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MARTIN MARIETTA

**1983 Bibliography of Atomic and
Molecular Processes**

C. F. Barnett	R. H. McKnight
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H. B. Gilbody	T. J. Morgan
D. C. Gregory	R. A. Phaneuf
M. I. Kirkpatrick	M. S. Pindzola
E. W. McDaniel	E. W. Thomas

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DEPARTMENT OF ENERGY

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1983
BIBLIOGRAPHY OF ATOMIC AND MOLECULAR PROCESSES

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As a part of the work of:
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of the U.S. Department of Energy

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DISCLAIMER

INTRODUCTION

This annotated bibliography on atomic and molecular processes reported in publications during 1983 has been compiled as a part of the activities of the Controlled Fusion Atomic Data Center. Each entry is labeled by one or more of the 10 major categories and 114 subcategories of atomic and molecular processes given on page 2. Grouping according to specific categories is found in the reactants index. Each entry indicates whether the work was experimental (E) or theoretical (T), what energy range was covered, and what reactants were investigated. The classification scheme relates principally to atomic collisions and in particular does not specifically contain atomic structure information (energy levels or wavelength). Structure data are compiled by the National Bureau of Standards and information on atomic structure may be solicited from W. L. Wiese, NBS, Rm. A267, Bldg. 221, Washington, DC 20234.

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

1. Sequencing of reactants in the index follows the order N, N^{*} (excited state), N⁺, N₂, N⁻, NO, Na, Ne, etc.
2. Many papers do not refer to a particular collision system. Reactants in these cases are listed as undefined, denoted as Undef. Review papers are labeled Review rather than listing 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 general sense to avoid handling thousands of additional reactants at every stage in the production of these bibliographies.
3. The country listed at the end of each bibliographic entry is derived from the address of the first author given in the original publication.

Beginning in 1982 the Data Center adopted a revised categorization scheme in which some categories have been dropped and molecular reactants have been severely limited. This reduced categorization scheme reflects more precisely magnetic fusion interests but is still quite broad. Molecular species covered include H₂, H₃, HeH, N₂, O₂, CO, CO₂, OH, H₂C, CH₂, CH₃, CH₄, their ions and dissociated fragments.

ATOMIC COLLISIONS REFERENCE CATEGORIES LIST

Controlled Fusion Atomic Data Center, JPL

A. HEAVY PARTICLE-HEAVY PARTICLE INTERACTIONS

1. General
2. Elastic Scattering Collisions
3. Excitation
4. Dissociation
5. Fluorescence
6. Electron Capture
7. Ionization
8. Stripping
9. Recombination or Mutual Neutralization Leading to Neutral Products (ion-ion)
11. Collisional De-Excitation
12. Collisional Line Broadening
14. Heavy Particle Interchange (must involve some form of hydrogen or helium)
16. Electron Detachment from Negative Ions into Continuum
17. Interaction Potentials
18. Angular Scattering
20. Attenuation (unspecified process)

B. INTERACTIONS OF ATOMIC PARTICLES WITH FIELDS

1. Interaction of Individual Atoms or Molecules with External Fields
7. Collisions in Presence of Static or Time Varying Fields

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

1. General
2. Energy Loss and Stopping Power
4. Particle Range
5. Multiple Scattering
6. Charge State Population
7. Excited State Population

D. PARTICLE INTERACTIONS WITH SOLID SURFACES

1. General
2. Sputtering by Electrons, Neutrons, and Heavy Particles (only 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 only)
6. Reflection of Electrons from Surfaces (coefficients only)
7. Reflection of Heavy Particles from Surfaces (total reflection coefficients only)
8. Charge and Quantum State Distributions of Reflected Heavy Particles
9. De-Excitation, Neutralization, Ionization, or Dissociation of Particles Interacting with Surfaces

11. Sticking Coefficients, Thermal Energies and Adsorption
12. Electromagnetic Radiation Induced by Electron or Heavy Particle Impact on Surfaces
13. Desorption of Gases from Surfaces
17. Electron-, Ion-, and Photon-Induced Chemical Changes to Surfaces
18. Trapping and Reemission of Hydrogen (all forms) and Helium

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
11. Free-Free Transitions (Bremsstrahlung)
13. Electron Detachment from Negative Ions
16. Fluorescence
17. Angular Scattering
19. Momentum Transfer

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

1. General
2. Total Absorption
3. Elastic Scattering
4. Excitation
5. Dissociation
6. Ionization
7. Photodetachment
8. Fluorescence
11. Free-Free Absorption or Inverse Bremsstrahlung

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
8. Use of Atomic Data for Plasma Studies

L. SIMILARITIES

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

No molecules except H₂, H₃, HeH, H₂, O₂, CO, CO₂, OH, H₂O, CH₂, CH₃, CH₄, and their ions

H or "hydrogen" also includes D and T

COUNTRY CODE:

1. United States	25. Brazil
2. United Kingdom	26. Australia
3. Soviet Union	27. East Germany
4. Japan	28. Sweden
5. West Germany	29. Greece
6. France	30. South Africa
7. Canada	31. Taiwan
8. Mexico	32. Argentina
9. The Netherlands	33. People's Republic of China
10. Denmark	34. Saudi Arabia
11. Finland	35. Algeria
12. Norway	36. People's Republic of Singapore
13. Switzerland	37. Malaysia
14. India	38. Nigeria
15. Israel	39. Egypt
16. Italy	40. Jordan
17. Czechoslovakia	41. New Zealand
18. Yugoslavia	42. Chile
19. Romania	43. Turkey
20. Poland	44. Bulgaria
21. Austria	45. Pakistan
22. Hungary	46. Portugal
23. Belgium	
24. Spain	

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ABSTRACT

This annotated bibliography includes papers on atomic and molecular processes published during 1983. 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, Oak Ridge National Laboratory 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, the entries are indexed according to the categories and according to reactants within each subcategory.

BIBLIOGRAPHY

Controlled Fusion Atomic Data Center

Ref. No.	Reactants	Energy Range	Reference
00001 E	J03: C: Seq; Zn Seq	UnDef	Victor, G. A.; Taylor, W. B. Oscillator strengths and wavelengths for the copper and zinc isoelectronic sequences; $1 = 2^1$ to 42. At. Data Nucl. Data Tables 28, 107 (1983) United States
00002 E-T	A11: $\text{CO}_2^+ + \text{NO}; \text{H}_2\text{O}^+ + \text{NO}$	300-900 K	Al Adel, F.; Boyennette, L.; Margottin-MacLus, E.; Neary, - Vibrational relaxation of $\text{CO}_2(00^01)$ and $\text{H}_2\text{O}(00^01)$ by NO. Chem. Phys. 74, 413 (1983) France
00003 T	A14: $\text{H} + \text{H}_2$	0.9-1.0 eV	Schets, G. C. The quantum dynamics of $\text{H} + \text{H}_2(v=1)$: a coupled states study of cross sections and rate constants. Chem. Phys. Lett. 94, 183 (1983) United States
00004 T	A14: $\text{F} + \text{D}_2$ A18: $\text{F} + \text{D}_2$	0.3-0.4 eV	Shoemaker, C. L.; Kouri, D. J.; Jellinek, J.; Baer, R. Preliminary results of SIOS study of state-resolved angular distributions for $\text{F} + \text{D}_2 \rightarrow \text{D} + \text{DF}$. Chem. Phys. Lett. 94, 359 (1983) United States
00005 T	A14: $\text{H} + \text{H}_2$	190-230 kCal/mol	Bowman, J. R.; Lee, E. Y. Reduced dimensionality quantum calculations of integral cross sections for $\text{H} + \text{H}_2(v=1) \rightarrow \text{H}_2(v'=0)$, $\text{H}_2(v'=1) \rightarrow \text{H}$. Chem. Phys. Lett. 94, 363 (1983) United States
00006 E	A05: $\text{H}^+ + \text{O}_2$	300 K	Smith, H. A.; Bierbaum, V. M.; Leone, S. R. Infrared chemiluminescence from vibrationally excited SO^+ : product branching in the $\text{H}^+ + \text{O}_2$ ion-molecule reaction. Chem. Phys. Lett. 94, 398 (1983) United States
00007 T	A09: $\text{I}^- + \text{Li}^+; \text{I}^- + \text{Na}^+; \text{I}^- + \text{K}^+;$ $\text{I}^- + \text{Pb}^+; \text{I}^- + \text{Cs}^+; \text{Br}^- + \text{Li}^+;$ $\text{Br}^- + \text{Na}^+; \text{Br}^- + \text{K}^+; \text{Br}^- + \text{Rb}^+;$ $\text{Cl}^- + \text{Li}^+; \text{Cl}^- + \text{Na}^+$	2000 K	Bates, D. W. Mutual neutralization and ter-molecular recombination between alkali metal and halogen ions in burnt flame gas. Chem. Phys. Lett. 95, 1 (1983) United States
00008 E	A05: $\text{O} + \text{H}_2$	300 K	Bettler, J. E.; MacDonald, H. G.; Donaldson, D. J.; Sloan, J. J. Vibrational excitation of OH(X^2) produced in the reaction of O(^1D) with H_2 . Chem. Phys. Lett. 95, 183 (1983) United States
00009 E	A04: $\text{H}_2^+ + \text{H}_2$ A06: $\text{H}_2^+ + \text{H}_2$	10-100 keV	W. L. A.; Sarret, M.; Fere, P. Study of dissociation and neutralization of the H_2^+ ion passing through a molecular hydrogen target in the energy range 10-100 keV. Compt. Rend. 296, 1217 (1971) France
00010 E-T	A02: Review	UnDef	McCarthy, J. E.; Ungold, E. Observing the motion of electrons in atoms and molecules. Contemp. Phys. 24, 163 (1983) Australia
00011 E	K04: Review	UnDef	Barnesford, P. Spectroscopy with sputtered atoms. Contemp. Phys. 24, 251 (1983) Australia
00012 T	B07: $\text{hv} + \text{CO}; \text{hv} + \text{O}_2$ H06: $\text{hv} + \text{CO}; \text{hv} + \text{O}_2$	UnDef	Konovalov, V. P.; Son, E. E. Ionization of atoms and molecules in a weakly ionized plasma in an external electric field. High Temp. 20, 147 (1982) Soviet Union
00013 T	H11: $\text{hv} + \text{Ne}; \text{hv} + \text{Ar}; \text{hv} + \text{Kr}; \text{hv} + \text{Xe}$	0.1-3 Å	Mukhopadhyaya, S.; Talukdar, B. An analytical approach to Thomas-Fermi-Dirac calculations in incoherent-scattering factors. Indian J. Phys. B 54, 497 (1980) India
00014 E	A03: $\text{He}^+ + \text{Ar}; \text{Ar}^+ + \text{He}$	1-4000 eV	Novotny, P.; Emen, I.; Paderer, W. Excited state formation in the interaction of mass resolved ion beams with molecular and atomic targets (1-4000 eV, 200-800 am). Int. J. Mass Spectrom. Ion Phys. 47, 151 (1983) Austria
00015 E	A11: $\text{H}_2^+ + \text{O}_2; \text{H}_2^+ + \text{NO}$	0.03-1.5 eV	Dobler, W.; Villinger, H.; Novotny, P.; Lindinger, B. Energy dependences of reactive and quenching collisions of H_2^+ (X, v of O_2 and NO). Int. J. Mass Spectrom. Ion Phys. 47, 171 (1983) Austria
00016 E	A06: $\text{He}^+ + \text{H}_2$	1.0-12.0 eV	Villinger, H.; Patrell, J. H.; Richter, H.; Sauer, A.; Maccolini, S.; Lindinger, W. Energy dependences of the product distributions in ion-atom reactions. Int. J. Mass Spectrom. Ion Phys. 47, 175 (1983) Austria
00017 T	A03: $\text{He} + \text{H}_2$	0.5 eV	Beard, L. W.; Kouri, D. J. Off-energy-shell effects in energy sudden factorization relations: computational study of $\text{He} + \text{H}_2$ rotational-vibrational scattering. J. Chem. Phys. 78, 220 (1983) United States

Ref. No.	Reactants	Energy Range	Reference
00010 T	A07: Li + F A09: Li ⁺ + F ⁻	A07: 5000-25000 K	Simstuck, S.; Salgarbo, A. Mutual neutralization and chemi-ionization collisions of lithium and fluorine. <i>J. Chem. Phys.</i> 78, 276 (1983) United States
00019 E	A11: O ₂ ⁺ + CO ₂ ; O ₂ ⁺ + H ₂ O	293-1300 K	McCrell, P. A.; McCrell, P.; Grant, L. A. Inverse temperature dependences in the quenching of singlet oxygen O ₂ (¹ Δ _g) by CO ₂ and H ₂ O studied with a discharge flow/shock tube. <i>J. Chem. Phys.</i> 78, 748 (1983) United Kingdom
00020 E	B09: e + O ₂	300 K	Shinohara, K.; Hotta, H. Mechanism of thermal electron attachment to O ₂ as studied by observing isotope effects of attachment rates for ¹⁶ O ₂ systems. <i>J. Chem. Phys.</i> 78, 1338 (1983) Japan
00021 E	A16: F ⁻ + H ₂ ; F ⁻ + D	300 K	Smith, S. A.; Leone, S. R. Product vibrational state distributions in thermal energy associative detachment reactions: F ⁻ + H ₂ - HF(v), HF(v) + e ⁻ . <i>J. Chem. Phys.</i> 78, 1325 (1983) United States
00022 T	A03: H + H ₂ ; D + H ₂ ; H + H ₂	0.16-0.50 eV	Thompson, D. L.; Blais, B. C.; Truhlar, D. G. Rotational energy transfer in collisions of internally excited molecules. Effect of initial conditions and potential energy surface. <i>J. Chem. Phys.</i> 78, 1335 (1983) United States
00023 T	A09: Ne ⁺ + F ⁻ ; Ar ⁺ + F ⁻ ; K ⁺ + Cl ⁻	300 K	Whitten, S. L.; Soryan, S. L.; Barclay, J. H. Mutual neutralization in rare gas halides. <i>J. Chem. Phys.</i> 78, 1339 (1983) United States
00024 T	A17: H ₂	Under	Guberman, S. L. The doubly excited autoionizing states of H ₂ . <i>J. Chem. Phys.</i> 78, 1404 (1983) United States
00025 E	B03: e + H ₂ ; e + O ₂	15-300 eV	Soryan, S. L.; Santall, J. E. RV studies of H ₂ and O ₂ produced by low energy electron impact. <i>J. Chem. Phys.</i> 78, 1747 (1983) United States
00026 E	A18: D ₂ ⁺ + C	0.002-10 eV	Schutte, G. F.; Gentry, V. S. The dynamics of the reaction D ₂ ⁺ + C - CD ₂ ⁺ + D at kinetic energies between 0.002 and 10 eV. <i>J. Chem. Phys.</i> 78, 1777 (1983) United States
00027 E	A18: D ₂ ⁺ + F	0.002-30 eV	Schutte, G. F.; Gentry, V. S. The dynamics of the reaction D ₂ ⁺ + F(HF) - HF ⁺ + D at kinetic energies between 0.002 and 30 eV. <i>J. Chem. Phys.</i> 78, 1786 (1983) United States
00028 E	A11: I ⁺ + H ₂ ; I ⁺ + O ₂	300 K	Young, A. T.; Houston, P. L. The I(² P _{3/2}) + O ₂ going to or coming from I(² P _{1/2}) + O ₂ (¹ Δ) equilibrium. <i>J. Chem. Phys.</i> 78, 2317 (1983) United States
00029 T	A11: H ₂ ⁺ + He; D ₂ ⁺ + He	100-3000 K	Jolicard, G.; Groujean, L. Rate constants for intermediate and high temperature He-H ₂ and He-D ₂ vibrational relaxation. <i>J. Chem. Phys.</i> 78, 2327 (1983) France
00030 T	A17: CO + H ₂	Under	Van Noort, R. C. Potential energy surface for the study of inelastic collisions between nonrigid CO and H ₂ . <i>J. Chem. Phys.</i> 78, 2385 (1983) The Netherlands
00031 T	A18: H + H ₂ ; D + H ₂	400-2400 K	Blais, B. C.; Truhlar, D. G.; Garrett, B. C. Quasiclassical trajectory (and variational transition state theory) study of the rates and temperature-dependent activation energies of the reactions H + H ₂ (completely thermal) and H, D, and He + H ₂ (v = 0, j = 2). <i>J. Chem. Phys.</i> 78, 2363 (1983) United States
00032 T	A06: H + H ₂	4500 K	Blais, B. C.; Truhlar, D. G. Third body efficiencies for collision-induced dissociation of hydrogen. Rate coefficients for H + H ₂ - 3H. <i>J. Chem. Phys.</i> 78, 2388 (1983) United States
00033 E	A02: Ca ⁺ + He; Ca ⁺ + Ne; Ca ⁺ + Ar; Ca ⁺ + Kr; Ca ⁺ + Xe A17: Ca ⁺ + He; Ca ⁺ + Ne; Ca ⁺ + Ar; Ca ⁺ + Kr; Ca ⁺ + Xe	13-100 eV	Rajan, S. S.; Glasco, L. A. Determination of calcium ion-rare gas potentials from total cross section measurements. <i>J. Chem. Phys.</i> 78, 2628 (1983) United States
00034 T	A17: H ₂ + He	Under	Blais, B. C.; Truhlar, D. G.; Garrett, B. C. Improved parametrization of diatomic-in-molecule potential energy surface for He(3P) + H ₂ - He(H ₂) + H ₂ . <i>J. Chem. Phys.</i> 78, 1956 (1983) United States

Ref. No.	Reactants	Energy Range	Reference
00035 T	A14: $F + H_2$	0.20-0.50 eV	Baer, R.; Jellinek, J.; Ezeri, D. J. Quantum mechanical treatment of the $F + H_2 \rightarrow HF + H$ reaction. J. Chem. Phys. 78, 2962 (1983) United States
00036 E	E03: $e + O_2$	1-5 eV	Yasuda, C.; Phelps, A. V. Excitation of the $O_2(a^1\Delta_{g, g})$ state by low energy electrons in O_2-H_2 mixtures. J. Chem. Phys. 78, 2906 (1983) United States
00037 E	A05: $H + CO_2$	2.5 eV	Chen, J. G.; Flynn, G. R.; Weston, R. E., Jr. Spectral distribution of CO_2 vibrational states produced by collisions with fast hydrogen atoms from laser photolysis of HBr . J. Chem. Phys. 78, 2990 (1983) United States
00038 T	A14: $F + H_2$	0.02-0.3 eV	Jellinek, J.; Pollak, E. An adiabatic analysis of the reactive infinite order sudden approximation. J. Chem. Phys. 78, 3010 (1983) Israel
00039 T	E02: $e + H_2$; $e + O_2$; $e + CO$ E17: $e + H_2$; $e + O_2$; $e + CO$	100-500 eV	Tayal, S. S.; Jain, A.; Tripathi, A. B.; Srivastava, R. K. Elastic scattering of electrons by H_2 , O_2 , and CO in the energy range 0.1-1 keV. J. Chem. Phys. 78, 3021 (1983) India
00040 T	A03: $Li^+ + H_2$	0.2 eV	Moffet, G. A.; Suckent, D. Rotation-vibration excitation using the infinite order sudden approximation for rotational transitions: Li^+-H_2 . J. Chem. Phys. 78, 3052 (1983) United States
00041 E	D11: $He + Pt$; $Ne + Ag$; $He + Pt$; $He + Ag$; $O_2 + Pt$; $O_2 + Ag$; $H_2 + Pt$; $H_2 + Ag$; $CO + Pt$; $CO + Ag$	300 K	Shields, P. A. Energy and momentum accommodation coefficients on platinum and silver. J. Chem. Phys. 78, 3329 (1983) United States
00042 T	A17: $H + F_2$	Undef	Jaggar, J. J.; Grice, A. Topography of potential energy surfaces: DIM surface for $H + F_2$. J. Chem. Phys. 78, 3042 (1983) United Kingdom
00043 E	A11: $CO^+ + O_2$; $CO^+ + CH_4$; $H_2^+ + O_2$; $H_2^+ + CH_4$	80-300 K	Gregory, R. A.; Maricq, R. S.; Siddons, E. R.; Suckman-Jones, C. T.; Simpson, C. J. S. R. Vibrational relaxation of gaseous $CO(v=1)$ and $H_2(v=1)$ from 300 K to liquid temperatures: a comparison with liquid state relaxation. J. Chem. Phys. 78, 3081 (1983) United Kingdom
00044 E	D09: $CO_2^+ + Fe$; $CO_2^+ + Ag$; $CO_2^+ + Ni$	298-473 K	Sisewich, J.; Plus, C. W.; Blyholder, G.; Houston, P. L.; Merrill, R. P. Vibrational relaxation during gas-surface collisions. J. Chem. Phys. 78, 4245 (1983) United States
00045 E	D08: $CO + Pt$; $CO_2 + Pt$	640-1450 K	Nantoli, D. A.; Nyali, S. B.; Haller, G. L.; Penn, J. R. Distribution of internal energy in CO and CO_2 vibrationally excited by a hot platinum surface. J. Chem. Phys. 78, 4250 (1983) United States
01046 T	A14: $F + H_2$; $H + HF$	0.4-0.5 eV	Baer, R.; Baer, R.; Pollak, E. A quasiclassical trajectory study of the $F + H_2$ going to or coming from $FH + H$ reaction. J. Chem. Phys. 78, 4010 (1983) Israel
00047 E	A03: $HD + D_2$ A17: $HD + D_2$ A18: $HD + D_2$	70 meV	Buck, U.; Haisken, F.; Haseke, G.; Schaefer, J. State resolved rotational excitation in $HD + D_2$ collisions: II. Angular dependence of 0-2 transitions. J. Chem. Phys. 78, 4430 (1983) West Germany
00048 E	A03: $D_2 + H_2$ A17: $D_2 + H_2$ A18: $D_2 + H_2$	84-87 meV	Buck, U.; Haisken, F.; Kohlmann, A.; Otten, D.; Schaefer, J. State resolved rotational excitation in $D_2 + H_2$ collisions. J. Chem. Phys. 78, 4439 (1983) West Germany
00049 T	A14: $F + H_2$	0.38-0.66 eV	Jellinek, J.; Baer, R. Trajectory studies within the framework of the infinite order sudden approximation for the $F + H_2 \rightarrow HF + H$ reaction. J. Chem. Phys. 78, 4490 (1983) Israel
00050 T	A14: $H + H_2$	0-6 eV	Shen, J. C.; Choi, B. H.; Poe, S. T.; Yang, K. T. Adiabatic T matrix theory for three dimensional reactive scattering: application to the (H, H_2) system. J. Chem. Phys. 78, 4521 (1983) United States
00051 T	A17: OH	Undef	Van Dinebeck, E. P.; Langhoff, S. R.; Delgarno, A. The low-lying $^2\Sigma^-$ states of OH. J. Chem. Phys. 78, 4552 (1983) United States

Ref. No.	Reactants	Energy Range	Reference
00052 T	E17: He + He	undef	Poirier, R. A.; Peterson, R. E.; Schriener, R. An ab initio study of the reaction $\text{He}(^2P) + \text{He}[^1I(\text{sub } g)^4] \rightarrow \text{HeH}^+(^2\Sigma) + \text{He}(^2S)$. <i>J. Chem. Phys.</i> 78, 4592 (1983) Canada
00053 T	A03: He ⁺ + H A06: He ⁺ + H	0.75-30 keV	Haral, C.; Salin, A. Application of OHS orbitals to many-electron systems: He ⁺ -H collisions. <i>J. Phys. B</i> 16, 55 (1983) France
00054 B	A07: He ⁺ + Ar A18: He ⁺ + Ar	350 keV	Sarkadi, L.; Bussler, J.; Ripplert, R.; Lutz, W. O. Angular distribution of electrons ejected from the argon L shell by 350 keV proton impact. <i>J. Phys. B</i> 16, 71 (1983) West Germany
00055 B	A03: He ⁺ + Ar; He ⁺ + Ar; Ar ⁺ + He; Ar ⁺ + He A05: He ⁺ + Ar; He ⁺ + Ar; Ar ⁺ + He; Ar ⁺ + He	0-30 keV	Gilbert, D. A.; Peterson, C. W.; Reed, K. J.; Smith, S. W. Asymmetric rearrangement collisions: VUV emission spectra in keV He and He ion-atom collisions with Ar. <i>J. Phys. B</i> 16, 81 (1983) United States
00056 T	E03: e + Si ³⁺	0.5-25 x 10 ⁴ eV	Aggarwal, K. M.; Baluja, R. L. Electron impact excitation of forbidden transitions in Si IV. <i>J. Phys. B</i> 16, 107 (1983) United Kingdom
00057 B	E05: e + Ar E17: e + Ar	0 keV	Lehmann-Bennett, A.; Mollenstein, W. P.; Beguet, L.; Bouault, S. Absolute triple differential cross sections for the $3p$ ionization of argon by electron impact. <i>J. Phys. B</i> 16, 121 (1983) West Germany
00058 T	E07: e + He		Sarcone, M.; Sorron, P. L.; McDowell, R. R. C. Laser-assisted electron impact ionization of helium at 256.5 eV. <i>J. Phys. B</i> 16, L11 (1983) United Kingdom
00059 T	E01: H		Dhar, A. K.; Nagarajan, M. A.; Izrael, P. M.; Whitehead, S. B. Persistence of two-state resonances in a hydrogen atom under the influence of a periodic impulsive field. <i>J. Phys. B</i> 16, L17 (1983) United Kingdom
00060 B	C02: Al ³⁺ + C; Al ³⁺ + C; Al ³⁺ + C; Al ³⁺ + C; Al ³⁺ + C; Al ³⁺ + C; Al ³⁺ + C; Al ³⁺ + C	1.5-5.1 keV	Bruetta, M.; Jacques, C.; Kaystas, E. J. Equilibrium charge state distributions in carbon, far-UV spectroscopy and radiative lifetimes of aluminum ions (Al VI-IX). <i>J. Phys. B</i> 16, 167 (1983) Canada
00061 T	A06: He ²⁺ + He; He ²⁺ + Ar; He ²⁺ + Kr	200-2500 keV	Shrivastava, S. K.; Kumar, A.; Roy, R. N. Binary encounter calculations for electron capture from noble gases by He ²⁺ . <i>J. Phys. B</i> 16, 215 (1983) India
00062 T	E02: e + He; e + CO E17: e + He; e + CO	50-500 eV	Lee, M. T.; Freitas, L. C. G. Incoherent renormalized multicentre potential model for electron-linear-molecule scattering: elastic and vibrational transition cross sections for e-He and e-CO. <i>J. Phys. B</i> 16, 233 (1983) Brazil
00063 T	E02: e + He E17: e + He	2-30 eV	McEachran, M. P.; Stauffer, A. D. Polarisation and exchange effects on elastic scattering of electrons from helium. <i>J. Phys. B</i> 16, 255 (1983) Canada
00064 T	E02: e + Ar	1-150 eV	Fox, V. C.; Harrington, K. A.; Burke, P. G.; Gilbert, A. The elastic scattering of electrons from inert gases: III. Argon. <i>J. Phys. B</i> 16, 307 (1983) United Kingdom
00065 T	E03: e + O ²⁺	10 ⁻⁴ -10 ⁷ eV	Kingston, A. E.; Tayal, S. S. Effective collision strengths for electron excitation of the ground state of O VII to the 2 ³ S and 2 ³ P states. <i>J. Phys. B</i> 16, L53 (1983) United Kingdom
00066 T	E03: e + Si ³⁺	0-0.8 Ry	Aggarwal, K. M. Electron collision strengths for transitions within the 1s ² 2s ² 2p ² configuration of Si IV. <i>J. Phys. B</i> 16, L59 (1983) United Kingdom
00067 B	E03: e + Ti ³⁺ ; e + Zr ³⁺ ; e + Hf ³⁺ E05: e + Ti ³⁺ ; e + Zr ³⁺ ; e + Hf ³⁺	25-55 eV	Botcher, C.; Griffin, D. C.; Finkels, S. S. Excitation-autoionization of Ti ³⁺ , Zr ³⁺ and Hf ³⁺ in the distorted-wave approximation with exchange. <i>J. Phys. B</i> 16, L65 (1983) United States
00068 B	A06: He ²⁺ + Xe A07: He ²⁺ + Xe	100-1000 eV	Kahlert, H. J.; Huber, S. A.; Thiemann, T. Charge exchange and transfer ionization in low-energy He ²⁺ -Xe collisions. <i>J. Phys. B</i> 16, 849 (1983) West Germany

Ref. No.	Reactants	Energy Range	Reference
00069 T	A03: $H^+ + Li$	1 keV	Dickinson, A. S.; McCarroll, R. Adiabatic switching factors in slow atomic collisions. <i>J. Phys. B</i> 16, 459 (1983) United Kingdom
00070 T	A06: $H^+ + Li$	1-9 keV	Allan, R. J.; Dickinson, A. S.; McCarroll, R. Molecular treatment of charge exchange in $H^+ + Li$ collisions. <i>J. Phys. B</i> 16, 467 (1983) France
00071 E-T	E03: $e + He$	24 eV	Crowe, A.; Boqueiro, J. C.; Liew, T. C. Experimental and theoretical studies of the electron impact alignment and orientation of the 2^1P state of helium below the ionisation threshold. <i>J. Phys. B</i> 16, 481 (1983) United Kingdom
00072 E	H04: $h\nu + He^+$	294.5 nm	Bloomfield, L. A.; Gerhardt, H.; Hansch, P. W. Singlet-triplet mixing in n ($n = 12-14$) Rydberg states of He^+ . <i>J. Phys. B</i> 16, 189 (1983) United States
00073 E	A16: $H^- + He$	126-500 eV	Tsai, V. W.; Gauyacq, J. P.; Eneaulov, V. A. On the impact parameter dependence of detached electron energy spectra in H^-He collisions. <i>J. Phys. B</i> 16, 195 (1983) France
00074 T	F05: Undef H06: Undef	Undef	Watanabe, T.; Ishibara, T.; Mizuno, J. Comparison of threshold effects in Auger process induced by electron and photon impact ionisation. <i>J. Phys. B</i> 16, 1107 (1983) Japan
00075 T	E02: $e + N_2$ F03: $e + N_2$	1-36.5 eV	Burke, P. G.; Noble, C. J.; Salvini, S. A. Electron scattering by nitrogen molecules at intermediate energies. <i>J. Phys. B</i> 16, 1113 (1983) United Kingdom
00076 E	A12: $Te + Te$	77-273 Å	Stacey, D. W.; Thompson, R. G. Self-broadening at low densities in the spectrum of neon. <i>J. Phys. B</i> 16, 537 (1983) United Kingdom
00077 E	A12: $Sr + Ar$	Undef	Levis, E. L.; Marcis, H.; Alford, W. J.; Cooper, J.; Burnett, R. The polarisation of collisionally redistributed atomic fluorescence. <i>J. Phys. B</i> 16, 553 (1983) United Kingdom
00078 E	E06: $Te^+ + He$; $Te^+ + Ar$; $Te^+ + Xe$; $Te^+ + H_2$; $Te^+ + CH_4$	2-20 keV	King, R. F.; Latimer, C. J. The formation of fast metastable and ground-state xenon atoms by electron capture. <i>J. Phys. B</i> 16, 583 (1983) United Kingdom
00079 T	E02: $e + Te$ F17: $e + Te$	25-303 eV	Ave, R.; Kemper, F.; Wosicky, F.; Feder, S. Elastic scattering of slow electrons from Te atoms. <i>J. Phys. B</i> 16, 603 (1983) West Germany
00080 F	E03: $e + He$	27-23 eV	Johnston, A. W.; Burrow, P. D. Near-threshold excitation of $He\ 2^1S$ by electron impact. <i>J. Phys. B</i> 16, 611 (1983) United States
00081 F	F01: $e + Cd^+$	5.5-20 eV	Hase, K.; Goto, T.; Hattori, S. Emission cross sections of the Cd II spectral lines in $e-Cd^+$ ion collisions. <i>J. Phys. B</i> 16, 629 (1983) Japan
00082 T	F03: $e + CO_2$ F17: $e + CO_2$	25-60 eV	Hu-Tao, L.; McKoy, V. Cross sections for electron impact excitation of the low-lying electron states of CO_2 . <i>J. Phys. B</i> 16, 657 (1983) United States
00083 E	A16: $H^- + He$; $H^- + H_2$; $H^- + N_2$	10-750 eV	Montagnon, J. L.; Eneaulov, V. A.; Grouard, J. P.; Hall, R. J.; Landau, M.; Pichou, F.; Schermann, C. Study of detached electron spectra produced in H^- collisions. <i>J. Phys. B</i> 16, 1141 (1983) France
00084 F	H02: $h\nu + Te$	1990-1170 Å	Sharia, K. S.; Mahdini, Y.; Ma A. L. M.; Garton, W. B. S. Absorption spectrum of Te I in vacuum ultraviolet. <i>J. Phys. B</i> 16, 737 (1983) United Kingdom
00085 T	A02: $H^+ + He$ A18: $H^+ + He$	0.6-1.6 eV	Forach, M. J.; Thylw, K. E. Orbiting and rainbow structures in low-energy elastic differential cross sections. <i>J. Phys. B</i> 16, 793 (1983) West Germany
00086 E-T	A03: $Li + He$	2-15 keV	Anderson, W.; Andersen, T.; Dahler, J. S.; Nielsen, S. E.; Nienhuis, G.; Bragaard, F. Coherence study of $S + D$ excitation: $Li(2s + 1)$ excitation in $Li-He$ collisions. <i>J. Phys. B</i> 16, A17 (1983) Denmark

Ref. No.	Reactants	Energy Range	Reference
00087 E	A05: He ⁺ + He; C ⁺ + He; Mg ⁺ + He; Ar ⁺ + He	1.2-1.4 keV	Watson, R. L.; Benka, O.; Parthasaradhi, K.; Sauer, R. J.; Sanders, J. A. Spectra of He K(sub alpha) x-ray satellites and hypermetallites excited by 1.2-1.4 keV He ⁺ , C ⁺ , Mg ⁺ , and Ar ions. J. Phys. B 16, 835 (1983) United States
00088 T	A06: H ⁺ + H	0.1-1.0 keV	Campos, D.; Baurer, C.; de Garcia, A. Total cross sections for resonance charge transfer between H(1s) and H ⁺ calculated by using a two-state orthonormal basis with static variable charge. J. Phys. B 16, 853 (1983) Colombia
00089 T	E02: e + H(2s) E17: e + H(2s)	100-400 eV	Sao, H. S.; Desai, N. S. The RHO8 approximation to the elastic scattering of electrons by H(2s). J. Phys. B 16, 863 (1983) India
00090 T	E02: e + N ₂ E03: e + N ₂ E04: e + N ₂ E09: e + N ₂	1-12 eV	Fozdanev, S. Electron scattering from the nitrogen molecule. J. Phys. B 16, 867 (1983) Soviet Union
00091 T	E02: Undef	Undef	Bernan, M.; Cederbaum, L. S.; Doucke, W. Analysis of the ambiguities in the definition of the local complex potential in resonant electron-molecule scattering. J. Phys. B 16, 875 (1983) West Germany
00092 E	E02: e + CH ₄ E03: e + CH ₄ E17: e + CH ₄	0.1-1.9 eV	Sohn, W.; Jung, K.; Ehrhardt, H. Threshold structures in the cross sections of low-energy electron scattering of methane. J. Phys. B 16, 891 (1983) West Germany
00093 E	A03: H ⁺ + D A13: H ⁺ + D	900 K	Pollner, K.; Bergstedt, K. Investigation of excitation transfer processes between hydrogen isotopes by means of laser fluorescence. J. Phys. B 16, 903 (1983) West Germany
00094 E	A16: H ⁺ + Ar; D ⁺ + Ar A18: H ⁺ + Ar; D ⁺ + Ar	50-250 eV	Itoh, Y.; Bege, O.; Linder, P. Electrostatic against dynamical coupling in H ⁺ (D ⁺)-Ar detachment collisions. J. Phys. B 16, L167 (1983) West Germany
00095 E	A03: H ⁺ + H; H ⁺ + H ₂ A06: H ⁺ + H; H ⁺ + H ₂	8 keV	McCullough, R. W.; Lennon, S.; Wilkie, F. G.; Gilbody, R. B. State-selective electron capture by H ⁺ ions in atomic hydrogen using collision spectroscopy. J. Phys. B 16, L173 (1983) United Kingdom
00096 E	E03: e + H ₂	30-75 eV	Becker, K.; Dassen, M. W.; McConkey, J. E. Polarisation correlations following electron impact on H ₂ . J. Phys. B 16, L177 (1983) Canada
00097 E	H06: 3hν + Xe; 5hν + Xe	Undef	Kruit, P.; Knaam, J.; Muller, H. G.; Van der Wiel, H. J. The AC Stark shift as an intensity probe in resonant multiphoton ionisation of xenon. J. Phys. B 16, 937 (1983) The Netherlands
00098 T	A17: Hg + Xe	Undef	Gryczuk, T.; Pindelma, M. Interatomic potentials for the Hg-Xe system from measurements of the temperature-dependent absorption spectra. J. Phys. B 16, 975 (1983) Poland
00099 T	A03: H ⁺ + H A06: H ⁺ + H A18: H ⁺ + H	1-2 keV	Ludde, H. J.; Dreizler, E. M. Direct and capture processes in proton-hydrogen scattering: III. Differential cross sections and charge exchange probabilities. J. Phys. B 16, 1009 (1983) West Germany
00100 E	A07: He ⁺ + Ar; H ₂ ⁺ + Ar A18: He ⁺ + Ar; H ₂ ⁺ + Ar	0.8-2 keV amu ⁻¹	Kover, A.; Varga, D.; Szabo, G.; Beresnyi, D.; Kaddar, I.; Nica, S.; Vegh, J.; Hoch, G. A study of the angular distribution of the electrons in the peak near v(sub 0) = v(sub 1) in the electron spectra from He ⁺ -Ar and H ₂ ⁺ -Ar collisions. J. Phys. B 16, 1017 (1983) Hungary
00101 T	A07: H ⁺ + Al; He ⁺ + Al; H ⁺ + He ⁺ ; H ⁺ + H; He ⁺ + H; Li ⁺ + H; Fe ⁺ + H; Fe ⁺ + H	2-10000 keV	Miraglia, J. E. Ion-atom single ionisation at high and intermediate energies. J. Phys. B 16, 1029 (1983) United Kingdom

Ref. No.	Reactants	Energy Range	Reference
00102 T	R03: e + H R17: e + H	50-100 eV	Medina, R. E.; Stewart, M. E.; McCarthy, I. E.; Stalbovics, A. Third-order effects for electron-hydrogen scattering. J. Phys. B 16, 1063 (1983) United States
00103 E	A07: He ⁺ + He	0.015-0.4 eV	Remacle, A.; Rauge, S.; Perdrix, R.; Savin, D.; Vatel, G. Experimental investigation of Bornbeck-Rohmer ionization in collisions between excited He(5 ² S) and He atom. J. Phys. B 16, 1193 (1983) France
00104 T	R03: e + Si ⁺	10 ² -10 ³ K	Kingston, A. E.; Thompson, A.; Harrington, K. A.; Duffin, R. L. The electron excitation of Si ⁺ . J. Phys. B 16, 1207 (1983) United Kingdom
00105 T	R06: Shv + Na	9500-9400 cm ⁻¹	Birt, S. M. Theoretical cross sections for non-resonant five-photon ionization of sodium. J. Phys. B 16, 1205 (1983) United States
00106 T	R03: He ⁺ + H A10: He ⁺ + H	25-75 keV	Aldega, J. E.; Rivarola, S. B. The use of static potentials in atomic collisions. Application to the excitation of hydrogen atoms by helium ions at intermediate energies. J. Phys. B 16, 1211 (1983) Argentina
00107 T	R02: e + H R03: e + H R17: e + H	50-200 eV	McCarthy, I. E.; Stalbovics, A. T. Coupled-channels optical theory for e-H scattering. J. Phys. B 16, 1213 (1983) Australia
00108 T	R03: e + He ⁺ Seq R05: e + He ⁺ Seq	Under	Treffitz, E. Autoionization versus radiative decay of resonances in electron impact excitation cross sections. J. Phys. B 16, 1207 (1983) West Germany
00109 E	R04: e + CH ₄ R05: e + CH ₄	12.4-30 eV	Flemer, P.; Haroot, P.; Dutil, R. Ionization and appearance potentials of CH ₄ by electron impact. J. Phys. B 16, 1203 (1983) Canada
00110 E	R06: hv + Ca ⁺	600-650 nm	Gervert, K.; Kollath, K. J. Measurement of photoionization cross sections for ⁴ S, 7 ² P _{3/2} and 6 ² S _{1/2} excited states of calcium. J. Phys. B 16, 1217 (1983) West Germany
00111 E-T	A08: Si ⁴⁺ + H ₂	125 MeV	Bombardieri, B.; Betz, H. D.; Botherov, J.; Jahnsson-Lundgren, D. M. Ionization of fast hydrogen ions in collision with target atoms. J. Phys. B 16, 1233 (1983) West Germany
00112 E	A07: Ar ²⁺ + Ar	4.3-6.6 keV	Sato, T.; Sakawa, J.; Yagishita, A.; Aoyagi, Y.; Kanbara, T.; Kato, M.; Kamei, M. Ar L-III Auger spectra in Ar ²⁺ + Ar collisions. J. Phys. B 16, 1239 (1983) Japan
00113 E	R03: C ²⁺ + H ₂ R06: C ²⁺ + H ₂	3 keV amu ⁻¹	Sloman, S.; Bonnet, J. J.; Chauvet, G.; Dousson, S.; Rits, B.; Jacquot, B.; Knyazekas, E. J. Radiative decay of lithium-like ions following charge exchange collisions of 3 keV amu ⁻¹ C ²⁺ ions with H ₂ . J. Phys. B 16, 1203 (1983) France
00114 T	A12: Na + He	450 K	Berman, R. H.; Weber, R. W. Comprehensive theory for line broadening in high-resolution and non-linear spectroscopies: application to the Na D lines. J. Phys. B 16, 1323 (1983) West Germany
00115 E	R06: shv + Kr; shv + Xe	1.064 μm	L'Heillier, A.; Loupre, L. A.; Rainfray, G.; Hannes, C. Multiply charged ions induced by multiphoton absorption processes in rare-gas atoms at 1.064 μm. J. Phys. B 16, 1263 (1983) West Germany
00116 E	R03: He ⁺ + He	30-2000 eV	Grouard, J. P.; Montagnon, J. L. Oscillatory total cross sections in the (He-He) ⁺ collision system: I. Optical study of He(3 ² P) exchange excitation (30-2000 eV). J. Phys. B 16, 1329 (1983) France
00117 E	A07: H ⁺ + Hl A10: H ⁺ + Hl	0.5-2 keV	Yee, C.; Kratfil, M. V.; Beach, R. C.; Bessel, P.; Trantman, D. Angular dependence of the probability for Si K-shell ionization induced by backscattered protons. J. Phys. B 16, 1009 (1983) United States
00118 E	A05: PBBT + PBBT	0.15-10 keV amu ⁻¹	Jitschin, S.; Rippler, S.; Shanker, R.; Kleinpoppen, H.; Schuch, T.; Iets, H. O. L x-ray anisotropy and L ₂ -subshell alignment of heavy atoms induced by ion impact. J. Phys. B 16, 1077 (1983) West Germany

Ref. No.	Reactants	Energy Range	Reference
00119 T	A03: H ⁺ + H; H ⁺ + He A06: H ⁺ + H; H ⁺ + He	10-1000 keV	Tan, C. K.; Lee, A. R. Electron capture into excited states of hydrogen. J. Phys. B 16, 1045 (1983) Australia
00120 E	A06: H ⁺ + He ⁺ A07: H ⁺ + He ⁺	10-67 keV	Pearl, B.; Binn, K.; Bolder, K. Measurements of charge transfer and He ⁺ production in collisions between protons and He ⁺ ions. J. Phys. B 16, 1061 (1983) United Kingdom
00121 T	A06: Li ³⁺ + H; He ²⁺ + H; H ⁺ + H	1-15 keV au ⁻¹	Kimura, M.; Thomson, W. R. Molecular states studies of charge transfer in Li ³⁺ -H, He ²⁺ -H and H ⁺ -H collisions. J. Phys. B 16, 1471 (1983) United States
00122 E	E03: e + He	42-52 eV	Bassner, H. W.; Gomer, R.; King, G. C.; McCoukey, J. M. The observation identification and classification of resonances in He, Ar and Kr in the doubly excited states region. J. Phys. B 16, 1681 (1983) Canada
00123 E	H02: hv + He H04: hv + He	850-915 eV	Esteva, J. R.; Gauthier, B.; Dhez, P.; Karmatah, R. C. Double excitation in the K absorption spectrum of neon. J. Phys. B 16, 1263 (1983) France
00124 T	H06: hv + He	20-100 eV	Garvin, L. J.; Brown, R. R.; Carter, S. L.; Kelly, H. P. Calculation of photoionization cross sections, resonance structure and angular distribution for He I by many-body perturbation theory. J. Phys. B 16, 1269 (1983) United States
00125 T	A07: Ag + Ag; I + Ag	17-63 keV	Ville, W. Direct ionisation of the 4f (small omega) molecular orbital in slow ion-atom collisions. J. Phys. B 16, 1275 (1983) West Germany
00126 T	E02: e + He; e + He; e + Ar	30-400 eV	...jevskii, G.; Schwabe, D. W.; Thirumalai, D.; Truhlar, D. C. Non-empirical model for the imaginary part of the optical potential for electron scattering. J. Phys. B 16, 1281 (1983) United States
00127 E	H02: hv + Hg	135-115 nm	Saig, H. A. High Rydberg transitions in the principal and intercombination series of mercury. J. Phys. B 16, 1511 (1983) West Germany
00128 E	H06: hv + H ₂	58-74 nm	Ruf, H. W.; Kregel, T.; Rotop, H. The electron angular distribution of different rotational branches in the VUV photoelectron spectrum of H ₂ . J. Phys. B 16, 1509 (1983) West Germany
00129 T	A03: H ⁺ + Mg A06: H ⁺ + Mg A07: H ⁺ + Mg	0.2-1.0 a.u.	Sizov, V. V.; Kabachnik, N. M. Inner-shell alignments of atoms in ion-atom collisions: III. Light target atoms. J. Phys. B 16, 1565 (1983) Soviet Union
00130 E	A05: H ⁺ + Ti; Pb ²⁺ + H; U ³⁺ + Ge; Kr ²⁺ + U	1.4 keV au ⁻¹	Warczak, A.; Lieman, D.; Naor, D.; Nohler, P. R.; Schoenfeldt, S. A. K and L x-ray excitation in very-heavy-ion-atom collisions near K-L level matching. J. Phys. B 16, 1575 (1983) West Germany
00131 T	A06: H ⁺ + Li; He ⁺ + Li	0.4-20 keV	Fritsch, W.; Liu, C. D. Atomic orbital expansion study of electron capture in H ⁺ + Li and He ⁺ + Li collisions. J. Phys. B 16, 1595 (1983) United States
00132 T	E02: e + H E03: e + H E17: e + H	58 eV	McCarthy, I. E.; Stelbovics, A. T. Six-state coupled-channel-optical calculation for e-H scattering. J. Phys. B 16, 1611 (1983) Australia
00133 E	E03: e + He	28-46 eV	Van Linden van den Heuvell, H.; van Gastelen, E. H.; Van Eck, J.; Heidenau, H.G.M. Measurements of complex scattering amplitudes for electron impact excitation of the 3 ¹ D and 3 ¹ F states of helium. J. Phys. B 16, 1619 (1983) The Netherlands
00134 E	E03: e + O ₂ E17: e + O ₂	500 eV	Khaiko, M. A.; Newell, W. R.; Smith, A.C.H. Electron impact excitation from a ¹ A (sub g) state of molecular oxygen. J. Phys. B 16, 1317 (1983) United Kingdom

Ref. No.	Reactants	Energy Range	Reference
00135 E	H06: hv + CO	38-100 eV	Kramacher, S.; Schmidt, V.; Willemsier, F.; Nixau, J. B.; Ederer, R. Inner-shell photoionization in molecules: the carbon monoxide case. <i>J. Phys. B</i> 16, 1733 (1983) West Germany
00136 T	A07: Kr + H; Ar + He	0-60 keV	Jakubassa-Aumundsen, D. H. Electron emission in asymmetric collisions with fast, heavy projectiles via continuous charge transfer. <i>J. Phys. B</i> 16, 1767 (1983) West Germany
00137 T	A06: Undef	Undef	Dube, L. J. A note on the asymptotic behaviour of asymmetric charge transfer theories. <i>J. Phys. B</i> 16, 1781 (1983) West Germany
00138 T	A06: He ⁺ + He ²⁺	20-100 eV	Falcon, C. A. Charge exchange in low-energy He ⁺ -He ²⁺ collisions. <i>J. Phys. B</i> 16, 1793 (1983) France
00139 E	A03: H ⁺ + Ar A07: H ⁺ + Ar	1.5-10 MeV	Nordal-Pedersen, E.; Cocke, C. L.; Rasmussen, J. L.; Varyshev, S. L.; Baggoner, W. Capture of Ar K-shell electrons by protons. <i>J. Phys. B</i> 16, 1799 (1983) United States
00140 E-T	H07: e + Ar		Beingartshofer, A.; Holmes, J. K.; Sabbagh, J.; Chin, S. L. Electron scattering in intense laser fields. <i>J. Phys. B</i> 16, 1805 (1983) Canada
00141 E-T	F02: e + Ar; e + Kr E17: e + Ar; e + Kr	10-50 eV	Kemper, F.; Awe, B.; Rosicky, F.; Peder, R. Elastic scattering of slow electrons from Ar and Kr atoms. <i>J. Phys. B</i> 16, 1819 (1983) West Germany
00142 E	A03: C ⁺⁺ + He; C ⁺⁺ + H ₂ ; C ⁺⁺ + Li A06: C ⁺⁺ + He; C ⁺⁺ + H ₂ ; C ⁺⁺ + Li	80 keV	Dijkamp, D.; Brzak, A.; Drentje, A. G.; de Haer, F. J.; Winter, R. State-selective single-electron capture by 80 keV C ⁺⁺ ions from He, H ₂ and Li. <i>J. Phys. B</i> 16, L343 (1983) The Netherlands
00143 T	E03: e + H ₂ O E17: e + H ₂ O	1-10 eV	Jain, A.; Thompson, D. G. Vibrational excitation of asymmetric and bending modes of H ₂ O by slow electron impact. <i>J. Phys. B</i> 16, L347 (1983) United Kingdom
00144 T	E05: e + Xe ⁺	50-170 eV	Pinzola, R. S.; Griffin, D. C.; Bottcher, C. Electron impact double-ionization of Xe II. <i>J. Phys. B</i> 16, L355 (1983) United States
00145 T	E02: e + Hg E03: e + Hg	4-7 eV	Scott, N. S.; Burke, P. G.; Bartschat, K. The 6snp ² resonances in e-Hg scattering. <i>J. Phys. B</i> 16, L361 (1983) United Kingdom
00146 T	H06: hv + Ne	25-1400 eV	Cacelli, I.; Carravetta, V.; Noccia, S. Photoionization cross section calculations using Dyson amplitudes: results for Ne. <i>J. Phys. B</i> 16, 1895 (1983) Italy
00147 T	A02: H ⁺ + Ne	0.3-0.9 eV	Thywe, K. E. Semiclassical complex angular momentum analysis of low-energy H ⁺ -Ne differential cross sections. <i>J. Phys. B</i> 16, 1915 (1983) West Germany
00148 E	A02: He ⁺ + He A18: He ⁺ + He	3-50 keV	Bordenave-Montesquieu, D.; Bostommet, A.; Bergues, C.; Dagnac, B. Absolute determination of the differential elastic cross section and total inelastic cross sections for the collision He ⁺ -He between 3 and 50 keV and between 0.25 and 3 degrees. Elaboration of a simple theoretical model. <i>J. Phys. B</i> 16, 1937 (1983) France
00149 E	A07: H ⁺ + Cd; H ⁺ + Sn; H ⁺ + Te; H ⁺ + I; H ⁺ + Ba; H ⁺ + Te	1.6-3 MeV	Avaldi, L.; Milazzo, M.; Trivia, G.; Mitchell, I. V. Ionization cross sections of Cd, Sn, Te, I and Ba for protons and alpha particles. <i>J. Phys. B</i> 16, 1957 (1983) Italy
00150 E-T	A06: H ⁺ + H; He ⁺ + H; C ⁺⁺ + H; O ⁺⁺ + H A07: H ⁺ + H; He ⁺ + H; C ⁺⁺ + H; O ⁺⁺ + H	25-200 keV ang ⁻¹	Bardie, D.J.W.; Olson, R. E. Charge transfer and ionization processes involving multiply charged ions in collisions with atomic hydrogen. <i>J. Phys. B</i> 16, 1983 (1983) United States
00151 E	A06: He ²⁺ -7s + He; He ²⁺ -7s + Ar; He ²⁺ -7s + Kr; He ²⁺ -7s + Xe; Ar ²⁺ -9s + He; Ar ²⁺ -9s + Ar; Ar ²⁺ -9s + Kr; Ar ²⁺ -9s + Xe; Kr ²⁺ -12s + He; Kr ²⁺ -12s + Ar; Kr ²⁺ -12s + Kr; Kr ²⁺ -12s + Xe; Xe ²⁺ -15s + He; Xe ²⁺ -15s + Ar; Xe ²⁺ -15s + Kr; Xe ²⁺ -15s + Xe A07: He ²⁺ -7s + He; He ²⁺ -7s + Ar; He ²⁺ -7s + Kr; He ²⁺ -7s + Xe; Ar ²⁺ -9s + He; Ar ²⁺ -9s + Ar; Ar ²⁺ -9s + Kr; Ar ²⁺ -9s + Xe; Kr ²⁺ -12s + He; Kr ²⁺ -12s + Ar; Kr ²⁺ -12s + Kr; Kr ²⁺ -12s + Xe; Xe ²⁺ -15s + He; Xe ²⁺ -15s + Ar; Xe ²⁺ -15s + Kr; Xe ²⁺ -15s + Xe	14-225 keV	Groh, U.; Heller, A.; Schlechter, A. S.; Salzborn, E. Transfer ionization in slow collisions of multiply charged ions with atoms. <i>J. Phys. B</i> 16, 1997 (1983) West Germany

Ref. No.	Reactants	Energy Range	Reference
00152 F	A06: Ar ¹⁶⁺ + He	1-200 keV	Opradolce, L.; Valiere, P.; McCarroll, E. Single charge exchange in Ar ¹⁶⁺ -He collisions. <i>J. Phys. B</i> 16, 2017 (1983) France
00153 E	A03: Kr ¹⁶⁺ + Kr; Kr ¹⁷⁺ + Kr; Kr ¹⁸⁺ + Kr; Kr ¹⁹⁺ + Kr; Kr ²⁰⁺ + Kr; Kr ²¹⁺ + Kr; Kr ²²⁺ + Kr; Kr ²³⁺ + Kr; Kr ²⁴⁺ + Kr; Kr ²⁵⁺ + Kr; Kr ²⁶⁺ + Kr; Kr ²⁷⁺ + Kr; Kr ²⁸⁺ + Kr; Kr ²⁹⁺ + Kr; Kr ³⁰⁺ + Kr; Kr ³¹⁺ + Kr; Kr ³²⁺ + Kr; Kr ³³⁺ + Kr; Xe ¹⁷⁺ + Xe; Xe ¹⁸⁺ + Xe; Xe ¹⁹⁺ + Xe; Xe ²⁰⁺ + Xe; Xe ²¹⁺ + Xe A07: Kr ¹⁶⁺ + Kr; Kr ¹⁷⁺ + Kr; Kr ¹⁸⁺ + Kr; Kr ¹⁹⁺ + Kr; Kr ²⁰⁺ + Kr; Kr ²¹⁺ + Kr; Kr ²²⁺ + Kr; Kr ²³⁺ + Kr; Kr ²⁴⁺ + Kr; Kr ²⁵⁺ + Kr; Kr ²⁶⁺ + Kr; Kr ²⁷⁺ + Kr; Kr ²⁸⁺ + Kr; Kr ²⁹⁺ + Kr; Kr ³⁰⁺ + Kr; Kr ³¹⁺ + Kr; Kr ³²⁺ + Kr; Kr ³³⁺ + Kr; Xe ¹⁷⁺ + Xe; Xe ¹⁸⁺ + Xe; Xe ¹⁹⁺ + Xe; Xe ²⁰⁺ + Xe; Xe ²¹⁺ + Xe	2.0-3.6 keV	Schuch, R.; Justiniano, E.; Hoffmann, R.; Schaft, U.; Schmidt-Bocking, H.; Schler, P. H.; Bosch, P.; Schenfeldt, W. A.; Stachura, T. K-shell excitation by K- to L-shell charge transfer in slow Kr (sup q) ⁺ -Kr and Xe (sup q) ⁺ -Xe collisions. <i>J. Phys. B</i> 16, 2029 (1983) West Germany
00154 E	E05: e + He; e + He; e + Ar; e + Kr; e + Xe	20-50 MeV	Seller, A.; Grah, W.; Kneissl, W.; Heil, W.; Stroher, R.; Salzborn, L. Production of multiply charged rare-gas ions by relativistic electrons. <i>J. Phys. B</i> 16, 2039 (1983) West Germany
00155 F	H06: hv + He ⁺ ; hv + He ⁰	77-625 eV	Lehman, G. W. Rate of ionization of He and He Rydberg atoms by black-body radiation. <i>J. Phys. B</i> 16, 2105 (1983) United States
00156 F	A03: OH + H ₂	undef	Devangan, D. P.; Flower, W. B. Rotational excitation of OH by H ₂ : calculations in intermediate coupling. <i>J. Phys. B</i> 16, 2157 (1983) United Kingdom
00157 F	A06: H ⁺ + C ⁺ ; H ⁺ + H ⁺ A07: H ⁺ + C ⁺ ; H ⁺ + H ⁺	65-670 keV	Neill, P. A.; Angel, G. C.; Dunn, K. F.; Gilbody, H. B. Charge transfer and ionization in H ⁺ -C ⁺ and H ⁺ -H ⁺ collisions. <i>J. Phys. B</i> 16, 2185 (1983) United Kingdom
00158 E	A03: C ²⁺ + He; C ²⁺ + He; C ²⁺ + Ar; N ²⁺ + He; N ²⁺ + He; Ar ²⁺ + He; Ar ²⁺ + He; C ³⁺ + He A06: C ²⁺ + He; C ²⁺ + He; C ²⁺ + Ar; N ²⁺ + He; N ²⁺ + He; Ar ²⁺ + He; Ar ²⁺ + He; C ³⁺ + He	0.10-10 keV	Iannone, R.; McCullough, R. W.; Gilbody, H. B. State-selective electron capture by C ²⁺ , C ³⁺ , N ²⁺ and Ar ²⁺ ions in rare gases. <i>J.</i> <i>Phys. B</i> 16, 2191 (1983) United Kingdom
00159 E-F	E05: e + He E17: e + He	0 keV	Lahmar-Bennani, A.; Vollenstein, H. P.; Dal Cappello, C.; Bouault, M.; Duguet, A. Absolute triple differential cross sections for high-energy electron impact ionization of helium. <i>J. Phys. B</i> 16, 2219 (1983) France
00160 F	E03: e + Ca ¹⁰⁺	10 ² -10 ⁴ eV	Aggarwal, K. M. Electron impact excitation of forbidden transitions in Ca IV. <i>J. Phys. B</i> 16, 2231 (1983) United Kingdom
00161 E	E03: e + CO; e + H ₂	6-16 eV	Newman, D. S.; Zebek, H.; King, G. C. Metastable excitation measurements in CO and H ₂ by high-resolution electron impact, using a low work function detector. <i>J. Phys. B</i> 16, 2247 (1983) United Kingdom
00162 F	E03: e + Ca ⁹	10-150 eV	Burke, P. G.; Kingston, A. E.; Thompson, A. Electron impact ionization of Ca ⁹ . <i>J. Phys. B</i> 16, 1305 (1983) United Kingdom
00163 E-F	H06: 3hv + Xe; 5hv + Xe	400 nm	Kruit, P.; Heller, H. G.; Kinnman, J.; Van der Wiel, M. J. Relation between 'above-threshold' ionization probabilities and continuous-continuous matrix elements. <i>J. Phys. B</i> 16, 2359 (1983) The Netherlands
00164 F	A06: Fe ¹⁶⁺ + He	4.4-10 MeV	Stolterfoht, H. Model calculations of charge exchange between K shells in near-symmetric ion-atom collisions. <i>J. Phys. B</i> 16, 2385 (1983) West Germany
00165 F	F03: e + He ⁹ F17: e + He ⁹	3-3.3 a.u.	Berrington, K. A.; Kingston, A. E.; Salvini, S. A. Angular distribution of electrons scattered by He ⁹ . <i>J. Phys. B</i> 16, 2399 (1983) United Kingdom
00166 F	E03: e + He ¹⁰	5-40 Ry	Aggarwal, K. M. Collision strengths for the fine-structure transitions within the 1s ² 2s ² 2p ⁶ ground state of He V. <i>J. Phys.</i> <i>B</i> 16, 2401 (1983) United Kingdom

Ref. No.	Reactants	Energy Range	Reference
00167 F	E03: e + Tl E05: e + Tl	15-500 eV	Back, C.; Pejcev, V.; Roms, K. J.; Wilson, A. The ejected-electron spectrum of thallium vapour autoionising levels excited by low-energy electron impact. <i>J. Phys. B</i> 16, 2413 (1983) United Kingdom
00168 E	E03: e + H ₂ ; e + D ₂ E05: e + H ₂ ; e + D ₂	30-39 eV	Pichou, F.; Mill, R. Y.; Landau, H.; Schermann, C. Observation of autoionising states in H ₂ and D ₂ above 30 eV by electron impact. <i>J. Phys. B</i> 16, 2445 (1983) France
00169 E	A07: He ⁺ + Xe; He ²⁺ + Xe; He ⁺ + Xe; He ²⁺ + Xe; Ar ⁺ + Xe; Ar ²⁺ + Xe	5-20 keV	Sikoushkin, V. N.; Ogurtsov, V. V.; Plaks, I. P. Autoionisation in quasimolecular systems formed in multiply charged ion-atom collisions. <i>J. Phys. B</i> 16, 1405 (1983) Soviet Union
00170 E	A05: H ⁺ + Ti; H ⁺ + Ge	1-3 MeV	Cohen, D. D. Comments on experimental neutron-induced K x-ray emission cross sections. <i>J. Phys. B</i> 16, L415 (1983) Switzerland
00171 F	A06: Li ²⁺ + H	10.5 keV	Grun, W.; Scheid, W. Calculation of the impact parameter dependence of the charge exchange for Li ²⁺ + H at 10.5 keV by the finite difference method. <i>J. Phys. B</i> 16, L425 (1983) West Germany
00172 E	A11: Ph ⁺ + Pb	0.01 eV	Bugon, M.; Goumand, F.; Fournier, P. R.; Berlande, J. Inelastic collisions between high Rydberg (n approximately 40) and ground-state rubidium atoms at thermal energies. <i>J. Phys. B</i> 16, 2531 (1983) West Germany
00173 F	A07: Li ⁺ + He A18: Li ⁺ + He	0.1-2.4 keV	Furue, A.; Koike, Y.; Yagishita, A. Molecular autoionisation in Li ⁺ + He collisions. <i>J. Phys. B</i> 16, 2539 (1983) Japan
00174 F	E03: e + H	35-54 eV	Pisauds, P. R.; McDowell, R. B. C.; Morgan, L. A. Electron impact excitation of atomic hydrogen at 35 and 54.4 eV. <i>J. Phys. B</i> 16, 2553 (1983) United Kingdom
00175 E	A07: N ₂ + Cu A09: N ₂ + Cu	30 keV	Salashova, L. L.; Dodonov, A. I.; Maria, S. B.; Mashkova, Z. S.; Molchanov, V. A. The features of molecular ion dissociation for ion reflection from a copper single-crystal surface. <i>J. Phys. B</i> 16, 2609 (1983) Soviet Union
00176 F	A07: C ⁶⁺ + H	4.8 MeV	Shah, M. B.; Gilbody, R. S. Ionisation of atomic hydrogen by 4.8 MeV C ⁶⁺ ions. <i>J. Phys. B</i> 16, L449 (1983) United Kingdom
00177 F	E03: e + He; e + K E05: e + He; e + K	Undef	Tivary, S. R. R-matrix calculation for the excitation of the lowest-lying autoionising level in lighter alkali metal atoms. <i>J. Phys. B</i> 16, L459 (1983) United Kingdom
00178 F	A06: 2hν + He; 2hν + Ar	0.1-0.8 a.u.	Moccia, R.; Sabaana, M. K.; Pizzo, A. Two-photon ionisation cross section calculations of noble gases: results for He and Ar. <i>J. Phys. B</i> 16, 2737 (1983) Italy
00179 F	A03: He + He	Undef	Coarbin-Gaussorgues, C.; Sidis, V.; Vaaben, J. Molecular study of outer N-L shell interactions: He-He collisional system. <i>J. Phys. B</i> 16, 2817 (1983) France
00180 E	A06: He ⁺ + He ⁺ A07: He ⁺ + He ⁺	14-54 keV	Peart, B.; Binn, K.; Dolder, K. Measurements of cross sections for inelastic collisions between He ⁺ ions. <i>J. Phys. B</i> 16, 2831 (1983) United Kingdom
00181 F	A06: He ²⁺ + He	30-150 keV	Sandhya Devi, K. R.; Garcia, J. D. He ²⁺ + He collisions in time-dependent Hartree-Fock theory. <i>J. Phys. B</i> 16, 2837 (1983) United States
00182 E-F	A06: O ⁸⁺ + He	1-5 keV a.u. ⁻¹	Blisen, S.; Nitz, D.; Jacquot, B.; Narel, C.; Salia, A. Charge exchange in the O ⁸⁺ -He collision at keV a.u. ⁻¹ energies. <i>J. Phys. B</i> 16, 2849 (1983) France
00183 E	E01: e + CH ₄ E17: e + CH ₄	3-20 eV	Tanaka, H.; Kubo, H.; Onodera, H.; Suzuki, A. Vibrational excitation of CH ₄ by electron impact: 3-20 eV. <i>J. Phys. B</i> 16, 2861 (1983) Japan
00184 F	C02: e + Be; e + Al; e + Si; e + Ni; e + Cu; e + Ag; e + Au	50-50000 eV	Liljequist, D. A simple calculation of inelastic mean free path and stopping power for 50 eV-50 keV electrons in solids. <i>J. Phys. D</i> 16, 1547 (1983) Sweden

Ref. No.	Reactants	Energy Range	Reference
00200 T	R07: $h\nu + B^-$; $h\nu + In^-$; $h\nu + Ga^-$; $h\nu + Tl^-$; $h\nu + C^-$; $h\nu + Si^-$; $h\nu + Ge^-$; $h\nu + Sn^-$; $h\nu + P^-$; $h\nu + As^-$; $h\nu + Sb^-$; $h\nu + Bi^-$; $h\nu + F^-$; $h\nu + Cl^-$; $h\nu + Br^-$; $h\nu + I^-$; $h\nu + O^-$; $h\nu + S^-$; $h\nu + Se^-$; $h\nu + Te^-$	0-10 eV	Clodius, W. B.; Stephens, R. M.; Moo, S. S. Extended zero-core-contribution model applied to multichannel photodetachment. <i>Phys. Rev. A</i> 27, 333 (1983) United States
00201 I	G02: $H^+ + H_2$; $H^+ + Pb$; $H^+ + H$	1-10 ³ GeV	Leung, P. T.; Pustgi, M. L. Stopping power of K electrons at extreme relativistic energies. <i>Phys. Rev. A</i> 27, 580 (1983) United States
00202 T	R02: $e + H_2^+$	Undef	Takagi, M.; Nakamura, M. Two-electron excited states and adiabatic quantum defects of H_2^+ : analysis of elastic scattering of electrons from H_2^+ . <i>Phys. Rev. A</i> 27, 691 (1983) Japan
00203 T	R03: $e + H_2$; $e + CO$ R17: $e + H_2$; $e + CO$	16-25 eV	Chang, L. S. Theory of angular distributions of electrons resonantly scattered by molecules: III. The broad resonance in H_2 and CO at 20 eV. <i>Phys. Rev. A</i> 27, 709 (1983) United States
00204 T	R02: $e + H_2$	0.25 Ry	Coulter, P. W. Exchange contributions to optical-model potentials. <i>Phys. Rev. A</i> 27, 711 (1983) United States
00205 T	R05: $e + Xe^{2+}$; $e + Ar^{2+}$; $e + Kr^{2+}$; $e + Ta^{3+}$	31-1496 eV	Gregory, D. C.; Dittner, P. F.; Crandall, D. H. Absolute-cross-section measurements for electron-impact ionization of triply charged inert-gas ions: Ne^{3+} , Ar^{3+} , Kr^{3+} , and Xe^{3+} . <i>Phys. Rev. A</i> 27, 726 (1983) United States
00206 I	A16: $H^- + H^-$	Undef	Floresceni, G.; Tripicciolo, R. H^- stripping in collisions with low-energy F(2p) and H^- . <i>Phys. Rev. A</i> 27, 737 (1983) Italy
00207 T	R75: $e + Be^+$	18-1630 eV	Falk, R. A.; Dunn, G. H. Electron-impact ionization of Be^+ . <i>Phys. Rev. A</i> 27, 758 (1983) United States
00208 T	R05: $e + Ti^{3+}$; $e + Zr^{3+}$; $e + Hf^{3+}$; $e + Ta^{3+}$	31-1000 eV	Falk, R. A.; Dunn, G. H.; Gregory, D. C.; Crandall, D. H. Measurement of the contribution of excitation autoionization to electron-impact ionization of ions: Ti^{3+} , Zr^{3+} , Hf^{3+} , and Ta^{3+} . <i>Phys. Rev. A</i> 27, 762 (1983) United States
00209 T	A31: $Na^+ + Na^+$ A11: $Na^+ + Na^+$	600 K	Kornelovics, J.; Gallagher, A. Cross sections for energy transfer in collisions between two excited sodium atoms. <i>Phys. Rev. A</i> 27, 771 (1983) United States
00210 T	A06: $H^- + O_2$; $D^- + O_2$ A16: $H^- + H_2$; $H^- + CO$; $H^- + O_2$; $H^- + CO_2$; $H^- + CH_4$; $D^- + H_2$; $D^- + CO$; $D^- + O_2$; $D^- + CO_2$; $D^- + CH_4$	1-300 eV	Huy, H. S.; Doverspike, L. D.; Champion, B. L. Total cross sections for collisions of H^- and D^- with various molecules. <i>Phys. Rev. A</i> 27, 785 (1983) United States
00211 T	A01: $Na^+ + I^-$ A11: $Na^+ + Xe$	360 K	Nachre, R.; Gallagher, T. P.; Goman, F.; Safirys, K. S.; Sandner, V. Collisional angular-momentum mixing of Na Rydberg states with Xe . <i>Phys. Rev. A</i> 27, 795 (1983) United States
00212 T	R02: $e + He$ R03: $e + He$ R05: $e + He$	40 keV	Kethar, S. H.; Fink, H.; Bonhoe, B. A. High-energy electron scattering from helium. <i>Phys. Rev. A</i> 27, 806 (1983) United States
00213 E-T	C02: $H^+ + Cu$	7 MeV	Sakamoto, M.; Shioni, M.; Ishivari, Y. Geometrical effect on the measurement of stopping power: angle-dependent energy loss of 7-MeV protons in Cu foils and computer simulation. <i>Phys. Rev. A</i> 27, 810 (1983) Japan
00214 T	A03: $H^+ + He$; $H_2^+ + He$; $H_2^+ + He$	15-120 keV	Schartner, K. R.; Reverser, C. C.; Westerveld, B. B.; Wisley, J. S. Experimental evidence for backcoupling in proton-impact-induced alignment of excited He states. <i>Phys. Rev. A</i> 27, 816 (1983) United States
00215 T	A03: $O^{++} + H$ A06: $O^{++} + H$	1-500 keV	Shipsey, E. J.; Green, T. A.; Brown, J. C. Modified method of perturbed stationary states. V. Electron-capture cross sections for the reaction $O^{++} + H(1s) \rightarrow O^{+}(n, l) + H^+$. <i>Phys. Rev. A</i> 27, 821 (1983) United States

Ref. No.	Reactants	Energy Range	Reference
00216 T	H06: Underf	Underf	Mitt, S. H.; Lampropoulos, P. Theory of photoelectron angular distributions in resonant multiphoton ionization. <i>Phys. Rev. A</i> 27, 861 (1983) United States
00217 T	H06: Underf	Underf	Poirier, R. Competition between resonant multiphoton ionization and third-harmonic generation: a semi-field model. <i>Phys. Rev. A</i> 27, 934 (1983) France
00218 E	C06: $Fe^{2+} + C; Fe^{2+} + C; Fe^{2+} + C$	Underf	Nielsen, P. T.; Rud, H.; Byrdal, K.; Nielsen, A. Single and double K vacancies of fluorine ions moving in carbon. ~ 2 less than or equal to v/v_0 , less than or equal to 9. <i>Phys. Rev.</i> 27, 1189 (1983) Denmark
00219 E	A06: Underf	Underf	Reichbach, H.; Benicovsky, I. B.; Caribotti, C. H. *Erratum: Resonance dependence and asymmetry of electron capture to the continuum spectra [Phys. Rev. A 26, 1791 (1981)]. <i>Phys. Rev. A</i> 27, 1267 (1983) Argentina
00220 T	F01: Underf H07: Underf	Underf	Fano, R. *Erratum: Unified treatment of collisions [Phys. Rev. A 26, 2602 (1981)]. <i>Phys. Rev. A</i> 27, 1208 (1983) United States
00221 E	E04: $e + CO_2^+$ E09: $e + CO_2^+$	0-20 eV	Srivastava, S. K.; Orient, O. J. Double e-beam technique for collision studies from excited states: application to vibrationally excited CO_2 . <i>Phys. Rev. A</i> 27, 1209 (1983) United States
00222 E	A12: $Sr^{2+} + He; Sr^{2+} + He; Sr^{2+} + Ar;$ $Sr^{2+} + Kr; Sr^{2+} + Xe$	300 K	Alford, H. J.; Barnett, K.; Cooper, J. Polarization of collisionally redistributed light from the far wings of strontium-rare-gas collisions. <i>Phys. Rev. A</i> 27, 1310 (1983) United States
00223 T	A03: $Si^{1+} + He; Si^{1+} + Ar; Si^{1+} + He$ A06: $Si^{1+} + He; Si^{1+} + Ar; Si^{1+} + He$	10-200 MeV	Brandt, D. Resonant transfer and excitation in ion-atom collisions. <i>Phys. Rev. A</i> 27, 1316 (1983) United States
00224 T	H06: $h\nu + H_2$	736-581 Å	Itikawa, Y.; Takagi, H.; Hakanuma, H.; Sato, H. Theoretical studies of photoionization of hydrogen molecules. <i>Phys. Rev. A</i> 27, 1319 (1983) Japan
00225 E	F02: $e + CO; e + CO_2$	1-500 eV	Reas, C. K.; Hsieh, Y. P.; Kaupilla, H. E.; Smith, S. J.; Stein, T. S.; Widia, R. E.; Dambach, E. S. $e^{+-}CO$ and $e^{+-}CO_2$ total cross-section measurements. <i>Phys. Rev. A</i> 27, 1328 (1983) United States
00226 E-T	A07: $H^+ + He; H^+ + He; H^+ + Ar$ A17: $H^+ + He; H^+ + He; H^+ + Ar$	0.3-1.5 MeV	Miller, J. R.; Todorov, L. E.; Samson, S. T. Differential cross sections for ionization of helium, neon, and argon by high-velocity ions. <i>Phys. Rev. A</i> 27, 1337 (1983) United States
00227 E	E11: $e + Ar$	1.2-5.4 eV	Yamabe, C.; Buckman, S. J.; Phelps, A. V. Measurement of free-free emission from low-energy-electron collisions with Ar. <i>Phys. Rev. A</i> 27, 1345 (1983) United States
00228 T	A07: Underf	Underf	Lau, K. S.; George, T. P.; Bhattacharyya, D. K. Semiclassical theory of collisional ionization. <i>Phys. Rev. A</i> 27, 1353 (1983) United States
00229 E	C02: $He^{2+} + H; He^{2+} + Ag; He^{2+} + Au;$ $He^{2+} + Pb; C^{2+} + H; C^{2+} + Ag;$ $C^{2+} + Au; C^{2+} + Pb$	28-80 MeV	Takahashi, T.; Aoyama, Y.; Tanuma, Y.; Sawagai, H.; Imase, K.; Hishida, H.; Utschi, A.; Sashizawa, A.; Uchiyama, S.; Doke, T. Stopping power of H, Ag, Au, and Pb for approximately 7-MeV/nucleon α particles and carbon ions: 2% deviation from the Bethe formula. <i>Phys. Rev. A</i> 27, 1360 (1983) Japan
00230 T	E06: $e + C^{2+}$	0-0.6 eV	McLaughlin, D. J.; Saha, Y. Dielectronic recombination cross section for C^{2+} . <i>Phys. Rev. A</i> 27, 1369 (1983) United States
00231 T	H07: Underf		Nevroyannis, C. Stimulated hyper-Raman scattering at high photon densities. <i>Phys. Rev. A</i> 27, 1614 (1983) Canada
00232 E	C06: $Cl^{1+} + C; Cl^{1+} + C; Cl^{1+} + C;$ $Cl^{1+} + C; Cl^{1+} + C; Cl^{1+} + C;$ $Cl^{1+} + C; Cl^{1+} + C$	20-80 MeV	Tanis, J. A.; Shafroth, S. H.; Willis, J. E.; Nevat, J. E. K-shell binding energies for highly stripped chlorine ions determined from radiative electron-capture energies. <i>Phys. Rev. A</i> 27, 1671 (1983) United States

Ref. No.	Reactants	Energy Range	Reference
00233 F	H06: e + Ar ¹⁰⁺	0.2-2.0 keV	LaGatta, K.; Hahn, Y. Dielectronic recombination rates for Ar ¹⁰⁺ . <i>Phys. Rev. A</i> 27, 1675 (1983) United States
00234 E	H03: e + He	27-40 eV	Steph, W. C.; Golden, D. E. Low-energy measurements of electron-photon angular correlation in electron-impact excitation of the 2 ¹ P state of helium. <i>Phys. Rev. A</i> 27, 1670 (1983) United States
00235 E	H06: hv + Xe	0.53-1.06 μ m	Fabre, F.; Agostini, P.; Petite, G. Contribution of above-threshold ionization to the total ion yield for xenon at 0.53 and 1.06 μ m. <i>Phys. Rev. A</i> 27, 1662 (1983) France
00236 F	H02: hv + Ta; hv + Pb; hv + Bi	279-518 keV	Ery, S. C. Method of estimating incoherent-scattering cross sections from total photon attenuation measurements. <i>Phys. Rev. A</i> 27, 1605 (1983) United States
00237 E	A11: Na ⁺ + He; Na ⁺ + Ar; Na ⁺ + Xe	350 K	Steel, D. G.; McParlane, R. A. Collisional destruction of four-wave-mixing signals in sodium in the presence of low-pressure buffer gas. <i>Phys. Rev. A</i> 27, 1607 (1983) United States
00238 E	H06: Undef	Undef	Sandner, V.; Kachra, R.; Safiyya, K. A.; Gessner, T.; Cooke, R. E.; Gallagher, T. F. Energy and angular distributions of electrons ejected from the Ba(6p _{3/2,1/2}) states. <i>Phys. Rev. A</i> 27, 1717 (1983) United States
00239 F	A16: F + H ₂ A17: F + H ₂	0.05-0.1 eV	Hudson, R. W.; Such, S. R. State-to-state and state-to-all-states reactive scattering angular distributions: F + H ₂ - HF + H. <i>Phys. Rev. A</i> 27, 1003 (1983) United States
00240 F	H03: e + O ²⁺ ; e + S ²⁺	0.66-0.82 Ry	Clark, R. E. W.; Hertz, A. L.; Sans, J. B.; Collins, L. A. Quantum-defect and distorted-wave theory applied to the resonance contribution of inelastic electron scattering. <i>Phys. Rev. A</i> 27, 1812 (1983) United States
00241 F	A03: Rb ⁺ + He A11: Rb ⁺ + He	520 K	de Jurelle, E. Application of the Paddeev-Vatson expansion to thermal collisions of Rydberg atoms with neutral particles. <i>Phys. Rev. A</i> 27, 1831 (1983) France
00242 E	H03: e + Cd	20-200 eV	Goto, T.; Sano, K.; Okada, S.; Hattori, S. Direct-excitation cross sections for Cd II low-lying excited states by single-electron impact on Cd atoms. <i>Phys. Rev. A</i> 27, 1844 (1983) Japan
00243 E	A12: Na ⁺ + Na	300 K	Brennecke, J.; Gallagher, A. Self-broadening of the sodium resonance lines and excitation transfer between the 3P _{3/2} and 3P _{1/2} levels. <i>Phys. Rev. A</i> 27, 1051 (1983) United States
00244 F	H03: e + He	20-20.6 eV	Komninos, V.; Asprosalidis, G.; Nicolaidis, C. A. Resonance scattering theory: application to the broad He ⁺ 1s2s ² ³ P ^o resonance. <i>Phys. Rev. A</i> 27, 1865 (1983) Greece
00245 E	A03: H ⁺ + H A06: H ⁺ + H A07: H ⁺ + H A10: H ⁺ + H	25-200 keV	Olson, R. F. Ion-atom differential cross sections at intermediate energies. <i>Phys. Rev. A</i> 27, 1671 (1983) United States
00246 F	H03: e + H	0.055-0.40 Ry	Ho, Y. K.; Callaway, J. Multichannel resonances in electron-hydrogen scattering. <i>Phys. Rev. A</i> 27, 1887 (1983) United States
00247 F	A02: e + He	13.6-15.6 eV	O'Connell, J. E.; Lane, N. F. Readjustable exchange-correlation model for electron scattering from closed-shell atoms and molecules. <i>Phys. Rev. A</i> 27, 1893 (1983) United States
00248 F	H06: hv + Ca	6.11-70 eV	Altun, I.; Carter, S. L.; Kelly, H. P. Photoionization cross section of neutral calcium including double electron resonances. <i>Phys. Rev. A</i> 27, 1943 (1983) United States
00249 F	H06: Undef	Undef	Wiszniowski, K.; Eberly, J. R. Photoionization of an autoionizing resonance in the presence of off-diagonal relaxation. <i>Phys. Rev. A</i> 27, 2026 (1983) United States

Ref. No.	Reactants	Energy Range	Reference
00250 E	A11: $\text{Ba}^+ + \text{H}_2; \text{Ba}^+ + \text{CO}$	323 K	Callagher, T. F.; Safinya, K. A.; Buff, G. A. Collisional depopulation of Ba ns states by H_2 and CO. <i>Phys. Rev. A</i> 27, 2222 (1983) United States
00251 E	A03: $\text{H}^+ + \text{Be}; \text{He}^{2+} + \text{Be}$	20.1 MeV/cm	Ishii, K.; Sorn, K.; Arai, H.; Morita, S.; Tokuda, K. Projectile-charge dependence of quasi-free-electron bremsstrahlung. <i>Phys. Rev. A</i> 27, 2225 (1983) Japan
00252 T	H06: $\text{h}\nu + \text{OH}^-$ H07: $\text{h}\nu + \text{OH}^-$	Undef	Schulz, P. A.; Sand, R. D.; Lindeberger, R. C. Rotational transitions in photodetachment and photoionization. <i>Phys. Rev. A</i> 27, 2229 (1983) United States
00253 E	H03: $\text{e} + \text{Fe}^{2+}$	45-95 eV	Mag, J. S.; Gries, R. B. Measurements of collisional excitation rate coefficients for Fe X ions in a plasma. <i>Phys. Rev. A</i> 27, 2269 (1983) United States
00254 T	H03: $\text{e} + \text{Cl Seq}$ H05: $\text{e} + \text{Cl Seq}$	15-150 eV	Pindola, R. S.; Griffin, B. C.; Bettcher, C. Electron-impact excitation-autoionization in the cadmium isoelectronic sequence: a case of target term dependence in scattering theory. <i>Phys. Rev. A</i> 27, 2331 (1983) United States
00255 E	H05: $\text{e} + \text{Xe}^{2+}$	88-1482 eV	Gregory, D. C.; Crandall, B. E. Measurement of the cross section for electron-impact ionization of Xe^{2+} ions. <i>Phys. Rev. A</i> 27, 2336 (1983) United States
00256 T	A03: $\text{H}^+ \text{Seq} + \text{H Seq}$ A06: $\text{H}^+ \text{Seq} + \text{H Seq}$	0.1-20 MeV	Alston, S. Theory of electron capture from a hydrogen-like ion by a bare ion: intermediate-state contributions to the amplitude. <i>Phys. Rev. A</i> 27, 2342 (1983) United States
00257 T	A07: $\text{H}^+ + \text{Ar}; \text{H}^+ + \text{Ne}; \text{H}^+ + \text{O}$	0.05-1.0 MeV	Chen, M. H.; Cradnam, R.; Mark, E. Relativistic calculation of atomic M-shell ionization by protons. <i>Phys. Rev. A</i> 27, 2358 (1983) United States
00258 T	A06: $\text{C}^{2+} + \text{H}; \text{H}^{2+} + \text{H}; \text{O}^{2+} + \text{H}; \text{He}^{2+} + \text{H};$ $\text{C}^{3+} + \text{H}; \text{H}^{3+} + \text{H}; \text{C}^{3+} + \text{H}; \text{He}^{3+} + \text{H}$	0.27-8.1 eV	Neil, T. G.; Butler, S. E.; Delgarno, S. Charge transfer of doubly charged and triply charged ions with atomic hydrogen at thermal energies. <i>Phys. Rev. A</i> 27, 2365 (1983) United States
00259 T	C02: Undef	Undef	Peek, J. A. Subshell formula for the Bethe-Salpeter stopping approximation. <i>Phys. Rev. A</i> 27, 2384 (1983) United States
00260 E	H05: $\text{e} + \text{H}_2$ H17: $\text{e} + \text{H}_2$	50-400 eV	Shyn, T. S. Doubly differential cross sections of secondary electrons ejected from gases by electron impact: 50-400 eV on H_2 . <i>Phys. Rev. A</i> 27, 2388 (1983) United States
00261 E	A04: $\text{Ar}^{2+} + \text{Ar}$ A18: $\text{Ar}^{2+} + \text{Ar}$	2.4-3.5 keV	Stevens, J.; Peterson, B. S.; Pollack, E. Electron capture in small-angle $\text{Ar}^{2+} + \text{Ar}$ collisions. <i>Phys. Rev. A</i> 27, 2396 (1983) United States
00262 T	C02: $\text{O}^+ + \text{Be}; \text{H}_2^+ + \text{Be}; \text{O}^+ + \text{He}; \text{O}^+ + \text{O};$ $\text{Ca}^+ + \text{Ca}; \text{O}^+ + \text{PENT}; \text{PENT}^+ + \text{He};$ $\text{PENT}^+ + \text{Al}; \text{PENT}^+ + \text{C}$	100-200 keV	Cruz, S. L.; Vargas-Abarro, C.; Wilce, D. K.; Alonso, R. V.; Armour, D. G. Detailed analysis of the scope of the modified Pirion model. <i>Phys. Rev. A</i> 27, 2403 (1983) Mexico
00263 T	A03: $\text{Na}^+ + \text{He}; \text{Na}^+ + \text{Ne}; \text{Na}^+ + \text{Ar};$ $\text{Rb}^+ + \text{He}; \text{Rb}^+ + \text{Ne}; \text{Rb}^+ + \text{Ar}$	300-520 K	Sasano, K.; Sato, Y.; Matsunaga, M. Quasielastic state-changing collisions of high-Rydberg atoms with rare-gas atoms. <i>Phys. Rev. A</i> 27, 2421 (1983) Japan
00264 T	A03: $\text{H}^+ + \text{H}^-$ A09: $\text{H}^+ + \text{H}^-$	0.02-10 keV	Sidin, V.; Nebach, C.; Panssen, P. Ionic-covalent problem in the $\text{H}^+ + \text{H}^-$ going to or coming from $\text{H}^+ + \text{H}$ collisional system. <i>Phys. Rev. A</i> 27, 2431 (1983) Belgium
00265 T	H03: $\text{e} + \text{H Seq}$ H17: $\text{e} + \text{H Seq}$	10-70 eV	Deb, B. C.; Sinha, C.; Sil, B. C. Excitation of hydrogen-like ions from ground state to arbitrary p state by electron impact. <i>Phys. Rev. A</i> 27, 2447 (1983) India
00266 E	A03: $\text{Li}^+ + \text{Li}$ A11: $\text{Li}^+ + \text{Li}$	493 K	Dubouil, B. s-changing collisions in intermediate Rydberg states of Li induced by collisions with ground-state parent atoms. <i>Phys. Rev. A</i> 27, 2479 (1983) France
00267 E	H05: $\text{h}\nu + \text{Ca}_2^+$	9500-4067 Å	Holz, M.; Moller, R. Bond-free spectroscopy of Ca_2^+ . <i>Phys. Rev. A</i> 27, 2493 (1983) United States

