	91		
Ar + HCl	754			H + He	1748			Li + Ar	1748		
Ar + Xe	466			H + Kr	1748			Li + H	1748		
Ca + Ar	1448			H + Ne	1748			Li + He	1748		
Ca + He	1448			H + Xe	1748			Li + Kr	1748		
Ca* + Ar	1448			H ₂ + He	1653			Li + Ne	1748		
Ca* + He	1448			H ₂ O + Ar	896			Li + Xe	1748		
Cd + Cd	1252			H ₂ O* + Air	1676			Li* + Ar	1659		
CF ₄ + CF ₄	102			H ₂ O* + CO ₂	896			Li* + He	1659		
CH ₄ + CH ₄	1678			H ₂ O* + N ₂	896	1676		N ₂ + N ₂	465		
CO ₂ + Ar	1125			HCl + HCl	1673			Na + Ar	1184	1213	1748
CO ₂ + CO ₂	465	1125		HCl + HF	1673			Na + H	1748		
CO ₂ + N ₂	1125			He + Al	644			Na + He	1213	1748	
CO ₂ * + Ar	1670			He + Ne	2566			Na + Kr	1164	1748	
CO ₂ * + CO ₂	1670	1692		He + Ne*	35			Na + N ₂	1213		
CO ₂ * + N ₂	1670			He* + He*	1829			Na + Ne	1748		
Cs + Ar	1164	1250	1680	HF + HCl	1673			Na + Xe	1164	1748	
Cs + H	1748			HF + HF	1673			Na* + Ar	1821		
Cs + He	1740			Hg + Ar	1300			Na* + Na	1626		
Cs + Kr	1184	1250	1680	Ig* + Ar	1162			Ne + Ne*	35		
Cs + Ne	1164	1748		I* + Ar	2464			Ne + Xe	466		
Cs + Xe	1164	1250	1680	I* + He	2464			NH ₃ * + Ar	1683		
Cs* + Ar	1665			I* + Ne	2464			NH ₃ * + He	1683		
Cs* + Xe	1672			I* + Xe	2464			NH ₃ * + NH ₃	2434		
Cu* + He	1815			K + Ar	1164	1616	1748	NO ₂ * + NO ₂	1677		
Cu* + Ne	1815			K + H	1748			O ₂ + O ₂	1654		
H + Ar	1748			K + He	1616	1748		O ₂ * + N ₂	1682		
				K + Kr	1164	1616	1748	OCS* + Ar	2339		
				K + Ne	1616	1748		OCS* + He	2339		
				K + Xe	1164	1616	1748	Rb + Ar	1249	1250	1680
				Kr + Na*	75			Rb + H	1748		
				Kr* + Ar	91						

Rb + He
1249 1748

Rb + Kr
1249 1250 1680
1748

Rb + Ne
1249 1748

Rb + Xe
1249 1250 1680
1748

SO₂* + H₂O
1661

SO₂* + N₂
1661

SO₂* + SO₂
1661

Sr* + Sr
1219

Xe + Na*
75

Zn + Zn
1252

Undef
1124 1671 1684
1687 2278 2433

HEAVY PARTICLE - HEAVY PARTICLE INTERACTIONS

Heavy Particle Interchange, Rearrangement, and Association (one or more ionic reactants)

Ar ⁺ + Ar	1092			
Ar ⁺ + H ₂	1201			
Ar ⁺ + H ₂ O	2454	2455	2456	797
Br ⁻ + N ₂ O ₅	978			
Br ⁻ + O ₃	906			
C ⁺ + CO ₂	1647			
C ⁺ + D ₂	929			
C ⁺ + H _n	440	849		
C ⁺ + H ₂ S	837			
C ⁺ + O ₂	1647			
C ²⁺ + H ₂	838			
C ₂ H ⁻ + O ₃	906			
CCl ₃ ⁺ + Cl ⁻	941			
CH ⁺ + H	826			
CH ₃ ⁺ + CO	847			
CH ₃ ⁺ + CO ₂	847			
CH ₃ ⁺ + CNS	847			
CH ₃ ⁺ + H ₂	847			
CH ₃ ⁺ + H ₂ O	847			
OH ₃ ⁺ + H ₂	847			
CH ₃ ⁺ + NH ₃	847			
CH ₃ ⁺ + O ₂	847			
Cl ₂ ⁻ + O ₃	WVb			
Cl ⁻ + N ₂ O ₅	578			
Cl ⁻ + O ₃	906			
ClO ⁻ + CO ₂	1096			
ClO ⁻ + NO	1096			
CH ₂ ⁺ + H ₂ O	797			
CO ⁺ + H ₂ O	797			
CO ₂ ⁺ + H ₂ O	797			
HCO ⁺ + H ₂ O	797			

ClO ⁻ + NO ₂	1096			
ClO ⁻ + SO ₂	1096			
CO ₂ ⁺ + 2CO ₂	928			
CO ₃ ⁻ + HCl	1096			
CO ₃ ⁻ + N ₂ O ₅	978			
CO ₃ ⁻ + O ₂	906			
CO ₃ ⁻ + O ₃	906			
CO ₄ ⁻ + HCl	1096			
CO ₄ ⁺ + D ₂	2448			
CO ₄ ⁺ + Ne	2448			
CS ⁺ + H ₂	837			
D ₃ ⁺ + CO	2448			
D ₃ ⁺ + Kr	2449			
D ₃ ⁺ + Ne	2449			
D ₃ O ⁺ + D ₂	929			
D ⁻ + H ₂	886			
F ⁺ + H ₂	983			
F ⁻ + N ₂ O ₅	978			
F ⁻ + O ₃	906			
H ⁺ + H ⁻	1599			
H ⁺ + He	826			
H ₂ ⁺ + H ₂	2044			
H ₂ ⁺ + He	2113			
H ₂ O ⁺ + H ₂	176	929		
H ₃ ⁺ + Kr	2449			
H ₃ ⁺ + He	2449			
H ₃ OH ⁺ + N ₂ O ₅	578			
HCl + N ₂	1059			
He ⁺ + N ₂ O	1647			
He ⁺ + 2He	378			
He ₂ ⁺ + CH ₃ CN	915			
He ₂ ⁺ + H ₂ O	915			
H ₂ O ⁺ + NO	798			
H ₂ O ⁺ + O ₂	798			
H ₂ O ⁺ + H ₂ S	798			
H ₂ S ⁺ + H ₂ O	797			

HeH ⁺ + H	826			
HNO ⁺ + H ₂	821			
I ⁺ + CH ₄	454			
I ⁻ + N ₂ O ₅	978			
I ⁻ + O ₃	906			
Kr ⁺ + D ₂	508			
Kr ⁺ + H ₂	508			
Kr ⁺ + HD	908			
Kr ⁺ + Kr	1052			
Mg ⁺ + H ₂ O ⁺	276			
Mg ⁺ + H ₂ S ⁺	276			
N ⁺ + CH ₄	309			
N ⁺ + CO	309			
N ⁺ + CO ₂	309			
N ⁺ + CGS	309			
N ⁺ + H ₂	309			
N ⁺ + H ₂ CO	309			
N ⁺ + H ₂ O	309			
N ⁺ + H ₂ S	309			
N ⁺ + N ₂	309			
N ⁺ + NH ₃	309			
N ⁺ + O ₂	309	1647		
N ₂ ⁺ + H ₂	838			
N ₂ ⁺ + CH ₄	309			
N ₂ ⁺ + CO	309			
N ₂ ⁺ + CO ₂	309			
N ₂ ⁺ + COS	309			
N ₂ ⁺ + H ₂	309			
N ₂ ⁺ + H ₂ CO	309			
N ₂ ⁺ + H ₂ O	309	797		
N ₂ ⁺ + H ₂ S	309			
N ₂ ⁺ + N ₂	309	1342		
HgCl ⁺ + Cl ₂	384			HgCl ⁺ + He
HgCl ⁺ + HCl	384			HgCl ⁺ + N ₂
HgCl ⁺ + Xe	384			HgCl ⁺ + Xe
HS ⁺ + H ₂ O	797			

* HgCl⁺ + Ar
384
* HgCl⁺ + CCl
384

$N_2^+ + NH_3$
309
 $N_2^+ + D_2$
309
 $N_2H^+ + CO_2$
1647
 $N_3^+ + CH_4$
309
 $N_3^+ + CO$
309
 $N_3^+ + CO_2$
309
 $N_3^+ + COS$
309
 $N_3^+ + H_2$
309
 $N_3^+ + H_2CO$
309
 $N_3^+ + H_2O$
309
 $N_3^+ + H_2S$
309
 $N_3^+ + N_2$
309
 $N_3^+ + NH_3$
309
 $N_3^+ + D_2$
309
 $N_4^+ + CH_4$
309
 $N_4^+ + CO$
309
 $N_4^+ + CO_2$
309 995
 $N_4^+ + COS$
309
 $N_4^+ + D_2$
995
 $N_4^+ + H_2$
309 995
 $N_4^+ + H_2CO$
309
 $N_4^+ + H_2O$
309
 $N_4^+ + H_2S$
309
 $N_4^+ + N_2$
309
 $N_4^+ + NH_3$
309
 $N_4^+ + O_2$
309 995
 $ND_2^- + D_2$
886
 $Ne^+ + Ne$
1092
 $NH_4^+ + Cl^-$
941
 $NO + H_3^+$
821
 $NO^+ + Ar$
1573
 $NO^+ + CH_4$
309

$NO^+ + CO$
309 1573
 $NO^+ + CO_2$
309 1573
 $NO^+ + COS$
309
 $NO^+ + H_2$
309 821 1573
 $NO^+ + H_2CO$
309
 $NO^+ + H_2O$
309
 $NO^+ + H_2S$
309
 $NO^+ + N_2$
309 1573
 $NO^+ + N_2O_3$
578
 $NO^+ + NH_3$
309
 $NO^+ + NO$
1573
 $NO^+ + NO_2^-$
941 1633
 $NO^+ + NO_3^-$
941
 $NO^+ + O_2$
309 1573
 $NO_2^+ + N_2O_5$
978
 $NO_2^- + HCl$
1096
 $NO_2^- + N_2O_5$
978
 $NO_2^- + O_2$
906
 $NO_2^- + O_3$
906
 $NO_3^- + O_2$
906
 $O^+ + Ar$
1573
 $O^+ + CH_4$
309
 $O^+ + CO$
309 1573
 $O^+ + CO_2$
309 1573
 $O^+ + COS$
309
 $O^+ + H_2$
309 1573
 $O^+ + H_2CO$
309
 $O^+ + H_2O$
309
 $O^+ + H_2S$
309
 $O^+ + N_2$
309 883 1573
 $O^+ + N_2O$
2019
 $O^+ + NH_3$
309

$O^+ + NO$
1573
 $O^+ + O_2$
309 1573 1647
2019
 $O_2^+ + Ar$
1573
 $O_2^+ + CH_4$
309 1105
 $O_2^+ + CO$
309 1573
 $O_2^+ + CO_2$
309 1573
 $O_2^+ + COS$
309
 $O_2^+ + H_2$
309 1573
 $O_2^+ + H_2CO$
309
 $O_2^+ + H_2O$
309
 $O_2^+ + H_2S$
309
 $O_2^+ + N_2$
309 1573
 $O_2^+ + N_2O_5$
578
 $O_2^+ + NH_3$
309
 $O_2^+ + NO$
1573
 $O_2^+ + O_2$
309 1342 1573
 $O_2^- + HCl$
1056
 $O_2^- + O_2$
506
 $O^- + D_2$
548
 $O^- + HCl$
1096
 $O^- + O_3$
906
 $OH^- + CO_2$
885
 $OH^- + O_3$
506
 $S^- + O_3$
906
 $SH^- + O_3$
906
 $Xe^+ + H_2O$
2455
 $Xe^+ + Xe$
1052
 $Zn + CH_4D^+$
277
 $Zn + D_3^+$
277
 $Zn + H_3^+$
277

 $OH^+ + CO$
798
 $OH^+ + CO_2$
798
 $OH^+ + H_2O$
798
 $OH^+ + N_2$
798
 $OH^+ + H_2O$
798
 $OH^+ + O_2$
798

 $Review$
172 181 281
428 429 844
865
 $Undef$
959 997

HEAVY PARTICLE - HEAVY PARTICLE INTERACTIONS.

Heavy Particle Interchange, Rearrangement, and Association (only neutral reactants)

Ar + BF ₃ 1137	Br + Br ₂ 447	ClO + NO 1139
Ar + BrF ₅ 1137	Br + O ₃ 1043	ClO + NO ₂ 678
Ar + CCl ₂ F ₂ 1137	C + PbO 793	CN + NO 2028
Ar + CCl ₃ F 1137	Ca + DF 1027	CO + CO 598
Ar + CClF ₃ 1137	Ca + HF 1027	CO + O 871
Ar + CF ₃ H 1137	Ca + N ₂ O 442	CO + OH 411
Ar + CF ₂ OF 1137	Ca* + Ca 1831	Ca + CO ₂ 1362
Ar + CF ₄ 1137	Ca* + CO ₂ 699	Ca + UF ₆ 2015
Ar + CH ₃ F 1137	Ca* + O ₂ 699	D + Br ₂ 2075
Ar + ClF 1137	Cd* + D ₂ 283	D + Cl ₂ 708
Ar + ClF ₂ 1137	Cd* + H ₂ 283	D + F ₂ 708 709
Ar + ClF ₃ 1137	Cd* + HD 283	D + H ₂ 810
Ar + COF ₂ 1137	CF ₃ + I 1383	D + HBr 1064
Ar + F ₂ 1137	CH ₃ I + K 937	D + HCl 1064
Ar + IF ₅ 1137	CH ₃ I + Rb 937	D + HF* 556
Ar + N ₂ F ₄ 1137	CHF + NO 971	D + HI 146 1084
Ar + NF ₃ 1137	CHF + O ₂ 971	F + DBr 766
Ar + OF ₂ 1137	Cl + CH ₄ 305	F + DCI 766
Ar + SF ₆ 1137	Cl + D ₂ 279 985	F + DI 766
Ar + SiF ₄ 1137	Cl + DI 708	F + GeH ₄ 2061
Ar + SO ₂ F ₂ 1137	Cl + H ₂ 279	F + H ₂ 171 424 760 767 1967 2057 2070
Ar + SUF ₂ 1137	Cl + H ₂ O ₂ 283	F + H ₂ CO 2061
Ar* + Ar 1073	Cl + H ₂ S 294	F + H ₂ S 2061
Ar* + Ar + Ar 385	Cl + HI 708	F + HBr 766 2061
B + N ₂ O 815	Cl + HNO ₃ 292	F + HCl 766
B + O ₃ 815	Cl + HO ₂ 292	F + HD 684
BCl ₃ + H ₂ 1094	Cl + NO + N ₂ 1095	F + HI 766 2061
Be + HF 2059	Cl + NO ₂ 796	F + SiH ₄ 2061
	Cl + O ₂ F 1145	Ge + N ₂ O 443
	Cl + O ₃ 880	

Ge + NO
 443
 Ge + O₂
 443
 H + [H + H]
 2453
 H + [H + M]
 868
 H + Br₂
 2075
 H + Cl₂
 708 709
 H + ClF
 723
 H + ClO₂
 2110
 H + CO
 724
 H + D₂
 786
 H + F₂
 708 709 725
 726 1988
 H + H₂
 707 765 786
 808 810 1035
 1042 1967 2029
 2095
 H + HD
 786
 H + HF*
 956
 H + HNO
 1142
 H + NH₃
 884
 H + NO₂
 1140 2110
 H + O₂
 274 955
 H + O₃
 312
 H + S₂Cl₂
 672
 H + SCl₂
 672
 H + SO₂
 724
 H + SOCl₂
 672
 H₂ + D₂
 736 1347
 H₂ + H
 44R
 HCl + Na
 147
 HCl + O
 914

HCO* + H₂O
 797
 He + H₂⁺
 799
 He* + Ar
 940
 He₂* + Ar
 940
 HF + D
 296
 HF + Na
 147
 Hg + 2HI
 1144
 Hg + 2NH₄I
 1144
 HgH + H₂
 1060
 HgH + NO
 1060
 Ho + N₂O
 1098
 HC₂ + ClO
 2030
 HO₂ + NO
 865
 HC₂ + NO₂
 865
 I + H₂
 308
 I* + Br₂
 286 1991
 I* + BrCl
 286
 I* + Cl₂
 286
 I* + I₂
 286
 I* + IBr
 286
 I* + ICl
 286
 K + Br₂
 138
 K + NaCl
 916
 K + NaD
 916
 Kr* + Ar
 1073
 La + D₂O
 963
 La + H₂O
 963
 N + N
 422
 N + NO
 2035
 N + O₂
 1980
 N₂ + CH₄
 998

N₂ + CO
 598
 N₂ + CO₂
 998
 N₂ + NO
 598
 N₂* + O₂
 2452
 NH* + O₂
 674
 NO + O₃*
 535 536
 NO₂ + NO₂
 678
 NO₂* + CO
 938
 O + Cl₂
 432
 O + Cl₂O
 1138
 O + ClO
 880
 O + Cs₂
 432
 O + CS₂
 2039
 O + DBr
 863
 O + DCI
 863
 O + H₂
 1004
 O + HBr
 854
 O + HCl
 782
 O + HI
 854
 O + I₂
 2039
 O + O
 2286
 O + GC3
 2039
 O + SO₂ + Ar
 874
 O + SO₂ + N₂
 874
 O* + CN
 670
 O* + CC₂
 533
 O* + H₂O
 533
 O* + N₂O
 533
 O* + NO
 933
 O₂* + O
 751
 OH + [OCS + CS]
 783

OH + CO
671

OH + COS
410

OH + CS₂
410

OH + H₂
790

OH + HCN
773

OH + HO₂
677

OH + NO
678

OH + NO₂
678

OH + SO₂
678

1136

S + NO
864

Sc + D₂O
963

Sc + H₂O
963

Si + F₂
768

Si + N₂O
443

Si + NO
443

Si + O₂
443

Sn + Br₂
741

Sn + Cl₂
741

Sn + N₂O
1960

Sn + O₂
1058

Sr + DF
1027

Sr + HF
1027

Sr* + HCl
770

Sr* + HF
770

Sr* + N₂O
1986

2102

Sr* + Sr
1227

T + F₂
709

T + HT
290

Th + O₃
2000

U + O₂
415

U + O₃
2000

Xe + 2Xe
299

Xe* + Ar
1073

Xe* + Br₂
418

Y + D₂O
563

Y + H₂O
963

ZI + NO
872

Review

111	124	149
275	280	676
867	870	

Undef

161	278	303
421	426	910
1101	2050	2071

RbF + K
1350

A15

HEAVY PARTICLE - HEAVY PARTICLE
INTERACTIONS

Spin Exchange

Cs + Rb
2517Cs₂ + Cs
2506H⁺ + Au
56H⁺ + Ca
56H⁺ + Nd
56H⁺ + Sn
56H⁺ + U
56H⁺ + Yb
56H⁺ + Zn
56H⁺ + Zr
56He⁺ + H
1544He²⁺ + Au
56He²⁺ + Ca
56He²⁺ + Nd
56He²⁺ + Sn
56He²⁺ + U
56He²⁺ + Yb
56He²⁺ + Zn
56He²⁺ + Zr
56Na₂ + Na
2506

A16

HEAVY PARTICLE - HEAVY PARTICLE
INTERACTIONSElectron Detachment from Negative Ions
into ContinuumB⁻ + Mg
1839Br⁻ + Ar
1736Br⁻ + Kr
1736Br⁻ + Ne
1736Br⁻ + Xe
1736C⁻ + Mg
1839Cl⁻ + Ar

88

Cl⁻ + Ar
257 1736Cl⁻ + Kr
257 1736Cl⁻ + Mg
1839Cl⁻ + Ne
257 1736Cl⁻ + Xe
257 1736D₂⁻ + Ar
950D₂⁻ + H₂
950D₂⁻ + He
950D₂⁻ + Kr
950D₂⁻ + N₂
950D₃⁻ + Ar
950D₃⁻ + H₂
950D₃⁻ + He
950D₃⁻ + Kr
950D₃⁻ + N₂
950H⁺ + H⁻
1629H₂⁻ + Ar
950H₂⁻ + H₂
950H₂⁻ + He
950H₂⁻ + Kr
950H₂⁻ + N₂
950H₃⁻ + Ar
950H₃⁻ + H₂
950H₃⁻ + He
950H₃⁻ + Kr
950H₃⁻ + N₂
950H⁻ + Ar
88 244 1453
1630 2147H⁻ + H
1572H⁻ + He
88 244 1453
1572 1630H⁻ + Kr
1630H⁻ + Ne
244 1630H⁻ + Xe
1630HD₂⁻ + Ar
950HD₂⁻ + H₂
950HD₂⁻ + He
950HD₂⁻ + Kr
950HD₂⁻ + N₂
950HD⁻ + Ar
950HD⁻ + H₂
950HD⁻ + He
950HD⁻ + Kr
950HD⁻ + N₂
950He⁻ + Ar
1630He⁻ + He
1630He⁻ + Kr
1630He⁻ + Ne
1630He⁻ + Xe
1630NO⁻ + CO₂
2335NO⁻ + H₂
2335O₂⁻ + N₂⁺
2498O₂⁻ + O₂⁺
2498O⁻ + Mg
1839O⁻ + N₂
180O⁻ + N₂⁺
2498O⁻ + O₂⁺
2498Sb⁻ + Mg
1839

HEAVY PARTICLE - HEAVY PARTICLE
INTERACTIONS

Interaction Potentials

Al + AlF₃
 861
 Al + H
 1001
 Al + H⁺
 1001
 Al + O
 1666
 Ar + Ar
 763 1961 2010
 Ar + Ar⁺
 301 912
 Ar + Cu
 1372
 Ar + F
 302 876
 Ar + HF
 2086
 Ar + Kr
 417 758 1025
 1198 1961
 Ar + N₂
 1078
 Ar + Xe
 1198
 Ar* + Ar
 2096
 Ar* + He
 2096
 Ar* + Kr
 2096
 Ar* + Xe
 2096
 Ar⁺ + Ar
 2100
 Ar⁺ + He
 753
 Ar⁺ + Kr
 2500
 Ar₂ + F
 876 1353
 Au + Cl
 1957
 Au + H
 1957
 B + B
 1007
 B + BBr₃
 861
 B + BCl₃
 861
 B + BF₃
 861
 B + BI₃
 861

B⁺ + Ar
 982
 B⁺ + He
 982
 B⁺ + Kr
 982
 B⁺ + Ne
 982
 B⁺ + Xe
 982
 Ba + Xe
 185
 Be + HF
 2059
 Br + Zr
 2523
 C + CBr₄
 861
 C + CCl₄
 861
 C + CF₄
 861
 C + Cl₂
 861
 C + CO
 1126
 C + N⁺
 439 811
 C + O
 304 1126 1239
 2340
 C₂H₆
 2496
 Ca⁺ + Ca
 1031
 CH₃⁺
 143
 CH₄
 2496
 CH₄ + CH₄
 947
 CH₄ + H
 947
 CH₄ + H₂
 947
 CH₄ + H₂O
 947
 CH₄ + He
 947
 CH₄ + Li
 947
 CH₄ + N
 947
 CH₄ + N₂
 947
 CH₄ + N₂O
 947
 CH₄ + NH₃
 947
 CH₄ + NO
 947

CH₄ + O
 947
 CH₄ + O₂
 947
 Cl + Cl
 1018
 Cl + HBr
 298
 Cl + Kr₂
 2037
 Cl + O₃
 880
 ClF + Kr
 1080
 CO + Ar
 2042
 CO + H₂
 127
 CO + He
 2042
 CO + Kr
 2042
 CO + Ne
 2042
 CO + Xe
 2042
 CO₂
 2496
 Cs + Ar
 1164 1348
 Cs + Br
 2337
 Cs + Cl
 2337
 Cs + Cs
 926
 Cs + F
 2007
 Cs + H
 949
 Cs + I
 2337
 Cs + Kr
 1164
 Cs + Ne
 1164
 Cs + Xe
 1164
 Cs⁺ + Xe
 1672
 Cs⁺ + Ar
 1002
 Cs⁺ + Cs
 313
 Cs⁺ + K
 313
 Cs⁺ + Kr
 1002
 Cs⁺ + Na
 313
 Cs⁺ + Rb
 313
 Cs⁺ + Xe
 1002

2010 2065
 He + CH₄ 947
 He + CO 2086
 He + CO₂ 809
 He + H 947
 He + H₂ 722 947 1099
 He + H₂O 947
 He + He 947 1172 1961
 He + He + He 2010
 He + HF 2086
 He + Kr 1071 1961
 He + Li 947
 He + Li²⁺ 1794
 He + N 947
 He + N₂ 947
 He + N₂O 947
 He + Ne 1061 2010 2160
 He + NH₃ 947
 He + NO 947
 He + O 947
 He + O₂ 947
 He + Xe 1071
 He* + Ar 1089 1770 2096 2027
 He* + H 1089
 He* + He 1000 1470 2084 3084
 He* + Kr 1089 2027
 He* + Ne 1089 1476
 He* + Xe 1089 2027
 He+ + H 1701
 He+ + H+ 1701
 He+ + He+ 1742
 He+ + Li+ 1794

He²⁺ + He 1589 1742 2484
 He²⁺ + Li 1794
 HF + HF 297 711
 Hg + Ar 1388
 Hg + Cl₂ 1957
 Hg + H 1957
 Hg + Xe 1061
 Hg* + Ar 1162
 Hg* + He 1162
 Hg* + Kr 1162
 Hg* + Ne 1162
 Hg* + Xe 1162
 Hg₂ 1128
 I + I 2340
 In + Kr 2018
 K + Ar 1164 2333
 K + Br 2337
 K + Cl 2337
 K + F 2337
 K + I 2337
 K + K 2040
 K + Kr 1164
 K + Xe 1164
 K* + R 313
 K* + Na 313
 K* + Ne 364
 K* + OH- 1074
 Kr + F 302
 Kr + Kr 1961
 Kr + Kr+ 301 912 984
 Kr + Xe 1198

Kr* + Ar 2096
 Kr+ + Kr 1589 2100 2484
 Kr₂ + F 1353
 Li + Br 2337
 Li + CH₄ 947
 Li + Cl 1018 2337
 Li + F 685 2337
 Li + F₂ 685
 Li + H 947
 Li + H₂ 947 2058
 Li + H₂O 947
 Li + He 947
 Li + HF 685
 Li + I 2337
 Li + Li 947
 Li + N 947
 Li + N₂ 947
 Li + N₂O 947
 Li + NH₃ 947
 Li + NO 947
 Li + O 947
 Li + O₂ 947 2048
 Li + 2Li 1985
 Li+ + Ar 1659
 Li+ + He 1659
 Li+ + CO 122 139 2086
 Li+ + H₂ 2086
 Li+ + He 2333
 Li+ + N₂ 2086
 Li+ + Ne 364
 LiF + Ar 1745
 LiF + He 1745

LiF + Kr 1745
 LiF + Ne 1745
 LiF + Xe 1745
 Mg + H 2105
 Mg + Mg 980
 MgF₂ 1040
 N + CH₄ 947
 N + H 947
 N + H₂ 947
 N + H₂O 947
 N + He 947
 N + Li 947
 N + N 947 2340
 N + N₂ 947
 N + N₂O 947
 N + NF₃ 861
 N + NH₃ 947
 N + NO 947
 N + O 947 2340
 N + O₂ 947
 N₂ 2496
 N₂ + CH₄ 947
 N₂ + H 947
 N₂ + H₂ 947
 N₂ + H₂O 947
 N₂ + He 947
 N₂ + Li 947
 N₂ + N 947
 N₂ + N₂ 947
 N₂ + N₂O 947
 N₂ + NH₃ 947
 N₂ + NO 947

N₂ + O 947
 N₂ + O₂ 947
 N₂O + CH₄ 947
 N₂O + H 947
 N₂O + H₂ 947
 N₂O + H₂O 947
 N₂O + He 947
 N₂O + Li 947
 N₂O + N 947
 N₂O + N₂ 947
 N₂O + N₂O 947
 N₂O + NH₃ 947
 N₂O + NO 947
 N₂O + O 947
 N₂O + O₂ 947
 Na + Ar 740 1164
 Na + Br 2337
 Na + Cl 2337
 Na + F 2337
 Na + I 2337
 Na + K 775
 Na + Kr 1164
 Na + Na 994 2340
 Na + Ne 2163
 Na + O₂ 2048
 Na + Xe 1164
 Na* + Hg 1478
 Na* + Na 313
 Na* + Ne 364
 Ne + Ar 417 1198 1961
 Ne + F 302

Ne + H 1068
 Ne + H⁺ 1068
 Ne + H₂ 1099
 Ne + He₂⁺ 132
 Ne + HeH⁺ 2005
 Ne + Kr 1198 1961
 Ne + Ne 248 788 1961
 Ne + Ne 2010
 Ne + Xe 1198
 Ne⁺ + Ne 2100
 Ne₂ + H 1068
 Ne₂ + H⁺ 1068
 NH₃⁺ 1199
 NH₃ + CH₄ 947
 NH₃ + H 947
 NH₃ + H₂ 547
 NH₃ + H₂O 947
 NH₃ + He 547
 NH₃ + Li 947
 NH₃ + N 547
 NH₃ + N₂ 547
 NH₃ + N₂O 547
 NH₃ + NH₃ 947 592
 NH₃ + NO 547
 NH₃ + O 547
 NH₃ + O₂ 947
 NO + CH₄ 947
 NO + H 947
 NO + H₂ 947
 NO + H₂O 947
 NO + He 947
 NO + Li 947

NO + N
 947
 NO + N₂
 947
 NO + N₂O
 947
 NO + NH₃
 947
 NO + NO
 947
 NO + O
 947
 NO + O₂
 947
 O + CH₄
 947
 O + ClO
 880
 O + H
 947
 O + H₂
 947
 O + H₂O
 947
 O + He
 947
 O + Li
 947
 O + N
 947
 O + N₂
 947
 O + N₂O
 947
 O + NH₃
 947
 O + O
 947
 O + O₂
 947
 O + H₂
 347
 O₂
 1200
 O₂ + CH₄
 947

2340

1122 2340

O₂ + H
 947
 O₂ + H₂
 947
 O₂ + H₂O
 947
 O₂ + He
 947
 O₂ + Li
 947
 O₂ + N
 947
 O₂ + N₂
 947
 O₂ + N₂O
 947
 O₂ + NH₃
 947
 O₂ + NO
 947
 O₂ + O
 947
 O₂ + O₂
 947
 O₂⁻
 1051
 P + N
 2340
 Rb + Br
 2337
 Rb + Cl
 2337
 Rb + F
 2337
 Rb + I
 2337
 Rb + Rb
 926
 Rb + Ar
 2094
 Rb + K
 313
 Rb + Kr
 2094
 Rb + Na
 313
 Rb + Rb
 313

Rb + Xe
 2094
 Si + F
 2340
 Tl + Ar
 2073
 Tl + H
 2073
 Tl + He
 2073
 Tl + Kr
 2018 2073
 Tl + Ne
 2073
 Tl + Xe
 2073
 W + WCl₆
 861
 Xe + Br
 2002
 Xe + Cl
 2002
 Xe + Cu
 1372
 Xe + F
 302 558 2002
 Xe + I
 2002
 Xe + Xe
 876 558 1956
 Xe + Xe*
 1956
 Xe + Xe*
 912 558 1956
 Xe* + Ar
 2096
 Xe* + Xe
 1031 2100
 Zn + H
 2340
 Zr + ZrF₂
 801
 Review
 15+ 401
 Index
 545 595 597
 859 970 1267

HEAVY PARTICLE - HEAVY PARTICLE
INTERACTIONSAngular Scattering (specified process
or otherwise)Ar + CO
437²Ar⁺ + Ar
81Ar¹²⁺ + CH₄
1545Ar¹²⁺ + CO
1545Ar¹²⁺ + CO₂
1545Ar¹²⁺ + N₂
1545Ar¹²⁺ + NH₃
1545Ar¹²⁺ + O₂
1545Ar¹³⁺ + CH₄
1545Ar¹³⁺ + CO
1545Ar¹³⁺ + CO₂
1545Ar¹³⁺ + N₂
1545Ar¹³⁺ + NH₃
1545Ar¹³⁺ + O₂
1545Au⁺ + C
70Au⁺ + H
70Au⁺ + H₂
70Au⁺ + He
70Au⁺ + N
70Au⁺ + O
70Au³⁺ + Au
212Au⁵⁺ + Au
212Br²⁺ + Au
212Br³⁺ + Au
212Cl²⁺ + Au
212Cl³⁺ + Au
212Cs⁺ + C
70Cs⁺ + H
70Cs⁺ + H₂
70Cs⁺ + He
70Cs⁺ + N
70Cs⁺ + O
70D + Ar
731D⁺ + Cu
355H + Ar
731H + N₂
1710H + O₂
1710H⁺ + Ag
1505H⁺ + B⁺
1648H⁺ + Be³⁺
1648H⁺ + C⁵⁺
1648H⁺ + Ca
1516

1517

H⁺ + Cu
355H⁺ + D
464H⁺ + Fe²⁵⁺
1648H⁺ + H
464

567

569

1513

1648

1791

1802

H⁺ + H₂
214

2104

H⁺ + He
552

1513

H⁺ + He⁺
1648H⁺ + Li³⁺
1648H⁺ + N⁶⁺
1648H⁺ + O⁷⁺
1648H₂ + Ar
461H₂ + Kr
461H₂ + Xe
461He + CO
437²He + Ne
2160He⁺ + Cu
355He²⁺ + Ar
1490He²⁺ + Au
1646He²⁺ + He
1529He⁴⁺ + Hg
1519He²⁺ + N₂
1490He²⁺ + Ne
1490He²⁺ + Pb
1505Ho + N₂O
1098K + Ar
1477K + Br₂
136

2092

K + Cl₂
2092K + He
1477

1527

K + I
2555K + Kr
1477K + Ne
1477K⁺ + N₂
231Kr + Bi
317Kr²⁵⁺ + CH₄
1545Kr²⁵⁺ + CO
1545Kr²⁵⁺ + CO₂
1545Kr²⁵⁺ + N₂
1545Kr²⁵⁺ + NH₃
1545Kr²⁵⁺ + O₂
1545Li⁺ + C
70Li⁺ + H
70Li⁺ + H₂
70

2104

Li⁺ + He
70Li⁺ + N
70Li⁺ + O
70Na + Ar
740Na⁺ + Ar
2171Na⁺ + Hg
1478

Na₂ + He
2146

Na₂ + Ne
2146

Ne⁺ + D₂
1521

Xe + Bi
317

Xe³¹⁺ + CH₄
1545

Xe³¹⁺ + CO
1545

Xe³¹⁺ + CO₂
1545

Xe³¹⁺ + N₂
1545

Xe³¹⁺ + NH₃
1545

Xe³¹⁺ + O₂
1545

HEAVY PARTICLE - HEAVY PARTICLE
INTERACTIONSInner-Shell Interactions (not covered
under other specified categories)

Al⁺ + Al
11

Al⁺ + Ar
11

Al⁺ + Cu
11

Al⁺ + S
11

Ar + Ar
2135

Ar⁺ + Al
11

Ar⁺ + Ar
11 1793

Ar⁺ + Cu
11

Ar⁺ + S
11

As⁺ + Kr
1793

Br⁺ + Kr
1793

Br⁺ + PERT
8

Br⁺ + Xe
1793

Cl⁺ + Ag
57

Cl⁺ + Al
11

Cl⁺ + Ar
11 1793 2502
2507

Cl⁺ + Au
57

Cl⁺ + Bi
57

Cl⁺ + Cl₂
2502

Cl⁺ + Cu
11

Cl⁺ + Hf
57

Cl⁺ + Ho
57

Cl⁺ + Mo
57

Cl⁺ + NaCl
2502

Cl⁺ + Pb
57

Cl⁺ + Pr
57

Cl⁺ + Pt
57

Cl⁺ + Re
57

Cl⁺ + S
11

Cl⁺ + Sm
57

Cl⁺ + Sn
57

Cl⁺ + Ta
57

Cl⁺ + Th
57

Cl⁺ + U
57

Cl⁺ + Y
57

Cl⁵⁺ + Ca
1735

Cl⁵⁺ + Sc
1735

Cl⁵⁺ + Ti
1735

Cl¹¹⁺ + NaCl
2170

Cu⁺ + Ar
1793

Cu⁺ + Kr
1793

F⁺ + Ag
57

F⁺ + Au
57

F⁺ + Bi
57

F⁺ + Hf
57

F⁺ + Ho
57

F⁺ + Mo
57

F⁺ + Pb
57

F⁺ + Pr
57

F⁺ + Pt
57

F⁺ + Re
57

F⁺ + Sm
57

F⁺ + Sn
57

F⁺ + Ta
57

F⁺ + Th
57

F⁺ + U
57

F⁺ + Y
57

F³⁺ + Si
1761

F⁵⁺ + Si
1761

F⁵⁺ + Si
1761

F⁶⁺ + Si
1761

F⁷⁺ + Si
1761

F⁸⁺ + Si
1761

F⁹⁺ + Si
1761

Ge⁺ + Kr
1793

H⁺ + Ag
57

H⁺ + Al
6

H⁺ + Ar
56

H⁺ + Au
57

H⁺ + B
6

H⁺ + Bi
57

H⁺ + C
96

H⁺ + Co
6

H⁺ + Cr
1899

H⁺ + Cu
1899

H⁺ + H
96

H⁺ + Hf
57

H⁺ + Ho
57

H⁺ + Mo
57

H⁺ + N
96

H⁺ + Ne
56

H⁺ + O
96

H⁺ + Pb
57

H⁺ + Pr
57

H⁺ + Pt
57

H⁺ + Re
57

H⁺ + Si
6

H⁺ + Sm
57

H⁺ + Sn
57

H⁺ + Ta
57

H⁺ + Th
57

$H^+ + U$
57
 $H^+ + Y$
57
 $H_2^+ + Al$
6
 $H_2^+ + B$
6
 $H_2^+ + Co$
6
 $H_2^+ + Si$
6
 $He^+ + Al$
95
 $He^{2+} + Ag$
57
 $He^{2+} + Au$
57
 $He^{2+} + Bi$
57
 $He^{2+} + Hf$
57
 $He^{2+} + Ho$
57
 $He^{2+} + Mo$
57
 $He^{2+} + Pb$
57
 $He^{2+} + Pr$
57
 $He^{2+} + Pt$
57
 $He^{2+} + Re$
57
 $He^{2+} + Sm$
57
 $He^{2+} + Sn$
57
 $He^{2+} + Ta$
57
 $He^{2+} + Th$
57
 $He^{2+} + U$
57
 $He^{2+} + Y$
57
 $I^+ + Ag$
1266
 $I^+ + Kr$
1793
 $I^+ + PERT$
0
 $I^+ + Xe$
1793
 $Kr + Kr$
1612
 $Kr + Xe$
1612
 $Kr^{2+} + Ge$
51
 $Li^+ + Al$
95
 $Mn^+ + Ar$
1793

$N^+ + LiF$
1908
 $N^+ + N_2$
1479
 $Ne^+ + LiF$
1908
 $Ni + Nb$
1785
 $Ni + Ni$
1785
 $Ni^+ + Kr$
1793
 $Ni^+ + PERT$
8
 $O^+ + Ag$
57
 $O^+ + Al$
95
 $O^+ + Au$
57
 $O^+ + Bi$
57
 $O^+ + Hf$
57
 $O^+ + Ho$
57
 $O^+ + Mo$
57
 $O^+ + Pb$
57
 $O^+ + Pr$
57
 $O^+ + Pt$
57
 $O^+ + Re$
57
 $O^+ + Sm$
57
 $O^+ + Sn$
57
 $O^+ + Ta$
57
 $O^+ + Th$
57
 $O^+ + U$
57
 $O^+ + Y$
57
 $Pb + Ag$
2503
 $Pb + Au$
2803
 $Pb + Pb$
318
 $S^+ + Al$
2507
 $S^+ + Ar$
1793 2502
 $S^+ + Ca$
2507
 $S^+ + Cl_2$
2502

$S^+ + Hg$
2507
 $S^+ + Na$
2507
 $S^+ + NaCl$
2502 2507
 $S^+ + Sc$
2507
 $S^+ + Si$
2507
 $S^+ + Ti$
2507
 $S^{5+} + Ar$
2170
 $S^{7+} + Ar$
2170
 $S^{9+} + Ar$
2170
 $Si^{0+} + Ar$
2170
 $Si^{1+} + Ar$
2170
 $Si^{2+} + Ar$
2170
 $Si^{3+} + Ar$
2170
 $Se^+ + Kr$
1793
 $Si^+ + Al$
11
 $Si^+ + Ar$
11
 $Si^+ + Cu$
11
 $Si^+ + S$
11
 $Si^{2+} + He$
25
 $Si^{3+} + He$
25
 $Si^{4+} + He$
25
 $Si^{5+} + He$
25
 $Si^{6+} + He$
25
 $Si^{7+} + He$
25
 $Si^{8+} + He$
25
 $Si^{9+} + He$
25
 $Si^{10+} + He$
25
 $Si^{11+} + He$
25
 $Xe^+ + Bi$
41
 $Xe^+ + Xe$
1725
 $Under$
1352

A20

HEAVY PARTICLE - HEAVY PARTICLE INTERACTIONS

Attenuation (unspecified process)

H + Cs
476

H+ + Cs
476
Ho + N₂O
1098
Kr + Bi
317
Xe + Bi
317

XeF₂ + Ar*
1085
XeF₂ + Kr*
1085
XeF₂ + Xe*
1085

B01

INTERACTIONS WITH STATIC OR TIME-VARYING ELECTRIC AND MAGNETIC FIELDS

General

CN- 691
CO 688 691

H 99 680
H* 2152
H Seq 1262
H₂ 347
HCN 691

N 1664
N₂ 688 691
Under 79 159 329
504 634 635
1210 1212 1241
1835 2311 2435
2439

B02

INTERACTIONS WITH STATIC OR TIME-VARYING ELECTRIC AND MAGNETIC FIELDS

Dissociation

Under 561

B03

INTERACTIONS WITH STATIC OR TIME-VARYING ELECTRIC AND MAGNETIC FIELDS

Ionization

H* 1525

H Seq 182 186
Li* 2153
N* 967
Na* 65 2193 2467

Sr 2118
Yb* 1228
Review 451
Under 1204 1569 2447

B04

INTERACTIONS WITH STATIC OR TIME-VARYING ELECTRIC AND MAGNETIC FIELDS

Attachment

Review 451

hν + S- 2141

B05

INTERACTIONS WITH STATIC OR TIME-VARYING ELECTRIC AND MAGNETIC FIELDS

Quenching

D 84

B06

INTERACTIONS WITH STATIC OR TIME-VARYING ELECTRIC AND MAGNETIC FIELDS

Excitation

hν + Rb 2180

B07

INTERACTIONS WITH STATIC OR TIME-VARYING ELECTRIC AND MAGNETIC FIELDS

Collisions in Presence of Intense Electromagnetic Fields

e + [hν + H] 1468
e + H 341 494
e + Ne 1593
e + PERT 2354
F+ + Xe 28
hν + [Ar + Xe] 682

C01

PARTICLE PENETRATION IN MACROSCOPIC MATTER (IONS, NEUTRALS, AND ELECTRONS)

General

H2+ + C 2157
H3+ + C 484 2157
S+ + PERT 360
S2+ + PERT 360
S3+ + PERT 360

He* 1230

Review 451

hν + [Cs + Cs] 2321
hν + [H2O + H2O] 2261
hν + [Ne + Xe] 682
hν + [Rb + Rb] 2321
hν + [Xe + F2] 2277
hν + e 1711
hν + H- 2115
hν + SF4 2271
E2 + He 1959
He* 1230

S** + PERT 360
S5+ + PERT 360
S6+ + PERT 360
S7+ + PERT 360
S8+ + PERT 360
S9+ + PERT 360
S10+ + PERT 360
S11+ + PERT 360

NO, 1106 1107

Under 2442

He* + Ar 1987
Li* + [Li* + hν] 2145
SF4* + SF4 1385
Sr + Ar 1760
Sr* + Sr 1219
Undef 100 101 246
331 562 634
903 1212 1251
1257 1258 1268
1376 1580 1721
1767 2016 2034
2254 2268 2297
2313 2315 2443
2489 2403 2472
2519

S12+ + PERT 360
S13+ + PERT 360
S14+ + PERT 360
S15+ + PERT 360
S16+ + PERT 360
Sb+ + S10, 2400
U + Al 2551
Under 1739

PARTICLE PENETRATION IN MACROSCOPIC
MATTER (IONS, NEUTRALS, AND ELECTRONS)

Energy Loss

Al + Ar
66

Al⁺ + Ag
1816

Al⁺ + Al
1816

Al⁺ + Be
1816

Al⁺ + C
1816

Al⁺ + Eu
1816

Al⁺ + Ge
1816

Al⁺ + Ni
1816

Al⁺ + Ta
1816

Al⁺ + Ti
1816

Al⁺ + Zr
1816

Ar + Ag
2546

Ar + Al
2546

Ar + Ar
66

Ar + Au
2546

Ar + Bi
2546

Ar + C
2528 2546

Ar + Cu
2415

Ar⁺ + C
1862

Ar⁺ + H₂O
2303

Au + Au
2415

B + Ar
66

B + B
10

B + Be
10

B + C
10

B + F
10

B + H
10

B + He
10

B + Li
10

B + N
10

B + Ne
10

B + O
10

B⁺ + B
10

B⁺ + Be
10

B⁺ + C
10 1854

B⁺ + Co
1854

B⁺ + F
10

B⁺ + H
10

B⁺ + He
10

B⁺ + Li
10

B⁺ + N
10

B⁺ + Nb
1854

B⁺ + Ne
10

B⁺ + Ni
1854

B⁺ + O
10

B⁺ + PERT
507

B⁺ + Si
2426

Be + Ar
66

Be + B
10

Be + Be
10

Be + C
10

Be + F
10

Be + H
10

Be + He
10

Be + Li
10

Be + N
10

Be + Ne
10

Be + O
10

Be⁺ + Al
1816

Be⁺ + Ar
1816

Be⁺ + B
10

Be⁺ + Be
10 1816

Be⁺ + C
10 1816 1854

Be⁺ + Co
1854

Be⁺ + Eu
1816

Be⁺ + F
10

Be⁺ + Ge
1816

Be⁺ + H
10

Be⁺ + He
10

Be⁺ + Li
10

Be⁺ + N
10

Be⁺ + Nb
1854

Be⁺ + Ne
10

Be⁺ + Ni
1816 1854

Be⁺ + O
10

Be⁺ + PERT
507

Be⁺ + Ta
1816

Be⁺ + Ti
1816

Be⁺ + Zr
1816

Br + Au
891

Br⁺ + C
1853

C + Ar
66

C + B
10

C + Be
10

C + C
10

C + F
10

C + H
10

C + He
10

C + Li
10

C + N
10

C + Ne
10

C + O
10

C⁺ + Ag 1816
 C⁺ + Al 1816
 C⁺ + B 10
 C⁺ + Be 10 1816
 C⁺ + C 10 1816 1854
 C⁺ + Co 1854
 C⁺ + Eu 1816
 C⁺ + F 10
 C⁺ + Ge 1816
 C⁺ + H 10
 C⁺ + He 10
 C⁺ + Li 10
 C⁺ + N 10
 C⁺ + Nb 1854
 C⁺ + Ne 10
 C⁺ + Ni 1816 1854
 C⁺ + O 10
 C⁺ + PERT 507
 C⁺ + Si 1909
 C⁺ + Ta 1816
 C⁺ + Ti 1816
 C⁺ + W 1291
 C⁺ + Zr 1816
 Cl + [Ar + CH₄] 2533
 Cl + Ar 66
 Cl + Au 891
 D⁺ + Al 1798
 D⁺ + Ar 1798
 D⁺ + B 1798
 D⁺ + Be 1798
 D⁺ + C 1798
 D⁺ + Ca 1798

