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Bibliography of Atomic and Molecular Excitation in Heavy Particle Collisions

1950-75

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Bibliography of Atomic and Molecular Excitation in Heavy Particle Collisions

1950-75

Abstract

This annotated bibliography lists published work on atomic and molecular excitation 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 Molecular Dissociation in Heavy Particle Collisions, 1950-75*, *Bibliography of Electron Transfer in Heavy Particle Collisions, 1950-75*, and *Bibliography of Ionization and Stripping in Heavy Particle Collisions, 1950-75*. This bibliography consists of an annotated list of published works on excitation 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

$\underline{N^*}$ (excited state), $\underline{N}$, $\underline{N_2}$, $\underline{N^+}$, $\underline{N^-}$, $\underline{N^{2+}}$, 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., $\underline{I}^{10+}$ may precede $\underline{I}^{2+}$). 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 Atomic and Molecular Excitation in Heavy Particle Collisions

1950-70

HEAVY PARTICLE COLLISIONS

1951-73

EXCITATION

	REACTANTS	EXP OR THEOR.	E RANGE	REFERENCE
1	(H*)+(HE)	T	5	Aberg, T., Asymptotic Double-Photoexcitation Cross Sections Of The Helium Atom, PHYS. REV. A 2 1726 (1973).
2	(LI*)+(LI)	E	3	Aberth, W., Bernardini, G., Coffey, D., Jr., Lorents, D. C., Olsen, H. E., Collision Spectroscopy Of The System Li_2^*, PHYS. REV. LETTERS 24 345 (1970).
3	(HE)+(HE')	E	2	Abrams, R. L., Weiga, F. J., Direct Demonstration Of The Validity Of The Wigner Spin Rule For Helium-Helium Collisions, PHYS. REV. LETTERS 19 1411 (1967).
4	Undef	T	0	Abul-Magd, A. Y., Simbel, M. H., On The Quantization Of The Born Approximation, Z. PHYS. 215 121 (1968).
5	(HE)+(HE,4)	T	5	Adler, J., Weinzweitsch, D. L., Inelastic Collisions Between Heavy Particles. VI. The $2s^3S - 2p$ And $3p^3P$ Excitations Of Fast He Atoms By H And He Atoms, PROC. PHYS. SOC., LONDON 79A 117 (1967).
6	(HE*)+(AR) (KR*)+(KR)	E	4	Afrosimov, V. V., Gordeev, Yu. S., Panov, M. N., Fedorenko, N. V., Ionization And Scattering With Characteristic Energy Losses In Atomic Collisions, SOVIET PHYS.-JETP LETTERS 2 185 (1965).
7	(HE*)+(HE)	T	4	Afrosimov, V. V., Progress In The Investigation Of Atomic Particle Collisions, 8TH INT. CONF. PHENOMENA IN IONIZED GASES, VIENNA, 1967, P.91 (1968).
8	(AR*)+(AR)	E	4	Afrosimov, V. V., Gordeev, Yu. S., Panov, M. N., Fedorenko, N. V., Characteristic Energy Losses In Single Collisions Of Atomic Parti-les, 6TH INT. CONF. ION. PHENOMENA GASES, 1 111, SERMA, PARIS (1963).
9	(AR*)+(AR)	E	4	Afrosimov, V. V., Gordeev, Yu. S., Panov, M. N., Fedorenko, N. V., Characteristic Energy Losses In Single Collisions Of Atomic Particles, 6TH INT. CONF. ION PHENOMENA GASES, 1 111, SERMA, PARIS (1963).
10	(AR*)+(AR)	E	4	Afrosimov, V. V., Gordeev, Yu. S., Polyanskii, A. M., Shergin, A. P., Correlation Of Final Charge States Of Particles In Discrete Energy Losses In Atomic Collisions, SOVIET PHYS.-JETP LETTERS 4 3 (1967).
11	(HE*)+(HE)	E	0	Agabian, N., Cognari, M., Echard, R., Otto, J. L., New Series Of Stimulated Transitions Of Neon, COMPT. REND. 258B 3661 (1964).
12	(HG*)+(N_2)	E	1	Aggrbichkina, I., Kuharevskaya, I., Vasilin, A., Popenko, I., The Effect Of Nitrogen On Excited Mercury Atoms, OPT. SPECTROS. 11 195 (1961).
13	(HCL*)+(HBR,HCL*)	E	2	Airey, J. Richard, Cl * Hor Pulsed Chemical Laser A Theoretical And Experimental Study, J. CHEM. PHYS. 52 1345 (1970).
14	(HE*)+(HG)	E	2	Aleinikov, V. A., Use Of An Electron Gun To Determine The Nature Of Collisions Of The Second Kind In A Mercury-Helium Mixture, OPT. SPECTRYS. 29 15 (1970).
15	(N2*)+(F,NA,V,MN,GE,SE,MO,RB,AG,CD, IN,I,TA,W,AU,PB)	E	5	Alkhazov, D. G., Andreev, B. S., Grinberg, A. P., Lemberg, I. Kh., Investigation Of Coulomb Excitation Of Nuclei By Nitrogen Ions, BULL. ACAD. SCI. USSR, PHYS. SER. 20 1249 (1956).
16	Undef	T	0	Allen, P. T., Feuer, P., Quantum Theory Of Vibrational Energy Exchange And The Effect Of An Attractive Potential, AD0-439206 (1964).
17	(N)+(N)+(N,N_2)	E	1	Allen, R. A., Keck, J. C., Camm, J. C., Nonequilibrium Radiation And The Recombination Rate Of Shock-Heated Nitrogen, PHYS. FLUIDS 5 296 (1962).
18	(H,HE,H,)+(H_2)	T	2	Allison, A. C., Dalgarno, A., The Rotational Excitation Of Molecular Hydrogen, PROC. PHYS. SOC., LONDON 90 609 (1967).
19	Undef	T	0	Allison, A. C. S., Burke, P. G., Long Range Forces Between Atoms And Fine Structure Transitions, VI ICPEAC, P.666, THE MIT PRESS, CAMBRIDGE, MASS. (1969).
20	(CFCLF,)+(AR,HE)	T	1	Amme, Robert C., Legvold, Sam, Vibrational Transitions And The Intermolecular Potential, J. CHEM. PHYS. 33 81 (1960).
21	Undef	T	0	Amus Ta, M. Ye., Collective Oscillations Of Atomic Electron Shells, SOVIET PHYS. - TECH. PHYS. 11 1053 (1967).
22	(HE*,KR*)+(HE)	E	4	Andersen, N., Jensen, K., Newton, C. S., Pedersen, K., Veje, E., An Experimental Study Of Beam-Gas Collisions. I, NUCL. INSTR. METHODS 96 199 (1970).
23	(HE,NE,AR,KR,XE,H,,CL,,N,,O,)+(K)	E	3	Anderson, N. W., Aquilanti, V., Herschbach, D. R., Collisional Excitation Of K Atoms By Rare Gases And Diatomic Molecules Correlation With Electronic Structure, CHEM. PHYS. LETTERS 4 5 (1969).
24	(CS*)+(HE,AR)	E	4	Andersen, N., Jensen, K., Koch, J., Pedersen, K., Veje, E., An Optical Spectrometric Study Of Collisions Between Cs^+ Ions And He And Ar, VI ICPEAC, P.423, THE MIT PRESS, CAMBRIDGE, MASS. (1969).

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	REACTANTS	EXP OR THEOR.	E RANGE	REFERENCE
25	(NE*)+(NE)	E	4	Andersen, N., Michael, J. S., Jensen, E., Nielsen, C. S., Veje, E., An Experimental Study Of Beam-Gas Collisions. II, NUCL. INSTR. METHODS 90 305 (1970).
26	(NA*)+(NA)	T	8	Anderson, L. Wilmer, Ramsey, Alan T., Effect Of Spin-Exchange Collisions On The Optical Orientation Of Atomic Sodium, PHYS. REV. 124 1862 (1961).
27	(H*)+(HE,NE,AR,KR,XE)	E	6	Andreev, E. P., Ankudinov, V. A., Bobashev, S. V., Dubel Shil, V. N., Matveev, V. B., Lyman Beta Radiation Produced By Proton-Inert Gas Collisions Influence Of Electric Field On Its Intensity, 5TH INT. CONF. ON COLLISIONS, P.302, LENINGRAD (1971).
28	(H*)+(HE,NE,AR,KR,XE)	E	4	Andreev, E. P., Ankudinov, V. A., Bobashev, S. V., Matveev, V. B., Effect Of Electric Fields On Intensity Of Hydrogen L Beta Line Excited In Proton Charge Exchange With Inert Gases, SOVIET PHYS.-JETP 25 232 (1967).
29	(H-)+(HE,NE,AR,KR,XE)	E	4	Andreev, E. P., Ankudinov, V. A., Dubel Shil, V. N., Orbeli, A. L., Formation Of Hydrogen Atoms In 2s And 2p States For H- Ions Colliding With Inert Gas Atoms, VI ICPEAC, P.000, THE MIT PRESS, CAMBRIDGE, MASS. (1969).
30	(HE*,H$_2$*,H*)+(H$_2$)	E	4	Andreev, E. P., Ankudinov, V. A., Bobashev, S. V., Excitation Of Hydrogen Lyman Alpha And Beta Lines By H*, H2*, And He* Ions Passing Through Hydrogen, P. 309, 5TH INT. CONF. ON COLLISIONS, LENINGRAD (1967).
31	(HE*,NE*)+(H$_2$)	E	4	Andreev, E. P., Ankudinov, V. A., Bobashev, 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. SPECTROS. 16 103 (1964).
32	(H*)+(HE,NE,AR,KR,XE)	E	4	Andreev, E. P., Ankudinov, V. A., Bobashev, S. V., Charge Exchange Of Protons In Inert Gases Involving The Formation Of Fast Hydrogen Atoms In The 2s And 2p States, SOVIET PHYS. - JETP 23 375 (1966).
33	(H*)+(HE,NE,AR)	E	4	Andreev, E. P., Ankudinov, V. A., Bobashev, S. V., Cross Sections For Electron Capture By Protons To 3s-, 3p-, 3d-States Of The Hydrogen Atom, P. 307, 5TH INT. CONF. ON COLLISIONS, LENINGRAD (1967).
34	Undef	T	9	Andreeva, T. L., Kuznetsova, T. I., On The Gas Laser Anglee At High Pressures, OPT. SPECTROS. 25 141 (1968).
35	(H$_2$*)+(HE)	E	0	Ankudinov, V. A., Bobashev, S. V., Andreev, E. P., Measurement Of Lifetimes Of Excited States Of The Hydrogen Atom, SOVIET PHYS. - JETP 21 26 (1965).
36	(H)+(HE,NE,AR,KR,XE)	E	4	Ankudinov, V. A., Andreev, E. P., Orbeli, A. L., Excitation Of L Sub Alpha Radiation In Collisions Of Fast Hydrogen Atoms With Inert Gases, P. 312, 5TH INT. CONF. ON COLLISIONS, LENINGRAD (1967).
37	(H*,H$_2$*,H$_3$*)+(HE,NE)	E	4	Ankudinov, V. A., Bobashev, S. V., Andreev, E. P., The Influence Of Multiple Collisions On The Formation Of Excited Atoms Of Hydrogen By Proton Charge Exchange And Dissociation Of The Molecular Ions H_2* And H_3* In Helium And Neon, SOVIET PHYS.-TECH. PHYS. 9 1272 (1965).
38	(HE*)+(H$_2$)	E	4	Ankudinov, V. A., Bobashev, S. V., Andreev, E. P., Excitation Of 3s, 3p, And 3d States Of The Hydrogen Atom Upon Dissociation Of The H Molecule By Fast He Ions, SOVIET PHYS.-JETP 25 236 (1967).
39	(HE*)+(H$_2$)	E	4	Ankudinov, V. A., Andreev, E. P., Bobashev, S. V., Dissociation Of H2 Molecules By He* Impact With Excitation Of Hydrogen Atoms Into 3s-, 3p-, And 3d-States, P. 304, 5TH INT. CONF. ON COLLISIONS, LENINGRAD (1967).
40	(AR*,CO$_2$*,NH$_3$*,H*)+(CH$_4$,C$_2$H$_2$,C$_2$H$_6$) (Cat. By Abstract Only)	E	3	Aparina, E. V., Markin, M. I., Tal'roze, V. L., Frid'yanskii, G. V., Transfer Of Kinetic Energy Into Excitation Energy During Charge Exchange Between Ions And Molecules, KHIM. VYS. ENERG. 3 291 (1969).
41	Undef	E	1	Arditi, Irene, Margottin-Maclou, Monique, Guegen, Henri, Doyennette, Lucien, Relaxation Vibrationnelle Du Protoxyde D Azote Faiblement Excite Sur Le Niveau (00° 1), COMPT. REND. 270B 477 (1970).
42	(CS$_2$,CS$_2$*)+(AR)	E	2	Arnold, S. J., Kimbell, G. H., Reactions Of Shock-Heated Carbon Disulfide-Argon Mixtures. I. Light Emission, J. PHYS. CHEM. 73 3751 (1969).
43	( )+(CS$_2$,AR)	E	2	Arnold, S. J., Brownlee, W. G., Kimbell, G. H., Light Emission From Shock-Heated Carbon Disulfide-Argon Mixtures, J. PHYS. CHEM. 72 4344 (1968).
44	(O)+(C$_2$H$_2$)	E	1	Arrington, C. A., Brennen, W., Glass, G. P., Michael, J. V., Niki, H., Reaction Of Atomic Oxygen With Acetylene. II. Chemi-Ionization And Chemiluminescence, J. CHEM. PHYS. 43 1489 (1965).
45	Undef	T	1	Attermeyer, Mary, Marcus, R. A., Vibrational-Translational Energy Transfer In The Near-Adiabatic Approximation, J. CHEM. PHYS. 52 393 (1970).
46	Undef	E	5	Axtmann, Robert C., Sears, John T., Energy Loss By Fission Fragments In Nitrogen, NUCL. SCI. ENG. 23 299 (1965).
47	(HE**)+(N$_2$)	E	5	Axtmann, Robert C., Sears, John T., Excitation Of Nitrogen Gas By Alpha Particles And Fission Fragments, J. CHEM. PHYS. 44 1279 (1966).
48	(N*)+(N$_2$)	T	[illegible]	Axtmann, Robert C., Atomic Exchange Reactions In Nitrogen Gas, NYO-2407-12 (1964).

	REACTANTS	EXP OR THEOR.	E RANGE	REFERENCE
49	(HCL)+(AR,CO$_2$,C$_3$O$_2$,H$_2$,HBR,HE,KR,N$_2$,O$_2$,HCL)	E	1	Babrov, Harold, Ameer, George, Benesch, William, Molecular Collision Cross Sections From Infrared Absorption Measurements, J. CHEM. PHYS. 33 145 (1960).
50	(HCL)+(HCL,N$_2$)	E	1	Babrov, Harold, Ameer, George, Benesch, William, Line Strengths And Widths In The HCl Fundamental Band, J. MOL. SPECTR. 3 185 (1959).
51	(O$_2$)+(O$_2$,NO$_2$)	E	1	Bader, L. W., Ogryzlo, E. A., Reactions Of O2 (Sup 1 Delta G) And O2 (Sup 1 Sigma G+), DISC. FARADAY SOC. 37 46 (1964).
52	(O$_2$*)+(O$_3$) (Cat. by Abstract Only)	E	0	Balamonte, Vernon Duane, Kinetic Spectroscopy Of Energy Chain Mechanisms In Ozone Decomposition, THESIS, INDIANA UNIV. (1966).
53	Undef (Cat. by Abstract Only)	T	2	Ban, Tmor A., Soerensen, Preben G., Vibrational Relaxation Of A Gas Of Diatomic Molecules, ADVAN. CHEM. PHYS. 15 2?? (1969).
54	(Ar*)+(KR,SC,YT,TI,V,NB,HF) (KR*)+(S+,SC,YT,TI,NB)	E	1	Baker, Milton R., Adelstein, A. James, Mallee, Bert L., Physical Basis Of Line Enhancement In Argon And Krypton, J. OPT. SOC. AM. 46 138 (1956).
55	(N)+(NO$_2$,NO,O)	E	1	Baker, D. J., Moore, W. R., Infrared Chemiluminescence From Nitrogen-Oxygen Reactions, AD-605 241 (1965).
56	(H*)+(O$_2$,N$_2$)	E	4	Baker, D. J., Gardiner, H. A. S., Merrill, J. J., Optical Emissions Of Oxygen, Nitrogen And Nitrogen-Oxygen Mixtures Stimulated By 20-100 Kev Protons, J. CHEM. PHYS. 46 ?? (1967).
57	(HE*)+(HE)	E	0	Bakos, J., Szigeti, J., Measurements Of Cross Section For Collision Of Second Kind In Helium, P. 361, 5TH INT. CONF. ON COLLISIONS, LENINGRAD (1967).
58	(NE*)+(NE) (AR*)+(AR) (KR*)+(KR)	E	3	Barat, M., Baudon, J., Abignoli, M., Houver, J. C., Differential Measurements On Ion-Atom Collisions In The Energy Range 50 Ev-1000 Ev. III. Ne+ On Ne, Ar+ On Ar And Kr+ On Kr Collisions, J. PHYS. B 3 230 (1970).
59	(HE*,NE*,AR*)+(NE,XE)	E	4	Barat, M., Baudon, J., Septier, A., Energy Losses Of Fast 4? Kev Rare Gas Ions In Collisions With Rare Gas Atoms, Helium And Neon, COMPT. REND. 254B 5379 (1974).
60	(H*)+(HE)	E	3	Barat, M., Baudon, J., Study Of The Discrete Energy Losses Of Fast Proton Beam Passing Through A Gaseous Target, 6TH INT. CONF. ION. PHENOMENA GASES, I 127, SERMA, PARIS (1963).
61	Undef (Cat. by Abstract Only)	E	?	Bariol, Francois, Literature Survey Concerning Energy Transfer Between Vibrational Modes During Molecular Collisions In The Gas Phase, COMMIS. ENERG. AT. (FR.) RAPP., CEA-BIB-155 (1969).
62	Review	E	0	Barnett, C. F., Gilbody, H. B., Measurements Of Atomic Cross Sections In Static Gases, METHODS OF EXPERIMENTAL PHYSICS, VOL. 7A, P. 390, ACADEMIC PRESS, NEW YORK (1968).
63	Review	E	?	Barth, C. A., Three-Body Reactions, ANN. GEOPHYS. 20 182 (1964).
64	(N)+(O$_2$,N$_2$)	E	1	Barth, Charles A., Kaplan, Joseph, Herzberg Oxygen Bands In Air Afterglows And The Night Airglow, J. CHEM. PHYS. 26 506 (1957).
65	Review	E	5	Bashkin, S., A New Method For Studying The Atom, SCIENCE 148 1047 (1965).
66	(N*,N$_2$*)+(C)	E	?	Bashkin, S., Meinel, A. B., Laboratory Excitation Of The Emission Spectrum Of A Nova, ASTROPHYS. J. 139 413 (1964).
67	(NE*)+(C)	E	0	Bashkin, S., Meroux, L., Shaw, J., Extreme Ultraviolet Spectra From Multiply-Ionized Neon Beams, PHYS. LETTERS 13 229 (1964).
68	(H$_2$)+(CL$_2$)	E	1	Basov, N. G., Gromov, V. V., Koshelev, E. L., Markin, E. P., Oraevskii, A. N., Generation Spectrum Of A Chemical Laser Using A Mixture Of H2 And CL2, JETP PHYS.-JETP LETTERS ? 147 (1969).
69	(H*)+(O$_2$,H$_2$,N$_2$,CL$_2$)	E	3	Bassani, G., Callis, L., Cristoferi, F., Franceschetti, M. ?, Felgerio, G. F., Nons, F. ?, Production Of A Beam Of Hydrogen Atoms In The Excited Metastable State 2S (Sup ?), NUOVO CIMENTO ?, 461 (1962).
70	(HE)+(H$_2$,NE)	E	4	Bastien, Francois, Pommiet, Eliane, Sinfarel, Annie, Mesure Des Sections Efficaces Sigma, Et Sigma, ? Atomes D Helium Energie 10-50 Kev Dans L Hydrogene Et Le Neon, COMPT. REND. 269 ?? (1969).
71	(HE**)+(H)	T	?	Basu, D., Bhattacharyya, D. M., Chatterjee, G., Electron Capture By Alpha Particles Incident On Atomic Hydrogen, PHYS. REV. 163 ? (1967).
72	(H*)+(H$_2$*)	?	?	Bates, D. R., Holt, A. R., Dissociation Of Hydrogen Molecular Ions By Fast Protons, PROC. PHYS. SOC. (LONDON) 85 691 (1965).
73	(H*,H)+(H)	T	4	Bates, D. R., Impact Parameter Treatments Of Certain Hydrogen-Proton And Hydrogen-Hydrogen Excitation Collisions, PROC. ROY. SOC. (LOND) A 245 ?? (1958).
74	(H*,H)+(H)	T	4	Bates, D. R., Slow Collisions Between Heavy Particles, PROC. ROY. SOC., LONDON 243A 15 (1957-58).
75	Undef	T	?	Bates, D. R., Distortion Approximation To Cross Sections For Excitation Of 1s-2p Transition Of Hydrogenic Ions By Bare Nuclei, PROC. PHYS. SOC., LONDON 78 1(4) (1961).
76	(H)+(H)	T	?	Bates, D. R., Griffing, G. W., Inelastic Collisions Between Heavy Particles. II. Contributions Of Double-Transitions To The Cross Sections Associated With The Excitation Of Hydrogen Atoms In Fast Encounters With Other Hydrogen Atoms, PROC. PHYS. SOC., LONDON 67A ?? (1954).

	REACTANTS	EXP OR THEOR.	E RANGE	REFERENCE
77	$(H^{0},ME^{2+})+(H)$	T	5	Bates, D. R., Excitation Of The 1s-2p Transition Of Atomic Hydrogen By Proton And Alpha Particle Impact, PROC. PHYS. SOC., LONDON 77 59 (1961).
78	$(H^{0},ME^{2+})+(H)$	T	5	Bates, D. R., Importance Of Distortion In Inelastic Encounters Between Heavy Systems, PROC. PHYS. SOC., LONDON 73 227 (1959).
79	$(H^{0})+(H)$	T	3	Bates, D. R., Williams, D. A., Low Energy Collisions Between Hydrogen Atoms And Protons, PROC. PHYS. SOC., LONDON 84 425 (1964).
80	$(H^{0})+(H)$	T	3	Bates, D. R., Sprevak, D., Large Angle Scattering In Slow H^{0} H(1s) Collisions, J. PHYS. B 3 1403 (1970).
81	$(H_{2}^{0})+(H_{2})$	T	4	Bates, D. R., Reid, R. H. G., Charge Transfer And Vibrational Excitations In $H2^{0}$ - H2 Collisions, PROC. ROY. SOC., LONDON 318A 1 (1969).
82	Undef (Cat. by Abstract Only)	T	0	Bates, D. R., Massey, H. S. W., Slow Inelastic Collisions Between Atomic Systems, PHIL. MAG. 45 111 (1954).
83	$(HE^{0})+(HE^{2+})$	T	4	Bates, D. R., Boyd, Anne H., Effect Of Coulomb Repulsion Between Charged Atomic Systems On Excitation And Ionization Cross Sections, PROC. PHYS. SOC., LONDON 79 710 (1962).
84	$(H,H^{+})+(H)$	T	5	Bates, D. R., Griffing, G., Inelastic Collisions Between Heavy Particles. I. Excitation And Ionization Of Hydrogen Atoms In Fast Encounters with Protons And With Other Hydrogen Atoms, PROC. PHYS. SOC., LONDON 66A 961 (1953).
85	$(H)+(H)$	T	5	Bates, D. R., Griffing, G. W., Inelastic 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, PROC. PHYS. SOC., LONDON 68A 90 (1955).
86	Undef	T	2	Bates, D. R., Massey, H. S. W., Stewart, A. L., Inelastic Collisions Between Atoms. I. General Theoretical Considerations, PROC. ROY. SOC., LONDON 216A 437 (1953).
87	Review	T	0	Bates, D. R., Dalgarno, A., Meiselwitsch, B. L., Stewart, A. L., Jerrett, A. M., Research On Physics Of The Upper Atmosphere, AD-604 494 (1965).
88	$(HE^{+})+(HE)$	E	3	Bawden, J., Barat, M., Abignoli, M., Differential Scattering Measurements On Ion-Atom Collisions In The Energy Range 500-3000 Ev. I. He^{+} - He Collision, J. PHYS. B 1 1383 (1969).
89	$(H)+(XE)$	E	3	Bawden, J., Barat, M., Abignoli, M., Hoover, J. C., Collision Spectroscopy Of Atomic-Ion-Rare Gas Atom Systems (Energy Range 0.5-3 Kev), VI ICPEAC, P.314, THE MIT PRESS, CAMBRIDGE, MASS. (1969).
90	$(HE^{+})+(NE,AR,KR,XE)\ (NE^{+})+(HE)$	E	3	Bawden, J., Barat, M., Abignoli, M., Differential Measurements On Ion-Atom Collisions In The Energy Range 500 Ev-3000 Ev. II. He^{+} On Ne, Ar, Kr, Xe And Ne^{+} On He Collisions, J. PHYS. B 3 297 (1970).
91	$(N_{2}^{+},CH_{4}^{+},CO_{2}^{+})+(CO_{2})$	E	2	Bauer, H. J., Schotter, R., Collision Transfer Of Vibrational Energy From Nitrogen And Methane To The Carbon Dioxide Molecule, J. CHEM. PHYS. 51 3451 (1969).
92	$(NA^{+})+(N_{2},CO,O_{2})$	T	2	Bauer, Ernest, Fisher, E. R., Gilmore, F. R., De-Excitation Of Electronically Excited Sodium By Nitrogen, J. CHEM. PHYS. 51 4173 (1969).
93	$(AR^{+})+(DBR,N_{2}O,HCL,HBR,CO,CS_{2})$	E	3	Bayes, K. D., Naugh, M. J., Electronic Excitation Accompanying Charge Transfer Rotational And Vibrational Population Of Excited Ions, 6TH ICPEAC, P.230, THE MIT PRESS, CAMBRIDGE, MASS. (1969).
94	$(H^{+})+(H)$	E	4	Bayfield, J. E., Electron Capture Into The Metastable 2s State In Collisions Of Protons With Hydrogen Atoms, PHYS. REV. LETTERS 29 1223 (1968).
95	$(H^{+})+(H)$	E	4	Bayfield, J. E., Measurement Of The Total Cross Section For Charge Transfer Into The Metastable State H(2s) For Proton Collisions With Atomic Hydrogen, PHYS. REV. 185 105 (1969).
96	$(H^{+})+(H)$	E	4	Bayfield, James E., Measurement Of The Cross Section For H^{+} + H(1s) Going To H(2s) + H^{+}, 5-70 Rev, VI ICPEAC, P.118, THE MIT PRESS, CAMBRIDGE, MASS. (1969).
97	$(H^{+})+(H)$	E	4	Bayfield, James E., Experimental Evidence For Large Nonadiabatic Effects In Close Proton Collisions With Hydrogen Atoms, PHYS. REV. LETTERS 29 1 (1972).
98	$(K)+(CO_{2})$	E	1	Beck, D., Forster, H., Rotationsanregung In Molekularen Stosses Messung Differentieller, Partieller Streuquerschnitte Für K-Co_{2}, Z. PHYS. 240 136 (1971).
99	$(CO^{+})+(CH)$ (Cat. by Abstract Only)	E	1	Becker, Karl H., Kley, D., Norstrom, R. J., Co^{+} And OH Chemiluminescence In Hydrocarbon Atom Flames, MOL. LUMIN., INT. CONF., 1965, P.599, W. A. BENJAMIN, INC., NEW YORK (1969).
100	$(H^{0},H)+(HE)$	E	4	Belanger, M. G., Gray, R. L., Krause, D., Sellysin, E. A., Polarization Of Light Resulting From The Excitation Of Helium By Protons And H Atoms, P. 316, 5TH INT. CONF. ON COLLISIONS, LENINGRAD (1967).
101	$(H^{0},ME^{2+})+(HE)$	E	5	Bell, H. J., Excitation Of Helium To The $(1s,2p\ ^{1}p$ And $(1s,3p)^{1}p$ States By Proton And Alpha Particle Impact, PROC. PHYS. SOC., LONDON 78 903 (1961).
102	$(H^{+})+(HE)$	T	5	Bell, K. L., Kennedy, D. J., Kingston, A. E., Excitation Of Helium By Fast Protons, PROC. PHYS. SOC., LONDON 18 216 (1968).

	REACTANTS	EXP OR THEOR.	E RANGE	REFERENCE
103	(H*)+(HE)	T	5	Bell, A. L., Kennedy, D. J., Kingston, A. E., Accurate First Born Approximation Cross Sections For The Excitation Of Helium By Fast Protons, J. PHYS. B 1 1037 (1969).
104	(H*)+(HE)	T	5	Bell, A. L., Kennedy, D. J., Kingston, A. E., Born Cross Sections For The Electron And Proton Excitation Of Helium Calculated Using Unrestricted Hartree-Fock wave Functions, J. PHYS. B 1 1029 (1969).
105	(HE*)+(HE)	E	1	Belotsov, I. M., Danilov, O. B., Elkina, I. A., Klimkov, K. M., Investigation Of The Causes Of Gas Temperature Effects On The Generation Power Of A He-Ne Laser At 6328 A, OPT. SPECTROS. 26 44 (1969).
106	Review	T	3	Bely, O., Faucher, P., Fine Structure Proton Excitation Rates For Positive Ions In The $2p$, $2p^5$, $3p$, $3p^5$ Series, ASTRON. ASTROPHYS. 6 98 (1970).
107	(H,O,NE,CH$_4$)+(CH$_4$) (Cat. by Abstract Only)	E	0	Belyaev, Yu. N., Kantshev, N. V., Leonas, V. B., Investigation Of Elastic Scattering Of Chemically Active Particles, COMBUSTION, EXPLOS. SHOCK WAVES (USA), NO. 1 (1970).
108	(HCL)+(HE,NE,AR,KR,XE)	E	1	Ben-Reuven, A., Kimel, S., Hirshfeld, M. A., Jaffe, J. M., Theory And Measurement Of Pressure-Induced Shifts Of HCl Lines Due To Noble Gases, J. CHEM. PHYS. 35 955 (1961).
109	(RB*)+(HE,NE) (CS*)+(HE)	E	0	Benter, P. L., Crosley, D. R., Palmer, B. R., Zare, R. N., Collisional Mixing Of Alkali Np Sub 1/2 And Np Sub 3/2 Levels, P. 510, 5TH INT. CONF. ON COLLISIONS, LENINGRAD (1967).
110	(AR)+( )	E	1	Bennett, W. R., Jr., Faust, W. L., McFarlane, R. A., Patel, C. K. N., Dissociative Excitation Transfer And Optical Maser Oscillation In Ne-O2 And Ar-O2 Rf Discharges, PHYS. REV. LETTERS 8 470 (1962).
111	(HE)+(HE) (NE,AR*)+(O$_2$)	E	1	Bennett, W. R., Jr., Relaxation Mechanisms, Dissociative Excitation Transfer And Mode Pulling Effects In Gas Lasers, QUANTUM ELECTRONICS III 441, COLUMBIA UNIV., PRESS (1964).
112	(HE*)+(HE,NE,AR,KR,XE,N$_2$)	E	5	Bennett, W. R., Jr., Optical Spectra Excited In High Pressure Noble Gases By Alpha Impact, ANN. PHYS. (NY) 18 367 (1962).
113	(HE*)+(AR)	E	5	Bennett, J. R., Collinson, A. J. L., Alpha-Particle Induced Luminescence In Argon In An Electric Field, J. PHYS. B 2 571 (1969).
114	(HE*)+(HE)	T	2	Bennett, W. R., Jr., Excitation And Inversion Mechanisms In Gas Lasers, AD-621 117, ANNALS ACAD. SCI. 122 579 (1965).
115	(O$_2$)+(AR)	T	1	Benson, Sidney W., Berend, George C., Vibrational And Rotational Excitation Of Diatomic Molecules. Two-Dimensional Model, J. CHEM. PHYS. 44 4247 (1966).
116	(N)+(N$_2$)	T	2	Benson, Sidney W., Kinetic And Spectroscopic Constraints On The Origin Of The N2 Afterglow, J. CHEM. PHYS. 40 1765 (1964).
117	(O$_2$)+(AR)	T	2	Benson, S. W., Berend, G. C., Wu, J. C., Classical Model For Vibrational And Rotational Excitation Of Diatomic Molecules By Collisions. I. Hard-Sphere Collision, J. CHEM. PHYS. 34 75 (1963).
118	(O$_2$)+(AR) (N$_2$)+(N)	T	2	Benson, S. W., Berend, G. C., Wu, J. C., Classical Model For Vibrational And Rotational Excitation Of Diatomic Molecules By Collision. II. Interaction With Arbitrary Potential Functions, J. CHEM. PHYS. 37 1396 (1962).
119	(N$_2$)+(N$_2$) (O$_2$)+(O$_2$) (CL$_2$)+(CL$_2$)	T	2	Benson, S. W., Berend, G. C., Classical Model For Vibrational And Rotational Excitation Of Diatomic Molecules By Collision. III, J. CHEM. PHYS. 39 2777 (1963).
120	(K*)+(HG)	T	2	Benson, W. W., Berend, G. C., Hasan, S. U., Ionization And Excitation Of Mercury Vapour By Positive Ion Impact, NATURE 173 1186 (1954).
121	(I$_2$)+(AR,HE,KR,XE)	T	0	Benson, S. W., Berend, G. C., Vibrational Energy Exchange Of Highly Excited Anharmonic Oscillators, J. CHEM. PHYS. 40 1289 (1964).
122	Undef (Cat. by Abstract Only)	E	0	Benton, L. E., Jr., Effects Of Impurities On The Half-Life Of The Metastable States Of The Helium Atom, THESIS, UNIV. OF TEXAS, AUSTIN (1962).
123	(K*)+(K,HE,AR)	E	0	Berdowski, W., Krause, L., Collisional Disorientation Of Magnetically Oriented 4P Sub 1/2 Potassium Atoms, P. 502, 5TH INT. CONF. ON COLLISIONS, LENINGRAD (1967).
124	(K)+(HE,NE,AR,KR,XE)	E	1	Berdowski, W., Krause, L., T Sub J Mixing In Oriented 4P P Sub 1/2 Potassium Atoms, Induced By Collisions With Inert Gases, PHYS. REV. 16 158 (1965).
125	(H$_2$)+(H$_2$,HE) (D$_2$)+(HE) (N$_2$)+(N$_2$) (O$_2$)+(O$_2$)	T	1	Berend, George C., Benson, Sidney W., Classical Theory Of Rotational Relaxation Of Diatomic Molecules, J. CHEM. PHYS. 47 4194 (1967).
126	(N$_2$*)+(CO,N$_2$)	T	2	Berend, George C., Benson, Sidney W., Vibration-Vibration Energy Transfer Between Diatomic Molecules, J. CHEM. PHYS. 51 1440 (1959).
127	Undef (Cat. by Abstract Only)	E	0	Berkling, K., Schiller, C., Toschek, P., Scattering Of Gallium Atoms In Different Zeeman States, Z. NATURFORSCH. 15A 816 (1960).
128	(H*)+(HG,NE)	E	4	Berkner, K. H., Cooper, W. S., III, Kaplan, S. N., Pyle, R. V., Cross Section For Electron Capture Into The Excited Level N Equals 5 Of Hydrogen By 5- To 70-Kev Protons In Hg Vapor And In Neon, PHYS. REV. 142 103 (1969).
129	(H$_2$*)+(H$_2$)	E	5	Berkner, K. H., Hiskes, J. R., Kaplan, S. N., Paulikas, G. A., Pyle, R. V., The Excitation And Lorentz Ionization Of 10 Kev Hydrogen Atoms, ATOMIC COLLISION PROCESSES, P.726, NORTH-HOLLAND PUBL. CO., AMSTERDAM (1964).

	REACTANTS	EXP OR THEOR.	E RANGE	REFERENCE
130	(H+)+(H+,H_2)	E	5	Berkner, K. H., [illegible] Excitation And Lorentz Ionization Of 10-Mev Hydrogen Atoms, THESIS, UNIV. CALIF., BERKELEY, UCRL-11249 (1964).
131	Undef	E	5	Berkner, K. H., Hiskes, J. R., Kaplan, S. N., Paulikas, G. A., Pyle, R. V., The Excitation And Lorentz Ionization Of 10-Mev Hydrogen Atoms, UCRL-10802 (1963).
132	(H)+(H_2)	T	5	Berkner, K. H., Kaplan, S. N., Paulikas, G. A., Pyle, R. V., Excitation Of 10-Mev H Atoms In Neutral- And Charged-Particle Collisions, PHYS. REV. 138 A410 (1965).
133	(HE)+(NE)	E	1	Beterov, I. M., Chebotaev, V. P., Cross Sections Of Inelastic Processes In The Helium-Neon Laser, OPT. SPECTRY. 20 597 (1966).
134	(H+,H_2+,N+,N_2+,O+,O_2+,CO_2+,NE+)+(C, BE,B)	E	5	Bickel, William S., The Spectroscopic Properties Of The Ionic Beam Source, APPL. OPT. 6 1309 (1967).
135	(O_2)+(O+,O_2)(O+)+(O_2,N_2,XE)	E	1	Biedenkapp, D., Bair, Edward J., Ozone Ultraviolet Photolysis. I. The Effect Of Molecular Oxygen, J. CHEM. PHYS. 52 6119 (1970).
136	(NE+)+(NE)(AR+)+(AR)	E	4	Bierman, D. J., Turkenburg, W. C., Inelastic Energy-Loss Structure In Nonviolent Heavy-Atom Collisions, PHYS. REV. LETTERS 25 633 (1970).
137	(HG)+(HG)+(N_2)	T	0	Bigeon, M. -C., Cojan, J. -L., Cinetique Du Mecanisme De Creation D Atomes Metastables De Mercure 6^3P_0 Lors De L Irradiation De La Vapeur De Mercure, En Presence D Azote Par La Radiation De Resonance Du Mercure, COMPT. REND. 260 6565 (1965).
138	Review	T	5	Bingham, Felton W., Tabulation Of Atomic Scattering Parameters Calculated Classically From A Screened Coulomb Potential, SC-RR-66-506, TID-4500, N67-15356 (1966).
139	(N_2+,CO+)+(N_2O,CO_2,CS_2,COS,C_2N_2,HCN, H_2O)	T	1	Biryukov, A. S., Gordiets, B. F., Shelepin, L. A., Obtaining Inverted Population On Vibrational Levels Of Polyatomic Molecules, SOVIET PHYS.-JETP 29 762 (1969).
140	(N+)+(NO,C_2H_4,NH_3,O_2,CO,H_2,N_2O,CH_4, CO_2,N_2,AR,HE)(N_2+)+(O_2,H_2,N_2O)	E	2	Black, G., Slanger, T. G., St. John, G. A., Young, R. A., Vacuum-Ultraviolet Photolysis Of N2o. IV. Deactivation Of N(sup 2 D), J. CHEM. PHYS. 51 116 (1969).
141	(XE+)+(CO_2)	E	1	Bletzinger, P., Garscadden, A., Influence Of Xenon On Co2 Laser Plasmas, APPL. PHYS. LETTERS 12 289 (1968).
142	(CO)+(CO)(CO_2)+(AR)	E	1	Blom, A. P., Pratt, N. H., Relaxation Rates For Co In Expansion Flows And Behind Shock Fronts, NATURE 223 1352 (1969).
143	(NA+)+(NE)	E	4	Bobashev, S. V., Observation Of Regular Oscillations Of The Total Cross Section For The Excitation Of Ne Resonance Lines In Collisions With Na+ Ions, SOVIET PHYS.-JETP LETTERS 11 260 (1970).
144	(K+)+(AR)	E	3	Bobashev, S. V., Absolute Excitation Cross Section Of The K+ Resonance States In Collisions With Argon Atoms, PHYS. LETTERS 31A 204 (1970).
145	(NA+)+(HE)	E	4	Bobashev, S. V., Kritskii, V. A., Oscillations Of Excitation Function Of Helium Resonance Line And Interference Of Two Vacant States In Collisions Of Na+ Ions With Helium, SOVIET PHYS.-JETP LETTERS 12 162 (1970).
146	(CS+)+(HE)	T	2	Bobashev, S. V., Matveyev, V. B., Ankudinov, V. A., The Threshold Behavior Of The Excitation Functions For The Cs II Resonance Lines In The Process Cs+ + He, VI ICPEAC, P.229, THE MIT PRESS, CAMBRIDGE, MASS. (1969).
147	(H+,H_2+,H_3+)+(HE,NE)	T	4	Bobashev, S. V., Ankudinov, V. A., Andreev, E. P., Charge Exchange Of Protons And The Dissociation Of H_2+ And H_3+ Ions In Helium And Neon Accompanied By The Formation Of Fast Hydrogen Atoms In Excited States, SOVIET PHYS. - JETP 21 554 (1965).
148	(H+,H_2+,H_3+)+(HE,NE)	E	4	Bobashev, S. V., Andreev, E. P., Ankudinov, V. A., Excitation Of Balmer Hydrogen Lines Upon Passage Of H+, H2+, And H3+ Through Helium And Neon, SOVIET PHYS.-JETP 18 1205 (1964).
149	(H+,H_2+)+(HG)	E	4	Bobashev, S. V., Pop, S. S., Excitation Of The H Sub Beta Line Of Hydrogen And Of Some Mercury Lines By Collision Of Protons And H_2+ Ions With Mercury Atoms, OPT. SPECTRY. 18 421 (1965).
150	(CS+)+(HE)	E	3	Bobashev, S. V., Matveev, V. B., Ankudinov, V. A., Threshold Behavior Of An Excitation Cross Section Of Cesium II Resonance Lines In The Cs+ + He Process, SOVIET PHYS.-JETP LETTERS 9 201 (1969).
151	(HE+)+(NE)	E	0	Bochkova, O. P., Tolmachev, Yu. A., Frish, S. E., A Measurement Of The Cross Section For Collisions Of The Second Kind In A Neon-Helium Plasma, OPT. SPECTROS. 23 270 (1967).
152	(HG+)+(ZN)	E	1	Bochkova, O. P., Investigation Of The Process Of Excitation Energy Transfer From The 7^3S_1 Level Of Mercury To The 4^1D_2 Level Of Zinc In The Afterglow Of A Discharge In A Zinc-Mercury-Krypton Mixture, OPT. SPECTROS. 25 539 (1969).
153	(HE+)+(N_2)	E	1	Bochkova, O. P., Chernysheva, N. V., Excitation Of Bands In The First Negative System Of N_2+ By $2^1,^3S$ And $2^1,^3P$ He Atoms, OPT. SPECTROS. 28 17 (1970).
154	(NE+)+(NE,AR,KR,XE) (Cat. by Abstract Only)	E	1	Bochkova, O. P., Destruction Of $2p^5\,3s^3P$ Sub J Atoms Of Neon By Argon, Krypton, And Xenon Impurities, VESTN. LENING. UNIV. SER., FIZ., KHIM. NO.2 17 (1969).
155	(AR+)+(KR,XE)	E	1	Bochkova, O. P., Excitation Of Xenon And Krypton Atoms By Metastable Argon Atoms In The Afterglow Of Ar-Kr And Ar-Xe Discharges, OPT. SPECTROS. 28 86 (1970).

	REACTANTS	EXP OR THEOR.	E RANGE	REFERENCE
156	(HG*)*(ZN)	E	1	Bochkova, O. P., Dmitrentseva, E. A., Excitation Of The 4d Sub J Levels Of Zinc By Mercury Atoms In The $7^3 S_1$ State In The Afterglow Of A Zn-Hg-Kr Discharge, OPT. SPECTROS. 28 232 (1970).
157	(LI*)*(HE,NE,AR,KR,XE)	E	5	Boersch, H., Forst, G., Scattering Of Li* Ions By Inert Gases, Z. PHYS. 175 221 (1963).
158	Review	E	4	Boersch, H., Forst, G., Schwede, S., Energy Distributions Of Fast Lithium And Sodium Ions In Interactions With Rare Gases, Z. PHYS. 174 446 (1963).
159	(HG,KR,XE)*(HE)	E	2	Bogdanova, I. P., Marusin, V. D., Study Of The Secondary Processes Due To Electronic Excitation Using The Coincidence Count Method, OPT. SPECTRY. 20 113 (1966).
160	(HE*)*(NE)	E	2	Bogdanova, I. P., Marusin, V. D., Determination Of The Effective Excitation Cross-Section Of The 2^3 S Metastable State Of Helium, OPT. SPECTROS. 27 396 (1969).
161	(HE*)*(HE)	E	2	Bogdanova, I. P., Marusin, V. D., Dependence Of The Excitation Transfer Efficiency In Helium On The Gas Temperature, OPT. SPECTROS. 28 349 (1970).
162	(KR*)*(HG)	E	1	Bogdanova, I. P., Marusin, V. D., Study Of The Optical Excitation Functions Of Spectral Lines In A Mercury-Krypton Mixture, OPT. SPECTROS. 26 64 (1969).
163	(AR,AR*,HE,HE*,O_2,O_2*,N_2,N_2*,N_2,N_2*, N*)*(NA) (Cat. by Abstract Only)	E	0	Boitnott, C. A., Savage, H. F., Light-Emission Measurements Of Sodium At Simulated Meteor Conditions, ASTROPHYS. J. 160 351 (1970).
164	(TIBR$_4$,TI,TI*)*(AR)	E	2	Bond, A. A., Jr., Shock-Tube Study Of Ionization Of Titanium In Ti-Ar Mixtures, J. CHEM. PHYS. 49 3085 (1968).
165	(H*)*(CO_2)	E	4	Borovik, E. S., Busol, F. I., Kovalenko, V. A., Shlyenko, E. U., Yuferov, V. B., Ionization Of Fast Hydrogen Atoms In A Strong Magnetic Field, NUCL. FUSION 5 85 (1965).
166	Undef (Cat. by Abstract Only)	E	2	Borrell, Peter, Measurement Of Vibrational Relaxation Rates By Shock Techniques, TRANSFER STOR. ENERGY MOL. 2 180 (1969).
167	(M.)*(N_2) (O_2)*(O_2) (AR)*(D_2) (Cat. by Abstract Only)	E	2	Borrell, Peter, Fast Reactions In A Shock Tube, BILD. WISS. 3 654 (1966).
168	(HG*)*(KR,ZN) (Cat. by Abstract Only)	E	0	Botschnova, O. P., Yonin, U. Z., Tolmatschov, U. A., Frish, S. L., Investigation Of The Cross Sections For Excitation By Analysis Of The Radiation And Absorption Light In A Gas-Discharge Plasma, PROC. OF THE INTERNATL. CONF. ON OPTICAL PUMPING AND ATOMIC LINE SHAPE, P.231, WARSAW, POLAND (1969).
169	(H)*(H)	T	[illegible]	Bottcher, C., Flannery, M. R., Impact-Parameter Treatment Of Hydrogen-Hydrogen Excitation Collisions. III. Electron Exchange And Nuclear Symmetry Effects, J. PHYS. B 3 1600 (1970).
170	(H*)*(H)	T	5	Bouthilette, D. B., Healey, J. A., Milford, S. N., Double Inelastic Collisions Of Hydrogen Atoms With Excited Hydrogen Atoms In 2, 3, 4, States, ATOMIC COLLISION PROCESSES, P.1941, NORTH-HOLLAND PUBL. CO., AMSTERDAM (1964).
171	(CO_2)*(CO_2,N_2O,O_2,H_2,N_2,HE,AR)	E	1	Boutin, Robert, Ecuelbois, Daniel, Rossetti, Colette, Etude De La Transition 00° 1-Σ 00 De Co_2, COMPT. REND. 265B 195 (1967).
172	Undef	T	1	Brau, C. A., Jonkman, R. M., Classical Theory Of Rotational Relaxation In Diatomic Gases, J. CHEM. PHYS. 52 477 (1970).
173	Undef	T	2	Brechot, Sylvie, Feautrier, Nicole, Calcul Semi-Classique De L Elargissement Par Collisions Electroniques Des Raies Des Ions Positifs, COMPT. REND. 265B 39 (1967).
174	(H*)*(O_2)	T	4	Breene, R. G., Jr., Schumann-Runge Excitation By Protons, J. CHEM. PHYS. 45 3876 (1966).
175	(H*)*(O_2)	T	5	Breene, R. G., Jr., Proton Scattering By Molecules. I. The Two-State Oxygen Case And The Multistate Case, PHYS. REV. 131 2560 (1963).
176	(H*)*(N_2)	T	4	Breene, R. G., Jr., Inelastic Dissociative And Charge Exchange Scattering Of Protons By Nitrogen, AFCRL-64-330, AD-604 448 (1964).
177	(O_2*)*(O,H)	T	2	Breig, E. L., Statistical Model For The Vibrational Deactivation Of Molecular By Atomic Oxygen, J. CHEM. PHYS. 51 4539 (1969).
178	(N_2)*(N_2)	E	1	Brenner, W., Shane, E. C., Pressure-Dependence Of The Yellow Nitrogen Afterglow Intensity, CHEM. PHYS. LETTERS 2 143 (1968).
179	(AR*)*(N_2)	E	2	Brewer, L. L., Mc Gregor, W. K., Excitation Of Nitrogen By Metastable Argon Atoms, PHYS. FLUIDS 5 1485 (1962).
180	(N)*(N)	E	0	Broida, H. P., Inverted Population Distributions Produced By Chemical Reactions, AD-619 325 (1965). APPL. OPT. SUPPL. 2 CHEM. LASERS 105 (1965).
181	(C_2H_2)*(O_2)	E	1	Broida, Herbert P., Heath, Donald F., Spectroscopic Survey Of Energy Distributions Of OH, C_2, And CH Radicals In Low Pressure Acetylene-Oxygen Flames, J. CHEM. PHYS. 26 223 (1957).
182	(N)*(CO)	E	1	Broida, Herbert P., Heath, Donald F., Luminous Reaction Between Carbon Monoxide And Atomic Nitrogen, J. CHEM. PHYS. 26 1352 (1957).
183	(XE*,HG*)*(AIR)	E	0	Brouillard, F., Delfosse, J. M., Measurement Of Charge Exchange Cross Sections Of Mercury And Xenon Ions In Air, ANN. SOC. SCI. BRUX., SER. I, 78 149 (1964).