Ref. No.	Reactants	Energy Range	Reference
00268 Z	206: hv + He ⁺⁺	0.53 μ	L'Heillier, A.; Lempere, L. A.; Hainfray, G.; Hanes, C. Multiply charged ions induced by multiphoton absorption in rare gases at 0.53 μ . <i>Phys. Rev. A</i> 27, 2503 (1983) France
00269 Z	208: e + He	20000-57000 K	Grien, R. R. Shifts of ionized-helium lines from electron collisions in dense plasmas. <i>Phys. Rev. A</i> 27, 2566 (1983) United States
00270 Z	A06: He ⁺⁺ + C; He ⁺⁺ + Al; He ⁺⁺ + Si; He ⁺⁺ + As; He ⁺⁺ + Ag C06: He ⁺⁺ + C; He ⁺⁺ + Al; He ⁺⁺ + Si; He ⁺⁺ + Au; He ⁺⁺ + Ag	68-130 KeV	Katayama, I.; Bery, G.P.A.; Berlinann, W.; Martin, S. A.; Weinsberger, J.; Oelert, H.; Rege, S.; Bower, J.C.H.; Tain, J. L.; Stymme, S.; Carl, C. Equilibrium charge states of He ions emerging from solid targets at high incident energies. <i>Phys. Rev. A</i> 27, 2738 (1983) West Germany
00271 T	206: O ²⁺ + H	0.1-5000 eV	Blenstock, S.; Reil, T. G.; Balgarn, A. Charge transfer of O ²⁺ ions in collisions with atomic hydrogen. <i>Phys. Rev. A</i> 27, 2761 (1983) United States
00272 Z	207: Na + Na		Boulmer, J.; Weiner, J. Production of Na ₂ ⁺ by crossed-beam collisions in the presence of intense, near-resonant radiation. <i>Phys. Rev. A</i> 27, 2817 (1983) United States
00273 T	A03: H ⁺ + Fe ¹⁷⁺ A17: H ⁺ + Fe ¹⁷⁺	100-900 eV	Reil, T. G.; Kirby, K.; Balgarn, A. Proton excitation of fine-structure transitions in Fe XIV. <i>Phys. Rev. A</i> 27, 2826 (1983) United States
00274 Z	A16: H ⁻ + H ₂ ; D ⁻ + H ₂	1-200 eV	Hag, M. S.; Dovernpike, L. D.; Champion, R. L. Electron detachment for collisions of H ⁻ and D ⁻ with hydrogen molecules. <i>Phys. Rev. A</i> 27, 2831 (1983) United States
00275 T	202: e + H 203: e + H	1-3.5 Ry	Ora, D. M.; Callaway, J. Pseudostate expansions in a simplified model of electron-hydrogen scattering. <i>Phys. Rev. A</i> 27, 2840 (1983) United States
00276 T	202: e + H ₂ ; e + H ₂	0.002-1 Ry	Schneider, S. J.; Collins, L. A. Ab initio optical potentials applied to low-energy e-H ₂ and e-H ₂ collisions in the linear-algebraic approach. <i>Phys. Rev. A</i> 27, 2847 (1983) United States
00277 Z	A03: F ⁹⁺ + He A06: F ⁹⁺ + He C07: F ⁹⁺ + He	6-40 KeV	Terakawa, M.; Gray, T. J.; Nagama, S.; Hall, J.; Womcomb, J.; Popellier, P.; Richard, P. Electron capture by and electron excitation of two-electron fluorine ions incident on helium. <i>Phys. Rev. A</i> 27, 2868 (1983) United States
00278 T	202: e + H ⁺ 217: e + H ⁺	10-1000 eV	Das, J. N.; Bhattacharyya, P. K. Elastic scattering of electrons by hydrogen atoms in the 2S state. <i>Phys. Rev. A</i> 27, 2876 (1983) India
00279 Z	A03: H ⁺ + Zn; H ⁺ + Ag; H ⁺ + Te; H ⁺ + Au	1.4 KeV/amu	Maor, D.; Liesen, D.; Mohler, P. M.; Rosner, B.; Schmidt-Rocking, M.; Schuch, S. Inner-shell excitation probabilities in intermediate-heavy, asymmetric ion-atom collisions. <i>Phys. Rev. A</i> 27, 2881 (1983) West Germany
00280 Z	207: hv + H ⁻ 207: hv + H ⁻	207: 10.9-11.1 eV	Bryant, M. C.; Clark, B. A.; Butterfield, E. S.; Frost, C. A.; Sherifian, M.; Yotsomachi, M.; Voshare, J. S.; Gray, P.A.M.; Hann, M. S.; Hans, S. U.; Pratt, J. C.; Yates, S. J.; Smith, S. U. Effects of strong electric fields on resonant structures in H ⁻ photodetachment. <i>Phys. Rev. A</i> 27, 2899 (1983) United States
00281 T	206: e + F ⁹⁺ ; e + Fe ¹⁶⁺ ; e + Fe ¹⁷⁺ ; e + Fe ¹⁸⁺ ; e + Ho ¹⁶⁺ ; e + Ho ¹⁷⁺ ; e + Ho ¹⁸⁺ ; e + U ²⁹⁺ ; e + U ³⁰⁺ ; e + U ³¹⁺ ; e + U ³²⁺ ; e + U ³³⁺	1-100 keV	Sie, Y. S.; Pratt, S. N. Direct radiative recombination of electrons with atomic ions: cross sections and rate coefficients. <i>Phys. Rev. A</i> 27, 2913 (1983) United States
00282 T	201: H Sm ₁		Maquet, A.; Chu, S. L.; Reinhardt, W. P. Stark ionization in dc and ac fields: an L ² complex-coordinate approach. <i>Phys. Rev. A</i> 27, 2946 (1983) United States
00283 Z	206: 2hv + H; 2hv + H ⁺ ; 3hv + H; 3hv + H ⁺ ; 4hv + H; 4hv + H ⁺	1-6 eV	Holt, C. S.; Saymer, M. G.; Reinhardt, W. P. Time dependences of two-, three-, and four-photon ionization of atomic hydrogen in the ground 1S and metastable 2S states. <i>Phys. Rev. A</i> 27, 2971 (1983) United States

Ref. No.	Reactants	Energy Range	Reference
00284 E	H06: hv + Hg	50-270 eV	Johria, P. A.; Holmann, P. A.; Kerkhoff, H. G.; Lindle, D. W.; Trumbull, C. L.; Perrett, I. A.; Becker, G.; Shirley, D. A. Photoelectron measurements of the mercury 6s, 5p, and 5d subshells. <i>Phys. Rev. A</i> 27, 3031 (1983) United States
00285 E-T	H06: hv + Xe	438-640 nm	Payne, R. G.; Petrálik, S. E.; Garrett, W. E. Ionization mechanisms near three-photon resonances in Xe-Ir and Xe-Ir mixtures. <i>Phys. Rev. A</i> 27, 3053 (1983) United States
00286 T	H03: hv + Al; hv + Ag; hv + Pb	1-105 keV	Bibberfors, B. X-ray incoherent scattering total cross sections and energy-absorption cross sections by means of simple calculation routines. <i>Phys. Rev. A</i> 27, 3061 (1983) Sweden
00287 E	H07: hv + K ⁺ ; hv + Rb ⁺	16400-17600 cm ⁻¹	Roos, E.; Geballe, R. Photodetachment of K ⁺ and Rb ⁺ to the lowest-lying ² S _{1/2} , ² P _{1/2} , and ² P _{3/2} states of K and Rb. <i>Phys. Rev. A</i> 27, 3071 (1983) United States
00288 T	H11: hv + Cs	1-50 keV	Peng, J. J.; Lanourez, M.; Pratt, R. F.; Tseng, S. K. Calculation of free-free Gaunt factors in hot dense plasmas. <i>Phys. Rev. A</i> 27, 3209 (1983) United States
00289 T	A03: He ⁺ + H A06: He ⁺ + H A07: He ⁺ + H	10-26 keV	Errea, L. F.; Barden, L.; Riera, A. Excitation and charge transfer in He ⁺ + H collisions. A molecular approach including two-electron translation factors. <i>Phys. Rev. A</i> 27, 3357 (1983) Spain
00290 T	A03: H ⁺ + H A06: H ⁺ + H A07: H ⁺ + H	1-75 keV	Fritsch, W.; Lin, C. D. Coupled-state calculations for excitation, charge transfer, and ionization in 1-75-keV proton-hydrogen-atom collisions. <i>Phys. Rev. A</i> 27, 3361 (1983) West Germany
00291 E	C02: H ⁺ + PHST; He ⁺ + PHST	Undef	Goeda, S.; Olson, R. G.; Povers, D. Oscillatory behavior of the peak energy for stopping; cross sections as a function of Z, for He ions and protons. <i>Phys. Rev. A</i> 27, 3365 (1983) United States
00292 E-T	A03: H ⁺ + H; H ⁺ + D; D ⁺ + H; D ⁺ + D	1-26 a.u.	Kille, K.; Peacher, J. L.; Kvale, T. J.; Redd, E.; Blankenship, B. L.; Park, J. T. Momentum-transfer scaling in hydrogen-isotope collision systems. <i>Phys. Rev. A</i> 27, 3369 (1983) United States
00293 E-T	A06: Undef	0.1-8.5 MeV/amu	Schlachter, A. S.; Stearns, J. T.; Graham, W. G.; Berkner, K. L.; Pyle, R. V.; Tania, J. A. Electron capture for fast highly charged ions in gas targets: an empirical scaling rule. <i>Phys. Rev. A</i> 27, 3372 (1983) United States
00294 T	H04: hv + Ar	3201-3208 eV	Tulkki, J. Evolution of the iselast/c x-ray scattering by L and M electrons into K fluorescence in argon. <i>Phys. Rev. A</i> 27, 3375 (1983) Finland
00295 T	C02: H ⁺ + Al	1-100 MeV	McGuire, R. J. Extraction of shell corrections from Born-approximation stopping-power calculations in Al. <i>Phys. Rev. A</i> 28, 49 (1983) United States
00296 T	C02: H ⁺ + Al	1-100 MeV	McGuire, R. J. Bethe mean excitation energy for solid aluminum. <i>Phys. Rev. A</i> 28, 53 (1983) United States
00297 T	C02: H ⁺ + Al	0.1-10 MeV	McGuire, R. J. Inner-shell corrections to Al proton stopping power as a function of degree of ionization. <i>Phys. Rev. A</i> 28, 57 (1983) United States
00298 E	A03: Ca ⁺ + He	0.056 eV	Yeh, F. J.; Daghigian, P. J. Intramultiplet mixing in collisions of calcium 4s4p ² (³ P ^o) with helium: measurement of state-to-state cross sections. <i>Phys. Rev. A</i> 28, 63 (1983) United States
00299 T	A03: Ca ⁺ + He	0.028 eV	Alexander, S. L.; Orlikovska, T.; Strach, J. E. Theoretical study of intramultiplet transitions in collisions of atoms in ³ P electronic states with structureless targets: Ca(³ P) + He. <i>Phys. Rev. A</i> 28, 73 (1983) United States

Ref. No.	Reactants	Energy Range	Reference
00300 T	B07: Undef		Clark, C. W. Low-energy electron-atom scattering in a magnetic field. <i>Phys. Rev. A</i> 28, 61 (1983) United States
00301 E	B05: e + B ⁺ ; e + C ²⁺ ; e + N ³⁺ ; e + O ⁴⁺	21-1476 eV	Falk, R. A.; Stefani, G.; Camilloni, R.; Penn, G. M.; Pham, B. A.; Gregory, D. C.; Crandall, D. W. Measured electron-impact ionization of Be-like ions: B ⁺ , C ²⁺ , N ³⁺ , and O ⁴⁺ . <i>Phys. Rev. A</i> 28, 91 (1983) United States
00302 E-T	A03: C ²⁺ + Ti; C ³⁺ + Ti; C ⁴⁺ + Ti; N ³⁺ + Ti; N ⁴⁺ + Ti; N ⁵⁺ + Ti; O ⁴⁺ + Ti; O ⁵⁺ + Ti; O ⁶⁺ + Ti; F ⁵⁺ + Ti; F ⁶⁺ + Ti; F ⁷⁺ + Ti; Ne ⁵⁺ + Ti; Ne ⁶⁺ + Ti; Ne ⁷⁺ + Ti; Al ³⁺ + Ti; Al ⁴⁺ + Ti; Al ⁵⁺ + Ti; Si ³⁺ + Ti; Si ⁴⁺ + Ti; Si ⁵⁺ + Ti; S ³⁺ + Ti; S ⁴⁺ + Ti; S ⁵⁺ + Ti; Cl ³⁺ + Ti; Cl ⁴⁺ + Ti; Cl ⁵⁺ + Ti A06: C ²⁺ + Ti; C ³⁺ + Ti; C ⁴⁺ + Ti; N ³⁺ + Ti; N ⁴⁺ + Ti; N ⁵⁺ + Ti; O ⁴⁺ + Ti; O ⁵⁺ + Ti; O ⁶⁺ + Ti; F ⁵⁺ + Ti; F ⁶⁺ + Ti; F ⁷⁺ + Ti; Ne ⁵⁺ + Ti; Ne ⁶⁺ + Ti; Ne ⁷⁺ + Ti; Al ³⁺ + Ti; Al ⁴⁺ + Ti; Al ⁵⁺ + Ti; Si ³⁺ + Ti; Si ⁴⁺ + Ti; Si ⁵⁺ + Ti; S ³⁺ + Ti; S ⁴⁺ + Ti; S ⁵⁺ + Ti; Cl ³⁺ + Ti; Cl ⁴⁺ + Ti; Cl ⁵⁺ + Ti A07: C ²⁺ + Ti; C ³⁺ + Ti; C ⁴⁺ + Ti; N ³⁺ + Ti; N ⁴⁺ + Ti; N ⁵⁺ + Ti; O ⁴⁺ + Ti; O ⁵⁺ + Ti; O ⁶⁺ + Ti; F ⁵⁺ + Ti; F ⁶⁺ + Ti; F ⁷⁺ + Ti; Ne ⁵⁺ + Ti; Ne ⁶⁺ + Ti; Ne ⁷⁺ + Ti; Al ³⁺ + Ti; Al ⁴⁺ + Ti; Al ⁵⁺ + Ti; Si ³⁺ + Ti; Si ⁴⁺ + Ti; Si ⁵⁺ + Ti; S ³⁺ + Ti; S ⁴⁺ + Ti; S ⁵⁺ + Ti; Cl ³⁺ + Ti; Cl ⁴⁺ + Ti; Cl ⁵⁺ + Ti	0.5-6.5 MeV/amu	Hall, J.; Richard, P.; Gray, T. J.; Newcomb, J.; Papadimitrakis, P.; Lin, C. D.; Jones, K.; Johnson, R.; Gregory, D. C. Systematics of single and double K-shell-vacancy production in titanium bombarded by heavy ions. <i>Phys. Rev. A</i> 28, 99 (1983) United States
00303 T	B07: Undef		Nickman, A. P. Collisions of Rydberg atoms in an electric field: calculations using hydrogenic wave functions in parabolic coordinates. <i>Phys. Rev. A</i> 28, 111 (1983) United States
00304 E	A03: He ⁺ + O ₂ ; He ²⁺ + O ₂ ; Ar ⁺ + O ₂ ; Kr ⁺ + O ₂ ; B ⁺ + O ₂ ; Ne ²⁺ + O ₂ ; Ne ³⁺ + O ₂ ; Ar ²⁺ + O ₂ A06: He ⁺ + O ₂ ; He ²⁺ + O ₂ ; Ar ⁺ + O ₂ ; Kr ⁺ + O ₂ ; B ⁺ + O ₂ ; Ne ²⁺ + O ₂ ; Ne ³⁺ + O ₂ ; Ar ²⁺ + O ₂	1-1600 eV	Kuen, I.; Stori, M.; Nowotna, P. Measurement of direct and charge-exchange excitation cross sections in collisions of 1-1800-eV (laboratory frame) He ⁺ , He ²⁺ , Ar ⁺ , Ar ²⁺ , and B ⁺ ions and of 1-1600-eV He ²⁺ , Ne ²⁺ , and Ar ²⁺ ions with O ₂ (wavelength region 2000-8000 Å). <i>Phys. Rev. A</i> 28, 119 (1983) Austria
00305 E	A06: C ²⁺ + He; C ³⁺ + He; N ³⁺ + He; N ⁴⁺ + He; O ⁴⁺ + He	4-12 keV	Ohno, K.; Tavera, M.; Iwai, T.; Kaneko, I.; Minura, M.; Kobayashi, M.; Matsunoto, A.; Ohtani, S.; Takagi, S.; Tsurubachi, S. Energy-spectroscopic studies of electron-capture processes by low-energy, highly stripped C, N, and O ions from He. <i>Phys. Rev. A</i> 28, 127 (1983) Japan
00306 T	C05: e + Ge	1.9 MeV	Peterson, H. A. Angular distributions in multiple scattering. <i>Phys. Rev. A</i> 28, 135 (1983) United States
00307 E	A06: He ²⁺ + He; He ³⁺ + He; He ⁴⁺ + He; He ⁵⁺ + He; He ⁶⁺ + He; He ⁷⁺ + He; He ⁸⁺ + He; He ⁹⁺ + He; He ¹⁰⁺ + He; He ¹¹⁺ + He; He ¹²⁺ + He; He ¹³⁺ + He; He ¹⁴⁺ + He; He ¹⁵⁺ + He; He ¹⁶⁺ + He; He ¹⁷⁺ + He; He ¹⁸⁺ + He; He ¹⁹⁺ + He; He ²⁰⁺ + He	1-70 eV	Prior, D. H.; Marron, B.; Vane, C. W. Electron capture by trapped He ^{(n+q)+} ions at very low energies. <i>Phys. Rev. A</i> 28, 141 (1983) United States
00308 E	B17: e + Ba ⁺	10-100 eV	Register, D. P.; Trajmar, S.; Csanak, G.; Jensen, S. W.; Pineson, M. A.; Jos, R. J. Investigation of superelastic electron scattering by laser-excited Ba. Experimental procedures and results. <i>Phys. Rev. A</i> 28, 151 (1983) United States
00309 E	A03: Si ⁺ + Ar A07: Si ⁺ + Ar	15-500 keV	Schneider, D.; Holte, G.; Wille, U.; Stollerfoht, W. Total cross sections for L-shell Auger-electron production and vacancy production in slow Si-Ar collisions. <i>Phys. Rev. A</i> 28, 161 (1983) West Germany

Ref. No.	Reactants	Energy Range	Reference
00310 T	E02: $e + H_2^+$	3-16 eV	Schneider, B. L.; Collins, L. A. Examination of the $^1F(2s\ 4)$ resonances in low-energy $e-H_2^+$ collisions. <i>Phys. Rev. A</i> 28, 166 (1983) United States
00311 T	E02: $e + He$ E17: $e + He$	30-3000 eV	Staszewska, G.; Schwente, B. U.; Tschler, R. G. Dispersion-equation approach to obtaining polarization potentials for quantum-mechanical electron-scattering calculations. <i>Phys. Rev. A</i> 28, 169 (1983) United States
00312 E	A03: $H + He; H + H_2$	0.05-2.5 keV	Van Zyl, B.; Gentry, E. W.; Wehmann, R. Balmer- α and Balmer- β emission cross sections for low-energy H collisions with He and H_2 . <i>Phys. Rev. A</i> 28, 176 (1983) United States
00313 T	E05: $e + He$ E17: $e + He$	224-2824 eV	Roy, A. C.; Das, A. K.; Sil, B. C. Triply differential cross sections for electron-impact ionization of helium. <i>Phys. Rev. A</i> 28, 181 (1983) India
00314 E	H05: $h\nu + Na; h\nu + Na_2$	6000-5800 Å	Allegrini, S.; Garver, W. P.; Kashauba, V. S.; Leventhal, J. J. Ion formation in laser-irradiated sodium vapor. <i>Phys. Rev. A</i> 28, 199 (1983) United States
00315 T	H06: $h\nu + Hg$	0-10 a.u.	Deshmukh, P. C.; Hanson, S. T. Photoionization of mercury in the relativistic random-phase approximation. <i>Phys. Rev. A</i> 28, 209 (1983) United States
00316 T	H06: $h\nu + Cl$	0.5-1.6 a.u.	Fleider, W. E.; Armstrong, L., Jr. Channel-interaction effects on the 3p-subshell photoionization of chlorine. <i>Phys. Rev. A</i> 28, 216 (1983) United States
00317 T	H07: Undef H06: Undef	H06: Undef	Fiordilino, E.; Hittelman, M. E. Modification of the photoionization of hydrogen by a low-frequency laser. <i>Phys. Rev. A</i> 28, 229 (1983) United States
00318 E	B01: Ca^+		Goldbach, C.; Wolter, G.; Ploudeur, P.; Zimmermann, J. P. Stark-width measurements of single ionized calcium resonance lines in a wall-stabilized arc. <i>Phys. Rev. A</i> 28, 234 (1983) France
00319 E	H08: $h\nu + Na$	Undef	Wennekens, J.; Gallagher, A. Radiation diffusion and saturation in optically thick Na vapor. <i>Phys. Rev. A</i> 28, 238 (1983) United States
00320 E	H06: $h\nu + Xe$	355-1064 nm	Kruit, P.; Kinnam, J.; Heller, H. G.; Van der Ziel, M. J. Electron spectra from multiphoton ionization of xenon at 1064, 532, and 355 nm. <i>Phys. Rev. A</i> 28, 248 (1983) The Netherlands
00321 T	H04: $h\nu + Xe$ H06: $h\nu + Xe$	60-190 eV	Southworth, S. E.; Becker, U.; Truendele, C. H.; Kobrin, P. E.; Lindle, D. W.; Oishi, S.; Shirley, D. A. Electron-spectroscopy study of inner-shell photoexcitation and ionization of Xe. <i>Phys. Rev. A</i> 28, 261 (1983) United States
00322 T	H06: $e + He^+$	0.1-0.5 Ry	McLaughlin, B. J.; Wahn, Y. Dielectronic recombination cross section for B III. <i>Phys. Rev. A</i> 28, 493 (1983) United States
00323 E	D11: $H_2 + Ca; D_2 + Ca; HD + Ca$	290 K	Andersson, S.; Harris, J. Trapping of molecular hydrogen at surfaces via translational-rotational energy conversion. <i>Phys. Rev. B</i> 27, 9 (1983) Sweden
00324 T	D11: $H + He$	Undef	Taple, J. A.; Geyer, R. A. Sticking of H to helium surfaces. <i>Phys. Rev. B</i> 27, 1629 (1983) United States
00325 T	D03: Undef	Undef	Lang, H. D. Ionization probability of sputtered atoms. <i>Phys. Rev. B</i> 27, 2019 (1983) United States
00326 E	D07: $He + C$	17-63 meV	Vidali, G.; Frankl, D. R. He-diamond interaction probed by atom beam scattering. <i>Phys. Rev. B</i> 27, 2480 (1983) United States
00327 E	D07: $He + NaF$	Undef	Benedek, G.; Brundeylin, G.; Toennies, J. P.; Donk, R. E. Experimental evidence for kinematical focusing in the inelastic scattering of helium from the NaF(001) surface. <i>Phys. Rev. B</i> 27, 2484 (1983) West Germany

Ref. No.	Reactants	Energy Range	Reference
00328 Z	C02: H ⁺ + In ₂ O ₃ ; H ⁺ + TiO ₂ ; H ⁺ + Al; H ⁺ + Cu; H ⁺ + O; H ⁺ + In; H ⁺ + Ti; H ⁺ + Se; H ⁺ + Sb	632-992 keV	Kido, T.; Nishi, T. Measurements of energy loss and straggling for fast H ⁺ in metals and their compounds by means of a nuclear resonant reaction. Phys. Rev. B 27, 2667 (1983) Japan
00329 Y	D01: Undef	Undef	O'Hori, T.; Ohtsuki, Y. H. Effective interaction between swift ions at solid surfaces. Phys. Rev. B 27, 3416 (1983) Japan
00330 Z	C02: Li ⁺ + Si; H ⁺ + Si; H ⁺ + Si; O ⁺ + Si; F ⁺ + Si; Na ⁺ + Si; Ag ⁺ + Si; Al ⁺ + Si C04: Li ⁺ + Si; H ⁺ + Si; H ⁺ + Si; O ⁺ + Si; F ⁺ + Si; Na ⁺ + Si; Ag ⁺ + Si; Al ⁺ + Si	1-20 keV	Nach, R.; Wittmann, L. Ranges of low-energy, light ions in amorphous silicon. Phys. Rev. B 27, 3528 (1983) West Germany
00331 X-Y	K02: Review	Undef	Fano, U. Correlations of two excited electrons. Rep. Prog. Phys. 46, 97 (1983) United States
00332 Y	K01: Review	Undef	Sentor, H. J. Quantum defect theory. Rep. Prog. Phys. 46, 167 (1983) United Kingdom
00333 Y	E04: e + PERT ⁺ E06: e + PERT ⁺	Undef	Limits, V. I.; Rapoport, L. P. Theory of dissociative recombination. Sov. J. Plasma Phys. 8, 431 (1983) Soviet Union
00334 Y	E07: e + He ⁺ ; e + O ⁺ ; e + Be ⁺ ; e + Fe ¹⁶⁺ ; e + Fe ¹⁷⁺ E08: e + He ⁺ ; e + O ⁺ ; e + Be ⁺ ; e + Fe ¹⁶⁺ ; e + Fe ¹⁷⁺	E06: 4-44 eV	Grigoriadi, A. K.; P. Jan, O. I. Effect of microscopic electric fields on dielectronic recombination in plasmas. Sov. J. Plasma Phys. 8, 440 (1983) Soviet Union
00335 Z	A12: He ⁺ + He	15900-25000 K	Piez, A.; Richter, H. Experimental study of ion dynamic effects in overlapping helium lines at low densities. Z. Naturforsch. A 38, 37 (1983) West Germany
00336 Y	D11: Ar + Pt; Xe + Pt D13: Ar + Pt; Xe + Pt	0-3000 K	Leuthausser, U. Kinetic theory of desorption: energy and angular distributions. Z. Phys. B 50, 65 (1983) West Germany
00337 Y	E03: e + H E04: e + H E19: e + H	0.01-1 keV	Margoliash, D. J.; Langhoff, P. H. Computational studies of first-born scattering cross sections: I. Spectral properties of BeHe surfaces. J. Comput. Phys. 49, 44 (1983) United States
00338 Y	E01: e + H E05: e + H E19: e + H	0.01-1 keV	Margoliash, D. J.; Langhoff, P. H. Computational studies of first-born scattering cross sections: II. Born-approximation approach. J. Comput. Phys. 49, 67 (1983) United States
00339 Z	E06: H ⁺ + Ca	0.18-5.0 keV	Nagata, T. Cross section for Lyman-alpha emission in H ⁺ -Ca charge transfer excitation. J. Phys. Soc. Jpn. 52, 4 (1983) Japan
00340 Y	E06: O ²⁺ + H	2-240 keV	Yoshida, J.; O-Obata, K. Charge transfer reaction of O ²⁺ + H - O ²⁺ + H ⁺ in low energy collision. J. Phys. Soc. Jpn. 52, 417 (1983) Japan
00341 Z	E06: He ²⁺ + He; He ²⁺ + Ar; He ²⁺ + Kr; He ²⁺ + Xe; He ²⁺ + N ₂	0.7-4.5 keV	Senaki, H.; Kusakabe, T.; Nagai, H.; Sakisaka, H. Electron capture of He ²⁺ from gas target atoms at around a few keV. J. Phys. Soc. Jpn. 52, 424 (1983) Japan
00342 Y	E01: Undef E02: Undef E03: Undef	2.72-28 eV	Ohsaki, A. Resonant collision in strong magnetic field: I. Perturbation theory of cyclotron resonance. J. Phys. Soc. Jpn. 52, 431 (1983) Japan
00343 Y	E01: Undef E02: Undef E03: Undef	1.36-18 eV	Ohsaki, A. Resonant collision in strong magnetic field: II. An exact formulation without Green's function. J. Phys. Soc. Jpn. 52, 442 (1983) Japan

Ref. No.	Reactants	Energy Range	Reference
00346 T	A06: Kr ²⁺ + Kr; Kr ³⁺ + Kr; Kr ⁴⁺ + Kr; Kr ⁵⁺ + Kr; Kr ⁶⁺ + Kr; Kr ⁷⁺ + Kr; Kr ⁸⁺ + Kr; Kr ⁹⁺ + Kr	24 keV	Sakimaka, S.; Masaki, H.; Nagai, S.; Horieuchi, T.; Komori, I.; Kumbabe, T. A statistical model for collisions of multiple electron transfer. J. Phys. Soc. Jpn. 52, 716 (1983) Japan
00345 T	E02: e + H ₂ O E17: e + H ₂ O	50-500 eV	Fujita, T.; Ogura, K.; Matsumoto, T. Elastic scattering of electron by water molecule in high and intermediate energy regions. J. Phys. Soc. Jpn. 52, 811 (1983) Japan
00346 T	E05: e + N	100-250 eV	Chen, H. Triple differential cross sections for the ionization of atomic hydrogen by electron impact in the Coulomb-projected-eikonal approximation. J. Phys. Soc. Jpn. 52, 818 (1983) Japan
00347 E	A03: Kr ⁺ + H ₂ ; Kr ⁺ + CO; Kr ⁺ + NO; Kr ⁺ + O ₂	1300 eV	Itch, T.; Nakamura, T.; Kobayashi, S.; Kaneko, T. Ion energy-loss spectroscopy for the collisions of Kr ⁺ (⁴ P _{sub} 3/2) with H ₂ , CO, NO and O ₂ . J. Phys. Soc. Jpn. 52, 1091 (1983) Japan
00348 E	A03: Ne ⁺ + Hg; Ne ⁺ + Hg; Ar ⁺ + Hg	thermal	Isaba, S.; Goto, T.; Kattori, S. Determination of the Penning excitation cross sections of Hg atoms by Ne, Ar and Kr metastable atoms. J. Phys. Soc. Jpn. 52, 1164 (1983) Japan
00349 E	A06: Ar ⁺ + H ₂ ; Ar ²⁺ + H ₂ ; Kr ⁺ + H ₂ ; Kr ²⁺ + H ₂ ; Xe ⁺ + H ₂ ; Xe ²⁺ + H ₂	2-8 keV	Utsunoto, A.; Sano, T.; Iwai, T. Observation of H ₂ ⁺ 3914 Å ⁺ band emission in collisions of singly- doubly-charged Ar, Kr and Xe ions with H ₂ at keV energies. J. Phys. Soc. Jpn. 52, 1173 (1983) Japan
00350 T	E03: e + Li ⁺ ; e + C ⁺ ; e + O ⁺ ; e + Si ²⁺	0-9000 eV	Nakazaki, S. Excitation of helium-like ions by electron impact in the first-order exchange Coulomb approximation. J. Phys. Soc. Jpn. 52, 1555 (1983) Japan
00351 E	E05: e + Ne ⁺	0-200 eV	Kotegawa, S. Eikonal approach to break-up processes of hydrogen-like ions with an electron impact; exchange of electrons. J. Phys. Soc. Jpn. 52, 1572 (1983) Japan
00352 T	A03: Kr ⁺ + Ne; Kr ⁺ + Ar; Kr ⁺ + Kr; Kr ⁺ + Ne	500-1300 eV	Kobayashi, S.; Nakamura, T.; Kaneko, T. Fine-structure transitions in collisions of Kr ⁺ (⁴ P _{sub} 3/2) with rare gases. J. Phys. Soc. Jpn. 52, 1581 (1983) Japan
00353 E-T	A11: CO ⁺ + He; H ₂ ⁺ + He	80-300 K	Maricq, R. H.; Gregory, R. A.; Wickham-Jones, C. T.; Cartwright, D. J.; Simpson, C. J. S. Experimental and theoretical study of the vibrational relaxation of CO(⁺ 1) and H ₂ (⁺ 1) by T ₂ relaxation by the isotopes of helium. Chem. Phys. 75, 347 (1983) United Kingdom
00354 E	A06: B ⁺ + He; B ⁺ + Ne; B ⁺ + Ar; B ⁺ + Kr; B ⁺ + Xe; B ⁺ + D ₂ ; B ⁺ + H ₂ ; B ⁺ + CO; B ⁺ + CH ₄ ; B ⁺ + He; B ⁺ + Ne; B ⁺ + Ar; B ⁺ + Kr; B ⁺ + Xe; B ⁺ + D ₂ ; B ⁺ + H ₂ ; B ⁺ + CO; B ⁺ + CH ₄	40-375 eV	Ottenger, C.; Weichstath, J.; Yang, H. Luminous charge transfer of ground-state and metastable B ⁺ ions. Chem. Phys. 76, 61 (1983) West Germany
00355 T	A03: He ⁺ + He ⁺	1000 eV	Rei Bastidar, Y. K.; Rei Bastidar, Y.; Sen Gupta, S. A new diabatic molecular representation for triplet-triplet transitions in He ⁺ -He ⁺ collisions. Chem. Phys. Lett. 96, 85 (1983) United States
00356 T	E06: e + CO ₂ ⁺ + CO ₂ ; e + CH ₄ ⁺ + CH ₄ ; e + NH ₃ ⁺ + NH ₃	100 K	Morgan, W. L.; Baradley, J. H. Monte Carlo simulation of electron-ion recombination at high pressure. Chem. Phys. Lett. 96, 93 (1983) United States
00357 T	A14: F + H ₂ A18: F + H ₂	0.4 eV	Wyatt, R. E.; Hedden, M. J. Quantum-mechanical differential reaction cross sections for the F + H ₂ (⁺ 0) - FH(⁺ prime = 2,3) + H reaction. Chem. Phys. Lett. 96, 284 (1983) United States
00358 T	A06: He ⁺ + He ⁺	10 ⁻² -10 ⁴ eV	Gangopadhyay, P.; Bradley, J. H. Charge transfer to helium ions from metastable helium. Chem. Phys. Lett. 96, 379 (1983) United States
00359 E	E09: e + CO ₂	1-20 eV	Orient, O. J.; Srivastava, S. K. Production of O ⁻ from CO ₂ by dissociative electron attachment. Chem. Phys. Lett. 96, 681 (1983) United States
00360 T	D08: NO + Ag	0.65 eV	Barker, J. A.; Eley, A. W.; Auerbach, D. J. Rotational energy distributions in molecule surface scattering: model calculations for NO/Ag(111). Chem. Phys. Lett. 97, 9 (1983) United States

Ref. No.	Reactants	Energy Range	Reference
00361 E	A11: $O_2^+ + CO_2$; $O_2^+ + H_2O$; $O_2^+ + NO$; $O_2^+ + NH_3$; $O_2^+ + HCl$; $O_2^+ + SO_2$	300 K	Bondaghians, R. N.; Borrelli, P. N.; Borrelli, P. Room-temperature rate constants for the gas-phase quenching of metastable molecular oxygen, $O_2(a^1\Delta_g)$ and $O_2(b^1\Sigma_g^-)$, by CO_2 , H_2O , NO , NH_3 , HCl , and SO_2 . Chem. Phys. Lett. 97, 193 (1983) United Kingdom
00362 T	E05: $e + Li$	1.5-200 eV	Tivary, S. N. Low-energy electron impact excitation of the lowest-lying autoionizing level in Li. Chem. Phys. Lett. 97, 221 (1983) United Kingdom
00363 T	D13: $CO + Ni$	140-1000 K	Allison, J. R.; Zeiri, Y.; Bedondo, A.; Goddard, W. A., III. Rates of molecular desorption from solid surfaces: adsorption site dependence for CO on Si(100). Chem. Phys. Lett. 97, 387 (1983) United States
00364 T	E02: $e + H_2$ E17: $e + H_2$	30 keV	Breitenstell, R.; Edenfelder, A.; Scherer, R.; Schweig, A.; Zittlau, U. Electron-correlation effects in electron-scattering cross-section calculations of H_2 . Chem. Phys. Lett. 97, 483 (1983) West Germany
00365 E	A11: $He^+ + H_2O$	0.11-0.26 eV	Coyle, D. R.; Bentley, J.; Sinicur, D. E. Energy transfer studies between He^+ and H_2O . Chem. Phys. Lett. 97, 454 (1983) United States
00366 E	A14: $Cl^+ + H_2$; $Cl^+ + HD$; $Cl^+ + D_2$	140-380 K	Keeper, P. R.; Bowers, H. T. Reevaluation of the temperature dependence of the reactions of Cl^+ and HCl^+ with H_2 . Int. J. Mass Spectrom. Ion Phys. 51, 11 (1983) United States
00367 T	A11: $CO_2^+ + He$	200-600 T	Clary, D. C. Rotational and vibrational-rotational relaxation in collisions of $CO_2(01^10)$ with He atoms. J. Chem. Phys. 78, 4915 (1983) United Kingdom
00368 E	A11: $Cu^+ + He$; $Cu^+ + Ne$; $Cu^+ + Ar$; $Cu^+ + H_2$; $Cu^+ + D_2$; $Cu^+ + H_2^+$; $Cu^+ + CO$; $Cu^+ + C_2$	1600 K	Chen, M. L.; Erbert, G. Laser studies of electronic energy transfer in atomic copper. J. Chem. Phys. 78, 4585 (1983) United States
00369 E	D02: $He^+ + CsBr$; $Ar^+ + CsBr$; $Ar^{2+} + CsBr$ D07: $He^+ + CsBr$; $Ar^+ + CsBr$; $Ar^{2+} + CsBr$	3 keV	Babalais, J. E.; Schultz, J. A.; Kumar, B.; Murray, P. T. Simultaneous TOF spectra of sputtered and scattered neutrals and ions from 3 keV He^+ , Ar^+ , and Ar^{2+} bombardment of CsBr. J. Chem. Phys. 78, 5250 (1983) United States
00370 E-T	D02: $He + O_2$ A17: $He + O_2$ A18: $He + O_2$	27 meV	Fasbel, R.; Kohl, R. H.; Townsley, J. P.; Giantonio, P. A. The $He-O_2$ anisotropic Van der Waals potential from the interplay of theory and scattering experiments. J. Chem. Phys. 78, 5629 (1983) West Germany
00371 T	A17: He_2^+ ; He_2^+	Undef	Seall, K. K.; Lin, J.; Siddiqui, N.; Siska, P. E.; Jordan, K. D.; Shepard, R. Theoretical investigation of the $^2\Sigma^+(u)$, $A^1\Sigma^+(u)$, $C^3\Sigma^+(g)$, and $C^1\Sigma^+(g)$ potential energy curves of He_2 and of $He^+(2^1S, 2^3S) + He$ scattering. J. Chem. Phys. 78, 6190 (1983) United States
00372 T	A11: $H_2^+ + H_2$	20-200 K	Kohler, H. H.; Schaefer, J. Theoretical studies of H_2-H_2 collisions: V. Ab initio calculations of relaxation phenomena in parahydrogen gas. J. Chem. Phys. 78, 6602 (1983) West Germany
00373 E-T	A07: $Li^+ + H_2O$	300 K	Shepard, C. L.; Kocher, C. A. Collisional ionization of high-Rydberg lithium atoms in thermal-energy encounters with rapidly rotating polar molecules. J. Chem. Phys. 78, 6620 (1983) United States
00374 E	A11: $Ind^+ + Ar$; $Ind^+ + H_2$; $Ind^+ + D_2$; $Ind^+ + H_2$; $Ind^+ + CH_4$	1020 K	Novis, P. E.; Gelbrach, J. A. Collisional quenching of indium ($5p^2\ ^3P_{1/2}$) and indium ($5p^2\ ^3P$) by Ar, H_2 , D_2 , H_2 , and CH_4 . J. Chem. Phys. 78, 6680 (1983) United States
00375 E	D08: $NO + Pt$	300-1200 K	Asscher, N.; Gathrie, W. L.; Lin, Y. H.; Sowerby, G. A. Energy redistribution among internal states of nitric oxide molecules upon scattering from Pt(111) crystal surface. J. Chem. Phys. 78, 6992 (1983) United States
00376 E	H06: $h\nu + CO$ H08: $h\nu + CO$	230 nm	Loge, G. W.; Tien, J. J.; Waspler, P. B. Multiphoton induced fluorescence and ionization of carbon monoxide ($B^1\Sigma^+$). J. Chem. Phys. 78, 196 (1983) United States

Ref. No.	Reactants	Energy Range	Reference
00377 T	A17: He + He	Undef	Hornik, S.; Naef, K. P.; Linder, B. Van der Waals forces from scattering functions. The He-He potential. J. Chem. Phys. 79, 120 (1983) United States
00378 E	A06: H ₂ O ⁺ + NO; H ₂ O ⁺ + NO; NO ₂ ⁺ + NO; SO ₂ ⁺ + NO; CO ₂ ⁺ + NO; CO ₂ ⁺ + O ₂ ; CO ₂ ⁺ + CH ₄ ; CO ₂ ⁺ + Xe	0-1.0 eV	Durup-Ferguson, B.; Bohringer, H.; Fahey, D. S.; Ferguson, E. Z. Enhancement of charge-transfer reaction rate constants by vibrational excitation at kinetic energies below 1 eV. J. Chem. Phys. 79, 265 (1983) United States
00379 E	A02: N + Ar; N ₂ + Ar A17: N + Ar; N ₂ + Ar	0.7-2.5 km/sec	Brusetti, B.; Listi, G.; Luzzatti, E.; Pirani, P.; Volpi, G. G. The interaction of atomic and molecular nitrogen with argon by scattering measurements. J. Chem. Phys. 79, 277 (1983) Italy
00380 E	D09: H ₂ ⁺ + Al	Undef	Avouris, P.; Schweisner, D.; Demuth, J. E. Nonradiative relaxation of electronically excited H ₂ on Al(111). Comparison with nonlocal optical theory. J. Chem. Phys. 79, 468 (1983) United States
00381 E	H0M: 2hν + C	245 nm	Das, P.; Ondrey, G.; Van Veen, W.; Bersohn, B. Two photon laser induced fluorescence of carbon atoms. J. Chem. Phys. 79, 724 (1983) United States
00382 T	A17: OH H05: hν + CH	8-13 eV	Van Dishoeck, E. P.; Dalgarno, A. Photodissociation processes in the OH molecule. J. Chem. Phys. 79, 873 (1983) United States
00383 T	A03: He + H ₂	0.1-1.6 eV	Jolicard, G.; Bonny, J. Rotational cross sections: a new semiclassical perturbed stationary states (PSS) approach. J. Chem. Phys. 79, 1248 (1983) France
00384 T	A14: Cl + H ₂	200-500 K	Miller, J. C.; Gordon, R. J. Kinetics of the Cl-H ₂ system: III. The deuterium isotope effect in Cl + H ₂ . J. Chem. Phys. 79, 1252 (1983) United States
00385 T	A03: Ar + H ₂	300-1300 K	Cross, R. J. Exponential time-dependent perturbation theory in rotationally inelastic scattering. J. Chem. Phys. 79, 1272 (1983) United States
00386 T	A06: Li ⁺ + Na	1.2-5.0 cm/sec	Oral, A. E.; Kulander, K. C. A theoretical study of coherence effects in charge transfer collisions: application to Na-Li. J. Chem. Phys. 79, 1326 (1983) United States
00387 T	A11: Na ⁺ + H ₂	0.9 kcal/mol	Blais, W. C.; Truhler, D. G. Trajectory-surface-hopping study of Na(3 ² P) + H ₂ - Na(3s ² S) + H ₂ (v prime, j prime, theta). J. Chem. Phys. 79, 1334 (1983) United States
00388 T	H06: hν + NO	0-40 eV	Smith, M. E.; Lucchese, A. B.; McKay, V. Studies of the photoionization cross section of the 2 (small pi) level of nitric oxide. J. Chem. Phys. 79, 1360 (1983) United States
00389 T	A17: O ₂	Undef	Sheppard, M. G.; Schneider, B. I.; Martin, R. L. Multireference many-body perturbation theory: application to O ₂ potential energy surfaces. J. Chem. Phys. 79, 1364 (1983) United States
00390 E	A11: NO ⁺ + NO; HCl ⁺ + H ₂ ; HCl ⁺ + CO ₂ ; NO ⁺ + CH ₄ ; NO ⁺ + NO ₂ ; NO ⁺ + NO; NO ⁺ + Ar; NO ⁺ + Kr	380 ⁰ K	Dobler, W.; Federer, W.; Noworka, P.; Lindinger, W.; Durup-Ferguson, B.; Ferguson, E. Z. Vibrational relaxation of NO ⁺ (v) ions in neutral collisions. J. Chem. Phys. 79, 1343 (1983) Austria
00391 T	A06: O ₂ ⁺ + O ₂	15-30 eV	DePristo, A. E. Electron transfer in the O ₂ ⁺ [X ² g(sub g)], v = 0-8] + O ₂ [X ² g(sub g)], v = 0] system. J. Chem. Phys. 79, 1741 (1983) United States
00392 T	E04: e + H E17: e + H	6.7 eV	Grajic, P.; Tomic, A.; Vacic, S. A classical model for the low-energy e ⁺ -H(1s) elastic scattering. J. Chem. Phys. 79, 1776 (1983) Yugoslavia
00393 E	A11: OH ⁺ + H ₂ ; OH ⁺ + CO; OH ⁺ + CO ₂ ; OH ⁺ + H ₂ O; OH ⁺ + CH ₄ ; OH ⁺ + NH ₃ ; OH ⁺ + O ₂ ; OH ⁺ + H ₂ O; OH ⁺ + H ₂ ; OH ⁺ + NO	1100 K	Fairchild, P. W.; Smith, G. P.; Crowley, D. B. Collisional quenching of A ² Σ ⁺ OH at elevated temperatures. J. Chem. Phys. 79, 1795 (1983) United States

Ref. No.	Reactants	Energy Range	Reference
00394 T	E02: e + H ₂ E03: e + H ₂ E17: e + H ₂	5-50 eV	Swable, J. R., Jr.; Trahler, B. G.; Morrison, M. A. State-to-state differential and integral cross sections for vibrational-rotational excitation and elastic scattering of electrons by H ₂ at 5-50 eV: calculations using extended-basis-set Hartree-Fock wave functions. <i>J. Chem. Phys.</i> 79, 1806 (1983) United States
00395 E	D03: He ⁺ + Li; He ⁺ + SiO; He ⁺ + V	500 eV	Yu, M. L. Effect of surface chemistry and work function in secondary ion mass spectrometry. <i>J. Vac. Sci. Technol. A</i> 1, 500 (1983) United States
00396 -	A14: T ₂ + D ₂	77-300 K	McCoville, G. T.; Henke, B. A.; Ellerson, R. E. Summary abstract: reaction rates for the formation of DT under various conditions from T ₂ + D ₂ . <i>J. Vac. Sci. Technol. A</i> 1, 874 (1983) United States
00397 E	D02: H ⁺ + TiC D17: H ⁺ + TiC	0.5-3.0 keV	Sakamoto, S.; Gossy, T. Methane formation and surface modification of TiC coating by hydrogen ion bombardment. <i>J. Vac. Sci. Technol. A</i> 1, 920 (1983) Japan
00398 E	D13: H + C D17: H + C	400-600 K	Anby, C. I. E. Summary abstract: photoenhancement of the reaction of graphite with atomic hydrogen by ultraviolet radiation. <i>J. Vac. Sci. Technol. A</i> 1, 935 (1983) United States
00399 E	D03: Ca ⁺ + C	0.5-15 keV	Fargellia, A.; Seidl, R. Summary abstract: sputtering of negative carbon ions from coated graphite surfaces. <i>J. Vac. Sci. Technol. A</i> 1, 985 (1983) United States
00400 E-T	D04: Ar ⁺ + Al; Ar ⁺ + Si	3 keV	Andreadis, T. B.; Finn, J.; Matthew, J. A. D. Summary abstract: ion beam angle dependence of collisionally excited Auger electron emission from Al and Si surfaces. <i>J. Vac. Sci. Technol. A</i> 1, 1159 (1983) United States
00401 E	D13: e + H ₂ O + Ni	17-50 eV	Stulen, R. H. Summary abstract: electron-stimulated desorption of ions and metastable neutrals from condensed H ₂ O multilayers. <i>J. Vac. Sci. Technol. A</i> 1, 1163 (1983) United States
00402 T	D03: Cu ⁺ + Cu D09: Cu ⁺ + Cu	10 ⁻¹⁰ cm/sec	Liu, J. H.; Garrison, B. J. Charge transfer at surfaces: a model for ionization in SIMS. <i>J. Vac. Sci. Technol. A</i> 1, 1205 (1983) United States
00403 E	D08: H ₂ + Pt	60-210 meV	Doyen, G.; Ertl, G.; Rohata, M.; Segner, J.; Vielhaber, W.; Fromel, P.; Rager, J.; Krieger, W.; Walther, E. Summary abstract: rotational state population of H ₂ scattered from clean and adsorbate-covered Pt surfaces. <i>J. Vac. Sci. Technol. A</i> 1, 1269 (1983) West Germany
00404 E	D11: H ₂ + W	0-1.6 eV	Auerbach, D. J.; Schlaegel, J. E.; Lee, J.; Radix, R. J. Summary abstract: kinetic energy dependence of nitrogen adsorption on W(110). <i>J. Vac. Sci. Technol. A</i> 1, 1270 (1983) United States
00405 E	D05: hv + Al; hv + Zn	100-200 nm	Shigekawa, H.; Iwatsu, H.; Okuda, H.; Hyodo, S. Change of energy-level distribution of photoemission sources in Al and Zn caused by scratching. <i>Jpn. J. Appl. Phys. Pt. 1</i> 22, 42 (1983) Japan
00406 T	C06: C ⁺ + H; He ⁺ + H; Ar ⁺ + H; Kr ⁺ + H; I ⁺ + H; U ⁺ + H	10 ⁻¹⁰ eV/amu	Kanashima, S.; Watanabe, T. Charge equilibrium of energetic heavy ions in gaseous media (ideal atomic hydrogen gas). <i>Jpn. J. Appl. Phys. Pt. 1</i> 22, 895 (1983) Japan
00407 E	D04: Ar ⁺ + Al; O ₂ ⁺ + Al	0.3-2.5 keV	Yamazaki, Y.; Shimizu, R. Secondary electron emission from aluminum by argon and oxygen ion bombardment below 3 keV. <i>Jpn. J. Appl. Phys. Pt. 2</i> 22, L227 (1983) Japan
00408 E	A07: Na ⁺ + Na	thermal	Bozano, R.; Boulier, J.; Wolser, J. Determination of the absolute rate constant for associative ionization in crossed-beam collisions between Na 3P _{1/2} atoms. <i>Phys. Rev. A</i> 28, 604 (1983) United States
00409 E	C02: H ⁺ + Si C05: H ⁺ + Si	0.7-115 GeV/c	Bancroft, S.; James, P.; Sovchek, J.; Bancroft, P. G.; VanHousen, L. Energy loss and energy straggling of protons and pions in the momentum range 0.7 to 115 GeV/c. <i>Phys. Rev. A</i> 28, 615 (1983) United Kingdom

Ref. No.	Reactants	Energy Range	Reference
00010 T	R02: e + H ₂	undef	Jude, R.; Tenkin, L. Calculation of the polarization potential for e-H ₂ collisions. Phys. Rev. A 28, 621 (1983) United States
00011 T	A03: K ⁺ + He; Pb ⁺ + He A12: He + Li ⁺ R02: e + He	Undef	Pascale, J. Use of l-dependent pseudopotentials in the study of alkali-metal-atom - He systems. The adiabatic molecular potentials. Phys. Rev. A 28, 632 (1983) United States
00012 T	A03: Undef	Undef	Ritchie, R. Rotational excitation of molecules by slow neutrons: II. Phys. Rev. A 28, 645 (1983) United States
00013 E	A08: He ⁺⁺ + He; He ⁺⁺ + Ar; He ⁺⁺ + Ne; Ne ⁺⁺ + Ar; Ne ⁺⁺ + He; Ne ⁺⁺ + Ar; Ne ⁺⁺ + Ne; Ne ⁺⁺ + Ar; Ar ⁺⁺ + He; Ar ⁺⁺ + Ar; Ar ⁺⁺ + He; Ar ⁺⁺ + Ar	60-200 MeV	Schneider, D.; Prost, R.; Stolterfoht, H.; Wolke, G.; Du Bois, R. Projectile ionization in fast heavy-ion - atom collisions. Phys. Rev. A 28, 649 (1983) United States
00014 T	R05: e + He	20-5000 eV	Kim, Y. K. Angular and energy distributions of secondary electrons from helium. Slow electrons ejected by electron impact. Phys. Rev. A 28, 656 (1983) United States
00015 T	R07: Undef		Shakenhaft, R. Electron scattering from a potential in a radiation field. Phys. Rev. A 28, 667 (1983) United States
00016 T	R02: Undef	Undef	Saeg, C. C.; Ritchie, R. H. 2,3 dependence of the energy loss of an ion passing through an electron gas. Phys. Rev. A 28, 674 (1983) United States
00017 T	R06: e + H ₂ ⁺ R06: e + H ₂ ⁺	0.03-0.5 eV	Giusti-Suzor, A.; Bardeley, J. H.; Derkits, C. Dissociative recombination in low-energy e-H ₂ ⁺ collisions. Phys. Rev. A 28, 683 (1983) France
00018 T	R03: e + H ₂ R17: e + H ₂	10-40 eV	Hu-Tao, L.; McKoy, V. Cross sections for electron-impact excitation of the electronic states of H ₂ . Phys. Rev. A 28, 697 (1983) United States
00019 T	R06: H ⁺ + C R06: H ⁺ + C	60-300 keV	Focke, P.; Heckbach, W.; Caribotti, C. B.; Benirovsky, J. B. Experimental evidence of beam-foil convoy electrons being produced by an electron transfer to the continuum mechanism. Phys. Rev. A 28, 704 (1983) Argentina
00020 T	R02: e + O ₂ R03: e + O ₂ R17: e + O ₂	20-200 eV	Bhattacharyya, P. K.; Goswami, K. K. Elastic and rotational excitation of the oxygen molecule by intermediate-energy electrons. Phys. Rev. A 28, 713 (1983) India
00021 T	R03: e + H R17: e + H	50-100 eV	Tivary, S. N. Application of the asymptotic Green's-function approximation to e-H scattering. Phys. Rev. A 28, 751 (1983) United Kingdom
00022 T	R07: hν + NO ₂ ⁻	2.0-4.0 eV	Clodius, W. R.; Stehman, R. M.; Woo, S. B. Zero-core-contribution calculation of a polyatomic photodetachment cross section: NO ₂ ⁻ . Phys. Rev. A 28, 760 (1983) United States
00023 E	R04: hν + H ₂ ⁺⁺	14900-19500 cm ⁻¹	Comby, P. C.; Moller, R.; Helm, H. Photofragment spectroscopy of H ₂ ⁺⁺ . Phys. Rev. A 28, 766 (1983) United States
00024 E-T	R06: hν + Xe	22670-22740 cm ⁻¹	Jackson, D. J.; Wyma, J. J.; Kos, P. H. Resonance-enhanced multiphoton ionization: interference effects due to harmonic generation. Phys. Rev. A 28, 781 (1983) United States
00025 E	R08: 2hν + H ₂	193 nm	Pesner, R.; Egger, R.; Luk, T. S.; Srinivasan, T.; Rhodes, C. K. Vacuum-ultraviolet stimulated emission from two-photon-excited molecular hydrogen. Phys. Rev. A 28, 795 (1983) United States
00026 E	R06: hν + Ar; hν + Kr; hν + Xe	15-40 eV	Schafers, P.; Schossmann, G.; Weissmann, U. Analysis of Ar 3p ⁴ and Kr 4p ⁴ photoionization from photoelectron-spin-polarization data. Phys. Rev. A 28, 802 (1983) West Germany

Ref. No.	Reactants	Energy Range	Reference
00427 Y	H04: Undef	Undef	Gyatt, R. L.; Moss, G.; Taylor, E. S. Resonance-selective saltphoton excitation in a model system. Phys. Rev. A 28, 815 (1983) Japan
00428 Y	H04: Undef	Undef	Bialynicka-Birula, Z. Exactly soluble model of continuous-continuous transitions in strong laser beams. Phys. Rev. A 28, 836 (1983) Poland
00429 Y	A03: $C^{+} + H; B^{+} + H$ A06: $C^{+} + H; B^{+} + H$	750-2500 keV	Randel, C. P.; Datta, S.; Mukherjee, S. C. Charge-transfer cross sections by high-velocity, completely stripped boron and carbon ions from atomic hydrogen. Phys. Rev. A 28, 1144 (1983) India
00430 Y	C02: Undef	Undef	Sickel, H. Stopping power of n-shell electrons for heavy charged particles. Phys. Rev. A 28, 1147 (1983) United States
00431 Y	H06: Undef	Undef	Agrawal, G. S.; Mann, J. L.; Cooper, J. Photoionization spectra from autoionizing states under recycling conditions. Phys. Rev. A 28, 1154 (1983) United States
00432 Y	H01: $H^{\circ}; He^{\circ}$		Molt, M. K. Stark quenching of metastable 2S states in hydrogen and helium at high fields. Phys. Rev. A 28, 1157 (1983) United States
00433 Y	H07: $h\nu + OH^{-}$	1.75-3.5 eV	Clodius, W. B.; Stebbins, R. H.; Rao, S. B. Zero-core-contribution calculation of photodetachment characteristics of heteronuclear diatomic anions. Phys. Rev. A 28, 1160 (1983) United States
00434 E	H01: Si^{++} C07: $Si^{++} + C$	C07: 125 MeV	Kanter, E. P.; Schneider, D.; Vager, I. Electric field ionization of field-excited Rydberg states of fast heavy ions. Phys. Rev. A 28, 1193 (1983) United States
00435 Y	C02: $H^{\circ} + Au$	0-700 MeV/a.u.	Crawford, O. B.; Montor, C. W., Jr. Position-dependent stopping power for channeled ions. Phys. Rev. A 28, 1260 (1983) United States
00436 E	A04: $H_2^{\circ} + Ar; H_2^{\circ} + Ar$ C01: $H_2^{\circ} + Ar$ C06: $H_2^{\circ} + Ar$	250-1000 keV/a.u.	Gaillard, N. J.; de Pinho, A. G.; Poizat, J. C.; Remillieux, J.; Samdi, R. Experimental study of the triatomic hydrogen molecule through the collisional sequence $H_2^{\circ} \rightarrow H_2^+ \rightarrow H_2^{++}$ undergoing by fast beam in argon. Phys. Rev. A 28, 1267 (1983) France
00437 E	A07: $Na + Na$	650 K	Hummelsch, J.; Collopyer, A. Associative ionization in collisions between two Na(3P) atoms. Phys. Rev. A 28, 1274 (1983) United States
00438 Y	A03: $C^{+} + H; O^{+} + H; N^{+} + H; F^{+} + H;$ $He^{100} + H; Al^{130} + H; Si^{100} + H;$ $Cl^{170} + H; Ar^{100} + H; Ca^{200} + H;$ $Ti^{220} + H; Cr^{200} + H; Ni^{200} + H;$ $Po^{200} + H; Cu^{200} + H; Kr^{200} + H;$ $Zr^{200} + H; Mo^{200} + H; Cd^{200} + H;$ $Te^{200} + H; W^{200} + H$ A06: $C^{+} + H; O^{+} + H; N^{+} + H; F^{+} + H;$ $He^{100} + H; Al^{130} + H; Si^{100} + H;$ $Cl^{170} + H; Ar^{100} + H; Ca^{200} + H;$ $Ti^{220} + H; Cr^{200} + H; Ni^{200} + H;$ $Po^{200} + H; Cu^{200} + H; Kr^{200} + H;$ $Zr^{200} + H; Mo^{200} + H; Cd^{200} + H;$ $Te^{200} + H; W^{200} + H$	0.01-80 keV/a.u.	Jones, R. E.; Belic, D. S.; Braaten, B. H. Total and partial cross sections for electron capture in collisions of hydrogen atoms with fully stripped ions. Phys. Rev. A 28, 1293 (1983) United States
00439 Y	A07: $H^{\circ} + Cu; H^{\circ} + Ag; H^{\circ} + Au$	0.02-1.0 MeV	Nakayama, T.; Sarkadi, L. Electronic relativistic effects in K-shell ionization by proton impact. Phys. Rev. A 28, 1303 (1983) Japan
00440 E	A06: $Fe^{20} + H; Fe^{20} + H_2; Fe^{20} + H;$ $Fe^{20} + H_2; Fe^{20} + H; Fe^{20} + H_2;$ $Fe^{20} + H; Fe^{20} + H_2; Fe^{20} + H;$ $Fe^{20} + H_2; Fe^{20} + H; Fe^{20} + H_2;$ $Fe^{20} + H; Fe^{20} + H_2; Fe^{20} + H;$ $Fe^{20} + H_2; Fe^{20} + H; Fe^{20} + H_2;$ $Fe^{20} + H; Fe^{20} + H_2; Fe^{20} + H;$ $Fe^{20} + H_2; Fe^{20} + H; Fe^{20} + H_2;$	10-95 eV/a.u.	Phanuf, S. A. Electron capture by slow $Fe(sup g)^{+}$ ions from hydrogen atoms and molecules. Phys. Rev. A 28, 1310 (1983) United States
00441 E	A06: $D + Ca; D + Sr; D^{\circ} + Ca; D^{\circ} + Sr;$ $H + Ca; H + Sr; H^{\circ} + Ca; H^{\circ} + Sr$ A08: $D + Ca; D + Sr; H + Ca; H + Sr$ A16: $H^{\circ} + Ca; H^{\circ} + Sr$ C06: $H^{\circ} + Ca; H^{\circ} + Sr$	1-70 keV	Sayo, M.; Stone, J. A.; Morgan, T. J. Charge-changing cross sections for 1-70-keV H° and H^+ in collisions with calcium and strontium metal vapors. Phys. Rev. A 28, 1315 (1983) United States

Ref. No.	Reactants	Energy range	Reference
00002 T	R05: e + He; e + Ne; e + Ar; e + Li; e + Na; e + K; e + Li ⁺ ; e + H ⁺ ; e + H ₂ ⁺ ; e + H ₂ ⁺ ; e + H ₂ ⁺ ; e + H ₂ ⁺	10-55200 eV	McCarthy, T. L.; Stelbovics, A. T. Ionization: test of a continuum optical model for electron scattering. Phys. Rev. A 28, 1322 (1983) Australia
00003 E	A03: Rb ⁺ + He; Rb ⁺ + Ne; Rb ⁺ + Ar; Rb ⁺ + Kr; Rb ⁺ + Xe A11: Rb ⁺ + He; Rb ⁺ + Ne; Rb ⁺ + Ar; Rb ⁺ + Kr; Rb ⁺ + Xe	300 K	Zollars, B. G.; Schumann, R. A.; Parker, J. W.; Hill, R. H., Jr. Inelastic collisions between selectively excited rubidies 6 ² D-state atoms and noble-gas atoms: fine-structure-state mixing. Phys. Rev. A 28, 1329 (1983) United States
00004 E	A03: Na ⁺ + Na ⁺ A11: Na ⁺ + Na ⁺	500 K	Allegrini, S.; Micchi, P.; Moi, L. Cross-section measurement for the energy-transfer collisions Na(3P) + Na(3P) - Na(5S, 4D) + Na(3S). Phys. Rev. A 28, 1338 (1983) Italy
00005 T	A02: Undef A18: Undef	0.094-0.1 eV	Bosmanac, S. Zero-angular-momentum-resonances in atom-atom collisions. Phys. Rev. A 28, 1344 (1983) Yugoslavia
00006 T	R03: e + H ₂	2.27 +v	Shimamura, I. Partial-sum rules for and asymmetry between rotational transitions J Plus or minus AJ coupling from J. Phys. Rev. A 28, 1357 (1983) Japan
00007 T	R02: e + H ₂ R03: e + H ₂ R17: e + H ₂	1.5-4.0 eV	Bernan, H.; Estrada, H.; Cederbaum, L. S.; Doncke, V. Nuclear dynamics in resonant electron-molecule scattering beyond the local approximation: the 2.3-eV shape resonance in H ₂ . Phys. Rev. A 28, 1361 (1983) West Germany
00008 T	R06: hv + CO	15-40 eV	Lucchese, R. R.; McCoy, V. Padé-approximant corrections to general variational expressions of scattering theory: application to S(small sigma) photoionization of carbon monoxide. Phys. Rev. A 28, 1382 (1983) United States
00009 T	R06: Undef	Undef	Bayleh, H. H.; Geobegian, D. B. Radiative collision-induced electron continuum-continuum scattering. Phys. Rev. A 28, 1395 (1983) United States
00050 E	C05: H ⁺ + C C06: H ⁺ + C C07: H ⁺ + C	1-4 MeV	Kanter, L. P. Dependence of multiple-scattering distributions on the charge states of fast ions exiting from solid targets. Phys. Rev. A 28, 1401 (1983) United States
00051 E	A06: He ⁺ + Ca	40-100 keV	Alton, G. D.; Compton, B. W.; Pegg, D. J. Concerning a long-lived (² P _{sup} (sup e)He ⁻ state: lifetime and energy-level measurements of He ⁻ . Phys. Rev. A 28, 1405 (1983) United States
00052 T	R01: H		Friedrich, H.; Chu, M. Autoionizing states of the hydrogen atom in strong magnetic fields. Phys. Rev. A 28, 1423 (1983) United States
00053 E	R07: hv + C ₂ ⁻	16000-17000 cm ⁻¹	Neftci, U.; Head, R. O.; Schulz, P. A.; Lindeberger, W. C. Ultrahigh-resolution study of autoattachment in C ₂ ⁻ . Phys. Rev. A 28, 1429 (1983) United States
00054 E	A03: He ⁺ + He A06: He ⁺ + He	300 K	Johansen, B. Spectroscopic observations of the radiative charge transfer and association of helium ions with neon atoms at thermal energy. Phys. Rev. A 28, 1460 (1983) United States
00055 T	R07: Undef		Saha, M. P.; Dahler, J. S.; Nielsen, S. E. Theory of laser-induced chemi-ionization: I. Quasistatic formulation. Phys. Rev. A 28, 1487 (1983) United States
00056 E	R03: hv + C; hv + Al; hv + Cu; hv + Sn; hv + Pb	1.17-1.33 MeV	Kane, P. P.; Mahajan, J.; Basavaraju, G.; Priyadarshini, A. K. Scattering of 1.1732- and 1.3325-MeV gamma rays through small angles by carbon, aluminum, copper, tin, and lead. Phys. Rev. A 28, 1509 (1983) India
00057 E	R06: hv + He ⁺ ; hv + Ar ⁺	400-200 mμ	Kopeika, N. S.; Shuker, S.; Yeremchuk, Y.; Gebel, Y.; Ih, C. E. Observation of Cooper minima in excited-s-state photoionization cross sections in neon and argon. Phys. Rev. A 28, 1517 (1983) Israel

Ref. No.	Reactants	Energy Range	Reference
00458 Z	H03: hv + Sc; hv + Y; hv + La; hv + Ce; hv + Cd; hv + Dy; hv + W; hv + Pt; hv + Pb	80-320 keV	Das, V. V.; Das, D. V. Incoherent scattering at low photon energies. <i>Phys. Rev. A</i> 28, 1527 (1983) India
00459 T	H08: Undef	Undef	Vogel, W.; Welsch, D. G.; Vedkiewicz, K. Theory of resonance fluorescence in a fluctuating laser field. <i>Phys. Rev. A</i> 28, 1506 (1983) East Germany
00460 T	E08: e + H	7.9×10^3 - 15.8×10^3 eV	Gries, R. B. Shifts of hydrogen lines from electron collisions in dense plasmas. <i>Phys. Rev. A</i> 28, 1596 (1983) United States
00461 Z	A08: PERT+ + PERT	$1-10^3$ keV	Janov, R. E. General classical scaling of electron-laser cross sections in collisions of atoms with highly charged ions. <i>Phys. Rev. A</i> 28, 1810 (1983) United States
00462 T	A03: H ⁺ + H A18: H ⁺ + H	15-400 keV	Barnumay, B.; Ser, I. E.; Sukherjee, S. C. Calculation of proton-impact excitation of the n = 8 level of atomic hydrogen. <i>Phys. Rev. A</i> 28, 1813 (1983) India
00463 Z	A06: He ⁺ + Cs	0.1-1 eV	Schuessler, B. A.; Bulder, C. H., Jr.; O, C. S. Orbiting charge-transfer cross sections between He ⁺ ions and cesium atoms at near-thermal ion-atom energies. <i>Phys. Rev. A</i> 28, 1817 (1983) United States
00464 T	A07: H ⁺ + He	104-1225 keV	Barrachina, R. O.; Garibotti, C. I. Multiple-scattering treatment of the electron-capture to the continuum peak and comparison with experimental results for H ⁺ -He collision. <i>Phys. Rev. A</i> 28, 1821 (1983) Argentina
00465 T	E01: e + He Seq; e + Li ⁺ E17: e + He Seq	148-180 eV	Padhy, B.; Srivastava, R.; Rai, B. K. Double electron excitation in helium-like ions. <i>Phys. Rev. A</i> 28, 1825 (1983) India
00466 Z	E02: e + O ₂ E17: e + O ₂ E19: e + O ₂	40-500 eV	Jain, A. Angular distribution of electrons elastically scattered from O ₂ at 40-500 eV: a two-potential coherent approach. <i>Phys. Rev. A</i> 28, 1829 (1983) United Kingdom
00467 Z	H02: hv + H ₂	82.4-77.5 nm	Cooper, J. V.; Saloman, E. B.; Cole, B. E.; Shandanaad Electric field effects on the absorption spectra of H ₂ near the ionization limit. <i>Phys. Rev. A</i> 28, 1832 (1983) United States
00468 T	A01: Undef E01: Undef	Undef	Baker, A. Neglect of the target Hamiltonian in corrections to the Glauber approximation. <i>Phys. Rev. A</i> 28, 1857 (1983) United States
00469 T	E05: e + He E17: e + He	500 eV	Huang, K. H. Theoretical triply differential cross section of electron-impact ionization of atoms. <i>Phys. Rev. A</i> 28, 1869 (1983) United States
00470 Z	D04: H ⁺ + Al; H ⁺ + Al ₂ O ₃ ; H ₂ ⁺ + Al; H ₂ ⁺ + Al ₂ O ₃ ; H ⁺ + Al; H ⁺ + Al ₂ O ₃ ; He ⁺ + Al; He ⁺ + Al ₂ O ₃ ; He ²⁺ + Al; He ²⁺ + Al ₂ O ₃	0.25-1.2 MeV/amu	Yamazaki, Y.; Yasaka, S.; Oda, W. Molecular and chemical effects in Auger processes induced by molecular ions. <i>Phys. Rev. A</i> 28, 1873 (1983) Japan
00471 T	D07: He + Si	Undef	Blatter, G.; Rice, T. S. Scattering of atomic beams off stepped surfaces. <i>Phys. Rev. B</i> 27, 7050 (1983) Switzerland
00472 Z	D03: Ar ⁺ + Be; Ar ⁺ + B; Ar ⁺ + C	80 keV	Veje, E. Study of atomic excitations in sputtering with the use of Be, B, and C targets. <i>Phys. Rev. B</i> 28, 88 (1983) Sweden
00473 Z	E06: e + C ⁺	9.0-9.3 eV	Hitchell, J. B. A.; Ng, C. T.; Porand, J. L.; Ievac, D. P.; Hitchell, S. E.; Sen, A.; Nito, D. B.; McGowan, J. W. Dielectronic-recombination cross-section measurements for C ⁺ ions. <i>Phys. Rev. Lett.</i> 50, 335 (1983) United States
00474 Z	EC6: e + Hg ⁺	4.0-4.7 eV	Belic, D. S.; Dunn, G. H.; Morgan, T. J.; Mueller, D. W.; Tieser, C. Dielectronic recombination: a ground-beam observation and measurement of cross section. <i>Phys. Rev. Lett.</i> 50, 339 (1983) United States

Ref. No.	Reactions	Energy Range	Reference
00475 E	R07: $h\nu + \text{Ne}^-$	0.00-1.6 eV	Peterson, J. R.; Cogoliola, R. J.; Bao, Y. K. Measurement of the $1s2p^2$ prior $^2P(1s2p^2)$ resonance in Ne^- photodetachment. <i>Phys. Rev. Lett.</i> 50, 668 (1983) United States
00476 E	R06: $e + \text{C}^+$	9.0-9.3 eV	LaGattuta, E.; Wahn, Y. Dielectronic recombination cross section for C^+ . <i>Phys. Rev. Lett.</i> 50, 668 (1983) United States
00477 E	R06: $h\nu + \text{Cl}$	956-750 Å	Music, R.; Berkowitz, J. Photoionization of atomic chlorine. <i>Phys. Rev. Lett.</i> 50, 675 (1983) United States
00478 E	D17: $e + \text{R} + \text{C}$	500-1200 K	Acciello, O.; Hensz, A. A.; Stangeby, P. C. Methane production from carbon under combined electron and atomic-hydrogen bombardment: evidence for a synergistic effect. <i>Phys. Rev. Lett.</i> 50, 783 (1983) United States
00479 E	D13: $e + \text{CO} + \text{Ne}; e + \text{H}_2\text{O} + \text{Ne}$	200-800 eV	Faulstich, P.; Biedl, R.; Menzel, B. Angular distributions of neutrals desorbed by electron impact from chemisorbed and physisorbed layers on metal surfaces. <i>Phys. Rev. Lett.</i> 50, 986 (1983) West Germany
00480 E	D01: Na		Schopohl, R.; Harnke, H.; Tewordt, L. Effect of gap distortion on the field splitting of collective modes in superfluid ^4He . <i>Phys. Rev. Lett.</i> 50, 1042 (1983) United States
00481 E	R06: $h\nu + \text{Xe}$	28-65 eV	Pahlsson, A.; Carlsson, Y. A.; Krause, M. G. Angular distribution of $\text{Xe } 5s - (\text{small epsilon})$ p photoelectrons: disagreement between experiment and theory. <i>Phys. Rev. Lett.</i> 50, 1114 (1983) United States
00482 E	D01: Ne^+		Mariani, D. R.; Van de Water, B.; Koch, P. B.; Bergeman, Y. Observation and quasistatic analysis of structure in microwave ionization of highly excited helium atoms. <i>Phys. Rev. Lett.</i> 50, 1241 (1983) United States
00483 E	R06: $h\nu + \text{CO}$	275-630 eV	Tremblay, C. R.; Southworth, S. H.; Kobrin, P. B.; Becker, R.; Lindle, D. W.; Kerkhoff, R. G.; Shirley, D. A. Shape resonance phenomena in CO following K-shell photoexcitation. <i>Phys. Rev. Lett.</i> 50, 1245 (1983) United States
00484 E-T	R03: $e + 2\text{He}^+$ R17: $e + 2\text{He}^+$	15-100 eV	Chetjian, A.; Hecene, A. L.; Henry, R. J. V. Angular distribution for electron excitation of the $n^2S - n^2P$ transition in He^+ : comparison of experiment and theory. <i>Phys. Rev. Lett.</i> 50, 1357 (1983) United States
00485 E	R06: $h\nu + \text{Cs}$	Undef	Johnson, W. R.; Soff, G. Relativistic many-body approach to the photoionization of cesium. <i>Phys. Rev. Lett.</i> 50, 1361 (1983) West Germany
00486 E	A06: $\text{C}^{3+} + \text{He}; \text{H}^{2+} + \text{He}; \text{O}^{2+} + \text{He};$ $\text{Ne}^{3+} + \text{He}; \text{H}^{2+} + \text{H}_2; \text{O}^{2+} + \text{H}_2$	0.15-0.5 a.u.	Gordon, Y. S.; Dijkamp, B.; Drostje, A. G.; de Heer, F. J. Electron capture into different (n, l) states in slow collisions of C^{3+} , H^{2+} , O^{2+} , and Ne^{3+} projectiles on He and H_2 targets. <i>Phys. Rev. Lett.</i> 50, 1882 (1983) The Netherlands
00487 E	C06: $\text{Br}^{2+} + \text{C}$	130 keV	Feeder, L. F.; Ray, R. J. Pre-equilibrium charge exchange of 130-keV Br ions incident on thin carbon foils. <i>Phys. Rev. Lett.</i> 50, 1907 (1983) Australia
00488 E	A06: $\text{H}^+ + \text{He}$ A18: $\text{H}^+ + \text{He}$	2.8-7.4 keV	Horndel-Pedersen, E.; Coche, C. L.; Stockli, R. Experimental observation of the Thomas peak in high-velocity electron capture by protons from He. <i>Phys. Rev. Lett.</i> 50, 1910 (1983) United States
00489 E	A02: $\text{K} + \text{Ar}$ A18: $\text{K} + \text{Ar}$	125 meV	Drees, R.; Hanelbrink, E.; Fischer, H. Coherence observed as left-right asymmetry in the scattering of $1^{1/2}P_{3/2}$ from Ar. <i>Phys. Rev. Lett.</i> 50, 1983 (1983) West Germany
00490 E	E05: $e + \text{Xe}^+; e + \text{Xe}^{2+}; e + \text{Xe}^{3+};$ $e + \text{Xe}^{4+}; e + \text{I}^+$	50-700 eV	Achenbach, C.; Müller, A.; Sainsbury, E.; Becker, R. Electron-impact double ionization of I^+ and Xe^{2+} ($q = 1, \dots, 4$) ions: role of 4d electrons like in photoionization. <i>Phys. Rev. Lett.</i> 50, 2070 (1983) West Germany
00491 E	D06: $e + \text{Si}; e + \text{Ge}; e + \text{Au}$	0.2-10 keV	Pittling, R. J.; Technow, R. Electron backscattering at various angles of incidence. <i>Phys. Status Solidi A</i> 76, K151 (1983) East Germany

Ref. No.	Reactants	Energy Range	Reference
00492 F	C02: Undef	Undef	Brown, J. S. Some exchange-correlation approximations applied to stopping powers of slow ions in metals. <i>Phys. Status Solidi B</i> 115, 1141 (1983) United States
00493 F	D02: Undef	Undef	Abdel-Salib, T. G.; Aly, A. A.; Abdou, A. S.; Metwally, M. A. The influence of the surface barrier on the trajectory of sputtered particles. <i>Phys. Status Solidi B</i> 116, 169 (1983) Egypt
00494 E	C02: H ⁺ + Al	160-440 keV	Tulyshko, S. V.; Vedell, E. Stopping power for H ⁺ ions with energies from 160 to 440 keV in aluminium. <i>Phys. Status Solidi B</i> 116, 147 (1983) East Germany
00495 F	C02: Undef	Undef	Rhodyshev, V. A.; Sirotnin, E. I. Charged-particle stopping in crystals. <i>Phys. Status Solidi B</i> 116, 659 (1983) Soviet Union
00495 E	D07: B ⁺ + Ti; D ⁺ + Cu; B ⁺ + Au; He ⁺ + Ti; He ⁺ + Cu; He ⁺ + Au	2.5-8.3 keV	Koborov, N. B.; Kuznetsov, V. A.; Tolkovsky, V. G.; Zhabrov, G. I. Measurements of energy reflection from metals bombarded with keV B and He ions at various angles of incidence. <i>Radiat. Eff.</i> 69, 125 (1983) Soviet Union
00497 E	D04: Ar ⁺ + Mg; Ar ⁺ + Al; Ar ⁺ + Ti	35 keV	Benneth, C.; Benneth, N.; Viel, L. On the origin of Auger line-shape in heavy ion-light solid target collisions. <i>Radiat. Eff.</i> 69, 143 (1983) France
00498 F	C01: Undef D01: Undef	Undef	Borenkov, I. P.; Komarov, P. P.; Tomlin, N. S. Elastic and inelastic energy deposition distributions during ion implantation in solids. <i>Radiat. Eff.</i> 69, 165 (1983) Soviet Union
00499 E	C02: H ⁺ + Au; He ⁺ + Au; D ⁺ + Au C05: H ⁺ + Au; He ⁺ + Au; D ⁺ + Au	0.01-2.0 MeV/amu	Alberici, N. S.; Malherbe, J. B. Energy loss and straggling of p, d and alpha-particles in Au in the energy region 0.1 to 2.0 MeV. <i>Radiat. Eff.</i> 69, 231 (1983) South Africa
00500 F	D02: Review	Undef	Harrison, D. E., Jr. Sputtering models - a synoptic view. <i>Radiat. Eff.</i> 70, 1 (1983) United States
00501 F	D02: Ar ⁺ + Cu	27 keV	Shulga, V. I. Computer simulation of single-crystal and polycrystal sputtering I. <i>Radiat. Eff.</i> 70, 65 (1983) Soviet Union
00502 F	D07: He ⁺ + C; He ⁺ + Fe; He ⁺ + Cu; H ⁺ + C; H ⁺ + Fe; H ⁺ + Cu	30-350 keV	Namkhova, E. S.; Beninovich, V. S.; Syrtanov, N. Y.; Smirnov, V. A.; Tikhonov, I. S. Small-angle particle reflection from random solids: theory and experiment. <i>Radiat. Eff.</i> 70, 85 (1983) Soviet Union
00503 E	D04: Ar ⁺ + Al; He ⁺ + Al; Kr ⁺ + Al	20-80 keV	Nischler, J.; Hegre, N.; Benneth, N. Evidence for an electronic preferential ejection process in energy-resolved angular distributions of ion-induced secondary electrons emitted from Al single crystals. <i>Radiat. Eff.</i> 70, 117 (1983) France
00504 E	D02: Cl ⁺ + Si; Cl ⁺ + SiO ₂ ; Cl ⁺ + Si ₃ N ₄ ; Cl ⁺ + Al ₂ O ₃ ; Cl ⁺ + LiNbO ₃	5-20 MeV	Qin, Y.; Griffith, J. E.; Hong, W. J.; Tombrillo, T. A. Sputtering of silicon and its compounds in the electronic stopping region. <i>Radiat. Eff.</i> 70, 231 (1983) United States
00505 E	C02: H ⁺ + Si C05: H ⁺ + Si	0.25-2.5 keV	Malherbe, J. B. Projected range and straggling measurements of low energy nitrogen in silicon. <i>Radiat. Eff.</i> 70, 261 (1983) South Africa
00506 F	C06: H ⁺ + C; C ⁺ + C; H ⁺ + C	0.5-10 MeV	Kaneho, T. Equilibrium charge distributions for L, C, N ions passing through solids and gaseous media. <i>Radiat. Eff.</i> 70, 301 (1983) Japan
00507 F	D07: H ⁺ + Au; He ⁺ + Au	10 ⁻⁴ -10 ⁻¹ eV	Eckstein, O.; Biermann, J. P. The reflection of light swift particles from heavy solid targets. <i>Z. Phys. A</i> 310, 1 (1983) East Germany
00508 E	A07: He ⁺ + H; He ⁺ + D	thermal	Lorenzen, J.; Morgner, H.; Hubert, H.; Hof, H. V.; Notop, H. Ionization of hydrogen and deuterium atoms in thermal energy collisions with state-selected He(2s ² P ₂ , ² P ₁) metastable atoms. <i>Z. Phys. A</i> 310, 141 (1983) West Germany
00509 E	A03: I ⁺ + Ag	40-61 MeV	Sorenson, E.; Fendi, H.; Burgoyne, P.; Stoller, C.; Wolfli, H. Impact parameter dependence of L- and K-shell excitation in I-Ag collisions. <i>Z. Phys. A</i> 311, 7 (1983) Switzerland

Ref. No.	Reactants	Energy Range	Reference
00510 T	A07: Xe + Pb; Pb + Cu	4.7-5.9 MeV/amu	Müller, B.; Reinhardt, J.; Gröner, U.; Soff, G. Critical remarks on a scaling law for inner-shell ionization. <i>Z. Phys. A</i> 311, 151 (1983) West Germany
00511 F	D08: Li + Cu; R + Cu	50-350 keV	Sixter, H.; Jimmy, W.; Schirraacher, A.; Becker, B.; Andra, H. J.; Froeling, R. Bound structure effects in high energy ion beam surface interaction at grazing incidence. <i>Z. Phys. A</i> 311, 267 (1983) West Germany
00512 E	A02: Na + Ar; Na + Ne A17: Na + Ar; Na + Ne A19: Na + Ar; Na + Ne	5-20x10 ⁻¹⁴ erg	Van den Berg, P.; Morgenstern, R.; Van der Valk, P.; Alkemade, C.T.J. Differential cross section measurements for Na-Ar and Na-Ne scattering: a test of interaction potentials. <i>Z. Phys. A</i> 312, 271 (1983) The Netherlands
00513 E	A03: Hg + Ne; Hg + Kr; Hg + Ar A10: Hg + Ne; Hg + Kr; Hg + Ar	1 keV	Reydenreich, H.; Hammer, B.; Zehle, L.; Kempter, V. Vector polarization analysis for quasi-two-electron systems: Hg-Inert gas collisions. <i>Z. Phys. A</i> 312, 285 (1983) West Germany
00514 E	A11: Na ⁺ + Na ⁺ A18: Na ⁺ + Na ⁺	25-50 eV	Bahring, A.; Bertel, I. V.; Meyer, R.; Schmidt, H. Evolution of molecular states studied in collisions of ions with laser excited atoms by a crossed beam experiment. <i>Z. Phys. A</i> 312, 293 (1983) West Germany
00515 E	A07: H ⁺ + He A05: e + He	A07: 40-90 keV, F	Eckhardt, H.; Scharfner, K. H. Single and double ionization of neon 2s- and 2p-subshells by proton and electron impact. <i>Z. Phys. A</i> 312, 321 (1983) West Germany
00516 E	A12: Cs ⁺ + Cs; Rb ⁺ + Cs; Rb ⁺ + R; K ⁺ + Rb	510 K	Wuinke, H.; Lavreux, J.; Siemas, K.; Schürer, E. E. Impact broadening of alkali Rydberg levels in pure and mixed alkali vapours. <i>Z. Phys. A</i> 312, 329 (1983) West Germany
00517 F	A12: Rb ⁺ + Xe	463 K	Heber, K. H.; Siemas, K. Impact broadening of very high Rb Rydberg levels by Xe. <i>Z. Phys. A</i> 312, 339 (1983) West Germany
00518 E	A17: Li + N	600-800 C	Rafi, M.; Ighal, Z.; Baig, M. A. Extension of the Z ^{1/2} - X ^{1/2} system of LiH near the dissociation limit. <i>Z. Phys. A</i> 312, 357 (1983) Libya
00519 T	H06: hv + Ar ⁺	0-0.9 Ry	Ojha, P. C.; Burke, P. G. Photoionization of the 3p ² ns excited states of argon. XIII ICPEAC, Berlin, Contributed Papers, p. 1 (1983) United Kingdom
00520 T	H06: hv + Ca	6.0-7.8 eV	Scott, P.; Burke, P. G.; Kingston, A. E. One and two electron atomic photoionization processes. XIII ICPEAC, Berlin, Contributed Papers, p. 2 (1983) United Kingdom
00521 T	H06: hv + Si ⁺	1.2-1.7 Ry	Taylor, K. T.; Zeippen, C. J. Photoionization of Si II: an application of quantum defect theory. XIII ICPEAC, Berlin, Contributed Papers, p. 6 (1983) United Kingdom
00522 T	H06: hv + F	10-1000 eV	Salsmann, D.; Pratt, R. N.; Wang, M. S.; Yin, R. Y. Simple dependences of bound-free dipole matrix elements and their ratios on the properties of the initial state. XIII ICPEAC, Berlin, Contributed Papers, p. 7 (1983) United States
00523 T	H06: hv + Ne	68-71 eV	Berkov, S. M.; Strakhova, S. I. The resonance photoionization of helium to He ⁺ (n = 2). XIII ICPEAC, Berlin, Contributed Papers, p. 10 (1983) Soviet Union
00524 T	H06: hv + Ra; hv + Rn	0-14 a.u.	Dushaukh, P. C.; Hannon, S. T.; Radojevic, V. Relativistic study of multichannel interactions in photoionization of high-Z atoms: DRPA applied to radium and radon. XIII ICPEAC, Berlin, Contributed Papers, p. 16 (1983) United States
00525 E	H07: hv + He ⁺	4.8-5.2 eV	Bae, Y. K.; Coggiola, M. J.; Peterman, J. B. Near-threshold measurement of the photo-double detachment of He ⁺ (¹ P ^o). XIII ICPEAC, Berlin, Contributed Papers, p. 19 (1983) United States
00526 E	H06: hv + O; hv + Cu; hv + Sb	100-3200 Å	Sasson, J.A.R.; Fareeh, P.; Suenitzer, H. Photoionization of atomic oxygen, cesium, and rubidium. XIII ICPEAC, Berlin, Contributed Papers, p. 20 (1983) United States

Ref. No.	Reactants	Energy Range	Reference
00527 T	H06: hv + Cs ⁺	0-1.2 Ry	Uzerame, A. L. Photoionization of excited Cs 6p and Cs 7p subshells. XIII ICPENC, Berlin, Contributed Papers, p. 21 (1983) United States
00528 E	H07: hv + He ⁻	1.22-1.27 eV	Peterson, J. B.; Sae, Y. S.; Coggins, R. J. Observation of the 1s2p ² ⁴ P (sup e) resonance in He ⁻ photodetachment. XIII ICPENC, Berlin, Contributed Papers, p. 24 (1983) United States
00529 T	H06: hv + H ₂	710-730 Å ^o	Saout, A.; Le Bonzo, E.; Bassev, G.; Lefebvre-Brion, S. Ab-initio approach to the multichannel quantum defect calculation of the electronic autoionization in the H ₂ Rydberg series of H ₂ . XIII ICPENC, Berlin, Contributed Papers, p. 35 (1983) France
00530 T	H05: hv + OH	9-13 eV	Van Bishoeck, E. P.; Van Hemert, R. C.; Allison, A. C.; Balgarn, A. Photodissociation of OH through non-adiabatic interaction. XIII ICPENC, Berlin, Contributed Papers, p. 48 (1983) The Netherlands
00531 Y	H05: 2hν + H ₂ ⁺⁺	20000-50000 Å ^o	Laughlin, C.; Chu, S. I.; Datta, K. K. Two-photon dissociation of vibrationally excited H ₂ ⁺ and HD ⁺ molecules. XIII ICPENC, Berlin, Contributed Papers, p. 75 (1983) United States
00532 E	E17: e + Ar; e + Ne	0.05-2 eV	Beyreuther, H.; Barzick, B.; Linder, F. Measurements of differential cross sections for e-Ar, Kr, Ne scattering at E = 50 meV - 2 eV. XIII ICPENC, Berlin, Contributed Papers, p. 78 (1983) West Germany
00533 T	E02: e + He E17: e + He	200-750 eV	Srivastava, R. B.; Dhal, S. S. Elastic scattering of electrons from neon at intermediate energies. XIII ICPENC, Berlin, Contributed Papers, p. 80 (1983) India
00534 E	E02: e + He	25 keV	Heller, O.; Geiger, J. Elastic small-angle electron scattering by helium. XIII ICPENC, Berlin, Contributed Papers, p. 81 (1983) West Germany
00535 E	E02: e + I E17: e + Na	10-25 eV	Jadusziliver, B.; Weiss, P.; Tino, A.; Pedersen, R. Small angle (u ⁻ , Na) scattering. XIII ICPENC, Berlin, Contributed Papers, p. 83 (1983) United States
00536 E	E02: e + He E17: e + He	17.5-750 eV	Vagenaar, R. H.; Teubergen, F. V.; de Boer, F. J. Absolute measurements of small angle elastic scattering of electrons. XIII ICPENC, Berlin, Contributed Papers, p. 84 (1983) The Netherlands
00537 E	E02: e + Xe E17: e + Xe	15-80 eV	Marinkovic, B.; Pejcev, V.; Filipovic, B.; Veskovic, L. Relative differential cross sections for elastic and inelastic scattering of electrons by neon in the energy range of 15 to 80 eV. XIII ICPENC, Berlin, Contributed Papers, p. 85 (1983) Yugoslavia
00538 T	E02: e + Na	54.4 eV	Singh, S. H.; Tripathi, A. B.; Srivastava, R. K. Elastic scattering of electrons by sodium atom. XIII ICPENC, Berlin, Contributed Papers, p. 86 (1983) India
00539 E	E02: e + H ₂ ; e + Xe; e + Kr; e + Ar	0.1-100 eV	Jost, K.; Bisling, P.-G.F.; Eschen, P.; Polssens, H.; Walther, L. Total cross sections for electron scattering from H ₂ , He, Kr and Ar. XIII ICPENC, Berlin, Contributed Papers, p. 91 (1983) West Germany
00540 T	E02: e + Li	20-1000 eV	Rharg, S. P.; Vijayshri. Total collisional cross-sections for e ⁺ -scattering from Li atoms. XIII ICPENC, Berlin, Contributed Papers, p. 92 (1983) India
00541 E	E02: e + Ne; e + Ar	0-300 eV	Bickel, J. C.; Imre, H.; Register, D. P.; Trajnar, S. Total electron scattering cross sections for He, Ne, Ar, Xe, and selected molecules: 0-300 eV. XIII ICPENC, Berlin, Contributed Papers, p. 93 (1983) United States
00542 T	E02: e + H; e + O	100-70 ^o eV	Desai, N. S.; Joshipura, R. N. Theoretical cross-sections for electron scattering from C, N, and O-atoms. XIII ICPENC, Berlin, Contributed Papers, p. 95 (1983) India
00543 T	E02: e + Mg	6.5-7.5 eV	Scott, N. S.; Burke, P. G.; Bartshet, E. The 6snp ² resonances in e-Mg scattering. XIII ICPENC, Berlin, Contributed Papers, p. 103 (1983) United Kingdom

