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**Bibliography of Ionization and Stripping
in Heavy Particle Collisions
1950-75**

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**Bibliography of Ionization and Stripping in Heavy Particle Collisions
1950-75**

**Controlled Fusion Atomic Data Center
Physics Division, Oak Ridge National Laboratory**

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Bibliography of Ionization and Stripping in Heavy Particle Collisions
1950-75

Abstract

This annotated bibliography lists published work on ionization and stripping in heavy particle collisions for the period 1950 to 1975. Sources include scientific journals, abstract compilations, conference proceedings, books, and reports. The bibliography is arranged alphabetically by author. Each entry indicates whether the work was experimental or theoretical, what energy range was covered, and what reactants were investigated. Following the bibliographical listing are indexes of reactants and authors.

Introduction

This bibliography is one of four indexed bibliographies on heavy particle collisions to be published by the Controlled Fusion Atomic Data Center. Other bibliographies in the series include *Bibliography of Atomic and Molecular Excitation in Heavy Particle Collisions, 1950-75*, *Bibliography of Electron Transfer in Heavy Particle Collisions, 1950-75*, and *Bibliography of Molecular Dissociation in heavy Particle Collisions, 1950-75*. This bibliography consists of an annotated list of published works on ionization and stripping in heavy particles for the period 1950 to 1975. It is divided into two sections, 1950-70 publications and 1971-75 publications. These sections are arranged alphabetically by author and followed by indexes of reactants and authors. Each entry indicates whether the work was experimental (E) or theoretical (T), what energy range was covered, and what reactants were investigated.

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

1. These bibliographies have been edited for obviously misplaced entries, which were deleted from their original categories and added to the end of the correct categories. This editing process accounts for missing entry numbers (due to deletions) and the lack of alphabetical arrangement for some final category entries (added after the bibliography was computer formatted).

2. The addition of a reactant to the subject index is indicated by an asterisk beside the entry's alphabetically correct position; the

reactant is given at the end of the appropriate column. The same method is used to add authors to the author index. When necessary, double or triple asterisks are used to show second or third additions to a column.

3. Since these bibliographies were computer generated using a program developed in 1961-63, the system of making capital or lowercase letters does not conform to conventional practice. All element symbols are set in caps both in the reactants column of the bibliographical listing and in the subject index. In the bibliographical entry itself, capitalization is entirely a function of spacing. Thus, there is no distinction between Co as a symbol of cobalt or of carbon monoxide, and the abbreviation for electron volt is consistently Ev. It is hoped that these idiosyncrasies will be understood in context.

4. Also due to computer manipulation, any differences in symbolic representation or formatting resulted in different entries in the index. For example, a superscript ++ is handled differently from a superscript 2+. The user should keep these differences in mind when performing searches.

5. Sequencing of reactants in the index follows the order

N* (excited state), N, N₂, N⁺, N⁻, N²⁺, NA (etc.), NE (etc.).

An asterisked symbol precedes the symbol alone, which is followed by subscripted symbols, etc. Occasionally, index sequencing is incorrect for various ions of the same element (e.g., I¹⁰⁺ may precede I²⁺). This occurs only for those elements having ions with charge states of

10+ or greater. Such incorrect sequencing is noted in the appropriate sections of the reactants index.

6. Several papers of interest do not refer to a particular collision or system. The reactants in these cases are listed as undefined, denoted as UNDEF. Review papers are labeled REVIEW rather than list all reactants discussed in the paper. Although every effort was made to locate complete publications, a few entries were indexed from the abstract alone; these are labeled, in both the entry and reactants index, as "Categorized by Abstract Only."

7. The collision energy range is denoted by the numbers 0, 1, 2, 3, 4, and 5, which refer, respectively, to thermal energy, $E < 10$ eV, $E < 100$ eV, $E < 1$ keV, $E < 10$ keV, and $E > 100$ keV.

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Section I

**Bibliography of Ionization and Stripping
in Heavy Particle Collisions**

1950-70

HEAVY PARTICLE COLLISIONS

INDEX

IONIZATION AND STRIPPING

SCATTERING	EXP OR THEORY	E RANGE	REFERENCE
1. $(H^+, He^+, N^+, O^+, Ar^+, Ne^+, Xe^+)(C_2H_4, C_2H_6)$	E	3	Abbe, J. C., Adloff, J. P., In The Reactions Of Positive Ions With Ethylene And Ethane, COMPT. Rend. 258B 3883 (1964).
2. $(H^+)(He)$	T	5	Aberg, T., Asymptotic Double-Photoionization Cross Sections Of The Helium Atom, PHYS. REV. A 2 1726 (1970).
3. $(H^+)(He)$	E	6	Abramson, A. D., Rybalov, V. F., Fogel, Ya. A., Ionization Of A Supersonic Stream Of Mercury Vapor By A Hydrogen Ion Beam, IZV. VUSS. 5 76 (1963).
4. $(H^+, H_2^+)(He)$	E	3	Abramson, A. D., Rybalov, V. F., Fogel, Ya. A., Ionization Of Supersonic Stream Of Mercury Vapor By A Beam Of Hydrogen Ions, AD-687-923 (1965).
5. $(H^+)(H, H_2)$	T	6	Abrines, R., Percival, I. C., Valentine, R. A., Classical Theory Of Collisions Of Protons And Electrons With Hydrogen Atoms, 5th INT. CONF. PHYS. ELECTRON. ATOMIC COLLISIONS, P.223, SCIENCE BOOKS/CHAPS, NEW YORK (1965).
6. $(H^+)(H, H_2)$	E	5	Abrines, R., Percival, I. C., Classical Proton-Hydrogen Scattering Cross Sections, PHYS. LETTERS 13 216 (1964).
7. $(H^+)(H)$	E	5	Abrines, R., Percival, I. C., A Generalized Correspondence Principle And Proton-Hydrogen Collisions, PHYS. SOC., LOND. 1 44 873 (1964).
8. $(H^+)(H, H_2)$	E	6	Abrines, R., Percival, I. C., Classical Theory Of Charge Transfer And Ionization Of Hydrogen Atoms By Protons, PHYS. SOC., LOND. 1 44 161 (1964).
9. Data	E	4	Afrosimov, V. V., Gordeev, Yu. S., Panov, R. N., Fedorenko, N. V., Ionization And Scattering At Characteristic Energy Losses In Atomic Collisions, 4TH INT. CONF. PHYS. ELECTRON. ATOMIC COLLISIONS, P.296, SCIENCE BOOKS/CHAPS, NEW YORK 1965).
10. $(H^+, He^+)(Ar)$	E	4	Afrosimov, V. V., Fedorenko, N. V., An Investigation Of The Energy Of Multi-Charged Ions Produced By The Ionization Of Gas Atoms By Positive Ions, SOVIET PHYS. - TECH. PHYS. 2 2174 (1967).
11. $(Ar^+)(He, H)$	E	4	Afrosimov, V. V., Gordeev, Yu. S., Panov, R. N., Fedorenko, N. V., Characteristic Energy Losses In Single Collisions Of Atomic Particles, 4TH INT. CONF. ION. PHENOMENA GASES, 1 111, SERMA, PARIS (1963).
12. $(Ar^+)(He, H)$	E	4	Afrosimov, V. V., Gordeev, Yu. S., Panov, R. N., Fedorenko, N. V., Characteristic Energy Losses In Atomic Collisions, SOVIET PHYS. - TECH. PHYS. 2 1256 (1965).
13. $(Ar^+)(Ar)$	E	4	Afrosimov, V. V., Gordeev, Yu. S., Panov, R. N., Fedorenko, N. V., Elementary Processes In Atomic Collisions Involving A Change In The Charge State, SOVIET PHYS. - TECH. PHYS. 9 1765 (1965).
14. $(H^+)(He, H)$	E	4	Afrosimov, V. V., Ranaev, Yu. A., Coincidence Method For The Direct Determination Of The Charge-Changing Collision Cross Sections, SOVIET PHYS.-TECH. PHYS. 12 394 (1967).
15. $(H^+)(Ar)$	E	4	Afrosimov, V. V., Ranaev, Yu. A., Panov, R. N., Ureshovich, V., Capture, Ionization, And Ionization Capture In Collisions Of Protons With Argon Atoms, SOVIET PHYS.-TECH. PHYS. 12 512 (1967).
16. $(H^+)(He, Ne, F)$	E	4	Afrosimov, V. V., Ranaev, Yu. A., Panov, R. N., Fedorenko, N. V., Coincidence Measurements Of The Cross Sections Of Elementary Processes In Collisions Of H^+ , He^+ , And F^+ With The Atoms Of Noble Gases, 5TH INT. CONF. ON COLLISIONS, P.210, Leningrad (1967).
17. $(Ar^+)(Ar)$	E	4	Afrosimov, V. V., Gordeev, Yu. S., Polysnail, A. N., Shergin, A. P., Correlation Of Final Charge States Of Particles In Elastic Energy Losses In Atomic Collisions, SOVIET PHYS.-JETP LETTERS 6 3 (1967).
18. $(H^+, H_2^+, H)(He)$	E	4	Afrosimov, V. V., Ranaev, Yu. A., Panov, R. N., Fedorenko, N. V., Investigation, By The Coincidence Method, Of Charge State Changes Occurring In The Interaction Between H^+ , H_2^+ And H And The Helium Atom, SOVIET PHYS.-JETP 28 52 (1969).
19. $(H^+)(He, Ne, Kr, Xe, Ar)$	E	4	Afrosimov, V. V., Ranaev, Yu. A., Panov, R. N., Fedorenko, N. V., Coincidence Method For Studying Charge - Exchange In Proton - Inert Gas Interactions, SOVIET PHYS.-TECH. PHYS. 10 109 (1969).
20. $(H^+)(H_2, H_2)$	E	4	Afrosimov, V. V., Leiko, G. A., Ranaev, Yu. A., Panov, R. N., Fedorenko, N. V., Elementary Processes Of Charge State Change In The Interaction Of Protons With Hydrogen And Nitrogen Molecules, VI ICPEAC, P.114, THE MIT PRESS, CAMBRIDGE, MASS. (1969).
21. $(H^+)(H_2)$	E	4	Afrosimov, V. V., Leiko, G. A., Ranaev, Yu. A., Panov, R. N., Elementary Processes Of Charge Of Charge States In The Interaction Between Protons And Hydrogen Molecules, SOVIET PHYS.-JETP 29 648 (1969).

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REACTIONS	EXP OR THEOR.	E RANGE	REFERENCE
22 $(H^+, H_2^+, H_3^+) (Ar)$	E	5	Afrosimov, V. V., II In, A. K., Fedorenko, N. V., The Ionization Of Argon By Hydrogen Ions, SOVIET PHYS. - TECH. PHYS. 3 2040 (1954).
23 $(H^+, H_2^+, H_3^+) (H_2)$	E	5	Afrosimov, V. V., II In, A. K., Fedorenko, N. V., Ionization Of Molecular Hydrogen By H^+ , H_2^+ , H_3^+ Ions, SOVIET PHYS. - JETP 7 940 (1958).
24 Review	T	4	Afrosimov, V. V., Progress In The Investigation Of Atomic Particle Collisions, 8TH INT. CONF. PHYSICS IN IONIZED GASES, VIENNA, 1967, P.94 (1968).
25 $(Ar^+, Ne^+) (Ar)$ $(Ar^+) (Ne)$	T	5	Afrosimov, V. V., Fedorenko, N. V., An Investigation Of The Angular Distribution Of Secondary Ions Produced By The Ionization Of Gas Atoms By Positive Ions, SOVIET PHYS. - TECH. PHYS. 2 2391 (1967).
26 $(H^+) (H_2)$ $(Ar^+, Ne^+) (Ar, Ne)$	E	4	Afrosimov, V. V., Gordinov, Yu. S., Panov, R. G., Fedorenko, N. V., Ionization And Scattering And Characteristic Energy Losses In Atomic Collisions, SOVIET PHYS. - TECH. PHYS. 11 89 (1966).
27 $(He, Ar, Ne^+, Ar^+, Ne^{2+}, Ar^{2+}) (Ar)$	E	5	Afrosimov, V. V., II In, A. K., Sperin, V. A., Solov'ev, L. S., Fedorenko, N. V., Ionization Of Argon By Atoms, And Singly Or Doubly Charged Ions Of Neon And Argon, SOVIET PHYS. - JETP 16 707 (1962).
28 $(He^+) (H_2, He, N_2)$	E	5	Allison, S. R., Curran, J., Murphy, P. G., Experimental Cross Sections For Charge-Changing Collisions Of He^+ And He^{2+} Ions Traversing Gases, PHYS. REV. 182 1041 (1966).
29 $(Li, Li^+) (He, H_2, N_2)$	E	5	Allison, S. R., Curran, J., Garcia-Ramos, M., Experiments On Charge-Changing Collisions Of Lithium And Atomic Neons, PHYS. REV. 120 1256 (1960).
30 $(Li^+) (He, N_2)$	E	5	Allison, S. R., Curran, J., Garcia-Ramos, M., Efficient Production Of Multiply Charged Positive Ions By Low Energy Stripping In Helium Gas, REV. SCI. INSTR. 31 1193 (1960).
31 $(He) (He, N_2, N_2)$	E	5	Allison, Samuel R., Double Electron Capture And Loss By Helium Ions Traversing Gases, PHYS. REV. 109 76 (1958).
32 $(He) (H_2, N_2, Ne)$	E	5	Allison, Samuel R., Electron Loss Cross Sections For Helium Atoms In The Kinetic Energy Range 10^2 - 10^4 eV, PHYS. REV. 115 670 (1958).
33 Review	T	0	Allison, S. R., Experimental Results On Charge-Changing Collisions Of Hydrogen And Helium Atoms And Ions At Kinetic Energies Above 0.2 eV, REV. MOD. PHYS. 30 1137 (1958).
34 Review	T	0	Allison, S. R., Garcia-Ramos, M., Electron Capture And Loss At High Energies, ATOMIC AND MOLECULAR PROCESSES, P.722, McGRAW-HILL PRESS, NEW YORK (1962).
35 $(F, Cl, Br) (C)$	E	5	Almqvist, E., Branda, C., Clark, H. A., Reuther, J. A., Lithorland, A. E., Atomic Charge States In Carbon Of 10- To 40-Mev Ions. Application To Tandem Accelerators, CAN. J. PHYS. 40 954 (1962).
36 $(H^+) (Li)$	T	5	Altshuler, B. G., Jr., Ionization Of Lithium By Electrons And Protons, DOKL-1969 (1963).
37 Under	T	0	Altshuler, S., Incoming Waves In The Final State Of Ionization Problems, NUCLEO CIMENTO 3 200 (1966).
38 $(Ar) (Ar, H_2)$ $(H_2) (H_2)$	E	0	Ames, Robert C., Hayden, Howard C., Studies Of The H_2 - H_2 , H_2 -Ar, And Ar- H_2 Ionization Cross Sections Utilizing Asymmetric Charge Transfer, 6TH INT. CONF. PHYS. ELECTRON. ATOMIC COLLISIONS 42 (1965).
39 $(H_2) (H_2)$ $(Ar) (Ar)$	E	3	Ames, Robert C., Hayden, Howard C., Ionization Cross Sections For Neutral-Neutral Collisions Utilizing Asymmetric Charge Transfer, J. CHEM. PHYS. 44 2020 (1966).
40 $(He) (He)$ $(Ar) (Ar)$	E	3	Ames, R. C., Haugejoo, P. U., Low Energy Ionization Cross Sections For He-He And Ar-Ar Collisions, 6TH INT. CONF. ON COLLISIONS, P.224, Leningrad (1967).
41 $(He) (He)$ $(Ar) (Ar)$	E	3	Ames, Robert C., Haugejoo, Paul U., Ionization In Low-Energy Atomic Collisions Of Neon With Neon And Argon With Argon, PHYS. REV. 177 230 (1969).
42 Under	T	0	Ames Yu, N. Yu., Collective Oscillations Of Atomic Electron Shells, SOVIET PHYS. - TECH. PHYS. 11 1073 (1967).
43 $(H^+) (H_2, N_2, He, Ar)$	E	5	Anderson, Jorge Carlos, Energy And Angular Distribution Of Secondary Electrons Produced By 50-200 eV Protons In Nitrogen, Oxygen, Neon, And Argon, THE UNIVERSITY OF MICHIGAN, THESIS, (1968).
44 $(He^+, He^{2+}) (H_2)$	E	4	Andreev, E. P., Anshulin, V. A., Babashov, S. V., Effective Cross Sections For The Excitation Of Balmer Series Hydrogen Lines In Collisions Of Singly Charged Helium And Neon Ions With Hydrogen Molecules, OPT. SPECTROSC. 10 103 (1964).
45 $(H^+) (He, Ne, Ar, Kr, Xe)$	E	4	Andreev, E. P., Anshulin, V. A., Dubinsky, V. M., Orlov, A. L., Formation Of Hydrogen Atoms In 2s And 2p States From H^+ Ions Colliding With Inert Gas Atoms, VI ICFEAC, P.600, THE MIT PRESS, CAMBRIDGE, MASS. (1969).
46 $(He^+) (Au)$ (Cat. by Abstract Only)	E	0	Armour, D. G., Corbett, G., A Theoretical Treatment Of Low Energy Ion Back-Scattering From A Row Of Gold Atoms, RADIATION EFF. 3 175 (1970).
47 $(He^+, He^{2+}) (Al, Ni, Ag, Au, C)$	E	5	Arpstrong, J. C., Hollander, J. V., Morris, D. A., Reiman, J. B., Equilibrium Charge-State Fractions Of 0.2 To 6.5 MeV Helium Ions In Carbon, PROC. PHYS. SOC., LONDON B6 1203 (1965).
48 Under	T	1	Arshinov, A. A., Masin, A. K., Equilibrium Ionization Of Particles, SOVIET PHYS. - SOLID STATE 3 300 (1960).