D⁺ + Li 1798
 D⁺ + Ne 1798
 D⁺ + Ni 1855
 D⁺ + Si 1798
 D⁺ + W 1291
 e + Ag 571
 e + Al 571 1335 2347
 e + Au 571 2432
 e + BaTiO₃ 2281
 e + Be 1335
 e + Bi 1335
 e + C 571 1335 2281
 e + Cu 571 2432
 e + Ge 1335
 e + K 1335
 e + KCl 1937
 e + Li 1371
 e + Mg 1335
 e + N₂ 2291
 e + NaCl 1937
 e + Plasma 1955
 e + Sb 1335
 e + Si 1335 2282
 e + SiO 2281
 e + Ti 571
 e + TiO₂ 2281
 F + Ar 66
 F + Au 891
 F + B 10
 F + Be 10
 F + C 10

F + F 10
 F + H 10
 F + He 10
 F + Li 10
 F + N 10
 F + Ne 10
 F + O 10
 F⁺ + Ag 1854
 F⁺ + Al 1854
 F⁺ + Au 1854
 F⁺ + B 10
 F⁺ + Be 10
 F⁺ + C 10 1854
 F⁺ + Co 1854
 F⁺ + Cu 1854
 F⁺ + F 10
 F⁺ + H 10
 F⁺ + He 10
 F⁺ + Li 10
 F⁺ + N 10
 F⁺ + Na 1854
 F⁺ + Nb 1854
 F⁺ + Ne 10
 F⁺ + Ni 1854
 F⁺ + O 10
 F⁺ + PERT 507
 F⁺ + Si 1854
 F⁺ + Ti 1854
 F⁺ + Zn 1854
 Fe⁺ + Gd 1305
 Fe⁺ + H₂O 2303
 H + Ar 66

H + B
 10
 H + Be
 10
 H + C
 10
 H + F
 10
 H + H
 10
 H + He
 10
 H + Li
 10
 H + N
 10
 H + Ne
 10
 H + O
 10
 H⁺ + Ag
 1703 1852
 H⁺ + Al
 1158 1367 1798
 H⁺ + Ar
 1798
 H⁺ + Au
 1856
 H⁺ + B
 1798
 H⁺ + Be
 1367 1798
 H⁺ + Bi
 1703
 H⁺ + C
 1154 1158 1289
 1367 1798 1854
 2394
 H⁺ + Ca
 1798
 H⁺ + Co
 1854
 H⁺ + Cu
 1852 1899
 H⁺ + Ge
 1703 1899 2386
 H⁺ + H₂O
 2303
 H⁺ + La
 1852
 H⁺ + Li
 1798
 H⁺ + Nb
 1854
 H⁺ + Ne
 1798
 H⁺ + Ni
 1854 1899
 H⁺ + Pd
 1703
 H⁺ + PERT
 507 1951
 H⁺ + Sb
 1703

H⁺ + Sc
 1899
 H⁺ + Se
 1703
 H⁺ + Si
 371 1367 1798
 2386
 H₂⁺ + Al
 1158
 H₂⁺ + C
 1153 1154 1158
 1289 2119
 H₂⁺ + Si
 1153
 He + Ar
 66
 He + B
 10
 He + Be
 10
 He + C
 10
 He + F
 10
 He + H
 10
 He + He
 10
 He + Li
 10
 He + N
 10
 He + Ne
 10
 He + O
 10
 He⁺ + Ag
 1703 1816 1852
 1854
 He⁺ + Al
 1816 1854
 He⁺ + Ar
 1849
 He⁺ + Au
 1854 1857
 He⁺ + B
 10
 He⁺ + Be
 10 1816
 He⁺ + Bi
 1703
 He⁺ + C
 10 1816 1854
 He⁺ + Co
 1854
 He⁺ + CO₂
 1849
 He⁺ + Cu
 1852 1854
 He⁺ + Eu
 1816
 He⁺ + F
 10
 He⁺ + Fe
 1897

He⁺ + Ge
 1703 1816
 He⁺ + H
 10
 He⁺ + H₂O
 2303
 He⁺ + He
 10
 He⁺ + Li
 10
 He⁺ + Mn
 2404
 He⁺ + N
 10
 He⁺ + Na
 1854
 He⁺ + Nb
 1854
 He⁺ + Ne
 10
 He⁺ + Ni
 1816 1854 1897
 2404
 He⁺ + O
 10
 He⁺ + O₂
 1849
 He⁺ + Pd
 1703
 He⁺ + PERT
 507 1851
 He⁺ + Sb
 1703
 He⁺ + Si
 1854
 He⁺ + Ta
 1816
 He⁺ + Ti
 1816 1854 2404
 He⁺ + Zn
 1854 2404
 He⁺ + Zr
 1816
 He⁺ Se
 1703
 He²⁺ + Ag
 1331 1841 1915
 He²⁺ + Al
 1915
 He²⁺ + Al₂O₃
 1858
 He²⁺ + Au
 1331 1841 1915
 He²⁺ + Cu
 1331
 He²⁺ + Ge
 1155 1841
 He²⁺ + H₂
 1903
 He²⁺ + He
 1903
 He²⁺ + Kr
 1903

$\text{He}^{2+} + \text{N}_2$
 1903
 $\text{He}^{2+} + \text{Ne}$
 1903
 $\text{He}^{2+} + \text{Ni}$
 1841 1915
 $\text{He}^{2+} + \text{O}_2$
 1903
 $\text{He}^{2+} + \text{Se}$
 1915
 $\text{He}^{2+} + \text{Si}$
 1841 2515
 $\text{He}^{2+} + \text{Xe}$
 1903
 $\text{He}^{2+} + \text{Y}$
 1841
 $\text{HeH}^+ + \text{C}$
 2119
 $\text{I}^+ + \text{Ag}$
 1853
 $\text{Kr} + \text{Ag}$
 2546
 $\text{Kr} + \text{Al}$
 2546
 $\text{Kr} + \text{Au}$
 2546
 $\text{Kr} + \text{Bi}$
 2546
 $\text{Kr} + \text{C}$
 2528 2546
 $\text{Li} + \text{Ar}$
 66
 $\text{Li} + \text{B}$
 10
 $\text{Li} + \text{Be}$
 10
 $\text{Li} + \text{C}$
 10
 $\text{Li} + \text{F}$
 10
 $\text{Li} + \text{H}$
 10
 $\text{Li} + \text{He}$
 10
 $\text{Li} + \text{Li}$
 10
 $\text{Li} + \text{N}$
 10
 $\text{Li} + \text{Ne}$
 10
 $\text{Li} + \text{O}$
 10
 $\text{Li}^+ + \text{Al}$
 1858
 $\text{Li}^+ + \text{Al}_2\text{O}_3$
 1858
 $\text{Li}^+ + \text{Ar}$
 1850
 $\text{Li}^+ + \text{B}$
 10
 $\text{Li}^+ + \text{Be}$
 10
 $\text{Li}^+ + \text{C}$
 10 1854

$\text{Li}^+ + \text{Co}$
 1854
 $\text{Li}^+ + \text{CO}_2$
 1850
 $\text{Li}^+ + \text{F}$
 10
 $\text{Li}^+ + \text{H}$
 10
 $\text{Li}^+ + \text{H}_2$
 1850
 $\text{Li}^+ + \text{HCl}$
 1848
 $\text{Li}^+ + \text{He}$
 10 1850
 $\text{Li}^+ + \text{KBH}_3$
 1848
 $\text{Li}^+ + \text{KCl}$
 1848
 $\text{Li}^+ + \text{Kr}$
 1850
 $\text{Li}^+ + \text{Li}$
 10
 $\text{Li}^+ + \text{LiBH}_3$
 1848
 $\text{Li}^+ + \text{LiCl}$
 1848
 $\text{Li}^+ + \text{N}$
 10
 $\text{Li}^+ + \text{N}_2$
 1850
 $\text{Li}^+ + \text{NaBH}_3$
 1848
 $\text{Li}^+ + \text{NaCl}$
 1848
 $\text{Li}^+ + \text{Nb}$
 1064
 $\text{Li}^+ + \text{Ne}$
 10 1850
 $\text{Li}^+ + \text{Ni}$
 1854
 $\text{Li}^+ + \text{NK}_2\text{Cl}$
 1848
 $\text{Li}^+ + \text{O}$
 10
 $\text{Li}^+ + \text{O}_2$
 1850
 $\text{Li}^+ + \text{PERT}$
 507 1848
 $\text{Li}^+ + \text{RbCl}$
 1848
 $\text{Li}^+ + \text{TaB}$
 1848
 $\text{Li}^+ + \text{TaB}_2$
 1848
 $\text{Li}^+ + \text{TiB}_2$
 1848
 $\text{Li}^+ + \text{Xe}$
 1850
 $\text{Li}^+ + \text{ZnCl}_2$
 1848
 $\text{Mg} + \text{Ar}$
 66
 $\text{N} + \text{Ar}$
 66

$\text{N} + \text{Au}$
 891
 $\text{N} + \text{B}$
 10
 $\text{N} + \text{Be}$
 10
 $\text{N} + \text{C}$
 10
 $\text{N} + \text{F}$
 10
 $\text{N} + \text{H}$
 10
 $\text{N} + \text{He}$
 10
 $\text{N} + \text{Li}$
 10
 $\text{N} + \text{N}$
 10
 $\text{N} + \text{Ne}$
 10
 $\text{N} + \text{O}$
 10
 $\text{N}^+ + \text{Ag}$
 1854 1902
 $\text{N}^+ + \text{Al}$
 1854 1902
 $\text{N}^+ + \text{Au}$
 1854
 $\text{N}^+ + \text{B}$
 10
 $\text{N}^+ + \text{Be}$
 10
 $\text{N}^+ + \text{Bi}$
 1902
 $\text{N}^+ + \text{C}$
 10 1337 1853
 1854 1902
 $\text{N}^+ + \text{Co}$
 1854
 $\text{N}^+ + \text{Cu}$
 1854 1902
 $\text{N}^+ + \text{F}$
 10
 $\text{N}^+ + \text{Ge}$
 1902
 $\text{N}^+ + \text{H}$
 10
 $\text{N}^+ + \text{He}$
 10
 $\text{N}^+ + \text{Li}$
 10
 $\text{N}^+ + \text{N}$
 10
 $\text{N}^+ + \text{Na}$
 1854
 $\text{N}^+ + \text{Nb}$
 1854
 $\text{N}^+ + \text{Na}$
 10
 $\text{N}^+ + \text{Ni}$
 1854
 $\text{N}^+ + \text{O}$
 10

$N^+ + PERT$
 507
 $N^+ + Si$
 1854
 $N^+ + Sn$
 1902
 $N^+ + Ti$
 1854
 $N^+ + Zn$
 1854
 $Na + Ar$
 66
 $Na^+ + B$
 10
 $Na^+ + Be$
 10
 $Na^+ + C$
 10
 $Na^+ + F$
 10
 $Na^+ + H$
 10
 $Na^+ + He$
 10
 $Na^+ + Li$
 10
 $Na^+ + N$
 10
 $Na^+ + Ne$
 10
 $Na^+ + O$
 10
 $Ne + Ar$
 66
 $Ne + Au$
 2415
 $Ne + B$
 10
 $Ne + Be$
 10
 $Ne + C$
 10
 $Ne + F$
 10
 $Ne + H$
 10
 $Ne + He$
 10
 $Ne + Li$
 10
 $Ne + N$
 10
 $Ne + Ne$
 10
 $Ne + O$
 10
 $Ne^+ + Ag$
 1854
 $Ne^+ + Al$
 1854
 $Ne^+ + Au$
 1854
 $Ne^+ + B$
 10

$Ne^+ + Be$
 10
 $Ne^+ + C$
 10 1337 1853
 1854 1862
 $Ne^+ + CH_4$
 1909
 $Ne^+ + Co$
 1854
 $Ne^+ + Cu$
 1854
 $Ne^+ + F$
 10
 $Ne^+ + H$
 10
 $Ne^+ + He$
 10
 $Ne^+ + Li$
 10
 $Ne^+ + N$
 10
 $Ne^+ + Na$
 1854
 $Ne^+ + Nb$
 1854
 $Ne^+ + Ne$
 10
 $Ne^+ + Ni$
 1854
 $Ne^+ + O$
 10
 $Ne^+ + Si$
 1854
 $Ne^+ + Ti$
 1854
 $Ne^+ + Zn$
 1854
 $Ni^+ + Ag$
 1816
 $Ni^+ + Al$
 1816
 $Ni^+ + Be$
 1816
 $Ni^+ + C$
 1816
 $Ni^+ + Eu$
 1816
 $Ni^+ + Ge$
 1816
 $Ni^+ + Ni$
 1816
 $Ni^+ + Ta$
 1816
 $Ni^+ + Tl$
 1816
 $Ni^+ + Zr$
 1816
 $O + Ar$
 66
 $O + Au$
 891
 $O + B$
 10

$O + Be$
 10
 $O + C$
 10 #
 $O + F$
 10
 $O + H$
 10
 $O + He$
 10
 $O + Li$
 10
 $O + N$
 10
 $O + Ne$
 10
 $O + O$
 10
 $O^+ + Ag$
 1854
 $O^+ + Al$
 46 1854
 $O^+ + Au$
 1854
 $O^+ + B$
 10
 $O^+ + Be$
 10
 $O^+ + C$
 10 1854
 $O^+ + Co$
 1854
 $O^+ + Cu$
 1854
 $O^+ + F$
 10
 $O^+ + H$
 10
 $O^+ + H_2O$
 2303
 $O^+ + He$
 10
 $O^+ + Li$
 10
 $O^+ + N$
 10
 $O^+ + Na$
 1854
 $O^+ + Nb$
 1854
 $O^+ + Ne$
 10
 $O^+ + Ni$
 1854
 $O^+ + O$
 10
 $O^+ + PERT$
 507
 $O^+ + Si$
 1854
 $O^+ + Ti$
 1854
 $O^+ + UO_2$
 2409

O⁺ + W
1291

O⁺ + Zn
1854

P + Ar
66

Pb + C
2528

PERT + PERT
1816

PERT⁺ + PERT
370 1816

S + Ar
66

Sb⁺ + SiO₂
2400

Si + Ar
66

Tl + C
2528

Tl⁺ + Ag
1816

Tl⁺ + Al
1816

Tl⁺ + Be
1816

Tl⁺ + C
1816

Tl⁺ + Eu
1816

Tl⁺ + Ge
1816

Tl⁺ + Ni
1816

Tl⁺ + Ta
1816

Tl⁺ + Tl
1816

Tl⁺ + Zr
1816

U + Ag
2546

U + Al
2546

U + Au
2546

U + Bi
2546

U + C
2528 2546

U⁺ + UO₂
2405

Xe + Ag
2546

Xe + Al
2546

Xe + Au
2546

Xe + Bi
2546

Xe + C
2528 2546

Xe + Cu
2415

Review
68

Undef
328 1739 2429

C03

PARTICLE PENETRATION IN MACROSCOPIC
MATTER (IONS, NEUTRALS, AND ELECTRONS)

—Energy to Create an Ion Pair

Ar⁺ + H₂O
2303

e + N₂
1911

e + O₂
1911

Fe⁺ + H₂O
2303

H⁺ + CH₄
1923

H⁺ + CO₂
1923

H⁺ + H₂O
2303

H⁺ + N₂
1923

He⁺ + H₂O
2303

He²⁺ + Ag
1841

He²⁺ + Au
1841

He²⁺ + Ge
1841

He²⁺ + Ni
1841

He²⁺ + Si
1841 2398

He²⁺ + Y
1841

O⁺ + H₂O
2303

Xe⁺ + AgBr
2397

Xe⁺ + AgI
2397

Xe⁺ + CdI₂
2367

Xe⁺ + PbI₂
2397

Undef
1739

PARTICLE PENETRATION IN MACROSCOPIC
MATTER (IONS, NEUTRALS, AND ELECTRONS)

Particle Range

Al⁺ + Ag 1920
 Al⁺ + Au 1920
 Al⁺ + Cu 1920
 Al⁺ + Mo 1920
 Al⁺ + Ni 1920
 Al⁺ + Pb 1920
 Al⁺ + Ta 1920
 Al⁺ + Ti 1920
 Al⁺ + W 1920
 Ar⁺ + Cu 2418
 Ar⁺ + Li₂O 394
 Au + Mica 2524
 Au⁺ + Al 2396
 B⁺ + Si 2418
 Bi⁺ + Al 2396
 Cs⁺ + Al 2396
 Cs⁺ + Ar 2405
 Cs⁺ + N₂ 2405
 D⁺ + Al 481
 D⁺ + C 481 1426
 D⁺ + Ni 457 481
 D⁺ + Zr 481
 Dy⁺ + Al 2396
 Dy⁺ + Si 2396

e + Al 2491
 e + Al₂O₃ 2293
 e + Au 1753
 e + D₂ 471
 e + Gas 1951
 e + Ge 1113
 e + H₂ 471
 e + MgO 2293
 e + N₂ 483 1911
 e + NaCl 1943
 e + O₂ 1911
 Er⁺ + Al 2396
 Eu⁺ + Al 2396
 Eu⁺ + Si 2396
 Fr⁺ + Ar 2405
 Fr⁺ + N₂ 2405
 Gd⁺ + Si 2396
 H⁺ + Si 1884
 H₂⁺ + Si 1884
 He⁺ + Al 472
 He⁺ + C 472 1426
 He⁺ + Ge 2380
 He⁺ + Ni 457 472
 He⁺ + Si 472
 He⁺ + V 472
 He⁺ + W 2205
 He⁺ + Zr 472
 Hf⁺ + Al 2396

Ho⁺ + Al 2396
 I + Mica 2524
 La⁺ + Al 2396
 Lu⁺ + Al 2396
 N⁺ + Ag 1366
 N⁺ + Al 1366
 N⁺ + Au 1366
 N⁺ + Cu 1366
 N⁺ + Mo 1366
 N⁺ + Ni 1366
 N⁺ + Ta 1366
 N⁺ + Ti 1366
 N⁺ + W 1366
 N⁺ + Zn 1366
 Nb⁺ + Nb 1437
 O⁺ + Si 1327
 O⁺ + UD₂ 2409
 Pb⁺ + Al 2396
 Pr⁺ + Al 2396
 Pt⁺ + Al 2356
 Rb⁺ + Ar 2405
 Rb⁺ + N₂ 2405
 Sm⁺ + Si 2396
 Tb⁺ + Al 2396
 Tb⁺ + Si 2396
 Tl⁺ + Al 2396
 U⁺ + UD₂ 2409

PARTICLE PENETRATION IN MACROSCOPIC
MATTER (IONS, NEUTRALS, AND ELECTRONS)

Multiple Scattering

Al + Ar
66
Ar + Ag
2546
Ar + Al
2546
Ar + Ar
66
Ar + Au
2546
Ar + Bi
2546
Ar + C
2546
Ar⁺ + Xe
1898
Au⁺ + Al
2396
B + Ar
66
Be + Ar
66
Bi⁺ + Al
2396
C + Ar
66
Cl + Ar
66
Cs⁺ + Al
2396
D⁺ + Si
1842
Dy⁺ + Al
2396
Dy⁺ + Si
2396
e + Ag
2236
e + Au
2236
e + Mg
2236
Er⁺ + Al
2396
Eu⁺ + Al
2396
Eu⁺ + Si
2396
F + Ar
66
Gd⁺ + Si
2396
H + Ar
66
H⁺ + Ag
1703

1859

H⁺ + Al
1367
H⁺ + Au
1859
H⁺ + Be
1367
H⁺ + Bi
1703
H⁺ + C
1367 1860 1861
2394
H⁺ + Ge
1703
H⁺ + Pd
1703
H⁺ + Sb
1703
H⁺ + Se
1703
H⁺ + Si
1367 1842 1884
H₂⁺ + C
2157
H₂⁺ + Si
1884
H₃⁺ + C
484 2157
He + Ar
66
He⁺ + Ag
1703
He⁺ + Al
1914
He⁺ + Bi
1703
He⁺ + C
1914
He⁺ + Cu
1914
He⁺ + Ge
1703
He⁺ + Pd
1703
He⁺ + Sb
1703
He⁺ + Se
1703
He⁺ + SS
404
He²⁺ + Si
1842
Hf⁺ + Al
3306
Hc⁺ + Al
2396
Kr + Ag
2546
Kr + Al
2546
Kr + Au
2546
Kr + Bi
2546

Kr + C
2546
La⁺ + Al
2396
Li + Ar
66
Li⁺ + Ar
1850
Li⁺ + CO₂
1850
Li⁺ + H₂
1850
Li⁺ + He
1850
Li⁺ + Kr
1850
Li⁺ + N₂
1850
Li⁺ + Ne
1850
Li⁺ + O₂
1850
Li⁺ + Xe
1850
Lu⁺ + Al
2396
Mg + Ar
66
N + Ar
66
N⁺ + C
1337
Na + Ar
66
Ne + Ar
66
Ne⁺ + C
1337
O + Ar
66
O⁺ + Al
46
O⁺ + CO
1827
O⁺ + CO₂
1827
O⁺ + H₂O
1827
O⁺ + N₂
1827
O⁺ + Ne
1827
O⁺ + O₂
1827
O⁺ + S6
404
O⁺ + Xe
1827
P + Ar
66
Pb⁺ + Al
2396
Pb⁺ + CO
1827

Pb⁺ + CO₂
1827

Pb⁺ + H₂O
1827

Pb⁺ + N₂
1827

Pb⁺ + Ne
1827

Pb⁺ + O₂
1827

Pb⁺ + Xe
1827

PERT + Au
1839

PERT + Cs
1839

PERT + H
1839

PERT + K
1839

PERT + Li
1839

PERT + Mg
1839

PERT + Na
1839

Pr⁺ + Al
2396

Pt⁺ + Al
2396

S + Ar
66

Si + Ar
66

Sm⁺ + Si
2396

Tb⁺ + Al
2396

Tb⁺ + Si
2396

Tl⁺ + Al
2396

U + Ag
2546

U + Al
2546

U + Au
2546

U + Bi
2546

U + C
2546

Xe + Ag
2546

Xe + Al
2546

Xe + Au
2546

Xe + Bi
2546

Xe + C
2546

Xe⁺ + CO
1827

Xe⁺ + CO₂
1827

Xe⁺ + H₂O
1827

Xe⁺ + N₂
1827

Xe⁺ + Ne
1827

Xe⁺ + O₂
1827

Xe⁺ + Xe
1827

Undef
2239

PARTICLE PENETRATION IN MACROSCOPIC
MATTER (IONS, NEUTRALS, AND ELECTRONS)

Charge State Populations

Al + C
258Al⁺ + Mg
1839Al⁺ + Na
1843Ar + C
258Au⁺ + Mg
1839Au⁺ + Na
1843B + C
258B⁺ + Mg
1839B⁺ + Na
1843B⁺⁺ + Ag
2129B⁺⁺ + Au
2129Be⁺ + Mg
1839Be⁺ + Na
1843C⁺ + C
1800C⁺ + Mg
1839C⁺ + Na
1843C⁵⁺ + Ag
2129C⁵⁺ + Au
2129Ca⁺ + Na
1843Cl⁺ + Mg
1839Cl⁺ + Na
1843F + C
258F⁷⁺ + Ag
2129F⁷⁺ + Au
2129Fe⁺ + Ag
2129Fe⁺ + Au
2129Fe + C
258Fe⁺ + Mg
1839Fe⁺ + Na
1843H⁺ + C
1800H₂⁺ + C
2119 2157H₃⁺ + C
2157HeH⁺ + C
2119I⁺ + Ar
1901I⁺ + Kr
1901I⁺ + Mg
1839I⁺ + N₂
1901I⁺ + Xe
1901In⁺ + Mg
1839Kr⁺ + C
1800Li⁺ + Na
1843Mg + C
258Mg⁺ + C
1800Mg⁺ + Na
1843N + C
258N⁺ + C
1800N⁶⁺ + Ag
2129N⁶⁺ + Au
2129Na + C
258Na⁺ + C
1800Na⁺ + Na
1843Ne + C
258O + C
258O⁺ + C
1800O⁺ + Mg
1839O⁺ + Na
1843O⁷⁺ + Ag
2129O⁷⁺ + Au
2129S⁺ + C
1800Sb⁺ + Mg
1839Te⁺ + Mg
1839U⁺ + Ar
1907U⁺ + C₂H₂
1907U⁺ + CH₄
1907U⁺ + CO
1907U⁺ + CO₂
1907U⁺ + H₂
1907U⁺ + He
1907U⁺ + Kr
1907U⁺ + Mg
1907U⁺ + N₂
1907U⁺ + Na
1907U⁺ + Ne
1907U⁺ + O₂
1907U⁺ + Xe
1907Undef
1913

C07

**PARTICLE PENETRATION IN MACROSCOPIC
MATTER (IONS, NEUTRALS, AND ELECTROMS)**

Excited State Populations

Ar¹⁵⁺ + C
2544
Ar¹⁶⁺ + C
2544
B²⁺ + Ag
2129
B²⁺ + Au
2129
C⁺ + C
502 1800
Cs⁺ + Ag
2129
Cs⁺ + Au
2129
Cl⁺ + C
1316
Cu⁺ + C
1910

F⁷⁺ + Ag
2129
F⁷⁺ + Au
2129
F⁸⁺ + Ag
2129
F⁸⁺ + Au
2129
Fe⁺ + C
1910
Ge⁺ + C
500
H⁺ + C
1800
H₂⁺ + C
2157
H₃⁺ + C
2157
He⁺ + C
1772 2382
Kr⁺ + C
500 1800
Mg⁺ + C
1800

N⁺ + C
502 1800 2542
N⁶⁺ + Ag
2129
N⁶⁺ + Au
2129
Na⁺ + C
1800
O⁺ + C
502 1800
O⁷⁺ + Ag
2129
O⁷⁺ + Au
2129
S⁺ + C
1800
Si⁺ + C
1315
Zn⁺ + C
1281
Review
451
Undef
1776

C08

PARTICLE PENETRATION IN MACROSCOPIC MATTER (IONS, NEUTRALS, AND ELECTRONS)

Channeling

Ar ⁺ + Cu			
1372			
B ⁺ + Ag			
2129			
B ⁺ + Au			
2129			
C ⁺ + W			
1291			
C ⁵⁺ + Ag			
2129			
C ⁵⁺ + Au			
2129			
D ⁺ + [Pd + Au + D]			
2395			
D ⁺ + [Ta + D]			
2395			
D ⁺ + NbC			
2393			
D ⁺ + V ₃ Si			
1866			
D ⁺ + W			
1291			
D ₂ ⁺ + VD			
1871			
D ₂ ⁺ + VOD			
1871			
e ⁺ + Cu			
1333			
e ⁺ + Ge			
1333			
e ⁺ + He*			
1829			
e ⁺ + KBr			
1933			
e ⁺ + KCl			
1933			
e ⁺ + Si	1330	1333	2414
	2431	2475	
e ⁺ + W	1323	1333	

e ⁺ + Cu			
1333			
e ⁺ + Ge			
1333			
e ⁺ + Si			
1333			
e ⁺ + W			
1333			
F ⁷⁺ + Ag			
2129			
F ⁷⁺ + Au			
2129			
F ⁸⁺ + Ag			
2129			
F ⁸⁺ + Au			
2129			
H ⁺ + Al			
1301			
H ⁺ + Bi			
1864			
H ⁺ + Cu			
1290			
H ⁺ + Ge			
2386			
H ⁺ + KCl			
372			
H ⁺ + LiF			
372	1896		
H ⁺ + NaCl			
372			
H ⁺ + NaF			
372			
H ⁺ + Si	371	1294	1864
	1870	1890	2309
	2375	2386	
H ⁺ + Ti			
1290			
H ⁺ + W			
1372			
H ₂ ⁺ + Ti			
1290			
H ₃ ⁺ + Ti			
1290			
He ⁺ + KCl			
372			
He ⁺ + [Mg + Bi]			
2388			
He ⁺ + Al			
1301			

He ⁺ + Al ₂ O ₃			
2385			
He ⁺ + Be			
585			
He ⁺ + GaAs	1922	2304	
He ⁺ + GaP			
2304			
He ⁺ + LiF			
372			
He ⁺ + NaF			
372			
He ⁺ + Ni			
2210			
He ⁺ + NiCr ₂ O ₄			
1872			
He ⁺ + NiSi ₂	511	1873	
He ⁺ + Pd ₂ Si	511		
He ⁺ + Si	516	1293	1867
	1868	1870	2304
He ⁺ + V ₃ Si			
1866			
He ⁺ + W			
516			
He ⁺ + NaCl			
372			
He ²⁺ + Ag			
1331			
He ²⁺ + Au			
1331			
He ²⁺ + Cu			
1331			
N ⁶⁺ + Ag			
2129			
N ⁶⁺ + Au			
2129			
O ⁺ + W			
1251			
O ⁷⁺ + Ag			
2129			
O ⁷⁺ + Au			
2129			
Underf			
	1369	1875	1876
	1919	1926	1932
	2258	2259	2410

D01

PARTICLE INTERACTIONS WITH SOLIDS

General

Review			
1389	1390	1391	

PARTICLE INTERACTIONS WITH SOLIDS

Sputtering by Electrons, Neutrons, and Heavy Particles (total removal coefficients)

Ag ⁺ + Au	1292			D ⁺ + Au	1395			H ⁺ + FeH	1433
Ar ⁺ + [Cu + Ni]	375	2218		D ⁺ + B ₂ C	1397			H ⁺ + FeH ₂	1433
Ar ⁺ + [Cu + O]	2175			D ⁺ + BeO	1398			H ⁺ + FeH ₃	1433
Ar ⁺ + [O ₂ + Ti]	614			D ⁺ + C	1395	1397	1398	H ⁺ + FeT	1433
Ar ⁺ + [O ₂ + V]	614			D ⁺ + Fe	1394			H ⁺ + H ₂ O	2133
Ar ⁺ + Ag	1392			D ⁺ + Mo	1395			H ⁺ + Mo	1395 1401
Ar ⁺ + Au	1292	1393	2378	D ⁺ + Ni	1395			H ⁺ + Ni	1395
Ar ⁺ + Cu	358	1185	1354	D ⁺ + SiC	405	409	1397	H ⁺ + SiC	409 1397
	1393	1935	2249	D ⁺ + SS	1394	1398		H ⁺ + SS	1398 1404
Ar ⁺ + Fe	1394			D ⁺ + TiC	1397			H ⁺ + Ti	1433
Ar ⁺ + Fe ₃ O ₄	1189			e + H ₂ O	2133			H ⁺ + TiC	1397
Ar ⁺ + Mo	390	1392		e + KBr	2406			H ⁺ + TiH ₂	1433
Ar ⁺ + PtSi	381			e + KI	2406			H ⁺ + U	2389
Ar ⁺ + Si	2479			e + RbBr	2406			H ₂ ⁺ + [C + Cu]	1177
Ar ⁺ + SiC	405	409		e + RbI	2406			H ₂ ⁺ + [C + Pt]	1403
Ar ⁺ + SiO ₂	1326			e + SS	391			H ₂ ⁺ + [C + SS]	1177
Ar ⁺ + SS	1394			F + Au	891			H ₂ ⁺ + [O + Cu]	1177
Ar ⁺ + Ta ₂ O ₅	2250			H ⁺ + [C + Cu]	1177			H ₂ ⁺ + [O + SS]	1177
Ar ⁺ + Ti	1396			H ⁺ + [C + D]	408			H ₂ ⁺ + [S + Cu]	1177
Ar ⁺ + U	2389			H ⁺ + [C + SS]	1177			H ₃ ⁺ + [C + Cu]	1177
Ar ⁺ + V	1396			H ⁺ + [O + Cu]	1177			H ₃ ⁺ + [C + SS]	1177
Ar ⁺ + W	1360			H ⁺ + [O + SS]	1177			H ₃ ⁺ + [O + Cu]	1177
Au ⁺ + Au	1924			H ⁺ + [S + Cu]	1177			H ₃ ⁺ + [O + SS]	1177
Bi ⁺ + Au	1292			H ⁺ + [S + Ni]	2245			H ₃ ⁺ + [S + Cu]	1177
Br + Au	891			H ⁺ + Al	1404			He ⁺ + Ag	455 1392
C ⁺ + H ₂ O	2133			H ⁺ + Au	1393	1395	1404	He ⁺ + Au	1252 1393 1395
Cl + Au	891			H ⁺ + B	895			He ⁺ + B	895
Cu ⁺ + Cu	2417			H ⁺ + B ₂ C	1397			He ⁺ + B ₂ C	1397
				H ⁺ + BeO	1398			He ⁺ + C	386 1395 1397
				H ⁺ + C	386	1395	1397	He ⁺ + Fe	1394
				H ⁺ + Fe	1433			He ⁺ + H ₂ U	2133
								He ⁺ + Hf	455

He⁺ + Mo
 390 1392 1395
 He⁺ + Ni
 1395
 He⁺ + Pb
 455
 He⁺ + SiC
 1397
 He⁺ + SiO₂
 1326
 He⁺ + SS
 1394
 He⁺ + Ta
 455
 He⁺ + TiC
 1397
 He⁺ + U
 2389
 He⁺ + W
 455
 N⁺ + Au
 891
 N⁺ + Au
 2378
 N₂⁺ + [O₂ + Ti]
 614
 N₂⁺ + [U₂ + V]
 614
 Na⁺ + Ti
 1396
 N₂⁺ + V
 1396
 Ne⁺ + [O + Mo]
 1183

Ne⁺ + [O + W]
 1183
 Ne⁺ + Cu
 1854
 Ne⁺ + Hf
 455
 Ne⁺ + Mo
 2127
 Ne⁺ + SiO₂
 1326
 Ne⁺ + Ta
 455
 Ne⁺ + W
 455
 Ni + Ni
 612
 O + Au
 891
 O⁺ + H₂O
 2133
 PERT + Au
 1364
 PERT + Au
 1364
 PERT + Cu
 1364
 PERT + Nb
 1364
 PERT + Si
 1364
 T⁺ + Au
 1395

T⁺ + C
 1395
 T⁺ + Fe
 1433
 T⁺ + FeH
 1433
 T⁺ + FeH₂
 1433
 T⁺ + FeH₃
 1433
 T⁺ + FeT
 1433
 T⁺ + Mo
 1395
 T⁺ + Ni
 1395
 T⁺ + Ti
 1433
 T⁺ + TiH₂
 1433
 Xe⁺ + NeI
 2403
 Xe⁺ + RbBr
 2403
 Xe⁺ + RbCl
 2403
 Xe⁺ + RbI
 2403
 Review
 177 1886 2383
 Under
 1381 1399 1402
 1916 2222 2284

PARTICLE INTERACTIONS WITH SOLIDS

Sputtered Particle Charge and Quantum (Excited) State Distribution

Ar⁺ + [CO + Mo] 2213
 Ar⁺ + [Cu + Al₂O₃] 2219
 Ar⁺ + [Cu + BeO] 2219
 Ar⁺ + [Cu + O₂] 1237
 Ar⁺ + [O + Co] 1181
 Ar⁺ + [O + Mo] 1181
 Ar⁺ + Ag 817 2251
 Ar⁺ + Al 817 1881 1885 2251 2306
 Ar⁺ + Al₂O₃ 2306
 Ar⁺ + Au 1881 2251
 Ar⁺ + B 817
 Ar⁺ + Ba 817
 Ar⁺ + Be 817 1407
 Ar⁺ + Bi₂O₃ 1034
 Ar⁺ + Ca 817
 Ar⁺ + Cd 817
 Ar⁺ + Ce 817
 Ar⁺ + Co 817
 Ar⁺ + Cr 817 2251 2306
 Ar⁺ + Cr₂C₂ 1368
 Ar⁺ + Cs 817
 Ar⁺ + CsClO₄ 2091
 Ar⁺ + CsF 2091
 Ar⁺ + CsI 2091
 Ar⁺ + Cu 817 1237 1881 1975 2251 2306
 Ar⁺ + F 817
 Ar⁺ + Fe 817 2306

Ar⁺ + GaAs 1881 2232
 Ar⁺ + GaP 1881
 Ar⁺ + GdF₃ 534
 Ar⁺ + Ge 817
 Ar⁺ + H 817
 Ar⁺ + HfC 1368
 Ar⁺ + In 817
 Ar⁺ + InAs 1881
 Ar⁺ + InSb 1881
 Ar⁺ + Invar 2234 2235
 Ar⁺ + K 817 1885
 Ar⁺ + KCl 2306
 Ar⁺ + KF 2227
 Ar⁺ + KPF₆ 2227
 Ar⁺ + Li 817
 Ar⁺ + LiF 2227
 Ar⁺ + Mg 817 2251
 Ar⁺ + Mn 817
 Ar⁺ + Mo 817
 Ar⁺ + Mo₂C 1368
 Ar⁺ + Na 817
 Ar⁺ + NaBF₄ 2227
 Ar⁺ + NaBr 2091
 Ar⁺ + NaCl 1034 2091 2306
 Ar⁺ + NaF 2091 2227
 Ar⁺ + NaI 2091
 Ar⁺ + NbC 1368
 Ar⁺ + Ni 817 1881 2306
 Ar⁺ + P 817
 Ar⁺ + Pb 817
 Ar⁺ + PbBr₂ 1034
 Ar⁺ + PbCl₂ 1034

Ar⁺ + PbF₂ 1034
 Ar⁺ + PbI₂ 1034
 Ar⁺ + PbO 1034
 Ar⁺ + PERT 2441
 Ar⁺ + Re 817
 Ar⁺ + Sc 2306
 Ar⁺ + Si 817 2251 2306
 Ar⁺ + SiC 1881
 Ar⁺ + SiO₂ 2306
 Ar⁺ + Sr 817
 Ar⁺ + SS 2234 2235
 Ar⁺ + Ta 817
 Ar⁺ + Ta₂O₅ 2250
 Ar⁺ + TaC 1368
 Ar⁺ + Ti 817 1885 2306
 Ar⁺ + TiC 1368
 Ar⁺ + Tl 817
 Ar⁺ + V 2306
 Ar⁺ + VC 1368
 Ar⁺ + WC 1368
 Ar⁺ + Zn 817 1881 2306
 Ar⁺ + Zr 817 2306
 Ar⁺ + ZrC 1368
 B⁺ + Cu 475
 B⁺ + Mo 475
 Cs⁺ + [As + GaAs] 667
 Cs⁺ + [As + Si] 667
 Cs⁺ + [As + Sn] 667
 Cs⁺ + [B + GaAs] 667
 Cs⁺ + [B + Ge] 667
 Cs⁺ + [B + Si] 667
 Cs⁺ + [C + Si] 667

Cs ⁺ + [C + Sn] 667	e + NaBr 2392	Ne ⁺ + [O + W] 1887 2211
Cs ⁺ + [F + GaAs] 667	e + NaI 2392	Ne ⁺ + Be 1407
Cs ⁺ + [F + Ge] 667	e + PbI ₂ 2392	Ne ⁺ + Mg 2408
Cs ⁺ + [F + Si] 667	e + RbBr 2392	Ne ⁺ + PERT 2441
Cs ⁺ + [F + Sn] 667	e + RbCl 2392	O ⁺ + Be 1407
Cs ⁺ + [P + C] 667	e + RbI 2392	O ₂ ⁺ + Ti 1885
Cs ⁺ + [P + GaAs] 667	e + ZnBr ₂ 2392	O ⁻ + [As + Ge] 667
Cs ⁺ + [P + Ge] 667	H ⁺ + Be 1407	O ⁻ + [As + Si] 667
Cs ⁺ + [P + Si] 667	H ⁺ + Inconel 1438	O ⁻ + [As + Sn] 667
Cs ⁺ + [P + Sn] 667	H ⁺ + SS 1438	O ⁻ + [B + GaAs] 667
Cs ⁺ + [Sb + GaAs] 667	H ₂ ⁺ + Inconel 1438	O ⁻ + [D + Ge] 667
Cs ⁺ + [Sb + Si] 667	H ₂ ⁺ + SS 1438	O ⁻ + [B + Si] 667
Cs ⁺ + [Sb + Sn] 667	H ₃ ⁺ + Inconel 1438	O ⁻ + [B + Sn] 667
Cs ⁺ + Ni ₂ Si 667	H ₃ ⁺ + SS 1438	O ⁻ + [P + C] 667
Cs ⁺ + NiSi 667	He ⁺ + Be 1407	O ⁻ + [P + GaAs] 667
Cs ⁺ + Pd ₂ Si 667	He ⁺ + PERT 2441	O ⁻ + [P + Ge] 667
Cs ⁺ + Pt ₂ Si 667	Kr ⁺ + Al 1888 2381	O ⁻ + [P + Si] 667
Cs ⁺ + PtSi 667	Kr ⁺ + Al ₂ O ₃ 1888 2381	O ⁻ + [P + Sn] 667
Cs ⁺ + Si 667	Kr ⁺ + Be 1407 1000 2301	O ⁻ + [Sb + GaAs] 667
D ⁺ + [D + C] 1406	Kr ⁺ + BeO 1888 2381	O ⁻ + [Sb + Ge] 667
D ⁺ + Be 1407	Kr ⁺ + GaAs 1000 2381	O ⁻ + [Sb + Si] 667
D ⁺ + C 1406	Kr ⁺ + In 1888 2381	O ⁻ + [Sb + Sn] 667
e + AgBr 2392	Kr ⁺ + Sc 1888 2381	Xe ⁺ + NaI 2403
e + CaI ₂ 2392	Kr ⁺ + Ti 1888 2301	Xe ⁺ + RbBr 2403
e + CsBr 2392	Kr ⁺ + Y 1888 2381	Xe ⁺ + RbCl 2403
e + CaI 2392	Ne ⁺ + Be 1407	Xe ⁺ + RbI 2403
e + KBr 2392	Ne ⁺ + [D + W] 1887	Review 1880 2383 2412
e + KI 2392	Ne ⁺ + [H + W] 1887	Undef 665
e + LiF 2392		

D05

PARTICLE INTERACTIONS WITH SOLIDS

Photoelectric Ejection of Electrons
(coefficients)

$h\nu + [Ag + Cd]$			
1302			
$h\nu + [Ag + In]$			
1302			
$h\nu + [Au + Cd]$			
1302			
$h\nu + [Au + Ga]$			
1302			
$h\nu + [Au + In]$			
1302			
$h\nu + [CO + Ni]$			
1179			
$h\nu + [Cu + Ni]$			
578			
$h\nu + [H + Ni]$			
2203			
$h\nu + Ag$	1216	1298	
579			
$h\nu + Al$	1295	2179	
881			
$h\nu + As$			
591			
$h\nu + Au$	1296	1302	
383			

$h\nu + BaTiO_3$			
593			
$h\nu + C$			
881			
$h\nu + Cd$	1216	1302	
$h\nu + Cl + Si$	597		
$h\nu + Co + Ni$	374		
$h\nu + Cs$	1336		
$h\nu + Cu$	580	881	1146
	1147	1156	1159
	1160		
$h\nu + Ga$	1302		
$h\nu + GaAs$	377	1338	
$h\nu + H + W$	594		
$h\nu + In$	1302		
$h\nu + KNbO_3$	593		
$h\nu + Mo$	881	1216	1300
$h\nu + NaCl$	596		

$h\nu + Ni$	367	589	1160
	2203		
$h\nu + O + Ni$	369		
$h\nu + Pb$	373	881	
$h\nu + PbCl_2$	373		
$h\nu + PbI_2$	1338		
$h\nu + PbS$	373		
$h\nu + PbSe$	373		
$h\nu + S + Ni$	369		
$h\nu + Si$	597	1949	
$h\nu + Sn$	001	1E10	
$h\nu + W$	594	881	1300
$h\nu + Y$	1216		
$h\nu + Zr$	1216		
Undef	588	1149	1157
	1297	1332	2240
	2241		

D06

PARTICLE INTERACTIONS WITH SOLIDS

Reflection of Electrons from Surfaces
(coefficients)

$e + [Al + Mo]$			
2470			
$e + Ag$			
571			
$e + Al$	571	572	1180
	1934	2229	
$e + AlCu$	2229		
$e + Au$	571		
$e + Be$	581		

$e + C$	483	571	2229
$e + CrFe$	2229		
$e + Cu$	571	1934	1948
	2229		
$e + CuNi$	2229		
$e + D_2$	471	1435	
$e + Fe$	1180		
$e + Ge$	2229		
$e + H_2$	471	1435	
$e + Mo$	2483		

$e + N_2$	483		
$e + Ni$	572	1151	
$e + NiPd$	2229		
$e + Ph$	1934		
$e + Si$	479	2229	
$e + Ti$	571	572	1180
	2229		
$e + TiC$	1180		
$e + W$	583	584	587
	2482		
Undef	2208	2495	

PARTICLE INTERACTIONS WITH SOLIDS

Reflection of Heavy Particles from Surfaces (total reflection coefficients)

Ar + Cu 617				H ⁺ + Al 376	1367	2425	He + Pt 1178
Ar ⁺ + Ag 2233				H ⁺ + Au 1328	1432	2425	He + W 2206
Ar ⁺ + Al 2233				H ⁺ + Be 1367			He ⁺ + [Mo + O ₂] 2302
Ar ⁺ + Cu 458	2252			H ⁺ + C 1367	1432		He ⁺ + Ag 44
Ar ⁺ + Ta 2233				H ⁺ + Cu 376	1328		1431
Ar ⁺ + Ta ₂ O ₅ 2233				H ⁺ + Fe 1328	1433		2233
Ar ⁺ + TiO ₂ 2233				H ⁺ + FeH 1433			He ⁺ + Au 1431
Au + Cu 617				H ⁺ + FeH ₂ 1433			1432
CO + Pd 103				H ⁺ + FeH ₄ 1433			He ⁺ + Be 585
CO ₂ + Pt 1178				H ⁺ + FeT 1433			He ⁺ + C 1432
Cu + Cu 617				H ⁺ + Mo 376	1432		He ⁺ + Cu 1431
D ⁺ + Au 1328	1432			H ⁺ + Nb 1328			He ⁺ + CuO 1186
D ⁺ + C 1432				H ⁺ + Ni 2427			He ⁺ + Mo 1432
D ⁺ + Cu 1328				H ⁺ + Si 576	1328	1367	He ⁺ + Nb 1328
D ⁺ + Fe 1328				H ⁺ + SiO ₂ 1430			He ⁺ + Nb ₂ O ₅ 44
D ⁺ + Mo 1432				H ⁺ + SS 376	2425		He ⁺ + Ni 455
D ⁺ + Nb 1328				H ⁺ + Ta 1328	1432	1433	2427
D ⁺ + Ni 2427				H ⁺ + Ti 1328			He ⁺ + Pb 2135
D ⁺ + Si 1328				H ⁺ + TiD ₂ 1432			He ⁺ + Si 516
D ⁺ + Ti 1328	1432			H ⁺ + TiH ₂ 1432	1433		1430
D ⁺ + TiD ₂ 1432				H ⁺ + W 1432			He ⁺ + SiO ₂ 1430
D ⁺ + TiH ₂ 1432				H ₂ ⁺ + Al 376			He ⁺ + Ta 2233
D ⁺ + W 1432				H ₂ ⁺ + Cu 376			He ⁺ + Ta ₂ O ₃ 2233
H + Cu 613	617			H ₂ ⁺ + Mo 376			He ⁺ + Ta ₂ O ₅ 44
H + Fe 613				H ₂ ⁺ + SS 376			44
H + Ni 616				H ₃ ⁺ + Al 376			1186
H + SS 613				H ₃ ⁺ + Cu 376			He ⁺ + Ti 1328
				H ₃ ⁺ + Mo 376			1432
				He + Cu 2247			He ⁺ + TiD ₂ 1432
				He + LIF 785	2121	2151	He ⁺ + TiH ₂ 1432
				He + Pd 103			He ⁺ + TiO ₂ 44
							2233
							He ⁺ + W 516
							1432
							2413
							He ⁺ + WO ₃ 44
							He ⁺ + ZrO ₂ 44
							N ₂ + Cu 617
							Ne + Cu 617
							2247
							Ne + W 785
							Ne ⁺ + Ag 455
							2225
							Ne ⁺ + Cr 2225