Ref. No.	Reactants	Energy Range	Reference
00504 T	E02: $e + He; e + He^+$	0-2.5 eV	Taylor, K. T.; Pen, R. C.; Clark, C. N. Resonances in electron scattering by neon. XIII ICPHAC, Berlin, Contributed Papers, p. 107 (1983) United Kingdom
00505 T	E02: $e + He$	1.3-1.6 Ry	Perke, P. G.; Freitas, L.C.G.; Kingston, A. M.; Berrington, K. A. An eleven state electron-helium scattering calculation. XIII ICPHAC, Berlin, Contributed Papers, p. 108 (1983) United Kingdom
00506 T	E02: $e + H$	0.5-3.5 Ry	Oza, B. B.; Callaway, J. Pseudostate expansions in electron hydrogen scattering. XIII ICPHAC, Berlin, Contributed Papers, p. 110 (1983) United States
00507 T	E03: $e + H$ E17: $e + H$	2.25-4.0 Ry	Timary, S. S. Differential cross sections of $e + H(1s) \rightarrow e + H(2p)$. XIII ICPHAC, Berlin, Contributed Papers, p. 116 (1983) India
00508 E	E03: $e + He^+$	19.5-23.0 eV	Spence, B.; Stait, D.; Dillon, M. A.; Vang, B. G. High resolution total electron impact excitation of individual He 2^3S and 2^1S states. XIII ICPHAC, Berlin, Contributed Papers, p. 117 (1983) United States
00509 E	E03: $e + He^+$ E17: $e + He^+$	15-30 eV	Saller-Fiedler, R.; Schlessner, P.; Jung, K.; Kotop, K.; Ehrhardt, H. Inelastic differential electron scattering from metastable helium atoms. XIII ICPHAC, Berlin, Contributed Papers, p. 120 (1983) West Germany
00550 T	E03: $e + Li$ E17: $e + Li$	0.15-0.75 Ry	Moore, D. L. Scattering of slow electrons by Li atoms. XIII ICPHAC, Berlin, Contributed Papers, p. 123 (1983) United Kingdom
00551 E	E03: $e + He$	20-46 eV	Van Kladen Van den Nouvell, M.; Van Gasteren, E. M.; Van Eck, J.; Heldeman, H.G.M. Measurement of complex scattering amplitudes for electron impact excitation of the 3^3P and 3^3D states of helium. XIII ICPHAC, Berlin, Contributed Papers, p. 126 (1983) The Netherlands
00552 E	E03: $e + He$	0.9-2.0 keV	Kihara, S.; Iketsaki, Y.; Takayanagi, T.; Wakiya, K.; Suzuki, M. Measurements of inner shell excitation cross sections in He by means of Auger electron spectroscopy by electron impact. XIII ICPHAC, Berlin, Contributed Papers, p. 155 (1983) J ^{ap} J
00553 T	E03: $e + Li$ E17: $e + Li$	20 eV	Kumar, M.; Tayal, S. S.; Tripathi, A. S. Electron impact excitation of lithium 3s state in the intermediate energy. XIII ICPHAC, Berlin, Contributed Papers, p. 156 (1983) India
00554 E	E03: $e + Kr; e + Xe$	50-1500 eV	Akagi, Y.; Morita, K.; Takayanagi, T.; Wakiya, K.; Suzuki, M. Cross sections of inert gases for VUV emissions following inner-shell or subshell ionization by electron impact. XIII ICPHAC, Berlin, Contributed Papers, p. 157 (1983) Japan
00555 E	E05: $e + Ar; e + Si$	0-10 keV	Platten, H.; Schviets, G.; Stolterfoht, H.; Holte, G. K-shell ionization cross sections of Si and Ar by electrons with impact energies 0 to 10 keV. XIII ICPHAC, Berlin, Contributed Papers, p. 158 (1983) West Germany
00556 T	E05: $e + H$ E17: $e + H$	250 eV	Piroux, B.; Joachain, C. J.; Byron, F. W., Jr. Ionization of atomic hydrogen and helium by fast electron impact. XIII ICPHAC, Berlin, Contributed Papers, p. 165 (1983) Belgium
00557 E	A07: $H^+ + He$ S05: $e + He$	A07: 0.05-1.0 MeV	Flaig, H. J.; Ehrhardt, H.; Schartner, K. M.; Kasse, M. Branching ratios and cross sections for ion and electron impact produced $2s(nnp\ n^2p\ n^2p\ n^2p)$ - configurations of He using synchrotron radiation as a radiometric standard. XIII ICPHAC, Berlin, Contributed Papers, p. 170 (1983) West Germany
00558 E	E05: $e + He$	0-25 keV	Koski-Rahkonen, O.; Lahtinen, J. The K-shell electron double ionization cross section of sodium. A power law λ -dependence. XIII ICPHAC, Berlin, Contributed Papers, p. 171 (1983) Finland
00559 E	E05: $e + Ar; e + Xe$	10^{-10} eV	Hippler, R.; Saeed, K.; McGregor, L.; Duncan, A. J.; Klar, H.; Knappeppan, H. Threshold behaviour of Ar-K and Xe-L ₁ inner shell ionization by electron impact. XIII ICPHAC, Berlin, Contributed Papers, p. 172 (1983) United Kingdom

Ref. No.	Reactants	Energy Range	Reference
00560 T	R05: $e + H$	100 eV	Ghosh, A. S.; Mazumder, P. S.; Saha, N. Triple differential cross section for the electron impact ionization of hydrogen. XIII ICPHAC, Berlin, Contributed Papers, p. 183 (1983) India
00561 E-T	R03: $e + Zn^+$ R17: $e + Zn^+$	15-100 eV	Chutjian, A.; Hsuzang, A. Z.; Henry, R.J.V. Angular distribution for electron excitation of the $4s^2 - 4p$ transition in Zn II: Comparison of experiment and theory. XIII ICPHAC, Berlin, Contributed Papers, p. 187 (1983) United States
00562 E	R03: $e + Cd^+$ R17: $e + Cd^+$	75 eV	Chutjian, A. Experimental electron energy-loss spectra and cross sections for the $5s^2 - 5p$ transition in Cd II. XIII ICPHAC, Berlin, Contributed Papers, p. 188 (1983) United States
00563 T	R03: $e + Ca^+$	47-49 eV	Tayal, S. S.; Kingston, A. E. Electron-impact excitation collision strengths and excitation rates for He-like ions. XIII ICPHAC, Berlin, Contributed Papers, p. 191 (1983) United Kingdom
00564 T	R03: $e + O^{++}$	0.2×10^6 - 4.0×10^6 K	Tayal, S. S.; Berrington, K. A.; Kingston, A. E. Electron-impact excitation of O V. XIII ICPHAC, Berlin, Contributed Papers, p. 192 (1983) United Kingdom
00565 E	R03: $e + C^+$	9-15 eV	Kohl, J. L.; Lafyutin, G. P. Measurement of the electron impact excitation cross section for $C^+(2p^2 - 2p^2 \rightarrow 2p^2)$. XIII ICPHAC, Berlin, Contributed Papers, p. 195 (1983) United States
00566 E	R05: $e + Ar^{2+}; e + Kr^{2+}$	10-1000 eV	Matsunoto, A.; Ohtani, S.; Danjo, A.; Manashiro, H.; Sino, Y.; Kondo, Y.; Suzuki, H.; Tawara, H.; Wakiya, K.; Yoshino, M. Electron-impact ionization of rare gas ions. XIII ICPHAC, Berlin, Contributed Papers, p. 198 (1983) Japan
00567 E	R05: $e + Xe^+; e + Xe^{2+}; e + Xe^{3+}; e + Xe^{4+}$	50-700 eV	Achenbach, C.; Muller, A.; Salzborn, K.; Becker, R.; Wensch, J.; Klein, H. Cross section measurements of single and multiple ionization of Xe (sup 1)* ($l = 1, 2, 3, 4$) ions and double ionization of J^+ ions by electron impact. XIII ICPHAC, Berlin, Contributed Papers, p. 200 (1983) West Germany
00568 E	R03: $e + Ca^+$ R06: $e + Ca^+$	0-14 eV	Williams, J. F. Dielectronic recombination measured with a crossed electron and calcium ion beams coincidence technique. XIII ICPHAC, Berlin, Contributed Papers, p. 209 (1983) Australia
00569 E	R06: $e + Mg^+$	4-5 eV	Belic, D. S.; Dunn, G. H.; Morgan, Y. J.; Mueller, D. W.; Tinner, C. Dielectronic recombination: a crossed beam observation and measurement of cross section. XIII ICPHAC, Berlin, Contributed Papers, p. 210 (1983) United States
00570 E	R06: $e + Ba^+; e + Cs^+$	0-13 eV	Datz, S.; Dittmer, P. F.; Miller, P. D.; Hoek, C. D.; Bescovic, B.; Stelson, P. H.; Bottcher, C. Dielectronic recombination of Ba^+ and Cs^+ via $1s^2 2s - 1s^2 2p$ excitation. XIII ICPHAC, Berlin, Contributed Papers, p. 211 (1983) United States
00571 T	R06: $e + Mg^+$	Undef	LaGattuta, K. J.; Naha, Y. Effect of extrinsic electric fields upon dielectronic recombination. XIII ICPHAC, Berlin, Contributed Papers, p. 212 (1983) United States
00572 T	R02: $e + H_2$	0.002-1 Ry	Collins, L. A.; Schneider, S. I. A linear algebraic approach to electron-molecule scattering. XIII ICPHAC, Berlin, Contributed Papers, p. 217 (1983) United States
00573 T	R02: $e + H_2$	0.04-0.25 Ry	Ser, S.; Ghosh, A. S. Electron hydrogen molecule scattering at low energies. XIII ICPHAC, Berlin, Contributed Papers, p. 221 (1983) India
00574 T	R02: $e + H_2; e + CO$	50-800 eV	Freitas, L.C.G.; Jain, A.; Hu-Tao, L. Integral cross-sections for $e-H_2$ and CO elastic scattering at intermediate and high energies: a coherent-resonormalized-multicentre-potential-model (CRMPPM) approach. XIII ICPHAC, Berlin, Contributed Papers, p. 222 (1983) United States
00575 T	R02: $e + H_2$	5-30 eV	Humble, J., Jr.; Truhlar, D. G.; Stevens, U. J. Electron scattering by H_2 : Calculations using MCSCF target wavefunction. XIII ICPHAC, Berlin, Contributed Papers, p. 223 (1983) United States

Ref. No.	Reactants	Energy Range	Reference
00576 T	E03: $e + H_2$	5-50 eV	Rumble, J., Jr.; Trahler, D. G. Vibrational-rotational excitation of H_2 by electrons at 5-50 eV. XIII ICPEAC, Berlin, Contributed Papers, p. 224 (1983) United States
00577 T	E02: $e + H_2$ E03: $e + H_2$	1-4 eV	Estrella, R.; Berman, R.; Cederbaum, L. S.; Dörke, H. Nuclear dynamics in resonant electron-molecule scattering beyond the local approximation. XIII ICPEAC, Berlin, Contributed Papers, p. 230 (1983) West Germany
00578 T	E03: $e + H_2$	1-4.4 eV	McCarthy, C. W.; Turner, J. L. Wave packet formulation of the Boomerang model for resonant electron-molecule scattering. XIII ICPEAC, Berlin, Contributed Papers, p. 232 (1983) United States
00579 T	E03: $e + H_2$	1-4.5 eV	Kazansky, A. K.; Yeluts, I. S. Improved semiclassical approximation for vibrational excitation of molecules by slow electrons. XIII ICPEAC, Berlin, Contributed Papers, p. 233 (1983) Soviet Union
00580 T	E02: $e + H_2$	0-31.6 eV	Salvini, S.; Noble, C. J.; Burke, P. G. Electron scattering by diatomic molecules. XIII ICPEAC, Berlin, Contributed Papers, p. 234 (1983) United Kingdom
00581 T	E03: $e + H_2$	1.8-3.0 eV	Onda, K.; Tashia, A. Absolute cross sections for resonant vibrational excitation processes of H_2 molecules by electron impact. XIII ICPEAC, Berlin, Contributed Papers, p. 235 (1983) United States
00582 E	E02: $e + CO_2$ E17: $e + CO_2$	1.3-1.2 eV	Sohn, W.; Kocher, K. H.; Hebel, R.; Jaug, R.; Ehrhardt, E. Threshold behaviour in the cross section of electron scattering on CO_2 . XIII ICPEAC, Berlin, Contributed Papers, p. 240 (1983) West Germany
00583 E	E02: $e + CO_2$	0.4-30 eV	Szaythowski, C. Absolute total electron scattering cross sections for triatomic molecules in low energy region. XIII ICPEAC, Berlin, Contributed Papers, p. 242 (1983) Poland
00584 E	E02: $e + CH_4$ E03: $e + CH_4$ E17: $e + CH_4$	7.5-20 eV	Curry, P. J.; Bewell, W. R.; Smith, A. C. H. Elastic differential scattering and vibrational excitation of CH_4 and C_2H_6 by low energy electrons. XIII ICPEAC, Berlin, Contributed Papers, p. 244 (1983) United Kingdom
00585 E	E03: $e + CH_4$ E17: $e + CH_4$	5-20 eV	Tanaka, H.; Onodera, H.; Bowsten, L. Rotational excitation of methane by electron impact. XIII ICPEAC, Berlin, Contributed Papers, p. 245 (1983) Japan
00586 T	E02: $e + CH_4$ E17: $e + CH_4$	25-800 eV	Jain, A. Elastic scattering of electrons and positrons by CH_4 at intermediate energies. XIII ICPEAC, Berlin, Contributed Papers, p. 247 (1983) United Kingdom
00587 E	E02: $e + H_2^+$ E07: $e + H_2^+$	0.4-2 eV	Cadez, I. Calculated cross sections for resonant electron scattering by metastable nitrogen. XIII ICPEAC, Berlin, Contributed Papers, p. 255 (1983) Yugoslavia
00588 T	E02: $e + H_2^+$	5.4-10 eV	Schneider, B. I.; Collins, L. A. Resonances in low-energy $e-H_2^+$ collisions. XIII ICPEAC, Berlin, Contributed Papers, p. 257 (1983) United States
00589 E	E03: $e + H_2$	0-350 eV	Ajello, J. R.; Shemansky, D. Studies of vacuum ultraviolet emission from Rydberg series of H_2 by electron impact. XIII ICPEAC, Berlin, Contributed Papers, p. 267 (1983) United States
00590 T	E04: $e + H_2$; $e + ND$; $e + D_2$ E09: $e + H_2$; $e + ND$; $e + D_2$	3.7-5.0 eV	Yeluts, I. S.; Kazansky, A. K. Semiclassical calculations of dissociative attachment in collisions of electrons with H_2 , ND , and D_2 . XIII ICPEAC, Berlin, Contributed Papers, p. 287 (1983) Soviet Union
00591 E	E04: $e + CO_2$ E09: $e + CO_2$	2-20 eV	Orient, O. J.; Srivastava, S. K. Production of C^- ions by dissociative electron attachment to CO_2 . XIII ICPEAC, Berlin, Contributed Papers, p. 292 (1983) United States
00592 E	E04: $e + H_2$ E09: $e + H_2$	6-18 eV	Bhattacharyya, S.; Chatterjee, L. Dissociative attachment of H_2 and its isotopes by low energy electron impact. XIII ICPEAC, Berlin, Contributed Papers, p. 300 (1983) India

Ref. No.	Reactants	Energy Range	Reference
00593 E	E01: $e + H_2$	0.9-10 eV	Deuring, A.; Ferch, J.; Floeder, K.; Fromme, B.; Granitz, B.; Krug, J.; Masche, C.; Reith, W.; Schwab, A.; Sinapius, G.; Zitzewitz, P. W. Electron and positron total cross sections on H_2 . XIII ICPAC, Berlin, Contributed Papers, p. 301 (1983) East Germany
00594 E	E17: $e + K$	0-50 eV	Stein, T. S.; Gomez, R. B.; Krish, Y. P.; Kauppila, W. E.; Kvan, C. K.; Smith, S. J. Measurements of total scattering cross sections for positrons and electron colliding with potassium. XIII ICPAC, Berlin, Contributed Papers, p. 302 (1983) United States
00595 E	E17: $e + CH_4$	1-500 eV	Kauppila, W. E.; Dababneh, N. S.; Krish, Y. P.; Kvan, C. K.; Smith, S. J.; Stein, T. S.; Uddin, M. N. Positron and electron total scattering by H_2O , CH_4 , and SF_6 . XIII ICPAC, Berlin, Contributed Papers, p. 303 (1983) United States
00596 T	A03: $K + He$ A17: $K + He$	0.2-3.2 eV	Pascule, J. Total cross sections for $j_{e,1} - j_{e,2}$ transitions within the first n^2P states of alkali atoms induced in collisions with He. XIII ICPAC, Berlin, Contributed Papers, p. 313 (1983) France
00597 T	A07: $He^+ + He$	0.01-1 eV	Cohen, J. S.; Martin, R. L.; Lane, N. F. Calculation of Penning ionization for $He(2^1, 2^3S) + He$. XIII ICPAC, Berlin, Contributed Papers, p. 332 (1983) United States
00598 E	A07: $He^+ + H$	90-400 eV	Fussen, B.; Claeys, R.; Corset, A.; Jarota, J.; Defrance, P. Ion pair production in $He(1s) + H(2s)$ collisions. XIII ICPAC, Berlin, Contributed Papers, p. 334 (1983) Belgium
00599 P	A03: $H + He; H + Ar; H + Kr; H + Ne$	0.05-2.5 keV	Van Zyl, B.; Gault, R. W.; Neumann, R.; Anne, R. C. Excitation of hydrogen atoms to the $n = 3$ and 4 levels in collisions with rare-gas atoms. XIII ICPAC, Berlin, Contributed Papers, p. 335 (1983) United States
00600 E	A03: $H + He; D + He$	20-1000 eV	Grosser, J.; Krueger, W. Hydrogen atom excitation in $H + He, He, Ar$ collisions below 1 keV. XIII ICPAC, Berlin, Contributed Papers, p. 337 (1983) East Germany
00601 E	A11: $K^+ + Ar$	0.1-0.25 eV	Hentdagh, J. H.; Pascule, J. Polarization effects in alkali atoms fine structure transitions ($P, S, F, \dots$) induced by He and Ar. XIII ICPAC, Berlin, Contributed Papers, p. 341 (1983) France
00602 T	A11: $Rb^+ + He; Cs^+ + He$	320-630 K	Pascule, J. Quantum-mechanical calculations of cross sections for transitions within the second and third n^2P levels of Rb and Cs, induced in collisions with He. XIII ICPAC, Berlin, Contributed Papers, p. 342 (1983) France
00603 T	A11: $He^+ + He$	50-110 neV	Devdariani, A. Z.; Zagrebina, A. L. Resonance excitation transfer in $He(2^1S, 2^3S) + He$ collisions. XIII ICPAC, Berlin, Contributed Papers, p. 345 (1983) Soviet Union
00604 E	A03: $He^+ + He$ A11: $He^+ + He$	0.2-1.0 keV	Blakovsky, D. V.; Zaitsev, I. V.; Khakhaev, A. D. Spectroscopic investigation of inelastic scattering channels in $He(n^{2p} s) - He$ collisions. XIII ICPAC, Berlin, Contributed Papers, p. 346 (1983) Soviet Union
00605 E	A02: $H^+ + H$ A18: $H^+ + H$ $H^+ + H$	25 keV	Park, J. T.; Blakeship, D. H.; Kvale, T. J.; Poucher, J. L.; Beed, E.; Wille, E. Elastic differential cross sections for proton scattering by atomic hydrogen. XIII ICPAC, Berlin, Contributed Papers, p. 350 (1983) United States
00606 E	A18: $H^+ + He; H^+ + Ar$	0-8 eV (ca)	Konrad, R.; Linder, F. Measurements of orbiting structures in differential $H^+ - He$ and $H^+ - Ar$ scattering. XIII ICPAC, Berlin, Contributed Papers, p. 351 (1983) West Germany
00607 E	A18: $H^+ + He$	0.1-0.9 eV	Thylwe, K. V. Semiclassical Regge-pole description of low-energy $H^+ - He$ scattering. XIII ICPAC, Berlin, Contributed Papers, p. 352 (1983) West Germany
00608 P	A02: $H^+ + He$ A03: $H^+ + He$ A07: $H^+ + He$ A18: $H^+ + He$	7-40 keV	Bergues, C.; Bordenave-Montenquieu, B.; Bostouzet, A.; Sagnac, R. Elastic scattering, excitation and ionisation of helium by proton impact. XIII ICPAC, Berlin, Contributed Papers, p. 353 (1983) France

Ref. No.	Reactants	Energy Range	Reference
00609 T	A03: H ⁺ + H A18: H ⁺ + H	100 keV	Saxena, S.; Gupta, G. P.; Nathur, K. C. Proton impact excitation of hydrogen atom. XIII ICPEAC, Berlin, Contributed Papers, p. 358 (1983) India
00610 T	A03: Be ⁺ + Be	0.1-10 keV	Nielsen, S. E.; Drbier, J. S. A several-electron atomic-basis calculation of Be ⁺ (2s-2p) excitation in Be ⁺ (2s)-He(1s ²) collisions. XIII ICPEAC, Berlin, Contributed Papers, p. 361 (1983) Denmark
00611 E	D04: He ⁺ + Au; Ar ⁺ + Au	1-6 keV	Baragiola, R. A.; Alonso, E. V. Fast electrons from slow atomic collisions. XIII ICPEAC, Berlin, Contributed Papers, p. 365 (1983) Argentina
00612 E	A07: H ⁺ + H ₂ O	4-12 keV	Senger, R. Calculated double differential ionization cross-sections for molecules bombarded by protons. XIII ICPEAC, Berlin, Contributed Papers, p. 366 (1983) France
00613 T	A07: H ⁺ + C	10 keV	Kaminsky, A. K.; Popova, M. I. Double differential ionization cross sections in fast ion-atom collisions. XIII ICPEAC, Berlin, Contributed Papers, p. 368 (1983) Soviet Union
00614 T	A16: H ⁺ + He	0.5 keV	Ponce, V. N.; Baragiola, R. A. Origin of the double peak in electron loss in the forward direction. XIII ICPEAC, Berlin, Contributed Papers, p. 372 (1983) Argentina
00615 T	A07: Kr ⁺ + N; Ar ⁺ + He	4-20 keV/amu	Jakubassa-Andersen, D. H. A-electron emission in strong projectile fields. XIII ICPEAC, Berlin, Contributed Papers, p. 377 (1983) West Germany
00616 E	A07: Au ¹⁰⁺ + He	20 keV	Andersen, L. H.; Frost, H.; Erikslund, P.; Knudsen, A.; Liljeby, L. Spectroscopy of low-energy autoionization electrons emitted from the ions in highly charged ion-atom collisions. XIII ICPEAC, Berlin, Contributed Papers, p. 394 (1983) Denmark
00617 T	A07: Ar ²⁰⁺ + Xe; Ar ²⁰⁺ + Xe; Ar ⁺ + Xe	5-60 keV	Nikoushkin, V. N.; Flaks, I. P.; Ogurtsov, G. N. Formation and decay of autoionization states in Ar ²⁰⁺ - Xe collisions. XIII ICPEAC, Berlin, Contributed Papers, p. 395 (1983) Soviet Union
00618 T	A03: H ⁺ + He A07: H ⁺ + He	10-1000 keV	Sidorovich, V. A. Calculations of the excitation cross sections of the parity unfavored of autoionizing states of He atoms by protons. XIII ICPEAC, Berlin, Contributed Papers, p. 396 (1983) Soviet Union
00619 T	A16: H ⁻ + He; H ⁻ + He; H ⁻ + Ar; Li ⁻ + He; Li ⁻ + He; Li ⁻ + Ar; K ⁻ + He; K ⁻ + Ar; K ⁻ + He	2-200 keV	Andersen, H.; Andersen, T.; Jepsen, L. A scaling law for electron detachment in keV collisions of H ⁻ , Li ⁻ , Na ⁻ , K ⁻ with He, Ne, Ar. XIII ICPEAC, Berlin, Contributed Papers, p. 399 (1983) Denmark
00620 T	A16: H ⁻ + H ₂ ; H ⁻ + Na	30-200 keV	Serenkov, I. T.; Sakharov, V. I.; Il'in, B. N. Electron detachment in H ⁻ - He collisions and free electron scattering approximation. XIII ICPEAC, Berlin, Contributed Papers, p. 400 (1983) Soviet Union
00621 E	A06: D ⁻ + O ₂ A16: D ⁻ + H ₂ ; D ⁻ + O ₂ ; D ⁻ + ND	0-500 eV	Bug, R. S.; Doverspike, L. D.; Champion, R. L. Electron detachment in negative ion-molecule collisions. XIII ICPEAC, Berlin, Contributed Papers, p. 401 (1983) United States
00622 E	A16: Cl ⁻ + Ar; Cl ⁻ + Mg; Cl ⁻ + Na; Ti ⁻ + Ar; Ti ⁻ + Mg; Ti ⁻ + Na	20-200 keV	Serenkov, I. T.; Sakharov, V. I.; Solovyer, I. A.; Il'in, B. N. Electron detachment in collisions of Cl ⁻ and Ti ⁻ ions with atoms Ar, Na, and Mg. XIII ICPEAC, Berlin, Contributed Papers, p. 404 (1983) Soviet Union
00623 T	A16: D ⁻ + He; H ⁻ + He	2-200 eV (cm)	Wang, T. S.; Oelou, J. B. Electron detachment in negative-ion collisions: cross sections. XIII ICPEAC, Berlin, Contributed Papers, p. 407 (1983) United States
00624 E	A16: H ⁻ + Kr A18: H ⁻ + Kr	20-500 eV	Zaslav, V.; Pichou, P.; Schermann, C.; Grouard, J. P.; Hall, R. L.; Leduc, M.; Montmaynon, J. L. Excitation of autodetaching states in H ⁻ -Kr collisions. XIII ICPEAC, Berlin, Contributed Papers, p. 409 (1983) France
00625 E	A07: H ⁺ + H ₂ ; H ⁺ + H ₂	5-4000 keV	Rudd, J. E.; Coffe, T. V.; DeBois, B. D.; Toburen, L. H.; Hutcliffe, C. A. Ionization cross sections for 5-4000 keV protons in gases. XIII ICPEAC, Berlin, Contributed Papers, p. 413 (1983) United States

Ref. No.	Reactants	Energy Range	Reference
00626 Z	A07: H ⁺ + He	10-4000 keV	DeBois, R. B.; Tschuren, L. B.; Hanson, S. T. Double ionization mechanisms in H ⁺ -He collisions. XIII ICPEAC, Berlin, Contributed Papers, p. 418 (1983) United States
00627 T	A07: H ⁺ + He; He ²⁺ + He; Li ²⁺ + He	0.01-5 MeV/amu	Sidorovich, V. A.; Sitaleev, V. S. Calculations of the cross sections for the double ionization of helium by light nuclei. XIII ICPEAC, Berlin, Contributed Papers, p. 415 (1983) Soviet Union
00628 Z	A07: He ²⁺ + He	1.5-7 MeV	Ellrich, J.; Kolbch, S.; Schadt, V.; Schmidt-Bocking, R.; Schuch, R.; Ingwersen, R. Multiple ionization of slow recoil ions in fast heavy-ion atom collisions. XIII ICPEAC, Berlin, Contributed Papers, p. 419 (1983) West Germany
00629 Z	A07: H ⁺ + Ba	0.5-6.0 MeV/amu	Divoir, S.; Baith, B.; Gonsior, R. Total K-shell ionization cross sections for heavy elements induced by protons. XIII ICPEAC, Berlin, Contributed Papers, p. 423 (1983) West Germany
00630 Z	A07: Li ⁺ + Cr	1-16 MeV	Baith, B.; Divoir, S.; Gonsior, R. Total K-shell ionization cross sections for elements 20 less than or equal to Z (sub 2) less than or equal to 60 induced by Li ions. XIII ICPEAC, Berlin, Contributed Papers, p. 424 (1983) West Germany
00631 Z	A07: Si ¹¹⁺ + He	7-90 MeV	Breadt, D.; Clark, H.; Scobee, T.; Swenson, J.; Shafroth, S. Measurement of the K x-ray production cross section in 50-80 MeV Si ¹¹⁺ + He collisions. XIII ICPEAC, Berlin, Contributed Papers, p. 427 (1983) United States
00632 Z	A07: H ⁺ + Au	0.1-10 MeV	Pinck, K.; Jitschin, W.; Hippler, R.; Iatz, H. O. L-subshell ionization of Au by light ion impact. XIII ICPEAC, Berlin, Contributed Papers, p. 429 (1983) West Germany
00633 Z	A03: S ¹³⁺ + Ar A06: S ¹³⁺ + Ar	80-160 MeV	Tanis, J. A.; Bernstein, E. B.; Graham, B. G.; Clark, H.; Shafroth, S. H.; Johnson, R. H.; Jones, K.; Baroa, M. Vacancy sharing following resonant-transfer-and-excitation in S + Ar collisions. XIII ICPEAC, Berlin, Contributed Papers, p. 443 (1983) United States
00634 Z	A03: Te ⁵¹⁺ + Xe; Te ⁵²⁺ + Xe; Te ⁵³⁺ + Xe; Te ⁵⁴⁺ + Xe; Te ⁵⁵⁺ + Xe; Te ⁵⁶⁺ + Xe; Te ⁵⁷⁺ + Xe; Te ⁵⁸⁺ + Xe; Te ⁵⁹⁺ + Xe; Te ⁶⁰⁺ + Xe; Te ⁶¹⁺ + Xe; Te ⁶²⁺ + Xe; Te ⁶³⁺ + Xe; Te ⁶⁴⁺ + Xe; Te ⁶⁵⁺ + Xe; Te ⁶⁶⁺ + Xe; Te ⁶⁷⁺ + Xe; Te ⁶⁸⁺ + Xe; Te ⁶⁹⁺ + Xe; Te ⁷⁰⁺ + Xe	2.2-8.7 MeV/amu	Holzer, P. H.; Hoffmann, D. H.-H.; Schonfeldt, W. A.; Stachura, Z.; Barczak, A. Inner shell vacancy transfer studied with highly ionized, decelerated heavy ions. XIII ICPEAC, Berlin, Contributed Papers, p. 446 (1983) West Germany
00635 T	A07: Ar + Kr	0.3-2.0 MeV	Ovchinnikov, S. V.; Zinoviev, A. B.; Gordeev, Y. S. Inner shell direct ionization in slow atomic collisions. XIII ICPEAC, Berlin, Contributed Papers, p. 452 (1983) Soviet Union
00636 T	A03: He ⁺ + He	5-300 keV	Toepfer, A.; Jacob, R.; Ludde, H. J.; Kreisler, B. H. Coupled multichannel calculation for He ⁺ + He collisions in the energy range of 5-300 keV. XIII ICPEAC, Berlin, Contributed Papers, p. 453 (1983) West Germany
00637 Z	A03: Si + Si	90 MeV	Sichter, H. Impact parameter dependence of 1s sigma and 2p sigma sigma radiation in 90 MeV Si + Si collisions. XIII ICPEAC, Berlin, Contributed Papers, p. 473 (1983) East Germany
00638 Z	A07: He ⁺ + He	20 keV	Tokoro, S.; Takenouchi, T.; Oda, S. Molecular-autoionization spectra from He ⁺ -He collisions. XIII ICPEAC, Berlin, Contributed Papers, p. 476 (1983) Japan
00639 Z-T	A07: Kr ⁺ + Kr; Kr ²⁺ + Kr; Kr ⁺ + Ar; Kr ²⁺ + Ar	10-100 keV	Geechins, B. A.; Benthji, G. G.; Bikhalla, V. L.; Shergin, A. P. 1p-vacancy produced due to two-electron transitions in Kr-Kr and Kr-Ar collisions. XIII ICPEAC, Berlin, Contributed Papers, p. 477 (1983) Soviet Union
00640 Z	A06: H ⁺ + He A07: H ⁺ + He A18: H ⁺ + He	2.0-4 MeV	Bornáai-Pedersen, E.; Coche, C. L.; Stockli, U. Experimental observation of the Thomas peak in electron capture. XIII ICPEAC, Berlin, Contributed Papers, p. 478 (1983) United States

Ref. No.	Reactants	Energy Range	Reference
00641 Z	A09: He ⁺ + He A18: He ⁺ + He	750 eV	Norman, J. H.; Chen, Y. S.; Gibner, P. S.; Smith, K. A.; Stebbings, R. P. Differential cross sections in ion-neutral charge exchange collisions. XIII ICPEAC, Berlin, Contributed Papers, p. 480 (1983) United States
00642 Z	A09: H ⁺ + H ₂ ⁺	20-2000 eV	Szucs, S.; Sarenara, H.; Terao, K. Charge exchange between H ₂ ⁺ and H ⁺ . XIII ICPEAC, Berlin, Contributed Papers, p. 482 (1983) Belgium
00643 Z	A06: H ⁺ + O; H ⁺ + O A08: H ⁺ + O A16: H ⁺ + O	2-25 keV	Williams, I. D.; Coddess, J.; Glibody, E. B. Electron capture, loss and excitation in collisions of H ⁺ , ² He ⁺ , H ₂ ⁺ and H ⁻ in atomic oxygen. XIII ICPEAC, Berlin, Contributed Papers, p. 483 (1983) United Kingdom
00644 Z	A06: H ⁺ + Ar; He ⁺ + Ar A07: H ⁺ + Ar; He ⁺ + Ar	12-100 keV	DeBois, M. D.; Toburen, L. H. Multiple ionization of argon by charge transfer and direct ionization. XIII ICPEAC, Berlin, Contributed Papers, p. 487 (1983) United States
00645 Z	A03: Xe ⁺ + Xe A06: Xe ⁺ + Xe	~20 keV	King, R. P.; Latimer, C. J. Charge transfer and fine structure transitions in 2-20 keV Xe ⁺ collisions. XIII ICPEAC, Berlin, Contributed Papers, p. 488 (1983) United Kingdom
00646 Y	A06: Kr ⁺ + Kr	0.02-4 eV	Elford, R. T.; Williams, O. A. The charge transfer cross section for Kr ⁺ -Kr at ion energies between 0.08 and 2 eV. XIII ICPEAC, Berlin, Contributed Papers, p. 489 (1983) Australia
00647 Z	A03: H ⁺ + Cs; H ⁺ + Rb; H ⁺ + K; H ⁺ + Na A06: H ⁺ + Cs; H ⁺ + Rb; H ⁺ + K; H ⁺ + Na	0.06-5 keV	Nagata, T. Experimental cross sections for Lyman-alpha emission in charge transfer collisions of H ⁺ with Cs, Rb, K, and Na atoms. XIII ICPEAC, Berlin, Contributed Papers, p. 490 (1983) Japan
00648 Z	A06: O ⁺ + H ₂ ; C ⁺ + H ₂	10-150 keV	Helberich, F.; Rinn, K.; Müller, A.; Salzborn, E. Electron capture by C ⁺ , O ⁺ , N ⁺ , S ⁺ , and Pb ⁺ ions in H ₂ in the energy range 10-150 keV. XIII ICPEAC, Berlin, Contributed Papers, p. 492 (1983) West Germany
00649 Z	A06: H ⁺ + Xe; H ⁺ + Ar; H ⁺ + Kr; H ⁺ + He; H ⁺ + Ar; H ⁺ + Kr A07: H ⁺ + Xe; H ⁺ + Ar; H ⁺ + Kr; H ⁺ + He; H ⁺ + Ar; H ⁺ + Kr	0.5-7.0 keV	Kikinnal, B. I.; Lonsdale, R. A.; Nov, S. V.; Nosulishvili, M. O.; Gochitashvili, M. B.; Lavrov, V. M. Ionization and charge exchange processes in collisions of alkali metal ions with rare gas atoms in the energy region 0.5-7.0 keV. XIII ICPEAC, Berlin, Contributed Papers, p. 493 (1983) Soviet Union
00650 Y	A06: H ⁺ + H; He ⁺ + H	0.1-5.6 keV/amu	Fujiwara, K.; Toshima, H.; Watanabe, T. Close coupling calculation of electron capture at high energies. XIII ICPEAC, Berlin, Contributed Papers, p. 497 (1983) Japan
00651 Y	A08: He ⁺ + He	30-210 keV/amu	Fritsch, W.; Lie, C. D. Representation of continuum channels in the description of collisionally induced electronic transitions. XIII ICPEAC, Berlin, Contributed Papers, p. 502 (1983) West Germany
00652 Y	A06: H ⁺ + H A18: H ⁺ + H	10 keV	Srivastava, R. K.; Sharma, A. K. Proton-hydrogen electron capture in second order Brinkman-Kramers approximation. XIII ICPEAC, Berlin, Contributed Papers, p. 505 (1983) Soviet Union
00653 Y	A06: H ⁺ + He	300-1000 keV	Sharma, A. K.; Srivastava, R. K. Effect of orthogonality of initial and final states on p-He electron capture. XIII ICPEAC, Berlin, Contributed Papers, p. 506 (1983) India
00654 Y	A06: H ⁺ + C; H ⁺ + He A18: H ⁺ + C; H ⁺ + He	0.6-1.5 keV	Bivarola, B. D.; Salin, A. K-K shell electron capture in asymmetric proton-atom collisions at high and intermediate energies. XIII ICPEAC, Berlin, Contributed Papers, p. 507 (1983) France
00655 Y	A03: H ⁺ + H A06: H ⁺ + H	25-1000 keV	Mukherjee, S. C.; Datta, S.; Mandal, C. B. Electron capture into highly excited states. XIII ICPEAC, Berlin, Contributed Papers, p. 509 (1983) India
00656 Y	A06: H ⁺ + Li	1-22 keV (cm)	Prokhorov, A. M. Charge transfer in collisions between protons and lithium atoms. XIII ICPEAC, Berlin, Contributed Papers, p. 514 (1983) United States
00657 Y	A06: H ⁺ + Li	0-13 keV	Kisura, H.; Sato, H.; Pankale, J.; Olson, B. E. Molecular state calculation of charge transfer in H ⁺ + Li collisions. XIII ICPEAC, Berlin, Contributed Papers, p. 518 (1983) United States

Ref. No.	Reactants	Energy Range	Reference
00658 T	A06: Li ⁺ + Ca	0.1-10 keV/amu	Kimura, K.; Sato, K.; Olson, R. E. Molecular treatment of charge transfer in Li ⁺ + Ca collisions. XIII ICPAC, Berlin, Contributed Papers, p. 519 (1983) United States
00659 T	A06: Li ⁺ + Na	300-2700 eV	Oral, A. E.; Kalandar, K. C. A theoretical study of coherence effects in charge transfer collisions: application to He-Li ⁺ . XIII ICPAC, Berlin, Contributed Papers, p. 521 (1983) United States
00660 T	A09: H ⁺ + H ⁻	0.5-10 keV	Borondo, F.; Macias, A.; Aizawa, A. H ⁺ + H ⁻ neutralization. XIII ICPAC, Berlin, Contributed Papers, p. 522 (1983) Spain
00661 T	A06: B ³⁺ + H; C ⁴⁺ + H	750-2500 keV	Bukharjee, S. C.; Mandal, C. K.; Datta, S. Charge transfer for completely stripped boron and carbon ions from atomic hydrogen. XIII ICPAC, Berlin, Contributed Papers, p. 524 (1983) India
00662 T	A06: Undef	1-1000 keV/amu	Schlachter, A. S.; Stearns, J. W.; Griggs, W. G.; Berkner, K. R.; Pyle, R. V.; Yanis, J. A. Electron capture for fast highly charged ions in gas targets. XIII ICPAC, Berlin, Contributed Papers, p. 525 (1983) United States
00663 E	A06: Si ¹¹⁺ + He	50-80 MeV	Clark, R.; Brandt, D.; Shafroth, S.; Swenson, J. electron capture and loss cross sections for Si ¹¹⁺ + He from 50-80 MeV. XIII ICPAC, Berlin, Contributed Papers, p. 527 (1983) United States
00664 E	A06: O ²⁺ + H; O ²⁺ + He; O ²⁺ + F; O ²⁺ + Ne; O ²⁺ + N; O ²⁺ + H; O ²⁺ + He; O ²⁺ + F; O ²⁺ + Ne; O ²⁺ + N; O ²⁺ + H; O ²⁺ + He; O ²⁺ + F; O ²⁺ + Ne; O ²⁺ + N; O ²⁺ + H; O ²⁺ + He; O ²⁺ + F; O ²⁺ + Ne; O ²⁺ + N; O ²⁺ + H; O ²⁺ + He; O ²⁺ + F; O ²⁺ + Ne; O ²⁺ + N; O ²⁺ + H; O ²⁺ + He; O ²⁺ + F; O ²⁺ + Ne; O ²⁺ + N	8x10 ⁴ cm/s	Beitrieu, I. S.; Vorobiev, V. P.; Sugrov, G. E.; Kuzvalova, E. B.; Kral'kova, E. A.; Mikulayev, V. S.; Popova, I. A.; Papisberg, Y. A. A study of the charge-exchange of carbon and oxygen ions in various media. XIII ICPAC, Berlin, Contributed Papers, p. 530 (1983) Soviet Union
00665 E	A03: Ar ¹⁸⁺ + H A06: Ar ¹⁸⁺ + H	250 MeV	Rozet, J. P.; Leggans-Pigeon, P.; Chetoui, A.; Chevallier, P. Capture cross sections in highly excited p states of Ar ¹⁸⁺ in high velocity collisions of 250 MeV Ar ¹⁸⁺ on H. XIII ICPAC, Berlin, Contributed Papers, p. 537 (1983) France
00666 E	A06: He ²⁺ + He; Kr ²⁺ + He	0.3-800 eV (cm)	Ohno, K.; Kaneko, Y. Low-energy electron-capture in He ²⁺ -He, Ar ²⁺ -He and Kr ²⁺ -He collisions. XIII ICPAC, Berlin, Contributed Papers, p. 543 (1983) Japan
00667 E	A03: Kr ²⁺ + He; Kr ²⁺ + He; Kr ²⁺ + He; Kr ²⁺ + He A11: Kr ²⁺ + He; Kr ²⁺ + He	0.5-2.7 keV	Kobayashi, K.; Nakamura, Y.; Kaneko, Y. Ion energy loss spectroscopy for transitions among low-lying states of Kr ²⁺ in the collisions with He and Ne. XIII ICPAC, Berlin, Contributed Papers, p. 545 (1983) Japan
00668 E	A03: C ³⁺ + He A06: C ³⁺ + He	1.3-6 keV	Lesson, A.; McCullough, B. W.; Gilbody, R. B. State-selective electron capture by C ³⁺ , C ²⁺ , N ²⁺ and Ar ²⁺ in rare gases. XIII ICPAC, Berlin, Contributed Papers, p. 547 (1983) United Kingdom
00669 E	A03: O ⁴⁺ + He; O ⁴⁺ + H ₂ A06: O ⁴⁺ + He; O ⁴⁺ + H ₂	0.15-0.5 vel(a.u.)	Gordeev, Y. S.; Dijkshap, B.; Bruntje, A. G.; de Boer, F. J. Electron capture into different (n,l)-states in slow C ³⁺ , N ²⁺ , O ²⁺ , He ²⁺ -He, H ₂ collisions. XIII ICPAC, Berlin, Contributed Papers, p. 550 (1983) The Netherlands
00670 E-T	A03: He ²⁺ + He A06: He ²⁺ + He	0.01-1 vel(a.u.)	Dijkshap, B.; Mikulin, V. K.; Gordeev, Y. S.; Senoile, A. V.; de Boer, F. J. Electron capture into excited projectile states in 6-100 keV He ²⁺ -He collisions. XIII ICPAC, Berlin, Contributed Papers, p. 552 (1983) The Netherlands
00671 T	A06: C ³⁺ + H; O ²⁺ + H	1-500 eV	Bottcher, C.; Seil, T. G. Charge capture by multicharged ions: fully quantal calculations with large basis sets. XIII ICPAC, Berlin, Contributed Papers, p. 555 (1983) United States
00672 T	A06: He ²⁺ + H	0.02-10 keV (cm)	Van Nieuw, R. C.; Van Dishoeck, E. F.; Koike, Y. Molecular calculations of the cross section for charge transfer He ²⁺ + H in the 20 eV to 10 keV E(sub CM) region. XIII ICPAC, Berlin, Contributed Papers, p. 556 (1983) The Netherlands

Ref. No.	Reactants	Energy Range	Reference
00673 T	A06: $\text{Li}^{2+} + \text{H}$	2-4 keV/amu	Samson, J.; Raral, C. Theoretical study of $\text{Li}^{2+} + \text{H}$ collisions at the keV energy range. XIII ICPEAC, Berlin, Contributed Papers, p. 558 (1983) France
00674 T	A03: $\text{Ne}^{2+} + \text{H}$ A06: $\text{Ne}^{2+} + \text{H}$	0.1-100 keV/amu	Errea, L. F.; Bander, L.; Biera, A. Treatment of charge transfer collisions with translation factors. XIII ICPEAC, Berlin, Contributed Papers, p. 559 (1983) Spain
00675 E	A06: $\text{H}^{2+} + \text{H}; \text{H}^{3+} + \text{H}; \text{He}^{2+} + \text{H}$	2×10^6 - 2.9×10^6 cm	Meyer, F. W. Coincidence measurements of electron transfer in a ion-atom crossed beams experiment. XIII ICPEAC, Berlin, Contributed Papers, p. 562 (1983) United States
00676 E	A06: $\text{Ar}^{2+} + \text{H}_2; \text{Ar}^{2+} + \text{H}_2; \text{Ar}^{2+} + \text{H}_2$ $\text{Ar}^{2+} + \text{H}_2; \text{Ne}^{2+} + \text{H}; \text{Ne}^{2+} + \text{H};$ $\text{Ne}^{2+} + \text{H}; \text{He}^{2+} + \text{H}$	10^2 - 2×10^4 eV	Gray, T. J.; Can, C.; Tunnell, L.; Hall, J. B.; Varghese, S. L. Electron capture cross sections for low velocity $\text{He}(\text{sup } g)^+$ and $\text{Ar}(\text{sup } g)^+$ ions on atomic and molecular hydrogen. XIII ICPEAC, Berlin, Contributed Papers, p. 563 (1983) United States
00677 E	A06: $\text{Fe}^{2+} + \text{H}$	100 keV/amu	Hvalplund, P.; Knudsen, E.; Andersen, L. S.; Sjørneld, S. K., Liljeby, L. Nonmonotonic behaviour in the charge dependence of total electron-capture cross sections for medium-velocity, partly stripped ions on atomic hydrogen. XIII ICPEAC, Berlin, Contributed Papers, p. 564 (1983) Denmark
00678 E	A06: $\text{C}^{2+} + \text{H}; \text{O}^{2+} + \text{H}; \text{Ne}^{10+} + \text{H}$	2×10^7 - 11×10^7 cm	Afrosimov, V. V.; Basalaev, A. A.; Loshkin, E. O.; Panov, N. N. Electron capture from hydrogen atoms by multiply charged C, N, O, Ne ions at low keV energies. XIII ICPEAC, Berlin, Contributed Papers, p. 565 (1983) Soviet Union
00679 T	A06: $\text{C}^{2+} + \text{He}; \text{N}^{2+} + \text{He}$	0.05-1.0 a.u.	Hibelin, V. K.; Samoylov, A. V. Multichannel model study of collisions between many-electron atoms and highly charged ions. XIII ICPEAC, Berlin, Contributed Papers, p. 566 (1983) Soviet Union
00680 T	A06: $\text{He}^{2+} + \text{Li}$	1.2-25.4 keV/cm	Erzolaev, A. N.; Branden, B. N. Charge transfer in $\text{He}^{2+} + \text{Li}$ collisions. XIII ICPEAC, Berlin, Contributed Papers, p. 567 (1983) United Kingdom
00681 E	A06: $\text{He}^{2+} + \text{Li}$	0.6-2.0 MeV	Sano, H.; Matsumoto, A.; Hishizawa, A.; Sato, K. W.; Takagi, S.; Anamiya, S.; Masuda, T.; Yurita, Y.; Kamatori, Y.; Maruyama, Y.; Fukuzawa, P. Two electron capture in high energy $\text{He}^{2+} + \text{Li}$ collisions. XIII ICPEAC, Berlin, Contributed Papers, p. 569 (1983) Japan
00682 T	A06: $\text{He}^{2+} + \text{H}$	0.2-4.0 keV/amu	Suzuki, H.; Yoshida, S.; Matsubae, T. Exponential distorted wave approximation in charge transfer. XIII ICPEAC, Berlin, Contributed Papers, p. 570 (1983) Japan
00683 T	A06: $\text{Ne}^{10+} + \text{H}$	$10^6 \times 10^3$ keV/amu	Koike, F. Continuous energy state model for charge transfer in multiply charged ions impact on atoms. XIII ICPEAC, Berlin, Contributed Papers, p. 571 (1983) The Netherlands
00684 E	A18: $\text{He} + \text{O}_2; \text{Ne} + \text{H}_2; \text{He} + \text{H}_2; \text{He} + \text{Ne}$	750-3000 eV	Hevman, J. B.; Chen, Y. S.; Smith, E. A.; Stebbings, P. F. Differential cross sections in neutral-neutral collisions. XIII ICPEAC, Berlin, Contributed Papers, p. 588 (1983) United States
00685 F	A11: $\text{Ne}^+ + \text{CO}_2$	Under	Janiszewski, G.; Schulz, C. P.; Tittus, H. U.; Bortel, L. V. Resonant electronic to vibrational energy transfer in the collision of laser excited $\text{Ne}^+(3p)$ with triatomic molecules. XIII ICPEAC, Berlin, Contributed Papers, p. 601 (1983) West Germany
00686 E	A11: $\text{Ne}^+ + \text{H}_2$	0.16 eV	Janiszewski, G.; Schulz, C. P.; Tittus, H. U.; Bortel, L. V. A molecular beam study of electronic to electronic, vibrational, and rotational energy transfer (E-EVT) in the collision of two step laser excited sodium with H_2 . XIII ICPEAC, Berlin, Contributed Papers, p. 602 (1983) West Germany
00687 E	A11: $\text{Ne}^+ + \text{H}_2$	20-40 meV	Koike, F.; Ueki, M.; Tanaka, Y.; Shimada, H.; Matsuo, Y. Temperature dependence of de-excitation rate constants of $\text{Ne}(2^3S)$, $\text{Ar}(1^3P)$, and $\text{Ar}(2^3P)$ by atoms and molecules. XIII ICPEAC, Berlin, Contributed Papers, p. 606 (1983) Japan
00688 E	A03: $\text{H}^+ + \text{H}_2; \text{H}_2^+ + \text{H}; \text{H}_2^+ + \text{H}_2$	2-14 keV	Lavrov, V. S.; Lomachev, B. A. Resonance cross sections and polarization of the resonance radiation in $\text{H}^+, \text{H}_2^+, \text{H}_2^+ - \text{H}_2$ collisions at 2-14 keV. XIII ICPEAC, Berlin, Contributed Papers, p. 610 (1983) Soviet Union

Ref. No.	Reactants	Energy Range	Reference
00689 Z	A03: $K^+ + H_2$	1-10 keV	Kikiani, S. I.; Gochitashvili, M. E.; Kvishvildze, R. V.; Antedonov, V. A. Excitation of hydrogen atoms in collisions of slow K^+ - ions with H_2 - molecules. XIII ICPEAC, Berlin, Contributed Papers, p. 611 (1983) Soviet Union
00690 Z	A07: $He^+ + Ar$	45 neV	Bumert, W.; Gatz, J.; Raf, H. W.; Siegel, A.; Rotop, S.; Mergner, R. Strong variation in the thermal energy ionization cross section of argon atoms colliding with different laser-excited $He(2p^2\ 3p\ J=1,2,3)$ atoms. XIII ICPEAC, Berlin, Contributed Papers, p. 679 (1983) West Germany
00691 T	A06: $H_2^+ + Hg$ A06: $H_2^+ + Hg$	5 keV	Sidin, V.; De Bruijn, B. Theory of near resonant-dissociative charge exchange collisions at keV energies. XIII ICPEAC, Berlin, Contributed Papers, p. 630 (1983) France
00692 Z	A08: $HD_2^+ + H_2$ A18: $HD_2^+ + H_2$	1.5-5 keV	Morales, A.; de Urquijo, J.; Cisneros, C.; Alvarez, I.; Sumak, A. Differential positive-fragment cross sections of HD_2^+ in H_2 at energies in the range 1.5 to 5 keV. XIII ICPEAC, Berlin, Contributed Papers, p. 636 (1983) Mexico
00693 T	A06: $Ar^+ + Na^+; Na^+ + Na^+$	500-2000 eV	Nachdan, K. B.; Boffes, R. G. Charge transfer from Na^+ atoms: velocity dependence of final-state distributions. XIII ICPEAC, Berlin, Contributed Papers, p. 661 (1983) United States
00694 T	A07: $Rb^+ + Rb^+$	Undef	Kimura, M.; Olson, R. E. Penning ionization in collisions of Rydberg Rb atoms. XIII ICPEAC, Berlin, Contributed Papers, p. 662 (1983) United States
00695 T	A11: $Fe^+ + Fe$	Undef	Sato, Y.; Matsuzawa, S. Quasi-elastic state-changing collisions of high-Rydberg atoms with heavy rare-gas atoms. XIII ICPEAC, Berlin, Contributed Papers, p. 670 (1983) Japan
00696 T	A11: $Rb^+ + Rb^+$	Undef	Ragon, M.; Comand, P.; Fournier, P. R.; Berlande, J. Quenching of rubidium Rydberg states: a tool for investigation of the elastic scattering of ultra-low energy electrons ($E = 0.01$ eV) by rubidium atoms. XIII ICPEAC, Berlin, Contributed Papers, p. 671 (1983) France
00697 T	B01: Undef	Undef	Dinow, L.; Faisel, P.-H.M. Radiative electron-atom collision cross sections. XIII ICPEAC, Berlin, Contributed Papers, p. 683 (1983) East Germany
00698 T	B07: $e + H$ E03: $e + H$ E17: $e + H$	E03: E17: 0-200 eV	Jethava, S.; Faisel, P.-H.M.; Hippler, R.; Letz, R. O. Simultaneous electron-photon excitation of atoms. XIII ICPEAC, Berlin, Contributed Papers, p. 684 (1983) East Germany
00699 T	B07: $e + He + h\nu$		Pandir, B. S.; Mathur, K. C. Quadrupole effect in the excitation of He by electron impact in the presence of laser. XIII ICPEAC, Berlin, Contributed Papers, p. 685 (1983) India
00700 T	B07: $He^{2+} + H + h\nu$		Mendez, L.; Erma, L. P.; Sierra, A. $He^{2+} + H$ collisions in presence of a laser field. XIII ICPEAC, Berlin, Contributed Papers, p. 691 (1983) Spain
00701 T	B07: $H^+ + H; H^+ + H$		Sivona, S.; Spagnolo, S.; Ferrante, G. Charge transfer in the presence of a magnetic field. XIII ICPEAC, Berlin, Contributed Papers, p. 692 (1983) Italy
00702 T	A06: $O^+ + H$	1.0 eV	Sienstock, S.; Dalgarno, A.; Boweff, E. Charge transfer and fine-structure excitation in collisions of O^+ with atomic hydrogen at thermal energies. XIII ICPEAC, Berlin, Contributed Papers, p. 736 (1983) United States
00703 Z	E03: $e + Hg^+$	4-15 eV	Zapomochay, I. P.; Izra, A. I.; Prostor, V. I.; Gomonaj, A. N.; Shchlenko, A. I. Excitation of the $Hg\ II$ resonance doublet by monoenergetic electrons. XIII ICPEAC, Berlin, Contributed Papers, p. 743 (1983) Soviet Union
00704 T	E03: $e + He^+$	43-48 eV	Baynak, M. I.; Lengyel, V. I.; Savrotsky, V. T.; Sabed, E. P. The calculation of excitation of $2S$ and $2P$ levels of He^+ ion by electron impact. XIII ICPEAC, Berlin, Contributed Papers, p. 748 (1983) Soviet Union

Ref. No.	Reactants	Energy Range	Reference
00705 T	E06: $e + He^+$	31-41 eV	Zatserinay, G. I.; Lengyel, V. I.; Sabed, E. P. Calculation of di-electron recombination cross-section on He^+ -ion. XIII ICPHAC, Berlin, Contributed Papers, p. 749 (1983) Soviet Union
00706 T	E02: $e + Hg^+$ E17: $e + Hg^+$	1-4.5 eV	Lengyel, V. I.; Savrotsky, V. T.; Sabed, E. P. The influence of electron capture on the elastic cross-sections of electron- Hg^+ -ion scattering. XIII ICPHAC, Berlin, Contributed Papers, p. 750 (1983) Soviet Union
00707 T	E07: $h\nu + H; h\nu + Fe^{2+}$ E06: $h\nu + H; h\nu + Fe^{2+}$	E06: 0.1-346 kV	Banner, G.; Bader, H.; Herold, H.; Schmitt, W. Cross sections for photo-ionisation and photo-recombination of hydrogenic atoms in strong magnetic fields. Astron. Astrophys. 117, 156 (1983) West Germany
00708 T	E03: $e + Hg^{10+}$	0.7-9x10 ⁻⁶ K	Faucher, P.; Loulergue, H.; Steensman-Clark, I.; Volante, S. Dielectronic satellite spectra of Hg XI with inner-shell and helium-like excitation rates. Application to solar observations. Astron. Astrophys. 118, 147 (1983) France
00709 T	J02: Bremsstrahlung	1-500 keV	Himmel, L.; Charles, C. A.; Pratt, R. S. Shape functions for atomic-field bremsstrahlung from electrons of kinetic energy 1-500 keV on selected neutral atoms 1 less than or equal to 2 less than or equal to 92. At. Data Nucl. Data Tables 28, 381 (1983) Mexico
00710 T	J02: Bremsstrahlung	5-100 keV	Berghardt, K.; Haug, E.; Wiemann, K. Differential bremsstrahlung cross sections for collisions of electrons with unscreened nuclei of low atomic numbers. At. Data Nucl. Data Tables 28, 461 (1983) West Germany
00711 E	J04: Ion Backscattering	0.010-100 keV	Tabata, T.; Ito, H.; Itikawa, T.; Itoh, H.; Morita, K. Backscattering coefficients of H, D, and He ions from solids. At. Data Nucl. Data Tables 28, 493 (1983) Japan
00712 T	D07: $Ar + H$	10 ⁻² -10 ⁻⁶ K	Billing, G. D. Semiclassical theory for atom-surface scattering: calculations on $Ar + H(110)$. Chem. Phys. 74, 103 (1983) Denmark
00713 E-T	A03: $H^+ + He; H^+ + He; H + He$ A06: $H^+ + He; H + He$ A0C: $H + He$ A16: $H^+ + He$	10 ⁻⁶ -10 ⁻⁶ eV	Wisley, J. S. Electron detachment in negative ion collisions. Comments At. Mol. Phys. 12, 215 (1983) United States
00714 E-T	A03: $He^{2+} + Li; Ar^{2+} + He; C^{2+} + H;$ $Ti^{2+} + H; Au^{2+} + H; Au^{2+} + H$ A06: $He^{2+} + Li; Ar^{2+} + He; C^{2+} + H;$ $Ti^{2+} + H; Au^{2+} + H; Au^{2+} + H$	10 ⁻¹ -10 ² keV/amu	Janev, R. K. Electron capture into excited states in collisions of highly charged ions with atoms: a theoretical and experimental challenge. Comments At. Mol. Phys. 12, 277 (1983) Yugoslavia
00715 E-T	R01: $e + H_2$	0.1-10.0 eV	Berke, P. G.; Noble, C. J. New directions in low energy electron molecule collision calculations. Comments At. Mol. Phys. 12, 101 (1983) United Kingdom
00716 T	H06: $h\nu + Cs$	0.1-7.5 Ry	Huzarek, A. Z. Photoionisation of Cs 6p and Cs 7p subshells. J. Phys. B 16, L489 (1983) United States
00717 E	A05: $H^+ + Au$	0.1-0.5 MeV	Sorisev, A. M.; Kerkov, H.; Petukhov, V. P.; Sosnovsky, E. A. Alignment of the H_2 subshell of Au atoms by proton impact. J. Phys. B 16, L495 (1983) Soviet Union
00718 E	A02: $H^+ + Ar$ A06: $H^+ + Ar$ A19: $H^+ + Ar$	100-350 eV	Rita, S.; Ikawa, H.; Isouya, H. Differential scattering in collisions of H^+ ions with Ar atoms. J. Phys. B 16, L499 (1983) Japan
00719 T	E03: $e + H; e + H; e + H; e + Cs$ E05: $e + H; e + H; e + H; e + Cs$	13-31 eV	Peterkop, R.; Liepinsh, A. On the excitation of the lowest autoionising state in alkali atoms. J. Phys. B 16, L505 (1983) Soviet Union
00720 E	H06: $2h\nu + He^+$	0.52 eV	Siegel, A.; Gans, J.; Bannert, H.; Kotop, H. Electron angular distributions and total cross sections for photoionisation of polarized $He(3p^2D_3)$ atoms near threshold. J. Phys. B 16, 2945 (1983) West Germany

Ref. No.	Reactants	Energy Range	Reference
00721 E	H04: hv + Fe; hv + Co; hv + Ni	50-80 eV	Schmidt, R.; Schröder, H.; Sonntag, R.; Voss, R.; Wetzzi, R. E. Resonant vacuum ultraviolet photoemission of atomic Fe, Co and Ni. J. Phys. B 16, 1961 (1983) West Germany
00722 E	H04: 3hv + Xe	140-180 nm	Salasero, I.; Asanuma, M.; Hiro, A.; Smet, M.; Galy, J.; Millet, P. Multiphoton excitation and frequency tripling in xenon. J. Phys. B 16, 1971 (1983) France
00723 E	A06: Ar ²⁺ + He; Ar ³⁺ + He A ¹ S: Ar ²⁺ + He; Ar ³⁺ + He	540-1250 eV	Kamber, R. Y.; Basted, J. B. Single electron capture by Ar ²⁺ and Ar ³⁺ ions impacting helium. J. Phys. B 16, 3025 (1983) United Kingdom
00724 T	A06: Ti ³⁺ + H ⁺	0.1-10 keV/amu	Sato, H.; Kikura, M.; Wetsore, A. L.; Olsson, S. E. Electron capture cross sections for Ti ³⁺ . J. Phys. B 16, 3037 (1983) United States
00725 E	E05: e + Al ⁺	12-750 eV	Montague, R. G.; Harrison, S.F.A. A measurement of the cross section for electron impact ionization of Al ⁺ . J. Phys. B 16, 3045 (1983) United Kingdom
00726 T	E03: e + Ca ¹⁰⁺	10-150 Ry	Duffon, P. L.; Kingston, A. R.; Scott, S. S. Electron excitation of Ca XVII. J. Phys. B 16, 3053 (1983) United Kingdom
00727 E	E03: e + CO	11-20 eV	Wallbank, R.; Daviel, S.; Comer, J.; Hicks, P. Electron energy-loss spectroscopy of carbon monoxide: VI. The energy region 11 to 20 eV. J. Phys. B; J. Phys. B 16, 3065 (1983) United Kingdom
00728 T	E03: e + CH ₄ ; e + H ₂ O E17: e + CH ₄ ; e + H ₂ O	1-15 eV	Jain, A.; Thompson, D. G. Rotational excitation of CH ₄ and H ₂ O by slow electron impact. J. Phys. B 16, 3077 (1983) United Kingdom
00729 E	E04: e + OH ⁺ ; e + H ₂ O ⁺ ; e + H ₃ O ⁺ ; e + D ₂ O ⁺ E06: e + OH ⁺ ; e + H ₂ O ⁺ ; e + H ₃ O ⁺ ; e + D ₂ O ⁺	0.01-1 eV	Hui, P. M.; McGowan, J. W.; DeFrance, P.; Mitchell, J.S.A. Merged electron-ion beam experiments: V. Dissociative recombination of OH ⁺ , H ₂ O ⁺ , H ₃ O ⁺ , and D ₂ O ⁺ . J. Phys. B 16, 3099 (1983) Canada
00730 T	A03: H ⁺ + H ₂	4.67 eV	Baker, D. J.; Flower, D. B. Long-range forces in heavy particle scattering. J. Phys. B 16, 1515 (1983) United Kingdom
00731 T	A03: C ²⁺ + H ₂ A06: C ²⁺ + H ₂	40 keV	Winter, H. Comment on radiative decay of lithium-like ions following exchange collisions of 3 keV am ⁻¹ C ²⁺ with H ₂ . J. Phys. B 16, 1521 (1983) Austria
00732 T	H04: hv + Ar	Undef	Dyall, K. G. Shake theory predictions of excited-state populations following 1s ionization in argon. J. Phys. B 16, 3137 (1983) United Kingdom
00733 E	H02: hv + Te H06: hv + Te	1400-400 Å	Marzoni, M.; Canto, A. M.; Joshi, Y. S. Photoionization spectrum of Te I: autoionizing series and relative cross section. J. Phys. B 16, 3183 (1983) Italy
00734 T	A07: H ⁺ + S; He ²⁺ + H; Li ²⁺ + H; C ²⁺ + H	20-1000 keV/amu	Crothers, D.S.F.; McCann, J. F. Ionization of atoms by ion impact. J. Phys. B 16, 3229 (1983) United Kingdom
00735 T	A07: H ⁺ + He; He ²⁺ + He; Li ²⁺ + He	0.01-5 MeV/amu	Sidorovich, V. A.; Nikolaev, V. S. Ionization of He atoms by H ⁺ , He ²⁺ and Li ²⁺ nuclei. J. Phys. B 16, 3243 (1983) Soviet Union
00736 E	A03: Ar ⁺ + Na ⁺ ; Na ⁺ + Na ⁺ A06: Ar ⁺ + Na ⁺ ; Na ⁺ + Na ⁺	580-2000 eV	Macdoug, K. B.; Bolles, R. G. Velocity dependence of Rydberg n = 2 prime charge transfer cross sections. J. Phys. B 16, 3251 (1983) United States
00737 T	E03: e + He ⁺ ; e + H	1-16 Ry	Radwell, S. B. Electron impact excitation of the n = 2 level in He ⁺ and H at low energies. J. Phys. B 16, 3263 (1983) United Kingdom
00738 T	H06: hv + Pb ⁺ ; hv + Ce ⁺	0-9 Ry	Ardonias, V. B.; Ispenia, M. Y. Characteristic features in photoionization of excited atomic states. J. Phys. B 16, 1583 (1983) Soviet Union
00739 E	E03: e + H ₂ E17: e + H ₂	0-160 eV	Takahashi, S.; Arai, S.; Kouchi, S.; Oda, H.; Matsuo, Y. Angular intensity distribution of Balmer-alpha emission excited by electron impact on H ₂ . J. Phys. B 16, 1587 (1983) Japan

Ref. No.	Reactants	Energy Range	Reference
00740 T	R17: $H_2 + H_2$	Undef	Sanby, G.; Flower, B. S. Theoretical studies of van der Waals molecules: the H_2-H_2 dimer. J. Phys. B 16, 3411 (1983) United Kingdom
00741 E	R03: $F + He; K + Kr; K + Xe$	9000-1300 Å	Andersen, P.; Buren, B.; Jørgen, H. Electronic excitation in alkali-rare-gas collisions. J. Phys. B 16, 3423 (1983) West Germany
00742 T	R07: $e + H + h\nu$		Prasad, R. A.; Unnikrishnan, K. Elastic scattering of electrons by hydrogen atoms in a laser field. J. Phys. B 16, 3443 (1983) India
00743 T	R03: $e + O^{++}$	41-250 Ry	Kingston, A. E.; Tayal, S. S. Resonances in the collision strength for electron excitation of the $1s-2s$ and $1s-2p$ transitions in O VII. J. Phys. B 16, 3445 (1983) United Kingdom
00744 E	R02: $h\nu + Ba$ R04: $h\nu + Ba$	17-23 eV	Comrade, J. P.; Martin, M.A.P. Configuration mixing and two-step autoionization in Ba. J. Phys. B 16, 1577 (1983) United Kingdom
00745 T	R05: Undef	Undef	Peterkop, E. On the derivation of the ionization threshold law. J. Phys. B 16, 1587 (1983) Soviet Union
00746 T	R03: $e + H$ R17: $e + H$	54.4 eV	Devangan, D. P. A higher-order model for inelastic electron-atom scattering. J. Phys. B 16, 1595 (1983) India
00747 T	R06: $h\nu + Ar$	0-1 Ry	Ojha, P. C.; Burke, P. G. Photoionization of the $3p^4s$ excited states of argon. J. Phys. B 16, 3513 (1983) United Kingdom
00748 E	R07: $H^+ + Cd; H^+ + W$	0.8-7.7 MeV	Goclovski, R.; Jaskota, R.; Szerypo, J.; Morashej, P.; Zelazny, Z. The K-shell ionization of ^{110}Cd and ^{186}W by low-energy protons. J. Phys. B 16, 3571 (1983) Poland
00749 E	R16: $Cl^- + He; Cl^- + Ne; Cl^- + Ar;$ $Cl^- + Kr; Cl^- + Xe$	15-125 keV	Bird, B.; Rahman, P. Electron detachment in the collision of Cl^- ions with rare gases. J. Phys. B 16, 3581 (1983) Canada
00750 E	R07: $Ar^{2+} + Ar; Ar^{2+} + N_2; Ar^{2+} + O_2;$ $Ar^{2+} + CO; Ar^{2+} + CO_2; Ar^{2+} + CH_4$	4-7 keV	Shields, G. C.; Moran, T. P. Single- and double-electron transfer reactions of ground and metastable state Ar^{2+} ions. J. Phys. B 16, 3591 (1983) United States
00751 T	R02: $e + Be$ R17: $e + Be$	5-30 eV	Kaushik, Y. D.; Khare, S. P.; Kumar, A. Critical points for electron-beryllium elastic scattering. J. Phys. B 16, 3609 (1983) India
00752 T	R02: $e + Li$	20-1000 eV	Khare, S. P.; Vijayshri. Total collisional cross sections for e^- -Li scattering. J. Phys. B 16, 3621 (1983) India
00753 E	R03: $e + O_2$	6-16 eV	York, T. A.; Comer, J. Electron energy-loss studies of molecular oxygen in the region 6.0-16.1 eV using a multidetector electron spectrometer. J. Phys. B 16, 3627 (1983) United Kingdom
00754 T	R07: Undef	Undef	Fedorov, M. V.; Kazakov, A. E. Photodetachment of an electron from a negative ion in the near-threshold region: I. Suddenly switching-on interaction. J. Phys. B 16, 3641 (1983) Soviet Union
00755 T	R07: Undef	Undef	Fedorov, M. V.; Kazakov, A. E. Photodetachment of an electron from a negative ion in the near-threshold region: II. Pulse of radiation with smooth time envelopes. J. Phys. B 16, 3651 (1983) Soviet Union
00756 E	R02: $h\nu + Be$ R04: $h\nu + Be$	5% au	Rennsperger, R.; Koch, H. Resonant ionization behaviour of laser-pumped barium vapour. J. Phys. B 16, 1607 (1983) West Germany
00757 E	R03: $e + Xe$ R05: $e + Xe$	0.6 keV	Verkhovtseva, M. T.; Gnatchenko, E. V.; Pogrebnyak, P. S. Investigation of the connection between 'giant' resonances and 'atomic' bremsstrahlung. J. Phys. B 16, 1613 (1983) Soviet Union
00758 E	R05: $e + Ar; e + Xe$	10-1000 eV	Shippler, R.; Kler, H.; Sneed, R.; McGregor, I.; Duncan, A. J.; Klempfner, W. Threshold behaviour of Ar K and Xe L ionisation by electron impact. J. Phys. B 16, 1617 (1983) United Kingdom

Ref. No.	Reactants	Energy Range	Reference
00759 T	A03: H + H	1-100 keV	McLaughlin, R. H.; Bell, K. L. Total cross sections for H(2s) and H(2p) production in collisions between ground-state hydrogen atoms. <i>J. Phys. B</i> 16, 3797 (1983) United Kingdom
00760 E	A03: e + He	10.2 eV	Phelps, J. O.; Phillips, R. H.; Anderson, L. W.; Lin, C. C. The measurement of the electron excitation cross sections of the lowest states of the neon 1s levels by laser-induced fluorescence. <i>J. Phys. B</i> 16, 3025 (1983) United States
00761 T	H04: hv + Hn H06: hv + Hn	60-77 eV	Garvin, L. J.; Brown, R. H.; Carter, S. L.; Kelly, H. P. Calculation of photoionization with excitation from the 3d subshell of atomic manganese. <i>J. Phys. B</i> 16, L643 (1983) United States
00762 T	H05: hv + H ₂ H06: hv + H ₂	26.9 eV	Kanfer, S.; Shapiro, H. Theory of the dissociative photoionization of H ₂ . <i>J. Phys. B</i> 16, L655 (1983). Israel
00763 T	H06: hv + Ca	6.1-9.3 eV	Scott, P.; Kingston, A. L.; Hibbert, A. Photoionization of neutral calcium. <i>J. Phys. B</i> 16, 3945 (1983) United Kingdom
00764 E	A07: Ar ³⁺ + H ₂ ; Ar ³⁺ + He; Ar ³⁺ + Ne; Ar ⁴⁺ + H ₂ ; Ar ⁴⁺ + He; Ar ⁴⁺ + Ne	91.6 MeV	Itch, A.; Schneider, T.; Schviartz, G.; Boiler, L.; Platten, H.; Wolke, G.; Schneider, D.; Stoltzke, H. Selective production of Auger electrons from fast projectile ions studied by zero-degree Auger spectroscopy. <i>J. Phys. B</i> 16, 3965 (1983) West Germany
00765 T	A06: He ²⁺ + He	Under	Ludde, H. J.; Dreizler, R. H. Method for the calculation of global probabilities for many-electron systems. <i>J. Phys. B</i> 16, 3973 (1983) West Germany
00766 E	A06: C ⁺ + H ₂ ; C ⁺ + O ₂ ; C ⁺ + He; C ⁺ + Ar; N ⁺ + H ₂ ; N ⁺ + O ₂ ; N ⁺ + He; N ⁺ + Ar; O ⁺ + H ₂ ; O ⁺ + O ₂ ; O ⁺ + He; O ⁺ + Ar; Ne ⁺ + H ₂ ; Ne ⁺ + O ₂ ; Ne ⁺ + He; He ⁺ + Ar	0.5-1.0 MeV	Hezon, H.; Naor, D.; Wosner, B. Separation of inner- and outer-shell contributions to the charge state distributions in close atomic collisions. <i>J. Phys. B</i> 16, 3983 (1983) Israel
00767 E	A03: Fe ²⁴⁺ + He; Fe ²⁴⁺ + H ₂ ; Fe ²⁴⁺ + Ar A06: Fe ²⁴⁺ + He; Fe ²⁴⁺ + H ₂ ; Fe ²⁴⁺ + Ar	400 MeV	Chetoui, A.; Bohrer, K.; Bozet, J. P.; Jolly, A.; Stephan, C.; Belkic, D.; Gayet, B.; Salin, A. State-to-state charge exchange cross sections in high-velocity asymmetric and near-symmetric collisions of 400 MeV Fe ²⁴⁺ ions. <i>J. Phys. B</i> 16, 3993 (1983) France
00768 T	X03: e + H	0.5-1.0 a.u.	Moiseiwitsch, B. L. Schwinger variational linear algebraic equations method. <i>J. Phys. B</i> 16, 4015 (1983) United Kingdom
00769 T	X02: e + Ne; e + Ar X17: e + Ne; e + Ar	0-2 a.u.	McEachran, B. P.; Stauffer, A. D. Elastic scattering of electrons from neon and argon. <i>J. Phys. B</i> 16, 4023 (1983) Canada
00770 E	X03: e + He	19.8-24.6 eV	Beckman, S. J.; Hammond, P.; Read, P. H.; King, G. C. Highly-excited double Rydberg states of He ⁻ . <i>J. Phys. B</i> 16, 4039 (1983) United Kingdom
00771 T	A03: He ²⁺ + H; H ⁺ + He ⁺ A06: He ²⁺ + H; H ⁺ + He ⁺ A07: He ²⁺ + H; H ⁺ + He ⁺	2-440 keV	Bransden, B. H.; Noble, C. J.; Chandler, J. Theoretical studies of the interaction of He ²⁺ with H(1s) and H ⁺ with He ⁺ . <i>J. Phys. B</i> 16, 4191 (1983) United Kingdom
00772 E	X05: e + He X17: e + He	200-2000 eV	Siman, J. Y. H.; Guang-Yan, P.; McCurdy, C. W.; de Boer, F. J. Triple and double differential cross sections for electron impact ionization of helium for 'energy-sharing' kinematics. <i>J. Phys. B</i> 16, 4203 (1983) The Netherlands
00773 E	X03: e + He; e + Ar; e + Kr; e + Xe	10-22 eV	Beckman, S. J.; Hammond, P.; King, G. C.; Read, P. H. High-resolution electron impact excitation functions of metastable states of neon, argon, krypton and xenon. <i>J. Phys. B</i> 16, 4219 (1983) United Kingdom
00774 E-T	X05: e + Ag	20-400 eV	Jones, G. K.; Ross, K. J.; Wilson, H. The ejected-electron spectra of Ag I autoionizing transitions resulting from 20-400 eV electron impact excitation. <i>J. Phys. B</i> 16, 4237 (1983) United Kingdom

Ref. No.	Reactants	Energy Range	Reference
00775 Z	A11: $O_2^{+*} + O_2; O_2^{+*} + N_2; O_2^{+*} + Ar;$ $O_2^{+*} + CO_2; O_2^{+*} + H_2; O_2^{+*} + CH_4$	300 K	Bohringer, H.; Durap-Ferguson, H.; Ferguson, R. E.; Fahey, D. B. Collisional vibrational quenching of O_2^{+*} (v) and other molecular ions in planetary atmospheres. <i>Planet. Space Sci.</i> 31, 483 (1983) United States
00776 T	E05: $e + NO^+$ $e + NO^+$	0.01-2.0 eV	Sardisley, J. W. Dissociative recombination of electrons with NO^+ ions. <i>Planet. Space Sci.</i> 31, 467 (1983) United States
00777 T	E02: $e + N_2^+$ E03: $e + N_2^+$ E07: $e + N_2^+$	0.1-2.0 eV	Cader, I. Resonant electron scattering by metastable nitrogen. <i>Planet. Space Sci.</i> 31, 843 (1983) United States
00778 T	H06: $h\nu + N_2$	15-23 eV	Hermann, H. R.; Langhoff, P. W. Explicit Hilbert-space representations of atomic and molecular photoabsorption spectra: Computational studies of Stieltjes-Chebyshev functions. <i>Phys. Rev. A</i> 28, 1957 (1983) United States
00779 T	B01: N_2^+		Malendow, S. A.; Fernandez, P. M.; Castro, E. A. Rotational energy of the hydrogen molecular ion in a magnetic field. <i>Phys. Rev. A</i> 28, 2059 (1983) Argentina
00780 T	B01: H Seq		Rosner, W.; Herold, H.; Euler, H.; Hanner, G. Approximate solution of the strongly magnetized hydrogenic problem with the use of an asymptotic property. <i>Phys. Rev. A</i> 28, 2071 (1983) West Germany
00781 Z	H06: $h\nu + Li$	3371 Å	Chien, B.; Tullias, G. C.; Berry, R. S. Angular distributions and quantum beats of photoelectrons from resonant two-photon ionization of lithium. <i>Phys. Rev. A</i> 28, 2076 (1983) United States
00782 T	A03: $Li^+ + Ca$ A06: $Li^+ + Ca$ A17: $Li^+ + Ca$	0.1-20 keV/amu	Kimura, M.; Sato, M.; Olson, R. E. Molecular treatment of charge transfer in $Li^+ + Ca$ collisions. <i>Phys. Rev. A</i> 28, 2085 (1983) United States
00783 T	E05: $e + Ne^{3+}; e + Ar^{3+}; e + Kr^{3+}$	40-10000 eV	McGuire, E. J. Cross sections for electron ionization of triply charged noble gases in the plane-wave Born approximation. <i>Phys. Rev. A</i> 28, 2091 (1983) United States
00784 T	C02: $H^+ + Ar; H^+ + Kr; H^+ + Xe$	0.1-10 MeV	McGuire, E. J. Proton-stopping power of argon, krypton, and xenon. <i>Phys. Rev. A</i> 28, 2096 (1983) United States
00785 Z	A06: $H^+ + H; H^{2+} + He; C^{3+} + C; O^{4+} + O;$ $Ne^{10+} + Ne; H^+ + Be; H^+ + C; H^+ + O;$ $H^+ + Ne$ A18: $H^+ + H; H^{2+} + He; C^{3+} + C; O^{4+} + O;$ $Ne^{10+} + Ne; H^+ + Be; H^+ + C; H^+ + O;$ $H^+ + Ne$	10-200 MeV/amu	McGuire, E. J.; Eichler, J.; Sinomy, P. S. Exact second Born calculations for electron capture for systems with various projectile and target charges. <i>Phys. Rev. A</i> 28, 2104 (1983) West Germany
00786 T	E03: $e + Fe^{22+}; e + Se^{22+}; e + Mo^{22+}$	$5 \times 10^2 - 10^4$ eV	Pradhan, A. K. Resonance and intermediate-coupling effects in electron scattering with highly charged ions: I. Collision strengths for Fe^{22+} , Se^{22+} , and Mo^{22+} . <i>Phys. Rev. A</i> 28, 2111 (1983) Canada
00787 T	E03: $e + Fe^{22+}; e + Mo^{22+}$ E05: $e + Fe^{22+}; e + Mo^{22+}$ E06: $e + Fe^{22+}; e + Mo^{22+}$	$10^2 - 1 \times 10^4$ eV	Pradhan, A. K. Resonances and intermediate-coupling effects in electron scattering with highly charged ions: II. Autoionization and dielectronic recombination. <i>Phys. Rev. A</i> 28, 2128 (1983) Canada
00788 T	A01: $O^{2+} + H$ A06: $O^{2+} + H$	1 eV	Shields, G. A.; Dalgarno, A.; Sternberg, A. Line emission from charge transfer with atomic hydrogen at thermal energies. <i>Phys. Rev. A</i> 28, 2137 (1983) United States
00789 Z	A03: $H^+ + N_2; H + N_2$	0.06-2.5 keV	Van Zyl, B.; Gealy, M. W.; Neumann, H. N_2^+ first-negative emission cross sections for low-energy H^+ and H impact on N_2 . <i>Phys. Rev. A</i> 28, 2141 (1983) United States

Ref. No.	Reactants	Energy Range	Reference
00790 E	A12: HD + HD; HD + Ar; HD + He H04: hv + HD	A12: 300 K, H04:	Selmon, J. B.; Tabisz, G. C. Intracollisional interference in the pure rotational spectrum of HD: Determination of the permanent electric dipole moment. <i>Phys. Rev. A</i> 28, 2157 (1983) Canada
00791 E	C06: Cu ⁺ + C	35-160 MeV	Shima, K.; Ichihara, T.; Miyoshi, T.; Mikano, T. Equilibrium charge-state distributions of 35-160-MeV Cu ions behind carbon foils. <i>Phys. Rev. A</i> 28, 2162 (1983) Japan
00792 E	C07: C ⁺ + C	0.3-2.3 MeV	Basdinet-Robinet, Y.; Dumont, P. D. Relative excitation functions for terms in C II, C III, and C IV populated in the beam-foil interaction. <i>Phys. Rev. A</i> 28, 2169 (1983) Belgium
00793 T	A02: H ⁺ + He A18: H ⁺ + He	0.1-0.7 eV	Bosmanac, S.; Knesaurek, K. Analysis of proton-He resonances in very-low-energy collisions. <i>Phys. Rev. A</i> 28, 2173 (1983) Yugoslavia
00794 T	A02: H ⁺ + He	0.1-0.6 eV	Bosmanac, S.; Knesaurek, K. Atom-atom momentum-transfer cross section in the presence of resonances. <i>Phys. Rev. A</i> 28, 2190 (1983) Yugoslavia
00795 T	H03: hv + e	Undef	Bhatt, G.; Grotch, R.; Koxen, R.; Owen, R. A. Relativistic spin-dependent Compton scattering from electrons. <i>Phys. Rev. A</i> 28, 2195 (1983) United States
00796 E	E05: e + Ti ²⁺ ; e + He ²⁺ ; e + He ³⁺ ; e + O ²⁺	50-60 eV	Batla, R. U.; Roberts, J. E. Measurement of ionization rates of Ti II, He VI, He VII, and O VI. <i>Phys. Rev. A</i> 28, 2201 (1983) United States
00797 T	H07: hv + H H06: hv + H	H06: 2.7-3.2 a.u.	Greene, C. H. Atomic photoionization in a strong magnetic field. <i>Phys. Rev. A</i> 28, 2209 (1983) United States
00798 E	H04: hv + H ₂ ; hv + CO H06: hv + H ₂ ; hv + CO	18-34 eV	Guent, J. A.; Jackson, R. K.; Iare, R. W. Determination of rotational alignment of H ₂ ⁺ B ² Σ ⁺ (sub u) ⁺ and CO ⁺ B ² Σ ⁺ following photoionization of H ₂ and CO. <i>Phys. Rev. A</i> 28, 2217 (1983) United States
00799 E	A12: Na ⁺ + Rb; Na ⁺ + Cs	300 °C	Kauke, B.; Kauke, W.; Nienax, K.; Gallagher, A. Rb and Cs broadening of the H _α resonance lines. <i>Phys. Rev. A</i> 28, 2254 (1983) United States
00800 E	B01: Si ⁺		Lesage, A.; Rathore, S. A.; Lalicovic, I. S.; Paric, J. Stark widths and shifts of singly ionized silicon <i>np</i> ² <i>l</i> <i>l'</i> <i>l''</i> lines. <i>Phys. Rev. A</i> 28, 2264 (1983) France
00801 T	H06: Undef	Undef	Haus, J. W.; Levenstein, R.; Pzawski, K. Laser-induced autoionization in the presence of radiative damping and transverse relaxation. <i>Phys. Rev. A</i> 28, 2269 (1983) West Germany
00802 T	A06: H ⁺ + Ar	1-20 MeV	McGeire, J. E. Application of Vich's theorem in the strong-potential approximation. <i>Phys. Rev. A</i> 28, 2518 (1983) United States
00803 T	A06: H ⁺ + H ⁺	0.1-0.2 a.u.	Kohring, G. A.; Wetmore, A. E.; Olson, R. E. Ion scattering from state-selected Rydberg atoms. <i>Phys. Rev. A</i> 28, 2526 (1983) United States
00804 T	A07: H ⁺ + H	1.5-5.0 GeV	Leung, P. T.; Rustgi, M. L. Ionization of heavy atoms by polarized relativistic protons. <i>Phys. Rev. A</i> 28, 2529 (1983) Taiwan
00805 T	E03: e + He ⁺	Undef	Das, A. K.; Sil, M. C. Evaluation of the Coulomb-modified Glauber amplitudes for excitation of arbitrary states of hydrogen-like ions under the impact of a charged particle. <i>Phys. Rev. A</i> 28, 2532 (1983) India
00806 T	E02: e + H ⁺ E17: e + H ⁺	100-200 eV	Tayal, S. S. Elastic scattering of electrons by the 2s state of atomic hydrogen at intermediate energies. <i>Phys. Rev. A</i> 28, 2535 (1983) United Kingdom
00807 T	H07: Undef		McGlinn, M. D. Photon-induced electron capture. <i>Phys. Rev. A</i> 28, 2538 (1983) United States