REACTANTS	EXP. ON TITLED.	1. NUMBER	REFERENCE
00 Under	T	5	Arthur, A. M., The Description of The Ejected Electron in R-Shell Ionization. <i>PHYS. REV. SER. 2</i> , 136 73 441 (1957).
01 $(H^+)(H_2)$	T	5	Arthur, A. M., Cross-Sections For R-Shell Ionization of Atoms: Nitrogen And Oxygen By Electrons And Protons. <i>J. ATOM. ENERGY</i> , 14 177 (1954).
02 $(H_2^+)(H_2)$	E	2	Asundi, B. R., Schulz, G. J., Chantry, P. J., Studies of H_2^+ Ion Formation in Nitrogen Using High-Pressure Mass Spectrometry. <i>J. CHEM. PHYS.</i> , 47 1500 (1967).
03 $(H, H_2, Li^+)(H_2)$	E	2	Baede, A. P. M., Baubach, A. M. C., De Vries, A. L., Lee, J., Total Cross Sections For Charge-Transfer Between Atomic Helium And Atomic Nitrogen. <i>VI ICPAC, P-252, THE IIT PRESS, CAMBRIDGE, MASS.</i> (1967).
04 Under (Col. by Abstract Only)	T	0	Bang, J., Mott, J. M., Coulomb Deflection Effects On Ionization And Pair-Production Phenomena. <i>REVIEW. SER. 2</i> , 136 73 441 (1957).
05 Under	T	5	Bark, D., Vriens, L., Beenen, T. F. M., Initial-State Polarization In Heavy-Encounter Theory. <i>J. PHYS. B</i> 2 77 (1969).
06 $(Li^+)(He, He, He, He, He)$	E	0	Barr, M., Barden, J., Sessler, A., Energy Loss Of Fast Ions (80 eV) Of Lithium After Collision With Rare Gas Atoms. <i>COMPT. REND.</i> , 250 2307 (1964).
07 $(H^+)(H_2, He, He, He)$	E	3	Barr, M., Barden, J., Study Of The Discrete Energy Losses Of A Fast Proton Beam Passing Through A Gaseous Target. <i>ATM. INT. CONF. 100. PHENOMENA CASES</i> , 1 127, SER. 2, 136 73 (1963).
08 $(He^+)(He)$ $(H^+)(H)$ $(H^+)(H)$	E	3	Barr, M., Barden, J., Adelman, R., Mott, J. M., Differential Measurements On Ion-Atom Collisions In The Energy Range 200 eV-2000 eV. III. H^+ On He, He^+ On He And H^+ On Ar Collisions. <i>J. PHYS. B</i> 3 235 (1970).
09 $(He^+, He^+, He^+)(He, He)$	E	4	Barr, M., Barden, J., Sessler, A., Energy Losses Of Fast (16 eV) Rare Gas Ions In Collisions With Rare Gas Atoms. (Helium And Neon). <i>COMPT. REND.</i> , 250 5379 (1964).
10 $(He^+, He^+, He^+)(He, He, He)$	E	4	Barr, M., Barden, J., Sessler, A., Loss Of Energy Suffered By Fast Ions (80 eV) Of Rare Gases After Collision With Atoms Of Rare Gases (Argon, Krypton, Xenon). <i>COMPT. REND.</i> , 250 5403 (1964).
11 $(H^+, He^+, Li^+, He^+, He^+)(He, He, He, He, He)$	E	5	Barr, Michel, Quelques Remarques Sur Les Pertes D'Énergie Subies Par Des Ions Rapides (80 eV) Subissant Des Collisions Avec Des Atomes De Gase Rare, <i>ATM. INT. CONF. PHYS. ELECTRON. ATOMIC COLLISIONS</i> , P-200 , SCIENCE MONOGRAPHIES, NEW YORK (1966).
12 $(He^+, He^+)(He)$	E	3	Bark, D. B., Bark, D. B., Electron Energy Distributions From Ionizing Collisions Of Helium And Neon Ions With Helium. <i>PHYS. REV.</i> , 151 14 (1966).
13 $(He^+, He^+)(He)$ (Col. by Abstract Only)	E	3	Bark, Robert Barkley, Electron Energy Distributions From Ionizing Collisions Of Helium And Neon Ions With Helium. <i>THESIS, SYRACUSE UNIV.</i> (1966).
14 Review	E	0	Barnett, C. F., St. John, M. D., Measurements Of Atomic Cross Sections In Static Gases. <i>METHODS OF EXPERIMENTAL PHYSICS</i> , VOL. 7A , P-300 , ACADEMIC PRESS, NEW YORK (1966).
15 $(H)(H_2, He, H_2, He)$	E	5	Barnett, C. F., Reynolds, M. D., Charge Exchange Cross Sections Of Hydrogen Particles In Gases At High Energies. <i>PHYS. REV.</i> , 100 356 (1950).
16 $(H^+)(H_2, He, H_2, He)$	E	5	Barnett, C. F., Stier, P. A., Charge Exchange Cross Sections For Helium Ions In Gases. <i>PHYS. REV.</i> , 100 360 (1950).
17 $(H^+, H)(H_2, O_2, CO_2, C_2H_2, H_2O, CH_4, C_2H_6)$	E	5	Barnett, C. F., Paul, M. E., Brown, M. G., Langley, R. A., Mohr, R. Y., Ray, J. A., Roshch, A., Tabern, L. M., High-Energy Charge Exchange Of H^+ And H^+ In Condensable Gases. <i>THEORETICAL DIVISION SEMINAR PROGRESS REPORT FOR PERIOD ENDING OCTOBER 31, 1966</i> , ORNL-4063 40 (1967).
18 $(H_2^+, H_2^+)(H_2, H_2O)$	T	5	Barnett, C. F., Babin, R., Ray, J. A., Formation Of Neutral Atomic Hydrogen From. <i>ATM. INT. CONF. 100. PHENOMENA CASES</i> , 1 63, SER. 2, 136 73 (1963).
19 Under (Col. by Abstract Only)	T	0	Bark, George Bark, The Born Approximation In Collisions Of Heavy Charged Particles With Inner Shell Electrons. <i>THESIS, UNIV. OF NORTH CAROLINA AT CHAPEL HILL</i> (1965).
20 Review	E	5	Bark, S., A New Method For Studying The Atom. <i>SCIENCE</i> 100 1007 (1950).
21 $(He)(He, He, He)$	E	4	Bastien, Francois, Papaydi, Elene, Vlasov, Gerard, New Evidence De La Presence D'Atomes Metastables Dans Un Plasma D'Atomes Rapides D'Helium. <i>COMPT. REND.</i> , 250 80 (1964).
22 $(He)(H_2, He)$	E	4	Bastien, Francois, Papaydi, Elene, Sinter, Andre, New Evidence De La Presence D'Atomes Metastables Dans Un Plasma D'Atomes Rapides D'Helium. <i>COMPT. REND.</i> , 250 400 (1964).
23 Under (Col. by Abstract Only)	T	0	Bark, D. B., Bark, D. B., Slow Inelastic Collisions Between Atomic Systems. <i>PHYS. REV.</i> , 151 111 (1966).
24 $(H^+)(H)$ $(He^+)(He)$	T	2	Bark, D. B., Bell, R. L., Kingston, A. L., Excited Atoms In Occupied Optically Thick Plasmas. <i>PHYS. REV. SER. 2</i> , 136 73 441 (1957).
25 $(He^+)(He^+)$	T	4	Bark, D. B., Bark, Anne M., Effect Of Coulomb Repulsion Between Charged Atomic Systems On Ionization And Ionization Cross Sections. <i>PHYS. REV. SER. 2</i> , 136 73 441 (1957).
26 $(H, He^+)(H)$	T	5	Bark, D. B., Griffing, G., Inelastic Collisions Between Heavy Particles. I. Excitation And Ionization Of Hydrogen Atoms In Fast Encounters With Protons And With Other Hydrogen Atoms. <i>PHYS. REV. SER. 2</i> , 136 73 441 (1957).