Ne⁺ + Cu
 2225
 Ne⁺ + Fe
 2225
 Ne⁺ + In
 2225
 Ne⁺ + Nb
 2225
 Ne⁺ + Nb₂O₄
 44
 Ne⁺ + Ni
 455 456 2225
 2413 2427
 Ne⁺ + O + Ni
 456
 Ne⁺ + Pb
 2225
 Ne⁺ + Pd
 2225
 Ne⁺ + Rh
 2225
 Ne⁺ + Sn
 2225
 Ne⁺ + Ta
 44 2225

Ne⁺ + Ta₂O₅
 44
 Ne⁺ + TiO₂
 44
 Ne⁺ + WO₃
 44
 Ne⁺ + Y
 2225
 Ne⁺ + Zr
 2225
 Ne⁺ + ZrO₂
 44
 O₂ + Pd
 103
 O₂ + Pt
 1178
 P⁺ + [H + SiO₂]
 899
 P⁺ + [H₂O + SiO₂]
 899
 T⁺ + Au
 1328
 T⁺ + Cu
 1328

T⁺ + Fe
 1328 1433
 T⁺ + FeH
 1433
 T⁺ + FeH₂
 1433
 T⁺ + FeH₄
 1433
 T⁺ + FeT
 1433
 T⁺ + Si
 1328
 T⁺ + Ti
 1433
 T⁺ + TiH₂
 1433
 Xe + Cu
 617
 Review
 2207
 Undef
 2047 2201 2212
 2216 2228 2242

DOB

PARTICLE INTERACTIONS WITH SOLIDS

Charge and Quantum State Distributions
of Reflected Heavy Particles at
Macroscopic Distances from Surfaces

Ar + Cu
2504

Ar⁺ + [Cu + O₂]
1237

Ar⁺ + C
1883

Ar⁺ + Cu
1237 2420

B⁺ + Cu
475

B⁺ + Mo
475

H⁺ + [Ag + Si]
1893

H⁺ + [O + Mo]
1882

H⁺ + Al
1889

H⁺ + Au
1334 1889

H⁺ + Bi
1889

H⁺ + Cu
23

H⁺ + Mo
23 1706 1882

H⁺ + Pb
2183

H⁺ + Si
1889 1890 1893

H⁺ + SS
23

* H₂⁺ + Cu
23

H₂⁺ + Mo
23 1706

H₂⁺ + Pb
2183

** H₂⁺ + SS
23

H₃⁺ + Cu
23

H₃⁺ + Mo
23 1706

H₃⁺ + Pb
2183

H₃⁺ + SS
23

H⁻ + Mo
1706

H⁻ + Pb
2183

He⁺ + [Ag + Si]
1893

He⁺ + Ag
2248

He⁺ + Al
1889

He⁺ + Au
1889

He⁺ + Bi
1889 1891

He⁺ + Bi₂O₃
1891

He⁺ + C
1883

* H₂⁺ + Ag
2248

** H₂⁺ + Pd
2248

He⁺ + Cu
2305

He⁺ + Ni
1894 2210

He⁺ + Pb
1891 2139

He⁺ + Pb[NO₃]₂
1891

He⁺ + PbCl₂
1891

He⁺ + Pd
2248

He⁺ + Si
1889 1893

Kr + Cu
2504

N⁺ + [Ag + Si]
1893

N⁺ + Si
1893

Ne + Cu
2504

Ne⁺ + Au
1892

Ne⁺ + C
1883

Ne⁺ + Cu
1889

Ne⁺ + Ni
1889 1894

Ne⁺ + Si
1892

Ne⁺ + Zr
1889

Undef
2223

D09

PARTICLE INTERACTIONS WITH SOLIDS

De-excitation, Neutralization, Ionization, or Dissociation of Particles Interacting with Surfaces

Ar⁺ + Ag 2251
 Ar⁺ + Al 2251
 Ar⁺ + Au 2251
 Ar⁺ + Cr 2251
 Ar⁺ + Cu 3361
 Ar⁺ + Mg 2251
 Ar⁺ + Si 2251
 CO⁺ + Pyrex 1945
 CO₂⁺ + C 444

Cu + Cu 340
 H + Cu 340
 H⁺ + Au 1334
 H₂ + Cu 2237
 H₂⁺ + C 2119
 HD + W 413
 He + Cu 340
 HeH⁺ + C 2119
 N₂⁺ + C 1111
 N₂⁺ + Ge 1111
 N₂⁺ + Pb 1111
 N₂⁺ + PbO 1111

N₂⁺ + PbO₂ 1111
 N₂⁺ + Si 961 1111
 N₂⁺ + SiO 961 1111
 N₂⁺ + SiO₂ 961 1111
 N₂⁺ + Sn 1111
 N₂⁺ + SnO 1111
 N₂⁺ + SnO₂ 1111
 N₂O⁺ + C 444
 UF₆⁺ + C 987
 UF₆⁺ + Pt 987
 UF₆⁺ + W 987
 Under 1375 1376 2492

D10

PARTICLE INTERACTIONS WITH SOLIDS

Interaction Potentials Between Surfaces and Free Particles Located External to the Surface (electrons and heavy particles)

D + LiF 2231

D + NaF 2231
 e + Si 2431
 H + LiF 2231
 H + NaF 2231
 H₂ + Cu 2237

H₂ + Fe 1056
 He + LiF 2231
 He + NaF 2231
 PERT + PERT 2310

D11

PARTICLE INTERACTIONS WITH SOLIDS

Sticking Coefficients (thermal energies)

CO + Ir 2074

CO + Pd 103
 He + Pd 103

O₂ + Pd 103
 Under 2130

PARTICLE INTERACTIONS WITH SOLIDS

Electromagnetic Radiation Induced by
Electron or Heavy Particle Impact on
SurfacesAr⁺ + Cu
1927Ar⁺ + Mo
1927Ar⁺ + PERT
2441Ar⁺ + Ti
1927Ar⁺ + W
1927C⁺ + C
1879Cl¹⁸⁺ + Cu
357e + [Cd + Hg + Te]
1325e + [GaN + Zn]
2301e + Ag
1150 1209 1370e + Al
2432e + C
1152e + CdS
2224e + Cu
2432e + GaAs
1148 2224e + GaP
1329e + LiF
1215e + MgO
1329e + Ni
1904e + Th
2215H + Undef
668H⁺ + Al
1518H⁺ + Au
1878H⁺ + C
1879H⁺ + Ce
1878H⁺ + Cs
1878H⁺ + Cu
1878H⁺ + Fe
1878H⁺ + Ho
1878H⁺ + Ni
1904H⁺ + Se
1878H⁺ + Sm
1878H⁺ + Sn
1878H⁺ + Ti
1878H⁺ + W
1878H⁺ + Y
1878He⁺ + Cu
1927He⁺ + Mo
1927He⁺ + Pb
1877He⁺ + PERT
2441He⁺ + Te
1877He⁺ + Ti
1927He⁺ + W
1927He²⁺ + Au
1878He²⁺ + Ce
1878He²⁺ + Cs
1878He²⁺ + Cu
1878He²⁺ + Fe
1878He²⁺ + Ho
1878He²⁺ + Se
1878He²⁺ + Sm
1878He²⁺ + Sn
1878He²⁺ + Ti
1878He²⁺ + W
1878He²⁺ + Y
1878N⁺ + C
1879Ne⁺ + PERT
2441O⁺ + C
1879O₂ + MgO
2217Undef
1304

PARTICLE INTERACTIONS WITH SOLIDS

Desorption of Gases from Surfaces

Ar⁺ + [CH₄ + Al]

1191

Ar⁺ + [CO + Al]

1191

Ar⁺ + [CO + Ni]

664

Ar⁺ + [CO₂ + Al]

1191

Ar⁺ + [H₂ + Al]

1191

Ar⁺ + CO + Ni

455

Ar⁺ + O + Ni

455

CO + Ir

2074

D⁺ + [D + C]

1406

D⁺ + [D + SS]

1427

D⁺ + C

1406

e + [CH₄ + Al]

1191 1436

e + [CH₄ + C]

1436

e + [CH₄ + Inconel]

1436

e + [CH₄ + SS]

1436

e + [CO + Al]

1191 1436

e + [CO + C]

1436

e + [CO + Inconel]

1436

e + [CO + Ir]

2226

e + [CO + Mo]

2213

e + [CO + Ru]

611

e + [CO + SS]

1436

e + [CO₂ + Al]

1191

e + [F + SS]

1176

e + [H + SS]

1176

e + [H₂ + W]

2246

e + [H₂ + Al]

1191 1436

e + [H₂ + C]

1436

e + [H₂ + Inconel]

1436

e + [H₂ + SS]

1436

e + [O + Nb]

2292

e + [O + W]

2244

e + [O₂ + W]

610

e + Cr₂O₃

2131

e + NiO

2131

e + TiO₂

2131

e + V₂O

2131

e + WO₃

2131

H⁺ + ZrC

2490

H⁺ + [C + Cu]

1177

H⁺ + [C + SS]

1177

H⁺ + [D + SS]

1424 1425

H⁺ + [O + Cu]

1177

H⁺ + [O + SS]

1177

H⁺ + [S + Cu]

1177

H₂⁺ + [C + Cu]

1177

H₂⁺ + [C + SS]

1177

H₂⁺ + [O + Cu]

1177

H₂⁺ + [O + SS]

1177

H₂⁺ + [S + Cu]

1177

H₃⁺ + [C + Cu]

1177

H₃⁺ + [C + SS]

1177

H₃⁺ + [O + Cu]

1177

H₃⁺ + [O + SS]

1177

H₃⁺ + [S + Cu]

1177

He⁺ + [CO + Ni]

664 1895

He⁺ + [H + W]

1428

He⁺ + [H₂ + W]

1895

He⁺ + [O + Mo]

1434

He⁺ + [O + Ni]

1428

He⁺ + [O + Pd]

1428

He⁺ + [O + Ti]

1428

He⁺ + [O + W]

1428

He⁺ + [He + Mo]

1414

Ne⁺ + [CO + Ni]

664 1895

Ne⁺ + [O + Ni]

1895

Ne⁺ + CO + Ni

455

Ne⁺ + S + Ni

455

PARTICLE INTERACTIONS WITH SOLIDS

Blistering, Voids, and Surface Strain
in Metals

Ar ⁺ + Mo	390		
Ar ⁺ + PtSi	381		
Ar ⁺ + Si	538		
Br + Au	891		
Cl + Au	891		
D ⁺ + C	1413		
D ⁺ + Cu	1840		
D ⁺ + Mo	1188	1413	
D ⁺ + Ni	457		
D ⁺ + SiC	1413		
e + SS	391	398	399
F + Au	891		
H ⁺ + C	386		

H ⁺ + Mo	389		
H ⁺ + Ti	1411		
H ⁺ + V	1411		
He + Rh	615		
He ⁺ + [Nb + Zr]	396		
He ⁺ + [Pt + Rh]	1420		
He ⁺ + Ag	2372		
He ⁺ + Be	1409		
He ⁺ + C	386		
He ⁺ + Cu	1416		
He ⁺ + Mo	1184	1414	1439
	2391		
He ⁺ + Nb	396	1846	
He ⁺ + Ni	457	470	1409
	1415	1418	
He ⁺ + SS	400	404	1408
	1418	1419	
He ⁺ + Ti	1411		
He ⁺ + V	892	1410	1411

	1421		
He ⁺ + W	1417		
n + Al ₂ O ₃	393		
N + Au	891		
N ₂ ⁺ + [Ni + Al]	407		
Ne ⁺ + C	388		
Ne ⁺ + Nb	402		
Ni ⁺ + Nb	392		
Ni ⁺ + SS	1440		
Ni ⁺ + Ti + Nb	392		
Ni ²⁺ + Mo	2391		
O + Au	891		
O ⁺ + SS	404		
Si ⁴⁺ + SS	400		
Ta ³⁺ + Mo	1439		
V ⁺ + [V + Cr]	1442		
Undef	403	1412	1441

PARTICLE INTERACTIONS WITH SOLIDS

Radiation Damage in Metals

Al²⁺ + Al
115

Ar⁺ + Au
1924

Ar⁺ + Cu
1924

Ar⁺ + NiSi,
511

Ar⁺ + Pd, Si
511

Ar²⁺ + Cu
406

Au²⁺ + Au
2373

Bi⁴⁺ + Cu
406

C⁺ + Mo
1865

C²⁺ + SS
118

Cu⁺ + [Ti + Al + V]
1444

Cu⁺ + Ag
2373

Cu⁺ + Au
2373

Cu⁺ + Cu
387 2373

Cu⁺ + Ni
2373

Cu⁺ + Pt
2373

D⁺ + SS
1429

e + [Ag + Cd]
114

e + [Ag + Zn]
114

e + [Cu + Al]
116

e + [Cu + Zn]
397

e + Ag
114

e + Al
1303 2377

e + Bi
2423

e + Co
2376

e + Cu
117 119 406
2384 2387 2428

e + Mo
2308

e + Nb
112

e + SS
118 2424

e + Zr₃Al
395

Ge⁺ + Ge
536

H⁺ + Al
2477

H⁺ + Cu
406 1182

H⁺ + GaAs
2304

H⁺ + GaP
2304

H⁺ + Nb
1182

H⁺ + Ni
1182

H⁺ + Si
2304

H₃⁺ + Si
576

He⁺ + [Mg + Al]
2388

He⁺ + Ag
2372

He⁺ + C
2307

He⁺ + Cu
387 577

He⁺ + Mo
2391

He⁺ + SS
404

He²⁺ + Zn
1324

n + [Bi + Te]
113

n + [Cu + Al]
2399

n + Bi
113

n + Co
2376

n + Cu
1182 2371

n + Mg
1918

n + Nb
1182 2416

n + Ni
1182

n + Ni₃Cr
2401

n + SS
2424

N⁺ + GaAs
2304

N⁺ + GaP
2304

N⁺ + Si
2304

N⁺ + V
1865

Nb⁺ + Nb
1437

Ne⁺ + Mo
1865

Ne⁺ + V
1865

Ni⁺ + [Ni + Al]
1443 2375

Ni⁺ + [Ni + Mo]
1443

Ni⁺ + [Ni + Si]
1443

Ni⁺ + Cu
387

Ni⁺ + Ni
1443

Ni⁴⁺ + Mo
2391

O + UG₂
2411

O⁺ + Pb
2374

O⁺ + SS
404

U + UO₂
2411

W⁺ + Pt
2205

Undef
1521 2390

PARTICLE INTERACTIONS WITH SOLIDS

Particle Implantation in Metals

Au ⁺ + Cu	1192		
Au ⁺ + Si	2407		
Au ⁺ + Fe	1192		
B ⁺ + Si	518	1939	
BF ₃ ⁺ + Si	519	1939	
Bi ⁺ + Be	1869		
Cl ⁺ + Cu	1863		
Cr ⁺ + Fe	1190	2257	
Cu ⁺ + Cu	1874		
Cu ⁺ + Fe	1190		
D ⁺ + C	1426		
D ⁺ + SS	401	1187	1423
	1424	1425	1427
	1847		
D ⁺ + Zr	1422		

D ₂ ⁺ + SS	401		
e + Mg	2402		
Er ⁺ + Ni	1917		
Ga ⁺ + Be	1869		
Ge ⁺ + Ge	536		
H ⁺ + Si	1884		
H ₂ ⁺ + Si	1884		
He ⁺ + Ag	2372		
He ⁺ + C	1426		
He ⁺ + Cu	1863		
He ⁺ + ErD ₂	1845		
He ⁺ + ErT ₂	1845		
He ⁺ + Mo	1414		
He ⁺ + Nb	1846	1913	
He ⁺ + Ni	1913		
He ⁺ + SS	404		

La ⁺ + Ni	1917		
Li ⁺ + Cu	1863		
N ₂ ⁺ + Fe	2285		
Ni ⁺ + Fe	2257		
O ⁺ + SS	404		
Os ⁺ + Be	1869		
P ⁺ + [H + SiO ₂]	899		
P ⁺ + [H ₂ O + SiO ₂]	899		
Pb ⁺ + Be	1869		
Sn ⁺ + Ni	1917		
Ta ⁺ + Ni	1917		
Te ⁺ + GaAs	520		
Tl ⁺ + Be	1869		
W ⁺ + Be	1869		
Review	1193	1194	1195
	2256	2290	
Undef	2419	2421	2422

D17

PARTICLE INTERACTIONS WITH SOLIDS

Electron-, Ion-, and Photon-Induced
Chemical Changes to Surfaces

Ar⁺ + [Cu + Al₂O₃] 2219

Ar⁺ + [Cu + BeO] 2219

Ar⁺ + [Cu + Ni] 2218

Ar⁺ + CoFe₂O₄ 2255

Ar⁺ + SS 1400

Ar⁺ + Ta₂O₅ 669

Ar⁺ + VO₂ 1940 1952

B⁺ + Si 1953

D⁺ + C 408

D⁺ + SiC 1405

e + [O₂ + W] 610

H⁺ + C 408

H⁺ + SS 1400

He⁺ + Si₃N₄ 533

He⁺ + Ta₂O₅ 669

He²⁺ + CaF₂ 2300

He²⁺ + PbF₂ 2300

N⁺ + Si₃N₄ 533

N⁺ + VO₂ 1952

N₂⁺ + Si 961

N₂⁺ + SiO 961

N₂⁺ + SiO₂ 961

O⁺ + GaAs 514

Review 1886

Underf 2223

E01

ELECTRON-PARTICLE INTERACTIONS

General

e + CO 2051

e + He⁺ 1636

e + N₂ 2051

Review 2196

Underf 1635 1820

1737

ELECTRON-PARTICLE INTERACTIONS

Elastic Collisions

e + Ag				e + CsOH				e + LICl			
2489				1359				1708			
e + Al				e + Cu				e + LIF			
2285				2285				1708			
e + Ar				e + H				e + Mg ⁺			
509	1520	1531		59	77	200		1650			
2487				201	216	253		e + Mn			
e + Ba				1359	1507	1520		1471			
1494				1548	1575	1605		e + N ₂			
e + Ba ⁺				1698	1777	1801		13	53	67	
1650				e + H*				195	368	480	
e + Be				26	260			508	639	789	
499				e + H ₂				1359	1361	1640	
e + C				53	273	368		1911	1973		
2285				639	981	1265		e + Na			
e + C ₂ H ₄				1359	1603	1640		1359	1492		
1547				1746	1794	1808		e + NaCl			
e + C ₃ H ₆				1818				1708			
1547				e + H ₂ ⁺				e + NaF			
e + C ₄ H ₈				1346	1600			1708			
1547				e + H ₂ D				e + NaNe			
e + C ₆ H ₆				1359				2163			
1547				e + H ₂ S				e + Ne			
e + C ₆ H ₆ ⁺				1637				90	236	1531	
1547				e + HBr				2487	2489		
e + CF ₂ CH ₂				1458				e + NO			
1547				e + HCN				1359			
e + Ca ⁺				1978				e + O ₂			
1650				e + He				1359	1911		
e + Cd				14	90	183		e + OCS			
474				200	354	1531		756			
e + CH ₄				1698	1823	2487		e + OH			
1547				e + He ⁺				1359			
e + CO				1546				e + SF ₆			
195	358	756		e + HF				877	2103		
1359	2107	2330		715				e + Sr ⁺			
e + CO ₂				e + Hg				1650			
489	756	1359		1615	2358			e + Xe			
e + Cs				e + K				2427			
1359				1359				Review			
e + CsF				e + KI				54			
54	1708			54	1708			Undef			
				e + KOH				284	1380	2272	
				1359				2314			
				e + Kr							
				509	2487						
				e + Li							
				1792							

ELECTRON-PARTICLE INTERACTIONS

Excitation

e + Ar	1248	1533
e + Ar*	1705	
e + Ar ⁺	1691	
e + B Seq	846	
e + Ba	1494	
e + Ba*	2168	
e + Ba ⁺	1650	
e + Be*	39	259
e + Bi	1651	
e + C ²⁺	622	633
e + Ca*	259	1650
e + Ca ⁺	1658	
e + Cd	474	
e + CD ₄	1608	
e + CH*	1830	
e + CH ₂ Br ₂	2266	
e + CH ₂ I ₂	2266	
e + CH ₃ I	2266	
e + CH ₄	1608	
e + CHBr ₃	2266	
e + CO	83	195 368
	894	
e + CO ₂	1115	1473
e + Cs	29	184 862
e + CS ₂	2064	
e + C ₂ Cl	1484	
e + C ₂ F	54	55 1484
e + D ₂	206	210 271
	2280	

e + D ₂ O	2451		
e + Er	1651		
e + Eu	1236		
e + F ₂	964		
e + Fe	1744		
e + Fe ²⁺	827		
e + Fe ³⁺	643	827	
e + Fe ⁴⁺	1744		
e + Fe ¹⁰⁺	638		
e + Fe ¹¹⁺	638		
e + Fe ¹⁴⁺	1658		
e + Fe ¹⁶⁺	1744		
e + Fe ²²⁺	1744		
e + H	193	202 235	
	324	333 491	
	603	952 1539	
	1576	1787 1822	
	2140	2537	
e + H*	2332	2366	
e + H Seq	208	657 1455	
	1707	1778 2066	
	2366		
e + H ₂	306	309 210	
	273	368 403	
	1574	1784 2265	
	2280		
e + H ₂ O	1976	2338 2345	
	2451		
e + H ₂ S	1637		
e + HBr*	1458		
e + HCl	1595		
e + H ₂	7	183 202	
	203	237 252	
	1495	1496 1574	
	1577	1634 1728	
e + He*	24	168 1766	
e + He ⁺	48	225 485	
	1447	1576 1707	
e + He Seq	93	631 632	
	651	831 1532	
	2350		
e + HF	703	1010 1595	

e + Hg	1242	2349	2358
e + HgBr	730		
e + HgCl	730		
e + HgI	730		
e + Ho	1651		
e + K	29	184 325	
	862		
e + KI	54	1484	
e + Kr	1461	1578	
e + Kr*	1705		
e + Kr ²⁺	1658		
e + Li	325	637 862	
e + Li ⁺	1759		
e + Li Seq	846		
e + LiCl	1484		
e + LiF	55		
e + LiH	1484		
e + Mg	1470		
e + Mg*	259	1650	
e + Mg ¹¹⁺	1530		
e + Mn	1471		
e + Mo ¹⁺	1744		
e + Mo ²⁺	1744		
e + Mo ¹¹⁺	1658		
e + Mo ¹²⁺	1744		
e + N ₂	13	31 67	
	195	368 480	
	554	789 1244	
	1363	1911 1973	
	2265		
e + N ₂ O	702		
e + Na	325	862 1585	
e + Na Seq	551		
e + NaCl	1484		
e + Ne	1533		

e + Ne Seq
 831
 e + NO
 148 924 1119
 e + O⁺⁺
 622 633
 e + O⁺
 840
 e + O₂
 497 1621 1622
 1911 1958
 e + OCS
 2064

e + OH
 636
 e + Rb
 29 184 862
 e + SF₆
 701
 e + Sn
 1651
 e + SO₂
 1555 2064

e + Sr⁺
 1650
 e + Zn¹⁹⁺
 1658
 Review
 54 55 2196
 Undef
 1100 1726 1768
 2267 2270 2272
 2327

E04

ELECTRON-PARTICLE INTERACTIONS

Dissociation

e + [F₂ + Ar]
 662
 e + Ar₂⁺
 47
 e + Br₂
 541
 e + CH⁺
 826 848
 e + CH₂Br₂
 2266
 e + CH₂I₂
 2266
 e + CH₃⁺
 828
 e + CH₃I
 2266
 e + CHBr₃
 2266
 e + CO
 83 195
 e + D₂
 206 210 271

2280 2445
 e + D₂⁺
 1374
 e + D₂O
 681 2451
 e + F₂
 530
 e + H₂
 205 206 210
 492 2280 2445
 e + H₂⁺
 1374 1594
 e + H₂O
 681 2345 2451
 e + H₃⁺
 1594 2318
 e + H₃O⁺
 828
 e + HBr
 541
 e + HCNH⁺
 828
 e + HD
 2445
 e + HeH⁺
 826
 e + HF
 703

e + HgBr
 730
 e + HgCl
 730
 e + HgI
 730
 e + I₂
 1534
 e + Kr₂⁺
 573
 e + N₂
 195 1365 1554
 e + N₂O
 702 720
 e + NH₄⁺
 820
 e + NO
 1664
 e + O₂
 497
 e + SF₆
 1563
 Review
 280
 Undef
 1053

ELECTRON-PARTICLE INTERACTIONS

Recombination (electron-ion)

e + Ar ⁺	819			e + Fe ¹⁹⁺	58			e + Ne ²⁺	366	
e + Ar ²⁺	819			e + Fe ²⁰⁺	58			e + Ne ³⁺	366	
e + Ar ³⁺	819			e + Fe ²¹⁺	58			e + Ne ⁺	819	
e + Ar ⁴⁺	819			e + Fe ²²⁺	58			e + Ne Seq	831	
e + Ar ¹⁰⁺	58			e + Fe ²³⁺	58			e + Ne ²⁺	366	819
e + Ar ¹¹⁺	58			e + Fe ²⁴⁺	58			e + Ne ³⁺	366	819
e + Ar ¹²⁺	58			e + Fe ²⁵⁺	58			e + Ne ⁴⁺	819	
e + Ar ¹³⁺	58			e + H ₂ ⁺	1374	1594		e + NH ₄ ⁺	73	
e + Ar ¹⁴⁺	58			e + H ₃ ⁺	446	1594	2318	e + NO ⁺	109	
e + Ar ¹⁵⁺	58			e + H ₄ ⁺	446			c + O ⁺	819	
e + Ar ¹⁶⁺	58			e + He ⁺	2369			e + O ²⁺	366	819
e + Ar ¹⁷⁺	58			e + He Seq	631	632	831	e + O ³⁺	366	819
e + Ar ₂ ⁺	47			e + Kr ₂ ⁺	573			e + O ⁴⁺	819	
e + C ⁺	819			e + Mg ⁺	819			e + O ⁷⁺	840	
e + C ²⁺	819			e + Mg ²⁺	819			e + PERT	646	649
e + C ³⁺	819			e + Mg ³⁺	819			e + S ⁺	815	
e + C ⁴⁺	819			e + Mg ⁴⁺	819			e + S ²⁺	819	
e + CH ⁺	848			e + Mo ³⁰⁺	2155			e + S ³⁺	819	
e + D ₂ ⁺	1374			e + Mo ³¹⁺	2155			e + S ⁴⁺	819	
e + F ⁺	366			e + Mo ³⁴⁺	58			e + Si ⁺	819	
e + F ²⁺	366			e + Mo ³⁵⁺	58			e + Si ²⁺	819	
e + Fe ⁸⁺	1722	2154		e + Mo ³⁶⁺	58			e + Si ³⁺	819	
e + Fe ⁹⁺	1722	2154		e + Mo ³⁷⁺	58			e + Si ⁴⁺	815	
e + Fe ¹⁰⁺	1722	2154		e + Mo ³⁸⁺	58			e + W ⁶⁺	58	
e + Fe ¹¹⁺	1722			e + Mo ³⁹⁺	58			e + W ⁷⁺	58	
e + Fe ¹²⁺	1722			e + Mo ⁴⁰⁺	58			e + W ⁸⁺	58	
e + Fe ¹³⁺	1722			e + Mo ⁴¹⁺	58			e + W ⁹⁺	58	
e + Fe ¹⁸⁺	58			a + N ⁺	819			e + W ¹⁰⁺	58	
				e + N ²⁺	366	819		e + W ¹¹⁺	58	
				e + N ³⁺	366	819		e + W ¹²⁺	58	
				e + N ⁴⁺	819			e + W ¹³⁺	58	

E07

ELECTRON-PARTICLE INTERACTIONS

Collisional De-Excitation

e + [O₂⁻ + N₂⁺]
2498

e + [O₂⁻ + O₂⁺]
2498

e + [O⁻ + N₂⁺]
2498

e + [O⁻ + O₂⁺]
2498

e + Ar⁺
1691

e + Ba⁺
2168

e + C²⁺
622

e + CO₂
1473

e + He⁺
168

e + He Seq
631 632

e + O⁺⁺
622

e + PERT
649

E08

ELECTRON-PARTICLE INTERACTIONS

Collisional Line Broadening

e + Ar⁺
1638 1697

e + Ba⁺
1925

Undef
836 1689

E09

ELECTRON-PARTICLE INTERACTIONS

Negative Ion Formation

e + [CO + CO]
2334

e + [CO₂ + CO₂]
2334

e + [F₂ + N₂]
662

e + [N₂ + N₂]
2334

e + [N₂O + CO₂]
2088

e + [O₂ + N₂]
1358

e + [O₂ + O₂]
2334

e + Br₂
541 1102

e + Cl₂
1102 1609

e + CO₂
1983

e + D₂
2186 2445

e + D₂O
681

e + F₂
530 964 1102

e + H₂
2186 2187 2445

e + H₂O
681 1976 1984
2338

e + HBr
641

e + HCl
1344

e + HD
2445

e + I₂
1102 1534

e + N₂
1554

e + N₂O
1000 1983

e + NO
1654

e + SF₆
1021

e + SO₂
1555

Review
2196

E10

ELECTRON-PARTICLE INTERACTIONS

Spin Exchange

e + H
1507

e + H₂
1818

e + Li
1792

E11

ELECTRON-PARTICLE INTERACTIONS

Free-free Transitions (Bremsstrahlung)

e + Al
2432

e + Ar 857 1493
e + C 98
e + Cu 2432
e + N 1657

e + Ne 857
e + PERT 649
Undef 1175 1832 1928
2325

E12

ELECTRON-PARTICLE INTERACTIONS

Positron Collisions

e+ + [He + Ar]
1509

e+ + Ar
1520 2353

e+ + H 460 1515 1520
1523 1539 1605
1732 1733 1799
e+ + He 14 90 1460
1503 1584 1799
2353
e+ + N₂ 1769

e+ + Ne 90 1556 2353
e+ + O₂ 2353
e+ + Xe 2353
Undef 2325

E13

ELECTRON-PARTICLE INTERACTIONS

Electron Detachment from Negative Ions

e + H⁻
1508 2326

E15

ELECTRON-PARTICLE INTERACTIONS

Inner-Shell Interactions

e + H₂S
1114

e + I 61
e + Ne 1112
e + PH₃ 1114
e + SF₆ 701

e + Sn 61
e + Te 61
Undef 1352 2512 2557

E16

ELECTRON-PARTICLE INTERACTIONS

Fluorescence and Luminescence

e + [Ar + Hg + BrCCl₃]
526e + [Ar + Hg + Cl₂]
526e + [Ar + Xe + F₂]
1084e + [Cl₂ + Ar]
1067e + [Cl₂ + Xe]
1067e + [F₂ + Ar]
1067e + [F₂ + Kr]
1067e + [Hg + Cl₂ + Xe + Ar]
524e + [Kr + F₂]
517e + [Ne + Xe + NF₃]
540e + Ar
385e + H₂
205e + XeCl
1938

E17

ELECTRON-PARTICLE INTERACTIONS

Angular Scattering (specified process)

e + Ag
2489e + Al
2285e + Ar
486 1456 1457
1469 1520e + Ba
1494e + C
2285e + CO
368 2107e + CO₂
489e + CsF
1708e + Cu
2285e + H
324 333 1520
1539 1575 1787
1801 1822 2140e + H*
260e + H₂
368 1574 1784
1818e + H₂S
1637e + HBr
1458e + He
89 219 237
323 488 1495
1496 1549 1574e + He*
1766e + He†
1546e + Hg
2358e + KI
1708e + Kr
1456 1678e + Li
1792e + LiCl
1708e + LiF
856 1708e + Mn
1471e + N₂
13 368 480
508 554 1973e + Na
1492e + NaCl
1708e + NaF
1708e + Ne
2489e + Xe
1456

E18

ELECTRON-PARTICLE INTERACTIONS

Attenuation (unspecified process)

e + Au
2476

ION STRUCTURE - CTR PLASMAS (H₂, He, B, Be, O, N, C, Si, W, Mo, Ti, Fe, Cr, Nb, Au, Cu, Ni, H₂⁺, HeH⁺)

Transition Probabilities, Oscillator Strengths, Energy Levels, Lifetimes

AlO	135		
ArCl	88		
ArH	88		
Au	563	1535	1541
	1675		
B	1489	1540	1602
	1754	1755	
B ⁺	878	1524	
B ²⁺	1833		
B ³⁺	1133	1356	1641
B ⁴⁺	1133		
Be	1524	1602	1755
Be ⁺	1833		
Be Seq	823	1315	1488
	1500	1652	2370
Be ²⁺	1356	1641	1727
C	1306	1489	1540
	1602	1685	1754
	1755		
C ⁺	1134		
C Seq	1307		
C ²⁺	628	1134	1524
C ³⁺	502	1134	1757
	1833		
C ⁴⁺	1356		
CaO*	699		
CD	304	1579	
Co Seq	1652		
Cr	1586		
Cr ¹⁰⁺	2344		
Cr ¹⁴⁺	1277		
* Cd	1039		

Cu	1214	1240	1535
	1541	1551	1675
Cu ¹⁵⁺	2344		
Cu ¹⁷⁺	2344		
D ₂	679	1117	
F	1489		
Fe	1586		
Fe ⁺	1322		
Fe ²⁺	827		
Fe ³⁺	1319		
Fe ⁴⁺	1135		
Fe ⁵⁺	643	827	
Fe ¹⁰⁺	638		
Fe ¹¹⁺	638	2364	
Fe ¹²⁺	2344	2364	
Fe ¹³⁺	1307		
Fe ¹⁴⁺	638	2344	
Fe ¹⁶⁺	1277	1652	
Fe ¹⁷⁺	1256	1307	1652
Fe ¹⁸⁺	829	1307	1652
Fe ¹⁹⁺	829	1652	
Fe ²⁰⁺	829	1307	1313
	1652		
Fe ²¹⁺	1307	1652	
Fe ²²⁺	564	1129	1652
Fe ²³⁺	564	1307	1652
Fe ²⁴⁺	1307		
Fe ²⁵⁺	1307		
H	868	1520	
H Seq	658	1522	1652
	2473		
H ₂	462	566	599
	1127	1245	1782
H ₂ ⁺	2112		

H ₂ ⁺	1657		
H ₂	291		
H ⁻	1272	1320	1641
	1698	1727	
He	335	346	565
	598	748	852
	1229	1236	1356
	1641	1649	1699
	1713	1715	1727
	1730	1751	2531
He ⁺	1510		
He ⁺	2356		
He Seq	568	658	1234
	1485	1652	2299
	2370	2461	
He ₂ ²⁺	1742		
He ⁻	1698	1823	
HeH	88		
HeH ⁺	300		
Li ⁺	1356		
Li Seq	356	1307	1652
	1694		
LiH	104	105	
Mo	332	1273	2526
Mo ⁶⁺	1318		
Mo ⁹⁺	1318		
Mo ¹⁰⁺	1318		
Mo ¹²⁺	1747		
Mo ¹²⁺	338		
Mo ¹⁴⁺	1247	1307	
Mo ¹⁵⁺	1135	1307	
Mo ¹⁶⁺	1135	1307	
Mo ¹⁷⁺	1135	1307	
Mo ¹⁸⁺	1135	1307	
Mo ¹⁹⁺	1307		
Mo ²⁰⁺	1307		
Mo ²¹⁺	1307		
Mo ²²⁺	1307		
* Hg	1039		

Mo²³⁺ 1307
 Mo³⁰⁺ 338 1724
 Mo³¹⁺ 1724
 Mo³²⁺ 1724
 Mo³³⁺ 1536 1724
 Mo³⁸⁺ 1269
 N 835 1306 1489
 1540 1655 1754
 1755
 N* 967
 N+ 1755 2542
 N²⁺ 2542
 N⁶⁺ 502 1278
 N_p 1579
 N_p* 1834
 N_p** 1834
 Na Seq 648 1132 1314
 Nb⁷⁺ 1318
 Nb⁸⁺ 1318
 Nb⁹⁺ 1318
 Ne Seq 343 1652 2462
 Ni 1586
 Ni+ 629
 Ni¹⁴⁺ 2344
 Ni¹⁶⁺ 8044
 Ni¹⁷⁺ 834
 Ni¹⁸⁺ 1277
 Ni_p 887
 Ni_p+ 887

NO_p* 1977
 O 1306 1489 1540
 1755
 O* 497
 O+ 459 1755
 O Seq 1307
 O²⁺ 459
 O³⁺ 459
 O⁴⁺ 1310
 O⁵⁺ 1310
 O⁶⁺ 1310
 O⁷⁺ 1310
 O_p+ 289
 OH* 2079
 PERT 656
 PH* 762
 Si 1780 1781 2436
 Si+ 602 623 1312
 2436 2437
 Si²⁺ 2437
 Si⁸⁺ 638 2368
 Si⁹⁺ 638
 Si¹⁰⁺ 638 1131 1315
 2368
 Si¹¹⁺ 638 1131 1315
 Si¹²⁺ 1307
 Ta⁵⁵⁺ 1852
 Ta⁶⁴⁺ 1652

Ti 627 630
 Ti¹⁸⁺ 2344
 Ti¹⁹⁺ 1307
 Ti²⁰⁺ 1307
 W¹⁹⁺ 342
 W²⁰⁺ 342
 W²¹⁺ 342
 W²²⁺ 342
 W²³⁺ 342
 W²⁴⁺ 342
 W²⁵⁺ 342
 W²⁶⁺ 342
 W²⁷⁺ 342
 W²⁸⁺ 342
 W²⁹⁺ 342
 W³⁰⁺ 342
 W³¹⁺ 342
 W³²⁺ 342
 W³³⁺ 342
 W³⁴⁺ 342
 W³⁵⁺ 1747
 Xe 1936
 Zn Seq 501
 Review 2199 2200
 Undef 1566

F02

ION STRUCTURE - CTR PLASMAS (H₂, He, B, Be, O, N, C, Si, W, Mo, Ti, Fe, Cr, Nb, Au, Cu, Ni, H₃⁺, HeH⁺)

Shifts and Line Broadening by Fields

Al 1669
 C⁺ 1690
 Cu¹⁰⁺ 1910
 Cu¹¹⁺ 1910
 Cu¹²⁺ 1910
 Cu¹³⁺ 1910

D₂ 1117
 Fe¹⁰⁺ 1910
 Fe¹¹⁺ 1910
 Fe¹²⁺ 1910
 Fe¹³⁺ 1910
 Fe¹⁴⁺ 1910
 Fe¹⁵⁺ 1910
 H
 352 842 1243
 1568 1686 1783
 1812 2324
 H Seq 1729 2473

H₂ 347 1756
 H₃⁺ 548 1756 2363
 He 1773
 He⁺ 334
 N 1664 1679
 N⁺ 1693
 O₂ 1688
 Si⁺ 1752
 Undef 504 1671

F03

ION STRUCTURE - CTR PLASMAS (H₂, He, B, Be, O, N, C, Si, W, Mo, Ti, Fe, Cr, Nb, Au, Cu, Ni, H₃⁺, HeH⁺)

Electron Affinity

B 882

Be 882
 C 882
 F 882
 H 882

H⁻ 1356
 N 882
 O 882

F05

ION STRUCTURE - CTR PLASMAS (H₂, He, B,

Be, O, N, C, Si, W, Mo, Ti, Fe, Cr, Nb, Au, Cu, Ni, H₃⁺, HeH⁺)

hν + OH 1311

G02

TRANSPORT PHENOMENA AND AVERAGE PROPERTIES IN GASES

Diffusion of Neutrals

Ar + Kr
417
Ar + Xe
314
Ar* + Ar
1073
Cl + Ar
1045

He + CO₂
953
He + H⁺
845
He + Xe
314
Kr + Kr
316
Kr + Xe
314
Kr* + Ar
1073
Ne + Ar
417

Ne + Xe
314
O + He
1045
O₂* + O₂
1958
Xe* + Ar
1073 2188
Xe* + Xe
1054
Xe* + 2Xe
1054
Undef
745 911

G03

TRANSPORT PHENOMENA AND AVERAGE PROPERTIES IN GASES

Diffusion of Electrons

e + Ar
1173

e + CO₂
1013

e + CH₄
1013

G04

TRANSPORT PHENOMENA AND AVERAGE PROPERTIES IN GASES

Diffusion of Ions

C₂D₂* + CO
1564
Cs⁺ + Ar
1037
Cs⁺ + He
1070

Ca⁺ + Kr
1037
Ca⁺ + Ne
1070
Ca⁺ + Xe
1037
H⁺ + He
1474
K⁺ + Kr
2062
K⁺ + Xe
2062

N₂* + N₂
1564
Na⁺ + N₂
1564
O₂* + O₂
1564
Rb⁺ + Kr
2062
Rb⁺ + Xe
2062
Review
156 818

G05

TRANSPORT PHENOMENA AND AVERAGE PROPERTIES IN GASES

Drift Velocity of Electrons

e + [He + F₂]
543
e + Ar
474 1733 1905
e + C₂H₂
1547
e + C₂H₄
1547

e + C₂H₆
1547
e + C₂H₂
1547
e + C(CH₃)₄
1547
e + CD₄
1013
e + CH₄
1013 1547 1905
e + CO
894
e + CO₂
1905

e + H₂
1723
e + He
543 1723 2161
e + Hg
574 575
e + N₂
1723
e + Na
574 575
e + Tl
574 575
e + Xe
945

G06

TRANSPORT PHENOMENA AND AVERAGE
PROPERTIES IN GASES

Drift Velocity of Ions

$Ar^{2+} + Ar$
1740

$Ar_2^+ + Ar$
1623

$Cl_2^- + N_2$
2087

$Cl_2^- + O_2$
2087

$Cl^- + N_2$
2087

$Cl^- + O_2$
2087

$CO_3^- + O_2$
2087

$Cs^+ + Ar$
1002

$Cs^+ + He$
1070

$Cs^+ + Kr$
1002

$Cs^+ + Ne$
1070

$Cs^+ + Xe$
1002

$He_2^+ + He$
1740 1743

$He_2^+ + He$
1623

$Kr^{2+} + Kr$
1740

$Kr_2^+ + Kr$
1623

$N_2^+ + N_2$
995

$Ne^{2+} + Ne$
1740

$Ne_2^+ + Ne$
1623

$Rb^+ + Ar$
2094

$Rb^+ + Kr$
2094

$Rb^+ + Xe$
2094

$Xe^{2+} + Xe$
1740

Review
155 818

Undef
853

G07

TRANSPORT PHENOMENA AND AVERAGE
PROPERTIES IN GASES

Scattering and Energy Loss Parameters
of Electrons, Neutrals and Ions in
Gases

$CO + CO$
1207

$e + Cd$
474

$e + CO$
894

$e + H_2$
1355

$e + N_2$
1355

$e + Ne^+$
2494

$Hg + N_2$
683

$K^+ + Ne$
364

$Li + H_2$
2058

$Li^+ + Ne$
364

$N_2 + H_2$
1355

$N_2 + Ne$
1355

$Na^+ + Ar$
1203

$Na^+ + He$
1203

$Na^+ + Ne$
364

$Xe^+ + 2Xe$
1263

$Xe_2^+ + Xe$
1263

Undef
316

G08

TRANSPORT PHENOMENA AND AVERAGE
PROPERTIES IN GASES

Energy Distribution (energy
distribution of ions and electrons
with applied electric and magnetic
fields)

$e + [Al + N_2]$
897

$e + [C + He]$
2466

$e + [C + Ne]$
2466

$e + Ar$
474

$e + CO$
894

$e + N_2$
379

$e + Xe$
1610

$N_2^+ + He$
173

$O_2^+ + He$
173

G09

TRANSPORT PHENOMENA AND AVERAGE PROPERTIES IN GASES

Momentum Transfer

e + Ar 659 1723
 e + CO 659 894 2107
 e + CO₂ 489 659
 e + CsF 55 1708
 e + H 839
 e + H₂ 659 1723 1784
 e + H₂O 659

G10

TRANSPORT PHENOMENA AND AVERAGE PROPERTIES IN GASES

First and Second Townsend Coefficients

e + [CO₂ + N₂ + He] 469

G11

TRANSPORT PHENOMENA AND AVERAGE PROPERTIES IN GASES

Electron Attachment Coefficients

e + Air 1387

H01

PHOTON COLLISIONS WITH HEAVY PARTICLES, ELECTRONS AND PHOTONS IN GASES (hv < 100 keV)

General

Under 2 503 1542

e + He 659 839 1723
 e + Hg 576 659
 e + K 659
 e + KI 1708
 e + Li 659
 e + LiCl 1708
 e + LiF 55 1708
 e + N₂ 13 53 480 1723 1973
 e + Na 576
 e + NaCl 1708

e + Br₂ 860
 e + Cl₂ 860
 e + CO 894

e + Br₂ 860
 e + Cl₂ 860
 e + CO₂ 860
 e + SF₆ 860

1836 2313 2315
 2317 2435 2439

e + NaF 1708
 e + Ne 659
 e + O 659
 e + Ti 576
 H₂ + Ar 125
 H₂ + He 125
 He²⁺ + He 1743
 Review 55
 Under 511

e + CO₂ 469 860
 e + SF₆ 860

O₂ + CO₂ 1387
 O₂ + He 1387
 O₂ + N₂ 1387

2458

PHOTON COLLISIONS WITH HEAVY PARTICLES,
ELECTRONS AND PHOTONS IN GASES ($h\nu < 100$ keV)

Total Absorption

$h\nu + [Ar + Xe]$ 466 682	$h\nu + Fe$ 830 1813	$h\nu + NO^+$ 2017
$h\nu + [H_2 + He]$ 1653	$h\nu + Fe^{21+}$ 820	$h\nu + NO_2$ 275 1677
$h\nu + [Ne + Xe]$ 466 692	$h\nu + Fe^{22+}$ 820	$h\nu + NO_3$ 275
$h\nu + [O_2 + N_2]$ 1682	$h\nu + Fe^{23+}$ 820	$h\nu + O$ 1667
$h\nu + [Sr + Ar]$ 1219	$h\nu + Fe^{24+}$ 820	$h\nu + O_2$ 241 1667 966 1654 1688
$h\nu + Ag$ 1813	$h\nu + Fe^{25+}$ 820	$h\nu + PH_3$ 513
$h\nu + Al$ 1813	$h\nu + Fe^{26+}$ 820	$h\nu + Pt$ 1813
$h\nu + Ar$ 495 1662	$h\nu + H_2$ 851 1653 2120	$h\nu + Rb_2$ 926
$h\nu + Ar_2^+$ 1065	$h\nu + H_2O$ 134 607 608 2261	$h\nu + ScO$ 2099
$h\nu + Ar_2^+$ 505 544	$h\nu + H^-$ 86	$h\nu + SF_6$ 619 1604
$h\nu + AsH_3$ 513	$h\nu + He$ 1662	$h\nu + Si^+$ 652
$h\nu + B_2H_6$ 513	$h\nu + HNO_2$ 275	$h\nu + Si^{2+}$ 652
$h\nu + Ba$ 1202	$h\nu + Kr$ 1662	$h\nu + Si^{3+}$ 652
$h\nu + C$ 1667	$h\nu + Kr^+ + Ar$ 91	$h\nu + Si^-$ 2365
$h\nu + C_2H_2$ 621	$h\nu + Kr^+ + He$ 91	$h\nu + SiH_4$ 513
$h\nu + C_2H_4$ 850	$h\nu + Kr_2^+$ 1065	$h\nu + SO_2$ 609 1661
$h\nu + CCl_4F$ 512	$h\nu + Kr_2^+$ 505	$h\nu + Sr$ 1838
$h\nu + Cd$ 1449	$h\nu + LaO$ 2099	$h\nu + Th$ 2192
$h\nu + CF_3I$ 535	$h\nu + Li$ 1611 2173	$h\nu + U$ 2192
$h\nu + CH_3OCH_3$ 512	$h\nu + Mn$ 506	$h\nu + W$ 1813
$h\nu + CH_4$ 621 850 1660	$h\nu + Mo$ 1813	$h\nu + Xe$ 1662
$h\nu + Cl$ 1667	$h\nu + N$ 1667	$h\nu + Xe_2^+$ 1065
$h\nu + ClO$ 757	$h\nu + N_2$ 241 465 495 784 1667	$h\nu + Xe_2^+$ 505 544
$h\nu + CO_2$ 465	$h\nu + N_2O$ 241 495 1667	$h\nu + YO$ 2099
$h\nu + Cs_2$ 926	$h\nu + N_2O_5$ 275	$nh\nu + SF_6$ 1224 1225 1226 1233
$h\nu + CsHe$ 2089	$h\nu + Na$ 620 1238 2283	$2h\nu + H$ 2126
$h\nu + F$ 1667	$h\nu + Ne$ 1662	$2h\nu + Y_2$ 1486
	$h\nu + Ne_2^+$ 1065	Review 604
	$h\nu + Ne_2^+$ 544	Undef 159 898 2438
	$h\nu + NO$ 241 606 1667	