Ref. No.	Reactants	Energy Range	Reference
00808 Z	H04: hv + Na; hv + Na + Ar; hv + Na + Xe	5642 Å	Giacobino, E.; Tavil, S.; Bernas, P. R.; Redi, O.; Stroke, H. A. Production of 'hot' excited-state atoms in collisionally aided radiative transitions. Phys. Rev. A 28, 2555 (1983) United States
00809 Z	A03: Na ⁺ + Na ⁺ A11: Na ⁺ + Na ⁺	500 °C	Kachru, R.; Callagher, T. P.; Comand, P.; Pillot, P. L.; Tran, R. Resonant collisions of Na nS and nD Rydberg atoms. Phys. Rev. A 28, 2676 (1983) United States
00810 T	E02: e + H E03: e + H F17: e + H	54.4 eV	McCarthy, I. R.; Stelbovics, A. A. Momentum-space coupled-channels optical method for electron-atom scattering. Phys. Rev. A 28, 2693 (1983) Australia
00811 T	A03: H ⁺ + H A06: H ⁺ + H	25-10000 keV	Mandal, C. R.; Datta, S.; Mukherjee, S. C. Electron capture into highly excited states in proton-hydrogen collisions. Phys. Rev. A 28, 2708 (1983) India
00812 Z	A06: Fe ⁺ + Au; Fe ⁺ + Pb; Fe ⁺ + Bi; Fe ⁺ + U; Fe ⁺ + Au; Fe ⁺ + Pb; Fe ⁺ + Bi; Fe ⁺ + U; Fe ⁺ + Au; Fe ⁺ + Pb; Fe ⁺ + Bi; Fe ⁺ + U; Fe ⁺ + Au; Fe ⁺ + Pb; Fe ⁺ + Bi; Fe ⁺ + U; Fe ⁺ + Au; Fe ⁺ + Pb; Fe ⁺ + Bi; Fe ⁺ + U A07: Fe ⁺ + Au; Fe ⁺ + Pb; Fe ⁺ + Bi; Fe ⁺ + U; Fe ⁺ + Au; Fe ⁺ + Pb; Fe ⁺ + Bi; Fe ⁺ + U; Fe ⁺ + Au; Fe ⁺ + Pb; Fe ⁺ + Bi; Fe ⁺ + U; Fe ⁺ + Au; Fe ⁺ + Pb; Fe ⁺ + Bi; Fe ⁺ + U; Fe ⁺ + Au; Fe ⁺ + Pb; Fe ⁺ + Bi; Fe ⁺ + U	25-35 keV	Mehta, R.; Duggan, J. L.; McDaniel, P. D.; Andrews, M. C.; Lapich, G.; Miller, P. D.; Rayburn, L. A.; Zander, A. R. Direct ionization and electron capture in H-shell X-ray production by fluorine ions. Phys. Rev. A 28, 2722 (1983) United States
00813 T	E01: Undef		Rosenberg, L. Resonant scattering in the presence of an electromagnetic field. Phys. Rev. A 28, 2727 (1983) United States
00814 T	E02: e + He; e + He E17: e + He; e + He	30-3000 eV	Staszowska, G.; Schenke, D. W.; Thirumalai, D.; Trauhler, R. G. Quasifree-scattering model for the imaginary part of the optical potential for electron scattering. Phys. Rev. A 28, 2740 (1983) United States
00815 Z	H06: hv + Cs; hv + Cs ₂ ; hv + Rb; hv + Rb ₂	3800-2300 Å	Semiten, S.; Semson, J.A.R. Relative photoionization cross sections of Cs, Cs ₂ , Rb, and Rb ₂ . Phys. Rev. A 28, 2752 (1983) United States
00816 Z	A07: H ⁺ + Ag; H ⁺ + In; H ⁺ + Sn; H ⁺ + I	0.3-5.0 keV	Rosato, L. L-shell ionization cross sections for proton bombardment of Ag, In, Sn, and I. Phys. Rev. A 28, 2759 (1983) Italy
00817 T	H07: hv + H ⁻	15711-1310 Å	Dashhan, N.; Ghosh, A. S. Photodetachment cross sections of the negative hydrogen ion. Phys. Rev. A 28, 2767 (1983) India
00818 Z	A07: H ⁺ + Au; H ⁺ + Pb; H ⁺ + Bi; H ⁺ + U	0.3-8.0 keV	de Castro Faria, W. V.; Freire, V. L., Jr.; de Pinho, A. G.; da Silveira, E. F. Au, Pb, Bi, and U H-shell ionization by protons. Phys. Rev. A 28, 2770 (1983) Brazil
00819 T	E02: Undef	Undef	Doncke, W. Projection-operator approach to potential scattering. Phys. Rev. A 28, 2777 (1983) West Germany
00820 T	A06: Undef	Undef	Garibotti, C. R.; Barrachina, B. O. Consequences of the electron-capture to continuum peak produced by a screening of the postcollisional electron-projectile interaction. Phys. Rev. A 28, 2792 (1983) Argentina
00821 Z	A04: D ₂ ⁺ + Ar; D ₂ ⁺ + N ₂	200-600 keV	Mir, Y.; Navon, P.; Waisburg, A.; Mann, A. Collisional dissociation of 200-600-keV D ₂ ⁺ ions in Ar and N ₂ targets. Phys. Rev. A 28, 2796 (1983) Israel
00822 Z	E11: e + Cu; e + Mo; e + Cd; e + I; e + Pb	0.55-2.27 keV	Budraswamy, B.; Gopala, K.; Gundu Rao, K. S.; Venkatarasiah, P.; Sanjeeviah, K. Dependence of thick-target external bremsstrahlung produced by beta particles of ⁹⁰ Sr- ⁹⁰ Y. Phys. Rev. A 28, 2802 (1983) India

Ref. No.	Reactants	Energy Range	Reference
00823 T	E03: e + He ⁺	30-120 eV	Deb, R. C.; Sil, N. C. Excitation of positive ions in Coulomb-Born approximation. Phys. Rev. A 28, 2806 (1983) India
00824 T	E06: hv + Xe; hv + Cr ⁺ ; hv + Ba ⁺⁺ ; hv + La ³⁺	60-200 eV	Cheng, K. T.; Johnson, W. R. Orbital collapse and the photoionization of the inner ad shells for Xe-like ions. Phys. Rev. A 28, 2820 (1983) United States
00825 P	A03: He + CO; He + NO; He ⁺ + CO; He ⁺ + NO A18: He + CO; He + NO; He ⁺ + CO; He ⁺ + NO	0.5-3.0 keV	Dovek, D.; Shucry, S.; Sarat, R. Collision spectroscopy of the He ⁺ -CO, He ⁺ -NO, He-CO, and He-NO systems. Phys. Rev. A 28, 2838 (1983) France
00826 T	A07: Undef E06: Undef	Undef	Saha, R. P.; Dahler, J. S. Theory of laser-induced chemi-ionization: II. Semiclassical limit. Phys. Rev. A 28, 2859 (1983) United States
00827 T	E11: hv + Ar ⁻	20000 Å	Coulter, P. S. Calculation of free-free radiative absorption cross sections. Phys. Rev. A 28, 2861 (1983) United States
00828 T	E06: hv + Pb; hv + Ba; hv + Ra; hv + U; hv + Ca	0-500 eV	Hanson, S. Y.; Lee, C. J.; Pratt, R. E.; Goldberg, I. S.; Tanne, B. R.; Don, L. 6p photoionization in high-Z elements and the influence of relativistic Cooper Minus. Phys. Rev. A 28, 2885 (1983) United States
00829 T	E03: hv + C	0.1-2.04 keV	Heng, H. S.; Pratt, R. E. Importance of bound-bound transitions in the dispersion relation for calculation of soft-x-ray forward Rayleigh scattering from high elements. Phys. Rev. A 28, 3115 (1983) United States
00830 T	E02: e + He E17: e + He E19: e + He	10-10. eV	Thirumalai, D.; Truhlar, D. G. *Erratum: Energy-dependent polarization potential, dispersion-relation absorption potential, and matrix effective potential for electron-neon scattering at 10-100 eV [Phys. Rev. A 26, 793 (1982)]. Phys. Rev. A 28, 3140 (1983) United States
00831 T	E06: hv + Xe	Undef	Wendin, G.; Starace, A. F. Ionic-configuration-interaction effects on Xe 5s-subshell photoionization processes. Phys. Rev. A 28, 3163 (1983) France
00832 E-T	A03: He ⁺ + Pr; He ⁺ + Nd; He ⁺ + Eu; He ⁺ + Gd; He ⁺ + Dy; He ⁺ + Ho; He ⁺ + Er; He ⁺ + Yb; He ⁺ + Hf; He ⁺ + Pt; He ⁺ + Au; He ⁺ + Cu; He ⁺ + Cd; He ⁺ + Ag; He ⁺ + Zn; He ⁺ + Ga; He ⁺ + Ge; He ⁺ + As; He ⁺ + Se; He ⁺ + Br; He ⁺ + Kr; He ⁺ + Xe; He ⁺ + Rn A06: He ⁺ + Pr; He ⁺ + Nd; He ⁺ + Eu; He ⁺ + Gd; He ⁺ + Dy; He ⁺ + Ho; He ⁺ + Er; He ⁺ + Yb; He ⁺ + Hf; He ⁺ + Pt; He ⁺ + Au; He ⁺ + Cu; He ⁺ + Cd; He ⁺ + Ag; He ⁺ + Zn; He ⁺ + Ga; He ⁺ + Ge; He ⁺ + As; He ⁺ + Se; He ⁺ + Br; He ⁺ + Kr; He ⁺ + Xe; He ⁺ + Rn	0.25-2.5 keV	Nehta, R.; Duggan, J. L.; Price, J. L.; Kocer, P. E.; McDaniel, P. D.; Lapicki, G. ¹ He ⁺ - and ⁴ He ⁺ -induced M-shell x-ray-production cross sections for selected elements in the rare-earth region. Phys. Rev. A 28, 3217 (1983) United States
00833 E	A17: He ⁺ + He	300 K	Pendleton, R. S., Jr.; Larsson, R.; Samfords, R. Collisional depopulation of He(m ¹ P) (k less than or equal to a less than or equal to 13) in thermal collisions with He(1 ¹ S). Phys. Rev. A 28, 3223 (1983) Sweden
00834 E	C02: Ag ⁺ + Al; Ag ⁺ + Ti; Ag ⁺ + V; Ag ⁺ + Fe; Ag ⁺ + Ni; Ag ⁺ + Zn; Ag ⁺ + Zr; Ag ⁺ + Pd	12-22 keV	Silva, R. V.; Seale, V. A.; Rao, S. N. Stopping of silver ions in solids. Phys. Rev. A 28, 3234 (1983) Brazil
00835 T	A07: Undef	6 keV	Rosenberg, L. Low-energy approximation for inner-shell ionization during nuclear resonance scattering. Phys. Rev. A 28, 3238 (1983) United States
00836 E	A06: He ⁺ + He; He ⁺ + Be; He ⁺ + Ar; He ⁺ + Kr; He ⁺ + N ₂ ; He ⁺ + H ₂ ; He ⁺ + CO; He ⁺ + O ₂ ; He ⁺ + CH ₄ ; He ⁺ + CO ₂ A07: He ⁺ + He; He ⁺ + Be; He ⁺ + Ar; He ⁺ + Kr; He ⁺ + N ₂ ; He ⁺ + H ₂ ; He ⁺ + CO; He ⁺ + O ₂ ; He ⁺ + CH ₄ ; He ⁺ + CO ₂	5-4000 keV	Budd, H. L.; DuBois, R. R.; Toburen, L. R.; Satchliffe, C. A.; Goffe, T. V. Cross sections for ionization of gases by 5-4000-keV protons and for electron capture by 5-150-keV protons. Phys. Rev. A 28, 3244 (1983) United States

Ref. No.	Reactants	Energy Range	Reference
00037 T	U03: Undef U05: Undef	Undef	Schwenke, D. M.; Thirumalai, D.; Trehler, R. G. Accurate, smooth, local, energy-dependent optical potentials for electron scattering. <i>Phys. Rev. A</i> 28, 3250 (1983) United States
00038 Z	A07: $P^{+} + Be; P^{+} + Be; P^{+} + Be$	10 MeV	Stetler, A.; Nagmann, S. Triple-differential probabilities for the emission of delta electrons in 10-MeV $P^{+} + Be$ ($q = 6, 8, 9$). <i>Phys. Rev. A</i> 28, 3268 (1983) United States
00039 T	A00: $He^{+} + He; He^{+} + Be; He^{+} + Ar;$ $O^{+} + Ar; O^{+} + Ar$	2-10 a.u.	Burgdorfer, J.; Kreinig, M.; Eklund, S. B.; Sellin, I. A. Calculation of electron-loss-to-continuum cusp: An algebraic approach. <i>Phys. Rev. A</i> 28, 3277 (1983) United States
00040 T	A03: $Be^{+} + Be$	0.4-2.0 keV	Nielson, S. E.; Sahler, J. S. Several-electron, atomic-hamiltonian calculation of collisional excitation in quasi-one-electron systems: $Be^{+}(2s)-Be(1s)$ collisions. <i>Phys. Rev. A</i> 28, 3300 (1983) Dessart
00041 T	U03: $e + CO$	10.5-14.0 eV	Ohno, H.; Demcke, H. Theory of resonance and threshold effects in the electronic excitation of molecules by electron impact. <i>Phys. Rev. A</i> 28, 3315 (1983) West Germany
00042 T	A12: $Bb^{+} + Xe$	Undef	Blumh, R. J.; Stroeter, T. J. Universal stationary-phase treatment of far-wing and excimer spectral line shapes. <i>Phys. Rev. A</i> 28, 3320 (1983) United States
00043 Z	A07: $Hg^{+} + F; Ar^{+} + F$	40-80 MeV	Reine, O.; Watson, R. L.; Sandberg, B. K x-ray spectra of solid and gaseous fluorine compounds excited by 2-MeV/amu Ar and Hg ions. <i>Phys. Rev. A</i> 28, 3334 (1983) United States
00044 Z	H07: $h\nu + He^{+}$	4.8-5.2 eV	Bae, Y. K.; Coggiola, M. J.; Peterson, J. R. Absolute cross section for near-threshold two-electron photoionization of He^{+} . <i>Phys. Rev. A</i> 28, 3370 (1983) United States
00045 Z	H04: $h\nu + Ba$ H06: $h\nu + Ba$	553 nm	Jakreiss, L.; Huber, H.C.R. Time-resolved excitation and ionization of a laser-pumped Ba vapor. <i>Phys. Rev. A</i> 28, 3382 (1983) Switzerland
00046 T	A06: $H^{+} + H; H^{+} + He$ A18: $H^{+} + H; H^{+} + He$	3-7.4 MeV	McGuire, J. M.; Sil, N. C. Strong-potential Born calculations for electron capture. <i>Phys. Rev. A</i> 28, 3679 (1983) United States
00047 Z	H07: $h\nu + Kr^{+}$ H06: $h\nu + Kr^{+}$	H06: 6469-5572 Å	Glab, B. L.; Millard, G. S.; Hayfeh, S. M. Electric-field-induced resonances in the photoionization of excited krypton. <i>Phys. Rev. A</i> 28, 3682 (1983) United States
00048 Z	C04: $Si^{+} + Si; C^{+} + C; Cl^{+} + Be$	3-1000 MeV	Covers, H.L.M.; Bierack, J. P. Comparison of theoretical evaluations of energetic ion range distributions. <i>Nucl. Instrum. Methods Phys. Res.</i> 205, 347 (1983) United Kingdom
00049 Z	C02: $He^{+} + C$	280-550 keV	Leonard, W. B.; Andrews, M. B.; Dube, R.; Freeman, R.; Mitchell, I. V.; Phillips, D.; Ward, C. Dependence of specific energy loss on foil thickness. <i>Nucl. Instrum. Methods Phys. Res.</i> 205, 351 (1983) Canada
00050 Z	C02: $H^{+} + Se; He^{+} + Se$ C03: $H^{+} + Se; He^{+} + Se$	0.3-2.5 MeV	Conradie, J.; Lombard, J.; Friedland, E. Energy-loss and straggling of hydrogen and helium ions in selenium. <i>Nucl. Instrum. Methods Phys. Res.</i> 205, 359 (1983) South Africa
00051 Z	A03: $P^{+} + He; P^{+} + He$ A07: $P^{+} + Be; P^{+} + He$	15 MeV	Tavera, R.; Richard, P. X-ray satellite lines from doubly excited states of heavy ions with few electrons produced in ion-atom collisions. <i>Nucl. Instrum. Methods Phys. Res.</i> 205, 597 (1983) Japan
00052 Z-T	D02: $He^{+} + He; He^{+} + Ar; He^{+} + Kr;$ $He^{+} + Xe; He^{+} + CO_2; He^{+} + SO_2;$ $He^{+} + H_2O; O^{+} + CO_2; O^{+} + H_2O;$ $Ar^{+} + SO_2$	0.5-1.5 MeV	Johnson, R. E.; Inokuti, M. Electronic relaxation in rare-gas solids: ejection of atoms by fast charged particles. <i>Nucl. Instrum. Methods Phys. Res.</i> 206, 289 (1983) United States
00053 T	C05: Undef	Undef	Vistner, R. B. Multiple scattering with absorption. <i>Nucl. Instrum. Methods Phys. Res.</i> 206, 323 (1983) Canada

Ref. No.	Reactants	Energy Range	Reference
00854 E	C05: C ⁺ + Al; C ⁺ + Ag	50-120 MeV	Covera, R.E.B.; Trehan, P. W.; Soffield, C. J.; Bridwell, L. B.; Peryasson, S. B. Energy-straggling measurements with energetic C ions in Al and Ag. Nucl. Instrum. Methods Phys. Res. 206, 595 (1983) United Kingdom
00855 T	C04: C ⁺ + Al; O ⁺ + Al; Ne ⁺ + Al	0.7-200 MeV	Covera, R.E.B. Projected range distributions of low-, intermediate-, and high-energy ions. Nucl. Instrum. Methods Phys. Res. 206, 599 (1983) United Kingdom
00856 E	C02: Kr ⁺ + Al; Kr ⁺ + Ti; Kr ⁺ + Ni; Kr ⁺ + Zr; Kr ⁺ + Ag; Kr ⁺ + Au	3.5-10.0 MeV/amu	Grissel, H.; Leichter, Y.; Albrecht, R.; Kitahara, T.; Klumbic, J.; Strohl, P.; Armbruster, P. A time-of-flight method for stopping power measurements of bunched ion beams. Nucl. Instrum. Methods Phys. Res. 206, 609 (1983) West Germany
00857 T	C02: H ⁺ + Li	100 MeV	Winterton, K. B. Deposited energy density for 100 MeV protons in lithium. Nucl. Instrum. Methods Phys. Res. 207, 469 (1983) Canada
00858 E	K03: Photoemission	10-70 eV	Somtag, R.; Guillemaier, V. Photoemission from atoms and molecules. Nucl. Instrum. Methods Phys. Res. 208, 735 (1983) West Germany
00859 E	H06: hv + Ne; hv + O ₂ ; hv + N ₂	15-100 eV	Boria, P.; Adam, M. Y.; Penner, J.; Delviche, J.; Nuhn-Franklin, M. J.; Lablaque, P. Measurements of partial and differential photoionization cross sections of helium and diatomic molecules in the 15-100 eV range by angular electron spectroscopy. Nucl. Instrum. Methods Phys. Res. 208, 761 (1983) France
00860 E	H06: hv + Ar	78.8-78.2 meV	Neckenkamp, C.; Schafer, P.; Weizmann, G.; Frey, R.; Schlag, E. W. Application of a threshold spectrometer in spin resolved photoelectron analysis. Nucl. Instrum. Methods Phys. Res. 208, 805 (1983) West Germany
00861 E	D05: hv + Ni; hv + Fe	4.8-67 eV	Gadot, V.; Kisker, E.; Schroder, K.; Campagne, M. Energy resolved spin polarized photoemission from ferromagnets. Nucl. Instrum. Methods Phys. Res. 208, 809 (1983) West Germany
00862 E	H06: hv + Kr	14.3 keV	Hartings, J. B.; Kostroun, V. O. Ion time-of-flight spectroscopy: krypton charge state spectra as a function of photon excitation energy near the K edge. Nucl. Instrum. Methods Phys. Res. 208, 815 (1983) United States
00863 E	H06: hv + Ne; hv + Ne	21-150 eV	Derebach, H.; Halutzki, B.; Scheldt, V. Polarization determination of monochromatized synchrotron radiation. Nucl. Instrum. Methods Phys. Res. 208, 845 (1983) United States
00864 E	D04: e + HgO	50-400 eV	Gibson, J. W.; Thomas, R. L. Secondary electron emission and conductivity mechanisms of epitaxial HgO films. J. Nucl. Mater. 10, 56 (1982-83) United States
00865 E	D11: O ₂ + Ni	300 K	Winkler, A.; Rendulic, K. L.; Wendl, K. Quantitative measurement of the sticking coefficient for oxygen on nickel. J. Nucl. Mater. 10, 209 (1982-83) Austria
00866 T	A03: H ⁺ + CO	2-50 meV	Sakimoto, K. A comparison of quantum and semiclassical perturbed-rotational-state methods in H ⁺ -CO collisions. Chem. Phys. 75, 137 (1983) Japan
00867 T	A03: K + H ₂ ; K + CO	0.34-1.0 eV	Hausler, D.; Schinke, R. Theoretical investigation of rotational rainbows in K + H ₂ and K + CO collisions. Chem. Phys. 79, 107 (1983) West Germany
00868 T	A03: Li ⁺ + H ₂ A18: Li ⁺ + H ₂	1.47-3.65 eV	Drozhago, G.; Tomules, J. P. Smoothing-sphere quantum calculations of integral and differential cross sections for vibrational excitation in ion(atom)-diatom collisions. Chem. Phys. 79, 159 (1983) West Germany
00869 T	A03: He + CO ₂ ; Ar + CO ₂	1-2 eV	Jilling, G. B.; Clary, D. C. Semiclassical calculation of energy transfer in polyatomic molecules: II. Cross sections for H + CO ₂ (000) - H + CO ₂ (n01) (H = He and Ar). Chem. Phys. 80, 213 (1983) Denmark

Ref. No.	Reactants	Energy Range	Reference
00870 Z	A04: $\text{He}^+ + \text{He}$	5 keV	Coet, G.; Fournier, P. G. Translational spectroscopy of He^+ and O^+ fragments from 5 keV collision-induced dissociation of He^+ ions by helium. <i>Chem. Phys.</i> 81, 221 (1983) France
00871 T	A09: $\text{H}^+ + \text{H}^-$	0.02-10.0 keV	Borondo, P.; Macias, A.; Biera, A. Charge transfer in $\text{H}^+ + \text{H}^-$ collisions. <i>Chem. Phys.</i> 81, 303 (1983) Spain
00872 T	A11: $\text{He} + \text{CO}^+$	200-1000 K	Cacciatore, A.; Capitelli, M.; Sillling, G. D. Vibrational energy relaxation in excited CO molecules in He-CO collisions: a semiclassical study. <i>Chem. Phys.</i> 82, 1 (1983) Italy
00873 Z	A06: $\text{He}_2^+ + \text{CO}_2$	300 K	Endoh, A.; Yauji, R.; Watanabe, Y. Optical study of the $\text{He}_2^+ + \text{CO}_2$ charge-transfer reaction at thermal energy. <i>Chem. Phys.</i> 82, 67 (1983) Japan
00874 T	F03: $e + \text{Fe}^{2+}; e + \text{Fe}^{3+}; e + \text{Fe}^{4+}; e + \text{Fe}^{5+}; e + \text{Fe}^{6+}; e + \text{Fe}^{7+}; e + \text{Fe}^{8+}; e + \text{Fe}^{9+}; e + \text{Fe}^{10+}; e + \text{Fe}^{11+}; e + \text{Fe}^{12+}; e + \text{Fe}^{13+}; e + \text{Fe}^{14+}; e + \text{Fe}^{15+}; e + \text{Fe}^{16+}; e + \text{Fe}^{17+}; e + \text{Fe}^{18+}; e + \text{Fe}^{19+}; e + \text{Fe}^{20+}$ J02: Excitation	Undef	Bass, J. B. Excitation collision strengths for iron ions calculated with a distorted wave method. <i>At. Data Nucl. Data Tables</i> 29, 407 (1983) United States
00875 T	F03: $e + \text{He-like ions}$ J02: Excitation	Undef	Sawyer, D. H.; Goett, S. J.; Clark, R.E.H. Electron-impact collision strengths for excitation of He-like ions from the levels with $n = 1$ and 2 to all single excited levels with higher n less than or equal to 5. <i>At. Data Nucl. Data Tables</i> 29, 467 (1983) United States
00876 T	F03: $e + \text{Li-like ions}$ J02: Excitation	Undef	Goett, S. J.; Sawyer, D. H. Collision strengths for inner-shell excitation of Li-like ions from levels of the $1s^2 2s$ and $1s^2 2p$ configurations to levels of the $1s 2l 2l'$ configurations. <i>At. Data Nucl. Data Tables</i> 29, 535 (1983) United States
00877 Z	D09: $\text{O}_2^+ + \text{Au}$	300-900 K	Sytkin, A. E.; Shub, B. B.; Pavlichek, J.; Kaor, Z. Deactivation of singlet oxygen $\text{O}_2(^1\Delta_{\text{g}})$ on gold surfaces. <i>Chem. Phys. Lett.</i> 99, 140 (1983) Soviet Union
00878 T	A03: $\text{D}_2 + \text{CO}$ A18: $\text{D}_2 + \text{CO}$	87.2 meV	Sillling, G. D.; Poulsen, L. L. Calculation of differential cross sections for rotational excitation in $\text{D}_2 + \text{CO}$ collisions at 87.2 meV. <i>Chem. Phys. Lett.</i> 99, 368 (1983) Denmark
00879 T	A09: $\text{H}^+ + \text{H}^-$	10-10000 eV	Borondo, P.; Macias, A.; Biera, A. Asymmetry effect in $\text{H}^+ + \text{H}^-$ neutralization. Application to the $n = 3$ pseudocrossing. <i>Chem. Phys. Lett.</i> 100, 63 (1983) Mexico
00880 T	A17: $\text{He} + \text{H}_2$	Undef	Parantos, S. C.; Theodoropoulos, G.; Nicolides, C. A. A non-van der Waals surface of the $\text{He}(^1S) + \text{H}_2(^1\Sigma_g^+)$ excited surface. <i>Chem. Phys. Lett.</i> 100, 263 (1983) Greece
00881 Z	A06: $\text{He}^+ + \text{He}^+$	0.01-1000 eV	Reynsber, B. R.; Tang, S. Y. Charge transfer between neon ions and metastable helium. <i>Chem. Phys. Lett.</i> 100, 314 (1983) United States
00882 Z	A11: $\text{H}_2^+ + \text{H}_2$	300-500 K	Jolly, J.; Plain, A. Determination of the quenching rates of $\text{H}_2(^1\Sigma_g^+)$, $v = 0, 1$ by H_2 using laser-induced fluorescence. <i>Chem. Phys. Lett.</i> 100, 425 (1983) France
00883 T	A18: $\text{F}^+ + \text{H}_2; \text{F}^+ + \text{HD}; \text{F}^+ + \text{D}_2$	0-100 eV	Bookin, D.; Constantine, C. A.; Root, J. B.; Muckers, J. T. Few cross-section functions for hot F^+ atom collisions with H_2 , HD and D_2 . <i>Chem. Phys. Lett.</i> 101, 23 (1983) United States
00884 T	F03: $e + \text{H}_2$	0.05-0.5 eV	Picocelli Varracchio, E.; Lascana, U. T. Off-shell adiabatic nuclei theory of $e\text{-H}_2$ rotational excitation. <i>Chem. Phys. Lett.</i> 101, 38 (1983) Italy
00885 T	A17: He_2	Undef	Bunge, S. The atomic He potential applied to a molecular model-potential calculations of the first $^3\Sigma_u^+$ states of He_2 . <i>Chem. Phys. Lett.</i> 101, 167 (1983) France
00886 T	A11: $\text{He} + \text{CO}^+$	0.001-2.0 eV	Price, B. J.; Clary, D. C.; Sillling, G. D. Validity of the rotational sudden approximation for vibrational relaxation in $\text{He} + \text{CO}$. <i>Chem. Phys. Lett.</i> 101, 269 (1983) United Kingdom

Ref. No.	Reactants	Energy Range	Reference
00887 E	A06: CO ₂ ²⁺ + CO ₂ ; CO ₂ ²⁺ + CO; CO ₂ ²⁺ + H ₂ ; CO ₂ ²⁺ + Ar; CO ₂ ²⁺ + O ₂	4.0-7.0 keV	Shields, C. C.; Moran, T. F. Double electron transfer reactions of CO ₂ ²⁺ ions. Chem. Phys. Lett. 101, 287 (1983) United States
00888 T	A04: 2hν + H ₂	51800 cm ⁻¹	See, S. S.; Jaffe, S. L. An initial calculation of the two-photon absorption cross sections of the I ¹ (sub g) ⁺ - (X,V) I ¹ (sub g) ⁺ in H ₂ . Chem. Phys. Lett. 101, 463 (1983) United States
00889 T	A18: H + O ₂	0.55-1.30 eV	Slais, S. C.; Truhlar, D. G. Calculated product-state distributions for the reaction H + O ₂ -> HO + O at relative translational energies 0.55 and 1.30 eV. Chem. Phys. Lett. 102, 120 (1983) United States
00890 E	A04: H ₂ + H ₂ ; H ₂ + He; H ₂ + Ar; H ₂ + Kr A07: H ₂ + H ₂ ; H ₂ + He; H ₂ + Ar; H ₂ + Kr	10-100 keV	Bouillon, A.; Sarret, S.; Frere, P. Ionization and proton production cross-sections of 10-100 keV H ₂ molecules in collision with gas. Compt. Rend. Ser. II 296, 1377 (1983) France
00891 T	D01: Undef	Undef	Scrubek, Z. Theory of surface ionization. Int. J. Mass Spectrom. Ion Phys. 53, 289 (1983) Czechoslovakia
00892 E	A18: He + He	0.5-1.0 keV	Abrahamson, E. A.; Peterson, S. C. Differential cross-section measurement for He ²⁺ -He ⁰ collisions. Int. J. Mass Spectrom. Ion Phys. 54, 61 (1983) United States
00893 T	D07: H ⁺ + Au; H ⁺ + Fe	1-20 keV	Horita, K. Analytical calculation of energy spectra of keV light particles reflected solid surfaces. Jpn. J. Appl. Phys. Pt. 1 22, 1112 (1983) Japan
00894 E	A16: S ⁻ + CO; S ⁻ + O ₂ ; O ⁻ + NO	100-400 K	Viggiano, A. A.; Paulson, J. P. Temperature dependence of associative detachment reactions. J. Chem. Phys. 79, 2261 (1983) United States
00895 E	D11: CO + He	100-400 K	Pfauer, H.; Sessel, P. The influence of adsorbate interactions on kinetics and equilibria for CO on Fe(001): I. Adsorption kinetics. J. Chem. Phys. 79, 2400 (1983) West Germany
00896 E	A11: H ₂ ⁺ + He; H ₂ ⁺ + Ar	300 K	Sadeghi, S.; Setzer, D. W. Collisional coupling and relaxation of H ₂ (B ² (sub g)) and H ₂ (B ² A(sub g)) vibrational levels in Ar and He. J. Chem. Phys. 79, 2710 (1983) United States
00897 T	A03: H + H ₂	0.15-0.5 eV	Margolis, S.; Garrett, S. A.; Sathyanarayana, S. On the origin of the dynamical differences between the Tsp and Dalgarano-Henry-Roberts potentials for rigid rotor H ₂ -H collisions. J. Chem. Phys. 79, 2716 (1983) United States
00898 E	E02: e + He; e + Ar E03: e + He; e + Ar E17: e + He; e + Ar	25 keV	Duquet, A.; Labean-Sennani, A.; Bonault, M. High energy elastic and inelastic electron scattering by the He and Ar atoms: electron correlation effects. J. Chem. Phys. 79, 2766 (1983) France
00899 E	A02: He + Ar	800-2000 m/sec	York, R. W.; Taylor, S. L.; Pickett, P. V. Total scattering cross sections for the helium-argon system at low relative velocities. J. Chem. Phys. 79, 2831 (1983) United States
00900 E	A03: Hb ⁺ + H ₂ ; Hb ⁺ + D ₂ A11: Hb ⁺ + H ₂ ; Hb ⁺ + D ₂	0.07-0.30 eV	Cavallier, J.; Sestdaugh, J. S.; Perray, S.; de Pujo, P. Influence of the rotational energy of the molecular perturber on the Hb(5P)-H ₂ ,D ₂ fine structure changing collisions. J. Chem. Phys. 79, 2844 (1983) France
00901 T	A17: H ₂ + He; H ₂ + CH; H ₂ + NH; H ₂ + OH; H ₂ + FH	Undef	Wright, J. S.; Williams, S. J. H ₂ -Cl potential surfaces using balanced basis sets: I. First-row diatomic hydrides. J. Chem. Phys. 79, 2893 (1983) Canada
00902 E-T	D11: H ₂ + Zr	Undef	Walto, S. Kinetics of hydrogen absorption by alpha-zirconium. J. Chem. Phys. 79, 3113 (1983) Japan
00903 T	A18: Cl + H ₂ ; Cl + D ₂ ; Cl + HD	0.01-8.0 kcal/mol	Persky, A.; Rubin, S.; Broide, S. Quasiclassical trajectory studies of the chlorine-hydrogen system: IV. The effect of reagent vibrational excitations and of the location of the potential energy barrier on the dynamics. J. Chem. Phys. 79, 3279 (1983) Israel

Ref. No.	Reactants	Energy Range	Reference
00904 E	A11: Ca* + He; Ca* + Ne; Ca* + Ar; Ca* + Kr; Ca* + Xe	330 K	Hale, M. O.; Loose, S. R. Laser excited, state detected calcium-argon gas collisional energy transfer: Ca(4s5p ³ P ₁) spin changing and Ca(4s5p ³ P ₁) fine structure changing cross sections. J. Chem. Phys. 79, 3352 (1983) United States
00905 T	CO ₂ : e + H ₂	Undef	Kozma, E. Nonequilibrium electron velocity distribution and temperature in thermalization of low-energy electrons in molecular hydrogen. J. Chem. Phys. 79, 3367 (1983) Japan
00906 T	D08: HD + Pt	110 meV	Covio, J. P.; Fu, C. F.; Sibener, S. J.; Wharton, L. HD scattering from Pt(111): rotational excitation probabilities. J. Chem. Phys. 79, 7537 (1983) United States
00907 T	A18: D + H ₂ ; D + H ₂ ⁺	200-1000 K	Rowman, J. N.; Lee, K. Y.; Walter, R. B. Reduced dimensionality quantum rate constants for the D + H ₂ (v = 0) and D + H ₂ (v = 1) reaction on the LSTZ surface. J. Chem. Phys. 79, 3742 (1983) United States
00908 E	A11: O ₂ ⁺ + He; O ₂ ⁺ + Ne; O ₂ ⁺ + Ar; O ₂ ⁺ + Kr; O ₂ ⁺ + H ₂ ; O ₂ ⁺ + D ₂ ; O ₂ ⁺ + N ₂ ; O ₂ ⁺ + CO; O ₂ ⁺ + CO ₂ ; O ₂ ⁺ + H ₂ C; O ₂ ⁺ + O ₂	300 K	Bohringer, R.; Darup-Ferguson, R.; Fahey, D. W.; Fehsenfeld, F. C.; Ferguson, E. E. Collisional relaxation of vibrationally excited O ₂ ⁺ ions. J. Chem. Phys. 79, 4201 (1983) United States
00909 T	A16: H ⁺ + He; D ⁺ + He	1-200 eV	Reep, T. S.; Delos, J. B. Electron detachment for H ⁺ (D ⁺) in collisions with He. J. Chem. Phys. 79, 4304 (1983) United States
00910 T	A18: He* + H ₂ A17: He* + D ₂	Undef	Raisondi, R.; Gerratt, J. Spin-coupled VB description of the potential energy surfaces for the reaction He* + H ₂ → HeH* + H. J. Chem. Phys. 79, 4339 (1983) Italy
00911 T	CO1: e + He; e + H ₂	1000 eV	Dosthat, D. A. Electron thermal times in irradiated helium and hydrogen. J. Chem. Phys. 79, 4599 (1983) United States
00912 T	D09: Xe + Au	Undef	Persson, B.-J.; Avouris, P. On the nature and decay of electronically excited states at metal surfaces. J. Chem. Phys. 79, 5154 (1983) United States
00913 E	D08: NO + Ag	169-2321 K	Mebius, G. B.; Hurst, J. E., Jr.; Munnagel, B. C.; McClelland, G. M.; Zare, R. N. Direct inelastic scattering of nitric oxide from clean Ag(111): rotational and fine structure distributions. J. Chem. Phys. 79, 5163 (1983) United States
00914 E	D13: hv + CO + Cu	248 nm	Burgess, D., Jr.; Viswanathan, B.; Basile, I.; Stair, P. C.; Weitz, E. Pulsed laser induced thermal desorption of CO from copper surfaces. J. Chem. Phys. 79, 5200 (1983) United States
00915 T	A18: F + O ₂	0.1-0.2 eV	Bos, S.; Pollak, E.; Baer, M. A quasiclassical trajectory study of the F + O ₂ → FO + O reaction. J. Chem. Phys. 79, 5204 (1983) Israel
00916 T	A18: O + H ₂	0.1-5.0 eV	Sun, J. C.; Choi, B. N.; Poe, B. Y.; Tang, K. T. Three dimensional quantum mechanical studies of O + H ₂ → HO + H reactive scattering: V. Cross sections and rate constants from the adiabatic T matrix theory. J. Chem. Phys. 79, 5376 (1983) United States
00917 T	A18: H + H ₂	0.5-1.0 eV	Schatz, G. C. The origin of cross section thresholds in H + H ₂ : why quantum dynamics appears to be more vibrationally adiabatic than classical dynamics. J. Chem. Phys. 79, 5386 (1983) United States
00918 E	A11: CO* + CO	300 K	Ishii, T.; Sagita, S. Vibrational relaxation of CO*(A ² Π sub 1), v' = 1 and CO*(B ² Σ ⁺ , v' = 1) ions in the collision with CO molecules. J. Chem. Phys. 79, 5392 (1983) Japan
00919 E	A06: H ₂ ⁺ + H ₂ ; H ₂ ⁺ + H A20: H ₂ ⁺ + H; H ₂ D ⁺ + H; HD ₂ ⁺ + H; D ₂ ⁺ + H; H ₂ ⁺ + H ₂ ; H ₂ D ⁺ + H ₂ ; HD ₂ ⁺ + H ₂ ; D ₂ ⁺ + H ₂	A06: 6 MeV, A20:	Gellman, G. I.; Porter, R. F. Experimental observations of excited dissociative and metastable states of H ₂ in neutralized ion beams. J. Chem. Phys. 79, 5975 (1983) United States
00920 E	E06: e + CO ₂ ⁺ ; e + CO ₂ ⁺ + CO ₂	293 K	Littlewood, I. N.; Curwell, R. C.; Clark, B. E.; Bygaard, R. J. Two- and three-body electron-ion recombination in carbon dioxide. J. Phys. D 16, 2113 (1983) United States

Ref. No.	Reactants	Energy Range	Reference
00921 E	D03: Cs ⁺ + C	0.2-20 keV	Paryellin, A.; Seidl, M. Sputtering negative carbon ions from cesiated graphite surfaces. J. Vac. Sci. Technol. A 1, 1388 (1983) United States
00922 E	D02: H + C D17: H + C	0-1 eV	Stangney, P. C.; Arcinello, G.; Hamak, A. A. Chemical sputtering of carbon by sub-eV atomic hydrogen: new results and a critical comparison with previous data relevant to fusion applications. J. Vac. Sci. Technol. A 1, 1475 (1983) Canada
00923 E	D13: H + SS D18: H + SS	Undef	Howe, E.; Langley, S. Measurement of the recombination rate coefficient of a tokamak vacuum vessel wall. J. Vac. Sci. Technol. A 1, 1435 (1983) United States
00924 T	A03: CO ⁺ + H ₂ A11: CO ⁺ + H ₂	200-4000 K	Drolshagen, G.; Gianturco, F. A. (V, T) collisional energy exchange in CO + H ₂ gaseous mixture. Mol. Phys. 48, 671 (1983) West Germany
00925 T	A17: He + Ar; He + Kr; He + Xe	Undef	Casolari, R.; Pirani, P.; Vecchiocattivi, P. Accurate He-beam ion-atom scattering potentials. Mol. Phys. 49, 551 (1983) Italy
00926 T	A17: He + He	Undef	Chalunski, G. Perturbation calculations of the interaction energy between closed-shell Hartree-Fock atoms. The neon dimer. Mol. Phys. 49, 1353 (1983) The Netherlands
00927 T	A17: OH ⁺	Undef	Hirst, D. H.; Gwent, N. F. An ab initio study of the excited states of OH ⁺ . Mol. Phys. 49, 1461 (1983) United Kingdom
00928 T	A17: Li ⁺ + H ₂ O; Na ⁺ + H ₂ O; K ⁺ + H ₂ O	Undef	Bounds, D. G.; Bounds, P. J. Potential surfaces derived from gradient calculations. New potentials for Li ⁺ /H ₂ O, Na ⁺ /H ₂ O and K ⁺ /H ₂ O. Mol. Phys. 50, 25 (1983) United States
00929 F	E06: e + Si ²⁺ ; e + C ²⁺	1-11 eV	Dittner, P. F.; Datz, D.; Miller, P. D.; Neuh, C. D.; Stelson, P. E.; Bottcher, C.; Dress, R. A.; Alton, G. D.; Benkovic, R.; Fox, C. E. Cross sections for dielectronic recombination of Si ²⁺ and C ²⁺ via 2s - 2p excitation. Phys. Rev. Lett. 51, 31 (1983) United States
00930 T	E06: e + Ag ⁺	4.6-4.7 eV	LaGattuta, K.; Naha, Y. Effect of extrinsic electric fields upon dielectronic recombination: Ag ⁺ . Phys. Rev. Lett. 51, 558 (1983) United States
00931 E	E06: e + H ₂	0.01-7.5 eV	Mitchell, J. B. A.; Forend, J. L.; Ng, C. T.; Levac, D. P.; Mitchell, R. E.; Hul, P. H.; Claeys, H.; Son, A.; McGowan, J. B. Measurement of the branching ratio for the dissociative recombination of H ₂ ⁺ + e. Phys. Rev. Lett. 51, 885 (1983) Canada
00932 E	A03: H ⁺ + Cu; H ⁺ + Al C02: e + Si; e + Ge; H ⁺ + Si; H ⁺ + Ge	28 GeV	Bak, J. V.; Meyer, P. E.; Petersen, J. B. A.; Eggerhof, E.; Ostergaard, E.; Solier, S. P.; Jorgensen, A. B.; Siffert, P. New experimental investigations of the density effect on inner-shell excitation and energy loss. Phys. Rev. Lett. 51, 1163 (1983) Denmark
00933 E	A07: He ⁺ + He	5-27 keV	Tokoro, S.; Tatemochi, S.; Oda, S. Evidence of dynamical effect on molecular autoionization from He ⁺ impact on He. Phys. Rev. Lett. 51, 1255 (1983) Japan
00934 E-T	A07: H ⁺ + He	0.5-8 keV	Ransom, S. T.; DeBois, B. A.; Toheron, L. E. Multiple-ionization mechanisms in fast proton-atom collisions. Phys. Rev. Lett. 51, 1542 (1983) United States
00935 E	A06: He ³⁺ + He; He ⁴⁺ + He; He ⁵⁺ + He; He ⁶⁺ + He	6-12 eV	Church, D. A.; Knecht, B. A.; Burns, J. S.; Holmes, C. S. O. R.; Heldt, S.; Berry, S.; Breinig, H.; Eiston, S.; Roset, J. F.; Sellin, I. A.; Taylor, D.; Thomas, B. Charge transfer to multicharged recoil ions in a Penning trap. Phys. Rev. Lett. 51, 1636 (1983) United States
00936 E	A08: H ⁺ + H ₂ ; H ₂ ⁺ + He	2.75-4.83 keV	Montgomery, B. L.; Jacobs, D. H. Three-body dissociation of H ₂ ⁺ . Phys. Rev. Lett. 51, 1862 (1983) United States
00937 E	A03: H + He; H ⁺ + He	1-25 keV	Bould, A. H.; Anderson, L. E.; Lin, C. C. Excitation of the He(2p) level by H ⁺ ions and H ⁰ atoms. Phys. Rev. Lett. 51, 2029 (1983) United States

Ref. No.	Reactants	Energy Range	Reference
00938 ?	K04: Channeling	Vadef	Beloshitsky, V. V.; Komarov, V. F. Electromagnetic radiation of relativistic channeling particles (the Kuznetsov effect). <i>Phys. Rep.</i> 93, 117 (1982) Soviet Union
00939 E-? E02: Scattering		Vadef	Hamme, G. F. Spin effects in iselastic electron-atom collisions. <i>Phys. Rep.</i> 95, 95 (1983) West Germany
00940 E-? E01: Excitation		Vadef	Slon, L.; Klempgen, R. Angular correlation studies of heavy-particle impact excitation of atoms. <i>Phys. Rep.</i> 96, 251 (1983) United Kingdom
00941 E E02: Scattering		0-400 eV	Trajmar, S.; Register, D. F.; Chutjian, A. Electron scattering by molecules: II. Experimental methods and data. <i>Phys. Rep.</i> 97, 219 (1983) United States
00942 ? C06: H ⁺ + Al		0-2.5 a.u.	Quinea, F.; Flores, F.; Sola, F. Charge states for protons moving in an electron gas: intra-atomic correlation and surface effects. <i>J. Phys. C</i> 16, 899 (1983) Spain
00943 E C02: He ⁺ + Si; He ⁺ + Ar; He ⁺ + Kr; He ⁺ + Xe; He ⁺ + Al		1-2.6 MeV	Ogata, A.; Komaki, K.; Fujimoto, F.; Kawatsura, K.; Ozawa, K.; Shinoda, T.; Katayama, Y. Stopping cross-sections of rare gases in amorphous silicon for 80 eV energy helium ions. <i>Jpn. J. Appl. Phys. Pt. 1</i> 22, 1306 (1983) Japan
00944 E D02: He ⁺ + He; H ⁺ + H		0.1-10 keV	Saidoh, K.; Sone, K. Low energy self-sputtering yields of polybenzene and tungsten. <i>Jpn. J. Appl. Phys. Pt. 1</i> 22, 1361 (1983) Japan
00945 E D00: He ⁺ + H; He ⁺ + H; Ar ⁺ + H; Kr ⁺ + H; H ⁺ + H		1-5 keV	Chen, R. L.; Solara, R.; Herbert, G. Secondary electron emission from stainless surfaces due to bombardment by high-energy ions. <i>Appl. Phys. Lett.</i> 42, 120 (1983) United States
00946 E D02: Ar ⁺ + SiO ₂ D17: Ar ⁺ + SiO ₂		1 MeV	Battori, T.; Hasegawa, Y.; Saito, K.; Suzuki, T.; Saito, K.; Murata, T.; Takada, H. Initial stage of sputtering in silicon oxide. <i>Appl. Phys. Lett.</i> 42, 244 (1983) Japan
00947 E D02: He ⁺ + GaAs; Ar ⁺ + GaAs D03: He ⁺ + GaAs; Ar ⁺ + GaAs		100-2000 eV	Kroubek, Z. Substrate surface excitations and ionization of molecules sputtered from GaAs. <i>Appl. Phys. Lett.</i> 42, 510 (1983) Czechoslovakia
00948 E D17: O + H + C		200 eV	Isbby, C.I.H. Electronic excitation in electron bombardment enhancement of chemical reactions. <i>Appl. Phys. Lett.</i> 43, 609 (1983) United States
00949 E D07: H + C + Si		300 K	Karman, H.; Boinks, H.; Wilmch, H. Comparison of specular Raman-scattering intensity and C ⁺ secondary-ion yield at thermally activated decrease of a carbon layer on a Si(110) surface. <i>Phys. Rev. B</i> 28, 3561 (1983) West Germany
00950 E D17: Ar ⁺ + Si ₃ N ₄ ; Ar ⁺ + Si ₃ N ₄ ; Ar ⁺ + Si ₃ N ₄ ; Ar ⁺ + Si ₃ N ₄ ; Ar ⁺ + Si ₃ N ₄ ; Ar ⁺ + Si ₃ N ₄		0.5-5.0 keV	Valeri, S.; del Pennino, G.; Sammarini, P.; Citaviani, G. Low-beam-induced modification of Si nitrides investigated by Auger-electron spectroscopy. <i>Phys. Rev. B</i> 28, 4277 (1983) Italy
00951 E D13: hv + NaF		1075-1155 eV	Parks, C. C.; Nassain, E.; Shirley, D. A.; Knott, H. L.; Leubrial, G.; Rosenberg, V. A. Auger decay mechanism in photo-stimulated desorption from sodium fluoride. <i>Phys. Rev. B</i> 28, 4793 (1983) United States
00952 E D03: Ar ⁺ + He; Ar ⁺ + B; Ar ⁺ + Ag; Ar ⁺ + Au		66 keV	Larsen, P.; Veje, E. Study of atomic excitation in sputtering as a function of the projectile incidence angle. <i>Phys. Rev. B</i> 28, 5011 (1983) Denmark
00953 E D03: Ar ⁺ + Hg; Ar ⁺ + Al; Ar ⁺ + Cu; Ar ⁺ + Cd		60 keV	Veje, E. Study of atomic excitations in sputtering with use of Hg, Al, Cu, and Cd targets. <i>Phys. Rev. B</i> 28, 5029 (1983) Denmark
00954 E D05: hv + C		21-41 eV	Lee, A. H.; Berry, J. J.; Hughes, R. P. Angle-resolved photoemission and secondary electron emission from single-crystal graphite. <i>Phys. Rev. B</i> 28, 5332 (1983) United Kingdom
00955 E D13: hv + C		3.7 eV	Kamaya, A.; Shimizu, Y. Transient chemical forms of molecular ions emitted from a graphite surface by H ₂ laser excitation. <i>Phys. Rev. B</i> 28, 4571 (1983) Japan

[illegible]

Ref. No.	Reactants	Energy Range	Reference
00970 Z	A06: Ar ²⁺ + H ₂ ; Ar ³⁺ + H ₂ ; Xe ²⁺ + He; Xe ³⁺ + He; Xe ⁴⁺ + He; Xe ⁵⁺ + He; Xe ⁶⁺ + He; Xe ⁷⁺ + He; Xe ⁸⁺ + He; Xe ⁹⁺ + He; Xe ¹⁰⁺ + He; Ar ²⁺ + He; Ar ³⁺ + Ar; H ²⁺ + H ₂ ; H ³⁺ + H	10 ⁷ -10 ⁸ cm/s	Huber, R. A. Energy gain and loss spectroscopy of charge changing collisions between multiply charged ions and neutrals. Phys. Scr. T3, 96 (1983) West Germany
00971 T	A06: Review	10 ² -10 ³ keV/amu	Kaaden, H.; Roeslund, P.; Andersen, L. S.; Sørensen, S.; St. E.; Haugen, H. K.; Sønne, L. Experimental investigation of electron capture by highly charged ions of various velocities. Phys. Scr. T3, 101 (1983) Denmark
00972 F	A06: H ²⁺ + He; H ³⁺ + He; H ⁴⁺ + He; C ²⁺ + He; C ³⁺ + He; C ⁴⁺ + He; N ²⁺ + He; N ³⁺ + He; N ⁴⁺ + He; O ²⁺ + He; O ³⁺ + He; O ⁴⁺ + He; F ²⁺ + He; F ³⁺ + He; F ⁴⁺ + He; Ne ¹⁰⁺ + He; Ne ⁹⁺ + He; Ne ⁸⁺ + He; Si ¹²⁺ + He; Si ¹¹⁺ + He	0.8 keV/amu	Ohtani, S. Recent activities at NICE Nagoya. Phys. Scr. T3, 110 (1983) Japan
00973 Z	A06: Review	13-27 eV	Lindinger, W. Reactions of doubly charged ions at near thermal energies. Phys. Scr. T3, 115 (1983) Austria
00974 E	A01: He ²⁺ + Li; He ³⁺ + H ₂ ; C ²⁺ + Li; C ³⁺ + Li; C ⁴⁺ + Li; C ⁵⁺ + H ₂ ; C ⁶⁺ + Li; C ⁷⁺ + H ₂ ; O ²⁺ + Li; O ³⁺ + H ₂ ; O ⁴⁺ + Li; O ⁵⁺ + H ₂ ; O ⁶⁺ + Li; O ⁷⁺ + H ₂ ; A06: He ²⁺ + Li; He ³⁺ + H ₂ ; C ²⁺ + Li; C ³⁺ + H ₂ ; C ⁴⁺ + Li; C ⁵⁺ + H ₂ ; C ⁶⁺ + Li; C ⁷⁺ + H ₂ ; O ²⁺ + Li; O ³⁺ + H ₂ ; O ⁴⁺ + Li; O ⁵⁺ + H ₂ ; O ⁶⁺ + Li; O ⁷⁺ + H ₂	10-600 keV	Van, P. G.; Vanderwoude, H.; Dijkamp, D.; de Meer, J. J. Electron capture into excited states in collisions between multiply charged ions and atoms. Phys. Scr. T3, 120 (1983) The Netherlands
00975 Z	A06: C ²⁺ + H; C ³⁺ + H ₂ ; C ⁴⁺ + H; C ⁵⁺ + H ₂ ; C ⁶⁺ + H; C ⁷⁺ + H ₂ ; H ²⁺ + H; H ³⁺ + H ₂ ; H ⁴⁺ + H; H ⁵⁺ + H ₂ ; H ⁶⁺ + H; H ⁷⁺ + H ₂ ; O ²⁺ + H; O ³⁺ + H ₂ ; O ⁴⁺ + H; O ⁵⁺ + H ₂ ; O ⁶⁺ + H; O ⁷⁺ + H ₂ ; Ne ¹⁰⁺ + H; Ne ⁹⁺ + H ₂ ; Ne ⁸⁺ + H; Ne ⁷⁺ + H ₂ ; Ne ⁶⁺ + H; Ne ⁵⁺ + H ₂ ; Ne ⁴⁺ + H; Ne ³⁺ + H ₂ ; Ne ²⁺ + H; Ne ¹⁺ + H ₂ ; C ²⁺ + He; C ³⁺ + He; C ⁴⁺ + He; C ⁵⁺ + He; C ⁶⁺ + He; Ar ²⁺ + He; Ar ³⁺ + He; Ar ⁴⁺ + He	1x10 ⁷ - 13x10 ⁷ cm/s	Panov, B. N.; Basalaev, A. A.; Loxakis, K. O. Interaction of fully stripped, hydrogen-like and helium-like C-ion, N-ion, Ne-ion, and Ar-ion with H-atom and He-atom and H ₂ molecules. Phys. Scr. T3, 124 (1983) Soviet Union
00976 Z	A06: O ²⁺ + H; C ³⁺ + H P05: e + Ti ²⁺ ; e + Zr ²⁺ ; e + Hf ²⁺	A06: 1.6-160 keV	Phaneuf, R. A.; Crandall, D. M. Low-energy inelastic collisions of multiply charged ions with electrons and hydrogen atoms. Phys. Scr. T3, 131 (1983) United States
00977 Z	A06: Yb ²⁺ + Xe; Xe ³⁺ + Xe; Xe ⁴⁺ + Xe; Xe ⁵⁺ + Xe; Xe ⁶⁺ + Xe; Xe ⁷⁺ + Xe; Xe ⁸⁺ + Xe; Xe ⁹⁺ + Xe; Xe ¹⁰⁺ + Xe; Xe ¹¹⁺ + Xe; Xe ¹²⁺ + Xe; Xe ¹³⁺ + Xe; Xe ¹⁴⁺ + Xe; Xe ¹⁵⁺ + Xe; Xe ¹⁶⁺ + Xe; Xe ¹⁷⁺ + Xe; Xe ¹⁸⁺ + Xe; Xe ¹⁹⁺ + Xe; Xe ²⁰⁺ + Xe; Xe ²¹⁺ + Xe; Xe ²²⁺ + Xe; Xe ²³⁺ + Xe; Xe ²⁴⁺ + Xe; Xe ²⁵⁺ + Xe; Xe ²⁶⁺ + Xe; Xe ²⁷⁺ + Xe; Xe ²⁸⁺ + Xe; Xe ²⁹⁺ + Xe; Xe ³⁰⁺ + Xe; Xe ³¹⁺ + Xe; Xe ³²⁺ + Xe; Xe ³³⁺ + Xe; Xe ³⁴⁺ + Xe; Xe ³⁵⁺ + Xe; Xe ³⁶⁺ + Xe; Xe ³⁷⁺ + Xe; Xe ³⁸⁺ + Xe; Xe ³⁹⁺ + Xe; Xe ⁴⁰⁺ + Xe; Xe ⁴¹⁺ + Xe; Xe ⁴²⁺ + Xe; Xe ⁴³⁺ + Xe; Xe ⁴⁴⁺ + Xe; Xe ⁴⁵⁺ + Xe; Xe ⁴⁶⁺ + Xe; Xe ⁴⁷⁺ + Xe; Xe ⁴⁸⁺ + Xe; Xe ⁴⁹⁺ + Xe; Xe ⁵⁰⁺ + Xe; Xe ⁵¹⁺ + Xe; Xe ⁵²⁺ + Xe; Xe ⁵³⁺ + Xe; Xe ⁵⁴⁺ + Xe; Xe ⁵⁵⁺ + Xe; Xe ⁵⁶⁺ + Xe; Xe ⁵⁷⁺ + Xe; Xe ⁵⁸⁺ + Xe; Xe ⁵⁹⁺ + Xe; Xe ⁶⁰⁺ + Xe; Xe ⁶¹⁺ + Xe; Xe ⁶²⁺ + Xe; Xe ⁶³⁺ + Xe; Xe ⁶⁴⁺ + Xe; Xe ⁶⁵⁺ + Xe; Xe ⁶⁶⁺ + Xe; Xe ⁶⁷⁺ + Xe; Xe ⁶⁸⁺ + Xe; Xe ⁶⁹⁺ + Xe; Xe ⁷⁰⁺ + Xe; Xe ⁷¹⁺ + Xe; Xe ⁷²⁺ + Xe; Xe ⁷³⁺ + Xe; Xe ⁷⁴⁺ + Xe; Xe ⁷⁵⁺ + Xe; Xe ⁷⁶⁺ + Xe; Xe ⁷⁷⁺ + Xe; Xe ⁷⁸⁺ + Xe; Xe ⁷⁹⁺ + Xe; Xe ⁸⁰⁺ + Xe; Xe ⁸¹⁺ + Xe; Xe ⁸²⁺ + Xe; Xe ⁸³⁺ + Xe; Xe ⁸⁴⁺ + Xe; Xe ⁸⁵⁺ + Xe; Xe ⁸⁶⁺ + Xe; Xe ⁸⁷⁺ + Xe; Xe ⁸⁸⁺ + Xe; Xe ⁸⁹⁺ + Xe; Xe ⁹⁰⁺ + Xe; Xe ⁹¹⁺ + Xe; Xe ⁹²⁺ + Xe; Xe ⁹³⁺ + Xe; Xe ⁹⁴⁺ + Xe; Xe ⁹⁵⁺ + Xe; Xe ⁹⁶⁺ + Xe; Xe ⁹⁷⁺ + Xe; Xe ⁹⁸⁺ + Xe; Xe ⁹⁹⁺ + Xe; Xe ¹⁰⁰⁺ + Xe	20-180 keV	Selzborn, E.; Groh, W.; Müller, A.; Schlachter, A. S. Transfer ionization in collisions between multiply charged ions and atoms at keV energies. Phys. Scr. T3, 148 (1983) West Germany

Ref. No.	Reactants	Energy Range	Reference
00978 Z	A07: C ⁶⁺ + N ₂ ; C ⁶⁺ + Ne; C ⁶⁺ + Ar; C ⁶⁺ + He; C ⁶⁺ + Ne; C ⁶⁺ + Ar; C ⁶⁺ + He; C ⁶⁺ + Ne; C ⁶⁺ + Ar; Cl ¹²⁺ + Ne; Cl ¹²⁺ + He; Cl ¹²⁺ + Ar; Cl ¹²⁺ + He; Cl ¹²⁺ + Ne; Cl ¹²⁺ + Ar; Fe ²⁴⁺ + Ar; Fe ²⁴⁺ + Ne; Hb ²⁴⁺ + Ar; Hb ²⁴⁺ + Ar; Hb ²⁴⁺ + Ne; Pb ⁸²⁺ + Ar; Pb ⁸²⁺ + Ne; C ⁶⁺ + Xe	10-5000 keV/amu	Schlachter, A. S.; Becker, E. W.; Beyer, R. F.; Graham, R. C.; Grob, R.; Hann, R.; Müller, A.; Olson, K. E.; Pyly, R. V.; Stenmark, J. W.; Tanis, J. A. Collisions of fast highly charged ions in gas targets - ionization, recoil-ion production, and charge transfer. Phys. Scr. T3, 153 (1983) United States
00979 Y	A06: O ⁸⁺ + Li; Ne ⁸⁺ + Li; Ne ⁸⁺ + Li	5-30 keV	Vinter, M. Empirical state-selection rules for electron capture in low energy-ion-atom collisions. Phys. Scr. T3, 159 (1983) Austria
00980 Z	A06: Ar ¹⁸⁺ + Ar	0.6-5.9 keV/amu	Folkman, P.; Cranoe, K. M.; Hann, R.; Beyer, R. F. Electron capture into metastable Ar ¹⁸⁺ and S ¹⁶⁺ recoil ions. Phys. Scr. T3, 166 (1983) Denmark
00981 Z	A06: N ⁷⁺ + H ₂ O; N ⁷⁺ + O ₂ ; Ne ¹⁰⁺ + H ₂ ; Ar ¹⁸⁺ + H ₂ ; O ⁸⁺ + C ₂ ; O ⁸⁺ + N; O ⁸⁺ + H ₂ ; O ⁸⁺ + O ₂ ; O ⁸⁺ + N; O ⁸⁺ + H ₂	300 eV	Holzschetter, H. W.; Church, D. A. Physics of multiple-charged stored ions. Phys. Scr. T3, 173 (1983) United States
00982 Z	A03: Au ¹²⁺ + H ₂ ; Au ¹²⁺ + H ₂ ; Au ¹²⁺ + H ₂ ; Au ¹²⁺ + H ₂ ; Au ¹²⁺ + H ₂ ; Au ¹²⁺ + H ₂ ; Au ¹²⁺ + H ₂ ; A06: Au ¹²⁺ + H ₂ ; Au ¹²⁺ + H ₂ ; Au ¹²⁺ + H ₂ ; Au ¹²⁺ + H ₂ ; Au ¹²⁺ + H ₂ ; Au ¹²⁺ + H ₂ ; Au ¹²⁺ + H ₂	20 keV	Bjvelpland, P.; Samson, E.; Andersen, L. H.; Bangen, K. K.; Knudsen, B. Population of n, l states in electron-capture collisions between highly charged, medium-velocity ions and H ₂ . Phys. Scr. T3, 176 (1983) Denmark
00983 Z	A06: Si ¹⁰⁺ + Ar; Si ¹⁰⁺ + Ne; Si ¹⁰⁺ + Ar; Si ¹⁰⁺ + He; Si ¹⁰⁺ + Ar; Si ¹⁰⁺ + Ne; Si ¹⁰⁺ + Ar; Si ¹⁰⁺ + He; Si ¹⁰⁺ + Ar; Si ¹⁰⁺ + He; Si ¹⁰⁺ + Ar; Si ¹⁰⁺ + Ne; Si ¹⁰⁺ + Ar; Si ¹⁰⁺ + He	50-200 keV/amu	Jones, K. W.; Johnson, B. M.; Heron, A.; Haug, D. W.; Thieberger, P.; Barretto, J.; Schuch, R.; Schmidt-Wocking, H.; Tserkys, I.; Kraus, T. W. Experiments with highly ionized low-energy tandem Accel-decal beam. Phys. Scr. T3, 182 (1983) United States
00984 Z	A06: Kr ²⁰⁺ + H ₂ ; Kr ²⁰⁺ + He; Kr ²⁰⁺ + H ₂ ; Kr ²⁰⁺ + He; Kr ²⁰⁺ + H ₂ ; Kr ²⁰⁺ + He; Kr ²⁰⁺ + H ₂ ; Kr ²⁰⁺ + He; Kr ²⁰⁺ + He; Kr ²⁰⁺ + H ₂ ; Kr ²⁰⁺ + He; Kr ²⁰⁺ + He; Kr ²⁰⁺ + He; Kr ²⁰⁺ + H ₂ ; Kr ²⁰⁺ + He; Xe ³⁴⁺ + He; Xe ³⁴⁺ + H ₂ ; Xe ³⁴⁺ + He; Xe ³⁴⁺ + H ₂ ; Xe ³⁴⁺ + He; Xe ³⁴⁺ + H ₂ ; Xe ³⁴⁺ + He; Xe ³⁴⁺ + H ₂ ; Xe ³⁴⁺ + He; Xe ³⁴⁺ + H ₂ ; Xe ³⁴⁺ + He; Xe ³⁴⁺ + H ₂ ; Xe ³⁴⁺ + He; Xe ³⁴⁺ + H ₂ ; Xe ³⁴⁺ + He; Xe ³⁴⁺ + H ₂ ; Xe ³⁴⁺ + He; Xe ³⁴⁺ + H ₂ ;	0.29 keV/amu	Kusakabe, T.; Hanaki, H.; Nagai, M.; Moriuchi, Y.; Sakisaka, H. Q-dependence of electron capture cross sections for slow Kr(sup q) ⁺ and Xe(sup q) ⁺ ions on H ₂ and He. Phys. Scr. T3, 191 (1983) Japan
00985 T	A06: PERT (sup q) ⁺ + H	0.5-50 keV/amu	Janew, R. K. Excited states created in charge transfer collisions between atoms and highly charged ions. Phys. Scr. T3, 206 (1983) United States
00986 T	A06: C ⁶⁺ + N; N ⁷⁺ + N	10 ⁻² -10 ⁴ eV	McCarroll, B.; Valliron, P. Charge exchange of highly charged ions at low energy. Phys. Scr. T3, 226 (1983) France
00987 T	A06: N ⁷⁺ + N	Undef	Seramy, A.; Brandau, E.; Elander, M.; Hittby, B. Resonances in low energy charge transfer between multiply charged ions and neutral atoms described with dilated Titchmarsh-Heyl theory - a progress report. Phys. Scr. T3, 233 (1983) Sweden
00988 T	A06: PZBT (sup q) ⁺ + H	Undef	Crothers, D.S.P. Refined orthogonal variation-perturbation continuous-distorted-wave treatment of B(sup z) ⁺ + B(1s) - B(sup x-1) ⁺ (n) + B ⁰ at intermediate velocity for n, 2 greater than 1. Phys. Scr. T3, 236 (1983) United Kingdom
00989 T	A06: Li ²⁺ + H; C ⁶⁺ + H	0.2-100 keV/amu	Fritsch, W.; Lin, C. D. Atomic-orbital expansions for describing charge transfer in slow ion atom collisions. Phys. Scr. T3, 241 (1983) West Germany
00990 T	A06: Ar ¹⁸⁺ + n; Kr ²⁴⁺ + H; Xe ³⁴⁺ + H	10 ⁻² -10 ⁴ keV/amu	Janew, R. K.; Balic, D. S. Electron capture into excited states in H + Ar ¹⁸⁺ , Kr ²⁴⁺ , and Xe ³⁴⁺ charge transfer collisions. Phys. Scr. T3, 246 (1983) United States
00991 Z	D08: He + Ni; He + Cu; He + Mo	60 meV	Roussel, J. Reflection of metastable He atoms as ions at surfaces. Phys. Scr. T4, 96 (1983) France

Ref. No.	Reactants	Energy Range	Reference
00992 T	D09: Undef	Undef	Neuma, D. H.; Hakoski, K.; Brako, R.; Van Vaeck, J. R. B. Charge transfer in inelastic ion and atom-surface collisions. <i>Phys. Scr.</i> T6, 5 (1983) France
00993 T	D09: Undef	Undef	Lang, R. D.; Harkov, J. K. The theory of ionization probability in sputtering. <i>Phys. Scr.</i> T6, 15 (1983) United States
00994 T	D09: Undef	Undef	Saoudon, K. J.; Obermeyer, H. Theoretical description of keV hydrogen interaction with jellium metal. <i>Phys. Scr.</i> T6, 19 (1983) West Germany
00995 T	D09: Undef	Undef	Sroebek, Z. Electronic excitations of desorbed neutral atoms. <i>Phys. Scr.</i> T6, 24 (1983) Czechoslovakia
00996 T	D09: Undef	Undef	Van Veenik, J. M.; Los, J. Resonant charge transfer in atom-metal surface reactions. <i>Phys. Scr.</i> T6, 27 (1983) The Netherlands
00997 E	D08: D ₂ ⁺ + Fe D09: D ₂ ⁺ + Na	6-12 keV	Schneider, P. J.; Eckstein, W.; Verbeek, H. Trajectory effects on the negative charge-state fraction of deuterium reflected from a sodium target. <i>Phys. Scr.</i> T6, 35 (1983) West Germany
00998 T	D08: He ⁺ + Li; He ⁺ + Ni D09: He ⁺ + Li; He ⁺ + Ni	0.2-1.0 keV	Englert, W.; Taglauer, R.; Heiland, W.; Jackson, D. P. Scattering and neutralization of low energy He ⁺ and Li ⁺ from Ni(110) and adsorbed oxygen. <i>Phys. Scr.</i> T6, 38 (1983) West Germany
00999 E	D02: Kr ⁺ + Zr D03: Kr ⁺ + Zr	3 keV	Gruen, D. H.; Pellin, M. J.; Young, C. E.; Hendelsohn, R. H.; Desauld, A. B. Outer shell excitation mechanisms and static model laser fluorescence spectroscopy of sputtered atoms. <i>Phys. Scr.</i> T6, 42 (1983) United States
01000 T	D09: Review	Undef	Slodzian, G. Remarks on some factors influencing the charge state of sputtered particles. <i>Phys. Scr.</i> T6, 54 (1983) France
01001 E	D03: He ⁺ + Si; He ⁺ + O + Si; He ⁺ + SiO	0.5 keV	Tu, M. L. The effect of work function change on the sputtering of Si ⁺ from oxidized Si surfaces. <i>Phys. Scr.</i> T6, 67 (1983) United States
01002 E-T	D03: Review	Undef	Wittmann, K. The effect of work function changes on secondary ion energy spectra. <i>Phys. Scr.</i> T6, 71 (1983) West Germany
01003 E-T	D08: Ar ⁺ + Al	3 keV	Matthew, J. A. D. Auger spectroscopy of solid surfaces: electron versus ion excitation. <i>Phys. Scr.</i> T6, 79 (1983) United Kingdom
01004 E	D08: H ⁺ + C; He ⁺ + C; O ⁺ + C; N ⁺ + C; He ⁺ + C; Ar ⁺ + C; Ti ⁺ + C; Pb ⁺ + C; U ⁺ + C	0.01-0.1 keV/amu	Franchère, H. J.; Groeneveld, E. O. Heavy ion induced electron emission from solid surfaces. <i>Phys. Scr.</i> T6, 89 (1983) West Germany
01005 E-T	D13: Review	Undef	Knott, M. L. Surface chemical information from electron- and photon-stimulated desorption. <i>Phys. Scr.</i> T6, 94 (1983) United States
01006 E	D13: He ⁺ + CO + Rh; He ⁺ + CO + Rh	1-4 keV	Holler, J.; Neunert, W.; Heiland, W. Electron stimulated desorption by low energy ion impact. <i>Phys. Scr.</i> T6, 104 (1983) West Germany
01007 E	D03: Ni ⁺ + Al; Ni ⁺ + Sc; Ni ⁺ + Y; Ni ⁺ + Ta; Fe ⁺ + Al; Fe ⁺ + Sc; Xe ⁺ + Y; Xe ⁺ + Ta; U ⁺ + Al; U ⁺ + Sc; U ⁺ + Y; U ⁺ + Ta	0.2-1.4 cm/nm	Becker, O.; Knippelberg, W.; Wien, K. Emission of non-metallic ions from a metal surface under heavy-ion bombardment. <i>Phys. Scr.</i> T6, 117 (1983) West Germany
01008 E	D07: NO + Ag D08: NO + Ag	0.02-2 eV	Auerbach, D. J. Inelastic scattering of atoms and molecules from solid surfaces. <i>Phys. Scr.</i> T6, 122 (1983) United States
01009 E-T	D08: He ⁺ + C; He ⁺ + Au; He ⁺ + Ag; He ⁺ + Pb; H ₂ ⁺ + Pb; H ₂ ⁺ + Pb; H ⁺ + C; H ⁺ + Al	110-300 keV	Winter, M. Anisotropic interaction in ion-surface collisions. <i>Phys. Scr.</i> T6, 136 (1983) West Germany
01010 E-T	D12: He ⁺ + NiFe	70-200 keV	Graser, W.; Varelas, C. Optical radiation from He particles scattered at a monocrystalline surface at grazing incidence. <i>Phys. Scr.</i> T6, 153 (1983) West Germany

Ref. No.	Reactants	Energy Range	Reference
01011 Z	D09: H ⁺ + Ta	0.1-8.0 eV	Kochowbacher, H.; Richard, A.; Bona, V. Radiative deactivation of metastable hydrogen (H(2s)) at metallic surfaces. <i>Phys. Scr.</i> 16, 168 (1983) West Germany
01012 T	D08: He ⁺ + Si	0.5-1.5 keV	Bertrand, P.; Ghali, R. Energy and angular dependence of the inelastic energy loss in the scattering of low energy He ions from a silicon surface. <i>Phys. Scr.</i> 16, 168 (1983) Belgium
01013 T	T06: e + C ³⁺ ; e + N ⁴⁺ ; e + O ⁵⁺ ; e + Fe ²³⁺ ; e + Ne ⁹⁺ ; e + Mg ¹¹⁺ ; e + Si ¹³⁺ ; e + S ¹⁵⁺	Undef	Pradhan, A. K. Radiative recombination of the ground state of lithium-like ions. <i>Astrophys. J.</i> , Part 1 270, 339 (1983) Canada
01014 Z	E03: e + Fe ⁺	0-200 eV	Kolomo, P. A.; Svirnov, Y. A. Measurement of the cross sections for excitation of a singly charged iron ion by electron impact. <i>Sov. Astron.-AJ</i> 26, 364 (1983) Soviet Union
01015 Z	H06: hv + Ti	Undef	Kostyk, B. I. Oscillator strengths for neutral titanium lines. <i>Sov. Astron.-AJ</i> 26, 422 (1983) Soviet Union
01016 T	E03: e + O ²⁺	0-5.16 Ry	Aggarwal, K. M. Electron excitation rates among fine structure levels in O III. <i>Astrophys. J. Suppl. Ser.</i> 52, 387 (1983) United Kingdom
01017 T	E05: e + PERT	Undef	Gurgess, A.; Chidichimo, R. C. Electron impact ionization of complex ions. <i>Mon. Not. R. Astron. Soc.</i> 203, 1269 (1983) United Kingdom
01018 T	E05: e + PERT	Undef	Shevelko, V. P.; Urnov, A. N.; Vainshtein, L. A.; Muller, A. On electron impact ionization cross-sections and rates for multiply charged ions. <i>Mon. Not. R. Astron. Soc.</i> 203, 45P (1983) Soviet Union
01019 Z	H06: hv + Fe ⁺	2600-1055 Å	Shull, J. R.; Van Steenberg, R.; Seab, C. G. Observationally determined Fe II oscillator strengths. <i>Astrophys. J.</i> , Part 1 271, 408 (1983) United States
01020 T	A03: H + O	1-10x10 ³ K	Federman, S. R.; Shipsey, R. J. The 1D-3P transition in atomic oxygen induced by collisions with atomic hydrogen. <i>Astrophys. J.</i> , Part 1 269, 791 (1983) United States
01021 T	H06: hv + Cr ⁴⁺ ; hv + Mn ⁴⁺ ; hv + Fe ²⁺	1.0-3.0 a.u.	Tiwary, S. B. Oscillator strengths of 3p ³ 3d ² D - 3p ³ 3d4s ² P ^o , 2P ^o , 3P ^o transitions in Cr VI, Mn VII, and Fe VIII. <i>Astrophys. J.</i> , Part 1 269, 803 (1983) United Kingdom
01022 T	E03: e + S ⁺ H0 ⁺ : hv + S ⁺	2-18x10 ³ K	Ho, Y. K.; Henry, R. J. W. Oscillator strengths and collision strengths for S II. <i>Astrophys. J.</i> , Part 1 267, 886 (1983) United States
01023 T	E03: e + O ⁺ ; e + O ²⁺ H04: hv + O ⁺ ; hv + O ²⁺	0-10 Ry	Ho, Y. K.; Henry, R. J. W. Oscillator strengths and collision strengths for O II and O III. <i>Astrophys. J.</i> , Part 1 266, 733 (1983) United States
01024 T	E03: e + Mg ¹⁰⁺	0.7-9x10 ⁴ K	Fancher, P.; Loulergue, R.; Steenman-Clark, L.; Volonte, S. Dielectronic satellite spectra of Mg II with inner-shell and helium-like excitation rates. Application to solar observations. <i>Astron. Astrophys.</i> 118, 147 (1983) France
01025 Z	T08: Spectra	Undef	Kogan, V. I.; Lisitsa, V. S. Fusion research and electromagnetic emission from plasmas. <i>Sov. J. Plasma Phys.</i> 9, 43 (1983) Soviet Union
01026 T	C02: e + Al C04: e + Al	1 MeV	Boiko, V. I.; Gorbachev, E. A.; Evstigneev, V. V. Distribution of the relativistic electrons of an intense beam in a solid target. <i>Sov. J. Plasma Phys.</i> 9, 213 (1983) Soviet Union
01027 T	C04: H ⁺ + Plasma; T ⁺ + Plasma; He ²⁺ + Plasma	0-5 keV	Borshokin, S. V.; Choben, E. A. Charged-particle slowing-down length in a hot plasma. <i>Sov. J. Plasma Phys.</i> 9, 242 (1983) Soviet Union
01028 T	E02: e + H ₂ E03: e + H ₂ E04: e + H ₂	0-12 eV	Pondarev, S. A. Application of the quantum theory of scattering of three bodies for the calculation of processes taking place during the collision of an electron with a molecule of nitrogen. <i>High Energy Chem.</i> 17, 254 (1983) Soviet Union

Ref. No.	Reactants	Energy Range	Reference
01029 T	E01: e + Li; e + Be E17: e + Li; e + Be	20-700 eV	Rao, V. S.; Desai, M. S. Application of HMOB approximation to e ⁻ -Li elastic scattering. <i>Indian J. Pure Appl. Phys.</i> 21, 159 (1983) India
01030 T	E03: He ⁺ + H	10-200 keV	Batta, S.; Roy, K.; Mukherjee, S. C. Excitation of hydrogen atoms to the n = 2 state by helium-ion impact. <i>Indian J. Pure Appl. Phys.</i> 21, 401 (1983) India
01031 E	E17: D + He	25 keV	Pismov, A. A.; Rytupskii, A. I.; Perlovich, V. A.; Tel'kovskii, V. G. Effect of bombardment with deuterium ions on the structure of polycrystalline silicon. <i>Sov. At. Energy</i> 54, 127 (1983) Soviet Union
01032 E	E17: H ⁺ + SS	10 keV	Guseva, N. I.; Samirova, A. N.; Naftulin, O. S.; Nikol'skii, I. V.; Pefelov, P. A.; Chaisakov, O. I. Effects of hydrogen-ion bombardment on the structure and composition of a nickel-rich alloy. <i>Sov. At. Energy</i> 54, 154 (1983) Soviet Union
01033 E	E12: H + He	Undef	Schilling, R.; Frankenberger, R.; Beagston, A.; Weber, K. M. Saturation spectroscopy of hydrogen H(mh a) lines with a multi-mode CW dye laser. <i>Z. Phys. A</i> 313, 1 (1983) West Germany
01034 E	E06: H ⁺ + He ⁺ ; H ⁺ + He; H ₂ ⁺ + He ⁺ ; H ₂ ⁺ + He; H ₂ ⁺ + He ⁺ ; H ₂ ⁺ + He	1-600 eV	Kushavaha, V. S. Near resonance charge transfer from a laser excited donor state. <i>Z. Phys. A</i> 313, 155 (1983) United States
01035 E	E03: He + Ar	200-700 keV	Shanher, R.; Hippler, R.; Wille, W.; Wille, R.; Letz, H. O. 3d sigma excitation in slow He-Ar collisions. <i>Z. Phys. A</i> 313, 281 (1983) West Germany
01036 E	E03: e + Hg; e + Cd; e + Zn E05: e + Hg; e + Cl; e + Zn	8-16 eV	Carlson, K. D.; Raugh, E. G. Autoionization of Hg, Cd, and Zn atoms by electron impact ionization. Implications in electron energy scale calibrations. <i>High Temp. Sci.</i> 16, 341 (1983) United States
01037 E	E06: e + Cu	0-20 eV	Diets, R. E.; Schae, E. G.; Kapilov, D. A. Thermal scattering of slow electrons during elastic specular reflection from a Cu(001) surface. <i>J. Electron. Spectrosc. Relat. Phenom.</i> 29, 41 (1983) United States
01038 E	E13: hv + CO + Cu	248 nm	Viguenathan, R.; Burgess, D. E., Jr.; Stair, P. C.; Seitz, E. Laser-induced thermal desorption of CO from clean polycrystalline copper: time-of-flight and surface diffusion measurements. <i>J. Electron. Spectrosc. Relat. Phenom.</i> 29, 111 (1983) United States
01039 E	E05: hv + La; hv + Gd	820-1260 eV	Kotova, I. N.; Karnatak, R. C.; Cassarade, J. P. Photoabsorption and electron yields of La and Gd in the vicinity of 3d thresholds. <i>J. Electron. Spectrosc. Relat. Phenom.</i> 31, 1 (1983) France
01040 T	E06: hv + H ₂ ; hv + CO ₂	0-25 eV	Thiel, H. Characterization of resonances in photoionization. <i>J. Electron. Spectrosc. Relat. Phenom.</i> 31, 151 (1983) West Germany
01041 T	E06: hv + H ₂ ; hv + CO	20-50 eV	Gofsan, R. M.; Mefedov, V. I.; Kraizman, V. L.; Vedrinski, R. V. Relative intensities in x-ray photoelectron spectra. Part I. Near threshold structure of photoionization cross-sections of molecular valence shells. <i>J. Electron. Spectrosc. Relat. Phenom.</i> 32, 59 (1983) Soviet Union
01042 T	E06: hv + He	0-200 eV	Richards, J. A.; Larkins, F. P. Photoionization cross-section calculations for satellite processes: relaxed Hartree-Fock theory with application to helium n = 2 lines. <i>J. Electron. Spectrosc. Relat. Phenom.</i> 32, 193 (1983) Australia
01043 E	E03: e + H ₂ ; e + H ₂ O; e + H ₂ ; e + H ₂ O; e + H ₂ E04: e + H ₂ ; e + H ₂ O; e + H ₂ ; e + H ₂ O; e + H ₂	390-420 eV	Dome, V.; Reising, G. Fragment-ion appearance-potential spectroscopy. <i>J. Electron. Spectrosc. Relat. Phenom.</i> 32, 257 (1983) West Germany
01044 T	E06: e + C ₂ ; e + C ₂ ⁺ ; e + C ₂ ⁺ ; e + H ₂ ⁺ ; e + H ₂ ⁺ ; e + H ₂ ⁺ ; e + H ₂ ⁺ ; e + H ₂ ⁺ ; e + H ₂ ⁺ ; e + H ₂ ⁺ ; e + H ₂ ⁺ ; e + H ₂ ⁺	Undef	Baumhauser, M.; Storey, P. J. Dielectronic recombination at low temperatures. <i>Astron. Astrophys.</i> 126, 75 (1983) Switzerland

Ref. No.	Reactants	Energy Range	Reference
01045 E	H04: hv + Fe ⁺	Under	Bolty, J. Arc measurements of Fe II transition probabilities. Astron. Astrophys. Suppl. Ser. 52, 37 (1983) France
01046 T	E03: e + Ca ¹⁰⁺	Under	Bhatia, A. K.; Hanson, R. E. Atomic calculations for Ca XVII; E V, and x-ray lines. Astron. Astrophys. Suppl. Ser. 52, 115 (1983) United States
01047 T	E03: e + Fe ¹⁰⁺	Under	Hanson, R. E.; Bhatia, A. K. Atomic calculations for the Fe II x-ray lines. Astron. Astrophys. Suppl. Ser. 52, 181 (1983) United States
01048 T	H04: hv + Co ²⁺ ; hv + Ca ¹⁰⁺ ; hv + Zn ¹⁰⁺	Under	Tinany, S. H. Oscillator strengths of 3p ³ 3d ² 2P - 3p ³ 3d2s 2P ^o , 2D ^o , 2F ^o transitions in Co II, Cu II, and Zn II ions. Astrophys. J., Part 1 272, 781 (1983) United Kingdom
01049 T	H04: hv + Fe ¹⁰⁺	Under	Glass, R. Correlation and the 3p ³ 3p ² 2P ^o - 3d3p ² 2P ^o - 3d ² 3p ² 2M ^o transitions in Fe I. Mon. Not. R. Astron. Soc. 204, 735 (1983) Australia
01050 E	H04: hv + Ti	Under	Blackwell, D. R.; Hanson, S.-L.-R.; Pettford, A. D. Measurement of relative oscillator strengths for Ti I-III. Weak transitions from levels a ² F _{3/2} (0.02 eV, 0.05 eV), a ² F _{5/2} (0.81 eV-0.85 eV), a ² D _{3/2} (0.90 eV), a ² P _{3/2} (1.05 eV-1.07 eV) with solar analysis. Mon. Not. R. Astron. Soc. 204, 883 (1983) United Kingdom
01051 E-T	A12: Na + Ar; Na + Ne; Na + N ₂ ; Na + Kr	210 °C	Kondo, K. Synchroized gas-phase beam spectroscopy and its application to the measurement of pressure shifts of the hyperfine splitting in 3S _{1/2} of sodium atoms. J. Phys. Soc. Jpn. 52, 2340 (1983) Japan
01052 E	A03: Kr ²⁰⁺ + He; Kr ²⁰⁺ + He A11: Kr ²⁰⁺ + He; Kr ²⁰⁺ + He	0.5-2.7 keV	Kobayashi, H.; Nakamura, H.; Haseko, Y. Ion energy-loss spectroscopy of Kr ²⁰⁺ -He and -Ne collisions. I. Transitions among 2P _{1/2} , 2P _{3/2} , 1D ₂ , and 1S ₀ of Kr ²⁰⁺ . J. Phys. Soc. Jpn. 52, 2684 (1983) Japan
01053 E	C02: e + C; e + Al; e + Cu; e + Pb	24.8 MeV	Nikado, T.; Tomimatsu, T.; Yamazaki, T. Average energy loss of 24.8-MeV electrons after passing through and backscattering from thick layers of C, Al, Cu, and Pb. J. Phys. Soc. Jpn. 52, 1003 (1983) Japan
01054 E	A03: B ³⁺ + He A06: B ³⁺ + He	1.0-3.0 keV	Nakamoto, A.; Iwai, T.; Haseko, Y.; Kinara, H.; Kobayashi, H.; Ohtani, S.; Okuno, H.; Takagi, S.; Tawara, H.; Tsurubuchi, S. Measurement of relative population between B ²⁺ (2s) and B ²⁺ (2p) in electron capture collision of B ³⁺ with He. J. Phys. Soc. Jpn. 52, 1291 (1983) Japan
01055 E	A06: C ³⁺ + H ₂ ; C ³⁺ + Ar; C ³⁺ + H ₂ ; C ³⁺ + Ar; C ³⁺ + H ₂ ; C ³⁺ + Ar; Be ²⁺ + H ₂ ; Be ²⁺ + Ar; Be ²⁺ + H ₂ ; Be ²⁺ + Ar; Be ²⁺ + H ₂ ; Be ²⁺ + Ar; B ²⁺ + H ₂ ; B ²⁺ + Ar; B ²⁺ + H ₂ ; B ²⁺ + Ar; B ²⁺ + H ₂ ; B ²⁺ + Ar	2-10 keV	Takagi, S.; Ohtani, S.; Kadota, H.; Fujita, J. Cross sections for one-electron capture by highly stripped ions of Be, and C from H ₂ and Ar below 10 keV. J. Phys. Soc. Jpn. 52, 1759 (1983) Japan
01056 E	A07: H ₂ ⁺ + H; H ₂ ⁺ + He	1-5 MeV/amu	Tudia, G. L. Coulomb excitation of an atom by a molecular cluster. Sov. Phys.-Dokl. 28, 347 (1983) Soviet Union
01057 E-T	K02: Excitation K03: Excitation	Under	Ratnov, V. I.; Parilis, E. S. Shake-up processes accompanying electron transitions in atoms. Sov. Phys.-Usp. 25, 881 (1982) Soviet Union
01058 E-T	K01: Interaction potential	Under	Smirnov, B. A. Excimer molecules. Sov. Phys.-Usp. 26, 31 (1983) Soviet Union
01059 T	A07: H ⁺ + Ne; H ⁺ + N; H ⁺ + Ag	0.3-1.7 MeV	Draper, J. P. Doubly differential cross section for binary encounter with massive projectile and isotropic target velocities. Z. Phys. A 308, 289 (1982) United States
01060 T	A07: H ⁺ + He; H ⁺ + Sn; H ⁺ + Ne; H ⁺ + Zn; H ⁺ + Th	0.1-10 MeV	Jakob, A.; Rosel, P.; Trautmann, D.; Baur, G. Screened Coulomb trajectory effects on inner shell ionization. Z. Phys. A 309, 13 (1982) Switzerland
01061 E	A12: Sr + Ne; Sr + Xe	793 K	Weber, K. H.; Ziemer, K. Impact broadening of Sr 5sns 1S ₀ , 5snd 1D ₂ , and 5snd 3D ₂ levels by Ne and Xe. Z. Phys. A 309, 19 (1982) West Germany