REACTANTS	EXP OR THEOR.	E RANGE	REFERENCE
184 (N_2)(N_2)	E	1	Brusyanova, L. B., Kolesnikov, V. N., Sobolev, N. N., Thermal Excitation Of The Spectrum Of Molecular Nitrogen, OPT. SPECTRY 19 453 (1965).
185 (HE*)(HE)	T	2	Buckingham, R. A., Dalgarno, A., Diffusion And Excitation Transfer Of Metastable Helium In Normal Gaseous Helium, PROC. ROY. SOC., LONDON 213A 506 (1952).
186 Undef	E	1	Bugria, D. E., Lyutyi, A. I., Pessikhla, V. S., Tsikora, I. L., Excitation Characteristics Of The Swan Bands Of C2 In Streams Of Vapors Of Metals And Organic Compounds, OPT. SPECTRY. 20 320 (1966).
187 (O**)(CA,V)	E	5	Burch, D., Richard, Patrick, X-Ray Spectra From Oxygen-Ion Bombardments On Ca And V At 15 Mev, PHYS. REV. LETTERS 25 983 (1970).
188 (NE)(N_2)	T	1	Burns, P. L., Scrutton, D., Tait, J. M., Taylor, A. Joanna, Thermal-Energy Atom-Molecule Collisions, J. PHYS. B 2 1155 (1969).
189 (HG*)(H_2,D_2)	E	1	Butaux, Jean, Lennuier, Robert, Effets Compares De L Hydrogene Et Du Deuterium Sur La Position Et Le Profil Spectral De La Raie Lambda Equals 2537 Angstroms Du Mercure 198, COMPT. REND. 264B 43 (1967).
190 (H*)(H)	T	4	Butler, S. T., Johnston, I. D. S., The Production Of Highly Excited Neutral Atoms For Injection Into Plasma Devices. I, NP-13964, TR-3, SYDNEY UNIV., SCHOOL OF PHYSICS (1964).
191 (H*)(H)	E	8	Butler, S. T., Parcell, L., Total Cross Section For Proton Excitation Of H Atoms, PHYS. LETTERS 14 130 (1965).
192 (H*)(H)	T	5	Butler, S. T., Johnston, I. D. S., Production Of High Excited Neutral Atoms For Injection Into Plasma Devices, PHYS. LETTERS 9 141 (1964).
193 (H*)(H)	T	5	Butler, S. T., May, R. M., Johnston, I. D. S., Production Of Highly Excited Neutral Atoms For Injection Into Plasma Devices, PHYS. LETTERS 10 281 (1964).
194 (NA-)(NA) (K-)(K) (RB-)(RB) (CS-)(CS)	E	3	Bydin, Yu. F., Resonance Charge Exchange Of Negative Ions Of The Alkali Metals, SOVIET PHYS.-JETP 19 1091 (1964).
195 (HG)(N_2)	T	1	Bykhovskii, V. K., Nikitin, E. E., Transitions Associated With Atomic-Molecular Collisions Quenching Of The Resonance Fluorescence Of Mercury, OPT. SPECTRY. 16 111 (1964).
196 (NA,K)(HE,AR)	T	1	Callaway, J., Bauer, E., Inelastic Collisions Of Slow Atoms, PHYS. REV. 140 A1072 (1965).
197 (N,C,O*)(H)	T	1	Callaway, Joseph, Dugan, Anthony F., Excitation Of Atomic Oxygen And Carbon By Collisions With Hydrogen Atoms, PHYS. REV. 163 26 (1967).
198 (H)(H) (NA)(AR)	T	2	Callaway, J., Laghos, P. S., Elastic Scattering And Inelastic Transitions, PHYS. LETTERS 26A [illegible] (1968).
199 Undef	T	3	Callaway, Joseph, Bartling, Judd Q., Inelastic Collisions Of Slow Atoms The Two-Level Model, PHYS. REV. 150 69 (1966).
200 (H*)(H)	T	4	Callaway, J., Dugan, A. F., Excitation Of Hydrogen By Proton Impact, PHYS. LETTERS 21 295 (1966).
201 (N_2)(NO)	E	1	Callear, A. B., Smith, I. W. M., Vibrational Energy Transfer Between N_2 X1 Sigma Sub G+ V Equals 1 And NO A2 Sigma+ V Equals 3, 2, And 1, NATURE 196 [illegible] (1962).
202 (HG*)(O_2)	E	1	Callear, A. B., Patrick, C. R., Robb, J. C., The Reaction Of Excited Mercury (Hg 6^3 P$_1$) With Oxygen, TRANS. FARADAY SOC. 55 280 (1959).
203 (NO*)(CO)	E	1	Callear, A. B., Vibrational Relaxation Of Nitric Oxide, DISC. FARADAY SOC. 33 28 (1962).
204 (I*)(C_2H_6,I_2,H_2,N_2,C_3H_8,CO_2,AR)	E	1	Callear, A. B., Wilson, J. F., Reactions Of Excited Atomic Iodine (5^2 P Sub 1/2) Part 2. Rate Parameters For Reaction With Ethane And Propane And The Variation Of Relaxation Rates With Temperature, TRANS. FARADAY SOC. 63 1983 (1967).
205 (FE*)(AR,HE,H_2,D_2,N_2,CO)	E	1	Callear, A. B., Oldman, R. J., Cross-Sections For De-Activation Of Fe (A5 D), TRANS. FARADAY SOC. 63 2888 (1967).
206 Review (Cat. by Abstract Only)	E	2	Callear, A. B., Energy Transfer In Molecular Collisions, PHOTOCHEM. REACT. KINET. 133 (1967).
207 (H)(CL_2) (HG*)(NA,TL) (HE*)(NE)	T	1	Callear, A. B., Measurement Of Energy Transfer In Molecular Collisions, APPL. OPT. SUPPL. 2 CHEMICAL LASERS 145 (1965).
208 Undef (Cat. by Abstract Only)	E	2	Callear, Anthony B., Lambert, J. D., Transfer Of Energy Between Chemical Species, COMPR. CHEM. KINET. 3 182 (1969).
209 (N_2*)(HG,NO)	E	1	Callear, A. B., Wood, P. M., Rates Of Energy Transfer From N_2 A3 Sigma Sub U+ To Atomic Mercury And Nitric Oxide, CHEM. PHYS. LETTERS 5 128 (1970).
210 (HG*)(CS_2)	E	1	Callear, A. B., Hedges, R. E. M., Flash Spectroscopy With Mercury Resonance Radiation. Part 1. An Experimental Method With Microwave-Pulse Excitation, TRANS. FARADAY SOC. 66 605 (1970).
211 (O_2)(AR)	E	0	Camac, Morton, O2 Vibration Relaxation In Oxygen-Argon Mixtures, J. CHEM. PHYS. 34 448 (1961).
212 (CO*)(CO_2)	E	1	Carbone, R. J., Witteman, W. J., Vibrational Energy Transfer In CO_2 Under Laser Conditions With And Without Water Vapor, IEEE J. QUANT. ELECTRON. QE-5 442 (1969).
213 (H*)(H)	T	5	Carew, J., Milford, S. N., Born Cross-Sections For Selected Inelastic Collisions Of Protons With Hydrogen Atoms In States Up To N Equals 19, ASTROPHYS. J. 138 772 (1963).
214 (H*,H)(N_2)	E	3	Carleton, N. P., Lawrence, T. R., Absolute Cross Sections For Excitation Of Nitrogen By Protons Of A Few Kev Energy, PHYS. REV. 109 1159 (1958).

	REACTANTS	EXP OR THEOR.	E ASSGT	REFERENCE
215	(CA°,MG°,NA°,K°)+(H$_2$)	E	3	Carleton, K. P., Laboratory Studies Of Atomic And Electronic Collision Processes Relevant To The Study Of The Upper Atmosphere, AFCRL 63 656, AD-416 208 (1964).
216	(H$_2$°)+(X)	E	1	Carleton, K. P., Studies Of Metastable Atoms And Molecules Using Beam Techniques, AFCRL 64-698, N64-33267, AD-607 836 (1964).
217	(K°,RE°,CA°,MG°)+(H$_2$)	E	3	Carleton, K. P., Laboratory Studies Of Atomic And Electronic Collision Processes Relevant To The Study Of The Upper Atmosphere, AD-277 166, AFCRL-62-675 (1962).
218	(H°)+(CH_4,C_2H_2)	E	5	Carre, Michel, Dufay, Maurice, Sur L Excitation Du Methane Et De Quelques Hydrocarbures Legers Par Choc De Protons Accelores, CURPT. REND. 2658 255 (1967).
219	(SC)+(O$_2$)	E	1	Carrington, A., Levy, D. H., Miller, T. A., Mechanism Of Formation Of Electronically Excited Sc(a ^{1} Delta). A Gas-Phase Electron Resonance Study, TRANS. FARADAY SOC. 62 2994 (1966).
220	(H$_2$)+(AR) (Cat. by Abstract Only)	E	0	Carroll, P. K., Note On The ^{3} Sigma Sub G° State Of H2, J. CHEM. PHYS. 37 485 (1962).
221	(N)+(N)	E	1	Carruthers, G. R., Goldstein, L., Experimental Investigations Of Atomic Nitrogen Recombination, AD-650 867 (1965).
222	(HG°)+(NE,KR,AR,XE,RE)	E	1	Casalta, Daniele, Barrat, Mireille, Sections Efficaces Des Gaz Rares Pour La Destruction De L Alignement Dans Le Niveau ^{3}P P2 Du Mercure, CURPT. REND. 2538 35 (1967).
223	(AR°,KR°,X°)+(AR) (Cat. by Abstract Only)	E	4	Cassignol, C., Daniel, F., Delmas, G., Rose, C., Measurement Of Angular Distribution Of Scattering With Charge Exchange Of Positive Ions Of Argon 40, Palladium 108, And Uranium 238 Of 30 Kev Energy By Argon Atoms, J. PHYS. RADIUM 20 20 (1959).
224	(N°)+(H)	T	5	Catlow, G. W., Mc Dowell, M. R. C., Cheshire, I. M., The Closure Approximation For Excitation Of Atomic Hydrogen By Proton Impact, J. PHYS. B 3 183 (1970).
225	(H°)+(H$_2$,...)	E	4	Cesa ..., A., Cristoferi, F., Colli, L. M., Sona, P. G., Description Of A Source Of Polarized Negative Hydrogen Or Deuterium Ions Based On The Properties Of The 2s Sub 1/2 Metastable State Theory And Experiments, ENERGIA NUCL. 11 409 (1964).
226	(HE)+(H$_2$)	T	2	Chan, Sei-Kit, Light, J. C., Lin, Joong-Long, Inelastic Molecular Collisions Exponential Solution Of Coupled Equations For Vibration-Translation Energy Transfer, J. CHEM. PHYS. 44 40 (1966).
227	(A)+(A,HE,NE,AR,KR,XE)	E	1	Chapman, G. D., Krause, L., Sensitized Fluorescence In Vapors Of Alkali Metals. VIII. Energy Transfer Between The 4^{2}p Levels In Potassium Induced By Inelastic Collisions, CAN. J. PHYS. 44 751 (1966).
228	(K,CS)+(HE,NE,A$^+$,KR,XE) (PB)+(TH) (CS)+(CS)	E	2	Chapman, G. D., Czajkowski, M., Rae, A. G. A., Krause, L., Excitation Transfer Between Thes^{2}p Sub 1/2 And^{2}p Sub 3/2 Resonance Levels In Alkali Atoms Induced By Inelastic Collisions, AFOSR 65-2040 (1965).
229	(K)+(AR)	T	1	Chapman, G. D., Krause, L., Sensitized Fluorescence In Vapors Of Alkali Metals. II. Energy Transfer In Potassium-Argon Collisions, CAN. J. PHYS. 43 343 (1965).
230	Under?	E	1	Chapman, G. D., Czajkowski, M., Rae, A. G. A., Krause, L., Excitation Transfer Between The^2 P Sub 1/2 And^2 P Sub 3/2 Resonance Levels In Alkali Atoms Induced By Inelastic Collisions, 6TH INT. CONF. PHYS. ELECTRON. ATOMIC COLLISIONS, P.52, SCIENCE RESEARCH PAPERS, NEW YORK (1965).
231	(K°)+(HG)	F	3	Chaudhri, R. N., Aslam, C. M., Mason, S. W., Ionization And Excitation Of Mercury Vapour By Positive Ion Impact, NATURE 173 1145 (1954).
232	(H$_2$°)+(H$_2$)	E	1	Chebotarev, G. P., Vasilenko, L. S., Rate And Cross Section Of Excitation Of The 3s2 Level Of Neon By 2^{3}s Metastable Helium Atoms During Discharges In A He-Ne Mixture, OPT. SPECTRY. 20 505 (1966).
233	(HCL)+(CO$_2$,...H) (HE)+(CO$_2$)	E	1	Chen, Hsu-Lin, Stephenson, J. C., Moore, C. Bradley, Laser-Excited Vibrational Fluorescence Of HCl And The HCl-CO2 Laser, CHEM. PHYS. LETTERS 2 393 (1968).
234	Under?	T	0	Chen, Joseph C. Y., Watson, Kenneth M., Electronic Transitions In Slow Collisions Of Atoms And Molecules. I, PHYS. REV. 174 152 (1968).
235	(H)+(H)	E	2	Chen, Jin-Li, Goodings, J. M., Electrostatic Probe Studies Of The Nitrogen Flow Afterglow, J. CHEM. PHYS. 51 4335 (1969).
236	(NO)+(NO)	E	2	Cheng, T. M., Chiang, H. M., Stephenson, E. A., Mahan, B. H., Tsao, C. W., Werner, A. S., Collisional Excitation Of Small Molecular Ions, J. CHEM. PHYS. 52 6150 (1970).
237	(NE°)+(H$_2$,O$_2$,CL$_2$,CO$_2$)	F	2	Cher, Mark, Hollingsworth, C. S., Chemiluminescent Reactions Of He(2^3 S) with Nitrogen, Oxygen, Carbon Monoxide, And Carbon Dioxide, J. CHEM. PHYS. 50 4964 (1969).
238	(H$_2$)+(H$_2$)+(AR) (H$_2$)+(CO)+(AR) (Cat. by Abstract Only)	F	0	Chernenko, L. A., Part Played By Second-Order Collisions In The Radiation Of Molecular Bands Of N2, And N2 + Ar And Co + Ar Mixtures In A Glow Discharge, IZV. VYSS. UCHEB. ZAVED., FIZ., NO. 5 67 (1966).
239	(H$_2$,CO)+(AR°)	E	0	Chernenko, L. A., Importance Of Collisions Of The Second Kind In The Emission Of N$_2$ And Co Molecular Bands From N$_2$ + Ar And Co$^+$ Ar Mixtures In Glow Discharges, SOVIET PHYS. J. 9 43 (1966).

	REACTANTS	EXP OR THEOR.	E RANGE	REFERENCE
240	(HE*)+(N_2)	E	1	Chernysheva, N. V., An Investigation Of The Excitation Of The First Negative Band System Of N_2^+ In A High-Frequency Helium-Nitrogen Discharge, OPT. SPECTRS. 28 241 (1970).
241	Undef	T	1	Cheron, Bernard, Barrat, Jean-Pierre, La Conservation De Coherence Hertzienne Dans La Fluorescence Sensibilisee, COMPT. REND. 266B 1324 (1968).
242	(H*)+(H)	T	6	Cheshire, Ian M., Sullivan, Edward C., Excitation Of Atomic Hydrogen By Protons, PHYS. REV. 160 4 (1967).
243	(LI)+(H)	T	4	Cheshire, Ian M., Kyle, Herbert Lee, Excitation Of Atomic Hydrogen By Lithium Atoms, N66-21192, NASA-TM-X-56457 (1965).
244	(H*)+(H)	T	4	Cheshire, I. M., Gallaher, D. F., Taylor, A. Joanna, Proton Scattering By Atomic Hydrogen Using A Pseudo-State Expansion, VI ICPEAC, P.375, THE MIT PRESS, CAMBRIDGE, MASS. (1969).
245	(H)+(LI)	T	5	Cheshire, I. M., Kyle, H. L., Excitation Of Atomic Hydrogen By Lithium Atoms, PHYS. LETTERS 17 115 (1965).
246	(H*)+(H)	T	5	Cheshire, I. M., Kyle, H. L., Excitation Of H Atoms By Fast Protons, PROC. PHYS. SOC., LONDON 88 785 (1966).
247	(H*)+(H)	T	5	Cheshire, Ian M., Sullivan, E. C., Excitation Of Atomic Hydrogen By Protons, N66-10395 (1965).
248	(H*)+(HD)	T	5	Cheshire, Ian M., Kyle, H. L., Excitation Of H - Atoms By Fast Protons, N66-17262 (1965).
249	(H*)+(H)	T	5	Cheshire, I. M., Sullivan, E. C., Excitation Of Atomic Hydrogen By Fast Protons, P. 54, 5TH INT. CONF. ON COLLISIONS, LENINGRAD (1967).
250	(H*)+(H)	T	5	Cheshire, I. M., Theory Of Proton-Hydrogen Collisions, PHYS. REV. 138 A992 (1965).
251	(H*)+(H)	T	5	Cheshire, I. M., Theory Of Proton-Hydrogen Collisions, N66-33163 (1966).
252	(H*)+(H)	T	5	Cheshire, I. M., Gallaher, D. F., Taylor, A. Joanna, Coupled-State Calculations Of Proton-Hydrogen Scattering With A Pseudo-State Expansion, J. PHYS. B 3 813 (1970).
253	Undef	T	2	Cheung, Agnes S., Wilson, David J., Quantum Vibrational Transition Probabilities In Atom-Diatomic Molecule Collisions, J. CHEM. PHYS. 51 3448 (1969).
254	Undef	T	2	Cheung, Agnes S., Wilson, David J., Quantum Vibrational Transition Probabilities In Atom-Diatomic Molecule Collisions. II. Linear And Multistep Intermolecular Potentials, J. CHEM. PHYS. 51 4733 (1969).
255	Undef	T	2	Chibisov, M. I., Resonant Transfer Of Excitation And Change In The Hyperfine Atomic State, SOVIET PHYS.-DOKLADY 12 583 (1968).
256	(CS)+(CS) (RB)+(RB) (K)+(K) (NA)+(NA) (LI)+(LI)	T	2	Chibisov, M. I., Resonance Transfer Of Excitation In Collision Of Heavy Atoms, SOVIET PHYS.-DOKLADY 14 574 (1969).
257	(N*)+(XE)	E	1	Chirkov, V. N., Yakovleva, A. V., A Study Of The Excitation Of Xenon By Active Nitrogen, OPT. SPECTRS. 28 237 (1970).
258	Undef	T	2	Chiu, Lue-Yung Chow, Depolarization Of Resonance Fluorescence From Interacting Atoms, J. CHEM. PHYS. 52 3[illegible] (1970).
259	(N)+(NO_2)	E	1	Clough, P. N., Thrush, B. A., Formation Of Vibrationally Excited N2O In The Reaction Of Nitrogen Atoms With NO2, PROC. ROY. SOC., LONDON 309A 419 (1969).
260	(NO)+(O_3)	E	2	Clyne, M. A. A., Thrush, B. A., Wayne, R. P., Kinetics Of The Chemiluminescent Reaction Between Nitric Oxide And Ozone, TRANS. FARADAY SOC. 60 359 (1964).
261	(HE*)+(HE)	T	3	Coffey, Dewitt, Jr., Lorents, D. C., Smith, F. T., Collision Spectroscopy Of 2^3S Excitation In He By He* Impact, VI ICPEAC, P.299, THE MIT PRESS, CAMBRIDGE, MASS. (1969).
262	(HE*)+(HE)	T	3	Coffey, Dewitt, Jr., Lorents, D. C., Smith, F. T., Collision Spectroscopy. II. Inelastic Scattering Of He* By He, PHYS. REV. 187 201 (1969).
263	Undef	T	1	Cohen, Audrey O., Marcus, R. A., Classical Mechanics Of Rotational-Translational And Other Energy Transfer. I. A Hamilton-Jacobi (Action-Angle) Treatment, J. CHEM. PHYS. 49 4509 (1968).
264	Undef	T	8	Cohen, Audrey O., Marcus, R. A., Rotational-Translational Energy Transfer. II. Comparison Of Action-Angle Solution In The Near-Static Approximation With Exact Results, J. CHEM. PHYS. 52 3140 (1970).
265	(HG*)+(N_2)	E	1	Cojan, Jean-Louis, Nuel, Michel, Etude De L Extinction Des Niveaux 7^3S1 Et 6^3P1 Du Mercure Par Chocs Avec Des Molecules D Azote, COMPT. REND. 243B 1223 (1956).
266	(H*)+(H)	T	8	Coleman, J. P., The Impulse Approximation For Excitation, P. 74, 5TH INT. CONF. ON COLLISIONS, LENINGRAD (1967).
267	(H*,HE*)+(H)	T	5	Coleman, J. P., Mcdowell, M. R. C., Electron Capture From Atomic Hydrogen By Alpha Particles And Protons, PROC. PHYS. SOC. 85 1097 (1965).
268	(H*)+(H)	T	5	Coleman, J. P., Mc Dowell, M. R. C., Van Den Bos, J., De Heer, F. J., Transition Probabilities For Electron Capture, PHYSICA 32 1164 (1966).
269	(H*)+(H)	T	5	Coleman, J. P., The Impulse Approximation For Excitation Of Atomic Hydrogen, PROC. PHYS. SOC., LONDON 1B 567 (1968).
270	(H*)+(H)	T	4	Coleman, J. P., Mc Dowell, M. R. C., Excitation Of Hydrogen In The Impulse Approximation, PROC. PHYS. SOC., LONDON 87 [illegible] (1966).

	REACTANTS	EXP OR THEOR.	E RANGE	REFERENCE
271	(N_2*)(N_2,SO_2,O_2,H_2,NE,D_2,AR,KR)	E	2	Colgan, S. J., Levitt, B. P., Vibrational Relaxation Of Nitrogen By Various Collision Partners At 2500 Degrees K, TRANS. FARADAY SOC. 63 2098 (1967).
272	(SO_2*)(SO_2)	E	2	Collier, Susan S., Morikawa, Akira, Slater, David H., Calvert, Jack G., Reinhardt, George, Damon, Edward, The Lifetime And Quenching Rate Constant For The Lowest Triplet State Of Sulfur Dioxide, J. AM. CHEM. SOC. 92 217 (1970).
273	(HE*)(CO,N_2,NE,H_2O,N_2,NH_3,NO,CO_2,O_2) (HE_2*)(O_2,CO,N_2,NE-NO,H_2O) (HE*)(CO,NO,H_2O,NH_3,CS_2,CS,CH_4,C_2H_2)	T	9	Collins, C. B., Robertson, W. W., Spectra Excited In A Helium Afterglow, J. CHEM. PHYS. 40 701 (1964).
274	(HE*)(N_2,O_2,CO)	E	1	Collins, C. B., Robertson, W. W., Helium Metastable-Admixed Gas Reactions In A Flow-System, 6TH INT. CONF. ION. PHENOMENA GASES, I 153, SERMA, PARIS (1963).
275	(HE_2*)(O_2,N_2)	E	0	Collins, C. B., Hurt, W. B., Robertson, W. W., The Molecular Spectrum In A Helium Afterglow, ATOMIC COLLISION PROCESSES, P.517, NORTH-HOLLAND PUBL. CO., AMSTERDAM (1964).
276	(HE*)(N_2) (Cat. by Abstract Only)	E	0	Collins, C. B., Jr., Selective Excitation Of Spectra In A Flowing Helium Afterglow, THESIS, UNIV. OF TEXAS (1963).
277	(HE)(HE)	T	0	Colombo, L., Marbovic, B., Pavlovic, Z., Persin, A., Approximate Determination Of The Effective Cross Section For Excitation Transfer In A Two-Component Gas Mixture, J. OPT. SOC. AM. 56 890 (1966).
278	(HBR*)(CO_2)	E	2	Cool, Terrill A., Stephens, Ronald R., HBr-CO_2 Continuous-Wave Chemical Laser, J. CHEM. PHYS. 52 3304 (1970).
279	(O*)(O_2) (O_2*)(AR)	E	2	Cosby, P. C., Moran, T. F., Vibrational Excitation In Collisions Involving Oxygen Ion Beams, J. CHEM. PHYS. 52 6157 (1970).
280	(H*)(H_2,HE)	E	4	Cristofori, F., Frigerio, G. E., Molho, N., Sona, P. G., Absolute Measurement Of The Cross Section For Production Of Hydrogen Atoms In The 2s State, 6TH INT. CONF. ION. PHENOMENA GASES, I 69, SERMA, PARIS (1963).
281	(N_2)(N_2) (D_2,H_2)(AR) (Cat. by Abstract Only)	E	2	Cross, Jon Byron, Elastic Scattering In Velocity-Selected Molecular Beams At Thermal Energies, THESIS, UNIV. OF ILL. (1967).
282	(H)(HE)	T	5	Crothers, D. S. F., Mc Eachran, R. P., Excitation Of The Helium S Levels By Hydrogen Impact, J. PHYS. B 3 976 (1970).
283	(H*)(HE)	T	5	Crothers, D. S. F., Analytic Curve Fits To Helium Transition Integrals, J. PHYS. B 3 1211 (1970).
284	(NA*)(AR) (Cat. by Abstract Only)	E	0	Cucurezeanu, I., Tudorache, S., The Effect Of Collisions By Atomic Argon On Excited Sodium Atoms, REV. ROUM. PHYS. 14 515 (1969).
285	Undef (Cat. by Abstract Only)	E	2	Cundall, Robert B., Electronic And Vibrational Energy Transfer In Gas Phase Systems, TRANSFER MECH. ENERGY EXC. 1 1, EDITED BY GEORGE W. BURNETT, WILEY-INTER. SCI., LONDON (1969).
286	(AR*)(AR)	E	5	Cunningham, M. E., Der, R. C., Fortner, R. J., Kavanagh, T. M., Chen, J. M., Layne, C. B., Zaharis, E. J., Garcia, J. D., X-Ray Spectra From Argon-Argon Collisions, PHYS. REV. LETTERS 24 931 (1970).
287	(CO)(CO)	T	1	Curry, Bill P., Analytical Theory Of Multiquantum Vibrational Excitation In Molecular Collisions, J. CHEM. PHYS. 51 [illegible] (1969).
288	Undef	T	1	Curtiss, C. F., Molecular Collisions. XII. Generalized Phase Shifts, J. CHEM. PHYS. 52 4832 (1970).
289	Undef	T	2	Curtiss, C. F., Bernstein, R. B., Molecular Collisions. IX. Restricted Distorted-Wave Approximation For Rotational Excitation And Scattering Of Diatomic Molecules, J. CHEM. PHYS. 50 1168 (1969).
290	Review	T	1	Curtiss, C. F., Molecular Collisions. XI, J. CHEM. PHYS. 52 1978 (1970).
291	(CS)(HE,NE,AR,KR,XE)	E	1	Czajkowski, M., Mc Gillis, D. A., Krause, L., Sensitized Fluorescence In Vapors Of Alkali Metals. V. Energy Transfer In Collisions Between Cesium And Inert Gas Atoms, CAN. J. PHYS. 44 91 (1966).
292	(CS)(CS)	E	1	Czajkowski, M., Krause, L., Sensitized Fluorescence In Vapors Of Alkali Metals. III. Energy Transfer In Cesium-Cesium Collisions, CAN. J. PHYS. 43 1259 (1965).
293	(RB)(CS)	E	1	Czajkowski, M., Mc Gillis, D. A., Krause, L., Sensitized Fluorescence In Vapors Of Alkali Metals. VII. Energy Transfer In Rubidium-Cesium Collisions, CAN. J. PHYS. 44 741 (1966).
294	(H*,H)(N_2,N)	E	5	Dahlberg, D. A., Anderson, D. K., Dayton, I. E., Excitation Of N2 And N By Proton And Hydrogen-Atom Impact, P. 434, 5TH INT. CONF. ON COLLISIONS, LENINGRAD (1967).
295	(H*,H)(N_2)	E	5	Dahlberg, Duane A., Anderson, D. Kent, Dayton, Irving E., Vacuum Ultraviolet Emission Produced By Proton And H-Atom Impact On N2, PHYS. REV. 170 127 (1968).
296	(H*,H)(N_2,H_2) (Cat. by Abstract Only)	E	5	Dahlberg, Duane Arlen, Optical Emission Produced By Proton And Hydrogen Atom Impact On Nitrogen And Hydrogen Molecules, THESIS, MONTANA STATE UNIV. (1967).
297	(H*,H)(N_2)	E	5	Dahlberg, Duane A., Anderson, D. Kent, Dayton, Irving E., Optical Emission Produced By Proton And Hydrogen-Atom Impact On Nitrogen, PHYS. REV. 164 20 (1967).

	REACTANTS	EXP OR THEOR.	E RANGE	REFERENCE
298	Review (Cat. by Abstract Only)	T	4	Dalgarno, A., Reid, R. H. G., Excitation Of Forbidden Transitions By Heavy Particle Impact, MEM. SOC. ROY. SCI. LIEGE 17 57 (1969).
299	(AP)e(AIR)	T	4	Dalgarno, A., Interaction Of Energetic Charged Particles With The Atmosphere, AURORAL PHENOMENA, P.35, STANFORD UNIVERSITY PRESS, STANFORD, CALIF. (1965).
300	(H)e(H2,D2)	T	1	Dalgarno, A., Henry, R. J. W., Roberts, C. S., Rotational Excitation Of H2 And D2 By H Impact, PROC. PHYS. SOC., LONDON 88 611 (1966).
301	Theory (Cat. by Abstract Only)	T	4	Dalgarno, Alexander, Reid, Robert H. G., Excitation Of Forbidden Transitions By Heavy-Particle Impact. Introductory Report, MEM. SOC. ROY. SCI. LIEGE 17 57 (1969).
302	(H+)e(H,HE)	T	4	Dalgarno, A., Inelastic Heavy Particle Collision Processes, ATOMIC COLLISION PROCESSES, P.609, NORTH-HOLLAND PUBL. CO., AMSTERDAM (1964).
303	(H+)e(H)	T	5	Dalgarno, A., Griffing, G. W., Energy Loss Of Protons Passing Through Hydrogen, PROC. ROY. SOC., LONDON 232A 423 (1955).
304	(H+)e(HE) (Cat. by Abstract Only)	E	4	Dalgarno, A., Mc Dowell, M. R. C., Simultaneous Excitation And Ionization Of Helium By Electron And Proton Impact, THE AIRGLOW AND THE AURORAE, P.340, PERGAMON PRESS, LONDON (1956).
305	(H+,H)e(H,HE)(O+)e(O)	T	5	Dalgarno, A., Atom-Atom Collision Processes In Astrophysics Theoretical Studies, REV. MOD. PHYS. 39 858 (1967).
306	(H+)e(H2)	T	2	Dalgarno, A., Inelastic Collisions At Low Energies, CAN. J. CHEM. 47 1723 (1969).
307	(NH3,O)e(H2, [illegible])	E	1	Daly, P. W., Oka, T., Microwave Studies Of Collision-Induced Transitions Between Rotational Levels. VII. Collisions Between NH3 And Non-Polar Molecules, J. CHEM. PHYS. 53 3272 (1970).
308	(KR+)e(KR)(XE+)e(XE)	E	2	Dana, L., Laures, P., Stimulated Emission In Krypton And Xenon Ions By Collision With Metastable Atoms, PROC. INST. ELECT. ELECTRONICS ENGRS. 53 78 (1965).
309	(AR)e(AR)(CO)e(CO)(XE)e(XE) [illegible]	T	1	Das Gupta, A., Storvick, T. S., Analysis Of The Heat Conductivity Data For Polar And Nonpolar Gases Using Thermal Transpiration Measurements, J. CHEM. PHYS. 52 742 (1970).
310	[illegible]	E	4	Dashevskaya, E. I., Nikitin, E. E., Transitions Between Fine-Structure Components Of Alkali Atoms In Adiabatic Collisions, P. 141, 5TH INT. CONF. ON COLLISIONS, LENINGRAD (1967).
311	[illegible] (CS*)e(HE)(NA*)e(AR)	T	1	Dashevskaya, E. I., Nikitin, E. E., Inelastic Transitions Between The Fine-Structure Components Of Alkali-Metal Atoms In The Case Of Adiabatic Collisions. II. Calculations Of Cross Sections, OPT. SPECTROS. 22 473 (1967).
312	(NA*)e(NA)(K*)e(K)(RB*)e(RB)(CS*)e(CS)	T	1	Dashevskaya, E. I., Voronin, A. I., Nikitin, E. E., Excitation Transfer In Collisions Between Alkali Atoms, VI ICPEAC, P.652, THE MIT PRESS, CAMBRIDGE, MASS. (1969).
313	Theory	T	4	Dashevskaya, E. I., Voronin, A. I., Nikitin, E. E., Theory Of Excitation Transfer In Collisions Between Alkali Atoms. I. Identical Partners, CAN. J. PHYS. 47 1237 (1969).
314	(K)e(RB)	T	1	Dashevskaya, E. I., Nikitin, E. E., Voronin, A. I., Zembekov, A. A., Theory Of Excitation Transfer In Collisions Between Alkali Atoms. II. Dissimilar Partners, CAN. J. PHYS. 48 981 (1970).
315	(RB*)e(HE,AR,H2)(CS*)e(HE,NE)	T	1	Dashevskaya, E. I., Nikitin, E. E., Reznikov, A. I., Theory Of Intra-Multiplet Mixing In Alkali Metal Atoms During Collision, OPT. SPECTROS. 29 568 (1970).
316	(HE*)e(HE)	E	4	Davidson, C. W., Farvis, W. E. J., Microwave Studies Of A Pulsed Glow Discharge, PHYS. REV. 127 1858 (1962).
317	(CO2)e(AR)	E	1	Davies, W. O., Carbon Dioxide Dissociation At 6000 Degrees To 11,000 Degrees K. J. CHEM. PHYS. 43 2805 (1965).
318	(HG)e(HG)	E	3	Davies, D. E., Dutton, J., Secondary Ionization Processes In Mercury Vapour, 7TH INTERN. CONF. PHENOMENA IN IONIZED GASES I 292, GRAD. G. PUBL. HOUSE, BELGRADE (1966).
319	(H2)e(H2)(N2)e(N2)	T	1	Davison, W. D., General Distorted-Wave Treatment Of Rotational Transitions In Molecular Collisions, PROC. ROY. SOC., LONDON 280A 227 (1964).
320	(H+)e(HE)	T	5	Davison, W. D., Proton Excitation Of Helium In The Distortion Approximation, PHYS. LETTERS 27A 570 (1968).
321	(H2)e(H2)	T	2	Davison, W. D., Rotational Energy Transfer In Molecular Collisions Transitions In Parahydrogen, DISC. FARADAY SOC. 33 71 (1962).
322	(HE+)e(NE,AR,KR,XE)	E	5	De Heer, F. J., Leyten, R. F. J., Jaecks, D., Wolterbeek Muller, L., Excitation Of Ne, Ar, Kr And Xe By He+ Impact (0.3-10 Kev), PHYSICA 41 588 (1969).
323	(HE+)e(HE)	E	4	De Heer, F. J., Van Den Bos, J., Excitation Of Helium By Helium Ions, PHYSICA 30 741 (1964).
324	(HE+)e(HE)	E	4	De Heer, F. J., Van Den Bos, J., Excitation Of Helium By He+ And Polarization Of The Resulting Radiation, PHYSICA 31 365 (1965).
325	(HE+)e(HE)	E	4	De Heer, F. J., Wolterbeek Muller L., Geballe, R., Electron Capture Into Excited States By Helium Ions Incident On Helium, PHYSICA 31 1745 (1965).
326	(HE+)e(NE,AR,KR,XE)	E	4	De Heer, F. J., Jaecks, D., Salop, A., Muller, Wolterbeek, Leyten, R. F. J., Excitation Of Ne, Ar, Kr, And Xe By He+ Impact (0.3-35 Kev), P. 283, 5TH INT. CONF. ON COLLISIONS, LENINGRAD (1967).

	REACTANTS	EXP OR THEOR.	E RANGE	REFERENCE
327	$(H^+)(N_2)$	E	5	De Heer, F. J., Aarts, J. F. M., Emission Cross Sections Of The First Negative Band System of N_2 Produced By Proton Impact, PHYSICA 40 620 (1969).
328	$(H^+)(HE)$	T	4	De Heer, F. J., Inelastic Collisions Of Fast Electrons And Ions With Atoms, NED. TIJDSCHR. NATUURK. 30 352 (1964).
329	$(H,H^+,H_2^+,H_3^+,HE)(HE)(H^+)(H)(AR^+)(KR,AR,NE,HE)(N^+)(NE,HE,N_2)(HE^+)(HE,H_2,NE,AR,KR)(H_2^+,D_2^+)(AR,NE,HE,NE,H_2)(H_2^+)(HE,NE,H_2)(HE^+,NE^+)(H_2)$	E	4	De Heer, F. J., Experimental Studies Of Excitation In Collisions Between Atomic And Ionic Systems, ADVAN. IN ATOMIC MOLECULAR PHYS. 2 328, ACADEMIC PRESS, NEW YORK (1966).
330	$(H^+,HE^+)(H_2,NE,HE,AR)$	E	4	De Heer, F. J., Van Eck, J., Kistemaker, J., Electron Capture Into An Excited State By H^+ And He^+ Incident On H2 And Noble Gases (5-35 keV), 6TH INT. CONF. ION. PHENOMENA GASES, 1 73, SERMA, PARIS (1963).
331	$(HE^+,H^+)(HE)$	E	4	De Heer, F. J., Van Eck, J., Excitation Of He Induced By H^+ And He^+ Impact. (5-35 keV), ATOMIC COLLISION PROCESSES, P.635, NORTH-HOLLAND PUBL. CO., AMSTERDAM (1964).
332	Review	T	5	De Heer, F. J., Experimental Studies Of Excitation In Collisions Between Atomic And Ionic Systems, ADVAN. AT. MOL. PHYS. 2 327, ACADEMIC PRESS INC., NEW YORK (1966).
333	Undef (Cat. By Abstract Only)	E	0	De Laet, C., Demeur, M., Note On The Theory Of Atomic Coulomb Excitation, BULL. ACAD. ROY. BELG. 45 546 (1959).
334	$(H^+)(HE)$	E	5	Denis, Alain, Dufay, Maurice, Gaillard, Michel, Sur L Excitation Des Niveaux Singlets De L Helium Par Protons Acceleres, COMPT. REND. 264 440 (1967).
335	Undef (Cat. By Abstract Only)	T	2	Denisik, S. A., Lebedev, S. N., Malama, Yu. G., Polak, L. S., Vibration Relaxation And Dissociation Of Anharmonic Oscillators At High Temperatures. Comparative Study Of Single-Quantum And Many-Quantum Translation-Vibration Transition Models, KHIM. VYS. ENERG. 2 386 (1968).
336	$(O_2^*)(I_2)$	E	2	Derwent, R. G., Kearns, D. R., Thrush, B. A., The Excitation Of Iodine By Singlet Molecular Oxygen, CHEM. PHYS. LETTERS 6 115 (1970).
337	$(N_2^+)(N_2,AR)$	E	5	Desesquelles, Jean, Determination Des Sections Efficaces D Excitation Et Des Durees De Vie Par Spectroscopie Optique D Un Faisceau D Ions Traversant Une Cible Gazeuse, COMPT. REND. 269 972 (1969).
338	$(N)(M)(NO)(N_2,CO,H_2)(NA)(N_2)$	T	0	Dickens, P. G., Linnett, J. W., Sovers, O., Collisional Energy Transfer Between Electronic And Vibrational Degrees Of Freedom, DISC. FARADAY SOC. 33 52 (1962).
339	$(H^+,H_2^+)(HE,H_2)$	E	3	Dieterich, Ernest J., Excitation Of Light In Hydrogen And Helium By Hydrogen Ions, PHYS. REV. 103 632 (1956).
340	$(K^+)(H_2,D_2)$	E	?	Dittner, Peter F., Datz, Sheldon, Vibrational Excitation And Fragmentation Of Molecular Hydrogen From Slow K^+ Collisions, J. CHEM. PHYS. 49 1969 (1968).
341	$(H^+)(HE)$	E	0	Dodd, J. G., Hughes, R. H., Spectra Induced By Proton Impact On Helium, PHYS. REV. 135 A618 (1964).
342	$(H^+)(HE)$	E	5	Dodd, Jack Gordon, Jr., Spectra Induced By Proton Impact On Helium, THESIS, UNIV., ARKANSAS (1965).
343	$(N_2^+)(N_2)$	E	3	Doering, J. P., Excitation Of The N2+ First Negative System In The Bombardment Of N2 By N2+ Of A Few Kev Energy, W-7405-ENG-36, CONF-66-03 (1962).
344	$(N_2^+)(N_2)$	E	3	Doering, J. P., Cross Sections For Some N2+ And N2 Emissions Excited By 1- To 10-Kev N2+ On N2, PHYS. REV. 133 A1537 (1964).
345	$(H^+)(CS)$	E	4	Donnally, B. L., Clapp, T., Sawyer, W., Schultz, M., Metastable Hydrogen Atoms Produced In Charge Exchange, PHYS. REV. LETTERS 12 502 (1964).
346	$(CO^*)(CO,AR,H_2,N_2,O_2)$	E	1	Donovan, R. J., Husain, D., Vibrational Excitation Of Carbon Monoxide Following Quenching Of The A1 Pi State, TRANS. FARADAY SOC. 63 2879 (1967).
347	$(I^*)(CH_3I,C_2H_5I,C_3H_7I)$	E	2	Donovan, R. J., Hathorn, F. G. M., Husain, D., Study Of Electronically Excited Iodine Atoms, I(5² P Sub 1/2) In The Presence Of Alkyl Iodides, TRANS. FARADAY SOC. 64 3192 (1968).
348	$(S^*)(H_2,COS)$	E	7	Donovan, R. J., Direct Observation Of S(3P J) Atoms In The Vacuum Ultra-Violet Photolysis Of COS, TRANS. FARADAY SOC. 65 1419 (1969).
349	Undef	E	0	Dopel, R., Range And Energy Loss Of Heavy Particles In The Energy Of The Normal Cathode Fall Of A Glow Discharge, WISS. Z. HOCHSCH. ELEKTROTECH. ILMENAU 9 469 (1963).
350	$(H^+)(HE)$	E	1	Dose, V., Total Cross Sections For Electron Capture By Protons From Helium Into The Excited 2P- And 2S-States Of Hydrogen, HELV. PHYS. ACTA 39 683 (1966).
351	$(H)(HE,NE,AR)$	E	5	Dose, V., Gunz, R., Meyer, V., Collisions Of Hydrogen With Rare Gases II. Absolute Total Cross Sections For Excitation Of Lyman-Alpha Radiation, HELV. PHYS. ACTA 41 269 (1968).
352	$(H)(HE,NE,AR)$	T	4	Dose, V., Polarization Of Lyman Alpha Radiation In Hydrogen-Rare-Gas Collisions, J. PHYS. B 2 15 (1969).
353	$(H)(HE,NE,AR)$	E	5	Dose, V., Gunz, R., Meyer, V., Collisions Of Hydrogen With Rare Gases I. Polarization Of Lyman-Alpha Radiation, HELV. PHYS. ACTA 41 264 (1968).
354	$(H^+,H_2^+)(HE)$	E	4	Drtil, W., Messungen Der Druckabhaengigen Relaxationszeiten Der Ausrichtung (Alignment) Einiger Durch Ionenstoss Angeregter Helium-Singulettzustaende, Z. NATURFORSCH. 24A 358 (1969).

	REACTANTS	EXP OR THEOR.	E RANGE	REFERENCE
355	Other	T	[illegible]	Dubner, [illegible], Inelastic Collisions Of Atoms In The Classical Approximation, OPT. SPECTROS. 26 4 (1969).
356	(C)+(C[illegible])	T	1	Dubrow, Robert, Wilson, David J., Vibrational Energy Transfer In Gases Atom-Triatomic-Molecule And Diatomic-Diatomic-Molecule Collisions, J. CHEM. PHYS. 50 1553 (1969).
357	(H^+,H_2^+)+(N_2,O_2)	E	8	Dufay, M., Druetto, M., Eidelsberg, M., Sur L Excitation De L Azote Et De L Oxygene Par Ions Acceleres, COMPT. REND. 261 1635 (1965).
358	(H^+,He^+,H_2^+)+(N_2)	E	5	Dufay, M., Druetto, M., Eidelsberg, M., Sur La Luminescence De L Azote Excitee Par Choch De Particules Accelerees Sous 300 Kev, COMPT. REND. 260 1901 (1965).
359	(H_2^+)+(O_2)	E	5	Dufay, M., Druetto, M., Eidelsberg, M., The Luminescence Of The Oxygen Excited By Collision Of Particles Accelerated Under 300 Kev, COMPT. REND. 260 1123 (1965).
360	(H^+)+(NE,HE,AR,KR) (LI^+)+(AR)	E	5	Dufay, M., Buchet, J. P., Carre, M., Denis, A., Desesquelles, J., Gaillard, M., On The Excitation Of Rare Gases By Impact Of Accelerated Ions, P. 295, 5TH INT. CONF. ON COLLISIONS, LENINGRAD (1967).
361	(H^+,H_2^+)+(CO,CO_2)	T	2	Dufay, M., Poulizac, M. C., Study Of The Luminescence Of Carbon Monoxide And Carbonic Gas Excited By Collisions With Accelerated Ions, REV. SOC. ROY. SCI. LIEGE 12 627 (1966).
362	(H^+)+(NE,HE,AR,[illegible],CO,CH_4,[illegible])	E	5	Dufay, M., Desesquelles, J., Carre, M., Denis, A., Druetto, M., Eidelsberg, M., Poulizac, M. C., On The Excitation Of Some Polyatomic Gases By Impact Of Accelerated Ions, P. 297, 5TH INT. CONF. ON COLLISIONS, LENINGRAD (1967).
363	(H^+)+(N_2,O_2)	E	5	Dufay, M., Desesquelles, J., Druetto, M., Eidelsberg, M., Etude De L Excitation De L Azote Et De L Oxygene Par Chocs Protoniques, ANN. GEOPHYS. 22 614 (1966).
364	(N_2,CO*)+(HG)	E	2	Dugan, C. H., Excitation And Ionization Of Hg By Metastable States Of N2 And Co, CAN. J. CHEM. 47 2314 (1969).
365	Other	T	6	Dumont, S., Research On The Equilibrium Population Of The Excited State Of An Atom In A Layer Of Gas In Thermal Equilibrium, COMPT. REND. 258 2765 (1964).
366	(HE^+,H^+,H_2^+,H_3^+)+(H_2,D_2) ([illegible])+([illegible]) (H^+,H_2^+)+(H)	E	3	Dunn, G. H., Geballe, R., Pretzer, D., Production Of Lyman Alpha Radiation In Ion-Atom Collisions, PHYS. REV. 128 2195 (1962).
367	(H_2^+)+(H)	T	[illegible]	Durup, Jean, Semi-Classical Model For The Collision-Induced Excitation And Dissociation Of Fast Ions, CONF-[illegible], [illegible] (1966).
368	(HE^+)+(HE)	T	[illegible]	Dworetsky, S. H., Novick, R., Smith, W. W., Tolk, N., Gross Failure Of The Conventional Adiabatic Criterion Structure And Coherence In The Low - Energy Excitation Of Helium Atoms By Helium Ions, PHYS. REV. LETTERS 18 939 (1967).
369	(HE^+)+(HE)	E	3	Dworetsky, S. H., Novick, R., Tolk, N., Total Excitation Cross Sections For The 2^1P State Of He In Low-Energy He^+ - He Collisions, VI ICPEAC, P.294, THE MIT PRESS, CAMBRIDGE, MASS. (1969).
370	(HE^+)+(HE)	E	4	Dworetsky, S. H., Novick, R., Smith, W. W., Tolk, N., Failure Of The Adiabatic Criterion Structure And Coherence In The Low Energy Excitation Of Helium Atoms By Helium Ions, 5TH INT. CONF. ON COLLISIONS, P.289, LENINGRAD (1967).
371	(H^+)+(N_2,[illegible])	E	5	Eather, R. H., Some Recent Results On The Measurement Of Hydrogen And Helium Emissions In The Auroral Zone, ANN. GEOPHYS. 24 145 (1968).
372	(H^+)+(N)	[illegible]	5	Eather, R. H., Burrows, K. M., Excitation And Ionization By Auroral Protons, AUSTRALIAN J. PHYS. 19 309 (1966).
373	(H^+)+([illegible])	E	5	Ecklin, D., [illegible], Rossel, J., Conduction Ionique Sans [illegible] Et Col, HELV. PHYS. ACTA 37 206 (1964).
374	(H^+,[illegible])+(NE)	E	5	Edwards, A. K., Rudd, M. E., Excitation Of Auto-Ionizing Levels In Neon By Ion Impact, PHYS. REV. 170 140 (1968).
375	(H^+)+(H_2)	E	5	Edwards, J. L., Thomas, E. W., Emissions From A Molecular Hydrogen Target Induced By The Impact Of Fast Protons, PHYS. REV. 165 16 (1968).
376	Other	T	[illegible]	Edwards, S. F., The Theory Of Polymer Solutions In Intermediate Concentration, PROC. PHYS. SOC., LONDON 88 265 (1966).
377	(H^+)+(H_2)	T	5	Edwards, J. L., Thomas, E. W., Balmer Emissions From A Molecular Hydrogen Target Induced By The Impact Of Fast Protons, P. 290, 5TH INT. CONF. ON COLLISIONS, LENINGRAD (1967).
378	(H^+)+(HE,H_2) (Cal. by Abstract Only)	E	[illegible]	Edwards, Joseph Lee, The Formation And Destruction Of Excited Hydrogen Atoms At High Impact Velocities, THESIS, GEORGIA INSTITUTE OF TECHNOLOGY (1970).
379	(H^+)+(HE,H_2)	E	5	Edwards, J. L., Thomas, E. W., Formation And Destruction Of Excited Hydrogen Atoms At High Impact Velocities, PHYS. REV. A 2 2346 (1970).
380	(NA^+)+(HE,NE,AR,KR,XE) (Cal. by Abstract Only)	E	8	Elbel, M., Schneider, W., Excited-State Mixing Of Sodium Atoms By Collisions With Noble-Gas Atoms As Observed In Optical Pumping Experiments Employing D_2 Light, PROC. OF THE INTERNATL. CONF. ON OPTICAL PUMPING AND ATOMIC LINE SHAPE, P.131, WARSAW, POLAND (1969).
381	(H_2,H_2^+)+(D)	T	2	Endres, Paul F., Vibrational Transition Probabilities For The Morse Oscillator, J. CHEM. PHYS. 51 477 (1969).