H03

PHOTON COLLISIONS WITH HEAVY PARTICLES,
ELECTRONS AND PHOTONS IN GASES ($h\nu < 100$ keV)

Elastic Scattering

$h\nu + [Hg + Pb]$	2343
$h\nu + Ag$	63
$h\nu + Ar$	1712
$h\nu + Au$	2124
$h\nu + Cd$	63
$h\nu + Fe^{21+}$	820

$h\nu + Fe^{22+}$	820
$h\nu + Fe^{23+}$	820
$h\nu + Fe^{24+}$	820
$h\nu + Fe^{25+}$	820
$h\nu + Fe^{26+}$	820
$h\nu + H_2$	37
$h\nu + He$	37
$h\nu + Kr$	1712
$h\nu + Mo$	63
$h\nu + Na$	1696

$h\nu + Ne$	1712
$h\nu + O^{++}$	841
$h\nu + Pb$	1628 2124
$h\nu + Sn$	63 1628 2124
$h\nu + Ta$	1628 2124 2343
$h\nu + Y$	63
$h\nu + Zn$	2124
$h\nu + Zr$	63 1628 2343
Under	510

H04

PHOTON COLLISIONS WITH HEAVY PARTICLES,
ELECTRONS AND PHOTONS IN GASES ($h\nu < 100$ keV)

Excitation

$h\nu + [Cs + Ar]$	2162
$h\nu + Al^{3+}$	590
$h\nu + Ar$	1662
$h\nu + Ba$	1232
$h\nu + Ba^+$	2510
$h\nu + Bi$	1232
$h\nu + Cd$	1373
$h\nu + CF_4 + CF_4$	102
$h\nu + CH_3F$	522
$h\nu + CO$	2A7 2053
$h\nu + Cs$	1462
$h\nu + Cs_2$	1681
$h\nu + CsXe$	1681
$h\nu + Ge$	1950

$h\nu + H$	69
$h\nu + H^*$	2172
$h\nu + H_2$	833
$h\nu + H_2O$	2056
$h\nu + He$	1662
$h\nu + He 3eq$	631
$h\nu + Kr$	1662
$h\nu + Hg^{4+}$	590
$h\nu + Mn$	1276
$h\nu + N_2$	932 2450
$h\nu + Ne$	1502 1662
$h\nu + NO$	2077
$h\nu + O$	62
$h\nu + Pb$	1232
$h\nu + Rb$	1264
$h\nu + Si$	1950
$h\nu + TI$	1950

$h\nu + TI$	1232
$h\nu + V$	1950
$h\nu + Xe$	1662
$nh\nu + SF_6$	1221 1225 1226
$2h\nu + CaCl$	1317
$2h\nu + CO$	1971
$2h\nu + H_2$	2122
$2h\nu + Na$	1643 1674
$2h\nu + NO$	804
$2h\nu + Rb$	1942
$2h\nu + Sr$	1220
$3h\nu + NO$	873
$3h\nu + SF_6$	738
$3h\nu + Yb$	1228
$4h\nu + Sr$	1231
Under	1580 1768 1037
	2312 2322 2323
	2442 2470

PHOTON COLLISIONS WITH HEAVY PARTICLES,
ELECTRONS AND PHOTONS IN GASES ($h\nu < 100$ keV)

Dissociation

$h\nu + [CO_2^+ + CO_2]$	2109	
$h\nu + [NO^+ + NO]$	2109	
$h\nu + [O_2^+ + H_2O]$	2109	
$h\nu + [O_2^+ + 2H_2O]$	2109	
$h\nu + [O_2^- + H_2O]$	2024	
$h\nu + [O_2^- + 2H_2O]$	2024	
$h\nu + Ar_2^+$	505	1022
$h\nu + AsH_3$	513	
$h\nu + B_2H_6$	513	
$h\nu + Br_2$	153	
$h\nu + CdI_2$	537	
$h\nu + CF_3Br$	943	
$h\nu + CF_3Cl$	943	
$h\nu + CF_3I$	943	2474
$h\nu + CH$	641	1003
$h\nu + CH^+$	695	826
$h\nu + CH_3^+$	1036	
$h\nu + CO$	641	
$h\nu + CO_2$	960	996
$h\nu + CO_3^-$	1351	
$h\nu + CO_3H_2O^-$	1351	
$h\nu + CO_3^+$	2109	
$h\nu + CO_3^-$	1351	
$h\nu + CO_3H_2O^-$	1351	

$h\nu + Cs_2$	1253	
$h\nu + DCN$	436	1009
$h\nu + H_2$	560	
$h\nu + H_2CO$	641	
$h\nu + H_2O$	134	187 2056
	2076	2346
$h\nu + H_3^+$	130	2011
$h\nu + HCN$	436	996 1009
$h\nu + HCO_2^-$	1351	
$h\nu + HCO_2H_2O^-$	1351	
$h\nu + HD$	1189	
$h\nu + HeH^+$	826	1571
$h\nu + HgBr_2$	537	779 2469
$h\nu + HgCl_2$	779	
$h\nu + HgI_2$	537	779 2060
$h\nu + HN_3$	141	
$h\nu + HOCl$	954	
$h\nu + I_2He$	2021	
$h\nu + IBr$	163	735
$h\nu + ICN$	750	996
$h\nu + InI$	537	
$h\nu + K_2$	1253	
$h\nu + Kr_2^+$	805	984 1022
$h\nu + N_2$	1365	
$h\nu + N_2^+$	2109	
$h\nu + Na_2$	1253	2260
$h\nu + NH_3$	641	
$h\nu + NO_2H_2O^-$	1351	

$h\nu + O_2$	229	1122
$h\nu + O_2^+$	289	1069
$h\nu + O_2H_2O^-$	1351	
$h\nu + O_2NO^-$	1351	
$h\nu + O_2NOH_2O^-$	1351	
$h\nu + O_3$	2054	
$h\nu + O_3^-$	1351	2023
$h\nu + O_3^+$	2109	
$h\nu + OH$	641	826
$h\nu + PH_3$	513	
$h\nu + Rb_2$	1253	
$h\nu + SeF_6$	525	
$h\nu + SF_6$	943	1014 1047
	1206	2271
$h\nu + SiH_4$	513	
$h\nu + TlBr$	2003	
$h\nu + TlI$	537	
$h\nu + UF_6$	1048	
$h\nu + Xe_2^+$	505	1022
$h\nu + ZnI_2$	537	
$h\nu + 2CO_2$	960	
$nh\nu + BCl_3$	2468	
$nh\nu + SF_6Cl$	1963	
$nh\nu + SF_6$	2117	
$2h\nu + OCS$	2085	
$3h\nu + SF_6$	738	
Undef	20	561 977
	1017	1032 1376
	2264	2312 2465

PHOTON COLLISIONS WITH HEAVY PARTICLES,
ELECTRONS AND PHOTONS IN GASES ($h\nu < 100$ keV)

Ionization

H Seq	1274		
$h\nu + S^{2+}$	650		
$h\nu + [Cs + Ar]$	2162		
$h\nu + Ag$	64	2202	
$h\nu + Al$	64	2202	
$h\nu + Ar$	64	917	1109
	1475	1497	1511
	1507	1771	
$h\nu + Ar_2$	301		
$h\nu + Ar_2^*$	1087		
$h\nu + Au$	64	1844	2202
$h\nu + Ba$	1451		
$h\nu + BaCl_2$	2202		
$h\nu + Be$	2202		
$h\nu + Be$ Seq	498		
$h\nu + BF_3$	2014		
$h\nu + Bi$	64		
$h\nu + BN$	2202		
$h\nu + Br$	778		
$h\nu + C$	64	650	1557
	2202		
$h\nu + C^+$	650		
$h\nu + C^{2+}$	647	650	
$h\nu + C_6H_6$	374		
$h\nu + Ca$	1451		
$h\nu + CaF_2$	2202		
$h\nu + Cd$	921	1451	1503
	2202		
$h\nu + CdSe$	2202		
$h\nu + Ce$	1130		

$h\nu + CH$	1003		
$h\nu + CH_4$	917		
$h\nu + Cl$	349	778	
$h\nu + Co$	374		
$h\nu + CO$	592	917	1108
	1179	1299	1607
	2033	2177	
$h\nu + Co$	2202		
$h\nu + CO_2$	15	527	719
	917	960	
$h\nu + COS$	175		
$h\nu + Cr$	2202		
$h\nu + Cs$	328	1097	
$h\nu + CS_2$	175		
$h\nu + CsCl$	2202		
$h\nu + Cu$	2202		
$h\nu + Dy$	1130		
$h\nu + Er$	1130		
$h\nu + Eu$	1130	2471	
$h\nu + Fe$	80	1716	1809
	1810	2202	
$h\nu + Fe^+$	1656	1809	
$h\nu + Fe^{2+}$	1809		
$h\nu + Fe^{3+}$	1809		
$h\nu + Fe^{4+}$	1656	1716	1809
$h\nu + Fe^{5+}$	1809		
$h\nu + Fe^{6+}$	1809		
$h\nu + Fe^{7+}$	1809		
$h\nu + Fe^{8+}$	1716	1809	
$h\nu + Fe^{9+}$	1809		
$h\nu + Fe^{10+}$	1809		
$h\nu + Fe^{11+}$	1809		
$h\nu + Fe^{12+}$	1809		
$h\nu + Fe^{13+}$	1809		

$h\nu + Fe^{14+}$	1656	1809	
$h\nu + Fe^{15+}$	1809		
$h\nu + Fe^{16+}$	1716	1809	
$h\nu + Fe^{17+}$	1656	1809	
$h\nu + Fe^{18+}$	1716	1809	
$h\nu + Fe^{19+}$	1809		
$h\nu + Fe^{20+}$	1716	1809	
$h\nu + Fe^{21+}$	1656	1716	1809
$h\nu + Fe^{22+}$	1716	1809	
$h\nu + Fe^{23+}$	1809		
$h\nu + Fe^{24+}$	1809		
$h\nu + Fe^{25+}$	1716		
$h\nu + Ge$	64	1451	2202
$h\nu + H$	38	211	1714
$h\nu + H^+$	2172		
$h\nu + H_2$	140	158	207
	560	923	1999
$h\nu + H_2^+$	158		
$h\nu + H_2CN$	2273		
$h\nu + H_2O$	134	517	
$h\nu + H_2S$	1114		
$h\nu + HCN$	1044		
$h\nu + He$	226	650	1475
	1501	1947	
$h\nu + He^+$	1510		
$h\nu + He^+$	650		
$h\nu + He^{2+}$	650		
$h\nu + He_2$	1475		
$h\nu + Hf$	2202		
$h\nu + Hg$	64	1451	
$h\nu + Ho$	1130		
$h\nu + In$	2202		
$h\nu + K$	1097	1260	

$h\nu + K^*$
 76
 $h\nu + K^{2+}$
 1526
 $h\nu + KI$
 2202
 $h\nu + Kr$
 64 1451 1475
 2156
 $h\nu + Kr_2$
 301
 $h\nu + Li$
 637 1642
 $h\nu + LiCl$
 2202
 $h\nu + LiF$
 2202
 $h\nu + LiH$
 832
 $h\nu + Mg$
 1097 1451
 $h\nu + MgO$
 2202
 $h\nu + Mn$
 80 2202
 $h\nu + Mo$
 2202
 $h\nu + N$
 495 650 2508
 $h\nu + N^+$
 650
 $h\nu + N^{2+}$
 650
 $h\nu + N_2$
 241 495 917
 932 1108 1179
 1998 2066 2177
 $h\nu + N_2O$
 241 495 719
 $h\nu + Na$
 232 263 1079
 1097 1260 1642
 1720 2176
 $h\nu + Na^*$
 262
 $h\nu + Na_2$
 990
 $h\nu + NaBr$
 2202
 $h\nu + NaH$
 832
 $h\nu + Nb$
 2202
 $h\nu + Nd$
 64 1130
 $h\nu + Ne$
 64 590 650
 917 1110 1502 1475
 $h\nu + Ne^+$
 650
 $h\nu + Ne^{2+}$
 650
 $h\nu + NH_3$
 917 1104
 $h\nu + Ni$
 80 2202

$h\nu + NO$
 241 999 2077
 $h\nu + NO_2$
 2273
 $h\nu + O$
 650 1624 1714
 $h\nu + O^+$
 650
 $h\nu + O^{2+}$
 650
 $h\nu + O_2$
 229 241 1108
 1200 1552
 $h\nu + Pb$
 64 373 2202
 $h\nu + Pd$
 2202
 $h\nu + PERT$
 1116
 $h\nu + PH_3$
 1114
 $h\nu + Pr$
 1130
 $h\nu + Pt$
 2202
 $h\nu + Rb$
 1097 2180
 $h\nu + S$
 650
 $h\nu + S^+$
 650
 $h\nu + SF_2$
 721
 $h\nu + SF_4$
 710 1775
 $h\nu + Si$
 2202
 $h\nu + SiO$
 165
 $h\nu + Sm$
 1130 2471
 $h\nu + Sn$
 64 2202
 $h\nu + Te$
 2202
 $h\nu + Te$
 2202
 $h\nu + ThO_2$
 2202
 $h\nu + Ti$
 80 2202
 $h\nu + U$
 64 521
 $h\nu + V$
 80 2202
 $h\nu + W$
 2202
 $h\nu + Xe$
 64 227 336
 1161 1451 1475
 1511 1639 2136
 2156
 $h\nu + Xe_2$
 1031

$h\nu + Y$
 1451 2202
 $h\nu + Zn$
 921 1451 2202
 $h\nu + Zr$
 2202
 $h\nu + ZrO_2$
 960
 $nh\nu + I_2$
 1979 2045
 $2h\nu + Ba$
 2144
 $2h\nu + Cs$
 254
 $2h\nu + Cs^*$
 2357
 $2h\nu + H$
 425
 $2h\nu + He^*$
 1814
 $2h\nu + K$
 254
 $2h\nu + Li$
 254 1944
 $2h\nu + Na$
 254 802
 $2h\nu + Na^*$
 262
 $2h\nu + NO_2$
 1223
 $2h\nu + Rb$
 254
 $2h\nu + Sr$
 1220 2144
 $3h\nu + Ba$
 2182
 $3h\nu + Cs$
 1512
 $3h\nu + He^*$
 1643
 $3h\nu + K$
 1321
 $3h\nu + Na$
 1450 2159
 $3h\nu + NG$
 873
 $3h\nu + SF_4$
 738
 $4h\nu + Cs$
 1166 1463 1512
 $4h\nu + NO$
 1345
 Review
 419 2195 2196
 2197 2198
 Undef
 87 100 570
 1222 1261 1538
 1570 1592 1717
 1749 2116 2430
 2440 2447

H07

PHOTON COLLISIONS WITH HEAVY PARTICLES,
ELECTRONS AND PHOTONS IN GASES ($h\nu < 100$ keV)

Photodetachment

$h\nu + [O_3^- + H_2O]$
2024
 $h\nu + [O_3^- + 2H_2O]$
2024
 $h\nu + CO_3O^-$
1992
 $h\nu + CH_3O^-$
1992
 $h\nu + CH_3S^-$
1992
 $h\nu + CO_3^{--}$
1351
 $h\nu + CO_3H_2O^-$
1351

$h\nu + CO_3^{--}$
1351
 $h\nu + CO_3H_2O^-$
1351
 $h\nu + Cs^-$
17
 $h\nu + F^-$
36
 $h\nu + H^-$
16 86 1617
2115
 $h\nu + HCO_3^-$
1351
 $h\nu + HCO_3H_2O^-$
1351
 $h\nu + K^-$
17 18
 $h\nu + Li^-$
18
 $h\nu + Na^-$
18

$h\nu + NO_2H_2O^-$
1351
 $h\nu + O_3H_2O^-$
1351
 $h\nu + O_3NO^-$
1351
 $h\nu + O_3NOH_2O^-$
1351
 $h\nu + O_3^-$
1351
 $h\nu + O_3H_2O^-$
1351
 $h\nu + O^-$
624 2827
 $h\nu + Rb^-$
1565
 $h\nu + S^-$
2141 2527
 $h\nu + Si^-$
2365

H08

PHOTON COLLISIONS WITH HEAVY PARTICLES,
ELECTRONS AND PHOTONS IN GASES ($h\nu < 100$ keV)

Fluorescence and Luminescence Yields

$h\nu + ArI_2$
1063
 $h\nu + AsH_3$
618
 $h\nu + Ba$
2518
 $h\nu + Ba^+$
2510
 $h\nu + Cd_2$
1091
 $h\nu + CdI_2$
537
 $h\nu + CF_3I$
2474
 $h\nu + CH$
780
 $h\nu + CO_2$
704
 $h\nu + Cs$
490 2513
 $h\nu + CuF$
2006
 $h\nu + Fe^+$
843
 $h\nu + GeF$
1019

$h\nu + H_2$
1774
 $h\nu + H_2O$
187
 $h\nu + Hg_2$
962
 $h\nu + HgBr_2$
537
 $h\nu + HgCl_2$
384
 $h\nu + HgI_2$
537
 $h\nu + HN_3$
142
 $h\nu + I_2$
163 547
 $h\nu + IBr$
1121
 $h\nu + InI$
537
 $h\nu + Kr$
412
 $h\nu + KXe$
794
 $h\nu + Na$
620
 $h\nu + Na + Kr$
75
 $h\nu + Na + Xe$
75
 $h\nu + Na_2$
994

$h\nu + NO_2$
605
 $h\nu + Pb$
1625
 $h\nu + Rb$
1942
 $h\nu + SF_6$
427
 $h\nu + SO_2$
866
 $h\nu + Sr$
1838
 $h\nu + TlI$
537
 $h\nu + UF_6$
2001
 $h\nu + Xe$
412 776
 $h\nu + YO$
1120
 $h\nu + ZnI_2$
537
 $2h\nu + Li$
2540
 $2h\nu + Na$
2185
 $3h\nu + I_2$
803
Undef
22 78 510
1719

H10

PHOTON COLLISIONS WITH HEAVY PARTICLES.
ELECTRONS AND PHOTONS IN GASES ($h\nu < 100$ keV)

Photochemistry

$h\nu + [Br + Ar]$
1941

$h\nu + [Cl_2 + O_2]$
875

$h\nu + [K + Xe]$
2166

$h\nu + [N_2 + Hg]$
1041

$h\nu + [O_2 + NH_3]$
1143

$h\nu + AsH_3$
513

$h\nu + B_2H_6$
513

$h\nu + CF_3I$
535

$h\nu + CO_2$
965

$h\nu + HN_3$
141 142

$h\nu + I_2$
164

$h\nu + K + Kr$
816

$h\nu + O_3$
812 813

$h\nu + PH_3$
513

$h\nu + SiH_4$
513

$h\nu + SO_2$
1993

$h\nu + UF_6$
2001

Undef
1970

H11

PHOTON COLLISIONS WITH HEAVY PARTICLES.
ELECTRONS AND PHOTONS IN GASES ($h\nu < 100$ keV)

Free-Free Absorption or Inverse
Bremsstrahlung

$h\nu + [e + H_2]$
542

$h\nu + [e + N_2]$
542

$h\nu + Ar$
1163

$h\nu + e$
625 639

$h\nu + Ne$
1593

$h\nu + Si^-$
2365

$h\nu + Xe$
1163

Undef
101 246

H12

$h\nu + Pt$
2342

Undef
496

PHOTON COLLISIONS WITH HEAVY PARTICLES,
ELECTRONS AND PHOTONS IN GASES ($h\nu <$
100 keV)

Photon-Electron Scattering

H13

Undef
2320

PHOTON COLLISIONS WITH HEAVY PARTICLES,
ELECTRONS AND PHOTONS IN GASES ($h\nu <$
100 keV)

Photon-Photon Collisions

$h\nu + h\nu$
1668

H14

$h\nu + e$
21

$2h\nu + H_2^+$
1997

PHOTON COLLISIONS WITH HEAVY PARTICLES,
ELECTRONS AND PHOTONS IN GASES ($h\nu <$
100 keV)

$h\nu + I^*$
2464

Photo-De-Excitation, Quenching, and
Stimulated Emission (cross sections)

$h\nu + [He^* + He]$
1230

J01

DATA COMPILATION

Heavy Particle

Review
660 661 2298

K01

888 889

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Heavy Particle

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K04

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HEAVY PARTICLE - HEAVY PARTICLE
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552 2148Alber, J. S.
698Alspach, S. D.
553Ambrose, J. G.
850Andersen, N.
1445 1660Andersen, T.
266 1445 1560Andra, H. J.
2549Anholt, R.
56Aquilanti, V.
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2503 2552 2553Baeri, P.
1877Bahr, K.
1445Bakaev, D. S.
1251Balint-Kurti, G. G.
137Barat, M.
1445Barua, A. K.
1465Basalaeov, A. A.
3365Bauer, K. G.
1640Boarmán, G. H.
5 553 1028Behncke, H. H.
2603Behncke, H.-H.
2553Beigman, I. L.
2275Bell, K. L.
256Bergeron, C.
800Bergmann, K.
2146Bernstein, R. B.
974Beroff, K.
2189Berrington, K. A.
622Bethge, K.
2541Beyer, H. F.
1275 1459 1472Bhattacharyya, S. S.
1465Billing, G. D.
151Biraben, F.
1821 2189Black, G.
293Blair, J. S.
2185Blais, N. C.
295Bloemen, E.
1040Bobashev, S. V.
2114Boggs, J. E.
2008Boring, J. W.
1490Borisov, V. B.
2488Bottner, R.
150Boving, E.
266Boving, E. G.
2123Brandon, F. L.
3Breshears, H. C., Jr.
666Bray, C. W.
3Brown, N. J.
1347Browne, J. C.
1794Buck, U.
1103 2160Burko, P. G.
622Burrell, C. F.
1805Cagnac, B.
1821Campisano, S. U.
1877Carroll, M. A.
698Casavecchia, P.
951Case, D. A.
161Cassidy, J. C.
528Cernosek, R. W.
3 550Chapman, S.
654Cheng, K.
70Chesnokov, E. N.
2319Chibisov, M. I.
2446Choi, B. H.
107Clemens, E.
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1445Cohen, J. S.
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82Cooke, W. E.
93Coolen, F. C. M.
363Copeland, D. A.
528Cross, R. J., Jr.
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242Curry, S. M.
490 1205Czajkowski, M.
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1560Davis, S. L.
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72Dewangan, D. P.
196Dhuleq, D.
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Groeneveld, K.-G. 1545	Uzaki, Y. 781	Vogler, M. 1 2012
Hikida, T. 311	Parks, C. K. 1962	Weber, H. G. 733 2509
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	Preston, R. K. 900	Zhurkin, E. S. 2325
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HEAVY PARTICLE - HEAVY PARTICLE
INTERACTIONSChemiluminescence, Fluorescence, and
Luminescence (photon emission by
unspecified processes)

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Asari, M. 2352	Gudzenko, L. I. 2277	Nurzhhanov, M. D. 1930
Bauer, C. 2511	Gurvich, L. V. 2277	Parr, T. P. 1141
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Broida, H. P. 2006	Hohmuth, K. 2511	Przibelski, S. G. 2321
Brzychcy, A. 815	Hopkins, A. G. 2547	Redpath, A. E. 126
Carrington, T. 128	Horne, R. K. 1145	Rettner, C. T. 801
Chen, C. H. 1982	Hou, M. 490	Roeder, M. 2287
Church, M. J. 1633	Itoh, A. 2352	Rudolph, W. 2511
Coombe, R. D. 1145	Judish, J. P. 1982	Schmidt-Bocking, H. 2502
Crooks, J. B. 108	Kasai, T. 744	Schuch, R. 2502
Crumpton, D. 2547	Kaun, K.-H. 2539	Schule, R. 2502
Curry, S. M. 490	Khan, M. R. 2547	Setser, D. W. 777
Czajkowski, M. 463	Khromov, V. V. 2321	Shafroth, S. M. 357
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DeHaven, J. 815	Krenos, J. 909	Sokiciv, V. A. 1930
Dill, B. 727	Kuwata, K. 744	Specht, H. J. 2502
Dubov, V. S. 2277	Manfrass, P. 2539	Steele, R. E. 2006
Frank, W. 2539	Mann, R. 2511	Stockli, M. 2532 2536
Fricke, U. 2287	Manos, D. M. 307	Stoller, C. 2532 2536
Fukutome, H. 2351	Martin, R. M. 1141	Stwalley, W. C. 108
	Masui, T. 744	Sung, J. P. 777
	Menzinger, M. 128	Suter, M. 2532
	Morenzoni, E. 2536	Takahashi, T. 1900
	Nakane, H. 744	Tam, A. C. 490
	Nebelung, A. 2511	Tanis, J. A. 357

Tserruya, I.
2502

Tauji, M.
2351

Wade, M. K.
463

Way, K. R.
108

Wilcomb, B. E.
1986

Wolff, W.
2532 2536

Wu, C.-Y. R.
108

Yabuzaki, T.
450

Yakovlenko, S. I.
2277

Yang, S.-C.
108

HEAVY PARTICLE - HEAVY PARTICLE
INTERACTIONS

Electron Capture

Aberle, W.
434

Abramov, V. A.
1379 2296

Adams, N. G.
309 1573

Afrsimov, V. V.
2295 2444

Aldrovandi, S. M. V.
626

Ali, S. P.
2165

Alspach, S. D.
553

Alton, G. D.
2132 2530

Ambrose, J. G.
556

Amme, R. C.
1055

Anderson, L. W.
2138

Andra, H. J.
2549

Andresen, B.
2554 2555

Angel, G. C.
198 269

Armour, D. G.
453

Arora, D.
92

Baer, T.
1075

Banyard, K. E.
1619

Bardsley, J. N.
1742

Baryshnikov, F. F.
1379 2296

Basalae, A. A.
2295 2444

Basbas, G.
97

Basu, D.
337

Bearman, G. H.
553 1026

Belkic, D.
1620

Berkner, K. H.
235

Beyer, H. F.
1459

Bhadra, K.
337

Blondi, M. A.
1011 1741

Blakley, C. R.
74 81

Bloemen, E.
1270

Boring, J. W.
1490

Bottcher, C.
215 2150

Brady, K.
267

Brandon, F. L.
3

Brandt, W.
97

Bray, C. W.
3

Brehm, B.
434

Brcuillard, F.
1598

Browne, J. C.
224 1794

Butler, S. E.
855

Butterfield, K. B.
477

Carter, G.
453

Cassidy, J. C.
528

Cernosek, R. W.
3 550

Champion, R. L.
131

Chibisov, M. I.
2493

Christensen, R. B.
642

Cohen, J. S.
1742

Collins, C. B.
946

Collins, G. J.
477

Compton, R. N.
930 575

Cooper, C. D.
975

Coppeland, D. A.
528

Cowern, N. E. B.
46

Crothers, D. S. F.
242 1341 1597

Crume, E. C.
2178

Dalqarno, A.
855

Davis, J. P.
464

de Heer, F. J.
1270 1452

Deissler, R. J.
642

Deral, R.
175

de Vreugd, C.
131

de Vries, A. E.
2554

Dmitriev, I. S.
2274

Doughty, B. M.
3 550

Duman, E. L.
2331

Dunn, K. F.
198 269 1454

Elford, M. I.
192

El-Sherbini, T. M.
1270

Elston, S. E.
2132 2530

Eriksen, F.
345

Eriksen, F. J.
71

Evers, C. W. A.
138

Evseev, A. V.
1255

Fite, W. L.
2000

Freeman, J. H.
453

Freeman, J. M.
46

Fujiwara, K.
2361

Futrell, J. H.
74 81

Gausyacq, J. P.
221

Gawlik, D.
2545

Gerstenberger, D. C.
477

Gilbody, H. B.
191 198 238
251 267 269
1454 1491

Gilmore, E. J.
1454

Glavish, H. F.
2138

Glembocki, G.
569

Glosik, J.
1573

Goad, M. L.
3 550

Goffe, T. V.
251 1491

Golden, J. E.
1817

Govers, T. R. 1972	Jognaux, A. 1598	Litzen, U. 1613
Graham, W. G. 235	Johansson, S. 1613	Liu, B. 1831
Gray, T. J. 1581 1761	Johnsen, R. 1011 1741	Lockwood, G. J. 1734
Greenland, P. T. 240 1590 1591	Johnson, R. E. 1490	Lopez, V. 1525
Griffin, P. M. 2132 2530	Kamperschroer, J. H. 476	Los, J. 131 716
Grosser, J. 144 434	Kaneko, Y. 2149	Macdonald, J. 1011
Grozdanov, T. P. 49 344	Kantor, J. 559	Macias, A. 1529
Guilbaud, A. 268	Karo, A. M. 1271	Mahr, H. 528
Haeberli, W. 2138	Kartazaev, V. A. 1246	Maier, W. B., II 1050 2036
Hall, J. M. 1761	Kelley, J. D. 1026	Mann, A. 555
Halpern, A. M. 559 1802	Kerkdijk, C. B. 1492	Maor, D. 1270
Harris, H. H. 1026	Kharchenko, V. A. 2316	Marx, R. 175
Hartman, P. L. 528	Kie, H. J. 45 2150	Mason, J. P. 46
Hauelsen, D. C. 528	Kimura, M. 2092	Maucisire, G. 175
Hegerberg, R. 192	Kleyn, A. W. 716	McCullough, R. W. 238 267 1491
Heinemeyer, J. 1839	Koizumi, T. 2149	McGuire, J. H. 1817
Hennies, D. 2138	Kubach, C. 1517	McKnight, R. H. 27
Hinds, E. A. 1482	Kuppermann, A. 2554 2895	McLaughlin, D. R. 900
Hippelein, H. 640	Lacmann, K. 2092	Meierjohann, B. 1
Hippler, K. 1459	Lal, M. 1648	Mayer, F. W. 27 45 2150
Hird, B. 268 2165	Lane, N. F. 4	Mikkelsen, J. V. 2161
Hiskes, J. R. 1271	Laubert, R. 57	Miller, G. H. 1734
Hoffman, J. M. 1734	Lee, C. M. 30	Miller, I. M. 305
Howorka, F. 927	Lee, F. W. 946	Moore, J. C. 1619
Hubers, M. M. 716	Leiko, G. A. 2295 2444	Moran, I. F. 1006 1974
Hughes, J. G. 1341	Leventhal, J. J. 553 556 1026	Morgan, T. J. 345
Hvelplund, P. 1839 2150	Leyland, K. 453	Morrison, H. G. 213
Isler, R. C. 2178	Lifshitz, C. 906	Mukherjee, S. 337
Jaacks, D. H. 71	Lin, C. D. 96 239 1566 1709	Muller, A. 452
James, P. B. 556	Lisitsa, V. S. 1379 2296	Munch, G. 640
Jamison, K. A. 1581 1761	Little, W. L. 477	Murray, P. T. 1075
Janev, R. K. 49 50 344		Myers, G. D. 556

Newcomb, J. 1761	Rao, B. K. 32	Sil, N. C. 337
Neynaber, R. H. 1790	Raymond, R. S. 2138	Simpson, F. R. 1454
Niehaus, A. 1519	Redmon, L. T. 1794	Smirnov, B. M. 1255 2331
Nienstadt, H. 2545	Reinhardt, P. W. 975	Smith, D. 305 1573
Nikolaev, V. S. 2274	Richard, P. 1581 1761	Sofield, C. J. 46
Nir, D. 559	Riera, A. 1529	Soong, S. C. 56 1709
Novick, R. 1482	Risley, J. S. 1452	Spieß, G. 1516
Nutt, W. L. 238 267	Rogers, W. T. 1490	Spruch, L. 1513 1582 1797 2174
Okuno, K. 2149	Rosner, B. 559 1279	Squires, L. 1075
Olson, R. E. 224 235 250 1794 1826 1831	Rothwell, H. L., Jr. 1055	Srivastava, M. K. 1648
Omidvar, K. 1817	Ruf, M. W. 1519	Stasinska, G. 626
Opik, U. 213	Rutherford, J. A. 310	Stearns, J. W. 235
Ovchinnikov, V. L. 2316	Ryufuku, H. 1796	Stefansson, T. 192
Panov, M. N. 2255 2444	Sallin, A. 1446 1620	Stelson, P. H. 45 2150
Patterson, T. A. 2000	Salop, A. 1270	Stern, B. 221
Pedersen, E. H. 2181	Selzborn, E. 452	Stevens, W. J. 1271
Pequignot, D. 626	Schartner, K.-H. 1459	Stewart, B. 1050
Petty, R. J. 46	Scheidt, H. 1516	Stockdale, J. A. D. 930
Phaneuf, R. A. 27 45 2150	Schlachter, A. S. 235	Suk, H. C. 268
Placentini, R. D. 1446 1525	Schmiedekamp, C. 1761	Suter, M. 2132 2530
Piotrovskii, Y. A. 1246	Sellin, I. A. 2132 2530	Szucs, S. 1558
Po, P. L. 277	Sewell, E. C. 198 269	Tang, C. L. 528
Popov, B. M. 2274	Shafroth, S. M. 2137	Tang, S. Y. 1750
Porter, R. F. 276 277	Shah, M. B. 191 251 267	Tanis, J. A. 2137
Post, R. S. 476	Shakeshaft, R. 60 567 1513 1582 1791 2174	Tashev, Y. A. 2274
Pradel, P. 1516	Shay, T. 477	Taulbjerg, K. 2181
Preston, R. K. 900	Shevelko, V. P. 2534	Tawara, H. 1581 1761
Pyle, R. V. 235	Shipsey, E. J. 157 224 1794	Terlcva, Y. A. 2274
Radtsig, A. A. 1255	Shpenik, O. B. 2316	Terwilliger, D. T. 506
Radulovic, Z. M. 50	Sidis, V. 221 1517	Thoe, R. S. 2132 2530
Radus, T. P. 276 277	Siegel, M. W. 2000	Thompson, D. L. 500
Rakshit, A. B. 1573		

Thorson, W. R. 464	Vane, C. R. 2132 2530	Weisheit, J. C. 2367
Tiernan, T. D. 906	van Zyl, B. 998 1055	Wijnaendts van Resandt, R. W. 131
Todd, N. R. 1557	Vestal, M. L. 74 81	Wilccx, J. B. 1006 1974
Tolmachev, Y. A. 1246	Vogle, M. 2543	Willsann, P. A. 1271
Tripathi, A. N. 1648	Vogler, M. 1	Winter, H. 1270
Tripathy, D. N. 32	Volovich, P. N. 2316	Winter, T. G. 4
Tunnell, L. N. 96	Vroom, D. A. 310	Wittmann, W. 2549
Turner, J. E. 92	Warmack, R. J. 930	Wu, F. L. C. 506
Twiddy, N. D. 1573	Watanabe, T. 1796	Yanez, M. 1529
Upham, R. J., Jr. 2367	Watson, W. D. 642	Zhdancv, V. P. 2493
Utterback, N. G. 998	Weber, H. G. 2545	zu Putlitz, G. 2645
Vaaben, J. 2181	Wei, C.-C. 2348	
Valance, A. 1516		

HEAVY PARTICLE - HEAVY PARTICLE
INTERACTIONS

Ionization

Aashamar, O. 361	Bosch, F. 1286	Dunn, K. F. 198 269
Aberle, W. 434	Brandt, W. 97	Dunning, F. B. 944
Al-Ghazi, M. S. A. L. 1282	Brehm, B. 434	Ebding, T. 1804
Amme, R. C. 1710	Briggs, J. S. 1632	Edmonson, D. A. 1976
Amundsen, P. A. 361 1561 1626	Browne, J. C. 1794	Edwards, A. K. 1595 2080
Andersen, N. 1627	Ceausescu, V. 2514	El-Sherbini, T. M. 1270
Andriamonje, S. 355	Chatterjee, P. N. 365	Engelmann, C. 1878
Angel, G. C. 198 269	Chemin, J. F. 355	Fazly, Q. 1646
Anholt, R. 326 2548	Cheng, K. 70	Fitaire, M. 2191
Annis, B. K. 2015	Chiu, K. C. R. 220	Fite, W. L. 415 2000
Basbas, G. 97	Compton, R. N. 930	Folkman, F. 1545
Bauer, C. 2535	Conway, J. G. 1227	Forster, J. S. 1753
Bauer, K. G. 1646	Corno, D. 1804	Fort, J. 1803 1804
Belkic, D. 1588	Cowern, N. E. B. 46	Freeman, J. M. 46
Bell, F. 350 2529 2538	Cravens, T. E. 822	Fricke, B. 2550
Bellum, J. C. 705 1770 1987	Crocks, J. B. 108	Gally, T. D. 761
Benka, D. 2501	Dalgarno, A. 822	Gardner, R. K. 1786
Berezhko, E. G. 1498	Datz, S. 2015	Gayet, R. 355
Berinde, A. 1528	Davidovic, D. M. 233	George, T. F. 705 1987
Berkner, K. H. 235	De, J. N. 317	Geretschlager, M. 2501
Bernstein, E. M. 1779	Deberth, C. 1528	Gilbody, H. B. 198 269
Betz, W. 330 2516	de Hear, F. J. 1270	Gillen, K. I. 761
Beyer, H. F. 1275	Deloche, R. 940	Gillespie, G. H. 70 1795
Bieniek, R. J. 1701	Devdariani, A. Z. 2263	Graham, W. G. 235
Birchall, J. 1282	Disoplon, G. 1077	Graves, J. E. 1955
Bloemen, E. 1270	Doering, J. P. 1976	Gray, T. J. 1761 1786
Boerner, H. 1211	Donahue, D. J. 1779	Greiner, W. 330 2514 2516
Bolzinger, T. 1804	Dost, M. 1538	Groeneveld, K.-O. 1545
	Doyle, B. L. 1786 2522	Grosser, J. 434
	Drepper, F. 1632	Gushchina, N. A. 2484
	DuBois, R. 1553	Hall, J. M. 1761
	Duggan, J. L. 1700	Hartung, H. 2550

Harzer, H. 1211	Laubert, R. 57	Mitchell, I. V. 1793
Heiligenthal, G. 2516	Laucagne, J. J. 1803	Mitchell, J. B. A. 220
Hildebrandt, G. F. 944	Le, T. Q. 1710	Miyagawa, S. 2362
Hippler, R. 1275	Lee, J. S. 1976	Moiseiwitsch, B. L. 233
Hiskes, J. R. 1271	Lennard, W. N. 1793	Mokler, F. H. 2521
Hopkins, F. 2142	Lichtenberg, W. 2507	Morssen, H. 1646
Iguchi, K. 243	Liesen, D. 2521	Monigold, G. 1700
Jamison, K. A. 1761 1786	Liu, B. 1831	Morgenstern, R. 2128
Janev, R. K. 50	Lo, H. H. 415	Moriya, Y. 2362
Jank, W. 350	Lorents, D. C. 761	Muller, B. 330 2128 2514 2516
Jitochin, W. 1211	Macdonald, J. R. 2521	Muschlitz, E. E., Jr. 2032
Jorgensen, K. 1627	Magnuson, G. D. 1081	Nakai, Y. 453
Kabachnik, N. M. 1498	Mann, A. 559	Nakai Y. 243
Kantor, J. 559	Mann, R. 1545 2535	Nakamura, H. 243 493
Karo, A. M. 1271	Manson, S. T. 12	Neomu, I. 1528
Kartazhev, V. A. 1246	Mocr, D. 1279	Neumann, H. 1710
Kartoshkin, V. A. 1954 2294	Martin, B. 1286	Newcomb, J. 1761
Kellert, F. G. 944	Martin, F. W. 1879	Neynaber, R. H. 1081 2090
Kessel, Q. C. 2128	Mason, J. P. 46	Niehous, A. 1519 2128
Kim, Y.-K. 12 70	Matthews, D. I. 2142	Niklaev, V. S. 327 2497
Kimura, M. 2092	Matthews, H. G. 1211	Nikulin, V. K. 2484
Kleber, M. 245	McDaniel, F. D. 1700	Nir, D. 566
Klement'ev, G. V. 1964 3204	McGowan, J. W. 220	Nolte, G. 2507
Kocbach, L. 361	McIntyre, L. C., Jr. 1779	Norrington, P. H. 233
Komarov, F. F. 348 2499	McKee, J. S. C. 1282	Novikov, A. P. 340 2499
Krimm, H. 1286	Mehta, R. 1700	Nissen, J. D. 1627
Kruglova, I. M. 327	Meisel, G. 1211	Olson, R. E. 235 250 1794 1826 1831
Kumar, A. 265	Merzbacher, E. 330	Ostrovskii, V. N. 2263
Laemann, K. 2092	Meyerhof, W. E. 326 1702	Paisner, J. A. 1227
Lam, K.-S. 705 1987	Micha, D. A. 1770	Parks, E. K. 1077
Langenberg, A. 264	Middlesworth, E. M., Jr. 1779	Patterson, T. A. 2000
Latypov, Z. Z. 2485 2486	Miller, P. D. 1700	

Pauli, M. 222 353 1505	Schmidt, V. 1553	Steuer, M. F. 1955 2080
Penselin, S. 1211	Schmidt-Bocking, H. 1828 2507	Stevens, W. J. 1271
Pesnelle, A. 1803 1804	Schmiedekamp, C. 1761 1786	Stockdale, J. A. D. 530
Peterson, R. S. 1545	Scholer, A. 2529	Stwalley, W. C. 108
Petty, R. J. 46	Schuch, R. 1828 2507	Szabc, G. 1545
Piotrovskii, Y. A. 1246	Schule, R. 2507	Tang, S. Y. 1081 2090
Pitchford, L. C. 940	Schurkes, P. 1646	Tawara, H. 1761
Pointu, A. M. 2191	Scintei, N. 1528	Thielmann, U. 2128
Poncet, M. 1878	Sebyakin, Y. N. 2263	Tittel, H. 253e
Povh, B. 1286	Seely, M. 2032	Tiwary, S. N. 365 586
Protop, C. 1528	Senashenko, V. S. 2497	Toburen, L. H. 12
Pyle, R. V. 235	Sergeev, V. A. 327	Tolmachev, Y. A. 1246
Radulovic, Z. M. 50	Sewell, E. C. 198 269	Toten, A. 1700
Rai, D. K. 986	Shafer, V. Y. 2497	Trautmann, I. 222 353 1505
Ramsay, W. D. 1282	Shakeshaft, R. 1791 1815 2174	Traxel, K. 1286
Redmon, L. T. 1794	Shaporenko, A. A. 2485 2486	Tserruya, I. 1828 2507
Rice, R. 1700	Sharp, R. C. 2032	Utterback, A. G. 998
Richard, P. 1761 1786	Sheen, S. H. 1077	van Eck, J. 264
Rodbro, M. 1553	Shima, K. 362	van Zyl, B. 598
Rohl, S. 1528	Shipsey, E. J. 1794	van Zyle, B. 1710
Rosel, F. 353 1505	Shirai, T. 243 493	Vasu, P. 415
Rosner, B. 559 1279	Sidorovich, V. A. 2497	walcher, I. 1286
Roturler, J. 355	Siegel, M. W. 2000	Warczak, A. 2521
Roy, B. N. 265	Sizov, V. V. 1498	Warmack, R. J. 930
Rudolph, W. 2535	Smith, K. A. 944	Watel, G. 1803
Ruf, M. W. 1519	Soff, B. 2516	Way, K. F. 108
Saboya, B. 355	Scff, G. 330 2514	Weber, K.-H. 350
Salin, A. 355	Suffield, C. J. 46	wexler, S. 1077
Salop, A. 1270	Sperber, D. 317	Willmann, P. A. 1271
Schartner, K.-H. 1275	Spruch, L. 2174	Winter, H. 1270
Schiebel, U. 2522	Stearns, J. W. 235	Wood, R. M. 1995 2080
Schlachter, A. S. 235	Stebbing, R. F. 944	Woodard, M. R. 2032

Worden, E. F.
1227

Wu, C.-Y. R.
108

Yang, S.-C.
108

Zhitnikov, R. A.
1954 2294

Zoran, V.
1528

A08

HEAVY PARTICLE - HEAVY PARTICLE
INTERACTIONS

Stripping

Alton, G. D.
1825 2164

Antar, A.
1825

Bell, K. L.
256

Berkner, K. H.
2158

Bridwell, L. B.
1825

Dewangan, D. P.
1630

Dmitriev, I. S.
249 2274

Elston, S. B.
2164

Gilbody, H. B.
251

Goffe, T. V.
251

Graham, W. G.
2158

Jones, C. M.
1825

Kessel, O. C.
1825

Kirgston, A. E.
256

Laubert, R.
2164

Miller, P. D.
1825

Moak, C. D.
1825

Nikolaev, V. S.
249 2274

Olson, R. E.
2158

Popov, B. M.
2274

Pyle, R. V.
2158

Sayer, R. O.
1825

Schlachter, A. S.
2158

Scott, H. A.
1825

Sellin, I. A.
2164

Shah, M. B.
251

Stearns, J. W.
2158

Suter, M.
2164

Tashaev, Y. A.
245 2274

Tepliva, Y. A.
245 2274

Thce, R. S.
2164

Vane, C. R.
2164

Walters, H. R. J.
1630

A09

HEAVY PARTICLE - HEAVY PARTICLE
INTERACTIONS

Recombination or Mutual Neutralization
Leading to Neutral Products (ion-ion)

Banyard, K. E.
272

Bardsley, J. N.
515

Bates, D. R.
1339 1340

Brcchu, R.
517

Burdett, N. A.
110

Flannery, M. R.
529 531 663
767

Hayhurst, A. N.
110

Jacob, J. H.
517

Janev, R. K.
50

Mangano, J. A.
517

Mendas, I.
1339 1340

Moore, J. C.
272

Radulovic, Z. M.
50

Rokni, M.
517

Wadhwa, J. M.
515

Yang, T. F.
525 531 663

HEAVY PARTICLE - HEAVY PARTICLE
INTERACTIONSElectronic, Vibrational, and Rotational
Energy Transfer (process unknown)