Ref. No.	Reactants	Energy Range	Reference
01062 T	A03: Ni + Ni A07: Ni + Ni	40 keV	Anbolt, E. Calculations of molecular-orbital-separated-atom x-ray coincidences. <i>J. Phys. A</i> 16, 193 (1983) United States
01063 T	H06: hv + Ba	0-1.2 Ry	Butler, L.; Newson, C. Photoionisation cross section of the ground state of neutral sodium. <i>J. Phys. B</i> 16, L707 (1983) United Kingdom
01064 E	H06: 5hv + Xe; 6hv + Xe	0-5 eV	Rippler, U.; Humpert, H. J.; Schwier, H.; Jetzke, S.; Lutz, H. O. Angular distribution of photoelectrons from multiphoton ionisation ($\lambda = 532$ nm) of xenon. <i>J. Phys. B</i> 16, L713 (1983) West Germany
01065 T	A03: Li + Be; Li ⁺ + Be; Li ²⁺ + Be; H + Au; H ⁺ + Au; H ²⁺ + Au A07: Li + Be; Li ⁺ + Be; Li ²⁺ + Be; H + Au; H ⁺ + Au; H ²⁺ + Au	0.1-20 keV/amu	Vegh, L.; Sarkadi, L. The screening effect of the projectile electrons on inner-shell excitation. <i>J. Phys. B</i> 16, L727 (1983) Hungary
01066 E	A03: Sn + Cu; Xe + Ni A10: Sn + Cu; Xe + Ni	1.4 keV/amu	Maor, D.; Stachura, Z.; Sokler, O. N.; Lis, B.; Liesen, B. Rotational coupling in asymmetric ion-atom collisions. <i>J. Phys. B</i> 16, L733 (1983) Israel
01067 T	E06: O + O ²⁺ ; e + C ²⁺ ; e + N ²⁺	0.1-0.5 Ry	McLaughlin, D. J.; Hahn, Y. Dielectronic recombination cross section for the Li sequence at low energies. <i>J. Phys. B</i> 16, L739 (1983) United Kingdom
01068 E	H06: hv + Ba	20-29 eV	Kobrin, P. N.; Rosenberg, M. A.; Becker, U.; Southworth, S.; Townsend, C. N.; Lindle, D. W.; Thornton, C.; White, S. G.; Pollakoff, E. D.; Shirley, D. A. Resonance photoelectron spectroscopy of 5p hole states in atomic barium. <i>J. Phys. B</i> 16, 4339 (1983) United States
01069 E	A12: Sr + Ne; Sr + Ne; Si + Kr	1000 K	Terima, M.; Yanagisawa, T.; Tachibana, K.; Ueno, Y. Absorption coefficients for the wings of the Sr resonance line at 4607 Å broadened by Ne, He, and Kr. <i>J. Phys. B</i> 16, 4365 (1983) Japan
01070 E	A06: Ar ³⁺ + H; Ar ²⁺ + H; Ar ⁺ + H; Ar ³⁺ + H; Ar ²⁺ + H; Ar ⁺ + H; Ar ³⁺ + H; C ²⁺ + H; C ³⁺ + H; C ⁴⁺ + H; C ²⁺ + H; C ³⁺ + H; O ²⁺ + H; O ³⁺ + H; O ²⁺ + H; O ³⁺ + H; O ⁴⁺ + H A07: Ar ³⁺ + H; Ar ²⁺ + H; Ar ⁺ + H; Ar ³⁺ + H; Ar ²⁺ + H; Ar ⁺ + H; Ar ³⁺ + H; C ²⁺ + H; C ³⁺ + H; C ⁴⁺ + H; C ²⁺ + H; C ³⁺ + H; O ²⁺ + H; O ³⁺ + H; O ²⁺ + H; O ³⁺ + H; O ⁴⁺ + H	140-9756 keV	Shah, M. B.; Gilbody, H. B. Crossed-beam coincidence studies of ionisation and electron capture in collisions of multiply charged ions with hydrogen atoms. <i>J. Phys. B</i> 16, 4395 (1983) United Kingdom
01071 E	A03: He + Au; Li + Au; Be + Au; C + Au; O + Au; Ne + Au; Si + Au; S + Au A07: He + Au; Li + Au; Be + Au; C + Au; O + Au; Ne + Au; Si + Au; S + Au	0.23-6.7 keV/amu	Jitschin, W.; Rippler, U.; Finck, K.; Schuch, R.; Lutz, H. O. L-subshell ionisation of Au by light-ion impact. <i>J. Phys. B</i> 16, 4405 (1983) West Germany
01072 T	E03: e + H	54.4 eV	Fargher, M. E.; Roberts, M. J. A comparative study of the second-order Born and Faddeev-Dyson approximations for electron-atom collisions. <i>J. Phys. B</i> 16, 4427 (1983) United Kingdom
01073 E	A03: H ₂ + H ₂ A04: H ₂ + H ₂	10-100 keV	Williams, I. D.; Geddes, J.; Gilbody, H. B. Balmer α emission in H ₂ -H ₂ collisions. <i>J. Phys. B</i> 16, L765 (1983) United Kingdom
01074 T	E05: e + H E17: e + H	250-500 eV	Byron, F. W., Jr.; Joachain, C. J.; Piraux, B. Importance of second-order effects in large-angle coplanar symmetric (e, 2e) triple differential cross sections. <i>J. Phys. B</i> 16, L769 (1983) United States
01075 E-T	E05: e + He	200 eV	Pochat, A.; Troad, E. J.; Perasse, J.; Joachain, C. J.; Piraux, B.; Byron, F. W., Jr. Second-order effects in large-angle coplanar symmetric (e, 2e) processes. <i>J. Phys. B</i> 16, L775 (1983) France
01076 T	P03: e + H P05: e + H	Unknown	Unnikrishnan, K.; Prasad, N. A. Eikonal expansion for iselastic scattering. <i>J. Phys. B</i> 16, L781 (1983) India

Ref. No.	Reactants	Energy Range	Reference
01077 E	A12: Ca + He; Ca + Ne; Ca + Ar; Ca + Kr; Ca + Xe	1000-1100 K	Marina, R.; Yanagisawa, T.; Tachibana, K.; Uramo, T. Absorption coefficients for the wings of the Ca resonance line at 8227 Å broadened by rare gases. J. Phys. B 16, 4529 (1983) Japan
01078 E	A05: He ²⁺ + Cd; He ²⁺ + Sn; He ²⁺ + Te; He ²⁺ + I; He ²⁺ + Ba	2.2-2.8 MeV	Avaldi, L.; Mitchell, I. V.; Milazzo, M. L-shell x-ray production cross sections of ¹⁰⁸ Cd, ¹¹⁶ Sn, ¹²⁸ Te, ¹²⁷ I, and ¹³⁸ Ba for alpha particles. J. Phys. B 16, 4555 (1983) Belgium
01079 T	A06: hν + H ₂	730-700 Å	Saout, R.; Le Rouzo, R.; Rameev, G.; Lefebvre-Brion, H. An initial approach to the multichannel quantum defect calculation of the electronic autoionization in the Hopyfield series of H ₂ . J. Phys. B 16, 4601 (1983) West Germany
01080 E	A03: Ar ²⁰⁺ + He; Ar ²⁰⁺ + Ne; Ar ²⁰⁺ + Kr A06: Ar ²⁰⁺ + He; Ar ²⁰⁺ + Ne; Ar ²⁰⁺ + Kr	600-1200 eV	Maher, B. A.; Kahlert, H. J. State-selective electron capture by Ar ²⁰⁺ (2P, 3P, 3S) ions in He, Ne and Kr. J. Phys. B 16, 4655 (1983) United Kingdom
01081 E	E03: e + Hg E17: e + Hg	67.5-500 eV	Porrett, L. P.; James, G. E.; Rasm, K. J.; Pejcev, V. Alignment of the L ₁ shell of magnesium induced by electron excitation. J. Phys. B 16, 4671 (1983) United Kingdom
01082 E-T	K08: Collisions		Perovic, B. The possibilities of the VIKS ion source and some options for its use in atomic collision physics. p. 13 in Atomic Collision Processes with Multiply Charged Ions, B. Perovic, Ed. The Boris Kidric Institute of Nuclear Sciences, Belgrade, (1983) Yugoslavia
01083 E-T	K01: Electron capture		Grozdanov, T. One-electron capture in multicharged ion-atom collisions: theoretical methods. p. 53 in Atomic Collision Processes with Multiply Charged Ions, B. Perovic, Ed. The Boris Kidric Institute of Nuclear Sciences, Belgrade, (1983) Yugoslavia
01084 E-T	K01: Electron capture		Hvelplund, F.; Kauders, E. Atomic-collision processes with multiply charged ions. Experimental investigations of charge exchange and ionization at intermediate to high velocities (v greater than or equal to v ₀). p. 89 in Atomic Collision Processes with Multiply Charged Ions, B. Perovic, Ed. The Boris Kidric Institute of Nuclear Sciences, Belgrade, (1983) Denmark
01085 E-T	K01: Electron capture		Winter, M. Experimental methods, results and problems in the investigation of Auger- and related processes in collisions of multiply charged ions with atoms. p. 129 in Atomic Collision Processes with Multiply Charged Ions, B. Perovic, Ed. The Boris Kidric Institute of Nuclear Sciences, Belgrade, (1983) Austria
01086 E	K01: Electron capture		Blisan, S. Electron capture by highly charged low energy ions. p. 145 in Atomic Collision Processes with Multiply Charged Ions, B. Perovic, Ed. The Boris Kidric Institute of Nuclear Sciences, Belgrade, (1983) France
01087 E-T	K02: Excitation		Prosenyakov, L.; Janov, B. Excitation and ionization processes in electron-multiply charged ion collisions. p. 155 in Atomic Collision Processes with Multiply Charged Ions, B. Perovic, Ed. The Boris Kidric Institute of Nuclear Sciences, Belgrade, (1983) Soviet Union
01088 E	K02: Ionization; Excitation; Dielectronic recombination		Belic, D. Recent investigations of electron-ion collision processes. p. 189 in Atomic Collision Processes with Multiply Charged Ions, B. Perovic, Ed. The Boris Kidric Institute of Nuclear Sciences, Belgrade, (1983) Yugoslavia
01089 E	K02: Ionization; Excitation; Dielectronic recombination		Bronillard, P. Electron-highly charged ion collision experiments. p. 229 in Atomic Collision Processes with Multiply Charged Ions, B. Perovic, Ed. The Boris Kidric Institute of Nuclear Sciences, Belgrade, (1983) Belgium
01090 E	K04: Excitation; Emission		Winter, M. Investigation of Auger- and related processes in collisions of slow multiply charged ions with surfaces. p. 249 in Atomic Collision Processes with Multiply Charged Ions, B. Perovic, Ed. The Boris Kidric Institute of Nuclear Sciences, Belgrade, (1983) Austria
01091 E	K03: Photo detachment		Bryant, R. C.; Butterfield, R. B.; Clark, D. A.; Frost, C. A.; Donahue, J. B.; Gran, P. L. M.; Mann, H. E.; Mann, B. E.; Smith, W. V. Atomic physics with relativistic beams. p. 29 in Atomic Physics 7, O. Kleppner and P. A. Pipkin, Eds. Plenum Press, New York, (1981) United States

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01092 F	K06: Rydberg states		Marocho, S. Rydberg atoms and radiation. p. 141 in Atomic Physics 7, D. Kleppner and F. M. Pipkin, Eds. Plenum Press, New York, (1981) France
01093 F	K06: Rydberg states		Cooke, S. E. Two electron Rydberg states. p. 167 in Atomic Physics 7, D. Kleppner and F. M. Pipkin, Eds. Plenum Press, New York, (1981) United States
01094 F	K06: Rydberg states		Freeman, R. H. Excited states of atoms in strong external fields. p. 209 in Atomic Physics 7, D. Kleppner and F. M. Pipkin, Eds. Plenum Press, New York, (1981) United States
01095 F	K06: Autoionizing states		Morgenstern, B. Coherent decay of collisionally excited. p. 385 in Atomic Physics 7, D. Kleppner and F. M. Pipkin, Eds. Plenum Press, New York, (1981) The Netherlands
01096 F-T	K01: Energy transfer		Harris, S. E.; Young, J. F.; Falcone, R. W.; Green, R. S.; Lidow, D. S.; Lukyanik, J.; White, J. C.; Wright, R. D.; Zdzienick, G. A. Laser induced collisional energy transfer. p. 407 in Atomic Physics 7, D. Kleppner and F. M. Pipkin, Eds. Plenum Press, New York, (1981) United States
01097 F-T	K02: Scattering		Read, F. H. Correlation effects in electron-atom scattering. p. 429 in Atomic Physics 7, D. Kleppner and F. M. Pipkin, Eds. Plenum Press, New York, (1981) United Kingdom
01098 F-T	K01: Electron capture		Sellin, I. A. Continuous capture in the three-body problem. p. 455 in Atomic Physics 7, D. Kleppner and F. M. Pipkin, Eds. Plenum Press, New York, (1981) United States
01099 F	K06: Spectroscopy		Toschek, P. E.; Neuhauser, W. Spectroscopy on localized and cooled ions. p. 529 in Atomic Physics 7, D. Kleppner and F. M. Pipkin, Eds. Plenum Press, New York, (1981) East Germany
01100 F-T	K08: Spin-polarized hydrogen		Greytak, T. J.; Kleppner, D.; Cline, R. H.; Smith, D. A. Spin-polarized hydrogen. p. 553 in Atomic Physics 7, D. Kleppner and F. M. Pipkin, Eds. Plenum Press, New York, (1981) United States
01101 F	K01: Excitation		York, J. T. Collisional excitation of simple systems. p. 19 in Collision Spectroscopy, R. G. Cooks, Ed. Plenum Press, New York, (1978) United States
01102 F	K01: Electron capture		Johnson, R. W.; Boring, J. W. Charge transfer in atomic systems. p. 91 in Collision Spectroscopy, R. G. Cooks, Ed. Plenum Press, New York, (1978) United States
01103 F	K01: Energy loss		Kennel, C. C.; Pollack, L.; Smith, W. V. Inelastic energy loss: new experimental techniques and molecular orbital theory. p. 187 in Collision Spectroscopy, R. G. Cooks, Ed. Plenum Press, New York, (1978) United States
01104 F	K01: Electron capture		Appell, J. Double electron transfer and related reactions. p. 227 in Collision Spectroscopy, R. G. Cooks, Ed. Plenum Press, New York, (1978) France
01105 F	K01: Dissociation		Loe, J.; Govers, T. B. Collision-induced dissociation of diatomic ions. p. 289 in Collision Spectroscopy, R. G. Cooks, Ed. Plenum Press, New York, (1978) France
01106 F	K01: Dissociation		Cooks, R. G. Collision-induced dissociation of polyatomic ions. p. 357 in Collision Spectroscopy, R. G. Cooks, Ed. Plenum Press, New York, (1978) United States
01107 F	K02: Excitation		Burke, P. G.; Eismann, W. Low-energy electron collisions with complex atoms and ions. p. 1 in Atoms in Astrophysics, P. G. Burke, et al., Eds. Plenum Press, New York, (1983) United Kingdom
01108 F	K02: Scattering		Horcross, D. V. Numerical methods for asymptotic solutions of scattering equations. p. 55 in Atoms in Astrophysics, P. G. Burke, et al., Eds. Plenum Press, New York, (1983) United States

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01109 T	K06: Rydberg states		Percival, I. Collisions between charged particles and highly excited atoms. p. 75 in <i>Atoms in Astrophysics</i> , P. G. Burke, et al., Eds. Plenum Press, New York, (1983). United Kingdom
01110 T	K01: Excitation		Belgarne, A. Proton impact excitation of positive ions. p. 103 in <i>Atoms in Astrophysics</i> , P. G. Burke, et al., Eds. Plenum Press, New York, (1983). United States
01111 T	K01: Interaction potential		Peach, G. Long-range interactions in atoms and diatomic molecules. p. 115 in <i>Atoms in Astrophysics</i> , P. G. Burke, et al., Eds. Plenum Press, New York, (1983). United Kingdom
01112 T	K02: Oscillator strength		Monroe, B. L.; Saraph, H. E. Applications of quantum defect theory. p. 173 in <i>Atoms in Astrophysics</i> , P. G. Burke, et al., Eds. Plenum Press, New York, (1983). United Kingdom
01113 T	K06: Collisions; Spectroscopy		Buhal, J.; Van Bogaert, H. Electron-ion processes in hot plasmas. p. 221 in <i>Atoms in Astrophysics</i> , P. G. Burke, et al., Eds. Plenum Press, New York, (1983). France
01114 T	K08: Spectroscopy		Flower, B. S. Planetary nebulae. p. 289 in <i>Atoms in Astrophysics</i> , P. G. Burke, et al., Eds. Plenum Press, New York, (1983). United Kingdom
01115 T	K08: Spectroscopy		Sates, B. S. Forbidden atomic lines in auroral spectra. p. 325 in <i>Atoms in Astrophysics</i> , P. G. Burke, et al., Eds. Plenum Press, New York, (1983). United Kingdom
01116 T	K01: Interchange		Belgarne, A. The interstellar molecules CH and CH ⁺ . p. 109 in <i>Atomic Processes and Applications</i> , P. G. Burke and B. L. Moisewitsch, Eds. North-Holland Publishing Co., New York, (1976). United States
01117 T	K02: Dielectronic recombination		Seaton, B. J.; Storey, P. J. Bi-electronic recombination. p. 113 in <i>Atomic Processes and Applications</i> , P. G. Burke and B. L. Moisewitsch, Eds. North-Holland Publishing Co., New York, (1976). United Kingdom
01118 T	K03: Photoionization		Burke, P. G. Photoionization of atomic systems. p. 199 in <i>Atomic Processes and Applications</i> , P. G. Burke and B. L. Moisewitsch, Eds. North-Holland Publishing Co., New York, (1976). United Kingdom
01119 T	K06: Oscillator strengths		Stewart, A. L. Atomic structure and oscillator strengths. p. 109 in <i>Atomic Processes and Applications</i> , P. G. Burke and B. L. Moisewitsch, Eds. North-Holland Publishing Co., New York, (1976). United Kingdom
01120 T	K06: Negative ions		Moisewitsch, B. L. Negative ions. p. 291 in <i>Atomic Processes and Applications</i> , P. G. Burke and B. L. Moisewitsch, Eds. North-Holland Publishing Co., New York, (1976). United Kingdom
01121 T	K01: Scattering		Percival, I. C. Atomic scattering computations. p. 321 in <i>Atomic Processes and Applications</i> , P. G. Burke and B. L. Moisewitsch, Eds. North-Holland Publishing Co., New York, (1976). United Kingdom
01122 T	K02: Scattering		McDowell, S. R. C. Electron scattering by atoms. p. 301 in <i>Atomic Processes and Applications</i> , P. G. Burke and B. L. Moisewitsch, Eds. North-Holland Publishing Co., New York, (1976). United Kingdom
01123 T	K02: Recombination		Flannery, B. S. Ionic recombination. p. 407 in <i>Atomic Processes and Applications</i> , P. G. Burke and B. L. Moisewitsch, Eds. North-Holland Publishing Co., New York, (1976). United States
01123 T	K01: Scattering		McCarroll, B. Low-energy heavy-particle collisions. p. 467 in <i>Atomic Processes and Applications</i> , P. G. Burke and B. L. Moisewitsch, Eds. North-Holland Publishing Co., New York, (1976). France
01125 T	K01: Excitation; Detachment; Stripping		Bell, K. L.; Kingston, A. E. High-energy atom-atom collisions. p. 493 in <i>Atomic Processes and Applications</i> , P. G. Burke and B. L. Moisewitsch, Eds. North-Holland Publishing Co., New York, (1976). United Kingdom
01126 T	K08: Collisions		Belgarne, A. Electron-ion and proton-ion collisions in astrophysics. p. 1 in <i>Physics of Ion-Ion and Electron-Ion Collisions</i> , P. Brouillard and J. V. McGowan, Eds. Plenum Press, New York, (1981). United States

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01127 R-T	K00: Collisions; Diagnostics; Spectrometry		Post, D. P. The role of atomic collisions in fusion. p. 37 in <i>Physics of Ion-Ion and Electron-Ion Collisions</i> , P. Broellard and J. W. McGowan, Eds. Plenum Press, New York, (1981) United States
01128 T	K02: General theory; Ionization		Ris, T. L. Theory of electron-atom collisions. p. 101 in <i>Physics of Ion-Ion and Electron-Ion Collisions</i> , P. Broellard and J. W. McGowan, Eds. Plenum Press, New York, (1981) United States
01129 T	K02: Dissociation; Recombination K06: Potential energy curves		Gebremes, S. L. Potential energy curves for dissociative recombination. p. 167 in <i>Physics of Ion-Ion and Electron-Ion Collisions</i> , P. Broellard and J. W. McGowan, Eds. Plenum Press, New York, (1981) United States
01130 T	K02: Excitation		Crandall, B. E. Electron-impact excitation of ions. p. 201 in <i>Physics of Ion-Ion and Electron-Ion Collisions</i> , P. Broellard and J. W. McGowan, Eds. Plenum Press, New York, 1981 United States
01131 Z	K02: Ionization		Selzbock, E. Electron-impact ionization of ions. p. 239 in <i>Physics of Ion-Ion and Electron-Ion Collisions</i> , P. Broellard and J. W. McGowan, Eds. Plenum Press, New York, (1981) West Germany
01132 T	K02: Recombination		Sitchell, J. A. L.; McGowan, J. W. Experimental studies of electron-ion recombination. p. 279 in <i>Physics of Ion-Ion and Electron-Ion Collisions</i> , P. Broellard and J. W. McGowan, Eds. Plenum Press, New York, (1981) Canada
01133 R-T	K01: Electron capture		Salin, A. Theory of low energy ion-ion charge exchange. p. 325 in <i>Physics of Ion-Ion and Electron-Ion Collisions</i> , P. Broellard and J. W. McGowan, Eds. Plenum Press, New York, (1981) France
01134 T	K01: Mutual neutralization; Electron capture; Ionization K02: Ionization; Excitation; Electron detachment		Dolder, K. T. The measurement of inelastic ion-ion and electron-ion collisions. p. 373 in <i>Physics of Ion-Ion and Electron-Ion Collisions</i> , P. Broellard and J. W. McGowan, Eds. Plenum Press, New York, (1981) United Kingdom
01135 Z	K01: Electron capture		Broellard, P.; Claeys, V. On the measurement of ion(atom)-ion(atom) charge exchange. p. 415 in <i>Physics of Ion-Ion and Electron-Ion Collisions</i> , P. Broellard and J. W. McGowan, Eds. Plenum Press, New York, (1981) Belgium
01136 T	K01: Recombination		Smith, D.; Adams, E. G. Studies of ion-ion recombination using flowing afterglow plasmas. p. 501 in <i>Physics of Ion-Ion and Electron-Ion Collisions</i> , P. Broellard and J. W. McGowan, Eds. Plenum Press, New York, (1981) United Kingdom
01137 T	K06: Oscillator strengths		Cohen, A.; McEachron, B. P. Atomic Hartree-Fock theory. p. 2 in <i>Advances in Atomic and Molecular Physics</i> , Vol. 16, D. S. Bates and B. Bederson, Eds. Academic Press, New York, (1980) Israel
01138 T	K01: Interaction potential		Duren, B. Experiments and model calculations to determine interatomic potentials. p. 55 in <i>Advances in Atomic and Molecular Physics</i> , Vol. 16, D. S. Bates and B. Bederson, Eds. Academic Press, New York, (1980) West Germany
01139 Z	K02: Ionization K03: Photoionization K06: Photoemission		Celotta, R. J.; Pierce, D. T. Sources of polarized electrons. p. 101 in <i>Advances in Atomic and Molecular Physics</i> , Vol. 16, D. S. Bates and B. Bederson, Eds. Academic Press, New York, (1980) United States
01140 T	K07: Review K01: Fluorescence		Saia, S. Theory of atomic processes in strong resonant electromagnetic fields. p. 159 in <i>Advances in Atomic and Molecular Physics</i> , Vol. 16, D. S. Bates and B. Bederson, Eds. Academic Press, New York, (1980) United States
01141 R-T	K08: Spectrometry		Key, M. H.; Hetchum, R. J. Spectrometry of laser-produced plasmas. p. 201 in <i>Advances in Atomic and Molecular Physics</i> , Vol. 16, D. S. Bates and B. Bederson, Eds. Academic Press, New York, (1980) United Kingdom

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01142 Y	K01: Excitation; Ionization; Electron capture		Meiswitsch, R. L. Relativistic effects in atomic collisions theory. p. 281 in <i>Advances in Atomic and Molecular Physics</i> , Vol. 16, D. R. Bates and R. Bederson, Eds. Academic Press, New York, (1980) United Kingdom
01143 Y	K06: Stark effects		Fortson, E. R.; Wilets, L. Parity nonconservation in atoms: status of theory and experiment. p. 319 in <i>Advances in Atomic and Molecular Physics</i> , Vol. 16, D. R. Bates and R. Bederson, Eds. Academic Press, New York, (1980) United States
01144 Y	K03: Photoionization		Amunin, N. Y. Collective effects in photoionization of atoms. p. 1 in <i>Advances in Atomic and Molecular Physics</i> , Vol. 17, D. R. Bates and R. Bederson, Eds. Academic Press, New York, (1981) Soviet Union
01145 Y	K01: Electron capture		Crothers, D. S. P. Nonadiabatic charge transfer p. 55 in <i>Advances in Atomic and Molecular Physics</i> , Vol. 17, D. R. Bates and R. Bederson, Eds. Academic Press, New York, (1981) United Kingdom
01146 Z-Y	K06: Rydberg states		Feneuille, S.; Jacquinet, P. Atomic Rydberg states. p. 99 in <i>Advances in Atomic and Molecular Physics</i> , Vol. 17, D. R. Bates and R. Bederson, Eds. Academic Press, New York, (1981) France
01147 Z-Y	K03: Excitation; Ionization		Payne, K. G.; Chen, C. H.; Sarkis, G. S.; Volts, J. U. Applications of resonances ionization spectroscopy in atomic and molecular physics. p. 229 in <i>Advances in Atomic and Molecular Physics</i> , Vol. 17, Academic Press, New York, (1981) United States
01148 Z-Y	K01: Excitation; Ionization		Lia, C. D.; Richard, P. Inner-shell vacancy production in ion-atom collisions. p. 275 in <i>Advances in Atomic and Molecular Physics</i> , Vol. 17, D. R. Bates and R. Bederson, Eds. Academic Press, New York, (1981) United States
01149 Z-Y	K01: Excitation K02: Excitation		Dutton, P. L.; Kingston, A. R. Atomic processes in the sun. p. 355 in <i>Advances in Atomic and Molecular Physics</i> , Vol. 17, D. R. Bates and R. Bederson, Eds. Academic Press, New York, (1981) United Kingdom
01150 Y	K02: Scattering		Rosenberg, L. Theory of electron-atom scattering in a radiation field. p. 1 in <i>Advances in Atomic and Molecular Physics</i> , Vol. 18, D. R. Bates and R. Bederson, Eds. Academic Press, New York, (1982) United States
01151 Z	K02: Positron scattering		Stein, T. S.; Kaupilla, R. E. Positron-gas scattering experiments. p. 53 in <i>Advances in Atomic and Molecular Physics</i> , Vol. 18, D. R. Bates and R. Bederson, Eds. Academic Press, New York, (1982) United States
01152 Z-Y	K03: Photoionization		Morrell, J.; Normand, D.; Petite, G. Nonresonant multiphoton ionization of atoms. p. 97 in <i>Advances in Atomic and Molecular Physics</i> , Vol. 18, D. R. Bates and R. Bederson, Eds. Academic Press, New York, (1982) France
01153 Y	K01: Excitation; Scattering		Dickinson, A. S.; Richards, D. Classical and semiclassical methods in intrinsic heavy-particle collisions. p. 145 in <i>Advances in Atomic and Molecular Physics</i> , Vol. 18, D. R. Bates and R. Bederson, Eds. Academic Press, New York, (1982) France
01154 Y	K06: Theory		Junker, R. B. Recent computational development in the use of complex scaling in resonance phenomena. p. 207 in <i>Advances in Atomic and Molecular Physics</i> , Vol. 18, D. R. Bates and R. Bederson, Eds. Academic Press, New York, (1982) United States
01155 Z	K01: Excitation		Andersen, B.; Nielsen, S. E. Direct excitation in atomic collisions: studies of quasi-one-electron systems. p. 265 in <i>Advances in Atomic and Molecular Physics</i> , Vol. 18, D. R. Bates and R. Bederson, Eds. Academic Press, New York, (1982) Denmark
01156 Y	K06: Potentials		Hibbert, J. Model potentials in atomic structure. p. 309 in <i>Advances in Atomic and Molecular Physics</i> , Vol. 18, D. R. Bates and R. Bederson, Eds. Academic Press, New York, (1982) United Kingdom
01157 Y	K02: Scattering		Morcross, D. W.; Collins, L. A. Recent developments in the theory of electron scattering by highly polar molecules. p. 341 in <i>Advances in Atomic and Molecular Physics</i> , Vol. 18, D. R. Bates and R. Bederson, Eds. Academic Press, New York, (1982) United States

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01158 T	K06: Energy levels		Drake, G.W.F. Quantum electrodynamical effects in few-electron atomic systems. p. 399 in <i>Advances in Atomic and Molecular Physics</i> , Vol. 18, D. R. Bates and B. Bederson, Eds. Academic Press, New York, (1982) Canada
01159 T	K01: Electron capture		Branden, B. H.; Janev, R. K. Electron capture in collisions of hydrogen atoms with fully stripped ions. p. 1 in <i>Advances in Atomic and Molecular Physics</i> , Vol. 19, D. R. Bates and B. Bederson, Eds. Academic Press, New York, (1983) United Kingdom
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01161 Z-T	K06: Spectroscopy		Wineland, D. J.; Itano, B. H.; Van Dyck, R. S., Jr. High-resolution spectroscopy of stored ions. p. 135 in <i>Advances in Atomic and Molecular Physics</i> , Vol. 19, D. R. Bates and B. Bederson, Eds. Academic Press, New York, (1983) United States
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01163 T	K01: Interaction potential		Jenc, F. The reduced potential curve method for diatomic molecules and its applications. p. 265 in <i>Advances in Atomic and Molecular Physics</i> , Vol. 19, D. R. Bates and B. Bederson, Eds. Academic Press, New York, (1983) East Germany
01164 Z-T	K02: Excitation		Thompson, D. G. The vibrational excitation of molecules by electron impact. p. 309 in <i>Advances in Atomic and Molecular Physics</i> , Vol. 19, D. R. Bates and B. Bederson, Eds. Academic Press, New York, (1983) United Kingdom
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01166 T	K01: Excitation; Electron capture K02: Scattering; Excitation		Joachain, C. J. Recent progress in theoretical methods for atomic collisions. p. 139 in <i>Atomic and Molecular Physics of Controlled Thermonuclear Fusion</i> , C. J. Joachain and D. E. Post, Eds. Plenum Press, New York, 1983. Belgium
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01168 T	K02: Excitation; Ionization		Bolder, K. T. Experimental aspects of electron impact ionization. p. 213 in <i>Atomic and Molecular Physics of Controlled Thermonuclear Fusion</i> , C. J. Joachain and D. E. Post, Eds. Plenum Press, New York, (1983) United Kingdom
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01170 Z	K01: Electron capture; Ionization		de Heer, F. J. Experiments on electron capture and ionization by multiply charged ions. p. 269 in <i>Atomic and Molecular Physics of Controlled Thermonuclear Fusion</i> , C. J. Joachain and D. E. Post, Eds. Plenum Press, New York, (1983) The Netherlands
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01175 E	K08: Beam heating		Post, R. E.; Pyle, W. Neutral particle beam production and injection. p. 477 in Atomic and Molecular Physics of Controlled Thermonuclear Fusion, C. J. Joachain and D. E. Post, Eds. Plenum Press, New York, (1983) United States
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01188 E	K02: Recombination		Biondi, M. A. Electron-ion recombination in gas lasers. p. 173 in Applied Atomic Collision Physics, Vol. 1, H. W. McDaniel and W. L. Hight, Eds. Academic Press, Inc., New York, (1982) United States

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01190 E	K01: Electron capture; Electron loss; Charge state		Betz, R. D. Heavy ion charge states. p. 1 in Applied Atomic Collision Physics, Vol. 4, S. Datz, Ed. Academic Press, Inc., New York, (1983) West Germany
01191 E	K07: Positive ions; Negative ions		Alton, G. D. Ionization phenomena and sources of ions. p. 43 in Applied Atomic Collision Physics, Vol. 4, S. Datz, Ed. Academic Press, Inc., New York, (1983) United States
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01193 E-1	K04: Scattering; Reflection		Beiland, W.; Taglauer, E. Low energy ion scattering and atomic diffraction. p. 237 in Applied Atomic Collision Physics, Vol. 4, S. Datz, Ed. Academic Press, Inc., New York, (1983) West Germany
01194 E	K04: Scattering; Reflection		Feldman, L. C. High energy ion scattering. p. 261 in Applied Atomic Collision Physics, Vol. 4, S. Datz, Ed. Academic Press, Inc., New York, (1983) United States
01195 E	K04: Excited states		Thomas, R. W. Inelastic surface collisions. p. 299 in Applied Atomic Collision Physics, Vol. 4, S. Datz, Ed. Academic Press, Inc., New York, (1983) United States
01196 E-1	K04: Sputtering		Williams, P. Secondary ion mass spectrometry. p. 327 in Applied Atomic Collision Physics, Vol. 4, S. Datz, Ed. Academic Press, Inc., New York, (1983) United States
01197 E-1	K04: Atomic processes		Tseng, T. T. The time-of-flight atom probe and field ion microscopy. p. 379 in Applied Atomic Collision Physics, Vol. 4, S. Datz, Ed. Academic Press, Inc., New York, (1983) United States
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01199 F	K04: Photoemission		Hegstrom, S. B.; Krause, M. O.; Hanson, S. T. Photoelectron and laser spectroscopy. p. 449 in Applied Atomic Collision Physics, Vol. 4, S. Datz, Ed. Academic Press, Inc., New York, (1983) United States
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01201 E	K06: Negative ions		Linsberger, W. C. Negative ion photoelectron spectroscopy. p. 239 in Applied Atomic Collision Physics, Vol. 5, R.S.W. Massey, R. W. McDaniel, and B. Sederson, Eds. Academic Press, Inc., New York, (1982) United States
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01207 E	K02: Ionization		Khrhardt, E. Electron impact ionization. XIII ICPEAC, Berlin, Invited Papers, p. 21, Elsevier Science Publishing Co., Inc., (1984) West Germany
01208 E	K01: Interchange		Bettner, C. T.; Ramirez, E. S.; Sore, R. W. State-to-state reaction dynamics: $H + D_2 - HD + D$. XIII ICPEAC, Berlin, Invited papers, p. 51, Elsevier Science Publishing Co., Inc., (1984) United States
01209 E	K02: Excitation		Comer, J. Electron energy loss spectroscopy using a position sensitive detector. XIII ICPEAC, Berlin, Invited papers, p. 63, Elsevier Science Publishing Co., Inc., (1984) United Kingdom
01210 E	K02: Scattering		Boshan, R. A. Elastic and inelastic scattering of keV electrons. XIII ICPEAC, Berlin, Invited papers, p. 73, Elsevier Science Publishing Co., Inc., (1984) United States
01211 E	K03: Excitation		Slevin, J. Recent developments in electron photon angular correlations. XIII ICPEAC, Berlin, Invited Papers, p. 85, Elsevier Science Publishing Co., Inc., (1984) United Kingdom
01212 E	K02: Ionization		Crope, A. Angular correlations in inner shell ionization. XIII ICPEAC, Berlin, Invited Papers, p. 97, Elsevier Science Publishing Co., Inc., (1984) United Kingdom
01213 E	K02: Excitation; Ionization		Baith, B. Polarized electron collisions. XIII ICPEAC, Berlin, Invited Papers, p. 107, Elsevier Science Publishing Co., Inc., (1984) West Germany
01214 E	K02: Excitation; Scattering		Lane, R. F. Fundamental advances in the theory of electron-molecule collisions. XIII ICPEAC, Berlin, Invited Papers, p. 127, Elsevier Science Publishing Co., Inc., (1984) United States
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01219 E	K01: Scattering; Electron capture		Reading, J. P.; Ford, A. L.; Smith, J. S.; Becker, R. L. Learning from numerical calculations of ion-atom collisions. XIII ICPEAC, Berlin, Invited Papers, p. 201, Elsevier Science Publishing Co., Inc., (1984) United States
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01226 E	K01: Positrons		Schwahn, G. Positron emission from superheavy quasiatoms. XIII ICPEAC, Berlin, Invited papers, p. 295, Elsevier Science Publishing Co., Inc., (1984) West Germany
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01232 E	K01: Electron capture		Hagmann, S.; Coche, C. L.; Richard, P.; Skutlartz, A.; Kelbch, S.; Schmidt-Bocking, W.; Schuch, R. Quasi-resonant K-K charge transfer. XIII ICPEAC, Berlin, Invited papers, p. 385, Elsevier Science Publishing Co., Inc., (1984) West Germany
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01240 E	K03: Ionization		Normand, D.; Reif, J.; Morillec, J. Multiphoton ionization of atoms. XIII ICPEAC, Berlin, Invited Papers, p. 471, Elsevier Science Publishing Co., Inc., (1984) France
01241 T	K06: Structure		Herrick, D. R. Strong correlations in single atoms and molecules. XIII ICPEAC, Berlin, Invited Papers, p. 487, Elsevier Science Publishing Co., Inc., (1984) United States
01242 E	K08: Diagnostics		Afonosov, V. V. Collisional diagnostics of magnetically confined fusion plasmas. XIII ICPEAC, Berlin, Invited Papers, p. 495, Elsevier Science Publishing Co., Inc., (1984) Soviet Union
01243 E	K04: Excited states		Heiland, W. Radiation from atomic collisions with solids. XIII ICPEAC, Berlin, Invited Papers, p. 511, Elsevier Science Publishing Co., Inc., (1984) East Germany
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01256 E-T	FJ2: Negative ions		Lumay, J. B.; Le Bourneuf, M. Formation and decay of complexes: H_2^- , H_2^+ , PH_2^- . XIII ICPEAC, Berlin, Invited Papers, p. 635, Elsevier Science Publishing Co., Inc., (1984) France
01257 T	K03: Dissociation		Burnett, K. Spectroscopy of collision complexes. XIII ICPEAC, Berlin, Invited Papers, p. 649, Elsevier Science Publishing Co., Inc., (1984) United States
01258 E	A06: $H^+ + H$; $H^+ + H_2$	0.7-50 keV	Jaacks, D. H. Molecules in nonadiabatic collisions. XIII ICPEAC, Berlin, Invited Papers, p. 663, Elsevier Science Publishing Co., Inc., (1984) United States
01259 T	K04: Shape		Andersen, T.; Weitzke, H. P. Shapes of atoms excited in hard or soft collisions. XIII ICPEAC, Berlin, Invited Papers, p. 667, Elsevier Science Publishing Co., Inc., (1984) Denmark
01260 T	A03: $Li^+ + H_2$; $Li^+ + H_2$; $Hg^+ + H_2$; $Hg^+ + He$; $Hg^+ + H_2$	56-517 eV	Hall, T.; Kemmer, R.; Wehrle, H.; Kempter, V. Information on electronic excitation in low-energy Li and Hg-molecule collisions from light polarization studies. XIII ICPEAC, Berlin, Invited Papers, p. 681, Elsevier Science Publishing Co., Inc., (1984) West Germany
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01263 T	K01: Interaction potential		Hau, A.R.P. Threshold laws in atomic physics. XIII ICPEAC, Berlin, Invited Papers, p. 711, Elsevier Science Publishing Co., Inc., (1984) United States
01264 E	K02: Detachment		Head, B. D.; Lykke, K. B.; Lineberger, W. C. Photodetachment threshold laws. XIII ICPEAC, Berlin, Invited Papers, p. 721, Elsevier Science Publishing Co., Inc., (1984) United States
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01267 T	K02: Ionization		Tsukin, A. The Coulomb-dipole theory of the e^- -atom impact ionization threshold law. XIII ICPEAC, Berlin, Invited Papers, p. 755, Elsevier Science Publishing Co., Inc., (1984) United States
01268 T	K02: Ionization		Klar, H. Threshold laws for ionizing collisions in atomic and molecular physics. XIII ICPEAC, Berlin, Invited Papers, p. 767, Elsevier Science Publishing Co., Inc., (1984) West Germany
01269 E	H06: $h\nu + He^+$	4.8-5.2 eV	Rae, Y. K.; Coggiola, M. J.; Peterson, J. S. Near-threshold cross sections for two-electron photoionization of He^+ . XIII ICPEAC, Berlin, Invited Papers, p. 783, Elsevier Science Publishing Co., Inc., (1984) United States
01270 T	K05: $e + Ar$; $e + Xe$	0.01-1 keV	Wippler, R.; Klar, H.; Seew, K.; McGregor, I.; Duncan, A. J.; Klempner, R. Threshold behaviour of $e-Ar$ and $e-Xe$ ionization by electron impact. XIII ICPEAC, Berlin, Invited Papers, p. 789, Elsevier Science Publishing Co., Inc., (1984) United Kingdom

Ref. No.	Reactants	Energy Range	Reference
01271 E	R06: e + Pt ¹⁺	10 ² -8x10 ⁴ eV	Batz, S. Dielectronic recombination: an introduction. XIII ICPHAC, Berlin, Invited Papers, p. 795, Elsevier Science Publishing Co., Inc., (1984) United States
01272 T	R06: e + Hg ⁺	0.0-4.7 eV	Bahn, T. Theory of dielectronic recombination. XIII ICPHAC, Berlin, Invited Papers, p. 801, Elsevier Science Publishing Co., Inc., (1984) United States
01273 E	R06: e + Hg ⁺ ; e + Ca ⁺ ; e + C ⁺	2.2-4.7 eV	Dunn, G. H.; Balic, B. S.; Korgna, F. J.; Miller, D. E.; Tinner, C. Dielectronic recombination of some single charged ions. XIII ICPHAC, Berlin, Invited Papers, p. 809, Elsevier Science Publishing Co., Inc., (1984) United States
01274 E	R06: e + Sr ⁺ ; e + C ⁺	1-20 eV	Dittmar, F. P.; Batz, S.; Miller, P. B.; Hoek, C. B.; Stelson, P. M.; Bottcher, C.; Markovic, S.; Fox, C. E. Cross sections for dielectronic recombination of Sr ⁺ and C ⁺ via 2s - 2p excitation. XIII ICPHAC, Berlin, Invited Papers, p. 819, Elsevier Science Publishing Co., Inc., (1984) United States
01275 E-T	R06: e + Ar ¹⁺ ; e + Ar ¹²⁺ ; e + Ar ¹³⁺ ; e + Ar ¹⁵⁺	2-3.5 keV	Briend, J. P.; Charles, P.; Ariener, J.; Laurent, B.; Goldstein, C.; Dubau, J.; Loulergne, B.; Bely-Sabas, F. Study of the resonant behavior of dielectronic recombination in an EBIT source. XIII ICPHAC, Berlin, Invited Papers, p. 827, Elsevier Science Publishing Co., Inc., (1984) France
01276 T	R06: Undef	Undef	Richman, A. P. Theoretical studies of dielectronic recombination. XIII ICPHAC, Berlin, Invited Papers, p. 833, Elsevier Science Publishing Co., Inc., (1984) United States
01277 T	R02: Scattering		Moore, D. L. Application of the close coupling method to electron-molecule scattering. p. 3 in Electron-Molecule and Photon-Molecule Collisions, T. Rescigno, V. McKoy, and B. Schneider, Eds. Plenum Press, New York, (1979) United Kingdom
01278 T	R02: Scattering		Morrison, M. A. The coupled-channels integral-equations method in the theory of low-energy electron-molecule scattering. p. 15 in Electron-Molecule and Photon-Molecule Collisions, T. Rescigno, V. McKoy, and B. Schneider, Eds. Plenum Press, New York, (1979) United States
01279 T	R02: Scattering		Le Dourneuf, A.; Lee, Y. K. Contribution of the variable phase method to the frame transformation theory of rotational excitation of molecules by electron impact. p. 59 in Electron-Molecule and Photon-Molecule Collisions, T. Rescigno, V. McKoy, and B. Schneider, Eds. Plenum Press, New York, (1979) France
01280 T	R02: Scattering		Schneider, B. Y. The R-matrix method for electron-molecule scattering, theory and computation. p. 77 in Electron-Molecule and Photon-Molecule Collisions, T. Rescigno, V. McKoy, and B. Schneider, Eds. Plenum Press, New York, (1979) United States
01281 T	R02: Scattering		Plifiet, A. S. The T-matrix method in electron-molecule scattering. p. 87 in Electron-Molecule and Photon-Molecule Collisions, T. Rescigno, V. McKoy, and B. Schneider, Eds. Plenum Press, New York, (1979) United States
01282 T	R02: Excitation		Gallup, G.; Sacak, J. The separable approximation in multichannel electron-molecule collisions. p. 109 in Electron-Molecule and Photon-Molecule Collisions, T. Rescigno, V. McKoy, and B. Schneider, Eds. Plenum Press, New York, (1979) United States
01283 T	R02: Scattering; Excitation		Klonover, A.; Kaldor, U. Semiempirical polarization in low-energy electron-molecule scattering theory. p. 123 in Electron-Molecule and Photon-Molecule Collisions, T. Rescigno, V. McKoy, and B. Schneider, Eds. Plenum Press, New York, (1979) Israel
01284 T	R02: Scattering		Beckley, B. D.; Burke, P. G. R-matrix calculations for electron scattering by diatomic molecules. p. 133 in Electron-Molecule and Photon-Molecule Collisions, T. Rescigno, V. McKoy, and B. Schneider, Eds. Plenum Press, New York, (1979) United Kingdom
01285 T	R02: Scattering		Schneider, B. Discussion on Electron-Molecule Scattering. p. 141 in Electron-Molecule and Photon-Molecule Collisions, T. Rescigno, V. McKoy, and B. Schneider, Eds. Plenum Press, New York, (1979) United States

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01286 T	E01: $e + CO$	0.1-6 eV	Choi, S. H.; Pim, R. T. Vibrational excitations of low-energy e-CO scattering. p. 167 in <i>Electron-Molecule and Photon-Molecule Collisions</i> , T. Rescigno, V. McKoy, and B. Schneider, Eds. Plenum Press, New York, (1979) United States
01287 T	E03: $e + H_2$	0.5-6.5 eV	Tushin, A. Improved hybrid theory calculation of e-H ₂ vibrational excitations. p. 173 in <i>Electron-Molecule and Photon-Molecule Collisions</i> , T. Rescigno, V. McKoy, and B. Schneider, Eds. Plenum Press, New York, (1979) United States
01288 T	E03: Ionization		Langhoff, P. W. Stieltjes-tchebycheff moment-theory approach to molecular photoionization studies. p. 183 in <i>Electron-Molecule and Photon-Molecule Collisions</i> , T. Rescigno, V. McKoy, and B. Schneider, Eds. Plenum Press, New York, (1979) United States
01289 T	E02: $e + H_2$; $e + CO_2$ E17: $e + H_2$ E06: $h\nu + H_2$; $h\nu + CO$	E02: 0-100 eV, E1	Behmer, J. L.; Bill, D. The continuum multiple-scattering approach to electron-molecule scattering and molecular photoionization. p. 225 in <i>Electron-Molecule and Photon-Molecule Collisions</i> , T. Rescigno, V. McKoy, and B. Schneider, Eds. Plenum Press, New York, (1979) United States
01290 T	E02: $e + H_2$; $e + H_2$; $e + O_2^-$	Undef	Bardsley, J. N. Molecular resonance phenomena. p. 267 in <i>Electron-Molecule and Photon-Molecule Collisions</i> , T. Rescigno, V. McKoy, and B. Schneider, Eds. Plenum Press, New York, (1979) United States
01291 T	E02: Scattering; Ionization; Recombination E03: Ionization		Burke, P. G. Atomic Processes. p. 1 in <i>Atoms and Molecules in Astrophysics</i> , T. E. Carson and N. J. Roberts, Eds. Academic Press, New York, (1972) United Kingdom
01292 T	E06: Excited states		Percival, I. C. Highly excited atoms. p. 65 in <i>Atoms and Molecules in Astrophysics</i> , T. E. Carson and N. J. Roberts, Eds. Academic Press, New York, (1972) United Kingdom
01293 T	E01: Line broadening		Van Regenmortel, H. Spectral line broadening. p. 65 in <i>Atoms and Molecules in Astrophysics</i> , T. E. Carson and N. J. Roberts, Eds. Academic Press, New York, (1972) France
01294 T	E09: Spectra		Seaton, N. J. The spectra of gaseous nebulae. p. 121 in <i>Atoms and Molecules in Astrophysics</i> , T. E. Carson and N. J. Roberts, Eds. Academic Press, New York, (1972) United Kingdom
01295 T	E06: Transitions		Foley, H. H. Introduction to molecular spectra. p. 155 in <i>Atoms and Molecules in Astrophysics</i> , T. E. Carson and N. J. Roberts Eds. Academic Press, New York, (1972) United States
01296 T	E08: Collisions		Litvak, M. M. Non-equilibrium processes in interstellar molecules. p. 201 in <i>Atoms and Molecules in Astrophysics</i> , T. E. Carson and N. J. Roberts Eds. Academic Press, New York, (1972) United States
01297 T	E08: Recombination		Churchwell, E. Radio recombination lines: an observer's point of view. p. 277 in <i>Atoms and Molecules in Astrophysics</i> , T. E. Carson and N. J. Roberts Eds. Academic Press, New York, (1972) West Germany
01298 T	E06: Spectra		Spicer, R. J. Some recent aspects of spectroscopy at UV and x-ray wavelengths. p. 285 in <i>Atoms and Molecules in Astrophysics</i> , T. E. Carson and N. J. Roberts Eds. Academic Press, New York, (1972) United Kingdom
01299 T	E08: Spectra		Garbriel, A. H. Spectral intensities from helium-like ions. p. 311 in <i>Atoms and Molecules in Astrophysics</i> , T. E. Carson and N. J. Roberts Eds. Academic Press, New York, (1972) United Kingdom
01300 T	E08: Spectra		Olthoff, H. Absorptions in the solar corona. p. 321 in <i>Atoms and Molecules in Astrophysics</i> , T. E. Carson and N. J. Roberts Eds. Academic Press, New York, (1972) The Netherlands
01301 T	J01: Dissociation association; Ionization; Charge exchange J02: Attachment; Recombination; Dimerization		De Jong, T. The formation of H ₂ molecules in dark interstellar clouds. p. 327 in <i>Atoms and Molecules in Astrophysics</i> , T. E. Carson and N. J. Roberts Eds. Academic Press, New York, (1972) The Netherlands

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01302 E	D09: H + H	5 K	Schutte, A. Formation of molecular hydrogen on cold surfaces. p. 337 in Atoms and Molecules in Astrophysics, T. E. Carson and N. J. Roberts Eds. Academic Press, New York, (1972) Italy
01303 T	K02: Ionization		McCarthy, I. E. Theory of (e, 2e) experiments. p. 1 in Coherence and Correlation in Atomic Collisions, M. Kleinpoppen and J. F. Williams, Eds. Plenum Press, New York, (1980) Australia
01304 E	K02: Ionization		Harhardt, H.; Jung, E.; Schubert, E. Low-energy electron impact ionization with completely determined kinematics. p. 41 in Coherence and Correlation in Atomic Collisions, M. Kleinpoppen and J. F. Williams, Eds. Plenum Press, New York, (1980) West Germany
01305 E	E03: e + H E05: e + H F17: e + H	40-100 eV	Weigold, E. Coincidence investigations of electron-hydrogen collisions. p. 59 in Coherence and Correlation in Atomic Collisions, M. Kleinpoppen and J. F. Williams, Eds. Plenum Press, New York, (1980) Australia
01306 T	E05: Undef	Undef	Klar, H. Correlation in multiple escape near threshold. p. 67 in Coherence and Correlation in Atomic Collisions, M. Kleinpoppen and J. F. Williams, Eds. Plenum Press, New York, (1980) West Germany
01307 T	E06: 2hv + He*	5016-5045 Å	Nather, K. C. Interference effects in the multiphoton ionization of atoms. p. 79 in Coherence and Correlation in Atomic Collisions, M. Kleinpoppen and J. F. Williams, Eds. Plenum Press, New York, (1980) India
01308 E-T	E03: e + He*	30-100 eV	Golden, D. E.; Steph, M. C. Correlation in electron-atom excitation. p. 85 in Coherence and Correlation in Atomic Collisions, M. Kleinpoppen and J. F. Williams, Eds. Plenum Press, New York, (1980) United States
01309 E	E03: e + He; e + H	81.2 eV	Hollywood, M. T.; Crowe, A.; Williams, J. F. Angular correlation parameters for excitation of the 2 ¹ P state of helium and the 2 _g state of atomic hydrogen. p. 97 in Coherence and Correlation in Atomic Collisions, M. Kleinpoppen and J. F. Williams, Eds. Plenum Press, New York, (1980) United Kingdom
01310 E	E03: e + He; e + Kr; e + N E17: e + He; e + Kr; e + N	36-500 eV	Kleinpoppen, M.; McGregor, I. New aspects in electron-photon coincidence experiments. p. 109 in Coherence and Correlation in Atomic Collisions, M. Kleinpoppen and J. F. Williams, Eds. Plenum Press, New York, (1980) West Germany
01311 T	E03: Undef	Undef	Kienhuis, G. The possibility of a complete determination of scattering amplitudes for S + D excitation by electron-photon coincidence measurements. p. 121 in Coherence and Correlation in Atomic Collisions, M. Kleinpoppen and J. F. Williams, Eds. Plenum Press, New York, (1980) The Netherlands
01312 T	E03: Undef	Undef	Blas, E. Threshold and pseudothreshold excitation of molecules by electron impact. p. 133 in Coherence and Correlation in Atomic Collisions, M. Kleinpoppen and J. F. Williams, Eds. Plenum Press, New York, (1980) West Germany
01313 E	E03: e + Ar; e + N ₂	40-200 eV	McConkey, J. S.; Malcola, I. C. Polarization correlation measurements in Ar and N ₂ . p. 145 in Coherence and Correlation in Atomic Collisions, M. Kleinpoppen and J. F. Williams, Eds. Plenum Press, New York, (1980) Canada
01314 T	E03: e + He	50-80 eV	Neese, G. D.; Casnek, C. The calculation of orientation and alignment parameters for the electron impact excitation of the 3 ¹ p state of He in the first-order many-body theory. p. 179 in Coherence and Correlation in Atomic Collisions, M. Kleinpoppen and J. F. Williams, Eds. Plenum Press, New York, (1980) Brazil
01315 E	E03: e + C; e + Au; e + Ag; e + Al	140-300 keV	Sakel, W. Electron-photon correlations in bremsstrahlung processes. p. 187 in Coherence and Correlation in Atomic Collisions, M. Kleinpoppen and J. F. Williams, Eds. Plenum Press, New York, (1980) West Germany

Ref. No.	Reactants	Energy Range	Reference
01316 F	E03: $e + \text{Xe}; e + \text{Kr}$	5-15 keV	Aydinol, M.; Nippker, L.; McGregor, L.; Kleinpoppen, H. Angular distribution and polarization of x-ray radiation by electron impact on free atoms. p. 295 in Coherence and Correlation in Atomic Collisions, H. Kleinpoppen and J. F. Williams, Eds. Plenum Press, New York, (1980) West Germany
01317 E	E05: $e + \text{Kr}$	1-50 keV	Sander, M.; Weber, M.; Mohlhorst, H. Energy dependence of the alignment in inner-shell ionization by electron impact. p. 215 in Coherence and Correlation in Atomic Collisions, H. Kleinpoppen and J. F. Williams, Eds. Plenum Press, New York, (1980) West Germany
01318 F	A07: $\text{He}^+ + \text{He}$	1-6 keV	Borgenstern, H.; Niehaus, L. Angular correlation between autoionization electrons and scattered ion in slow $\text{He}^+ - \text{He}$ collision. p. 279 in Coherence and Correlation in Atomic Collisions, H. Kleinpoppen and J. F. Williams, Eds. Plenum Press, New York, (1980) The Netherlands
01319 T	K02: Scattering		Wozniak, M. Electronic correlation in electron-atom scattering. p. 269 in Coherence and Correlation in Atomic Collisions, H. Kleinpoppen and J. F. Williams, Eds. Plenum Press, New York, (1980) United States
01320 T	E04: $e + \text{He}$	80-100 eV	Roy, D. Observation of the postcollision interaction in the scattered-electron spectra of helium. p. 277 in Coherence and Correlation in Atomic Collisions, H. Kleinpoppen and J. F. Williams, Eds. Plenum Press, New York, (1980) Canada
01321 T	E05: $e + \text{Ne}; e + \text{Ar}$ E17: $e + \text{Ne}; e + \text{Ar}$	Undef	Salashov, V. V.; Gruzdevskiy, A. M.; Kabachnik, M. N.; Sagunov, A. I.; Strakhova, S. I. Excitation of autoionizing states in noble gases by fast electrons. p. 283 in Coherence and Correlation in Atomic Collisions, H. Kleinpoppen and J. F. Williams, Eds. Plenum Press, New York, (1980) Soviet Union
01322 F	A03: $\text{H}^+ + \text{Xe}$ A07: $\text{He}^+ + \text{He}; \text{He}^+ + \text{O}_2; \text{Mg}^+ + \text{He};$ $\text{H}^+ + \text{H}_2; \text{Na}^+ + \text{He}; \text{Ar} + \text{Ar}$ A18: $\text{He}^+ + \text{He}; \text{He}^+ + \text{O}_2; \text{Mg}^+ + \text{He};$ $\text{H}^+ + \text{H}_2; \text{Na}^+ + \text{He}; \text{Ar} + \text{Ar}$	A03: 350 keV, A07	Lutz, H. G.; Lutz, H.; Sachmann, S.; Jitschin, W.; Nippker, H. Coincidence studies of inner-shell excitations in ion-atom collisions. p. 315 in Coherence and Correlation in Atomic Collisions, H. Kleinpoppen and J. F. Williams, Eds. Plenum Press, New York, (1980) West Germany
01323 E	A07: $\text{Be}^+ + \text{He}; \text{Be}^+ + \text{CH}_4$	100-500 keV	Blagard, P.; Bruch, M.; Dahl, P.; Rodbro, H. Alignment of core-excited autoionizing Be^+ projectiles excited in single gas collisions. p. 361 in Coherence and Correlation in Atomic Collisions, H. Kleinpoppen and J. F. Williams, Eds. Plenum Press, New York, (1980) Denmark
01324 E	A03: $\text{Mg}^+ + \text{He}; \text{Mg}^+ + \text{Ne}; \text{Mg}^+ + \text{Ar}$	3-15 keV	Andersen, M.; Andersen, T.; Cocke, C. L.; Borstad-Pedersen, E. Polarized-photon, scattered-ion coincidence study of Mg^+ collisions with He, Ne, and Ar. p. 395 in Coherence and Correlation in Atomic Collisions, H. Kleinpoppen and J. F. Williams, Eds. Plenum Press, New York, (1980) Denmark
01325 F-T	K01: Electron capture; ionization		Wotthsch, C. Coherence effects in heavy-ion-atom collisions. p. 403 in Coherence and Correlation in Atomic Collisions, H. Kleinpoppen and J. F. Williams, Eds. Plenum Press, New York, (1980) United States
01326 F	A03: $\text{Na}^+ + \text{Cl}$	0.01-30 keV	Aquilanti, V.; Casavacchia, P.; Grossi, G. Excitation of $\text{Cd}(5^3\text{P}_2)$ and $\text{Cd}(5^1\text{P}_1)$ in $\text{Na}^+ - \text{Cd}$ collisions: optical polarization and population of magnetic sublevels. p. 413 in Coherence and Correlation in Atomic Collisions, H. Kleinpoppen and J. F. Williams, Eds. Plenum Press, New York, (1980) Italy
01327 E	A06: $\text{Ne}^+ + \text{Cs}$	1-6 keV	Schwenker, H. A. Spin polarization in ion-atom collisions studied with ion storage techniques. p. 423 in Coherence and Correlation in Atomic Collisions, H. Kleinpoppen and J. F. Williams, Eds. Plenum Press, New York, (1980) United States
01328 E	A17: $\text{Na}^+ + \text{Mg}; \text{Na}^+ + \text{Ar}$ A19: $\text{Na}^+ + \text{Mg}; \text{Na}^+ + \text{Ar}$	Thermal	Drees, S. Scattering experiments with laser-excited atoms. p. 437 in Coherence and Correlation in Atomic Collisions, H. Kleinpoppen and J. F. Williams, Eds. Plenum Press, New York, (1980) West Germany
01329 E	A03: $\text{H}^+ + \text{He}; \text{H}^+ + \text{Ar}; \text{H}^+ + \text{O}$ A06: $\text{H}^+ + \text{He}; \text{H}^+ + \text{Ar}; \text{H}^+ + \text{O}$	110-290 keV	Liljebj, L.; Hansson, S.; Walthers, F.; Sellin, I. A. Orbital angular momentum state coherence in charge transfer to the $n = 2$ hydrogen levels by fast protons in gases. p. 447 in Coherence and Correlation in Atomic Collisions, H. Kleinpoppen and J. F. Williams, Eds. Plenum Press, New York, (1980) Sweden

Ref. No.	Reactants	Energy Range	Reference
01330 E	A03: K + He; K + Be; K + Ar	Thermal	Zehele, L.; Clossens, K.; Martin, P. J.; Schauble, H.; Knapter, V. Photon-scattered atom coincidence study with vector polarization analysis for K-noble-gas collisions. p. 457 in Coherence and Correlation in Atomic Collisions, H. Kleinpoppen and J. F. Williams, Eds. Plenum Press, New York, (1980) West Germany
01331 E	A03: He ⁺ + Be; He ⁺ + H ₂	1.5-3.0 keV	Jaacks, B. H.; Erikson, V.; Fornari, L. Alignment and orientation measurements in He ⁺ -Be and He ⁺ -H ₂ collisions. p. 473 in Coherence and Correlation in Atomic Collisions, H. Kleinpoppen and J. F. Williams, Eds. Plenum Press, New York, (1980) United States
01332 E	E03: e + hv + H T08: hv + e + H	E03: 0-500 eV, H0	Faisal, F. H. S. Simultaneous electron-photon excitation of atoms. p. 479 in Coherence and Correlation in Atomic Collisions, H. Kleinpoppen and J. F. Williams, Eds. Plenum Press, New York, (1980) East Germany
01333 E	A03: O ⁺ + He; Na ⁺ + He; He ⁺ + Be; He ⁺ + He	0.3-15 keV	Hasseltrop, D.; Scharmann, A.; Schartner, K. H. Oscillatory structure of excitation functions in atomic collisions. p. 509 in Coherence and Correlation in Atomic Collisions, H. Kleinpoppen and J. F. Williams, Eds. Plenum Press, New York, (1980) West Germany
01334 E	A03: Na ⁺ + He D08: H ⁺ + Pb; H ₂ ⁺ + Pb; H ₂ ⁺ + Pb; He ⁺ + Pb	A03: 200-7000 eV	Tolk, H.; Kraus, J. Quantum mechanical phase coherence and polarization in low-energy ion-atom and ion-surface collisions. p. 533 in Coherence and Correlation in Atomic Collisions, H. Kleinpoppen and J. F. Williams, Eds. Plenum Press, New York, (1980) United States
01335 E	E02: e + Li	1.36 eV	Smith, W.; Bess, G.; Caldwell, D.; Kisker, E. Polarized electron-lithium scattering. p. 567 in Coherence and Correlation in Atomic Collisions, H. Kleinpoppen and J. F. Williams, Eds. Plenum Press, New York, (1980) East Germany
01336 E-T	K02: Scattering K03: Ionisation		Kessler, J. Polarization effects caused by interference in electron scattering and photoionization. p. 577 in Coherence and Correlation in Atomic Collisions, H. Kleinpoppen and J. F. Williams, Eds. Plenum Press, New York, (1980) West Germany
01337 E	E02: e + Hg E03: e + Hg	4.55-5.51 eV	Reichert, E. Spin polarization of electrons by resonance scattering from mercury. p. 587 in Coherence and Correlation in Atomic Collisions, H. Kleinpoppen and J. F. Williams, Eds. Plenum Press, New York, (1980) West Germany
01338 E-T	K02: Scattering		Bano, G. F. Spin-dependent inelastic electron-atom scattering. p. 593 in Coherence and Correlation in Atomic Collisions, H. Kleinpoppen and J. F. Williams, Eds. Plenum Press, New York, (1980) West Germany
01339 E	E02: e + Na ⁺ E03: e + Na ⁺	1-3 eV	Jaduszliwer, B.; Dang, B.; Weiss, F.; Pedersen, B. Total cross sections for the scattering of low-energy electrons by excited sodium atoms. p. 613 in Coherence and Correlation in Atomic Collisions, H. Kleinpoppen and J. F. Williams, Eds. Plenum Press, New York, (1980) United States
01340 E	A03: Na ⁺ + H ₂ ; Na ⁺ + D ₂ ; Na ⁺ + H ₂ E03: e + Na ⁺	A03: 140 meV, T03	Bermann, H. H.; Hertel, I. V. Orientation and alignment in scattering processes from laser-excited atoms. p. 625 in Coherence and Correlation in Atomic Collisions, H. Kleinpoppen and J. F. Williams, Eds. Plenum Press, New York, (1980) West Germany
01341 E	E02: e + Ba ⁺	30-100 eV	Registe, D. F.; Trajmar, S.; Jones, S. W.; Poe, R. F. Photon polarization dependence of superelastic electron scattering by laser-excited barium. p. 641 in Coherence and Correlation in Atomic Collisions, H. Kleinpoppen and J. F. Williams, Eds. Plenum Press, New York, (1980) United States
01342 E	E02: e + K	Undef	Rubin, K.; Efremov, I. The effect of the angular coherence of each beam, in a crossed beam experiment, on observations of the small-angle elastic scattering. p. 651 in Coherence and Correlation in Atomic Collisions, H. Kleinpoppen and J. F. Williams, Eds. Plenum Press, New York, (1980) United States
01343 E	E05: e + H	15-197 eV	Luwell, H. S. Polarized-beam studies of spin exchange in electron-hydrogen collisions. p. 663 in Coherence and Correlation in Atomic Collisions, H. Kleinpoppen and J. F. Williams, Eds. Plenum Press, New York, (1980) United States

Ref. No.	Reactants	Energy Range	Reference
01344 E	R05: $e + \text{Li}; e + \text{Na}$	6-80 eV	Mills, R.; Rubin, E.; Kleinpoppen, H. Ionization of polarized alkali atoms by polarized electrons. p. 689 in Coherence and Correlation in Atomic Collisions, H. Kleinpoppen Plenum Press, New York, (1976) United Kingdom
01345 E-?	R02: Scattering; Excitation R03: Ionization; Detachment		Burke, P. G. Effects of configuration interaction on electron and photon interactions with atoms. p. 1 in Electron and Photon Interactions with Atoms, H. Kleinpoppen and H.E.C. McDowell, Eds. Plenum Press, New York, (1976) United Kingdom
01346 T	R02: Scattering; Attachment		Seabert, R. E.; Thomas, L. D. Low-energy electron scattering and attachment by C, S, and O atoms. p. 27 in Electron and Photon Interactions with Atoms, H. Kleinpoppen and H.E.C. McDowell, Eds. Plenum Press, New York, (1976) United Kingdom
01347 T	R02: Ionization		Bottcher, C. The ejection of electrons from autoionizing states in atoms. p. 35 in Electron and Photon Interactions with Atoms, H. Kleinpoppen and H.E.C. McDowell, Eds. Plenum Press, New York, (1976) United Kingdom
01348 T	R03: Ionization		Harr, G. V. The study of photoionization processes using synchrotron radiation. p. 39 in Electron and Photon Interactions with Atoms, H. Kleinpoppen and H.E.C. McDowell, Eds. Plenum Press, New York, (1976) United Kingdom
01349 E	R04: $h\nu + \text{Xe}; h\nu + \text{Ba}$	64-140 Å	Kruger, D. L.; Kucharski, T. J.; Salomon, L. B.; Madden, R. P.; Samalis, H.; Segur, J. Photoabsorption of the 5d electrons in xenon and barium: a comparison. p. 69 in Electron and Photon Interactions with Atoms, H. Kleinpoppen and H.E.C. McDowell, Eds. Plenum Press, New York, (1976) United States
01350 T	R06: $e + \text{S}; e + \text{O}$	Undef	Bill, D.; Starace, A. F.; Hanson, S. T. Effects of anisotropic electron-ion interaction on the photoelectron angular distribution of open-shell atoms. p. 83 in Electron and Photon Interactions with Atoms, H. Kleinpoppen and H.E.C. McDowell, Eds. Plenum Press, New York, (1976) United States
01351 E	R03: Ionization; Excitation		Krause, M. O.; Vailheunier, P. Study of atomic subshell properties by electron spectroscopy. p. 89 in Electron and Photon Interactions with Atoms, H. Kleinpoppen and H.E.C. McDowell, Eds. Plenum Press, New York, (1976) United States
01352 T	R03: Ionization		Dubau, J. Quantum defect theory: photoionization p. 99 in Electron and Photon Interactions with Atoms, H. Kleinpoppen and H.E.C. McDowell, Eds. Plenum Press, New York, (1976) France
01353 E	R07: $h\nu + \text{Li}^-; h\nu + \text{Na}^-; h\nu + \text{K}^-$	0.2×10^4 $- 2.6 \times 10^4 \text{ Å}$	Moore, S. L. Electron-alkali scattering and photodetachment of alkali negative ions. p. 109 in Electron and Photon Interactions with Atoms, H. Kleinpoppen and H.E.C. McDowell, Eds. Plenum Press, New York, (1976) United Kingdom
01354 E	R07: $h\nu + \text{Se}^-; h\nu + \text{Cs}^-$	14×10^3 $- 19 \times 10^3 \text{ cm}^{-1}$	Linsberger, W. C.; Kotop, M.; Patterson, T. A. Photodetachment threshold processes. p. 125 in Electron and Photon Interactions with Atoms, H. Kleinpoppen and H.E.C. McDowell, Eds. Plenum Press, New York, (1976) United States
01355 E	R06: $h\nu + \text{Ne}; h\nu + \text{Ar}; h\nu + \text{Kr}; h\nu + \text{Xe}$	30-110 eV	Samson, J.A.E.; Eaddad, G. H. Multiple photoionization of the rare gases. p. 133 in Electron and Photon Interactions with Atoms, H. Kleinpoppen and H.E.C. McDowell, Eds. Plenum Press, New York, (1976) United States
01356 T	R05: $e + \text{Ar}; e + \text{Ne}; e + \text{Kr}$	400-1200 eV	Giamini Guidoni, A.; Alessi, G.; Casillo, S.; Stefani, G. Study of atomic structure by means of (e, 2e) impulsive reactions. p. 149 in Electron and Photon Interactions with Atoms, H. Kleinpoppen and H.E.C. McDowell, Eds. Plenum Press, New York, (1976) Italy
01357 T	R07: $e + \text{Na}; e + \text{K}; e + \text{Xe}$	1.5-100 eV	Kranz, S. H. Phase shift analysis and dispersion relations. p. 161 in Electron and Photon Interactions with Atoms, H. Kleinpoppen and H.E.C. McDowell, Eds. Plenum Press, New York, (1976) United Kingdom

Ref. No.	Reactants	Energy Range	Reference
01358 Z	E02: $e + He; e + Ne; e + Ar$	100-3000 eV	Van Vingerden, B.; de Meer, F. J.; Jansen, H.H.J.; Los, J. Testing of classical and quantum-mechanical criteria for elastic scattering of electrons by noble gases. p. 185 in Electron and Photon Interactions with Atoms, H. Kleinpoppen and H.R.C. McDowell, Eds. Plenum Press, New York, (1976) The Netherlands
01359 Z	E02: $e + Li; e + Na$	0.6-10 eV	Bederson, B.; Miller, T. M. Spin polarization in electron-atom scattering. p. 191 in Electron and Photon Interactions with Atoms, H. Kleinpoppen and H.R.C. McDowell, Eds. Plenum Press, New York, (1976) United States
01360 T	E02: $e + H; e + CH$	1.4-100 eV	Walker, D. M. Conservation of total spin in electron-atom collisions. p. 203 in Electron and Photon Interactions with Atoms, H. Kleinpoppen and H.R.C. McDowell, Eds. Plenum Press, New York, (1976) United Kingdom
01361 Z	E02: $e + He; e + Kr; e + Xe; e + Rg$	4.0-16.3 eV	Reichert, E. Spin polarization of electrons by resonance scattering. p. 215 in Electron and Photon Interactions with Atoms, H. Kleinpoppen and H.R.C. McDowell, Eds. Plenum Press, New York, (1976) West Germany
01362 T	E02: $e + He$	15.9-16.3 eV	Suzuki, T.; Tanaka, H.; Saito, H.; Igawa, S. Influence of spin polarization on resonance scattering by neon. p. 229 in Electron and Photon Interactions with Atoms, H. Kleinpoppen and H.R.C. McDowell, Eds. Plenum Press, New York, (1976) Japan
01363 T	E03: $e + H; e + He$	10-500 eV	McDowell, H.R.C. Electron impact excitation of light atoms at intermediate energies. p. 245 in Electron and Photon Interactions with Atoms, H. Kleinpoppen and H.R.C. McDowell, Eds. Plenum Press, New York, (1976) United Kingdom
01364 T	E03: $e + H; e + He$	10-500 eV	Flannery, H. R.; McCann, E. J. The multichannel eikonal treatment of electron-atom collisions. p. 275 in Electron and Photon Interactions with Atoms, H. Kleinpoppen and H.R.C. McDowell, Eds. Plenum Press, New York, (1976) United States
01365 T	E02: $e + H; e + He$ E03: $e + H; e + He$	100-500 eV	Byron, F. W., Jr. Recent progress in the application of eikonal-Born series methods in atomic physics. p. 285 in Electron and Photon Interactions with Atoms, H. Kleinpoppen and H.R.C. McDowell, Eds. Plenum Press, New York, (1976) United States
01366 T	E03: $e + He; e + H$	200-500 eV	Byron, F. W., Jr.; Joachain, C. J. Ab initio optical theory of elastic electron-atom scattering. p. 299 in Electron and Photon Interactions with Atoms, H. Kleinpoppen and H.R.C. McDowell, Eds. Plenum Press, New York, (1976) United States
01367 T	E02: $e + H$ E03: $e + H$	E02: 1.2-100 eV, E03:	Williams, J. P. The scattering of electrons from hydrogen atoms. p. 309 in Electron and Photon Interactions with Atoms, H. Kleinpoppen and H.R.C. McDowell, Eds. Plenum Press, New York, (1976) United Kingdom
01368 Z	B01: $H; D$		Drake, G.W.F.; Van Vingerden, A.; Farago, P. S. On the anisotropy of the quenching radiation from metastable hydrogen and deuterium atoms. p. 339 in Electron and Photon Interactions with Atoms, H. Kleinpoppen and H.R.C. McDowell, Eds. Plenum Press, New York, (1976) Canada
01369 Z	E03: $e + He$ E17: $e + He$	30-50 eV	Joyez, G.; Huets, A.; Pichou, P.; Hameau, J. New measurements of differential and integral cross sections for electron impact excitation of the $n = 2$ states of helium. p. 349 in Electron and Photon Interactions with Atoms, H. Kleinpoppen and H.R.C. McDowell, Eds. Plenum Press, New York, (1976) France
01370 Z	B07: $e + H$ E03: $e + H$	E03: 500 eV	Smith, S. J. Coherent electron impact excitation of different L states in the $n = 3$ shell of atomic hydrogen. p. 365 in Electron and Photon Interactions with Atoms, H. Kleinpoppen and H.R.C. McDowell, Eds. Plenum Press, New York, (1976) United States
01371 Z	E17: $e + He^+$	Undef	Bertel, J. V. Details of collision dynamics from the electron scattering by laser-excited sodium atoms. p. 375 in Electron and Photon Interactions with Atoms, H. Kleinpoppen and H.R.C. McDowell, Eds. Plenum Press, New York, (1976) West Germany

Ref. No.	Reactants	Energy Range	Reference
01372 T	R01: e + H; e + He R05: e + H; e + He	10-257 eV	Geltman, S. Excitation and ionization in the Coulomb-projected Born approximation. p. 387 in Electron and Photon Interactions with Atoms, H. Kleinpoppen and H.R.C. McDowell, Eds. Plenum Press, New York, (1976) United States
01373 T	R05: e + He	257 eV	Phillips, D. H.; McDowell, H.R.C. Calculations of triple differential cross sections. p. 397 in Electron and Photon Interactions with Atoms, H. Kleinpoppen and H.R.C. McDowell, Eds. Plenum Press, New York, (1976) United Kingdom
01374 T	R05: e + He	257 eV	Jacobs, V. L. Differential cross sections for electron impact ionization of helium. p. 411 in Electron and Photon Interactions with Atoms, H. Kleinpoppen and H.R.C. McDowell, Eds. Plenum Press, New York, (1976) United States
01375 T	R02: e + H	0.1-11 eV	Le Dourneuf, M.; Van Regenmortel, H.; Lam, V. K. The polarized frozen target and polarized frozen core methods in low-energy electron scattering and in atomic structure calculations. p. 415 in Electron and Photon Interactions with Atoms, H. Kleinpoppen and H.R.C. McDowell, Eds. Plenum Press, New York, (1976) France
01376 E	R01: e + H; e + He R17: e + H; e + He	29.2-39.7 eV	Taylor, H. S.; Chutjian, A.; Thomas, L. D. Progress report on the use of the many-body theory in inelastic scattering from atoms. p. 435 in Electron and Photon Interactions with Atoms, H. Kleinpoppen and H.R.C. McDowell, Eds. Plenum Press, New York, (1976) United States
01377 E	R01: e + Hg	5-16 eV	Hanne, G. F.; Kessler, J. Direct observation of exchange scattering by spin flip of polarized electrons in excitation of mercury. p. 445 in Electron and Photon Interactions with Atoms, H. Kleinpoppen and H.R.C. McDowell, Eds. Plenum Press, New York, (1976) West Germany
01378 E-T	R01: e + He R02: Excitation	40-200 eV	Zwinyan, M.; Kleinpoppen, H.; Slevin, J.; Staadage, M. C. Electron-photon coincidence technique for electron impact on atoms. p. 455 in Electron and Photon Interactions with Atoms, H. Kleinpoppen and H.R.C. McDowell, Eds. Plenum Press, New York, (1976) France
01379 T	R02: Excitation		Kacoh, J. Theory of measurement of isopact radiation on atoms. p. 485 in Electron and Photon Interactions with Atoms, H. Kleinpoppen and H.R.C. McDowell, Eds. Plenum Press, New York, (1976) United States
01380 T	R02: Excitation		Blus, K.; Kleinpoppen, H. On the theory of electron-photon coincidence experiments. p. 501 in Electron and Photon Interactions with Atoms, H. Kleinpoppen and H.R.C. McDowell, Eds. Plenum Press, New York, (1976) United Kingdom
01381 T	R01: Excitation		Berry, H. G.; Curtis, L. J.; Ellis, D. G.; Schectman, R. M. Spatial asymmetries in atomic collisions. p. 515 in Electron and Photon Interactions with Atoms, H. Kleinpoppen and H.R.C. McDowell, Eds. Plenum Press, New York, (1976) United States
01382 T	R07: Review R07: Review		Lambropoulos, P.; Lambropoulos, M. Atoms in intense electromagnetic fields. p. 525 in Electron and Photon Interactions with Atoms, H. Kleinpoppen and H.R.C. McDowell, Eds. Plenum Press, New York, (1976) United States
01383 T	R01: Review		Gersten, J.; Hittleman, H. The effect of multimode laser operation on multiphoton absorption by atoms. p. 553 in Electron and Photon Interactions with Atoms, H. Kleinpoppen and H.R.C. McDowell, Eds. Plenum Press, New York, (1976) United States
01384 T	R06: 2hv + Ti; 2hv + Na R01: Ionization	Undef	Berry, H. S. Two-photon processes. p. 559 in Electron and Photon Interactions with Atoms, H. Kleinpoppen and H.R.C. McDowell, Eds. Plenum Press, New York, (1976) United States
01385 P	R06: 2hv + Cs*	Undef	Zeman, M. D. Electron spin polarization from multiple photoionization processes. p. 581 in Electron and Photon Interactions with Atoms, H. Kleinpoppen and H.R.C. McDowell, Eds. Plenum Press, New York, (1976) West Germany

Ref. No.	Reactants	Energy Range	Reference
01386 T	X02: Undef	Undef	Batsuzava, N.; Isokuti, M. Total cross section for elastic scattering of fast charged particles by a neutral atom. p. 595 in Electron and Photon Interactions with Atoms, H. Kleinpoppen and H.R.C. McDowell, Eds. Plenum Press, New York, (1976) United States
01387 T	X02: Undef	Undef	Drakarev, G. Backscattering of slow electrons by positive ions. p. 609 in Electron and Photon Interactions with Atoms, H. Kleinpoppen and H.R.C. McDowell, Eds. Plenum Press, New York, (1976) Soviet Union
01388 E	D04: Be + C; Be ⁺ + C; Be ²⁺ + C	300 keV	Bruch, R.; Paul, G.; Andra, J.; Fricke, H. Auger spectroscopy of foil-excited beryllium ions. p. 621 in Electron and Photon Interactions with Atoms, H. Kleinpoppen and H.R.C. McDowell, Eds. Plenum Press, New York, (1976) West Germany
01389 T-T	X02: e + He; e + He	0-24.6 eV	Golden, D. E. Resonances and cusps in electron impact on atoms. p. 639 in Electron and Photon Interactions with Atoms, H. Kleinpoppen and H.R.C. McDowell, Eds. Plenum Press, New York, (1976) United States
01390 E	X02: e + He	19.7-25.6 eV	Read, F. H. High-resolution studies of electron-atom collisions. p. 651 in Electron and Photon Interactions with Atoms, H. Kleinpoppen and H.R.C. McDowell, Eds. Plenum Press, New York, (1976) United Kingdom
01391 E	E03: e + Xe	8-14 eV	Swanson, H.; Colotta, R. J.; Kuyatt, C. E. Electron excitation of xenon near threshold. p. 661 in Electron and Photon Interactions with Atoms, H. Kleinpoppen and H.R.C. McDowell, Eds. Plenum Press, New York, (1976) United States
01392 E	X03: e + He	40-50 eV	Reidman, H.C.H.; Van Vierssen, T. Resonances in the excitation of He by electrons at energies between 40 and 50 eV. p. 669 in Electron and Photon Interactions with Atoms, H. Kleinpoppen and H.R.C. McDowell, Eds. Plenum Press, New York, (1976) The Netherlands
01393 E	X03: e + He	23.5-24.4 eV	Heddie, D.R.C. Resonance series in helium. p. 671 in Electron and Photon Interactions with Atoms, H. Kleinpoppen and H.R.C. McDowell, Eds. Plenum Press, New York, (1976) United Kingdom
01394	X01: Fluorescence		Henninger, H. Electronic chemiluminescence in gases. Adv. Chem. Phys. 42, 1 (1980) Canada
01395	X06: Potential surfaces		Collip, J. C. Semiempirical diatomic-in-molecules potential energy surfaces. Adv. Chem. Phys. 42, 63 (1980) United States
01396	X01: Interchange		Lin, M. C. Dynamics of oxygen atom reactions. Adv. Chem. Phys. 42, 113 (1980) United States
01397	X06: Potential surfaces		Butcher, C. Excited-state potential surfaces and their applications. Adv. Chem. Phys. 42, 169 (1980) United States
01398	X01: De-excitation		Freed, R. P. Collisional effects on electronic relaxation processes. Adv. Chem. Phys. 42, 101 (1980) United States
01399	X01: Excitation		DePristo, A. E.; Rabitz, H. Vibrational and rotational collision processes. Adv. Chem. Phys. 42, 271 (1980) United States
01400	X06: Potential surfaces		LeRoy, B. J.; Carley, J. S. Spectroscopy and potential energy surfaces of van der Waals molecules. Adv. Chem. Phys. 42, 353 (1980) Canada
01401	X01: Scattering		Loomch, H. Scattering of non-spherical molecules. Adv. Chem. Phys. 42, 421 (1980) West Germany
01402	X01: Ionization		Lacmann, K. Collisional ionization. Adv. Chem. Phys. 42, 513 (1980) West Germany
01403	X01: Interchange		Jortner, J.; Levine, R. D. Photochemical chemistry. Adv. Chem. Phys. 47 Part I, 1 (1981) Israel

Ref. No.	Reactants	Energy Range	Reference
01404	K01: Energy transfer		Rice, S. A. An overview of the dynamics of intramolecular transfer of vibrational energy. Adv. Chem. Phys. 47 Part I, 117 (1981) United States
01405	K01: Energy transfer		Brunner, P. Intramolecular energy transfer: theories for the onset of statistical behavior. Adv. Chem. Phys. 47 Part I, 201 (1981) Canada
01406	K01: Interchange		Levine, R. D. The information theoretic approach to intramolecular dynamics. Adv. Chem. Phys. 47 Part I, 239 (1981) Israel
01407	K06: Potential surfaces		Levy, D. H. Van Der Waals molecules. Adv. Chem. Phys. 47 Part I, 323 (1981) United States
01408	K01: Interchange		Beswick, J. A.; Jortner, J. Intramolecular dynamics of Van Der Waals molecules. Adv. Chem. Phys. 47 Part I, 363 (1981) France
01409	K03: Excitation; Dissociation		Bukamel, S. Reduced equations of motion for collisionless molecular multiphoton processes. Adv. Chem. Phys. 47 Part I, 509 (1981) United States
01410	K01: Interchange		Houston, P. L. Initiation of atom-molecule reactions by infrared multiphoton dissociation. Adv. Chem. Phys. 47 Part I, 625 (1981) United States
01411	K01: Interchange		Woodin, R. L.; Kaldor, A. Enhancement of chemical reactions by infrared lasers. Adv. Chem. Phys. 47 Part II, 3 (1981) United States
01412	K01: Excitation		Sear, Y.; Ascher, N. Two-photon excitation as a kinetic tool: application to nitric oxide fluorescence quenching. Adv. Chem. Phys. 47 Part II, 17 (1981) Israel
01413	K01: Interchange		Eyal, M.; Agur, D.; Grabner, P. R. Infrared laser-enhanced diffusion cloud reactions. Adv. Chem. Phys. 47 Part II, 43 (1981) Israel
01414	K01: Interchange		Baronowski, A.; Umstead, N. E.; Lie, M. C. Laser diagnostics of reaction product energy distributions. Adv. Chem. Phys. 47 Part II, 85 (1981) United States
01415	K01: Energy transfer		Weitz, E.; Flynn, G. Vibrational energy flow in the ground electronic states of polyatomic molecules. Adv. Chem. Phys. 47 Part II, 185 (1981) United States
01416	K01: Energy transfer		Rice, S. A. Collision induced intramolecular energy transfer in electronically excited polyatomic molecules. Adv. Chem. Phys. 47 Part II, 237 (1981) United States
01417	K01: Excitation		Freed, K. P. Collision induced intersystem crossing. Adv. Chem. Phys. 47 Part II, 291 (1981) United States
01418	K01: Relaxation		Tramer, A.; Sitzen, L. Collisional effects in electronic relaxation. Adv. Chem. Phys. 47 Part II, 337 (1981) France
01419 T	A11: Br* + H ₂ ; Br* + CO ₂ ; Br* + CO; Br* + H ₂ O; I* + H ₂ ; I* + CH ₄ ; I* + CO; I* + H ₂ O	Unif	Houston, P. L. Electronic to vibrational energy transfer from excited halogen atoms. Adv. Chem. Phys. 47 Part II, 381 (1981) United States
01420	K03: Fluorescence		Clyne, R.A.A.; McDermid, I. S. Laser-induced fluorescence: electronically excited states of small molecules. Adv. Chem. Phys. 50, 1 (1982) United Kingdom
01421	K03: Excitation; Dissociation		Kim, D. S. Infrared multiphoton excitation and dissociation. Adv. Chem. Phys. 50, 105 (1982) United States
01422	K03: Ionization; Dissociation		Lau, A.H.F. The photon-as-catalyst effect in laser-induced predissociation and autoionization. Adv. Chem. Phys. 50, 191 (1982) United States
01423	K03: Dissociation		Leone, S. R. Photofragment dynamics. Adv. Chem. Phys. 50, 255 (1982) United States