REACTANTS	EXP ON THEORY	E NAME	REFERENCE
75 (H ⁺)(He)	Y	5	Bates, D. R., Mc Donnell, R. A. C., Doherty, A., D. The Energy Distribution Of Secondary Auroral Electrons, J. ATOM. TERREST. PHYS. 10 51 (1967).
77 (H ⁺)(H)	Y	3	Bates, D. R., Griffing, G. U., Ionization Collisions Between Heavy Particles. IV. Contribution Of Double Transitions To Certain Cross Sections Including That Associated With The Ionization Of Hydrogen Atoms In Fast Encounters With Other Hydrogen Atoms, PRC. PHYS. SOC., LONDON 68 98 (1966).
78 (H ⁺)(H ⁺)	Y	5	Bates, D. R., Wilson, A., Ionization Collisions Between Heavy Particles. VII. Electron Loss From Fast Hydrogen Atoms Passing Through Helium, PRC. PHYS. SOC., LONDON 70 306 (1967).
79 (H ⁺ , He ⁺)(H)	Y	5	Bates, D. R., Importance Of Distortion In Ionization Encounters Between Heavy Systems, PRC. PHYS. SOC., LONDON 73 227 (1969).
80 (H ⁺)(H ₂ , H ₂ ⁺ , H ₂ ⁺ , H ₂ ⁺ , H ₂ ⁺ , H ₂ ⁺) (He ⁺)(H ₂ , H ₂ ⁺ , H ₂ ⁺)	Y	5	Bates, D. R., Bann, V., Young, R. A., Classical Treatment Of Electron Loss, J. PHYS. B 2 530 (1965).
81 (H ⁺)(He, H ₂ , H ₂ ⁺)	E	5	Bates, D. R., Doherty, J. C. C., Quenching Of Auroral Hydrogen Line Emission By Collisional Ionization, PLANETARY SPACE SCI. 14 1367 (1966).
82 (H ⁺)(H ₂)	Y	5	Bates, D. R., Boyd, A. W., Froun, S. L., Impact Ionization Of Sodium, PRC. PHYS. SOC., LONDON 66 1121 (1966).
83 (He ⁺)(He)	E	3	Barton, J., Barst, R., Abignelli, R., Differential Scattering Measurements On Ion-Atom Collisions In The Energy Range 300-3000 Ev. I. He ⁺ - He Collision, J. PHYS. B 1 1003 (1969).
84 (He ⁺)(He, Ar, Kr, Xe) (He ⁺)(He)	E	3	Barton, J., Barst, R., Abignelli, R., Differential Measurements On Ion-Atom Collisions In The Energy Range 300 Ev-3000 Ev. II. He ⁺ On He, Ar, Kr, Xe And He ⁺ On He Collisions, J. PHYS. B 3 267 (1970).
85 (H ⁺)(O) (Ar ⁺)(Ar)	Y	1	Bauer, E., Energy Transfer Mechanisms In Hyperonic Shocks, J. QUANT. SPECTROSC. RADIATIVE TRANSFER 9 699 (1969).
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104 (Ar ⁺)(Ar) (He ⁺)(He)	E	3	Berry, R. W., Energy Distribution Of Electrons From Ionizing Collisions Of Heavy Particles, PHYS. REV. 121 1714 (1961).
105 Review (Cat. by Abstract Only)	E	0	Berry, R. Stephen, Cross-Section, PROC. INT. SYM. PHYS. ENRICO FERMI, NO. 44 163 (1964).
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108 (Ar ⁺)(Ar)	T	4	Storvick, R. J., Van Der Vug, M. F., Shook, C., Omdenclimmo, B., Energy Spectra Of Electrons Arising From Heavy-Particle Collisions In The KeV Region, PHYSICA 46 244 (1970).
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111 (He ⁺)(He) (He ⁺)(He)	E	1	Diand, Manfred A., Ionization By The Collision Of Pairs Of Metastable Atoms, PHYS. REV. 82 463 (1951).
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DATA TABLE	EXP. OR THEOR.	E. RANGE	REFERENCE
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195 (H ⁺ , H ₂ ⁺ , H ₃ ⁺)(H ₂ , H ₂ ⁺) (Cat. by Abstract Only)	E	0	Dognet, Rene, Blanc, Daniel, Muller, Benoite, High-Energy Molecular Atomic Hydrogen Beams Created By Charge Exchange In Stems, ENTROPY 30 177 (1960).
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199 (H ₂ , H ₂ ⁺)(H ₂)	E	5	Belgorn, A., Griffing, C. U., Energy Per Ion Pair For Electron And Proton Beams In Atomic Hydrogen, P. AC. REV. SEC., LONDON 240B 495 (1960).
200 (H ⁺ , H ₂ ⁺)(H ₂ , H ₂ ⁺) (Cat. by Abstract Only)	T	5	Belgorn, A., Atom-Atom Collision Processes In Astrophysics Theoretical Studies, REV. MOD. PHYS. 36 480 (1967).
201 (H ⁺)(H ₂)	T	5	Belgorn, A., Griffing, C. U., Energy Loss Of Protons Passing Through Hydrogen, PHYS. REV. SEC., LONDON 232A 423 (1960).
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210 (H ⁺)(H ₂ , H ₂ ⁺ , H ₃ ⁺ , H ₄ ⁺ , H ₅ ⁺ , H ₆ ⁺)	E	5	De Waele, F. J., Schotten, J., Roub, S., Ionization And Electron Capture For Helium Ions Incident On Noble And Diatomic Gases Between 30 And 100 KeV, PHYSICA 32 1780 (1964).
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213 (H ⁺)(H ₂ , H ₂ ⁺ , H ₃ ⁺ , H ₄ ⁺ , H ₅ ⁺ , H ₆ ⁺) (Cat. by Abstract Only)	E	5	Devienne, V. A., Samoy, S. V., Samoy, S. V., Etude De L Ionization De quelques des Par Des Ions Acceleres N ⁺ Et H ⁺ , COMPT. REND. 240B 1329 (1960).
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223 Review	F	5	Baiterov, I. S., Zolotarev, Ya. A., Shkolov, V. S., Calculation Of The Effective Cross Section For The Loss Of 1 Electron By Fast Hydrogen-Like Ions During Encounters With Hydrogen And Helium Atoms, SOVIET PHYS.-JETP 22 252 (1966).
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225 Review	F	6	Baiterov, I. S., Electron-Loss Probabilities For Multiply-Charged Ions, SOVIET PHYS.-JETP 15 473 (1962).
226 $H^+ (He)$	E	5	Bord, Jack Gordon, Jr., Spectroscopically By Proton Impact On Helium, TRANS. AMER. PHYS. SOC. 235 (1965).
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239 Review	E	6	Bord, Jack Gordon, Jr., Collisional Decay, AIPIC PHYSICS, P.411, PLENUM PRESS, NEW YORK (1969).
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243 $(He^+) (H, O, O)$	F	4	Eldersburg, R. M., Secondary Processes In Proton Atoms, J. CHEM. PHYS. 46 1401 (1967).
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, W^+ , Re^+ , Os^+ , Ir^+ , Pt^+ , Au^+ , Hg^+ , Tl^+ , Pb^+ , Bi^+ , At^+ , Rn^+ , Fr^+ , Ac^+ , Th^+ , Pa^+ , U^+ , Np^+ , Pu^+ , Am^+ , Cm^+ , Bk^+ , Cf^+ , Es^+ , Fm^+ , Md^+ , No^+ , Lr^+ , Lu^+ , Hf^+ , Ta^+ , W^+ , Re^+ , Os^+ , Ir^+ , Pt^+ , Au^+ , Hg^+ , Tl^+ , Pb^+ , Bi^+ , At^+ , Rn^+ , Fr^+ , Ac^+ , Th^+ , Pa^+ , U^+ , Np^+ , Pu^+ , Am^+ , Cm^+ , Bk^+ , Cf^+ , Es^+ , Fm^+ , Md^+ , No^+ , Lr^+ , Lu^+ , Hf^+ , Ta^+ , W^+ , Re^+ , Os^+ , Ir^+ , Pt^+ , Au^+ , Hg^+ , Tl^+ , Pb^+ , Bi^+ , At^+ , Rn^+ , Fr^+ , Ac^+ , Th^+ , Pa^+ , U^+ , Np^+ , Pu^+ , Am^+ , Cm^+ , Bk^+ , Cf^+ , Es^+ , Fm^+ , Md^+ , No^+ , Lr^+ , Lu^+ , Hf^+ , Ta^+ , W^+ , Re^+ , Os^+ , Ir^+ , Pt^+ , Au^+ , Hg^+ , Tl^+ , Pb^+ , Bi^+ , At^+ , Rn^+ , Fr^+ , Ac^+ , Th^+ , Pa^+ , U^+ , Np^+ , Pu^+ , Am^+ , Cm^+ , Bk^+ , Cf^+ , Es^+ , Fm^+ , Md^+ , No^+ , Lr^+ , Lu^+ , Hf^+ , Ta^+ , W^+ , Re^+ , Os^+ , Ir^+ , Pt^+ , Au^+ , Hg^+ , Tl^+ , Pb^+ , Bi^+ , At^+ , Rn^+ , Fr^+ , Ac^+ , Th^+ , Pa^+ , U^+ , Np^+ , Pu^+ , Am^+ , Cm^+ , Bk^+ , Cf^+ , Es^+ , Fm^+ , Md^+ , No^+ , Lr^+ , Lu^+ , Hf^+ , Ta^+ , W^+ , Re^+ , Os^+ , Ir^+ , Pt^+ , Au^+ , Hg^+ , Tl^+ , Pb^+ , Bi^+ , At^+ , Rn^+ , Fr^+ , Ac^+ , Th^+ , Pa^+ , U^+ , Np^+ , Pu^+ , Am^+ , Cm^+ , Bk^+ , Cf^+ , Es^+ , Fm^+ , Md^+ , No^+ , Lr^+ , Lu^+ , Hf^+ , Ta^+ , W^+ , Re^+ , Os^+ , Ir^+ , Pt^+ , Au^+ , Hg^+ , Tl^+ , Pb^+ , Bi^+ , At^+ , Rn^+ , Fr^+ , Ac^+ , Th^+ , Pa^+ , U^+ , Np^+ , Pu^+ , Am^+ , Cm^+ , Bk^+ , Cf^+ , Es^+ , Fm^+ , Md^+ , No^+ , Lr^+ , Lu^+ , Hf^+ , Ta^+ , W^+ , Re^+ , Os^+ , Ir^+ , Pt^+ , Au^+ , Hg^+ , Tl^+ , Pb^+ , Bi^+ , At^+ , Rn^+ , Fr^+ , Ac^+ , Th^+ , Pa^+ , U^+ , Np^+ , Pu^+ , Am^+ , Cm^+ , Bk^+ , Cf^+ , Es^+ , Fm^+ , Md^+ , No^+ , Lr^+ , Lu^+ , Hf^+ , Ta^+ , W^+ , Re^+ , Os^+ , Ir^+ , Pt^+ , Au^+ , Hg^+ , Tl^+ , Pb^+ , Bi^+ , At^+ , Rn^+ , Fr^+ , Ac^+ , Th^+ , Pa^+ , U^+ , Np^+ , Pu^+ , Am^+ , Cm^+ , Bk^+ , Cf^+ , Es^+ , Fm^+ , Md^+ , No^+ , Lr^+ , Lu^+ , Hf^+ , Ta^+ , W^+ , Re^+ , Os^+ , Ir^+ , Pt^+ , Au^+ , Hg^+ , Tl^+ , Pb^+ , Bi^+ , At^+ , Rn^+ , Fr^+ , Ac^+ , Th^+ , Pa^+ , U^+ , Np^+ , Pu^+ , Am^+ , Cm^+ , Bk^+ , Cf^+ , Es^+ , Fm^+ , Md^+ , No^+ , Lr^+ , Lu^+ , Hf^+ , Ta^+ , W^+ , Re^+ , Os^+ , Ir^+ , Pt^+ , Au^+ , Hg^+ , Tl^+ , Pb^+ , Bi^+ , At^+ , Rn^+ , Fr^+ , Ac^+ , Th^+ , Pa^+ , U^+ , Np^+ , Pu^+ , Am^+ , Cm^+ , Bk^+ , Cf^+ , Es^+ , Fm^+ , Md^+ , No^+ , Lr^+ , Lu^+ , Hf^+ , Ta^+ , W^+ , Re^+ , Os^+ , Ir^+ , Pt^+ , Au^+ , Hg^+ , Tl^+ , Pb^+ , Bi^+ , At^+ , Rn^+ , Fr^+ , Ac^+ , Th^+ , Pa^+ , U^+ , Np^+ , Pu^+ , Am^+ , Cm^+ , Bk^+ , Cf^+ , Es^+ , Fm^+ , Md^+ , No^+ , Lr^+ , Lu^+ , Hf^+ , Ta^+ , W^+ , Re^+ , Os^+ , Ir^+ , Pt^+ , Au^+ , Hg^+ , Tl^+ , Pb^+ , Bi^+ , At^+ , Rn^+ , Fr^+ , Ac^+ , Th^+ , Pa^+ , U^+ , Np^+ , Pu^+ , Am^+ , Cm^+ , Bk^+ , Cf^+ , Es^+ , Fm^+ , Md^+ , No^+ , Lr^+ , Lu^+ , Hf^+ , Ta^+ , W^+ , Re^+ , Os^+ , Ir^+ , Pt^+ , Au^+ , Hg^+ , Tl^+ , Pb^+ , Bi^+ , At^+ , Rn^+ , Fr^+ , Ac^+ , Th^+ , Pa^+ , U^+ , Np^+ , Pu^+ , Am^+ , Cm^+ , Bk^+ , Cf^+ , Es^+ , Fm^+ , Md^+ , No^+ , Lr^+ , Lu^+ , Hf^+ , Ta^+ , W^+ , Re^+ , Os^+ , Ir^+ , Pt^+ , Au^+ , Hg^+ , Tl^+ , Pb^+ , Bi^+ , At^+ , Rn^+ , Fr^+ , Ac^+ , Th^+ , Pa^+ , U^+ , Np^+ , Pu^+ , Am^+ , Cm^+ , Bk^+ , Cf^+ , Es^+ , Fm^+ , Md^+ , No^+ , Lr^+ , Lu^+ , Hf^+ , Ta^+ , W^+ , Re^+ , Os^+ , Ir^+ , Pt^+ , Au^+ , Hg^+ , Tl^+ , Pb^+ , Bi^+ , At^+ , Rn^+ , Fr^+ , Ac^+ , Th^+ , Pa^+ , U^+ , Np^+ , Pu^+ , Am^+ , Cm^+ , Bk^+ , Cf^+ , Es^+ , Fm^+ , Md^+ , No^+ , Lr^+ , Lu^+ , Hf^+ , Ta^+ , W^+ , Re^+ , Os^+ , Ir^+ , Pt^+ , Au^+ , Hg^+ , Tl^+ , Pb^+ , Bi^+ , At^+ , Rn^+ , Fr^+ , Ac^+ , Th^+ , Pa^+ , U^+ , Np^+ , Pu^+ , Am^+ , Cm^+ , Bk^+ , Cf^+ , Es^+ , Fm^+ , Md^+ , No^+ , Lr^+ , Lu^+ , Hf^+ , Ta^+ , W^+ , Re^+ , Os^+ , Ir^+ , Pt^+ , Au^+ , Hg^+ , Tl^+ , Pb^+ , Bi^+ , At^+ , Rn^+ , Fr^+ , Ac^+ , Th^+ , Pa^+ , U^+ , Np^+ , Pu^+ , Am^+ , Cm^+ , Bk^+ , Cf^+ , Es^+ , Fm^+ , Md^+ , No^+ , Lr^+ , Lu^+ , Hf^+ , Ta^+ , W^+ , Re^+ , Os^+ , Ir^+ , Pt^+ , Au^+ , Hg^+ , Tl^+ , Pb^+ , Bi^+ , At^+ , Rn^+ , Fr^+ , Ac^+ , Th^+ , Pa^+ , U^+ , Np^+ , Pu^+ , Am^+ , Cm^+ , Bk^+ , Cf^+ , Es^+ , Fm^+ , Md^+ , No^+ , Lr^+ , Lu^+ , Hf^+ , Ta^+ , W^+ , Re^+ , Os^+ , Ir^+ , Pt^+ , Au^+ , Hg^+ , Tl^+ , Pb^+ , Bi^+ , At^+ , Rn^+ , Fr^+ , Ac^+ , Th^+ , Pa^+ , U^+ , Np^+ , Pu^+ , Am^+ , Cm^+ , Bk^+ , Cf^+ , Es^+ , Fm^+ , Md^+ , No^+ , Lr^+ , Lu^+ , Hf^+ , Ta^+ , W^+ , Re^+ , Os^+ , Ir^+ , Pt^+ , Au^+ , Hg^+ , Tl^+ , Pb^+ , Bi^+ , At^+ , Rn^+ , Fr^+ , Ac^+ , Th^+ , Pa^+ , U^+ , Np^+ , Pu^+ , Am^+ , Cm^+ , Bk^+ , Cf^+ , Es^+ , Fm^+ , Md^+ , No^+ , Lr^+ , Lu^+ , Hf^+ , Ta^+ , W^+ , Re^+ , Os^+ , Ir^+ , Pt^+ , Au^+ , Hg^+ , Tl^+ , Pb^+ , Bi^+ , At^+ , Rn^+ , Fr^+ , Ac^+ , Th^+ , Pa^+ , U^+ , Np^+ , Pu^+ , Am^+ , Cm^+ , Bk^+ , Cf^+ , Es^+ , Fm^+ , Md^+ , No^+ , Lr^+ , Lu^+ , Hf^+ , Ta^+ , W^+ , Re^+ , Os^+ , Ir^+ , Pt^+ , Au^+ , Hg^+ , Tl^+ , Pb^+ , Bi^+ , At^+ , Rn^+ , Fr^+ , Ac^+ , Th^+ , Pa^+ , U^+ , Np^+ , Pu^+ , Am^+ , Cm^+ , Bk^+ , Cf^+ , Es^+ , Fm^+ , Md^+ , No^+ , Lr^+ , Lu^+ , Hf^+ , Ta^+ , W^+ , Re^+ , Os^+ , Ir^+ , Pt^+ , Au^+ , Hg^+ , Tl^+ , Pb^+ , Bi^+ , At^+ , Rn^+ , Fr^+ , Ac^+ , Th^+ , Pa^+ , U^+ , Np^+ , Pu^+ , Am^+ , Cm^+ , Bk^+ , Cf^+ , Es^+ , Fm^+ , Md^+ , No^+ , Lr^+ , Lu^+ , Hf^+ , Ta^+ , W^+ , Re^+ , Os^+ , Ir^+ , Pt^+ , Au^+ , Hg^+ , Tl^+ , Pb^+ , Bi^+ , At^+ , Rn^+ , Fr^+ , Ac^+ , Th^+ , Pa^+ , U^+ , Np^+ , Pu^+ , Am^+ , Cm^+ , Bk^+ , Cf^+ , Es^+ , Fm^+ , Md^+ , No^+ , Lr^+ , Lu^+ , Hf^+ , Ta^+ , W^+ , Re^+ , Os^+ , Ir^+ , Pt^+ , Au^+ , Hg^+ , Tl^+ , Pb^+ , Bi^+ , At^+ , Rn^+ , Fr^+ , Ac^+ , Th^+ , Pa^+ , U^+ , Np^+ , Pu^+ , Am^+ , Cm^+ , Bk^+ , Cf^+ , Es^+ , Fm^+ , Md^+ , No^+ , Lr^+ , Lu^+ , Hf^+ , Ta^+ , W^+ , Re^+ , Os^+ , Ir^+ , Pt^+ , Au^+ , Hg^+ , Tl^+ , Pb^+ , Bi^+ , At^+ , Rn^+ , Fr^+ , Ac^+ , Th^+ , Pa^+ , U^+ , Np^+ , Pu^+ , Am^+ , Cm^+ , Bk^+ , Cf^+ , Es^+ , Fm^+ , Md^+ , No^+ , Lr^+ , Lu^+ , Hf^+ , Ta^+ , W^+ , Re^+ , Os^+ , Ir^+ , Pt^+ , Au^+ , Hg^+ , Tl^+ , Pb^+ , Bi^+ , At^+ , Rn^+ , Fr^+ , Ac^+ , Th^+ , Pa^+ , U^+ , Np^+ , Pu^+ , Am^+ , Cm^+ , Bk^+ , Cf^+ , Es^+ , Fm^+ , Md^+ , No^+ , Lr^+ , Lu^+ , Hf^+ , Ta^+ , W^+ , Re^+ , Os^+ , Ir^+ , Pt^+ , Au^+ , Hg^+ , Tl^+ , Pb^+ , Bi^+ , At^+ , Rn^+ , Fr^+ , Ac^+ , Th^+ , Pa^+ , U^+ , Np^+ , Pu^+ , Am^+ , Cm^+ , Bk^+ , Cf^+ , Es^+ , Fm^+ , Md^+ , No^+ , Lr^+ , Lu^+ , Hf^+ , Ta^+ , W^+ , Re^+ , Os^+ , Ir^+ , Pt^+ , Au^+ , Hg^+ , Tl^+ , Pb^+ , Bi^+ , At^+ , Rn^+ , Fr^+ , Ac^+ , Th^+ , Pa^+ , U^+ , Np^+ , Pu^+ , Am^+ , Cm^+ , Bk^+ , Cf^+ , Es^+ , Fm^+ , Md^+ , No^+ , Lr^+ , Lu^+ , Hf^+ , Ta^+ , W^+ , Re^+ , Os^+ , Ir^+ , Pt^+ , Au^+ , Hg^+ , Tl^+ , Pb^+ , Bi^+ , At^+ , Rn^+ , Fr^+ , Ac^+ , Th^+ , Pa^+ , U^+ , Np^+ , Pu^+ , Am^+ , Cm^+ , Bk^+ , Cf^+ , Es^+ , Fm^+ , Md^+ , No^+ , Lr^+ , Lu^+ , Hf^+ , Ta^+ , W^+ , Re^+ , Os^+ , Ir^+ , Pt^+ , Au^+ , Hg^+ , Tl^+ , Pb^+ , Bi^+ , At^+ , Rn^+ , Fr^+ , Ac^+ , Th^+ , Pa^+ , U^+ , Np^+ , Pu^+ , Am^+ , Cm^+ , Bk^+ , Cf^+ , Es^+ , Fm^+ , Md^+ , No^+ , Lr^+ , Lu^+ , Hf^+ , Ta^+ , W^+ , Re^+ , Os^+ , Ir^+ , Pt^+ , Au^+ , Hg^+ , Tl^+ , Pb^+ , Bi^+ , At^+ , Rn^+ , Fr^+ , Ac^+ , Th^+ , Pa^+ , U^+ , Np^+ , Pu^+ , Am^+ , Cm^+ , Bk^+ , Cf^+ , Es^+ , Fm^+ , Md^+ , No^+ , Lr^+ , Lu^+ , Hf^+ , Ta^+ , W^+ , Re^+ , Os^+ , Ir^+ , Pt^+ , Au^+ , Hg^+ , Tl^+ , Pb^+ , Bi^+ , At^+ , Rn^+ , Fr^+ , Ac^+ , Th^+ , Pa^+ , U^+ , Np^+ , Pu^+ , Am^+ , Cm^+ , Bk^+ , Cf^+ , Es^+ , Fm^+ , Md^+ , No^+ , Lr^+ , Lu^+ , Hf^+ , Ta^+ , W^+ , Re^+ , Os^+ , Ir^+ , Pt^+ , Au^+ , Hg^+ , Tl^+ , Pb^+ , Bi^+ , At^+ , Rn^+ , Fr^+ , Ac^+ , Th^+ , Pa^+ , U^+ , Np^+ , Pu^+ , Am^+ , Cm^+ , Bk^+ , Cf^+ , Es^+ , Fm^+ , Md^+ , No^+ , Lr^+ , Lu^+ , Hf^+ , Ta^+ , W^+ , Re^+ , Os^+ , Ir^+ , Pt^+ , Au^+ , Hg^+ , Tl^+ , Pb^+ , Bi^+ , At^+ , Rn^+ , Fr^+ , Ac^+ , Th^+ , Pa^+ , U^+ , Np^+ , Pu^+ , Am^+ , Cm^+ , Bk^+ , Cf^+ , Es^+ , Fm^+ , Md^+ , No^+ , Lr^+ , Lu^+ , Hf^+ , Ta^+ , W^+ , Re^+ , Os^+ , Ir^+ , Pt^+ , Au^+ , Hg^+ , Tl^+ , Pb^+ , Bi^+ , At^+ , Rn^+ , Fr^+ , Ac^+ , Th^+ , Pa^+ , U^+ , Np^+ , Pu^+ , Am^+ , Cm^+ , Bk^+ , Cf^+ , Es^+ , Fm^+ , Md^+ , No^+ , Lr^+ , Lu^+ , Hf^+ , Ta^+ , W^+ , Re^+ , Os^+ , Ir^+ , Pt^+ , Au^+ , Hg^+ , Tl^+ , Pb^+ , Bi^+ , At^+ , Rn^+ , Fr^+ , Ac^+ , Th^+ , Pa^+ , U^+ , Np^+ , Pu^+ , Am^+ , Cm^+ , Bk^+ , Cf^+ , Es^+ , Fm^+ , Md^+ , No^+ , Lr^+ , Lu^+ , Hf^+ , Ta^+ , W^+ , Re^+ , Os^+ , Ir^+ , Pt^+ , Au^+ , Hg^+ , Tl^+ , Pb^+ , Bi^+ , At^+ , Rn^+ , Fr^+ , Ac^+ , Th^+ , Pa^+ , U^+ , Np^+ , Pu^+ , Am^+ , Cm^+ , Bk^+ , Cf^+ , Es^+ , Fm^+ , Md^+ , No^+ , Lr^+ , Lu^+ , Hf^+ , Ta^+ , W^+ , Re^+ , Os^+ , Ir^+ , Pt^+ , Au^+ , Hg^+ , Tl^+ , Pb^+ , Bi^+ , At^+ , Rn^+ , Fr^+ , Ac^+ , Th^+ , Pa^+ , U^+ , Np^+ , Pu^+ , Am^+ , Cm^+ , Bk^+ , Cf^+ , Es^+ , Fm^+ , Md^+ , No^+ ,			