- Altick, P. L.
1038
- Amaee, B.
255
- Ambartsumyan, R. V.
1384
- Antipenko, B. N.
2336
- Arimondo, E.
85
- Bennett, W. R., Jr.
1834
- Bentley, J.
814
- Beroff, K.
2189
- Berrue, J.
1167
- Bhattacharjee, R. C.
145
- Bhattacharyya, S. S.
1052
- Billing, G. D.
706
- Biraben, F.
2189
- Borman, V. D.
2328
- Bottcher, C.
255
- Bowman, J. M.
749
- Brechinac, P.
718
- Breckenridge, W. H.
792
- Brindle, R. C.
1054
- Bruev, A. S.
2328
- Brunner, T. A.
2169
- Cahuzac, P.
2134
- Capelle, G. A.
2098
- Chave, A.
1167
- Cheron, B.
2194
- Chesnokov, E. N.
2279 2319
- Chilibisov, M. I.
2446
- Churakov, V. V.
1357
- Cooke, W. E.
52
- Cremer, G.
2194
- de Vries, A. E.
735
- de Vries, M. S.
735
- Driver, R. D.
2169
- Dumon, B.
1167
- Dunning, F. B.
2143
- Eberhardt, W. D.
2038
- Edelstein, S. A.
52
- Ershov, L. S.
2474
- Fain, B.
752
- Flint, J.
1834
- Foley, H. M.
2040
- Forst, W.
145 746
- Fujimoto, T.
1345
- Gallagher, A. C.
1345
- Gallagher, T. F.
52
- Giacchino, E.
2189
- Glorieux, P.
85 1123
- Gogokhiya, V. V.
1382
- Gordienko, V. M.
1385
- Gordon, R. J.
441 807
- Grandin, J. P.
1168
- Grimley, A. J.
2007
- Grynberg, G.
2189
- Gupta, S.
2341
- Harel, C.
189
- Hariri, A.
979
- Hennecart, D.
1170
- Herlemont, F.
430
- Hessel, M. M.
1345
- Hill, R. M.
2057
- Hills, G. W.
1123
- Hollentech, D. J.
825
- Horwitz, A. B.
2106
- Houston, P. L.
2007
- Hsu, D. S. Y.
743
- Huestis, D. L.
2097
- Husscn, X.
1168
- Ioggensen, A. A.
1384
- Johri, G. K.
2341
- Jordan, R. M.
2084
- Karlov, N. V.
2471
- Kartoshkin, V. A.
2276
- Kellert, F. G.
2143
- Klement'ev, G. V.
2276
- Konyukhov, V. K.
1382
- Kotcv, A. V.
1384
- Krynetskii, B. B.
2471
- Lam, L. K.
1345
- Leasure, S.
749
- Lesaire, J.
430
- Leone, S. R.
2106
- Leshenyuk, N. S.
1357
- Lester, W. A., Jr.
2111
- Lin, M. C.
743
- Lombardi, M.
1165
- Lopez, V.
189
- Lorents, D. C.
2057
- Lukovnikov, A. I.
1382
- Lyszyk, M.
430
- Maksimov, I. A.
2328
- Malwin, O. K.
752

Manzanares, E. R. 814	Pritchard, D. E. 2169	Sung, C. C. 2038
Mao, C.-R. 807	Rankin, R. F. 188	Sutton, D. G. 2058
McC Carroll, R. 189	Rebentrost, F. 774 2111	Tarasenko, V. V. 2336
McGee, T. H. 957	Reid, R. H. G. 188	Thibeau, M. 1167
Mikheenko, A. V. 1385	Reisler, H. 2055	Thomas, L. D. 2111
Minaev, B. F. 1931	Riera, A. 189	Tkachenko, E. K. 1525
Mishin, V. A. 2471	Ruderman, M. A. 2040	Toschek, P. E. 2134
Moser, M. D. 969	Rundel, R. D. 2143	Tracy, C. J. 1054
Moy, J. 807	Saha, S. 1052	Trushin, S. A. 1357
Nakano, H. H. 2057	Schatz, G. C. 569	van Veen, N. J. A. 735
Nevdakh, V. V. 1357	Sercov, V. V. 1931	Vargin, A. N. 1382
Nienhuis, G. 1174	Shin, H. K. 1038 1969	Vidal, C. R. 729
Nikolaev, B. I. 2328	Shull, J. M. 825	Wahnen, P. 185
Nikolai, W. L. 792	Sigmund, P. 231	Weston, R. E., Jr. 557
Oba, D. 792	Siska, P. E. 2084	Winicur, D. H. 814
Oka, T. 85	Smirnov, V. A. 2336	Witriol, N. M. 2038
Orlov, L. N. 1357	Smith, K. A. 2143	Wittig, C. 579 2055
Oskam, H. J. 1054	Smith, N. 2169	Zaleskii, V. Y. 2474
Panchenko, V. Y. 1385	Stebbing, R. F. 2143	Zhitnikov, R. A. 2276
Panfilov, V. N. 2279 2319	Steinfeld, J. I. 2098	Zubarev, I. G. 1384
Patel, C. K. N. 2125	Stettler, J. D. 2038	Zuev, A. P. 1929
Penner, A. P. 746	Streckel, F. 1165	

All

HEAVY PARTICLE - HEAVY PARTICLE
INTERACTIONS

Collisional De-Excitation (total)

Abella, I. D.
1230

Adams, N. G.
1573

Adel, F. A.
2108

Ahl, J. L.
915

Amano, T.
973

Amimoto, S. T.
813

Anderson, R. A.
1019

Baer, T.
1230

Bagaev, S. A.
1254

Barrat-Rambosson, M.
1504

Barua, A. K.
1464

Bar-Ziv, E.
935

Basov, N. G.
2469

Bazhulin, S. P.
2469

Bennett, W. R., Jr.
1834

Bien, F.
2017

Billing, G. D.
151 152 1082
1083

Binns, W. R.
915

Biraben, F.
1821

Black, G.
933 934

Bondybey, V. E.
2052

Bott, J. F.
956

Brady, T. J.
772

Brashears, H. C., Jr.
666

Breckenridge, W. H.
282 283

Brenn, R.
487

Brindle, R. C.
1054

Brochu, R.
517 523

Brom, J. M., Jr.
433

Brown, T. J.
1965 1966

Brutto, P.
2046

Buckel, W.
2505

Burnham, R.
382 890

Burrell, C. F.
1805

Butterfield, K. B.
477

Buttler, W.
2505

Cagnac, B.
1821

Catherinot, A.
1171 1750

Caughey, T. A.
2043

Cem Gokay, M.
473

Center, R. E.
1024 1996

Chakroun, A.
2108

Chang, R. S. F.
728 2063

Chen, C. H.
532 1481 1982

Chen, C. J.
1815

Chen, M.-C.
2031

Chenevier, M.
2188

Collins, C. B.
1015

Collins, G. J.
477

Cooke, W. E.
9 1762

Cool, T. A.
936

Crosley, D. R.
1093 2043

Cross, L. A.
473

Curry, S. M.
400

Czajkowski, M.
463

Damany, H.
1118

Davidson, J. A.
1965 1966

Davis, C. C.
1994

Davis, S. J.
1019

Delicche, R.
1015

Derouard, J.
1618

Diebold, G. J.
1585

Dixit, S. D.
1217

Donnelly, V. M.
1977

Doncuan, R. J.
416

Douglas, E. J.
765

Doyennette, L.
2108

Drullinger, R. E.
1046

Dubreuil, B.
1171 1750

Dunn, K. F.
1454

Duren, R.
1476

Edelstein, S. A.
5 1762

Eden, J. G.
382 850 1005
1216

Enzweiler, J.
1057

Ewing, G.
133

Firestone, R. F.
2031

Fisher, C. H.
1596

Flint, J.
1834

Force, A. P.
813

Fotakis, C.
416

Fraites, J. L.
166

Franz, F. A.
1718

Fressier, B. C.
652

Fujimoto, T.
1345

Gallagher, A. C.
1345

Gallagher, T. F.
5 1762

Gand, M.
1750

Gerber, F. E.
165 170

Gerstenberger, D. C.
477

Ghosh, S. N.
1217

Gilbody, H. B. 1454 1491	Jacob, J. H. 517 523	Levron, D. 2004
Gilmore, B. J. 1454	Jolicard, G. 1030	Lewittes, M. E. 1954
Glosik, J. 1573	Jolly, D. L. 692	Little, W. L. .477
Goffe, T. V. 1491	Judish, J. P. 1481 1982	Liu, W.-K. 125
Gordon, R. J. 935 2046	Julienne, P. S. 901	Lombardi, M. 1618
Green, S. 2069	Kanc, S. 973 1033	Louis, G. 751
Grimbert, D. 755	Kasuga, T. 2101	Maddcnald, R. G. 514
Grimley, A. J. 1028	Kato, H. 902	Mangano, J. A. 517 623
Grynberg, G. 1821	Kaufman, F. 1977	Margcttin-Maclou, M. 2108
Hanko, L. 1019	Kelly, F. M. 1811	MATNUP, M. S. 1811
Hanner, W. 490	Kligler, D. J. 2122	Matsuzawa, M. 1764
Hariri, A. 979	Kohmaler, G. H. 1558	McCourt, F. R. 125
Harris, S. E. 2184	Kohse-Hoinghaus, K. 673	McCullough, R. W. 1451
Hazi, A. U. 795	Kolts, J. H. 433 1073 2078	McFarlane, R. A. 1594
Heldner, R. F., III 956	Kolwas, M. 1821	McGee, T. H. 557
Henry, L. 2108	Kramer, P. B. 565	McNeal, R. J. 572
Hessel, M. M. 1046 1345	Krause, L. 463	Meric, I. A. 1057
Hickman, A. P. 1758	Kucal, H. 1504	Miladi, M. 1118
Hikida, T. 311	Kung, R. T. V. 512	Miller, T. A. 2052
Hofmann, H. 286 423 2060	Kunze, H.-J. 1805	Miller, W. H. 2020
Hollenbach, D. J. 825	Kuranov, A. L. 1946	Minglegrin, C. 169
Hopkins, F. 487	Kuze, H. 2101	Minglegrin, U. 170
Hoppe, H.-O. 1478	Las, L. K. 1345	Moore, C. B. 765 514 2053
Hou, M. 490	Lavollee, M. 765	Mori, Y. 311
Houston, P. L. 1028	Lawton, S. A. 1958	Morita, N. 573 1033
Hovis, F. E. 3093	Lee, F. W. 1015	Moy, J. 935 2046
Howard, C. J. 1965 1966	Lee, L. C. 2067	Murrell, J. N. 1016
Hughes, W. M. 545 546	Lengel, R. K. 1093	Muschlitz, E. E., Jr. 1088
Hui, K. K. 936	Leñe, S. H. 286 423 2060	Newton, J. F. 1024
Humphrey, L. M. 1762	Lecnov, Y. S. 2469	Nguyen, T. D. 1763
Ionikh, Y. Z. 1946	Lepoutre, F. 791	Nitzan, A. 755
Irvin, J. A. 2079	Lester, W. A., Jr. 2020	

Nordholm, S. 692	Ross, J. 1062	Stricker, J. 931
Novak, E. 1558	Rubtsova, N. N. 2457	Stuhl, F. 673
Nyeland, C. 152	Sadeghi, N. 1763 2188	Taine, J. 791
Oginets, O. V. 1254	Saha, S. 1464	Tan, A. C. 450
Osgood, R. M., Jr. 539	Sangster, D. F. 2075	Tarr, S. M. 919
Oskam, H. J. 1054	Santoro, R. J. 1989	Taylor, G. W. 728
Pack, R. T. 2025	Sathyamurthy, N. 129	Tolmachev, Y. A. 1254
	Schiff, H. I. 1965 1966	Tracy, C. J. 1054
Payne, M. G. 532 1481 1982	Searles, S. K. 382 896	Tramer, A. 755
Pebay-Peyroula, J. C. 2188	Setser, D. W. 433 666 728 1073 2063 2078	Twiddy, N. D. 1573
Penkin, N. P. 1946	Sharkov, V. F. 1946	Vasilenko, L. S. 2457
Phelps, A. V. 1958 2004	Shay, T. 477	Velozcc, J. E. 207E
Phillips, L. F. 772	Sheldon, J. W. 1000	Vikis, A. C. 268
Pipkin, F. M. 565	Sheridan, J. R. 1057	Volk, C. 1718
Pitchford, L. C. 1015	Shimizu, T. 973 1033 2101	Wade, M. K. 463
Polanyi, J. C. 129	Shin, H. K. 1086	Waynant, R. W. 382 850 1005 1218
Popova, T. Y. 2457	Shull, J. M. 825	Weber, E. W. 2505
Poulsen, L. L. 1082 1083	Simpson, F. R. 1454	Weston, R. E., Jr. 557
Powell, H. T. 795	Sirchis, I. 512	White, J. C. 2184
Prasad, J. 1217	Sire, C. D. 1558	Whitson, M. E., Jr. 572
Preston, R. K. 2026	Skvortsov, M. N. 2457	Wiesenfeld, J. R. 813 1990
Quickenden, T. I. 2079	Slander, T. G. 933 934 2667	Winicur, D. H. 166
Quigley, G. P. 545 546	Smirnov, V. B. 1254	Wittig, C. 575 1020
Rabitz, H. 919	Smith, D. 1573	Wolk, G. L. 1550
Raczkowski, A. W. 2020	Smith, E. W. 1046	Wu, K. T. 694
Rakshit, A. B. 1573	Sorcuse, G. D. 487	Yabuzaki, T. 490
Ray, S. 1464	Stace, A. J. 1016	Yencha, A. J. 654
Reisler, H. 1020	Steinfeld, J. I. 1082	Young, J. F. 2184
Renlund, A. M. 282 283	Stoek, M. 1046	Zaritsky, N. C. 165 170
Rhodes, C. K. 2122	Stcilov, Y. Y. 2460 2469	Zdasiuk, G. A. 2184
Rckni, M. 517 523	Streil, G. E. 1965	Zeitsch, C. 675
Roncin, J.-Y. 1118		Zuev, V. S. 2469
		Zvijac, D. J. 1062

HEAVY PARTICLE - HEAVY PARTICLE
INTERACTIONS

Collisional Line Broadening

- Alkemade, C. T. J. 1695
- Babkin, V. I. 2464
- Bassalo, J. M. 1829
- Behmenburg, W. 1388
- Ben-Aryeh, Y. 1665
- Ben Lakhdar, Z. 1162
- Berman, P. R. 91
- Biraben, F. 1821
- Birnbaum, G. 1653
- Boulet, C. 1687
- Bowman, N. J. 1448
- Brechignac, C. 91
- Bruce, D. M. 1213
- Cagnac, B. 1821
- Cattani, M. 1683 1829
- Chen, C. J. 1815
- Cherkasov, M. R. 2433 2434
- Dagg, I. R. 465 466
- Davies, R. W. 1676
- Depristo, A. E. 1124
- Duley, W. W. 1213
- Ebby, N. 1659
- Exton, R. J. 1672
- Frenkel, D. 754
- Galatry, L. 1687
- Gallagher, A. 75
- Gardiner, W. C., Jr. 1678
- Gharbi, A. 102
- Godlevskii, A. P. 896
- Graubner, F. 2556
- Grynberg, G. 1821
- Guelachvili, G. 1673
- Hermann, G. 2556
- Hollander, T. 1695
- Johri, G. K. 2339
- Jenperius, M. J. 1695
- Kaliteevskii, N. I. 1249
- Kapitanov, V. A. 800
- Kazentsev, S. A. 1249
- Kncil, J. S. 1692
- Kelwas, M. 1821
- Kusch, H. J. 644
- Kuznetsova, S. V. 2464
- Le Euff, Y. 102
- Lennuier, R. 1162
- Lewis, E. L. 1448
- Lwin, N. 1616
- Mallard, W. G. 1678
- Maslov, A. I. 2464
- McCortan, D. G. 1616
- Mehrotra, S. C. 2339
- Meier, D. 1661 1677
- Mirza, M. Y. 1213
- Mizuohima, M. 1654
- Muradov, V. G. 1252
- Nienhuis, G. 1684
- Gli, B. A. 1676
- Ostrovskii, V. N. 2278
- Pascale, J. 1164
- Perrin, D. 1162
- Petzold, H. C. 1388
- Planet, L. G. 1652
- Posten, A. 1665
- Rabitz, H. 1124
- Rebane, V. A. 1250
- Reeser, G. E. 465 466
- Rish, G. M. 1249
- Robert, D. 1667
- Rondigs, G. 644
- Rozsnvai, B. F. 1671
- Salcur, M. M. 35
- Sayer, E. 1164
- Shardanand 1682
- Smith, M. A. H. 1673
- Snow, W. L. 1672
- Srivastava, S. L. 2339
- Stwalley, W. C. 1680 1748
- Suarez, C. E. 1126 1670
- Szoka, A. 1219
- Tetterer, G. L. 1652
- Valero, F. F. J. 1125 1670
- van der Elsken, J. 754
- van der Peijl, G. J. Q. 754
- Vetter, R. 51
- Visticot, J. P. 1164
- Weniger, S. 1659
- West, W. P. 75
- Wong, M. 465 466
- Wu, C. Y. R. 1680 1748
- Yabichkev, E. Y. 1252
- Yamartc, Y. 1683

HEAVY PARTICLE - HEAVY PARTICLE INTERACTIONS

Heavy Particle Interchange, Rearrangement, and Association (one or more ionic reactants)

Adams, N. G. 181 309 428 429 847 1573 1633	Ferguson, E. E. 978 1096	Matsuura, Y. 378
Ahl, J. L. 915	Fukuda, K. 378	McAllister, T. 837
Albritton, D. L. 978 995 1096 1105	Glosik, J. 1573	McGowan, J. W. 1599
* Arifov, U. A. 2455 2456	Grief, D. 181	Meisels, G. G. 928 597
Baer, M. 1201	Guha, M. 2113	Metral, C. J. 548
Bates, D. R. 1342	Hasegawa, K. 281	Miller, T. M. 305 541
Becker, M. 454	Hellgeist, M. 454	Munson, B. 172
Berkowitz, D. S. 821	Helm, H. 1092	Neilson, P. V. 508
Binns, W. R. 915	Herbst, E. 440	Neta, P. 281
Biondi, M. A. 2019	Herman, Z. 176	Nikolaev, E. N. 2454
Black, J. H. 826	Hillier, I. H. 983	Nygaard, K. J. 1059
Bowers, M. T. 908 929	Holland, P. M. 959	Pacak, V. 176
Brouillard, F. 1599	Hopper, D. G. 883	Parent, E. 508
Castleman, A. W., Jr. 959	Howard, C. J. 978	Po, F. L. 277
Chang, S. 821	Iglesias, E. R. 844	Polley, C. b. 172
Chen, A. 2019	Illies, A. J. 528	Porter, R. F. 276 277
Chesnavich, W. J. 929	Jennings, K. R. 928	Poulaert, G. 1555
Church, M. J. 941 1633	Johnsen, R. 2019	Pozharov, S. L. 2455 2456
Claeys, W. 1599	Johnson, S. G. 948	Radus, T. P. 276 277
Corbin, R. J. 1059	Jonsson, B. 885	Rai Eastidar, T. K. 2113
Cross, R. J., Jr. 948	Karlstrom, G. 885	Rakshit, A. B. 1573 1647
Davidson, J. A. 978	Keesee, R. G. 959	Sargsyan, G. N. 2448 2449
Dotan, I. 978 995 1096 1105	Kemper, P. R. 908	Scheerer, L. D. 1059
Elitzur, M. 849	Kendrick, J. 983	Sieck, L. W. 869
Fehsenfeld, F. C. 978 995 1096 1105	Kcyano, I. 2044	Silk, J. 844
* Anicich, V. G. 797	Kremer, L. N. 948	Smith, D. 181 309 428 429 847 941 1573 1633
* Huntress, W. T., Jr. 797 798	Kuntz, P. J. 983	Snow, W. R. 1059
** Karpas, Z. 797 798	Langer, W. D. 838	Stock, H. M. P. 1647
	Lifshitz, C. 886 906	Stradling, R. S. 528
	Lindinger, W. 595	Streit, G. E. 1056
	Loew, G. H. 821	Sullivan, J. P. 440
	Malikhasyan, R. T. 2448 2449	Parks, J. H. 384
	Mandl, A. 384	

Tanaka, K.
2044

Tantsyrev, G. D.
2454

Terwilliger, D. T.
906

Tiernan, T. O.
886 906

Tunitskii, N. N.
2448

Twiddy, N. D.
1573 1647

van Wassenove, G.
1599

Varney, R. N.
1092

Verboom, G. M. L.
997

Viggiano, A. A.
578

Wareing, D. P.
1647

Watson, W. D.
849

Wennerstrom, H.
885

Wolf, G. K.
454

Wu, F. L. C.
886 906

Yencha, A. J.
176

Zhurkin, E. S.
2448 2445

HEAVY PARTICLE - HEAVY PARTICLE
INTERACTIONSHeavy Particle Interchange,
Rearrangement, and Association (only
neutral reactants)

- Abraham, B. M.
1144
- Akimoto, H.
274 1142
- Annis, B. K.
2015
- Appelman, E. H.
1144
- Armstrong, R. A.
768
- Askar, A.
707
- Atkinson, R.
410 874
- Augustin, S. D.
2071
- Balalaev, V. E.
724 786
- Bardorff, W.
672
- Bartoszek, F. E.
296
- Bar-Ziv, E.
935
- Basco, N.
872
- Basov, N. G.
2452
- Bauer, W.
1064
- Bauschlicher, C. W., Jr.
737
- Behrens, R., Jr.
741 1058
- Bernstein, R. B.
937 1350
- Biermann, H. W.
671
- Biro, A.
299
- Black, G.
933
- Blackwell, B. A.
147
- Bott, J. F.
556
- Bowman, J. M.
1035
- Braithwaite, M.
294
- Brandt, D.
723
- Breckenridge, W. H.
283
- Breitenbach, L. P.
796
- Brown, N. J.
1347
- Brown, R. D. H.
863
- Brunet, H.
299
- Brzychcy, A.
815
- Burcat, A.
871
- Butler, J. E.
782
- Butler, R.
411
- Cakmak, A. C.
707
- Caledonia, G. E.
1980
- Campbell, I. M.
111
- Case, D. A.
161 303
- Chang, J. S.
1136
- Chapman, F. M., Jr.
308
- Chapman, S.
760 2059
- Chiu, Y.-N.
1101
- Choi, B. H.
767
- Clary, D. C.
808
- Clemens, L.
308
- Clough, P. N.
2039
- Clyne, M. A. A.
870
- Combourieu, J.
292
- Connor, J. N. L.
171
- Conway, J. G.
1227
- Cool, T. A.
936
- Cocbe, R. D.
1145
- Cvetanovic, R. J.
854 1060
- Dagdigian, P. J.
442 659 1986
- Dahler, J. S.
910
- Danilychev, V. A.
2452
- Datz, S.
2015
- Davidovits, P.
793 815
- Davis, S. J.
443 768
- DeHaven, J.
815
- Del Greco, F. P.
1580
- Delisi, C.
278
- Delicche, R.
540
- DeMore, W. E.
1139
- Diegelmann, M.
385
- DiGiuseppe, T. G.
793
- Duff, J. W.
308
- Dugan, C. H.
2028
- Estler, R. C.
2102
- Evers, C. W. A.
138
- Faist, M. B.
2070
- Faizullov, F. S.
2452
- Farantos, S. C.
880
- Felder, W.
1960
- Filatov, V. V.
786
- Fischer, S.
124
- Fischer, S. F.
708
- Fisher, E. F.
1140
- Fite, W. L.
415 2000
- Flynn, G. W.
751
- Fontijn, A.
1960
- Forsman, J. A.
280
- Freed, K. F.
146
- Freedman, A.
741 1058
- Friichtenicht, J. F.
1058
- Fung, K. H.
146
- Galy, J.
299
- Gardiner, W. C.
871
- Garrett, E. C.
1042

Gauss, A., Jr. 955	Hui, K.-K. 936	LeBras, G. 292
Geddes, J. 2039	Hunt, J. E. 872	Lee, J. H. 312 1043 1095 2035
Gordon, E. B. 422 724 786	Hynes, J. T. 421	Lee, K. I. 1035
Gordon, R. J. 935	Ivanov, B. I. 724 786	Leone, S. R. 286 294
Gorozhankin, E. V. 2452	Ivanov, R. S. 1362	Leu, M. T. 1135
Gorry, P. A. 432	Jakubetz, W. 171 725 726 1988	Levine, R. D. 149 426
Gray, J. C. 308	Javan, A. 938	Levitskii, A. A. 2453
Green, B. D. 1980	Jeannotte, A. 1144	Levy, M. R. 418
Green, S. 2059	Jehson, S. A. 770	Light, G. C. 750 1004
Grice, R. 432	Karny, Z. 1027 2102	Light, J. C. 2029
Grimley, A. J. 766	Kaufman, F. 426 1136 2030	Lin, M. C. 782 571
Grimley, R. T. 280	Kennealy, J. P. 1980	Liu, E. 1831
Grindstaff, Q. G. 280	Keyser, L. F. 305	Liu, K. 563 2075
Hack, W. 677	Khaelenko, V. V. 422	Lo, H. H. 415
Handy, B. J. 111	Kivel, B. 1094	Lohr, L. L., Jr. 736
Hansen, I. 674	Klimck, D. 2075	Losakin, L. A. 448
Hardy, J. E. 871	Kocopl, G. W. 810	Luntz, A. C. 2110
Hayes, E. F. 308	Kona, T. 884	Luu, S. H. 867
Heicklen, J. 865	Kolts, J. H. 1073 1137	Macdonald, R. G. 914
Heldner, R. P., III 966	Kondo, K. 804	Maker, P. E. 796
Hepburn, J. W. 2075	Korcliev, N. M. 1362	Malikov, M. M. 1362
Herm, R. R. 741 1058	Korsch, H. J. 149 709	Manos, D. M. 256
Herman, I. P. 938	Kulander, K. C. 2095	Manz, J. 171
Herschbach, D. R. 161 303	Kurenkov, V. V. 2452	Mariello, R. P., Jr. 938 2110
Heydtmann, H. 672	Kurylo, M. J. 783	Maslov, A. I. 1383
Hoppler, H. 867	Kuznetsova, S. V. 1383	Matsumoto, J. H. 790
Hoffmann, H. 2286	Las, L. 2028	Maxson, V. I. 2110
Hofmann, H. 286	Lantzsch, B. 2110	McClelland, G. M. 161
Hohla, K. 385	Latham, S. L. 2057	McFadden, D. L. 793
Horne, R. K. 1145		McNutt, J. F. 2057
Houston, P. L. 766		Metriculos, A. 1101
Hudgens, J. J. 782		

Mezhov-Deglin, L. P. 422	Pasternack, L. 699	Reimann, B. 2030
Michael, J. V. 312 1043 1095 2035	Patterson, T. A. 2000	Renlund, A. M. 283
Miller, W. H. 765 1042	Payne, W. A. 312 1043	Rescigno, A. 278
Millet, P. 299	Payne, W. A., Jr. 1095	Rettner, C. T. 418
Mizlolek, A. W. 1138	Payne, W. A. 2035	Robin, J. 124
Molina, M. J. 1138	Pechukas, P. 1967	Rusin, L. Y. 1064
Moore, C. B. 914	Perminov, A. P. 724 786	Sadowski, C. M. 2028
Morrell, G. O. 308	Perry, R. A. 410	Sathyanurthy, N. 755
Moy, J. 935	Persky, A. 985	Savage, C. M. 796
Muckerman, J. T. 2070	Phillips, L. F. 773	Schatz, G. C. 424
Murrell, J. N. 868 880	Pilipovich, D. 1145	Schmatjko, K. J. 670
Nakatsujii, H. 884	Pitchford, L. C. 540	Schnabel, F. 760
Neiger, M. 2286	Pitts, J. N., Jr. 410	Schr, H. 2059
Nesbet, R. K. 808	Pitts, J. N. 874	Schreiber, J. L. 684
Niemczyk, T. M. 443	Foe, R. T. 767	Schreiner, F. 1144
Niki, H. 796	Polak, L. S. 2453	Schubert, F. E. 2070
Nip, W. S. 870	Polanyi, J. C. 147 296 684 723 2075	Setser, D. W. 1073 1137 2061
Northrup, S. H. 421	Folliak, E. 916 1967	Shan, Y. 767
Nowikow, C. V. 432	Fonomarev, A. N. 796	Shebeko, Y. N. 2452
Numrich, R. W. 275	Pons-Germain, B. 299	Siegel, M. W. 2000
Obi, K. 864	Popovichev, V. I. 2452	Silver, D. P. 1347
Oka, K. 1060	Poulet, G. 292	Simonaitis, R. 865
Okuda, M. 274 1142	Prenzel, A. T. 815	Simons, J. F. 418
Olson, R. E. 1831	Preston, R. K. 770	Singleton, I. L. 654
O'Neill, G. M. 2039	Preuss, A. W. 677	Slanger, T. G. 533
Oiel, A. C. 765	Puocachev, O. F. 422	Sloan, J. J. 147
Osherov, V. I. 448	Rabitz, H. 2071	Smith, G. K. 782 1140
Paisner, J. A. 1227	Ratitz, H. A. 707	Smith, I. W. M. 863
Pang, H. F. 937	Ragul'skii, V. V. 2452	Snelson, A. 411
Panteleev, V. I. 2452	Ratner, M. A. 124	Sluder, N. 2050
Parr, T. P. 741 1058	Redmon, M. J. 2057	Solarz, R. W. 770
Parson, J. M. 963		Solomon, I. J. 411

Spicer, L. D. 279	Thompson, D. L. 447	Wicke, B. G. 1058
Sridharan, U. C. 793	Thrush, B. A. 676	Wiesenfeld, J. R. 1951
Stace, A. J. 868	Toennies, J. P. 1064	Wilcomb, B. E. 1926
Stechel, E. B. 2029	Troe, J. 867	Wolfbrug, J. 670
Stevens, D. J. 279	Truhlar, D. G. 275 308	Wolk, G. L. 1991
Stief, L. J. 312 1043 1095 2035	Ushakov, V. G. 448	Worden, E. F. 1227
Stotskii, G. I. 1362	Utterback, N. G. 998	Wright, J. S. 290
Strausz, O. P. 864	Vanroodselaar, A. 864	Wrctel, W. G. 385
Stuhl, F. 671	von Zyl, B. 998	Wu, K. T. 937
Suchkov, A. F. 2432	Vasu, P. 415	Wurzberg, E. 708
Sung, J. P. 2061	Vaughn, C. 424	Wyatt, R. E. 2057
Sverdluk, D. I. 810	Venzl, G. 124 708	Xystris, N. 910
Swearingen, P. M. 443	Wagner, H. G. 677	Yonezawa, T. 884
Tang, K. T. 767	Walker, R. B. 2029	Zandec, L. 1350
Tang, S. P. 1058	Wallace, S. C. 2075	Zare, R. N. 1027 2059 2102
Teitelbaum, H. 867	Washida, N. 274 1142	Zellner, R. 678
Teyssier, J. L. 299	West, G. A. 751	Zetzsch, C. 671 674
Thakur, A. K. 278	Weston, R. E., Jr. 751	

A15

HEAVY PARTICLE - HEAVY PARTICLE
INTERACTIONS

Spin Exchange

Anholt, R.
56

Falcon, C.
1544

Loli, N.
2517

Meucci, M.
2517

Opradolce, L.
1544

Piacentini, R. D.
1544

Viclino, P.
2517

Weber, H. G.
2506

A16

HEAVY PARTICLE - HEAVY PARTICLE
INTERACTIONS

Electron Detachment from Negative Ions
into Continuum

Aleksandrov, N. L.
2335 2498

Anbar, M.
950

Barat, M.
257

Bell, K. L.
1572 1629

Champion, R. L.
1736

de Heer, F. J.
1453

Dewangan, D. P.
1630

Dhuica, D.
244 257

Doverspike, L. D.
1736

Duncan, M. M.
2147

Edwards, W. R., III
1736

Esaulov, V.
244

Fayeton, J.
257

Gauyacq, J. P.
244

Heinemeier, J.
1839

Hvelplund, P.
1839

Kerkdijk, C. B.
1453

Kingston, A. E.
1572 1629

Liu, B.
88

Madden, P. J.
1572 1629

Menendez, M. G.
2147

Moruzzi, J. L.
180

Odca, R. W.
550

Olsch, F. E.
88

Raysent, S. W.
180

Risley, J. S.
1453

Schnitzer, R.
550

Smith, B. T.
1736

Walters, H. R. J.
1630

HEAVY PARTICLE - HEAVY PARTICLE
INTERACTIONS

Interaction Potentials

Abouaf, R. 984	Carson, P. J. 417	Ellis, H. W. 1002 2094
Albritton, D. L. 1122	Carter, S. 1197	Ellis, T. H. 552
Alexander, M. H. 2048	Casavecchia, P. 2009	Engelke, R. 1343
Arora, P. S. 417	Chambaud, G. 247	England, W. B. 1074
Bagare, S. P. 1666	Chapelle, J. 2096	Ermier, W. C. 1956
Bagus, P. S. 593	Chapman, S. 2059	Ewing, T. F. 2086
Barusley, J. N. 1740	Childs, R. 764	Exton, R. J. 1672
Barkan, E. S. 2496	Cobb, M. 764	Farantos, S. C. 880
Bartlett, R. J. 980	Cohen, J. S. 1742	Ferray, M. 1348
Bauer, W. 1029	Conn, R. W. 2086	Flower, D. R. 127
Baybutt, P. 1072	Conolly, J. W. D. 876	Frenkel, D. 2083
Becker, C. H. 2009	Cosby, P. C. 584 1122	Gallagher, A. 1061
Bedding, D. 1746	Coulon, P. 2010	Gallo, C. 143 1044
Behmenburg, J. 1388	Delal, N. S. 693	Gardner, M. A. 968
Bellum, J. C. 1770	Das, G. 1051 1076	Gatland, I. R. 2054
Benedek, R. 1001	De, B. F. 879	Gauss, A., Jr. 555
Benquria, R. 154	Dehaer, J. L. 301 1031	Gauyacq, J. P. 248
Ben Lakhdar, Z. 1162	Dchner, P. M. 301 1031	Gerber, K. E. 2160
Bieniek, R. J. 1701	Detrich, J. 2086	Gerber, W. H. 1985
Bobrowicz, F. W. 1072 1957	Diercksen, G. H. F. 122 139	Gianturco, F. A. 364
Borkman, R. F. 764	Ding, A. 982	Gilbert, T. L. 1001
Browne, J. C. 300 1794	Dreyfus, T. 859	Glasser, J. 2056
Brual, G., Jr. 1061	Drullinger, R. 1001	Goldman, V. V. 2072
Brunetti, B. 788	Dunker, A. M. 922	Gordon, R. G. 922
Buck, U. 1025 2160	Dunlop, P. J. 417	Grabenstetter, J. E. 1080
Buenker, R. J. 722	Dunning, T. H., Jr. 302 2002 2018	Gray, S. K. 298 570
Bychkov, V. L. 2333	Dupuis, M. 1007	Green, S. 553 2059
	Duquette, G. 992	Green, T. A. 300
	Duren, R. 740 1478	Gregor, R. W. 2027
	Easa, S. I. 1172	Groger, W. 740
	Ebby, N. 1659	Guest, M. F. 582
	Eisele, F. L. 1002 2094	Gupta, R. 526

Guschina, N. A. 1589	Karlau, J. 582	Lin, C. D. 1709
Gushchina, N. A. 2484 2500	Karc, A. M. 968 2058	Liu, E. 88 304 753 588 1007 1831 2105
Hansoul, J. P. 1044	Keil, M. 806 809 2065	Liu, W.-K. 1080
Happer, W. 926	Kelsey, E. J. 549	Lloyd, J. 414
Hay, P. J. 302 958 1018 1353 1957 2002	Kendrick, J. 982 983	Lorquet, J. C. 143 1044
Hayes, E. F. 1040	Khromov, V. N. 2262	Lozingot, J. 1348
Hell, T. G. 993	Kielkopf, J. 185	Luyckx, F. 2010
Helfrich, K. 132	Kim, Y. S. 1078	Luzzatti, E. 788
Hessel, M. M. 994	Kirby, K. 304 2105	Maeder, F. 696 697
Hillier, I. H. 982 983	Kircz, J. G. 2083	Mahan, E. H. 925
Hirst, D. M. 1199	Klein, M. L. 297 992	Maitland, G. C. 1158
Hiskes, J. R. 968	Kochanski, E. 127	Makushkin, Y. S. 1235
Hiza, M. J. 1071	Kouri, D. J. 993	Mairieu, J.-P. 763
Hobbs, R. H. 876 2100	Kraemer, W. P. 122 139	Manickavachagam, R. 861
Honjou, N. 439 1200	Krauss, M. 1128	Margoliash, D. J. 547
Hoppe, H.-D. 1478	Krejci, R. 2058	Martin, D. W. 2027
Horowitz, C. J. 989	Kuntz, P. J. 982 983	Masnou-Seeuw, F. 2163
Hsieh, Y.-K. 949	Kuppermann, A. 806 809 2065	Matcha, R. L. 1068 2005
Huber, B. A. 984	Kusch, P. 994	McCurt, F. R. 1080
Huestis, D. L. 2037	Kutzelnigg, W. 698 697	McDaniel, E. W. 1002 2094
Huffaker, J. N. 1126	Lar, L. K. 1061	McDonald, I. R. 257
Huisken, F. 1025	Lananna, U. I. 364	McGuire, P. 122
Inouye, H. 439	Lamm, D. R. 2094	Meath, W. J. 547
Jakubassa, D. H. 2523	Lee, H. U. 775	Meier, P. F. 1068 2005
Jakubetz, W. 725 726	Lee, Y. S. 1956	Menotti, F. R. 1745
Janev, R. K. 50	Lee, Y. T. 2009	Micha, D. A. 1770
Janoschek, R. 775	Lekkerkerker, H. N. W. 2010	Michels, H. H. 300 876 2100
Jordan, R. M. 2027 2084	Lennuier, R. 1162	Mies, F. H. 1128
Kahn, L. R. 958 1018 1072 1957	Leonas, V. B. 2262	Millcur, M. B. 1068
Kantor, M. 1001	Le Roy, R. J. 1080	Millie, P. 247
	Levy, B. 247	Mohammad, S. N. 2337 2340
	Lieb, E. H. 154	

Mohan, S. 861	Pogrebnya, S. K. 1267	Siegbahn, F. 988
Moran, T. F. 764	Pope, W. M. 1002 2094	Silvers, I. F. 2072
Moran, T. I. 1745	Prissett, J. 127	Siska, P. E. 2027 2084
Moseley, J. T. 984 1122	Proctor, T. R. 1089 2073	Slankas, J. T. 806
Muckerman, J. T. 905	Pugh, D. 414	Smirnov, E. M. 2333
Murrell, J. N. 431 880 1197	Purvis, G. D. 980	Smith, K. M. 461
Murthy, B. N. 1666	Radtsig, A. A. 2333	Snow, W. L. 1672
Murthy, N. S. 1666	Radulovic, Z. M. 50	Soong, S. C. 1709
Newton, M. D. 1039	Ranson, P. 2096	Spiegelmann, F. 763
Nikulin, V. K. 1589 2484 2500	Redmon, L. T. 1794	Spruch, L. 549
Numrich, R. W. 275	Robinson, R. L., Jr. 1071	Stivastava, M. P. 1372
Dhno, K. 439 1200	Romelt, J. 722	Stevens, W. J. 1128
Olson, R. E. 88 753 1794 1831	Rothstein, S. M. 1961	Stine, J. R. 505
O'Shea, S. F. 297	Rulis, A. M. 461	Stwalley, W. C. 545 1051 1089 2073
Otto, P. 711	Sabelli, N. H. 1001	Tadjeddine, M. 1122
Pacansky, J. 693	Sagara, M. 439	Taketa, H. 1200
Pack, R. T. 2042	Sannigrahi, A. B. 879	Tam, A. C. 545
Parker, G. A. 809 2342	Saxon, P. D. 984 2105	Tanaka, K. 1200
Pascale, J. 1164	Sayer, B. 1164 1348	Tang, K. T. 1099
Pathak, A. P. 1372	Schaefer, H. F., III 925	Taylor, H. S. 2018
Paul, H. 1025	Schleusener, J. 1025 2160	Thackston, M. G. 1002 2094
Peach, G. 1476	Schlotter, N. E. 2037	Thomas, L. E. 122 139
Pendergast, P. 1040 2005	Schmidt, H. M. 132	Toennies, J. P. 1025 1099
Perrin, D. 1102	Schöpf, H. 2059	Truhlar, D. G. 275 689 1072
Pettitt, B. M. 2005	Schramm, D. 758	Ulenikov, O. N. 1239
Petzold, H. C. 1388	Schumacher, E. 1985	Ungerach, S. H. 525
Peyrimhoff, S. D. 722	Scoles, G. 461 992	Valance, A. 313 734
Philippe, M. 2163	Shapiro, M. 695 2160	Valiron, P. 2163
Pirani, F. 788	Shimakura, N. 439	Vallee, G. 2096
Pitzer, K. S. 1956	Shipsey, E. J. 1794	Valley, M. 2018
Plindov, G. I. 1267	Shobatake, K. 1029	
	Shukla, G. C. 1172	

van der Elsken, J.
2083

van der Peyl, G. J. Q.
2083

Varandas, A. J. C.
1197

Vecchiocattivi, F.
788

Vistlcot, J. P.
1164 1348

von Hirschhausen, H.
132

Wadt, W. R.
912 958 1018
1353 1957

Wagner, A. F.
1076 2058

Wagner, J.
926

Wahl, A. C.
1051 1076 2058

Wakeham, W. A.
1198

Wajasczewski, K.
1029

Watts, R. D.
992

Welse, J.
982

Weniger, S.
1659

Wennmyr, E.
926

Wilson, S.
156

Winter, N. W.
1956

Wright, J. E.
298 970

Wright, L. A.
876 2100

Wu, A. A.
811

Wu, C. Y. R.
2073

Yang, S.-C.
949

Zare, R. N.
2059

Zelri, Y.
885

Zemke, W. T.
1081

HEAVY PARTICLE - HEAVY PARTICLE
INTERACTIONSAngular Scattering (specified process
or otherwise)

Aldag, J. E. 552	George, J. M. 552	Niehaus, A. 1519
Amme, R. C. 1710	Gerber, R. B. 2160	Pack, R. T. 437
Andersen, N. 1521	Gillespie, G. H. 70	Park, J. T. 552
Andresen, B. 2555	Glebocki, D. 569	Pauli, M. 1505
Andriamonje, S. 355	Groeneveld, K.-O. 1545	Peacher, J. L. 552
Bauer, K. G. 1646	Groger, W. 740	Petersen, P. M. 212
Bergmann, K. 2146	Halpern, A. M. 569 1802	Peterson, R. S. 1545
Blakley, C. R. 81	Heffer, U. 2146	Phillips, W. D. 2171
Boring, J. W. 1490	Hering, P. 2146	Piacentini, R. D. 1529
Buck, U. 2160	Herman, V. 214	Pollack, E. 1521
Chemlin, J. F. 355	Hoppe, H.-O. 1478	Pradel, P. 1516
Cheng, K. 70	Johnson, R. E. 1490	Pritchard, D. E. 2171
Clemens, E. 1477 1527	Kempter, V. 1477 1527	Riera, A. 1529
Davis, J. P. 464	Kim, Y.-K. 70	Rogers, W. T. 1490
De, J. N. 317	Kimura, M. 2092	Rosel, F. 1505
de Vries, A. E. 136	Kinsey, J. L. 2171	Roturier, J. 355
Duren, R. 740 1478	Knight, G. 731	Ruf, M. W. 1519
Ely, D. J. 2171	Knudsen, H. 212	Rulis, A. M. 461
Engelhardt, R. 2146	Kuback, C. 1517	Ruseck, A. 1521
Este, G. O. 731	Kuppermann, A. 2555	Saboye, E. 355
Evora, C. W. A. 136	Loemann, K. 2092	Saha, B. C. 1280
Fazly, Q. 1646	Lai, M. 1648	Saha, H. P. 1280
Flannery, M. R. 2104	Lo, T. Q. 1710	Salin, A. 355
Folkman, F. 1545	Linder, F. 214	Scheuble, W. 1477 1527
Friichtenicht, J. F. 1098	Lopez, V. 1529	Scheidt, H. 1516
Futrell, J. H. 81	Los, J. 136	Schleusener, J. 2160
Gayet, R. 355	Macias, A. 1529	Schmidt, H. 214
	Mann, R. 1545	Schurkes, P. 1646
	Martin, P. J. 1477 1527	Scoles, G. 461 731
	McCann, K. J. 2104	Serri, J. A. 2171
	Mosson, H. 1646	Shakeshaft, R. 567 1513 1791
	Neumann, H. 1710	Shapiro, M. 2160

Sidis, V.
1517

Sigmund, P.
231

Smith, K. M.
461

Sperber, D.
317

Spiess, G.
1516

Spruch, L.
1513

Srivastava, M. K.
1648

Szabo, G.
1545

Tang, S. P.
1098

Thorson, W. R.
464

Trautmann, D.
1505

Tripathi, A. N.
1648

Valance, A.
1516

van Zyle, B.
1710

Vedder, M.
1521

Vestal, M. L.
81

Way, K. R.
2171

Wicke, E. G.
1098

Witt, J.
2146

Yanez, M.
1529

Zehnie, L.
1477 1527

HEAVY PARTICLE - HEAVY PARTICLE
INTERACTIONSInner-Shell Interactions (not covered
under other specified categories)

Andersen, H. H. 6	Hopkins, F. 95	Morita, K. 1908
Anholt, R. 8 41 57	Jarison, K. A. 95 1735 1761	Muller, E. 318
Antar, A. A. 1725	Johnson, B. M. 1266	Newcomb, J. 1761
Armbruster, P. 2503	Jones, K. W. 1266	Nolte, G. 2507
Behncke, H. H. 2503	Jundt, F. C. 1266	Pretorius, R. 2135
Bernstein, E. M. 11	Kessel, Q. C. 1725	Reinhardt, J. 318
Bellue, K. 2502	Kirsch, J. 318	Rice, R. 1700
Betz, W. 318	Kliwer, J. K. 1899	Richard, P. 95 1735 1761
Davis, C. K. 1785	Kwalczyk, S. P. 1382	Salcp, A. E
Donahue, D. J. 11	Lennard, W. N. 1793	Saris, F. W. 1612
Doyle, B. L. 25	Lichtenberg, W. 2170 2507	Schiebel, U. 25
Duggan, J. L. 1700	Ligon, D. 51 2503	Schmidt-Bocking, H. 2170 2502 2507
Eichler, J. 8	Lin, C. D. 96	Schmiedekemp, C. 1735 1761
El Fual, A. R. 1899	Lurio, A. 6	Schuch, R. 2170 2502 2507
Ellsworth, L. D. 25	Lutz, H. O. 2135	Schule, R. 2502 2507
Feldman, L. C. 6	Macdonald, J. R. 25 51 2503	Shirley, D. A. 1382
Fintz, P. 1266	Marshall, R. E. 1899	Soff, G. 318
Folkmann, F. 2503	Martin, R. L. 1352	Soong, S. C. 56
Forster, J. S. 1793	Matthews, D. L. 95	Specht, H. J. 2502
Fortner, R. J. 1612	McDaniel, F. D. 1700	Spicuzza, R. A. 1725
Gray, T. J. 1761	McIntyre, L. C., Jr. 11	Tawara, H. 1761
Greenberg, J. S. 1785	McMurray, W. M. 2136	Toten, A. 1700
Greiner, W. 318	Mehta, R. 1700	Tserruya, I. 2170 2502 2507
Guillaume, G. 1266	Meyerhof, W. E. 8 1479	Tunnell, L. N. 56
Hagmann, S. 2503	Middlesworth, E. M., Jr. 11	van Heerden, I. J. 2135
Hall, J. M. 1735 1761	Miller, P. D. 1700	van Heenen, H. J. 2135
Hara, N. 1908	Mitchell, I. V. 1793	Vincent, P. 1785
	Mitsushima, Y. 1908	Volpp, J. 2170
	Mckler, P. 51	Warczak, A. 51 2503
	Mokler, P. H. 2503	Woerlee, F. 1612
	McNigold, G. 1700	

A20

HEAVY PARTICLE - HEAVY PARTICLE
INTERACTIONS

Attenuation (unspecified process)