Ref. No.	Reactants	Energy Range	Reference
01424	K01: De-excitation		Brackenridge, R. H.; Usenoto, M. Collisional quenching of electronically excited metal atoms. <i>Adv. Chem. Phys.</i> 50, 325 (1982) United States
01425	K03: Excitation		Quack, M. Reaction dynamics and statistical mechanics of the preparation of highly excited states by intense infrared radiation. <i>Adv. Chem. Phys.</i> 50, 395 (1982) West Germany
01426	K01: Energy transfer		Bertel, I. V. Progress in electronic-to-vibrational energy transfer. <i>Adv. Chem. Phys.</i> 50, 475 (1982) West Germany
01427	K06: Structure		Hirst, D. R. The calculation of potential energy surfaces for excited states. <i>Adv. Chem. Phys.</i> 50, 517 (1982) United Kingdom
01428	K01: Excitation		Brunner, T. A.; Pritchard, D. Fitting laws for rotationally inelastic collisions. <i>Adv. Chem. Phys.</i> 50, 589 (1982) United States
01429 E	D11: $H_2 + FeTi$; $D_2 + FeTi$	78-473 K	Pedersen, A. S.; Moller, P. J.; Sorensen, O. T. A kinetic and thermodynamic study of the reaction of hydrogen and deuterium with FeTi at low pressures. <i>Ber. Bunsenges. Phys. Chem.</i> 87, 104 (1983) Denmark
01430 T	D11: $H_2 + Metals$ D13: $H_2 + Metals$	Thermal	Fromm, E.; Schida, H.; Chelluri, E. Model calculations on surface and permeation controlled H_2 absorption and desorption of oxide coated metals. <i>Ber. Bunsenges. Phys. Chem.</i> 87, 410 (1983) West Germany
01431 E	D11: $H_2 + Fe$; $CO + Fe$	77-700 K	Wedler, G.; Ertel, J. Photoelectron spectroscopic study of the adsorption and CO-adsorption of hydrogen and carbon monoxide on iron films. <i>Ber. Bunsenges. Phys. Chem.</i> 87, 469 (1983) West Germany
01432 E	D12: $e + W$; $e + Mo$; $e + Ta$	5 keV	Delyanov, A. V.; Gorbatyi, B. A. Optical characteristics of electron-photon emission of polycrystalline surfaces of refractory metals. <i>Bull. Acad. Sci. USSR Phys. Ser.</i> 46 No. 12, 23 (1982) Soviet Union
01433 E	D12: $e + W$; $e + Ta$; $e + Mo$	500 eV	Korablev, V. V.; Malozov, A. A. Angular dependence of energy groups of electrons emitted by single crystals. <i>Bull. Acad. Sci. USSR Phys. Ser.</i> 46 No. 12, 43 (1982) Soviet Union
01434 T	D12: $e + Ag$	300 eV	Artamonov, O. R. Role of surface bremsstrahlung in electron-photon emission. <i>Bull. Acad. Sci. USSR Phys. Ser.</i> 46 No. 12, 56 (1982) Soviet Union
01435 T	F03: $e + Li^+$; $e + Be^{++}$; $e + B^{3+}$; $e + C^{4+}$; $e + N^{5+}$; $e + O^{6+}$; $e + Si^{4+}$; $e + Ca^{2+}$; $e + Fe^{2+}$ E17: $e + Li^+$; $e + Be^{++}$; $e + B^{3+}$; $e + C^{4+}$; $e + N^{5+}$; $e + O^{6+}$; $e + Si^{4+}$; $e + Ca^{2+}$; $e + Fe^{2+}$	0.068-33.6 Ry	Singh, C. S.; Srivastava, R.; Rai, D. K. 215 excitation of helium-like ions. <i>Can. J. Phys.</i> 61, 981 (1983) India
01436 T	K03: $e + He^+$	40.9-218 eV	Basu, M.; Mazumder, P. S.; Ghosh, A. S. The 1s-2s and 1s-2p excitations of helium ions by electron impact. <i>Can. J. Phys.</i> 61, 1297 (1983) India
01437 T	K06: $uv + H_2$; $hv + CO$	Undef	Schirmer, J.; Walter, O. Complete valence-shell ionization spectra of H_2 and CO: application of the extended two-particle-hole Tamm-Dancoff approximation (2ph-TDA). <i>Chem. Phys.</i> 78, 231 (1983) West Germany
01438 T	A03: $He^+ + H_2^+$	0.5-2.5 eV	Archirel, P.; Habitz, P. Surface hopping trajectory calculations for electronic rotational and vibrational inelastic collisions for the He- H_2 system. <i>Chem. Phys.</i> 78, 213 (1983) France
01439 T	A17: $Li^+ + He$; $Li^+ + Ar$; $Li^+ + Ne$; $Li^+ + Kr$; $Li^+ + Xe$	300 K	Wiehland, L. A. Interaction potentials for Li^+ -rare-gas systems. <i>Chem. Phys.</i> 78, 179 (1983) United States
01440 T	A17: $He + He$	Undef	Azis, R. A.; Heath, V. J.; Allnatt, A. R. On the He-He potential-energy curve and related properties. <i>Chem. Phys.</i> 78, 295 (1983) Canada
01441 E	K06: $hv + CO$	16.7-21.2 eV	Reinisch, J.; Vohre, C.; Maripuu, H.; Lodin, P.; Al-Shamma, S. H.; Veenhuizen, R.; Karlsson, L.; Siegbahn, K. High-resolution UV photoelectron spectrum of CO . <i>Chem. Phys.</i> 78, 311 (1983) Sweden

Ref. No.	Reactants	Energy Range	Reference
01042 Z	R02: $e + CO_2$ R02: $h\nu + CO_2$	0-30 eV	Bittman, P. R.; Hill, D.; Dehaer, J. L. Valence-shell photoabsorption by CO_2 and its connections with electron- CO_2 scattering. <i>Chem. Phys.</i> 78, 405 (1983) United States
01043 Z	A11: $O_2^+ + H_2$	25 °C	Kemmer, R. B.; Ogryzlo, E. A. Rate constant for the deactivation of $O_2^+(^1\Sigma_g^+)$ by H_2 . <i>Chem. Phys. Lett.</i> 103, 209 (1983) Canada
01044 Z	A11: $Br^+ + H_2$	0.1-0.6 eV	Ali, D. P.; Miller, R. W. Classical models for electronic degenon of fission: quenching of $Br^+(^2P_{1/2})$ by collision with H_2 in three dimensions. <i>Chem. Phys. Lett.</i> 103, 470 (1983) United States
01045 Z	A02: $Li^+ + H_2$ A03: $Li^+ + H_2$	0.05-1.2 keV	Leeman, V. B.; Rodionov, I. B. High energy atom-molecule scattering at small angles. <i>Comments At. Mol. Phys.</i> 10, 1 (1983) Soviet Union
01046 Z	R04: $h\nu + Ar$	0.05-500 keV	Johnson, R. E.; Inokuti, M. The local-plasma approximation to the oscillator-strength spectrum: how good is it and why? <i>Comments At. Mol. Phys.</i> 10, 19 (1983) United States
01047 E-T	A02: $H^+ + J$ A03: $H^+ + H$ A06: $H^+ + H; He^{2+} + He$ A10: $H^+ + H$	2-300 keV	Devi, K.B.S.; Garcia, J. D. TSWF theory: an approach to accurate many-body ion-atom collision calculations. <i>Comments At. Mol. Phys.</i> 10, 33 (1983) United States
01048 Z	A04: $2h\nu + H_2$	Undef	Srinivasan, T.; Egger, H.; Luk, T. S.; Finner, H.; Rhodes, C. E. The influence of the optical Stark shift on the two-photon excitation of the molecular hydrogen $H_2^+(^1\Sigma_g^+)$ state. <i>IEEE J. Quantum Electron.</i> QE-19, 1974 (1983) United States
01049 Z	F01: Ionization; Charge exchange R02: Dielectronic recombination		Datz, S. Recent development in accelerator based atomic physics. <i>IEEE Trans. Nucl. Sci.</i> NS-30, 881 (1983) United States
01050	R06: Energy levels		Crasemann, B. Atomic inner-shell transitions-theory and the need for experiments. <i>IEEE Trans. Nucl. Sci.</i> NS-30, 887 (1983) United States
01051 Z	A06: $H^+ + He$ A10: $H^+ + He$	400-750 keV	Nordal-Pedersen, E.; Samussen, J. L. Angular-dependent electron capture probabilities. <i>IEEE Trans. Nucl. Sci.</i> NS-30, 891 (1983) Denmark
01052 Z	A06: $He^{2+} + H; He^{2+} + H; He^{2+} + H;$ $He^{2+} + H; He^{2+} + H$	400 eV	Gray, G. J.; Cao, C.; Ball, J. E.; Tunnell, L. Electron capture cross sections for low velocity He ($sup\ q^+$) ($q = 2,3,4,5,6$) incident upon atomic hydrogen. <i>IEEE Trans. Nucl. Sci.</i> NS-30, 895 (1983) United States
01053 E-T	A03: $Ar^{16+} + Xe$ A06: $Ar^{16+} + Xe; Ar^{16+} + Xe; Ar^{17+} + Xe$	160-180 MeV	Tsala, J. A.; Horastain, E. R.; Graham, W. G.; Clark, H.; Shafroth, S. R.; Johnson, R. H.; Jones, K.; Seron, M. Simultaneous electron capture and excitation in ion-atom collisions. <i>IEEE Trans. Nucl. Sci.</i> NS-30, 898 (1983) United States
01054 Z	A06: $O^{2+} + He; He^{10+} + He$	15-18 a.u.	Berry, S. D.; Sellin, I. A.; Groeneveld, R. G.; Hofmann, D.; Andersen, L. E.; Breinig, H.; Eiston, A. S.; Schauer, R. H.; Stollterfohl, E.; Schmidt-Rockling, H.; Bolte, G.; Schviets, G. Electron capture to the continuum at asymptotically high velocities. <i>IEEE Trans. Nucl. Sci.</i> NS-30, 902 (1983) United States
01055 Z	A03: $Fe^{24+} + U; Fe^{24+} + U; Fe^{24+} + U; Fe^{24+} + U;$ $Fe^{24+} + U; Fe^{24+} + U$	25-35 MeV	Whta, P.; Duggan, J. L.; McDaniel, P. D.; Andrews, R. C.; Lapich, G.; Miller, P. D.; Sayburn, L. A.; Isader, A. B. Electron capture in K-shell x-ray production from heavy elements by 25- and 35-MeV fluorine ions. <i>IEEE Trans. Nucl. Sci.</i> NS-30, 906 (1983) United States
01056 Z	A06: $H^+ + CH_4; H^+ + O_2; H^+ + CO; H^+ + CO_2$	0.8-3.0 MeV	Joyce, J. H.; Binsinger, G. Electron capture from C-bearing molecules to bound states of 0.8-3.0 MeV H^+ : additivity corrections using electron loss cross sections. <i>IEEE Trans. Nucl. Sci.</i> NS-30, 911 (1983) United States
01057 Z	A07: $H^+ + C; D^+ + C; H_2^+ + C; D_2^+ + C;$ $H_2^+ + C; H_2^+ + C; He^{2+} + C;$ $He^{2+} + C; He^{2+} + C$	1.0-1.7 MeV/amu	Latz, H.; Schuler, J.; Frimkhorn, H. J.; Knoch, P.; Groeneveld, R. O. Electron capture and loss processes in heavy ion and molecular ion collisions with solids. <i>IEEE Trans. Nucl. Sci.</i> NS-30, 913 (1983) West Germany

Ref. No.	Reactants	Energy Range	Reference
01458 E	B12: $C^+ + Be; C^+ + HgF_2; C^+ + CaF_2$	22 MeV	Batson, R. L.; Benke, G.; Parthasarathi, K.; Knecht, E. A.; Sawyer, R. J.; Sandora, J. B.; Sandora, R.; Ritter, R. Mechanisms for rapid electron transfer in ionic solids following multiple ionization by heavy-ion impact. <i>IEEE Trans. Nucl. Sci.</i> NS-30, 919 (1983) United States
01459 E	A07: $H^+ + Kr; H^+ + Xe$ A10: $H^+ + Kr; H^+ + Xe$	1-4 MeV	Toburen, L. E.; Dubois, E. P.; Hansen, S. T. Multiple ionization of atomic targets by proton impact. <i>IEEE Trans. Nucl. Sci.</i> NS-30, 922 (1983) United States
01460 E	A06: $P^{++} + He; P^{++} + Ne; P^{++} + Ar$ A07: $P^{++} + He; P^{++} + Ne; P^{++} + Ar$	0.4-10 MeV	Baymann, S. Quasi-resonant K-K charge exchange in P-He collisions. <i>IEEE Trans. Nucl. Sci.</i> NS-30, 928 (1983) United States
01461 E	B08: $C^+ + C; C^+ + C; O^+ + C; CO^+ + C$	0.04-12 MeV/amu	Frischhorn, R. J.; Kuecher, P.; Lutz, R.; Schader, J.; Burkhart, R.; Hofmann, R.; Grossmied, K. G. Total yield and escape depth of electrons from heavy ion solid interactions. <i>IEEE Trans. Nucl. Sci.</i> NS-30, 931 (1983) West Germany
01462 E	A07: $C^{++} + Be; H^{++} + Be; O^{++} + Be;$ $P^{++} + Be; Cl^{++} + Be$	Varied	Gray, T. J.; Cooke, C. L. A review of recoil ion physics. <i>IEEE Trans. Nucl. Sci.</i> NS-30, 937 (1983) United States
01463 E-T	J01: Excitation E01: Excitation	0.3-40 MeV	Dehta, R.; Duggan, J. L.; Schmidt, P. D.; Socur, P. S.; Price, J. L.; Lipicki, G. S-shell x-ray production cross sections for 19 elements in the range $Z = 54-92$ by H^+ and He^{++} ions from 100 keV to 40 MeV. <i>IEEE Trans. Nucl. Sci.</i> NS-30, 950 (1983) United States
01464 E	A07: $H^+ + Sc; H^+ + Ti; H^+ + V; H^+ + Cr;$ $H^+ + Co; H^+ + Ni; H^+ + Cu; H^+ + Zn$	0.5-2.2 MeV	Brown, R. D.; Simons, D. G.; Land, B. J.; Brennan, J. G. Proton-induced L-vacancy production cross sections for Sc, Ti, V, Cr, Co, Ni, Cu, and Zn. <i>IEEE Trans. Nucl. Sci.</i> NS-30, 957 (1983) United States
01465 E	A07: $He^{++} + Cd; He^{++} + Sn; He^{++} + Te;$ $He^{++} + I; He^{++} + Xe; H^+ + Te$	1.4-3.8 MeV	Avaldi, L.; Mileazzo, R.; Trivis, G.; Mitchell, I. V. Recent results on K-shell ionization by ion collisions. <i>IEEE Trans. Nucl. Sci.</i> NS-30, 961 (1983) Italy
01466 E	A03: $H^+ + Ba; H^+ + La; H^+ + Ce$	0.25-2 MeV	Bayburn, L. A. L-shell x-ray production cross sections of Ba, La and Ce for proton energies from 0.25 to 2.00 MeV. <i>IEEE Trans. Nucl. Sci.</i> NS-30, 964 (1983) United States
01467 E	A07: $H^+ + Ag; H^+ + I$	0.3-5 MeV	Rosato, R.; Cuzzocrea, P.; McCoscaro, M.; Perillo, R.; Spadaccini, G. Proton induced L-shell ionization on silver and iodine. <i>IEEE Trans. Nucl. Sci.</i> NS-30, 967 (1983) Italy
01468 E	A07: $H^+ + Au$	2.4-18.2 MeV	Palinkas, J.; Sertadi, L.; Schlenk, B.; Borok, I.; Kalman, G.; Bauer, C.; Brackhoff, R.; Granbold, B.; Heimer, C.; Endolph, S.; Thomas, M. J. L-shell ionization of gold by nitrogen ion impact. <i>IEEE Trans. Nucl. Sci.</i> NS-30, 978 (1983) Hungary
01469 E-T	A07: $O^{++} + He; O^{++} + H; C^{++} + He; C^{++} + H;$ $Ne^{++} + He; Ne^{++} + H; H^+ + He; H^+ + H;$ $He^{++} + He; He^{++} + H$	0.64-2.31 MeV/amu	Anderson, L. M. Single and double ionization of He by fast light ions. <i>IEEE Trans. Nucl. Sci.</i> NS-30, 973 (1983) United States
01470 E	A03: $H_2^+ + He; H_2^+ + Kr; H_2^+ + Xe$ A04: $H_2^+ + He; H_2^+ + Kr; H_2^+ + Xe$	20-150 keV	Jones, M. L.; Daugherty, B. R. Production of He state hydrogen by H^+ impact on noble gases. <i>IEEE Trans. Nucl. Sci.</i> NS-30, 976 (1983) United States
01471 E	A03: $Ar^{++} + Hg; Ar^{++} + Al; Ar^{++} + Si$	160-380 keV	Cipolla, R. J.; Hildebrath, R. Vacancy-transfer cross sections and L-vacancy lifetime for low-energy collisions of Ar^{++} with Hg, Al, and Si. <i>IEEE Trans. Nucl. Sci.</i> NS-30, 999 (1983) United States
01472 E	A03: $P^{++} + Be; P^{++} + Ne; P^{++} + Ar$ A06: $P^{++} + Be; P^{++} + Ne; P^{++} + Ar$	10-40 MeV	Pepinier, P. L.; Richard, P.; Newcomb, J.; Billingham, M.; Hall, J. B.; Gray, T. J.; Stockli, R. A study of transfer excitation in $P^{++} + Be, Ne, and Ar$ collisions. <i>IEEE Trans. Nucl. Sci.</i> NS-30, 1002 (1983) United States
01473 T	A03: $Si^{++} + Ar$ A06: $Si^{++} + Ar$	5-200 MeV	Brandt, R. Resonant transfer and excitation (RTE) in ion-atom collisions and dielectron recombination in plasmas. <i>IEEE Trans. Nucl. Sci.</i> NS-30, 1005 (1983) United States

Ref. No.	Reactants	Energy Range	Reference
01474 Z	A06: He ²⁺ + He; He ²⁺ + Ar; He ²⁺ + Kr; He ²⁺ + Xe A07: He ²⁺ + He; He ²⁺ + Ar; He ²⁺ + Kr; He ²⁺ + Xe; He ²⁺ + Xe; He ²⁺ + Xe; He ²⁺ + He; He ²⁺ + He; He ²⁺ + He; He ²⁺ + He; He ²⁺ + He; He ²⁺ + He; He ²⁺ + He; He ²⁺ + He; He ²⁺ + He; He ²⁺ + He; He ²⁺ + He; He ²⁺ + He; He ²⁺ + He; He ²⁺ + He; He ²⁺ + He; He ²⁺ + He; He ²⁺ + He; He ²⁺ + He	3-102 keV	Schlechter, A. S.; Groh, W.; Muller, A.; Salzborn, E. Transfer ionization in slow multiple charged ion-atom collisions. IEEE Trans. Nucl. Sci. NS-30, 1708 (1983) United States
01475 Z	A07: Ar + He ⁺	1.2-4.0 eV	Peterson, J. R.; Coggiola, R. J.; Mao, Y. K. He ⁺ photodetachment: effects of the 1s2p1'1'P (sup o) resonance. IEEE Trans. Nucl. Sci. NS-30, 1043 (1983) United States
01476 Z	A03: Cl ¹⁶⁺ + C; Cl ¹⁸⁺ + C; Cl ¹⁹⁺ + C; Cl ¹⁶⁺ + C; Cl ¹⁷⁺ + C A06: Cl ¹⁶⁺ + C; Cl ¹⁸⁺ + C; Cl ¹⁹⁺ + C; Cl ¹⁶⁺ + C; Cl ¹⁷⁺ + C	80-120 MeV	Shafroth, S. R.; Shim, E.; Ishihara, Y.; Kitano, T.; Miyoshi, T.; Sumi, T.; Nishiyama, K.; Ohara, E.; Tagishi, Y.; Yamaguchi, H.; Yamawaki, K. Radiative electron capture (REC) as an indicator of the F-vacancy state of highly ionized projectiles in solids: application to stopping power. IEEE Trans. Nucl. Sci. NS-30, 1055 (1983) United States
01477 Z	C02: Ar ²⁺ + C; Ar ²⁺ + Al; Ar ²⁺ + Au; Ar ²⁺ + C; Ar ²⁺ + Al; Ar ²⁺ + Au; Ar ²⁺ + C; Ar ²⁺ + Al; Ar ²⁺ + Au	250 keV	Shchekinsky, I.; Peterson, C.; Brandt, R. Charge dependence of slow-ion energy loss in transmission experiments. IEEE Trans. Nucl. Sci. NS-30, 1063 (1983) United States
01478 Z	C08: Fe ²⁺ + Cu; Fe ²⁺ + Ag	1-5 keV	Zimmermann, A.; Tougaard, S.; Ignatiev, A. Range distributions of low energy ions in silver and copper. IEEE Trans. Nucl. Sci. NS-30, 1066 (1983) United States
01479 Z	C02: Fe ²⁺ + C; Fe ²⁺ + Al; O ₂ ⁺ + C; O ₂ ⁺ + Al; O ₂ ⁺ + C; O ₂ ⁺ + Al	0.2-1.8 MeV/atom	Stoer, R. P.; Connell, B. S.; Kamber, F. P.; Johnson, R. A.; Zakrzensky, R. J. Stopping power for fast nitrogen and oxygen dications in carbon. IEEE Trans. Nucl. Sci. NS-30, 1069 (1983) United States
01480 Z	C06: C ⁺ + C; He ⁺ + C; HeO ⁺ + C	1.5-7.0 MeV	Stoller, C.; Soter, R.; Hinnel, B.; Bonassi, G.; Bonassi, R.; Wolfli, W. Charge state distributions of 1 to 7 MeV C and He ions stripped in thin foils. IEEE Trans. Nucl. Sci. NS-30, 1074 (1983) Switzerland
01481 Z	A03: He ⁺ + B A07: He ⁺ + Cu A03: He ⁺ + B	A03: E03: 15-500	Bending, J. P.; Ford, A. L.; Smith, J. S.; Becker, R. L. Exploring the Bohr series with ion-atom collisions. IEEE Trans. Nucl. Sci. NS-30, 1079 (1983) United States
01482 Z	A07: He ⁺ + Cu; He ⁺ + Cu; He ²⁺ + Cu; He ⁺ + Si; He ⁺ + Si	0.5-0.5 MeV/atom	Ford, A. L.; Bending, J. P. Target recoil effects for inner-shell ionization in ion-atom collisions. IEEE Trans. Nucl. Sci. NS-30, 1083 (1983) United States
01483 Z	A07: He ⁺ + Ti	0.3-2.4 MeV	Land, B. J.; Bashas, G.; Stone, R. D.; Simons, D. C. Effects of a polarized wave function in calculations of inner-shell ionization probability. IEEE Trans. Nucl. Sci. NS-30, 1103 (1983) United States
01484 Z	E05: He ⁺ + H A07: He ⁺ + H ⁺		Yemlin, A. The threshold laws for electron-atom and positron-atom impact ionization. IEEE Trans. Nucl. Sci. NS-30, 1106 (1983) United States
01485 Z	A02: He ⁺ + H ₂ O; He ⁺ + H ₂ O	2-1.5x10 ³ keV/atom	Tombrello, T. A. Accelerator simulation of astrophysical processes. IEEE Trans. Nucl. Sci. NS-30, 1169 (1983) United States
01486 Z	D18: He ⁺ + He + He; He ⁺ + He + Si; He ⁺ + He + Si	15-750 keV	Myers, S. R. Trapping and surface recombination of deuterium in fusion reactor metals. IEEE Trans. Nucl. Sci. NS-30, 1175 (1983) United States
01487 Z	D18: He ⁺ + He + Si	1 keV	Besten, R. An application of SIMS to fusion energy research: determination of ion impact desorption cross sections. IEEE Trans. Nucl. Sci. NS-30, 1183 (1983) United States
01488 Z	D18: He ⁺ + C; He ⁺ + Si	100-500 eV	Lavjley, R. A. Recent results obtained by use of accelerators on plasma edge properties in controlled fusion devices and on properties of high power neutral beams. IEEE Trans. Nucl. Sci. NS-30, 1187 (1983) United States

Ref. No.	Reactants	Energy Range	Reference
01069 E	A03: $H_2^+ + H_2$ A06: $C^{2+} + H; C^{2+} + H; C^{2+} + H; He^+ + H^+;$ $H^+ + C^0; Ca^+ + Ca^0$ A07: $C^{2+} + H; C^{2+} + H; C^{2+} + H; H^+ + H;$ $He^{2+} + H; Li^{2+} + H; He^+ + H^+;$ $H^+ + C^0; Ca^+ + Ca^0$	A03: 2-100 keV, 1	Gilbody, R. B. Experiments in Belfast relevant to fusion diagnostics. IRE Trans. Nucl. Sci. NS-30, 1201 (1983) United Kingdom
01090	C06: $He^{2+} + C; O^+ + Al$	1-100 keV	Coalen, T. B. Nuclear and materials studies with ion beams. IRE Trans. Nucl. Sci. NS-30, 1209 (1983) United Kingdom
01091	D02: $Ti^+ + Ti; Fe^+ + Ni; Ni^+ + Ni;$ $Bi^+ + Cu; Fe^+ + Fe; Cu^+ + Cu;$ $Cu^+ + Bi; Ag^+ + Au; As^+ + Au;$ $Be^+ + Be; Au^+ + Au$	65-125 keV	Lambert, J. B.; Trends, P. A.; Trbojevic, B.; Allen, E. G.; Kaufman, A. R.; Reynolds, C. P.; Vanzo, P. E. Sputtering analysis with PIXE. IRE Trans. Nucl. Sci. NS-30, 1205 (1983) United States
01092 E	B12: $e + Sn; e + Se; e + Te; e + U;$ $e + Pt; e + Au; e + Pb$	1.2-30 keV	Shima, K.; Okuda, S.; Suzuki, R.; Tsubota, T.; Nishino, T. Le x-ray production efficiency from $Z = 50-82$ thick target elements by electron impacts from threshold energy to 30 keV. J. Appl. Phys. 54, 1202 (1983) Japan
01093 E	D07: $He^+ + O; He^+ + Al; He^+ + Si$	0.4-2.3 keV	Macdonald, J. R.; Davies, J. L.; Jackson, T. E.; Foltman, L. C. How well does the backscattering from low-Z nuclei obey the Rutherford formula? J. Appl. Phys. 54, 1006 (1983) Canada
01094 T	E05: $e + Be^+$	0.041-5 keV	Ganes, P. S.; Gately, L. P. Excitation of Be^+ by electron impact. J. Appl. Phys. 54, 2167 (1983) United States
01095 T	D02: $U^+ + U$ D07: $U^+ + U$	D02: 0.05-10 keV, United States	Robinson, R. T. Computer simulation of the self-sputtering of uranium. J. Appl. Phys. 54, 2650 (1983) United States
01096 E	D02: $He^+ + Si; Ar^+ + Si; Kr^+ + Si;$ $Fe^+ + Si$	0.2-20 keV	Sala, P. C. Energy dependence of the sputtering yield of silicon bombarded with neon, argon, krypton, and xenon ions. J. Appl. Phys. 54, 2660 (1983) The Netherlands
01097 E	C02: $e + C; e + Al; e + Cu; e + Pb$ C05: $e + C; e + Al; e + Cu; e + Pb$	24.0 keV	Nitodo, T.; Tsukuma, T. Energy loss of 24.0-keV electrons by interacting with thick materials. J. Appl. Phys. 54, 3677 (1983) Japan
01098 E	H06: $h\nu + In$	0 μ	Parker, G. J.; Brotherton, S. B.; Gale, I.; Gill, A. Measurement of concentration and photoionization cross section of indium in silicon. J. Appl. Phys. 54, 3926 (1983) United Kingdom
01099 E	D07: $H^+ + Cu + H$ D08: $H^+ + Cu + H$	0.4-2.0 keV	Van Denmel, P. J. H.; Geerlings, J. J. C.; Van Rummik, J. B. B.; Baarsma, P.; Granneman, E. H. H.; Lam, J. Formation of H^+ by scattering H^+ on a sputtered polycrystalline tungsten surface. J. Appl. Phys. 54, 476 (1983) The Netherlands
01500 E	D02: $He^+ + Si; Ar^+ + Si; Kr^+ + Si$	60-8000 eV	Bome, E. C.; Bessier, E. Reactive sputtering of amorphous silicon in He, Ar, and Kr. J. Appl. Phys. 54, 5704 (1983) United States
01501 E-T	C08: Secondary emission	0.1-20.0 keV	Seiler, R. Secondary electron emission in the scanning electron microscope. J. Appl. Phys. 54, 81 (1983) West Germany
01502 E-T	A10: $H_2^+ + H_2$ E04: $e + H_2; e + H_2^+; e + H_3^+$ E05: $e + H; e + H_2; e + H_2^+; e + H_3^+$	A10: 0-8 eV, E04: United States	Chan, C. F.; Barrell, C. P.; Cooper, R. B. Model of positive ion sources for neutral beam injection. J. Appl. Phys. 54, 6170 (1983) United States
01503 E-T	D01: $H_2^+ + H_2$	2.5 keV	Bychenov, A. I.; Arutyunova, G. A.; Jorodia, V. A.; Sotunsky, V. E.; Chuvp, V. L. Kinetics and physical mechanisms of the growth of helium bubbles at dislocations. J. Nucl. Mater. 110, 65 (1983) Soviet Union
01504 E	D13: $h\nu + H + Li + SS$	40 keV	Riki, T.; Yonaga, H.; Ikaya, S.; Kanachi, K. X-ray-induced release of hydrogen in lithium-implanted stainless steel. J. Nucl. Mater. 110, 150 (1982) Japan

Ref. No.	Reactants	Energy Range	Reference
01521 Y	A12: Xe + Cs A17: Xe + Cs	478 K	Allard, R. P.; Girard, Y. G. Effect on the different parts of the interaction potential on the line profile in neutral atom - atom collisions. <i>J. Phys. [Orsay]</i> 44, 905 (1983) France
01522 E	A03: Ar ⁰ + Kr A11: Ar ⁰ + Kr A17: Ar ⁰ + Kr	Undef	Scolling, T. A.; Sadeghi, R. Electronic energy transfer between state selected metastable argon atoms and ground state krypton atoms. <i>J. Phys. [Orsay]</i> 44, 1007 (1983) France
01523 E	R08: hv + He	569 nm	Bondali, H.; Deong, H. Y.; Saint John, J. B.; Vialis, J. L. Observation of optical pumping effects in collisional atomic beam - laser beam(s) interaction. <i>J. Phys. [Orsay]</i> 44, 1019 (1983) France
01524 E	R06: hv + Xe	0.53 μm	L'Huillier, A.; Loupe, L. A.; Hainfay, C.; Hemon, C. Laser pulse duration effects in He ⁺ ions induced by ultrashort absorption at 0.53 μm. <i>J. Phys. [Orsay]</i> 44, 1247 (1983) France
01525 E	A04: He ⁰ + H ₂ ; He ⁰ + D ₂ ; He ⁰ + O ₂ ; He ⁰ + CO A07: He ⁰ + He; He ⁰ + H ₂ ; He ⁰ + H ₂ ; He ⁰ + O ₂ ; He ⁰ + CO	15-1500 eV	Prud'homme, P.; Launay, J. J. Chemi-ionization reactions involving metastable helium atoms at high energy. <i>J. Phys. [Orsay]</i> 44, 1263 (1983) France
01526 Y	R09: Undef	Undef	Bulibard, J.; Boynead, S. Correlation signals in resonance fluorescence: interpretation via photon scattering amplitudes. <i>J. Phys. [Orsay]</i> 44, 1337 (1983) France
01527 E	R02: hv + H ₂ + He	200-760 cm ⁻¹	Rechet, G. Experimental observation of the intercollisional interference effect on the S ₁ pump rotation line of the collision induced spectra of the H ₂ -He mixture. <i>J. Phys. [Orsay] Lett.</i> 44, 1-103 (1983) France
01528 E	R07: e + H ₂ ⁺	3400-8500 K	Capitelli, M.; Gorse, C.; Ricard, A. Time scale considerations on the relaxation of electronic and vibrational energy distributions in a nitrogen afterglow. <i>J. Phys. [Orsay] Lett.</i> 44, 1-251 (1983) France
01529 E-Y	A12: O ₂ + He; O ₂ + Ne; O ₂ + Ar; O ₂ + Kr A17: O ₂ + He; O ₂ + Ne; O ₂ + Ar; O ₂ + Kr	181-373 K	Borard, A.; Cabo, J. P.; Girard, R.; Lallemand, P. Study of oxygen-rare gas collisions by depolarized Raman scattering. <i>J. Phys. [Orsay] Lett.</i> 44, 1-507 (1983) France
01530 Y	C02: PERT + C	0.6-1.4 MeV/amu	Vionti, G.; Pavanetti, M.; Stefanini, A. M. Calculation of heavy-ion energy loss and energy loss straggling in Carbon. <i>Nuovo Cimento Lett.</i> 34, 1 (1983) Italy
01531 Y	R02: hv + CO ₂ + Ar; hv + CO ₂ + He	2367-2390 cm ⁻¹	Tologin, G. V.; Fomina, V. V. Calculation of absorption coefficient in the CO ₂ spectrum. Transmission microwindows and peripheral 0.3 μm band with broadening by argon and helium. <i>Opt. Spectrosc.</i> 52, 149 (1982) Soviet Union
01532 E	R03: e + Hg	12-200 eV	Belikov, V. V.; Smirnov, V. B.; Sharenov, V. B. Effective excitation cross sections of Hg II spectral lines. <i>Opt. Spectrosc.</i> 52, 329 (1982) Soviet Union
01533 Y	R03: e + Al; e + Ga; e + In; e + Tl	0.2-1.0 Ry	Syabykh, V. I. Calculation of cross sections for slow-electron excitation of aluminum-subgroup atoms by the strong-coupling method. <i>Opt. Spectrosc.</i> 52, 331 (1982) Soviet Union
01534 E	R03: e + Cr	3-250 eV	Belikov, V. V.; Smirnov, V. B. Measurement of excitation cross sections of atomic chromium spectral lines by electron collision. <i>Opt. Spectrosc.</i> 52, 362 (1982) Soviet Union
01535 E	R03: e + Ca ⁺	2-20 eV	Dobryshin, V. B.; Bobrovskii, V. I.; Shumryakov, V. B. Electron impact excitation of absolute excitation cross sections of the 4S _{3/2} , 4P _{1/2} states of calcium. <i>Opt. Spectrosc.</i> 52, 364 (1982) Soviet Union
01536 E	A03: Eu ⁺ + He	Thermal	Bothan, P. A.; Padin, L. V. Study of excitation transfer processes in the europium ion. <i>Opt. Spectrosc.</i> 52, 373 (1982) Soviet Union

Ref. No.	Reactants	Energy Range	Reference
01537 E	R07: $K + K + h\nu$		Klyavinsh, Y. P.; Vanson, M. L. Population processes of certain atomic and molecular states in laser-excited potassium vapor. Opt. Spectrosc. 52, 376 (1982) Soviet Union
01538 E	A11: $CO^+ + CO$	50-6000 K	Ivanov, P. E.; Ionikh, V. E.; Penkin, B. P.; Chernysheva, B. V. Measurement of the rate constants for the quenching of the $A^2\Sigma^+(sub r)$ (V prime = 0, 1, 2, 3) of the CO molecule in its own gas at different vibrational temperatures of CO ($X^1\Sigma^+$). Opt. Spectrosc. 52, 399 (1982) Soviet Union
01539 E	A03: $He^+ + Hg$ A06: $He^+ + Hg$	300 K	Piotrovskii, Y. A.; Tolmachev, Y. A.; Kasyanenko, S. V. Investigation of the nonresonant charge-exchange process in helium-mercury systems. Opt. Spectrosc. 52, 452 (1982) Soviet Union
01540 E	A03: $He^+ + He$	0.2-1.0 keV	Gontov, V. A.; Khazanchik, B. V.; Khakhar, A. B. Spectroscopic study He ⁺ excitation by a flux of fast metastable helium atoms. Opt. Spectrosc. 52, 540 (1982) Soviet Union
01541 E	A03: $Pb + Pb$	1100 K	Haradov, V. G.; Kudryavtsev, Y. B. Study of the growth curve for the Pb , 283.3-nm line by the total absorption method and evaluation of the cross section of collision resonances of lead atoms. Opt. Spectrosc. 52, 655 (1982) Soviet Union
01542 E	E03: $e + N_2$	10-200 eV	Boydanova, I. P.; Efremova, G. V.; Yakovlev, V. I. Characteristic features of the excitation of molecular nitrogen by an electron beam. Opt. Spectrosc. 52, 563 (1982) Soviet Union
01543 E	E03: $e + V$	0-250 eV	Melnikov, V. V.; Smirnov, Y. B. Electron-impact excitation of vanadium atoms. Opt. Spectrosc. 53, 15 (1982) Soviet Union
01544 E	E07: $e + Kr^+$	580-1200 K	Agafonova, G. A.; Kolokolov, V. B.; Toronov, O. G. Second-order collisions between slow electrons and metastable krypton atoms in the 2P_1 state. Opt. Spectrosc. 53, 117 (1982) Soviet Union
01545 E	R07: $2h\nu + Li^+; 2h\nu + Na^+; 2h\nu + K^+;$ $2h\nu + Rb^+; 2h\nu + Cs^+$	0.25-0.6 eV	Golovinskii, P. A.; Zon, B. A. Effect of atomic polarization on two-photon electron detachment from the corresponding negative ions. Opt. Spectrosc. 53, 125 (1982) Soviet Union
01546 E	R02: $h\nu + H_2; h\nu + O_2; h\nu + H_2O$	327 nm	Eliseev, A. A.; Popova, T. B.; Savodina, O. V.; Stenina, V. F. Measurement of relative effective Raman scattering cross sections for hydrogen, oxygen, and water molecules under ultraviolet excitation. Opt. Spectrosc. 53, 190 (1982) Soviet Union
01547 E	A06: $h\nu + Sr^{2+}; h\nu + Ca^{2+}; h\nu + Yb^{2+};$ $h\nu + Zn^{2+}; h\nu + Zr^{2+}; h\nu + Sn^{2+};$ $h\nu + Th^{2+}$	Undef	Zilitis, V. A. Calculation of photoionization cross sections for lithium isoelectronic series ions by the Dirac-Fock method. Opt. Spectrosc. 53, 206 (1982) Soviet Union
01548 E	E03: $e + Ba^+$	5-200 eV	Aleksakhin, L. S.; Zagrebina, S. B.; Osolinsh, D. A.; Sazonov, A. V.; Zhaffranov, I. I.; Shishova, T. A. Effective cross sections for electron-impact excitation of barium atoms from the 5^1D , metastable state. Opt. Spectrosc. 53, 222 (1982) Soviet Union
01549 E	E03: $e + Ge$	5-200 eV	Kolesov, P. A.; Smirnov, Y. B. Measurement of electron-impact excitation cross section of the germanium atoms. Opt. Spectrosc. 53, 263 (1982) Soviet Union
01550 E	A06: $Ca^+ + Sr$	Thermal	Kartashev, V. A.; Kozlov, V. B. Laser-induced charge exchange at thermal energies. Opt. Spectrosc. 53, 346 (1982) Soviet Union
01551 E	A03: $He^+ + He$	100-400 K	Belyaev, A. K.; Devdariani, A. I. $He(4s, ^1P_1, ^3P_2)$ excitation cross section for $He(2^3S) + He$ thermal collisions. Opt. Spectrosc. 53, 362 (1982) Soviet Union
01552 E	A06: $He^+ + Ca$ A07: $He^+ + Ca$	Thermal	Fogel, D.; Tolmachev, Y. A. Processes of nonresonant charge exchange and Penning ionization in He-Ca mixtures at thermal energies. Opt. Spectrosc. 53, 558 (1982) Soviet Union
01553 E	R02: $h\nu + H_2$	70-200 eV	Alaverdov, V. I.; Podolyak, E. B. Photoabsorption cross section for molecular hydrogen in the 70-200-eV region. Opt. Spectrosc. 53, 665 (1982) Soviet Union

Ref. No.	Reactants	Energy Range	Reference
01554 E	J02: Electron transport; Attachment; Ionization; Detachment; Excitation		Gallagher, J. E.; Dwyer, S. C.; Dutton, J.; Ritchford, L. C. An annotated compilation and appraisal of electron swarm data in electronegative gases. <i>J. Phys. Chem. Ref. Data</i> 12, 109 (1983) United States
01555 T	K03: Photoionization		Schapp, R.; Schenker, R.; Schmid, F.; Hellmann, P.; Hubbell, J. W. Small-angle Rayleigh scattering of photons at high energies: calculations of relativistic NPS modified atomic form factors. <i>J. Phys. Chem. Ref. Data</i> 12, 467 (1983) United States
01556 E	K01: Chemical reaction		Cohen, B.; Bentrup, K. E. Chemical kinetic data sheets for high-temperature chemical reactions. <i>J. Phys. Chem. Ref. Data</i> 12, 531 (1983) United States
01557 T	J01: Electron capture	10-10 ⁶ eV/amu	Janov, R. L.; Branden, R. E.; Gallagher, J. E. Evaluated theoretical cross section data for charge exchange of multiply charged ions with atoms: I. Hydrogen atom-partially stripped ion systems. <i>J. Phys. Chem. Ref. Data</i> 12, 829 (1983) United States
01558 T	J01: Electron capture	10-10 ⁶ eV/amu	Gallagher, J. E.; Branden, R. E.; Janov, R. L. Evaluated theoretical cross section data for charge exchange of multiply charged ions with atoms: II. Hydrogen atom-partially stripped ion systems. <i>J. Phys. Chem. Ref. Data</i> 12, 873 (1983) United States
01559 E-T	J02: Ionization	10-10 ⁶ eV	Sell, L. L.; Gilbody, R. B.; Hughes, J. G.; Kingston, A. E.; Smith, P. J. Recommended data on the electron impact ionization of light atoms and ions. <i>J. Phys. Chem. Ref. Data</i> 12, 891 (1983) United Kingdom
01560 T	E03: e + H	5000-3x10 ⁶ eV	Drake, S. A. Electron collisional rate coefficients for low-level transitions in hydrogen. <i>Mon. Not. R. Astron. Soc.</i> 205, 159 (1983) United States
01561 T	K04: hν + Mg ⁺	Undef	Hibbert, A.; Dufton, P. L.; Sarra, M. J.; York, D. G. Oscillator strengths for Mg ⁺ transitions. <i>Mon. Not. R. Astron. Soc.</i> 205, 535 (1983) United Kingdom
01562 E	C04: H ⁺ + SiO ₂ ; H ⁺ + SiO ₂ ; H ⁺ + Ta ₂ O ₅	20-100 keV	Bautala, A.; Paltama, R.; Anttila, A.; Luomaajarvi, E. Ion range distributions in oxides. <i>Nucl. Instrum. Methods Phys. Res.</i> 209-210, 37 (1983) Finland
01563 T	D02: Cu ⁺ + Cu; Ni ⁺ + Ni	90 keV	Roman, R.; Mueller, G. P.; Fraser, W. A. Computer study of self-sputtering of Cu and Ni at 90-keV. <i>Nucl. Instrum. Methods Phys. Res.</i> 209-210, 63 (1983) United States
01564 E	D02: Ca ⁺ + Si	4-12 keV	Wittneach, K. Impact-energy dependence of atomic sputtering and selective sputtering of light impurities in cesium-boostered silicon. <i>Nucl. Instrum. Methods Phys. Res.</i> 209-210, 191 (1983) East Germany
01565 E	D01: He ⁺ + Ni; He ⁺ + alloy	5 keV	Van Swijghoven, R.; Stals, L. E.; Kuyt, G. Helium bubble and blister formation for nickel and an amorphous Fe-Ni-Mo-S alloy during 5 keV He ⁺ -irradiation at temperatures between 200-K and 600-K. <i>Nucl. Instrum. Methods Phys. Res.</i> 209-210, 461 (1983) Belgium
01566	K04: Sputtering		Johnson, S. E.; Brown, S. L. Sputtering of insulators due to electric excitation, by fast ions and electrons. <i>Nucl. Instrum. Methods Phys. Res.</i> 209-210, 469 (1983) United States
01567 E	D02: Ar ⁺ + Si; Ne ⁺ + Si; H ₂ ⁺ + Si; C ⁺ + Si	0.2-80 keV	Sielanko, J.; Sova, G. The influence of radiation damage on the sputtering yield of silicon. <i>Nucl. Instrum. Methods Phys. Res.</i> 209-210, 483 (1983) Poland
01568 T	D04: Ar ⁺ + Al; Ar ⁺ + Si	3 keV	Andersson, T. B.; Finn, J.; Matties, J. A. Super electron emission from the decay of collisionally-excited atoms sputtered from Al and Si. <i>Nucl. Instrum. Methods Phys. Res.</i> 209-210, 495 (1983) United States
01569 E	D02: Ar ⁺ + Co; Xe ⁺ + Co	80-200 keV	Serholthristensen, L.; Johansen, A.; Johnson, R.; Choksy, V. S. Sputtering of cobalt with noble gas ions. <i>Nucl. Instrum. Methods Phys. Res.</i> 209-210, 543 (1983) Denmark
01570	K04: Trapping		Seller, R. The behaviour of hydrogen atoms implanted into metals. <i>Nucl. Instrum. Methods Phys. Res.</i> 209-210, 773 (1983) West Germany

Ref. No.	Reactants	Energy Range	Reference
01571 E	D02: He ⁺ + SS	0.0-0 NeV	Parzti, P.; Benay, G.; Popany, L.; Fried, R.; Hanaaba, A.; Kotal, E.; Lohner, T.; Pocz, L. Etfoliation on stainless steel and inconel produced by 0.0-0 NeV helium ion bombardment. Nucl. Instrum. Methods Phys. Res. 209-210, 1001 (1983) Hungary
01572	E04: Conference		Binasso, R.; Destefanis, G.; Gaillard, J. P. Proceedings of the Third International Conference on Ion Beam Modification of Materials, Grenoble, France, September 6-10, Part I, (1982) France
01573 T	A07: He ⁺ + PERT	Under	Motayama, T.; Saitoh, L. Helium-induced L-shell ionization cross sections. Nucl. Instrum. Methods Phys. Res. 211, 525 (1983) Japan
01574 E	A02: Ar ⁺ + H ₂ O; Ar ⁺ + CO; Ar ⁺ + NH ₃ A03: Ar ⁺ + H ₂ O; Ar ⁺ + CO; Ar ⁺ + NH ₃	3 keV	Haring, R. A.; Haring, A.; Klein, P. S.; Kemmel, A. C.; De Vries, A. R. Reactive sputtering of simple condensed gases by keV heavy ion bombardment. Nucl. Instrum. Methods Phys. Res. 211, 529 (1983) The Netherlands
01575 E	D02: Ar ⁺ + Ag; Ar ⁺ + Au	100 keV	Seller, R. R. Some dependence in angular distributions of Ag and Au sputtered from an alloy target. Nucl. Instrum. Methods Phys. Res. 212, 419 (1983) United States
01576 E	C02: H ⁺ + H ₂ ; D ⁺ + H ₂ D04: H ⁺ + H ₂ ; D ⁺ + H ₂	0.67-3.1 keV/amu	Borgesen, P.; Sorensen, R.; Ene-Hing, C. Ranges, reflection and secondary electron emission from keV hydrogen ions incident on solid Si. Nucl. Instrum. Methods Phys. Res. 212, 517 (1983) Denmark
01577 E-1	C02: H ⁺ + PERT	60-1000 keV	Ameyr, P.; Bauer, P.; Semrad, . Accuracy of stopping cross section determination from RBS-spectra by Barker's method. Nucl. Instrum. Methods Phys. Res. 212, 529 (1983) Austria
01578 E	D02: He ⁺ + Cr; He ⁺ + Fe; He ⁺ + Ni; He ⁺ + SS; Ar ⁺ + Ni D11: Cr + C; Fe + C; Ni + C	D02: 50 keV, D11:	Tomita, R.; Ikuchi, R.; Miyagi, S.; Sakimura, R. A PIXE-RBS method for measuring partial sputtering yields of stainless steel. Nucl. Instrum. Methods Phys. Res. 213, 469 (1983) Japan
01579 E	C05: H ⁺ + Al; H ⁺ + Ni; H ⁺ + No; H ⁺ + Ta; D ⁺ + Al; D ⁺ + Ni; D ⁺ + No; D ⁺ + Ta	3-5 NeV	Dixon, D. R.; Jensen, G. L.; Morrill, S. R.; Walter, R. L.; Gould, C. R. Multiple scattering of protons and deuterons by thick foils. Nucl. Instrum. Methods Phys. Res. 213, 525 (1983) United States
01580 T	A07: H ⁺ + PERT	Under	Paul, R.; Obermann, R. Reference cross sections for K-shell ionization by light ions. Nucl. Instrum. Methods Phys. Res. 214, 15 (1983) Austria
01581 T	A07: H ⁺ + Ni; H ⁺ + Au; H ⁺ + Ag; H ⁺ + Cu; He ⁺ + Dy; He ⁺ + Pb	10 ⁻³ -200 NeV	Trautmann, D.; Rosel, P.; Bauer, G. Accurate calculation of inner-shell ionization. Nucl. Instrum. Methods Phys. Res. 214, 21 (1983) Switzerland
01582 E	A07: D ⁺ + Ge; D ⁺ + Sr; D ⁺ + Zr; D ⁺ + Mo; D ⁺ + Ag; He ⁺ + Ge; He ⁺ + Sr; He ⁺ + Zr; He ⁺ + Mo; He ⁺ + Ag	0.2-0.45 keV/amu	Jones, A. P.; Pimentel, I. R.; Lopes, J. S. The binding effect in alpha- and deuteron-induced L-shell x-ray production in the Z = 32-47 region. Nucl. Instrum. Methods Phys. Res. 214, 29 (1983) Portugal
01583 T	A07: H ⁺ + Sc; H ⁺ + Ti; H ⁺ + Co; H ⁺ + Ni; H ⁺ + Cu; H ⁺ + Zn	0.5-2.0 NeV	Lead, D. J.; Sisona, D. G.; Brown, R. D. Optimized basis states for inner-shell ionization. Nucl. Instrum. Methods Phys. Res. 214, 35 (1983) United States
01584 T	A07: H ⁺ + Au	0.2-6.0 NeV	Sarkadi, L. L-shell Coulomb ionization. Nucl. Instrum. Methods Phys. Res. 214, 43 (1983) Hungary
01585 T	A07: C ⁺ + Al; He ⁺ + Al; He ⁺ + Fe	0.1-6.0 keV/amu	Becker, R. L.; Ford, A. L.; Bonding, J. P. Theory of L-shell ion-ionization: inclusive cross sections and multiple-vacancy (K-metalite) distributions. Nucl. Instrum. Methods Phys. Res. 214, 49 (1983) United States
01586 T	A06: P ⁺ + Au; P ⁺ + Pb; P ⁺ + Bi; P ⁺ + Au; P ⁺ + Pb; P ⁺ + Bi; P ⁺ + Au; P ⁺ + Pb; P ⁺ + Bi; P ⁺ + Au; P ⁺ + Pb; P ⁺ + Bi; P ⁺ + Au; P ⁺ + Pb; P ⁺ + Bi; A07: P ⁺ + Au; P ⁺ + Pb; P ⁺ + Bi; P ⁺ + Au; P ⁺ + Pb; P ⁺ + Bi; P ⁺ + Au; P ⁺ + Pb; P ⁺ + Bi; P ⁺ + Au; P ⁺ + Pb; P ⁺ + Bi; P ⁺ + Au; P ⁺ + Pb; P ⁺ + Bi	25-35 NeV	McDonnell, P. D. Direct ionization and capture in inner-shell processes. Nucl. Instrum. Methods Phys. Res. 214, 57 (1983) United States

Ref. No.	Reactants	Energy Range	Reference
01587 L	A06: $H^+ + C; H^+ + He; H^+ + Ar; H^+ + Cu;$ $H^+ + Ag; H^+ + Mo; He^{2+} + C;$ $He^{2+} + He; He^{2+} + Ar; He^{2+} + Cl;$ $He^{2+} + Ag; He^{2+} + Mo; Li^{2+} + C;$ $Li^{2+} + He; Li^{2+} + Ar; Li^{2+} + Cu;$ $Li^{2+} + Ag; Li^{2+} + Mo$ A07: $H^+ + C; H^+ + He; H^+ + Ar; H^+ + Cu;$ $H^+ + Ag; H^+ + Mo; He^{2+} + C;$ $He^{2+} + He; He^{2+} + Ar; He^{2+} + Cu;$ $He^{2+} + Ag; He^{2+} + Mo; Li^{2+} + C;$ $Li^{2+} + He; Li^{2+} + Ar; Li^{2+} + Cu;$ $Li^{2+} + Ag; Li^{2+} + Mo$	Undef	Borsdal-Pedersen, E. Probabilities for K-shell ionization and capture by light ions: scaling properties. Nucl. Instrum. Methods Phys. Res. 216, 65 (1983) Denmark
01588 E	A06: $Si^{2+} + Ar; Si^{2+} + Ar; Si^{2+} + Ar;$ $Si^{2+} + Ar; Si^{2+} + Ar; Si^{2+} + Ar;$ $Si^{2+} + Ar$ A07: $Si^{2+} + Ar; Si^{2+} + Ar; Si^{2+} + Ar;$ $Si^{2+} + Ar; Si^{2+} + Ar; Si^{2+} + Ar;$ $Si^{2+} + Ar$ A16: $Li^- + H_2$ C06: $Li^- + H_2$	2-20 MeV	Johnson, E. E. Measurements of charge change in atomic collisions at MeV energies. Nucl. Instrum. Methods Phys. Res. 216, 73 (1983) United States
01589 E	A06: $He^{2+} + O_2; He^{2+} + CO; He^{2+} + CO_2;$ $He^{2+} + CH_4; H^+ + O_2; H^+ + CO;$ $H^+ + CO_2; H^+ + CH_4$	0.6-3.2 MeV	Binsinger, G. Additivity failure in charge transfer from molecules to bound and continuum states of approximately 80 eV/a H^+ , He^{2+} projectiles. Nucl. Instrum. Methods Phys. Res. 216, 81 (1983) United States
01590 T	A03: $H^+ + Ar$	1 MeV	Schäber, T. L. Screening effects for excitation probabilities in ion-atom collisions. Nucl. Instrum. Methods Phys. Res. 216, 89 (1983) United States
01591 T	A06: $Si^{2+} + He; O^{2+} + He; O^{2+} + He;$ $O^{2+} + He; O^{2+} + He; O^{2+} + He$	1-20 MeV	Brandt, D. A simple classical model for the impact parameter dependence of electron capture. Nucl. Instrum. Methods Phys. Res. 216, 93 (1983) United States
01592 T	A06: $H^+ \text{ seg} + H$	0-20 keV/amu	Thomson, V. E. Treatment of long-range couplings in collisional charge transfer from $H(1s)$ to fully stripped ions. Nucl. Instrum. Methods Phys. Res. 216, 97 (1983) Canada
01593 T	A06: $H^+ + H$ A07: $H^+ + H$ A18: $H^+ + H$	25-200 keV	Olson, R. E. Angular scattering in ion-atom collisions at intermediate energies. Nucl. Instrum. Methods Phys. Res. 216, 103 (1983) United States
01594 E	A06: Review A07: Review	4-4000 MeV	Gilbody, H. B. Collisions involving hydrogen atoms. Nucl. Instrum. Methods Phys. Res. 216, 109 (1983) United Kingdom
01595 E	C07: $Hg^+ + C$	48 MeV	Haurer, R. J.; Watson, R. L.; Pedersini, G. J. Spectra of sp - is transitions excited during the passage of 48 MeV ions through thin and thick carbon targets. Nucl. Instrum. Methods Phys. Res. 216, 117 (1983) United States
01596 E	C06: Review D04: Review	1-10 ⁷ keV/amu	Frischkorn, R. J.; Groeneveld, H. G.; Hofmann, D.; Kuschke, P.; Litz, R.; Schader, J. Ion induced electron ejection from solids. Nucl. Instrum. Methods Phys. Res. 216, 123 (1983) West Germany
01597 E-T	F05: Review	20-1800 eV	Crandall, D. R. Electron-ion collisions of fusion interest. Nucl. Instrum. Methods Phys. Res. 216, 129 (1983) United States
01598 E	C02: $He^+ + H_2; He^+ + He; He^+ + H_2;$ $He^+ + O_2; He^+ + He; He^+ + Ar;$ $He^+ + Kr; He^+ + Xe; He^+ + CH_4;$ $He^+ + CO_2$	0.1-1.1 MeV	Seemgart, H.; Bery, R.; Huttel, R.; Pfaff, E.; Reiter, G.; Claumitner, G. The stopping cross sections in H_2 , He, H_2 , O_2 , He, Ar, Kr, Xe, CH_4 , and CO_2 . Nucl. Instrum. Methods Phys. Res. 215, 319 (1983) West Germany
01599 E	C02: $He^+ + Ar; He^+ + He; He^+ + C;$ $Pb^+ + He; He^+ + He; He^+ + Ar;$ $U^+ + He; Pb^+ + He; Pb^+ + Ar;$ $He^+ + He; He^+ + Ar; He^+ + He;$ $Kr^+ + Ar$ C05: $He^+ + Ar; He^+ + He; He^+ + C;$ $Pb^+ + He; He^+ + He; He^+ + Ar;$ $U^+ + He; Pb^+ + He; Pb^+ + Ar;$ $He^+ + He; He^+ + Ar; He^+ + He;$ $Kr^+ + Ar$	1.4-10 MeV/amu	Gelinas, H.; Leichter, Y.; Schneider, V. P. V.; Arnbruster, P. Energy loss straggling of 1.4-10 MeV/a heavy ions in gases. Nucl. Instrum. Methods Phys. Res. 215, 329 (1983) West Germany

Ref. No.	Reactants	Energy Range	Reference
01670 E	C02: He ²⁺ + H ₂ O	0.3-2.6 MeV	Kabartov, E. Developments regarding the Bragg rule for stopping power and critical examination of its application to water. Nucl. Instrum. Methods Phys. Res. 215, 337 (1983) United States
01601 E	C02: H ⁺ + C C05: H ⁺ + C	50-150 keV	Bottermans, G.R.J.; Smeenk, B. G.; Westendorp, J.F.M. The energy straggling of protons in thin carbon foils. Nucl. Instrum. Methods Phys. Res. 215, 555 (1983) The Netherlands
01602 E	C06: C ⁺ + C	3 MeV/s	Cover, R.E.B.; Woods, C. J.; Sofield, C. J. The gas-solid density effect for MeV/s ions-charge changing cross sections and the effective charge. Nucl. Instrum. Methods Phys. Res. 216, 287 (1983) United Kingdom
01603 E	C02: H ⁺ + Ag; H ⁺ + Ag; He ⁺ + Ag	0.10-2.6 MeV	Lonbhard, J.; Conradie, J.; Friedland, E. Energy-loss and straggling of hydrogen and helium ions in silver. Nucl. Instrum. Methods Phys. Res. 216, 293 (1983) South Africa
01604 E	C08: Yb ⁺ + Si; Sr ⁺ + Si; Zr ⁺ + Si; Ba ⁺ + Si; Co ⁺ + Si; Nd ⁺ + Si; Zu ⁺ + Si; Gd ⁺ + Si; Tb ⁺ + Si; Tm ⁺ + Si; Yb ⁺ + Si; Hf ⁺ + Si; Ti ⁺ + Si	10-45 keV	Kimielovica, R. Measurements and calculation of low-energy heavy ion profiles in silicon. Nucl. Instrum. Methods Phys. Res. 216, 511 (1983) Poland
01605 E	D07: H ²⁺ + Au	0.9-3.5 MeV	Hingay, D. B.; Rosner, B. Enhanced yields of different charge states of nitrogen ions backscattered at 180-degrees. Nucl. Instrum. Methods Phys. Res. 216, 517 (1983) South Africa
01606 E	F03: e + Ag	0-250 eV	Krasavin, A. Y.; Kuchenev, A. N.; Smirnov, Y. M. Electron-collision excitation cross section of the silver atom. Opt. Spectrosc. 54, 11 (1983) Soviet Union
01607 E	F03: e + R	9-25 eV	Sidorovich, V. A.; Nikolayev, V. S. Modified quasiclassical description of collisions of atomic particles at medium and low energies. Opt. Spectrosc. 54, 10 (1983) Soviet Union
01608 E	F03: e + Na ⁺ ; e + Na ²⁺	50-1000 eV	Zharyay, Y. V.; Vukstich, V. S.; Dashchenko, A. I.; Zapesochay, I. P.; Prostov, V. I. Cross sections for electron-impact excitation of Na II and Na III spectral transitions in the ultraviolet x-ray range. Opt. Spectrosc. 54, 331 (1983) Soviet Union
01609 E-1	F03: e + Te	0-500 eV	Shina, L. I. Agreement between theoretical and experimental values of excitation cross sections of tellurium atoms. Opt. Spectrosc. 54, 458 (1983) Soviet Union
01610 E	A03: He ²⁺ + Kr; He ²⁺ + Ar A06: He ²⁺ + Kr; He ²⁺ + Ar	Undef	Bokhan, P. A.; Morokhin, A. B. Excitation transfer in charge-transfer reactions of multicharged ions. Opt. Spectrosc. 54, 568 (1983) Soviet Union
01611 E	E01: e + He ₂ ⁺ E08: e + He ₂ ⁺ E36: e + He ₂ ⁺	100-4000 K	Ivanov, V. A.; Penkin, B. P.; Shkablo, Y. E. Dissociative recombination of molecular He ₂ ⁺ ions. Opt. Spectrosc. 54, 552 (1983) Soviet Union
01612 E	A11: He + He ⁺	600 K	Kostenko, V. A.; Tolmachev, Y. A. Quenching of the 2 ¹ P ₁ state of helium by He ⁺ . Opt. Spectrosc. 54, 571 (1983) Soviet Union
01613 E	E03: e + Tl	10-100 eV	Shina, L. I. Effective cross sections for electron-impact excitation of Tl II energy levels. Opt. Spectrosc. 54, 662 (1983) Soviet Union
01614 E	A11: He + He ⁺	Undef	Kostenko, V. A.; Tolmachev, Y. A. Kinetics of helium 2 ¹ P ₁ -level decay in a He-He mixture. Opt. Spectrosc. 54, 663 (1983) Soviet Union
01615 E	R06: hv + C; hv + C ⁺ ; hv + C ²⁺ ; hv + C ³⁺ ; hv + C ⁴⁺ ; hv + N; hv + N ⁺ ; hv + N ²⁺ ; hv + N ³⁺ ; hv + N ⁴⁺ ; hv + O; hv + O ⁺ ; hv + O ²⁺ ; hv + O ³⁺ ; hv + O ⁴⁺ ; hv + O ⁵⁺ ; hv + P; hv + P ⁺ ; hv + P ²⁺ ; hv + P ³⁺ ; hv + P ⁴⁺ ; hv + P ⁵⁺ ; hv + S; hv + S ⁺ ; hv + S ²⁺ ; hv + Si ⁺ ; hv + Si ²⁺	10-100 eV	Kanarov, A. S.; Kozlov, B. P.; Protasov, Y. S.; Chuvashov, S. M. Calculation of photoionization cross-section spectra of nonhydrogen-like atoms and ions. Opt. Spectrosc. 55, 9 (1983) Soviet Union

Ref. No.	Reactants	Energy Range	Reference
01616 Z	E03: e + Th	2-300 eV	Shison, L. L.; Garga, I. I.; Kachnarev, V. N.; Furta, L. V. Experimental study of electron-impact excitation of atomic thallium. Opt. Spectrosc. 55, 12 (1983) Soviet Union
01617 T	A12: Tl + He; Tl + Kr; Tl + Xe A17: Tl + He; Tl + Kr; Tl + Xe	700-1000 K	Natygin, V. V.; Sehelev, I. A. Collisional shift and adiabatic broadening of ground state hyperfine transition lines of thallium in buffer atmospheres of helium, krypton, and xenon. Opt. Spectrosc. 55, 16 (1983) Soviet Union
01618 Z-Y	A07: He ⁺ + H ₂ ; He ⁺ + O; He + H ₂ ; He + O A08: He ⁺ + H ₂ ; He ⁺ + O; He + H ₂ ; He + O	100-4000 keV	Snider, S. A.; Singhal, N. P. Electron loss cross sections for He ⁺ as He incident on H ₂ and O. Physica B+C 121, 437 (1983) India
01619 Z-Y	E02: e + Ar; e + Kr E17: e + Ar; e + Kr	10-50 eV	Berg, H. P. Calculation of elastic scattering cross sections for argon and krypton at low energies. Physica B+C 122, 129 (1983) West Germany
01620 T	A07: H ⁺ + Ar; H ⁺ + Cu; H ⁺ + Kr; H ⁺ + Ag; H ⁺ + Xe	0.01-5 MeV	Chatterjee, S. N.; Kesar, A.; Roy, B. N. Proton impact L-shell ionization of atoms. Physica B+C 122, 275 (1983) India
01621 Z	D05: hv + Ta; hv + U; hv + Au; hv + Pb E02: hv + Ta; hv + U; hv + Au; hv + Pb	32-280 keV	Chandralingam, S.; Suresh Babu, K.; Krishna Reddy, D. V. Photoelectronic cross sections around the K edge. Physica B+C 122, 340 (1983) India
01622 Z	E08: hv + Zr; hv + Nb; hv + Mo; hv + Ag; hv + Cd; hv + In; hv + Sn; hv + I	6 keV	Singh, N.; Mittal, N.; Allavadi, K. L.; Sood, B. S. Measurement of the average L-shell fluorescence yields in elements 40 less than or equal to Z less than or equal to 53. Physica B+C 123, 115 (1983) India
01623 T	A03: He ⁺ + He	10-300 keV	Treffer, A.; Jacob, R.; Lüdde, H. J.; Dreisler, H. H. Coupled multichannel calculation for He ⁺ + He collisions in the energy range of 10-300 keV. Phys. Lett. A 93, 10 (1983) West Germany
01624 T	C02: He ²⁺ + Au	3.0 MeV	Ohtsuki, Y. N.; Witta, H. Channeling stopping power for high energy ions. Phys. Lett. A 93, 94 (1983) Japan
01625 Z	E06: e + Fe ²⁺	0.9-3.0 keV	Bely-Dubau, P.; Bitter, H.; Dubau, J.; Pascher, P.; Gabriel, A. R.; Hill, K. W.; Von Gouler, S.; Southoff, W.; Valente, S. Measurement of the Fe XIV dielectronic recombination rate coefficient in the PLT tokamak plasma. Phys. Lett. A 93, 189 (1983) United States
01626 T	A07: PERT ²⁺ + H ₂ ; PERT ²⁺ + He	0.01-400 MeV/amu	Gillespie, G. H. Impact ionization scaling cross sections for fast highly stripped ions colliding with H ₂ and He. Phys. Lett. A 93, 327 (1983) United States
01627 T	E05: e + Li ⁺ E17: e + Li ⁺	500 eV	Boy, A.; Boy, K.; Sil, H. C. Electron impact ionization of Li ⁺ . Phys. Lett. A 95, 63 (1983) India
01628 T	H08: hv + PERT	Undef	Arndt, E.; Hartmann, E. Deexcitation rates and fluorescence yields of highly stripped atoms. Phys. Lett. A 95, 146 (1983) West Germany
01629 T	E01: He E03: e + He	E03: 200 eV	Pasdir, R. S.; Nathur, K. C. Multipole interference in the excitation of helium by simultaneous electron and laser photon impact. Phys. Lett. A 95, 148 (1983) India
01630 Z	A12: Pb + Pb	Thermal	Lukaczewski, H.; Jechowska, I. Broadening of level-crossing signals in the 5 ² P _{3/2} state of rubidium due to resonant collisions. Phys. Lett. A 95, 429 (1983) Poland
01631 T	E03: e + H seq	1-10 Threshold	Callaway, J. Collision strengths for the n = 2 excitation of hydrogenic ions. Phys. Lett. A 96, 81 (1983) United States
01632 T	A03: Fe + Fe A18: Fe + Fe	1.05 MeV	Shawker, R. Statistical treatment of the inner M-shell excitation in heavy ion-atom collisions. Phys. Lett. A 96, 180 (1983) West Germany
01633 T	A06: H ⁺ + Li; He ²⁺ + Li	0.25-25 keV/amu	Sato, H.; Kinura, H. Molecular state calculations of charge transfer in H ⁺ + Li and He ²⁺ + Li collisions. Phys. Lett. A 96, 286 (1983) United States

Ref. No.	Reactants	Energy Range	Reference
01630 T	C02: H ⁺ + Ar; H ⁺ + Kr	0-500 keV	Kahrt, E.; Wodell, R. Energy-loss straggling and higher-order moments of energy-loss distributions for protons. <i>Phys. Lett. A</i> 94, 387 (1983) West Germany
01635 E	C02: H ⁺ + Ag; He ²⁺ + Ag	200-1000 keV	Iferov, G. A.; Khodyrev, V. A.; Sirotin, E. L.; Zhukova, I. M. Impact-parameter dependence of energy loss in high ion scattering by gold atoms. <i>Phys. Lett. A</i> 97, 283 (1983) Soviet Union
01636 T	H06: hv + Hg	2.3-3.3 keV	Radojevic, V.; Johnson, W. R. Photoionization calculation for 3d and 3p subshells of mercury in the decoupled relativistic random-phase approximation. <i>Phys. Lett. A</i> 97, 335 (1983) United States
01637 T	K07: Theory: General		Mo, Y. K. The method of complex coordinate rotation and its applications at atomic collision processes. <i>Phys. Rep.</i> 99, 1 (1983) United States
01638 E	D02: Ar ⁺ + Ge; Kr ⁺ + Ge; Xe ⁺ + Ge	15-35 keV	Grome, D.; Bana, D.; Karmohapatro, S. B. Sputtering of germanium by 15 to 35 keV noble gas ions. <i>Phys. Status Solidi A</i> 77, 121 (1983) India
01629 E	A03: H ⁺ + Cr; H ⁺ + Mn; H ⁺ + Fe; H ⁺ + Co; H ⁺ + Ni; H ⁺ + Cu; H ⁺ + Zn; H ⁺ + Ga; H ⁺ + Ge; H ⁺ + Se; H ⁺ + Br; H ⁺ + Kr; H ⁺ + Rb; H ⁺ + Mo; H ⁺ + Pd; H ⁺ + Ag; H ⁺ + Cd; H ⁺ + In; H ⁺ + Sn A07: H ⁺ + Cr; H ⁺ + Mn; H ⁺ + Fe; H ⁺ + Co; H ⁺ + Ni; H ⁺ + Cu; H ⁺ + Zn; H ⁺ + Ga; H ⁺ + Ge; H ⁺ + Se; H ⁺ + Br; H ⁺ + Kr; H ⁺ + Rb; H ⁺ + Mo; H ⁺ + Pd; H ⁺ + Ag; H ⁺ + Cd; H ⁺ + In; H ⁺ + Sn	30-500 keV	Kreyach, G.; Aekov, E.; Bogdanov, R. L.; Petukhov, V. F.; Romanovskii, E. A. Proton-induced L-shell x-ray emission cross-sections of elements with Z less than or equal to Z ₂ less than or equal to 50 for projectile energies between 30 and 350 keV. <i>Phys. Status Solidi A</i> 78, 507 (1983) East Germany
01640 T	D06: e + C; e + Al; e + Au	10-70 keV	Bogachevski, S. Energy spectra of backscattered electrons for solid films and double layers by use of Werner's analytic model. <i>Phys. Status Solidi A</i> 79, 189 (1983) East Germany
01641 T	D02: Ni ⁺ + Au; Bi ⁺ + Ag; Au ⁺ + Au; Au ⁺ + Ag	0.1-20 keV	Rauschenbach, B.; Hohmuth, K. Analysis of heavy-ion sputtering based on the shock wave model. <i>Phys. Status Solidi A</i> 79, 395 (1983) East Germany
01642 E	D03: O ⁺ + Cs + Si	Under	Frentrop, W.; Griepstrog, H.; Neller-Jakreis, B. The influence of cesium implanted in silicon on the secondary ion emission. <i>Phys. Status Solidi A</i> 79, K193 (1983) East Germany
01643 E	D06: H ⁺ + C; H ₂ ⁺ + C; H ₃ ⁺ + C; C ⁺ + C; H ⁺ + C; O ⁺ + C; He ⁺ + C; H ₂ ⁺ + C; CO ⁺ + C; Kr ⁺ + C; Ar ⁺ + C; CO ₂ ⁺ + C; Xe ⁺ + C	0.04-1.0 MeV	Russelkasp, D.; Scharmann, B. Ion-induced electron emission from carbon. <i>Phys. Status Solidi A</i> 79, K197 (1983) West Germany
01644 E-T	C02: H ⁺ + Au	200 keV	Jahan, M. H.; Lautschner, G. H.; Ehardt, J. C.; Ponce, V. H. Angular dependence of stopping power. <i>Phys. Status Solidi B</i> 117, K131 (1983) Argentina
01645 E	D02: O ⁺ + D ₂ ; F ⁺ + UF ₆ ; Cl ⁺ + UF ₆	0.12-1.5 MeV/amu	Helber, C. K.; Griffith, J. E.; Qiu, Y.; Mc-denhall, R. H.; Seifertling, L. E.; Tombrello, T. A. Sputtering of UF ₆ by high energy heavy ions. <i>Radiat. Eff.</i> 71, 13 (1983) United States
01646 T	D07: H ⁺ + PERT	1-100 keV	Takeuchi, W.; Yamamura, Y. Computer studies of the energy spectra and reflection coefficients of light ions. <i>Radiat. Eff.</i> 71, 53 (1983) Japan
01647 T	D02: H ⁺ + Au; H ⁺ + Ni; D ⁺ + Au; D ⁺ + Ni; He ⁺ + Au; He ⁺ + Ni; He ⁺ + Au; He ⁺ + Ni; He ⁺ + Au; Ar ⁺ + Ni	10 ⁻⁴ -10 ⁴ eV	Yamamura, Y.; Matsunami, H.; Itoh, H. Theoretical studies on an empirical formula for sputtering yield at normal incidence. <i>Radiat. Eff.</i> 71, 65 (1983) Japan
01648 E	D02: He ⁺ + SO ₂ ; F ⁺ + SO ₂	1.4-25 MeV	Lepore, D. J.; Cooper, B. H.; Helcher, C. L.; Tombrello, T. A. Sputtering of SO ₂ by high energy ions. <i>Radiat. Eff.</i> 71, 245 (1983) United States
01649 E	D07: H ₂ ⁺ + Cu	30 keV	Balashova, I. L.; Dodonov, A. I.; Pirsov, O. B.; Garin, E. H.; Mashkova, E. S.; Molchanov, V. A. Directional effects in the reflection of molecular ions with energies of tens of keV from crystal surface. <i>Radiat. Eff.</i> 77, 67 (1983) Soviet Union

Ref. No.	Reactants	Energy Range	Reference
01650 T	D07: He ⁺ + Si	1 MeV	Treacy, P. B.; Foster, C. Computer simulation of MeV low-surface backscattering. Radiat. Eff. 77, 167 (1983) Australia
01651 T	D02: PERT ⁺ + PERT	10 ⁻¹ -10 ⁴ eV	Yasumura, Y.; Matsunami, M.; Itoh, N. A new empirical formula for the sputtering yield. Radiat. Eff. Lett. 68, 83 (1982) Japan
01652 T	D02: Cu ⁺ + Cu	10-500 keV	Van Wyk, G. M.; Latogee, A. R. A formula for the calculation of the sputtering yield of polycrystalline materials. Radiat. Eff. Lett. 68, 107 (1982) South Africa
01653 T	B07: Undef E11: Undef	Undef	Roshchupkin, V. P. Spontaneous bremsstrahlung with electron scattering in the field of a plane electromagnetic wave. Sov. Phys. J. 26, 333 (1983) Soviet Union
01654 T	A02: Undef A17: Undef B07: Undef	Undef	Polyakov, D. G. Scattering of electrons in a strong magnetic field. Sov. Phys.-JETP 56, 33 (1982) Soviet Union
01655 T	B02: hv + Au	2-4 μm	Lemkin, A. G.; Pasternak, V. E.; Tashkhanov, A. A. Absorption of infrared radiation in a small wet particle. Sov. Phys.-JETP 56, 170 (1982) Soviet Union
01656 T	C06: Undef	Undef	Bazylev, V. A.; Demura, A. V. Theory of ionization of fast atomic particles in a crystal. Sov. Phys.-JETP 56, 371 (1982) Soviet Union
01657 T	A03: Undef A07: Undef	Undef	Yudin, G. L. On the relativistic semiclassical theory of the Coulomb excitation of atoms. Sov. Phys.-JETP 56, 511 (1982) Soviet Union
01658 T-T	A07: Ar ¹⁷⁺ + H ₂ ; C ⁸⁺ + H ₂ ; Ne ⁹⁺ + H ₂ ; He ⁴⁺ + H ₂ ; O ⁷⁺ + H ₂ A08: Ar ¹⁷⁺ + H ₂ ; C ⁸⁺ + H ₂ ; Ne ⁹⁺ + H ₂ ; He ⁴⁺ + H ₂ ; O ⁷⁺ + H ₂	2-30 keV	Pressyakov, L. P.; Uskov, D. B.; Jurev, E. K. Charge exchange in slow collisions of multiply charged ions with atoms. Sov. Phys.-JETP 56, 525 (1982) Soviet Union
01659 T	E03: e + H	Undef	Drukarev, G. V. Excitation of hydrogen-atom states with large n and l by electron impact. Sov. Phys.-JETP 56, 532 (1982) Soviet Union
01660 T	B07: hv + H B06: hv + H	36-30 cm ⁻¹	Kondratovich, V. D.; Ostrovskii, V. N. Resonance structure of the cross section for photoionization of a hydrogen atom in an electric field. Sov. Phys.-JETP 56, 719 (1982) Soviet Union
01661 T	H06: hv + H ⁺	9.6-10.8 μm	Berson, J. Y. Multiphoton ionization of highly excited atomic states. Sov. Phys. JETP 56, 731 (1982) Soviet Union
01662 T	A02: Undef A05: Undef B07: Undef	Undef	Bakaev, D. S.; Ydovin, Y. A.; Erachenko, V. N.; Yakovlenko, S. I. Optical collisions and the atomic spectrum in a strong resonant field. Sov. Phys.-JETP 56, 743 (1982) Soviet Union
01663 T	F04: e + O ₂ ⁺	0.2-3 eV	Akhmanov, S. A., Jr.; Klopovskii, L. S.; Osipov, A. P. Dissociative recombination of an electron and a molecular ion. Sov. Phys.-JETP 56, 936 (1982) Soviet Union
01664 T	A02: Undef B07: Undef H07: Undef	Undef	Fabrikant, I. I. Scattering of electrons by atoms and photodetachment of negative ions in a homogeneous electric field. Sov. Phys.-JETP 56, 967 (1982) Soviet Union
01665 T-T	K06: hv + Na	Undef	Prochraneshkii, N. A. Electron polarization in multiphoton ionization of atoms. Sov. Phys.-JETP 56, 1149 (1982) Soviet Union
01666 T	B07: Undef H07: Undef	Undef	Kashov, A. B.; Fedorov, N. V. Threshold singularities of the photodetachment of an electron from a negative ion by a strong electromagnetic field. Sov. Phys.-JETP 56, 1179 (1982) Soviet Union

Ref. No.	Reactants	Energy Range	Reference
01667 Y	D03: Undef	Undef	Veksler, V. I. Theory of kinetic ion emission. Sov. Phys.-Solid State 24, 997 (1982) Soviet Union
01668 E	D08: e + CsI + Cd; e + CsBr + Cd; e + CsI + CsBr	0.6-4.0 keV	Calli, P. V.; Tsai, H. A. Energy and temperature dependences of secondary electron emission from cadmium-doped CsI and CsBr films. Sov. Phys.-Solid State 25, 128 (1983) Soviet U
01669 E	D06: e + Be; e + C; e + Al; e + Ca; e + Ag; e + Au	100-1500 eV	Kanchenko, V. A.; Kryz'ko, V. M.; Mel'nik, P. V.; Sakhodkin, N. G. Elastic reflection of electrons from disordered targets. Sov. Phys.-Solid State 25, 832 (1983) Soviet Union
01670 E	D08: e + HD; e + H ₂ ; e + D ₂ ; H ⁺ + HD; H ⁺ + H ₂ ; H ⁺ + D ₂	0.5-10 keV	Sorensen, H.; Schou, J.; Hao-Ning, C.; Borgesen, P. Secondary electron emission from solid HD and a solid H ₂ -D ₂ mixture. Surf. Sci. 125, 355 (1983) Denmark
01671 E	D13: e + H + W	10-550 eV	Kiang, L. T.; Lichtner, B. Electron stimulated desorption of H ⁺ and H ⁺ from hydrogen covered tungsten. Surf. Sci. 125, 490 (1983) United States
01672 E	D11: H ₂ + W	143-373 E	Alnot, J.; Klag, D. A. Trapping, sticking and reactive scattering in chemisorption: nitrogen isotopes on W(100). Surf. Sci. 126, 359 (1983) United Kingdom
01673 E	D08: Cs ⁺ + Si	2-12 keV	Wittmann, H. Secondary ion yield variations due to cesium implantation in silicon. Surf. Sci. 126, 573 (1983) West Germany
01674 E	D17: Ar ⁺ + NiO	40-2000 eV	Bartella, J.; Oechsner, H. Stoichiometry effects at NiO surfaces under bombardment with Ar ⁺ ions from 40 to 2000 eV. Surf. Sci. 126, 581 (1983) West Germany
01675 E	D09: He ⁺ + Ag; He ⁺ + Ag; H ₂ O ⁺ + Ag	1-6 keV	de Wit, A.G.J.; Van Zonst, J. M.; Fleit, J. M. Neutralization of keV ions scattered by Ag(110). Surf. Sci. 126, 589 (1983) The Netherlands
01676 E	D08: Ar ⁺ + W	10-100 eV	Bofer, W.; Vanek, W.; Varga, P.; Winter, H. Potential emission from tungsten due to impact of slow metastable ions. Surf. Sci. 126, 605 (1983) West Germany
01677 E	D13: e + H + Cr; e + H + Al; e + H + W; e + H + Ni; e + H + Si; e + H + Pd; e + H + Pt; e + H + Fe; e + H + Ti; e + H + Cu; e + O + Al; e + O + W; e + O + Cr; e + O + Ti	2-30 eV	Bernhe's, H.; Chaintreau, H.; Demeubou, H.; Slodzien, G. Desorption of negative ions on metallic samples by very low energy electrons. Surf. Sci. 126, 610 (1983) France
01678 E	D09: H ⁺ + Cs + W	0.8-2.0 keV	Van Swanik, J.H.M.; Brako, B.; Sakonji, K.; Luns, D. H. Effect of parallel velocity on charge fraction in ion-surface scattering. Surf. Sci. 126, 618 (1983) The Netherlands
01679 E	D03: Ar ⁺ + Ta	4 keV	Oechsner, H.; Kronbek, I. The formation of Ta ⁺ secondary ions at oxygen-covered Ta surfaces. Surf. Sci. 127, 10 (1983) West Germany
01680 E	D13: e + H ₂ + Pt	10 ³ eV	Craig, J. H., Jr. Comparison of H ⁺ and H ⁻ ESD from hydrogen on platinum. Surf. Sci. 127, 175 (1983) United States
01681 E	D03: Ar ⁺ + Ba	10 keV	Grishchovsky, D.; Yu, N. L.; Balamt, A. C. The effect of oxygen on the "battering" of metastable atoms and ions from Ba metal. Surf. Sci. 127, 315 (1983) United States
01682 E	D02: Ar ⁺ + Au; Ar ⁺ + Cu	3 keV	Kang, H. J.; Matsuda, Y.; Shimizu, B. Angular distributions of Au and Cu atoms sputtered from Au-Cu alloys by keV Ar ⁺ ion bombardment. Surf. Sci. 127, 1179 (1983) Japan
01683 E	D07: He ⁺ + Ni	2.4 keV	Yarnoff, J. A.; Williams, R. S. Computer simulations of ion scattering spectra for 2.4 keV He ⁺ incident on Ni(001). Surf. Sci. 127, 461 (1983) United States
01684 E	D13: e + NaCl; hv + NaCl; hv + LiF	40-160 eV	Pian, T. B.; Traus, M. H.; Kraus, J. S.; Folk, H. H.; Stoffel, H. G.; Margaritondo, G. Electron and photon stimulated desorption of positive ions from alkali halide surfaces. Surf. Sci. 126, 13 (1983) United States

Ref. No.	Reactants	Energy Range	Reference
01685 E	D17: Ar ⁺ + Si + Si	5 keV	Rehn, L. E.; Boccia, V. E.; Biedernich, R. Sputter-induced compositional changes in a Si-Si alloy. <i>Surf. Sci.</i> 128, 37 (1983) United States
01686 E	D07: He ⁺ + Au; He ⁺ + Ag	100-10 ³ keV	Shoji, P.; Kanawa, P. Inelastic effect in low energy ion-surface collisions: He ⁺ -Au, Ag. <i>Surf. Sci.</i> 129, L261 (1983) Japan
01687 E	D13: e + NaCl; e + LiF; e + KCl	0-500 eV	Pinn, T. B.; Falk, H. E.; Trass, H. E.; Kraus, J. S.; Collins, V. L. Energy dependence of electron stimulated desorption of excited neutral alkalis from alkali halides. <i>Surf. Sci.</i> 129, 573 (1983) United States
01688 E	D07: He + Cu	Undef	Ramon, R. P.; McGreer, K.; Williams, R. E. Inelastic scattering of He atoms from a Cu(110) surface. <i>Surf. Sci.</i> 130, 282 (1983) United States
01689 E	D07: H ₂ + Pt; CH ₄ + Pt	340-3520 K	Janda, R. C.; Burst, J. E.; Covin, J.; Wharton, L.; Auerbach, R. J. Direct-inelastic and trapping-desorption scattering of H ₂ and CH ₄ from Pt(111). <i>Surf. Sci.</i> 130, 395 (1983) United States
01690 E	D03: Undef	Undef	Garrett, R. P.; MacDonald, S. J.; O'Connor, R. J. Comments on the physical significance of E _P values for excited sputtered atoms. <i>Surf. Sci.</i> 131, L399 (1983) Australia
01691 E	D08: H ⁺ + Cs + W	0.4-2.0 keV	Van Housik, J.M.E.; Geerlings, J.J.C.; Los, J. The velocity dependence of the negatively charged fraction of hydrogen scattered from covalent tungsten surfaces. <i>Surf. Sci.</i> 131, 1 (1983) The Netherlands
01692 E	D08: H ⁺ + Cs + W	0.1-2.0 keV	Van Housik, J.M.E.; Geerlings, J.J.C.; Graessner, E.H.A.; Los, J. The scattering of hydrogen from a covalent tungsten surface. <i>Surf. Sci.</i> 131, 17 (1983) The Netherlands
01693 E	D06: e + Al	1.5-3.0 keV	Shinaka, R.; Ichisawa, S. Direct Monte Carlo simulation of scattering processes of keV electrons in aluminum; comparison of theoretical E(E) spectra with experiment. <i>Surf. Sci.</i> 133, 250 (1983) Japan
01694 E	D02: Undef	Undef	Motohiro, T.; Tago, T. Monte Carlo simulation of thermalization process of sputtered particles. <i>Surf. Sci.</i> 134, L494 (1983) Japan
01695 E	D02: He ⁺ + TiC; Ar ⁺ + TiC D17: He ⁺ + TiC; Ar ⁺ + TiC	1.5-3.0 keV	Kang, K. J.; Matsuda, Y.; Shinaka, R. Preferential sputtering of TiC under keV Ar ⁺ ion bombardment: simultaneous sputtering-155 measurement with He ⁺ and Ar ⁺ ions. <i>Surf. Sci.</i> 134, 1500 (1983) Japan
01696 E	D13: Undef	Undef	Pearlstone, R. A.; McClelland, G. E. Direct bound-free photo-desorption of physisorbed molecules. <i>Surf. Sci.</i> 134, 389 (1983) United States
01697 E	D17: Ar ⁺ + SiO ₂ ; e + SiO ₂	0.5-2.0 keV	Zilinski, E.; Skorobogatov, N.; Pranevicius, L.; Sakala, A. Temperature dependence of compositional changes of SiO ₂ surface during ion and electron bombardment. <i>Surf. Sci.</i> 134, 464 (1983) Soviet Union
01698 E	D03: Ar ⁺ + Ti	3.5 keV	Arlinghaus, R.; Bisping, H. Examination of the LTE model for the sputtering process with spectroscopy of ion induced photons (SIIP). <i>Surf. Sci.</i> 134, 567 (1983) West Germany
01699 E	D13: e + Xe + Ag; e + Kr + Ag; e + Ar + Ag	250-400 eV	Hooy, L. B.; Uguris, J.; Webb, B. B. Electron stimulated desorption of Xe, Kr, and Ar. <i>Surf. Sci.</i> 134, 849 (1983) United States
01700 E	D04: e + HgO	2.5 keV	Gibson, J. B.; Thomas, R. E. Secondary electron emission and conductivity mechanisms of epitaxial HgO films. <i>Appl. Surf. Sci.</i> 4, 56 (1982-83) United States
01701 E	D11: CO + Fe	Thermal	Hedler, G.; Schumann, B. Study of the adsorption and decomposition of CO on Fe(110) with an improved vibrating capacitor. <i>Appl. Surf. Sci.</i> 10, 137 (1982-83) East Germany
01702 E	D11: O ₂ + Ni	Thermal	Winkler, A.; Sandulic, K. D.; Wendl, K. Quantitative measurement of the sticking coefficient for oxygen on nickel. <i>Appl. Surf. Sci.</i> 10, 209 (1982-83) Austria

Ref. No.	Reactants	Energy Range	Reference
01703 E	D03: $\text{Ar}^+ + \text{CoSi}; \text{Ar}^+ + \text{CoSi}_2$	300-3000 eV	Castro, G. R.; Koppers, J.; Ivashchenko, V. Sputtering of $\text{CoSi}(100)$ and $\text{CoSi}_2(100)$ single crystal surfaces. <i>Appl. Surf. Sci.</i> 16, 453 (1983) East Germany
01704 E	D11: $\text{H}_2 + \text{Rh}$	Thermal	Crucq, A.; Leonard, G.; Begois, L.; Fremont, A. Hydrogen adsorption on Rh. <i>Appl. Surf. Sci.</i> 17, 79 (1983) Belgium
01705 T	E03: $e + \text{Li}$	10-5000 eV	Canas, P. S. Excitation of lithium atoms by electron impact. <i>Can. J. Phys.</i> 61, 1 (1983) United States
01706 E	A12: $\text{H}_2 + \text{CO}$	93-190 K	Bocanich, J. P.; Fartung, R.; Brodbeck, C. Direct measurements of H_2 broadened linewidths in the CO fundamental at low temperatures. <i>Can. J. Phys.</i> 61, 192 (1983) France
01707 T	H06: $h\nu + e + \text{H}; h\nu + e + \text{Ph}^{+1}$	1-10 Threshold	Goldman, S. V.; Drake, G.W.F. Relativistic effects in the photoionization of hydrogenic ions. <i>Can. J. Phys.</i> 61, 199 (1983) Canada
01708 E	H02: $h\nu + \text{H}_2$	30-2000 cm^{-1}	Bachet, G.; Cohen, E. R.; Dorw, P.; Birnbaum, G. The translational-rotational absorption spectrum of hydrogen. <i>Can. J. Phys.</i> 61, 591 (1983) France
01709 T	A17: $\text{H}_2 + \text{H}_2\text{O}; \text{H}_2 + \text{CO}_2$	Undef	Fandey, L.; Reddy, C.P.K.; Sarkar, K. L. Intermolecular potentials from SHR data: $\text{H}_2\text{-H}_2\text{O}$ and $\text{H}_2\text{-CO}_2$. <i>Can. J. Phys.</i> 61, 664 (1983) India
01710 T	E03: $e + \text{H}$ E17: $e + \text{H}$	100-1000 eV	Saha, N. 2S excitation of atomic hydrogen by electron impact at high energies. <i>Can. J. Phys.</i> 61, 748 (1983) India
01711 E	A12: $\text{H}_2 + \text{CO}; \text{CO} + \text{CO}$	133-298 K	Bocanich, J. P. Linewidths in the first overtone band of CO self-perturbed and perturbed by H_2 at 298, 153, and 133 K. <i>Can. J. Phys.</i> 61, 919 (1983) France
01712 T	E03: $e + \text{Si}^{1+}; e + \text{Ca}^{1+}; e + \text{Fe}^{1+};$ $e + \text{Li}^+; e + \text{O}^{2+}; e + \text{Be}^{2+}; e + \text{B}^{2+};$ $e + \text{C}^{3+}; e + \text{N}^{3+}$	5-2433 Ry	Singh, C. S.; Srivastava, R.; Rai, D. K. 2s excitation of helium-like ions. <i>Can. J. Phys.</i> 61, 981 (1983) India
01713 T	E03: $e + \text{Xe}^+$	40.8-217.6 eV	Saen, R.; Saravender, P. S.; Ghosh, A. S. The 1s-2s and 1s-2p excitations of helium ions by electron impact. <i>Can. J. Phys.</i> 61, 1297 (1983) India
01714 E	H02: $h\nu + \text{I}$	1040-1600 $\text{\AA}$	Sarna, V. N.; Joshi, Y. K. Absorption spectrum of atomic iodine (II) in the 1040-1600 $\text{\AA}$ region. <i>Can. J. Phys.</i> 61, 1434 (1983) Canada
01715 E-T	E03: $e + \text{H}$	0-200 eV	Callaway, J.; McDowell, R.W.C. What we do and do not know about electron impact excitation of atomic hydrogen. <i>Comments At. Mol. Phys.</i> 13, 19 (1983) United States
01716 E-T	E05: $e + \text{Xe}^+$ H06: $e + \text{Hg}^+$	E05: 90-125 eV, 2	Rahn, Y. Higher-order atomic processes in high temperature plasmas. <i>Comments At. Mol. Phys.</i> 13, 103 (1983) United States
01717 T	A06: $\text{H}_2^+ + \text{H}_2$ A17: $\text{H}_2^+ + \text{H}_2$	Undef	Lee, C. Y.; DePristo, A. R. A simple model for the interaction potentials in electron-transfer reactions: application to the H_2^+-H_2 system. <i>J. Am. Chem. Soc.</i> 105, 6774 (1983) United States
01718 E	D11: $\text{H}_2 + \text{ZnO}$	Thermal	Fabiani, R.; Giannelis, N.; Della Gatta, G.; Venturullo, G. Adsorption of hydrogen on zinc oxide. Energy of interaction and related mechanism. <i>J. Chem. Soc. Faraday Trans. I</i> 78, 153 (1982) Italy
01719 E	A14: $\text{T} + \text{H}_2; \text{T} + \text{D}_2$	Thermal	Salcedo-Laves, D. J.; Oldham, G.; Ziaee, Y. Z. Recoil tritium reactions with molecular hydrogen: Part 2. Moderation effects. <i>J. Chem. Soc. Faraday Trans. I</i> 78, 961 (1982) United States
01720 E	D11: $\text{H}_2 + \text{HgO}; \text{H}_2 + \text{CaO}; \text{H}_2 + \text{SrO}$	78-300 K	Coluccia, S.; Rocchini, F.; Ghiotti, G.; Forterra, C. Infrared study of hydrogen adsorption on HgO , CaO , and SrO . Possible mechanism in promoting O_2^- formation. <i>J. Chem. Soc. Faraday Trans. I</i> 78, 2111 (1982) Italy