REACTIONS	EXP OR THEOR.	E RANGE	REFERENCE
276 $(H_2, H_2, H_2, H_2, H_2) \rightarrow (H_2, H_2, H_2, H_2)$	E	5	Fite, W. L., Layton, J. A., Stebbings, R. F., Experimental Studies On Heavy Ion Exchange In Air, <i>NO-6</i> 6 137 (1965).
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280 $(H_2, H_2, H_2, H_2, H_2) \rightarrow (H_2, H_2, H_2, H_2, H_2)$	E	0	Fite, W. L., Spertus, G. A., Fedorova, N. V., Ionization In Collisions Of H ₂ With H ₂ Atoms And C ⁺ Ions With H ₂ Atoms (H ₂ Equivalents 0.5, 1.5, 3.0), <i>PHYS.</i> 370 MC, CONF. IONIZATION PROCESSES, MOSCOW, II 1700 (1961).
281 $(H_2, H_2, H_2, H_2, H_2) \rightarrow (H_2, H_2, H_2, H_2, H_2)$	E	0	Fite, W. L., Spertus, G. A., Fedorova, N. V., Ionization In The Collisions Of H ₂ With H ₂ Atoms And C ⁺ Ions With H ₂ Atoms (H ₂ Equivalents 0.5, 1.5, 3.0), <i>SOVIET PHYS.-JETP</i> 16 1077 (1962).
282 $(H_2, H_2, H_2, H_2, H_2) \rightarrow (H_2, H_2, H_2, H_2, H_2)$	E	0	Fite, W. L., Spertus, G. A., Fedorova, N. V., Studies Conducted In Cases Upon Passage Of Fast H ₂ And He Ions, <i>SOVIET PHYS.-JETP</i> 16 701 (1962).
283 $(H_2, H_2, H_2, H_2, H_2) \rightarrow (H_2, H_2, H_2, H_2, H_2)$	E	0	Fite, W. L., The Ionization Of Fast Gases By Single-Charged Ions And Atoms Of Neon And Argon, <i>SOVIET PHYS. - TECH. PHYS.</i> 4 203 (1961).
284 $(H_2, H_2, H_2, H_2, H_2) \rightarrow (H_2, H_2, H_2, H_2, H_2)$	E	0	Fite, W. L., Spertus, G. A., Charge-Exchange And Ionization Processes Occurring During The Collisions Of Nitrogen Atoms And Ions With Hydrogen Molecules, <i>SOVIET PHYS.-TECH. PHYS.</i> 8 500 (1963).
285 $(H_2, H_2, H_2, H_2, H_2) \rightarrow (H_2, H_2, H_2, H_2, H_2)$	E	0	Fite, W. L., Shkiba, B. I., Spertus, G. A., Ionization Of Gases By Atomic Ions, <i>SOVIET PHYS. - TECH. PHYS.</i> 10 1357 (1964).
286 $(H_2, H_2) \rightarrow (H_2, H_2)$	T	5	Fleming, R. A., Excitation And Ionization of Hydrogen By Hydrogen-Atom Impact, <i>J. PHYS.</i> B 3 157 (1970).
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290 $(H_2, H_2, H_2, H_2, H_2) \rightarrow (H_2, H_2, H_2, H_2, H_2)$	E	3	Fleischmann, H. A., Young, R. A., Stripping And Ionization In Low-Energy Collisions Of H On O ₂ And H ₂ , <i>PHYS. LETTERS</i> 290 207 (1969).
291 $(H_2, H_2, H_2, H_2, H_2) \rightarrow (H_2, H_2, H_2, H_2, H_2)$	E	4	Fitch, W. L., Measurement Of Inelastic Energy Loss In Some Bubble-Gas Ion-Atom Collisions At Electrostatic-Potential Energies, <i>J. CHEM. PHYS.</i> 43 278 (1965).
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293 $(H_2, H_2, H_2, H_2, H_2) \rightarrow (H_2, H_2, H_2, H_2, H_2)$	E	0	Fogel, Ya. N., Koval, A. G., Leuchner, Yu. I., Formation Of Slow Negative Ions In Single Collisions Between Fast Negative Hydrogen And Oxygen Ions And Gas Molecules, <i>SOVIET PHYS.-JETP</i> 13 2 (1961).
294 $(H_2, H_2, H_2, H_2, H_2) \rightarrow (H_2, H_2, H_2, H_2, H_2)$	E	3	Fogel, Ya. N., Koval, A. G., Leuchner, Yu. I., Shadrachin, A. F., Competition Of Slow Ions Produced During The Ionization Of Gases By Negative Ions, <i>SOVIET PHYS.-JETP</i> 12 204 (1961).
295 $(H_2, H_2, H_2, H_2, H_2) \rightarrow (H_2, H_2, H_2, H_2, H_2)$	E	4	Fogel, Ya. N., Kravtsov, L. I., The formation of negative oxygen ions in the collisions of positive oxygen ions with gas molecules, <i>SOVIET PHYS.-JETP</i> 2 124 (1956).
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297 $(H_2, H_2, H_2, H_2, H_2) \rightarrow (H_2, H_2, H_2, H_2, H_2)$	E	4	Fogel, Ya. N., Anshulov, V. A., Philippenko, L. V., Fogel, A. V., Electron Loss And Capture In Collisions Between Fast Hydrogen Atoms And Molecules Of Gases, <i>SOVIET PHYS.-JETP</i> 7 400 (1958).
298 $(H_2, H_2, H_2, H_2, H_2) \rightarrow (H_2, H_2, H_2, H_2, H_2)$	E	4	Fogel, Ya. N., Anshulov, V. A., Philippenko, L. V., Electron Capture And Loss In Collisions Of Fast Carbon And Oxygen Atoms With Gas Molecules, <i>SOVIET PHYS.-JETP</i> 9 401 (1959).
299 $(H_2, H_2, H_2, H_2, H_2) \rightarrow (H_2, H_2, H_2, H_2, H_2)$	E	4	Fogel, Ya. N., Koval, A. G., Leuchner, Yu. I., Ionization Of Gases By Negative Ions, <i>SOVIET PHYS.-JETP</i> 11 700 (1960).
300 $(H_2, H_2, H_2, H_2, H_2) \rightarrow (H_2, H_2, H_2, H_2, H_2)$	E	4	Fogel, Ya. N., Kravtsov, L. I., Saffronov, B. G., Capture Of Electrons And Ionization By Protons In Hydrogen, <i>SOVIET PHYS.-JETP</i> 1 415 (1955).
301 $(H_2, H_2, H_2, H_2, H_2) \rightarrow (H_2, H_2, H_2, H_2, H_2)$	E	4	Fogel, Ya. N., Anshulov, V. A., Shadrachin, A. F., Loss of Two Electrons in Single Collisions Between Negative Hydrogen Ions And Molecules At Gases, <i>SOVIET PHYS.-JETP</i> 5 302 (1957).
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REACTANTS	EXP. OR THEORY	I. SOURCE	REFERENCE
320 ($\text{He}^+ \text{H}_2$)	E	5	Gilbody, R. D., Brunning, R., Levy, G., & Intosh, A. I., <i>Chem. Rev.</i> , 66 , 1 (1966). Formation and Destruction of Fast Metastable Helium Atoms in Charge-Exchange Collisions, <i>PREP. PHYS. SEC.</i> , 1966 10 253 (1966).
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322 Underf	T	4	Gilbody, R. D., Mott, A. R., <i>Recent Developments of Ion-Atom Collisions</i> , <i>PREP. PHYS. SEC.</i> , 1966 10 253 (1966).
323 ($\text{He}^+ \text{H}_2^+ \text{H}_2$)	T	5	Clouston, Robert L., Electron Capture and Loss by Ions in Gases, <i>PREP. PHYS. SEC.</i> , 1967 (1967).
324 ($\text{He}^+ \text{H}_2^+ \text{H}_2^+$)	E	4	Gordov, V. S., Ponom, A. N., The Ionization and Capture of Electrons in Collisions of Hydrogen Ions with Atomic and Molecular H ₂ , <i>SOVIET PHYS.-TECH. PHYS.</i> , 9 436 (1966).
325 Underf (Cot. by Abstract Only)	E	0	Good, F., The Phenomena of Ionization and Ionization by Alpha-Particles, <i>PHIL. MAG.</i> , 107 , 250 (1966).
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327 Underf	T	0	Griffin, R., Hall, J. C., The Effect of Inter-Molecular Electric Fields on Molecular Ionization Potentials, <i>PHIL. MAG.</i> , 17 99 (1965).
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330 ($\text{H}^+ \text{H}_2, \text{H}_2, \text{H}_2, \text{H}_2, \text{H}_2, \text{H}_2, \text{H}_2$)	T	0	Griffith, R., Classical Theory of Atomic Collisions. I. Theory of Ionization Collisions, <i>PHYS. REV.</i> , 130 A122 (1963).
331 Review	T	0	Griffith, R., Two-Particle Collisions. II. Coulomb Collisions in the Laboratory System of Coordinates, <i>PHYS. REV.</i> , 130 A122 (1963).
332 Underf	T	2	Griffith, R., Classical Theory of Electronic and Ionic Ionization Collisions, <i>PHYS. REV.</i> , 135 376 (1963).
333 ($\text{H}^+ \text{H}_2, \text{H}_2, \text{H}_2$)	T	2	Griffith, R., Further Development of Classical Theory of Atomic Collisions, <i>ATOMIC COLLISION PROCESSES</i> , 5 , 270, NORTH-HOLLAND PUBL. CO., AMSTERDAM (1964).
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335 ($\text{H}^+ \text{H}_2, \text{H}_2, \text{H}_2, \text{H}_2$)	T	5	Griffith, R., Basic Relations for Coulomb Interaction and its Application to Atomic Collisions, 7th Int. Conf. (1966), <i>PHYSICAL CHEM.</i> , 1 117, SINGAPORE (1966).
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337 ($\text{H}_2^+ \text{H}_2, \text{H}_2, \text{H}_2, \text{H}_2$)	E	5	Goldfarb, J., Dissociation of H ₂ Ions, <i>ATOMIC COLLISION PROCESSES</i> , 5 , 751, NORTH-HOLLAND PUBL. CO., AMSTERDAM (1964).
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REACTANTS	EXP OR THEOR.	C NAME	REFERENCE
477 (AD ⁺)(AR, HE, NE, N ₂) (HE ⁺)(HE, AR, BR) (HE ⁺)(HE, AR, ED)	E	5	Lee, A. B., Gilbody, R. D., Positive Ion Stripping Studies In The Energy Range 100-400 eV, 6TH INT. CONF. ION. PHENOMENA CASES, 1 123, NIMH, PARIS (1963).
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711 ($H_2^+ + H_2$)	E	5	Szwarc, S. L., Dissociation Of H_2^+ ions By Hydrogen, PHYS. REV. LETTERS 3 688 (1960).
712 ($H_2^+ + H_2, CH_4, C_2H_6, C_2H_4, C_2H_2, C_2H, C_2H_3, C_2H_5,$ H_2^+, H_2^{++})	E	2	Swain, J., Concentration Ion-Molecule Reactions In Airway Investigated By Means Of Positive Ion-Impact, AD-647 091, AFML-67-0886 (1966).
713 ($H^+ + H_2O$)	E	6	Tan, K. L., Van Engel, A., Accumulation Ionization In My Vapor, 6TH INT. CONF. PHEN. IONIZED GASES, P. 27, VIENNA (1967).
714 ($H^+ + H_2O$)	E	6	Tan, K. L., Van Engel, A., Measurement Of The Associative Ionization Cross Section Of Mercury Vapor, BRIT. J. APPL. PHYS. 1 230 (1968).
715 ($H^+ + H_2$)	E	5	Tedlow, J., Specific Excitation Of H_2 (C^2 Pi Sub B) And Specific Ionization By 4.3-Mev Alpha Particles, J. CHEM. PHYS. 52 883 (1970).
716 ($H^+ + HE, HE, H_2$) (Cal. by Abstract Only)	E	5	Taylor, George Graham, Jr., Scattering Of He^+ ions By Noble Gases At High Energies, THESIS, GEORGIA INSTITUTE OF TECHNOLOGY (1970).
717 ($H^+ + HE, HE, H_2$)	E	5	Taylor, G. G., Thomas, E. W., Martin, B. W., Differential I Scattering Of Helium Ions On Targets Of He, Ne, Ar At Energies From 150 To 630 KeV, PHYS. REV. A 2 1708 (1970).
718 ($H^+ + HE$)	E	5	Teramachi, Michiko, Inoue, Yoneo, Kawai, Shunichi, H-Shell Ionization Of Carbon By Low-Energy Hydrogen And Helium Ions, J. PHYS. SOC., JAP. 39 1396 (1970).
719 ($H^+ + HE$)	E	1	Teter, R. P., Miles, T. L., Robertson, U. W., Marchach-Reimer Cross Sections For The n Equals 3 States Of Helium, J. CHEM. PHYS. 44 3956 (1966).
720 ($H^+ + HC$)	E	6	Togstad, J. L., Blum, B., Brunet, J., Distribution Of Photons And Ions Created Along The Trajectory Of An Alpha Particle In Matter, COMPT. REND. 268 3676 (1969).
721 ($HE + CH_4$) (Cal. by Abstract Only)	E	6	Thomas, David William, Reactions Of Ions With Molecules In The Gas Phase And The Spectroscopy Of Solid Surfaces By Ion Bombardment, VINE - IV - FLIGHT MASS SPECTROM., COIC. CON. SYMP., IST, P. 171, EDITED BY PRICE, D., PERGAMON PRESS, OXFORD, ENGLAND (1967).
722 ($H^+ + AR$)	E	5	Thomas, E. W., Excitation Induced By 0.15-1.0 Mev Protons In Argon, J. PHYS. B 2 635 (1969).
723 ($H^+ + HE$)	V	5	Thomas, E. W., Cross Sections For The Formation Of Excited States In A Helium Target By The Impact Of 0.015 To 1.0 Mev Protons And Neutrons. II. Comparison With Theory, PHYS. REV. 164 184 (1967).
724 ($H^+ + AR$) (Cal. by Abstract Only)	E	4	Thomson, George Michael, Fast Electron-Scattered Ion Coincidence Studies Of The Argon Ion-Atom Collision, THESIS, UNIV. OF CONNECTICUT (1970).
725 ($H^+ + AR$)	E	4	Thomson, G. M., Louder, P. C., Crockett, L., Fast-Electron-Ion Coincidence Measurements Of The Argon Atom-Ion Collision, PHYS. REV. A1 1439 (1970).
726 ($H^+ + H$)	V	5	Thorn, Walter R., Levy, Miran, II, Impact Ionization In The Proton-H-Atom System. I. Theory, PHYS. REV. 181 230 (1969).
727 Under (Cal. by Abstract Only)	V	5	Tischman, D. I., Insip, E. V., Specific Properties Of Diffraction Scattering Cross Section, SOVIET J. NUCL. PHYS. 7 1089 (1968).
728 ($H^+ + H_2$)	E	3	Tisner, G. C., Brannaman, L. R., Cross Sections For Loss Of Two Electrons From H Atoms And D Atoms In Single Collisions With He , AD-678 039 (1966).