	REACTANTS	EXP OR THEOR.	E RANGE	REFERENCE
382	(HG*)+(TL,NA) (CD*)+(CS) (HG*)+(NA) (KR*)+(HG*) (NE*)+(NE)	T	6	Eratman, W., Inelastic, Energy-Transferring Collisions Between Atoms, BEITR. PLASMA PHYSIK 6 73 (1966).
383	(HE*)+(HE)	T	3	Evans, S. A., Lane, Neal F., Total And Excitation-Transfer Cross Sections For Collisions Between 2^3S Metastable And Ground-State Helium Atoms, PHYS. REV. 188 268 (1969).
384	(HE*)+(HE) (HE*)+(HE*) (Cat. by Abstract Only)	T	3	Evans, Stephen Anderson, Elastic And Inelastic Scattering Between 2^3S Metastable And Ground State Helium Atoms And Between Helium Ions And $2^3,^1$S Metastables, THESIS, RICE UNIV. (1970).
385	(AR**)+(AR)	E	1	Facchini, Laura Colli-Ugo, Quenching Of Photons In Argon-CO, Proportional Counters, PHYSICA 18 1232 (1952).
386	(C_2H_2)+(O_2)+(N_2)	E	1	Fairbairn, A. R., Anomalous Excitation Processes In Flames And Detonations, NATURE 195 695 (1962).
387	(NA**)+(AR)	E	1	Faizullov, F. S., Sobolev, N. N., Determination Of The Effective Cross Section For Collisions Of Excited Sodium With Argon Atoms, OPT. SPECTROS. 11 238 (1961).
388	(H+,HE+)+(N_2)	E	5	Fan, C. Y., Emission Spectra Excited By Electronic And Ionic Impact, PHYS. REV. 103 1740 (1956).
389	(H+,D+,HE+,NE+)+(AIR)	E	4	Fan, C. Y., Meinel, A. B., Laboratory Ionic-Impact Emission Spectra, ASTROPHYS. J. 118 205 (1953).
390	(HG)+(HE,NE,AR,KR,XE)	E	1	Faroux, Jean-Pierre, Brossel, J., Etude Experimentale De Levolution Du Niveau 6^3P1 De 197 Hg Et 199Hg Sous Leffet Des Collisions Contre Des Atomes De Gaz Rare, COMPT. REND. 262B 412 (1966).
391	(HE)+(HG)	E	1	Faroux, Jean-Pierre, Mesure Du Transfert De Population Entre Les Deux Niveaux Hyperfins De L Etat 6^3P1 De 199 Hg Sous L Effet De Collisions Contre Des Atomes D Helium, COMPT. REND. 262B 1385 (1966).
392	(HG*)+(HE,NE)	E	1	Faroux, Jean-Pierre, Elargissement Des Courbes De Croisement De Niveaux De L Etat 6^3P1 De 199 Hg Par Collisions Avec Des Atomes De Gaz Rare, COMPT. REND. 264B 1573 (1967).
393	(HG*)+(HE,NE,AR,KR,XE)	E	1	Faroux, Jean-Pierre, Brossel, Jean, Etude Experimentale De L Evolution Du Niveau 6^3P1 De 201 Hg Et 199 Hg Sous L Effet Des Collisions Contre Des Atomes D Helium, COMPT. REND. 264B 1452 (1967).
394	(HG*)+(HE)	E	1	Faroux, Jean-Pierre, Etude Des Transferts De Populations Entre Les Niveaux Hyperfins De L Etat 6^3P1 De 201 Hg Sous L Effet Des Collisions Contre Des Atomes D Helium, COMPT. REND. 265B 393 (1967).
395	(O_2+,N_2+,NO+)+(NA)	E	0	Farragher, A. L., Peden, J. A., Fite, W. L., Charge Transfer Of N2+, O2+, And NO+ To Sodium Atoms At Thermal Energies, J. CHEM. PHYS. 50 287 (1969).
396	(H+,H_2+)+(HE)	E	2	Feibelman, P. J., Numerical Study Of The Three-Body Ion-Ion Recombination Rate, J. CHEM. PHYS. 42 2462 (1965).
397	(H+)+(H)	T	6	Fennema, J. W. B., On The Impact Parameter Treatment Of Excitation, Ionization And Charge Transfer Processes, ATOMIC COLLISION PROCESSES, P.779, NORTH-HOLLAND PUB. CO., AMSTERDAM (1964).
398	(H+)+(H)	T	5	Fennema, J. W. B., On The Degree Of Polarization Of Lyman-Alpha Radiation Emitted By Hydrogen Atoms Excited By Impact, 6TH INT. CONF. ION. PHENOMENA GASES, 1 121, SERMA, PARIS (1963).
399	(TLF)+(AR)	T	3	Fenstermaker, Roger W., Bernstein, Richard B., Sudden Approximation Applied To Rotational Excitation Of Molecules By Atoms. III. Angular Distribution And Energy Dependence Of The Inelastic Scattering, J. CHEM. PHYS. 47 4417 (1967).
400	Undef	T		Fenstermaker, R. W., Curtiss, C. F., Bernstein, R. B., Molecular Collisions. X. Restricted-Distorted-Wave-Born And First-Order Sudden Approximations For Rotational Excitation Of Diatomic Molecules, J. CHEM. PHYS. 51 2439 (1969).
401	(O*)+(O_2)	E	2	Filseth, S. V., Zia, A., Welge, K. H., Flash Photolytic Production, Reactive Lifetime, And Collisional Quenching Of O_2 (b^1 Sigma Sub G+, V Prime Equals 0), J. CHEM. PHYS. 52 5502 (1970).
402	Review	E	0	Finkelnburg, W., Peters, Th., Kontinuierliche Spektren, HANDBUCH DER PHYSIK 28 79 (1957).
403	(AR*)+(N_2)	E	1	Fishburne, E. S., Lazdinis, S. S., Seibert, G. L., The C Second Positive System Excited By Impact With A Metastable Argon Atom, J. MOL. SPECTROS. 23 100 (1967).
404	(AR*)+(N_2)	E	2	Fishburne, E. Stokes, Transfer Of Electronic Energy Between A Metastable Argon Atom And A Nitrogen Molecule, J. CHEM. PHYS. 47 58 (1967).
405	(XE*)+(N_2)	E	2	Fishburne, E. Stokes, Seibert, G. L., Lazdinis, S. S., Transfer Of Electronic Energy From A Metastable Donor Atom To A Nitrogen Molecule, J. CHEM. PHYS. 49 1628 (1968).
406	(AR*)+(N_2)	T	5	Fishburne, E. S., Petrie, S. L., Comments On Excitation Of Nitrogen By Metastable Argon Atoms, PHYS. FLUIDS 6 1364 (1963).
407	(N_2*)+(N_2)	T	1	Fisher, Edward R., Kummler, Ralph H., Relaxation By Vibration-Vibration Exchange Processes. Part I. Pure Gas Case, J. CHEM. PHYS. 49 1075 (1968).
408	(N_2*)+(O_2,CO,NO)	T	1	Fisher, Edward R., Kummler, Ralph H., Relaxation By Vibration-Vibration Exchange Processes. Part II. Binary Mixtures, J. CHEM. PHYS. 49 1085 (1968).

REACTANTS	EXP OR THEO.	RANGE	REFERENCE
409 (HE*)+(HE)	E	1	Fitzsimmons, W. A., Lane, N. F., Walters, G. K., Diffusion of He (2[3] S_1) In Helium Gas $2^3 S_1 - 1^1 S_0$ Interaction Potentials At Long Range, PHYS. REV. 174 193 (1968).
410 (H)+(H)	T	3	Flannery, M. R., Impact-Parameter Treatment Of Hydrogen-Hydrogen Excitation Collisions. I. Two-State Approximation, PHYS. REV. 183 231 (1969).
411 (H)+(H)	T	4	Flannery, M. R., Impact-Parameter Treatment Of Hydrogen-Hydrogen Excitation Collisions. II. Four-State Approximation, PHYS. REV. 183 241 (1969).
412 (H)+(H)	T	4	Flannery, M. R., Approximations To The Two-State Impact-Parameter Treatment Of Heavy-Particle Collisions, J. PHYS. B 2 909 (1969).
413 (H)+(HE)	T	4	Flannery, M. R., Multi-State Impact-Parameter Treatment Of Hydrogen-Helium Excitation Collisions, J. PHYS. B 2 913 (1969).
414 (H)+(H)	T	4	Flannery, M. R., Multistate Calculations Of H-H, H-He[+], H[+]-He, H-Rare Gas (He,Ne,Ar) Excitation Cross Sections In The Impact Parameter Formulation, VI ICPEAC, P.397, THE MIT PRESS, CAMBRIDGE, MASS. (1969).
415 (H)+(H)	T	4	Flannery, M. R., Levy, H., II, Single And Double Excitation In Hydrogen-Hydrogen Collisions, J. PHYS. B 3 L21 (1970).
416 (H+,HE+)+(H)	T	5	Flannery, M. R., Long-Range Effects In The 2s And 2p Excitations Of Hydrogen By Proton And Helium-Ion Impact, J. PHYS. B 3 1083 (1970).
417 Undef	T	0	Flannery, M. R., Impact-Parameter And Wave Equations For Direct Excitation And Electron-Capture Processes, J. PHYS. B 3 21 (1970).
418 (HE+)+(H)	T	5	Flannery, M. R., The 2s And 2p Excitations Of Hydrogen By Proton And Helium-Ion Impact, J. PHYS. B 2 1044 (1969).
419 (H)+(H)	T	5	Flannery, M. R., Excitation And Ionization Of Hydrogen By Hydrogen-Atom Impact, J. PHYS. B 3 L97 (1970).
420 (H)+(H)	T	0	Flannery, M. R., Levy, H., II, H-H Interaction Potentials, J. PHYS. B 2 314 (1969).
421 (H+)+(HE)	T	5	Flannery, M. R., The $2^1 S$ And $2^1 P$ Excitations Of Helium By Proton And Electron Impact, J. PHYS. B 3 306 (1970).
422 Undef	E	0	Foley, H. M., Collisionally Induced Absorption In Gases, COMMENTS ON AT. AND MOL. PHYS. 1 149 (1970).
423 (O)+(C2H2,C2H4,C2H6)	E	1	Fontijn, A., Miller, W. J., Hogan, J. M., Chemi-Ionization And Chemiluminescence In The Reaction Of Atomic Oxygen With C2H2, C2H4, And C2H6, TP-59, AD-626 992 (1964).
424 Undef (Cat. By Abstract Only)	T	0	Forster, T., Intermolecular Transfer Of Excited Electron Energy, Z. ELEKTROCHEM. 64 157 (1960).
425 Undef	T	1	Franz, Frank A., Franz, Judy R., Excited-State Mixing In The Optical Pumping Of Alkali-Metal Vapors, PHYS. REV. 148 82 (1966).
426 (PS)+(HE)	T	5	Fraser, P. A., The Scattering Of Low Energy Ortho-Positronium By Helium Atoms, PROC. PHYS. SOC., LONDON 79 721 (1962).
427 (CS 6P)+(HE,NE,AR,KR,XE)	E	1	Fricke, J., Haas, J., Luscher, E., Franz, F. A., Cross Sections For Excited-State Mixing In Cesium-Noble-Gas Collisions From S_2 Optical Pumping, PHYS. REV. 163 45 (1967).
428 (NE*)+(HE) (Cat. By Abstract Only)	E	0	Friedl, W., Hagen, ..., On The Transfer Of Excitation Energy In Rare Gas Mixtures Through Collisions Of The Second Kind, OPTIK 15 406 (1964).
429 (RB*)+(CS)	E	9	Friedrich, H., Seiwert, R., Stosse Zweiter Art Angeregter Rubidium-Atome Caesium-Atomen, ANN. PHYSIK 20 215 (1957).
430 (NA*)+(HG)	E	0	Frish, S. E., Bochkova, O. P., Evaluation Of The Absolute Values Of The Effective Cross Sections Of Second - Order Collisions For Mixtures Of Sodium And Mercury Vapors, PROC. ACAD. SCI., USSR, PHYS. SER. 27 1030 (1963).
431 (HE*)+(HE)	E	9	Frish, S. E., Ionikh, Yu. Z., Transfer Of Excitation From The P To The D Level Of Helium, OPT. SPECTRY. 25 91 (1968).
432 Review	T	0	Frish, S. E., The Effective Cross Sections Of Atoms For Spectral Excitation, SOVIET PHYS.-USP. 61 512 (1957).
433 (H+)+(HE)	T	5	Gaillard, Michel, Calcul, Dans L Approximation De Born, Des Sections Efficaces D Excitation Des Atomes D Helium Par Protons Entre 100 Kev Et, Mev, COMPT. REND 263B 145 (1966).
434 (LI+)+(C)	E	5	Gaillard, Francoise, Gaillard, Michel, Desesquelles, Jean, Dufay, Maurice, Excitation D Un Faisceau D Ions Li+ Par Diffusion A Travers Une Cible Mince De Carbone Application A La Mesure Des Durees De Vie Radiatives Dans Li I Et Li II, COMPT. REND. 269B 420 (1969).
435 (H+,H2+)+(H) (Cat. By Abstract Only)	E	3	Gaily, T. Dean, Polarization Of Lyman Alpha Radiation From Ion-Atom Collisions, THESIS, UNIV. OF WASH. (1968).
436 (H+,D+)+(NE,KR,AR)	E	4	Gaily, T. D., Geballe, R., Polarization Of Lyman Alpha Radiation From H+ And D+-Rare Gas Charge Transfer Collisions, P. 314, VTH INT. CONF. ON COLLISIONS, LENINGRAD (1967).
437 (H+)+(NE,AR,KR)(D+)+(NE,AR)	E	4	Gaily, T. D., Jaecks, D. H., Geballe, R., Polarization Of Lyman-Alpha Radiation From H+ And D+ Rare-Gas Charge-Transfer Collisions, PHYS. REV. 167 81 (1968).
438 (RB*)+(HE,NE,AR,KR,XE)(CS*)+(HE,NE)	T	1	Gallagher, A., Excitation Transfer In Nearly Adiabatic Thermal Collisions, PHYS. REV. 172 105 (1968).
439 (H+)+(H)	T	5	Gallaher, D. F., Wilets, L., Coupled-State Calculations Of Proton-Hydrogen Scattering In The Sturmian Representation, PHYS. REV. 169 139 (1968).

[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	Gallaher, D. F., Wilets, L., [illegible] Single-State Calculations of Proton-Hydrogen Scattering In The Sturmian Representation, Phys. Rev. [illegible]
[illegible]	[illegible]	[illegible]	Gallaher, D. F., Wilets, L., Coupled-State Calculations of Proton-Hydrogen Scattering In The Sturmian Representation, [illegible]
[illegible] Brief	[illegible]	[illegible]	Gallagher, [illegible] Superradiant [illegible] Laser Spectroscopy In The Second Excitation System of [illegible]
[illegible]	[illegible]	[illegible]	Garcia, J. D., [illegible] Production Cross Sections, [illegible]
[illegible] Review	[illegible]	[illegible]	Garcia, J. D., [illegible] Excitation Mechanisms, [illegible]
[illegible]	[illegible]	[illegible]	Gardiner, [illegible] A Measurement And Analysis of Optical Emissions Resulting From [illegible] Proton-Nitrogen Collisions, [illegible]
[illegible]	[illegible]	[illegible]	Gardiner, [illegible] Cross Sections For [illegible] Induced In [illegible] Target [illegible]
[illegible]	[illegible]	[illegible]	[illegible] Induced Vibrational Excitation [illegible] The 3-5 Micron Region Produced By The [illegible] Atomic Flames, [illegible]
[illegible]	[illegible]	[illegible]	Gatzke, J., Zum Unterschiedlichen Verhalten [illegible]
[illegible]	[illegible]	[illegible]	[illegible] Exchange Excitation Of The [illegible] State of Hydrogen [illegible] Collisions with Protons, [illegible]
[illegible] Brief	[illegible]	[illegible]	Gelbart, William M., Rice, Stuart A., Freed, Karl F., Stochastic Theory of Vibrational Relaxation and Dissociation, [illegible]
[illegible]	[illegible]	[illegible]	[illegible] General Time Dependent Treatment of Vibrational Excitation To Nearly Degenerate States, [illegible]
[illegible] Review [illegible]	[illegible]	[illegible]	[illegible] Excitation Of Spectra By [illegible] Bombardment, [illegible]
[illegible]	[illegible]	[illegible]	[illegible] Excitation Of [illegible] Nitrogen And Atmospheric [illegible] In The Night Airglow, [illegible]
[illegible]	[illegible]	[illegible]	[illegible] Spectra [illegible] Excited By Low-Energy Proton Bombardment, [illegible]
[illegible]	[illegible]	[illegible]	[illegible] Excitation Processes In [illegible] Proton Impact, [illegible]
[illegible]	[illegible]	[illegible]	[illegible] Spectra Of [illegible] Excited By Proton Bombardment, [illegible]
[illegible]	[illegible]	[illegible]	[illegible] Spectra Of [illegible] And Air Excited By Low-Energy Proton Bombardment, [illegible]
[illegible]	[illegible]	[illegible]	[illegible] Excitation Of Spectra By Ion Bombardment, [illegible]
[illegible]	[illegible]	[illegible]	[illegible] Recalculation Of Vibrational Excitation In [illegible] Molecules, [illegible]
[illegible]	[illegible]	[illegible]	[illegible] Formation And Destruction Of [illegible] Potential [illegible] In Charge [illegible] Collisions, [illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible] Review	[illegible]	[illegible]	[illegible] Atomic And Molecular Excitation Mechanisms In Nonequilibrium Gases Up To 20,000 Degrees Kelvin, [illegible]
[illegible] Review	[illegible]	[illegible]	[illegible] A Review of Atomic And Molecular Excitation Mechanisms In Nonequilibrium Gases Up To 20,000 Degrees [illegible]
[illegible]	[illegible]	[illegible]	[illegible] Molecular Collision Cross Section [illegible] To Angular Dependent Part In [illegible] Dispersion Forces, [illegible]
[illegible]	[illegible]	[illegible]	[illegible] Radiation Induced [illegible] Processes In Gases, Progress Report, [illegible]
[illegible]	[illegible]	[illegible]	[illegible] Effect Of Collisions On Certain Characteristics Of The He-Ne Laser, [illegible]
[illegible]	[illegible]	[illegible]	[illegible] Vibrational Energy Transfer Rates In [illegible] Double [illegible] Resonance, [illegible]

	REACTANTS	EXP OR THEOR.	E PARAM	REFERENCE
468	(C⁺)+(OH,CH) (H⁺)+(CH,H)	T	2	Gess, M. Miller, Field, George B., Collisional Excitation Of Low-Energy Permitted Transitions By Charged Particles, ASTROPHYS. J. 151 177 (1968).
469	(HG*)+(H_2,CO)	E	2	Granzow, A., Hoffman, M. Z., Lichtin, N. N., Morgan, S. N., Production Of N2(a³ Sigma) And Co(a³ Pi) By Hg (Sup 1 P_1) Photosensitization. Pressure Dependence Of 2537-Angstroms Emission, J. PHYS. CHEM. 72 1402 (1968).
470	(HG*)+(H_2,CO) (N_2,CO*)+(HG)	E	2	Granzow, Albrecht, Hoffman, Morton Z., Lichtin, Norman N., Morgan, Satish N., Production Of N2 (A^3 Sigma Sub U+) And Co (A^3 Pi) By Hg (Sup 1 P_1) Photosensitization Evidence From 2537-Angstrom Mercury Scintillation, J. PHYS. CHEM. 72 3741 (1968).
471	Undef (Cat. by Abstract Only)	E	0	Grard, F., The Phenomena Of Excitation And Ionization By Alpha-Particles, BULL. ACAD. ROY. BELG. 42 798 (1956).
472	(H^+)+(O_2)	T	5	Green, Thomas A., Use Of Inelastic Electron Scattering Data To Obtain Accurate Form Cross Sections For Atom-Atom And Other Heavy-Particle Collisions. I. Proton Excitation Of The Schumann-Runge Continuum In O2, PHYS. REV. 157 103 (1967).
473	Undef	T	1	Grimaldi, John J., Endres, Paul F., Wilson, David J., Quantum Transition Probabilities For Atom-Triatomic-Molecule Collisions, J. CHEM. PHYS. 53 1627 (1969).
474	(N_2*)+(H_2,O_2) (O_2*)+(N_2)	T	2	Grimaldi, John J., Endres, Paul F., Wilson, David J., Quantum Transition Probabilities For Diatomic-Diatomic Molecule Collisions, J. CHEM. PHYS. 51 611 (1969).
475	(H^+,H_2^+,H_3^+)+(HE)	E	4	Gremard, Jean-Pierre, Mirszewski, Julien, Lefebure, Patrick, De Palmas, Henri, Sur L Excitation Des Niveaux Singlets Et Triplets Moyenne, COMPT. REND. 270 264 (1970).
476	(H^+,H_2^+,H_3^+)+(HE)	E	4	Gremard, Jean-Pierre, De Palmas, Henri, Sur L Excitation De L Helium Par H_2^+, H_2^+, H_3^+ A Energie Moyenne, COMPT. REND. 269 1234 (1969).
477	(H^+,H_2^+,H_3^+)+(HE)	E	4	Gremard, Jean-Pierre, Mirszewski, Julien, Lefebure, Patrick, De Palmas, Henri, Etude De La Polarisation De La Lumiere De Desexcitation De L Helium Sous Impact D Ions Hydrogen, A Energie Moyenne, COMPT. REND B 271 622 (1970).
478	Undef (Cat. by Abstract Only)	E	0	Grun, A. E., Schopper, E., Schumacher, H., On The Use Of Intense Particle Beams For The Excitation Of Gases, Z. ANGEW. PHYS. 6 [illegible] (1954).
479	(NE²⁺)+(N_2,H_2,O_2,CO,,AR)	E	0	Grun, A. E., Schopper, E., Über Die Fluoreszenz Von Gasen Bei Anregung Durch Alpha-Teilchen, Z. NATURFORSCH. 6A 498 (1951).
480	(H^+,H_2^+)+(N_2,CO,O_2,H_2,AR)	E	0	Grun, A. E., Die Fluoreszenz Von Gasen Bei Der Abbremsung Schneller Teilchen, Z. NATURFORSCH. 9A 55 (1954).
481	(NE²⁺)+(N_2)	E	0	Grun, A. E., Schopper, E., Die Untersuchung Von Energieaustausch- Loschprozessen In Gasen Durch Anregung Mit Schnellen Teilchen (Ergebnisse In N2 Nd-Haltigen Gasmischungen), Z. NATURFORSCH. 9A 134 (1954).
482	Undef	T	2	Gryzinski, Michal, Classical Theory Of Electronic And Ionic Inelastic Collisions, PHYS. REV. 115 374 (1959).
483	(H^+)+(AR,H,HE,TE,ZN,AG,SI,CU)	T	0	Gryzinski, M., Classical Theory Of Atomic Collisions. I. Theory Of Inelastic Collisions, PHYS. REV. 138 A336 (1965).
484	(H^+)+(HE)	T	5	Gryzinski, M., Classical Theory Of Atomic Collisions. I. Theory Of Inelastic Collisions, PAM-440/XVIII (1963).
485	Review	T	0	Gryzinski, M., Two-Particle Collisions. II. Coulomb Collisions In The Laboratory System Of Coordinates, PHYS. REV. 138 A322 (1965).
486	(H^-)+(H)	T	3	Guha, M. K., Excitation Of Hydrogen Atom In Fast Encounter With Negative Hydrogen Ion, INDIAN J. PHYS. 37 574 (1963).
487	(HE*,HE,HE*,HE,AR*,AR)+(H_2)	E	4	Gusev, V. A., Polyakova, G. N., Erko, V. F., Fogel, Ya. F., Zats, A. V., Formation Of Protons And Excited Hydrogen Atoms In The Collisions Of Ions And Atoms Of Noble Gases With Hydrogen Molecules, VI ICPEAC, P.809, THE MIT PRESS, CAMBRIDGE, MASS. (1969).
488	(H_2)+(H_2)	T	0	Gutschick, Vincent P., Mc Roy, Vincent, Diestler, Dennis J., Calculation Of Transition Probabilities For Collinear Atom-Diatom And Diatom-Diatom Collisions With Lennard-Jones Interaction, J. CHEM. PHYS. 52 4807 (1970).
489	(N^+)+(CH) (Cat. by Abstract Only)	E	0	Gyorgyi, G., Rupp, E., On The Difference Between The Density Distributions Of Neutrons And Protons In The Nuclear Jj-Coupling Shell Model, ACTA PHYS. ACAD. SCI., HUNG. 6 495 (1957).
490	(XE*)+(XE*)	E	0	Hadeishi, T., Liu, Ch[illegible]ng-Heng, Exchange Collisions Between The Ionic Ground State And The Neutral Metastable State Of Atoms Formed And Aligned By Electron Impact, 5TH INT. CONF. ON COLLISIONS, P.513, LENINGRAD (1967).
491	(CH_3OH^+)+(XE,KR,AR,SF_6,N_2,CO_2,CH_4, C_2H_6,C_3H_8,C_6H_{14},CH_3OH)	E	1	Haggag, J., Roberge, P. C., Vermeil, C., Collision-Induced Predissociation In The Gas Phase. Photolysis Of Methanol At 1849 Angstrom, TRANS. FARADAY SOC. 64 3488 (1968).
492	(H^+,D^+,T^+)+(HE) (Cat. by Abstract Only)	E	0	Hanle, W., Voss, G. A., Light Excitation In The Bombardment Of Helium With Light And Heavy Hydrogen, Z. NATURFORSCH. 11A 457 (1956).
493	Undef	T	2	Hansen, C. Frederick, Pearson, Walter E., Three-Dimensional Model Of Collision-Induced Vibrational Transitions In Homonuclear Diatomic Molecules, J. CHEM. PHYS. 53 3557 (1970).

	REACTANTS	EXP OR THEOR.	E RANGE	REFERENCE
494	(H*)+(N_2)	E	5	Harrison, A. W., Jones, A. Vallance, Measurements Of The Absolute Intensity Of The Aurora And Night Airglow In The 0.9–2.0 Mu Region, J. ATMOS. TERREST. PHYS. 11 192 (1957).
495	(N+*,N*)+(N_2)	E	1	Harrison, A. W., Jones, A. Vallance, Observations Of Meinel N2+ Bands Near 1.5 Mu In The Auroral Spectrum, J. ATMOS. TERREST. PHYS. 13 291 (1958).
496	Undef	T	2	Hart, Robert W., Gray, Ernest P., Guier, William H., Statistical Approach To Collision Processes Application To Atomic Excitation, PHYS. REV. 101 84 (1956).
497	(O)+(C_2H_4,C_2H_6,NO,C_2H_2,COS,CS_2,PCL_3,H_2S,SCL_2)	E	1	Hartech, P., Reeves, R. R., Albers, E. W., Chemiluminescent Atom Reactions Pertinent To Upper Atmosphere Studies, AD-613 710 (1965).
498	(N)+(N)	T	1	Hartech, P., Reeves, R. R., Jr., Wolfes, T., Chemiluminescence In Atomic Reactions At Low Pressures, AD-615 526 (1965).
499	(HE)+(HE)	T	4	Hashino, T., On Collisions Between Two Normal Helium Atoms, PROGR. THEORET. PHYS. (JAPAN) 28 624 (1962).
500	Review	T	4	Hasted, John B., Inelastic Collisions Between Atomic Systems, ADVAN. ELECTRON. ELECTRON PHYS. 13 1 (1960).
501	(HE*,NE*)+(HE,NE,AR)	E	2	Hasted, J. B., Collisions Of Metastable Atoms, J. APPL. PHYS. 30 22 (1959).
502	(H_2*,H_3*)+(H_2)	E	5	Hatfield, L. L., Hughes, R. H., Balmer Emissions Induced By H2+ And H3+ Impact On Molecular Hydrogen, PHYS. REV. 131 2556 (1963).
503	(AR*)+(HBR,DBR,HCL) (Cat. by Abstract Only)	E	2	Haugh, Michael Joseph, Part 1. Predissociation In HBr+. Part 2. Rotational And Vibrational Excitation During Charge Transfer, THESIS, UNIV. OF CALIF., LOS ANGELES (1968).
504	(AR*,KR*)+(N_2,O_2,CS_2,CO) (AR*)+(HBR,COS)	E	3	Haugh, M., Slanger, T. G., Bayes, K. D., Electronic Excitation Accompanying Charge Exchange, J. CHEM. PHYS. 44 837 (1966).
505	(AR*)+(CS_2,N_2O,HBR,HCL,CO) (KR*)+(HBR)	E	3	Haugh, Michael J., Bayes, Kyle D., Vibrational Excitation In Electronically Excited Ions Produced By Charge Exchange, PHYS. REV. A 2 1778 (1970).
506	(AR)+(AR)	E	1	Haugsjaa, Paul O., Amme, Robert C., Vacuum-Ultraviolet Photon Production In Low-Energy Collisions Between Two Neutral Argon Atoms, PHYS. REV. LETTERS 23 633 (1969).
507	(AR*)+(AR)	E	2	Haugsjaa, Paul O., Amme, Robert C., Utterback, Nyle G., Excitation Resonances For The Production Of Metastable Atoms In Low-Energy Argon Ion-Atom Collisions, PHYS. REV. LETTERS 22 322 (1969).
508	(AR*)+(AR) (Cat. by Abstract Only)	E	3	Haugsjaa, Paul Osborne, Excitation And Ionization Processes In Argon Collisions, THESIS, UNIV. OF DENVER (1969).
509	(AR*)+(AR)	E	3	Haugsjaa, Paul O., Amme, Robert C., Ionization And Metastable Excitation In Low-Energy Collisions Of Ground-State Argon Atoms, J. CHEM. PHYS. 52 4874 (1970).
510	(HE*)+(N_2,O_2,HE)	E	5	Head, C. E., Hughes, R. H., Electron Capture Into Excited Helium Levels By Fast He+ Impact On He, N_2, And O_2, PHYS. REV. 139 A1392 (1965).
511	Undef	T	0	Heil, H., Wagner, W. G., The Quenching Of Inverted Populations In Vibrational Levels By Collisional Excitation Transfer. ATOMIC COLLISION PROCESSES, P.1103, NORTH-HOLLAND PUBL. CO., AMSTERDAM (1964).
512	(LI)+(D_2,N_2,O_2,CO,NO,HF,HCL,DCL,HBR,HI,ICL,CL_2,BR_2)	E	2	Helbing, Reinhard K. B., Rothe, Erhard W., Glory Scattering Of Lithium By A Series Of Molecules. I. Diatomics, J. CHEM. PHYS. 49 3945 (1968).
513	(LI*)+(H_2)	E	3	Held, W. -D., Schottler, J., Toennies, J. P., Experimental Cross Sections For Individual Vibrational Quantum Transitions In Low Energy Central Collisions Of Li+ With H_2, CHEM. PHYS. LETTERS 6 304 (1970).
514	(HE_2*)+(KR,XE)	E	0	Hench, H., Coche, A., The Determination Of The Fluorescence Spectra Of Gaseous Scintillators Excited By A Weak Beam Of Alpha Particles, J. PHYS. (PARIS) 24 166 (1962).
515	(HE_2*)+(HE,NE,AR,KR,XE)	E	0	Hench, H., Coche, A., Determination And Interpretation Fluorescence Spectra Of Inert Gases Excited By Alpha-Rays, J. PHYS. (PARIS) 26 113 (1965).
516	Undef (Cat. by Abstract Only)	E	0	Herman, L., Rakotoarijimy, D., Selective Excitation Of Molecular Emissions By Metastable Atoms Of Rare Gases, J. PHYS. RADIUM 21 623 (1960).
517	(H*)+(O_2,AIR)	E	4	Herman, L. Ferguson, H. I. S., Nicholls, R. W., Excitation Of The First Negative System Of O2+ By A Proton Beam In Air And Oxygen, CAN. J. PHYS. 39 476 (1961).
518	(K,RB,CS)+(CH_3,C_2H_5,CH_3I)	E	1	Herschbach, Dudley R., Reactive Collisions In Crossed Molecular Beams, DISC. FARADAY SOC. 33 149 (1962).
519	(CO_2)+(CO_2,N_2)	T	1	Herzfeld, Karl F., Deactivation Of Vibrations By Collision In The Presence Of Fermi Resonance, J. CHEM. PHYS. 47 743 (1967).
520	(CO_2*)+(CO_2)	T	1	Herzfeld, Karl F., Deactivation Of Vibration By Collision In CO2, DISC. FARADAY SOC. 33 22 (1962).
521	(N_2*)+(CO_2)	E	1	Hill, Alan E., Multijoule Pulses From CO2 Lasers, APPL. PHYS. LETTERS 12 324 (1968).
522	(H*)+(H)	T	4	Hiskes, J. R., Inverted Cascades In Neutral Injection System, UCRL-7115 (1963).
523	(H*)+(H)	T	4	Hiskes, J. R., Cascade Processes In Energetic Neutral Hydrogen Beams, UCRL-7356 (1963).
524	(H*)+(LI)	T	5	Hiskes, J. R., Formation Of Excited Hydrogen Atoms By Charge Exchange In Lithium, PHYS. LETTERS 15 4[illegible] (1965).

	REACTANTS	EXP TH ENGR.	E RANGE	REFERENCE
525	(A*)+(H)	E	5	Hinkes, J. F., Inverted Cascades In Energetic Neutral Hydrogen Beams, PHYS. REV. LETTERS 18 192 (1967).
526	(H*)+(H*)	T	4	Hipkes, J. F., Cascade Processes In Energetic Neutral Hydrogen Beams, 6Th INT. CONF. ION. PHENOMENA GASES, I 52, SERMA, PARIS (1963).
527	(HO*)+(HO)	E	5	Hochanadel, C. J., Ghormley, J. A., Ogren, Paul J., Pulse Radiolysis Of He Production Of $3e2 And $2e2 And The Production And Relaxation Of Vibrationally Excited He, J. CHEM. PHYS. 56 4075 (1969).
528	(CA,CA*)+(N,) (N,*)+(CA)	L	3	Hoffman, Herbert J., Langmire, Martin S., Meteors-Origin Of Ionic Lines In Meteor Spectra, NATURE 210 458 (1966).
529	Undef (Col. by Abstract Only)	T	0	Holstein, T. J., Interaction Between Singlet Ground And Excited Molecules, Z. ELEKTROCHEM. 64 156 (1960).
530	(HG*)+(HG)	T	1	Holstein, T., Alpert, D., Mc Coubrey, A. C., Isotope Effect In The Imprisonment Of Resonance Radiation, PHYS. REV. 85 985 (1952).
531	Undef	T	1	Holstein, T., Imprisonment Of Resonance Radiation In Gases. II, PHYS. REV. 83 1159 (1951).
532	(H*)+(H)	T	5	Holt, A. R., Moiseiwitsch, B. L., On The Accuracy Of The Simplified Born Approximation, J. PHYS. B 2 1253 (1969).
533	(H*)+(H)	T	5	Holt, A. R., Application Of A Simplified Second Born Approximation To The Scattering Of Electrons And Protons By Hydrogen Atoms. II, J. PHYS. B 2 1282 (1969).
534	(HG)+(CO,N,)	E	5	Hoover, J. R., Lessing, F. P., Effect Of Co And N2 On Mercury-Photosensitized Reactions, CAN. J. CHEM. 44 163 (1966).
535	(HE*)+(AR,PR,RF,HG)	E	9	Hotop, H., Niehaus, A., Reactions Of Excited Atoms And Molecules With Atoms And Molecules. II. Energy Analysis Of Penning Electrons, Z. PHYS. 228 68 (1969).
537	(N,*)+(HE*)	E	1	Hotop, H., Niehaus, A., Vibrational Excitation Of N2+ (B2 Sigma Sub U+)-Ions Formed In Collisions With He(2 3 S)-Metastables, CHEM. PHYS. LETTERS 3 447 (1969).
538	(H*)+(N,,CH,NO,C,,H,,D,,HD,H,O,CO,, CH,,C,H,)	E	2	Hotop, H., Niehaus, A., Schmeltekopf, A. L., Reactions Of Excited Atoms And Molecules With Atoms And Molecules. III. Relative Cross Sections For Penning-And Associative Ionization By He(2 3 S)-And He(2 1 S)-Metastables, Z. PHYS. 229 1 (1969).
539	Undef	T	0	Houziaux, Leo, Ionization And Excitation Of Neutral Oxygen In The Vicinity Of Hot Stars, Z. ASTROPHYS. 51 35 (1961).
540	(K*)+(PB)	E	1	Hrycyshyn, E. S., Krause, L., Sensitized Fluorescence In Vapors Of Alkali Metals. XI. Energy Transfer In Potassium-Xenitron Collisions, CAN. J. PHYS. 47 215 (1969).
541	(K*)+(PB)	E	1	Hrycyshyn, E. S., Krause, L., Sensitized Fluorescence In Vapors Of Alkali Metals. XII. 4P P Sub 3/2 - 4P P Sub 3/2 Mixing In Potassium, Induced In Collisions With Ground-State Rubidium Atoms, CAN. J. PHYS. 47 223 (1969).
542	(HG)+(TL)	E	1	Hudson, G. C., Carnahan, B., Jr., Experimental Determination Of The Excitation Transfer Cross Section From The 6P 81 And 6P Po States Of Mercury To Thallium, PHYS. REV. 152 56 (1966).
543	(C,H,)+(C,H,,C,D,,C,H,D,,H,O,D,O)	E	2	Hudson, G. H., Mc Coubrey, J. C., Ubbelohde, A. R., Energy Transfer In Polyatomic Molecules. I. Catalysis Of Energy Transfer With Isotopic Molecules, PROC. ROY. SOC. LONDON 264A 299 (1961).
544	(HG*)+(TL)	E	1	Hudson, Billy Charles, Experimental Determination Of Excitation And Quenching Cross Sections For The Mercury-Thallium System, THESIS, UNIV. OF KANSAS STATE (1968).
545	(H*)+(HE)	E	5	Hughes, R. H., Waring, R. C., Ian, C. Y., Spectra Induced By 200-Kev Proton Impact On Helium, PHYS. REV. 122 525 (1961).
546	(H)+(N,)	E	4	Hughes, R. H., Filippelli, A. R., Petefish, H. R., Production Of H Atoms In The 3s State By The Impact Of Fast Ground-State H Atoms On N,, PHYS. REV. A1 21 (1970).
547	(H*)+(N,)	E	5	Hughes, R. H., Philpot, J. L., Ian, C. Y., Spectra Induced By 200-Kev Proton Impact On Nitrogen, PHYS. REV. 123 2084 (1961).
548	(H*)+(H,)	E	5	Hughes, R. H., Lin, S., Hatfield, L. L., Palmer Emissions Induced By Proton Impact On Molecular Hydrogen, PHYS. REV. 138 2314 (1963).
549	(H*)+(O,)	E	5	Hughes, R. H., Ng, D. K. W., Spectra Induced By H* Impact On O2, PHYS. REV. 136 A1222 (1964).
550	(H*)+(HE,NE,AR,N,,H,,O,)	E	5	Hughes, R. H., Dawson, H. R., Doughty, B. M., Ray, M. B., Stigers, C. A., Electron Capture Into The 3s State Of Hydrogen By Fast - Proton Impact On Gases, PHYS. REV. 144 53 (1966).
551	(H,*,H,*)+(H,,HE)	E	5	Hughes, R. H., Optical Observation Of The Dissociation Of Molecular Hydrogen Ions, J. CHEM. PHYS. 51 [illegible] (1969).
552	(H*)+(N,)	E	4	Hughes, R. H., Doughty, B. M., Filippelli, A. R., Electron Capture Into The N Equals 3 States Of H By Fast H* Impact On N2, PHYS. REV. A1 122 (1970).
553	(H*)+(HE,NE,AR,N,,H,,O,)	E	5	Hughes, R. H., Dawson, H. R., Doughty, B. M., Electron Capture Into The 4s State Of H By Fast H* Impact On Gases, PHYS. REV. 144 166 (1967).

	REACTANTS	EXP OR THEOR.	E RANGE	REFERENCE
554	(CO)(CO)	E	1	Hunt, Robert H., Toth, Robert A., Plyler, Earle K., High-Resolution Determination Of The Widths Of Self-Broadened Lines Of Carbon Monoxide, J. CHEM. PHYS. 49 3909 (1968).
555	(NA)(NA)	E	2	Hunten, D. M., Excitation Of The Sodium Emission In Aurora, J. ATMOSPHERIC TERRESTRIAL PHYS. 27 583 (1965).
556	(CD*)(C2H2D2,...)	E	2	Hunziker, Heinrich E., Cadmium-Photosensitized Interconversion Of Cis-, Trans-, And Geminal-Ethylene-D2, J. CHEM. PHYS. 50 1288 (1969).
557	(HE**)(AR)	E	1	Hurst, G. S., Bortner, T. E., Glick, R. E., Ionization And Excitation Of Argon With Alpha Particles, J. CHEM. PHYS. 42 713 (1965). ORNL-P-...
558	(H*)(AR)	E	5	Hurst, G. S., Bortner, T. E., Strickler, T. D., Proton Excitation Of The Argon Atom, PHYS. REV. 178 4 (1969).
559	(H*)(AR)	E	5	Hurst, G. S., Bortner, T. E., Strickler, T. D., Proton Excitation Of The 1300-Angstrom Continuum In Argon, J. CHEM. PHYS. 49 2460 (1968).
560	(HE*)(MG,NA,NE)	E	5	Il In, R. N., Oparin, V. A., Serenkov, I. T., Solov Ev, E. S., Federenko, N. V., Production Of Highly Excited Helium Atoms By Charge Exchange Of Helium Ions In The 30-180 Kev Range, VI. ICPEAC, P.444, THE MIT PRESS, CAMBRIDGE, MASS. (1969).
561	(H*)(H2,N2,CO2,HE)	E	[illegible]	Il In, R. N., Kikiani, B. I., Oparin, V. A., Solov Ev, E. S., Federenko, N. V., Formation Of Highly Excited Hydrogen Atoms By Proton Charge Exchange In Gases, SOVIET PHYS.-JETP 20 835 (1965).
562	(H*)(LI,NA,K,CS,HE,NE,AR,H2)	E	[illegible]	Il In, R. N., Oparin, V. A., Solov Ev, E. S., Fedorenko, N. V., Charge Transfer Of Protons In Alkali Metal Vapors With The Formation Of Highly Excited Hydrogen Atoms, SOVIET PHYS.-TECH. PHYS. 11 921 (1967).
563	(H*)(LI,NA,K,CS,MG)	E	5	Il In, R. N., Oparin, V. A., Solov Ev, E. S., Fedorenko, N. V., Charge Exchange Of Protons In Alkaline Metal Vapor With Formation Of Highly Excited Hydrogen Atoms, SOVIET PHYS.-JETP LETTERS 2 197 (1965).
564	(H*)(HE)	T	5	Inokuti, Mitio, Kim, Yong-Ki, Total Cross Sections For Inelastic Scattering Of Charged Particles By Atoms And Molecules. III. Accurate Bethe Cross Section For Ionization Of Helium, PHYS. REV. 186 100 (1969).
565	(HE*)(AR)	E	3	Isler, R. C., Nathan, R. D., Excitation Of Ar I And He I In Low-Energy He+ + Ar Collisions, PHYS. REV. LETTERS 25 3 (1970).
566	Undef	T	9	Ivanov, G. K., Sayasov, Yu. S., Theory Of The Vibrational Excitation Of A Molecule In The Impulse Approximation, SOVIET PHYS.-DOKLADY 9 171 (1964).
567	(O)(O2)	E	1	Izod, T. P. J., Wayne, R. P., Formation Of O2 (Sup 1 Delta Sub G) In A Photochemical System Involving Ozone, NATURE 217 947 (1968).
568	(NE*)(AR,KR,XE)	E	1	Jaccaud, Michel, Echels, Ange, Janin, Joseph, Etude Des Collisions Atomiques Dans Un Laser Helium-Neon Contenant Une Petite Quantite D Un Gaz Etranger (Argon, Krypton Ou Xenon), COMPT. REND. 260B 222 (1965).
569	(H*)(HE,NE,AR,XE)	E	4	Jaecks, D., Van Zyl, B., Geballe, R., Production Of Metastable Hydrogen Atoms In Proton-Rare-Gas Collisions, PHYS. REV. A137 340 (1965).
570	(HE*)(NE,AR,KR,XE)	E	5	Jaecks, D., De Heer, F. J., Salop, A., Excitation Of Ne, Ar, Kr, And Xe By He+ Impact (0.3-35 Kev 3000 Angstroms - ... Angstroms), PHYSICA 36 606 (1967).
571	(H*)(HE,AR)	E	4	Jaecks, D. H., Mc Knight, R. H., Crandall, D. H., Differential Charge Transfer Cross Section Measurements To The 2s State Of Hydrogen In H+ - He And Ar Collisions, VI ICPEAC, P.[illegible], THE MIT PRESS, CAMBRIDGE, MASS. (1969).
572	(H*)(HE)	E	4	Jaecks, D. H., Crandall, D. H., Mc Knight, R. H., Measurement Of Differential Charge-Transfer Cross Sections And Probabilities By Photon-Particle Coincidence, PHYS. REV. LETTERS 25 491 (1970).
573	(HG*)(HE,NE,AR,KR,XE,N2,O2,H2)	E	1	Jean, Paul, Martin, Michel, Lecler, Daniel, Duree De Vie Du Niveau 6P P1 Du Mercure Et Sections Efficaces De Divers Gaz Pour La Destruction De L alignement Dans Ce Niveau, COMPT. REND. 264B 1791 (1967).
574	(N2*)([illegible])	T	1	Jennings, K. R., Linnett, J. W., Spectra Of Flames Supported By Active Nitrogen, NATURE 180 1272 (1957).
575	(HE**)(N2,H2,CO2,KR,XE,AR,C2H4,...)	E	1	Jesse, William P., Sadauskis, John, Ionization By Alpha Particles In Mixtures Of Gases, PHYS. REV. 100 1755 (1955).
576	(N2,N2*)(N2)	E	1	Jeunehomme, M., Transition Moment Of The First Positive Band System Of Nitrogen, J. CHEM. PHYS. 45 1805 (1966).
577	(N*)(CO) (Cat. by Abstract Only)	E	9	Joeckle, Rene, Peyron, Maurice, Infrared Chemiluminescence Of Carbon Monoxide Excited By Activated Nitrogen, J. CHIM. PHYS. PHYSICOCHIM. BIOL. 67 1175 (1970).
578	Undef	T	0	Johnson, B. R., Secrest, D., Lester, W. A., Jr., Bernstein, R. B., A Validation Of The Method Of Amplitude Density Functions In Computing The S-Matrix For A Scattering Problem, CHEM. PHYS. LETTERS 1 396 (1967).
579	Undef	T	0	Johnson, B. R., Shapiro, M., Levine, R. D., Rotational Excitation In Molecular Collisions The Role Of Closed Channels And Resonances, CHEM. PHYS. LETTERS 3 131 (1969).