Ref. No.	Reactants	Energy Range	Reference
01721 T	A14: $H + C_2H$	0.04-3.1 eV	Farantos, S. C.; Murrell, J. H. Studies on atom-triatomic reactive scattering. Classical dynamics of $H + C_2H$ collisions. J. Chem. Soc. Faraday Trans. II 77, 2279 (1981) United Kingdom
01722 R	A11: $Co + Ba; Co + K; Co + N_2; Co + CO;$ $Co + CO_2; Co + H_2O; Co + C_2H_2;$ $Co + CH_4$	Thermal	Burnin, R.; Newton, D. P. Collisional quenching of electronically excited carbon atoms, $C(2p^2(^3P_2))$. J. Chem. Soc. Faraday Trans. II 78, 51 (1982) United Kingdom
01723 T	D11: $Ar + C; CH_4 + C; H_2 + C$	Thermal	Sokolowski, S. Quantitative description of the absorption of gases on graphite at high temperatures. J. Chem. Soc. Faraday Trans. II 78, 255 (1982) Poland
01724 R	A11: $Ar^+ + O$	Thermal	Piper, L. G.; Clyne, S. A. A.; Northcote, P. B. Electronic energy transfer between metastable argon atoms and ground-state oxygen atoms. J. Chem. Soc. Faraday Trans. II 78, 1373 (1982) United States
01725 R	A14: $D + OH$	300-515 K	Bowen, R. J.; Smith, I. B. D. Direct rate measurements on the reaction $D + OH \rightarrow OD + H$ from 300 to 515 K. J. Chem. Soc. Faraday Trans. II 78, 1803 (1982) United Kingdom
01726 R	H06: $h\nu + O$	3638 Å	Talukdar, R.; Tripathy, A.; Bajaj, P. M.; Chakraborti, P. K.; Sakuma, G. M. Molecular beam study of photoionization of uranium and uranium oxide. Opt. Commun. 45, 179 (1983) India
01727 T	H06: $h\nu + Hb$	Undef	Javanmone, J. Photoionization of atoms near threshold. Opt. Commun. 46, 175 (1983) Finland
01728 T	A07: $H^+ + H_2O$	10^{-4} - 10^4 keV	Kashik, Y. B.; Khare, S. P.; Kumar, A. Iselastic collisions of protons with water vapour. Physica B+C 106, 128 (1981) India
01729 R	H08: $h\nu + Bi; h\nu + Cu; h\nu + As; h\nu + Zn;$ $h\nu + Se; h\nu + Br; h\nu + Kr; h\nu + Mo;$ $h\nu + Ho; h\nu + Ag; h\nu + In; h\nu + Sn$	Undef	Arora, S. K.; Allavadi, K. L.; Sood, B. S. Measurement of K-shell fluorescence yields in elements 28 less than or equal to 2 less than or equal to 53. Physica B+C 111, 71 (1981) India
01730 R	H03: $h\nu + C; h\nu + Al; h\nu + Sc; h\nu + Ni;$ $h\nu + Ti; h\nu + Ag; h\nu + Cd; h\nu + Dy$ H04: $h\nu + C; h\nu + Al; h\nu + Sc; h\nu + Ni;$ $h\nu + Ti; h\nu + Ag; h\nu + Cd; h\nu + Dy$	5-65 keV	Vivekvara Rao, V.; Shashank; Venkateswara Rao, D. Photoelectric cross sections for x-ray photons in low- and medium-Z elements. Physica B+C 111, 107 (1981) India
01731 T	C02: $e + Kr$	0.015-1 keV	Dayashankar, Ionization yield in krypton due to electron impact. Physica B+C 111, 134 (1981) India
01732 R	P03: $e + K$	0.015-5.0 keV	Ganan, P. S. Excitation of potassium atoms by electron impact. Physica B+C 119, 337 (1983) United States
01733 T	A02: $H^+ + Sr$ A07: $H^+ + Sr$ A10: $H^+ + Sr$	0.7-0.9 MeV	Anholt, B.; Cheria, J. P.; Asaadman, P. A. F-shell ionization across isobaric analog resonances. Phys. Lett. B 118, 245 (1982) United States
01734 T	A02: $H^+ + D^+$ A10: $H^+ + D^+$	65 MeV	Koike, I.; Taniguchi, Y. Three-body calculations of the elastic scattering of the protons on the deuterons at 65 MeV. Phys. Lett. B 118, 248 (1982) Japan
01735 T	A01: $C + C$ A10: $C + C$	7.0-9.4 MeV	Inanishi, S.; Von Oertzen, W. Dynamically induced spin-dependent interaction in the elastic scattering of heavy ions. Phys. Lett. B 118, 273 (1982) Japan
01736 R	A02: $H^+ + Sr$ A10: $H^+ + Sr$	5-6 MeV	Cheria, J. P.; Andrianonja, S.; Boreauemi, B.; Stoller, C.; Anholt, B.; Neyrhoef, H. B.; Baker, O. K.; Holitoris, J. D. Compound elastic cross sections in the isobaric analog resonances $^{88}Sr(p,p)$ at 5.06 MeV and $^{88}Sr(p,p)$ at 6.02 MeV. Phys. Lett. B 118, 246 (1983) United States
01737 T	K04: Sputtering; Energy loss		Hiraoka, S.; Kitano, Y.; Yamamura, Y. The $S(\sin \theta)^{1/2}$ dependence of non-linear sputtering yields. Radiat. Eff. 67, 7 (1981) Japan

Ref. No.	Reactants	Energy Range	Reference
01738 P	D02: Ca ⁺ + Ta D11: Ca ⁺ + Ta	6 keV	Belykh, S. P.; Veksel, V. I. On the nature of continuous emission production of photons, emitted by the products of refractory metal sputtering. Radiat. Eff. 67, 87 (1981) Soviet Union
01739 P	D01: He ⁺ + Ni; Fe ⁺ + FeNi ₈₀	5 keV	Van Suijzenboren, M.; Vanoppen, J.; Knytt, G.; Stals, L. M. Helium bubble and blister formation for Ni and an amorphous Fe-Ni-Mo-N alloy during 5 keV implantation at 300 K. Radiat. Eff. 67, 175 (1981) Belgium
01740 Z	D02: Ar ⁺ + Cu + C	500 eV	Floro, J. A.; Rossmagel, S. M.; Robinson, R. S. Crystalline aspects of isperity generated sputter comm. Radiat. Eff. 68, 57 (1982) United States
01741 T	D02: H ⁺ + Bi; H ⁺ + Fe; D ⁺ + Bi; D ⁺ + Fe; He ⁺ + Bi; He ⁺ + Fe; He ⁺ + Bi; He ⁺ + Fe; Ar ⁺ + Bi; Ar ⁺ + Fe	20-10 ⁴ eV	Yamamura, Y.; Matsunami, M.; Itoh, N. A new empirical formula for the sputtering yield. Radiat. Eff. 68, 81 (1982) Japan
01742 T	D02: Undef	10-500 keV	Van Wyk, G. R.; Latogun, A. M. A formula for the calculation of the sputtering yield of polycrystalline materials. Radiat. Eff. 68, 107 (1982) South Africa
01743 P	D02: Fe ⁺ + Cu; Ar ⁺ + Au	30 keV	Oliva Floria, A. R.; Alonso, J. V.; Baragiolle, R. A.; Ferron, J. Low-dose effects in the sputtering of evaporated films. Radiat. Eff. Lett. 76, 137 (1983) Argentina
01744 T	D07: Undef		Artamonov, A. S.; Gorbunov, V. A. Multiple scattering in electric and magnetic fields. Sov. Phys.-Tech. Phys. 28, 13 (1983) Soviet Union
01745 T	D04: e + O ₂ ⁺ D06: e + O ₂ ⁺	0.2-3.0 eV	Akhmanov, S. A., Jr.; Klopovskii, K. S.; Osipov, A. P. Resonant dissociative recombination of an electron and a molecular ion. Sov. Phys.-Tech. Phys. 28, 11 (1983) Soviet Union
01746 T	A09: H ⁺ + H ⁻	Undef	Ostrovskov, P. M.; Serdyuk, O. V. Nonlinear interaction of high-current H ⁺ and H ⁻ ion beams. Sov. Phys.-Tech. Phys. 28, 143 (1983) Soviet Union
01747 T	D03: e + Hg	10-40 eV	Ardoniz, M. B.; Astus'ya, M. Y. Excitation of the ³ P and ³ P levels of a magnesium atom by electron impact. Sov. Phys.-Tech. Phys. 28, 209 (1983) Soviet Union
01748 T	A07: H ⁺ + He	0.3-5 MeV	Gerasimov, A. L.; Mileev, V. N.; Semashenko, V. S. Theory of direct ionization of atoms by fast protons. Sov. Phys.-Tech. Phys. 28, 271 (1983) Soviet Union
01749 T	A03: He ⁺ + Si; He ⁺ + Hg; Fe ⁺ + Al	5-25 keV/n	Ivanov, D. P.; Kapinov, S. N.; Synov, S. N.; Yalysko, S. V. Effects of ion charge state on the ionization cross sections of inner electron shells in atomic collisions. Sov. Phys.-Tech. Phys. 28, 384 (1983) Soviet Union
01750 P	D03: e + Xe	7800-9200 eV	Vasil'eva, M. V.; Zuev, A. D.; Shingarkina, V. A. Ionization of xenon by electron impact at moderate temperatures. Sov. Phys.-Tech. Phys. 28, 647 (1983) Soviet Union
01751 T	A17: He ⁺ + H ₂	Undef	Bel'mikov, V. D.; Kartoshkin, V. A.; Klement'ev, G. V. Long-range component of the interaction potential in an He(2 ³ S)-H ₂ system. Sov. Phys.-Tech. Phys. 28, 746 (1983) Soviet Union
01752 Z	D08: e + LiF; e + HgO; e + KBr	0.7-2.0 MeV	Gavalyan, V. G.; Lokiyas, N. P.; Arvanov, A. M. Electron multiplication controlled secondary electron emission. Sov. Phys.-Tech. Phys. 28, 996 (1983) Soviet Union
01753 T	A02: Undef A03: Undef A05: Undef D07: Undef	Undef	Ayre, H. V.; Rapoport, L. P. Electron scattering by an atom in the field of resonant laser radiation. Sov. Phys.-JETP 55, 215 (1982) Soviet Union

Ref. No.	Reactants	Energy Range	Reference
01754 T	NO ₂ : e + NO ₂ ; e + CO	1-2.5 eV	Blots, I. S.; Kuznetsov, A. L. Quasiclassical calculation of the cross sections for resonant vibrational excitation of the molecules N ₂ and CO. <i>Sov. Phys.-JETP</i> 55, 258 (1982) Soviet Union
01755 E-T	NO ₂ : e + F NO	2-5000 eV	Vilinskii, L. S. Reflection of fast electrons normally incident on a surface. <i>Sov. Phys.-JETP</i> 55, 751 (1982) Soviet Union
01756 T	NO ₂ : Undef	Undef	Baryshnikov, V. P.; Lisitsin, V. S. Brownian motion of atoms and ions and nonlinear effects in the absorption of light. <i>Sov. Phys.-JETP</i> 55, 618 (1982) Soviet Union
01757 E	NO ₂ : O ⁺ + Au; O ₂ ⁺ + Au; CO ⁺ + Au; C ⁺ + Au; C ₂ ⁺ + Au; N ⁺ + Au; N ₂ ⁺ + Au; H ⁺ + Cu; H ₂ ⁺ + Cu; H ₂ ⁺ + Ti; H ⁺ + Ti; H ₂ ⁺ + Rh	10-20 keV	Ivstigneev, S. A.; Zvonkov, S. S.; Chicharev, V. N. Scattering of molecular ions and their atomic fragments by a metal surface. <i>Sov. Phys.-JETP</i> 55, 640 (1982) Soviet Union
01758 T	NO ₂ : H ⁺ + H	Undef	Karnakov, B. E. Asymptotic behavior of charge-transfer cross sections. <i>Sov. Phys.-JETP</i> 55, 816 (1982) Soviet Union
01759 E-T	LiI: hv + Na	Undef	Is'kov, S. V.; Bulykha, V. I.; Lotokhov, V. B.; Sinogin, V. G. Radiative slowing down and nonchromatization of a beam of sodium atoms in a counterpropagating laser beam. <i>Sov. Phys.-JETP</i> 55, 820 (1982) Soviet Union
01760 E	NO ₂ : e + Hg NO ₂ : e + Hg	0.1-17 eV	Kozlov, S. A.; Khristoforov, O. V. Use of electron spectroscopy to investigate resonance phenomena and post-collisional-interaction effects in collisions between electrons and magnesium atoms. <i>Sov. Phys.-JETP</i> 55, 1023 (1982) Soviet Union
01761 T	CO ₂ : Undef	Undef	Seniot, V. A. Decrease of energy losses in a beam passing through a medium. <i>Sov. Phys.-JETP</i> 55, 1027 (1982) Soviet Union
01762 T	NO ₂ : hv + SiO ₂	Undef	Dutton, P. L.; Hibbert, A.; Kingston, A. S.; Douchek, G. A. Si III line ratios in the sun. <i>Astrophys. J.</i> , Part 1 270, 420 (1982) United Kingdom

C

CATEGORIZATION INDEX

C

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General

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C1574 EC + C
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A03

HEAVY PARTICLE - HEAVY PARTICLE
INTERACTIONS

Excitation

Al⁺⁺⁺ + Ti
00302 E-TAl⁺⁺⁺ + Ti
00302 E-TAl⁺⁺⁺ + H
00436 TAl⁺⁺⁺ + Ti
00302 E-TAr⁺ + Cu₂
00069 TAr⁺ + H₂
00022 TAr⁺ + H₂
00385 TAr⁺ + CO
01578 EAr⁺ + H₂O
01578 EAr⁺ + He
00018 E 00055 EAr⁺ + He⁺
00736 EAr⁺ + He
00055 EAr⁺ + H₂
01578 EAr⁺ + O₂
00304 EAr⁺ + Kr
01522 EAr⁺ + Hg
00348 EAg⁺⁺ + Al
01471 EAg⁺⁺ + He
00158 EAg⁺⁺ + Hg
01471 EAg⁺⁺ + He
00158 EAg⁺⁺ + O₂
00304 EAg⁺⁺ + Ti
01471 EAg⁺⁺⁺ + He
01000 EAg⁺⁺⁺ + Kr
01000 EAg⁺⁺⁺ + He
01000 EAr⁺⁺ + He
00716 E-TAr⁺⁺ + Xe
01453 E-TAr⁺⁺ + H
00438 TAr⁺⁺ + H
00665 EAr⁺⁺ + H
00716 E-TAr⁺⁺ + H₂
00982 EAr⁺⁺ + H₂
00982 EAr⁺⁺ + H
00716 E-TAr⁺⁺ + H₂
00982 EAr⁺⁺ + D₂
00982 EAr⁺⁺ + H₂
00982 EAr⁺⁺ + H₂
00982 EAr⁺⁺ + H₂
00982 EAr⁺ + O₂
00304 EAr⁺ + He
01454 EAr⁺ + H
00429 TAr⁺ + He
01071 EAr⁺ + He
00610 TAr⁺ + He
00840 TAr⁺ + H
00674 TAr⁺ + He
00969 EAr⁺⁺ + He
00969 EAr⁺⁺ + He
00969 EC⁺ + He
01071 EC⁺ + H₂
00574 EC⁺ + Li
00974 EC⁺⁺ + Ar
00158 EC⁺⁺ + H₂
00974 EC⁺⁺ + He
00158 EC⁺⁺ + Li
00974 EC⁺⁺ + He
00158 EC⁺⁺ + H₂
00974 EC⁺⁺ + He
00158 E 00648 EC⁺⁺ + Li
00974 EC⁺⁺ + H
01512 EC⁺⁺ + H₂
00113 E 00142 E 00731 EC⁺⁺ + He
00142 EC⁺⁺ + Li
00142 EC⁺⁺ + Ti
00302 E-TC⁺⁺ + Ti
00302 E-TC⁺⁺ + H
00429 T 00438 E 00716 E-T
01512 EC⁺⁺ + He
00965 EC⁺⁺ + Ti
00302 E-TC⁺⁺ + H₂
00965 ECa⁺⁺ + He
00298 E 00299 ECa⁺⁺ + H
00438 TCa⁺⁺ + H
00438 TCl⁺⁺ + C
01476 ECl⁺⁺ + C
01476 ECl⁺⁺ + C
01476 ECl⁺⁺ + He
00969 ECl⁺⁺ + Ti
00302 E-TCl⁺⁺ + C
01476 ECl⁺⁺ + Ti
00302 E-TCl⁺⁺ + C
01476 ECl⁺⁺ + H
00438 T

611

W⁺ + Bb
01647 E 01639 E

W⁺ + Sc
01639 E

W⁺ + Sa
01639 E

W⁺ + Se
01322 E

W⁺ + Th
00932 E-T

W⁺ + So
01639 E

W⁺ + Sog + H Sog
00256 T

W⁺ + S
00093 E

W⁺ + He
00713 E-T

W⁺ + Ha
00937 E

W⁺ + H₂
01073 E

W⁺ + H₂
01449 E

W⁺ + He
00214 E 01470 E

W⁺ + Hc
01470 E

W⁺ + He
00688 E

W⁺ + Se
01470 E

W⁺ + He
00214 E

W⁺ + He
00688 E

W⁺ + S₂
00047 E

W⁺ + As
01071 E

W⁺ + CO
00825 E

W⁺ + CO₂
00869 E

W⁺ + H₂
00017 T 00383 T

W⁺ + SO
00825 E

W⁺ + Ar
00014 E 00055 E

W⁺ + CO
00825 E

W⁺ + Dy
00932 E-T

W⁺ + Hc
00832 E-T

W⁺ + He
00932 E-T

W⁺ + Gd
00832 E-T

W⁺ + E
00053 T 00106 T 00195 T
00289 T 01030 T

W⁺ + H₂
01331 E

W⁺ + He
01331 E

W⁺ + He⁺
00155 T

W⁺ + H₂
00832 E-T

W⁺ + H₂
01539 E

W⁺ + He
00832 E-T

W⁺ + H₂
00832 E-T

W⁺ + He
00116 E 00454 E 01333 E

W⁺ + SO
00825 E

W⁺ + O₂
00304 E

W⁺ + Fe
00832 E-T

W⁺ + Th
00832 E-T

W⁺ + He
00604 E 01540 E

W⁺ + H₂
00348 E

W⁺ + He
01551 T

W⁺ + He
00251 E

W⁺ + H
00771 T

W⁺ + H₂
00974 E

W⁺ + Li
00714 E-T 00974 E

W⁺ + O₂
00304 E

I + Ag
00509 E

K + Ar
01330 E

K + CO
00867 T

K + He
00546 T 01330 E

K + Hc
00741 E

K + H₂
00867 T

K + He
00741 E 01330 E

K + He
00741 E

K⁺ + H₂
00689 E

K⁺ + He
00411 E

Kr⁺ + Ar
00352 T

Kr⁺ + CO
00347 E

Kr⁺ + He
00352 T

Kr⁺ + Hc
00352 T

Kr⁺ + H₂
00347 E

Kr⁺ + He
00352 T

Kr⁺ + SO
00347 E

Kr⁺ + O₂
00304 E 00347 E

Kr⁺ + He
00667 E

Kr⁺ + He
00667 E

Kr⁺ + He
00667 E 01052 E

Kr⁺ + He
00667 E 01052 E

Kr⁺ + He
00969 E

Kr⁺ + Hc
00153 E

Kr⁺ + Hc
00153 E

Kr⁺ + Hc
00153 E

Kr⁺ + He
00969 E 00969 E

Kr⁺ + Hc
00153 E

Kr⁺ + Hc
00153 E

Kr⁺ + Hc
00153 E

Kr⁺ + Hc
00153 E

Kr⁺ + Hc
00153 E

Kr⁺ + Hc
00153 E

Kr⁺ + Hc
00153 E

Kc ²⁰⁰ + Kc 00153 E	Hg ¹⁰⁰ + Ti 00302 E-T	He ⁰ + He 00263 E
Kc ²⁷⁰ + Kc 00153 E	Hg ¹¹⁰ + Ti 00302 E-T	He ⁰ + Xe 00271 E
Kc ²⁸⁰ + Kc 00153 E	Hg ¹²⁰ + Ti 00302 E-T	He ⁰ + Ar 01035 E
Kc ³⁰⁰ + Kc 00153 E	He ²⁰⁰ + H 00438 E	He ⁰ + Au 01071 E
Kc ³⁰⁰ + Kc 00153 E	H + Au 01065 E	He ⁰ + Ar 00055 E
Kc ³¹⁰ + Kc 00153 E	H ²⁰ + Au 01065 E	He ⁰ + He 01333 E
Kc ³²⁰ + Kc 00153 E	H ²⁰ + H 00095 E	He ⁰ + Hg 01749 E
Kc ³³⁰ + Kc 00153 E	H ²⁰ + H ₂ 00095 E	He ⁰ + He 00636 E 01623 E
Kc ³⁰⁰ + H 00438 E	H ²⁰ + He 00158 E	He ⁰ + O ₂ 00304 E
Li + Au 01071 E	H ²⁰ + He 00158 E	He ⁰ + Si 01749 E
Li + He 00186 E-T	H ²⁰ + Au 01065 E	He ⁰ + Hg 00348 E
Li + He 01065 E	H ²⁰ + Ti 00302 E-T	He ²⁰ + Ar 01610 E
Li ⁰ + Ca 00782 E	H ²⁰ + Ti 00302 E-T	He ²⁰ + Kc 01610 E
Li ⁰ + H ₂ 00868 E 01445 E	H ²⁰ + D ₂ 00965 E	He ²⁰ + O ₂ 00304 E
Li ⁰ + H ₂ 00940 E	H ²⁰ + H 00438 E	He ²⁰ + He 00670 E-T
Li ⁰ + He 01065 E	H ²⁰ + He 00965 E	He ²⁰ + He 00969 E
Li ⁰ + H ₂ 01260 E	H ²⁰ + Ti 00302 E-T	He ¹⁰⁰ + H 00438 E
Li ⁰ + Li 00266 E	He + He 00179 E	He ¹ + He 00637 E 01062 E
Li ⁰ + H ₂ 01260 E	He ¹ + Cd 01326 E	He ¹ + Ag 00279 E
Li ²⁰ + He 01065 E	He ⁰ + He ⁰ 00736 E	He ¹ + Au 00279 E
Hg + Ar 00513 E	He ⁰ + He 01333 E 01334 E	He ¹ + Te 00279 E
Hg + He 00513 E	He ⁰ + Ar 00263 E	He ¹ + Zr 00279 E
Hg + Kc 00513 E	He ⁰ + D ₂ 01340 E	He ¹⁰⁰ + H 00438 E
Hg ⁰ + Ar 01324 E	He ⁰ + H ₂ 01340 E	O + Au 01071 E
Hg ⁰ + He 01324 E	He ⁰ + He 00263 E	O ⁰ + H ₂ 00974 E
Hg ⁰ + He 01424 E	He ⁰ + H ₂ ⁰ 01438 E	O ⁰ + Li 00474 E
Hg ⁰ + H ₂ 01260 E	He ⁰ + H ₂ 01261 E 01340 E	O ⁰ + He 01333 E
Hg ⁰ + He 01260 E	He ⁰ + He ⁰ 00277 E 00444 E 00809 E	O ²⁰ + H ₂ 00474 E
Hg ⁰ + H ₂ 01260 E		

08° + Li 00974 E	Si° + Ar 00223 T 00633 E	Sn + Cu 01066 E
° + H 00788 T	Si° + de 00223 T	Ti° + He 00969 E
08° + H ₂ 00974 E	Si° + Ti 00302 E-T	Ti° + He 00969 E
08° + Li 00974 E	Si° + Ti 00302 E-T	Ti° + H 00438 T 00714 E-T
08° + H ₂ 00669 E	Si° + Ti 00302 E-T	U° + He 00969 E
08° + He 00669 E	Si + Au 01071 E	U° + He 00969 E
08° + Ti 00302 E-T	Si° + Ar 00309 E	U° + H 00438 T
08° + Ti 00302 E-T	Si° + He 00223 T	Io + Bi 01066 E
08° + H ₂ 00965 E	Si° + Ti 00302 E-T	Io + Io 01632 T
08° + H 00215 T 00438 T	Si° + Ar 01473 T	Io° + Io 00645 E
08° + He 00965 E 01512 E	Si° + Ti 00302 E-T	Io° + He 00969 E
08° + Ti 00302 E-T	Si° + H 00438 T	Io° + Io 00634 E
08° + H ₂ 00156 T	Si° + Ti 00302 E-T	Io° + Io 00634 E
08° + Ar 01245 T	Sm° + Io 00634 E	Io° + Io 00153 E 00634 E
Pb + Pb 01541 E	Sm° + Io 00634 E	Io° + Io 00153 E 00634 E
Rb° + Ar 00263 T 00443 E	Sm° + Io 00634 E	Io° + He 00969 E
Rb° + J ₂ 00900 E	Sc° + Io 00634 E	Io° + Io 00153 E 00634 E
Rb° + H ₂ 00900 E	Sm° + Io 00634 E	Io° + Io 00153 E 00634 E
Rb° + He 00263 T 00411 T 00443 E	Sm° + Io 00634 E	Io° + Io 00153 E 00634 E
Rb° + Ar 00443 E	Sm° + Io 00634 E	Io° + H 00438 T
Rb° + He 00263 T 00443 E	Sm° + Io 00634 E	Ir° + H 00438 T
Rb° + Io 00443 E	Sm° + Io 00634 E	Under 00412 T 01657 T 01753 T
S + Au 01071 E	Sm° + Io 00634 E	

A04

HEAVY PARTICLE - HEAVY PARTICLE
INTERACTIONS

Dissociation

 $D_2^+ + Ar$
00821 E $D_2^+ + H_2$
00821 E $H + H_2$
00932 T $H^+ + H_2$
00936 E $H_2 + Ar$
00890 F $H_2 + H_2$
00890 E 01073 E $H_2 + He$
00890 E $H_2 + Kr$
00890 E $H_2^+ + Ar$
00836 E $H_2^+ + H_2$
00009 E $H_2^+ + He$
01870 E $H_2^+ + Kr$
01870 E $H_2^+ + Hg$
00691 T $H_2^+ + Xe$
01870 E $H_3^+ + Ar$
00836 E $H_3^+ + He$
00936 E $HD_2^+ + H_2$
00692 E $He^+ + CO$
01525 E $He^+ + H_2$
01525 E $He^+ + H_2$
01525 E $He^+ + O_2$
01525 E $HO^+ + He$
00870 E

A05

HEAVY PARTICLE - HEAVY PARTICLE
INTERACTIONS

Fluorescence

 $Ar^+ + He$
00055 E $Ar^+ + He$
00055 F 00087 E $C^+ + He$
00087 F $H + CO_2$
00037 E $H^+ + Au$
00717 E $H^+ + Ge$
00170 E $H^+ + Ti$
00170 E $He^+ + Ar$
00055 E $He^+ + He$
00087 E $He^{2+} + Ba$
01078 E $He^{2+} + Cd$
01078 E $He^{2+} + I$
01078 E $He^{2+} + Sn$
01078 E $He^{2+} + Te$
01078 E $He^{2+} + U$
00130 E $Hg^+ + He$
00087 E $H^+ + O_2$
00006 E $He^+ + Ar$
00055 E $O + H_2$
00008 E $Pb^{2+} + Hl$
00130 E $Pb^{2+} + Pb^{2+}$
00118 E $U^{2+} + Ge$
00130 E $U^{2+} + Ti$
00130 E U^{2+}
01662 E 01753 E

A06

HEAVY PARTICLE - HEAVY PARTICLE
INTERACTIONS

Electron Capture

$Al^{++} + Ti$
00302 E-T
 $Al^{++} + Ti$
00302 E-T
 $Al^{++} + H$
00438 E
 $Al^{++} + Ti$
00302 E-T
 $Ar^{++} + H_2$
00749 E
 $Ar^{++} + He$
00693 E 00736 E
 $Ar^{++} + O_2$
00304 E
 $Ar^{++} + A^-$
00261 E 00970 E 00977 E
 $Ar^{++} + D_2$
00965 E
 $Ar^{++} + H_2$
00676 E
 $Ar^{++} + He$
00158 E 00723 E 00967 E
 $Ar^{++} + Kr$
01520 E-T
 $Ar^{++} + Li$
00967 E
 $Ar^{++} + H_2$
00349 E 00981 E
 $Ar^{++} + He$
0015 E 00970 E
 $Ar^{++} + O_2$
00304 E
 $Ar^{++} + Xe$
00967 E 01520 E-T
 $Ar^{++} + He$
01080 E
 $Ar^{++} + Kr$
01080 E
 $Ar^{++} + He$
01080 E
 $Ar^{++} + Ar$
00151 E
 $Ar^{++} + Kr$
00151 E
 $Ar^{++} + He$
00151 E
 $Ar^{++} + Xe$
00151 E
 $Ar^{++} + Ar$
00977 E

$Ar^{++} + D_2$
00965 E
 $Ar^{++} + H$
01070 E
 $Ar^{++} + H_2$
00676 E 00970 E
 $Ar^{++} + He$
00723 E 00967 E 00975 E
 $Ar^{++} + Kr$
01520 E-T
 $Ar^{++} + Li$
00967 E
 $Ar^{++} + Xe$
00967 E 01520 E-T
 $Ar^{++} + Ar$
00977 E
 $Ar^{++} + D_2$
00965 E
 $Ar^{++} + H$
01070 E
 $Ar^{++} + H_2$
00676 E 00970 E
 $Ar^{++} + He$
00967 E 00975 E
 $Ar^{++} + A^-$
00261 E-T
 $Ar^{++} + Li$
00967 E
 $Ar^{++} + Xe$
00967 E 01520 E-T
 $Ar^{++} + Ar$
00977 E
 $Ar^{++} + D_2$
00965 E
 $Ar^{++} + H$
01070 E
 $Ar^{++} + He$
00975 E
 $Ar^{++} + Kr$
01520 E-T
 $Ar^{++} + Xe$
01520 E-T
 $Ar^{++} + Ar$
00977 E
 $Ar^{++} + D_2$
00965 E
 $Ar^{++} + H$
01070 E
 $Ar^{++} + He$
00152 E 00714 E-T 00967 E
 $Ar^{++} + Kr$
01520 E-T
 $Ar^{++} + Li$
00967 E
 $Ar^{++} + Xe$
00967 E 01520 E-T

$Ar^{++} + Ar$
00977 E
 $Ar^{++} + D_2$
00965 E
 $Ar^{++} + H$
01070 E
 $Ar^{++} + H_2$
00676 E
 $Ar^{++} + Kr$
01520 E-T
 $Ar^{++} + Xe$
01520 E-T
 $Ar^{++} + Ar$
00977 E
 $Ar^{++} + D_2$
00965 E
 $Ar^{++} + H$
01070 E
 $Ar^{++} + He$
00967 E 00975 E
 $Ar^{++} + Kr$
01520 E-T
 $Ar^{++} + Li$
00967 E
 $Ar^{++} + Xe$
00967 E 01520 E-T
 $Ar^{++} + Ar$
00977 E 00980 E
 $Ar^{++} + D_2$
00965 E
 $Ar^{++} + H$
01070 E
 $Ar^{++} + Kr$
01520 E-T
 $Ar^{++} + Xe$
01520 E-T
 $Ar^{++} + D_2$
00965 E
 $Ar^{++} + Kr$
01520 E-T
 $Ar^{++} + Xe$
01520 E-T
 $Ar^{++} + D_2$
00965 E
 $Ar^{++} + Kr$
01520 E-T
 $Ar^{++} + Xe$
01520 E-T
 $Ar^{++} + D_2$
00965 E
 $Ar^{++} + Kr$
01520 E-T
 $Ar^{++} + Xe$
01520 E-T
 $Ar^{++} + D_2$
00965 E

Ar¹⁰⁰ + D₂
C0965 F

Ar¹⁰⁰ + He
C1453 E-T

Ar¹⁰⁰ + D₂
C0965 F

Ar¹⁰⁰ + He
C1453 E-T

Ar¹⁰⁰ + D₂
C0965 F

Ar¹⁷⁰ + He
C01453 E-T

Ar¹⁰⁰ + H
C0318 T C0990 T

Ar¹⁰⁰ + H₂
C0075 F

Ar¹⁰⁰ + H
00665 F

Ar⁵⁰ + He
C0119 E

Ar⁵⁰ + He
C0119 F

Ar⁷⁰ + He
C0119 F

Ar⁷⁰ + He
C0119 E

Ar⁵⁰ + He
C0119 F

Ar⁵⁰ + He
C0119 F

Ar¹⁰⁰ + He
C0119 F

Ar¹⁰⁰ + He
C0119 F

Ar¹⁰⁰ + H
C0714 E-T

Ar¹⁰⁰ + H₂
C0942 F

Ar¹⁰⁰ + He
C0119 F

Ar¹⁰⁰ + He
C0119 E

Ar¹⁰⁰ + H₂
C0942 E

Ar¹⁰⁰ + He
C0119 E

Ar¹⁰⁰ + H
C0714 E-T

Ar¹⁰⁰ + H₂
C0942 F

Ar¹⁰⁰ + He
C0119 F

Ar¹⁰⁰ + H₂
C0942 E

Ar¹⁰⁰ + He
C0119 E

Ar¹⁰⁰ + H₂
C0942 F

$\text{Au}^{199} + \text{He}$ 00189 E
 $\text{Au}^{199} + \text{H}_2$ 00982 E
 $\text{Au}^{199} + \text{He}$ 00189 E
 $\text{Au}^{199} + \text{He}$ 00189 E
 $\text{Au}^{199} + \text{H}_2$ 00982 E
 $\text{Au}^{199} + \text{He}$ 00189 E
 $\text{Au}^{199} + \text{He}$ 00189 E
 $\text{Au}^{199} + \text{He}$ 00189 E
 $\text{Au}^{200} + \text{He}$ 00189 E
 $\text{Au}^{200} + \text{He}$ 00189 E
 $\text{B}^+ + \text{Ar}$ 00354 E
 $\text{B}^+ + \text{CH}_4$ 00354 E
 $\text{B}^+ + \text{CO}$ 00354 E
 $\text{B}^+ + \text{D}_2$ 00354 E
 $\text{B}^+ + \text{He}$ 00354 E
 $\text{B}^+ + \text{Kr}$ 00354 E
 $\text{B}^+ + \text{H}_2$ 00354 E
 $\text{B}^+ + \text{He}$ 00354 E
 $\text{B}^+ + \text{O}_2$ 00304 E
 $\text{B}^+ + \text{Xe}$ 00354 E
 $\text{B}^{++} + \text{Ar}$ 00354 E
 $\text{B}^{++} + \text{CH}_4$ 00354 E
 $\text{B}^{++} + \text{CO}$ 00354 E
 $\text{B}^{++} + \text{D}_2$ 00354 F
 $\text{B}^{++} + \text{He}$ 00354 E
 $\text{B}^{++} + \text{Kr}$ 00354 E
 $\text{B}^{++} + \text{H}_2$ 00354 F
 $\text{B}^{++} + \text{He}$ 00354 E
 $\text{B}^{++} + \text{Xe}$ 00354 E

B ²⁺	+ Ar	01055	E		
B ²⁺	+ H ₂	01055	E		
B ²⁺	+ Ar	01055	□		
B ²⁺	+ H ₂	01055	E		
B ²⁺	+ He	00972	E	01054	E
B ²⁺	+ Ar	01055	E		
B ²⁺	+ H ₂	01055	E		
B ²⁺	+ He	00972	E		
B ²⁺	+ H	00121	T	00629	T 00661 T
B ²⁺	+ He	00972	E		
B ²⁺	+ Pb	01506	T		
Be ²⁺	+ Ar	01055	E		
Be ²⁺	+ H ₂	01055	E		
Be ²⁺	+ Ar	01055	E		
Be ²⁺	+ H ₂	01055	E		
Be ²⁺	+ Ar	01055	E		
Be ²⁺	+ H ₂	01055	E		
Be ²⁺	+ Ar	01055	E		
Be ²⁺	+ H	00121	T	00674	T
Be ²⁺	+ H ₂	01055	E		
C ⁺	+ Ar	00766	E		
C ⁺	+ H ₂	00648	E	00974	E
C ⁺	+ Li	00974	E		
C ⁺	+ H ₂	00766	E		
C ⁺	+ He	00766	E		
C ⁺	+ O ₂	00766	E		
C ²⁺	+ Ar	00158	E		
C ²⁺	+ H	00258	T	01070	E 01089 E
C ²⁺	+ H ₂	00974	E		
C ²⁺	+ He	00158	E		

$\text{C}^{10} + \text{Li}$
 C0974 E
 $\text{C}^{10} + \text{Ne}$
 00158 E
 $\text{C}^{10} + \text{Ar}$
 01055 E
 $\text{C}^{10} + \text{H}$
 00258 T 01070 E 01489 E
 $\text{C}^{10} + \text{H}_2$
 00974 E 01055 E
 $\text{C}^{10} + \text{He}$
 00158 E 00668 E
 $\text{C}^{10} + \text{Li}$
 00974 E
 $\text{C}^{10} + \text{Ar}$
 01055 E
 $\text{C}^{10} + \text{H}$
 00975 E 00986 T 01070 E
 C1489 E 01512 E
 $\text{C}^{10} + \text{H}_2$
 00113 E 00142 T 00731 T
 00975 E 01055 E
 $\text{C}^{10} + \text{He}$
 00142 E 00305 E 00972 E
 $\text{C}^{10} + \text{Li}$
 00142 T
 $\text{C}^{10} + \text{Ti}$
 00302 E-T
 $\text{C}^{10} + \text{Ar}$
 01055 E
 $\text{C}^{10} + \text{H}$
 C0975 E 00976 E 01070 E
 $\text{C}^{10} + \text{H}_2$
 00975 E 01055 E
 $\text{C}^{10} + \text{He}$
 00305 E 00972 T
 $\text{C}^{10} + \text{Ti}$
 00302 E-T
 $\text{C}^{10} + \text{C}$
 00785 E
 $\text{C}^{10} + \text{D}_2$
 C0965 E
 $\text{C}^{10} + \text{H}$
 00150 E-T 00429 T 00438 T
 00661 T 00671 T 00678 E
 00714 E-T 00975 E 00919 T
 01070 E 01512 E
 $\text{C}^{10} + \text{H}_2$
 00975 E
 $\text{C}^{10} + \text{He}$
 00886 E 00679 T 00965 E
 C0972 E 00975 E
 $\text{C}^{10} + \text{Ti}$
 00302 E-T
 $\text{Ca}^{40} + \text{H}$
 01550 T
 $\text{Ca}^{40} + \text{H}$
 00438 T
 $\text{Ca}^{40} + \text{H}$
 C0438 T

$\text{Cl}^{35} + \text{C}$
 01476 E
 $\text{Cl}^{35} + \text{C}$
 01476 E
 $\text{Cl}^{35} + \text{C}$
 01476 E
 $\text{Cl}^{35} + \text{Ti}$
 00302 E-T
 $\text{Cl}^{35} + \text{C}$
 01476 E
 $\text{Cl}^{35} + \text{Ti}$
 00302 E-T
 $\text{Cl}^{35} + \text{C}$
 01476 E
 $\text{Cl}^{35} + \text{H}$
 00438 T
 $\text{Cl}^{35} + \text{Ti}$
 00302 E-T
 $\text{CO}_2^{16} + \text{Ca}$
 00178 E
 $\text{CO}_2^{16} + \text{He}$
 00178 E
 $\text{CO}_2^{16} + \text{O}_2$
 00178 E
 $\text{CO}_2^{16} + \text{Xe}$
 00178 E
 $\text{CO}_2^{16} + \text{Ar}$
 00887 E
 $\text{CO}_2^{16} + \text{CO}$
 00887 E
 $\text{CO}_2^{16} + \text{CO}_2$
 00887 E
 $\text{CO}_2^{16} + \text{H}_2$
 00887 E
 $\text{CO}_2^{16} + \text{O}_2$
 00887 E
 $\text{C}^{12} + \text{H}$
 00438 T
 $\text{C}^{12} + \text{Ca}$
 01489 E
 $\text{C}^{12} + \text{H}$
 00438 T
 $\text{D} + \text{Ca}$
 00441 E
 $\text{D} + \text{Sr}$
 00441 E
 $\text{D} + \text{Ca}$
 00441 E
 $\text{D} + \text{Sr}$
 00441 E
 $\text{D} + \text{O}_2$
 00210 E 00621 E
 $\text{F}^{19} + \text{Au}$
 00812 E 01586 T
 $\text{F}^{19} + \text{Bi}$
 00812 E 01586 T

$\text{F}^{19} + \text{Pb}$
 00812 E 01586 T
 $\text{F}^{19} + \text{U}$
 00812 E
 $\text{F}^{19} + \text{Au}$
 00812 E 01586 T
 $\text{F}^{19} + \text{Bi}$
 00812 E 01586 T
 $\text{F}^{19} + \text{Pb}$
 00812 E
 $\text{F}^{19} + \text{U}$
 00812 E
 $\text{F}^{19} + \text{Au}$
 00812 E 01586 T
 $\text{F}^{19} + \text{Bi}$
 00812 E 01586 T
 $\text{F}^{19} + \text{He}$
 01460 E
 $\text{F}^{19} + \text{Pb}$
 00812 E 01586 T
 $\text{F}^{19} + \text{U}$
 00812 E
 $\text{F}^{19} + \text{He}$
 00277 E 00972 E
 $\text{F}^{19} + \text{Ti}$
 00302 E-T
 $\text{F}^{19} + \text{Ar}$
 01472 E
 $\text{F}^{19} + \text{Au}$
 00812 E 01586 T
 $\text{F}^{19} + \text{Bi}$
 00812 E 01586 T
 $\text{F}^{19} + \text{He}$
 00972 E 01472 E
 $\text{F}^{19} + \text{He}$
 00164 T 01460 E 01472 E
 $\text{F}^{19} + \text{Pb}$
 00812 E 01586 T
 $\text{F}^{19} + \text{Ti}$
 00302 E-T
 $\text{F}^{19} + \text{H}$
 00812 E
 $\text{F}^{19} + \text{Au}$
 00812 E 01586 T
 $\text{F}^{19} + \text{Bi}$
 00812 E 01586 T
 $\text{F}^{19} + \text{H}$
 00438 T
 $\text{F}^{19} + \text{He}$
 00972 E
 $\text{F}^{19} + \text{He}$
 01460 E
 $\text{F}^{19} + \text{Pb}$
 00812 E 01586 T
 $\text{F}^{19} + \text{Ti}$
 00302 E-T

CO 767 P.

00434 00435 00436 00437 00438 00439 00440 00441 00442 00443 00444 00445 00446 00447 00448 00449 00450 00451 00452 00453 00454 00455 00456 00457 00458 00459 00460 00461 00462 00463 00464 00465 00466 00467 00468 00469 00470 00471 00472 00473 00474 00475 00476 00477 00478 00479 00480 00481 00482 00483 00484 00485 00486 00487 00488 00489 00490 00491 00492 00493 00494 00495 00496 00497 00498 00499 00500 00501 00502 00503 00504 00505 00506 00507 00508 00509 00510 00511 00512 00513 00514 00515 00516 00517 00518 00519 00520 00521 00522 00523 00524 00525 00526 00527 00528 00529 00530 00531 00532 00533 00534 00535 00536 00537 00538 00539 00540 00541 00542 00543 00544 00545 00546 00547 00548 00549 00550 00551 00552 00553 00554 00555 00556 00557 00558 00559 00560 00561 00562 00563 00564 00565 00566 00567 00568 00569 00570 00571 00572 00573 00574 00575 00576 00577 00578 00579 00580 00581 00582 00583 00584 00585 00586 00587 00588 00589 00590 00591 00592 00593 00594 00595 00596 00597 00598 00599 00600 00601 00602 00603 00604 00605 00606 00607 00608 00609 00610 00611 00612 00613 00614 00615 00616 00617 00618 00619 00620 00621 00622 00623 00624 00625 00626 00627 00628 00629 00630 00631 00632 00633 00634 00635 00636 00637 00638 00639 00640 00641 00642 00643 00644 00645 00646 00647 00648 00649 00650 00651 00652 00653 00654 00655 00656 00657 00658 00659 00660 00661 00662 00663 00664 00665 00666 00667 00668 00669 00670 00671 00672 00673 00674 00675 00676 00677 00678 00679 00680 00681 00682 00683 00684 00685 00686 00687 00688 00689 00690 00691 00692 00693 00694 00695 00696 00697 00698 00699 00700 00701 00702 00703 00704 00705 00706 00707 00708 00709 00710 00711 00712 00713 00714 00715 00716 00717 00718 00719 00720 00721 00722 00723 00724 00725 00726 00727 00728 00729 00730 00731 00732 00733 00734 00735 00736 00737 00738 00739 00740 00741 00742 00743 00744 00745 00746 00747 00748 00749 00750 00751 00752 00753 00754 00755 00756 00757 00758 00759 00760 00761 00762 00763 00764 00765 00766 00767 00768 00769 00770 00771 00772 00773 00774 00775 00776 00777 00778 00779 00780 00781 00782 00783 00784 00785 00786 00787 00788 00789 00790 00791 00792 00793 00794 00795 00796 00797 00798 00799 00800 00801 00802 00803 00804 00805 00806 00807 00808 00809 00810 00811 00812 00813 00814 00815 00816 00817 00818 00819 00820 00821 00822 00823 00824 00825 00826 00827 00828 00829 00830 00831 00832 00833 00834 00835 00836 00837 00838 00839 00840 00841 00842 00843 00844 00845 00846 00847 00848 00849 00850 00851 00852 00853 00854 00855 00856 00857 00858 00859 00860 00861 00862 00863 00864 00865 00866 00867 00868 00869 00870 00871 00872 00873 00874 00875 00876 00877 00878 00879 00880 00881 00882 00883 00884 00885 00886 00887 00888 00889 00890 00891 00892 00893 00894 00895 00896 00897 00898 00899 00900 00901 00902 00903 00904 00905 00906 00907 00908 00909 00910 00911 00912 00913 00914 00915 00916 00917 00918 00919 00920 00921 00922 00923 00924 00925 00926 00927 00928 00929 00930 00931 00932 00933 00934 00935 00936 00937 00938 00939 00940 00941 00942 00943 00944 00945 00946 00947 00948 00949 00950 00951 00952 00953 00954 00955 00956 00957 00958 00959 00960 00961 00962 00963 00964 00965 00966 00967 00968 00969 00970 00971 00972 00973 00974 00975 00976 00977 00978 00979 00980 00981 00982 00983 00984 00985 00986 00987 00988 00989 00990 00991 00992 00993 00994 00995 00996 00997 00998 00999 01000 01001 01002 01003 01004 01005 01006 01007 01008 01009 01010 01011 01012 01013 01014 01015 01016 01017 01018 01019 01020 01021 01022 01023 01024 01025 01026 01027 01028 01029 01030 01031 01032 01033 01034 01035 01036 01037 01038 01039 01040 01041 01042 01043 01044 01045 01046 01047 01048 01049 01050 01051 01052 01053 01054 01055 01056 01057 01058 01059 01060 01061 01062 01063 01064 01065 01066 01067 01068 01069 01070 01071 01072 01073 01074 01075 01076 01077 01078 01079 01080 01081 01082 01083 01084 01085 01086 01087 01088 01089 01090 01091 01092 01093 01094 01095 01096 01097 01098 01099 01100 01101 01102 01103 01104 01105 01106 01107 01108 01109 01110 01111 01112 01113 01114 01115 01

00378 E

$H_2^+ + E$ C0919 E	$He^{++} + C$ 00270 E 01587 E	$Kr^{++} + Kr$ 00344 T
$H_2^+ + Hg$ C0919 E	$He^{++} + CH_4$ 01589 E	$Kr^{++} + H_2$ 00349 E
$H_2^+ + Hn$ C1034 E	$He^{++} + CO$ 01589 E	$Kr^{++}-100 + Ar$ 00151 E
$H_2^+ + Hn^+$ C1034 E	$He^{++} + CO_2$ 00873 E	$Kr^{++}-100 + Kr$ 00151 E
$He^+ + H^+$ 01489 E	$He^{++} + CC_2$ 01589 E	$Kr^{++}-100 + He$ 00151 E
$He^+ + Ar$ C0644 E	$He^{++} + Cu$ 01587 E	$Kr^{++}-100 + Xe$ 00151 E
$He^+ + Ca$ 00451 E	$He^{++} + H$ 00150 E-T 00650 T 00672 T 00675 E 00682 T 00771 T	$Kr^{++} + Ar$ 00977 E
$He^+ + Ca$ C0463 E 01327 E	$He^{++} + H_2$ 00974 E	$Kr^{++} + H_2$ 00984 E
$He^+ + Dy$ 00832 E-T	$He^{++} + He$ 00061 T 00181 T 00765 T 00785 E 01447 E-T 01587 E	$Kr^{++} + He$ 00984 E
$He^+ + Kr$ 00832 E-T	$He^{++} + Kr$ 00061 T 00341 E 01474 E	$Kr^{++} + Kr$ 00344 T
$He^+ + Rn$ C0832 E-T	$He^{++} + Li$ 00131 T 00680 T 00681 E 00714 E-T 00974 E 01633 T	$Kr^{++} + Ar$ 00977 E
$He^+ + Cl$ 00832 E-T	$He^{++} + H_2$ 00341 E	$Kr^{++} + H_2$ 00984 E
$He^+ + H$ 00053 T 00195 T 00289 E	$He^{++} + He$ 00341 E 01474 E 01587 E	$Kr^{++} + He$ 00984 E
$He^+ + He^+$ C0180 E	$He^{++} + H_2$ 00270 E	$Kr^{++} + Kr$ 00344 T
$He^+ + He^+$ C0138 T	$He^{++} + O_2$ 00304 E 01589 E	$Kr^{++} + Ar$ 00977 E
$He^+ + He^+$ 00358 T	$He^{++} + Xe$ 00341 E 01474 E	$Kr^{++} + H_2$ 00984 E
$He^+ + HF$ 00832 E-T	$He^+ + Cs$ 01552 E	$Kr^{++} + He$ 00984 E
$He^+ + Hg$ C1539 E	$K^+ + Ar$ 00649 E 00718 E	$Kr^{++} + Kr$ 00344 T
$He^+ + He$ 00832 E-T	$K^+ + Kr$ 00649 E	$Kr^{++} + Ar$ 00977 E
$He^+ + He$ C0454 E	$K^+ + He$ 00649 E	$Kr^{++} + H_2$ 00984 E
$He^+ + O_2$ C0304 E	$K^+ + Xe$ 00649 E	$Kr^{++} + He$ 00984 E
$He^+ + Fr$ 00832 E-T	$Kr^+ + Kr$ 00646 T	$Kr^{++} + Kr$ 00344 T
$He^+ + Th$ 00832 E-T	$Kr^+ + H_2$ 00349 E	$Kr^{++} + Ar$ 00977 E
$He^{++} + Ag$ 00270 E 01587 E	$Kr^+ + O_2$ 00384 E	$Kr^{++} + H_2$ 00984 E
$He^{++} + Al$ 00270 E	$Kr^{++} + Ar$ 00977 E	$Kr^{++} + He$ 00984 E
$He^{++} + Ar$ 00061 T 00341 E 00977 E C1474 E 01587 E	$Kr^{++} + H_2$ 00970 E 00984 E	$Kr^{++} + Kr$ 00344 T
$He^{++} + Au$ C0270 E	$Kr^{++} + He$ 00646 E 00984 E	$Kr^{++} + Ar$ 00977 E
		$Kr^{++} + H_2$ 00984 E

Kr ⁰⁰ + He	CO 958	?	
Kr ⁰⁰ + Kr	CO 348	T	
Kr ⁰⁰ + Ar	CO 977	F	
Kr ⁰⁰ + H ₂	CO 998	F	
Kr ⁰⁰ + Ne	CO 968	F	
Kr ⁰⁰ + Kr	00 348	T	
Kr ⁰⁰ + Ar	CO 977	F	
Kr ¹⁰ + Ar	CO 977	F	
Kr ¹⁰ + Ar	CO 977	F	
Kr ²⁰ + H	CO 414	T	00994 T
Li ⁰ + Ca	CO 658	T	00782 T
Li ⁰ + Na	00 396	T	00659 T
Li ²⁰ + H	00673	T	
Li ³⁰ + Ag	C1587	F	
Li ³⁰ + Ar	C1587	F	
Li ³⁰ + C	C1587	F	
Li ³⁰ + Cu	C1587	F	
Li ³⁰ + H	00121	T	00171 T 00999 T
Li ³⁰ + He	C1587	F	
Li ³⁰ + He	C1587	F	
Mg ⁰⁰ + Ti	CO 302	F-T	
Mg ¹⁰ + Ti	CO 302	F-T	
Mg ¹⁰ + Ti	00 302	F-T	
Na ⁰⁰ + H	CO 438	T	
Na ⁰ + Ar	CO 766	F	
Na ⁰ + H ₂	CO 766	F	
Na ⁰ + He	CO 766	F	
Na ⁰ + O ₂	CO 766	F	
Na ⁰ + H	00 695	T	00258 T 00675

W20	• H ₂		
	00095	Z	
W20	• He		
	00158	Z	
W20	• He		
	00158	Z	
W20	• He		
	00378	Z	
W30	• H		
	00258	T	00675 Z 00970 Z
	00986	T	00987 T
W30	• H ₂		
	00970	Z	
W30	• H		
	00975	Z	
W30	• H ₂		
	00975	Z	
W30	• He		
	00105	Z	00972 Z
W30	• Ti		
	00302	Z-T	
W30	• H		
	00975	Z	
W30	• H ₂		
	00486	T	00975 Z
W30	• He		
	00305	Z	00486 Z 00972 Z
W30	• Ti		
	00302	Z-T	
W70	• D ₂		
	00965	Z	
W70	• H		
	00438	T	00975 Z
W70	• H ₂		
	00975	Z	
W70	• He		
	00679	T	00965 Z 00972 Z
	00975	T	
W70	• Ti		
	00302	Z-T	
W30	• D ₂		
	00965	Z	
W30	• He		
	00965	Z	
W30	• Ar		
	00649	Z	
W30	• Kr		
	00649	Z	
W30	• He		
	00693	T	00736 Z
W30	• Ar		
	00766	Z	
W30	• He		
	00981	Z	
W30	• Li		
	00979	T	
W30	• H ₂		
	00016	T	00766 Z

$\text{He}^+ + \text{He}$	00766 E		
$\text{He}^+ + \text{O}_2$	00304 E	00766 E	
$\text{He}^{2+} + \text{Ar}$	01610 E		
$\text{He}^{2+} + \text{H}$	00258 T	01452 E	
$\text{He}^{2+} + \text{He}$	00666 E	00967 E	
$\text{He}^{2+} + \text{Kr}$	01610 E		
$\text{He}^{2+} + \text{Li}$	00967 E	00979 T	
$\text{He}^{2+} + \text{H}_2$	00981 E		
$\text{He}^{2+} + \text{O}_2$	00304 E		
$\text{He}^{2+} + \text{Xe}$	00068 E	00967 E	00970 E
$\text{He}^{2+} + \text{Ar}$	00151 E		
$\text{He}^{2+} + \text{Kr}$	00151 E		
$\text{He}^{2+} + \text{He}$	00151 E		
$\text{He}^{2+} + \text{Xe}$	00151 E		
$\text{He}^+ + \text{Ar}$	00977 E		
$\text{He}^+ + \text{H}$	00258 T	00676 E	01452 E
$\text{He}^+ + \text{He}$	30967 E		
$\text{He}^+ + \text{Li}$	00967 E		
$\text{He}^+ + \text{H}_2$	00307 E	00935 E	
$\text{He}^+ + \text{Xe}$	00307 E	00967 E	00970 E
$\text{He}^+ + \text{Ar}$	00977 E		
$\text{He}^+ + \text{H}$	00676 E	01452 E	
$\text{He}^+ + \text{He}$	00967 E		
$\text{He}^+ + \text{Li}$	00967 E		
$\text{He}^+ + \text{H}_2$	00307 E	00670 E-T	00935 E
$\text{He}^+ + \text{Xe}$	00307 E	00967 E	00970 E
$\text{He}^+ + \text{Ar}$	00977 E		
$\text{He}^+ + \text{H}$	00676 E	01452 E	

He⁴⁺ + He
 00967 E
 He⁴⁺ + Li
 00967 E
 He⁴⁺ + He
 00307 E 00935 E
 He⁴⁺ + Xe
 00307 E 00967 E
 He⁴⁺ + Ar
 00977 E
 He⁴⁺ + H
 00676 E 01452 E
 He⁴⁺ + He
 00406 E 00967 F
 He⁴⁺ + Li
 00967 E
 He⁴⁺ + He
 00307 E 00935 E
 He⁴⁺ + Xe
 00307 E 00967 E
 He⁷⁺ + Ar
 00977 E
 He⁷⁺ + He
 00967 E
 He⁷⁺ + Li
 00967 E
 He⁷⁺ + He
 00307 F
 He⁷⁺ + Xe
 00307 E 00967 E
 He⁸⁺ + H
 00975 E
 He⁸⁺ + H₂
 00975 E
 He⁸⁺ + He
 00307 E 00972 E
 He⁸⁺ + Xe
 00307 E
 He⁸⁺ + H
 00975 E
 He⁸⁺ + H₂
 00975 E
 He⁸⁺ + He
 00972 E
 He⁸⁺ + Xe
 00307 E
 He⁸⁺ + H
 00975 E
 He⁸⁺ + H₂
 00975 E
 He⁸⁺ + He
 00967 E 00972 E 01454 E
 He⁸⁺ + Li
 00967 E

He¹⁰⁺ + He
 00307 E 00705 E
 He¹⁰⁺ + Xe
 00307 E 00967 E
 He¹⁰⁺ + H
 00330 E
 He¹⁰⁺ + He
 00370 E
 He¹⁰⁺ + Ar
 00766 E
 He¹⁰⁺ + H₂
 00648 E 00974 E
 He¹⁰⁺ + Li
 00974 E 00979 E
 He¹⁰⁺ + H₂
 00766 E
 He¹⁰⁺ + He
 00766 E
 He¹⁰⁺ + Xe
 00766 E
 He¹⁰⁺ + F
 00664 E
 He¹⁰⁺ + H
 00250 E 00664 E 00981 E
 He¹⁰⁺ + H₂
 00974 E 00981 E
 He¹⁰⁺ + He
 00664 E
 He¹⁰⁺ + Li
 00974 E
 He¹⁰⁺ + H
 00664 E
 He¹⁰⁺ + He
 00664 E
 He¹⁰⁺ + O₂
 00391 E
 He¹⁰⁺ + O₂
 00981 E
 He¹⁰⁺ + F
 00664 E
 He¹⁰⁺ + H
 00250 E 00271 E 00340 E
 He¹⁰⁺ + He
 00664 E 00702 E 00768 E
 He¹⁰⁺ + H₂
 00974 E 00981 E
 He¹⁰⁺ + He
 00664 E
 He¹⁰⁺ + Li
 00974 E
 He¹⁰⁺ + H
 00664 E
 He¹⁰⁺ + He
 00664 E
 He¹⁰⁺ + O₂
 00981 E

O²⁺ + F
 00664 E
 O²⁺ + H
 00664 E 01070 E
 O²⁺ + He
 00664 E 01591 E
 O²⁺ + H
 00664 E
 O²⁺ + He
 00664 E
 O²⁺ + F
 00664 E
 O²⁺ + H
 00664 E 00671 E 00976 E
 O²⁺ + He
 00664 E 01591 E
 O²⁺ + H
 00664 E
 O²⁺ + He
 00664 E
 O²⁺ + F
 00664 E
 O²⁺ + H
 00664 E 00975 E 01070 E
 O²⁺ + H₂
 00664 E 00669 E 00975 E
 O²⁺ + He
 00305 E 00686 E 00664 E
 O²⁺ + He
 00669 E 00972 E 01591 E
 O²⁺ + H
 00664 E
 O²⁺ + He
 00664 E
 O²⁺ + Ti
 00302 E-T
 O²⁺ + F
 00664 E
 O²⁺ + H
 00664 E 00975 E
 O²⁺ + H₂
 00975 E
 O²⁺ + He
 00664 E 00972 E 01591 E
 O²⁺ + H
 00664 E
 O²⁺ + He
 00664 E
 O²⁺ + Ti
 00302 E-T
 O²⁺ + H
 00150 E-T 00215 E 00430 E
 O²⁺ + He
 00670 E 00975 E
 O²⁺ + H₂
 00975 E
 O²⁺ + He
 00182 E-T 00972 E 00975 E
 O²⁺ + He
 01454 E 01512 E 01591 E

0000 * 0
 00785 E
 0000 * T1
 00302 E-T
 FIRST * 0
 00677 E
 FIRST (a-p q) * 0
 00905 T 00908 T
 S100 * Ar
 00903 E 01508 E
 S100 * He
 00903 E
 S100 * Ar
 00903 E 01508 E
 S100 * He
 00972 P 00903 E
 S100 * Ar
 00903 E 01508 E
 S100 * He
 00903 E
 S100 * Ar
 00223 T 00633 E 00903 E
 01508 E
 S100 * He
 00223 T 00972 E 00903 E
 01508 E
 S100 * Ar
 00903 E 01508 E
 S100 * He
 00903 E
 S100 * T1
 00302 E-T
 S100 * Ar
 00903 E 01508 E
 S100 * He
 00903 E
 S100 * T1
 00302 E-T
 S100 * Ar
 00903 E 01508 E
 S100 * He
 00903 E
 S100 * T1
 00302 E-T
 S1100 * He
 00223 T 00663 E
 S1100 * T1
 00302 E-T
 S1100 * Ar
 01073 T
 S1100 * T1
 00302 E-T
 S1100 * H
 00410 T
 S1100 * T1
 00302 E-T
 S000 * H0
 00370 E

$Tl^{2+} \rightarrow H$	00724	F	
$Tl^{2+} \rightarrow H$	00438	F	00716 E-F
$H^{2+} \rightarrow H$	00438	F	
$He^{+} \rightarrow Ar$	00078	F	
$He^{+} \rightarrow CH_4$	00078	F	
$He^{+} \rightarrow H_2$	01078	F	
$He^{+} \rightarrow H_2$	00349	F	
$He^{+} \rightarrow He$	00078	F	
$He^{+} \rightarrow He$	00078	F	
$He^{+} \rightarrow He$	00078	F	00645 E
$He^{2+} \rightarrow H_2$	00984	F	
$He^{2+} \rightarrow He$	00994	F	
$He^{2+} \rightarrow H_2$	00349	F	
$He^{2+} \rightarrow He$	00970	F	
$He^{2+} \rightarrow He$	00977	F	
$He^{2-100} \rightarrow Ar$	00151	F	
$He^{2-100} \rightarrow Ar$	00151	F	
$He^{2-100} \rightarrow He$	00151	F	
$He^{2-100} \rightarrow He$	00151	F	
$He^{2+} \rightarrow H_2$	00984	F	
$He^{2+} \rightarrow He$	00984	F	
$He^{2+} \rightarrow He$	00970	F	
$He^{2+} \rightarrow He$	00977	F	
$He^{2+} \rightarrow H_2$	00984	F	
$He^{2+} \rightarrow He$	00984	F	
$He^{2+} \rightarrow He$	00970	F	
$He^{2+} \rightarrow He$	00977	F	
$He^{2+} \rightarrow H_2$	00984	F	
$He^{2+} \rightarrow He$	00984	F	
$He^{2+} \rightarrow He$	00970	F	
$He^{2+} \rightarrow He$	00977	F	
$He^{2+} \rightarrow H_2$	00984	F	
$He^{2+} \rightarrow He$	00984	F	

$\text{Kc}^{6+} + \text{He}$	00970 E		
$\text{Kc}^{6+} + \text{He}$	00977 E		
$\text{Kc}^{6+} + \text{H}_2$	00980 E		
$\text{Kc}^{6+} + \text{He}$	00986 E		
$\text{Kc}^{6+} + \text{He}$	00978 E		
$\text{Kc}^{6+} + \text{Xe}$	00977 E		
$\text{Kc}^{7+} + \text{H}_2$	00984 E		
$\text{Kc}^{7+} + \text{He}$	00984 E		
$\text{Kc}^{7+} + \text{Xe}$	00977 E		
$\text{Kc}^{8+} + \text{H}_2$	00984 E		
$\text{Kc}^{8+} + \text{He}$	00984 E		
$\text{Kc}^{8+} + \text{Xe}$	00977 E		
$\text{Kc}^{9+} + \text{H}_2$	00984 E		
$\text{Kc}^{9+} + \text{He}$	00984 E		
$\text{Kc}^{10+} + \text{Xe}$	00.77 E		
$\text{Kc}^{10+} + \text{H}_2$	00984 E		
$\text{Kc}^{10+} + \text{He}$	00984 E		
$\text{Kc}^{10+} + \text{Xe}$	00977 E		
$\text{Kc}^{11+} + \text{Xe}$	00977 E		
$\text{Kc}^{12+} + \text{Xe}$	00977 E		
$\text{Kc}^{13+} + \text{Xe}$	00977 E		
$\text{Kc}^{14+} + \text{Xe}$	00977 E		
$\text{Kc}^{15+} + \text{He}$	00038 T	00990 T	
$\text{Kc}^{16+} + \text{He}$	00038 T		
Review	00971 T	00971 E	01590 E
Undecl	00137 T	00219 E	00293 E-T
	00662 T	00020 T	

HEAVY PARTICLE - HEAVY PARTICLE INTERACTIONS

Introduction

Ag	+ Ag	00125 T	
Al+++	+ Ti	00302 E-T	
Al+++	+ Ti	00302 E-T	
Al+++	+ Ti	00302 E-T	
As	+ As	01322 E	
As	+ Ho	00136 T	00615 T
As	+ Kr	00635 T	
As+	+ F	00843 E	
As+	+ Zn	00169 E	00617 T
As++	+ Ar	00750 E	00977 E
As++	+ CH ₄	00750 E	
As++	+ CO	00750 E	
As++	+ CO ₂	00750 E	
As++	+ H ₂	00750 E	
As++	+ O ₂	00750 E	
As++	+ I ₂	00169 E	00617 T
As++-oo	+ Ar	00151 E	
As++-oo	+ Kr	00151 E	
As++-oo	+ He	00151 E	
As++-oo	+ Xe	00151 E	
As++	+ Ag	00112 E	00977 T
As++	+ H	01070 E	
As++	+ I ₂	00617 T	
As++	+ K	00977 E	
As++	+ S	01070 E	

[illegible][illegible]

Co⁺ + Al
 C1585 T
 Co⁺ + Ar
 C0978 E
 Co⁺ + H
 00150 E-T 00176 E 00734 T
 C1070 E 01469 E-T
 Co⁺ + He
 C0979 E 01469 F-T
 Co⁺ + He
 C0978 E 01462 E
 Co⁺ + Ti
 C0302 F-T
 Co⁺ + Zn
 C0978 F
 Cl²⁺ + He
 C0978 E
 Cl²⁺ + Ar
 C0978 E
 Cl²⁺ + He
 C0978 E
 Cl²⁺ + He
 C0978 E
 Cl²⁺ + Ar
 C0978 E
 Cl²⁺ + He
 C0978 E
 Cl²⁺ + He
 C1462 E
 Cl²⁺ + Ti
 00302 E-T
 Cl²⁺ + Ti
 00302 E-T
 Cl²⁺ + Ti
 00302 F-T
 Co⁺ + Ca⁺
 C1449 E
 D⁺ + Ag
 C1582 E
 D⁺ + Br
 C1582 E
 D⁺ + C
 C1457 E
 D⁺ + Cu
 C1482 T
 D⁺ + Ge
 C1582 E
 D⁺ + Hg
 C1582 E
 D⁺ + Hl
 C1482 T
 D⁺ + Xe
 01582 E
 D⁺ + C
 01457 F
 Fe⁺ + Au
 00812 F 01586 T

Fe⁺ + Bi
 00812 E 01586 T
 Fe⁺ + Pb
 00812 E 01586 T
 Fe⁺ + U
 00812 E
 Fe⁺ + Au
 00812 E 01586 T
 Fe⁺ + Bi
 00812 E 01586 T
 Fe⁺ + Pb
 00812 E 01586 T
 Fe⁺ + U
 00812 E
 Fe⁺ + Au
 00812 E 01586 T
 Fe⁺ + Bi
 00812 E 01586 T
 Fe⁺ + He
 00851 E
 Fe⁺ + He
 00838 E 01460 E
 Fe⁺ + Pb
 00812 E 01586 T
 Fe⁺ + U
 00812 E
 Fe⁺ + He
 00851 E
 Fe⁺ + Ti
 00302 E-T
 Fe⁺ + Au
 C0812 E 01586 T
 Fe⁺ + Bi
 00812 E 01586 T
 Fe⁺ + He
 00838 E 01460 E
 Fe⁺ + Pb
 00812 E 01586 T
 Fe⁺ + Ti
 00302 E-T
 Fe⁺ + U
 00812 E
 Fe⁺ + Au
 00812 E 01586 T
 Fe⁺ + Bi
 00812 E 01586 T
 Fe⁺ + He
 01460 E
 Fe⁺ + He
 00838 E 01462 E
 Fe⁺ + Pb
 00812 E 01586 T
 Fe⁺ + Ti
 00302 E-T
 Fe⁺ + U
 00812 F

Fe²⁺ + H
 00181 T
 Fe²⁺ + Ar
 00978 E
 Fe²⁺ + Ar
 00978 E
 Fe²⁺ + H
 00181 T
 H⁺ + C⁺
 00157 E
 H⁺ + H⁺
 00157 E
 H⁺ + C⁺
 01429 E
 H⁺ + Ag
 00439 T 00836 E 01459 T
 01467 E 01581 E 01587 E
 01620 T 01639 E
 H⁺ + Al
 00101 T
 H⁺ + Ar
 00054 T 00226 E-T 00644 E
 00837 E 01587 E 01620 T
 H⁺ + Ar
 00257 T 00839 T 00632 E
 00818 E 01581 T 01584 E
 H⁺ + Au
 00629 E
 H⁺ + Bi
 00814 E
 H⁺ + Br
 01639 E
 H⁺ + C
 00613 T 01457 E 01587 E
 H⁺ + Cl
 01639 E
 H⁺ + CH₄
 00836 E
 H⁺ + CO
 00836 E
 H⁺ + Co
 01464 E 01581 T 01639 E
 H⁺ + CO₂
 00836 E
 H⁺ + Cx
 01464 E 01639 E
 H⁺ + Cu
 00439 T 01464 E 01481 T
 01482 T 01581 T 01583 T
 01587 E 01620 T 01639 E
 H⁺ + Fe
 01639 E
 H⁺ + Ga
 01639 F
 H⁺ + Ge
 00748 E
 H⁺ + He
 01639 E

$\text{H}^+ + \text{H}$
 00101 T 00150 E-T 00245 E
 00230 T 00734 T 01469 E-T
 01409 E 01593 T

$\text{H}^+ + \text{He}^+$
 00101 T 00120 E 00771 E

$\text{H}^+ + \text{He}^0$
 00612 E 01720 T

$\text{H}^+ + \text{He}$
 00625 E 00836 E

$\text{H}^+ + \text{He}$
 00226 E-T 00464 T 00600 E
 00610 T 00627 T 00640 E
 00735 T 00836 E 01059 T
 01469 E-T 01507 E 01760 T

$\text{H}^+ + \text{He}$
 00257 T

$\text{H}^+ + \text{I}$
 00016 E 01467 E

$\text{H}^+ + \text{Ia}$
 00016 E 01639 E

$\text{H}^+ + \text{Ic}$
 00836 E 01459 E 01620 T
 01639 E

$\text{H}^+ + \text{Ij}$
 00129 T

$\text{H}^+ + \text{Ia}$
 01060 T 01639 E

$\text{H}^+ + \text{Ie}$
 01639 E

$\text{H}^+ + \text{I}$
 01059 T

$\text{H}^+ + \text{He}$
 00625 E 00836 E

$\text{H}^+ + \text{He}$
 00226 E-T 00515 E 00557 E
 00626 E 00836 E 00934 E-T
 01459 E 01507 E

$\text{H}^+ + \text{Hl}$
 00117 E 01444 E 01682 T
 01541 T 01543 T 01639 E

$\text{H}^+ + \text{O}_2$
 00836 E

$\text{H}^+ + \text{Pb}$
 00010 E

$\text{H}^+ + \text{Pd}$
 01639 E

$\text{H}^+ + \text{PBBT}$
 01500 T

$\text{H}^+ + \text{Pb}$
 01639 E

$\text{H}^+ + \text{He}$
 01060 T

$\text{H}^+ + \text{Sc}$
 01064 E 01503 T 01639 E

$\text{H}^+ + \text{Se}$
 00816 E 01060 T 01639 E

$\text{H}^+ + \text{Se}$
 01733 T

$\text{H}^+ + \text{Te}$
 00149 E 01445 E

$\text{H}^+ + \text{Th}$
 01060 T

$\text{H}^+ + \text{Th}$
 01464 E 01403 T 01503 T

$\text{H}^+ + \text{U}$
 00257 T 00804 T 00810 E

$\text{H}^+ + \text{V}$
 01464 E

$\text{H}^+ + \text{V}$
 00740 E

$\text{H}^+ + \text{Zn}$
 01620 T

$\text{H}^+ + \text{Zn}$
 01060 T 01464 E 01503 T
 01639 E

$\text{H}^+ + \text{Z}$
 00530 E

$\text{H}_2 + \text{Ar}$
 00890 E

$\text{H}_2 + \text{H}_2$
 00890 E

$\text{H}_2 + \text{He}$
 00890 E

$\text{H}_2 + \text{Kc}$
 00890 E

$\text{H}_2 + \text{Ar}$
 00100 E

$\text{H}^+ + \text{Ba}$
 00149 E

$\text{H}_2 + \text{C}$
 01457 E

$\text{H}^+ + \text{Cd}$
 00149 E

$\text{H}_2 + \text{E}$
 01056 E

$\text{H}_2 + \text{He}$
 01056 E

$\text{H}^+ + \text{I}$
 00149 E

$\text{H}^+ + \text{Sn}$
 00149 E

$\text{H}^+ + \text{Te}$
 00149 E

$\text{H}_2 + \text{C}$
 01457 E

$\text{He} + \text{As}$
 01071 E

$\text{He} + \text{H}$
 01610 E-T

$\text{He} + \text{O}$
 01610 E-T

$\text{H}^+ + \text{H}^+$
 01489 E

$\text{H}^+ + \text{Ag}$
 01502 E

$\text{H}^+ + \text{Iz}$
 00100 E 00440 E

$\text{He}^+ + \text{He}$
 01502 E

$\text{He}^+ + \text{C}$
 01457 E

$\text{He}^+ + \text{By}$
 01501 T

$\text{He}^+ + \text{Ge}$
 01502 E

$\text{He}^+ + \text{H}$
 00209 T

$\text{He}^+ + \text{He}^+$
 00100 E

$\text{He}^+ + \text{He}$
 00630 E 00933 E 01316 E

$\text{He}^+ + \text{He}$
 01502 E

$\text{He}^+ + \text{H}_2$
 01610 E-T

$\text{He}^+ + \text{O}$
 01610 E-T

$\text{He}^+ + \text{PBBT}$
 01573 T

$\text{He}^+ + \text{Xe}$
 00169 E

$\text{He}^+ + \text{Zr}$
 01502 E

$\text{He}^+ + \text{CO}$
 01525 E

$\text{He}^+ + \text{Ca}$
 01552 E

$\text{He}^+ + \text{H}_2$
 01525 E

$\text{He}^+ + \text{He}$
 00103 E 01249 E

$\text{He}^+ + \text{H}_2$
 01525 E

$\text{He}^+ + \text{Ba}$
 00597 T

$\text{He}^+ + \text{He}$
 01249 E 01525 E

$\text{He}^+ + \text{O}_2$
 01525 E

$\text{He}^+ + \text{Ag}$
 01507 E

$\text{He}^+ + \text{Al}$
 00101 T 01505 T

$\text{He}^+ + \text{Ag}$
 01474 E 01507 E

$\text{He}^+ + \text{Se}$
 01445 E

$\text{He}^+ + \text{C}$
 01457 E 01507 E

$\text{He}^+ + \text{Cd}$
 01465 E

$\text{He}^+ + \text{Cu}$
 01482 T 01507 E

He²⁺ + H
00101 T 00150 E-T 00734 T
00771 T 01469 E-T 01489 F

He²⁺ + He
C1427 T 00735 T 01469 E-T
C1507 E

He²⁺ + I
C1465 E

He²⁺ + Kr
C1474 E

He²⁺ + Ne
C1474 T 01545 T 01587 E

He²⁺ + Sn
C1465 E

He²⁺ + Te
C1465 E

He²⁺ + Xe
00149 E 01474 E

I + Ag
C0125 T

K⁺ + Ar
00649 E

K⁺ + Kr
C0649 E

K⁺ + Ne
00649 E

K⁺ + Xe
00649 F

Kr + H
C0136 T 00615 T

Kr⁺ + Ar
C0639 E-T

Kr⁺ + Kr
C0639 E-T

Kr²⁺ + Ar
C0639 E-T 00977 E

Kr²⁺ + Kr
C0639 E-T

Kr²⁺-H⁺ + Ar
C0151 E

Kr²⁺-H⁺ + Kr
C0151 E

Kr²⁺-H⁺ + Ne
C0151 E

Kr²⁺-H⁺ + Xe
C0151 E

Kr³⁺ + Ar
C0977 E

Kr³⁺ + Ar
C0977 E

Kr³⁺ + Ar
C0977 E

Kr³⁺ + Ar
C0977 E

Kr³⁺ + Ar
C0977 E

Kr³⁺ + Ar
C0977 E

Kr³⁺ + Ar
C0977 E

Kr³⁺ + Ar
C0977 E

Kr³⁺ + Ar
C0977 E

Kr³⁺ + Ar
C0977 E

Kr³⁺ + Kr
C0153 E

Kr³⁺ + Kr
C0153 E

Kr³⁺ + Kr
C0153 E

Kr³⁺ + Kr
C0153 E

Kr³⁺ + Kr
C0153 E

Kr³⁺ + Kr
C0153 E

Kr³⁺ + Kr
C0153 E

Kr³⁺ + Kr
C0153 E

Kr³⁺ + Kr
C0153 E

Kr³⁺ + Kr
C0153 E

Kr³⁺ + Kr
C0153 E

Kr³⁺ + Kr
C0153 E

Kr³⁺ + Kr
C0153 E

Kr³⁺ + Kr
C0153 E

Kr³⁺ + Kr
C0153 E

Kr³⁺ + Kr
C0153 E

Kr³⁺ + Kr
C0153 E

Kr³⁺ + Kr
C0153 E

Kr³⁺ + Kr
C0153 E

Li + Au
C01071 E

Li + F
C00018 T

Li + He
C01065 T

Li⁺ + C
C00630 E

Li⁺ + He
C00173 E

Li⁺ + He
C01065 T

Li⁺ + H₂O
C0373 E-T

Li⁺ + He
C01065 T

Li⁺ + Ag
C01587 E

Li⁺ + Ar
C01587 E

Li⁺ + C
C01587 E

Li⁺ + Cu
C01587 E

Li⁺ + H
C00101 T 00734 T 01489 E

Li⁺ + He
C00627 T 00735 T 01587 E

Li⁺ + He
C01587 E

Hg⁺ + F
C00843 E

Hg⁺ + He
C01322 E

Hg¹⁰⁺ + Ti
C00302 E-T

Hg¹⁰⁺ + Ti
C00302 E-T

Hg¹⁰⁺ + Ti
C00302 E-T

H + Au
C01065 T 01468 E

H⁺ + H₂
C01322 E

H⁺ + Au
C01065 T

H⁺ + Au
C01065 T

H⁺ + Ti
C00302 E-T

H⁺ + H₂
C01658 E-T

H⁺ + Ti
C00302 E-T

H⁺ + He
C01462 E

H⁺ + Ti
C00302 E-T

Na + Na
C00437 E

Na⁺ + Ar
C00649 E

Na⁺ + Kr
C00649 E

Na⁺ + He
C01322 E

Na⁺ + He
C00408 E

$\text{Hb}^{2+} + \text{Ar}$
 C0978 E
 $\text{Hb}^{2+} + \text{Ar}$
 C0978 E
 $\text{Hb}^{2+} + \text{Ar}$
 C0978 E
 $\text{Hr} + \text{Au}$
 01071 E
 $\text{Hr} + \text{Au}$
 01322 E
 $\text{Hr} + \text{O}_2$
 01322 E
 $\text{Hr} + \text{Eu}$
 00169 E
 $\text{Hr} + \text{AC}$
 C0690 E
 $\text{Hr} + \text{D}$
 00508 E
 $\text{Hr} + \text{E}$
 00508 E
 $\text{Hr}^{2+} + \text{Ar}$
 00977 E
 $\text{Hr}^{2+} + \text{Ea}$
 00068 E
 $\text{Hr}^{2+} + \text{Ar}$
 00151 E
 $\text{Hr}^{2+} + \text{Er}$
 00151 E
 $\text{Hr}^{2+} + \text{Eu}$
 00151 E
 $\text{Hr}^{2+} + \text{Ea}$
 00151 E
 $\text{Hr}^{2+} + \text{Ar}$
 00977 E
 $\text{Hr}^{2+} + \text{Ea}$
 C0628 E
 $\text{Hr}^{2+} + \text{Ea}$
 00169 E
 $\text{Hr}^{2+} + \text{Ar}$
 00977 E
 $\text{Hr}^{2+} + \text{Ar}$
 00977 E
 $\text{Hr}^{2+} + \text{Ar}$
 C0977 E
 $\text{Hr}^{2+} + \text{Ar}$
 00977 E
 $\text{Hr}^{2+} + \text{H}_2$
 01658 E-T
 $\text{Hl} + \text{Hl}$
 01062 T
 $\text{Hl} + \text{Ph}$
 01561 T
 $\text{O} + \text{Au}$
 01071 E
 $\text{O} + \text{H}$
 01070 E
 $\text{O} + \text{O}$
 01070 E

G** + H
01070 E

G** + H
01070 E

G** + H
01070 E

G** + T1
00302 E-T

G** + H2
01650 E-T

G** + T1
00302 E-T

G** + H
00150 E-T 01469 E-T

G** + He
01469 E-T

G** + He
01462 E

G** + T1
00302 E-T

Ph + Cu
00510 T

Ph** + Ar
00978 E

Ph** + Xe
00978 E

PHET** + H2
01626 T

PHET** + He
01626 T

Hu* + Hb*
00694 T

S + Au
01071 E

S1** + Ar
01588 E

S1** + Ar
01588 E

S1** + Ar
01588 E

S1** + Ar
01588 E

S1** + Ar
01588 E

S1** + Ar
01588 E

S1** + T1
00302 E-T

S1** + Ar
01588 E

S1** + T1
00302 E-T

S1** + Ar
01588 E

S1** + T1
00302 E-T

S1 + Au
01071 E

[illegible]

Xe⁰⁺ + Xe
00153 E

Xe⁰⁺ + Xe
00153 E

Xe⁰⁺ + Xe
00153 E

Review
01594 E

Revised
00228 T 00026 T 00035 T
01657 T

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HEAVY PARTICLE - HEAVY PARTICLE INTERACTIONS

Stripping

Ar⁰⁺ + Ar
00413 E

Ar⁰⁺ + He
00413 E

Ar⁰⁺ + Ar
00413 E

Ar⁰⁺ + He
00413 E

Ar¹⁷⁺ + H₂
01658 E-T

Cl⁰⁺ + H₂
01658 E-T

D + Ca
00441 E

D + Sr
00441 E

H + Ca
00441 E

H + Be
00713 E-T

H + O
00643 E

H + Sr
00441 E

He + H₂
01618 E-T

He + O
01618 E-T

He⁰⁺ + H⁰⁺
00651 T

He⁰⁺ + Ar
00439 T

He⁰⁺ + H
00439 T

He⁰⁺ + He
00439 T

He⁰⁺ + H₂
01618 E-T

He⁰⁺ + D
01618 E-T

He⁰⁺ + H₂
01658 E-T

He⁰⁺ + Ar
00413 E

He⁰⁺ + He
00413 E

He⁰⁺ + Ar
00413 E

He⁰⁺ + He
00413 E

He⁰⁺ + Ar
00413 E

He⁰⁺ + He
00413 E

He⁰⁺ + Ar
00413 E

He⁰⁺ + He
00413 E

He⁰⁺ + H₂
01658 E-T

O⁰⁺ + Ar
00639 T

O⁰⁺ + Ar
00639 T

O⁰⁺ + H₂
01658 E-T

PH₂⁰⁺ + PH₂⁰⁺
00461 T

Sr⁰⁺ + H₂
00111 E-T

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HEAVY PARTICLE - HEAVY PARTICLE INTERACTIONS

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

Ar⁰⁺ + P⁻
00023 T

Be⁻ + K⁰⁺
00007 T

Be⁻ + Li⁰⁺
00007 T

Be⁻ + Na⁰⁺
00007 T

Be⁻ + Rb⁰⁺
00007 T

Cl⁻ + Li⁰⁺
00007 T

Cl⁻ + Na⁰⁺
00007 T

H⁰⁺ + H⁻
00264 T 00640 T 00871 T
00479 T 01746 T

H⁻ + H₂⁰⁺
00642 E

He⁰⁺ + He
00641 E

I⁻ + Ca⁰⁺
00007 T

I⁻ + K⁰⁺
00007 T

I⁻ + Li⁰⁺
00007 T

I⁻ + Na⁰⁺
00007 T

I⁻ + Rb⁰⁺
00007 T

K⁰⁺ + Cl⁻
00023 T

Li⁰⁺ + P⁻
00018 T

Na⁰⁺ + P⁻
00013 T

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HEAVY PARTICLE - HEAVY PARTICLE
INTERACTIONS

Collisional De-Excitation

Ar⁺ + Kr
01522 EAr⁺ + O
01724 EAr⁺ + CO
01619 TAr⁺ + CO₂
01619 TAr⁺ + H₂O
01619 TAr⁺ + H₂
01619 T 01444 TC⁺ + C₂H₂
01722 EC⁺ + CH₄
01722 EC⁺ + CO
01722 EC⁺ + CO₂
01722 EC⁺ + H₂O
01722 EC⁺ + He
01722 EC⁺ + H₂
01722 EC⁺ + Xe
01722 ECa⁺ + Ar
00904 ECa⁺ + He
00904 ECa⁺ + Kr
00904 ECa⁺ + Ne
00904 ECa⁺ + Xe
00904 ECO⁺ + CO
00918 ECO⁺ + CH₄
00043 ECO⁺ + CO
01538 ECO⁺ + H₂
00924 TCO⁺ + He
00353 E-TCO⁺ + O₂
00043 ECO₂⁺ + He
00367 TCO₂⁺ + He
00002 E-TCu⁺ + He
00602 TCu⁺ + Ar
00368 ECu⁺ + CO
00368 ECu⁺ + Cu
00368 ECu⁺ + H₂
00368 ECu⁺ + H₂
00368 ECu⁺ + He
00368 ECu⁺ + H₂
00368 ECu⁺ + He
00368 ED₂⁺ + He
00029 THe⁺ + D
00093 EH₂⁺ + H₂
00372 TH₂⁺ + He
00029 THe⁺ + CO⁺
00072 T 00886 THe⁺ + He
00604 E 00833 EHe⁺ + H₂
00627 EHe⁺ + He
00603 TI⁺ + CO
01419 TI⁺ + CO₂
01419 TI⁺ + H₂O
01419 TI⁺ + H₂
00028 E 01419 TI⁺ + O₂
00028 EIn⁺ + Ar
00374 EIn⁺ + CH₄
00374 EIn⁺ + H₂
00374 EIn⁺ + H₂
00374 EIn⁺ + H₂
00374 EK⁺ + Ar
00601 EKr⁺ + He
00667 E 01052 EKr⁺ + He
00667 E 01052 ELi⁺ + Li
00266 EH₂⁺ + H₂
00882 EH₂⁺ + He
00015 EH₂⁺ + O₂
00015 EH₂⁺ + Ar
00896 EH₂⁺ + CH₄
00043 EH₂⁺ + He
00353 E-TH₂⁺ + He
00896 EH₂⁺ + O₂
00043 EH₂O⁺ + He
00002 E-THe⁺ + He⁺
00514 EHe⁺ + Ar
00237 EHe⁺ + CO
00250 EHe⁺ + CO₂
00605 EHe⁺ + H₂
00250 E 00387 THe⁺ + He
00237 E 01513 E-THe⁺ + H₂
00606 E 01513 E-THe⁺ + He⁺
00209 E 00444 E 00809 EHe⁺ + Xe
00211 E 00237 EHe⁺ + He⁺
01612 E 01618 EHe⁺ + H₂O
00365 EHe⁺ + Ar
00390 EHe⁺ + CH₄
00390 EHe⁺ + CO₂
00390 E