REACTANTS	EXP ON VARIABLE	1 NUMBER	REFERENCE
788 (H ⁺) ² (H ⁺)	T	1	Van Riem, G. H., <i>Disruption of Hydrogen Molecule Ions in Heavy Collisions</i> , J. CHEM. PHYS. 30 780 (1959).
789 (H ⁺) ² (H ₂ , CH ₄)	E	2	Ward, L., R. A. Rapp, R. P., Hovstad, V. A., <i>Disruption of Hydrogen Molecule Ions in Collisions with Molecules</i> , J. CHEM. PHYS. 30 780 (1959).
790 (H ⁺) ² (H ₂)	T	3	Ward, L., <i>Heavy-Ion-Induced Proton-Atom Collision Theory</i> , PHYS. REV. 124 1000 (1961).
791 H ₂ CH ₃	T	4	Ward, L., Hovstad, V. A., <i>Disruption of Molecules in Collisions with Hydrogen Molecule Ions</i> , J. CHEM. PHYS. 30 780 (1959).
800 (H ₂) ² (H ₂)	E	5	Ward, L., R. A. Rapp, R. P., Hovstad, V. A., <i>Disruption of Molecules in Collisions with Hydrogen Molecule Ions</i> , J. CHEM. PHYS. 30 780 (1959).
801 (H ⁺) ² (H ₂ , CH ₄)	T	6	Ward, L., Hovstad, V. A., <i>Disruption of Molecules in Collisions with Hydrogen Molecule Ions</i> , J. CHEM. PHYS. 30 780 (1959).
802 H ₂ CH ₃ (Calc. by Abstract Only)	T	7	Ward, L., Hovstad, V. A., <i>Disruption of Molecules in Collisions with Hydrogen Molecule Ions</i> , J. CHEM. PHYS. 30 780 (1959).
803 (H ⁺) ² (H ₂ , CH ₄ , H ₂ O, H ₂ CO, H ₂ SO ₄) (H ⁺) ² (CH ₄) (H ⁺) ² (H ₂ , CH ₄) (H ⁺) ² (H ₂ , CH ₄ , H ₂ O, H ₂ CO, H ₂ SO ₄)	T	8	Ward, L., Hovstad, V. A., <i>Disruption of Molecules in Collisions with Hydrogen Molecule Ions</i> , J. CHEM. PHYS. 30 780 (1959).
804 H ₂ CH ₃	T	9	Ward, L., Hovstad, V. A., <i>Disruption of Molecules in Collisions with Hydrogen Molecule Ions</i> , J. CHEM. PHYS. 30 780 (1959).
805 (H ⁺) ² (CH ₄ , H ₂)	T	10	Ward, L., Hovstad, V. A., <i>Disruption of Molecules in Collisions with Hydrogen Molecule Ions</i> , J. CHEM. PHYS. 30 780 (1959).
806 (H ⁺) ² (H ₂)	E	11	Ward, L., Hovstad, V. A., <i>Disruption of Molecules in Collisions with Hydrogen Molecule Ions</i> , J. CHEM. PHYS. 30 780 (1959).
807 H ₂ CH ₃ (Calc. by Abstract Only)	E	12	Ward, L., Hovstad, V. A., <i>Disruption of Molecules in Collisions with Hydrogen Molecule Ions</i> , J. CHEM. PHYS. 30 780 (1959).
808 (H ₂) ² (H ₂ , CH ₄ , H ₂ O, H ₂ CO, H ₂ SO ₄)	E	13	Ward, L., Hovstad, V. A., <i>Disruption of Molecules in Collisions with Hydrogen Molecule Ions</i> , J. CHEM. PHYS. 30 780 (1959).
809 (H ₂) ² (H ₂ , CH ₄)	E	14	Ward, L., Hovstad, V. A., <i>Disruption of Molecules in Collisions with Hydrogen Molecule Ions</i> , J. CHEM. PHYS. 30 780 (1959).
810 H ₂ CH ₃	E	15	Ward, L., Hovstad, V. A., <i>Disruption of Molecules in Collisions with Hydrogen Molecule Ions</i> , J. CHEM. PHYS. 30 780 (1959).
811 (H ⁺) ² (H ₂)	E	16	Ward, L., Hovstad, V. A., <i>Disruption of Molecules in Collisions with Hydrogen Molecule Ions</i> , J. CHEM. PHYS. 30 780 (1959).
812 (H ⁺) ² (H ₂ , CH ₄)	E	17	Ward, L., Hovstad, V. A., <i>Disruption of Molecules in Collisions with Hydrogen Molecule Ions</i> , J. CHEM. PHYS. 30 780 (1959).
813 (H ⁺) ² (H ₂ , CH ₄ , H ₂ O, H ₂ CO, H ₂ SO ₄)	E	18	Ward, L., Hovstad, V. A., <i>Disruption of Molecules in Collisions with Hydrogen Molecule Ions</i> , J. CHEM. PHYS. 30 780 (1959).
814 (H ⁺) ² (H ₂ , CH ₄ , H ₂ O, H ₂ CO, H ₂ SO ₄)	E	19	Ward, L., Hovstad, V. A., <i>Disruption of Molecules in Collisions with Hydrogen Molecule Ions</i> , J. CHEM. PHYS. 30 780 (1959).
815 (H ⁺) ² (H ₂ , CH ₄)	E	20	Ward, L., Hovstad, V. A., <i>Disruption of Molecules in Collisions with Hydrogen Molecule Ions</i> , J. CHEM. PHYS. 30 780 (1959).
816 (H ⁺) ² (H ₂ , CH ₄ , H ₂ O, H ₂ CO, H ₂ SO ₄)	E	21	Ward, L., Hovstad, V. A., <i>Disruption of Molecules in Collisions with Hydrogen Molecule Ions</i> , J. CHEM. PHYS. 30 780 (1959).
817 (H ⁺) ² (H ₂ , CH ₄ , H ₂ O, H ₂ CO, H ₂ SO ₄)	E	22	Ward, L., Hovstad, V. A., <i>Disruption of Molecules in Collisions with Hydrogen Molecule Ions</i> , J. CHEM. PHYS. 30 780 (1959).
818 (H ⁺) ² (H ₂)	E	23	Ward, L., Hovstad, V. A., <i>Disruption of Molecules in Collisions with Hydrogen Molecule Ions</i> , J. CHEM. PHYS. 30 780 (1959).
819 (H ⁺) ² (H ₂ , CH ₄)	E	24	Ward, L., Hovstad, V. A., <i>Disruption of Molecules in Collisions with Hydrogen Molecule Ions</i> , J. CHEM. PHYS. 30 780 (1959).
820 H ₂ CH ₃ (Calc. by Abstract Only)	E	25	Ward, L., Hovstad, V. A., <i>Disruption of Molecules in Collisions with Hydrogen Molecule Ions</i> , J. CHEM. PHYS. 30 780 (1959).
821 H ₂ CH ₃	E	26	Ward, L., Hovstad, V. A., <i>Disruption of Molecules in Collisions with Hydrogen Molecule Ions</i> , J. CHEM. PHYS. 30 780 (1959).
822 (H ⁺) ² (H ₂ , CH ₄) (H ⁺) ² (H ₂ , CH ₄ , H ₂ O, H ₂ CO, H ₂ SO ₄)	E	27	Ward, L., Hovstad, V. A., <i>Disruption of Molecules in Collisions with Hydrogen Molecule Ions</i> , J. CHEM. PHYS. 30 780 (1959).
823 (H ⁺) ² (H ₂)	E	28	Ward, L., Hovstad, V. A., <i>Disruption of Molecules in Collisions with Hydrogen Molecule Ions</i> , J. CHEM. PHYS. 30 780 (1959).
824 (H ₂ , H ₂) ² (H ₂ , CH ₄)	E	29	Ward, L., Hovstad, V. A., <i>Disruption of Molecules in Collisions with Hydrogen Molecule Ions</i> , J. CHEM. PHYS. 30 780 (1959).

[illegible]

[illegible]

$(N_p) \times (N_p)$	213	256			
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$(N_p) \times (AN)$	360	679			
$(N_p) \times (AN)$	22	101	323	336	367
$(N_p) \times (AN)$	367	676	666	796	
$(N_p) \times (AN)$	796	(Col. by Abstract Only)			
$(N_p) \times (AN)$	596				
$(N_p) \times (B)$	107				
$(N_p) \times (NE)$	107				
$(N_p) \times (B)$	676				
$(N_p) \times (C)$	107				
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$(N_p) \times (N_p)$	196	(Col. by Abstract Only)			
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	336	366	343	346	366
	361	616	666	666	666
	479	617	632	696	697
	696	691	627	646	676

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736	736	740	702	770
772	777	798	813	831
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(H*)P(C)				
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(H*)P(CN ₂)				
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(H*)P(CU)				
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(H*)P(CU)				
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(H*)P(CU ₂)				
66	213	530		
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(H*)P(CU)				
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(H*)P(DV)				
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626	627			
(H*)P(GD)				
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(H*)P(H)				
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79	95	167	176	190
199	200	201	202	205
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339	340	343	344	346
482	479	483	484	497
509	520	525	540	624
632	673	699	740	766
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262	297	323	326	328
336	300	301	444	483
484	479	484	506	532
540	507	624	644	677
563	709	724	736	740
772	831			
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(H*)P(H ₂ O)	(Cat. by Abstract Only)			
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(H*)P(H ₂)				
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(H*)P(HZ)				

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342	344	346	361	400
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504	505	506	517	532
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620	621	624	644	662
676	677	679	681	683
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770	772	784	811	813
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(H*)P(H)				
312	771			
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(H*)P(HZ)				
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644	701	703	707	710
734	736	740	831	
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(H*)P(H ₂ O)				
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(H*)P(HZ)				
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(H*)P(HZ)				
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(H*)P(HZ)				
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301	416	444	446	470
517	532	606	627	644
604	736	740	770	813
831				
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(H*)P(H)				
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(H*)P(H)				
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740				
(H*)P(H ₂)				
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236	243	300	304	301
390	416	532	602	740
831				
(H*)P(P)				
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(H*)P(HZ)				
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(H*)P(HZ)				
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(H*)P(HZ)				
876				
(H*)P(HZ)				
880				
(H*)P(HZ)				

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93	721			
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704				
(NE*)p(RE)				
93	97	121	122	283
704	240	287	303	388
481	489	546	603	
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(NE*)p(RB)				
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(NE*)p(CH ₃)				
161	165			
(NE*)p(CH ₃)	(Col. by Abstract Only)			
761				
(NE*)p(CO)				
141	145			
(NE*)p(CO ₂)				
141	145			
(NE*)p(COS)				
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(NE*)p(CY)	(Col. by Abstract Only)			
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(NE*)p(H)				
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(NE*)p(H ₂)				
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726	737	770	824	825
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(NE*)p(NE)				
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187	191	233	267	268
289	293	325	369	370
461	482	519	520	544
548	652	661	671	714
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825	828			
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(NE*)p(RB)				
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361	380	370	461	516
519	520	604	661	666
736	737	777		
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548	777			
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(NE*)p(O)				
286				
(NE*)p(O ₂)				
141	146			
(NE*)p(R ₂)				
293	304			
(NE*)p(NE*)				
181				
(NE*)p(CO)				
182				
(NE*)p(H ₂)				
182				
(NE*)p(O ₂)				
182				
(NE*)p(A6)				
47				
(NE*)p(AIR)	(Col. by Abstract Only)			
137				
(NE*)p(AL)				
47				
(NE*)p(RR)				
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470	477	478	514	516
510	540	639	646	736
737	740	757		
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287				
(NE*)p(RI)				
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(NE*)p(O ₂)				
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470	514	516	602	725
725	727	732	740	740
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(NE*)p(A6)				
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(NE*)p(RI)				

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(NE*)p(C)				
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(NE*)p(C ₂ H ₅)				
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(NE*)p(CH ₃)				
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(NE*)p(CO)				
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514	546			
(NE*)p(CH ₃)				
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(NE*)p(H ₂)				
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(NE*)p(H)				
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(NE*)p(H ₂)				
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540	639	646	666	736
737	740	831		
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412	466	470	477	470
479	486	514	516	516
639	646	730	737	740
767	770	830	831	
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(NE*)p(RR)				
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470	639	646	770	831
(NE*)p(RR)	(Col. by Abstract Only)			
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(NE*)p(H ₂)				
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514	54	510	540	630
646	644	703	732	736
737	740	740	801	
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304	323	320	412	466
470	470	514	516	646
740	757	770	831	
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(NE*)p(RR)				
286				
(NE*)p(RI)				
47				
(NE*)p(O ₂)				
139	140	286	210	469
470	514	516	602	725
725	727	732	740	740
801				
(NE*)p(NE)				
60	64	286	770	
(NE*)p(CS)				
229				
(NE*)p(A6)				
47	723			
(NE*)p(A6)	(Col. by Abstract Only)			
670				
(NE*)p(AIR)	(Col. by Abstract Only)			
137				
(NE*)p(AL)				
47	577	713		
(NE*)p(RR)				
86	396	486	486	482
471	472	512	520	661
667	772	797	814	
(NE*)p(RR)p(CH ₃)				
60				
(NE*)p(RR)				
47	576			
(NE*)p(RI)				