Coxon, J. A.
1085

De, J. N.
317

Friichtenicht, J. F.
1098

Kamperschroer, J. H.
476

Post, R. S.
476

Setser, D. W.
1085

Sperber, D.
317

Tang, S. P.
1098

Tellinghuisen, J.
1085

Tellinghuisen, P. C.
1085

Velazco, J. E.
1085

Wicke, B. G.
1098

B01

INTERACTIONS WITH STATIC OR
TIME-VARYING ELECTRIC AND MAGNETIC
FIELDS

General

Andreev, S. P.
2311

Anosov, M. D.
2435

Bacskay, G. B.
688 691

Bernhardt, A. F.
1835

Brandl, H. S.
680

Cook, R. J.
1835

Delone, G. A.
1210

Dimitrijevic, M. S.
1664

Ehlotzky, F.
1212

Ehrich, H.
99

Gready, J. E.
688 691

Grinchuk, V. A.
1210

Grujic, P.
1664

Hush, N. S.
688 691

Kazantsev, A. P.
1210

Kelleher, E. E.
99

Klyuchnik, A. V.
347

Koch, P. M.
2152

Koeller, B.
680

Landi Degl'Innocenti, E.
634

Letokhov, V. S.
2439

Lisitsa, V. S.
2311

Lozovik, Y. E.
347

Meath, W. J.
75

Minaev, B. F.
1241

Minogin, V. G.
2435

Molcney, J. V.
79

O'Connell, R. F.
504

Propin, F.
199

Stenflo, J. O.
635

Stenholm, S.
325

Surdutovich, G. I.
1210

Valli, A.
325

Zapryagaev, S. A.
1262

B02

INTERACTIONS WITH STATIC OR
TIME-VARYING ELECTRIC AND MAGNETIC
FIELDS

Dissociation

Lau, A. M. F.
561

B03

INTERACTIONS WITH STATIC OR
TIME-VARYING ELECTRIC AND MAGNETIC
FIELDS

Ionization

Apatin, V. M.
2467

Banks, D.
182 186 1525

Bekov, G. I.
1228

Bjorklund, G. C.
2118

Cooke, W. E.
65

Damburg, R. J.
1204

Delone, N. B.
2447

Fairchild, C. E.
967

Freeman, R. R.
2118

Gallagher, T. F.
65

Geltman, S.
1569

Gilbody, H. B.
451

Kash, M. M.
2153

Kleppner, D.
2153

Kocher, C. A.
967

Kolosov, V. V.
1204

Krainov, V. P.
2447

Leopold, J. G.
182 186 1525

Letokhov, V. S.
1228 2467

Littman, M. G.
2153

Matveev, D. I.
1228

Mishin, V. I.
1228 2467

Vialle, J.-L.
2193

Zon, B. A.
2447

B04

INTERACTIONS WITH STATIC OR
TIME-VARYING ELECTRIC AND MAGNETIC
FIELDS

Detachment

Blumberg, W. A. M.
2141

Gilbody, H. B.
451

Jorson, R. M.
2141

Larsen, D. J.
2141

B05

INTERACTIONS WITH STATIC OR
TIME-VARYING ELECTRIC AND MAGNETIC
FIELDS

Quenching

Abella, I. D.
1230

Beer, T.
1230

Donnelly, V. M.
1107

Drake, G. W. F.
84

Kaufman, F.
1107

Levy, L. H.
1106

Van Wijngaerden, A.
04

B06

INTERACTIONS WITH STATIC OR
TIME-VARYING ELECTRIC AND MAGNETIC
FIELDS

Excitation

Bjorklund, G. C.
2180

Economou, N. P.
2180

Freeman, R. R.
2180

Gilbody, H. B.
451

Lu, K. T.
2180

Neveskii, A. E.
2442

INTERACTIONS WITH STATIC OR
TIME-VARYING ELECTRIC AND MAGNETIC
FIELDS

Collisions in Presence of Intense
Electromagnetic Fields

Abella, I. D. 1230	Faisal, F. H. M. 1468	Miranda, L. C. M. 494 1767 1959
Akulin, V. M. 1376	Fateev, N. V. 2472	Mittleman, M. H. 1721
Alekseev, A. L. 2268	Finkel'shtein, V. Y. 2271	Mohan, M. 341 1268 2519
Allimpiev, S. S. 1376	Foglia, C. 331	Nayfeh, M. h. 100
Baer, T. 1230	George, T. F. 28 903 1987 2016	Onda, K. 2354
Bakaev, D. S. 1251	Georges, A. T. 1717	Panchenko, V. Y. 1385
Bakhrakh, V. L. 1257	Gordienko, V. M. 1385	Pavlik, B. I. 2315
Bellum, J. C. 903 1987	Gram, P. A. M. 2115	Pavlov, G. G. 2254
Beterov, I. M. 2472	Gudzenko, L. I. 2277	Payne, M. G. 100
Bonch-Bruevich, A. M. 2321 2463	Gurvich, L. V. 2277	Pert, G. J. 246
Brandl, H. S. 494 1767 1959	Hellfeld, A. V. 2145	Ponomarev, Y. N. 2261
Bryant, H. C. 2115	Jain, M. 1711	Pratt, J. C. 2115
Burshtein, A. I. 2313	Jung, C. 101	Przhibel'skii, S. G. 2443 2463
Caddick, J. 2145	Karlov, N. V. 1376	Przhibel'skii, S. G. 2321
Castro, J. J. 494	Kazantsev, A. P. 2297	Pusep, A. Y. 2313
Chand, P. 341 1268 2519	Khromov, V. V. 2321 2463	Rahman, N. K. 1468
Chebotaev, V. P. 2472	Koiller, B. 494 1767 1959	Reesor, G. E. 682
Copeland, D. A. 2034	Kruger, H. 101	Sazonov, V. N. 2271
Dagg, I. R. 682	Lam, K.-S. 1987	Sharifian, H. 2115
DeVries, P. L. 28 2016	Lambropoulos, P. 1717	Shibanov, Y. A. 2254
Doktorov, A. B. 2313	Landi Degl'Innocenti, E. 634	Szoke, A. 1219 1760
Donahue, J. 2115	Langendam, P. J. K. 1593	Tootconchi, H. 2115
Dubov, V. S. 2277	Lee, H. W. 2016	Trakhtenberg, L. I. 1256
Eberly, J. H. 1580	Letokhov, V. S. 2315	Tzoar, N. 1711
Ehlotzky, F. 1212	Light, J. 1760	Umanskii, I. M. 1257
Ermachenko, V. M. 2268	Lins de Barros, H. G. P. 494 1767 1959	van der Wiel, M. J. 1593
Evseev, I. V. 2268	Lepasov, V. P. 2261	Vartanyan, T. A. 2443
	Mahlab, M. S. 28	Vdevin, Y. A. 1251
	Mavroyannis, C. 562	Vetchinkin, S. I. 1257
	Mikheenko, A. V. 1385	Weiner, J. 2145
	Minoqin, V. G. 2315	Wong, M. 682
		Yakovin, D. V. 2472

Yakovlenko, S. I.
2277 2459

Yates-Williams, M. A.
2115

Zhukova, N. I.
2297

Zuev, V. E.
2261

C01

**PARTICLE PENETRATION IN MACROSCOPIC
MATTER (IONS, NEUTRALS, AND ELECTRONS)**

General

Douthat, D. A.
1739

Gaillard, M. J.
484 2157

Gemmell, D. S.
484

Goldring, G.
484

Greiner, W.
2551

Inokuti, M.
1739

Jenson, F. E.
360

Lewine, I.
484

Muller, B.
2551

Pietsch, W. J.
484

Poizat, J. C.
484 2157

Ratkowski, A. J.
484

Rau, A. R. P.
1739

Remillieux, J.
484 2157

Schafer, W.
2551

Stoeker, H.
2551

Vager, Z.
484

Watson, R. L.
360

White, J. R.
360

Williams, M. M. R.
2400

Zabransky, E. J.
484

PARTICLE PENETRATION IN MACROSCOPIC
MATTER (IONS, NEUTRALS, AND ELECTRONS)

Energy Loss

Ahlen, S. P. 58	Clerc, H.-G. 2528	Inckuti, M. 66 1739
Akkerman, A. F. 1335	Cowern, N. E. B. 46	Ishigure, N. 2347
Alvarez, I. 10 1816	Cox, M. G. 571	Jarvis, G. N. 1155
Andersen, H. H. 891 1850 1852	Cruz, S. A. 10 1816	Jensen, P. S. 1902
Arista, N. R. 1158 1289	Cuomo, J. J. 1855	Johansson, K. 1305
Baer, T. 66	Davies, J. A. 1949	Kalish, R. 2426
Baglin, J. E. E. 1897	Dehmer, J. L. 66	Kalz, E. 2354
Bahir, G. 2426	Della Mea, G. 371	Karlsson, E. 1305
Baragiola, R. A. 1158	Dettmann, K. 1153	Katterwe, H. 2281
Bauer, P. 1856	Douthat, D. A. 1739	Kiselev, V. A. 1955
Beauchemin, G. 1862	Drigo, A. V. 371	Kilwer, J. K. 1899
Beloshitsky, V. V. 2386	Drcuin, R. 1862	Knudsen, H. 891 1850 1852
Bentini, G. G. 371	Eckardt, J. C. 1158 1703	Kreutz, F. 1848
Berezin, A. K. 1955	Edvabnyi, I. V. 2429	Kreysch, G. 2394
Bernstein, T. 2426	El Fiqi, A. R. 1899	Kuakhov, M. A. 2386
Besenbacher, F. 1850	Ellmer, K. 1337	Land, I. J. 1853
Bottiger, J. 1902	Evdokimov, O. B. 2291	Langley, R. A. 1367
Brandt, W. 370 507	Fahlander, C. 1305	Lantschner, G. 1158
Braun, M. 1849	Fainberg, Y. B. 1955	Laubert, R. 2119
Brennan, J. G. 1853	Fallavier, M. 1858	Laurson, J. 1903
Brice, D. K. 1291 1367	Freeman, J. M. 46	Leteurtre, J. 2409
Brown, M. D. 1853	Fursov, G. L. 1955	Lisin, V. A. 2432
Cance, M. 2409	Gefner, J. 2281	Lo Russc, S. 371
Carnera, A. 371	Genthan, J. P. 2409	Love, G. 571
Chen, F. K. 2119	Gertner, I. 1798	Lucas, M. W. 1154 1155
Chernov, G. Y. 1335	Grishaev, I. A. 1955	Luomajarvi, M. 2404
Chu, W. K. 1849 1897	Gullner, K. 2546	Lurio, A. 1855
Cisneros, C. 10 1816	Hanke, C. 1903	Marcovich, A. 2426
	Harris, J. M. 1857	Marshall, R. E. 1899
	Hernandez, F. C. 1371	Martini, V. 1852
	Hofmann, S. 2546	Marx, D. 2546
	Hornung, H. 2533	Mason, J. P. 46

Matsunami, N.
1849
Matteson, S.
1857
Mazzoldi, P.
371
Meron, M.
1758
Mertens, P.
1854
Monkediek, J.
2515
Mori, C.
2347
Mukoyama, T.
328
Muller-Jahreis, U.
2394
Munzenberg, G.
2546
Newirth, W.
1848
Nickel, F.
3546
Nicolet, M.-A.
1857
Norlin, L. O.
1305
Nyalesh, A. R.
1154
Pape, H.
2528
Paretzke, H. G.
2303
Pathak, A. P.
1331
Petersen, P. M.
891
Patty, R. J.
46
Pietzoh, W.
1848
Plotnikov, S. V.
1937

Porter, L. E.
1841 1915
Pocsnert, G.
1305
Pretorius, R.
1857
Rau, A. R. P.
1739
Ritchie, R. H.
507
Robinson, J. E.
370
Rocsendaal, H. E.
2415
Rosendahl, E. W.
2515
Rcsner, B.
1798
Rozum, E. I.
1937
Rud, N.
1902
Ryzhov, V. V.
2291
Safronov, V. G.
1955
Sanders, J. B.
2415
Schmidt, K.-H.
2528
Schwidt-Bocking, H.
2533
Scott, V. D.
571
Semrad, D.
1856
Sherwood, A. C.
1155
Simons, D. G.
1853
Smirnov, B. N.
2476
Scfield, C. J.
46

Soullard, J.
2409
Steckelmacher, W.
1154
Steinbeck, J.
1153
Stietling, J.
2282
Sturm, J.
1337
Sugiyama, H.
1909
Thomas, J. P.
1858
Thompson, D. A.
1849
Vitalis, F.
2415
Vard'ev, S. A.
1937
Vyatskin, A. Y.
2476
Watanabe, T.
2347
Watanabe, Y.
328
Whitehead, C.
1155
Williams, M. M. R.
2400
Yalovets, A. P.
2251 2425
Yarlegadda, B. S.
370
Yunda, N. T.
2432
Zeidlitz, V. P.
1955
Zhicpistsev, F. A.
1371
Ziegler, J. F.
1851 1855

C03

**PARTICLE PENETRATION IN MACROSCOPIC
MATTER (IONS, NEUTRALS, AND ELECTRONS)**

Energy to Create an Ion Pair

de Vries, A. E.
2397
Douthat, D. A.
1739
Grosswendt, B.
1911

Inckuti, M.
1739
Jarvis, O. N.
2398
Lucas, M. W.
2398
Overeijnder, H.
2397
Paretzke, H. G.
2303
Porter, L. E.
1841

Rau, A. H. P.
1739
Sherwood, A. C.
2358
Siderius, G.
1923
Szymski, M.
2357
Walbel, E.
1511
Whitehead, C.
2358

PARTICLE PENETRATION IN MACROSCOPIC
MATTER (IONS, NEUTRALS, AND ELECTRONS)

Particle Range

Anttila, A. 1366 1920	Jensen, P. S. 472	Pate, B. D. 2524
Biersack, J. P. 1437	Kaczerowski, W. 1437	Petrochenko, A. F. 1943
Bister, M. 1366 1920	Kal'nitskii, A. P. 2293	Rahim, B. K. H. 1437
Blewer, R. S. 1426	Kaminsky, M. 457	Riccato, A. 1437
Borgesen, P. 481	Kappert, H. F. 1327	Roth, J. 1426
Bottiger, J. 472 481	Keinonen, J. 1366 1920	Schcu, J. 471 483
Cance, M. 2409	Korobochko, Y. S. 1943	Seidman, D. N. 2205
Combasson, J. L. 2396	Kozlovskii, S. S. 1943	Shatanov, A. A. 1951
Das, S. K. 457	Langley, R. A. 1426	Shiczawa, K. 394
Dautet, D. 2524	Leokov, R. C. C. 1113	Shuleev, N. S. 1551
Didenko, A. N. 1951	Letaurtre, J. 2409	Sidenius, G. 2405
Ekern, R. 457	Lieseana, J. 1113	Sorensen, H. 471 483
Fainshtein, A. I. 2293	Littmark, U. 472	Souliard, J. 2409
Farmery, B. W. 2396	Luomajarvi, M. 1366	Szajsan, J. 1113
Genthon, J. P. 2409	Lutomajarvi, M. 1920	Tanifuji, T. 394
Grabe, B. 1327	Magee, C. W. 1884	Te Kaat, E. 1327
Grachev, B. D. 1943	Makarov, V. V. 2491	Thacker, G. R. 1437
Grosswendt, B. 1911	McCulloch, D. 2396	Thompson, M. W. 2396
Gudovskikh, V. A. 1943	Mineev, V. I. 1943	Tsvetkov, V. I. 1951
Hautala, M. 1920	Moller, W. 481	Uchida, K. 394
Heidemann, K. F. 1327	More, R. M. 2380	Uecker, H. 1437
Hess, D. C. 457	Nardi, E. 1753	Usov, Y. P. 1951
Inuma, H. 2418	Nasu, S. 394	Venskytis, F. J. 2380
Jenkin, J. G. 1113	Neilson, G. W. 2396	Waibel, E. 1911
	Ney, J. 1437	Wu, C. P. 1884
	Noda, K. 394	Yamamura, Y. 2418
	Pak, V. S. 1951	Zinamon, Z. 1753

PARTICLE PENETRATION IN MACROSCOPIC
MATTER (IONS, NEUTRALS, AND ELECTRONS)

Multiple Scattering

Andersen, H. H.
1850

Baer, T.
66

Dem, P.
1842

Besenbacher, F.
1827 1850 1898

Brice, D. K.
1367 1860 1861

Choyke, W. J.
404

Combasson, J. L.
2356

Cowern, N. E. B.
46

Dehmer, J. L.
66

Eckardt, J. C.
1703

Ellmer, K.
1337

Farmery, B. W.
2356

Fitting, H. J.
2239

Freeman, J. M.
46

Gaillard, M. J.
484 2157

Gemell, D. S.
484

Glaefcke, H.
2239

Goldring, G.
484

Guttner, K.
2546

Heinemeler, J.
1827 1839 1898

Hofmann, S.
2546

Hvelplund, P.
1827 1839 1898

Inckuti, M.
66

Kalz, D.
2394

Knudsen, H.
1827 1850 1898

Kreysch, G.
2394

Lally, J. S.
404

Langley, R. A.
1367 1860 1861

Levine, I.
484

Magee, C. W.
1884

Marx, D.
2546

Mason, J. P.
46

McCulloch, D.
2396

McGruer, J. N.
404

Moller, W.
1859 1914

Muller-Jahreis, U.
2394

Munzenberg, G.
2546

Neilson, G. W.
2396

Nickel, F.
2546

Nocken, U.
1859

Norzan, D.
2236

Petty, R. J.
46

Pietsch, W. J.
484

Poizat, J. C.
484 2157

Ratkowski, A. J.
484

Remillieux, J.
484 2157

Sigmund, P.
1858

Sofield, C. J.
46

Spitznagel, J. A.
404

Sturm, J.
1337

Thompson, M. W.
2396

Vager, Z.
484

Vincur, J.
1842

Wild, W.
2239

Williams, J. S.
1914

Woodruff, D. P.
2236

Wu, C. P.
1884

Zabransky, E. J.
484

**PARTICLE PENETRATION IN MACROSCOPIC
MATTER (IONS, NEUTRALS, AND ELECTRONS)**

Charge State Populations

Alton, G. D.
1901

Antar, A.
1901

Baudinet-Robinet, Y.
258

Biggerstaff, J. A.
2129

Bridwell, L. B.
1901

Chen, F. K.
2119

Christensen, B.
1800

Crawford, D. H.
2129

Datz, S.
2129

Dittner, P. F.
2129

Dumont, P. D.
258

Gaillard, M. J.
2157

Garnir, H. P.
258

Gershon, S.
1912

Gomez del Campo, J.
2129

Heinemeier, J.
1839 1843 1907

Hvelplund, P.
1800 1839 1843
1907 2129

Jones, C. M.
1901

Kessel, Q. C.
1901

Knudsen, H.
2129

Krause, H. F.
2129

Laubert, R.
2119

Mann, A.
1912

Miller, P. L.
1901 2125

Moak, C. D.
1901 2129

Nir, D.
1912

Poizat, J. C.
2157

Ramsujan, F. S.
1907

Remillieux, J.
2157

Sayer, R. O.
1901

Scott, H. A.
1901

Veje, E.
1800

PARTICLE PENETRATION IN MACROSCOPIC
MATTER (IONS, NEUTRALS, AND ELECTRONS)

Excited State Populations

Alton, G. D.
1315Alvarez, E.
1316Bashkin, S.
1910Berry, H. G.
502Biggerstaff, J. A.
2129Brink, J. A.
2542Brooks, R. L.
1772Christensen, B.
1800Cuelzer, F. J.
2542Crawford, D. H.
2129Datz, S.
2129Denne, B.
1316DeVries, P. L.
1776Dittner, P. F.
2129Dohmann, H. D.
2544Elston, G. B.
1315Engstrom, L.
1316Forester, J. P.
1315Galliard, M. J.
2157Gardiner, R. B.
2382George, T. F.
1776Gilbody, H. B.
451Gomez del Campo, J.
2129Griffin, P. M.
1315 1910Hallin, R.
1316Huldt, S.
1316Hultberg, S.
1281Hvelplund, P.
1800 2130Ishii, K.
1316Johnson, B. M.
1315Jones, K. W.
1910Knudsen, H.
2129Krause, H. F.
2129Kruse, T. H.
1910Leavitt, J. A.
1910Liljeby, L.
1281Lindgard, A.
1281Lirdskog, J.
1316Livingston, A. E.
502Mannervik, S.
1281Marelius, A.
1316Martinson, I.
1316McMurray, W. R.
2542Miller, P. I.
2129Moak, C. D.
2125Nielsen, S. E.
1281Oliver, J. H. I.
2542Pegg, D. J.
1315 1910Pfeng, H.
2544Pihl, J.
1316Pinnington, E. H.
1773Pisano, D. J.
1910Poizat, J. C.
2157Pretorius, R.
2542Revilleux, J.
2157Sellin, I. A.
1910Sjodin, R.
1316Suter, M.
1315Thoe, R. S.
1315van der Westhuizen, P.
2542Vane, C. R.
1315Veje, E.
1281 1800Wiese, W. L.
500Younger, S. M.
500

PARTICLE PENETRATION IN MACROSCOPIC
MATTER (IONS, NEUTRALS, AND ELECTROMS)

Channeling

Akhiezer, A. I. 2258	Fujimoto, F. 1323 1890	Koima, M. 1871 2395
Alexander, R. B. 1290	Fujino, Y. 1871 2395	Kollewe, D. 1872
Baeri, P. 2309	Fujita, H. 1323	Komaki, K. 1890
Baryshevskii, V. G. 1369	Furukawa, S. 511 1873	Krause, H. F. 2129
Bassalo, J. M. 1829	Gadeken, L. L. 1922	Kumakhov, M. A. 2259 2386
Beloshitskii, V. V. 2259	Gibson, W. M. 1294 1872	Lombaard, J. M. 2393
Beloshitsky, V. V. 2386	Goland, A. N. 1294	Lo Russo, S. 371 2385
Bentini, G. G. 371	Golecki, I. 1896	Luric, A. 1868
Biggerstaff, J. A. 2129	Golovchenko, J. A. 1294	Mak, H.-B. 1922
Boldyshev, V. F. 2258	Gomez del Campo, J. 2129	Matsunami, N. 1876
Brice, D. K. 1291	Goto, T. 1876	Mayer, J. W. 1867
Campisano, S. U. 1301	Grubich, A. O. 1369	Mazzoldi, P. 371 2385
Carnera, A. 371 2309 2385	Hartley, N. E. W. 2385	Meyer, O. 1866 2393
Cattani, M. 1829	Hikosaka, K. 511	Miller, P. E. 2129
Chu, W. K. 1868	Hirabayashi, M. 1871 2395	Moak, C. D. 2129
Crawford, D. H. 2129	Howe, L. M. 2388	Nagatomo, M. 1873
Csepregi, L. 1867	Hvelplund, P. 2129	Nakarura, H. 1850
Datz, S. 2129	Ichinokawa, T. 1890	Ohtsuki, Y. H. 1864
Della Mea, G. 371 2385	Ishiwara, H. 511 1873	Omura, T. 1864
Desalvo, A. 2309	Itch, N. 1876	Ozawa, K. 1871
Dittner, P. F. 2129	Jaccard, C. 1896	Pathak, A. F. 1331 1372
Drigo, A. V. 371 2385	Kaplin, V. V. 1330 1933 2431 2475	Petty, R. J. 1290
Dubrovskaya, I. Y. 1369	Kauffman, R. L. 516	Picraux, S. T. 1253 1301 1875
Ellison, J. A. 1293 1875	Kaufmann, E. N. 585	Plotnikov, S. V. 1932
Ewan, G. T. 1922	Kawamura, T. 1890	Poehiman, S. W. 2304
Feldman, L. C. 516	Keller, J. 1868	Popov, D. E. 1330 1933 2431
Foti, G. 1301	Kelly, J. C. 372	Price, P. B. 372 1922
Foti, G. 1867	Kennedy, E. F. 1867	Pronko, P. F. 1867
	Khalitov, S. K. 1932	Quenneville, A. F. 2388
	Kitagawa, M. 1864	Quere, Y. 2410
	Knudsen, H. 2129	Rechtin, M. D. 1867
		Reynaud, F. 1919

Rimini, E.
1301

Rosa, R.
2309

Rosner, J. S.
1294

Saris, F. W.
1870

Shul'ga, N. F.
2258

Silverman, P. J.
516

Sizmann, R.
2210

Srivastava, M. P.
1372

Sumida, N.
1323

Swanson, M. L.
2388

Takahashi, J.
2395

Tanaka, H.
1864

Thompson, D. A.
2304

Treacy, P. B.
2375

Uchida, Y.
1323

Varelas, C.
2210

Vorob'ev, A. A.
1933 2431

Vorobev, S. A.
1330

Vorob'ev, S. A.
1926 1933 2431

2475

Walker, R. S.
2304

Wedell, R.
1333 2414

Wegner, H. E.
1254

Wiggers, L. W.
1870

Yamauchi, S.
1871 2395

Yoshinari, C.
1871 2395

Zimin, N. I.
1926

Zuhr, R. A.
516

001

PARTICLE INTERACTIONS WITH SOLIDS

General

Bauer, W.
1389

Ginot, P.
1390

Staib, P.
1391

Staudenmaier, G.
1351

PARTICLE INTERACTIONS WITH SOLIDS

Spattering by Electrons, Neutrons, and Heavy Particles (total removal coefficients)

Abe, T. 386 1401	Fried, T. 1392	Labunov, V. A. 2479
Andersen, H. H. 891 1402	Garrison, B. J. 2175 2249	Labzin, V. G. 1935
Armour, D. G. 2383	Giber, J. 1354	Langley, R. A. 1358
Ato, Y. 895	Gregg, R. 2389	Lanzeretti, L. J. 2133
Augustyniak, W. M. 2133	Haggmark, L. G. 1395	Lebedev, S. Y. 2378
Bay, H. L. 612 1396 1397	Haring, A. 2403 2406	Liau, Z. L. 381
Bohdansky, J. 612 1397	Harrison, D. E., Jr. 2175 2249	Lundquist, T. R. 1185
Borders, J. A. 1398	Hart, R. G. 1185	Lyapin, A. A. 1360
Borisenko, V. E. 2479	Hayakawa, K. 409	Lyscva, G. V. 2378
Bowman, R. 1177	Heatherly, L. 1404	Makin, M. J. 391
Braganza, C. M. 408	Hechtel, E. 612	Martin, F. J. 614 1396
Braun, M. 1392	Heiland, W. 455	Mayer, C. H., Jr. 1403
Brown, W. L. 2133	Hintz, E. 1394	McCracken, G. M. 408
Carter, G. 1916 2383	Hinz, W. 1326	Merkle, K. L. 1252
Chursin, M. M. 1360	Ho, P. S. 2222	Mertens, F. 1854
Clausing, R. E. 1404	Hofer, W. O. 614 1396	Miyagawa, S. 855
Collins, R. 1916	Holscher, A. A. 1177	Mohri, M. 405 409
de Vries, A. E. 2403 2406	Hucks, P. 1393	Moriya, Y. 855
Doi, H. 409	Imada, M. 1364	Naramoto, H. 350
Dzioba, S. 1399	Kamada, K. 390	Obara, K. 386
Ecker, K. H. 1292	Katzer, J. R. 2245	Oechsner, H. 2250
Elbern, A. 1394	Kazooki, J. 1354	On, N. S. 1433
Emerson, L. C. 1404	Kazumata, Y. 390	Ohtsuka, H. 386 1401
Emmoth, B. 1392	Kelly, P. W. 2249	Ottenberger, W. 1357
Erents, S. K. 408	Kelly, R. 1399 1886	Overeijnder, H. 2403 2406
Falcone, G. 358	Kharlamochkin, E. S. 1381	Perestret, V. I. 1935
Filippov, E. I. 1935	Kitazoe, Y. 1924	Petersen, P. M. 891
	Knudsen, H. 891	Piperno, F. 358
	Koblinger, L. 1354	Pivin, J. C. 177
	Kovalev, V. N. 1360	Poate, J. M. 2133
	Krueger, F. R. 2284	Rauschenbach, B. 1326
	Kuvakin, M. V. 1381	Robinson, M. T. 1433

Roques-Carmes, C.
177

Saeki, N.
375 2218

Schoof, H.
2250

Schweer, B.
1394

Sheng, T. T.
381

Shimizu, R.
375 2218

Simmons, G. W.
1189

Slodzien, G.
177

Smith, H. J.
2417

Smith, J. N., Jr.
1403

Snowdon, K. J.
2383

Sono, K.
386 1401

Stocklin, G.
1393

Stumpe, E.
2250

Szymonski, M.
2406

Taglauer, E.
455

Tombrello, T. A.
2389

van Mechelen, J. B.
1177

van Wyk, G. N.
2417

Vietzke, E.
1393

Vogelbruch, K.
1393

Watanabe, K.
408 409

Webb, R.
1916

Wien, K.
2284

Wilsch, K. L.
1358

Wilson, W. D.
1395

Windawi, H.
2245

Winograd, N.
2175 2249

Yamada, R.
386 1401

Yamamura, Y.
1924

Yamashina, I.
405 409

Yu, M. L.
1183 2127

Yurasova, V. E.
1381

PARTICLE INTERACTIONS WITH SOLIDS

Sputtered Particle Charge and Quantum
(Excited) State Distribution

Armour, D. G.
2383

Bayly, A. R.
2306

Benninghoven, A.
1181

Bhalla, A. S.
534

Blaise, G.
2219

Braganza, C. M.
1406

Brozdowska-Warczak, B.
2232

Carter, G.
2383

Cherepin, V. T.
1368

Comas, J.
1881

Dawson, P. H.
2213

Deline, V. R.
665 657

de Vries, A. E.
2392 2403

Erents, S. K.
1406

Evans, C. A., Jr.
665 657

Fizgeer, B. M.
1237

Fogel, Y. M.
2441

Fukuda, Y.
2091

Gabla, L.
2232

Ganschow, D.
1181

Garrett, R. F.
2234

Garrison, B. J.
1975

Good-Zamin, C. J.
1888 2381

Gritsyna, V. V.
2441

Gruen, D. M.
1407 1885

Haring, A.
2392 2403

Harrison, D. E., Jr.
1975

Hill, K. W.
1881

Honda, F.
2091

Inouye, H.
475

Katz, W.
667

Kelly, R.
1888 2381 2403

Kerkdijk, C. B.
2408

Kiyari, T. S.
2441

Knudson, A. R.
1881

Kosyachkov, A. A.
1368

Koval, A. G.
1237

Krauss, A. R.
1885

Lancaster, G. M.
2091

Liu, M.-B.
1407

Logachev, Y. E.
1237

Lyon, O.
2219

MacDonald, R. J.
2234 2306

Martin, P. J.
2234

McCracken, G. M.
1406

Morgan, A. E.
1034

Nagel, D. J.
1881

Oechsner, H.
2250

Overlijnder, H.
2392 2403

Pedrys, R.
2232

Prival, H. G.
2251

Rabalais, J. W.
2051 2227

Rausch, E. O.
475

Roques-Carnes, C.
2215

Schoof, H.
2250

Shehata, M. T.
1888 2381

Smith, J. N., Jr.
1438

Snowden, K. J.
2383 2412

Squires, D. B.
1888 2381

Sturpe, E.
2250

Szymanski, M.
2232 2392

Taylor, J. A.
2227

Thomas, E. W.
475

Tseng, I. S. T.
534 817 2235

Vasilev, M. A.
1368

Warczak, A.
2232

Werner, H. W.
1034

White, C. W.
1880

Wiedmann, L.
1181

Williams, P.
665 667

Winograd, N.
1975

Wright, R. E.
1407

Yu, M. L.
1887 2211

Yusuf, N. A.
817

PARTICLE INTERACTIONS WITH SOLIDS

Secondary Electron Ejection by Heavy
Particles and Electrons

Afonina, L. F. 2481	Fricke, J. 42	Powell, R. A. 1196
Alig, R. C. 478	Ghosh, C. 482	Schader, J. 1906
Alonso, E. V. 359	Goldstein, B. 2209	Schou, J. 471 483 1435
Alton, G. D. 2167	Groeneveld, K. O. 1906	Scott, V. D. 572
Auciello, D. 359	Haas, G. A. 2238	Sellin, I. A. 2167
Barangola, R. A. 359	Kolb, B. 1906	Sevier, K. D. 1906
Bloom, S. 478	Koshida, N. 380	Shih, A. 2238
Borst, W. L. 42	Krasil'nikova, N. A. 1283	Sorensen, H. 471 483 1435
Cini, M. 595	Lambert, R. 2167	Soszka, W. 2230
Cohen, P. I. 1180	Lantschner, G. 359	Stuchinski, G. B. 2481
Cox, M. G. 572	Love, G. 572	Suter, M. 2107
D'Andrea, A. 2214	Matsudaira, T. 2220	Thue, R. S. 2167
Del Sole, R. 2214	McDonnell, L. 2221	Thomas, R. E. 2238
den Boer, M. L. 1180	McGuire, E. J. 582	Utterback, N. G. 552
Dorozhkin, A. A. 2480	McRae, E. G. 583	Vane, C. R. 2167
Droener, J. 2209	Nowak, G. 42	van Zyl, B. 598
Elston, S. B. 2167	Oechsner, H. 586	Varga, P. 1824
Feibelman, P. J. 582	Oliva Florio, A. 359	Varga, E. P. 402
Ferrante, J. 2204	Onchi, M. 2220	White, S. J. 2221
Ferrari, J. 359	Park, R. L. 1180	Willis, R. F. 224
	Pepper, S. V. 2204	Winter, H. 1824
	Persiantseva, N. M. 1283	Woodruff, D. P. 2221
	Petrov, A. A. 2480	Yoshida, S. 380
	Petrov, N. N. 2480	

PARTICLE INTERACTIONS WITH SOLIDS

Photoelectric Ejection of Electrons
(coefficients)

- Allawadhi, K. L.
1216
- Anderson, J.
594
- Apai, G.
580
- Azoulay, J.
1302
- Bancroft, G. M.
373
- Cohen, M. L.
597
- Conrad, H.
2203
- Cutler, P. H.
2240 2241
- Davenport, J. W.
1179
- Dill, D.
588
- Eastman, D. E.
373
- Erlandsson, R.
367
- Ertl, G.
2203
- Farkas, G.
383
- Farrell, H. H.
597
- Feuchtwang, T. E.
2240 2241
- Flodstrom, S. A.
579 1295 1296
- Ghumman, B. S.
1216
- Goto, T.
1338
- Gritsenko, V. A.
1949
- Grobman, W. D.
374
- Gudat, W.
373
- Gustafsson, T.
1309
- Hagstrom, S. B. M.
2179
- Hansson, G. V.
579 1295 1296
- Hartstein, A.
1149
- Heimann, P.
578
- Himpel, F.-J.
596
- Ho, K. M.
597
- Hopkinson, J. F. L.
1160
- Horvath, Z.
383
- Humberg, H.
1336
- Jenkin, J. G.
1302
- Joannopoulos, J. D.
591
- Kamada, H.
377
- Kasuya, A.
1338
- Kikuchi, B.
881
- Kudo, M.
377
- Kuppers, J.
2203
- Lapeyre, G. J.
594
- Latta, E. E.
2203
- Lawsen, P. K.
597
- Leckey, R. C. G.
1302
- Li, C. H.
369
- Liebowitz, D.
1297 1298
- Liesegang, J.
1302
- Lindsay, R. N.
1146
- Lompre, L. A.
303
- Lubinsky, A. R.
369
- Mainfray, G.
383
- Manus, C.
383
- Martens, G.
1156
- Merz, H.
1336
- Michel-Calendini, F. M.
593
- Mogil'nikov, K. F.
1949
- Nagy, D.
2241
- Nakamura, M.
881
- Neddermeyer, H.
578
- Nicholson, J. A.
1302
- Nihel, Y.
- Nishina, Y.
1338
- Paasch, G.
1332
- Pendry, J. B.
1146 1160
- Pertosa, P.
593
- Pesse, M.
578
- Peterson, H.
2179
- Petersson, L.-G.
367
- Plummer, E. W.
1300
- Pollard, W. B.
591
- Rabe, P.
1156
- Richardson, N. V.
1159
- Riley, J. D.
1302
- Sagurten, M.
1147
- Sass, J. K.
1159
- Schluter, M.
557
- Schmit, J.
2240
- Schwentner, N.
1156
- Shevchik, N. J.
1147 1157 1297
1298
- Shirley, D. A.
580
- Smith, N. V.
597
- Smith, R. J.
594
- Sood, E. S.
1216
- Steinmann, W.
596
- Stohr, J.
580
- Thebault, J.
383
- Togashi, S.
1338
- Tong, S. Y.
369
- Verne, S. L.
1216
- Wallace, S.
588
- Weeks, S. P.
589
- Wehner, P. S.
580

Weinberg, Z. A.
1149

Weng, S.-L.
1300

Werner, A.
1156

Williams, R. S.
580

D06

PARTICLE INTERACTIONS WITH SOLIDS

Reflection of Electrons from Surfaces
(coefficients)

/ Brown, G. S.
581

Cohen, P. I.
1180

Cox, M. G.
571 572

Delanave, F.
2208

den Boer, M. L.
1180

Dunning, F. B.
587

Ershova, T. P.
2478 2482

Gutovunova, M. V.
2483

Grachev, B. D.
1948

Jablonski, A.
2229

Kalisvaart, M.
587

Kinniburgh, C. G.
1161

Korablev, V. V.
2478 2482

Korobochko, Y. S.
1948

Kozlovskii, S. S.
1948

Love, C.
571 572

Lucas, A.
2208

Mahan, G. D.
2208

McFae, E. G.
583

Meixner, A. E.
581

Mineev, V. I.
1948

Morozov, Y. A.
2478 2482

Muller, H. W.
479

Nasinov, V. L.
1934

O'Neill, M. R.
587

Park, R. L.
1180

Pendry, J. B.
1151

Petrchenko, A. F.
1948

Platzman, P. M.
581

Pronin, I. I.
2483

Ridjie, T. W.
587

Schluter, M.
581

Schou, J.
471 483 1435

Schruder, H.
479

Scott, V. D.
571 572

Sorensen, H.
471 483 1435

Tavancv, E. G.
1534

Tolmachev, A. I.
2455

Walters, G. K.
567

Willis, R. F.
584

Zaslavskii, S. L.
2483

PARTICLE INTERACTIONS WITH SOLIDS

Reflection of Heavy Particles from Surfaces (total reflection coefficients)

Akkerman, A. F. 1328	Garcia Santibanez, F. 2425	Nelson, G. C. 1186
Armour, D. G. 456	Gerasimenko, N. N. 899	Nuvclene, R. 2302
Balashova, L. L. 2252	Gerber, R. B. 785	Oen, O. S. 1433
Barker, J. A. 2228	Goodman, F. O. 2206	O'Gorman, T. 2151
Barragan, A. 2425	Gras-Marti, A. 613	Petersen, P. M. 212
Baun, W. L. 44 2225 2233	Greene, E. F. 1178 2242	Preuss, E. 2413
Becker, G. E. 1178	Hervie, C. E. 2121	Robinson, J. E. 1430
Boiziau, C. 2302	Helland, W. 455 2139	Robinson, M. T. 616 617 1433
Bosenac, S. 785	Hill, N. R. 2243	Roussel, J. 2302
Brady, J. W., Jr. 2047	Hou, M. 616 617 2427	Schou, J. 1431
Brice, D. K. 1367	Jackson, D. P. 1430	Shibata, T. 376
Cardillo, M. J. 1178	Kauffman, R. L. 516	Silverman, P. J. 516
Celli, V. 2243	Kaufmann, E. N. 585	Sorensen, H. 1431
Ching, C. S. Y. 1178	Knudsen, H. 212	Steele, W. A. 2228
Cole, M. W. 2207	Kovalevskaya, T. I. 899	Taglauer, E. 455 2139
Derry, G. 2151	Krishnaswamy, S. V. 2151	Tanaka, S. 376
Dion, D. R. 2201	Lagcs, M. 2216	Thompson, D. L. 2047
Doli, J. D. 2047 2201	Langley, R. A. 1367	Tseitlin, G. M. 899
Eckstein, W. 1432 2427	Littmark, U. 613 1431	van den Berg, J. A. 456
Engel, T. 103	Meshkova, E. S. 458	Verbeek, H. 1432 2427
Feldman, L. C. 516	Mashova, E. S. 2252	Verheij, L. K. 456
Frankl, D. L. 2151	Mason, B. F. 2247	Weare, J. H. 2121
Frankl, D. R. 2207	Mason, E. A. 2242	Wesner, D. 2151
Garcia, N. 2212	Molchanov, V. A. 458 2252	Williams, B. R. 2247
	Murakami, Y. 376	Yinnon, A. T. 785
	Murrell, J. N. 785	Zartner, A. 2135
	Neshiyama, I. 576	Zuhr, R. A. 516

PARTICLE INTERACTIONS WITH SOLIDS

Charge and Quantum State Distributions
of Reflected Heavy Particles at
Macroscopic Distances from Surfaces

Adelmann, P. J. 2248	Heiland, W. 1706 2139 2183	Neff, S. H. 2183
Agamy, S. A. 1893	Helbig, H. F. 2248	Ohtsuki, Y. H. 1334
Balashova, L. L. 2420	Hill, P. 1706	Poelsema, B. 2305
Berry, H. G. 1883	Hone, D. 2223	Rausch, E. C. 23 475 1882
Bloss, W. 2223	Horiuchi, S. 1334	Robinson, D. A. H. 1892
Boers, A. L. 2305	Ichinokawa, T. 1890	Robinson, J. E. 1893
Dorlsow, A. M. 2420	Inouye, H. 23 475	Rusch, T. W. 1891
Brongersma, H. H. 1889	Kawamura, T. 1890	Schroder, H. 2504
Buck, T. M. 1889 1892	Komaki, K. 1890	Sencl, A. J. 23
Chen, Y.-S. 1892	Koval, A. G. 1237	Sizmann, R. 2210
Christensen, D. L. 1891	Koyama, A. 1334	Tághlaúf, E. 2139
Czanderna, A. W. 2248	Kraus, J. S. 1706 2183	Thomas, E. W. 23 475 1882
Eckstein, W. 1894	Leung, S. Y. 1706	Tolk, N. H. 1706 2183
Erickson, R. L. 1891	Livingston, A. E. 1883	Tully, J. C. 1706 2103
Fizgeer, B. M. 1237	Logachev, Y. E. 1237	Varelas, C. 2210
Fujimoto, F. 1890	Mashkova, E. S. 2420	Verteek, H. 1894
Gabrielse, G. 1883	Miller, G. L. 1892	Verheij, L. K. 2305
	Melchanov, V. A. 1894 2420	Wheatley, G. H. 1892
	Mossotti, V. G. 1091	Zartner, A. 2139
	Nakamura, H. 1890	

D09

PARTICLE INTERACTIONS WITH SOLIDS

**De-excitation, Neutralization,
Ionization, or Dissociation of
Particles Interacting with Surfaces**

Cardillo, M. J.
2237

Chen, F. K.
2119

Datz, S.
987

Dittner, P. F.
987

Dzhamankyzov, N. K.
1375

Gelb, A.
2237

Gemmell, D. S.
444

Grozdanov, T. P.
340

Horiguchi, S.
1334

Ignatiev, A.
961

Ionikh, Y. Z.
1945

Janev, R. K.
340

Kagan, Y.
1375

Kanter, E. P.
444

Kishinevskii, M. E.
2492

Kogan, E. Y.
1378

Kconnets, Y. V.
1375

Koyama, K.
1334

Kuranov, A. L.
1945

Lancaster, G. M.
561 1111

Laubert, R.
2115

Mal'nev, V. N.
1378

McCreery, J. H.
413

Ohtsuki, Y. H.
1334

Penkin, N. F.
1945

Pietsch, W. J.
444

Prival, H. G.
2251

Rabalais, J. W.
561 1111

Sharkov, V. F.
1945

Taylor, J. A.
961 1111

Wolken, G., Jr.
413

D10

PARTICLE INTERACTIONS WITH SOLIDS

**Interaction Potentials Between Surfaces
and Free Particles Located External
to the Surface (electrons and heavy
particles)**

Cardillo, M. J.
2237

Cole, M. W.
2231

Gelb, A.
2237

Kaplin, V. V.
2431

MacDonald, R. J.
2310

O'Connor, D. J.
2310

Pliva, J.
2231

Popov, L. E.
2431

Schwartz, C.
2231

Vorob'ev, A. A.
2431

Vorob'ev, S. A.
2431

Wolken, G., Jr.
1056

D11

PARTICLE INTERACTIONS WITH SOLIDS

Sticking Coefficients (thermal energies)

Engel, T.
103

Ibbotson, D. E.
2074

Knowles, T. R.
2130

Suhl, H.
2130

Taylor, J. L.
2074

Weinberg, W. H.
2074

D12

PARTICLE INTERACTIONS WITH SOLIDS

Electromagnetic Radiation Induced by
Electron or Heavy Particle Impact on
Surfaces

Baeri, P.
1877

Bastasz, R.
2215

Bazhin, A. I.
1927

Bois, D.
2301

Bouliou, M.
2301

Britov, A. D.
1325

Campisano, S. U.
1877

Collins, A. T.
1152

Colmenares, C. A.
2215

Della Mea, G.
1877

DeRaad, L. L., Jr.
658 1304

Dmitruk, N. L.
2224

Dyson, M. A.
1518

Engelmann, C.
1878

Erber, T.
658 1304

Fogel, Y. M.
2441

Gillsgaard, V. V.
2441

Heitmann, E.
1209 1215 1370

Imme, G.
1877

Ivanov-Omskii, V. I.
1325

Jacob, G.
2301

Kiyon, T. S.
2441

Kozel', V. V.
1927

Labzin, V. G.
1927

Lightowers, E. C.
1148

Lisin, V. A.
2432

Litovchenko, V. G.
2224

Llopis, J.
1329

Maltseva, V. A.
1325

Martin, F. W.
1879

Marvin, A. M.
1150

Offergeld, G.
2217

Penchina, C. M.
1148

Permien, V.
1209

Piquero, J.
1329

Poncet, M.
1878

Rimini, E.
1877

Roose, R. F.
2217

Ruzicka, J.
1904

Ryzhov, V. N.
1927

Shafroth, S. M.
357

Sivoshenko, S. D.
1325

Somorjai, G. A.
2215

Stupak, V. A.
1927

Talat, G. H.
2224

Tanis, J. A.
357

Toigc, F.
1150

Tsai, W.-Y.
1084

Ward, T. R.
1518

Yunda, N. T.
2432

Zrelcv, V. P.
1504

PARTICLE INTERACTIONS WITH SOLIDS

Desorption of Gases from Surfaces

Ageev, V. N. 2292	Feibelman, P. J. 2131	Ohtsuka, H. 1414
Akaishi, K. 1434	Feulner, P. 611	Prigge, S. 2244
Bauer, E. 2244	Gomer, R. 610	Sagara, A. 1434
Behrisch, R. 1425	Heiland, W. 455 664 1428 1895	Saidoh, M. 1414
Beitak, U. 1855	Holscher, A. A. 1177	Scherzer, B. M. U. 1425
Blewer, R. S. 1425	Hotston, E. S. 1424	Schram, A. 1436
Bowman, R. 1177	Ibbotson, D. E. 2074	Schulz, R. 1425
Braganza, C. M. 1406 1424	Jenow, R. 2246	Shek, M.-L. 2226
Dawson, P. H. 2213	Knotek, M. L. 2131	Sone, K. 1414
Donnelly, S. E. 1427	Krachino, T. V. 2490	Steinbruchel, C. 610
Drinkwine, M. J. 1176	Lelegard, J. 1436	Taglauer, E. 455 664 1428 1855
Dzhalilov, S. T. 2292	Lichtman, D. 1176	Taylor, J. L. 2074
Edwards, D., Jr. 1191	MacDonald, R. J. 664	Tzoar, N. 2246
Engelhardt, H. A. 611	Matskevich, T. L. 2490	van Mechelen, J. B. 1177
Erents, S. K. 1406 1424	McCracken, G. M. 1406 1424	Weinberg, W. H. 2074 2226
Farrell, G. 1427	Menzel, D. 611	Withrow, S. P. 2226
	Miyahara, A. 1434	Yamada, R. 1414
	Neihus, H. 2244	