	REACTANTS	EXP OR THEOR.	E RANGE	REFERENCE
580	([illegible])+(N_2)	E	2	Jones, A. Vallance, Harrison, A. W., Rotational Temperatures Of The Auroral N_2^+ Bands, J. ATMOS. TERREST. PHYS. 6 334 (1955).
581	(NE+)+(AR) (AR+)+(NE)	E	3	Jones, P. R., Batra, T. L., Ranga, H. A., Measurements Of Electron Capture And Excitation In Ne^+ For Ar And Ar^+ For Ne Collisions, P. 673, 5TH INT. CONF. ON COLLISIONS, LENINGRAD (1967).
582	(HE+)+(NE)	E	1	Jones, C. R., Niles, F. E., Robertson, W. W., Temperature Dependence Of The Excitation Transfer Rate Constants For $He(2^3S_1)$ + Ne Going To He + Ne(2s) And $He(2^1S_0)$ + Ne Going To He + Ne(3s), J. APPL. PHYS. 40 3967 (1969).
583	(NH_3)+(NH_3)	E	1	Jones, D. G., Lambert, J. D., Saksena, M. P., Stretton, J. L., Rotational And Vibrational Relaxation In Gaseous Ammonia, TRANS. FARADAY SOC. 65 965 (1969).
584	(H_2)+(AR,KR,XE,HE,NE) (D_2)+(HE,NE,AR)	T	1	Jonkman, R. M., Prangsma, G. J., Keijser, R. A. J., Aziz, R. A., Beenakker, J. J. M., Rotational Relaxation In Mixtures Of Hydrogen Isotopes And Noble Gases. Part III. Comparison with Theory, PHYSICA 38 456 (1968).
585	(NA)+(HE,NE,AR,KR,XE) (K)+(HE,NE,AR)	E	1	Jordan, J. A., Jr., Franken, P. A., Collision-Induced Mixing In The First Excited States Of Sodium And Potassium, PHYS. REV. 142 20 (1966).
586	Undef	T	1	Jordan, James Adam, Jr., Collision Induced Mixing In The First Excited States Of The Alkalies, [illegible] (1966).
587	(NA)+(HE, NE, AR, KR, XE) (K)+(HE, NE, AR)	T	1	Jordan, J. A., Jr., Collision Induced Mixing In The First Excited States Of The Alkalies (Thesis), [illegible] (1965).
588	(LI+)+(HE)	T	3	Junker, B. R., Calculated Interaction Energies And Inelastic Cross-Sections of Li^+ Ions In He Gas, VI ICPEAC, P.220, THE MIT PRESS, CAMBRIDGE, MASS. (1969).
589	(LI+)+(HE) (Cat. by Abstract Only)	E	3	Jurker, Bobby Ray, Inelastic Scattering Cross Sections For Li^+He, THESIS, UNIV. OF TEXAS AT AUSTIN (1969).
590	(N_2)+(O_2)	E	1	Kamimoto, Goro, Matsui, Hiroyuki, Vibrational Energy Exchange In N_2 - O_2 Collision, AIAA J. 7 2350 (1969).
591	(OH*)+(H_2O,O_2,N_2,H_2,D_2,HE)	E	2	Kaneko, Motohisa, Mori, Yuji, Tanaka, Ikuzo, Electronic Quenching And The Rotational Relaxation Rate Of $OH(A^2\Sigma^+)$ Produced By The Vacuum-Ultraviolet Photodecomposition Of Water, J. CHEM. PHYS. [illegible] (1968).
592	(HG*)+(CO)	E	1	Karl, G., Kruus, P., Polanyi, J. C., Infrared Emission Studies Of Electronic-To-Vibrational Energy Transfer. II. Hg^* + CO, J. CHEM. PHYS. 46 224 (1967).
593	(HG*)+(NO) (HG*)+(NO)+(AR) (HG*)+(NO)+(N_2)	E	1	Karl, G., Kruus, P., Polanyi, J. C., Smith, I. W. M., Infrared Emission Studies Of Electronic-To-Vibrational Energy Transfer. III. Hg^* + NO, J. CHEM. PHYS. 46 244 (1967).
594	(HG*)+(CO)	E	2	Karl, G., Polanyi, J. C., Infrared Emission Arising From Electronic-Vibrational Energy Transfer Hg + CO, J. CHEM. PHYS. 38 271 (1963).
595	(H*)+(H)	T	4	Karpushkina, L. I., Grechukhin, D. P., Effect Of Radiative Transitions On Collisional Diffusion Among The Excited Levels Of The Hydrogen Atom, PLASMA PHYS. - ACCELERATORS-THERMONUCLEAR RES. (GB) 6 [illegible] (1964).
596	(NE)+(NE)	E	1	Kaslin, V. M., Petrash, G. G., Khaikin, A. S., A Study Of Collision Processes Involving Excited Neon Atoms In A Helium-Neon Laser, OPT. SPECTROS. 23 16 (1967).
597	(H)+(NO_2,O_3)	E	2	Kaufman, F., Aeronomic Reactions Involving Hydrogen. A Review Of Recent Laboratory Studies, ANN. GEOPHYS. 20 106 (1964).
598	(C)+(O_2)	T	3	Kaufman, Joyce J., Harkins, Jerome J., Koski, Walter S., Quantum-Chemical Treatment Of The Reaction Of Hot Carbon Atoms With O2, J. CHEM. PHYS. 50 771 (1969).
599	(N_2^+)+(NE)	E	0	Kaul, R. D., Ion-Bombardment Level-Crossing Spectroscopy, J. OPT. SOC. AM. 57 1156 (1967).
600	(H+)+(H)	E	4	Kauppila, W. E., Teubner, P. J. O., Fite, W. L., Girnius, R. J., The Polarization Of Lyman Alpha Radiation Produced By Direct Excitation Of Hydrogen Atoms By Proton Impact, VI ICPEAC, P.111, THE MIT PRESS, CAMBRIDGE, MASS. (1969).
601	(H+)+(H)	E	4	Kauppila, W. E., Teubner, P. J. O., Fite, W. L., Girnius, R. J., Polarization Of Lyman-Alpha Radiation Produced By Direct Excitation Of Hydrogen Atoms By Proton Impact, PHYS. REV. A 2 1759 (1970).
602	(H+)+(H) (Cat. by Abstract Only)	E	3	Kauppila, Walter Eric, Cross Section For Excitation Of Atomic Hydrogen To The Metastable 2^2S Sub 1/2 State By Electron Impact Polarization Of Lyman Alpha Radiation Produced In Proton-Atom Collisions, THESIS, UNIV. OF PITTSBURGH (1969).
603	(N+)+(C)	E	5	Kay, L., The Identification Of Emission Lines From A Van De Graaff Beam, PROC. PHYS. SOC. (LONDON) 82 163 (1963).
604	(HE*)+(HE)	E	1	Kay, R. B., Hughes, R. H., Excitation Transfer In Helium, PHYS. REV. 154 61 (1967).
605	(HE*)+(HE*) (Cat. by Abstract Only)	E	1	Kay, Richard Blair, Excitation Transfer In Helium, THESIS, UNIV. OF ARK. (1967).
606	Undef	T	1	Kelley, J. Daniel, Wolfsberg, Max, Exact Classical Calculations On Co. [illegible]ional Energy Transfer To Diatomic Molecules With A Rotational And A Vibrational Degree Of Freedom, J. CHEM. PHYS. 53 2967 (1970).
607	Undef	T	1	Kelley, J. Daniel, Wolfsberg, Max, Exact Semiclassical Calculations Of Translational-Vibrational Energy Transfer, J. CHEM. PHYS. 45 3881 (1966).

REACTANTS	EXP OR THEOR.	E RANGE	REFERENCE
608 (C)+(AR)	T	4	Kelly, J. Daniel, Wolfsberg, Max, A Comparison Of Approximate Translational-Vibrational Energy-Transfer Formulae To Exact Classical Calculations, 4TH INT. CONF. PHYS. ELECTRON. ATOMIC COLLISIONS 146 (1965). SCIENCE BOOKCRAFTERS, NEW YORK.
609 (AR)+(AR) (KR)+(KR) (XE)+(XE)	E	1	Kelly, Arnold J., Atom-Atom Ionization Cross Sections Of The Noble Gases - Argon, Krypton, And Xenon, J. CHEM. PHYS. 45 1723 (1966).
610 (AR)+(XE)	E	1	Kelly, Arnold J., Atom-Atom Ionization Mechanisms In Argon-Xenon Mixtures, J. CHEM. PHYS. 45 1733 (1966).
611 (H)+(N_2,NO,[illegible])	E	3	Kempter, V., Mecklenbrauck, W., Menzinger, M., Schuller, G., Herschbach, D. R., Schlier, Ch., Electronic Excitation Of K Atoms In Collisions With Diatomic Molecules [illegible] Energy Dependence From 1-[illegible] eV, CHEM. PHYS. LETTERS [illegible] (1972).
612 (N_2*)+(NE,N,[illegible])	E	2	Kenty, Carl, Diffuse [illegible] Light-emitting Discharges In The Rare Gases With And Without Nitrogen, J. CHEM. PHYS. 47 2545 (1967).
613 (N_2*)+(N_2)+(AR,NE,HE,[illegible])	E	2	Kenty, C., [illegible] Involving Metastable N2 Molecules In Discharges And Afterglows In A Rare Gas Plus N2, ATOMIC COLLISION PROCESSES, P.1133, NORTH-HOLLAND PUBL. CO., AMSTERDAM (1964).
614 (O_2)+(N_2)	T	[illegible]	Kerner, Edward H., Note On The Interchange Of Rotational And Vibrational Energy In Collisions Of Diatomic Molecules, PHYS. REV. 92 419 (1953).
615 [illegible]	T	3	Kerner, Edward H., The Excitation Of Molecular Rotations And Vibrations In Inelastic Scattering Processes, PHYS. REV. 91 1174 (1953).
616 (NE*)+(NE)	E	5	Kessel, Quentin C., Mc Caughey, Michael P., Everhart, Edgar, [illegible] Structure And K-Shell Vacancies In Ne* - Ne Collisions At 150 To 400 Kev, PHYS. REV. LETTERS 16 1195 (1966).
617 (AR*)+(AR) (KR*,[illegible])+([illegible])	E	5	Kessel, Q. C., Rose, P. H., Grodzins, L., Inelastic Energy Loss And X-Ray Emission In Large-Angle Atomic Collisions, PHYS. REV. LETTERS 22 1031 (1969).
618 (H*)+(H)	[illegible]	5	Khandelwal, G. S., [illegible] Going To H2 Excitation Cross Sections Of H Atoms By Fast Protons, J. PHYS. B 1 151 (1969).
619 Undef	T	6	Khandelwal, G. S., Merzbacher, E., The K-Shell Excitation Function, TI.-21098 (1966).
620 (H*)+(H)	T	5	Khandelwal, G. S., Choi, B. H., Total Cross Section For Proton Excitation Of H-Atoms, PHYS. LETTERS 28A 124 (1968).
621 (H*)+(H)	T	5	Khandelwal, G. S., Choi, B. H., Excitation Of H Atoms By Fast Protons, J. PHYS. B 1 1219 (1969).
622 (H*)+(H)	T	5	Khandelwal, G. S., Choi, B. H., Asymptotic Expression For The Cross Section For The Excitation Of H Atoms By Fast Protons, J. PHYS. B 1 [illegible]229 (1969).
623 (H*)+(H)	T	5	Khandelwal, G. S., Choi, B. H., Asymptotic Expressions For Cross Sections For The Excitation Of H Atoms In 2s And 2p States By Fast Protons, J. PHYS. B 2 308 (1969).
624 (H*)+(H)	T	5	Khandelwal, G. S., Fitchard, E. E., Asymptotic Expression For 1s-Ns Excitation Cross Section Of H Atoms By Fast Protons, J. PHYS. B 2 1118 (1969).
625 (NA*)+(H_2,D_2,N_2)	E	0	Kibble, B. P., Copley, G., Krause, L., The Determination Of Collision Cross Sections For Quenching Of Na Sub D Radiation Using A Delayed Coincidence Method, P. 506, 5TH INT. CONF. ON COLLISIONS, LENINGRAD (1967).
626 (H*)+([illegible])	E	4	Kingdon, J., Payne, M. F., Riviere, A. C., Angular Distribution Effects In The Production Of Highly Excited Hydrogen Atoms, VI ICPEAC, P.449, THE MIT PRESS, CAMBRIDGE, MASS. (1969).
627 (H*,D_2*,H_2*)+([illegible])	E	4	Kingdon, J., Payne, M. F., Riviere, A. C., Total Yield And Angular Distribution Of Highly Excited Hydrogen Atoms Formed In [illegible], C_6F_{6}, H_2O And H_2 Targets, J. PHYS. B 3 552 (1970).
628 (H*)+(H)	T	4	Kingston, A. E., Moiseiwitsch, B. L., Skinner, B. G., The 1s-2s Excitation Of Hydrogen Atoms By Proton Impact, PROC. ROY. SOC., LONDON 258A 237 (1960).
629 (HE)+(H_2)	T	0	Kinsey, J. L., Parks, E. K., Riehl, J. W., Waugh, J. S., Low Energy He -H2 Collisions And The Anisotropic Part Of The He -H2 Potential, P. 231, 5TH INT. CONF. ON COLLISIONS, LENINGRAD (1967).
630 Undef	T	0	Klar, H., Theory Of Scattering Between Two Rigid Rotors, Z. PHYS. 228 53 (1969).
631 (NO)+(O)+(M) (NO_2)+(O)	E	1	Klein, F. S., Herron, J. T., Mass-Spectrometric Study Of The Reactions Of O Atoms With No And No2, J. CHEM. PHYS. 41 1285 (1964).
632 (CN*)+(AR,N_2O,N_2,HE)	E	2	Kley, D., Welge, K. H., Quenching And Rotational Relaxation Of CN(a2 Sigma*,vprime Equals 0,kprime), J. CHEM. PHYS. 49 2870 (1968).
633 Undef	T	2	Klots, C. E., Interpretation Of Ion Yields In Binary Mixtures, J. CHEM. PHYS. 39 1571 (1963).
634 (H*)+(H)	T	3	Knudson, Stephen K., Thorson, Walter R., Lyman-Alpha Excitation And Resonant Charge Exchange In Slow H* - H(1s) Collisions, CAN. J. PHYS. 48 313 (1970).
635 (HE**)+(HE,AR,KR,XE) (Cat. by Abstract Only)	E	5	Koch, L., Spectral Studies Of Luminescence Due To Excitation Of Inert Gases By Alpha-Rays, J. PHYS. RADIUM 21 105 (1960).

	REACTANTS	EXP OR THEOR.	[illegible]	REFERENCE
636	(HE*)(HE)	T	2	Kodaira, Mitsuhiko, Watanabe, Tsutomu, Collisional Transfer Of Triplet Excitations Between Helium Atoms, J. PHYS. SOC. JAP. 27 1591 (1969).
637	[illegible]	E	3	Kohl, [illegible], [illegible], Addendum To Stimulated Electric Polarization And Photon Echoes, PHYS. REV. A 2 [illegible] (197[illegible]).
638	[illegible] ([illegible]HG)([illegible],CO,,CH,) (Cat. 5, Abstract Only)	T	2	Kohlmaier, G. H., Intermolecular Energy Transfer In Impacts With Special Consideration Of Polyatomic Molecules In Highly Excited Vibrational States, CHEM. ELEMENTARPROZESSE, P.177, SPRINGER-VERLAG, BERLIN (1968).
639	(HE*)(NE)	T	0	Kolkhoneko, V. V., Prilezhaeva, N. A., Chernenko, L. A., Evaluation Of Some Effective Cross Sections For Collisions Of The Second Type Between Metastable Helium Atoms And Atoms Of Neon, SOVIET PHYS. J. 9 115 (1966).
640	(HE*)(HE)	T	2	Kolker, H. J., Michels, H. H., Elastic Scattering, Diffusion, And Excitation Transfer Of Metastable Helium In Helium, J. CHEM. PHYS. 50 1762 (1969).
641	Review	E	0	[illegible], [illegible], Anregung Langsamer Elektronen Ionen Durch Gase, [illegible] DER PHYSIK 36 1 (1956).
642	(NE*)([illegible])	E	1	Kolpakova, I. V., Pełko, T. P., Some Remarks On The Operation Mechanism Of The Neon-Oxygen Gas Laser, OPT. SPECTROS. 23 251 (1967).
643	(HF*)(HF) (DF*)(DF)	E	2	Kompa, Karl L., Parker, John H., Pimentel, George C., UF6-H2 Hydrogen Fluoride Chemical Laser Operation And Chemistry, J. CHEM. PHYS. 49 4257 (1968).
644	(H*)(H)	E	0	Kondo, Yoji, Kupperian, James E., Jr., Interaction Of The Neutral Hydrogen And Charged Particles In The Radiation Belts The Consequent Lyman-Alpha Emission, J. GEOPHYS. RES. 72 6091 (1967).
645	(H*)(H2)	T	0	Korobkin, I., The Effects Of Electronic Exchange On The Efficiency Of Vibrational Excitation By Molecular Collisions, NAVWEPS REPORT 7264, AD-435 404 (1964).
646	(H*)(H2)	T	2	Korobkin, I., Slawsky, Z. I., Effects Of Electronic Exchange On The Efficiency Of Vibrational Excitation By Molecular Collisions. I. Interaction Potential, J. CHEM. PHYS. 37 226 (1962).
647	(H*)(H)	T	3	Kouri, Donald Jack, The Theory Of Atomic Collisions, THESIS, UNIV. OF WISCONSIN (1965).
648	(XE)(N2)	T	2	Kouri, Donald J., Theory Of Atom-Diatom Collisions. II, J. CHEM. PHYS. 49 4491 (1968).
649	(CO2*)(CO2,,AR)	E	0	Kovacs, M. A., Javan, A., Pressure Dependence Of The Decay Rate For Imprisoned 4.3μ-No Spontaneous Emission In CO2, J. CHEM. PHYS. 50 4111 (1969).
650	(H*)(N2,,O2,,AIR)	E	4	Kovel, A. [illegible], Roppe, V. T., Fogel, Ya. M., Emission Spectra Of Rarefield Molecular Gases Excited By Fast Electrons, USSR. [illegible] 4 74 (1966).
651	Undef	T	2	Kozhushner, M. A., Sayasov, Yu. S., Relation Between The Cross-Sections For Elastic And Inelastic Scattering In Nonadiabatic Atomic Collisions, OPT. SPECTROS. 15 313 (1963).
652	Undef	T	3	Kozhushner, M. A., Sayasov, Yu. S., The Probability Of Inelastic Atomic Collision In The Case Of Several Points Of Intersection (Or Pseudo-Intersection) Of Terms, OPT. SPECTROS. 15 399 (1963).
653	Undef	T	5	Kramer, K. H., Bernstein, R. B., Sudden Approximation Applied To Rotational Excitation Of Molecules By Atoms. I. Low-Angle Scattering, J. CHEM. PHYS. 40 200 (1964).
654	(HG*)(TL)	E	1	Kraulinya, E. K., Lezdin, A. L., Sametis, O. S., Collisions Between Excited Mercury Atoms And Unexcited Thallium Atoms, OPT. SPECTROS. 25 523 (1968).
655	(HG*)(CD,ZN)	E	1	Kraulinya, E. K., Arman, M. G., The Excitation Of Zinc And Cadmium Levels In The Sensitized Fluorescence Of Hg-Zn And Hg-Cd Mixtures, OPT. SPECTROS. 26 285 (1969).
656	(HG*)(TL)	E	2	Kraulinya, E. K., Lezdin, A. E., Sametis, O. S., Collisions Between Excited Mercury Atoms And Ground-State Thallium Atoms, P. 358, 5TH INT. CONF. ON COLLISIONS, LENINGRAD (1967).
657	(HG)(TL)	T	0	Kraulinya, E. K., Lezdin, A. E., Absolute Effective Cross Sections For Sensitized Fluorescence Of Mercury And Thallium Vapors, OPT. SPECTRY. 20 304 (1966).
658	(HG)(CD,ZN)	E	1	Kraulinya, E. K., Arman, M. G., Liepa, S. Ya., Silin, Yu. A., Yanson, U. V., On The Transfer Of Excitation Energy For The Sensitized Fluorescence Of Hg-Cd And Hg-Zn Mixtures, OPT. SPECTROS. 28 658 (1970).
659	(HG*)(TL)	E	1	Kraulinya, E. K., Sametis, O. S., Dryukhovetskii, A. P., Circular Polarization Of Sensitized Fluorescence In A Mixture Of Mercury And Thallium Vapor, OPT. SPECTROS. 29 227 (1970).
660	(HG)(NA)	E	1	Kraulinya, E. K., Determination Of Absolute Values For The Effective Cross-Sections Of Collisions Of The Second Kind From The Sensitized Fluorescence Of Sodium And Mercury Vapors, OPT. SPECTRY. 17 280 (1964).
661	(HG*)(IN)	E	1	Kraulinya, E. K., Yanson, M. L., Excitation Energy Transfer In The Sensitized Fluorescence Of A Mixture Of Mercury And Indium Vapors, OPT. SPECTROS. 29 239 (1970).

	REACTANTS	EXP OR THEOR.	E RANGE	REFERENCE
662	[illegible]	E	1	Broadlinge, E. A., Tamana, M. L., Sensitized Fluorescence Of Hg-In With Nitrogen And Argon Admixture, OPT. SPECTROS. 29 441 (1970).
663	[illegible]	E	4	Brouse, Daniel, Jr., Soltysik, Edward A., Polarization Of Light From Collisions Of A Proton Beam With Helium Atoms, PHYS. REV. 173 142 (1968).
664	$(HE,LI)+(H_2)$ (Cat. by Abstract Only)	T	2	Krauss, Morris, Energy Surfaces For Energy Transfer And Chemical Reaction, PROC., IBM SCI. CMPUT. SYMP. COMPUT. CHEM., P.65 (1969).
665	$(O_2)+(O_2)$	T	2	Krishna, V. G., Simultaneous And Induced Electronic Transitions In Oxygen. I, J. CHEM. PHYS. 50 792 (1969).
666	[illegible]	E	5	Kubota, Shinzou, Takahashi, Tan, Ruhe, Tsuguyoshi, Mechanism Of Scintillation Of Helium, Helium-Argon, And Helium-Neon Gas Mixtures Excited By Alpha Particles, PHYS. REV. 165 225 (1968).
667	$(O_2)+(AR)$	T	0	Kohsenko, D. V., Losev, S. A., On The Vibrational Excitation Of Rotating Molecules, P. 213, 5TH INT. CONF. ON COLLISIONS, LENINGRAD (1967).
668	$(AR)+(O_2)$	T	1	Kohsenko, P. V., Losev, V. D., Losev, S. A., Gaipov, A. I., Excitation Of Vibrational Degrees Of Freedom In Molecular Collisions, SOVIET PHYS. - DOKLADY 11 346 (1966).
669	$(O_2)+(AR)$ (Cat. by Abstract Only)	T	2	Kosoenko, P. V., Losev, S. A., Probability Of The Excitation Of Vibrations And The Dissociation Of Diatomic Molecules, TEKH. FASP. KHIM. 5 [illegible] (1969).
670	$(AR)+(O_2)$	T	1	Kohsenko, D. V., Losev, S. A., Vibrational Relaxation In Atom-Molecule Collisions, SOVIET PHYS.-DOKLADY 13 142 (1968).
671	$(HE^{+*})+(HE)+(CO)$	E	1	Lanz, C., Bondes, S., Marteck, P., Spectroscopic Study Of The Alpha-Ray-Induced Luminescence In Gases The Helium-Carbon Monoxide System, RADIAT. RES. 41 208 (1970).
672	$(AR^+,AR^{++},XE^+,L^+,O^+,K_2^+)+(N_2)$	E	0	Larzung, L., Lo, H. H., Brachmann, R. T., Fite, W. L., Erratum. Excitation Of 3914 A N_2^+ Radiation In Collisions Of Heavy Ions With N_2, PHYS. REV. 185 406 (1965).
673	[illegible]	E	5	Larzung, L., Lo, H. H., Brachmann, R. T., Fite, W. L., Excitation Of 3914 Angstrom N2+ Radiation In Collisions Of Heavy Ions With N2, PHYS. REV. 179 51 (1969).
674	$(HE)+(HE)$	E	3	Kolleidze, V. A., Excitation Cross Section Of He Atom In Slow Collisions With He, SOVIET PHYS.-JETP 29 301 (1969).
675	Undef (Cat. by Abstract Only)	E	0	Lagerqvist, Alvin, Wulff, Lennart, Uber Die Hohe Der Angeregten Elektronenzustande Von Cao, Sro Bao, ARK. FYS. 8 427 (1954).
676	Undef	T	1	Lambert, J. D., Edwards, A. J., Pemberton, D., Stretton, J. L., Intermolecular Transfer Of Vibrational Energy, DISC. FARADAY SOC. 33 61 (1962).
677	$(SF_6)+(CHClF_2)$	E	1	Lambert, J. D., Parks-Smith, D. G., Stretton, J. L., The Transfer Of Vibrational Energy Between Molecules, PROC. ROY. SOC., LONDON 282A 340 (1964).
678	$(CD^+)+(HE,NE,AR,KR,XE,N_2)$	E	1	Laniepce, Bernard, Barrat, Jean-Pierre, Mesure de Sections Efficaces De Collisions Pour Les Chocs Entre Molecules De Gaz Etrangers Et Atomes De Cadmium Dans L Etat 5^3P_1, COMPT. REND. 264 146 (1967).
679	Undef	T	1	Lawley, K. P., Ross, J., Semiclassical Theory Of Rotational Excitation Of A Diatomic Molecule By An Atom, J. CHEM. PHYS. 43 2930 (1965).
680	$(K,LI,CS)+(HBR)$ $(HE)+(H_2)$	T	1	Lawley, K. P., Ross, J., Semiclassical Calculation Of Rotational Excitation, J. CHEM. PHYS. 43 2943 (1965).
681	$(FE^+)+(O_2,H_2O)$	E	4	Layton, J. K., Excitation Effects Of Fe^+ In High-Energy Collisions, J. CHEM. PHYS. 47 1865 (1967).
682	$(H^+)+(O_2)$	E	5	Layton, R. G., Baker, D. J., Brown, F. R., Merrill, J. J., Optical Excitation Of Oxygen By 20-100-Kev Protons, AD-615 455 (1965).
683	$(H^+)+(O_2)$	T	4	Layton, Richard Gary, Excitation Of Oxygen By 1e- To 102-Kev Protons, UTAH STATE UNIVERSITY, THESIS, (1965).
684	$(H^+)+(HE,NE,AR,KR,XE,H_2,O_2,NE,NH_3,C_2H_2,C_6H_6)$	E	5	Le Doucen, Roger, Lenormand, Jean-Michel, Guidini, Joseph, Etude De L Echange De Charge De Protons Avec Formation D Etats Excites, COMPT. REND. B 271 437 (1970).
685	$(H^+)+(H_2,N_2,O_2,NH_3,C_2H_2,C_6H_6)$	E	5	Le Doucen, R., Lenormand, J. M., Guidini, J., Charge Exchange Of Protons With Formation Of Atoms In Excited States, J. PHYS. (PARIS) 31 965 (1970).
686	$(H^+)+(H_2,C_2H_2,C_6H_6)$	E	5	Ledoucen, R., Guidini, J., Formation Of Highly Excited Hydrogen Atoms By Charge Exchange Of Protons In Molecular Gases (H2-C2H2-C6H6), VI ICPEAC, P.454, THE MIT PRESS, CAMBRIDGE, MASS (1969).
687	$(CH_3OH)+(CH_3OH,HE)$ $(CH_3NH_2)+(CH_3NH_2,HE)$	E	2	Lees, R. M., Oka, T., Microwave Studies Of Collision-Induced Transitions Between Rotational Levels. VI. CH_3OH And CH_3NH_2, J. CHEM. PHYS. 51 3027 (1969).
688	$(N_2)+(CO)$	E	0	Legay-Sommaire, N., Legay, F., Infrared Luminescence Of Gases Excited By Active Nitrogen. I. Carbon Monoxide, J. PHYS. 25 917 (1964).
689	$(N_2^*)+(CO)$	E	0	Legay, F., Legay-Sommaire, N., Infrared Luminescence Of Carbon Monoxide Excited By Active Nitrogen, COMPT. REND. 257B 2644 (1963).
690	$(N_2)+(CO_2)$	E	0	Legay, F., Infrared Luminescence Of Gases Excited By Activated Nitrogen. II. Carbon Dioxide, J. PHYS. 25 999 (1964).

	REACTANTS	EXP OR THEOR.	E RANGE	REFERENCE
691	(XE*,KR*)+(I)	E	1	Calcote, Algird G., Mc Caslin, John A., Enhancement Of The 2062 A Atomic-Iodine Line In An Iodine Inert-Gas Flashlamp, J. OPT. SOC. AM. 57 317 (1967).
692	Undef	T	0	Lester, W. A., Bernstein, R. B., Erratum Structural Features Of The S-Matrix For The Rotational Excitation Of Homonuclear Diatomic Molecules By Atom Impact Close-Coupled Versus Approximate Computations, CHEM. PHYS. LETTERS 1 347 (1967).
693	Undef	T	1	Lester, William A., Jr., Bernstein, R. B., Computational Procedure For The Close-Coupled Rotational Excitation Problem Scattering Of Diatomic Molecules By Atoms, J. CHEM. PHYS. 48 4896 (1968).
694	Undef	T	2	Lester, W. A., Jr., Bernstein, R., Structural Features Of The S-Matrix For The Rotational Excitation Of Homonuclear Diatomic Molecules By Atom Impact Close-Coupled Versus Approximate Computations, CHEM. PHYS. LETTERS 1 207 (1967).
695	Undef	T	0	Levine, R. D., On The Distorted-Wave Magnus Approximation In Non-Reactive Molecular Collision, CHEM. PHYS. LETTERS 2 76 (1968).
696	Undef	T	9	Levine, R. D., Opacity Analysis Of Inelastic Molecular Collisions. I. The Quantum Mechanical Sudden Approximation, CHEM. PHYS. LETTERS 4 211 (1969).
697	Undef	T	5	Levine, R. D., Bernstein, R. B., Opacity Analysis Of Inelastic Molecular Collisions. IV. Statistical Aspects Of Rotational Excitation Theory, J. CHEM. PHYS. 53 686 (1970).
698	Undef	T	4	Levine, Raphael D., Internal Excitation In Molecular Collisions, NASA-CR-98729, N67-13662 (1966).
699	(HE)+(D$_2$) (HE)+(H$_2$)	T	1	Levine, R. D., Johnson, B. R., Rotational Excitation In Molecular Collisions Statistical Features Of The S-Matrix, CHEM. PHYS. LETTERS 4 365 (1969).
700	Undef	T	2	Levine, R. D., Johnson, B. R., Muckerman, J. T., Bernstein, R. B., Internal Excitation In Non-Reactive Molecular Collisions Resonances In Elastic Scattering Of Atoms By Diatomic Molecules, CHEM. PHYS. LETTERS 1 517 (1968).
701	Undef	T	2	Levine, R. D., Shapiro, M., Muckerman, J. T., Johnson, B. R., Rotational Excitation In Molecular Collisions Exact (Two-State) Results Versus Variational (Decoupling) Computations, CHEM. PHYS. LETTERS 2 545 (1968).
702	Undef	T	2	Levine, Raphael David, Energy Transfer In Molecular Collision, ISR. J. CHEM. 7 237 (1969).
703	(H$_2$)+(HE)	T	5	Levine, R. D., On The Partial Summation Of The Born Series, J. PHYS. B 2 839 (1969).
704	Undef	T	0	Levine, R. D., Variational Corrections To Decoupling Approximations In Molecular Collision Theory, J. CHEM. PHYS. 50 1 (1969).
705	(NE,AR,KR)+(H)	T	4	Levy, Hiram, II, Multistate Impact-Parameter Calculation Of Atom-Atom Excitation Cross Sections Excitation Of Atomic Hydrogen By Neon, Argon, And Krypton, PHYS. REV. A1 750 (1970).
706	(H)+(H)	T	5	Levy, H., II, Impact-Parameter Calculation Of Hydrogen-Hydrogen Double-Excitation Collisions, PHYS. REV. 184 97 (1969).
707	(H)+(HE)	T	5	Levy, Hiram, II, Born-Wave Calculation Of Atom-Atom Inelastic Cross Sections Excitation Of He(1^{1}S) To He(n^{1}L) By Hydrogen Atoms, PHYS. REV. 187 130 (1969).
708	(HE)+(H)	T	5	Levy, Hiram, II, Multistate Impact-Parameter Calculation Of Atom-Atom Excitation Cross Sections Excitation Of H(1s) By He(1^{1}S), PHYS. REV. 187 136 (1969).
709	(HE)+(HE,NE,AR,KR)	T	5	Levy, H., II, Born Wave Cross Section Calculations For The Excitation Of He(1^{1}S) To He(n^{1}L) By Helium, Neon, Argon And Krypton, J. PHYS. B 3 1501 (1970).
710	(H)+(HE,NE,AR,KR,C,N,O)	T	5	Levy, H., II, Born Wave Calculation Of Atom-Atom Inelastic Cross Sections Description Of Target Atoms By Elastic And Inelastic X-Ray Form Factors, PHYS. REV. 185 7 (1969).
711	(H)+(HE,HE)	T	5	Levy, Hiram, II, Born Wave Calculation Of Atom-Atom Inelastic Cross Sections, VI ICPEAC, P.478, THE MIT PRESS, CAMBRIDGE, MASS. (1969).
712	(CO$_2$)+(H$_2$,HE)	T	1	Lewis, W. L., Shields, T. Douglas, Thermal Relaxation Processes In Gases, THESIS, UNIVERSITY OF MISSISSIPPI, AD-635-097 (1965).
713	(H$^-$,HE*,HE^{+*},HE,H)+(H) (HE^{+*}OL(2*))+(HE)	T	8	Lichten, W., Molecular Wave Functions And Atomic Collisions, 4TH INT. CONF. PHYS. ELECTRON. ATOMIC COLLISIONS, P.63, SCIENCE BOOKCRAFTERS, NEW YORK (1965).
714	Undef	T	5	Lichten, William, Molecular Wave Functions And Inelastic Atomic Collisions, PHYS. REV. 164 131 (1967).
715	(XE)+(H$_2$) (AR)+(I$_2$)	T	2	Light, John C., Arnstein, Rodolphe, Dissociation Of Gaseous Diatomic Molecules. II. Effect Of Anharmonicities, J. CHEM. PHYS. 37 2240 (1962).
716	(NH$_3$*)+(H$_2$)	E	1	Lightman, A., Ben-Reuven, A., Line Mixing By Collisions In The Far-Infrared Spectrum Of Ammonia, J. CHEM. PHYS. 50 351 (1969).
717	(HE*)+(HE)	T	1	Lin, Chun C., Fowler, Richard G., Theory Of Collision Transfer Of Excitation In Helium, ANN. PHYS. (NY) 15 461 (1961).
718	(HE*)+(HE)	E	1	Lin, Chun C., St. John, Robert M., Collisional Excitation Transfer To The 4^{1}D State In Helium By Multiple State Mechanism, PHYS. REV. 128 1749 (1962).

REACTANTS	EXP OR THEOR.	E RANGE	REFERENCE
719 (H$^+$)+(HE)	T	4	Lin, Sheng Hsien, Calculation Of Anisotropic Excitation Cross Sections And The Polarization Of Impact Radiation Of He Atoms Induced By Electron And Proton Impacts, J. CHEM. PHYS. 49 1125 (1968).
720 Model (Cat. by Abstract Only)	E	2	Lindholm, Einar, Ionization And Fragmentation Of H2 By Bombardment With Atomic Ions. Dissociation Energy Of H2, ARK. FYS. 8 257 (1954).
721 Review	T	3	Lindholm, E., Rydberg Series In Small Molecules. I. Quantum Defects In Rydberg Series, ARK. FYS. 40 97 (1969).
722 (HE$^+$)+(AR)	E	3	Lipeles, Martin, Swift, Roderick E., Longmire, Martin S., Weinreb, Richard P., Energy Dependence Of The 4610- And 4765-A Lines Of Ar$^+$ Excited In Low-Energy He$^+$ + Ar Collisions, PHYS. REV. LETTERS 24 799 (1970).
723 (AR$^+$)+([illegible])	T	3	Lipeles, Martin, Simple Model For Vibrational Transfer In Ion-Molecule Charge-Exchange Excitation, J. CHEM. PHYS. 51 1252 (1969).
724 (HE$^+$)+([illegible])	E	2	Lipeles, M., Novick, R., Tolk, N., Optical Excitation With Very Low Energy Ions, PHYS. REV. LETTERS 15 815 (1965).
725 ([illegible])+([illegible])	E	2	Lipscomb, F. J., Norrish, R. G. W., Thrush, B. A., The Study Of Energy Transfer By Kinetic Spectroscopy. I. The Production Of Vibrationally Excited Oxygen, PROC. ROY. SOC., LONDON 233A 455 (1955-56).
726 Model	T	0	Liu, Chelcie, Rotational Excitation During Ion-Molecule Collisions, J. CHEM. PHYS. 53 1295 (1970).
727 (N_2^+,AR$^+$)+(AR,H$_2$,D$_2$,[illegible]) (N_2^+)+(NE,[illegible],AR)	E	4	Liu, Chelcie, Broida, H. P., Optical Spectra Observed During Ion-Molecule Collisions Using Low-Energy N_2^+ And Ar$^+$ Beams, PHYS. REV. A 2 1824 (1970).
728 ([illegible])+([illegible])	E	3	Liu, Chung-Hong, Magnetic Resonance Of The Ionic Ground State Of Atoms Through Exchange Collisions With The Metastable State, And Intensity Beats Due To Coherent Excitation, UCRL-17697 (1967).
729 Model	T	1	Locker, David J., Endres, Paul F., Semiclassical Transition Probabilities For Collinear Collisions Between An Atom And A Morse Oscillator, J. CHEM. PHYS. 51 5482 (1969).
730 (H$^+$)+([illegible],LI,NA)	T	5	Lodge, J. G., Roy, P. R., Formation Of Highly Excited Neutral Atoms By Charge Exchange From Alkali Targets Of Arbitrary Thickness, AUSTRAL. J. PHYS. 23 481 (1970).
731 (H$^+$)+(LI,NA)	T	5	Lodge, J. G., Roy, R. R., Charge Exchange Collisions Involving Multielectron Atoms (Lithium And Sodium), AUSTRAL. J. PHYS. 21 [illegible] (1968).
732 ([illegible])+(CO)	E	2	London, G., Vihia, A. C., Le Roy, D. J., A Physical And Chemical Investigation Of The Nature And Properties Of The Species Formed In The Hg(6^{3}P$_1$) - Co System, CAN. J. CHEM. 48 1420 (1970).
733 (HE$^+$)+(NE,AR)	E	3	Lorents, D. C., Aberth, W., Coffey, D., Heiserman, V. W., Differential Excitation Cross Sections For Collisions Of He$^+$ With Ne And Ar, P. 44[illegible], 5TH INT. CONF. ON COLLISIONS, LENINGRAD (1967).
734 (HE$^+$,AR$^+$)+([illegible]) (N_2^+)+(NA)	E	3	Lorents, D. C., Peterson, J. R., Research On Metastable Species In Atomic Molecular Beams Produced By Charge Transfer, AD-622 277 (1965).
735 (HE$^+$)+(HE)	E	3	Lorents, D. C., Aberth, W., Heiserman, V. W., Differential Cross Section For Excitation Of The 2^3 S And Higher States Of He By 400-Ev He$^+$ Ions, PHYS. REV. LETTERS 17 849 (1966).
736 (HE^{2+})+(H$_2$,D$_2$) (Cat. by Abstract Only)	E	0	Lormeau-Loustau, S., Effect Of Alpha-Particles On Gaseous Hydrogen And Deuterium, C. R. ACAD. SCI., PARIS 241 1754 (1955).
737 (H_2^+)+(H_2^+)	T	0	Lorquet, J. C., Ellenmann, S. G., Magee, J. L., Energy-Transfer Phenomena And Dissociation Processes In Electronically Excited Molecules, J. CHEM. PHYS. 37 1991 (1962).
738 (O_2)+(O_2)	T	1	Losev, S. A., Generalov, N. A., A Study Of The Excitation Of Vibrations And Dissociation Of Oxygen Molecules At High Temperatures, SOVIET PHYS. - DOKLADY 6 1081 (1962).
739 (H$^+$)+(H)	T	5	Lovell, S. E., Mc Elroy, M. B., Importance Of Coupling For Inelastic Collisions Between Protons And Hydrogen Atoms, PROC. ROY. SOC., LONDON A283 1392 (1965).
740 (LI$^+$)+(N_2)	E	3	Lowe, R. P., Ferguson, H. I. S., The Distribution Of Rotational Energy In N2$^+$ Excited By 3 Kev Li$^+$ Ions, PROC. PHYS. SOC. (LONDON) 85 813 (1965).
741 (LI$^+$,NA$^+$,K$^+$,RB$^+$,CS$^+$)+(N_2)	E	3	Lowe, R. P., Ferguson, H. I. S., Rotational Excitation In Alkali - Ion Collisions, 4TH INT. CONF. PHYS. ELECTRON. ATOMIC COLLISIONS, P.285, SCIENCE BOOKCRAFTERS, NEW YORK (1965).
742 (H_2^+)+(ARC,AR)	E	5	Luce, J. S., Hilton, J. L., Massive Conversion Of 750 Kev Ions To Neutrals Of Quantum Levels Greater Than 7, 6TH INT. CONF. ION. PHENOMENA GASES, 1 43, SERMA, PARIS (1964).
743 (B$^+$)+(C) (Cat. by Abstract Only)	E	5	Luther, Marvin Leroy, A Measurement Of Some Energy Levels And Lifetimes For Collisionally Excited Boron, THESIS, VA. POLYTECH. INST. (1967).
744 (HE$^+$)+(HE)	E	2	Mac Vicar-Whelan, P. J., Borst, W. L., Cross Section For Metastable Production In Low-Energy He$^+$ - He Collisions, PHYS. REV. A1 314 (1970).
745 (H$^+$)+(H_2)	E	3	Madansky, L., Owen, G. E., Production Of Polarized Proton Beams, PHYS. REV. LETTERS 2 209 (1959).

	REACTANTS	EXP OR THEOR.	E RANGE	REFERENCE
746	Review	T	9	Nagel, Michel, Vitesse De Reaction Et Collisions Moleculaires. Complexe Active, CHM. PHYS. 66 3 (1926).
747	Undef	T	0	Magee, J. L., Energy Transfer Phenomena And Dissociation Processes In Electronically Excited Molecules, [illegible] 29 71 (1962).
748	Undef	T	1	Mahan, Bruce H., Refined Impulse Approximation For The Collisional Excitation Of The Classical Anharmonic Oscillator, J. CHEM. PHYS. 52 5221 (1970).
749	(HE++)+(H)	T	5	Malaviya, V., Resonance Charge Transfer In He++ - H(1s) Collisions, J. PHYS. B 2 843 (1969).
750	(H+)+(H*)	T	5	Malaviya, V., Resonance Charge Transfer Between Protons And Excited Hydrogen Atoms. III. Coupled Eight-State Approximation, J. PHYS. B 3 1492 (1970).
751	(K)+(HBR) (CS)+(HBR,HI,CH$_3$I,BR$_2$, CCL$_4$) (Cat. by Abstract Only)	E	2	Maltz, Charles, Rotational Excitation In Reactive Scattering, THESIS, HARVARD UNIV. (1971).
752	(H$_2$+,H$_3$+)+(H$_2$)	E	4	Mandelberg, H. I., Aitken, L., Energy Transfer In Fast Molecular Ion Collisions, 6th INT. CONF. ION. PHENOMENA GASES, I 77, [illegible], PARIS (1963).
753	(N+)+(O,N)	T	5	Mapleton, Robert A., Classical Calculations On Electron Capture From Atomic Nitrogen And Oxygen, PHYS. REV. 164 51 (1967).
754	(N$_2$+)+(C$_2$H$_4$)	E	1	Marchand, Jacques, Stringat, Rene, Postluminescence de L Azote In Presence De Tetrafluorethylene, COMPT. REND. 263B 1236 (1966).
755	(HE,...,[illegible])+(HE)	E	0	Margenau, Henry, Lewis, Marvin, Structure of Spectral Lines From Plasmas, REV. MOD. PHYS. 31 569 (1959).
756	(H$_2$O,H$_2$)+(H$_2$O)	T	2	Marriott, R., Molecular Collision Cross Sections And The Effect Of Hydrogen On Vibrational Relaxation In Water Vapour, PROC. PHYS. SOC., LONDON 88 617 (1966).
757	(O$_2$)+(CO$_2$)	T	1	Marriott, R., Molecular Collision Cross Sections And Vibrational Relaxation In Carbon Dioxide, PROC. PHYS. SOC., LONDON 84 877 (1964).
758	(CO)+(CO)	T	2	Marriott, R., Molecular Collision Cross Sections And Vibrational Relaxation In Carbon Monoxide, PROC. PHYS. SOC., LONDON 83 155 (1964).
759	(H$_2$O)+(CO$_2$)	T	2	Marriott, R., Molecular Collision Cross Sections And The Effect Of Water Vapour On Vibrational Relaxation In Carbon Dioxide, PROC. PHYS. SOC., LONDON 88 83 (1966).
760	(CO$_2$)+(H$_2$)	T	1	Marriott, R., Molecular Collision Cross Sections And The Effect Of Hydrogen On Vibrational Relaxation In Carbon Dioxide, PROC. PHYS. SOC. 86 1041 (1965).
761	(N$_2$)+(CO$_2$)	T	2	Marriott, R., Calculation Of Cross Sections For The Vibrational Excitation Of CO2 By Collision With N2, AD-636 316 (1964).
762	(NE*)+(H$_2$,O$_2$,CH$_4$,NH$_3$) (NE*)+(N$_2$)	E	0	Marshall, T., Deactivation Of Neon Metastables By Hydrogenic Impurities, J. APPL. PHYS. 36 712 (1965).
763	Review	E	0	Massey, H. S. W., Theory Of Atomic Collisions, HANDBUCH DER PHYSIK 36 232 (1957).
764	(HG*)+(N$_2$)	E	1	Matland, C. G., The Quenching Of Mercury Resonance Radiation (2537A) By Nitrogen, PHYS. REV. 92 637 (1953).
765	(HE*)+(HE*)	T	2	Matsuzawa, Michio, Katsuura, Kenji, Ionization Of Atoms By Collisions With Metastable Helium Atoms, J. CHEM. PHYS. 52 3001 (1970).
766	(H*)+(H)	T	2	Matsuzawa, Michio, Nakamura, Hiroki, Collisional Excitation Transfer Between Hydrogen Atoms. II. H(2s)+H(1s) Going To H(1s)+H(2s), J. PHYS. SOC. JAPAN 22 252 (1967).
767	(CO)+(CO)+(H$_2$,N$_2$,O$_2$,CO$_2$,H$_2$O)	E	1	Matthews, D. L., Vibrational Relaxation Of Carbon Monoxide In The Shock Tube, J. CHEM. PHYS. 34 639 (1961).
768	Undef	T	0	Mattshiz, [illegible], Neudachin, V. G., Application Of Some Nuclear Theory Methods To Molecular Collisions, SOVIET PHYS.-JETP 19 95 (1964).
769	(K+)+(HE)	E	3	Matveev, V. B., Bobashev, S. V., Dukel Skii, V. M., Excitation Of K II Resonance Lines In Slow Collisions Between K+ Ions And Helium Atoms, SOVIET PHYS.-JETP 28 434 (1969).
770	(CS+,K+)+(HE)	E	3	Matveev, V. B., Bobashev, S. V., Dukel Skii, V. M., Excitation Of K+, Rb+, And Cs+ Ions In Slow Collisions With Inert Gas Atoms, VI ICPEAC, P.226, THE MIT PRESS, CAMBRIDGE, MASS. (1969).
771	(K+)+(HE,NE,AR,KR,XE) (RB+)+(HE) (CS+)+(HE,NE)	E	4	Matveev, V. B., Bobashev, S. V., Dukel Skii, V. M., Excitation Of K+, Rb+ And Cs+ Ions In Slow Collisions With Inert Gas Atoms, SOVIET PHYS.-JETP 30 829 (1970).
772	(H,H+)+(H)	T	0	May, Robert M., Excitation Of H-Atoms By Proton Impact And By Fast Atom Impact, N64-29476, TR-15 (1965).
773	(H+)+(H)	T	0	May, R. M., Excitation Of H Atoms By Proton Impact, PHYS. LETTERS 14 98 (1965).
774	(H+)+(H)	T	4	May, R. M., Cross - Sections For Charge Exchange Reactions, H+ + H (N1 L1 M1) Going To H (N2 L2 M2) + H+, CONF-641104-21, APS, NEW YORK (1965).
775	(H+)+(H)	T	4	May, R. M., Excitation Of H-Atoms By Proton Impact, And By Fast Atom Impact, TR-15 (1965).
776	(H+)+(H)	T	4	May, R. M., Formation Of Highly Excited Neutral Atoms By Charge-Exchange, PHYS. LETTERS 11 33 (1964).
777	(H+)+(H)	T	4	May, R. M., Matrix Elements For Charge-Exchange Processes, PHYS. LETTERS 11 24 (1964).
778	(H+)+(H)	T	5	May, R. M., Butler, S. T., Transitions Induced In Highly Excited H Atoms By Proton Impact, PHYS. REV. 138 A1596 (1965).