$\text{HO}^{++} + \text{He}$
 C0390 F
 $\text{HO}^{++} + \text{He}$
 C0390 F
 $\text{HO}^{++} + \text{H}_2$
 C0390 F
 $\text{HO}^{++} + \text{H}_2$
 C0390 F
 $\text{HO}^{++} + \text{H}_2$
 C0390 F
 $\text{O}_2^{++} + \text{Ar}$
 00775 F 00908 F
 $\text{O}_2^{++} + \text{CH}_4$
 C0775 F
 $\text{O}_2^{++} + \text{CO}$
 00908 F
 $\text{O}_2^{++} + \text{CO}_2$
 00775 F 00908 F
 $\text{O}_2^{++} + \text{D}_2$
 C0908 F
 $\text{O}_2^{++} + \text{H}_2$
 C0775 F 00908 F
 $\text{O}_2^{++} + \text{H}_2\text{O}$
 C0908 F
 $\text{O}_2^{++} + \text{He}$
 C0908 F
 $\text{O}_2^{++} + \text{He}$
 C0908 F
 $\text{O}_2^{++} + \text{H}_2$
 00775 F 00908 F

$\text{O}_2^{++} + \text{He}$
 00908 F
 $\text{O}_2^{++} + \text{O}_2$
 00775 F 00908 F
 $\text{O}_2^{++} + \text{CO}_2$
 00019 F 00361 F
 $\text{O}_2^{++} + \text{HCl}$
 00361 F
 $\text{O}_2^{++} + \text{H}_2$
 01443 F
 $\text{O}_2^{++} + \text{H}_2\text{O}$
 00019 F 00361 F
 $\text{O}_2^{++} + \text{H}_2$
 00361 F
 $\text{O}_2^{++} + \text{H}_2$
 00361 F
 $\text{O}_2^{++} + \text{SO}_2$
 00361 F
 $\text{OH}^{++} + \text{CH}_4$
 00393 F
 $\text{OH}^{++} + \text{CO}$
 00393 F
 $\text{OH}^{++} + \text{CO}_2$
 00393 F
 $\text{OH}^{++} + \text{H}_2\text{O}$
 00393 F
 $\text{OH}^{++} + \text{H}_2$
 00393 F
 $\text{OH}^{++} + \text{H}_2\text{O}$
 00393 F

$\text{OH}^{++} + \text{H}_2$
 00393 F
 $\text{OH}^{++} + \text{H}_2$
 00393 F
 $\text{OH}^{++} + \text{H}_2$
 00393 F
 $\text{OH}^{++} + \text{O}_2$
 00393 F
 $\text{H}^{++} + \text{Ar}$
 00443 F
 $\text{H}^{++} + \text{D}_2$
 00908 F
 $\text{H}^{++} + \text{H}_2$
 00908 F 01513 F-T
 $\text{H}^{++} + \text{He}$
 00241 F 00443 F 00602 F
 01513 F-T
 $\text{H}^{++} + \text{Kr}$
 00443 F
 $\text{H}^{++} + \text{He}$
 00443 F
 $\text{H}^{++} + \text{Hb}$
 00172 F
 $\text{H}^{++} + \text{Hb}$
 00496 F
 $\text{H}^{++} + \text{He}$
 00443 F
 $\text{He}^{++} + \text{He}$
 00695 F

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HEAVY PARTICLE - HEAVY PARTICLE
INTERACTIONS

Collisional Line Broadening

Ca + Ar
01077 ECa + Ne
01077 ECa + Kr
01077 ECa + Xe
01077 ECa + Rn
01077 ECo + Co
01711 ECu + Cu
00516 EE + He
01033 EHb + Ar
00790 EHb + Hb
00790 EHb + He
00790 EHb + Li⁺
00411 EHb + Ne
00335 EK⁺ + Rb
00516 EK⁺ + CO
01706 E 01711 EK⁺ + Ar
01051 E-TK⁺ + He
00114 E 01051 E-TK⁺ + Kr
01051 E-TK⁺ + R₂
01051 E-TK⁺ + Cs
00799 EK⁺ + Xe
00243 EK⁺ + Rb
00799 EK⁺ + He
00076 EO₂ + Ar
01529 E-TO₂ + He
01529 E-TO₂ + Kr
01529 E-TO₂ + Rn
01529 E-TRb + Rb
01630 ERb + Cs
00516 ERb + K
00516 ERb + Xe
00517 E 00842 ESr + Ar
00077 ESr + He
01061 E 01069 ESr + Kr
01069 ESr + Rn
01069 ESr + Xe
01061 ESr + Ar
00222 ESr + He
00222 ESr + Kr
00222 ESr + Rn
00222 ESr + Xe
00222 ETl + He
01617 ETl + Kr
01617 ETl + Xe
01617 EXe + Cs
01471 E

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HEAVY PARTICLE - HEAVY PARTICLE
INTERACTIONSHeavy Particle Interchange (most
involve some form of hydrogen or
helium)Be⁺ + H₂
00910 ECl + D₂
00903 ECl + F₂
00384 E 00903 ECl + H₂
00903 ECl + D₂
00366 ECl + H₂
00366 ECl + H₂
00366 ED + H₂
00907 ED + H₂
00031 E 00907 E 00916 E
01509 ED + OH
01725 ED + T₂
01511 ED + TH
01511 ED₂ + C
00024 ED₂ + F
00027 EF + D₂
00004 E 00915 EF + H₂
00035 E 00038 E 00046 E
00049 E 00239 E 00357 E
01510 EF + D₂
00003 EF + H₂
00003 EF + H₂
00003 EE + C₂H₂
01721 EE + D₂
00889 EE + F₂
00003 E 00005 E 00031 E
00050 E 00917 E 01509 EE + HF
00066 EE + T₂
01511 EH₂ + H₂
01502 E-TT + D₂
01511 E 01719 ET + H₂
01511 E 01719 ET + H₂
01511 ET + T₂
01511 ET₂ + D₂
00396 E

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HEAVY PARTICLE - HEAVY PARTICLE
INTERACTIONSElectron Detachment from Negative Ions
into ContinuumCl⁻ + Ar
00622 E 00749 FCl⁻ + Ne
00749 FCl⁻ + Kr
00749 FCl⁻ + Rg
00622 ECl⁻ + Na
00622 ECl⁻ + He
00749 ECl⁻ + Xe
00749 FD⁻ + Ar
00094 FD⁻ + CH₄
00210 ED⁻ + CO
00210 ED⁻ + CO₂
00210 ED⁻ + D₂
00621 ED⁻ + H₂
00274 F 00621 ED⁻ + HD
00621 FD⁻ + H₂
00210 ED⁻ + He
00621 F 00909 FD⁻ + O₂
00210 EF⁻ + D
00021 EF⁻ + H
00021 EH⁻ + Ar
00094 E 00619 FH⁻ + Ca
00441 EH⁻ + CH₄
00210 EH⁻ + CO
00210 EH⁻ + CO₂
00210 FH⁻ + H⁻
00206 FH⁻ + H₂
00083 E 00274 E 00620 FH⁻ + He
00073 E 00083 E 00614 F
00619 F 00713 F-TH⁻ + Kr
00624 EH⁻ + H₂
00083 E 00210 EH⁻ + Na
00620 FH⁻ + He
00619 F 00623 F 00909 FH⁻ + O
00643 EH⁻ + O₂
00210 EH⁻ + Sr
00441 EH⁻ + Ar
00619 FH⁻ + He
00619 FH⁻ + He
00619 FLi⁻ + Ar
00619 FLi⁻ + He
00619 FLi⁻ + H₂
01588 ELi⁻ + He
00619 FO⁻ + NO
00894 ES⁻ + CO
00894 ES⁻ + O₂
00894 ETi⁻ + Ar
00622 ETi⁻ + Hg
00622 ETi⁻ + Na
00622 E

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HEAVY PARTICLE - HEAVY PARTICLE
INTERACTIONS

Interaction Potentials

$\text{Ar}^+ + \text{Kr}$
01522 E
 $\text{Ba} + \text{H}_2$
00052 T
 $\text{Ba}^+ + \text{H}_2$
00910 T
 $\text{Ca}^+ + \text{H}$
01512 E
 $\text{Ca}^+ + \text{H}$
01512 E
 $\text{Ca} + \text{H}_2$
00030 T
 $\text{Ca}^+ + \text{Kr}$
00033 E
 $\text{Ca}^+ + \text{Ne}$
00033 E
 $\text{Ca}^+ + \text{Kr}$
00033 E
 $\text{Ca}^+ + \text{Ne}$
00033 E
 $\text{Ca}^+ + \text{Xe}$
00033 E
 $\text{Ba} + \text{H}_2$
00048 E
 $\text{F} + \text{H}_2$
00239 T
 $\text{I} + \text{F}_2$
00042 T
 $\text{R}^+ + \text{Ar}$
00226 E-T
 $\text{R}^+ + \text{Xe}$
00272 T
 $\text{R}^+ + \text{Ne}$
00226 E-T
 $\text{R}^+ + \text{Ne}$
00226 E-T
 $\text{H}_2 + \text{H}$
00901 T
 $\text{H}_2 + \text{CH}$
00901 T
 $\text{H}_2 + \text{CO}_2$
01709 T
 $\text{H}_2 + \text{FH}$
00901 T
 $\text{H}_2 + \text{H}_2$
00700 T

$\text{H}_2 + \text{H}_2\text{O}$
01709 T
 $\text{H}_2 + \text{Na}$
00030 T
 $\text{H}_2 + \text{H}$
00901 T
 $\text{H}_2 + \text{OH}$
00901 T
 $\text{H}_2^+ + \text{H}_2$
01717 T
 H_2
00024 T
 $\text{H}_2 + \text{D}_2$
00047 E
 $\text{He} + \text{H}_2$
00880 T
 $\text{He} + \text{O}_2$
00370 E-T
 $\text{He}^+ + \text{H}_2$
01751 T
 He_2^+
00371 T
 He_2^+
00371 T
 He_2
00895 T
 $\text{Hg} + \text{Xe}$
00098 T
 $\text{K} + \text{He}$
00596 T
 $\text{K}^+ + \text{H}_2\text{O}$
00928 T
 $\text{Li} + \text{H}$
00518 E
 $\text{Li}^+ + \text{Ar}$
01439 T
 $\text{Li}^+ + \text{Ca}$
00782 T
 $\text{Li}^+ + \text{H}_2\text{O}$
00928 T
 $\text{Li}^+ + \text{He}$
01439 T
 $\text{Li}^+ + \text{Ar}$
01439 T
 $\text{Li}^+ + \text{Ne}$
01439 T
 $\text{Li}^+ + \text{Xe}$
01439 T
 $\text{R} + \text{Ar}$
00379 E
 $\text{H}_2 + \text{Ar}$
00379 E

$\text{Na} + \text{Ar}$
00512 E
 $\text{Na} + \text{Ne}$
00512 E
 $\text{Na}^+ + \text{H}_2\text{O}$
00928 T
 $\text{Na}^+ + \text{Ar}$
01320 E
 $\text{Na}^+ + \text{Ne}$
01513 E-T
 $\text{Na}^+ + \text{Hg}$
01320 E
 $\text{Na}^+ + \text{H}_2$
01513 E-T
 $\text{Ne} + \text{Ar}$
00925 T
 $\text{Ne} + \text{Kr}$
00925 T
 $\text{Ne} + \text{Ne}$
00377 T 00926 T 01440 T
 $\text{Ne} + \text{Xe}$
00925 T
 $\text{O}_2 + \text{Ar}$
01529 E-T
 $\text{O}_2 + \text{Ne}$
01529 E-T
 $\text{O}_2 + \text{Kr}$
01529 E-T
 $\text{O}_2 + \text{He}$
01529 E-T
 $\text{O}^+ + \text{Ne}$
01512 E
 O_2
00389 T
 O_2
00051 T 00382 T
 OH^+
00927 T
 $\text{R}^+ + \text{H}_2$
01513 E-T
 $\text{R}^+ + \text{Ne}$
01513 E-T
 $\text{Tl} + \text{Ne}$
01417 T
 $\text{Tl} + \text{Kr}$
01417 T
 $\text{Tl} + \text{Xe}$
01417 T
 $\text{Xe} + \text{Ca}$
01521 T
 $\text{Xe} + \text{Ar}$
01650 T

A18

HEAVY PARTICLE - HEAVY PARTICLE
INTERACTIONS

Angular Scattering

$\text{Ar}^+ + \text{Ar}$
01322 E
 $\text{Ar}^{2+} + \text{Ar}$
00261 E
 $\text{Ar}^{2+} + \text{Ne}$
00723 E
 $\text{Ar}^{2+} + \text{Ne}$
00723 E
 $\text{C} + \text{C}$
01735 T
 $\text{C}^{2+} + \text{C}$
00785 E
 $\text{D}^+ + \text{Ar}$
00094 E
 $\text{D}_2^+ + \text{CO}$
00878 T
 $\text{D}_2^+ + \text{H}_2$
00048 E
 $\text{F} + \text{D}_2$
00004 T
 $\text{F} + \text{H}_2$
00357 T
 $\text{H}^+ + \text{D}^+$
01734 T
 $\text{H}^+ + \text{Ar}$
00054 E 00606 E
 $\text{H}^+ + \text{Ne}$
00785 E
 $\text{H}^+ + \text{C}$
00654 T 00785 E
 $\text{H}^+ + \text{E}$
00099 T 00245 E 00462 T
00605 E 00609 T 00652 T
00745 E 00846 T 01847 R-T
01593 T
 $\text{H}^+ + \text{Xe}$
00045 T 00488 E 00606 E
00607 E 00608 E 00640 E
00793 T 00846 T
 $\text{H}^+ + \text{Kr}$
01459 E

$\text{H}^+ + \text{Ne}$
00654 T 00785 E 01451 E
01459 E
 $\text{H}^+ + \text{Li}$
00117 E
 $\text{H}^+ + \text{O}$
00785 E
 $\text{H}^+ + \text{Kr}$
01733 T 01736 E
 $\text{H}^+ + \text{Ar}$
00094 E
 $\text{H}^+ + \text{Kr}$
00624 E
 $\text{H}_2^+ + \text{Ar}$
00100 E
 $\text{H}_2^+ + \text{D}_2$
00047 E
 $\text{HD}_2^+ + \text{D}_2$
00692 E
 $\text{He} + \text{CO}$
00825 E
 $\text{He} + \text{H}_2$
00604 E
 $\text{He} + \text{He}$
00604 E 00892 E
 $\text{He} + \text{H}_2$
00604 E
 $\text{He} + \text{NO}$
00825 E
 $\text{He} + \text{O}_2$
00370 E-T 00604 E
 $\text{He}^{2+} + \text{Ar}$
00100 E
 $\text{He}^{2+} + \text{CO}$
00825 E
 $\text{He}^{2+} + \text{E}$
00106 T
 $\text{He}^{2+} + \text{Xe}$
00188 E 00641 E
 $\text{He}^{2+} + \text{H}_2$
00825 E
 $\text{He}^{2+} + \text{He}$
00785 E
 $\text{K} + \text{Kr}$
00489 E

$\text{K}^+ + \text{Ar}$
00710 E
 $\text{Li}^+ + \text{H}_2$
00060 T
 $\text{Li}^+ + \text{Ne}$
00173 E
 $\text{Ne}^+ + \text{Ar}$
00513 E
 $\text{Ne}^+ + \text{Ne}$
00513 E
 $\text{Ne}^+ + \text{Kr}$
00513 E
 $\text{Ne}^+ + \text{Xe}$
01322 E
 $\text{Ne}^+ + \text{H}_2$
01322 E
 $\text{Ne}^+ + \text{Ar}$
00512 E
 $\text{Ne}^+ + \text{He}$
00512 E
 $\text{Ne}^+ + \text{He}^{2+}$
00516 E
 $\text{Ne}^+ + \text{Xe}$
01322 E
 $\text{Ne}^+ + \text{Ar}$
01320 E
 $\text{Ne}^+ + \text{H}_2$
01320 E
 $\text{Ne}^+ + \text{Xe}$
01322 E
 $\text{Ne}^+ + \text{O}_2$
01322 E
 $\text{Ne}^{2+} + \text{Xe}$
00785 E
 $\text{O}^{2+} + \text{O}$
00785 E
 $\text{Se} + \text{Cu}$
01066 E
 $\text{Xe} + \text{Li}$
01066 E
 $\text{Xe} + \text{Xe}$
01632 T
 Unlabeled
00445 T

A20

HEAVY PARTICLE - HEAVY PARTICLE
INTERACTIONS

Attenuation (unspecified process)

$\text{D}_2^+ + \text{E}$
00919 E

$\text{D}_2^+ + \text{H}_2$
00919 E
 $\text{H}_2^{2+} + \text{E}$
00919 E
 $\text{H}_2^{2+} + \text{H}_2$
00919 E
 $\text{H}_2^+ + \text{E}$
00919 E

$\text{H}_2^+ + \text{H}_2$
00919 E
 $\text{HD}_2^+ + \text{E}$
00919 E
 $\text{HD}_2^+ + \text{H}_2$
00919 E

801

INTERACTIONS OF IONIC PARTICLES WITH
FIELDSInteraction of Individual Ions or
Molecules with External Fields

Ca⁺ 00318 T
 D 01368 T
 E 00459 T 00452 T 01368 T

01515 T

He⁺ 00432 T
 H⁺ 00282 T 00780 T
 H₂⁺ 00779 T
 He 01629 T
 He⁺ 00432 T 00482 T
 He 00480 T

VINT

01517 T
 Si⁺⁺ 00430 T
 Si⁺ 00800 T 01518 T
 Si⁺⁺ 01518 T
 Review 01383 T
 Under 00697 T 00813 T

807

INTERACTIONS OF IONIC PARTICLES WITH
FIELDSCollisions in Presence of Static or
Time Varying Fields

• • He 00140 T-T
 • • He⁺ 00334 T
 • • He⁺⁺ 00334 T
 • • He⁺⁺ 00334 T
 • • H 00698 T 01370 T
 • • H + hv 00742 T

• • He 00058 T
 • • He + hv 00699 T
 • • He⁺ 00334 T
 • • O⁺ 00334 T
 H⁺ + H 00701 T
 He⁺⁺ + H + hv 00700 T
 hv + CO 00012 T
 hv + Fe⁺⁺ 00707 T
 hv + H 00707 T 00797 T 01660 T
 hv + H⁻ 00280 T

hv + Kr⁺hv + O₂

K + K + hv

Ba + Ba

Ba⁺ + Ba⁺Rb⁺ + Rb

Review 01180 T 01382 T

Under 00231 T 00300 T 00303 T
 00317 T 00415 T 00455 T
 00807 T 01518 T-T 01653 T
 01654 T 01662 T 01664 T
 01666 T 01744 T 01751 T

C01

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

General

• • He
00911 T

H₂⁺ • Ar
00436 E

Wmloc
00498 T

• • H₂
00911 T

C02

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

Energy Loss and Stopping Power

Ag⁺ • Al
00834 E

Ag⁺ • Fe
00834 E

Ag⁺ • Si
00834 E

Ag⁺ • Pd
00834 E

Ag⁺ • Ti
00834 E

Ag⁺ • V
00834 E

Ag⁺ • Zn
00834 E

Ag⁺ • Zr
00834 E

Al⁺ • Si
00330 E

Ar⁺ • Al
01477 E

Ar⁺ • Au
01477 E

Ar⁺ • C
01477 E

Ar⁺ • Al
01477 E

Ar⁺ • Au
01477 E

Ar⁺ • C
01477 E

Ar⁺ • Al
01477 E

Ar⁺ • Au
01477 E

Ar⁺ • C
01477 E

D⁺ • Si
00330 E

C⁺ • Ag
00229 E

C⁺ • Au
00229 E

C⁺ • Ni
00229 E

C⁺ • Pb
00229 E

Cu⁺ • Cu
00262 E

D⁺ • Ag
01403 E

D⁺ • Au
00499 E

D⁺ • H₂
01576 E

• • Ag
00184 E

• • Al
00184 E 01026 E 01053 E

• • Au
00184 E

• • Be
00184 E

• • C
01053 E 01497 E

• • Cu
00184 E 01053 E 01497 E

• • Ge
00932 E

• • H₂
00905 E

• • Kr
01731 E

• • Ni
00184 E

• • Pb
01053 E 01497 E

• • Si
00184 E 00932 E

P⁺ • Si
00330 E

H⁺ • Ag
01603 E 01635 E

H⁺ • Al
00295 E 00296 E 00297 E

H⁺ • Ar
00784 E 01634 E

H⁺ • Au
00435 E 00499 E 01644 E-T

H⁺ • C
01601 E

H⁺ • Cu
00213 E-T 00328 E

H⁺ • D
00147 E

H⁺ • Ge
00932 E

H⁺ • He
00187 E

H⁺ • In
00328 E

H⁺ • In₂O₃
00328 E

H⁺ • Kr
00784 E 01634 E

H⁺ • Li
00857 E

H⁺ • H₂
01576 E

H⁺ • Ni
00201 E

H⁺ • O
00328 E

H⁺ • Pb
00201 E

H⁺ • PENT
00291 E 01577 E-T

H⁺ • Sb
00328 E

H⁺ • Se
00328 E 00850 E

H⁺ • Si
00409 E 00932 E

H⁺ • Ti
00328 E

H⁺ • TiO₂
00328 E

H⁺ + S
00201 T
 H⁺ + Se
00704 T
 H⁺ + Ag
01603 E
 H⁺ + Al
00943 E
 H⁺ + Ar
00943 E 01590 E 01599 E
 H⁺ + C
01599 E
 H⁺ + CH₄
01590 E
 H⁺ + CO₂
01590 E
 H⁺ + H₂
01590 E
 H⁺ + He
01590 E
 H⁺ + Kr
00943 E 01590 E
 H⁺ + F₂
01590 E
 H⁺ + Ne
01590 E 01599 E
 H⁺ + O₂
01590 E
 H⁺ + PENT
00291 E
 H⁺ + Se
00050 E
 H⁺ + Si
00943 E
 H⁺ + Te
00943 E 01590 E
 H⁺ + Ig
00229 E 01635 E
 H⁺ + In
00229 E 00099 E 01620 T
 H⁺ + H₂O
01600 E

He⁺ + H₂
00229 E
 He⁺ + Ph
00229 E
 Kr⁺ + Ig
00056 E
 Kr⁺ + Al
00056 E
 Kr⁺ + Ar
01599 E
 Kr⁺ + In
00056 E
 Kr⁺ + He
01599 E
 Kr⁺ + H₂
00056 E
 Kr⁺ + Si
00056 E
 Kr⁺ + Xe
01599 E
 Kr⁺ + Kr
00056 E
 Li⁺ + Si
00330 E
 Mg⁺ + He
00262 T
 Mg⁺ + Si
00330 E
 H⁺ + Al
00094 E
 H⁺ + Si
00330 E 00505 E
 H₂⁺ + Al
01079 E
 H₂⁺ + C
01079 E
 H₂⁺ + Si
00330 E
 He⁺ + C
00049 E
 O⁺ + He
00262 T

O⁺ + He
00262 T
 O⁺ + S
00262 T
 O⁺ + PENT
00262 T
 O⁺ + Si
00330 E
 O₂⁺ + Al
01079 E
 O₂⁺ + C
01079 E
 O₂⁺ + Al
01079 E
 O₂⁺ + C
01079 E
 Pb⁺ + Ar
01599 E
 Pb⁺ + He
01599 E
 Pb⁺ + Xe
01599 E
 Pb⁺ + C
01530 T
 Pb⁺ + PENT
00964 T
 Pb⁺ + Al
00262 T
 Pb⁺ + C
00262 T
 Pb⁺ + He
00262 T
 U⁺ + He
01599 E
 Xe⁺ + Ar
01599 E
 Xe⁺ + He
01599 E
 Xe⁺ + Xe
01599 E
 Unlabeled
00259 T 00016 T 00030 T
00092 T 00095 T 01761 T

C04

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

Particle Range

Al⁺ + Si
C0330 EB⁺ + Si
C0330 EBa⁺ + Si
C1600 EC⁺ + Al
03855 TC⁺ + C
00846 TCa⁺ + Si
C1600 ECl⁺ + Ba
C0848 Te⁺ + Al
01026 TBa⁺ + Si
01600 EP⁺ + Si
C0330 PGd⁺ + Si
01600 EH⁺ + Plasma
01027 TH⁺ + Si
00848 TF⁺ + Al
00855 THe²⁺ + C
01490 EHe²⁺ + Plasma
01027 THf⁺ + Si
01600 ELi⁺ + Si
00330 EHg⁺ + Si
00330 EH⁺ + HoO₂
01562 EH⁺ + Si
00330 EH⁺ + SiO₂
01562 EH⁺ + Ta₂O₅
01562 EH⁺ + Ag
01478 EH⁺ + Cu
01478 EH⁺ + Si
00330 EH⁺ + Si
01600 EO⁺ + Al
00855 T 01490 EO⁺ + Si
00330 ERb⁺ + Si
01600 ESr⁺ + Si
01600 ET⁺ + Plasma
01027 TTb⁺ + Si
01600 ETi⁺ + Si
01600 ETm⁺ + Si
01600 EYb⁺ + Si
01600 EZr⁺ + Si
01600 E

C05

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

Multiple Scattering

C⁺ + Ag
00454 EC⁺ + Al
00854 ED⁺ + Al
01579 ED⁺ + Au
00499 ED⁺ + Ho
01579 ED⁺ + Hf
01579 ED⁺ + Ta
01579 Ee⁺ + Al
01497 Ee⁺ + C
01497 Ee⁺ + Cu
01497 Ee⁺ + Ge
C0106 Te⁺ + Pb
01497 EH⁺ + Al
01579 EH⁺ + Au
00499 EH⁺ + C
01601 EH⁺ + Ho
01579 EH⁺ + Hf
01579 EH⁺ + Se
00850 EH⁺ + Si
00409 EH⁺ + Ta
01579 EHe⁺ + Ar
01599 EHe⁺ + C
01599 EHe⁺ + Ho
01599 EHe⁺ + Se
00850 EHe²⁺ + Au
00499 EKr⁺ + Ar
01599 EKr⁺ + Ho
01599 EKr⁺ + Xe
01599 EP⁺ + C
00450 EP⁺ + Si
00505 EPb⁺ + Ar
01599 EPb⁺ + Ho
01599 EPb⁺ + Xe
01599 EP⁺ + Se
01599 EXe⁺ + Ar
01599 EXe⁺ + Ho
01599 EXe⁺ + Xe
01599 EXe²⁺
00853 T

C06

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

Charge State Population

 $\text{Al}^{2+} + \text{C}$
00060 E

 $\text{Al}^{1+} + \text{C}$
00060 E

 $\text{Al}^{0+} + \text{C}$
00060 E

 $\text{Al}^{0+} + \text{C}$
00060 E

 $\text{Al}^{0+} + \text{C}$
00060 E

 $\text{Al}^{0+} + \text{C}$
00060 E

 $\text{Al}^{0+} + \text{C}$
00060 E

 $\text{Al}^{0+} + \text{C}$
00060 E

 $\text{Al}^{0+} + \text{C}$
00060 E

 $\text{Al}^{0+} + \text{C}$
00060 E

 $\text{Al}^{0+} + \text{C}$
00060 E

 $\text{Al}^{0+} + \text{C}$
00060 E

 $\text{Al}^{0+} + \text{C}$
00060 E

 $\text{C}^{0+} + \text{C}$
00506 T 01000 E 01602 T

 $\text{C}^{0+} + \text{H}$
00006 T

 $\text{Cl}^{10+} + \text{C}$
00232 E

 $\text{Cl}^{10+} + \text{C}$
00232 E

 $\text{Cl}^{10+} + \text{C}$
00232 E

 $\text{Cl}^{10+} + \text{C}$
00232 E

 $\text{Cl}^{10+} + \text{C}$
00232 E

 $\text{Cl}^{10+} + \text{C}$
00232 E

 $\text{Cl}^{10+} + \text{C}$
00232 E

 $\text{Cl}^{10+} + \text{C}$
00232 E

 $\text{Ca}^{0+} + \text{C}$
00791 E

 $\text{F}^{0+} + \text{C}$
00218 E

 $\text{F}^{0+} + \text{C}$
00218 E

 $\text{F}^{0+} + \text{C}$
00218 E

 $\text{H}^{0+} + \text{Al}$
00942 T

 $\text{H}^{0+} + \text{C}$
00419 E

 $\text{H}^{0+} + \text{Ca}$
00441 E

 $\text{H}^{0+} + \text{Sr}$
00441 E

 $\text{H}^{0+} + \text{Ar}$
00436 E

 $\text{H}^{0+} + \text{Ag}$
00270 E

 $\text{H}^{0+} + \text{Al}$
00270 E

 $\text{H}^{0+} + \text{Au}$
00270 E

 $\text{H}^{0+} + \text{C}$
00270 E

 $\text{H}^{0+} + \text{Si}$
00270 E

 $\text{I}^{0+} + \text{H}$
00406 T

 $\text{Kr}^{0+} + \text{H}$
00406 T

 $\text{Li}^{0+} + \text{H}$
01500 E

 $\text{Y}^{0+} + \text{C}$
00450 E 00506 T

 $\text{Xe}^{0+} + \text{H}$
00406 T

 $\text{Y}^{0+} + \text{H}$
00406 T

 $\text{Xe}^{0+} + \text{H}$
01500 E

 $\text{Xe}^{0+} + \text{H}$
01656 T

C07

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

Excited State Population

 $\text{C}^{0+} + \text{C}$
00792 E

 $\text{F}^{0+} + \text{H}$
00277 E

 $\text{H}^{0+} + \text{C}$
01595 E

 $\text{H}^{0+} + \text{C}$
00450 E

 $\text{S}^{0+} + \text{C}$
00963 E

 $\text{S}^{0+} + \text{C}$
00436 E

B01

PARTICLE INTERACTIONS WITH SOLID SURFACES

General

He⁺ + alloy
01565 EHe⁺ + FeSiGe
01739 EHe⁺ + Si
01565 E 01739 EHe⁺ + Si
01571 EHe⁺ + Si
01503 E-TUnde⁺
00329 T 00490 T 00891 T

B02

PARTICLE INTERACTIONS WITH SOLID SURFACES

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

Ag⁺ + Au
01491 EAr⁺ + Ag
01575 EAr⁺ + Au
01575 E 01647 T 01682 E
01743 EAr⁺ + Co
01569 EAr⁺ + CuBr
00369 EAr⁺ + Cu
00501 T 01682 EAr⁺ + Cu + C
01740 EAr⁺ + Fe
01741 TAr⁺ + GaAs
00947 EAr⁺ + Ge
01638 EAr⁺ + Si
01578 E 01647 T 01741 TAr⁺ + Ni₂Al
00956 EAr⁺ + NiAl
00956 EAr⁺ + Si
01496 E 01500 E 01567 EAr⁺ + SiO₂
00946 EAr⁺ + SO₂
00852 E-TAr⁺ + TiC
01695 EAr⁺ + CuBr
00369 EAr⁺ + Au
01491 EAr⁺ + Ag
01641 TAr⁺ + Au
01491 T 01641 TAr⁺ + Ag
01641 TAr⁺ + Au
01641 TC⁺ + Si
01567 ECl⁺ + Al₂O₃
00504 ECl⁺ + LiNbO₃
00504 ECl⁺ + Si
00504 ECl⁺ + Si₃N₄
00504 ECl⁺ + SiO₂
00504 ECl⁺ + UF₆
01645 ECs⁺ + Si
01564 ECs⁺ + Ta
01738 ECs⁺ + Cu
01491 E 01563 T 01652 TCs⁺ + Si
01491 ED⁺ + Au
01647 TD⁺ + Fe
01741 TD⁺ + Si
01647 T 01741 TF⁺ + SO₂
01648 EF⁺ + UF₆
01645 EFe⁺ + Fe
01491 EFe⁺ + Si
01491 EH⁺ + C
00922 EH⁺ + Au
01647 TH⁺ + C
01505 TH⁺ + Fe
01741 TH⁺ + H₂O
01485 EH⁺ + Si
01647 T 01741 TH⁺ + TiC
00397 EHe⁺ + O₂
00370 E-THe⁺ + Ar
00852 E-THe⁺ + Au
01647 THe⁺ + CO₂
00852 E-THe⁺ + C
01577 EHe⁺ + Fe
01578 E 01741 THe⁺ + GaAs
00947 EHe⁺ + H₂O
00852 E-T 01485 EHe⁺ + H₂
00852 E-THe⁺ + He
00852 E-THe⁺ + Si
01578 E 01647 T 01741 THe⁺ + SO₂
00852 E-T 01648 EHe⁺ + Si
01578 EHe⁺ + TiC
01695 E

He⁺ + Xe
00852 E-T

Kr⁺ + Ge
01638 E

Kr⁺ + Si
01496 E 01500 E

Kr⁺ + Kr
00999 E

He⁺ + Ne
00944 E 01491 E

He⁺ + Si
01567 E

He⁺ + Au
01647 E

He⁺ + CuBr
00369 E

He⁺ + Fe
01741 E

He⁺ + Bi
01647 E 01741 E

He⁺ + Si
01496 E 01500 E 01567 E

Bi⁺ + Cu
01491 E

Bi⁺ + Bi
01491 E 01563 E

O⁺ + CO₂
00852 E-T

O⁺ + H₂O
00852 E-T

O⁺ + SF₆
01645 E

PMET⁺ + PMET
01651 E

Fl⁺ + Ti
01491 E

U⁺ + U
01495 E

U⁺ + U
00944 E

U⁺ + Co
01569 E

U⁺ + Cu
01743 E

U⁺ + Ge
01638 E

U⁺ + Si
01496 E

Review
00500 E

Under
00493 E 01694 E 01742 E

D03

PARTICLE INTERACTIONS WITH SOLID SURFACES

Sputtered Particle Charge and Quantum (Excited) State Distribution

Ar⁺ + Al
00953 E

Ar⁺ + Au
00952 E

Ar⁺ + B
00472 E 00952 E

Ar⁺ + Ba
01681 E

Ar⁺ + Ba
00472 E 00952 E

Ar⁺ + C
00472 E

Ar⁺ + Ca
00953 E

Ar⁺ + Cd
00953 E

Ar⁺ + CoSi
01703 E

Ar⁺ + CoSi₂
01703 E

Ar⁺ + GaAs
00947 E

Ar⁺ + Hg
00952 E 00953 E

Ar⁺ + Ta
01679 E

Ar⁺ + Ti
01698 E

Ca⁺ + C
00399 E 00921 E

Ca⁺ + Cu
00402 E

He⁺ + GaAs
00947 E

Kr⁺ + Kr
00999 E

He⁺ + Li
00395 E

He⁺ + O + Si
01001 E

He⁺ + Si
01001 E

He⁺ + SiO
00395 E 01001 E

He⁺ + V
00395 E

He⁺ + Al
01007 E

He⁺ + Sc
01007 E

He⁺ + Ta
01007 E

He⁺ + Y
01007 E

O⁺ + Cs + Si
01642 E

U⁺ + Al
01007 E

U⁺ + Sc
01007 E

U⁺ + Ta
01007 E

U⁺ + Y
01007 E

He⁺ + Al
01007 E

He⁺ + Sc
01007 E

He⁺ + Ta
01007 E

He⁺ + Y
01007 E

Review
01002 E-T

Under
00325 E 01667 E 01690 E

D04

PARTICLE INTERACTIONS WITH SOLID
SURFACESSecondary Electron Ejection by Heavy
Particles and Electrons

Ar + Li 00957 T	• • D ₂ 01670 E	He ⁺ + Au 00611 E
Ar ⁺ + Al 00400 E-T 00407 E 00497 E 00503 E 01003 E-T 01568 T	• • H ₂ 01670 E	He ⁺ + C 01004 E
Ar ⁺ + Au 00611 E	• • HD 01670 E	He ⁺ + U 00945 E
Ar ⁺ + C 01004 E 01643 E	• • KBr 01752 E	He ⁺ + Al 00470 E
Ar ⁺ + Mg 00497 E	• • LiF 01752 E	He ⁺ + Al ₂ O ₃ 00470 E
Ar ⁺ + Si 00400 E-T 00497 E 01568 T	• • HgO 00864 E 01700 E 01752 E	Kr ⁺ + Al 00503 E
Ar ⁺ + U 00945 E	• • Al 00470 E	Kr ⁺ + C 01643 E
Ar ⁺⁺ + U 01676 E	• • Al ₂ O ₃ 00470 E	Kr ⁺ + U 00945 E
Ba + C 01388 E	• • Li 00957 T	U ⁺ + C 01004 E 01643 E
Ba ⁺ + C 01388 E	• • Al 00470 E	U ₂ ⁺ + C 01643 E
Ba ⁺⁺ + C 01388 E	• • Al ₂ O ₃ 00470 E	He ⁺ + C 01004 E 01643 E
C + C 01461 E	• • C 00419 E 01004 E 01643 E	He ⁺ + U 00945 E
C ⁺ + C 01461 E 01643 E	• • D ₂ 01670 E	O + C 01461 E
CO ⁺ + C 01461 E 01643 E	• • H ₂ 01670 E	O ⁺ + C 01004 E 01643 E
CO ₂ ⁺ + C 01643 E	• • HD 01670 E	O ₂ ⁺ + Al 00407 E
Ca ⁺ + Si 01673 E	• • H ₂ 01576 E	Pb ⁺ + C 01004 E
D ⁺ + H ₂ 01576 E	• • Al 00470 E	Ti ⁺ + C 01004 E
• • CsBr + Cd C1668 E	• • Al ₂ O ₃ 00470 E	U ⁺ + C 01004 E
• • CsI + Cd C1668 E	• • U ₂ ⁺ + C 01643 E	U ⁺ + U 00945 E
• • CsI + CsBr 01668 E	• • U ₂ ⁺ + C 01643 E	Ie ⁺ + Al 00503 E
	• • Li 00957 T	Ie ⁺ + C 01643 E
	He ⁺ + Al 00470 E	Review 01596 E
	He ⁺ + Al ₂ O ₃ 00470 E	

D05

PARTICLE INTERACTIONS WITH SOLID SURFACES

Photoelectric Ejection of Electrons (coefficients)

h ν + Al
00405 E

h ν + Au
01621 E

h ν + C
00954 E

h ν + Fe
00861 E

h ν + Cd
01031 E

h ν + La
01039 E

h ν + Hl
00861 E

h ν + Pb
01621 E

h ν + Th
01621 E

h ν + U
01621 E

h ν + Zn
00405 E

D06

PARTICLE INTERACTIONS WITH SOLID SURFACES

Reflection of Electrons from Surfaces (coefficients)

e + Ag
01669 E

e + Al
01640 T 01669 E 01693 T

e + Au
00491 E 01640 T 01669 E

e + Be
00491 E 01669 E

e + C
01640 T 01669 E

e + Cu
01037 E 01669 E

e + PbT
01755 E-T

e + Si
00491 E

D07

PARTICLE INTERACTIONS WITH SOLID SURFACES

Reflection of Heavy Particles from Surfaces (total reflection coefficients)

Ar + H
00712 T

Ar⁺ + CdBr
00369 E

Ar⁺⁺ + CdBr
00369 E

Cu₂ + Pt
01689 E

P⁺ + Au
00496 E

P⁺ + Cu
00496 E

P⁺ + Ti
00496 E

H + Au
00507 T

H + C + Hl
00949 E

P⁺ + Au
(0099) T

H⁺ + C
00502 T

H⁺ + Cs + H
01439 E

H⁺ + Cu
00502 T

H⁺ + Fe
00502 T 00493 T

H⁺ + PbT
01646 T

He + Au
00507 T

He + C
00324 E

He + Cu
01688 E

He + NaF
00327 E

He + Si
00471 T

He⁺ + Ag
01686 E

He⁺ + Al
01493 E

He⁺ + Au
00496 E 01686 E

He⁺ + C
00502 T

He⁺ + Cu
00496 E 00502 T

He⁺ + Fe
00502 T

He⁺ + O
01493 E

He⁺ + Si
01493 E 01650 T

He⁺ + Ti
00496 E

He₂ + Cu
00175 E

He₂ + Pt
01689 E

He₂ + Cu
01649 E

H⁺⁺ + Au
01605 E

He⁺ + CdBr
00369 E

He⁺ + Si
01683 T

HO + Ag
01008 E

H⁺ + H
01495 T

D08

PARTICLE INTERACTIONS WITH SOLID SURFACES

Charge and Quantum State Distributions of Reflected Heavy Particles

CO + Pt
00045 F

CO₂ + Pt
00045 E

D₂⁺ + Au
00997 F

H⁺ + Cs + W
01499 F 01691 E 01692 E

H⁺ + Pb
01009 F-T 01334 E

H₂⁺ + Pb
01009 E-T 01334 E

H₂⁺ + Pb
01009 E-T 01334 E

HD + Pt
00906 E

He + Cu
00991 E

He + Mo
00991 E

He + Ni
00991 E

He⁺ + Ag
01009 E-T

He⁺ + Au
01009 E-T

He⁺ + C
01009 E-T

He⁺ + Li
00998 E

He⁺ + Ni
00998 E

He⁺ + Pb
01334 E

He⁺ + Si
01012 E

Li + Cu
00511 E

N + Cu
00511 E

N⁺ + Al
01009 E-T

N⁺ + C
01009 E-T

NO + Ag
00360 E 00913 E 01008 E

NO + Pt
00375 E 00403 E

D09

PARTICLE INTERACTIONS WITH SOLID SURFACES

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

C⁺ + Au
01757 E

CO⁺ + Au
01757 E

CO₂⁺ + Au
01757 E

CO₂⁺ + Ag
00044 F

CO₂⁺ + Fe
00044 F

CO₂⁺ + Ni
10044 E

Cu⁺ + Cu
00402 E

D₂⁺ + Au
00997 E

H + W
01102 F

H⁺ + Cs + W
01678 E

H⁺ + Ta
01011 F

H₂ + W
01506 E

H₂O⁺ + Ag
01675 E

He⁺ + Ag
00958 E 00959 E 01675 E

He⁺ + Li
00998 E

He⁺ + Ni
00998 E

H⁺ + Au
01757 E

H⁺ + Cu
01757 E

H⁺ + Ti
01757 E

H₂ + Cu
00175 F

H₂⁺ + Au
01757 E

H₂⁺ + Cu
01757 E

H₂⁺ + Hb
01757 E

H₂⁺ + Ti
01757 E

H₂⁺ + Al
00380 E

He⁺ + Ag
00958 E 00959 E 01675 E

O⁺ + Au
01757 E

O₂⁺ + Au
01757 E

O₂⁺ + Au
00677 E

Se + Au
00912 E

Review
01000 E

Uncol
00992 E 00993 E 00994 E

00995 E 00996 E

D11

PARTICLE INTERACTIONS WITH SOLID SURFACES

Sticking Coefficients, Thermal Energies and Adsorption

Ar + C
01723 T

Ar + Pt
00336 T

CH₄ + C
01723 T

CO + Ag
00041 E

CO + Fe
01431 E 01701 E

CO + Pt
00041 E

CO + Ru
00895 E

Cx + C
01578 E

D₂ + Cu
00323 E

D₂ + FeTi
01429 E

Fe + C
01578 E

H + Re
00324 T

H₂ + CaO
01720 E

H₂ + Cu
00323 E

H₂ + Fe
01431 E

H₂ + FeTi
01429 E

H₂ + Metals
01430 T

H₂ + AgO
01720 E

H₂ + Rh
01704 E

H₂ + SeO
01720 E

H₂ + ZnO
01718 E

H₂ + Si
00402 E-T

HD + Cu
00323 E

He + Ag
00041 E

He + Pt
00041 E

H₂ + Ag
00041 E

H₂ + C
01723 T

H₂ + Pt
00041 E

H₂ + W
00804 E 01672 E

He + Ag
00041 E

He + Pt
00041 E

Bi + C
01578 E

O₂ + Ag
00041 E

O₂ + Bi
00845 E 01702 E

O₂ + Pt
00041 E

Is + Pt
00336 T

D12

PARTICLE INTERACTIONS WITH SOLID SURFACES

Electromagnetic Radiation Induced by Electron or Heavy Particle Impact on Surfaces

C* + CaF₂
01458 E

C* + AgF₂
01458 E

C* + He
01458 E

Cs* + Ta
01738 E

e + Ag
01434 T

e + Au
01492 E

e + Ho
01432 E 01433 E

e + Pb
01492 E

e + Pt
01492 E

e + Sn
01492 E

e + Sb
01492 E

e + Ta
01432 E 01433 E 01492 E

e + W
01432 E 01433 E 01492 E

He* + H₂O
01010 E-T

D13

PARTICLE INTERACTIONS WITH SOLID SURFACES

Desorption of Gases from Surfaces

Ar + Pt
00336 TCO + Ni
00363 T• Ar + Ag
C1699 F• CO + Ru
00479 T• H + Al
C1677 F• H + Cr
C1677 F• H + Cu
C1677 F• H + Fe
C1677 F• H + Ni
C1677 F• H + Pd
C1677 F• H + Pt
C1677 F• H + Si
01677 E• H + Ti
01677 E• H + W
01671 E 01677 E• H₂ + Pt
01680 E• H₂O + Bi
00401 E• KCl
01647 E• Kr + Ag
01699 F• LiF
01647 E• H₂O + Ru
00479 E• NaCl
01684 E 01687 E• O + Al
01677 E• O + Cr
01677 E• O + Ti
01677 E• O + W
01677 E• Xe + Ag
01639 EH + C
00398 EH + SS
00923 EH₂ + Benzene
01630 THe* + CO + Rh
01006 Ehv + C
00955 Ehv + CO + Cu
00914 E 01038 EA₂ + H + Li + SS
01504 Ehv + LiF
01684 Ehv + NaCl
01684 Ehv + NaF
00951 EHe* + CO + Rh
01006 EXe + Pt
00336 TReview
01005 E-TIndex
00960 E 01646 T

D17

PARTICLE INTERACTIONS WITH SOLID SURFACES

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

Ar* + Ni + Si
C1645 FAr* + Ni₂Si
C0950 FAr* + Si₃Al
C0956 FAr* + Ni₂Si
C0950 FAr* + Ni₂Si₂
C0950 FAr* + Ni₂Si₂
00950 FAr* + NiAl
00956 EAr* + NiMo
01674 EAr* + NiSi
00950 EAr* + NiSi₂
00950 EAr* + SiO₂
00986 E 01697 EAr* + TiC
01695 ED* + Sb
01031 E• H + C
00478 E 00948 E• SiO₂
01697 EH + C
00398 E 00922 E 01506 EH* + C
01505 TH* + SS
01032 EH* + TiC
00397 E 01507 EHe* + TiC
01695 E

D18

PARTICLE INTERACTIONS WITH SOLID SURFACES

Trapping and Reemission of Hydrogen (all forms) and Helium

D* + He + Fe
01446 ED* + He + Ni
01486 FD* + He + SS
01446 ED* + Si
01486 EH + SS
00923 EH₂* + D + SS
01487 ED* + C
C1444 E

B01

ELECTRON-PARTICLE INTERACTION

General

• • E_p
00593 E 00715 E-T

Index

00220 T 00342 T 00343 T

00468 T

B02

ELECTRON-PARTICLE INTERACTION

Elastic Collisions

• • Ar
00064 T 00126 T 00141 E-T
00539 E 00541 E 00769 T
00898 E 01358 E 01619 E-T

• • Ar^+
01341 E

• • He
00191 T 00751 T

• • CH_4
00092 E 00584 E 00586 T

• • CO
00039 T 00062 T 00225 T
00574 T

• • CO_2
00225 E 00582 E 00583 E
01289 T 01442 T

• • Cs
01360 T

• • H
00107 T 00132 T 00193 T
00275 T 00392 T 00546 T
00810 T 01360 T 01365 T
01367 T

• • H^+
00278 T 00806 T

• • H_2^+
00202 T 00310 T 00715 E-T

• • H_2O
00345 T

• • H_2
00204 T 00276 T 00572 T
00573 T 01290 T

• • $H(2s)$
00089 T

• • He
00063 T 00126 T 00192 T
00212 E 00411 T 00534 E
00536 E 00541 E 00545 T
00814 T 01029 T 01357 T
01358 E 01365 T 01389 E-T
01390 E

• • F
00145 T 00543 T 01337 E
01357 T 01361 E

• • K
01342 E

• • Kr
00141 E-T 00539 E 01361 E
01619 E-T

• • Li
00540 T 00752 T 01029 T
01335 E 01359 E

• • Mg
01760 E

• • Mg^+
00706 T

• • S
00542 T 01375 T

• • S_2^+
00547 E 00777 T

• • H_2
00039 T 00062 T 00075 T
00090 T 00276 T 00364 T
00394 T 00410 T 00447 T
00539 E 00574 T 00575 T
00577 T 00580 T 01028 T
01289 T 01290 T

• • Na
00535 E 00538 T 01359 E
01389 E-T

• • Na^+
01339 E

• • Ne
00126 T 00192 T 00311 T
00533 T 00544 T 00769 T
00814 T 00830 T 00898 E
01357 T 01358 E 01361 E
01362 T

• • Ne^+
00544 T

• • O
00542 T

• • O_2^-
01290 T

• • O_2
00039 T 00420 T 00466 E

• • Xe
00079 T 00537 E 00539 E
01361 E

Review
00961 E-T

Index
00091 T 00342 T 00343 T
00819 T 01387 T

• • Ba^+
 00177 T 00719 T
 • • Ba^+
 01608 E
 • • Ba^+
 01339 E 01340 E
 • • Ba^{++}
 01608 E
 • • Ba
 00122 E 00552 E 00760 E
 00773 E 00898 E 01366 E
 01392 E
 • • Ba^{++}
 00166 T
 • • Ba_2^+
 01043 E
 • • Ba_2
 01043 E
 • • Ba
 01043 E
 • • O^+
 01023 T
 • • O^{++}
 01016 T 01023 T

• • O^{++}
 00564 T
 • • O^{++}
 00240 T
 • • O^{++}
 00065 T 00350 T 00563 T
 00743 T 01435 T 01712 T
 • • O_2
 00025 E 00036 E 00134 E
 00420 T 00753 E
 • • O_2
 00719 T
 • • S^+
 01022 T
 • • S^{++}
 00240 T
 • • S_2^{++}
 00786 T
 • • S_2^+
 00104 T
 • • S_2^{++}
 00056 T 00066 T

• • Si^{++}
 00350 T 01435 T 01712 T
 • • Si^{++}
 00067 E
 • • Ti
 00167 E 01533 T 01613 E
 • • Te
 01609 E-T 01616 E
 • • V
 01543 E
 • • Xe
 00554 E 00757 E 00773 E
 01316 E 01391 E 01750 E
 • • Xe
 01036 E
 • • Xe^+
 00480 E-T 00561 E-T
 • • Xe^{++}
 00067 E
 Sn^{++}
 00342 T 00343 T 00837 T
 01311 T 01312 T

E04

ELECTRON-ATOM INTERACTION

Dissociation

• • CH_2
 00109 E
 • • CO_2^+
 00221 E
 • • CO_2
 00591 E
 • • H_2O^+
 00729 E
 • • H_2
 00590 T

• • H_2^+
 00417 T 01502 E-T
 • • H_2O^+
 00729 E
 • • H_2^+
 01502 E-T
 • • H_2O^+
 00729 E
 • • H_2
 00590 T 00592 E 01502 E-T
 • • HD
 00590 T
 • • H_2O^+
 01611 E
 • • H_2O
 01043 E

• • H_2
 00090 T 01020 T 01043 E
 • • HF_2
 01043 E
 • • H_2O
 01043 E
 • • H_2
 01043 E
 • • O_2^+
 01643 T 01745 T
 • • OH^+
 00729 E
 • • FHT^+
 00333 T

Identification

•	Ag			
	00774	E-T		
•	Al ⁺			
	00725	E		
•	Ar			
	00057	E	00154	E
	00055	E	00559	E
	01270	T	01321	T
			01356	T
•	Ar ²⁺			
	00566	E		
•	Ar ³⁺			
	00205	E	00783	T
•	Br			
	00301	E		
•	Br ⁺			
	00207	E	01494	T
•	Cr ⁺			
	00301	E		
•	Cl			
	01036	E		
•	Cl Seq			
	00254	T		
•	CH ₄			
	00109	E		
•	Cu			
	00719	T		
•	B ₂			
	00168	E		
•	Fe ²⁺			
	00787	T		
•	F			
	00317	T	02338	T
	00556	T	00560	T
	01076	T	01305	E
	01372	T	01484	T
			01502	E-T
•	F ₂ ⁺			
	01502	E-T		
•	F ₂ ⁺			
	01502	E-T		
•	F ₂			
	00164	E	01502	E-T
•	He			
	00154	E	00159	E-T
			00212	E

	00313 T	00416 T	00442 T
	00772 E	01075 E-T	01320 E
	01372 T	01373 T	01370 E
• • He+	00351 E	00966 E	
• • He+ Seq	00108 E		
• • H2+	00067 E		
• • H2+	00208 E	00976 E	
• • Hg	01036 E		
• • I+	00490 E		
• • K	00177 T	00442 T	00719 T
	01344 E		
• • Kr	00154 E	01317 E	01356 T
• • Kr+	00566 E		
• • K2+	00205 E	00783 T	
• • Li	00362 T	00442 T	
• • Li+	00442 T	01627 T	
• • Ne++	00787 T		
• • Ne+	00442 T		
• • Ne+	00442 T		
• • Ne+	00301 E	00442 T	
• • Ne+	00442 T		
• • Ne+	00442 T		
• • Ne+	00787 T		
• • Ne	00260 E		
• • Na	00177 T	00442 T	00550 E
	00719 T	01344 E	
• • Ne	00154 E	00442 T	00515 E
	00557 E	01321 T	01356 T
• • Ne++	00205 E	00783 T	

•	He ⁺⁺			
	00796	E		
•	He ⁺⁺			
	00796	E		
•	He ⁺			
	00776	T		
•	O ⁺⁺			
	00301	E		
•	O ⁺			
	00796	E		
•	PHET			
	01017	T	01318	T
•	Rb			
	00719	T		
•	Si			
	00555	E		
•	Ta ⁺⁺			
	00202	E		
•	Ti ⁺⁺			
	00067	E	00208	E
			00976	E
•	Ti ⁺			
	00796	E		
•	Tl			
	00167	E		
•	Ue			
	00154	E	00559	E
	00758	E	01270	T
•	Ue ⁺			
	00144	T	00490	E
			00567	E
•	Ue ⁺			
	00490	E	00567	E
•	Ue ⁺⁺			
	00205	E	00490	E
			00567	E
•	Ue ⁺			
	00490	E	00567	E
•	Ue ⁺			
	00255	E	01716	E-T
•	Zn			
	01036	E		
•	Zr ⁺⁺			
	00067	E	00208	E
			00976	E
•	Mo			
	00449	T		
Barlow				
	01597	E-T		
Yaded				
	00074	T	00745	T
	01306	T		
			00037	T

E07

ELECTRON-PARTICLE INTERACTION

Collisional De-Excitation

• • Fe^+
00587 E 00777 E 01528 E

• • Fe^+
01444 E

E08

ELECTRON-PARTICLE INTERACTION

Collisional Line Br-adening

• • He
00269 T

• • H
00460 T

E09

ELECTRON-PARTICLE INTERACTION

Negative Ion Formation

• • CO_2
00359 E 00591 E

• • O_2
00590 T

• • H_2
00590 T 00592 E

• • H_2
00590 T

• • H_2
00090 T

• • O_2
00020 E

• • CO_2^+
00221 E

E11

ELECTRON-PARTICLE INTERACTION

Free-Free Transitions (Bremsstrahlung)

• • Cd
00922 E

• • Cu
00822 E

• • I
00822 E

• • H_2
00822 E

• • Pb
00822 E

Under
01653 T

• • Ar
00227 T

E17

ELECTRON-PARTICLE INTERACTION

Angular Scattering (specified process)

• • Ar
 00057 T 00101 E-T 00532 E
 00769 T 00898 E 01247 E
 01321 T 01619 E-T
 • • Ar^+
 01435 T
 • • Ar^{2+}
 00308 E 01251 E
 • • Ar
 00751 T
 • • Ar^{2+}
 01435 T
 • • C^+
 01435 T
 • • Ca^{10+}
 01435 T
 • • C^{1+}
 00442 E
 • • Cl_2
 00092 E 00183 E 00585 E
 00586 T 00595 E 00728 T
 • • CO
 00039 T 00062 T 00203 T
 • • CO_2
 00042 T 00542 E
 • • Fe^{2+}
 01435 T

• • E
 00102 T 00107 T 00132 T
 00193 T 00192 T 00421 T
 00547 T 00556 T 00698 T
 00744 T 00810 T 01674 T
 01105 E 01310 E 01376 E
 01710 T
 • • E^+
 00278 T 00806 T
 • • E Seq
 00165 T
 • • H_2O
 00143 T 00345 T 00728 T
 • • H_2
 00739 E
 • • $\text{H}(2s)$
 00089 T
 • • He
 00063 T 00159 E-T 00192 T
 00194 T 00313 T 00469 T
 00536 E 00772 E 00814 T
 01029 T 01310 E 01369 E
 01376 E
 • • He^+
 00165 T
 • • He^{2+}
 00549 E
 • • He Seq
 00465 T
 • • I
 00598 E
 • • Kr
 00141 E-T 01247 E 01310 E
 01619 E-T

• • Li
 00550 T 00553 T 01029 T
 • • Li^+
 01435 T 01627 T
 • • Hg
 01081 E
 • • Hg^+
 00706 T
 • • H^{2+}
 01435 T
 • • H_2
 00039 T 00062 T 00203 T
 00260 E 00364 T 00394 T
 00418 T 00447 T 01289 T
 • • H_2
 00535 E
 • • H^{2+}
 01371 E
 • • H_2
 00192 T 00311 T 00532 E
 00533 T 00769 T 00814 T
 00830 T 00898 E 01321 T
 • • O^{1+}
 01435 T
 • • O_2
 00039 T 00738 E 00420 T
 00466 E
 • • Si^{10+}
 01435 T
 • • Xe
 00079 T 00537 E 01247 E
 • • Xe^+
 00484 E-T 00561 E-T

E19

ELECTRON-PARTICLE INTERACTION

Scattered Transfers

• • B
 00317 T 00338 T

• • He
 00192 T
 • • He
 01192 T 00830 T

• • O_2
 00466 E

H01

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

General

Undef
01220 T

H02

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

Total Absorption

 $h\nu + Au$
01621 E 01655 T

 $h\nu + Ba$
00704 E 00756 E

 $h\nu + Bi$
00236 T

 $h\nu + CO_2 + Ar$
01531 T

 $h\nu + CO_2 + He$
01531 T

 $h\nu + CO_2$
01462 T

 $h\nu + H_2 + He$
01527 E

 $h\nu + H_2O$
01506 E

 $h\nu + H_2$
00467 E 01506 E 01553 E
01708 E

 $h\nu + Hg$
00127 E

 $h\nu + I$
01714 E

 $h\nu + Ne$
00123 E

 $h\nu + O_2$
01506 E

 $h\nu + Pb$
00236 T 01621 E

 $h\nu + Zn$
00236 T 01621 E

 $h\nu + Te$
00000 E 00733 E

 $h\nu + U$
01621 E
Undef
01516 T 01756 E

H03

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

Elastic Scattering

 $h\nu + Ag$
00206 T 01730 E

 $h\nu + Al$
00206 T 00456 E 01730 E

 $h\nu + C$
00456 E 00829 T 01730 E

 $h\nu + Ce$
00458 E

 $h\nu + Cu$
00456 E

 $h\nu + Dy$
00458 E 01730 E

 $h\nu + G$
00795 T

 $h\nu + Gd$
00458 E 01730 E

 $h\nu + Ho$
00194 T

 $h\nu + La$
00458 E

 $h\nu + Bi$
01730 E

 $h\nu + Pb$
00206 T 00456 E 00458 E

 $h\nu + Pt$
00458 E

 $h\nu + Ru$
00458 E 01730 E

 $h\nu + Sn$
00456 E

 $h\nu + U$
00458 E

 $h\nu + Y$
00458 E 01730 E
Undef
00194 T

804

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

Excitation

$h\nu + \text{Ar}$
 00294 T 01446 E
 $h\nu + \text{Ba}$
 00845 E 01349 E
 $h\nu + \text{Cd}$
 00403 E
 $h\nu + \text{Co}$
 00721 E
 $h\nu + \text{Cu}$
 00798 E
 $h\nu + \text{Co}^{2+}$
 01048 T
 $h\nu + \text{Cr}^{3+}$
 01021 T
 $h\nu + \text{Cu}^{2+}$
 01048 T
 $h\nu + e + \text{H}$
 01332 E
 $h\nu + \text{Fe}$
 00721 E

$h\nu + \text{Fe}^+$
 01019 E 01045 E
 $h\nu + \text{Fe}^{2+}$
 01021 T
 $h\nu + \text{Fe}^{3+}$
 01049 T
 $h\nu + \text{HD}$
 00790 E
 $h\nu + \text{He}^+$
 00072 E
 $h\nu + \text{Hg}^+$
 01561 T
 $h\nu + \text{Hn}$
 00761 T
 $h\nu + \text{Hn}^{2+}$
 01021 T
 $h\nu + \text{H}_2$
 00798 E
 $h\nu + \text{Hn}$
 00808 E
 $h\nu + \text{Hn} + \text{Ar}$
 00808 E
 $h\nu + \text{Hn} + \text{Xe}$
 00808 E
 $h\nu + \text{He}$
 00123 E

$h\nu + \text{Hl}$
 00721 E
 $h\nu + \text{O}^+$
 01023 T
 $h\nu + \text{O}^{2+}$
 01223 T
 $h\nu + \text{S}^+$
 01022 T
 $h\nu + \text{Si}^+$
 00185 T
 $h\nu + \text{Si}^{2+}$
 01742 T
 $h\nu + \text{Ti}$
 01015 E 01050 E
 $h\nu + \text{Xe}$
 00321 T 01349 E
 $h\nu + \text{Xe}^{2+}$
 01048 T
 $2h\nu + \text{H}_2$
 00888 T 01448 E
 $3h\nu + \text{Xe}$
 00722 E
 undef
 00427 T 00428 T

805

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

Dissociation

$h\nu + \text{Cs}_2^+$
 00267 E

$h\nu + \text{H}_2$
 00762 T
 $h\nu + \text{H}_2^{2+}$
 00423 E

$h\nu + \text{OH}$
 00382 T 00530 T
 $2h\nu + \text{H}_2^{2+}$
 00531 T

806

PHOTON COLLISIONS WITH HEAVY PARTICLES
AND ELECTRONS ($h\nu < 100 \text{ keV}$)

Ionization

$h\nu + \text{Ag}$			
01710 E			
$h\nu + \text{Al}$			
01730 E			
$h\nu + \text{Ar}$			
00426 E	00732 T	00747 T	
03860 E	01355 E		
$h\nu + \text{Ar}^+$			
00457 E	00519 T		
$h\nu + \text{Ba}$			
00734 E	00756 E	00845 E	
01048 E			
$h\nu + \text{Ba}^{2+}$			
00974 T			
$h\nu + \text{C}$			
01615 T	01730 E		
$h\nu + \text{C}^+$			
01615 T			
$h\nu + \text{C}^{2+}$			
01615 T			
$h\nu + \text{C}^{3+}$			
01615 T			
$h\nu + \text{C}^{4+}$			
01615 T			
$h\nu + \text{Ca}$			
00149 T	00248 T	00520 T	
00763 T			
$h\nu + \text{Ca}^{2+}$			
01547 T			
$h\nu + \text{Cl}$			
00316 T	00477 E		
$h\nu + \text{Cu}$			
00828 T			
$h\nu + \text{CC}$			
00012 T	00135 E	00448 T	
01798 E	01041 T	01249 T	
01417 T			
$h\nu + \text{CO}_2$			
01040 T	01441 E		
$h\nu + \text{Cs}$			
00445 T	00526 E	00716 T	
00815 E			
$h\nu + \text{Cs}^+$			
00824 T			
$h\nu + \text{Cs}^+$			
00110 E	00527 T	00738 T	
$h\nu + \text{Cs}_2$			
00815 E			
$h\nu + \text{Dy}$			
01710 E			
$h\nu + e + \text{H}$			
01707 T			

$h\nu + e + \text{Pb}^{2+}$			
01707 T			
$h\nu + \text{F}$			
01615 T			
$h\nu + \text{F}^+$			
01615 T			
$h\nu + \text{F}^{2+}$			
01615 T			
$h\nu + \text{F}^{3+}$			
01615 T			
$h\nu + \text{F}^{4+}$			
01615 T			
$h\nu + \text{F}^{5+}$			
01615 T			
$h\nu + \text{F}^{6+}$			
01615 T			
$h\nu + \text{Fe}$			
01547 T			
$h\nu + \text{Fe}^{2+}$			
00707 T			
$h\nu + \text{Gd}$			
01730 E			
$h\nu + \text{H}$			
00707 T	00797 T	01660 T	
$h\nu + \text{H}^+$			
00155 T	01661 T		
$h\nu + \text{H}_2$			
00128 E	00197 T	00224 T	
00762 T	00778 T		
$h\nu + \text{He}$			
00522 T	00859 E	00863 E	
01042 T			
$h\nu + \text{He}^+$			
01269 E			
$h\nu + \text{Hg}$			
00284 E	01636 T		
$h\nu + \text{In}$			
01498 E			
$h\nu + \text{K}$			
00522 T			
$h\nu + \text{Kr}$			
00426 E	00862 E	01355 E	
$h\nu + \text{Kr}^+$			
00847 E			
$h\nu + \text{La}^{3+}$			
00824 T			
$h\nu + \text{Li}$			
00781 E			
$h\nu + \text{Hg}$			
00115 T			
$h\nu + \text{Na}$			
00124 T	00761 T		
$h\nu + \text{H}$			
01615 T			
$h\nu + \text{H}^+$			
01615 T			
$h\nu + \text{H}^{2+}$			
01615 T			

$h\nu + \text{H}^{3+}$			
01615 T			
$h\nu + \text{H}^{4+}$			
01615 T			
$h\nu + \text{H}_2$			
00529 T	00798 E	00859 E	
01040 T	01041 T	01079 T	
01289 T	01437 T		
$h\nu + \text{Na}$			
00314 E	01063 T	01665 E-T	
$h\nu + \text{Na}^+$			
00155 T			
$h\nu + \text{Na}_2$			
00314 E			
$h\nu + \text{Ne}$			
00146 T	00863 E	01355 E	
$h\nu + \text{Ne}^+$			
00457 E			
$h\nu + \text{Ni}$			
01730 E			
$h\nu + \text{NO}$			
00388 T			
$h\nu + \text{O}$			
00526 E	01615 T		
$h\nu + \text{O}^+$			
01615 T			
$h\nu + \text{O}^{2+}$			
01615 T			
$h\nu + \text{O}^{3+}$			
01615 T			
$h\nu + \text{O}^{4+}$			
01615 T			
$h\nu + \text{O}^{5+}$			
01615 T			
$h\nu + \text{O}_2$			
00012 T	00859 E		
$h\nu + \text{Pb}$			
00828 T			
$h\nu + \text{Rb}$			
00524 T	00828 T		
$h\nu + \text{Rb}$			
00526 E	00815 E	01727 T	
$h\nu + \text{Rb}^+$			
00738 T			
$h\nu + \text{Rb}_2$			
00815 E			
$h\nu + \text{Ru}$			
00524 T	00828 T		
$h\nu + \text{S}^{2+}$			
01547 T			
$h\nu + \text{Sc}$			
01730 E			
$h\nu + \text{Si}$			
01615 T			
$h\nu + \text{Si}^+$			
00521 T	01615 T		

hv + Si⁺
 01615 T
 hv + Si⁺
 01615 T
 hv + Si⁺
 01547 T
 hv + Te
 00733 E
 hv + U
 00828 T 01726 E
 hv + Xe
 00235 E 00285 E-T 00320 E
 00321 T 00426 E 00451 E
 00824 T 00831 T 01355 E
 01524 E
 hv + Xe⁺
 00268 E
 hv + Y
 01730 E
 hv + Yb⁺
 01547 T
 hv + Xe⁺
 01547 T
 hv + Xe⁺
 01547 T

2hv + Ar
 00178 T
 2hv + Ca⁺
 01385 E
 2hv + E
 00283 T
 2hv + E⁺
 00283 T
 2hv + E⁺
 01307 T
 2hv + Na
 01384 T
 2hv + Na
 00178 T
 2hv + Na⁺
 00720 E
 2hv + Ti
 01384 T
 3hv + E
 00283 T
 3hv + E⁺
 00283 T

3hv + Xe
 00097 E 00163 E-T
 4hv + E
 00283 T
 4hv + E⁺
 00283 T
 5hv + Na
 00105 T
 5hv + Xe
 00097 E 00163 E-T 01064 E
 6hv + Xe
 01064 E
 8hv + CO
 00376 E
 8hv + E⁺
 00115 E
 8hv + Xe
 00115 E 00424 E-T
 Undefined
 00074 T 00216 T 00217 T
 00238 E 00249 T 00317 T
 00431 T 00449 T 00801 T
 00826 T

807

PHOTON COLLISIONS WITH HEAVY PARTICLES AND ELECTRONS (hv < 100 keV)

Photoelectron

hv + As⁻
 00200 T
 hv + B⁻
 00200 T
 hv + Bi⁻
 00200 T 00200 T
 hv + C⁻
 00200 T
 hv + C₂⁻
 00453 E
 hv + Cl⁻
 00200 T
 hv + Cs⁻
 01354 E
 hv + F⁻
 00200 T
 hv + Ga⁻
 00200 T
 hv + Ge⁻
 00200 T

hv + E⁻
 00280 E 00817 T 01484 T
 hv + E⁻
 00475 E 00525 E 00528 E
 00844 E 01475 E
 hv + I⁻
 00200 T
 hv + Ia⁻
 00200 T
 hv + E⁻
 00287 E 01353 E
 hv + Li⁻
 01353 E
 hv + Na⁻
 01351 E
 hv + NO₂⁻
 00822 T
 hv + O⁻
 00200 T
 hv + OH⁻
 00252 T 00433 T
 hv + P⁻
 00200 T
 hv + Sb⁻
 00287 E
 hv + S⁻
 00200 T

hv + Sb⁻
 00200 T
 hv + Se⁻
 00200 T 01354 E
 hv + Si⁻
 00200 T
 hv + Sm⁻
 00200 T
 hv + Te⁻
 00200 T
 hv + Ti⁻
 00200 T
 2hv + Co⁻
 01545 T
 2hv + E⁻
 01545 T
 2hv + Li⁻
 01545 T
 2hv + Na⁻
 01545 T
 2hv + Sb⁻
 01545 T
 Undefined
 00754 T 00755 T 01644 T
 01646 T

808

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

Fluorescence

$h\nu + \text{Hg}$
01622 E 01729 E

$h\nu + \text{Au}$
01729 E

$h\nu + \text{Br}$
01729 E

$h\nu + \text{Cd}$
01622 E

$h\nu + \text{Cu}$
01729 E

$h\nu + \text{I}$
01622 E

$h\nu + \text{In}$
01622 E 01729 E

$h\nu + \text{Mo}$
01622 E 01729 E

$h\nu + \text{Na}$
00319 E 01523 E

$h\nu + \text{Pb}$
01622 E 01729 E

$h\nu + \text{Bi}$
01729 E

$h\nu + \text{PERT}$
01622 E

$h\nu + \text{Se}$
01729 E

$h\nu + \text{Sn}$
01622 E

$h\nu + \text{SnI}$
01729 E

$h\nu + \text{Sn}$
01729 E

$h\nu + \text{Sr}$
01622 E 01729 E

$2h\nu + \text{C}$
00301 E

$2h\nu + \text{Hg}$
00425 E

$h\nu + \text{CO}$
00376 E

Unref
00459 T 01515 T 01516 T
01526 T

811

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

Free-Free Absorption or Inverse
Bremsstrahlung

$h\nu + \text{Ar}$
00013 T

$h\nu + \text{Kr}^-$
00427 T

$h\nu + \text{Cl}$
00286 T

$h\nu + \text{Kr}$
00013 T

$h\nu + \text{Ba}$
01759 E-T

$h\nu + \text{Ba}$
00013 T

$h\nu + \text{Xe}$
00013 T

J01

DATA COMPILATION

Heavy Particle

Dissociation association
01301 EElectron capture
01557 T 01558 TExcitation
01463 E-TIonization
01301 ECharge exchange
01301 E

J02

DATA COMPILATION

Electrons

Bremsstrahlung
J0709 T 00710 TDetachment
01554 EDissociation
01301 EElectron transport
01554 EExcitation
00874 T 00875 T 00876 T
00962 T 01554 EIonization
01554 E 01559 E-TRecombination
01301 EAttachment
01301 E 01554 E

J03

DATA COMPILATION

Photons

Xa Seq
00001 ECu Seq
00001 E

J04

DATA COMPILATION

Particles on Surfaces and Solids

Ion Backscattering
00711 E

K01

REVIEWS AND BOOKS

Heavy Particle

Charge exchange
01149 E

Charge state
01193 E

Chemical reaction
01556 E

De-excitation
01398 E 01524 T

Detachment
01125 T

Dissociation
01195 E 01106 E 01222 E

Electron capture
01043 E-T 01084 E-T 01045 E-T
01086 E 01099 E-T 01102 E
01103 E 01133 E-T 01134 E
01135 E 01142 T 01145 T
01159 T 01160 E 01166 T
01169 T 01170 E 01190 E

01219 T 01220 T 01224 E
01227 T 01228 T 01229 T
01230 T 01231 E-T 01232 E
01235 E-T

Electron loss
01190 E

Energy loss
01103 E

Energy transfer
01096 E-T 01186 E 01189 E-T
01236 T 01404 E 01405 E
01415 E 01416 E 01426 T

Excitation
00940 E-T 01101 E 01110 T
01125 T 01142 T 01148 E-T
01149 E-T 01153 T 01155 E
01160 E 01166 T 01182 T
01221 T 01233 T 01234 T
01244 T 01265 T 01381 T
01399 E 01417 E 01428 T
01463 E-T

Fluorescence
01140 T 01134 E

Interaction potential
01258 E-T 01111 T 01138 T
01163 T 01202 E 01203 E
01237 T 01263 T

Interchange
01116 T 01181 E-T 01185 E

01204 E 01205 E 01208 E
01235 E 01396 E 01403 E
01406 E 01409 E 01410 E
01411 E 01413 E 01414 E

Ionization
01134 E 01142 T 01148 E-T
01160 E 01169 T 01170 E
01222 E 01223 E 01231 E-T
01238 E 01235 E-T 01402 E
01449 E

Line broadening
01293 T

Mutual neutralization
01134 E

Positrons
01226 E

Recombination
01134 T 01187 T

Relaxation
01418 E

Scattering
01121 T 01124 T 01153 T
01217 T 01218 T 01219 T
01221 T 01401 E

Stripping
01125 T

K02

REVIEWS AND BOOKS

Electrons

Attachment
01146 T

Detachment
01264 E

Dielectronic recombination
01048 E 01049 E 01117 T
01182 T 01183 T 01444 E

Dissociation
01129 T

Electron detachment
01114 E

Excitation
00942 T 01057 E-T 01097 E-T
01214 E 01219 E 01137 T

01130 E 01134 E 01149 E-T
01142 T 01164 E-T 01166 T
01167 T 01168 E 01182 T
01183 T 01184 T 01209 E
01213 E 01214 T 01265 T
01266 E 01282 T 01283 T
01345 E-T 01378 E-T 01379 T
01380 T

General theory
01124 T

Interchange
01178 E-T 01184 T

Ionization
01048 E 01089 E 01128 T
01131 T 01134 E 01139 E
01167 T 01168 E 01173 T
01182 T 01207 E 01212 E
01213 E 01266 E 01267 T
01268 T 01291 T 01303 T
01304 E 01347 T

Negative ions
01256 E-T

Oscillator strength
01112 T

Positron scattering
01151 E

Positrons
01216 T

Recombination
01123 T 01129 T 01132 E
01178 E-T 01182 T 01183 T
01184 E 01291 T

Scattering
00939 E-T 00941 E 00961 E-T
01097 E-T 01108 T 01122 T
01150 E 01157 T 01166 T
01210 E 01214 T 01277 T
01278 T 01279 T 01280 T
01281 T 01283 T 01284 T
01285 T 01291 T 01319 T
01346 E-T 01348 E-T 01349 E-T
01346 T

Review
00010 E-T 00331 E-T 00332 T

K03

REVIEWS AND BOOKS

Photons

Detachment
01345 E-T

Disassociation
01178 E-T 01225 E 01257 T

01409 E 01421 T 01422 T
01423 T

Excitation
01057 E-T 01167 E-T 01211 E
01351 E 01409 E 01412 E
01421 T 01425 T

Fluorescence
01420 T

Ionization
01147 E-T 01178 E-T 01239 E
01240 E 01288 T 01291 T

01336 E-T 01345 E-T 01348 T
01351 E 01352 T 01384 T
01422 T

Photodetachment
01091 E

Photoemission
00058 E

Photoionization
01110 T 01139 E 01144 T
01152 E-T 01165 E-T 01555 T

K04

REVIEWS AND BOOKS

Particles on Surfaces and Solids

Atomic processes
01197 E-T

Channeling
00938 T 00968 E

Conference
01572 E

Electron capture
00968 E

Emission
01090 E

Energy loss
01737 T

Excitation
01090 E

Excited states
01195 E 01243 E

Optical emission
01198 E

Photoemission
01139 E 01199 E

Radiation damage
01508 E-T

Range
01200 E

Reflection
00968 E 01193 E-T 01194 E

Scattering
01193 E-T 01194 E

Secondary emission
00968 E 01501 E-T

Sputtering
01194 E-T 01566 E 01737 T

Trapping
01570 E

Review
00011 E

K05

REVIEWS AND BOOKS

Transport

Ozone transport
01181 E-T

K06

REVIEWS AND BOOKS

Structure

Autoionizing states
01095 E

Energy levels
01158 T 01173 T 01180 E-Y
01450 E

Energy surfaces
01262 T

Excited states
01292 T

Negative ions

01120 T 01201 E 01204 E

Oscillator strengths

01119 T 01137 T

Potential energy curves

01129 T

Potential surfaces

01395 E 01397 E 01400 E
01407 E

Potentials

01156 T

Rydberg states

01092 E 01093 T 01094 E
01109 T 01146 E-T 01171 E

Shape

01259 T

Spectra

01290 E

Spectroscopy

01099 E 01161 E-T

Stark effects

01163 T

Structure

01261 T 01427 T

Theory

01154 T

Transitions

01100 E-T 01295 T

K07

REVIEWS AND BOOKS

General

01255 E

General

01637 T

Negative ions

01191 E

Positive ions

01191 E

Radiation physics

01192 T

Theory

01637 T

Review

01302 T

Clusters

01252 E-T 01253 E-T 01254 T

K08

REVIEWS AND BOOKS

Use of Atomic Data for Plasma Studies

Beam heating
01175 E

Boundary
01174 E

Collisions
01062 E-T 01113 T 01126 T

01127 E-T 01172 E-T 01206 T

Diagnostics

01127 E-T 01177 E 01242 E

Dielectronic recombination

01215 T

Excitation

01215 T

Recombination

01297 T

Spectra

01025 E 01176 E 01294 T

01299 T 01300 E

Spectroscopy

01113 T 01114 T 01115 T
01127 E-T 01161 E-T

Spin-polarized hydrogen

01100 E-T

Surfaces

01174 E

Thermal equilibrium

01179 E-T

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Andrews, H. H.	00849	Z		
Andrews, H. C.	30812	Z	01455	Z
Andrianomajo, S.	01736	Z		
Angel, G. C.	00157	Z		
Anholt, H.	01062	T	01733	T
Ankudinow, V. A.	00689	Z		01736
Anttila, A.	01562	Z		
Appell, J.	01104	Z		
Aquilanti, V.	01237	T	01326	Z
Arai, H.	00251	Z		
Arai, S.	00739	Z		
Archirel, P.	01434	T		
Arianer, J.	01275	Z-T		
Arikawa, T.	01222	Z		
Arlinghaus, H.	01698	Z		
Armbruster, P.	00856	Z	01599	Z
Arnout, D. G.	00262	T		
Armstrong, L., Jr.	00316	T		
Arndt, H.	01628	T		
Arora, H. H.	01729	Z		
Artamonov, A. S.	01744	T		
Artamonov, O. H.	01434	T		

Belyaev, A. V. 01432 Z	Berry, R. G. 01381 T	Birchbush, G. 01708 Z
Belykh, S. P. 01738 Z	Berry, R. S. 00781 Z 01388 T	Biret, L. 00722 Z
Benneth, C. 00497 Z	Berry, S. 00935 Z	Bisgaard, P. 01323 Z
Benneth, I. 00497 Z 00503 Z	Berry, S. B. 01454 Z	Bisling, P. G. P. 00539 Z
Bent, E. C. 00117 Z	Bermoha, E. 00381 Z	Bisplach, E. 01490 Z
Bendali, H. 01523 Z	Berson, I. Y. 01661 T	Bislinger, G. 01456 Z 01589 Z
Benneth, G. 00327 Z	Bertrand, P. 01012 T	Bitter, H. 01425 Z
Bengtsen, L. 01033 Z	Berwick, J. A. 01408 Z	Bivona, S. 00701 T
Benka, O. 00087 Z 00843 Z 01458 Z	Betz, G. D. 00111 Z-T 01190 Z	Bizau, J. B. 00135 Z
Bentley, J. 00365 Z	Beyer, R. P. 00959 Z 00978 Z 00980 Z	Bjornalund, S. 00971 T
Berard, H. 01529 Z-T	Bhatia, A. K. 01046 T 01047 T	Bjornalund, S. K. 00677 Z
Beronyi, B. 00100 Z	Bhatia, K. S. 00084 Z	Blackwell, R. E. 01050 Z
Berg, G. P. A. 00270 Z	Bhatt, G. 00196 T 00795 T	Blain, E. C. 00022 T 00031 T 00032 T 00034 T 00387 T 00889 T
Berg, H. 01598 Z	Bhattacharyya, D. K. 00228 T	Blakenhip, R. H. 00292 Z-T 00605 Z
Berg, H. P. 01619 Z-T	Bhattacharyya, P. K. 00278 T 00420 T	Slatter, G. 00471 T
Bergman, T. 00482 Z	Bhattacharyya, S. 00592 Z	Blinn, J. 00113 Z 00182 Z-T 00965 Z 01086 Z 01520 Z-T
Bergman, C. 00148 Z	Bialynicka-Birula, Z. 00428 T	Blooberg, A. 01220 T
Bergman, C. 00604 Z	Bianco, B. 01572 Z	Bloomfield, L. A. 00072 Z
Bergstedt, E. 00093 Z	Bicchi, P. 00444 Z	Biau, J. 00940 Z-T 01162 T 01312 T 01380 T
Berkner, K. E. 00293 Z-T 00662 T 00978 Z	Bichsel, H. 00430 T	Blyholder, G. 00044 Z
Berkowitz, J. 00477 Z	Bieniek, R. J. 00882 T	Bocelo, V. T. 01685 Z
Berlands, J. 00172 Z 00696 T 01513 Z-T	Bienstock, S. 00018 T 00271 T 00702 T	Boccuzzi, F. 01720 Z
Bersan, H. 00091 Z 00447 T 00577 T	Bierbaum, V. B. 00056 Z	Boston, L. 00585 Z
Bersan, V. B. 00808 Z	Biersack, J. P. 00507 T 00848 T	Bogdanov, B. I. 01639 Z
Bershardt, E. 00710 T	Bilau, E. 01035 Z	Bogdanova, I. P. 01542 Z
Bersheim, H. 01677 Z	Billing, G. D. 00712 T 00869 T 00872 T 00878 T 00886 T	Bokringer, H. 00378 Z 00775 Z 00908 Z
Bernstein, E. H. 00633 Z 01453 Z-T	Biondi, H. A. 01188 Z	Boiko, V. I. 01026 T
Berrington, E. A. 00064 T 00104 T 00165 T 00545 T 00564 T	Biraud, Y. G. 01521 T	

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Benny, J. 06383 T				Tomokita, S. V. 01027 T				Buck, R. 01323 E	01388 E		
Bonani, G. 01480 E				Tranley, J. H. 00358 T				Bunker, P. 01405 E			
Bosanno, E. 00408 T				Trako, R. 00992 T	01678 E			Burnett, E. 00722 E			
Bosham, R. A. 00212 E	01210 E			Brandes, E. 00987 T				Burbetti, B. 00379 E			
Boschey, R. 00965 E				Brandt, D. 00223 T	00631 E	00663 E		Burkett, T. A. 01428 T			
Bossett, J. J. 00113 E	00965 E			Brandt, W. 01477 E	01591 T			Burkleyline, G. 00327 E			
Bootham, R. B. 00361 T				Brankoff, K. 01448 E				Burnett, H. C. 00280 E	01091 E		
Booth, P. 00883 T				Branden, B. H. 00438 T	00680 T	00771 T		Burke, F. 00508 E			
Bordame-Montesquieu, D. 00142 E	00608 E			Brandt, W. 01159 T	01169 T	01357 T		Buck, W. 00047 E	00048 E		
Borgeson, P. 01576 P	01670 E			Brandt, W. 01157 T	01558 T			Buckley, B. D. 01284 T			
Boring, J. W. 01102 E				Brasak, A. 00142 E				Buckman, J. J. 00227 E	00770 E	00773 E	
Borison, A. H. 00717 E				Brasch, C. 01514 E-T				Bugrov, G. L. 00664 E			
Borodin, V. A. 01503 E-T				Brasch, W. H. 01424 T				Burakov, A. F. 00498 T			
Borondo, P. 00660 T	00871 T	00879 T		Brasch, T. 00128 E				Burkhardt, J. 00839 T			
Borrell, P. 00019 E	00151 E			Brasch, H. 00839 T	00935 E	01454 E		Burgess, A. 01017 T			
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Bosman, S. 00445 T	00793 T	00794 T		Brasch, J. C. 01464 E				Burgess, D., Jr. 00914 E			
Bosch, F. 00153 E				Brian, J. P. 01275 E-T				Burgy, P. 00509 E			
Bosler, J. 00054 E				Brice, D. K. 00262 T				Burke, P. G. 00064 T	00075 T	00145 T	
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Boslin, A. 00009 E	00490 E			01171 E	01229 T			Barkov, S. H. 00523 T			
Bosmer, J. 00272 E	00408 E			Brown, E. H. 00124 T	00761 T			Barnett, E. 00077 E	00222 E	01257 T	
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Bostman, A. 00148 E	00608 E			Brown, W. L. 01566 E				Burrow, P. B. 00080 E			
Bosner, R. T. 00366 E								Bussert, E. 00690 E	00720 E		

Betterfield, K. B. 01091 E	Castleman, A. B., Jr. 01252 E-T	Chernikov, N. A. 01165 E-T
Betler, J. B. 00008 E	Castro, E. A. 00779 T	Chernyub, V. A. 01569 E
Betler, B. 01063 T	Castro, G. B. 01703 E	Chernyubova, N. V. 01538 E
Betler, S. B. 00258 T	Cebe, J. P. 01529 E-T	Chetioni, A. 00665 E 00767 E
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Carley, J. S. 01400 E	Chen, J. P. 01733 T 01736 E	Cisneros, C. 00692 E
Carlson, K. D. 01036 E	Chen, C. H. 01147 E-T	Claeys, W. 00598 E 00931 E 01135 E
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Casavacchia, P. 01326 E	Cheng, K. T. 00824 T	Clark, R. E. H. 00240 T 00875 T

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Datz, S. 00570 E 01274 E	01271 E		Deanebony, E. 01677 E			Dixit, S. H. 00105 T	00216 T	
Davies, S. 00727 T			DePrieto, A. E. 00241 T	01199 E	01717 T	Dixon, D. B. 01579 E		
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Dayashanbar, 01711 T			Derkits, C. 00417 T			Doak, E. B. 00327 E		
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de Garcia, A. 00944 E			Destefanis, G. 01572 E			Dodonov, A. I. 00175 E	01649 E	
de Meer, F. J. 00142 E 00649 E 00974 E	00446 E 00670 E-T 01170 E	00536 E 00772 E 01158 E	Deuring, A. 00591 E			Doke, T. 00229 E		
De Jong, Y. 01311 E			Devdariani, A. Z. 00603 E	01551 T		Dolder, K. 00120 E	00180 E	
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de Prunelle, F. 00241 T			DeWald, A. B. 00999 E			Doecke, W. 00091 T 00819 T	00447 T 00841 T	00577 T
de Pujo, P. 00910 E			Dewanagan, D. P. 00156 E	00744 T		Donahue, J. B. 00280 E	01091 E	
de Urquijo, J. 00642 E			Dhal, S. S. 00511 T			Donaldson, D. J. 00004 E		
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Deb, H. C. 00244 E	00121 T		Dhucq, D. 00825 E			Domchek, G. A. 01762 T		
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			Dimitrijevic, M. S. 01518 T			Doyennette, L. 00902 E-T		

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Drake, C. H. P. 01158 T	01368 P	01707 T		Duren, R. 00489 E	00741 E	01138 T		Ellerfson, R. E. 00396 E
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