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576					576				
(NE ^{oo})p(C)					(NE ^{oo})p(U)				
47					576	710			
(NE ^{oo})p(C ₂ D ₂)					(NE ^{oo})p(NE)				
486					485	455	462	471	472
(NE ^{oo})p(C ₂ D ₂)	487				760				
486					(NE ^{oo})p(2H)	(Col. by Abstract Only)			
(NE ^{oo})p(C ₂ D ₂)	487				676				
486					(NE ^{oo})p(AB)				
(NE ^{oo})p(C ₂ D ₂)	487				500				
486					(NE ^{oo})p(CS)				
(NE ^{oo})p(C ₂ D ₂)	486	487	486	487	136				
486					(NE ^{oo})p(NEP)				
(NE ^{oo})p(C ₂ D ₂)	486	487	426	486	113	753			
487					(NE ^{oo})p(NE)				
(NE ^{oo})p(C ₂ D ₂)	487	487			301				
486					(NE ^{oo})p(LI)				
(NE ^{oo})p(C ₂ D ₂)	486				883				
486					(NE ^{oo})p(NE)				
(NE ^{oo})p(C ₂ D ₂)	486				883				
486					(NE ^{oo})p(CS)				
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486					(NE ^{oo})p(LI)				
(NE ^{oo})p(CB)	486				729				
541					(NE ^{oo})p(AM)				
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486					(NE ^{oo})p(NE ^{oo})				
(NE ^{oo})p(CE)	710				764				
(NE ^{oo})p(CE)	371	486	487	487	475				
371					(I ^{oo})p(AB)	(Col. by Abstract Only)			
816					287				
(NE ^{oo})p(CB)	812				(I ^{oo})p(N ₂)				
(NE ^{oo})p(CB ₂)	486				692	696			
486	814				(I ^{oo})p(N ₂)	(Col. by Abstract Only)			
(NE ^{oo})p(CB)	576				287				
576					(I ^{oo})p(NE)	(Col. by Abstract Only)			
(NE ^{oo})p(D ₂)	687	772			287				
(NE ^{oo})p(TE)	(Col. by Abstract Only)				(I ^{oo})p(N ₂)	(Col. by Abstract Only)			
676					287				
(NE ^{oo})p(CB)					(I ^{oo})p(N ₂)	568			
710					(I ^{oo})p(N ₂)	(Col. by Abstract Only)			
(NE ^{oo})p(N)					257				
740					(I ^{oo})p(NE)	(Col. by Abstract Only)			
(NE ^{oo})p(N ₂)	486	489	470	512	257				
486	510	520	461	487	(I ^{oo})p(TE)				
510					746				
772					(I ^{oo})p(AB)				
(NE ^{oo})p(N ₂ D)	487				230				
487					(I ^{oo})p(N ₂)				
(NE ^{oo})p(NE)	280	486	462	489	230				
475	512	516	510	520	(I ^{oo})p(NE)				
661	487	772			230				
(NE ^{oo})p(NE)	(Col. by Abstract Only)				(I ^{oo})p(NE)	(Col. by Abstract Only)			
137					230				
(NE ^{oo})p(NE)	577				(I ^{oo})p(N ₂)				
576					(I ^{oo})p(AB)				
(NE ^{oo})p(NE)	486	462	472	487	282				
486					(I ^{oo})p(N ₂)				
(NE ^{oo})p(NE)	713				282				
(NE ^{oo})p(NE)	(Col. by Abstract Only)				(I ^{oo})p(NE)				
676					282				
(NE ^{oo})p(N ₂)	85	289	384	486	(I ^{oo})p(N ₂)				
85	512	520	661	687	692				
(NE ^{oo})p(NE)	486	471	472	487	(I ^{oo})p(NE)				
486					433				
(NE ^{oo})p(NE)	47				(I ^{oo})p(NE)				
(NE ^{oo})p(NE)	(Col. by Abstract Only)				433				
676					(I ^{oo})p(N ₂)				
(NE ^{oo})p(N ₂)	512	487			692				
512					(I ^{oo})p(NE)				
(NE ^{oo})p(N ₂)	710				433				
(NE ^{oo})p(NE)	(Col. by Abstract Only)				(I ^{oo})p(NE)				
676					693				
(NE ^{oo})p(NE)	710				(I ^{oo})p(N)				
710					480				
(NE ^{oo})p(NE)	710				(I ^{oo})p(AB)				
710					149	276	442	443	
(NE ^{oo})p(TE)	876				(I ^{oo})p(NE)				
(NE ^{oo})p(TE)	710				82	822			
710					(I ^{oo})p(NE)				
(NE ^{oo})p(U)					144				
					160				
					(I ^{oo})p(N ₂)				

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149	150	442	443		289	279	280	304	641
(R) (NE)					(R) (C ₁ H ₅)				
151	442	443	591		304				
(R) (R)					(R) (H)				
445					447				
(R) (ICL)					(R) (H ₂)				
445					641				
(R) (R)					(R) (NE)	447	641		
442	443				289				
(R) (H ₂)					(R) (NE)				
149	150	279	442	443	304				
(R) (NE)					(R) (R)				
151	443	591			447				
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144	149	150	279		44	41	280	309	279
(R) (NE)					289	304	447	641	641
100	442	443			(R) (H ₂)				
(R) (R)					641				
128	282	442	475	544	(R) (NE)				
445	544	630			279	280	447	641	
(R) (R)	(Col. by Abstract Only)				(R) (R)				
257					447				
(R) (R)					(R) (NE)				
442					279	280	304		
(R) (R)					(R) (R)				
581					289	280	279	280	641
(R) (H ₂)					641				
282	442				(R) (C ₁ H ₅)				
(R) (H ₂)	(Col. by Abstract Only)				1				
257					(R) (C ₁ H ₅)				
(R) (NE)					1				
282	442	630			(R) (C ₁ H ₅)				
(R) (NE)	(Col. by Abstract Only)				508	752			
257					(R) (H ₂)				
(R) (NE)					507	5-4			
149	170				(R) (H ₂)				
(R) (R)					287	540			
282	442	554	545	546	(R) (H ₂)				
(R) (R)	(Col. by Abstract Only)				725				
257					(R) (H ₂)				
(R) (NE)					442				
442					(R) (NE)				
(R) (H ₂)					280				
282	442	475	499		(R) (R)				
(R) (H ₂)	(Col. by Abstract Only)				26	57	250	279	27
257					280	323	320	447	5-4
(R) (NE)					527	641	640	631	
282	554	556	566	630	(R) (R)	(Col. by Abstract Only)			
(R) (NE)	(Col. by Abstract Only)				520				
257					(R) (H ₂)				
(R) (R)	(Col. by Abstract Only)				540				
494					(R) (H ₂)				
(R) (H ₂)					322	506	507		
475					(R) (NE)				
(R) (NE)					287	250	279	279	280
282	442	556			641				
(R) (R)					(R) (R)	(Col. by Abstract Only)			
442					447				
(R) (R)					(R) (H ₂)				
162					725	727			
(R) (NE)					(R) (NE)				
152					250	279	280	641	
(R) (NE)	(Col. by Abstract Only)				(R) (R)				
236					279				
(R) (R)					(R) (H ₂)				
162					442				
(R) (NE)					(R) (R)				
162					250	279	279	280	
(R) (NE)					(R) (NE)				
162					250	279	279		
(R) (R)					(R) (NE)				
442					250	279			
(R) (R)					(R) (R)				
442					279				
(R) (R)					(R) (R)				
442					250	279	280		
(R) (R)					(R) (NE)				
721					250	279	279		
(R) (R)					(R) (NE)				
302					250	279			
(R) (R)					(R) (R)				
302					442	443			
(R) (R)					(R) (R)				
721					52				
(R) (R)					(R) (R)				
133	390				490				
(R) (R)					(R) (R)				
721					29	442	443	706	
(R) (R)					(R) (R)				
721					29	442	443	706	
(R) (R)					(R) (R)				

(HO^+)-(U_1)	201	500	505	
(HO^+)-(U_2)	220	500		
(HO^+)-(U_3)	222			
(HO^+)-(U_4)	504			
(HO^+)-(U_5)	227			
(HO^+)-(U_6)	506			
(HO^+)-(U_7)	309			
(HO)-(U_8)	043			
(HO)-(U_9)	52			
(HO)-(U_{10})	150			
(HO)-(U_{11})	000			
(HO)-(U_{12})	150	043		
(HO)-(U_{13})	043	501		
(HO)-(U_{14})	043			
(HO)-(U_{15})	150	043		
(HO)-(U_{16})	043	501	503	505
(HO)-(U_{17})	100	500		
(HO)-(U_{18})	010			
(HO)-(U_{19})	043			
(HO^+)-(U_{20})	202	042	630	
(HO^+)-(U_{21})	042			
(HO^+)-(U_{22})	501			
(HO^+)-(U_{23})	202	042		
(HO^+)-(U_{24})	202	042	630	
(HO^+)-(U_{25})	202	042		
(HO^+)-(U_{26})	042			
(HO^+)-(U_{27})	202	042	000	
(HO^+)-(U_{28})	202	630		
(HO^+)-(U_{29})	202	042		
(HO^+)-(U_{30})	042			
(HO^+)-(U_{31})	152	230		
(HO^+)-(U_{32})	230			
(HO^+)-(U_{33})	152	230		
(HO^+)-(U_{34})	230	(Col. by Abstract Only)		
(HO^+)-(U_{35})	152			
(HO^+)-(U_{36})	230			
(HO^+)-(U_{37})	152			
(HO^+)-(U_{38})	152			
(HO^+)-(U_{39})	042			
(HO^+)-(U_{40})	042			
(HO^+)-(U_{41})	042			
(HO^+)-(U_{42})	112	633	003	
(HO^+)-(U_{43})	375	(Col. by Abstract Only)		
(HO^+)-(U_{44})	000	003		
(HO^+)-(U_{45})	000			
(HO^+)-(U_{46})	000			

[illegible]

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767 (H ⁺)(H ₂ , H ₂ , H ₂ , H ₂ , H ₂ , H ₂)	L	6	Yee, B. S. C., Stewart, W. D., Mc Swell, C. A., Brian, C. E., Electron Spectroscopy Using Excited Atoms And Photons. II. Pumping Ionization Of Molecular Nitrogen, J. ELECTRON. SPECTROSC. RELAT. PHENOM. (Netherlands) 7 93 (1975).
768 (H ⁺)(H ₂)	E	1	Yee, B. S. C., Stewart, W. D., Mc Swell, C. A., Brian, C. E., Electron Spectroscopy Using Excited Atoms And Photons. III. Pumping Ionization Of Ammonia And Phosphine, J. ELECTRON. SPECTROSC. RELAT. PHENOM. (Netherlands) 7 397 (1975).
769 (H ⁺)(H ₂ , H ₂)(H ₂)(H ₂ , H ₂ , H ₂)	E	1	Zavitsky, P. A., Chem - Ionization In The Solid State Of Thorium And Uranium Vapors, J. CHEM. PHYS. 59 2162 (1973).
770 (H ⁺ , H ⁺)(Li)	E	5	Zinn, P., Bruch, R., Stoller, H., Autoionization Spectra Of Li I And Li II Excited By H ⁺ And He ⁺ Impact, J. PHYS. D 8 L480 (1975).
771 (H ⁺ , H ⁺)(Li)	E	5	Zinn, P., Leithauer, U., Stoller, H., Autoionization Lines In Electron Spectra Of Li I And Li II Excited By H ⁺ And He ⁺ Impact, IN ICPEAC, P.666, UNIVERSITY OF WASHINGTON PRESS, SEATTLE, WASHINGTON (1975).
772 (H ⁺)(H ₂) (Cat. by Abstract Only)	E	5	Zinn, P., Stoller, H., Rieder, D., H-Shell Vacancy Sharing In 300-To-500-eV He ⁺ - He Collisions (Quasi-Resonant Auger Spectra), PHYS. FIM. (FINLAND) 5 39 (1974).

[illegible]

[illegible]

↑AD ions are not of sequence

(AR ⁰⁰)%(NE)	690		
(AR ⁰⁰)%(NE)	690		
(AR ⁰⁰)%(AL)	706		
(AR ⁰⁰)%(CL)	706		
(AR ⁰⁰)%(NE)	690		
(AR ⁰⁰)%(R)	706		
(AR ⁰⁰)%(-)E	125	522	
(AR ⁰⁰)%(AR)	521		
(AR ⁰⁰)%(NE)	520	521	523
(AR ⁰⁰)%(SI)	177		520
(AR ⁰⁰)%(SIN ₀)	177		
(AR ⁰⁰)%(SI)	177		
(AR ⁰⁰)%(SIN ₀)	177		
(AR ⁰⁰)%(NE)	524		
(AR ⁰⁰)%(SI)	177		
(AR ⁰⁰)%(SIN ₀)	177		
(AR ⁰⁰)%(SI)	177		
(AR ⁰⁰)%(SIN ₀)	177		
(B)%(AR)	560		
(B)%(R ₂)	560		
(B ⁰⁰)%(C ₀)	221	609	
(B ⁰⁰)%(R ₂)	500	609	
(B ⁰⁰)%(R)	503		
(B ⁰⁰)%(NE)	503		
(B ⁰⁰)%(B)	450		
(B ⁰⁰)%(NE)	697		
(B ⁰⁰)%(R ₂)	697		
(B ⁰⁰)%(B)	450		
(B ⁰⁰)%(R)	503		
(B ⁰⁰)%(NE)	503		
(B ⁰⁰)%(CA)	171		
(B ⁰⁰)%(CB)	171		
(B ⁰⁰)%(FL)	171		
(B ⁰⁰)%(V)	171		
(BA ⁰⁰)%(AR)	299	(Cat. by Abstract Only)	
(BA ⁰⁰)%(NE)	299	(Cat. by Abstract Only)	
(BA)%(CL ₀ O)	211		
(BA)%(CL ₀ R)	211		
(BA)%(B ₂)	159		
(BA ⁰⁰)%(B)	423		
(BA ⁰⁰)%(B)	423		
(BE ⁰⁰)%(AR)	709		
(BE ⁰⁰)%(AR)	709		
(BR)%(NE)	200		
(BR ⁰⁰)%(BR)	490	490	
(BR ⁰⁰)%(CA)			

KEYWORD INDEX

'BR ions are out of sequence.

REVENUE INDEX

• All items are out of sequence.

(CL ⁰⁰)	μ(HL)	750	
(CL ⁰⁰)	μ(AH)	750	
(CL ⁰⁰)	μ(H ₂ S)	750	
(CL ⁰⁰)	μ(HCL)	750	
(CL ⁰⁰)	μ(HL)	750	
(CL ⁰⁰)	μ(HB)	750	
(CL ⁰⁰)	μ(H ₂)	750	
(CL ⁰⁰)	μ(HL)	100	300 750
(CL ⁰⁰)	μ(SH ₂)	750	
(CL ⁰⁰)	μ(HL)	750	
(CL ⁰⁰)	μ(AH)	750	
(CL ⁰⁰)	μ(H ₂ S)	750	
(CL ⁰⁰)	μ(HCL)	750	
(CL ⁰⁰)	μ(HL)	750	
(CL ⁰⁰)	μ(HB)	750	
(CL ⁰⁰)	μ(H ₂)	750	
(CL ⁰⁰)	μ(HL)	750	
(CL ⁰⁰)	μ(SH ₂)	750	
(CL ⁰⁰)	μ(HL)	750	
(CL ⁰⁰)	μ(AH)	750	
(CL ⁰⁰)	μ(H ₂ S)	750	
(CL ⁰⁰)	μ(HCL)	750	
(CL ⁰⁰)	μ(HL)	750	
(CL ⁰⁰)	μ(HB)	750	
(CL ⁰⁰)	μ(H ₂)	750	
(CL ⁰⁰)	μ(HL)	750	
(CL ⁰⁰)	μ(SH ₂)	750	
(CL ⁰⁰)	μ(HL)	750	
(CB ⁰⁰)	μ(C ₂ H ₂)	407	
(CB ⁰⁰)	μ(HL)	425	
(CS ⁰⁰)	μ(CS ⁰⁰)	306	
(CS ⁰⁰)	μ(CS)	367	300
(CS)	μ(BB ₂)	226	300
(CS)	μ(CL ₂)	305	600
(CS)	μ(CC ₂)	163	
(CS)	μ(CCS)	163	
(CS)	μ(CS ₂)	163	
(CS)	μ(HBB)	226	
(CS)	μ(HL)	511	513
(CS)	μ(I ₂)	699	
(CS)	μ(B ₂)	345	
(CS)	μ(SF ₂)	406	
(CS ⁰⁰)	μ(CN)	734	
(CSBB)	μ(AH)	593	
(CSBB)	μ(HL)	593	
(CV ⁰⁰)	μ(AH)		

220	(F°) (V)	429																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																		
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KEYWORD INDEX