	REACTANTS	EXP OR THEOR.	# INDEX	REFERENCE
779	(H)(H)	E	1	Moore, W. M., Linewidths In The Electron Paramagnetic Resonance Spectrum Of Gaseous Atomic Hydrogen, J. CHEM. PHYS. 36 1643 (1961).
780	(HG*)(HG)(N_2) (Cal. By Abstract Only)	E	2	McAbduff, Joseph Edward, Reactions Of Hg ($6^3 P_0$) Atoms In The Presence Of Nitrogen, THESIS, UNIV. OF TORONTO (1964).
781	(H^+)(H)	T	3	McCarroll, R., Piacentini, R. D., Differential Cross Sections For Elastic Scattering, Resonant Charge Exchange And Excitation In Low Energy Proton-Hydrogen Collisions, J. PHYS. B 3 1336 (1970).
782	(HE*)(O_2)	E	1	McConkey, J. W., Pettifer, R. E. W., Moran, D. A., Influence Of Metastable Helium On The Laboratory Excitation Of O (Sup 1 S), PLANET. SPACE SCI. 18 771 (1970).
783	(CO_2*)([illegible])	E	8	McCoubrey, J. C., Milward, R. C., Ubbelohde, A. R., Energy Transfer In Polyatomic Molecules. II. Relative Catalytic Efficiency For Energy Transfer To Different Vibrations In The Same Molecule, PROC. ROY. SOC., LONDON 264A 299 (1961).
784	(H^+)(HE)	T	3	McDowell, M. R. C., Collisional Excitation Of The n^3 D States Of He, 3/AM/AP/18 (1966).
785	(H^+)(HE,HE^+)	T	5	McDowell, M. R. C., Pluta, R. M., Proton Impact Excitation Of The n^3 D States Of He, PROC. PHYS. SOC., LONDON 89 759 (1966).
786	(O_2)(N_2)	T	1	McElwain, D. L. S., Pritchard, H. O., Vibration-Vibration Coupling In The Dissociation Of A Diatomic Gas, J. AM. CHEM. SOC. 92 5427 (1970).
787	(H^+)([illegible])	E	4	McFarland, R. H., Futch, A. H., Jr., Measurements Of Excited State Population Ratios Of Atomic Hydrogen Produced By Charge Exchange Neutralization Of Energetic Proton Beams, VI ICPEAC, P.441, THE MIT PRESS, CAMBRIDGE, MASS. (1969).
788	(H^+)([illegible])	E	4	McFarland, Robert H., Futch, Archer H., Jr., Measurements Of Excited-State Population Ratios Of Atomic Hydrogen Produced By Charge-Exchange Neutralization Of Energetic Proton Beams, PHYS. REV. A 2 1795 (1970).
789	([illegible])(K*)	E	8	McGillis, D. A., Krause, L., Inelastic Collisions Between Excited Alkali Atoms And Molecules. III. Sensitized Fluorescence And Quenching In Mixtures Of Potassium With N_2, H_2, HD, And D_2, CAN. J. PHYS. 46 25 (1968).
790	(CS*)(N_2,H_2)	E	1	McGillis, D. A., Krause, L., Inelastic Collisions Between Excited Alkali Atoms And Molecules. I. Sensitized Fluorescence And Quenching In Cs-N_2, And Cs-H_2 Systems, PHYS. REV. 153 44 (1967).
791	(CS 6P *)(CH_4,CD_4)	E	1	McGillis, D. A., Krause, L., An Isotope Effect On 6^2 P Sub 1/2 - 6^2 P Sub 3/2 Mixing In Cesium, Induced In Collisions With CH_4 And CD_4, CAN. J. PHYS. 47 473 (1969).
792	(K*)(N_2,H_2,HD,HE)	E	7	McGillis, D. A., Krause, L., 4^2 P Sub 1/2 - 4^2 P Sub 3/2 Mixing In Potassium Induced By Collisions With N_2, H_2, And HD, 5TH INT. CONF. ON COLLISIONS, P.565, LENINGRAD (1967).
793	(N_2*)(N_2) (O_2*)(O_2)	E	8	McGowan, J. W., Kerwin, L., Collisions Of Long-Lived Excited Ions Of Oxygen And Nitrogen, CAN. J. PHYS. 42 2086 (1964).
794	(AR*)(AR)	E	3	McGowan, J. W., Kerwin, L., Metastable Ar^+ Ions Near The Ar^{++} Threshold, CAN. J. PHYS. 41 1535 (1963).
795	(O)(O_2)	E	2	McGrath, W. D., Norrish, R. G. W., Production Of Vibrationally Excited Oxygen Molecules In The Flash Photolysis Of Ozone, NATURE 180 1272 (1957).
796	(HE*,AR*)(N_2) (Cal. By Abstract Only)	E	1	McGregor, Wheeler Kesey, Jr., Examination Of The Conservation Laws In A Particular Class Of Collisions Of The Second Kind, THESIS, UNIV. OF TENNESSEE (1959).
797	(N_2*)(CO_2)	E	1	McKnight, William B., Excitation Mechanisms In Pulsed CO_2 Lasers, J. APPL. PHYS. 40 2810 (1969).
798	Undef	T	1	McLachlan, A. D., Resonance Transfer Of Molecular Excitation Energy, MOL. PHYS. 8 409 (1964).
799	(O_2*)(O_2,HE,AR)	E	2	McNeal, R. J., Durana, Stephen C., Absolute Chemiluminescent Reaction Rates For Emission Of The O_2 Herzberg Bands In Oxygen And Oxygen-Inert-Gas Afterglows, J. CHEM. PHYS. 51 2955 (1969).
800	(N_2*)(NA)	E	8	Mentall, J. E., Krause, J. F., Fite, W. L., Transfer Of Energy From Excited N2 To Na, P. 515, 5TH INT. CONF. ON COLLISIONS, LENINGRAD (1967).
801	(N_2*)(NA)	E	1	Mentall, J. E., Krause, H. F., Fite, W. L., Transfer Of Excitation Energy From Nitrogen Molecules To Sodium Atoms, DISC. FARADAY SOC. 44 157 (1967).
802	(N_2*)(O)	E	1	Meyer, J. A., Setser, D. W., Stedman, D. H., Notes. Excitation Of The Auroral Green Line Of Atomic Oxygen (Sup 1 S Going To[1] D) By N_2 (A^3 Sigma Sub U+), ASTROPHYS. J. 157 1023 (1969).
803	(N_2*)(N_2,O) (N^*)(O)	E	2	Meyer, J. A., Setser, D. W., Stedman, D. H., Energy Transfer Reactions Of N_2 (A^3 Sigma Sub U+). II. Quenching And Emission By Oxygen And Nitrogen Atoms, J. PHYS. CHEM. 74 2238 (1970).
804	(H_2)(HE)	T	2	Micha, D. A., Rotenberg, M., Impact Parameter Dependence Of Vibrational Excitation Cross Sections For H_2 + He Collisions, CHEM. PHYS. LETTERS 6 79 (1970).
805	(H)(H_2)	T	2	Micha, David A., Optical Potentials In Molecular Collisions, J. CHEM. PHYS. 50 722 (1969).

	REACTANTS	EXP OR THEOR.	E RANGE	REFERENCE
806	(HE$^+$)+(NE,N_2,AR,HE)	E	4	Miers, R. E., Schlachter, A. S., Anderson, L. W., Production And Loss Of Fast Metastable Helium Atoms In Collisions with Ne, N2, Ar, And He, PHYS. REV. 183 213 (1969).
807	(HE$^+$)+(KR,N_2,HE)	E	4	Miers, R. E., Anderson, L. W., Production And Loss Of Fast Metastable Helium Atoms In Collisions with Permanent Gases, PHYS. REV. A1 170 (1970).
808	Undef	T	2	Mies, Frederick H., Shuler, Kurt E., Quantum-Mechanical Calculation Of Harmonic Oscillator Transition Probabilities. II. Three-Dimensional Impulsive Collisions, J. CHEM. PHYS. 37 177 (1962).
809	(N_2)+(N_2) (O_2)+(AR) (H_2,...)+(HE,H_2)	T	5	Mies, F. H., Effects Of Anharmonicity On Vibrational Energy Transfer, J. CHEM. PHYS. 40 523 (1964).
810	(CO,N_2)+(N_2)	T	5	Mies, F. H., Impact Parameter Treatment Of Vibrational Excitation, J. CHEM. PHYS. 41 903 (1964).
811	(H$^+$)+(H) (HE$^+$)+(HE)	T	2	Mies, Frederick H., Quantum Oscillations In The Shape Of Pressure-Broadened Atomic Lines, J. CHEM. PHYS. 44 [illegible] (1966).
812	(HE)+(H_2)	T	1	Mies, F. H., Critical Examination Of Vibrational Energy-Transfer Theory, J. CHEM. PHYS. 42 2765 (1965).
813	(HE)+(HE)	T	1	Miles, John B. H., Dahler, John S., Classical Inelastic Collision Cross Sections For Loaded Spheres, J. CHEM. PHYS. 52 1292 (1970).
814	(HE$^+$)+(HE)	T	1	Miles, Frederick H., Smith, Allen Lasiett, Nonadiabatic Structure From Continuum-Continuum Emission The HeI 600-Angstrom Bands, J. CHEM. PHYS. 45 994 (1966).
815	Undef	T	1	Miller, William H., Semiclassical Approximation For The Total Cross Section Of Atom-Diatomic-Molecule Collisions Quenching Of Glory Undulations, J. CHEM. PHYS. 50 3124 (1969).
816	(HE)+(H_2)	T	1	Miller, William H., Distorted-Wave Theory For Collisions Of An Atom And A Diatomic Molecule, J. CHEM. PHYS. 49 2373 (1968).
817	(HE)+(HE)	T	3	Miller, Kenneth J., Krauss, Morris, Inapplicability Of The Born Exchange Scattering Amplitude For The He (1^1S Going To 2^3S) Transition, J. CHEM. PHYS. 48 2617 (1968).
818	Undef	T	2	Miller, William H., Possibility Of Extracting Anisotropy Parameters From The H Dependence Of Total Cross-Section Measurements, J. CHEM. PHYS. 50 3410 (1969).
819	(CS)+(HCL)	T	2	Miller, William H., Study Of The Statistical Model For Molecular Collisions, J. CHEM. PHYS. 52 543 (1970).
820	(CO)+(HE,AR,CO,NE,KR,H_2)	E	1	Millikan, R. C., Carbon Monoxide Vibrational Relaxation In Mixtures With Helium, Neon, And Krypton, J. CHEM. PHYS. 40 2594 (1964).
821	(N_2)+(CO,N_2)	E	2	Millikan, R. C., White, D. R., Vibrational Energy Exchange Between N2 And Co. The Vibrational Relaxation Of Nitrogen, J. CHEM. PHYS. 39 98 (1963).
822	(CO_2,N_2O)+(N)	E	1	Milne, E. L., Steinberg, M., Broida, H. P., Vibraluminescence Of Co2 And N2o In Active Nitrogen, J. CHEM. PHYS. 42 2615 (1965).
823	($N_2$$^+$)+(NA)	E	2	Milne, E. L., Sodium-Atom Excitation In Nitrogen Afterglows, J. CHEM. PHYS. 52 5360 (1970).
824	(N)+(BR)	E	1	Milton, Earl R. V., Dunford, H. B., Douglas, A. E., Spectrum Of Nbr Excited In Active Nitrogen, J. CHEM. PHYS. 35 1202 (1961).
825	($C_2H_4$$^+$)+($C_2H_4$,$H_2$,$N_2$,$D_2$,...) ($C_2H_4$$^+$)+($C_2H_4$,$H_2$,N,$D_2$) ($CH_3CL$$^+$)+($CH_3CL$,$H_2$,N,$D_2$)	E	2	Milward, R. C., Ubbelohde, A. R., Isotope Effects In The Transfer Of Vibrational Energy In Gaseous Collisions, PROC. ROY. SOC., LONDON 272A 401 (1963).
826	(H$^+$)+(HE)	T	3	Mittleman, Marvin H., Relativistic Effects In The Excitation Of Triplet Helium States By Electrons, PHYS. REV. 164 48 (1967).
827	(H$^+$)+(H)	T	5	Mittleman, M. H., Excitation Of Atomic Hydrogen By Fast Protons, PHYS. REV. 129 190 (1963).
828	Undef	T	5	Mittleman, Marvin H., Juang, James, Model For High-Energy Charge Transfer, PHYS. REV. 167 74 (1968).
829	Undef	T	1	Mnatsakanyan, A. Kh., Excitation Of Vibrations Of Diatomic Molecules In The Impact Approximation, OPT. SPECTRY. 19 [illegible] (1965).
830	(H$^+$)+(H)	T	3	Moiseiwitsch, B. L., Perrin, R., The 1s-2p Excitation Of Hydrogen Atoms, PROC. PHYS. SOC., LONDON 85 51 (1965).
831	Undef	T	4	Moiseiwitsch, B. L., On The Equivalence Of The Wave And Impact Parameter Treatments Of High-Energy Heavy Particle Collisions, PROC. PHYS. SOC., LONDON 87 885 (1966).
832	(H$^+$,HE^{2+})+(H)	T	5	Moiseiwitsch, B. L., A Schematic Model For The Impact Excitation Of Atoms, PROC. PHYS. SOC., LONDON 78 661 (1961).
833	(H,H$^+$,HE$^+$)+(HE)	T	5	Moiseiwitsch, B. L., Stewart, A. L., Inelastic Collisions Between Heavy Particles. III. Excitation Of Helium Atoms In Fast Encounters with Hydrogen Atoms, Protons And Positive Helium Ions, PROC. PHYS. SOC., LONDON 67A 1069 (1954).
834	(H$^+$,D$^+$,HE$^+$,NE$^+$,$H_2$$^+$,$D_2$$^+$)+($H_2$)	E	3	Moore, John H., Jr., Doering, John P., Rotational Excitation In Ion-Molecule Collisions. II. H+, D+, He+, Ne+, H2+ And D2+, On H2, PHYS. REV. 182 176 (1969).
835	($H_2$$^+$)+($H_2$)	E	3	Moore, John H., Jr., Doering, John P., Rotational Excitation In Ion-Molecule Collisions The System H2+ + H2, PHYS. REV. 174 178 (1968).

	REACTANTS	EXP OR THEO.	E RANGE	REFERENCE
636	$(H^+,H_2^+)+(N_2,O_2,...)$	E	3	Moore, John H., Jr., Doering, John P., Ion-Impact Excitation of Pure Vibrational Transitions in Diatomic Molecules, PHYS. REV. LETTERS 23 564 (1969).
637	$(H^+,H_2^+)+(N_2,CO,C_2H_2,C_2H_4)$	E	3	Moore, John H., Jr., Doering, John P., Ion Impact Spectroscopy Inelastic Scattering of 150-300-eV H^+ and H_2^+ from N_2, CO, C_2H_2, and C_2H_4, J. CHEM. PHYS. 52 1692 (1970).
638	$(HCL)+(HCL,DCL,CO_2)$ [illegible]	E	1	Moore, C. Bradley, Laser Studies of Vibrational Energy Transfer, ACCOUNTS CHEM. RES. 2 103 (1969).
639	$(CO_2^*)+(CO_2,N_2)(N_2^*)+(CO_2)$	E	2	Moore, C. Bradley, Wood, Robert E., Hu, Bei-Lok, Yardley, James T., Vibrational Energy Transfer in CO2 Lasers, J. CHEM. PHYS. 46 4222 (1967).
640	$(H^+,H_2^+,HE^+,N^+,NE^+)+(N_2)$	E	4	Moore, John H., Jr., Doering, John P., Vibrational Excitation in Ion-Molecule Collisions H^+, H_2^+, He^+, N^+, Ne^+, and Electrons on N2, PHYS. REV. 177 218 (1969).
641	$(AR^+)+(D_2)$	E	2	Moran, T. F., Cosby, P. C., Nonreactive Inelastic Scattering Processes in Low Energy Ar^+ - D_2 Collisions, J. CHEM. PHYS. 51 5724 (1969).
642	$(N_2^*)+(N_2,$ [illegible]$)$	E	1	Morgan, J. E., Phillips, L. F., Schiff, H. I., Studies of Vibrationally Excited Nitrogen Using Mass Spectrometric and Calorimeter-Probe Techniques, DISC. FARADAY SOC. 33 118 (1962).
643	$(N_2)+($[illegible]$)$	E	2	Morgan, J. E., Schiff, H. I., The Study of Vibrationally Excited N2 Molecules with the Aid of an Isothermal Calorimeter, CAN. J. CHEM. 41 903 (1963).
644	Undef	T	0	Mori, Masataka, Exponential Approximation for Transition Probability, J. PHYS. SOC. JAP. 23 1086 (1967).
645	$(H^*)+(H)$	E	0	Mori, M., Watanabe, T., Katsuura, K., Erratum. Collisional Excitation Transfer Between Atoms in the Resonant Process, J. PHYS. SOC. JAP. 19 1504 (1964).
646	$(H^*)+(H)$	T	1	Mori, M., Watanabe, T., Katsuura, K., Collisional Excitation Transfer Between Atoms in the Resonant Process, J. PHYS. SOC. JAP. 19 380 (1964).
647	$(HG^*)+(CD)$	E	1	Morozov, [illegible], Determination of Effective Cross Sections for Mercury-Cadmium Atom Collisions of the Second Kind by the Sensitized Fluorescence Method, OPT. SPECTRY. 20 [illegible] (1966).
648	[illegible]	E	2	Moseley, F., Robb, J. C., A Method for the Direct Determination of the Rate Constants for Radical-Radical Interactions in the Gas Phase. I. The Technique of Investigation, PROC. ROY. SOC., LONDON 243A 119 (1957-58).
649	$(NE^*)+(XE)$	E	0	Moskalenko, V. F., Ostapchenko, E. P., Pugnin, V. I., Mechanism of Upper-Level Population Inversion in the Positive Column of a Helium-Neon Mixture, OPT. SPECTRY. 23 94 (1967).
650	$(NA,K,LI)+(HE)$ [illegible]	T	1	Moskowitz, J. W., Thorson, W. R., Inelastic Atomic Scattering. II, J. CHEM. PHYS. 38 1848 (1963).
651	$(RBR)+(RB)(R)+(ICL)$	E	[illegible]	Moulton, M. C., Herschbach, D. R., Chemiluminescence in Molecular Beams. Electronic Excitation of Alkali Atoms in Exchange Reactions of Vibrationally Excited Alkali Halides, J. CHEM. PHYS. 44 3010 (1966).
652	$(H^+)+(HE)$	E	5	Moustafa, H. R., Moustafa, De Heer, F. J., Excitation of Helium to Excited Ion States by Electron and Proton Impact, PHYSICA 36 646 (1967).
653	Undef	T	1	Murphy, Joseph S., Boggs, James E., Collision Broadening of Rotational Absorption Lines. I. Theoretical Formulation, J. CHEM. PHYS. 47 691 (1967).
654	$(CH_3F)+(CH_3F)(CH_3CL)+(CH_3CL)(CHF_3)+(CHF_3)(PF_3)+(PF_3)$	T	1	Murphy, Joseph S., Boggs, James E., Collision Broadening of Rotational Absorption Lines. II. Self-Broadening of Symmetric-Top Molecules, J. CHEM. PHYS. 47 4152 (1967).
655	[illegible]	T	1	Murphy, Joseph S., Boggs, James E., Collision Broadening of Rotational Absorption Lines. III. Broadening by Linear Molecules and Inert Gases and the Determination of Molecular Quadrupole Moments, J. CHEM. PHYS. 49 3333 (1968).
656	$(NH_3)+(NH_3,CH_3CL,CH_3BR,CHF_3,CHCL_3,HCN,CLCN,OCS,N_2O,CO_2,N_2,H_2,HE,AR)$	T	1	Murphy, Joseph S., Boggs, James E., Collision Broadening of Rotational Absorption Lines. IV. Pressure Broadening of the Ammonia Inversion Spectrum, J. CHEM. PHYS. 51 3320 (1969).
657	$(H^+)+(N_2)$	E	4	Murray, J. S., Young, S. J., Sheridan, J. R., Cross Section and Polarization of Balmer-Alpha Radiation Produced in Charge-Exchange Collisions of Protons with N2, PHYS. REV. LETTERS 16 439 (1966).
658	Undef	T	2	Murrell, J. N., Taylor, J. M., Predissociation in Diatomic Spectra with Special Reference to the Schumann-Runge Bands of O_2, MOL. PHYS. 16 609 (1969).
659	$(NE,NE^*)+(H_2)$	E	1	Mustafin, K. S., [illegible], Determination of the Effective Cross Section of Collisions of the Second Kind Between Metastable Neon Atoms and Hydrogen Molecules, OPT. SPECTRY. 18 76 (1965).
660	$(C_2O)+(C)$	E	2	Naegeli, D. W., Palmer, H. B., On the Excitation Mechanism of the C2 High-Pressure Bands, J. MOL. SPECTRY. 26 152 (1968).
661	$(H^*)+(H)$	T	2	Nakamura, Hiroki, Matsuzawa, Michio, Collisional Excitation Transfer Between Hydrogen Atoms. I. H(2p)+H(1s) Going to H(1s)+H(2p), J. PHYS. SOC. JAPAN 22 248 (1967).

	REACTANTS	EXP OR THEOR.	E RANGE	REFERENCE
862	(D*)+(N)	T	4	Nakamura, Hiroki, Collisional Excitation Transfer Between Atoms In Near-Resonant Processes, J. PHYS. SOC. JAPAN 20 2272 (1965).
863	(HE)+(HE)	E	1	Noe, T. W., St. John, R. M., Transfer Of Excitation Energy In Helium By Atomic Collisions, 17TH ANN. GASEOUS ELECTRON. CONF., ATLANTIC CITY, CONF-641016-3 (1965).
864	(H*,H_2*,HE2*)+(HF,TA,W,AU,BI,U)	E	5	Needham, P. B., Jr., Sartwell, B. D., Ion Excitation Of Characteristic X-Rays For Elements With 72 Less Than, Or Equal To Z Less Than, Or Equal To 92, PHYS. REV. A 2 1686 (1970).
865	(H*,HE2*,N2*,O2*,AR2*)+(HF,AL)	E	5	Needham, P. B., Jr., Sartwell, B. D., Excitation Of Al K And Hf M X-Ray Lines By 70-400 Kev H*, He2*, N2*, C2* And Ar2* Ions, PHYS. REV. A 3 27 (1970).
866	(AR*,N_2*,HE*,NE*,CA*,K*,NA*)+(N_2) (AR*,N_2*)+(AR)	E	3	Neff, S. H., Carleton, N. P., Excitation And Change Of Charge In Ion Molecule Collisions In The Adiabatic Region, ATOMIC COLLISION PROCESSES, P.652, NORTH-HOLLAND PUBL. CO., AMSTERDAM (1964).
867	(AR*,N_2*,HE*,NE*,K*,NA*,CA*)+(N_2) (AR*,N_2*)+(AR)	E	3	Neff, S. H., Excitation In Atomic Collisions Related To Meteor Radiation, ASTROPHYS. J. 140 348 (1964).
868	(H*,XE*)+(XE)	E	2	Nichols, L. L., Wall, W., Pressure Dependence Of The Xenon Continuum Radiation Decay Rate, J. CHEM. PHYS. 49 814 (1968).
869	(HE2*)+(N_2)	E	5	Nicholls, R. W., Reeves, E. M., Luminescence Produced In Air By Polonium-210 Alpha-Particles, NATURE 180 1192 (1957).
870	(H*)+(N_2,O_2)	E	5	Nicholls, R. W., Reeves, E. M., Bromley, D. A., Excitation Of N2 And O2 By 1/2 And 1 Mev Protons, PROC. PHYS. SOC., LONDON 74 87 (1959).
871	(LI*)+(N_2,O_2,AR,AIR) (H*)+(N_2,AIR) (D*,HE*,NE*,HE2*)+(AIR)	E	5	Nicholls, R. W., Pleiter, D., Excitation Of Luminescence In Gases By 2-4 Kev Lithium Ions, NATURE 178 1456 (1956).
872	(LI*)+(AR,C_2H_4)	E	4	Nicolai, R., Energy Losses Of Monochromatized 30-Kev Lithium Ions In Argon And Ethylene, Z. PHYS. 228 16 (1969).
873	Undef (Cat. by Abstract Only)	E	2	Nikitin, E. E., Nonadiabatic Energy Transfer In Gases, PROC. 5TH NOBEL SYMP. ON FAST REACT. PRIMARY PROCESSES CHEM. KINET., P.165 (1967).
874	(XE)+(XE)	T	0	Nikitin, E. E., On A Possible Mechanism Of Electronic Excitation In Slow Atomic Collisions, OPT. SPECTROS. 8 92 (1960).
875	Undef	T	0	Nikitin, E. E., The Probability Of Nonadiabatic Transitions In The Case Of Nondivergent Terms, OPT. SPECTROS. 13 431 (1962).
876	Undef	T	0	Nikitin, E. E., On The Calculation Of The Probability For Vibrational Excitation Of Molecules During Collisions, OPT. SPECTROS. 6 93 (1959).
877	Undef	T	9	Nikitin, E. E., Nonadiabatic Vibrational Excitation Of Molecules During Molecular Collisions, OPT. SPECTROS. 9 8 (1960).
878	Undef (Cat. by Abstract Only)	T	1	Nikitin, E. E., Resonance And Nonresonance Excitation Transfer In Collisions Of Excited And Ground-State Alkali Atoms, COMMENTS AT. MOL. PHYS. 1 111 (1969).
879	Undef	T	0	Nikitin, E. E., Inelastic Transitions Between The Fine Structure Components Of Alkali Metal Atoms In Case Of Adiabatic Collisions. I. General Theory, OPT. SPECTROS. 22 379 (1967).
880	Undef	T	1	Nikitin, A. A., Certain Variable Helium Line Intensities In Stellar Spectra, SOVIET PHYS. - DOKLADY 3 701 (1958).
881	Undef	T	1	Nikitin, E. E., Theory Of Non-Adiabatic Vibrational Relaxation In Atom-Molecular Collisions. I. Weak Spin-Orbital Coupling, MOL. PHYS. 7 389 (1963-64).
882	(NA)+(HE,NE)	T	1	Nikitin, E. E., Nonadiabatic Transitions Between The Fine-Structure Components Of Alkali Metal Atoms During Atomic Collisions, OPT. SPECTRY. 19 51 (1965).
883	Undef	T	0	Nikitin, E. E., Theory Of Thermal Excitation And Deactivation Of Alkali-Metal Atoms In An Inert-Gas Atmosphere, HIGH TEMP. 5 199 (1967).
884	(C_6H_6*)+(C_6H_6)	E	2	Nishikawa, H., Ludwig, P. K., Fluorescence Lifetimes Of Vibronic States Of Benzene In The Vapor Phase, J. CHEM. PHYS. 52 107 (1970).
885	(HE*)+(HE) (Cat. by Abstract Only)	E	3	Novick, R., Research Investigation Directed Toward Extending The Useful Range Of The Electromagnetic Spectrum, CU-4-67, PROG. REP. NO. 15, NOV. 1, 1966-APR. 30, 1967 (1967).
886	(O*)+(O_2)	E	2	Noxon, J. F., Optical Emission From O(sup 1 D) And O_2 (B' Sigma Sub G) In Ultraviolet Photolysis Of O_2 And Co_2, J. CHEM. PHYS. 52 1852 (1970).
887	Undef	T	0	Nyeland, C., Hunding, A., Perturbed Stationary States Treatment Of Vibrational Excitation In Collinear Collisions, CHEM. PHYS. LETTERS 5 143 (1970).
888	Undef	T	2	O Malley, Thomas F., Slow Heavy-Particle Collision Theory Based On A Quasiadiabatic Representation Of The Electronic States Of Molecules, PHYS. REV. 162 98 (1967).
889	Undef	E	0	Oakberg, Theodore Cameron, Experimental Determination Of Atomic Transition Probabilities Using A D. C. Arc Plasma Jet, THESIS, UNIVERSITY OF CINCINNATI, 1964.
890	(H*)+(LI*)	T	5	Ob Edkov, V. V., Pavlov, V. E., Electron Capture By Fast Protons In Ionized Lithium, SOVIET ATOMIC ENERGY 23 1093 (1967).

	REACTANTS	EXP OR THEOR.	E RANGE	REFERENCE
891	(O_2)+(NO_2)	E	0	Ogryzlo, E. A., Atom Recombination Part I. Halogen Atoms, Part II. Singlet Molecular Oxygen, AD-653 611 (1967).
892	(H^+,AR^+,NE^+,AR^{2+})+(AR) (AR^+)+(NE)	E	3	Ogurtsov, G. N., Flaks, I. P., Avakyan, S. V., Excitation Of Autoionization States In Argon By Ion Impact, VI ICPEAC, P.274, THE MIT PRESS, CAMBRIDGE, MASS. (1969).
893	(NH_3)+(HE)	E	1	Oka, Takeshi, Microwave Studies Of Collision - Induced Transitions Between Rotational Levels. III. Observation Of Preferred Quadrupole - Type Transitions In NH_3 - He Collision, J. CHEM. PHYS. 47 4852 (1967).
894	(H_2CO)+(H_2CO) (HDCO)+(HDCO) (HCN)+(HCN) (DCN)+(DCN) (H_2C_2O)+(H_2C_2O)	E	1	Oka, Takeshi, Microwave Studies Of Collision-Induced Transitions Between Rotational Levels, J. CHEM. PHYS. 47 13 (1967).
895	(NH_3)+(NH_3)	E	1	Oka, Takeshi, Microwave Studies Of Collision-Induced Transitions Between Rotational Levels. IV. Steady-State Measurements In NH3, J. CHEM. PHYS. 48 4919 (1968).
896	(NH_3)+(HE,AR,XE,NH_3)	E	1	Oka, Takeshi, Microwave Studies Of Collision-Induced Transitions Between Rotational Levels. V. Selection Rules In NH3 -Rare-Gas Collisions, J. CHEM. PHYS. 49 3135 (1968).
897	(H^*,O^*,H_2^*)+(H_2O) (H_2^*)+(HD)	E	2	Okabe, H., Excited Species And Their Contribution To Ho (Beta, Hu) Fluorescence In The Photodissociation Of H2o, J. CHEM. PHYS. 47 101 (1967).
898	(H^+)+(HE)	T	5	Oldham, William J. B., Jr., Excitation Of The N^1 S States Of Helium By Proton Impact, PHYS. REV. 174 145 (1968).
899	(H^+)+(HE)	T	5	Oldham, William J. B., Jr., Excitation Of The N^1 S States Of Helium By Proton Impact And The N^{-3} Rule, PHYS. REV. 181 463 (1969).
900	(N_2^*)+(O,H,D,O_2,D_2,SF_6)	E	2	Oldman, R. J., Broida, H. P., Effect Of Oxygen And Hydrogen Atoms On The Vibrational Distribution Of N_2 (B^3 PI) In The Nitrogen Afterglow, J. CHEM. PHYS. 51 2254 (1969).
901	Undef	T	2	Olson, R. E., Bernstein, R. B., Inelastic Transition Probabilities And Their Role In The Quenching Of Glory Extrema In Atom-Diatomic Scattering, J. CHEM. PHYS. 50 246 (1969).
902	Undef	E	2	Omholt, A., Electron Density In The E-Layer During Auroral Displays Deduced From Measurements Of Absolute Brightness Of The Auroral Luminosity, J. ATMOS. TERREST. PHYS. 5 243 (1954).
903	(H^+)+(N_2,O_2)	E	5	Omholt, A., The Red And Near-Infra-Red Auroral Spectrum, J. ATMOS. TERREST. PHYS. 10 320 (1957).
904	(H^+)+(N_2)	T	5	Omholt, A., Characteristics Of Auroras Caused By Angular Dispersed Protons, J. ATMOS. TERREST. PHYS. 9 18 (1956).
905	(H^+)+(H)	E	5	Oldver, Kezes, Electron Capture By Protons In Hydrogen And Effect Of An Electric Field, PHYS. REV. 153 121 (1967).
906	(H)+(H)	T	5	Caldwer, R., Kyle, H. Lee, Calculation On Ionizing H-Atom-H-Atom Collisions, PHYS. REV. A 2 408 (1970).
907	Review	T	0	Oldver, Kezes, Bound-Bound Transitions In Hydrogenlike Atoms Induced By Fast Charged Particles, PHYS. REV. 180 140 (1969).
908	(HG^*)+(HG)	E	1	Omont, Alain, Etude Systematique De L Elargissement Des Courbes De Depolarisation Magnetique Par Les Collisions De Holtsmark Entre Les Differents Isotopes Du Mercure, CCPPT. REND. 265B 31 (1967).
909	(H)+(NA,MG,CD,HG)	E	5	Oparin, V. A., Il In, R. N., Solov Ev, E. S., Production Of Highly Excited Hydrogen Atoms By Charge Exchange Of Protons In Metal Vapors, SOVIET PHYS.-JETP 25 240 (1967).
910	(H)+(HE,NE,AR,KR,XE)	E	4	Orbeli, A. L., Andreev, E. P., Ankudinov, V. A., Dukel Skii, V. M., Excitation Of Fast Hydrogen Atoms In The 2s, 2p, And 3p States Due To Collisions With Noble Gas Atoms, SOVIET PHYS.-JETP 30 63 (1970).
911	(H^-)+(HE,NE,AR,KR,XE)	E	4	Orbeli, A. L., Andreev, E. P., Ankudinov, V. A., Dukel Skii, V. M., Excitation Of The L Sub Alpha Line During Stripping Of Fast Negative Hydrogen Ions In Inert Gases, SOVIET PHYS.-JETP 31 1044 (1970).
912	Undef (Cat. by Abstract Only)	T	2	Orlov, L. N., Romanov, G. S., Rubanov, V. S., Effect Of Gas Temperature On The Resonance Transfer Of Energy During Atomic Collisions, VESTSI AKAD. NAVUK BSSR, SER. FIZ.-MAT. NAVUK NO.2 122 (1969).
913	(RB^*)+(RB)	E	1	Ornstein, Michael H., Zare, Richard N., Measured Absolute Cross Sections For RB^* + Rb Collisional Excitation Transfer, PHYS. REV. 181 214 (1969).
914	Undef	T	0	Osipov, A. I., Stupochenko, E. V., Energy Transfer In Molecular Collisions, BULL. ACAD. SCI. USSR, PHYS. SER. 24 556 (1960).
915	(HG^*)+(KR)	E	1	Ostapchenko, E. P., Stepanov, V. A., Stepanov, A. F., An Investigation Of The Excitation Mechanism Of A Mercury-Krypton Mixture In The Positive Column Of A Glow Discharge, OPT. SPECTRCS. 26 12 (1969).
916	(AIR,AR,O_2,CO_2,CCL_4,CCL_2,H_2)+(CU)	E	2	Ostroumenko, P. P., Rossikhin, V. S., The Mechanism Of Copper Spectrum Excitation In A Hollow Cathode, UKRAYIN. FIZ. ZH. 9 860 (1964).
917	(AR)+(LI_2)	E	2	Ottinger, Ch., Velasco, R., Zare, R. N., Some Propensity Rules In Collision-Induced Rotational Quantum Jumps, J. CHEM. PHYS. 52 1636 (1970).
918	(HG)+(HG)	E	0	Overton, G. D. N., Davies, D. E., A Calculation Of The Number Of Excited And Metastable Atoms Per Ion Pair Produced In A Townsend Discharge In Mercury Vapour, BRIT. J. APPL. PHYS. 16 1023 (1965).

	REACTANTS	EXP OR THEOR.	E RANGE	REFERENCE
919	$(Br_2)+(Br_2)$ $(Br_2)+(Br_2)+(Ar)$	E	1	Palmer, H. B., Hornig, D. F., Rate Of Dissociation Of Bromine In Shock Waves, J. CHEM. PHYS. 26 92 (1957).
920	$(H^+)+(HE)$	E	5	Park, John T., Schoenegardt, F. B., Heavy-Particle Energy-Loss Spectrometry Inelastic Cross Sections For Protons Incident Upon Helium, PHYS. REV. 145 152 (1966).
921	$(H^+)+(CO)$	E	5	Park, John T., Schoenover, D. R., York, George d., Cross Section For Excitation Of The Fourth Positive Band System In Carbon Monoxide By 20-140 Kev Protons, PHYS. REV. A 2 2394 (1970).
922	$(O_2)+(H_2,D_2,HE)$	E	1	Parker, J. G., Effect Of Several Light Molecules On The Vibrational Relaxation Time Of Oxygen, J. CHEM. PHYS. 34 1763 (1961).
923	$(HE^*,HE^+)+(HE)$	E	1	Parks, J. H., Collision Induced Transitions Within Excited Levels Of Neon, A66-2y437 (1966).
924	$(HE)+(HE)$	E	1	Parks, J. H., Javan, A., Collision-Induced Transitions Within Excited Levels Of Neon, PHYS. REV. 139 A1351 (1965).
925	$(CO)+(O)$	E	1	Patel, C. K. N., Continuous-Wave Laser Action On Vibrational-Rotational Transitions Of Co2, PHYS. REV. 136 A1187 (1964).
926	$(HE^*,HE^+)+(CO,CO_2)$ $(HE^*,HE^+)+(NO,NO_2)$ $(AR^+)+(BR_2)$ $(HE^+)+(SF_6)$	E	0	Patel, C. K. N., Mc Farlane, R. A., Faust, W. L., Optical Maser Action In C, N, O, S, And Br On Dissociation Of Diatomic And Polyatomic Molecules, PHYS. REV. 133 A1244 (1964).
927	$(FE^+)+(HE,NE,AR,XE)$ $(NE^+)+(NE)$	E	2	Pavlovskaya, E. N., Podmoshensky, I. V., The Effectiveness Of Atomic Collisions In Excitation Processes, 5TH INT. CONF. ON CUALLISIONS, P.356, LENINGRAD (1967).
928	$(H_2^+)+(H)$	T	0	Peek, J. P., Use Of Approximate Functions In Evaluating The Born Matrix Element For H_2^+, PHYS. REV. 139 A1425 (1965).
929	$(H_2^+)+(H_2)$	T	0	Peek, James M., Weihofen, W. H., Green, Thomas A., The Is Sigma Sub G - 2p Sigma Sub U Transition Induced In The Hydrogen-Molecule Ion On Collision With The Hydrogen Molecule, 4TH INT. CONF. PHYS. ELECTRON. ATOMIC COLLISIONS 322 (1965). SCIENCE RESEARCH ASSOCIATES, NEW YORK.
930	$(H,H^+)+(H_2^+)$	T	5	Peek, J. M., The Transition Is Sigma Sub G-2p Sigma Sub U In H_2^+ Induced By Collision With An Electron, Proton, Or Hydrogen Atom, PHYS. REV. 140 A11 (1965).
931	$(CO^+)+(CO)$	E	1	Perkin, M. P., Reddy, T. P., Lifetimes And Certain Effective Cross Sections Of The Cadmium Atom, OPT. SPECTROS. 22 344 (1967).
932	$(O_2)+(N_2)$ $(HF)+(N_2)$	T	1	Penney, W. G., Arnesto, Henry, Vibrational Relaxation Times Of Diatom. Molecules And Rocket Performance, J. CHEM. PHYS. 23 1241 (1955).
933	$(N_2^+)+(H_2,D_2,CO,NO,O_2,C_2F_4,HF,C_2H_2F_2,C_2H_3F,CF_4,H_2O,D_2O,NH_3,HD,AR,KR,XE,N_2,CH_4,CD_4,C_2H_4,C_2D_4)$	E	2	Penzes, S., Strausz, O. P., Gunning, H. E., Fluorescence Of Excited Complex Molecules In Mercury Photosensitization, J. CHEM. PHYS. 45 2322 (1966).
934	$(H^+)+(H)$	T	0	Percival, I. C., Richards, D., Classical Theory Of Hydrogen Atom Excitation By Electrons And Protons, P. 458, 5TH INT. CONF. ON COLLISIONS, LENINGRAD (1967).
935	$(H_2^+)+(HE)$	T	0	Perov, A. A., Ruprigunov, S. E., I S Sigma Sub G -2 P Sigma Sub U Transition In The Hydrogen Molecular Ion Induced By Collision With Neon Atoms, P. 241, 5TH INT. CONF. ON CUALLISIONS, LENINGRAD (1967).
936	$(N_2^+)+(R)$ $(HB^+)+(HE)$ (Cal. by Abstract Only)	E	0	Peterson, J. R., Lorents, D. C., Salop, A., Neutral Excited Beams Produced By Charge Transfer, BEAM-FOIL SPECTROSCOPY, VOL.1, TUCSON, AZ, USA, 20-22 NOV. 1967, P.329, GORDON AND BREACH, LONDON (1968).
937	$(H_2^+)+(HE)$	E	3	Petty, F., Moran, T. F., H_2^+ Vibrational Frequencies From Ion Impact Spectroscopy, CHEM. PHYS. LETTERS 5 64 (1970).
938	$(HG^+)+(HG)$	E	1	Phelps, A. V., Mc Coubrey, A. O., Experimental Verification Of The Incoherent Scattering Theory For The Transport Of Resonance Radiation, PHYS. REV. 118 1561 (1960).
939	$(N)+(N_2)$	E	2	Phillips, L. F., Vacuum Ultraviolet Chemiluminescence From The Reactions Of Active Nitrogen With I2, Ibr, Icl, And Icn, CAN. J. CHEM. 46 1429 (1968).
940	$(CHCLF_2)+(N_2O,N_2)$	E	1	Phillips, C. S. E., Line Broadening And Dielectric Relaxation In Compressed Gases, J. CHEM. PHYS. 23 2368 (1955).
941	$(N^+)+(N_2^+)$	E	2	Phillips, L. F., Infrared Emission From The N-I2 Reaction Flame, CAN. J. CHEM. 46 1458 (1968).
942	$(H^+)+(N_2)$	E	5	Philpot, John Lee, Spectroscopic Study Of Controlled Proton Impact On Molecular Nitrogen, THESIS, UNIV. OF ARKANSAS (1965).
943	$(H^+)+(N_2)$	E	5	Philpot, J. L., Hughes, R. H., Spectroscopic Study Of Controlled Proton Impact On Molecular Nitrogen, PHYS. REV. 133 A107 (1964).
944	$(HG^+)+(HE,NE,AR,KR,XE,N_2,H_2,O_2)$	E	0	Pikaty-Hives, C. A., Grossetete, F., Brossel, J., Measurement By Magnetic Resonance, Of The Effective Collision Cross Section Between An Atom Of Mercury, Excited By The State 6^3 P_1, And Various Gases, COMPT. REND. 258B 1185 (1964).
945	$(CS^+)+(CS)$	E	0	Plebert, Michel, Rocchiccioli, Jean-Luc, Cuvellier, Jean, Transfert D Excitation Collisionnel Dans De La Vapeur Neutre De Cesium, COMPT. REND. 270B 694 (1970).
946	$(NA)+(NA^+)$	E	0	Pitre, John, Krause, L., Sensitized Fluorescence In Vapors Of Alkali Metals. X. Energy Transfer In Sodium - Sodium Collisions, CAN. J. PHYS. 46 125 (1968).
947	$(RB)+(HE,AR,KR,XE)$	E	1	Pitre, Bruce, Rao, A. G. A., Krause, L., Sensitized Fluorescence In Vapors Of Alkali Metals. VI. Energy Transfer In Collisions Between Rubidium And Inert Gas Atoms, CAN. J. PHYS. 44 731 (1966).

	REACTANTS	EXP OR THEOR.	E RANGE	REFERENCE
948	(NA)+(HE,NE,AR,KR,XE)	E	2	Pitre, John, Krause, L., Sensitized Fluorescence In Vapors Of Alkali Metals. IX. Energy Transfer In Collisions Between Sodium And Inert Gas Atoms, CAN. J. PHYS. 45 2671 (1967).
949	(NA*)+(N2)	T	0	Pogorelyi, P. A., Tibilov, A. S., On The Mechanism Of Laser Action In Na-H2 Mixture, OPT. SPECTROS. 25 301 (1968).
950	Undef	T	1	Polanyi, J. C., Vibrational-Rotational Population Inversion, APPL. OPT. SUPPL. 2 CHEMICAL LASERS 109 (1965).
951	Undef	E	4	Polyakova, G. N., Tatus, V. I., Strel Chenko, S. S., Fogel, Ya. M., Fridman, V. M., Concerning The Distribution Of Rotational Energy Levels Of Molecules Excited By Ion Impact, SOVIET PHYS.-JETP 23 973 (1966).
952	(H+,H)+(N2,O2,CO,CO2,N2O,H2,NH3,CH4)	E	4	Polyakova, G. N., Fogel, Ya. M., Ch Iu, Y., Emission Spectra Of Rarefied Molecular Gases Excited By A Mixed Beam Of Protons And Hydrogen Atoms, SOVIET ASTRON.-AJ 7 267 (1963).
953	(H+,H2+,HE+,C+,N+,O+,NE+,N2+,CO+, AR+)+(N_2)	E	4	Polyakova, G. N., Tatus, V. I., Fogel, Ya. M., Rotational And Vibrational Energy Level Distribution Of N_2^+ Ions Produced In Collisions Between Fast Ions And Nitrogen Molecules, SOVIET PHYS.-JETP 25 430 (1967).
954	(H+,LI+,HE+,NA+,AR+,K+)+(N_2)	E	4	Polyakova, G. N., Fogel, Ya. M., Erko, V. F., Zats, A. V., Tolstolutskii, A. G., Some Peculiarities Of The Transfer Of Rotational And Vibrational Energies In Ion - Molecular Collisions, SOVIET PHYS.-JETP 27 201 (1968).
955	(HE,NE,AR,KR,XE,HE+,NE+,AR+,KR+,XE+) +(N_2)	E	4	Polyakova, G. N., Erko, V. F., Fogel, Ya. M., Zats, A. V., Fizgeer, B. M., Rotational And Vibrational Excitations Of N_2^+ Ions Formed In Collisions Between Inert Gas Atoms And Nitrogen Molecules, SOVIET PHYS.-JETP 25 590 (1965).
956	(HE+,NE+,AR+)+(CO)	E	4	Polyakova, G. N., Erko, V. F., Zats, A. V., Fogel, Ya. M., Tolstolutskaya, G. D., Anomalous Vibrational Excitation Of The Co+ Ion Produced Upon Collision Of Noble-Gas Ions With Co Molecules, SOVIET PHYS.-JETP LETTERS 11 390 (1970).
957	(HE+)+(H_2)	E	4	Polyakova, G. N., Erko, V. F., Zats, A. V., Excitation Functions Of He I Spectral Lines Emitted Due To Collisions Of He+ Ions And H_2 Molecules, OPT. SPECTROS. 29 219 (1970).
958	(N_2^+)+(N_2)+(HE) (N_2^+)+(N_2)	E	0	Polyakova, G. N., Fogel, Ya. M., Intensity Distribution In The Rotational And Vibrational Structure Of N2+ Bands Due To The Passage Of N2+ Ions Through A Nitrogen-Helium Mixture, OPT. SPECTROS. 22 538 (1967).
959	(HE,HE+,NE,NE+,AR,AR+)+(N_2)	E	4	Polyakova, G. N., Erko, V. F., Gusev, V. A., Zats, A. V., Fogel, Ya. M., Excitation Of The Lambda Equal 4278 A Band Of The First Negative System Of The N_2^+ Ion By Ions And Atoms Of Noble Gases, SOVIET PHYS.-JETP 25 51 (1969).
960	(HE,NE,AR,HE+,NE+,AR+)+(H_2)	E	4	Polyakova, G. N., Gusev, V. A., Erko, V. F., Fogel, Ya. M., Zats, A. V., Formation Of Charged And Excited Particles In Collisons Of Inert-Gas Ions And Atoms With Hydrogen Molecules, SOVIET PHYS.-JETP 31 637 (1970).
961	(H)+(H)	T	5	Ponillo, Frank R., Milford, S. N., Born Cross-Sections For Double-Transition Collisions Of Hydrogen Atoms, ASTROPHYS. J. 144 1174 (1966).
962	(H*)+(H*,H)	T	5	Ponillo, Frank R., Born Cross-Sections For Single-Transition Collisions Of Two Hydrogen Atoms, ASTROPHYS. J. 147 559 (1967).
963	(H*)+(H)	T	5	Ponillo, Frank R., Born Cross-Sections For Single-Transition Collisions Of Two Hydrogen Atoms, N67-30085 (1967).
964	(H,H*)+(H*)	T	5	Ponillo, Frank R., Milford, S. N., Double-Inelastic Collisions Of Excited Hydrogen Atoms With Excited Hydrogen Atoms, 4TH INT. CONF. PHYS. ELECTRON. ATOMIC COLLISIONS 87 (1965). SCIENCE BOOKCRAFTERS, NEW YORK.
965	(HG*)+(N_2) (Cat. by Abstract Only)	E	0	Popescu, I. M., Research On An Atomic Level Of Mercury By Optical Hertzian Spectroscopy, STUD. CERCET. FIZ. 20 25 (1968).
966	(H+)+(CO)	T	5	Poulizac, M. C., Desesquelles, J., Dufay, M., Etude Des Chocs Inelastiques Entre Molecules Co Et Protons Entre 30 Kev Et 400 Kev, ANN. ASTROPHYS. 30 301 (1967).
967	(H+)+(CO)	E	5	Poulizac, Marie-Claude, Desesquelles, Jean, Dufay, Maurice, Sur L Excitation De L Oxyde De Carbone Par Chocs Protoniques, COMPT. REND. 263B 553 (1966).
968	(CO_2^+,H_2O^+)+(H_2)	E	5	Poulizac, Marie-Claude, Druetta, Michel, Mesure Des Durees De Vie D Etats Excites Dans Les Molecules Co2+ Et H2o+ A Partir De Faisceaux D Ions Moleculaires Acceleres, COMPT. REND. 269B 114 (1969).
969	(H+)+(CO_2)	E	6	Poulizac, M. C., Dufay, M., Evaluation Of Co2+* Pi Sub G Going To? Pi Sub G Vibrational Transition Probabilities, ASTROPHYS. LETTERS 1 17 (1967).
970	(N)+(N) (N_2)+(N_2,N)	T	2	Prag, A. B., Clark, K. C., Excitation Mechanism For The Nitrogen Pink Afterglow, J. CHEM. PHYS. 39 799 (1963).
971	(H+)+(HE,NE,AR,KR,XE)	E	4	Pretzer, D., Van Zyl, B., Geballe, R., Lyman Alpha Production In Proton-Rare Gas Collisions, PHYS. REV. LETTERS 10 340 (1963).
972	(H+,D+)+(HE,NE,AR,XE,KR)	E	4	Pretzer, D., Van Zyl, B., Geballe, R., Cross Sections For Lyman Alpha Emission Resulting From Proton And Deuteron-Rare Gas Collisions, ATOMIC COLLISION PROCESSES, PROC. OF THE THIRD INTERN. CONF. ON THE PHYSICS OF ELECTRONIC AND ATOMIC COLLISIONS, LONDON, P.614, NORTH-HOLLAND, AMSTERDAM (1964).