PARTICLE INTERACTIONS WITH SOLIDS

Blistering, Voids, and Surface Strain
in Metals

Abe, T. 386	Fogel, Y. M. 2372	Machlin, N. A. 1408
Abel, G. 1416	Gallagher, J. 1441	Makin, M. J. 391
Agarwal, S. C. 1442	Gamayunova, L. A. 2372	Mansur, L. K. 403
Andersen, H. H. 891	Gerber, S. B. 392	Martel, J. C. 1416
Ardell, A. J. 407	Godhew, P. J. 396	McDonnell, W. R. 1420
Arkel, D. R. 398	Gusev, V. A. 2372	McGruer, J. N. 400 404
Armstrong, T. R. 1840	Guseva, M. I. 1411	Melnikov, V. N. 1408
Behrlich, R. 1846	Hayns, M. R. 399 1440 1441	Miley, G. H. 1415
Blewer, R. S. 1421	Henager, C. H., Jr. 2391	Mohri, M. 1413
Borgesen, P. 1846	Hoso, D. G. 457	Nandedkar, R. V. 615
Brimhall, J. L. 1439 2391	Hoffman, J. G. 393	Naramoto, H. 390 402
Bullough, R. 1441	Ionova, E. S. 1411	Navinsek, B. 1418
Bunch, J. M. 393	Ivanov, L. I. 1408	Nedcspascv, A. V. 1411
Busch, D. E. 392	Johnson, P. B. 1840	Nicholson, R. J. K. 1417
Chang, J. H. 400	Kaletta, D. 1410	Noifi, F. V., Jr. 1442
Charlot, L. A. 1439	Kanada, K. 390 402	Obara, K. 386
Chebaevsky, V. P. 1408	Kaminsky, M. 457 470 892 1188 1409 1415 1419	Ohtsuka, H. 386 1414
Chen, L. J. 407	Kazumata, Y. 388 390	Pard, A. G. 389
Choyke, W. J. 400 404	Keefe, D. W. 389	Pocrey, P. E. 1421
Das, S. K. 457 470 892 1188 1409 1415 1419	Kissinger, H. E. 1439	Peternei, M. 1418
Deruytter, A. 615	Knudsen, H. 891	Petersen, P. M. 891
Doyle, N. J. 400	Koltygin, V. M. 1411	Hehn, L. E. 1442
Dusza, P. 1188	Komissarov, A. P. 1410	Rosina, I. A. 1411
Ekern, R. 457	Krasulin, Y. L. 1411	Koht, J. 1846
Evans, J. H. 1412	Kurekina, T. S. 1411	Saidch, M. 1414
Fahlstrom, C. R. 1184	Lebric, J. P. 1416	Sasaki, K. 1413
Fenske, G. 1409 1415	Lally, J. S. 404	Scherzer, B. M. U. 1846
	Langley, R. A. 1421	Sheng, T. T. 381
	L'Ecuyer, J. 1416	Simonen, E. P. 1439 2391
	Liau, Z. L. 381	Sinha, M. K. 470 1184
	Lccmis, B. A. 392	Sone, K. 386 1414
		Spitznagel, J. A. 400 404

Stals, L.
615

St-Jacques, R. G.
1416

Terreault, B.
1416

Tishchenko, L. P.
2372

Townsend, J. R.
400

Tyler, S. K.
396

van Gysse, J.
615

Venskytis, F. J.
400

Wach, W.
538

Walls, J. M.
1417

Watanabe, K.
1413

Williams, I. M.
398 399

Wittmaack, K.
538

Yamada, R.
386 1414

Yamashina, I.
1413

Yesso, J. D.
400

Yoo, M. H.
403

Zabker, A.
1418

Zeltsmann, A. H.
353

Zykova, N. P.
1411

PARTICLE INTERACTIONS WITH SOLIDS

Radiation Damage in Metals

- Alamo, A.
2411
- Antesberger, G.
2384
- Appleton, B. R.
115
- Ardonceanu, J.
2423
- Armour, D. G.
2390
- Averback, R. S.
406
- Daskes, M. I.
577
- Biersack, J. P.
1437
- Biggerstaff, J. A.
115
- Birtcher, R. C.
406
- Blewitt, T. H.
406
- Brimhall, J. L.
2391
- Carpenter, G. J. C.
395
- Carter, G.
2390
- Chang, C. P.
2416
- Chaudhari, P.
630
- Chen, C. W.
2416
- Choyke, W. J.
404
- Cornelis, J.
1324
- Dausinger, F.
113
- Donnelly, S. E.
2390
- Drosd, R.
116 117
- Dural, J.
2423
- Dworschak, F.
2377
- Ehrhart, P.
1303
- Elen, J. D.
2416
- Eymery, J. P.
2401
- Fogel, Y. M.
2372
- Furukawa, S.
511
- Furuno, S.
2308
- Fuss, J.
112
- Garayunova, L. A.
2372
- Ghoniem, N.
118
- Ghoniem, N. M.
2424
- Graczyk, J. F.
536
- Gusev, V. A.
2372
- Henager, C. H., Jr.
2391
- Herschbach, K.
1918
- Hikosaka, K.
511
- Holbrook, J. H.
577
- Howe, L. M.
2388
- Ischenko, G.
2374
- Ishiwara, H.
511
- Ivanov, L. I.
114
- Iwata, T.
115
- Izui, K.
2308
- Jackson, P. J.
2371
- Johnson, R. A.
1443
- Jones, R. H.
1182
- Keczerowski, W.
1437
- Kemm, K.
2371
- Kitazoe, Y.
1924
- Klaumunzer, S.
2374
- Kosel, T.
116 117
- Kulcinski, G. L.
118 1444 2424
- Lally, J. S.
404
- Law, N. Q.
1443
- Lesueur, D.
113 2423
- Linker, G.
1865
- Lucasson, A.
1921
- Lucasson, P.
1521
- Mansel, W.
2376
- Mastenbrcek, A.
2416
- McGruer, J. N.
404
- Meyer, H.
2376
- Muller, K.
1918
- Narayan, J.
387
- Nashiyama, I.
576
- Neusuller, H.
2374
- Nevin, J.
2371
- Ney, J.
1437
- Nihoul, J.
1324
- Nishida, T.
2308
- Noggle, T. S.
115 387
- Oen, G. S.
115 387
- Ohr, S. M.
115
- Okamoto, P. R.
1443
- Papathanasopoulos, C.
2399
- Papatriantafyllou, C.
2395
- Piatcu, Y. M.
114
- Pletnev, M. N.
114
- Poehman, S. W.
2304
- Poerschke, F.
397
- Portmann, A.
2307
- Potter, D. I.
2375
- Quelard, G.
113 2403
- Quenneville, A. F.
2388
- Rahis, B. K. H.
1437
- Riccato, A.
1437
- Riviere, J. F.
2401
- Roberto, J. B.
1303
- Rocofylliou, E.
2399

Roggen, J.
1324

Sadykhov, S. I. O.
114

Schindler, R.
2373

Schlenger, B.
2377

Schoenfeld, B.
1303

Schulson, E. M.
395

Schultz, H.
112

Schweikhardt, J.
112

Seidman, D. N.
2205

Simonen, E. P.
2391

Sonnenberg, K.
2384 2387

Soullard, J.
2411

Spalding, D.
2371

Spitznagel, J. A.
404

Stals, L.
1324

Stober, T.
1918

Stuessi, H.
2307

Styris, D. L.
1182

Swanson, M. L.
2388

Taratin, A. M.
2477

Tenenbaum, A.
2428

Thecker, G. R.
1437

Theophilou, A.
2399

Thomas, G. J.
1429

Thompson, D. A.
2304

Tishchenko, L. P.
2372

Uecker, H.
1437

Veprek, S.
2307

Vogl, G.
2376

Vorob'ev, S. A.
2477

Walker, R. S.
2304

Washburn, J.
116 117

Webb, A. P.
2307

Webb, R.
2390

Wienhold, P.
2384 2387

Wilkes, P.
1444

Williams, J. M.
115

Wilson, K. L.
1429

Wolfenden, A.
1518

Wollenberger, H.
397 2377

Yamamura, Y.
1924

PARTICLE INTERACTIONS WITH SOLIDS

Particle Implantation in Metals

Agrawal, M. K. 1874	Graczyk, J. F. 536	Roth, J. 1426 1846 1913
Altstetter, C. J. 1187 1847	Grant, W. A. 1194	Saidch, M. 1414
Baskes, M. I. 401 1423	Gusev, V. A. 2372	Sanders, J. B. 2422
Bay, H. L. 1913	Hartley, N. E. W. 2256 2289	Sartwell, B. D. 2257
Behrlich, R. 1187 1425 1846 1847 1913	Hctston, E. S. 1424	Sato, T. 1150
Blewer, R. S. 1425 1426 1845	Iwaki, M. 1190	Scherzer, B. M. U. 1187 1425 1846 1847 1913
Bordesen, P. 1422 1846 1913	Kaufmann, E. N. 1869	Schulz, R. 1425
Bottiger, J. 1422 1847	King, P. W. 518	Soda, N. 1190
Braganza, C. M. 1424	Kcvalevskaya, T. I. 899	Sone, K. 1414
Brassard, C. 1863	Kramer, S. D. 518	Sood, C. K. 1074 1917
Cardinal, C. 1863	Krasiko, A. N. 1939	Spitznagel, J. A. 404
Carter, G. 2407	Lally, J. S. 404	Stephens, K. G. 2250
Chaudhuri, P. 536	Langley, R. A. 1426	Streetman, E. G. 515
Chovke, W. J. 404	L'Ecuyer, J. 1863	Terreault, B. 1863
Christie, W. H. 518	Liau, Z. L. 1192	Tishchenko, L. F. 2372
Clark, G. J. 518	Lckshin, M. M. 1939	Tsai, M. Y. 519
Coussement, R. 2419	Longworth, G. 2289	Tseitlin, G. M. 899
Dearnaley, G. 1917 2256	Lysenko, V. S. 1939	Tyagai, V. A. 1939
Dennolly, G. E. 1427	Madee, C. W. 1884	Venkatesan, T. N. C. 520
Erents, S. K. 1424	Mayer, J. W. 1192	Vlenden, R. 1869
Evans, C. A., Jr. 519	McCracken, G. M. 1424	Webb, R. 2407
Evtigneev, A. M. 1939	McGruer, J. N. 404	White, C. W. 518
Farrell, G. 1427	Mellor, W. 1422	Williams, P. 515
Fischer, G. 2407	Murakami, M. 518	Wilson, I. H. 2290
Fogel, Y. M. 2372	Myers, S. M. 1195	Wilson, K. L. 401 1423
Gamayunova, L. A. 2372	Namba, S. 1190	Winterbcn, K. B. 2421 2422
Gerasimenko, N. N. 899	Narayan, J. 518	Wolfenden, A. 2402
Golovchenko, J. A. 520	Odeurs, J. 2419	Wu, C. P. 1884
	Ohtsuka, H. 1414	Yamada, R. 1414
	Pattyn, H. 2419	Yoshida, K. 1190
	Poate, J. M. 1193	Young, R. T. 518
	Pohl, F. 1847	Yukawa, K. 1190

D17

PARTICLE INTERACTIONS WITH SOLIDS

Electron-, Ion-, and Photon-Induced
Chemical Changes to Surfaces

Abroyan, I. A.
1952

Bastasz, R. J.
1400

Blaise, G.
2219

Braganza, C. M.
408

Brundle, C. R.
2255

Chemin, J. F.
2300

Chuang, T. J.
2255

Chudnovskii, F. A.
1952

Danto, Y.
2300

Doi, H.
1405

Erents, S. K.
408

Fukuta, M.
514

Gavrilyuk, A. I.
1952

Gerasimenko, N. N.
1953

Gomer, R.
610

Hayakawa, K.
1405

Heiland, W.
669

Ho, P. S.
2222

Ignatiev, A.
961

Kelly, R.
1886

Lancaster, G. M.
961

Lanskaya, T. G.
1940

Lyon, O.
2219

McCracken, G. M.
408

Mimura, T.
514

Mohri, M.
1405

Odani, K.
514

Pan'kin, V. G.
1953

Pistre, J. D.
2300

Rabalais, J. W.
961

Roques-Carnes, C.
2219

Saboys, B.
2300

Saeki, N.
2218

Salardenne, J.
2300

Shisizu, R.
2218

Stein, H. J.
533

Steinbruchel, C.
610

Suvorov, A. V.
1540

Svitashev, K. K.
1553

Taglauer, E.
665

Taylor, J. A.
961

Terukov, E. I.
1940

Thomas, G. J.
1400

Tseitlin, G. M.
1553

Velichko, V. Y.
1552

Wandelt, K.
2255

Watanabe, K.
1405

Yamashina, T.
1405

Yokoyama, N.
514

Zakharchenys, B. P.
1952

E01

ELECTRON-PARTICLE INTERACTIONS

General

Burke, P. G.
2156

Coulter, P. W.
1788

Duban, J.
1636

Mukherjee, S. C.
1820

Nesbet, R. K.
1737

Seaton, M. J.
1635

Sil, N. C.
1820

Sur, S. K.
1820

Truhlar, D. G.
2051

van-Catledge, F. A.
2051

ELECTRON-PARTICLE INTERACTIONS

Elastic Collisions

Abdel-Raouf, M. A. 1605	Drukarev, G. F. 2314	Klar, H. 59
Akkermann, A. F. 2489	Fabrikant, I. I. 2272	Klar, M. 59
Amus'ya, M. Y. 1380	Filifiet, A. W. 13 1746 1808	Klonover, A. 273
Atrazhev, V. A. 1359	Fon, W. C. 216	Konaka, S. 284
Bardsley, J. N. 1603	Fournier, G. R. 474	Kuchiev, M. Y. 1380
Belschner, D. 1605	Gallitis, M. 260	Kumar, A., Jr. 236
Benedict, M. G. 877	Gerjuoy, E. 253	Kumar, S. 1546
Bhatia, A. K. 1792	Ghosh, A. S. 1784	Lal, M. 1618
Bhattacharyya, P. K. 1784	Gien, T. T. 1265	Lee, C. M. 253
Bonham, R. A. 284	Goswami, K. K. 1784	Lehmann, H. 2285
Brunt, J. N. H. 195	Creppendat, B. 1911	Levin, H. A. 13
Buckman, S. J. 1492	Gupta, G. P. 1575	Ma, M. 13
Burgess, A. 1650	Gupta, P. 981	Masnou-Seeuws, F. 2163
Burke, P. G. 216	Gus'kov, Y. K. 1361 2330 2487	Mathur, D. 715
Byron, F. W., Jr. 14 77 1507	Gyemant, I. 877	Mathur, K. C. 1575
Carignan, G. R. 489	Hashimoto, H. 2358	Maxey, D. V. 1547
Carter, J. G. 1547	Hasted, J. B. 715	McCorkle, D. L. 1547
Cartwright, D. C. 480	Heddlie, D. W. D. 1615	McCurdy, C. W., Jr. 499
Chan, F. T. 26	Ho, T. S. 26	McEachran, R. P. 1531
Cheeseborough, J. C., III 1471	Ho, W. 368	McGeoch, M. W. 474
Chernov, G. Y. 2489	Huang, C. L. 1698	McKoy, V. 13 1746 1808
Christopherou, L. G. 1547	Jensen, S. 1494	Morrison, M. A. 1640
Chutjian, A. 1978 2107	Jesion, G. 90	Morrison, M. A. 53
Cohen, J. S. 1603	Jhanwar, B. L. 030	Mukherjee, L. 54
Collins, L. A. 53 1640 1708	Joachain, C. J. 1507	Mullaney, N. A. 789
Davenport, J. W. 368	John, T. L. 639	Nakazura, H. 1600
Dehmer, J. L. 508 2103	Junker, B. R. 1698 1823	Nesbet, R. K. 183
Dill, D. 508 2103	Kaldor, U. 273	Noble, C. J. 1492
	Kaupplia, W. E. 90	Nordress, D. W. 1708
	Khare, S. P. 236 581	Ob'edkov, V. D. 2314
	King, G. C. 195	Onda, K. 1573
	Kingston, A. E. 216	Orel, A. E. 495

Philippe, M. 2163	Siegel, J. 508 2103	Tenkin, A. 67 1792
Poet, R. 1548	Sil, N. C. 509 1520	Teubner, P. J. G. 1492
Pol, V. 90	Silver, A. 1792	Trajnar, S. 1471 1494
Read, F. H. 195	Singh, S. N. 354 1546	Tripathi, A. N. 354 1777 1818
Register, D. 1454	Slobodyanyuk, V. A. 1361 2330 2487	Truhlar, D. G. 789 1973
Rescigno, T. N. 499	Smart, J. H. 90	Tully, J. A. 1650
Ritchie, B. 1346	Smith, F. T. 54	Ueda, K. 2358
Robb, W. D. 1640	Srivastava, M. K. 1546 1777 1818	Valiron, P. 2163
Rohr, K. 1458 1637	Srivastava, S. K. 1978 2107	Vanderpoorten, F. 200
Roy, A. C. 509 1520	Stauffer, A. D. 1531	Wattel, E. 1511
Savvov, R. V. 1361 2330 2487	Steenman-Clark, L. 201	Williams, W. 1471
Schrieffer, J. R. 368	Stein, T. S. 90	Winters, K. H. 200
Seaton, M. J. 201	Sullivan, E. C. 1792	Yakubov, I. T. 1359
Shakeshaft, R. 1801	Szmytkowski, C. 756	Yau, A. W. 1531
Sharp, W. E. 489	Takagi, H. 1600	Zelener, E. V. 1359
Shimizu, R. 2358	Tembe, B. R. 1346	Zubek, M. 756
Shyn, T. W. 489	Tanaka, H. 1978 2107	

ELECTRON-PARTICLE INTERACTIONS

Excitation

- Acton, L. W.
840
- Allison, J.
730
- Azria, R.
1555
- Baluja, K. L.
225
- Barlas, A. D.
1674
- Baryshnikov, G. F.
2332
- Béckéř, K.
1585
- Beranvi, D.
1661
- Berrington, K. A.
203 622
- Bhatia, A. K.
1728
- Bhattacharyya, P. K.
1784
- Binette, L.
1608
- Blaħa, M.
1658
- Blum, K.
2537
- Boĝdanova, I. P.
1240
- Borst, W. L.
83 497
- Bose, N.
209 271
- Bransden, B. H.
1576 1577
- Brion, C. E.
701
- Brown, W. A.
840
- Brunt, J. N. H.
195 1461
- Burgess, A.
1650
- Burke, P. G.
203 622 2196
- Carette, J.-D.
237 1534
- Cartwright, D. C.
480
- Chan, F. T.
491
- Chang, C. H.
491
- Cheeseborough, J. C., III
1471
- Chen, S. T.
24 29
- Cheng, K.-T.
551
- Chung, S.
492
- Clark, R. E. H.
93
- Coulter, P. W.
1787
- Crocker, M.
1576
- Csanak, G.
252
- Cvejanovic, S.
1461
- Dahler, J. S.
1495 1496
- Dalidchik, F. I.
2205
- Danilevskii, N. P.
2266
- Davenport, J. W.
368
- Davis, J.
1658
- de Haer, F. J.
702 703
- Delage, A.
237 1634
- de la Reza, R.
637
- Demkov, Y. N.
2270
- Desai, H. S.
2338
- Dewangan, D. P.
1577
- Dixon, A. J.
2140
- Doering, J. P.
1976
- Doschek, G. A.
633
- Drewko, J.
1473
- Dube, L.
31
- Duffon, P. L.
622
- Dunn, G. H.
1759
- Edmonson, D. A.
1976
- Elitzur, M.
636
- Erko, V. F.
2280 2451
- Fabrikant, I. I.
1595 2272
- Feldman, U.
633
- Firsov, D. B.
2267
- Fitchard, E. E.
2537
- Flicker, W. M.
2064
- Filfiet, A. W.
13
- Fon, W. C.
203
- Foner, S. N.
1010
- Foster, G.
465
- Fournier, G. R.
474
- Fricke, J.
497
- Frueholz, R. P.
148 924
- Fujita, T.
2346
- Gallagher, A. C.
29
- Gargo, I. I.
1236
- Garrett, W. R.
1787
- Garstang, R. H.
827
- Ghosh, A. S.
1784
- Gianturco, F. A.
554 1100
- Gien, T. I.
324 333
- Glass-Maujean, M.
210
- Golden, D. E.
7
- Golden, L. E.
667
- Golovchak, N. V.
1236
- Golubkov, G. V.
2265
- Goswami, K. K.
1784
- Gresteau, F.
1115 1363
- Grosswendt, B.
1911
- Guibert, J.
636
- Gupte, G. P.
1535
- Haddad, G. N.
7
- Hahn, Y.
1744
- Hall, R. I.
1119
- Hall, R. J.
964
- Harting, E.
206

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Ho, W. 368	Kuppermann, A. 148 924 2064	Mlodinow, L. 1495
Hock, G. 1651	Kwong, R. 485	Mohlmann, G. R. 702
Hood, S. T. 2140	Kwong, W. K. 1496	Morgan, L. A. 225 1576
Hudson, R. L. 1010	Lamanna, U. T. 554 1100	Mcsher, J. A. 2064
Huetz, A. 1363	Land, J. E. 894	Mukherjee, D. 54
Hysan, H. A. 1705	Lassetre, E. N. 1115	Mullaney, N. A. 789 552
Ivanov, G. K. 2265	Lawton, S. A. 1958	Myerscough, V. P. 225 259
Iwai, T. 2345	Lee, J. S. 1976	Nakazaki, S. 2350 2355
Jensen, S. 1494	Leung, C. N. 1496	Nesbet, R. K. 183
Jensen, S. W. 2168	Levin, D. A. 13	Nguyen-Q-Rieu 636
Jolly, J. 1651	Lieber, M. 491	Nowak, G. 497
Jurels, J. 1461	Liepinsh, A. 184	Nussbaumer, H. 643
Kaldor, U. 273	Lin, C. C. 492	Ogura, K. 2345
Karolis, C. 206	Lisitsa, V. S. 2332	Oh, S. D. 48 1726
Kastner, S. O. 638	Ma, M. 13	Olsen, J. O. 1759
Kelsey, E. 48	Macek, J. 48 1726	Onda, K. 1573
Kelsey, E. J. 1768	Marmet, P. 1608	Ostrcvskii, V. N. 2270 2327
Kennedy, J. V. 259	Maru, M. P. 2338	Padial, N. I. 252
Khayrallah, G. A. 24	Marusin, V. D. 1248	Parks, A. D. 53
Khovanskii, N. A. 2266	Mason, H. E. 638 846	Pavlichenko, O. S. 2451
Kim, Y.-K. 491 551	Matese, J. J. 39	Pearl, J. C. 1766
King, G. C. 195	Mathur, K. C. 1539 1830	Percival, I. C. 2366
Kingston, A. E. 203 622	Mazeau, J. 1119 1363	Peterkop, R. 184
	McCarthy, I. E. 1576	Phelps, A. V. 1458

Poe, R. I. 2168	Semenova, I. V. 1242	van Sprang, H. A. 702 703
Polyakova, G. N. 2280 2451	Shimizu, R. 2349 2358	van Wyngaarden, W.-L. 39
Querci, F. 637	Shimon, L. L. 1236	Vernazza, J. E. 846
Rahsan, N. K. 554 1100	Sil, N. C. 1447 1455 1778	Vichon, D. 1119 1363
Rai, E. K. 202 662	Simon, D. 1555	Vincigradcv, A. V. 1530
Ranyuk, A. I. 2280 2451	Singh, S. N. 1822	Waibel, E. 1911
Raymond, J. C. 831	Sinha, C. 1447 1455	Wakiya, K. 1621 1622
Read, F. H. 195 1461	Skobelev, I. Y. 1530	Watanabe, S. 2345
Register, D. 1494	Smirnov, B. M. 2267	Watanabe, Y. 2345
Register, D. F. 2168	Smirnov, Y. M. 1242	Weigold, E. 2140
Rianda, R. 148 524	SMITH, F. T. 54 55	Weinreich, G. 1766
Richards, E. 2366	Sobeslavsky, E. 693	Wellenstein, H. F. 1574
Ricz, S. 1651	Srivastava, M. K. 1822	Wells, W. C. 83
Robb, W. D. 827	Srivastava, R. 202	Williams, W. 1470 1471
Rogers, W. T. 1759	Srivastava, S. K. 1578	Williamsen, W., Jr. 485
Rohr, K. 1458 1637	Steph, N. C. 7	Winters, K. H. 153
Rountree, S. P. 827	Storey, P. J. 643	Wong, S. F. 31
Roy, D. 237 1634	Strakhova, S. I. 1533	Yakhontova, V. E. 1248
Roy, D. N. 325	Stumpf, B. 1535	Yamazaki, Y. 2345
Roy, N. 1455	Sutcliffe, V. C. 7	Zajonc, A. G. 1766
Rudge, M. R. H. 1484	Szytkowski, C. 1473	Zare, R. N. 730
Rueckner, W. H. E. 1574	Temkin, A. 67 1728	Zipf, E. C. 83
Rumble, J. B., Jr. 24	Thomas, B. K. 1707	Zorn, J. C. 1766
Saffin, V. I. 1533	Tiwary, S. N. 862	Zubek, M. 1473
Sampson, D. H. 93 657	Trajmar, S. 1470 1471 1494 1578 2168	
Schlenk, B. 1651	Trekhov, E. S. 1244	
Schrieffer, J. R. 368	Tronc, M. 1555	
Schrijver, J. 631 632 651	Truhlar, D. G. 789 952 1973	
Schulz, G. 1585	Tully, J. A. 1532 1650	
Seaton, M. J. 208	Ueda, K. 2349 2358	
Seif el Nasr, S. A. H. 1651	Valek, A. 1651	

ELECTRON-PARTICLE INTERACTIONS

Dissociation

- Allison, J.
730
- Allock, G.
720
- Biondi, M. A.
47
- Birtwistle, D. T.
1534
- Black, J. H.
826
- Boness, M. J. W.
541
- Borst, W. L.
83 497
- Bose, N.
271
- Brau, C. A.
662
- Brion, C. E.
1563
- Brunt, J. N. H.
195
- Chibisov, M. I.
1374
- Chung, S.
492
- Danilevskii, N. P.
2266
- de Heer, F. J.
702 703
- Drukarev, G. F.
2445
- Erko, V. F.
2280 2451
- Fiquet-Fayard, F.
1053
- Fletcher, J.
530
- Foltyn, S. R.
530
- Forsman, J. A.
280
- Fricke, J.
497
- Fujita, T.
2345
- Glass-Maujean, M.
210
- Goursaud, S.
1053
- Gresteau, F.
1554
- Grimley, R. T.
280
- Grindstaff, Q. G.
280
- Hall, R. I.
1554
- Harting, E.
306
- Hasted, J. B.
1594
- Herbst, E.
828
- Hitchcock, A. P.
1563
- Huetz, A.
1554
- Hunter, S. R.
530
- Iwai, T.
2345
- Karolis, C.
206
- Khan, S. U.
1594
- Khecvanskii, N. A.
2266
- King, G. C.
195
- Kollmann, K.
205
- Koppe, V. T.
2266
- Koval, A. G.
2266
- Lefavre, D.
681
- Lin, C. C.
492
- Marmet, P.
681
- Mathur, D.
1594
- Mazeau, J.
1554
- McConkey, J. W.
720
- McGowan, J. W.
848
- McLaughlin, R. W.
1365
- Mikus, O.
573
- Mitchell, J. B. A.
648
- Modinos, A.
1534
- Mohlmann, G. R.
702
- Nowak, G.
497
- Nygaard, K. J.
530
- Ogure, K.
2345
- Pavlichenko, O. S.
2451
- Polyakova, G. N.
2280 2451
- Pozdnev, S. A.
2445
- Ranyuk, A. I.
2280 2451
- Read, F. H.
195
- Schneider, E. I.
662
- Shiu, Y.-J.
47
- Sizun, M.
1053
- Smirnov, B. M.
2318
- Trainor, D. W.
541
- van der Wiel, M. J.
1563
- van Sprang, H. A.
702 703
- Watanabe, S.
2345
- Watanabe, Y.
2345
- Wells, W. C.
83
- Zare, R. N.
730
- Zhdanov, V. P.
1374
- Zipf, E. C.
83 1365

ELECTRON-PARTICLE INTERACTIONS

Ionization

- Banks, D.
1483
- Barlas, A. D.
1731
- Basov, N. G.
2452
- Beatty, E. C.
89 485
- Belic, D. S.
1609
- Berezhko, E. G.
1456
- Binette, L.
1608
- Dirkinshaw, K.
204
- Boesten, L. G. J.
1483 1514
- Bransden, B. H.
1549
- Brehm, R.
178
- Breton, C.
2155
- Brion, C. E.
805 1563
- Brook, E.
1550 1601
- Brooks, R. L.
2154
- Brunt, J. N. H.
195
- Burnett, T.
1614
- Camillioni, R.
94 323
- Carette, J.-D.
237
- Carlwright, D. C.
480
- Challerji, D.
1110
- Cheng, K.-T.
551
- Clark, R. E. H.
93
- Compton, R. N.
1984
- Cook, J. P. D.
805
- Coulter, P. W.
1787
- Crandall, D. H.
1789
- Danilychev, V. A.
2452
- Datta, R. U.
2154
- de Frenes, G.
178
- de Heer, F. J.
702
- Delage, A.
237
- de la Reza, R.
637
- de Michelis, C.
2155
- Dillon, M. A.
976
- Divine, T. F.
555
- Dixon, A. J.
33
- Doering, J. P.
1976
- DuBois, R.
1553
- DuBois, R. D.
43
- Edsonson, D. A.
1976
- Egger, F.
2288
- Feizullov, F. S.
2452
- Feeney, R. K.
555
- Findenthal, M.
2155
- Floks, I. P.
1936
- Forsman, J. A.
280
- Fournier, G. R.
474
- Fuss, I.
34
- Garrett, W. R.
1787
- Genz, H.
339
- Giardini Guidoni, A.
323
- Golden, L. B.
218 1562
- Gorozhankin, F. V.
2452
- Griem, H. R.
2154
- Grimley, R. T.
280
- Grindstaff, Q. G.
280
- Grosswendt, B.
1911
- Guidoni, A. G.
94
- Hahn, Y.
1744
- Hamdan, M.
204
- Harriscn, M. F. A.
270 1550 1601
- Hasted, J. B.
204
- Heideman, H. G. M.
1514
- Hesselbacher, K. H.
89
- Hille, E.
2013 2082
- Hils, I.
261
- Hitchcock, A. P.
1563
- Hoffmann, D. H. H.
335
- Hong, S. P.
89 486
- Hubiel, M. C.
270
- Hublet, M.-C.
1601
- Huetz, A.
1606
- Jain, N. K.
646
- Joyez, G.
1606
- Kabachnik, M. N.
1456
- Karstensen, F.
194
- Keski-Röykkönen, U.
1308
- Kets, F. E.
1514
- Kim, Y.-K.
551
- King, G. C.
195
- Kleinpoppen, H.
261
- Klots, C. E.
1524
- Koike, F.
40 219
- Kollmann, K.
205
- Kumar, A.
351 468
- Kurenkov, V. V.
2452
- Kurepa, M. V.
1605
- Land, J. E.
894
- Landau, M.
1606
- Lee, J. S.
1976
- Lefavre, D.
681

Liepinsh, A. 184	Peterkop, R. 184	Semenova, I. V. 1242
Liu, J. W. 158	Phaneuf, R. A. 1789	Shebeko, Y. N. 2452
Low, W. 339	Pichou, F. 1606	Sizcv, V. V. 1456
Macek, J. 1726	Popovichev, V. I. 2452	Smirnov, Y. M. 1242
Mark, T. D. 2013 2082 2288	Poppe, R. 1567	Smith, A. C. H. 1550
Marmet, P. 681 1608	Quercl, F. 637	Smith, J. J. 1545
Mattlioli, M. 2155	Regul'skii, V. V. 2452	Smith, V. H., Jr. 158
McCarthy, I. E. 33 34 94 1567	Rassi, D. 217	Spence, D. 1008
McGeoch, M. W. 474	Read, F. H. 195	Srivastava, S. K. 1578
Mehlhorn, W. 1110	Richards, D. 2366	Stefani, G. 94 323
Mewe, R. 631 632	Richter, A. 339	Suchkov, A. F. 2452
Mikushkin, V. M. 1936	Rodbro, M. 1553	Suzuki, H. 219
Mohlmann, G. R. 702	Ross, K. J. 217	Tahiro, S. 40
Moore, J. H. 89	Rountree, S. P. 1614	Tan, K. H. E05
Moore, D. L. 1487	Roy, B. N. 351 468	Taylor, P. O. 1789
Narain, U. 646	Roy, D. 237	Trajmar, S. 1578
Nishimura, F. 40	Rudd, M. E. 43	Uylings, P. 1567
Noble, C. J. 33 34	Rudge, M. R. H. 230	van der Wiel, M. J. 1563
Oda, N. 40	Rueckner, W. H. E. 1731	van de Water, W. 1514
Ogurtsov, G. N. 1936	Saijonmaa, J. 1309	van Sprang, H. A. 702
Oh, S. D. 1726	Saijonmaa, S. 1308	Waitel, E. 1911
Omidvar, K. 1562	Sampson, D. H. 93 218 1562	Wakiya, K. 219
Omoto, H. 219	Sandner, W. 1457	Weigold, E. 33 34
Ottley, T. W. 217	Sayle, W. E., II 555	Wellenstein, H. F. 1731
Panteleev, V. I. 2452	Schmidt, V. 1110 1553	Williams, J. F. 1469
Paretzke, H. G. 2303	Schmitt, W. 1457	Winters, K. H. 1549
Parks, A. D. 93	Schneider, M. 194	Woodruff, P. R. 270 1601
Pejcev, V. 217	Schrijver, J. 631 632	Yagishita, A. 215
Percival, I. C. 2366	Scofield, J. H. 1738	

E10.

ELECTRON-PARTICLE INTERACTIONS

Spin Exchange

Bhatia, A. K.
1792

Byron, F. W., Jr.
1507

Joachain, C. J.
1507

Lal, M.
1818

Silver, A.
1792

Srivastava, M. K.
1818

Sullivan, E. C.
1792

Teskin, A.
1752

Tripathi, A. N.
1818

E11

ELECTRON-PARTICLE INTERACTIONS

Free-free Transitions (Bremsstrahlung)

Andrick, D.
1493

Baryshevskii, V. G.
2325

Behncke, H.-H.
98

Gavrila, M.
857

Geltman, S.
1175

Gronenschild, E. H. B. M.
849

Grubich, A. O.
2325

John, T. L.
1657

Langhans, L.
1493

Itzin, V. A.
2432

Maximon, L. C.
1832

Mazmanishvili, A. S.
1928

Mewe, R.
649

Nakel, W.
98

Nyan, N. D.
2325

Olsen, H. A.
1832

van der Wiel, M.
857

Williams, R. J.
1657

Yunda, N. T.
2432

E12

ELECTRON-PARTICLE INTERACTIONS

Positron Collisions

Abdel-Rauuf, M. A.
1605

Armour, E. A. G.
1515 1523

Daryshevskii, V. G.
2325

Belschner, D.
1605

Byron, F. W., Jr.
14

Campeanu, R. I.
1556

Dubau, J.
1556

Fujita, T.
2353

Griffith, T. C.
1584

Grover, P. S.
1509

Grubich, A. O.
2325

Gupta, G. P.
1539

Heyland, G. R.
1604

Humberston, J. W.
1460

Jean, Y.-C.
1799

Jeslon, G.
90

Kauppila, W. E.
90

Kulhar, V. S.
460

Lines, K. S.
1584

Mathur, K. C.
1539

McNutt, J. D.
1769

Nishi, M.
2353

Nyan, N. D.
2325

Pol, V.
50

Reinhardt, W. P.
1732 1733

Roy, A. C.
1520

Schrader, D. M.
1515 1799

Sharma, S. C.
1769

Shastri, G. S.
460

Shizuma, K.
2353

Sil, N. C.
1520

Smart, J. H.
90

Stein, T. S.
90

Tomey, T. R.
1584

Wilson, W. G.
1583

Winick, J. R.
1732 1733

Yoshizawa, Y.
2353

E06

ELECTRON-PARTICLE INTERACTIONS

Recombination (electron-ion)

Acton, L. W.
840

Biondi, M. A.
47

Breton, C.
2155

Brooks, R. L.
2154

Brown, W. A.
840

Burdett, N. A.
109

Chandra, S.
366

Chibisov, M. I.
1374

Datta, R. U.
2154

Davis, J.
1722

de Michelis, C.
2155

DuBois, R. D.
73

Dunn, G. H.
73

Findenthal, M.
2155

Gau, J. N.
58

Gould, R. J.
819

Griem, H. R.
2154

Gronenschild, E. H. B. M.
649

Gupta, V.
366

Hahn, Y.
58

Hasted, J. B.
1594

Hayhurst, A. N.
109

Jacobs, V. L.
1722

Jain, N. K.
646

Jeffries, J. B.
73

Khan, S. U.
1594

Mathur, D.
1594

Matticli, M.
2155

McGowan, J. W.
848

Mewe, R.
631 632 649

Mikus, O.
573

Mitchell, J. B. A.
848

Narain, U.
366 646

Raymond, J. C.
631

Retter, J. A.
58

Schrijver, J.
631 632

Seaton, M. J.
2369

Shiu, Y.-J.
47

Smirnov, E. M.
2318

Trainor, D. W.
446

Zhdanov, V. P.
1374

E07

ELECTRON-PARTICLE INTERACTIONS

Collisional De-Excitation

Aleksandrov, N. L.
2498

Berrington, K. A.
622

Burke, P. G.
622

Drewno, J.
1473

Dufton, P. L.
622

Gronenschild, E. H. B. M.
649

Herrick, D. R.
168

Jensen, S. W.
2168

Jolly, J.
1691

Kingston, A. E.
622

Mewe, R.
631 632 649

Poe, F. T.
2168

Register, D. F.
2168

Schrijver, J.
631 632

Szymkowski, C.
1473

Trajmar, S.
2168

Zubek, M.
1473

E08

ELECTRON-PARTICLE INTERACTIONS

Collisional Line Broadening

Behringer, K.
1697

Chiang, W. T.
1638

Cooper, J.
836

Demkin, V. P.
1925

Freudenstein, S. A.
836

Gorchakov, L. V.
1525

Grier, H. R.
1638

Hey, J. D.
1689

Thoma, P.
1657

E09

ELECTRON-PARTICLE INTERACTIONS

Negative Ion Formation

Aleksandrov, N. L.
1550 2034

Allan, M.
2186

Azria, R.
1555

Bardsley, J. N.
2187

Belic, D. S.
1609

Birtwistle, D. T.
1534

Boness, M. J. W.
541

Brau, C. A.
662

Burke, P. G.
2196

Compton, R. N.
1983 1984

Desai, H. S.
2338

Doering, J. P.
1978

Drukarev, G. F.
2445

Edmonson, D. A.
1976

Fessenden, R. W.
1000 2088

Fletcher, J.
530

Foltyn, S. R.
530

Gould, R. K.
1344

Gresteau, F.
1554

Hall, R. I.
1554

Hall, R. J.
564

Huetz, A.
1554

Hunter, S. R.
530

Klots, C. E.
1983 1984

Kurepa, M. V.
1609

Lee, J. S.
1976

Lefevre, D.
681

Marmot, P.
681

Maru, M. P.
2338

Mazeau, J.
1554

McIver, R. T., Jr.
1021

Miller, W. J.
1344

Modinos, A.
1534

Moore, H. W.
1021

Nyggaard, K. J.
530

Pozdnev, S. A.
2445

Rains, L. J.
1021

Schneider, E. I.
662

Shimamori, K.
1000 2088

Simon, D.
1555

Tam, W.-C.
1102

Troiner, D. W.
541

Tronc, M.
1555

Wadehra, J. M.
2187

Wong, S. F.
1102 2186

E13

ELECTRON-PARTICLE INTERACTIONS

Electron Detachment from Negative Ions

Bell, K. L.
1508

Kingston, A. E.
1508

Madden, P. J.
1508

Solcu'ev, E. A.
2326

E15

ELECTRON-PARTICLE INTERACTIONS

Inner-Shell Interactions

Agren, H.
1112

Blondel, M.
2512

Bouchard, J.
2512

Brion, C. E.
701

Cederbaum, L. S.
1114

Domcke, W.
1114

Hitchcock, A. P.
701

Kowalczyk, S. P.
1352

LaVilla, R. E.
61

Legrand, J.
2512

Magnier, P.
2512

Maler, J. P.
1114

Martin, R. L.
1352

Nordgren, J.
1112

Nordling, C.
1112

Perolat, J. F.
2512

Schirmer, J.
1114

Selander, L.
1112

Shirley, D. A.
1352

Siegbahn, K.
1112

Thomas, D. J.
2557

Vatin, R.
2512

von Niessen, W.
1114

E16

ELECTRON-PARTICLE INTERACTIONS

Fluorescence and Luminescence

Bose, N.
209

Brochu, R.
517

Bychkov, Y. I.
1938

Diegelmann, M.
385

Eckstrom, D.
524

Fontaine, B.
540

Forestier, B.
540

Hays, A. K.
1084

Hill, R. M.
1067

Hoffman, J. M.
1084

Hohla, K.
385

Howton, C.
524

Huestis, D.
524

Huestis, D. L.
1067

Hunter, R. O., Jr.
524

Jacob, J. H.
517

Karlov, N. V.
1938

Lorents, D. C.
1067

Losev, V. F.
1938

Mangano, J. A.
517

McCusker, M.
524

McCusker, M. V.
1067

Mesyats, G. A.
1938

Nakano, H. E.
1067

Oldenettel, J.
524

Perry, B.
524

Prckhorov, A. M.
1938

Rokni, M.
517

Tang, K. Y.
524

Tarascenko, V. F.
1938

Tellinghuisen, J.
1084

Tellinghuisen, P. G.
1084

Tisone, G. C.
1084

Whitney, W. T.
526

Wrobel, W. G.
385

ELECTRON-PARTICLE INTERACTIONS

Angular Scattering (specified process)

Akkermann, A. F. 2489	Gianturco, F. A. 554	Rahman, N. K. 554
Barlas, A. D. 1574	Giardini Guidoni, A. 323	Register, D. 1494
Beaty, E. C. 89 485	Gien, T. T. 324 333	Rohr, K. 1458 1637
Berezhko, E. G. 1456	Goswami, K. K. 1784	Roy, A. C. 1520
Bhatia, A. K. 1792	Gupta, G. P. 1539 1575	Roy, D. 237
Bhattacharyya, P. K. 1784	Hashimoto, H. 2358	Rueckner, W. H. E. 1574
Bonham, R. A. 488	Hesselbacher, K. H. 89	Sandner, W. 1457
Bransden, B. H. 1549	Hickerson, D. L. 1495 1496	Schmitt, W. 1457
Buckman, S. J. 1492	Ho, W. 368	Schneider, B. I. 856
Camillioni, R. 323	Hong, S. P. 89 486	Schrieffer, J. R. 368
Carette, J.-D. 237	Hood, D. T. 2140	Shakehaft, R. 1801
Carignan, G. R. 489	Jensen, S. 1494	Sharp, W. E. 485
Cartwright, D. C. 480	Kabachnik, M. N. 1456	Shimizu, R. 2358
Cheeseborough, J. C., III 1471	Kennerly, R. E. 488	Shyn, T. W. 485
Chernov, G. Y. 2489	Kolke, F. 219	Siegel, J. 508
Chutjian, A. 2107	Kumar, S. 1546 1822	Sil, N. C. 1520
Collins, L. A. 1708	Kwong, W. K. 1496	Silver, A. 1792
Coulter, P. J. 1787	Lal, M. 1818	Singh, S. N. 1546 1822
Dahler, J. S. 1495 1496	Lamanna, U. T. 554	Sizov, V. V. 1456
Davenport, J. W. 368	Lehmann, H. 2285	Smith, J. J. 1549
Dehmer, J. L. 508	Leung, C. N. 1496	Srivastava, M. K. 1546 1818 1822
Delage, A. 237	Levin, D. A. 13	Srivastava, S. K. 1578 2107
Dill, D. 508	Ma, M. 13	Stefani, G. 323
Dixon, A. J. 2140	Mathur, K. C. 1539 1575	Sullivan, E. C. 1752
Filiflet, A. W. 13	McKoy, V. 13	Suzuki, H. 219
Gallitis, M. 260	Mordinow, L. 1495	Tanaka, H. 2107
Garrett, W. R. 1787	Moore, J. H. 89	Temkin, A. 1752
Ghosh, A. S. 1784	Noble, C. J. 1492	Teubner, P. J. U. 1452
	Norcross, D. W. 1708	Trajmar, S. 1471 1494 1578
	Onda, K. 1973	Tripathi, A. N. 1818
	Omoto, H. 219	Truhlar, D. G. 1573
	Pearl, J. C. 1766	Ueda, K. 2358

Wakiya, K.
219

Weigold, E.
2140

Weinreich, G.
1766

Wellenstein, H. F.
1574

Williams, J. F.
1469

Williams, W.
1471

Winters, K. H.
1549

Yagishita, A.
219

Zajonc, A. G.
1766

Zorn, J. C.
1766

E18

Vyatskin, A. Y.
2476

ELECTRON-PARTICLE INTERACTIONS

Attenuation (unspecified process)

Smirnov, B. N.
2476

**ION STRUCTURE - CTR PLASMAS (H₂, He, B,
Be, O, N, C, Si, W, Mo, Ti, Fe, Cr,
Nb, Au, Cu, Ni, H₃⁺, HeH⁺)**

**Transition Probabilities, Oscillator
Strengths, Energy Levels, Lifetimes**

Abbott, D. C. 1586	Bogdanovich, P. O. 1313	Curnutte, B. 1131
Abdallah, M. H. 1655	Boiko, V. A. 1256 1536 1652 2299 2370 2461	Curtis, L. J. 1551
Abouaf, R. 289	Borst, W. L. 497	Dagdigian, F. J. 699
Ahlenius, T. 1757	Breton, C. 1277	Dalby, F. W. 462
All, M. A. 1694	Brink, J. A. 2542	Danzmann, K. 627 630
Alton, G. D. 1315	Bromage, G. E. 1129 2364	Day, R. L. 2112
Anderson, R. J. 2112	Bromander, J. 1306	de Michelis, C. 1277
Anisimova, G. P. 1235	Browne, J. C. 300	Dietrich, D. D. 564
Armour, E. A. G. 1523	Brzezowska, J. 602	di Stefano, G. 762
Armstrong, L., Jr. 823	Burkhalter, P. G. 1724	Donahue, D. J. 1133
Aufmuth, P. 2526	Buttler, H. V. 1310	Donnelly, V. M. 1977
Bardsley, J. N. 1742	Callaway, J. 346 1272	Donnelly, K. E. 459 1134
Bar Shalom, A. 1277	Chaptal, M. S. Z. 1318	Doschek, G. A. 656
* Bashkin, S. 584	Chapelle, J. 1715	Dozier, C. M. 1724
Bauche, J. 1135 2526	Cheng, K.-T. 1132	Driker, M. N. 1247
Bauche-Arnoult, C. 1135	Cheung, L. M. 1557 1782	Dubke, M. 332
Baumann, M. 1273	Chien, C. W. T. 462	Duric, N. 1306
Baylis, W. E. 1535	Childs, W. J. 332	Edlen, B. 1314 1319
Beak, D. R. 338 1754	Chugunov, A. Y. 2370	Edwards, A. A. 1596
Bennett, W. R., Jr. 1834	Cleaves, H.-P. 2526	Eggarter, E. 1640 1602
Berry, H. G. 502	Cocke, C. L. 1131	Eggarter, T. P. 1540 1602
Bhalja, G. P. 356	Coetzer, F. J. 2542	Ekberg, J. G. 1319
Bhatia, A. K. 1833 2344 2368	Cohen, J. S. 1743	Ellis, D. G. 1551
Biemont, E. 648	Cohen, L. 638	Elston, S. B. 1315
Bishop, D. M. 1557 1782	Cohen, M. 1685	Erkcc, S. 1320
Blanchard, T. 835	Connooly, M. J. 1641	Ersan, P. 1306
Blinder, S. M. 748	Constantinides, E. R. 1488	Faencv, A. Y. 1536 1652 2299 2370 2461
* Basch, H. 1039	Conway, J. G. 564	Fairchild, C. E. 967
	Cosby, P. C. 289	Falcone, R. W. 1225
	Coulaud, G. 1715	Fawcett, E. C. 1125 2364
	Cowan, R. D. 1129 1724 2364	Faycnov, A. Y. 1256