(H ₂) ⁺ (H ₂)					193
507	508	502			(H ⁺) ⁺ (C ₂ H ₂)
(H ₂) ⁺ (H ₂ AB)					726
166	180	181	253	384	(H ⁺) ⁺ (C ₂ H)
308	307	602	603	698	309
(H ₂) ⁺ (H ₂ C)					(H ⁺) ⁺ (C ₂ H ₂)
331	505	698			29
(H ₂) ⁺ (H ₂ CH ₂)					153
293					286
(H ₂) ⁺ (H ₂ CO)					285
293					287
(H ₂) ⁺ (H ₂ H ₂)					336
753					662
(H ₂) ⁺ (H ₂ HE)					(H ⁺) ⁺ (C ₂ H ₂) (Cat. by Abstract Only)
98	92	384	505	544	193
408					(H ⁺) ⁺ (C ₂ H ₂)
(H ₂) ⁺ (H ₂ H ₂)					2
304					(H ⁺) ⁺ (C ₂ H ₂)
(H ₂) ⁺ (H ₂ H ₂)					52
293	604	698			117
(H ₂) ⁺ (H ₂ HE)					153
293					285
(H ₂ O ⁺) ⁺ (H ₂ H ₂)					336
528					(H ⁺) ⁺ (C ₂ H ₂) (Cat. by Abstract Only)
(H ₂) ⁺ (H ₂ HE)					193
98	92				(H ⁺) ⁺ (C ₂ H ₂)
(H ⁺) ⁺ (H ₂ AC)					2
29	52	96	97	162	(H ⁺) ⁺ (C ₂ H ₂)
153	264	335	357	179	52
417	402	652			(H ⁺) ⁺ (C ₂ H ₂) (Cat. by Abstract Only)
(H ⁺) ⁺ (H ₂ AL)					193
29	44	77	96	112	(H ⁺) ⁺ (H ₂ CA)
143	250	446	586	652	403
688	746				(H ⁺) ⁺ (C ₂ H ₂) (Cat. by Abstract Only)
(H ⁺) ⁺ (H ₂ AB)					193
7	97	125	152	164	(H ⁺) ⁺ (C ₂ H ₂)
167	180	181	276	293	2
382	337	394	387	412	(H ⁺) ⁺ (C ₂ H ₂)
438	445	516	567	574	52
582	613	616	617	672	(H ⁺) ⁺ (C ₂ H ₂) (Cat. by Abstract Only)
602	403	688	715	729	193
756	757				(H ⁺) ⁺ (H ₂ CA)
(H ⁺) ⁺ (H ₂ AB) (Cat. by Abstract Only)					371
381					(H ⁺) ⁺ (H ₂)
(H ⁺) ⁺ (H ₂ AB)(H ₂)					24
614					163
(H ⁺) ⁺ (H ₂ AB)					196
282	403				286
(H ⁺) ⁺ (H ₂ AB) (Cat. by Abstract Only)					285
193					332
(H ⁺) ⁺ (H ₂ AB)					644
52	97	141	156	153	(H ⁺) ⁺ (H ₂ AB) (Cat. by Abstract Only)
264	130	335	706		197
(H ⁺) ⁺ (H ₂ AB) (Cat. by Abstract Only)					(H ⁺) ⁺ (H ₂ AB)
250					32
(H ⁺) ⁺ (H ₂ AB)					87
404					168
(H ⁺) ⁺ (H ₂ AB)					412
335	357				617
(H ⁺) ⁺ (H ₂ AB)					752
404	710	711			(H ⁺) ⁺ (H ₂ AB)(H ₂)
(H ⁺) ⁺ (H ₂ AB)					414
52	141	150	153	264	(H ⁺) ⁺ (H ₂ AB)
338	439	706			732
(H ⁺) ⁺ (H ₂ AB)					(H ⁺) ⁺ (H ₂ AB)
166					31
(H ⁺) ⁺ (H ₂ AB)					32
77	112	123	190	230	57
304	404	688	726		82
(H ⁺) ⁺ (H ₂ AB)					83
726	754				88
(H ⁺) ⁺ (H ₂ AB)					93
726	754				116
(H ⁺) ⁺ (H ₂ AB)					122
726	754				266
(H ⁺) ⁺ (H ₂ AB)					276
98	172	280	286	349	270
(H ⁺) ⁺ (H ₂ AB)					362
645					420
(H ⁺) ⁺ (H ₂ AB)					440
387	417				447
(H ⁺) ⁺ (H ₂ AB)					546
53	153				546
(H ⁺) ⁺ (H ₂ AB)					574
210	293	384	386	488	574
(H ⁺) ⁺ (H ₂ AB)					606
604	407	754			640
(H ⁺) ⁺ (H ₂ AB)					641
172	746				669
(H ⁺) ⁺ (H ₂ AB)					672
10	283	403	726		(H ⁺) ⁺ (H ₂ AB) (Cat. by Abstract Only)
(H ⁺) ⁺ (H ₂ AB) (Cat. by Abstract Only)					353
(H ⁺) ⁺ (H ₂ AB)					(H ⁺) ⁺ (H ₂ AB)(H ₂)
754					614
					(H ⁺) ⁺ (H ₂ AB)
					146
					(H ⁺) ⁺ (H ₂ AB)
					672
					473
					544
					746
					(H ⁺) ⁺ (H ₂ AB)
					97
					152
					276
					382
					488
					(H ⁺) ⁺ (H ₂ AB)
					442
					537
					574
					613
					672
					(H ⁺) ⁺ (H ₂ AB)
					367
					(H ⁺) ⁺ (H ₂ AB)
					464
					770
					774
					(H ⁺) ⁺ (H ₂ AB)
					577
					(H ⁺) ⁺ (H ₂ AB)
					250
					(H ⁺) ⁺ (H ₂ AB)
					577
					(H ⁺) ⁺ (H ₂ AB)
					577
					(H ⁺) ⁺ (H ₂ AB)
					577
					(H ⁺) ⁺ (H ₂ AB)

349	417				52	143	153	195	220
(H ^o)M(M)					245	349	652		
29	97	165	335	417	(H ^o)M(TB)				
652					52	153			
(H ^o)M(N)					(H ^o)M(U)				
406	577	727			52	97	150	153	330
(H ^o)M(N ₂)					335	706			
167	166	192	293	305	(H ^o)M(V)				
366	705	412	576	517	52	153	170	340	
619	472	679	601	404	(H ^o)M(W)				
687	698	724	729		29	52	153	652	
(H ^o)M(N ₂)M(C ₂)					(H ^o)M(XE)				
610					97	442	576	613	672
(H ^o)M(MA)					720	756			
406	544				(H ^o)M(XE)M(O ₂)				
(H ^o)M(MA ^o)					614				
577					(H ^o)M(XB)				
(H ^o)M(MB)					153				
29					(H ^o)M(Y)				
(H ^o)M(MB)					165	417			
97					(H ^o)M(YB)				
(H ^o)M(ME)					273				
67	167	265	276	253	(H ^o)M(ZB)				
302	396	412	444	442	483	417	702		
463	444	466	406	576	(H ^o)M(ZB)	(Col. by Abstract Only)			
577	413	617	632	627	193				
672	475	487	606	458	(H ^o)M(ZB)				
729	764				52	335			
(H ^o)M(ME)M(C ₂)					(H ^o)M(MB)				
610					292				
(H ^o)M(MI)					(H ^o)M(CS)				
52	95	153	250	254	409				
417	596	659	696		(H ^o)M(ME)				
(H ^o)M(O)					292	469	600		
112	250	406	612		(H ^o)M(B ₂)				
(H ^o)M(O ₂)					609				
75	167	201			(ME ^o)M(MB)				
(H ^o)M(O ₂)M(C ₂)					25	86	104	137	144
610					160	206	205	317	310
(H ^o)M(O ^o)M(L ₂)					319	323	343	354	375
614					411	501	516	520	530
(H ^o)M(O ^o)M(C ₂)					530	540	561	563	566
614					549	590	591	606	647
(H ^o)M(O ^o)M(L ₂)					650	705			
614					(ME ^o)M(MB)				
(H ^o)M(O ^o)M(L ₂)					310	633			
610					(ME ^o)M(C ₂ H ₂)				
(H ^o)M(O ^o)M(N ₂)					310	365	516		
514					(ME ^o)M(C ₂ H ₂)				
(H ^o)M(P ₂)					407				
52	97	127	154	273	(ME ^o)M(CA)				
204	135	459	702		633				
(H ^o)M(P ₂)					(ME ^o)M(CB)				
162	165				607	633	657		
(H ^o)M(PB)					(ME ^o)M(CH ₂)				
2					606	650			
(H ^o)M(P					(ME ^o)M(CL ₂)				
325					602				
(H ^o)M(PB)					(ME ^o)M(CD)				
52	153	165			295	320	304	410	602
(H ^o)M(PB)					406	650	767		
335					(ME ^o)M(CO ₂)				
(H ^o)M(S ₂)					354	395	406		
52	153	357			(ME ^o)M(B)				
(H ^o)M(SC)					240	441	533		
349					(ME ^o)M(B ₂)				
(H ^o)M(SL)					671	767			
165	379	402			(ME ^o)M(B ₂ O)	(Col. by Abstract Only)			
(H ^o)M(SI)					601				
409	736				(ME ^o)M(B)				
(H ^o)M(SI(O))					633				
77					(ME ^o)M(N)				
(H ^o)M(SI(O ₂))					20	21	73	157	150
407					310	330	441	552	529
(H ^o)M(SO)					340	640			
1	52	97	153	115	(ME ^o)M(N ₂)				
(H ^o)M(SO)					310	320	304	303	410
52	142	153	329	125	532	535	536	504	647
357	556				600	671	704	739	767
(H ^o)M(SR)					(ME ^o)M(N ₂ O)				
165					528				
(H ^o)M(T ₂)					(ME ^o)M(N ₂ O)	(Col. by Abstract Only)			
97	141	150	329	375	601				
596					(ME ^o)M(NBO)				
(H ^o)M(TB)					129	296	602		
97	125				(ME ^o)M(NCL)				
(H ^o)M(TI)					129	296	316	602	
357					(ME ^o)M(NB)				
(H ^o)M(TN)					528	671	767		
52	153				(ME ^o)M(NE ^o)				
(H ^o)M(TI)					240	250	330	422	540

REVISED INDEX

[illegible]

KEYWORD INDEX

170					13				
(HE*) (H)					(HE*) (H)				
29					147				
(HE*) (H)					(HE*) (H)				
16	462	257	258	293	415				
360		466	468	487	(HE*) (L)				
(HE*) (H)					706				
361					(HE*) (H)				
(HE*) (H)					250				
264					(HE*) (H)				
(HE*) (P)					349	415			
26	36	273	702		(HE*) (H)				
(HE*) (S)					415	486			
409					(HE*) (H)				
(HE*) (S)					468				
409					(HE*) (H)				
(HE*) (S)					455	291	415		
273					(HE*) (H)				
(HE*) (S)					291	704			
26					(HE*) (H)				
(HE*) (S)					250	291	415	475	650
26					704				
(HE*) (T)					(HE*) (P)				
275					250	291	509	706	
(HE*) (J)					(HE*) (P)				
147	130	706			250	704			
(HE*) (H)					(HE*) (P)				
29	453				250	509			
(HE*) (H)					(HE*) (P)				
257	160	462			250	475			
(HE*) (H)					291				
26	421				(HE*) (S)				
(HE*) (H)					349				
26	273				(HE*) (S)				
(HE*) (H)					475				
702					(HE*) (S)				
(HE*) (H) (Cont. by Abstract Only)					291	415	486	550	720
161					704				
(HE*) (H)					(HE*) (S)				
421					250	415	475		
(HE*) (H)					(HE*) (T)				
696					141	250	291	509	704
(HE*) (H)					706				
290					(HE*) (T)				
(HE*) (H)					720				
290					(HE*) (T)				
(HE*) (H)					291	704			
250					(HE*) (T)				
(HE*) (H)					706				
250	291	415	486	720	(HE*) (T)				
706					195	349	415	475	640
(HE*) (H)					(HE*) (T)				
250	440	484	459		291	704			
(HE*) (H)					(HE*) (U)				
306	706				147	706			
(HE*) (H)					(HE*) (V)				
415	475				170	349	415	475	486
(HE*) (H)					(HE*) (U)				
141	147	250	291	509	250	509			
720	704				(HE*) (V)				
(HE*) (H)					171	475	486		
141	229				(HE*) (Z)				
(HE*) (H)					415	475			
415					(HE*) (Z)				
(HE*) (H)					250	415	704		
706					(HE*) (H)				
(HE*) (H)					414				
171	349	415	460		(HE*) (H)				
(HE*) (H)					414				
171					(HE*) (H)				
(HE*) (H)					414				
250					(HE*) (H)				
(HE*) (H)					414				
440					(HE*) (H)				
(HE*) (H)					414				
271	415				(HE*) (H)				
(HE*) (H)					414				
349	475				(HE*) (H)				
(HE*) (H)					414				
250	291	415	475	486	(HE*) (H)				
706					(HE*) (H)				
(HE*) (H)					414				
171	250	291	415	475	(HE*) (H)				
409	706				(HE*) (H)				
(HE*) (H)					414				
475					(HE*) (H)				
(HE*) (H)					414				
291	706				(HE*) (H)				
(HE*) (H)					414				
271					(HE*) (H)				
(HE*) (H)					414				

KEYWORD INDEX

616		(1100)%(H ₂)	
(HE00)%(SE)		623	
616		(1100)%(O ₂)	
(HE00)%(TI)		623	
616		(1100)%(CO ₂)	(Cat. by Abstract Only)
(HE00)%(U)		247	
616		(1100)%(H ₂)	
(HE00)%(ZH)		623	
616		(1100)%(O ₂)	
(HEAR00)%(AR)		623	
375		(1100)%(CO ₂)	(Cat. by Abstract Only)
(HEXB00)%(HR)		247	
375		(1100)%(H ₂)	
(HGP00)%(CO)		623	
267		(1100)%(O ₂)	
(HGP00)%(CS)	(Cat. by Abstract Only)	623	
185		(1100)%(CO ₂)	(Cat. by Abstract Only)
(I00)%(AG)		247	
178		(1100)%(H ₂)	
(I00)%(AL)		623	
178		(1100)%(O ₂)	
(I00)%(AO)		623	
178	376	(1100)%(CO ₂)	(Cat. by Abstract Only)
(I00)%(C)		247	
178		(1100)%(H ₂)	
(I00)%(CD)		623	
178		(1100)%(O ₂)	
(I00)%(CH)		623	
178		(1100)%(CO ₂)	(Cat. by Abstract Only)
(I00)%(CO)		247	
178		(1100)%(H ₂)	
(I00)%(I)		623	
178		(1100)%(O ₂)	
(I00)%(LA)		623	
178		(1100)%(H ₂)	
(I00)%(ND)		623	
178		(1100)%(O ₂)	
(I00)%(NAI)		623	
178	495	(1200)%(H ₂)	
(I00)%(NI)		63	65
178		(1200)%(HE)	
(I00)%(PB)		65	
178		(1200)%(O ₂)	
(I00)%(RH)		63	
178		(1200)%(H ₂)	
(I00)%(S)		623	
178		(1200)%(O ₂)	
(I00)%(SE)		623	
178		(1200)%(H ₂)	
(I00)%(TA)		623	
178		(1200)%(O ₂)	
(I00)%(TE)		623	
124		(1200)%(H ₂)	
(I00)%(TI)		623	
178		(1200)%(O ₂)	
(I00)%(U)		623	
342		(1200)%(H ₂)	
(I00)%(ZH)		623	
178		(1200)%(O ₂)	
(1100)%(CO ₂)	(Cat. by Abstract Only)	623	
247		(1200)%(H ₂)	
(1100)%(H ₂)		63	65
63	65	(1200)%(HE)	
(1100)%(HE)		65	
66		(1200)%(O ₂)	
(1100)%(H ₂)		63	
623		(1200)%(CO ₂)	(Cat. by Abstract Only)
(1100)%(O ₂)		247	
63	623	(1200)%(H ₂)	
(1100)%(CO ₂)	(Cat. by Abstract Only)	63	65
247		(1200)%(HE)	
(1100)%(H ₂)		65	
63		(1200)%(O ₂)	
(1100)%(H ₂)		63	
623		(1200)%(CH ₄)	
(1100)%(O ₂)		789	
63	623	(1200)%(CO ₂)	
(1100)%(AR)		789	
177		(1200)%(CO ₂)	(Cat. by Abstract Only)
(1100)%(CO ₂)	(Cat. by Abstract Only)	247	
247		(1200)%(H ₂)	
(1100)%(H ₂)		63	65 789
177		(1200)%(HE)	
(1100)%(HE)		65	
177		(1200)%(H ₂)	
(1100)%(H ₂)		789	
623		(1200)%(H ₂ O)	
(1100)%(O ₂)		789	
623		(1200)%(O ₂)	
(1100)%(CO ₂)	(Cat. by Abstract Only)	63	789
247		(1200)%(CO ₂)	(Cat. by Abstract Only)