	REACTANTS	EXP OR THEOR.	L RANGE	REFERENCE
973	Undef	T	0	Prilezhaeva, N. A., Estimation Of Effective Cross Sections In Sensitized Fluorescence (In Gases), SOVIET PHYS. J. 1 [illegible] (1965).
974	Undef (Cat. By Abstract Only)	E	2	Pritchard, Huw O., Collisional Excitation And Chemical Reaction, TRANSFER STUD. ENERGY MOL. 2 368 (1965).
975	(H)+(H)	T	0	Purcell, Edward M., Field, George B., Influence Of Collisions Upon Population Of Hyperfine States In Hydrogen, ASTROPHYS. J. 124 542 (1956).
976	Undef	T	2	Rabitz, Herschel A., Gordon, Roy G., Semiclassical Perturbation Theory Of Molecular Collisions. I. First And Second Order, J. CHEM. PHYS. 53 1815 (1970).
977	(HCN)+(HCN) (ICN)+(ICN)	T	2	Rabitz, Herschel A., Gordon, Roy G., Semiclassical Perturbation Theory Of Molecular Collisions. II. The Calculation Of Collision Cross Sections, J. CHEM. PHYS. 53 1831 (1970).
978	(H_2,D_2)+(HE)	T	2	Raff, L. M., Theoretical Investigations Of Translation-Rotation Energy Transfer. II. Semiclassical Treatment Of (D-D2, He) And (H-D2, He) Systems, J. CHEM. PHYS. 47 4785 (1967).
979	(H_2)+(H_2) (D_2)+(D_2) (N_2)+(N_2)	T	1	Raff, L. M., Winter, T. G., Origin Of The Temperature Dependence Of The Ultrasonic Rotational Relaxation Time, J. CHEM. PHYS. 48 3992 (1968).
980	(HE*)+(O**)	E	1	Ramadze, N. A., Chkuaseli, Z. D., Datov, Yu. A., Gvaladze, Yu. S., Shalin, G. V., Production Of Population Inversion In Doubly Ionized Oxygen By Optical Pumping With Resonance Radiation Of Ionized Helium, OPT. SPECTRS. 24 324 (1968).
981	Undef	T	9	Rand, S., Vibrational Energy Transfer From Highly Excited Molecules, J. CHEM. PHYS. 53 275 (1970).
982	(HCL,C_2H_2)+(KR,XE)	E	1	Rank, D. H., Eastman, D. P., Birtley, W. B., Wiggins, T. A., Shapes And Breadths Of Some Molecular Rotation-Vibration Band Lines Perturbed By Rare Gases, J. CHEM. PHYS. 33 327 (1960).
983	Undef	T	1	Rapp, Donald, Kassal, Thomas, Exact Quantum-Mechanical Calculation Of Vibrational Energy Transfer To An Oscillator By Collision With A Particle, J. CHEM. PHYS. 48 5287 (1968).
984	Undef	T	0	Rapp, D., Englander-Golden, P., Resonant And Near-Resonant Vibrational-Vibrational Energy Transfer Between Molecules In Collisions, J. CHEM. PHYS. 40 573 (1964).
985	Undef	T	0	Rapp, D., Vibrational Energy Transfer In Molecular Collisions Involving Large Transition Probabilities, ATOMIC COLLISION PROCESSES, P.1024, NORTH-HOLLAND PUBL. CO., AMSTERDAM (1964).
986	(N_2)+(N_2) (O_2)+(O_2) (NO)+(NO)	T	2	Rapp, D., Sharp, T. E., Vibrational Energy Transfer In Molecular Collisions Involving Large Transition Probabilities, J. CHEM. PHYS. 38 2641 (1963).
987	Undef	T	5	Rapp, D., Vibrational Energy Exchange In Quantum And Classical Mechanics, J. CHEM. PHYS. 40 2813 (1964).
988	(N_2)+(N_2)	T	5	Rapp, D., Englander-Golden, P., Erratum: Resonant And Near-Resonant Vibrational-Vibrational Energy Transfer Between Molecules In Collisions, J. CHEM. PHYS. 40 3120 (1964).
989	(NO)+(F_2,F)	E	1	Rapp, Donald, Johnston, Harold S., Nitric Oxide-Fluorine Dilute Diffusion Flame, J. CHEM. PHYS. 33 695 (1960).
990	(HE)+(H_2)	T	2	Rapp, Donald, Kassal, Thomas, Theory Of Vibrational Energy Transfer Between Simple Molecules In Nonreactive Collisions, CHEM. REV. 69 61 (1969).
991	(AR)+(BR_2)	T	1	Razner, Ronald, Energy Transfer In Classical Br_2 - Ar Collisions, J. CHEM. PHYS. 51 5602 (1969).
992	(HG)+(H_2)	T	0	Rebane, V. N., Collisional Depolarization Of Resonance Fluorescence, P. 220, 5TH INT. CONF. ON COLLISIONS, LENINGRAD (1967).
993	(H+,H_2+,H_3+)+(N_2)	E	[illegible]	Reeves, E. M., Nicholls, R. W., Bromley, D. A., Optical Excitation Of N2 By 0.5 To 1.5 Mev Hydrogenic Ions, PROC. PHYS. SOC., LONDON 76 217 (1960).
994	(H+,H_2+,H_3+,LI+)+(N_2)	E	5	Reeves, E. M., Nicholls, R. W., Measurements Of Rotational Energy Distributions In Ionic Collisions, PROC. PHYS. SOC., LONDON 78 588 (1961).
995	(HE*)+(HE)	E	1	Reich, H. J., Excitation-Transfer Cross Sections In Helium, 4TH INT. CONF. PHYS. ELECTRON. ATOMIC COLLISIONS, P.59, SCIENCE BOOKCRAFTERS, NEW YORK (1965).
996	(NA)+(HE)	T	2	Reid, R. H. G., Dalgarno, A., Fine-Structure Transitions And Shape Resonances, PHYS. REV. LETTERS 22 1029 (1969).
997	(H+)+(SI++)	T	3	Reid, R. H. G., Schwarz, J. H., Mixing Of P States Of Positive Ions By Proton Impact, VI ICPEAC, P.236, THE MIT PRESS, CAMBRIDGE, MASS. (1969).
998	(O_2)+(O_2)	T	2	Rettschnick, R. P. H., Hoytink, G. J., Collision Induced Electronic Transitions Of Oxygen, CHEM. PHYS. LETTERS 1 145 (1967).
999	(CO_2)+(CO_2)	E	1	Rhodes, C. K., Kelly, M. J., Javan, A., Collisional Relaxation Of The 10sup00 State In Pure Co2, J. CHEM. PHYS. 48 5730 (1968).
1000	(HE*)+(HE,NE)	E	1	Richards, H. L., Muschlitz, E. E., Jr., Angular Dependence Of The Scattering Of Metastable Helium Atoms In Helium And Neon, J. CHEM. PHYS. 41 559 (1964).
1001	(H_2)+(H_2) (N_2)+(N_2)	T	0	Riley, Merle Eugene, Energy Transfer In Molecular Collisions, CALT-532-19, THESIS, CALIF. INST. TECH., PASADENA (1967).

	REACTANTS	EXP OR THEOR.	E RANGE	REFERENCE
1002	Undef	T	2	Riley, M. E., Kuppermann, A., Vibrational Energy Transfer In Collisions Between Diatomic Molecules, CHEM. PHYS. LETTERS 1 537 (1968).
1003	(D*)(H2,HE,NE,AR,KR,XE)	E	4	Riviere, A. C., Sweetman, D. R., The Ionization Of Excited Hydrogen Atoms By Strong Electric Fields, 6TH INT. CONF. ION. PHENOMENA GASES 1 105, SERMA, PARIS (1963).
1004	(H*)(H2)	E	4	Riviere, A. C., Sweetman, D. R., Formation Of Hydrogen Atoms In Excited States By Electron Capture, ATOMIC COLLISION PROCESSES, P.734, NORTH-HOLLAND PUBL. CO., AMSTERDAM (1964).
1005	(N2,O*)(N2)	E	1	Roach, J. Franklin, Smith, Wesley H., Shock-Tube Study Of Vibration-Vibration Energy Exchange In N2 - O2 Mixtures, J. CHEM. PHYS. 50 4114 (1969).
1006	(C2*)(HE*)	T	2	Robbins, R. R., A Suggested Depopulation Mechanism For The Helium 2³S State In Planetary Nebulae, ASTROPHYS. J. 151 137 (1968).
1007	(AR*)(AR)	E	1	Robertson, W. W., The Physics Of Metastable Systems, AD-619-107 (1965).
1008	(AR*)(N2)	E	1	Robertson, W. W., Application Of The Franck-Condon Principle To Molecular Excitation By Collision With Excited Atoms And Molecules, 4TH INT. CONF. PHYS. ELECTRON. ATOMIC COLLISIONS, P.78, SCIENCE BOOKCRAFTERS, NEW YORK (1965).
1009	(HE,NE,*)(CO,O2,N2) (AR*)(N2)	E	2	Robertson, W. W., Application Of The Franck-Condon Principle To Molecular Excitation By Collision With Excited Atoms And Molecules, J. CHEM. PHYS. 44 2456 (1966).
1010	Undef	T	2	Roberts, R. E., Ross, John, Pole Contributions In The Distorted Wave Born Series For Inelastic Scattering, J. CHEM. PHYS. 52 6446 (1970).
1011	Undef	T	2	Roberts, R. E., Semiclassical Treatment Of Vibrationally Inelastic Collisions, J. CHEM. PHYS. 52 1537 (1970).
1012	(HE,H2)(H2)	T	2	Roberts, C. S., Inelastic Scattering From A Diatomic Molecule Rotational Excitation Upon Collision Between He And H2 And H2 And H2, PHYS. REV. 131 203 (1963).
1013	(HE*)(HE)	T	2	Robertson, W. W., The Physics Of Metastable Systems, AFOSR-67-2206 (1966).
1014	(HE*)(HE, N2, O2, CH4)	T	1	Robertson, W. W., The Physics Of Metastable Systems, AD-622 687 (1963).
1015	(H+)(HE,N2,NO)	E	5	Robinson, J. M., Gilbody, H. B., Excitation Of Helium, Nitrogen, And Nitric Oxide By 60-400 Kev Protons, P. 291, 5TH INT. CONF. ON COLLISIONS, LENINGRAD (1967).
1016	(H+)(HE,N2,NO) (H)(HE,N2)	E	5	Robinson, J. M., Gilbody, H. B., Excitation Of Helium, Nitrogen And Nitric Oxide By Fast Protons And Hydrogen Atoms, PROC. PHYS. SOC., LONDON 92 589 (1967).
1017	(C6H6)(C6H6)	T	2	Robinson, G. W., Frosch, R. P., Electron Excitation Transfer And Relaxation, J. CHEM. PHYS. 38 1187 (1963).
1018	(AR+)(AR)	E	5	Robinson, J. M., Gilbody, H. B., Excitation In 100-400 Kev Ar+ + Ar Collisions, J. PHYS. B 2 417 (1969).
1019	(H+)(H)	T	4	Robinson, P. D., The Effects Of Degeneracy On The Inelastic Scattering Of Electrons And Protons By Hydrogen Atoms, PROC. PHYS. SOC., LONDON 81 15 (1963).
1020	(H+)(H)	E	5	Romick, G. J., Sharp, A. D., Simultaneous Measurements Of An Incident Hydrogen Flux And The Resulting Hydrogen Balmer Alpha Emission In An Auroral Hydrogen Arc, J. GEOPHYS. RES. 72 4791 (1967).
1021	(HCN*)(HCN)	E	0	Ronn, A. M., Wilson, E. Bright, Jr., Collisional Transfer Of Rotational Energy, J. CHEM. PHYS. 46 3262 (1967).
1022	(HE+)(HE)	E	3	Rosenthal, H., Foley, H. M., Phase-Interference Effects In Inelastic He+ + He Collisions, PHYS. REV. LETTERS 23 1480 (1969).
1023	(HE+)(HE)	T	3	Rosenthal, H., Phase Interference Effects In Low-Energy Inelastic He+ + He Collisions, VI ICPEAC, P.302, THE MIT PRESS, CAMBRIDGE, MASS. (1969).
1024	(N2*)(CO2)	E	2	Rosser, W. A., Jr., Wood, A. D., Gerry, E. T., Deactivation Of Vibrationally Excited Carbon Dioxide (ν3) By Collisions With Carbon Dioxide Or With Nitrogen, J. CHEM. PHYS. 50 4996 (1969).
1025	(CH3BR)(CH3BR) (CHCLF2)(CHCLF2) (CH3CL)(CH3CL) (CCL3F)(CCL3F) (CF4)(CF4) (CH2F2)(CH2F2) (CBRCLF2)(CBRCLF2) (CH2CLF) (CH2CLF) (CCLF3)(CCLF3) (CCLF3) (CCLF3) (CHCL2F)(CHCL2F) (CHF3) (CHF3) (CCL2F2)(CCL2F2) (CBR2F2)(CBR2F2) (CBRF3)(CBRF3)	E	1	Rossing, Thomas D., Legvold, Sam, Collision Excitation Of Molecular Vibrations In Halogen-Substituted Methanes, J. CHEM. PHYS. 23 1118 (1955).
1026	(HG*)(HG)	E	3	Rostron, R. W., Production Of Metastable Hg Atoms By Charge Exchange, J. APPL. PHYS. 35 2291 (1964).
1027	(XE)(XE)	E	1	Roth, Walter, Gilmersen, Per, Shock-Tube Study Of Luminosity In Xenon, J. CHEM. PHYS. 29 820 (1958).
1028	(LI)(CH4,CH3F,CH2F2,CHF3,CF4,C2H6, C2F6,C3H8,C4H10,C4F8)	E	2	Rothe, Erhard W., Helbing, Reinhard K. B., Glory Scattering Of Lithium By A Series Of Molecules. II. Fluorocarbons And Hydrocarbons, J. CHEM. PHYS. 50 3531 (1969).
1029	(H)(LI,NA,K,RB,CS) (LI)(K) (NA) (RB,CS)	T	1	Roueff, E., Van Regemorter, H., Spectral Line Broadening Due To Atomic Collisions, ASTRON. ASTROPHYS. 1 69 (1969).
1030	(H+)(H)	T	5	Roy, B. N., Excitation Of Atomic Hydrogen In The Vainshtein Approximation, INDIAN J. PHYS. 43 315 (1970).

	REACTANTS	EXP OR THEOR.	E RANGE	REFERENCE
1031	(H_2^+)+(HE)	E	3	Rudd, M. Eugene, Lang, David V., Fine Structure In The Energy Spectra Of Electrons From Gases Bombarded By Positive Ions, 4TH INT. CONF. PHYS. ELECTRON. ATOMIC COLLISIONS, P.153, SCIENCE BOOKCRAFTERS, NEW YORK (1965).
1032	(H_2^+,H^+)+(HE)	E	5	Rudd, M. E., Observation Of Autoionization Levels In He By Positive Ion Bombardment, PHYS. REV. LETTERS 13 503 (1964).
1033	(H^+,H_2^+)+(HE)	E	4	Rudd, M. E., New Autoionizing Levels In Helium, PHYS. REV. LETTERS 15 580 (1965).
1034	(HE)+(HE)	T	2	Russell, G. R., Calculation Of Atom-Atom Excitation Cross Sections By Classical Methods, J. CHEM. PHYS. 50 4597 (1969).
1035	(CO)+(CO,NA) (CO)+(CO)+(AR)	E	2	Russo, Anthony L., Spectrophotometric Measurements Of The Vibrational Relaxation Of Co In Shock-Wave And Nozzle Expansion-Flow Environments, J. CHEM. PHYS. 47 5201 (1967).
1036	(H^+)+$(H_2$,HE)	E	5	Ryding, G., Witthower, A. B., Gilbody, H. B., A Study Of Lyman Alpha Emission In Charge-Transfer Collisions Involving 40-200 Kev Protons, PROC. PHYS. SOC., LONDON 89 547 (1966).
1037	(HE^+)+(HE)	E	1	Sadeghi, Nasser, Pebay-Peyroula, Jean C., Relaxation Of Metastable Helium Atoms In An Afterglow, J. PHYS. (PARIS) NO. 3 C3-31 (1968).
1038	(H^+)+(H,HE)	T	5	Salin, A., Calculations On High-Energy Charge Transfer With The Continuum Distorted Wave Method, J. PHYS. B 3 937 (1970).
1039	(H_2)+(H_2) (Cat. by Abstract Only)	T	2	Salkoff, M., Bauer, E., Excitation Of Molecular Vibration By Collision, NEW YORK UNIV. (INST. MATH. SCI.), RES. REP. NO. CX-31 (1957).
1040	[illegible]	T	2	Salkoff, Morris, Bauer, Ernest, Excitation Of Molecular Vibration On Collision, J. CHEM. PHYS. 29 26 (1958).
1041	(H^+)+(N_2)	E	5	Sandford, B. P., Polar-Glow Aurora In Polar Cap Absorption Events, J. ATMOS. TERREST. PHYS. 24 155 (1962).
1042	(H^+,HE^+,AR^+)+(AR) (NE^+)+(NE) (H^+)+(AR)	E	[illegible]	Saris, F. W., Onderdelinden, D., Cross Sections For Ar L-Shell And Ne K-Shell X-Ray Emission In Heavy Ion-Atom Collisions. PHYSICA 49 441 (1970).
1043	(HE^+)+(H_2O)	E	1	Sarjeant, W. J., Brannen, E., Enhancement Of Laser Action In H2o By The Addition Of Helium, IEEE J. QUANT. ELECTRON. QE-5 620 (1969).
1044	(CO)+(N_2,O_2,D_2,H_2)	E	1	Sato, Yukinori, Tsuchiya, Soji, Kuratani, Kenji, Shock-Wave Study Of Vibrational Energy Exchange Between Diatomic Molecules, J. CHEM. PHYS. 50 1911 (1969).
1045	Undef	T	2	Sato, Yukinori, Tsuchiya, Soji, Kuratani, Kenji, Erratum Shock-Wave Study Of Vibrational Energy Exchange Between Diatomic Molecules (50,1911,(1969)), J. CHEM. PHYS. 53 1304 (1970).
1046	(CD^+)+(HE,NE,AR,KR,XE,H_2,N_2)	E	1	Saussereau, Huguette, Barrat, Mireille, Sections Efficaces De Depolarisation D Atomes De Cadmium Dans Le Niveau 5³ P, Lors De Collisions Avec Des Gaz Etrangers, COMPT. REND. 260B 475 (1965).
1047	(H^+,HE^+)+(N_2)	E	5	Schaller, L., Huber, P., Baumgartner, E., Measurement Of The Work Per Ion Pair In Nitrogen For Protons And He Ions In The Energy Region Below 1 Mev, HELV. PHYS. ACTA 36 113 (1963).
1048	(H^+)+(HE)	E	5	Scharmann, A., Schartner, K. H., The Energy Dependence Of The Singlet Excitation Cross Sections Of Helium Excited By Fast Protons, VI ICPEAC, P.422, THE MIT PRESS, CAMBRIDGE, MASS. (1969).
1049	(H^+)+(HE)	E	3	Scharmann, A., Schartner, K. H., Polarization Of The Singlet-Transitions Of He Excited By Proton Impact, Z. PHYS. 219 55 (1969).
1050	(H^+,H_2^+)+(HE)	E	5	Scharmann, A., Schartner, K. H., Polarization Of The 4¹ D-2¹ P Transition Of Helium Excited By H⁺ And H₂⁺ Impact, PHYS. LETTERS 27A 43 (1968).
1051	(H^+)+(HE)	E	5	Scharmann, A., Schartner, K. H., Polarization Of The 3¹ P - 2¹ S Transition Of Helium Excited By Proton Impact, PHYS. LETTERS 26A 51 (1967).
1052	(H^+)+(HE)	E	5	Scharmann, A., Schartner, K. H., The Energy Dependence Of The Singlet Excitation Cross Sections Of Helium Excited By Fast Protons, Z. PHYS. 229 254 (1969).
1053	(AR,XE)+(XE,HE)	E	1	Schearer, L. D., Optical Pumping Of ³P₂ Argon And Xenon Atoms. PHYS. LETTERS 28A 560 (1969).
1054	(HE^+)+(CS)	E	4	Schlachter, A. S., Loyd, D. H., Bjorkholm, P. J., Anderson, L. W., Haeberli, W., Charge-Exchange Collisions Between Helium Ions And Cesium Vapor In The Energy Range 1.5-25 Kev, PHYS. REV. 174 201 (1968).
1055	(HE)+(CS) (Cat. by Abstract Only)	E	4	Schlachter, Alfred Simon, Charge-Exchange Collisions Of Hydrogen Ions In Cesium Vapor, And Of Helium Ions In Cesium Vapor And Permanent Gases, In The Energy Range 6.5-30 Kev, THESIS, UNIV. OF WISC. (1969).
1056	(NE^+,HE^+)+(AR,KR,N_2,O_2,CO_2)	E	3	Schlumbohm, H., Ladungsaustausch In Angeregte Ionenzustande Bei Stossenergien Von 2 Bis 250 Evolt, Z. NATURFORSCH. 23A 776 (1968).
1057	(NE^+,HE^+)+(AR,KR)	E	4	Schlumbohm, H., Optische Anregung Beim Ladungsaustausch Von Edelgasionen Fur Stossenergien Von 5 Bis 300 Evolt, Z. NATURFORSCH. 23A 970 (1968).
1058	(LI^+)+(H_2)	E	2	Schoettler, J., Toennies, Jan P., Molecular Beam Measurements For Study Of Vibrational Excitation Of Molecular Hydrogen By Collision With Lithium Ions, BER. BUNSENGES. PHYS. CHEM. 72 979 (1968).

	REACTANTS	EXP. OR THEOR.	E RANGE	REFERENCE
1059	$(LI^{+})+(N_2)$	E	3	Schottler, J., Toennies, J. P., Vibrational Excitation Of N2-Molecules In Central Collisions With LI+ -Ions, Z. PHYS. 214 472 (1968).
1060	$(H^{+})+(HE)$ (Cat. by Abstract Only)	E	5	Schoengerdt, Franklin Dean, A Study Of The Energy Loss Spectra Induced By Impact Of 25-125 Kev Protons On Helium Atoms, THESIS, UNIV. OF MISSOURI AT ROLLA (1969).
1061	$(H^{+},H_2^{+},AR^{+})+(N_2)$	E	5	Schoengerdt, F. D., Park, John T., Energy-Loss Spectra And Collision Cross Sections For Impact Of 20-120-Kev Positive Ions On Molecular Nitrogen, PHYS. REV. A1 842 (1970).
1062	$(HE^{++})+(N_2)$	E	1	Sears, John Thomas, Energy Deposition By Fission Fragments Optical Excitation Of Nitrogen, THESIS, PRINCETON UNIV. (1965).
1063	Undef	E	5	Sears, John T., Rodgers, Robert, Excitation Of Nitrogen Gas By Fission Fragments Along The Entire Track, J. CHEM. PHYS. 47 3174 (1967).
1064	$(H^{+})+(FE^{13+})$	T	3	Seaton, M. J., Excitation Of Coronal Lines By Proton Impact, MONTHLY NOTICES, ROY. ASTRON. SOC. 127 191 (1964).
1065	$(H^{+})+(N_2)$	T	5	Seaton, M. J., Excitation Processes In The Aurora And Airglow I. Absolute Intensities, Relative Ultra-Violet Intensities And Electron Densities In High Latitude Aurorae, J. ATMOS. TERREST. PHYS. 4 208 (1953).
1066	$(O)+(O)$ $(O^{+})+(O^{+})$ $(O^{2+})+(O^{2+})$ $(N)+(N)$ $(N^{+})+(N^{+})$ $(S^{+})+(S^{+})$ $(F^{+})+(F^{+})$ $(F^{2+})+(F^{2+})$ $(F^{3+})+(F^{3+})$, $(NE^{2+})+(NE^{2+})$ $(NE^{3+})+(NE^{3+})$ $(NE^{4+})+(NE^{4+})$	T	2	Seaton, M. J., Further Calculations On Electron Excitation Of Forbidden Lines Transitions With Electric Quadrupole Moments, PROC. ROY. SOC., LONDON 231A 37 (1955).
1067	$(H^{+})+(N_2)$	T	1	Seaton, M. J., Excitation Processes In The Aurora And Airglow 2. Excitation Of Forbidden Atomic Lines In High Latitude Aurorae, J. ATMOS. TERREST. PHYS. 4 255 (1953).
1068	$(HE)+(H_2)$	T	0	Secrest, Don, Johnson, B. R., A Theoretical Quantum Calculation Of The Collision Of A Helium Atom With A Hydrogen Molecule, P. 235, 5TH INT. CONF. ON COLLISIONS, LENINGRAD (1967).
1069	$(HE,LI,NA,K,RB,CS)+(H_2,D_2)$	T	3	Secrest, Don, Linear Collision Of A Classical Harmonic Oscillator With A Particle At High Energies, J. CHEM. PHYS. 51 421 (1969).
1070	$(H^{+})+(H_2)$	E	4	Sellin, I. A., Experiments On The Production And Extinction Of The 2s State Of The Hydrogen Atom, PHYS. REV. 136A 1245 (1964).
1071	$(H^{+})+(CS,RB,K)$	E	4	Sellin, I. A., Granoff, L., Energy Dependence Of H(2s) Production In Proton-Alkali Collisions From 2 To 30 Kev, PHYS. LETTERS 25A 484 (1967).
1072	Undef	T	2	Sesom, M. L., Population Inversions Produced By Chemical Depletion Of Ground States, APPL. OPT. SUPPL. 2 CHEMICAL LASERS 141 (1965).
1073	$(AR^{+})+(N_2)$	E	1	Setser, D. W., Stedman, D. H., Coxon, J. A., Chemical Applications Of Metastable Argon Atoms. IV. Excitation And Relaxation Of Triplet States Of N2, J. CHEM. PHYS. 53 1004 (1970).
1074	$(N_2^{+})+(C_2N_2,HCN,CNCL,CH_2CL_2)$ $(O)+(C_2N_2)$	E	1	Setser, D. W., Thrush, B. A., Kinetics Of Reactions Involving CN Emission. I. General Features Of Reactions With Active Nitrogen And Atomic Oxygen, PROC. ROY. SOC. A288 256 (1965).
1075	$(O)+(C_2N_2,NCO,NCN,CN)$ $(CN)+(NO,O_2)$ $(O)+(O)+(CN)$	E	1	Setser, D. W., Thrush, B. A., Kinetics Of Reactions Involving CN Emission. II. The Reaction Between Oxygen And Cyanogen, PROC. ROY. SOC. A288 275 (1965).
1076	$(AR)+(CR)$	E	1	Shackleford, W. L., Penner, S. S., Ionization Mechanism Of Chromium In Cr-Ar Mixtures, J. CHEM. PHYS. 45 1816 (1966).
1077	$(AR^{+})+(H_2,O_2,CO_2,N_2,CH_4)$	E	0	Shahin, M. M., Lipsky, S. R., Energy Transfer Between Molecules And Electronically Excited Atoms, J. CHEM. PHYS. 41 2021 (1964).
1078	Undef	T	2	Shapiro, Moshe, Levine, Raphael David, Johnson, Bernard Robert, Numerical Calculations Of The Rotational Excitation Of A Diatomic Molecule Upon Collision With A Structureless Atom, ISR. J. CHEM. 7 253 (1969).
1079	$(O)+(COS,CS_2,H_2S,SO)$	E	1	Sharma, A., Padur, J. P., Warneck, P., Chemiluminescent Reactions Of Cs2, Cos, And H2s With Atomic Oxygen, J. CHEM. PHYS. 43 2155 (1965).
1080	$(CO_2)+(CO_2)$	T	1	Sharma, R. D., Near-Resonant Vibrational Energy Transfer Among Isotopes Of Co2, PHYS. REV. 177 102 (1965).
1081	$(CO_2)+(N_2O)$	T	1	Sharma, R. D., Transfer Of Vibrational Energy From Asymmetric Stretch Of Co2 To N2, Of N2 O, PHYS. REV. A 2 173 (1970).
1082	$(N_2)+(CO_2)$	T	2	Sharma, R. D., Brau, C. A., Near-Resonant Vibrational Energy Transfer In N2-Co2 Mixtures, PHYS. REV. LETTERS 19 1273 (1967).
1083	$(CO_2^{*})+(N_2)$	T	1	Sharma, R. D., Brau, C. A., Energy Transfer In Near-Resonant Molecular Collisions Due To Long-Range Forces With Application To Transfer Of Vibrational Energy From N3 Mode Of Co2 To N2, J. CHEM. PHYS. 50 924 (1969).
1084	$(N_2)+(N_2)$	T	2	Sharp, T. E., Rapp, D., Evaluation Of Approximations Used In The Calculation Of Excitation By Collision. I. Vibrational Excitation Of Molecules, J. CHEM. PHYS. 43 1233 (1965).
1085	Undef	T	2	Sharp, T. E., Rapp, D., Evaluation Of Approximations Used In The Calculation Of Excitation By Collision. I. Vibrational Excitation Of Molecules, 4TH INT. CONF. PHYS. ELECTRON. ATOMIC COLLISIONS, P.198, SCIENCE BOOKCRAFTERS, NEW YORK (1965).

	REACTANTS	EXP OR THEOR.	E RANGE	REFERENCE
1086	(HE)*(O,N)	E	8	Shefov, N. N., Emission De L Helium Dans La Haute Atmosphere, ANN. GEOPHYS. 17 335 (1961).
1087	(H)*(H)	T	2	Sheldon, John W., Cross Section For Impact Ionization Of H (1s) Atoms By H (1s) Atoms Near Threshold, N66-12144,NASA-TP-R-56364 (1965).
1088	(H*,D*,HE*,NE*,N*)*(N$_2$)	E	4	Sheridan, J. R., Clark, K. C., Vibration And Rotation Of N$_2$* Excited By 15-65-Kev Ions, PHYS. REV. 140 A1633 (1965).
1089	(H*,D*,HE*,N$_2$*,N*)*(N$_2$)	E	4	Sheridan, J. R., Clark, K. C., Vibration And Rotation In N$_2$* First Negative Bands Excited By Ion Impact, 4TH INT. CONF. PHYS. ELECTRON. ATOMIC COLLISIONS, P.276, SCIENCE BOOKCRAFTERS, NEW YORK (1965).
1090	(H*,D*,HE*,NE*,N*)*(N$_2$)	E	4	Sheridan, J. R., Rotation And Vibration In N$_2$* First Negative Bands Excited By Ion Impact, UNIVERSITY OF WASHINGTON (DISSERTATION) (1964).
1091	(HBR)*(HBR)	T	0	Shin, Hyung Kyu, Most Favorable Orientation For Vibrational Transitions In Asymmetric Diatomic Molecules, CHEM. PHYS. LETTERS 2 83 (1968).
1092	Undef	T	9	Shin, Hyung Kyu, Probability Of Vibrational Excitations In High Energy Collisions, CHEM. PHYS. LETTERS 2 125 (1965).
1093	Undef	T	1	Shin, H. K., Intramolecular Vibration-Vibration Energy Transfer In Triatomic Molecules, CHEM. PHYS. LETTERS 2 625 (1968).
1094	(H$_2$)*(H$_2$) (O$_2$)*(O$_2$)	T	2	Shin, Hyung Kyu, Excitation Of Molecular Vibration On Collision Role Of The High-Order Angular Moments, J. CHEM. PHYS. 47 744 (1967).
1095	(AR*)*(O$_2$)	T	2	Shin, H. K., Vibrational Excitation Of Diatomic Molecules In High Energy Ion-Molecule Collisions, CHEM. PHYS. LETTERS 5 137 (1970).
1096	(AR)*(H$_2$,N$_2$,O$_2$,CL$_2$,I$_2$) (H$_2$)*(H$_2$) (N$_2$)*(N$_2$) (CL$_2$)*(CL$_2$) (O$_2$)*(O$_2$) (I$_2$)*(I$_2$)	T	1	Shin, Hyung Kyu, Effect Of Molecular Orientations On Vibrational-Translational Energy Transfer, J. CHEM. PHYS. 47 3302 (1967).
1097	(H$_2$)*(H$_2$)	T	1	Shin, Hyung Kyu, Vibration-Vibration Energy Transfer Between Diatomic Molecules, CHEM. PHYS. LETTERS 3 563 (1969).
1098	Undef	T	0	Shin, H. K., Inelastic Molecular Collisions With A Lennard-Jones (12-6) Interaction Energy, J. CHEM. PHYS. 41 2864 (1964).
1099	(O$_2$,HBR)*(AR) (O$_2$)*(O$_2$) (HBR)*(HBR)	T	1	Shin, Hyung Kyu, Excitation Of Molecular Vibration On Collision. I. Preferential Orientations For Vibrational Transitions, J. CHEM. PHYS. 49 3964 (1968).
1100	(ZN*)*(NA,CD,ZN)	E	3	Shpenik, O. B., Zavilopulo, A. N., Zapesochnii, I. P., Charge Transfer To Zn, Cd, And Na With Excitation Of Slow Zinc Ions, OPT. SPECTROS. 29 541 (1970).
1101	Review	T	0	Shuler, K. E., Carrington, T., Light, J. C., Nonequilibrium Chemical Excitation And Chemical Pumping Of Lasers, APPL. OPT. SUPPL. 2 CHEMICAL LASERS 81 (1965).
1102	(N$_2$O)*(N$_2$O)	E	2	Simpson, C. J. S. M., Bridgman, K. B., Chandler, T. R. D., Shock-Tube Study Of Vibrational Relaxation In Nitrous Oxide, J. CHEM. PHYS. 49 505 (1968).
1103	(CO$_2$)*(CO$_2$)	E	2	Simpson, C. J. S. M., Bridgman, K. B., Chandler, T. R. D., Shock-Tube Study Of Vibrational Relaxation In Carbon Dioxide, J. CHEM. PHYS. 49 513 (1968).
1104	(NE*,F*,XE2*,AR*,KR*,CO$_2$*)*(H$_2$O)	E	3	Sjogren, H., The Ionization Of Water, Methylamine, And Methyl Alcohol, Using Electron And Ion Impact, AD-637-681, N66-35731, AFCRL-66-593 (1966).
1105	(NE*,F*,HE*,SI*,KR*,XE*)*(O$_2$) (NF*,F*)*(CCL$_3$F) (CO*,SI*)*(CH$_4$)	T	0	Sjogren, H., Ionization And Dissociative Ionization Of O2 After Electron And Ion Impact, AD-630-904, N66-33277, AFCRL-66-415 (1965).
1106	(HE*,HE2*)*(H)	T	5	Skinner, D. G., Effect Of 2p Sub O 2p Plus Or Minus 1 Coupling On The Cross Section For Excitation Of The 1s-2p Transition Of Atomic Hydrogen By Proton And Alpha Particle Impact, PROC. PHYS. SOC., LONDON 79 717 (1962).
1107	(XE*)*(CO)	E	2	Slanger, Tom G., Xenon-Sensitized Fluorescence Of Co Excited by 1470-Angstroms Radiation, J. CHEM. PHYS. 48 586 (1968).
1108	(XE*)*(CO)	E	2	Slanger, Tom G., Black, Graham, Resonance Fluorescence And Xenon Sensitization Of The Co(a³ Pi Going To X¹ Sigma+) System, J. CHEM. PHYS. 51 4534 (1969).
1109	(AR*)*(HE,NE,AR,KR,XE)	E	4	Sluyters, Th. J. M., Kistemaker, J., II. Excitation Mechanism Of Ar+ Ions In He, Ar, Kr, And Xe, PHYSICA 25 1389 (1959).
1110	(AR*)*(HE,NE,AR,KR,XE)	E	4	Sluyters, Th. J. M., Kistemaker, J., The Excitation Mechanism Of Ar+ Ions Of 5-24 Kev In He, Ne, Ar, Kr, Xe, PHYSICA 25 182 (1959)
1111	Undef	T	0	Smirnov, B. M., Collisions Of Slow Heavy Atoms, SOVIET PHYS.-JETP 18 111 (1964).
1112	Undef	T	0	Smirnov, B. M., Transitions Between Vibrational Levels During Molecular Collisions, SOVIET PHYS.-DOKLADY 5 362 (1964).
1113	(HE*)*(HE)	T	3	Smirnov, B. M., Term Splitting In The Interaction Of Two Identical Atoms In Different States, SOVIET PHYS.-JETP 26 204 (1968).
1114	Review	E	0	Smith, Felix T., Heavy Particle Collisions, ATOMIC PHYSICS, P.353, PLENUM PRESS, NEW YORK (1969).
1115	(HE*)*(HE)	T	3	Smith, Felix T., Recent Progress In Atom-Atom Collision Theory, 8TH INT. CONF. PHENOMENA IN IONIZED GASES, VIENNA, 1967, P.75 (1968).
1116	Undef	E	0	Smith, D. S., Turner, R., The Decay Of Metastable Atoms In A Pulsed Discharge In Krypton, CAN. J. PHYS. 41 1945 (1963).

	REACTANTS	EXP OR THEOR.	E RANGE	REFERENCE
1117	$(H^+)+(H)$	T	3	Smith, F. J., Oscillations In The Exchange Cross Sections Due To Scattering From The Central Core, P. 177, 5TH INT. CONF. ON COLLISIONS, LENINGRAD (1967).
1118	$(CS)+(NO_2, CS_2, AR, HE, N_2, O_2, N_2O, CO_2)$	E	1	Smith, I. W. M., Relaxation Of Vibrationally Excited Cs Produced In The Reaction O(sup 3 P) + Cs2 Going To So + Cs, TRANS. FARADAY SOC. 64 3183 (1968).
1119	$(AR^+)+(CU)$	E	4	Snoek, C., Van Der Weg, W. F., Geballe, R., Rol, P. K., Inelastic Energy Losses In Collisions Of 40-90 Kev Ar+ Ions With Solid And Gaseous Cu Targets, PHYSICA 35 1 (1967).
1120	$(CO_2)+(CO_2)$ $(CO, CO_2)+(N_2)$	E	2	Sodickson, L. A., Carpenter, J. W., Davidson, G., A New Method Of Producing High Speed Molecular Beams, AG-617 142 (1965).
1121	$(HE^+, N^+, I^+, NE^+)+(MG)$	E	5	Solov'Ev, E. S., Il'In, R. N., Oparin, V. A., Serenkov, I. T., Fedorenko, N. V., Formation Of Highly Excited Atoms During Charge Exchange, SOVIET PHYS.-JETP LETTERS 10 190 (1969).
1122	$(HG^*)+(ZN)$	E	1	Sosinskii, M. L., Morozov, E. N., Effective Cross Section Of The Second Order Collisions Of Mercury And Zinc Atoms, OPT. SPECTROS. 23 475 (1967).
1123	$(HE)+(HE)$	T	1	St. John, R. M., Nee, T. -W., Collisional Transfer Of Excitation Energy In Helium, J. OPT. SOC. AM. 55 426 (1965).
1124	$(HE^*)+(HE)$	T	1	St. John, Robert M., Fowler, Richard G., New Process Of Excitation Transfer In Helium, PHYS. REV. 122 1813 (1961).
1125	$(N)+(N)+(N, N_2)$	E	2	Stanley, C. R., A New Method For The Production Of Active Nitrogen And Its Application To The Study Of Collision Effects In The Nitrogen Molecular Spectrum, PROC. PHYS. SOC., LONDON 67A 821 (1954).
1126	$(N_2^*)+(N_2)$	T	1	Stanley, C. R., A Method For The Determination Of Collision-Induced Vibrational Transition Probabilities, With Results For N2(b³ Pi Sub G)-N2 Collisions, PROC. ROY SOC., LONDON 241A 180 (1957).
1127	$(N_2)+(NA)$	T	1	Starr, W. L., Excitation Of Electronic Levels Of Sodium By Vibrationally Excited Nitrogen, J. CHEM. PHYS. 43 73 (1965).
1128	$(H^+)+(H, H^-, O)$ $(O^+)+(H, O)$ $(HE^+)+(O_2, N_2)$ $(HE^{2+})+(H)$	E	3	Stebbings, R. F., Measurement Of Atomic Collision Cross Sections, AD-689 164 (1965).
1129	$(H^+)+(H)$	E	4	Stebbings, R. F., Young, R. A., Oxley, C. L., Ehrhardt, H., Lyman-Alpha Production In H+-H(1s) Collisions, PHYS. REV. 138 A1312 (1965).
1130	$(H^+, HE^+)+(H)$	T	4	Stebbings, R. F., Young, R. A., Experimental Determination Of The Cross Sections For Some Inelastic Collision Processes Involving He+, H+, And H (1s) Atoms, 4TH INT. CONF. PHYS. ELECTRON. ATOMIC COLLISIONS, P.344, SCIENCE BOOKCRAFTS, NEW YORK (1965).
1131	$(AR^*)+(N_2)$ $(N_2^*)+(HG, NO, CO, NN_2)$	E	1	Stedman, D. H., Setser, D. W., Chemical Applications Of Metastable Argon Atoms. II. A Clean System For The Formation Of N2(a³ Sigma Sub U+), CHEM. PHYS. LETTERS 2 542 (1968).
1132	$(AR^*, KR^*, XE^*)+(N_2, CO, N_2O)$	E	2	Stedman, D. H., Setser, D. W., Chemical Applications Of Metastable Argon Atoms. III. Production Of Krypton And Xenon Metastable Atoms, J. CHEM. PHYS. 52 3957 (1970).
1133	$(AR^*, KR^*, XE^*)+(NH_3, HN_3, HNCO)$	E	2	Stedman, D. H., Reactions Of Ar, Kr, And Xe Metastables With Simple NH-Containing Compounds, J. CHEM. PHYS. 52 3966 (1970).
1134	$(N_2^*)+(O_2, N_2O, C_2H_2, C_2H_4, I_2, CF_4, SO_2, C_2N_2)$	E	2	Stedman, D. H., Meyer, J. A., Setser, D. W., Energy-Transfer Reactions Of N2(a³ Sigma Sub U+) I. Quenching And Emission By C2n2, So2 And Other Molecules, J. AM. CHEM. SOC. 90 6856 (1968).
1135	$(N_2^*)+(N_2)$	E	2	Stedman, D. H., Setser, D. W., Energy Pooling By Triplet Nitrogen (A³ Sigma Sub U+) Molecules, J. CHEM. PHYS. 50 2256 (1969).
1136	$(I^+)+(TE)$	E	5	Stein, H. J., Lutz, H. O., Mokler, P. H., Sistemich, K., Armbruster, P., Addendum To Impact-Parameter Dependence Of Inner-Shell Vacancy Production By Heavy-Ion Bombardment, PHYS. REV. A 2 2575 (1970).
1137	$(I_2)+(I_2)$	E	2	Steinfeld, Jeffrey I., Energy Transfer Processes In Electronically Excited Molecules, THESIS, HARVARD UNIV. (1965).
1138	$(HG)+(TL)$	E	1	Step, E. E., Anderson, R. A., A Tl-Hg Collision Cross-Section, PHYS. LETTERS 11 127 (1964).
1139	$(CO_2)+(CO_2, CH_4, C_2H_6, CH_3F, CH_3CL, CH_3BR, CH_3I, HCL, SF_6)$	E	2	Stephenson, John C., Moore, C. Bradley, Near-Resonant Vibration Going To Vibration Energy Transfer Co2 (Nu3 Equal 1) + M Going To Co2 (Nb, Equal 1) + M* + Delta E, J. CHEM. PHYS. 52 2333 (1970).
1140	$(H^+, D^+)+(HE)$	E	5	Sternberg, Z., Tomas, P., Excitation Processes In Helium Induced By Impact Of Deuterons And Protons, PHYS. REV. 124 810 (1961).
1141	$(H^+, D^+)+(HE)$	E	5	Sternberg, Z., Tomas, P., Excitation Processes In Helium Induced By Impact Of Protons And Deuterons, PROC. 5TH INT. CONF. IONIZATION PHENOMENA GASES, MUNICH II 1216 (1961).
1142	Review	T	1	Stevens, B., (Book), COLLISIONAL ACTIVATION IN GASES . PERGAMON PRESS, OXFORD (1967).
1143	$(H^+)+(HE, NE, AR, N_2, O_2, H_2)$ (Cat. by Abstract Only)	E	4	Stigers, Charles Arthur, Electron Capture Cross Sections Into The N Equal 3 Level Of Hydrogen For 30-120 Kev Proton Impact On Gas Targets, THESIS, UNIV. OF ARKANSAS (1970).

	REACTANTS	EXP OR THEOR.	E RANGE	REFERENCE
1144	Review (Cat. by Abstract Only)	E	0	Stretton, J. L., Vibrational Energy Exchange At Molecular Collisions, TRANSFER AND STORAGE OF ENERGY BY MOLECULES, VOL. 2, VIBRATIONAL ENERGY, P.58, WILEY-INTERSCIENCE, CHICHESTER, ENGLAND (1969).
1145	Undef (Cat. by Abstract Only)	E	2	Stretton, J. L., Vibrational Energy Exchange At Molecular Collisions, TRANSFER STOR. ENERGY MOL. 2 58 (1965).
1146	(ME^{2+})+(AR)	E	0	Strichler, T. D., Arakawa, E. T., Optical Emission From Argon Excited By Alpha Particles Quenching Studies, J. CHEM. PHYS. 41 1783 (1964).
1147	(M)+(C_2H_6)	E	1	Strong, R. A., Brogger, B. N., Measurement Of The Frequency Of Torsional Vibration In The Ethane Molecule, J. CHEM. PHYS. 47 421 (1967).
1148	(MA^{0})+(CH_4,CD_4,C_2H_2,C_2H_4,C_2H_6,C_3H_8)	E	1	Stupochky, M., Krause, L., Inelastic Collisions Between Excited Alkali Atoms And Molecules. VI. Sensitized Fluorescence In Mixtures Of Sodium With CH_4, CD_4, C_2H_2, C_2H_4 And C_2H_6, CAN. J. PHYS. 47 1249 (1969).
1149	(MA^{0})+(N_2,NO,O_2,H_2,CH_4,CD_4,C_2H_2,C_2H_4, C_2H_6)	E	1	Stupochky, M., Krause, L., 3^2 P Sub 1/2 - 3^2 P Sub 3/2 Mixing In Sodium, Induced In Collisions With Molecules, VI ICPEAC, P.715, THE MIT PRESS, CAMBRIDGE, MASS. (1965).
1150	(M)+(^{4})+(S_2) (M)+(^{34})+(S_2)	E	0	Sugden, T. M., Somerdecne, A., Emission Spectra Of Sulphur, NATURE 195 596 (1962).
1151	Undef	T	1	Sun Yee, M. Y., Yee, S. J., Second-Order Calculation Of Vibrational Energy Transfer, J. CHEM. PHYS. 51 2561 (1969).
1152	(ME^{+})+(ME)	T	3	Surat, S. P., Mukherjee, S. C., Sil, N. C., Electron Capture And Excitation In Me^{2+}-Ar Collisions, PHYS. REV. 164 156 (1967).
1153	(AR^{0})+(H_2)	T	1	Sychev, V. P., On Collisions Of The Second Kind In A Mixture Of N2 + Ar, OPT. SPECTROS. 5 253 (1959).
1154	(ME)+(H_2)	T	0	Tait, J. M., Taylor, A. J., Faisal, F. H. M., Burke, P. G., Thermal Energy Atom Molecule Collisions, VI ICPEAC, P.630, THE MIT PRESS, CAMBRIDGE, MASS. (1969).
1155	Undef (Cat. by Abstract Only)	T	0	Takayanagi, K., Kaneko, S., Vibrational Transition In Molecular Collision. IV. Another Short Table Of Functions Useful For Calculating The Vibrational Transition Probability. (Pt I), SCI. REP. SAITAMA UNIV. 3 167 (1960).
1156	Undef (Cat. by Abstract Only)	T	0	Takayanagi, K., Rotational Transition In Molecular Collision. I. Transition In Diatomic Molecule-General Discussions, SCI. REP. SAITAMA UNIV. 3A 65 (1955).
1157	(H_2^{0})+(N_2) (D_2^{0})+(D_2) (HD^{0})+(HD) (Cat. by Abstract Only)	T	0	Takayanagi, K., Rotational Transition In Molecular Collision. II. Rotational Transition In N2, D2 And Hd, SCI. REP. SAITAMA UNIV. 3A 87 (1959).
1158	Undef (Cat. by Abstract Only)	T	0	Takayanagi, K., Miyamoto, T., Vibrational Transition In Molecular Collision. III. A Short Table Of A Function Useful For Calculating The Vibrational Transition Probability, SCI. REP. SAITAMA UNIV. 3A 191 (1959).
1159	Undef (Cat. by Abstract Only)	T	0	Takayanagi, K., Vibrational Transition In Molecular Collision. VI. Dependence Of The Effective Cross-Section On The Intermolecular Force, The Energy Transferred, And The Temperature, SCI. REP. SAITAMA UNIV. 4A 45 (1962).
1160	(H^{+})+(CH) (Cat. by Abstract Only)	T	1	Takayanagi, K., Ishikawa, Yukikazu, Rotational Excitation Of The Interstellar Ch Molecule, PUBL. ASTRON. SOC. JAP. 20 376 (1968).
1161	Undef	T	0	Takayanagi, K., Applicability Of The Distorted Wave Method In The Theory Of Inelastic Molecular Collisions, SCI. REP. SAITAMA UNIV. 4A 87 (1963).
1162	Review	T	0	Takayanagi, K., Kaneko, S., Vibrational Transition In Molecular Collision. V. Another Short Table Of Functions Useful For Calculating The Vibrational Transition Probability. Part 2, SCI. REP. SAITAMA UNIV. 4A 15 (1961).
1163	Review	T	0	Takayanagi, K., Vibrational And Rotational Transitions In Molecular Collisions, PHYSR. THEORET. PHYS., SUPPL. 25 1 (1963).
1164	(N_2)+(N_2,M) (D_2)+(D_2) (HG)+(H_2)	T	2	Takayanagi, K., The Production Of Rotational And Vibrational Transitions In Encounters Between Molecules, ALVAR. ATOMIC MOLECULAR PHYS. 1 149 (1965).
1165	(AR^{0})+(HD,D_2)	E	2	Tamezawa, S., Inoue, F. R., Tanaka, Y., Selective Enhancement In Hydrogen-Like Molecules With The Rare Gases, J. CHEM. PHYS. 46 4555 (1967).
1166	(ME)+(ME,CO_2,HD) (ME)+(O_2,CO_2) (Cat. by Abstract Only)	E	1	Tanaka, Ibuzo, Photochemistry And Energy Transfer, BAGAKU 39 368 (1968).
1167	(H)+(H_2)	T	2	Tang, R. T., Rotational Excitation Of The (H, H2) System, PHYS. REV. 187 122 (1969).
1168	(K_2^{0})+(K)	E	1	Tango, William J., Link, John K., Zare, Richard N., Spectroscopy Of K2 Using Laser-Induced Fluorescence, J. CHEM. PHYS. 49 4264 (1968).
1169	(ME^{2+})+(N_2)	E	5	Tatischeff, I., Specific Excitation Of N_2 (C^3 Pi Sub U) And Specific Ionization By 4.1-Mev Alpha Particles, J. CHEM. PHYS. 52 383 (1970).
1170	(CO_2^{0})+(N_2)	E	1	Taylor, Raymond L., Bitterman, Steven, Experimental Measurements Of The Resonant Vibrational Energy Transfer Between Mode Nu$_3$ Of Co_2 And N_2, J. CHEM. PHYS. 50 1720 (1969).
1171	(CO)+(CO)	T	2	Taylor, A. J., Glantocco, F. A., Anharmonicity Effect On Vibrational Relaxation In Carbon Monoxide, CHEM. PHYS. LETTERS 4 376 (1969).