Feldman, U. 656	Hinnov, E. 342	Kock, H. 627 630
Fielder, W., Jr. 823	Holin, I. V. 2370	Kolcs, W. 599
Finkenthal, M. 1277	Holweger, H. 630	Kononov, E. Y. 1307
Fischer, C. F. 501	Huang, C. L. 1698	Kramer, F. B. 565
Flaks, I. P. 1936	Huber, B. A. 289	Krivitskii, V. V. 2436 2437
Fleurier, C. 1715	Irvin, J. A. 2079	Kruse, I. H. 834
Flint, J. 1834	Irwin, D. J. G. 459	Kuhne, M. 627 630
Forester, J. P. 1315	Ishii, K. 2356	Kuriyan, M. 852
Fraenkel, B. S. 1277	Ivanov, L. N. 1234 1247	Lapides, J. 2344
Freund, R. S. 1117	Ivanova, E. P. 1234	Larson, E. G. 678
Fricke, B. 1278	Ivanova, T. G. 2370	Larsson, M. 1306
Fricke, J. 497	Jamar, C. 623	Larsson, S. 1757
Gallaup, G. A. 291	Jankowski, K. 598	Laughlin, C. 1485 1488
Gardner, R. K. 1131	Jitschin, W. 332	Lavrcv, E. P. 1245
Garstang, R. H. 827	Johansson, S. 1322	Lax, B. 1751
Gau, J. N. 1269	Johnson, B. M. 564 834 1315	Leavitt, J. A. 564
Gehlsen, M. 630	Jones, K. W. 834	Lenzi, M. 762
Glass, R. 1489 1500	Junker, B. R. 1698 1823	Lewis, M. L. 1730
Goddard, W. A., III 887	Kastner, S. U. 638 2344	Lie, S. G. 1727
Gould, H. 564	Kaufman, F. 1977	Liening, H. 1273
Green, T. A. 300	Kelsey, E. J. 568	Lin, D. L. 823
Griffin, P. M. 834 1315	Kendrick, J. 1579	Lindel, H. 1273
Gupta, A. 1356	Kernahan, J. A. 459 1134	Lipsky, L. 1641
Hafner, P. 1541	Khan, M. A. 1214	Liu, B. 88 304
Hahn, Y. 1269	Khatoon, S. 1318	Livingston, A. E. 502
Hannebauer, F. 1310	Khayrallah, G. A. 335 1713	Lugger, P. M. 835
Hansen, J. E. 501	Kir, Y.-K. 1133	Luken, W. L. 1755
Harris, S. E. 1229	Kim, Y. S. 563	Ma, k.-T. 852
Hartung, H. 1278	Kirby, K. 304	Macau-Hercot, D. 623
Heckmann, P. H. 1310	Klapisch, M. 1277	MacDonald, D. 564
Heilig, K. 2526	Klarsfeld, S. 1522	Malakhcv, Y. I. 1240
Hibbert, A. 1489 1500	Koccher, C. A. 967	Malinowski, P. 556
	Jafri, J. 1039	

Margani, A. 762	Oliver, J. H. I. 2542	Rountree, S. P. 827
Marrus, R. 564	Olson, R. E. 88	Roy, H. P. 1356
Mason, H. E. 638 2368	Oppen, G. V. 2531	Rudzikas, Z. B. 1313
Mattioli, M. 342 1277	Otorbaev, D. K. 1245	Rychlewski, J. 599
McEachran, R. P. 1685	Panock, R. 1751	Ryzhakova, E. I. 1235
McIntyre, L. C., Jr. 1133	Pasternack, L. 699	Sadzjuvience, S. D. 1313
McKellar, A. R. W. 566 679	Pavlov, A. N. 2436 2437	Saifcnova, A. S. 1256 1536
McMurray, W. R. 2542	Pegg, D. J. 564 834 1315	Safronova, U. I. 343 658 1234 1313 2299 2370 2462
Melsel, G. 332	Peregudov, G. V. 2473	Saugster, D. F. 2075
Mele, A. 762	Perschmann, W.-D. 2531	Saseki, F. 1781
Merhells, G. V. 1313	Picart, J. 1596	Sayler, T. K. 1131
Mermet, J. M. 1655	Pikus, S. A. 1250 1636 1662 2299 2370 2461	Schneider, R. 1724
Michels, H. H. 300	Pinnington, E. H. 459 1134	Schwarz, W. H. E. 1541
Migdalek, J. 1535 1675	Pipkin, F. M. 565	Schwab, J. L. 1277
Mikushkin, V. M. 1936	Polasik, M. 598	Semenov, R. I. 1235
Miller, T. A. 1117 1751	Poll, J. D. 1127	Senashenko, V. S. 343
Moltra, R. K. 1524	Praderie, F. 623	Sepp, W.-D. 1278
Molty, J. 629	Pratt, R. H. 363	Serafino, P. H. 1730
Morovic, T. 1278	Preston, M. A. 1727	Shakeshaft, H. 1659
Morton, D. C. 835	Pretorius, R. 2642	Sharpton, F. A. 2112
Moseley, J. T. 289	Pritchard, H. D. 852	Shavtvalishvili, I. A. 1234
Mukherjee, P. K. 1356 1524	Quickenden, T. I. 2079	Shorer, P. 1747
Murty, P. S. 135	Ragozin, E. N. 2473	Sinanoglu, O. 1755
Nguyen Xuan, C. 700	Rahimullah, K. 1318	Skobelev, I. Y. 2462 2472
Nicolalides, C. A. 338 1754	Rathmann, P. 1153	Smith, G. J. 1713
Nozami, Y. 1727	Reid, J. 566	Smith, W. H. 1312
Nowak, G. 497	Reuse, F. 858	Spruch, L. 1699
Nussbaumer, H. 628 643	Ridgeley, A. 1129	Stedel, A. 2526
Ugurtsov, G. N. 1936	Robb, W. D. 827	Stewart, A. L. 1510
Oh, S. D. 563	Rosen, A. 1278	Storey, P. J. 628 643
Oka, T. 679	Rosenbluh, M. 1751	Stwalley, W. C. 104 105
Oksuz, I. 1320		
Moskowitz, J. W. 1039		
Newton, M. D. 1039		

Sucher, J.
568

Suter, M.
1315

Swarty, M.
2344

Szostak, D.
2531

Tadjeddine, M.
289

Tatewaki, H.
1780 1781

TFR Group
2200

Thoe, R. S.
1315

Tomita, M.
2356

*
Tramer, A.
2199

Tran Minh, N.
1596

Tunnell, T. W.
356

Upton, T. H.
887

*
Topiol, S.
1039

Urnov, A. M.
2370

Vainshtein, L. A.
658 2370 2462

Vance, R. L.
291

van der Linde, J.
462

van der Westhuizen, P.
2542

Vane, C. R.
1315

Vedrinskii, R. B.
2437

Vedrishkii, R. V.
2436

Victor, G. A.
1488

Vinogradov, A. V.
2462 2473

Wadehra, J. M.
1699

Warner, J. W.
748

Way, K. R.
104

Wendlandt, D.
2526

Widing, K. G.
625

Willison, J. R.
1229

Winkler, P.
1645

Wolniewicz, L.
1127

Yaris, R.
1649

York, D. G.
635

Young, J. F.
1229

Yukov, E. A.
2473

Zegarski, B. R.
1117

Zeske, W. T.
104 105

F02

ION STRUCTURE - CTR PLASMAS (H₂, He, B, Be, O, N, C, Si, W, Mo, Ti, Fe, Cr, Nb, Au, Cu, Ni, H₃⁺, HeH⁺)

Shifts and Line Broadening by Fields

Azman, A. 1756
 Bach, T. 1669
 Baryshnikov, F. F. 2324
 Bashkin, S. 1910
 Blaha, M. 1693
 Brandl, H. S. 548
 Chiang, W. T. 1782
 Cullmann, E. 1679
 Das, T. K. 548
 de Melo, L. C. 548
 Denis, A. 334
 Desesquelles, J. 334
 Dexter, D. L. 1729
 Dimitrijevic, M. S. 1664
 Ferreira, R. C. 548
 Freund, R. G. 1117
 Griem, H. R. 1752
 Griffin, P. M. 1910

Grujic, P. 1664
 Grutzmacher, K. 1812
 Hey, J. D. 1693
 Jones, K. W. 1910
 Karp, A. H. 1688
 Klyuchnik, A. V. 347
 Kcnjevic, N. 1690
 Kruse, T. H. 1910
 Labuhn, F. 1679
 Lax, B. 1773
 Loavitt, J. A. 1910
 Lisitsa, V. G. 2324
 Lczovik, Y. E. 347
 Miller, T. A. 1117 1773
 Miranda, L. C. M. 548
 Murai, T. 2363
 Neumann, G. C. 1773
 O'Connell, R. F. 504
 Panock, R. 1773
 Papp, D. J. 1910
 Peregodov, G. V. 2473
 Pisano, D. J. 1910

Platisa, M. 1690
 Popovic, M. 1690
 Ragczin, E. N. 2473
 Rosenbluh, M. 1773
 Rozsnyai, B. F. 1671
 Sellin, I. A. 1910
 Shestakov, A. F. 1243
 Silverstone, H. J. 1783
 Simcia, J. 1568
 Simola, J. T. A. 352
 Skobelev, I. Y. 2473
 Sutton, K. 1686
 Takatsu, H. 2363
 Vinogradov, A. V. 2473
 Virtanc, J. 1568
 Virtamo, J. I. 352
 Wadehra, J. M. 842
 Wende, E. 1812
 Yukov, E. A. 2473
 Zaucer, M. 1756
 Zegaraski, B. R. 1117 1773

F03

ION STRUCTURE - CTR PLASMAS (H₂, He, B, Be, O, N, C, Si, W, Mo, Ti, Fe, Cr, Nb, Au, Cu, Ni, H₃⁺, HeH⁺)

Electron Affinity

Dewar, M. J. 3. 882

Gupta, A. 1356
 Mukherjee, P. K. 1356

Roy, H. P. 1356
 Rzepa, H. S. 882

F05

ION STRUCTURE - CTR PLASMAS (H₂, He, B, Be, O, N, C, Si, W, Mo, Ti, Fe, Cr, Nb, Au, Cu, Ni, H₃⁺, HeH⁺)

Nb, Au, Cu, Ni, H₃⁺, HeH⁺)

Brzozowski, J. 1311
 Erzan, P. 1311

Lyyra, M. 1311

602

TRANSPORT PHENOMENA AND AVERAGE PROPERTIES IN GASES

Diffusion of Neutrals

Arora, P. S.
417

Bjerre, A.
745

Brindle, R. C.
1054

Carson, P. J.
417

Chenevier, M.
2188

Codastefano, P.
315

Dahler, J. S.
911

Dunlop, P. J.
417

Judeikis, H. S.
1045

Kestin, J.
314

Khalifa, H. E.
314

Kolts, J. H.
1073

Lawton, S. A.
1958

Lies-Nielsen, I.
745

Martel, A.
845

Michaud, G.
845

Nyeland, C.
745

Oskam, H. J.
1054

Pack, R. T.
953

Parker, G. A.
953

Pebay-Peyroula, J. C.
2188

Phelps, A. V.
1958

Ratel, A.
845

Ricci, M. A.
315

Sadeghi, N.
2188

Setser, D. W.
1073

Tracy, C. J.
1054

Wakeham, W. A.
314

Wun, M.
1045

Xystris, N.
511

Zanza, V.
315

603

TRANSPORT PHENOMENA AND AVERAGE PROPERTIES IN GASES

Diffusion of Electrons

Baiocchi, A.
1173

Braglia, G. L.
1173

Davis, H. T.
1013

Kieban, P.
1013

604

TRANSPORT PHENOMENA AND AVERAGE PROPERTIES IN GASES

Diffusion of Ions

Albritton, D. L.
818

Alger, S. R.
1564

Dickinson, A. S.
1474

Eisele, F. L.
1037 1070 2062

Ellis, H. W.
818 1037 1070

Langley, R. A.
1070

Lee, M. S.
1474

Lin, S. L.
818

Mason, E. A.
155 818

McDaniel, E. W.
818 1037 1070

2062

Pope, W. M.
1037 1070 2062

Rees, J. A.
1564

Stefanssen, T.
1564

Thackston, M. G.
1037 1070 2062

Viehland, L. A.
818

155

G05

TRANSPORT PHENOMENA AND AVERAGE PROPERTIES IN GASES

Drift Velocity of Electrons

Braglia, G. L.
1723
Carter, J. G.
1547
Christophorou, L. G.
1547
Dallacasa, V.
1723
Davis, H. T.
1013

Fletcher, J.
543
Foltyn, S. R.
543
Fournier, G. R.
474
Freeman, G. R.
945
Gresser, J.
1905
Huang, S. S.-S.
945
Hunter, S. R.
543
Kleban, P.
1013
Land, J. E.
894

Lucas, J.
574 575
Maxey, D. V.
1547
McCorkle, D. L.
1547
McGeoch, M. W.
474
Nakamura, Y.
574 575
Nygaard, K. J.
543
Schultz, G.
1905
Schwarz, K. W.
2161

G06

TRANSPORT PHENOMENA AND AVERAGE PROPERTIES IN GASES

Drift Velocity of Ions

Albritton, D. L.
818 995
Armstrong, D. A.
853
Bardsley, J. N.
1743
Blondi, M. A.
1740
Cohen, J. S.
1743
Datan, T.
995
Eisele, F. L.
1002 1070 2087

2094
Elford, M. T.
1623
Ellis, H. W.
818 1002 1070
2087 2094
Fehsenfeld, F. C.
995
Gatland, I. R.
2094
Helm, H.
1623
Jchnsen, R.
1740
Lomm, D. R.
2094
Langley, R. A.
1070
Lin, S. L.
818

Lindinger, W.
995
Masco, E. A.
155 818
McDaniel, E. W.
818 1002 1070
2087 2094
Pope, W. M.
1002 1070 2094
Sennhauser, E. S.
853
Thackston, M. G.
1002 1070 2094
Viehland, L. A.
818
155
Wadhwa, J. M.
1743

G07

TRANSPORT PHENOMENA AND AVERAGE PROPERTIES IN GASES

Scattering and Energy Loss Parameters of Electrons, Neutrals and Ions in Gases

Belousova, I. M.
1263
Brechignac, P.
1207
Cvetanovic, R. J.
683
Demidov, V. I.
2494
Dymshits, Y. I.
1263
Flusber, A.
1203

Fournier, G. R.
474
Gianturco, F. A.
364
Hartmann, S. R.
1203
Kan, Y.-H.
316
Kero, A. M.
2058
KAVetskii, A. G.
1263
Kolcolov, N. B.
2494
Korobitsyn, V. A.
1263
Krejci, R.
2058
Lamanna, U. T.
364

Land, J. E.
894
McGeoch, M. W.
474
Michel, P.
1355
Mossberg, T.
1203
Neverov, V. G.
1263
Oka, K.
683
Peau, S.
1355
Wagner, A. F.
2058
Wahl, A. C.
2058
Winkler, R.
1355

G08

TRANSPORT PHENOMENA AND AVERAGE
PROPERTIES IN GASES

Energy Distribution (energy
distribution of ions and electrons
with applied electric and magnetic
fields)

Fournier, G. R.
474

Govinda Raju, G. R.
379

Gurumurthy, G. R.
379

Hested, J. B.
173

Land, J. E.
894

Makabe, T.
1610

Mathur, D.
173

McGeoch, M. W.
474

Mnatsakanyan, A. K.
2466

Mori, T.
1610

Naidis, G. V.
2466

Naveed-Ullah, K.
173

Shalkauskas, Y. S.
857

Shternov, N. P.
2466

G09

TRANSPORT PHENOMENA AND AVERAGE
PROPERTIES IN GASES

Momentum Transfer

Bardsley, J. N.
1743

Bhattacharyya, P. K.
1784

Braglia, G. L.
1723

Carignan, G. R.
489

Cartwright, D. C.
480

Chutjian, A.
2107

Cohen, J. S.
1743

Collins, L. A.
53 1708

Dahler, J. S.
911

Dallacasa, V.
1723

Filiflet, A. W.
13

Ghosh, A. S.
1784

Goswami, K. K.
1784

Hickman, A. P.
55

Itikawa, Y.
659

Judge, D. L.
839

Land, J. E.
894

Levin, D. A.
13

Liu, W.-K.
125

Lucas, J.
575

Ma, M.
13

McCourt, F. R.
125

McKoy, V.
13

Morrison M. A.
53

Nakagura, Y.
575

Norcross, D. W.
1708

Onda, K.
1573

Sharp, W. E.
485

Shyn, T. W.
489

Smith, F. T.
55

Srivastava, S. K.
2107

Tanaka, H.
2107

Truhlar, D. G.
1973

Wadehra, J. M.
1743

Wu, F.-M.
835

Xystris, N.
511

310

TRANSPORT PHENOMENA AND AVERAGE
PROPERTIES IN GASES

First and Second Townsend Coefficients

Davies, D. K.
469

Land, J. E.
894

Naidu, M. S.
860

Risbud, A. V.
860

G11

TRANSPORT PHENOMENA AND AVERAGE
PROPERTIES IN GASES

Electron Attachment Coefficients

Davies, D. K.
469

Grunberg, R.
1387

Naidu, M. S.
860

Risbud, A. V.
860

H01

PHOTON COLLISIONS WITH HEAVY PARTICLES,
ELECTRONS AND PHOTONS IN GASES ($h\nu <$
100 keV)

General

Anosov, M. D.
2435

Baklanov, E. V.
2458

Berman, P. R.
2

Burshtein, A. I.
2313

Doktorov, A. B.
2313

Dubetskii, B. Y.
2458

Kochanov, V. P.
2317

Lee, H. W.
1542

Le Gouet, J.-L.
3

Letokhov, V. S.
2315 2439

Minogin, V. G.
2315 2439

Pavlik, B. D.
2315

Pusep, A. Y.
2313

Rautian, S. G.
2317

Rosenberg, I.
1836

Shalaqin, A. M.
2317

Srivastava, R. P.
503

Stehle, F.
1542

PHOTON COLLISIONS WITH HEAVY PARTICLES.
ELECTRONS AND PHOTONS IN GASES ($h\nu < 100$ keV)

Total Absorption

Ackerhalt, J. R. 1225 1226	Combourieu, J. 757	Hollard, R. F. 615
Anderson, R. G. 513 1233	Comera, J. 604	Hosch, J. W. 620
Andraeev, S. I. 1238	Cooper, J. W. 1611	Imamura, M. 1065
Arai, S. 1065	Cosby, P. C. 505	Ishiguro, E. 1604
Averbukh, I. S. 2438	Crosswhite, H. 2173	Ito, K. 606
Bachrach, R. Z. 495 784	Crosswhite, H. M. 2173	Jacobb, J. H. 544
Behmenburg, W. 2283	Cukier, M. 2192	Jaegle, F. 2192
Behringer, K. 96	Dagg, I. R. 465 466 682	Jausseaud, C. 604
Berman, P. R. 91	Davis, L. C. 506	John, T. J. 2365
Bianconi, A. 495 784	Debarre, A. 1486	Jourdain, J. L. 757
Bien, F. 2017	Dexter, R. N. 241 1667	Kamp, L. W. 652
Birnbaum, G. 1653	Dhez, P. 2192	Karp, A. H. 1688
Bischel, W. K. 535	Drago, X. 1202	Kim, K. C. 619
Boscher, J. 609	Dressler, L. 2283	Kobe, D. H. 2126
Brechignac, C. 91	Ederer, D. L. 966 1611	Kogoma, M. 1065
Breton, J. 2120	Eggleston, J. 535	Koverskii, V. A. 2438
Brickmann, J. 159	Englisch, W. 609	Kung, R. T. V. 512
Brion, C. E. 134	Feldkamp, L. A. 506	Langer, S. H. 830
Brown, F. C. 495 784	Feldman, B. J. 1233	Larsen, L. E. 651
Bruce, C. W. 608	Filip, H. 619	le Bras, G. 757
Cahuzac, P. 1202	Fisher, R. A. 1233	Lee, L. C. 505
Camus, P. 1486	Gaisenk, V. A. 898	Leroy, B. 757
Charpentier, H. 604	Galbraith, M. W. 1225 1226	Lupesov, V. P. 2261
Clark, J. H. 513	Gardiner, W. C., Jr. 621 1678	Lu, K. T. 2173
Codling, K. 1449	Gauthe, B. 2192	Lyman, J. L. 1233
Cole, B. E. 241 1667	Giver, L. P. 1660	Mailard, W. G. 621 1678 2099
Combet Farnoux, F. 2192	Glass-Maujean, M. 2120	Manganc, J. A. 544
	Gupta, R. 926	Maeko, H. 1604
	Guyon, P. M. 2120	Mayer, A. 604
	Hamley, J. R. 1449	McCray, R. 820 830
	Happer, W. 926	Mehlmann, G. 1611
	Hofsaess, D. 1662	Mehlman, G. 566

Meier, D. 1661 1677	Reesor, G. E. 465 466 682	Tomkins, F. S. 2173
Meredith, R. E. 608	Rhodes, C. K. 535	Trauger, F. T. 651
Mickelson, M. E. 851	Rigaud, P. 757	Travis, J. C. 2099
Miller, T. M. 505	Rokni, M. 544	Truhlar, D. G. 275
Mizushima, M. 1654	Ross, R. R. 820 830	Uhlenbusch, J. 2283
Montgomery, G. P., Jr. 607	Saheki, T. 606	van der Leeuw, Ph. E. 134
Moos, H. W. 850	Saloman, E. B. 966 1611	van der Wiel, M. J. 134
Morillon, C. 1486	Sarzhnevskii, A. M. 898	Varlamov, Y. V. 1238
Morioka, Y. 1604	Sasanuma, M. 1604	Vetter, R. 51
Mount, G. H. 850	Schafer, G. 600	Vidal, C. R. 1878
Nakamura, M. 1604	Scheingraber, H. 1838	Wagner, J. 526
Numrich, R. W. 275	Schenck, P. K. 2099	Watkins, W. R. 608
Oka, T. 1965	Shardanand 1682	Weaver, R. 820
Olson, D. B. 621	Sirchis, M. 512	Wehenkel, C. L. 2192
Perelman, N. F. 2438	Smith, F. G. 608	Wennmyr, E. 526
Petersen, H. 495 784	Smith, G. P. 505	West, J. B. 1449
Piepmeyer, E. H. 620	Smyth, K. C. 2099	White, K. O. 60E
Ponomarev, Y. N. 2261	Szoke, A. 1215	Wiesemann, W. 605
Poulet, G. 757	Tajime, T. 606	Williams, R. J. 2365
Prasad, R. 1813	Tam, A. C. 2085	Wong, M. 465 466 682
Puell, H. 1838	Tan, K. H. 134	Zhelnerevich, I. I. 898
Pummer, H. 535	Thcma, P. 86	Zuev, V. E. 22E1
Quigley, G. P. 1224		

PHOTON COLLISIONS WITH HEAVY PARTICLES.
ELECTRONS AND PHOTONS IN GASES ($h\nu < 100$ keV)

Elastic Scattering

Acton, L. W.
841Alkemade, C. T. J.
1696Allawadhi, K. L.
63Chen, M. H.
37Courtens, E.
510Crasemann, B.
37Ghuman, B. S.
63Hollander, T.
1696Ice, G. E.
37Jongerius, M. J.
1696Kissel, L.
2124Kusa Raju, G.
2343Lakshminarayana, V.
1628 2343Lam, L.
1712McCray, R.
820Narasimha Murty, K.
2343Narasimha Murty, V. A.
1628 2343Navasimha Murty, K.
1628Prasad, M. S.
1628Pratt, R. H.
2124Raju, G. K.
1628Ross, R. R.
820Satyaendra Prasad, M.
2343Sood, B. S.
63Szoke, A.
510Tong, B. Y.
1712van der Bij, J. J.
1696Verma, S. L.
63Weaver, R.
820

PHOTON COLLISIONS WITH HEAVY PARTICLES.
ELECTRONS AND PHOTONS IN GASES ($h\nu < 100$ keV)

Excitation

Ackerhalt, J. R. 1225 1226 1964	Eccnomou, N. P. 1231	Luke, T. M. 1502
Akulin, V. M. 2312	Exton, R. J. 1681	Mahan, G. D. 550
Alimpiev, S. S. 2312	Falcone, R. W. 1220	Makarov, A. A. 2322
Alkemade, C. T. J. 1674	Fox, K. 1221	Martin, H. 1317
Allen, L. 1543	Freeman, R. R. 1231	Marx, B. R. 1543
Arkhipkin, V. G. 1942	Galbraith, H. W. 1225 1226 1964	Matveev, G. I. 1228
Asscher, M. 804	Gharbi, A. 102	McKcy, E. V. 532 2033
Baer, T. 1837	Green, W. R. 1220	Meier, T. 2510
Bar-Ziv, E. 738	Guyon, P. M. 2056	Mentell, J. E. 2056
Bekov, G. I. 1220	Haas, Y. 804	Mewe, R. 631
Bender, C. F. 932	Hillard, M. E. 1681	Mirza, M. Y. 1400
Berg, L.-E. 1317	Hofsaess, E. 1662	Mishin, V. I. 1228
Bernheim, R. A. 1971	Hohle, C. 2510	Mohlrann, G. R. 2056
Besedina, A. N. 1264	Huhnermann, H. 2510	Nayfeh, M. H. 2162
Bischel, W. K. 522	Hurst, G. S. 2162	Neveskii, A. E. 2442
Bjorklund, G. C. 1231	Jackson, W. M. 873	Nienhuis, G. 1674
Bruhn, R. 1276	Jacobs, R. R. 522	Graevskii, A. N. 2450
Bryant, G. W. 590	Johnson, P. M. 2077	Padiel, N. 2033
Burnham, R. 1232	Kafri, D. 738	Payne, M. G. 2162
Cantrell, C. D. 1221	Karlov, N. V. 2312	Percival, I. C. 2172
Chaika, M. P. 1264	Khodovoi, V. A. 1373	Pindzola, M. S. 62
Chigir, N. A. 1373	Khvostenko, G. I. 1264	Popov, A. K. 1542
Cremaschi, P. 2077	Kittrell, C. 1971	Prosnitz, D. 522
Csanak, G. 2033	Kligler, D. J. 2122	Rescigno, T. N. 532
Djav, N. 1232	Klynning, L. 1317	Rhodes, C. K. 522 2122
Duley, W. W. 1462	Kuz'min, M. V. 2470	Salzmen, W. R. 69
Eberly, J. H. 1580	Langhoff, P. W. 932 2033	Sartskov, E. G. 2312
	Le Duff, Y. 102	Schrijver, J. 631
	Leopold, J. G. 2172	Shalagin, A. M. 2323
	Letokhov, V. S. 1228	Shebeko, Y. N. 2450
	Lin, C. S. 873	Shull, J. M. 833
	Loskutov, V. F. 1950	Snow, L. L. 1681

Sonntag, B.
1276

Suchkov, A. F.
2450

Timofeev, V. P.
1942

Ulyakov, P. I.
1950

van Dijk, C. A.
1674

Veirs, D. K.
1971

Vikis, A. C.
287

Wagner, H.
2510

Whitten, J. L.
2077

Wolff, H. W.
1276

Young, J. P.
2162

Zeegers, P. J. I.
1674

PHOTON COLLISIONS WITH HEAVY PARTICLES,
ELECTRONS AND PHOTONS IN GASES ($h\nu < 100$ keV)

Dissociation

Abouaf, R. 289 984	Detta, K. K. 1571	Kulander, K. C. 130 2011
Ackerhalt, J. R. 20	Dehmer, J. L. 560	Kuz'min, M. V. 2264
Akamatsu, R. 2346	de Vries, A. E. 735	Kwei, G. H. 1048
Akulin, V. M. 1376 2312	de Vries, M. S. 735	Langhoff, S. R. 954
Albritton, D. L. 1122	Dill, D. 560	Lau, A. M. F. 561
Allmoev, S. S. 1376 2312	Durup, J. 1169	Lawrence, G. M. 2054
Anderson, R. G. 513	Erlanson, A. C. 779	Lee, L. C. 187 505 1351 2105
Ashfold, M. N. R. 436	Ershov, L. S. 2474	Lee, Y. T. 943 2117
Bado, P. 1047	Fairchild, C. E. 2054	Leone, S. R. 2060
Baer, T. 229	Ferreira, L. F. A. 229	Leonov, V. S. 2465
Band, Y. B. 996	Finkel'shteyn, V. Y. 2271	Levy, D. H. 2021
Baronavski, A. P. 141	Freed, K. F. 996	Ling, J. H. 2023
Barsuhn, J. 1003	Gedanken, A. 1009	Lyman, J. L. 1563
Barua, A. K. 1571	George, T. F. 1017	Macpherson, M. T. 436
Bar-Ziv, E. 738	Govers, T. R. 229	Maya, J. 537
Basov, N. G. 2469	Grant, E. R. 943 2117	McDonald, J. R. 141
Bazhulin, S. P. 2469	Grushevskii, V. B. 1253	McGarvey, J. A., Jr. 775
Berry, M. J. 750	Guyon, P. M. 229 2056	McGilvery, D. C. 1036 1065
Bischel, W. K. 3085	Hem, D. O. 1206	McLaughlin, R. W. 1366
Black, J. H. 826	Heiler, E. J. 977 1032 2011	Mentall, J. E. 2056
Bottcher, C. 130	Hofmann, H. 2060	Miller, F. G. 141
Botter, R. 229	Huter, B. A. 289 984	Miller, T. P. 505
Brion, C. E. 134	Jaffe, R. L. 954	Mohlmann, G. R. 2056
Clark, J. H. 513	Johnson, K. E. 2021	Morrison, J. D. 1036 1065
Cool, T. A. 779	Jones, G. G. 960	Morse, M. D. 556
Costy, P. C. 289 505 984 1122 1351 2023 2024	Judge, D. I. 187	Moseley, J. T. 285 584 1122 1351 2023 2024
Dalgarno, A. 695	Kafri, O. 738	Nenner, I. 225
	Karl, R. R., Jr. 1963	Nesbet, R. K. 1003
	Karlov, N. V. 1376 2312	O-hata, K. 2346
	Kliqer, D. J. 2085	Oren, I. 187
	Kolomiiskii, Y. R. 2468	Papernov, S. M. 1253 2260
	Kroger, P. M. 1048	

Petersen, A. B.
153
Peterson, J. R.
1351 2023
Phillips, E.
187
Pummer, H.
2085
Rhodes, C. K.
2085
Riley, S. J.
1048
Rothschild, M.
1206
Ryabov, E. A.
2468
Saha, S.
1571
Sandell, G.
641
Sartakov, B. G.
2312
Saxon, R. P.
984
Sazonov, V. N.
2264 2271 2465
Schulz, P. A.
943 2117
Shen, Y. R.
943 2117
Shlyapnikov, G. V.
2260
Shultz, M. J.
1014
Simons, J. P.
436

Smith, D. L.
1036 1069
Smith, G. P.
505 1351 2024
2109
Smith, I. W. M.
153
Stein, I.
1009
Stcilov, Y. Y.
2469
Stone, E. J.
2054
Sucbo, A. S.
943 2117
Tabche-Fouhaile, A.
229
Tadjeddine, M.
289 1122
Tan, K. H.
134
Taylor, J. W.
560
Tlee, J. J.
525
Tsay, W.-S.
1206
Uzer, T.
695
van den Bergh, H.
1047
Vanderhoff, J. A.
1022

van der Leeuw, Ph. E.
134
van der Wiel, M. J.
134
van Veen, N. J. A.
735
Vikis, A. C.
2076
West, G. A.
750
Wharton, L.
2021
White, J. C.
2003
Wittig, C.
525
Yablonovitch, E.
1014
Yanson, M. I.
1253 2260
Yuan, J.-M.
1017
Zaleskii, V. Y.
2474
Zdasiuk, G. A.
2003
Zipf, E. C.
1365
Zuev, V. S.
2469

PHOTON COLLISIONS WITH HEAVY PARTICLES.
ELECTRONS AND PHOTONS IN GASES ($h\nu < 100$ keV)

Ionization

Achiba, Y. 778	Botashev, S. V. 1947	Crasemann, B. 80
Adam, M. Y. 1161 1497	Botter, R. 229	Creaschi, F. 2077
Adler, I. 80	Betto, D. J. 1716	Csanak, G. 2033
Agostini, P. 1321 1450	Brillson, L. J. 2202	Dalgarno, A. 458 832
Allison, D. A. 917	Brion, C. E. 134 719 1109	Davenport, J. W. 1175
Amusia, M. Y. 336	Brown, E. R. 349	Davidson, E. R. 1075
Andryushin, A. I. 2430	Brown, F. C. 495	Dehmer, J. L. 301 560 592 1031 2177 2198
Antonov, V. S. 1223 2273	Bryant, G. W. 590	Dehaer, P. M. 301 1031
Argo, M. F. 1656	Durke, P. G. 2196	de Lange, C. A. 415 721
Avilova, I. V. 1260	Carter, S. L. 349 1503	de la Reza, R. 837
Aymar, M. 263	Cavell, R. G. 917	de Leeuw, D. M. 415 721
Bachrach, R. Z. 495	Ceasar, G. P. 2202	Delone, M. E. 1944 2447
Baer, T. 229	Cederbaum, L. S. 1114	de Meijere, J. L. F. 87
Dancoft, G. M. 373	Chang, C.-N. 1844	Dexter, R. N. 241
Banna, M. S. 921 1079 1097	Chang, E. S. 207 1537	Dill, D. 560 592 2177
Barsuhn, J. 1093	Chang, T. N. 227 1771	Dixit, S. N. 1321 2116
Bar-Ziv, E. 738	Chattarji, D. 1110	Domcke, W. 1114
Datton, G. F. 2014	Chen, M. H. 80	Duong, H. T. 232
Bearman, G. H. 2176	Cheng, K. T. 2136	Dyke, J. M. 165
Relik, V. P. 1947	Cherepkov, N. A. 1511	Eastman, D. E. 15 373
Ben-Aryeh, Y. 1222	Chien, R.-L. 802	Eberhardt, W. 2156
Bender, C. F. 932	Chin, S. I. 527	Eberly, J. E. 87
Berezhko, E. G. 1451	Chu, C. I. 425	Eccrocco, N. P. 2180
Bernstein, R. B. 2045	Colbourn, E. A. 165	Elvutin, P. V. 1261
Berry, R. S. 802	Cole, B. E. 241	Evans, S. 1116
Bianconi, A. 495	Colson, S. D. 1104	Falcone, R. W. 1220
Bjorklund, G. C. 2180	Cocbet Farnoux, F. 1526	Faubert, D. 527
	Comer, J. 1607	Federcov, M. V. 1944 2430 2440
	Conway, J. G. 1130	Ferreira, L. F. A. 225
	Cooke, W. E. 2182	Fonck, R. J. 2144
	Corbin, R. J. 76	Freeman, R. F. 2180
	Crance, M. 1463	

Meisels, G. G. 2014	Peatman, W. B. 175 1998	Schlag, E. W. 175
Miescher, E. 999	Percival, I. C. 2172	Schmidt, V. 1110 1161 1497
Miller, J. S. 1299	Perera, J. S. H. Q. 1097	Sell, J. A. 710
Mintz, D. M. 2066	Petersen, H. 495	Shirley, D. A. 2197
Mishin, V. A. 2471	Pinard, J. 232	Shmaenok, L. A. 1947
Miyazaki, K. 1720	Plummer, E. W. 15 1299	Shore, B. W. 1570
Mochizuki, T. 521	Podlubnyi, L. I. 1260	Siegel, J. 2177
Mooyman, R. 419 721	Pollak, H. 175	Smirnov, Y. F. 1592
Morikawa, M. 521	Poppe, R. 1567	Smith, P. L. 1810
Murrls, A. 165	Popanov, V. K. 1223	Smith, S. J. 2159
Morton, J. M. 15E2	Pradhan, A. K. 1624	Smith, V. H., Jr. 158
Movshev, V. G. 1223 2273	Pratt, R. H. 64 1716	Smolarek, J. 1975
Nayfeh, M. H. 100 2162	Pritchard, R. G. 1116	Solarz, R. W. 1130
Nenner, I. 229	Querci, F. 637	Stasinska, G. 650
Nesbet, R. K. 1003	Rachman, A. 1274	Stewart, A. L. 1501 1510
Neudatchin, V. G. 1592	Radojevic, V. 1639	Stewart, R. F. 452
Nielhuis, G. 254	Peck, G. P. 990	Strand, M. F. 802
Nieman, G. C. 1104	Reilman, R. F. 1809	Su, W.-H. 1844
Nygaard, K. J. 76	Reinhardt, W. P. 1999	Sukumar, C. V. 1642
Ohlsen, L. D. 1656	Rescigno, T. N. 932 1087	Swain, S. 1538
Ohno, K. 1200	Ringers, D. A. 80	Tabche-Fouhaile, A. 229
Ohno, T. 2387	Ritchie, B. 38 223	Taketa, H. 1200
Okuda, T. 2337	Rcn, A. 61	Tambe, E. R. 523
Olsen, T. 1643	Rostovsky, V. S. 1451	Tan, K. H. 134 719 1109
O'Neill, S. V. 1999	Rothe, E. W. 990	Tanaka, K. 1200
Orel, A. E. 1087	Rountree, S. P. 1643	Taylor, J. A. 2014
Padial, N. 2033	Saile, V. 1998	Taylor, J. W. 560
Paizer, J. A. 1130	Sekibullin, N. 647	Taylor, K. T. 1526 1537
Palenius, H. P. 1714	Salaneck, W. R. 1299	Thetault, J. 1166
Parkinson, W. H. 1714 1810	Samson, J. A. R. 1108	Thomas, J. M. 1116
Pavlitchenkov, A. V. 1582	Sandner, N. 1161	Tonkins, F. S. 2144
Payne, M. G. 100 2162	Schirmer, J. 1114	Tracy, D. H. 2144

Trahin, M.
228 1512

Trickle, I. R.
165

Tsal, B. P.
2014

Tsang, T.
80

Tseng, H. K.
64

Uylings, P.
1567

van der Leeuw, Ph. E.
134

van der Wiel, M. J.
134 227 254

Vialle, J.-L.
232

von Niessen, W.
1114

Wallace, S.
592 2177

Wallbank, B.
921 1079 1097

Watson, D. K.
498

Weingartshofer, A.
1607

Wendin, G.
1161

Wheatley, S. E.
1321 1450 1643

Whitten, J. L.
2077

Wilden, D. G.
1607

Willis, A. J.
647

Worden, E. F.
1130

Wright, D. C.
2144

Wuilleumier, F.
1161 1497

Yamada, J.
2357

Yasenska, C.
521

Yamazeki, T.
778

Yin, L. I.
80

Young, J. P.
2162

Yu, S.
64

Zakheim, D.
1349

Zandee, L.
2045

Zon, B. A.
1944 2447

H07

**PHOTON COLLISIONS WITH HEAVY PARTICLES,
ELECTRONS AND PHOTONS IN GASES ($h\nu < 100$ keV)**

Photodetachment

Adelman, S. A.
18

Behringer, K.
86

Bender, C. F.
36

Blumberg, W. A. M.
2141

Breyer, F.
1565 2527

Bryant, H. C.
2115

Cosby, P. C.
1351 2024

Donahue, J.
2115

Ellison, G. B.
1992

Engelking, P. C.
1992

Frey, P.
1565 2527

Gram, P. A. M.
2115

Hctop, H.
1565 2527

John, T. J.
2365

Jopson, R. M.
2141

Lamm, G.
18

Larson, D. J.
2141

Lee, L. C.
1351

Lineberger, W. C.
17 1992

McKoy, R. V.
36

Moseley, J. T.
1351 2024

Novick, S. E.
17

Peterson, J. R.
1351

Prett, J. C.
2115

Reed, F. H.
17

Reinhardt, W. P.
16

Rescigno, T. N.
36

Rudkjobing, M.
624

Sharifian, H.
2115

Slater, J.
17

Smith, G. P.
1351 2024

Stewart, A. L.
1617

Szabo, A.
18

Thoms, P.
88

Tootoonchi, H.
2115

Wendcicki, J. J.
16

Williams, R. J.
2365

Yates-Williams, M. A.
2115

PHOTON COLLISIONS WITH HEAVY PARTICLES,
ELECTRONS AND PHOTONS IN GASES ($h\nu < 100$ keV)

Fluorescence and Luminescence Yields

Ackerhalt, J. R. 22	Gallagher, A. 75	Maya, J. 537
Alhara, M. 1719	Giacobino, E. 2189	McCaffery, A. J. 163
Anderson, R. A. 1019	Grynberg, G. 2189	McDonald, J. R. 142
Arkhipkin, V. G. 1942	Gutcheck, R. A. 776	Meier, T. 2510
Barnes, R. H. 605	Hanko, L. 1019	Miller, F. G. 142
Baronavski, A. P. 142	Happer, W. 490	Molander, W. A. 78
Beroff, K. 2189	Heithmar, E. M. 618	Neumann, R. 2540
Diraben, F. 2189	Hessel, M. M. 962 994	Oldenborg, R. C. 2001
Bottenheim, J. W. 866	Hohle, C. 2510	Oren, L. 187
Broida, H. P. 2006	Hosch, J. W. 620	Parks, J. H. 384
Calvert, J. G. 866	Hou, M. 490	Phillips, E. 187
Chen, K. 803	Huhnemann, H. 2510	Phillips, M. M. 843
Clark, R. 163	Judge, D. L. 187	Piepmeyer, E. H. 620
Courtens, E. 510	Kaiser, D. 2518	Plankey, F. W. 618
Curry, S. M. 490	Kircher, J. F. 605	Poliakoff, E. D. 412
Damon, E. K. 866	Knight, P. L. 78	Popov, A. K. 1942
Danon, J. 780	Kowalski, J. 2540	Pourcin, J. 562
Davis, S. J. 547 1010	Kutiak, G. 1063	Preston, A. 1121
Devoret, M. 704	Kulina, P. 2518	Puell, H. 1838
Drullinger, R. E. 962 1091	Kusch, P. 994	Radio, H.-H. 2518
Dutuit, D. 776	Leach, S. 704	Rice, W. W. 2001
Eland, J. H. D. 704	de Calva, J. 776	Rosenberu, R. A. 412
Ershov, L. S. 2474	Lee, L. G. 187	Rosales, P. 794
Fliseth, S. V. 780	Lee, S.-T. 412	Scheineraber, H. 1838
Fitch, P. S. H. 1063	Levy, D. H. 1063	Schnürzner, H. 1774
Frankel, D. S., Jr. 427	Linton, C. 1120	Shirley, D. A. 412
Fredriksson, K. 2513	Livingston, A. E. 2518	Sidebottom, H. W. 866
	Lochet, J. 1625	Smith, E. W. 562
	Lundberg, H. 2513	Steele, F. E. 2006
	Mandl, A. 384	Steenhoek, L. E. 803
	Manuccia, T. J. 427	Stock, M. 562 1091
	Matthias, E. 412	Strud, C. F., Jr. 78

Su, F.
866

Suhr, H.
2540

Svanberg, S.
2513

Szoke, A.
510

Tam, A. C.
490

Timofeev, V. P.
1942

Tudorache, S.
2518

Vidal, C. R.
1838

Wagner, H.
2510

Wallenstein, R.
780

Wampler, F. B.
2001

Webster, C. R.
794

Weinstock, E. M.
1121

Welge, K. H.
780

West, W. P.
75

Wharton, L.
1063

White, M. G.
412

Winkler, K.
2540

Yabuzaki, T.
450

Yeung, E. S.
803

Zacharias, H.
780

Zaleskii, V. Y.
2474

Zietz, R.
1774

zu Putlitz, G.
2540

H10

PHOTON COLLISIONS WITH HEAVY PARTICLES, ELECTRONS AND PHOTONS IN GASES ($h\nu < 100$ keV)

Photochemistry

Amimoto, S. T.
813

Anderson, R. G.
513

Antipenko, B. M.
1941

Ashford, R. D.
875

Baronavski, A. P.
141 142

Basco, N.
875

Bertran, C. A.
1143

Bischel, W. K.
535

Black, G.
965

Clark, J. H.
513

Clark, R.
164

Curry, S. M.
2166

Degani, J.
1041

Deatvarev, Y. L.
1941

Eggleston, J.
535

Fairchild, P. W.
812

Force, A. P.
813

Happer, W.
2166

Hunt, J. E.
875

Lam, L. K.
816

Lee, E. K. C.
812

Lin, C. T.
1143

Marvin, D. G.
1993

McCaffery, A. J.
164

McDonald, J. R.
141 142

Miller, R. G.
141 142

Nikolaev, V. D.
1941

Oldenborg, R. C.
2001

Pumser, F.
535

Quack, M.
1970

Reiss, H.
1993

Rhodes, C. K.
535

Rice, W. W.
2001

Rosenfeld, E.
1041

Scheerer, L. D.
816

Slangner, T. G.
565

Tam, A. C.
2166

Tarasenko, V. V.
1541

Wampler, F. B.
2001

Wiesenfeld, J. R.
813

Yabuzaki, T.
2166

Yatsiv, S.
1041

H11

PHOTON COLLISIONS WITH HEAVY PARTICLES,
ELECTRONS AND PHOTONS IN GASES ($h\nu < 100$ keV)

Free-Free Absorption or Inverse
Bremsstrahlung

Alroy, S.
542

Blanc, A.
1163

Christiansen, W. H.
542

Decoster, A.
1163

John, T. J.
2365

John, T. L.
639

Jung, C.
101

Kruger, H.
101

Langendam, P. J. K.
1593

Louis-Jacquet, M.
1163

Miyamoto, S.
625

Pert, G. J.
246

van der Biel, M. J.
1593

Williams, R. J.
2365

H12

PHOTON COLLISIONS WITH HEAVY PARTICLES,
ELECTRONS AND PHOTONS IN GASES ($h\nu < 100$ keV)

Photon-Electron Scattering

Barwick, J.
496

Krelli, N. M.
21

McHullin, W. A.
21

Miyamoto, S.
625

Swamy, S. T. P. V. J.
2342

H13

PHOTON COLLISIONS WITH HEAVY PARTICLES,
ELECTRONS AND PHOTONS IN GASES ($h\nu < 100$ keV)

photon-Photon Collisions

Anikin, V. I.
2320

Drebovich, K. N.
2320

Dubovik, A. N.
2320

Eiserl, D.
1668

H14

**PHOTON COLLISIONS WITH HEAVY PARTICLES,
ELECTRONS AND PHOTONS IN GASES ($h\nu < 100$ keV)**

**Photo-De-Excitation, Quenching, and
Stimulated Emission (cross sections)**

Abella, I. D.
1230

Babkin, V. I.
2464

Baer, T.
1230

Bethune, D. S.
1997

Krcil, N. M.
21

Kuznetsova, S. V.
2464

Lankard, J. R.
1997

Maslov, A. I.
2464

McMullin, W. A.
21

Sorokin, P. P.
1997

J01

DATA COMPILATION

Heavy Particle

Albritton, D. L.
661

Gardner, R. K.
660

Gray, T. J.
660

Johnston, H. S.
2258

Podciske, J.
2258

K01

REVIEWS AND BOOKS

Heavy Particle

Alfassi, Z. B.
686

Gilbody, H. B.
451

Giniger, R.
686

Huler, E.
686

Jortner, J., Ed.
889

Levine, R. D.
889

Moruzzi, J. L.
450

Nikitin, E. E.
1386

Reisler, H.
686

Sellin, I. A., Ed.
888

Smirnov, B. M.
1386

Stephens, K. G.
450

Wilson, I. H.
450

K04

REVIEWS AND BOOKS

Particles on Surfaces and Solids

Bauer, W.
1389

Ginot, P.
1390

Moruzzi, J. L.
450

Staub, P.
1391

Staudenmaier, G.
1391

Stephens, K. G.
450

Wilson, I. H.
450