†: ions are out of sequence

[illegible]

ALPHABET INDEX

(LI*)*(AD)					(N*)*(AD)				
38	594	789			638				
(LI*)*(CA)					(N*)*(CA)				
476					638				
(LI*)*(CU)					(N*)*(CG)				
314	476	738			638				
(LI*)*(FE)					(N*)*(AD)	16	17	18	
476					15				
(LI*)*(H*)					(N*)*(AC)				
594	737				654				
(LI*)*(HE)					(N*)*(AL)				
23	394	395	398	511	654	788			
585	594				(N*)*(AL)	(Cat. by Abstract Only)			
(LI*)*(ER)					399				
38	594				(N*)*(AD)				
(LI*)*(RM)					5	11	12	15	16
476					17	18	297	383	627
(LI*)*(H*)					(N*)*(AS)				
182	594				282				
(LI*)*(NE)					(N*)*(AU)				
38	394	395	398	594	654				
(LI*)*(NI)					(N*)*(BE)				
476	696				718	711			
(LI*)*(PD)					(N*)*(BF)				
273					689				
(LI*)*(PD)					(N*)*(C)				
476					699				
(LI*)*(RD)					(N*)*(CA)				
476					172				
(LI*)*(SD)					(N*)*(CB)				
476					654				
(LI*)*(SC)					(N*)*(CH)	787			
314					689				
(LI*)*(SH)					(N*)*(CL)				
273					172				
(LI*)*(SH)					(N*)*(CU)				
314					654				
(LI*)*(TI)					(N*)*(RP)				
476					11	383			
(LI*)*(TE)					(N*)*(RG)				
38					654				
(LI*)*(TB)					(N*)*(RD)				
273					654				
(LI*)*(AR)					(N*)*(R)				
594					372				
(LI*)*(H)					(N*)*(H*)				
543					15	215	218	219	220
(LI*)*(H*)					426	584	698	698	
584					(N*)*(HE)				
(LI*)*(HE)					11	215	218	219	220
543	594				383	426	698	698	
(LI*)*(ER)					(N*)*(H*)				
594					220				
(LI*)*(H*)					(N*)*(HI)				
594					654				
(LI*)*(HE)					(N*)*(O)				
594					423				
(LI*)*(AL)					(N*)*(O*)				
659					221	689			
(LI*)*(AR)					(N*)*(PB)				
594					654				
(LI*)*(H*)					(N*)*(PT)				
594					654				
(LI*)*(HE)					(N*)*(SH)				
594					654				
(LI*)*(ER)					(N*)*(TA)				
594					684				
(LI*)*(H*)					(N*)*(TI)				
594					684				
(LI*)*(HE)					(N*)*(U)				
594					654				
(LI*)*(HI)					(N*)*(XE)				
659					11				
(NG*)*(AR) (Cat. by Abstract Only)					(N*)*(AR)				
299					787				
(NG*)*(HE) (Cat. by Abstract Only)					(N*)*(H)				
299					343				
(NG*)*(AR)					(N*)*(HE)				
174					343				
(NG*)*(CU)					(N*)*(HE)				
262					311				
(NG*)*(HE)					(N*)*(HE)				
586					351				
(NN*)*(AR)					(N*)*(AR)	757			
217					738				
(N*)*(AR)					(N*)*(H)				
868					843				
(N*)*(H*)					(N*)*(H*)				
868					738				
(N*)*(HG)					(N*)*(HE)	738			
137					843				

RECORD INDEX

(H ⁺) ₂ O	730					192	215	219	220	270
(H ⁺) ₂ O ₂	730					392	690			
(H ⁺) ₂ O ₂	311	730				(H ⁺) ₂ O ₂	3	132	219	220
(H ⁺) ₂ O ₂	730						396	690		
(H ⁺) ₂ O ₂	730					(H ⁺) ₂ O ₂	220			
(H ⁺) ₂ O ₂	351					(H ⁺) ₂ O ₂	270	392		
(H ⁺) ₂ O ₂	730					(H ⁺) ₂ O ₂	219	690		
(H ⁺) ₂ O ₂	730	757				(H ⁺) ₂ O ₂	219	690		
(H ⁺) ₂ O ₂	730					(H ⁺) ₂ O ₂	593			
(H ⁺) ₂ O ₂	730					(H ⁺) ₂ O ₂	630			
(H ⁺) ₂ O ₂	730					(H ⁺) ₂ O ₂	137	375	500	516
(H ⁺) ₂ O ₂	730						650	692	694	694
(H ⁺) ₂ O ₂	311	730				(H ⁺) ₂ O ₂	(Cat. by Abstract Only)			
(H ⁺) ₂ O ₂	730					(H ⁺) ₂ O ₂	693			
(H ⁺) ₂ O ₂	351					(H ⁺) ₂ O ₂	310			
(H ⁺) ₂ O ₂	730	757				(H ⁺) ₂ O ₂	310			
(H ⁺) ₂ O ₂	503					(H ⁺) ₂ O ₂	407			
(H ⁺) ₂ O ₂	730					(H ⁺) ₂ O ₂	650			
(H ⁺) ₂ O ₂	730					(H ⁺) ₂ O ₂	(Cat. by Abstract Only)			
(H ⁺) ₂ O ₂	730					(H ⁺) ₂ O ₂	650			
(H ⁺) ₂ O ₂	730	730				(H ⁺) ₂ O ₂	650			
(H ⁺) ₂ O ₂	730					(H ⁺) ₂ O ₂	600	650		
(H ⁺) ₂ O ₂	311	730				(H ⁺) ₂ O ₂	296			
(H ⁺) ₂ O ₂	730					(H ⁺) ₂ O ₂	296			
(H ⁺) ₂ O ₂	351					(H ⁺) ₂ O ₂	400			
(H ⁺) ₂ O ₂	71	474	757			(H ⁺) ₂ O ₂	137	310	375	500
(H ⁺) ₂ O ₂	171						692	694		694
(H ⁺) ₂ O ₂	171					(H ⁺) ₂ O ₂	(Cat. by Abstract Only)			
(H ⁺) ₂ O ₂	171					(H ⁺) ₂ O ₂	346	650		
(H ⁺) ₂ O ₂	171					(H ⁺) ₂ O ₂	(Cat. by Abstract Only)			
(H ⁺) ₂ O ₂	311	550	764			(H ⁺) ₂ O ₂	693			
(H ⁺) ₂ O ₂	171					(H ⁺) ₂ O ₂	310			
(H ⁺) ₂ O ₂	569					(H ⁺) ₂ O ₂	310			
(H ⁺) ₂ O ₂	163					(H ⁺) ₂ O ₂	310			
(H ⁺) ₂ O ₂	162					(H ⁺) ₂ O ₂	137	160	317	692
(H ⁺) ₂ O ₂	163						693	(Cat. by Abstract Only)		694
(H ⁺) ₂ O ₂	737					(H ⁺) ₂ O ₂	607			
(H ⁺) ₂ O ₂	27					(H ⁺) ₂ O ₂	12	360	750	
(H ⁺) ₂ O ₂	513					(H ⁺) ₂ O ₂	270	750		
(H ⁺) ₂ O ₂	213	510	519			(H ⁺) ₂ O ₂	750			
(H ⁺) ₂ O ₂	519					(H ⁺) ₂ O ₂	270	750		
(H ⁺) ₂ O ₂	560					(H ⁺) ₂ O ₂	750			
(H ⁺) ₂ O ₂	20					(H ⁺) ₂ O ₂	223	270	426	500
(H ⁺) ₂ O ₂	517						750			670
(H ⁺) ₂ O ₂	132	174				(H ⁺) ₂ O ₂	750			
(H ⁺) ₂ O ₂	270	272				(H ⁺) ₂ O ₂	670			
(H ⁺) ₂ O ₂	352	730				(H ⁺) ₂ O ₂	100	199	222	280
(H ⁺) ₂ O ₂	270	392	737				670	680		360
(H ⁺) ₂ O ₂	505					(H ⁺) ₂ O ₂	701			
(H ⁺) ₂ O ₂	341					(H ⁺) ₂ O ₂	270	670	750	

ELTVC200 INDEX

[illegible]

THE ions are out of sequence

REVISED INDEX

(H100) (FL)					489				
74-1					(00) (SP)	506			
(H100) (H1)					(00) (SP)	506			
74-1					(00) (TA)	654			
(00) (AP)					(00) (T1)	654			
564					(00) (W)	654			
(00) (CS)					(00) (U)	654			
427					(00) (RE)	74			
(00) (H ₁₀)	557				(00) (V)	125			
556					(00) (AP)	456			
(00) (HE)					(00) (CL ₁₀)	194			
206					(00) (CC ₁₀)	194			
(00) (H ₁₀)					(00) (H ₁₀)	556			
564					(00) (I ₁₀)	194			
(00) (HE)					(00) (H ₁₀)	456			
74-3					(00) (H ₁₀)	456			
(00) (AC)	125	654			(00) (H ₁₀)	456			
74					(00) (H ₁₀)	456			
(00) (AL)	125	481	654		(00) (H ₁₀)	456			
125					(00) (H ₁₀)	456			
(00) (AL) (Cat. by Abstract Only)	399				(00) (H ₁₀)	456			
(00) (AP)					(00) (H ₁₀)	456			
15	339	481	627		(00) (H ₁₀)	456			
(00) (H ₁₀)					(00) (H ₁₀)	456			
202					(00) (H ₁₀)	456			
(00) (H ₁₀)					(00) (H ₁₀)	456			
74	454				(00) (H ₁₀)	456			
(00) (H ₁₀)					(00) (H ₁₀)	456			
710	711				(00) (H ₁₀)	456			
(00) (H ₁₀)					(00) (H ₁₀)	456			
644	494	713			(00) (H ₁₀)	456			
(00) (H ₁₀)					(00) (H ₁₀)	456			
125	172	349	480		(00) (H ₁₀)	456			
(00) (H ₁₀)					(00) (H ₁₀)	456			
654					(00) (H ₁₀)	456			
(00) (H ₁₀)					(00) (H ₁₀)	456			
540					(00) (H ₁₀)	456			
(00) (H ₁₀)					(00) (H ₁₀)	456			
172					(00) (H ₁₀)	456			
(00) (H ₁₀)					(00) (H ₁₀)	456			
349					(00) (H ₁₀)	456			
(00) (H ₁₀)					(00) (H ₁₀)	456			
125	715	352	654		(00) (H ₁₀)	456			
(00) (H ₁₀)					(00) (H ₁₀)	456			
504					(00) (H ₁₀)	456			
(00) (H ₁₀)					(00) (H ₁₀)	456			
506					(00) (H ₁₀)	456			
(00) (H ₁₀)					(00) (H ₁₀)	456			
315					(00) (H ₁₀)	456			
(00) (H ₁₀)					(00) (H ₁₀)	456			
554	557				(00) (H ₁₀)	456			
(00) (H ₁₀)					(00) (H ₁₀)	456			
339					(00) (H ₁₀)	456			
(00) (H ₁₀)					(00) (H ₁₀)	456			
506					(00) (H ₁₀)	456			
(00) (H ₁₀)					(00) (H ₁₀)	456			
297					(00) (H ₁₀)	456			
(00) (H ₁₀)					(00) (H ₁₀)	456			
504					(00) (H ₁₀)	456			
(00) (H ₁₀)					(00) (H ₁₀)	456			
644					(00) (H ₁₀)	456			
(00) (H ₁₀)					(00) (H ₁₀)	456			
349					(00) (H ₁₀)	456			
(00) (H ₁₀)					(00) (H ₁₀)	456			
654					(00) (H ₁₀)	456			
(00) (H ₁₀)					(00) (H ₁₀)	456			
210	220	221	409	596	(00) (H ₁₀)	456			
(00) (H ₁₀)					(00) (H ₁₀)	456			
210	220	339	481	690	(00) (H ₁₀)	456			
(00) (H ₁₀)					(00) (H ₁₀)	456			
220					(00) (H ₁₀)	456			
(00) (H ₁₀)					(00) (H ₁₀)	456			
125	454	696			(00) (H ₁₀)	456			
(00) (H ₁₀)					(00) (H ₁₀)	456			
423					(00) (H ₁₀)	456			
(00) (H ₁₀)					(00) (H ₁₀)	456			
654					(00) (H ₁₀)	456			
(00) (H ₁₀)					(00) (H ₁₀)	456			
125					(00) (H ₁₀)	456			
(00) (H ₁₀)					(00) (H ₁₀)	456			
506					(00) (H ₁₀)	456			
(00) (H ₁₀)					(00) (H ₁₀)	456			
654					(00) (H ₁₀)	456			
(00) (H ₁₀)					(00) (H ₁₀)	456			
315					(00) (H ₁₀)	456			
(00) (H ₁₀)					(00) (H ₁₀)	456			
125	315	349			(00) (H ₁₀)	456			
(00) (H ₁₀)					(00) (H ₁₀)	456			
489					(00) (H ₁₀)	456			
 			

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(000) (70)					(510) (H ₁ S)	730
142					(510) (NCL)	730
(000) (30)					(510) (NE)	730
142					(510) (RR)	730
(000) (7E)					(510) (R ₁)	730
301					(510) (NE)	730
(000) (AL)					(510) (SIN ₁)	730
90	110				(510) (NE)	730
(000) (AR)					(510) (AR)	730
119	310	431	433		(510) (H ₁ S)	730
(000) (CA)					(510) (NCL)	730
509					(510) (NE)	730
(000) (CU)					(510) (RR)	730
156					(510) (R ₁)	730
(000) (NE)					(510) (NE)	730
310	433				(510) (SIN ₁)	730
(000) (H ₁)					(510) (NE)	730
432	433				(510) (AR)	730
(000) (NE)					(510) (H ₁ S)	730
310	350	465	506		(510) (NCL)	730
(000) (O ₁)					(510) (NE)	730
605					(510) (RR)	730
(000) (7E)					(510) (R ₁)	730
301					(510) (NE)	730
(000) (AL)					(510) (SIN ₁)	730
90	110				(510) (NE)	730
(000) (AR)					(510) (AR)	730
119	119	432	433	757	(510) (H ₁ S)	730
(000) (CA)					(510) (NCL)	730
509					(510) (NE)	730
(J00) (CU)					(510) (RR)	730
125	156				(510) (R ₁)	730
(000) (NE)					(510) (NE)	730
432	433				(510) (SIN ₁)	730
(000) (H ₁)					(510) (NE)	730
432	433				(510) (AR)	730
(000) (NE)					(510) (H ₁ S)	730
114	350	465			(510) (NCL)	730
(000) (NE) (NE)					(510) (NE)	730
72					(510) (RR)	730
(000) (O ₁)					(510) (R ₁)	730
605					(510) (NE)	730
(000) (7E)					(510) (SIN ₁)	730
301					(510) (NE)	730
(000) (AL)					(510) (AR)	730
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(000) (AR)					(510) (NCL)	730
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(000) (CA)					(510) (RR)	730
171					(510) (R ₁)	730
(000) (CD)					(510) (NE)	730
171					(510) (SIN ₁)	730
(000) (CU)					(510) (NE)	730
462					(510) (AR)	730
(000) (7E)					(510) (H ₁ S)	730
171					(510) (NCL)	730
(000) (NE)					(510) (NE)	730
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605					(510) (NE)	730
(000) (7E)					(510) (SIN ₁)	730
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(P) (AR)					(510) (AR)	730
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(P) (AR)					(510) (NCL)	730
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(P) (CH ₁)					(510) (RR)	730
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(P) (CU)					(510) (NE)	730
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(P) (H ₁)					(510) (NE)	730
504					(510) (AR)	730
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600					(510) (NCL)	730
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600					(510) (RR)	730
(P30) (NE)					(510) (R ₁)	730
600					(510) (NE)	730
(P40) (NE)					(510) (SIN ₁)	730
600					(510) (NE)	730
(P500) (PB)					(510) (AR)	730
400					(510) (H ₁ S)	730
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