	REACTANTS	EXP OR THEOR.	E RANGE	REFERENCE
1172	(HE°)+(HE)	E	2	Teter, M. P., Robertson, W. W., Inelastic Excitation Transfer In Helium, J. CHEM. PHYS. 45 2167 (1966).
1173	(H°)+(AR)	E	4	Teubner, P. J. O., Kauppila, W. E., Fite, W. L., Girnius, R. J., Polarization Of Lyman-Alpha Radiation In Charge Transfer Collisions Of Protons With The Inert Gases, VI ICPEAC, P.199, THE MIT PRESS, CAMBRIDGE, MASS. (1965).
1174	(H°)+(HE,NE,AR)	E	4	Teubner, P. J. O., Kauppila, W. E., Fite, W. L., Girnius, R. J., Polarization Of Lyman-Alpha Radiation Produced In Charge-Transfer Collisions Between Protons And The Inert Gases, PHYS. REV. A 2 1763 (1970).
1175	(H2+)+(AR,N2,XE) (Cat. by Abstract Only)	E	0	Teyssier, Jean-Louis, Blanc, Daniel, Dantot, Jean-Pierre, Emission Spectra Of Rare Gases Excited By Alpha Particles In The Presence Of A Constant Electric Field, J. PHYS. (PARIS) 28 427 (1967).
1176	(HE2+)+(AR,N2)	E	5	Teyssier, J-L., Blanc, D., Brunet, M., Influence De L Azote Sur L Emission De Lumiere Dans L Argon Excite Par Des Particules Alpha, En Presence D Un Champ Electrique, CCMPT. REND. 266 1414 (1965).
1177	(HE2+)+(XE)	E	0	Teyssier, J. L., Blanc, D., Brunet, J., Distribution Of Photons And Ions Created Along The Trajectory Of An Alpha Particle In Xenon, COMPT. REND. 258 3676 (1964).
1178	Undef	T	2	Thiele, Everett, Deare, John, Collision Of An Atom And A Diatomic. The Distorted Wave Expansion, J. CHEM. PHYS. 40 2324 (1964).
1179	(H2+)+(AR,NE,HE)	E	5	Thomas, E. W., Gilbody, H. B., Excitation By Positive Ions In The Energy Range 60-500 Kev, ATOMIC COLLISION PROCESSES, P.544, NORTH-HOLLAND PUBL. CO., AMSTERDAM (1964).
1180	(HE°)+(HE,NE,AR) (N2°,AR°,H2°)+(HE, NE,AR,H2)	E	5	Thomas, E. W., Gilbody, H. B., Excitation In Rare Gas Ion-Atom Collisions In The Energy Range 100-600 Kev, PROC. PHYS. SOC. (LONDON) 85 363 (1965).
1181	(H°)+(HE)	E	5	Thomas, E. W., Bent, G. D., Formation Of Excited States In A Helium Target By The Impact Of 0.15- To 1.0-Mev Protons And Deuterons, PHYS. REV. 164 143 (1967).
1182	(H°,D°,H2°,H2°)+(HE) (H°)+(N2,O2,AR)	E	5	Thomas, E. W., Bent, G. D., Edwards, J. L., Emission And Excitation Cross Sections, CRU-2591-23 (1966).
1183	(H°)+(N2,O2)	E	5	Thomas, E. W., Bent, G. D., Edwards, J. L., The Excitation Of Molecular Nitrogen And Oxygen By The Impact Of 0.15 To 10 Mev Protons, P. 246, 5TH INT. CONF. ON COLLISIONS, LENINGRAD (1967).
1184	(H°,H2°,H2°,D°)+(HE)	E	5	Thomas, E. W., Bent, G. D., Comparison Of The Excitation Produced In A Helium Target By The Impact Of H°, D°, H2°, H3° Ions At High Energies, J. OPT. SOC. AM. 58 138 (1968).
1185	(H°)+(N2)	E	5	Thomas, E. W., Bent, G. D., Edwards, J. L., Cross Sections For The Formation Of Excited States In A Nitrogen Target By The Impact Of 0.15- To 1.0-Mev Protons, PHYS. REV. 165 32 (1968).
1186	(H°)+(O2)	E	5	Thomas, E. W., Bent, G. D., Excitation Induced By 0.15-1.0 Mev Protons In Molecular Oxygen, PROC. PHYS. SOC., LONDON 1B 233 (1968).
1187	(H°)+(HE,N2,AR)	E	5	Thomas, E. W., Edwards, J. L., Ford, J. C., The Formation And Destruction Of Excited Hydrogen Atoms At High Impact Velocities, 6TH ICPEAC, P.462, THE MIT PRESS, CAMBRIDGE, MASS. (1969).
1188	(H°)+(AR,N2,HE)	E	5	Thomas, E. W., Edwards, J. L., Bent, G. D., Emission And Excitation Cross Sections. Progress Report No. 3, December 1, 1966-November 30, 1967, NSF-166168, CRU-2591-33 (1967).
1189	(H°)+(AR)	E	5	Thomas, E. W., Excitation Induced By 0.15-1.0 Mev Protons In Argon, J. PHYS. B 2 625 (1969).
1190	(H°)+(HE)	T	5	Thomas, E. W., Cross Sections For The Formation Of Excited States In A Helium Target By The Impact Of 0.15- To 1.0-Mev Protons And Deuterons. II. Comparison With Theory, PHYS. REV. 164 151 (1967).
1191	Review	E	5	Thomas, E. W., Listing Of Available Experimental Data On The Formation And Destruction Of Excited States By Collisions Between Atomic Systems, ORO-2551-22 (1966).
1192	(H°)+(HE)	E	5	Thomas, E. W., Bent, G. D., Emission And Excitation Cross Sections, TID-22408 (1965).
1193	(O2)+(O2,AR,HE,H2)	T	1	Thompson, Samuel L., Vibration-Translational Energy Transfer According To The Morse Potential, J. CHEM. PHYS. 49 3406 (1968).
1194	(NA)+(H2)+(HE,NE,XE)	E	1	Tibilov, A. S., Shukhtin, A. M., Investigation Of Generation Of Radiation In The Na-H2 Mixture, OPT. SPECTROS. 25 221 (1968).
1195	Undef (Cat. by Abstract Only)	T	5	Tishchenko, N. I., Inopin, E. V., Specific Properties Of Diffraction Scattering Cross Section, SOVIET J. NUCL. PHYS. 7 1029 (1968).
1196	Undef	T	0	Toennies, J. P., Molekularstrahlmessungen Von Stoszquerschnitten Fur Uebergange Zwischen Definierten Rotationszustanden Zwei-Atomiger Molekule. II. Theoretische Deutung, Z PHYSIK 193 76 (1966).
1197	(TLF)+(AR,,HE,NE,AR,KR)	T	0	Toennies, J. P., Molecular Beam Measurements Of Inelastic Cross-Sections For The Excitation Of The Rotational Transition TlF (2,0) (3,3) In Collisions With Atoms, ATOMIC COLLISION PROCESSES, P.1113, NORTH-HOLLAND PUBL. CO., AMSTERDAM (1964).

	REACTANTS	EXP OR THEOR.	E RANGE	REFERENCE
1198	(HE*)+(HE) (HE*)+(HE)	E	3	Tolk, N. H., White, C. W., Dworetsky, S. H., Farrow, L. A., Quantum-Mechanical Phase-Interference Effects In Low-Energy He* -He And He* -He Inelastic Collisions, PHYS. REV. LETTERS 25 1250 (1970).
1199	(HE*)+(HE) (HE*)+(HE)	E	3	Tolk, N., White, C. W., Excitation Cross Sections For The 3P P0 State Of He In Low-Energy He* - He And He* - He Collisions, VI ICPEAC, P.305, THE MIT PRESS, CAMBRIDGE, MASS. (1969).
1200	(N_2)+(O_2)	T	1	Treanor, Charles E., Marrone, Paul V., Effect Of Dissociation On The Rate Of Vibrational Relaxation, PHYS. FLUIDS 5 [illegible]22 (1962).
1201	(CO_2*)+(CO_2)	T	1	Tripodi, Robert, Interpretation Of Spectrophone Results For Co_2, J. CHEM. PHYS. 52 3298 (1970).
1202	(NA)+(CO)	E	2	Tsuchiya, Soji, Suzuki, Isao, Vibrational-To-Electronic Energy Transfer In Na-Co Collisions, J. CHEM. PHYS. 51 5725 (1969).
1203	(CD*)+(C_2H_4) (Cat. by Abstract Only)	E	1	Tsunashima, Shigeru, Sato, Shin, Quenching Cd (5sp 3 P_1) Atoms By Ethylene Derivatives, BULL. CHEM. SOC. JAP. 40 2507 (1967).
1204	(CD*)+(C_6H_6) (Cat. by Abstract Only)	E	1	Tsunashima, Shigeru, Satoh, Shin, Sato, Shin, Reactions Of A Mixture Of Benzene And Cis-2-Butene Photosensitized By Cadmium, BULL. CHEM. SOC. JAP. 42 1521 (1969).
1205	(KR*)+(KR)	E	1	Turner, R., Decay Of Excited Species In A Pulsed Discharge In Krypton, PHYS. REV. 158 121 (1967).
1206	(O*,O_2*,N*,N_2*)+(NO)	E	3	Turner, B. R., Rutherford, J. A., Stebbings, R. F., Charge Transfer Reactions Of Nitric Oxide With Atomic And Molecular Ions Of Oxygen And Nitrogen, J. GEOPHYS. RES. 71 4521 (1966).
1207	(N_2*)+(CO)	E	2	Utterback, N. G., Broida, H. P., Charge-Transfer Excitation Of Co* Comet-Tail Bands By Slow N2* Ions, PHYS. REV. LETTERS 15 608 (1965).
1208	(N_2*)+(NO)	E	3	Utterback, Nyle G., Van Zyl, Bert, Enhancement Of Neutral-Neutral Ionization Processes By Internal Excitation Energy In The Colliding Particles, PHYS. REV. LETTERS 20 1021 (1968).
1209	(HE)+(N_2,AR) (N)+(HE)	E	4	Utterback, N. G., Resonant Excitation In Helium Ion-Atom Collisions, PHYS. REV. LETTERS 12 295 (1964).
1210	Undef	T	0	Vainshtein, L., Presnyakov, L., Sobel'man, I., Excitation Of Atoms By Heavy Particles, SOVIET PHYS.-JETP 16 370 (1963).
1211	Undef	T	1	Valance, W. G., Schlag, E. W., Nonequilibrium Effects In Unimolecular Reaction Theory, J. CHEM. PHYS. 45 4280 (1966).
1212	Undef	T	1	Valance, W. G., Schlag, E. W., Theoretical Rate Constant For Thermal Unimolecular Reactions In A Multilevel System, J. CHEM. PHYS. 45 216 (1966).
1213	(H_2*)+(H_2,AR)	E	0	Valckx, F. P. G., Verveer, P., Dissociation Vibrationnelle Et Dissociation En Cascade D Ions H_2* Par Collisions Avec Les Molecules D Un Gaz, EUR-CEA-FC-357 (1966).
1214	(H_2*)+(H_2)	E	2	Valckx, F. P. G., Verveer, P., Excitation Des Niveaux Vibrationnels Et Dissociation Des Ions H_2* Par Impact Avec Les Molecules Du Gaz H_2, 4TH INT. CONF. PHYS. ELECTRON. ATOMIC COLLISIONS, P.333, SCIENCE BOOKCRAFTERS, NEW YORK (1965).
1215	(H_2)+(H_2,HE,NE,AR)	E	1	Valley, Leonard M., Amme, Robert C., Rotational Relaxation In Parahydrogen And Its Mixtures With Helium, Neon, And Argon At 300 Degrees K, J. CHEM. PHYS. 50 3190 (1969).
1216	(H_2*,H_3*)+(HE)	E	4	Van Den Bos, J., Winter, G., De Heer, F. J., Excitation Of Helium By H_2* And H_3* (1-150 Kev), PHYSICA 44 143 (1969).
1217	(H*)+(HE)	E	5	Van Den Bos, J., Winter, G. J., De Heer, F. J., Excitation Of Helium By Protons In The 1-150 Kev Region, PHYSICA 40 357 (1968).
1218	(H*)+(HE)	T	0	Van Den Bos, J., First Order Impact Parameter Treatment Of The Excitation Of Helium By Protons, PHYS. LETTERS 24A 329 (1967).
1219	(H*)+(H)	T	5	Van Den Bos, J., De Heer, F. J., Electron Excitation By Protons Impinging On Hydrogen Atoms In A First Order Impact Parameter Treatment, Errata, PHYSICA 40 161 (1968).
1220	(H*)+(HE)	T	5	Van Den Bos, J., Coupled-State Calculations Of Proton-Helium Scattering, PHYS. REV. 181 191 (1969).
1221	(H*)+(H)	T	5	Van Den Bos, J., De Heer, F. J., Electron Excitation By Protons Impinging On Hydrogen Atoms In A First Order Impact Parameter Treatment, PHYSICA 34 333 (1967).
1222	(HE)+(HT)	T	1	Van De Ree, J., Classical Scattering Of An Atom From An Asymmetric Molecule, PHYSICA 37 553 (1968).
1223	(H*)+(HE)	T	5	Van Den Bos, J., Excitation Of Helium By Protons And Electrons, PHYSICA 42 245 (1969).
1224	(H*)+(HE)	E	4	Van Eck, J., De Heer, F. J., Kistemaker, J., Excitation Processes In Helium And Polarization Of The Resulting Light Induced By Proton Impact (5-35 Kev), PHYSICA 28 1184 (1962).
1225	(H*,HE*)+(NE,AR,KR)	E	4	Van Eck, J., De Heer, F. J., Kistemaker, J., Excitation Of Ne, Ar, And Kr Induced By H* And He* Impact (5-35 Kev), PHYS. REV. 130 656 (1963).
1226	(H*,H)+(HE)	E	4	Van Eck, J., De Heer, F. J., Kistemaker, J., Excitation Of Helium By Protons And Hydrogen Atoms And Polarization Of The Resulting Radiation, PHYSICA 30 1171 (1964).

No.	REACTANTS	EXP OR THEOR.	E RANGE	REFERENCE
1227	$(H^+,H)+(HE)$	E	4	Van Eck, J., De Heer, F. J., Kistemaker, J., Excitation Of Helium And Polarization Of The Resulting Light Induced By Collisions With Protons And Hydrogen Atoms (5-35 Kev), ATOMIC COLLISION PROCESSES, P.626, NORTH-HOLLAND PUBL. CO., AMSTERDAM (1964).
1228	$(LI^+)+(H_2,HE)$	E	4	Van Eck, J., De Heer, F. J., Kistemaker, J., Interaction Of Li^+ Ions With H2 And He In The Energy Range Of 5 To 35 Kev, PROC. 5TH INT. CONF. IONIZATION PHENOMENA GASES, MUNICH, 1 56 (1961).
1229	$(NE)+(NE)$	E	0	Van Thih, F., Selective Excitation Of Neon Atoms By The Addition Of Helium, SOVIET PHYS. - DOKL. 9 601 (1965).
1230	$(C_2)+(NO)$	E	0	Van Tiggelen, A., Experimental Study Of Chemi-Ionization In Flames, AD-404 076 (1963).
1231	$(H^+,H_2^+)+(H_2,N_2,O_2)$ $(D^+,D_2^+,HE^+)+(H_2,D_2)$	E	4	Van Zyl, B., Jaecks, Duane, Pretzer, Donovan, Geballe, Ronald, Lyman - Alpha Radiation Resulting From Ion Collisions With Molecular Gases, PHYS. REV. 158 29 (1967).
1232	$(H^+)+(H_2,N_2)$ $(D^+,HE^+)+(H_2)$ $(H_2^+)+(HE,NE,AR,KR,XE)$ (Cat. by Abstract Only)	E	4	Van Zyl, B., Lyman Alpha Emission From Collisions Involving Molecular Systems, THESIS, UNIV. OF WASHINGTON (1963).
1233	$(H_2^+,D_2^+)+(HE,NE,AR,XE,KR)$	E	4	Van Zyl, B., Jaecks, D., Pretzer, D., Geballe, R., Lyman-Alpha Emission Cross Sections For H_2^+ And D_2^+ Collisions With The Rare Gases, PHYS. REV. 136 A1561 (1964).
1234	Undef	T	2	Vanderslice, Joseph T., Weissman, Stanley, On The Theory Of Vibrational Energy Exchange, J. CHEM. PHYS. 37 2247 (1962).
1235	$(AR^*)+(AR)$ $(N_2^*)+(N_2)$ $(H_2^*)+(H_2)$	E	3	Varney, R. N., Metastable Atoms And Molecules. II. Interactions Of Metastable Atoms And Molecules Of Ar, N2, And H2 With Metal Targets, PHYS. REV. 157 116 (1967).
1236	$(HE^+)+(HE)$	E	4	Vassilev, Georges, Baudon, Jacques, Rahmat, Gabriel, Barat, Michel, Etude Des Excitations Dans Les Collisions Ion-Atome Aux Basses Energies Par Une Methode De Coincidences Ion-Photon, COMPT. REND. B 271 1170 (1970).
1237	$(NE^*)+(NE)$	T	1	Vdovin, Yu. A., On Atomic Collisions In Gas Lasers, OPT. SPECTROS. 25 249 (1968).
1238	$(XE^*)+(CD)$	E	1	Vesnicheva, G. A., Penkin, N. P., An Estimate Of The Effective Cross Sections For Collisions Of The Second Kind Between Cadmium And Xenon Atoms, OPT. SPECTROS. 23 453 (1967).
1239	$(H,HE,H_2)+(H_2)$	T	0	Victor, G. A., Dalgarno, A., Anisotropies Of Long Range Intermolecular Forces And Rotational Excitation, P. 232, 5TH INT. CONF. ON COLLISIONS, LENINGRAD (1967).
1240	Undef	T	0	Vinogradov, A. V., On The Excitation Of Atoms By Heavy Particles, OPT. SPECTROS. 22 361 (1967).
1241	$(H)+(N_2,H_2)$ (Cat. by Abstract Only)	T	0	Vinogradov, A. V., Polushkov, I. A., The Excitation Of Atoms By Neutral Particles, HIGH TEMP. 4 1 (1966).
1242	Undef	T	5	Vinogradov, A. V., Urnov, A. M., Transition To The Semi-Classical Limit In Problems Of Inelastic Collisions Of Heavy Charged Particles, OPT. SPECTROS. 29 344 (1970).
1243	$(H_2^+)+(H_2,D_2,HE,NE,AR,KR,XE)$ $(D_2^+)+(AR)$	E	4	Vogler, M., Seibt, W., Collision-Induced Dissociation Of H_2^+ And D_2^+ Ions, Z. PHYS. 213 337 (1968).
1244	$(H^+,H_2^+)+(AR)$ (Cat. by Abstract Only)	E	5	Volz, Donald James, Auto-Ionizing Electrons From Argon With Energies 150-213 Ev As Produced By H^+ And H_2^+ Impacts, THESIS, UNIV. OF NEBRASKA (1965).
1245	$(NA^*)+(NE,AR)$ $(KR^*)+(KR,AR)$ $(CS^*)+(NE)$ (Cat. by Abstract Only)	E	0	Voronin, A. I., Kolivitza, V. A., Cross Sections For Transitions Between Fine Structure Components Of Second Group Excited Atoms Induced By Collisions With Noble Gas Atoms, THEORET. CHIM. ACTA 8 334 (1967).
1246	$(CD^*)+(CD)$	T	1	Voronin, A. I., Nikitin, E. E., Cross Sections For Transitions Between Fine Structure Components Of Atoms Of Group II. Collisions Between Identical Atoms, OPT. SPECTROS. 25 450 (1969).
1247	$(H^+)+(HE)$	T	3	Vriens, L., De Heer, F. J., Bos, J. V. D., Pousse, H. B. Poustafs, Excitation Of Helium By Electrons And Protons. A Theoretical Interpretation Of New Experimental Results, P. 491, 5TH INT. CONF. ON COLLISIONS, LENINGRAD (1967).
1248	$(H^+)+(HE)$	T	5	Vriens, L., Carriere, J. D., Analytical Representations Of Generalized Oscillator Strengths Excitation Cross Sections And Polarization Fractions, PHYSICA 49 517 (1970).
1249	$(H^+)+(HE)$	T	5	Vriens, L., Excitation Of Helium By Electrons And Protons, PHYS. REV. 160 100 (1967).
1250	$(H)+(H)$	T	2	Waech, Theodore G., Bernstein, Richard B., Calculated Spectrum Of Quasibound States For H2 (Sup 1 Sigma Sub G+) And Resonances In H-H Scattering, J. CHEM. PHYS. 46 4905 (1967).
1251	$(O^*)+(O_2)$	E	0	Wallace, L., Chamberlain, J. W., Excitation Of O2 Atmospheric Bands In The Aurora, PLANET. SPACE SCI. 2 60 (1959).
1252	$(HE^*)+(HE)$	E	1	Walters, G. K., Colegrove, F. D., Schearer, L. D., Nuclear Polarization Of He^3 Gas By Metastability Exchange With Optically Pumped Metastable He^3 Atoms, PHYS. REV. LETTERS 8 439 (1962).
1253	Review	T	0	Walton, G. N., Hot Electron Chemistry. A Review Of Hot Atom Chemistry, RADIO CHIM. ACTA. 2 108 (1964).
1254	Undef	T	0	Watanabe, Tsutomu, Collisional Excitation Transfer Of S-P Type Between Identical Atoms, 4TH INT. CONF. PHYS. ELECTRON. ATOMIC COLLISIONS 47 (1965), SCIENCE BOOKCRAFTERS, NEW YORK.

	REACTANTS	EXP OR THEOR.	E RANGE	REFERENCE
1255	$(HE^{**})+(AR,NE,N_2,CH_4)$	E	5	Ward, A., The Emission Of Light In The Passage Of Alpha Particles Through Gases, PROC. PHYS. SOC., LONDON 67A 841 (1954).
1256	$(HE)+(N_2)$	T	2	Wartell, M. A., Cross, R. J., Jr., The Sudden Approximation As Applied To Vibrationally Inelastic Scattering, CHEM. PHYS. LETTERS 5 477 (1970).
1257	(H)+(H) (HE)+(HE) (LI)+(LI) (NE)+(NE) (NA)+(NA) (AR)+(AR)	T	1	Watanabe, T., Erratum Collisional Excitation Transfer Of S-P Type Between Identical Atoms, PHYS. REV. 135 AB1 (1965).
1258	(H)+(H) (HE)+(HE) (LI)+(LI) (NE)+(NE) (NA)+(NA) (AR)+(AR)	T	1	Watanabe, T., Collisional Excitation Transfer Of S-P Type Between Identical Atoms, PHYS. REV. 138 A1573 (1965).
1259	(H)+(H) (HE)+(HE) (LI)+(LI) (NE)+(NE) (NA)+(NA) (AR)+(AR)	T	1	Watanabe, T., Erratum Collisional Excitation Transfer Of S-P Type Between Identical Atoms, PHYS. REV. 140 AB5 (1965).
1260	Undef (Cat. by Abstract Only)	T	1	Watanabe, Tsutomu, Collisional Excitation Transfer In The Gas Phase, ADVAN. CHEM. PHYS. 42 176 (1968).
1261	$(H^{+},LI^{+},NA^{+},K^{+})+(RB^{+})$	T	2	Watanabe, Tsutomu, Koike, Fumihiro, Tsunematsu, Toshihide, Vibrational And Rotational Excitations Of H_2^+ By Collision With Positive Ions, J. PHYS. SOC., JAP. 29 1335 (1970).
1262	Undef (Cat. by Abstract Only)	T	0	Weare, John Healy, Investigations Of Vibrational Energy Exchange, Zero-Differential-Overlap Theory Of Molecular Structure, And Atomic Orbital Approximations, THESIS, JOHN HOPKINS UNIV. (1960).
1263	$(HE^{+})+(CD,ZN)$	T	2	Webb, C. E., Turner-Smith, A. R., Green, J. M., Optical Excitation In Charge Transfer And Penning Ionization, J. PHYS. B 3 L134 (1970).
1264	$(NA^{+})+(O^{-})$	E	2	Weiner, John, Peatman, William B., Berry, R. Stephen, Electron Transfer Form O^- To The 3 P Level Of Na^+ In 0- To 7-Ev Collisions, PHYS. REV. LETTERS 25 79 (1970).
1265	$(N_2^{*})+(N)$	E	0	Weinreb, Michael P., Mannella, Gene G., Quenching Of N_2 (A^3 Sigma Sub U+) In High Vibrational Levels By Nitrogen Atoms, J. CHEM. PHYS. 50 3125 (1969).
1266	$(H)+(CH_4,C_2H_6,C_2H_4)$	E	2	Westenberg, A. A., De Haas, N., Atom-Molecule Kinetics Using Esr Detection. V. Results For C + Ocs, O + Cs2, O + No2, And H + C2h4, J. CHEM. PHYS. 50 707 (1969).
1267	$(N_2)+(H_2)$	E	2	White, Donald R., Vibrational Relaxation Of N_2 In N_2-H_2 Mixtures, J. CHEM. PHYS. 46 2016 (1967).
1268	$(O_2)+(NE,AR)$	E	0	White, D. R., Millikan, R. C., Oxygen Vibrational Relaxation In O2-He And O2-Ar Mixtures, J. CHEM. PHYS. 39 1807 (1963).
1269	Undef	T	0	Widom, B., Some Aspects Of The Theory Of Vibrational Transition Probabilities In Molecular Collisions, DISC. FARADAY SOC. 33 37 (1962).
1270	$(CO_2)+(H_2O)$	T	1	Widom, Benjamin, Bauer, S. H., Energy Exchange In Molecular Collisions, J. CHEM. PHYS. 21 1670 (1953).
1271	$(H^{+})+(H)$	T	4	Wilets, L., Gallaher, D. F., Coupled-State Calculations Of H+-H Scattering, PHYS. REV. 147 13 (1966).
1272	Undef	T	1	Wilson, David J., Quantum Vibrational Transition Probabilities In Diatomic-Diatomic-Molecule Collisions, J. CHEM. PHYS. 53 2075 (1970).
1273	$(K)+(BR_2)$ $(CS)+(BR_2,ICL,IBR,I_2)$	E	3	Wilson, K. R., Kwei, G. H., Norris, J. A., Herm, R. R., Birely, J. H., Herschbach, D. R., Reactive Scattering In Molecular Beams Evidence For A Stripping Mechanism In Reactions Of Alkali Atoms With Halogens, J. CHEM. PHYS. 41 1154 (1964).
1274	$(H_2^{+})+(AIR)$	E	5	Wind, H., Threshold Electrical Field For Dissociation Of The H2+ Ion, PROC. PHYS. SOC., LONDON 84 617 (1964).
1275	$(CO_2)+(CO_2)$	T	1	Witteman, W. J., Vibrational Relaxation In Carbon Dioxide, J. CHEM. PHYS. 35 1 (1961).
1276	$(O^{+})+(N_2,NO,O_2)$ $(N^{+})+(O_2)$ $(N_2^{+})+(NE)$ $(NE^{+})+(N_2)$	T	2	Wolf, Fred A., Computer Calculations Of Ion - Molecule Reactions, J. CHEM. PHYS. 44 1619 (1966).
1277	$(HE^{+})+(HE,NE,AR,KR,XE)$ $(H^{+})+(HE)$	E	5	Wolterbeek Muller, L., De Heer, F. J., Electron Capture Into Excited States By Helium Ions Incident On Noble Gases, PHYSICA 48 345 (1970).
1278	$(O_2,D_2)+(AR)$ $(O_2)+(XE)$	T	1	Woznick, B. J., Monte Carlo Investigation Of Coupled Vibrational-Rotational Transition Rates, AERL-223 (1965).
1279	$(N_2^{-})+(N_2)$	E	1	Wray, Kurt L., Excitation Studies On The N2(1+) And N2+(1-) Systems In Shock-Heated N-N2 Mixtures, J. CHEM. PHYS. 44 623 (1966).
1280	$(N)+(N_2)$	E	2	Wray, K. L., Teare, J. D., Excitation Mechanism For The N2(1+) Band System In Shock-Heated Nitrogen, ATOMIC COLLISION PROCESSES, P.1123, NORTH-HOLLAND PUBL. CO., AMSTERDAM (1964).
1281	$(N,N_2)+(N_2)$	E	1	Wray, K. L., Excitation Studies On The N2 (1 +) And N2+ (1-) Systems In Shock-Heated N - N2 Mixtures, AD-469 638 (1965).
1282	$(H)+(H_2)$	T	1	Wyatt, Robert E., Quantum Mechanics Of The H + H, Reaction Investigation Of Vibrational Adiabatic Models, J. CHEM. PHYS. 51 3489 (1969).
1283	$(HE^{*})+(NE)$	E	1	Yabuzaki, Tsutomu, Ogawa, Toru, Double Resonance Of Neon In He-Ne Laser Operating At 6328-Angstrom Transitions, J. APPL. PHYS. 39 4477 (1968).
1284	$(HE^{+})+(C)$	T	5	Yager, R. E., Lane, N. F., Collisional Excitation Of He^+ Ions By Carbon Atoms, J. PHYS. B 2 1060 (1969).
1285	$(HE^{+})+(C)$ (Cat. by Abstract Only)	E	0	Yager, Robert Eugene, A Model For Beam-Foil Excitation Of He^+, THESIS, RICE UNIV. (1969).
1286	$(N_2^{*})+(AL)$	E	2	Yamashita, T., The Series ($3s^2$ Nd,^{2}d Going To $3s^2$ ^{2}p,^{2}p) Of Atomic Aluminum Excited In Active Nitrogen, SCI. LIGHT (TOKYO) 14 28 (1965).
1287	$(O_2^{*},NO^{*})+(CH_4)$	E	2	Yardley, James T., Moore, C. Bradley, Vibration Going To Vibration And Vibration Going To Translation Energy Transfer In Methane-Oxygen Mixtures, J. CHEM. PHYS. 48 14 (1968).

	REACTANTS	EXP OR THEOR.	E RANGE	REFERENCE
1288	(CO,°)+(HE,HE,AR,AR,AE)	E	2	Yardley, James T., Moore, C. Bradley, Intramolecular Vibration-To-Vibration Energy Transfer In Carbon Dioxide, J. CHEM. PHYS. 46 4491 (1967).
1289	(N,O°)+(N,O,HE,HE,AR,AR,N,,O,)	E	2	Yardley, James T., Vibration-To-Vibration Energy Transfer In Gas Mixtures Containing Nitrous Oxide, J. CHEM. PHYS. 49 2816 (1968).
1290	(CO)+(CO)	E	2	Yardley, James T., Vibrational Energy Transfer In Co-Ie Lasers, J. CHEM. PHYS. 52 5983 (1970).
1291	(CO,°)+(C),)	T	2	Yardley, James T., Measurement Vibration-To-Vibration Energy Transfer Due To Dipole-Dipole Interactions, J. CHEM. PHYS. 50 2464 (1969).
1292	(CH,°)+(CH,)	E	2	Yardley, James T., Moore, C. Bradley, Vibrational Energy Transfer In Methane, J. CHEM. PHYS. 49 111 (1968).
1293	(N,°)+(NO°) (O,°)+(O,,N,,CO,N,O,NO, CO,) (O°)+(O,)	E	0	Young, R. A., Black, G., St. John, G. A., Collision Energy Transfer Between Simple Species, P. 518, 5Th INT. CONF. ON COLLISIONS, LENINGRAD (1967).
1294	(N)+(NO)	E	1	Young, R. A., Clark, R. C., Excitation Of The Auroral Green Line In Nitrogen Afterglow, PLANET. SPACE SCI. 3 165 (1960).
1295	(NO)+(O,N) (NO°,NO,°)+(O) (O,°)+(N) (O,°)+(J,,N,)	E	2	Young, R. A., Sharpless, R. L., Excitation Of The O2 Bands In The Nightglow, J. GEOPHYS. RES. 67 3871 (1962).
1296	(HE°)+(N,) (HE°,HE°,AR°)+(H)	E	4	Young, R. A., Stebbings, R. F., Mc Gowan, J. W., Lyman-Alpha Production And Polarization In He° Collisions with H And N,, PHYS. REV. 171 85 (1968).
1297	(H°)+(N,)	E	5	Young, S. J., Murray, J. S., Sheridan, J. M., Measurement Of An Emission Cross Section For The Collision Reaction H° + N2(a' Sigma Sub G+, Nu Equals 0) Going To N(3p,3d) + N2+ (B2 Sigma Sub U+, Nu Equals 0) Using Photon-Coincidence Techniques, PHYS. REV. 170 43 (1969).
1298	(N,°)+(NO)	E	1	Young, Robert A., St. John, Gilbert A., Experiments On N2(a' Sigma Sub U+). III. Excitation Of No, J. CHEM. PHYS. 48 2572 (1968).
1299	(O,)+(O,)	E	1	Young, R. A., Sharpless, R. L., Simple Atomic Association And The Earth S Airglow, ANN. GEOPHYS. 20 536 (1964).
1300	(N,°)+(NO)	E	2	Young, Robert A., St. John, Gilbert A., Experiments On N2(a' Sigma Sub U+). II. Excitation Of No, J. CHEM. PHYS. 48 [illegible] (1968).
1301	(N,°,NO°)+(N,O,NO)	E	2	Young, R. A., Black, G., Slanger, T. G., Vacuum-Ultraviolet Photolysis Of N, O. II. Deactivation Of N, (A3 Sigma Sub U+) And N, (B3 Pi Sub G), J. CHEM. PHYS. 50 303 (1969).
1302	(O°,O,°)+(O,) (O°)+(O,)+(HE)	E	2	Young, Robert A., Black, Graham, Deactivation of O (Sup 1 D), J. CHEM. PHYS. 47 2311 (1967).
1303	(N)+(O)	E	2	Young, R. A., Sharpless, R. L., Excitation Of The Beta, Gamma, Delta, And Epsilon Bands Of Nitric Oxide In The Association Of Atomic Nitrogen And Oxygen, DISC. FARADAY SOC. 33 220 (1962).
1305	(ZN)+(ZN)	E	3	Zapesochnyi, I. P., Zavilopulo, A. N., Shpenik, O. B., Transfer Of Excitation Energy In Ion-Atom Interaction, OPT. SPEKTROSK. 28 465 (1970).
1307	(H)+(H,)+(O,) (H,)+(N,O,HO) (Cat. by Abstract Info)	E	0	Zaslonko, I. S., Rogarko, S. M., Pozzhukhin, I. V., Electronic And Vibrational Excitations In Reactions Of Hydrogen With Oxygen At High Temperatures, IZV. AKAD. NAUK SSSR, SER. KHIM. 1 31 (1970).
1308	(LI°)+(N,,HO) (Cat. by Abstract Info)	E	3	Zehr, Floyd Joseph, The Elastic Scattering Of Lithium Ions In Helium And Hydrogen, THESIS, SYRACUSE UNIV. (1967).
1309	Undef	T	2	Zelechow, Ann, Rapp, Donald, Sharp, Terry E., Vibrational-Vibrational-Translational Energy Transfer Between Two Diatomic Molecules, J. CHEM. PHYS. 49 286 (1968).
1310	Review	E	2	Zhitkevich, V. F., Lyuty, A. I., Nesterko, N. A., Rassikhin, V. S., Tsikora, I. L., Excitation Of Atomic Spectra In The Reaction Zone Of The Acetylene Air Flame, OPT. SPECTROS. 14 188 (1963).
1311	(HE°)+(HE)	E	5	Ziemba, F. P., Everhart, E., Resonance Phenomena In Large-Angle Helium Ion-Helium Atom Collisions, PHYS. REV. LETTERS 2 299 (1959).
1312	(CO°)+(CO)	T	1	Zittau, Carl F., Moore, William M., Vibrational Energy Transfer In A System Of Radiating Oscillators, J. CHEM. PHYS. 49 1259 (1968).
1313	Undef	T	2	Szabo, I., Theoretical Analysis Of Consecutive Ion-Molecule Reactions. I. The Mechanism In A Tandem Mass Spectrometer Of Perpendicular Type, INT. J. MASS SPECTROP. IGN PHYS. 3 103 (1969).
1314	(N,)+(HE,O,,N,)	E	0	Miyanishi, Michiko, Matadani, Kunihiko, The Effect Of Hydrogen Gas On The Excitation Of Auroral Green Line Lambda 5577 In Discharge Tubes, J. PHYS. SOC. JAP. 7 69 (1952).

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Section II

Bibliography of Atomic and Molecular Excitation in Heavy Particle Collisions

1971-75

HEAVY PARTICLE COLLISIONS

1972-75

EXCITATION

	REACTANTS	EXP OR THEOR.	E RANGE	REFERENCE
1	(H+)+(HE,NE,AR,KR,XE)	E	3	Abignoli, M., Barat, M., Baudon, J., Fayeton, J., Houver, J. C., Differential Measurements In Ion - Atom Collisions In The Energy Range 100-3000 Ev. IV. H+ Noble Gas Atom Collisions, J. PHYS. B 5 1533 (1972).
2	(NA+)+(NE)	E	3	Afrosimov, V. V., Gordeev, Yu. S., Lavrov, V. M., Differential Cross Sections Of Electron Transitions In Na+ - Ne Collisions, VIII ICPEAC, P.190, INSTITUTE OF PHYSICS, BEOGRAD, YUGOSLAVIA (1973).
3	(NA+,K+)+(NE,AR)	E	3	Afrosimov, V. V., Gordeev, Yu. S., Lavrov, V. M., Nikulin, V. K., Inelastic Transitions And Scattering In The Collisions Of Na+ And K+ Ions With Atoms Of Noble Gases, VII ICPEAC, P.263, NORTH-HOLLAND PUBL. CO., AMSTERDAM (1971).
4	(NE+)+(NE) (KR+)+(KR)	E	3	Afrosimov, V. V., Gordeev, Yu. S., Polyanskii, A. M., Shergin, A. P., Inelastic Energy Losses In Electron Transitions In Ne+ - Ne And Kr+ - Kr Collisions, SOVIET PHYS.-TECH. PHYS. 17 103 (1972).
5	(HE+,N+,NE+,CL+,NE)+(AR)	E	4	Afrosimov, V. V., Gordeev, Yu. S., Polyanskii, A. M., Shergin, A. P., Inelastic Energy Loss And Ionization In Excitation Of Outer And Inner Electron Shells During Atomic Collisions, SOVIET PHYS.-JETP 36 418 (1973).
6	(NA+)+(NE)	E	3	Afrosimov, V. V., Gordeev, Yu. S., Lavrov, V. M., Differential Cross Sections Of Electron Transitions In Na+ - Ne Collisions, VIII ICPEAC, P.130, INSTITUTE OF PHYSICS, BEOGRAD (1973).
7	(HE++)+(HE)	E	4	Afrosimov, V. V., Leiko, G. A., Panov, M. N., Formation Of He+ Ions In Various Excited States By Electron Capture In He++ He Collisions, IX ICPEAC, P.143, UNIVERSITY OF WASHINGTON PRESS, SEATTLE, WASHINGTON (1975).
8	(K+)+(AR)	E	3	Afrosimov, V. V., Bobashev, S. V., Gordeev, Yu. S., Lavrov, V. M., Investigation Of Inelastic Processes Occurring During Collisions Between K+ Ions And Ar Atoms, SOVIET PHYS.-JETP 35 34 (1972).
9	(KR+)+(AR)	E	4	Afrosimov, V. V., Gordeev, Yu. S., Lavrov, V. M., Ugartsov, V. K., Influence Of Kinematics Of Inelastic Atomic Collisions On The Optical Spectra And Spectra Of Ejected Electrons, VII ICPEAC, P.420, NORTH-HOLLAND PUBL. CO., AMSTERDAM (1971).
10	(K+)+(AR)	E	3	Afrosimov, V. V., Gordeev, Yu. S., Lavrov, V. M., Ugartsov, V. K., Making A Medium Translucent To Radiation Excited By A Directed Stream Of Atomic Particles, SOVIET PHYS.-JETP LETTERS 14 275 (1971).
11	(HD+)+(HD,HE)	E	1	Akins, D. L., Collisional Broadening Cross - Sections For HD+ (Beta1 Sigma Sub U+) - HD (Chi1 Sigma Sub G+) And HD+ (Beta1 Sigma Sub U+) - He From Peak - Absorbancy Measurements, J. QUANT. SPECTROS. RADIATIVE TRANSFER 12 1357 (1972).
12	(NE+)+(NE)	E	5	Albat, R., Gruen, N., Wirsam, B., Theoretical Investigation Of The Production Of 2s Vacancies In Ne+ Ne Collisions Using A Quasi-Molecular Model, J. PHYS. B 8 2520 (1975).
13	(H+)+(NE)	T	3	Albat, R., Gruen, N., Born And Four-State Calculations For The Excitation Of The (2p)5 3s And (2p)5 3p Levels Of Neon By Proton Impact, J. PHYS. B 8 952 (1975).
14	(H+)+(NE)	T	4	Albat, R., Gruen, N., Born Cross Sections For The Excitation Of The Lowest Resonance Level Of Neon Using Elaborate CI Wavefunctions, J. PHYS. B 7 L9 (1974).
15	(H+)+(AR)	T	4	Albat, R., Gruen, N., Wirsam, B., Calculated Born And Four-State Cross Sections Of Low Lying Ar Levels Excited By Proton And Electron Impact, J. PHYS. B 8 L82 (1975).
16	(N_2+)+(N_2)	E	1	Alderson, R. J., Brocklehurst, M., Excitation Of N_2+ By Vibrating Nitrogen Molecules, Z. NATURFORSCH. 27A 1539 (1972).
17	(HE+)+(CD,ZN,TE,HG)	E	1	Aleinikov, V. S., Ushakov, V. V., Spectroscopic Study Of A Charge - Exchange Phenomenon Between Helium Ions And Atoms Of Zn, Cd, Hg, OPT. SPECTROS. 33 116 (1972).
18	(HE)+(H_2)	T	2	Alexander, M. H., Berard, E. V., Potential Surface Dependence Of Vibrationally Inelastic Collisions Between He And H_2, J. CHEM. PHYS. 60 3950 (1974).
19	(H_2)+(D_2)	E	2	Alexander, M. H., Fully Quantum Study Of Vibrational Energy Transfer Between H_2 And D_2, J. CHEM. PHYS. 60 4274 (1974).
20	(HE)+(H_2)	T	2	Alexander, M. H., Effective Potential Study Of Rotationally-Vibrationally Inelastic Collisions Between He And H_2, J. CHEM. PHYS. 61 5167 (1974).
21	(NA+)+(K)	E	1	Allegrini, M., Alzetta, G., Moi, L., Giulietti, D., Measured Cross-Sections For Na+ - K Electronic Transfer, NUOVO CIMENTO B (ITALY) 28 69 (1975).
22	(N+,O+,NA+,MG+)+(NE)	E	3	Andersen, T., Nielsen, A. K., Olsen, K. J., Phase-Interference And Optical-Polarization Effects In Radiation From Low-Energy Collisions Between N+, O+, Na+, Or Mg+ Ions And Ne Atoms, PHYS. REV. LETTERS 31 739 (1973).

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	REACTANTS	EXP OR THEOR.	E RANGE	REFERENCE
23	(LI+)+(HE)	E	3	Andersen, N., Nielsen, [illegible], Veje, E., Optical Radiation From The Li+ - He Collision, VIII ICPEAC, P.[illegible], INSTITUTE OF PHYSICS, BEOGRAD, YUGOSLAVIA (1973).
24	(K)+(AR)	E	3	Andersen, P., Duren, R., Oscillations In The Cross Sections For Electronic Excitation In Heavy Particle Collisions, CHEM. PHYS. LETTERS 27 114 (1974).
25	(LI+)+(HE)	E	4	Andersen, N., Jensen, K., Veje, E., Collisions Induced Excitation Of Doubly Excited Li I Levels, VII ICPEAC, P.[illegible], NORTH-HOLLAND PUBL. CO., AMSTERDAM (1971).
26	(LI+)+(HE)	E	4	Andersen, N., Carriveau, G. W., Jensen, K., Veje, E., Fine-Structure And Hyperfine-Structure Effects In The [illegible] + He Collisions, VII ICPEAC, P.944, NORTH-HOLLAND PUBL. CO., AMSTERDAM (1971).
27	(BE+,MG+)+(HE)	E	4	Andersen, N., Jensen, K., Jepsen, J., Melskens, J., Veje, E., Rydberg State Excitations In Collisions Of Be+ And Mg+ With He, VIII ICPEAC, P.[illegible], INSTITUTE OF PHYSICS, BEOGRAD, YUGOSLAVIA (1973).
28	(LI+,NE+)+(HE,NE,AR)	E	4	Andersen, C., Carriveau, G. W., Jensen, K., Veje, E., A Study Of Isotopical Effects In Atomic Collisions, Z. PHYS. [illegible] 97 (1971).
29	(C+,N+,O+,F+,NE+,NA+,MG+)+(HE,NE)	E	4	Andersen, N., Jensen, K., Jepsen, J., Martin, P. J., Veje, E., Woolley, A. M., Outer Shell Excitation Of He And Ne Using Projectiles Of C+, N+, O+, F+, [illegible] Ne+, [illegible] Ne+, Na+ And Mg+, Z. PHYS. 255 1 (1972).
30	(LI+)+(HE)	E	4	Andersen, N. J., Jensen, K., Veje, E., Nielsen, [illegible], An Optical Study Of The Li+ He Collision From 2 To 75 Kev, Z. PHYS. [illegible] 34[illegible] (1973).
31	(LI+,BE+,B+,C+,N+,O+,F+,NE+,NA+,MG+, AL+)+(HE)	E	4	Andersen, T., Nielsen, A. K., Olsen, K. J., Quasimolecular State Interference Studies Collisions Between Ions Ranging From Li+ To Al+ And He Atoms, PHYS. REV. A 10 [illegible] (1974).
32	(BE+,MG+)+(HE)	E	4	Andersen, N., Jensen, K., Jepsen, J., Melskens, J., Veje, E., Excitation Of Projectile Rydberg States In The Collisions Be+ - He And Mg+ - He, 10-75 Kev, Z. PHYS. A 273 [illegible] (197[illegible]).
33	(MG+)+(HE,NE)	E	4	Andersen, N., Jensen, K., Andersen, T., 3P - 3S [illegible] Excitation And Polarization In Mg+ - Noble Gas Collisions, IX ICPEAC, P.623, UNIVERSITY OF WASHINGTON PRESS, SEATTLE, WASHINGTON (1975).
34	(O+)+(NE)	E	3	Andersen, T., Nielsen, A. K., Olsen, K. J., Phase-Interference Effects In Low-Energy Collisions Between O+ Ions And Ne Atoms, VIII ICPEAC, P.21[illegible], INSTITUTE OF PHYSICS, BEOGRAD, YUGOSLAVIA (1973).
35	(O+)+(NE)	E	4	Andersen, T., Nielsen, A. K., Olsen, K. J., Phase-Interference Effects In Low-Energy Collisions Between O+ Ions And Ne Atoms, VIII ICPEAC, P.21[illegible], INSTITUTE OF PHYSICS, BEOGRAD, YUGOSLAVIA (1973).
36	(LI+)+(HE)	E	3	Andersen, N., Nielsen, [illegible], Veje, E., Optical Radiation From The Li+ - He Collision, VIII ICPEAC, P.[illegible], INSTITUTE OF PHYSICS, BEOGRAD, YUGOSLAVIA (1973).
37	(K)+(N_2)	T	2	Andreev, E. A., Electron-Vibrational Transitions Resulting From Collisions Of Atoms Of Alkali Metals With A Nitrogen Molecule, HIGH TEMP. 10 637 (1972).
38	(K)+(N_2)	T	3	Andreev, E. A., Electron Transfer In Atomic-Molecular Collisions, THEOR. CHIM. ACTA (GERMANY) 34 73 (1974).
39	(NA+)+(HE,NE)	T	4	Ankudinov, V. A., Bobashev, S. V., Perel, V. I., Oscillations In The Total Cross Sections For Inelastic Processes During Atomic Collisions, SOVIET PHYS.-JETP 33 490 (1971).
40	(C+)+(H_2)	E	2	Appell, J., Brandt, D., Ottinger, Ch., Chemiluminescent Ion-Molecule Reactions In The System C+ + H_2, CHEM. PHYS. LETTERS 33 131 (1975).
41	(LI+,NA+,K+)+(NA)	E	2	Aquilanti, V., Liuti, G., Vecchio-Cattivi, F., Volpi, G. G., Electronic Excitation In Crossed Beams Of Alkali Ions And Sodium Atoms, ENTROPIE 42 158 (1971).
42	(NA+,K+,LI+)+(NA)	E	3	Aquilanti, V., Liuti, G., Vecchio-Cattivi, F., Volpi, G. G., Cross - Sections For Electronic Excitation In Low Energy Collisions Between Alkali Ions And Alkali Atoms, VII ICPEAC, P.600, NORTH-HOLLAND PUBL. CO., AMSTERDAM (1971).
43	(LI+)+(NA,K) (NA+)+(K) (K+)+(NA)	E	3	Aquilanti, V., Bellu, G. P., Cross Sections For Direct And Charge Exchange Excitation In Some Alkali Ion-Atom Collisions, J. CHEM. PHYS. 61 1618 (1974).
44	(NA+)+(NA)	T	3	Aquilanti, V., A Three-State Description Of Excitation And Charge Transfer In Na+ Na Collisions, Z. PHYS. CHEM., FRANKFURT (GERMANY) 89 1 (1974).
45	(LI+,NA+,K+,RB+,CS+,MG+,CA+,SR+,BA+) +(CD)	E	3	Arbatskaya, A. N., Prokhorov, K. A., Suschinskii, M. M., Investigation Of The Angular Distribution Of The First Stokes Component For Stimulated Raman Scattering, SOVIET PHYS.-JETP 35 466 (1972).
46	(CSI)+(AR,XE) (CSCL)+(AR)	E	2	Armstrong, W. D., Conley, R. J., Creaser, R. P., Greene, E. F., Hall, R. B., The Elastic And Inelastic Scattering Of Diatomic Molecules By Atoms CsI + Ar, CsCl + Ar, CsI + Xe, J. CHEM. PHYS. 63 3349 (1975).
47	(HE+)+(NE,AR)	E	1	Arrathoon, R., Comparison Of The Thermal Energy Structure In He 2^3S - Ar And He 2^3S - Ne Second Kind Collision Rates, J. CHEM. PHYS. 60 1187 (1974).
48	(NE+)+(NE,N_2,CH_4)	T	5	Astner, G., Garcia, J. D., Liljeby, L., A Model For K-Vacancy Production In Asymmetric Ion-Atom Collisions, J. PHYS. B 8 L314 (1975).

	REACTANTS	EXP OR THEOR.	E RANGE	REFERENCE
49	(HE*)+(HE)	E	1	Aubes, M., Hocard, J. M., Determination Des Sections Efficaces De Collisions Atomiques He + He* (2³ S) Going To He + He* (3 S₁) (Sigma Sub T1) Et He + He* (2³ S) Going To He + He* (2 S₁) (Sigma Sub T3), COMPT. REND. 278B 5?? (1974).
50	(HE)+(CO,H₂)	T	1	Augustin, S. D., Miller, W. H., Classical Trajectory Study Of Rotational Excitation In Low Energy He-CO And He-H₂ Collisions, CHEM. PHYS. LETTERS 28 149 (1974).
51	(O*)+(HE)	T	2	Augustin, S. D., Miller, W. H., Pearson, P. K., Schaefer, H. F., III, Potential Curves And Inelastic Cross Sections For Low Energy Collisions Of O* And He, J. CHEM. PHYS. 58 2845 (1973).
52	(H*)+(H₂)	T	3	Azziz, N., Herrero, F. A., Menendez-Placido, M., High-Energy Behavior Of The Vibrational Excitation Cross Section Sigma₀₁ For H* H₂, PHYS. REV. A 11 1326 (1975).
53	(H*)+(H)	T	4	Band, Y. B., Electron Capture Into High Excited States In P + H Collisions, PHYS. REV. A 8 2866 (1973).
54	(H*)+(H)	T	4	Band, Y. B., Charge Exchange. II. Proton Hydrogen Atom Total And Excited State Cross Sections, PHYS. REV. A 8 2857 (1973).
55	(H*)+(HE,H₂)	T	5	Band, Y. B., Applicability Of Born Criteria To Charge Transfer Collisions, CAN. J. PHYS. 53 465 (1975).
56	(HE)+(HE)	T	5	Bangard, R. E., Szuster, M. J., Sexton, G. J., Ground-State Correlation Effects In He-He Inelastic Scattering, J. PHYS. B 8 21?? (1975).
57	(H*)+(BE,B*,C²*,N³*,O⁴*)	T	5	Bangard, R. E., Taylor, G. R., Generalized Oscillator Strengths For The (1 S² 2s²)¹ S Going To (1s² 2s 2p)¹ P Transition In Some Be Like Ions, PHYS. REV. A 10 1015 (1974).
58	(HE*)+(MG)	E	4	Baragiola, R. A., Salvatelli, E. R., Excited He Atoms From He* + Mg Collisions, IX ICPEAC, P.995, UNIVERSITY OF WASHINGTON PRESS, SEATTLE, WASHINGTON (1975).
59	(HE*)+(HE)	E	3	Barat, M., Brenot, J. C., Pommier, J., Effect Of G-U Symmetry On Direct And Exchange Excitations In Ion-Atom Scattering, J. PHYS. B 6 L105 (1973).
60	(HE*)+(HE) (H*)+(H)	E	3	Barat, M., Excitation And Ionization In Ion-Atom Collisions (Experimental Aspects), VIII ICPEAC, INVITED LECTURE, P.43, INSTITUTE OF PHYSICS, BEOGRAD, YUGOSLAVIA (1973).
61	(LI*)+(NE,AR,KR,XE)	E	3	Barat, M., Dhuicq, D., Francois, R., Sidis, V., Elastic And Inelastic Scattering Of Li* Ions By Rare Gases (Ne, Ar, Kr, Xe), J. PHYS. B 6 2072 (1973).
62	(HE*)+(HE)	E	3	Barat, M., Dhuicq, D., Francois, R., Mc Carroll, R., Piacentini, R. D., Salin, A., Inelastic Processes In He* + He Collisions, J. PHYS. B 5 1343 (1972).
63	(HE*)+(HE)	E	3	Barat, M., Brenot, J. C., Pommier, J., Differential Measurements For Electron Capture Processes In He* + He Collisions (0.3-3 Kev), VIII ICPEAC, P.194, INSTITUTE OF PHYSICS, BEOGRAD, YUGOSLAVIA (1973).
64	(HE)+(HE)	E	3	Barat, M., Dhuicq, D., Francois, R., Lesech, C., Mc Carroll, R., Ionization Processes In He-He Collisions, J. PHYS. B 6 1206 (1973).
65	(LI*)+(H₂)	T	2	Barg, G. D., Kendall, G. M., Toennies, J. P., Classical Monte Carlo Studies Of Elastic And Inelastic Collision Processes In The Li* + H₂ System, VIII ICPEAC, P.67, INSTITUTE OF PHYSICS, BEOGRAD, YUGOSLAVIA (1973).
66	(H₂*)+(H₂)	E	5	Barnett, C. F., Ray, J. A., Highly Excited States Of Hydrogen Molecules. II. H₂, PHYS. REV. A 5 2123 (1972).
67	(H*,H₂*,HD*)+(H₂)	E	5	Barnett, C. F., Ray, J. A., Russek, A., Highly Excited States Of Hydrogen Molecules. I. H₂, HD, And D₂, PHYS. REV. A 5 2110 (1972).
68	(HG*)+(HG)	T	1	Barrat, J. P., Vienne-Casalta, D., An Attempt To Compute Theoretically The Cross Section For Metastability Transfer Between Mercury Atoms In The 6³ S₀ And 6³ P₀ Levels, J. PHYS. (PARIS) 36 31? (1975).
69	(H*)+(HE)	E	5	Bartell, D. M., Hurst, G. S., Wagner, E. B., Time - Dependent Studies Of Vacuum - Ultraviolet Emissions From Helium, PHYS. REV. A 7 1068 (1973).
70	(H,D,HE,LI)+(AL,NI)	T	5	Basbas, G., Brandt, W., Laubert, R., Ratkowski, A., Schwarzschild, A., Projectile Charge Dependence Of K-Shell Ionization By Swift Light Nuclei, PHYS. REV. LETTERS 27 171 (1971).
71	(O)+(NH₃,CO₂)	T	2	Bass, J. N., Translation Of Vibration Energy Transfer In O + NH₃ And O + CO₂ Collisions, J. CHEM. PHYS. 60 2913 (1974).
72	(H*)+(H)	T	3	Basu, D., Bhadra, K., Ghosh, A. S., 1s - 3d Excitation Of Atomic Hydrogen By Electron And Proton Impact, VII ICPEAC, P.749, NORTH-HOLLAND PUBL. CO., AMSTERDAM (1971).
73	Undef	T	0	Bates, D. R., Semiclassical Treatment Of Inelastic Atomic Collisions, COMMENTS AT. MOL. PHYS. 3 23 (1971).
74	(H*)+(H)	T	2	Bates, D. R., Sprevak, D., Forced Common Turning Point Procedure And Excitation In Slow H* + H (1s) Collisions, CHEM. PHYS. LETTERS 12 424 (1971).
75	Review	T	0	Bates, D. R., Kingston, A. E., Use Of Classical Mechanics In The Treatment Of Collisions Between Massive Systems, ADVANCES IN ATOMIC AND MOLECULAR PHYSICS, 6 269, ACADEMIC PRESS, NEW YORK (1971).
76	(H*)+(H)	T	4	Bates, D. R., Reid, R. J., Impact Parameter Treatment Of H* - H Collisions, J. PHYS. B 7 117 (1974).

	REACTANTS	EXP OR THEOR.	E RANGE	REFERENCE
77	$(H_2^+)+(HE)$	T	3	Bowden, J., Classical Theory Of Elastic Scattering And Vibro-Rotational Dissociation In H_2^+ On He Collisions At Moderate Energies (3.5 Kev - 3 Kev), J. PHYS. B 6 458 (1973).
78	$(H^+)+(H)$	T	5	Baye, D., Heenen, P. H., A Theoretical Study Of Fast Proton Atomic Hydrogen Scattering, J. PHYS. B 6 105 (1973).
79	$(H^+)+(HE)$	T	5	Baye, D., Heenen, P. H., A Theoretical Study Of Proton-Helium Scattering, J. PHYS. B 6 1255 (1973).
80	Review	E	4	Bayfield, J. E., The Production And Detection Of Highly Excited States, IX ICPEAC, INVITED LECTURES, P.721, UNIVERSITY OF WASHINGTON PRESS, SEATTLE, WASHINGTON (1975).
81	$(H^+)+(H)$	E	4	Bayfield, J. E., Khayrallah, G. A., Koch, P. M., Production Of Fast Highly Excited Atoms In Proton Collisions With Atomic Hydrogen And Argon, PHYS. REV. A 9 209 (1974).
82	$(HE^{2+})+(H)$	E	4	Bayfield, J. E., Khayrallah, G. A., Electron Transfer In Few-Energy He^{2+} Collisions. III. Experimental Tests Of The Close-Coupling Calculations For He^{2+} H (1s) Collisions, PHYS. REV. A 12 86. (1975).
83	$(H^+)+(HE)$	T	5	Bagge, S., Brandsden, B. H., Coleman, J., The Use Of Second Order Potentials In The Theory Of Scattering Of Charged Particles By Atoms. V. Excitation Of Helium Atoms By Fast Protons And Charge Exchange, J. PHYS. B 6 437 (1973).
84	$(HA^+)+(HE)$	E	3	Belin, V. P., Bobashev, S. V., Dmitriev, S. P., Investigation Of Short-Wave Radiation Emitted In Slow Collisions Between Ne^+ Ions And Ne Atoms, SOVIET PHYS.-JETP 40 833 (1975).
85	$(H^+)+(H)$	T	5	Belkic, D. S., Proton Excitation Of Hydrogen Atom At High Energies, VIII ICPEAC, P.668, INSTITUTE OF PHYSICS, BELGRAD, YUGOSLAVIA (1973).
86	$(HE^{2+})+(H,HE)$	T	5	Belkic, D. S., Janev, R. K., Electron Capture From Hydrogen And Helium Atoms By Fast Alpha Particles, J. PHYS. B 6 1020 (1973).
87	$(H)+(HE)$	T	4	Bell, K. L., Kingston, A. E., Winter, T. G., Inelastic Collisions Between Hydrogen And Helium Atoms, J. PHYS. B 7 1339 (1974).
88	$(H)+(HE)$	T	5	Bell, K. L., Kingston, A. E., Mc Ilveen, W. A., Formation Of H (2s) And H (2p) In Collisions Of Atomic Hydrogen With Atomic Helium, J. PHYS. B 6 1206 (1973).
89	$(H^0)+(HE)$	T	4	Bell, K. L., Kingston, A. E., Mc Ilveen, W. A., Destruction Of Fast Metastable Hydrogen Atoms Passing Through Atomic Helium, J. PHYS. B 6 1237 (1973).
90	$(HE^+)+(HE)$	E	4	Benoit-Cattin, P., Bernanoye-Montesquieu, A., Gleizes, A., Marchez, M., Excitation Cross Sections For Helium Autoionizing States In He^+ He Collisions (5 To 76 Kev), IX ICPEAC, P.801, UNIVERSITY OF WASHINGTON PRESS, SEATTLE, WASHINGTON (1975).
91	$(H^+)+(KR)$	E	3	Benoit, C., Rubach, C., Sidis, V., Pommier, J., Jorat, M., Charge Exchange In H^+ Rare Gas Collisions. II. H^+ + Kr, IX ICPEAC, P.169, UNIVERSITY OF WASHINGTON PRESS, SEATTLE, WASHINGTON (1975).
92	$(N_2^+)+(O_2,HCL)$	T	1	Berend, George C., Thompson, Ronald L., Benson, Sidney W., Vibration - Vibration Energy Exchange In N_2 with O_2 And HCl Collision Partners, J. CHEM. PHYS. 57 3001 (1972).
93	$(HE)+(H_2,D_2)$	T	2	Bergeron, Guy, Chapuisat, Xavier, Isotope Effect On Vibrational Excitation Induced By Collision Of H_2 And D_2 Molecules, J. CHEM. PHYS. 57 3436 (1972).
94	$(H_2^+,HE^+)+(CO_2)$	E	3	Bergmann-Reisler, H., Doering, J. P., Vibrational Energy Distribution In CO_2^+ (A^2 Pi Sub U) Ions Produced By Collisions H_2^+ And He^+ Ions With CO_2, CHEM. PHYS. LETTERS 27 199 (1974).
95	$(HA_2^+)+(HE)$	E	1	Bergmann, K., Demtroder, W., Inelastic Collision Cross Section Of Excited Molecules. I. Rotational Energy Transfer Within B^3 Pi Sub U - State Of Na_2 Induced By Collisions With He, Z. PHYS. 243 1 (1971).
96	$(H^+)+(H)$	T	3	Bhadra, Kalidas, Ghosh, A. S., 1s - 3d Excitation Of Atomic Hydrogen By Electron And Proton Impact, PHYS. REV. LETTERS 26 737 (1971).
97	Undef (Cat. by Abstract Only)	T	0	Bhalla, C. P., Deexcitation Of Multiply-Ionized Atoms, PHYS. FENN. (FINLAND) 9 435 (1974).
98	Undef	E	5	Bhalla, C. P., Theoretical Auger And Radiative Rates For K-Shell Of Multiply Ionized Argon, VIII ICPEAC, P.729, INSTITUTE OF PHYSICS, BELGRAD, YUGOSLAVIA (1973).
99	$(H^+,HE^+,O^{3+})+(HE)$	E	5	Bhalla, C. P., Matthews, D. L., Moore, C. F., Excitation Of Multiplet States In Neon, PHYS. LETTERS A 46 336 (1974).
100	Undef	T	0	Bhalla, C. P., Richard, P., Role Of Coster Kronig Transitions In Multiply Ionized States Formed In Heavy Ion Collisions, PHYS. LETTERS A 45 53 (1973).
101	$(C^{3+},N^{3+},F^{3+})+(AR)$	T	5	Bhalla, C. P., Production Of Multiply Ionized States Of Argon In Heavy Ion Collisions, PHYS. LETTERS A 45 123 (1973).
102	$(O^{3+})+(HE)+(HE)$	T	5	Bhalla, C. P., Hein, M., Theoretical K-Shell Fluorescence Yield Of Multiply Ionized Neon, PHYS. REV. LETTERS 30 35 (1973).
103	$(Ar^+)+(Ar)$ $(Ne^+)+(Ne)$	T	4	Bierman, D. J., Turkenburg, W. C., Inelastic Non-Violent Heavy-Atom Collisions, PHYSICA 67 534 (1973).
104	Undef	T	0	Biolsi, Louis, Glory Scattering In Molecular Collisions. III. Collisions Between Indistinguishable Molecules, J. CHEM. PHYS. 58 5331 (1973).

	REACTANTS	EXP OR THEOR.	F RANGE	REFERENCE
105	Undef	T	1	Bleisi, Louis, Glory Scattering In Molecular Collisions. II. Formal Expressions For The Total Inelastic Cross Section, J. CHEM. PHYS. 54 2437 (1971).
106	(H,H*,D)+(N_2)	E	3	Direly, J. H., Johnson, P. A., Excitation Of Infrared Auroral Emissions In Collisions Of H* And H with N_2, J. GEOPHYS. RES. 1 113 (1974).
107	(H)+(HE,NE,AR,KR,XE)	E	4	Direly, J. H., Mc Neal, R. J., Formation Of H (2p) And H (2s) In Collisions Of 1-25 Kev Hydrogen Atoms with The Rare Gases, PHYS. REV. A 5 257 (1972).
108	(H*,H)+(CO,CO_2,CH_4,NH_3)	E	4	Direly, J. H., Mc Neal, R. J., Lyman - Alpha Emission Cross Sections For Collisions Of 1-25 Kev H* And H with Co, Co_2, CH_4 And NH_3, J. CHEM. PHYS. 56 2169 (1972).
109	(H*,H)+(N_2)	E	4	Direly, J. H., Formation Of N_2* B^3 Sigma Sub U^+ And N_2 C^3 Pi Sub U In Collisions Of H* And H With N_2, PHYS. REV. A 10 658 (1974).
110	(H)+(N_2)	E	4	Direly, J. H., Rotational Excitation Of N_2* B^3 Sigma Sub U^+ Produced In Collisions Of Atomic Hydrogen with N_2, J. PHYS. B 7 L35C (1974).
111	(H*,H)+(NO,N_2O,CO_2,OCS)	E	4	Direly, J. H., Johnson, P. A., Electronic Excitation In Collisions Of Fast Protons and Hydrogen Atoms with No, N_2, O_2, Co_2, And Ocs, J. CHEM. PHYS. 62 4854 (1975).
112	(H*,H)+(O_2)	E	4	Direly, J. H., Electronic Excitation In Collisions Of H And H* with O_2, PHYS. REV. 11 79 (1975).
113	(H*,D*,H,D)+(CO)	E	4	Direly, J. H., Johnson, P. A., Production Of Electronically Excited Co And Co^+ In Collisions Of H*, D*, H And D with Co, IX ICPEAC, P.993, UNIVERSITY OF WASHINGTON PRESS, SEATTLE, WASHINGTON (1975).
114	(H,H*)+(O_2)	E	4	Direly, J. H., Johnson, P. A., Electronic Excitation In Collisions Of H And H* with O_2, VIII ICPEAC, P.671, INSTITUTE OF PHYSICS, BEOGRAD, YUGOSLAVIA (1973).
115	(H,H*)-(N_2)	E	4	Direly, J. H., Mc Neal, R. J., Formation Of H (2p) And H (2s) In Collisions of Protons And Hydrogen Atoms with Hydrogen Molecules, PHYS. REV. A 5 682 (1972).
116	(H,H*)+(N_2,O_2,CO,CO_2,NH_3,CH_4,H_2) (Cat. by Abstract Only)	E	4	Direly, J. H., Mc Neal, R. J., Cross Sections For Emission Of Lyman-Alpha Radiation In Collisions Of 1-25 Kev Protons And Hydrogen Atoms with Constituents Of Planetary Atmospheres, ANN. GEOPHYS. (GEOPHYS.) 28 627 (1972).
117	(H,H*)+(O_2)	E	4	Direly, J. H., Johnson, P. A., Electronic Excitation In Collisions Of H And H* With O_2, VIII ICPEAC, P.671, INSTITUTE OF PHYSICS, BEOGRAD, YUGOSLAVIA (1973).
118	(H,H*,HE,HE*)+(HE)	E	4	Blair, W. F., Gilbody, H. B., Excitation Of Helium By 20-100 Kev Hydrogen And Helium Beams, VII ICPEAC, P.837, NORTH-HOLLAND PUBL. CO., AMSTERDAM (1971).
119	(H)+(HE)	E	4	Blair, W. F., Gilbody, H. B., Excitation Of Helium By 20-100 Kev Hydrogen Atoms, J. PHYS. B 6 486 (1973).
120	(HE*,HE,HE*)+(HE)	E	4	Blair, W. F., Mc Cullough, H. W., Simpson, F. A., Gilbody, H. B., Excitation Of Helium In He* - He And He-He Collisions The Influence Of Metastable Helium Atoms, J. PHYS. B 6 1265 (1973).
121	(RB*)+(AR)	E	3	Bobashev, S. V., Ogurtsov, V. I., Razumovskii, L. A., Quasimolecular State Interference In Collisions Between Rubidium Ions And Argon, SOVIET PHYS-JETP 35 472 (1972).
122	(CS*)+(HE,NE)	E	C	Bobashev, S., Shmaenok, L., Threshold Behaviour of Resonance Lines Excited In Slow Collisions Of Cs* with He And Ne, VIII ICPEAC, P.221, INSTITUTE OF PHYSICS, BEOGRAD, YUGOSLAVIA (1973).
123	(K*,RB*)+(AR)	E	3	Bobashev, S., Threshold Behavior Of Excited Cross Section Of K* And Rb* Resonance Lines In Collisions with Argon Atoms, VII ICPEAC, P.547, NORTH-HOLLAND PUBL. CO., AMSTERDAM (1971).
124	(CS*)+(HE,NE)	E	3	Bobashev, S., Shmaenok, L., Threshold Behaviour of Resonance Lines Excited In Slow Collisions Of Cs* with He And Ne, VIII ICPEAC, P.221, INSTITUTE OF PHYSICS, BEOGRAD, YUGOSLAVIA (1973).
125	(K*,RB*)+(AR)	E	3	Bobashev, S. V., Experimental Study Of Inelastic Interaction Of Potassium And Rubidium Ions with Argon In Slow Collisions, SOVIET PHYS.-TECH. PHYS. 20 689 (1975).
126	(K*)+(AR)	E	3	Bobashev, S., Interference Structure Of Cross Section For Excitation Of Resonance States Of K*, IX ICPEAC, P.735, UNIVERSITY OF WASHINGTON PRESS, SEATTLE, WASHINGTON (1975).
127	(NA*,K*,RB*,CS*)+(H_2)	E	3	Bobashev, S., Shmaenok, L., Cross Sections For L Sub Alpha Excitation In Low Energy Collisions Of Alkali Ions with H_2 Molecules, VIII ICPEAC, P.665, INSTITUTE OF PHYSICS, BEOGRAD, YUGOSLAVIA (1973).
128	(NA*,K*,RB*,CS*,HE*,HP)+(H_2)	E	3	Bobashev, S., Shmaenok, L., Cross Sections For L-Alpha Excitation In Low Energy Collisions Of Alkali Ions with H_2 Molecules, VIII ICPEAC, P.665, INSTITUTE OF PHYSICS, BEOGRAD, YUGOSLAVIA (1973).
129	(KR*)+(XE) (Cat. by Abstract Only)	E	2	Bochkova, O. P., Kuznetsova, I. L., Xenon Excitation By Metastable Krypton-Atoms, VESTN. LENINGRAD. UNIV., FIZ., KHIM. (USSR) NO.2 43 (1972).
130	(HE*)+(H_2)	E	2	Bochkova, O. P., Dissociative Excitation Of Hydrogen In The Afterglow Of A Discharge In Mixtures Of H_2 And D_2 with Helium And Neon, OPT. SPECTROS. 35 682 (1973).
131	(HG*)+(HG*)	E	2	Bochkova, O., Frish, S., Tolmachev, Y., The Spectroscopic Study Of Excitation And Ionization In The Collision Of Two Metastable Atoms, OPT. COMMUN. (NETHERLANDS) 7 403 (1973).

	REACTANTS	EXP OR THEOR.	E RANGE	REFERENCE
132	(AR*)+(N$_2$)	E	1	Dochkova, D. P., Chernyshova, N. E., Excitation of Nitrogen Molecules In A High - Frequency Argon - Nitrogen Discharge, OPT. SPECTROS. 31 359 (1971).
133	(XE*)+(HE)	E	1	Dochkova, D. G., Tolmachev, Yu. A., Excitation Of A Xenon Ion In Collisions of Metastable Xenon And Helium Atoms, OPT. SPECTROS. 33 101 (1972).
134	(NE*,HE*)+(AR*,KR*,XE*)	E	1	Dochkova, D. P., Zuyeneva, I. A., Frish, S. E., Excitation Of Ar II, Kr II, And Xe II Ions By He And Ne Metastable Atoms In The Afterglow Of A Glow Discharge, OPT. SPECTROS. 36 16 (1974).
135	(AR*)+(N$_2$)	E	1	Dochkova, D. P., Chernyshova, N. V., Tolmachev, Yu. A., Collisions Of The Second Kind In The Afterglow of A Discharge In A Mixture Of Argon And Nitrogen, OPT. SPECTROS. 36 19 (1974).
136	(Hg*)+(Hg*)	E	1	Dochkova, D. P., Gomerts, L., Tolmachev, Yu. A., Population of Highly Excited Mercury Levels In the Case of Collision Of Two Excited Atoms In The 6^3 P$_{0,2}$ States, OPT. SPECTROS. 36 150 (1974).
137	(XE*)+(NE*)	E	2	Dochkova, D. P., Tolmachev, Yu. A., Production Of An Excited Ion By Collision Of Two Metastable Atoms, OPT. SPECTROS. 32 436 (1972).
138	(O)+(O,C,CO)	T	1	Dugan, A., Jr., Impulse Approximation For Three Dimensional Inelastic Atom-Diatomic Molecule Collisions, PHYS. REV. A 7 1230 (1974).
139	(HG*)+(HA,KR) (NE*)+(NE) (AR*)+(XE)	E	2	Dogdanova, I. P., Marusin, V. B., The Excitation Functions Studies Of Metastables Detected By Collisions of The Second Kind with Admixed Atoms, VIII ICPEAC, P.479, INSTITUTE OF PHYSICS, BEOGRAD, YUGOSLAVIA (1973).
140	(NE*)+(HG)	E	1	Dogdanova, I. P., Marusin, V. B., Yankovtsev, V. E., Charge Exchange between Helium Ions And Mercury Atoms, OPT. SPECTROS. 37 365 (1974).
141	(HG*)+(HA)	E	2	Dogdanova, I. P., Marusin, V. B., Study Of Excitation Functions Of The 6^3 P$_1$ And 6^3 P$_0$ Levels Of Mercury In A Sodium - Mercury Vapor Mixture, OPT. SPECTROS. 31 184 (1971).
142	(N$_2$,O$_2$)+(FE)	L	3	Dolnett, C. A., Sewage, M. F., Light-Emission Measurements of Iron At Simulated Meteor Conditions, ASTROPHYS. J. 174 221 (1972).
143	(H*)+(NE)	T	5	Dordenave-Montesquieu, A., Benoit-Cattin, P., Boniere, M., Marchez, M., Gleizes, A., On A Unified Description Of The Profile Of The Resonance 2s^{21} S Of Helium In Proton-Helium Collisions (33 Kev-500 Kev), J. PHYS. B 7 2250 (1974).
144	(H*)+(NE)	E	4	Dordenave-Montesquieu, A., Gleizes, A., Bodiere, M., Benoit-Cattin, P., Analysis Of The 2s^1 S, 2p^{21} D And 2s2p^1 P Autoionizing Levels Of Helium, In Proton-Helium Collisions, J. PHYS. B 6 1297 (1973).
145	(H*,H$_2$*,H$_3$*)+(NE)	E	5	Dordenave-Montesquieu, A., Benoit-Cattin, P., Excitation Des Niveaux D Autoionisation De L Helium Par Collision Avec Une Particule Lourde, A Energie Moyenne (10 A 130 Kev), COMPT. REND. 272B 1473 (1971).
146	(CSF)+(HE,AR,N$_2$,CO,CO$_2$,C$_2$H$_6$,CHF$_3$)	E	2	Dorkenhagen, U., Walther, H., Toennies, J. P., Measurement of Rotational Quantum Transitions Of Polarized CsF In Collisions with Atoms And Molecules, IX ICPEAC, P.47, UNIVERSITY OF WASHINGTON PRESS, SEATTLE, WASHINGTON (1975).
147	(CS*)+(CS*)	T	1	Doroding, V. M., Romerov, L. V., Doubling Of Excitation in The Case Of Thereal Collision Of Resonantly Excited Cesium Atoms, OPT. SPECTROS. 36 165 (1974).
148	(AR)+(CSF) (HE)+(N$_2$)	T	1	Dosanac, S., Delint-Kurti, G. G., Procedure For Averaging Differential Cross-Sections Over The Experimental Angular Resolution, MOL. PHYS. 29 823 (1975).
149	(HE)+(N$_2$)	T	1	Dosanac, S., Delint-Kurti, G. G., Cross Sections For The Rotationally Inelastic Scattering Of Ne + N$_2$ Application Of The Exponential Semi-Classical Distorted Wave Approximation, MOL. PHYS. 29 1797 (1975).
150	(H$^+$,C$^+$)+(HO)	E	3	Brandt, D., Ottinger, C., Sivonis, J., Visible And Uv Luminescence In Ion Beam-Neutral Collisions, BER. BUNSENGES. PHYS. CHEM. (GERMANY) 77 648 (1973).
151	(HE*)+(C,AL)	E	5	Brandt, W., Laubert, R., K-Shell Ionization Cross Sections in Asymmetric Heavy Ion Atom Collisions, PHYS. LETTERS A 43 53 (1973).
152	(H*)+(NO)	E	2	Brandt, D., Ottinger, C., Vibrational Product Excitation In The Chemiluminescent Ion-Molecule Reaction N$^+$ + No Going To N$_2^+$ (B^2 Sigma Sub U$^+$) + O, IX ICPEAC, P.580, UNIVERSITY OF WASHINGTON PRESS, SEATTLE, WASHINGTON (1975).
153	(H*)+(H)	T	0	Bransden, B. H., Coleman, J. P., Sullivan, J., The Use Of Second Order Potentials In The Theory Of Scattering Of Charged Particles by Atoms. II. Electron And Proton Scattering By Hydrogen Atoms, J. PHYS. B 5 546 (1972).
154	(H*)+(NE)	E	5	Bransden, B. H., Issa, M. R., The Use Of Second-Order Potentials In The Theory Of Scattering Of Charged Particles By Atoms. VIII. The Excitation Of The N Equal 3 Levels Of Helium By Electron And Proton Impact, J. PHYS. B 6 1086 (1975).
155	(N$_2$$^+$)+(HE,NE)	E	3	Breggen-Reisler, H., Doering, J. P., Excitation of N$_2^+$ Ions by Collisions With Rare Gas Atoms, PHYS. REV. A 7 1152 (1974).

	REACTANTS	EXP OR THEOR.	E RANGE	REFERENCE
156	(H_2^+,HE^+,NE^+,AR^+,N_2^+)+(CO_2)	E	3	Bregman-Reisler, H., Doering, J. P., Optical Excitation In Collision Of 500-5000 Ev H_2^+, He^+, Ne^+, Ar^+, And N_2^+ Ions With Co_2, J. CHEM. PHYS. 62 3109 (1975).
157	(NE)+(NE,AR,KR,XE)	E	3	Bremot, J. C., Dhuicq, D., Gauyacq, J. P., Pommier, J., Sidis, V., Barat, M., Pollack, E., Collisions Between Rare-Gas Atoms At Low Kev Energies. II. Asymmetric Collision Systems Ne-Ne, -Ar, -Kr, -Xe, PHYS. REV. A 11 1933 (1975).
158	(NE^+)+(NE)	E	3	Bremot, J. C., Pommier, J., Dhuicq, D., Barat, M., Direct And Exchange Processes In Ion-Atom Collisions. I. Ne^+ - Ne, J. PHYS. B 8 448 (1975).
159	(NE)+(NE) (NE)+(NE) (AR)+(AR) (KR)+(KR)	E	3	Bremot, J. C., Dhuicq, D., Gauyacq, J. P., Pommier, J., Sidis, V., Barat, M., Pollack, E., Collisions Between Rare-Gas Atoms At Low Kev Energies. I. Symmetric Systems, PHYS. REV. A 11 1245 (1975).
160	Undef (Cat. by Abstract Only)	E	5	Briand, J. P., Chevallier, P., Johnson, A., Rozet, J. P., Tavernier, M., Touati, A., Probability Of Double K-Ionization Following Internal Conversion In Various Elements, PHYS. FENN. (FINLAND) 9 405 (1974).
161	(H^+)+(H_2)	T	4	Briggs, J. S., Collision Broadening And Molecular Orbital X-Rays, J. PHYS. B 7 47 (1974).
162	(D^+)+(D) ; (C^+)+(C) (N^+)+(N) (O^+)+(O) (NE^+)+(NE)	T	5	Briggs, J. S., Macek, J. H., A Scaling Law For Inner-Shell Excitation Cross Sections In Ion-Atom Collisions, J. PHYS. B 6 982 (1973).
163	(H^+)+(NE)	T	5	Briggs, J. S., Roberts, A. G., Proton Excitation Of Neon, J. PHYS. B 7 1370 (1974).
164	(NE^+)+(O_2)	T	5	Briggs, J. S., Taulbjerg, K., K-Shell Excitation In Hetero-Nuclear Ion-Atom Collisions, IX ICPEAC, P.1051, UNIVERSITY OF WASHINGTON PRESS, SEATTLE, WASHINGTON (1975).
165	(NE^+)+(NE)	T	5	Briggs, J. S., Macek, J., The Production Of K Shell Vacancies In Symmetric Ion - Atom Collisions, J. PHYS. B 5 579 (1972).
166	Review	T	5	Briggs, J. S., The Theory Of Inner-Shell Excitation In Slow Ion-Atom Collisions, IX ICPEAC, INVITED LECTURES, P.384, UNIVERSITY OF WASHINGTON PRESS, SEATTLE, WASHINGTON (1975).
167	(LI^+)+(H_2)	T	2	Brown, N. J., Classical Dynamics The Study Of Vibrational And Rotational Excitation In Li^+, H_2, J. CHEM. PHYS. 60 2958 (1974).
168	(H)+(CO)	T	1	Brumer, P., Rotational Excitation And Interference Effects In Atom-Rotor Collisions, CHEM. PHYS. LETTERS 28 345 (1974).
169	Undef	T	0	Bulmistrov, V. M., Trakhtenberg, L. I., Atomic Excitation By A Simultaneous Collision With Another Atom And With A Photon, SOVIET PHYS '. 15 1293 (1974).
170	(CO_2)+(CO_2)	E	1	Burak, I., Noter, Y., Szoke, A., Vibration-Vibration Energy Transfer In The ν_3 Mode Of Co_2, IEEE J. QUANT. ELECTRON. QE-9 541 (1973).
171	(O^+)+(NE,AR,KR)	E	5	Burch, D., Bickel, W. S., Wieman, H., Outer Shell Excitation Of The Rare Gases By 30 Mev Oxygen Ions, PHYS. LETTERS A 46 465 (1974).
172	(O^{8+},H^+)+(AR)	T	5	Burch, D., Wilets, L., Meyerhof, W. L., Simple Model For K X-Ray And Auger Electron Energy Shifts In Heavy Ion Collisions, PHYS. REV. A 9 1007 (1974).
173	(O^{7+})+(NE,AR)	E	5	Burch, D., Ingalls, W. B., Risley, J. S., Heffner, R., Effect Of Multiple Ionization On The Fluorescence Yield Of Ne, PHYS. REV. LETTERS 29 1719 (1972).
174	(H^+,O^{8+})+(HE)	E	5	Burch, D., Bolger, J. E., Moore, C. F., Excitation Of Autoionization States In He By 30-Mev Oxygen, IX ICPEAC, P.863, UNIVERSITY OF WASHINGTON PRESS, SEATTLE, WASHINGTON (1975).
175	(NE^+)+(NE)	T	5	Burch, D., Effect Of Particle Identity On The Observed Impact Parameter Dependence Of Inner-Shell Ionization In Symmetric Heavy Ion Collisions, PHYS. LETTERS A 47 437 (1974).
176	(NA^+,K^+)+(AR)	E	3	Bydin, Yu. F., Vol Pyas, V. A., Godenov, S. S., Excitation Of Autoionization States Of Ar In Collisions With Na^+ And K^+, IX ICPEAC, P.867, UNIVERSITY OF WASHINGTON PRESS, SEATTLE, WASHINGTON (1975).
177	(H^+)+(H)	T	3	Byron, F. W., Jr., Excitation Of Atomic Hydrogen And Helium In The Eikonal Approximation, PHYS. REV. A 4 1907 (1971).
178	(AR^+)+(N_2)	E	0	Cale, Joseph M., Astmann, Robert C., Erratum Cross Section For The Production Of N_2 (C^3 Pi_u) From Metastable Argon Atoms (54, 4961, 1971), J. CHEM. PHYS. 56 682 (1972).
179	(AR^+)+(N_2)	E	1	Cale, Joseph M., Astmann, Robert C., Cross Section For The Production Of N_2 (C^3 Pi Sub U) From Metastable Argon Atoms, J. CHEM. PHYS. 54 4961 (1971).
180	(H_2)+(H_2,D_2) (D_2)+(D_2)	T	2	Calvert, J. B., Distorted Wave Calculation Of Vibrational Excitation And Transfer In H_2 And D_2, J. CHEM. PHYS. 56 5071 (1972).
181	(LI^+)+(H_2)	E	5	Carre, M., Desesquelles, J., Gaillard, M., Polarisation De La Raie H Sub Beta Emise Dans La Collision Li^+ + H_2, COMPT. REND. 273B 12 (1971).
182	(NA^+)+(HE) (LI^+)+(H)	E	5	Carre, M., Gaillard, M., Desesquelles, J., Hanle Experiments With Accelerated Ion Beam In Gaseous Targets, NUCL. INSTR. METHODS 110 295 (1973).
183	Review	E	0	Caruso, E., Inner Shell Ionization In Ion-Atom Collisions And Induced Fluorescence Transitions. I, ENERGIA NUCLEARE (ITALY) 22 342 (1975).

	REACTANTS	EXP OR THEOR.	E RANGE	REFERENCE
184	Review	E	0	Caruso, E., Inner Shell Ionization In Ion-Atom Collisions And Induced Fluorescence Transitions. II, ENERGIA NUCLEARE (ITALY) 22 467 (1975).
185	(HE)+(KR) (AR)+(KR,XE)	E	3	Cermak, V., Smutek, M., Sramek, J., Electron Spectroscopy Of Autoionizing State Of Noble Gases, J. ELECTRON SPECTROSC. RELAT. PHENOM. (NETHERLANDS) 2 1 (1973).
186	(HE)+(O_2,CL_2,BR_2)	E	3	Cermak, V., Electron Spectroscopy Of Autoionizing States Of Oxygen, Chlorine And Bromine Atoms, J. ELECTRON. SPECTROSC. RELAT. PHENOM. (NETHERLANDS) 6 135 (1975).
187	(H^+)+(HE)	T	5	Chan, F. T., Chang, C. H., Glauber Cross Sections For Excitation Of The 2^1 P Level Of Helium By Proton Impact, PHYS. REV. A 11 1097 (1975).
188	(LI^+)+(LI)	T	4	Chang, Chi-Ming, Kopp, Donald, Excitation And Electron Capture In Collisions Of Li^+ With Li, J. CHEM. PHYS. 59 1256 (1973).
189	(H_2^+)+(HE)	T	2	Chapman, F. M., Jr., Hayes, E. F., Resonances In The Collinear Inelastic Scattering Of He By H_2^+ Below The Reaction Threshold, J. CHEM. PHYS. 62 4400 (1975).
190	(H^+)+(H_2)	T	5	Chatterjee, G., Mc Dowell, M. R. C., Electron Capture By Fast Protons In He And H_2, J. PHYS. B 4 896 (1971).
191	(H^+,O^{8+})+(PD,AG,SN)	T	5	Chaturvedi, R. P., Wheeler, R. M., Liebert, R. B., Miljanic, D. J., Zabel, T., Phillips, G. C., L-Shell X-Ray Production Cross Sections Of Pd, Ag, And Sn For Incident Proton Energies In The Range 3-12 Mev And Oxygen Ions In The Range 15-40 Mev, PHYS. REV A 12 52 (1975).
192	(H^+)+(C)	T	5	Chau-Chin, W., Charge Exchange Theory And Application To Proton Carbon Collisions, PHYSICA 80B+C 601 (1975).
193	(H^+,HE^{2+})+(H)	T	4	Chaudhuri, J., Bhattacharya, D. M., Sil, N. C., 1s-3s Excitation Of Atomic Hydrogen By Proton And Alpha Particle Impact, J. PHYS. B 7 1027 (1974).
194	(HE^{2+},H^+)+(H)	T	5	Chaudhuri, J., Bhattacharya, D. M., Sil, N. C., 3s And 3p Excitations Of Atomic Hydrogen By Proton And Alpha - Particle Impact, J. PHYS. B 5 525 (1972).
195	(HE^{2+})+(HE)	E	3	Chen, Y. H., Johnson, R. E., Humphris, R. R., Siegel, M. W., Boring, J. W., Differential Scattering Of He^{2+} From He, J. PHYS. B 8 1527 (1975).
196	(H^+)+(H)	T	3	Chen, J. C. Y., Ishihara, Takeshi, Ponce, Victor H., Watson, Kenneth M., Differential Cross Sections In The P^+ - H Collisions, J. PHYS. B 5 L205 (1972).
197	(H^+)+(H)	T	3	Chen, J. C. Y., Ishihara, T., Ponce, V. H., Watson, K. M., Electronic Transitions In Slow Collisions Of Atoms And Molecules. V. Multichannel Eikonal Approximation For The Differential (P^+, H) Excitation And Rearrangement Collisions, PHYS. REV. A 8 1334 (1973).
198	(H^+)+(H)	T	3	Chen, J. C. Y., Eikonal Theory For Electronic Transitions In Atomic Collisions, VIII ICPEAC, INVITED LECTURE, P.265, INSTITUTE OF PHYSICS, BEOGRAD, YUGOSLAVIA (1973).
199	(HE^*)+(HE,AR)	E	1	Chen, C. H., Haberland, H., Lee, Y. T., Interaction Potential And Reaction Dynamics Of He (2^1 S, 2^3 S) + Ne, Ar By The Crossed Molecular Beam Method, J. CHEM. PHYS. 61 3095 (1974).
200	(HE^+)+(H)	T	4	Chen, Joseph C. Y., Joachain, Charles J., Watson, Kenneth M., Electronic Transitions In Slow Collisions Of Atoms And Molecules. IV. Multistate Eikonal Approximation For Quasiadiabatic Transitions, PHYS. REV. A 5 1268 (1972).
201	(H^+)+(H)	T	0	Chen, J. C. Y., Ponce, V. H., Watson, K. M., Translational Factors In Eikonal Approximation And Their Effect On Channel Couplings, J. PHYS. B 6 965 (1973).
202	(HE^{++})+(HE)	E	3	Chen, Y. H., Siegel, M. W., Humphris, R. R., Boring, J. W., Differential Inelastic Scattering Of He^{++} By He, Including Single Charge Exchange, VII ICPEAC, P.110, NORTH-HOLLAND PUBL. CO., AMSTERDAM (1971).
203	Undef	T	0	Chen, J. C. Y., Ishihara, T., Watson, K. M., Noncharacteristic Radiations In Atomic And Molecular Collisions, PHYS. REV. LETTERS 35 1574 (1975).
204	(HBR^*)+(H_2,CO,D_2,O_2)	E	1	Chen, Hao-Lin, Vibration-To-Vibration-To-Vibration Energy Transfer In Hydrogen Bromide Mixtures, J. CHEM. PHYS. 55 5557 (1971).
205	(HG^*)+(CD)	T	1	Cheron, B., Study Of Excitation And Coherence Transfer In Mercury-Cadmium Sensitized Fluorescence. I. Theoretical Study, J. PHYS. (PARIS) 36 17 (1975).
206	(HG^*)+(CD)	T	1	Cheron, B., Study Of Excitation And Coherence Transfer In Mercury-Cadmium Sensitized Fluorescence. II. Experimental Results, J. PHYS. (PARIS) 36 29 (1975).
207	(HG^*)+(CD) (Cat. by Abstract Only)	E	0	Cheron, B., Experimental Evidence About The Mechanism Of Excitation Transfer In Mercury - Cadmium Sensitized Fluorescence, OPT. COMMUN. (NETHERLAND) 3 437 (1971).
208	(H^+)+(H)	T	2	Chidichimo-Frank, M. C., Piacentini, R. D., Multistate Molecular Treatment Of The H^+ H Collisions, J. PHYS. B 7 548 (1974).
209	Undef	T	0	Chiu, Ying-Nan, On The Collisional Transfer Of Rovibronic And Translational Energy Between Differently Excited Like Molecules, J. CHEM. PHYS. 55 5052 (1971).
210	(HE^+)+(HE)	T	2	Cho, U., Eu, B. C., Improved Solutions To The Equation Of Motion In The Uniform WKB Theory For Two-Channel Problems, J. CHEM. PHYS. 61 1172 (1974).

	REACTANTS	EXP OR THEOR.	E RANGE	REFERENCE
211	Undef	T	0	Choi, B. H., Tang, K. T., On J and Z Conserving Coupled-States Approximation For Molecular Collisions, J. CHEM. PHYS. 62 4560 (1975).
212	(H)+(H_2)	T	2	Choi, B. H., Tang, K. T., Inelastic Collisions Between An Atom And A Diatomic Molecule. II. H + H_2 Rotational Excitation, J. CHEM. PHYS. 63 1783 (1975).
213	(H^+)+(ME,MD)	T	5	Choi, Byong-Ho, Relativistic Treatment Of The Excitation Of Characteristic L X - Rays By The Impact Of Heavy Charged Particles, PHYS. REV. A 4 1002 (1971).
214	(H)+(H_2)	T	2	Choi, B. H., Tang, K. T., Rotational Excitation Of H + H_2 Scattering, IN ICPEAC, P.369, UNIVERSITY OF WASHINGTON PRESS, SEATTLE, WASHINGTON (1973).
215	(H^+,HE^{++})+(H)	T	5	Choudhurry, J., Bhattacharya, B. N., (1s-3s) And (1s-3p) Excitation Of Hydrogen Atom By Proton And Alpha Particle Impact, VII ICPEAC, P.488, NORTH-HOLLAND PUBL. CO., AMSTERDAM (1971).
216	(HE^{++})+(H)	T	5	Choudhury, Jayasri, Bhattacharya, B. N., Hydrogen Excitation In H Alpha Collision By Second Born Approximation, INDIAN J. PHYS. 44 63 (1970).
217	(CD_2,CH_2)+(ME,AR,KR,HE)	T	1	Chu, H. Y., Dahler, J. S., A Theory Of The Collision Induced Singlet To Triplet Transition Of Methylene, MOL. PHYS. 27 1065 (1974).
218	(H)+(H_2)	T	2	Chu, S. I., Dalgarno, A., Angular Distributions In The Elastic Scattering And Rotational Excitation Of Molecular Hydrogen By Atomic Hydrogen, ASTROPHYS. J. 199 637 (1975).
219	(H)+(H_2)	T	2	Chu, S., Dalgarno, A., Angular Distributions In The Elastic Scattering And Rotational Excitation Of Molecular Hydrogen By Atomic Hydrogen, ASTROPHYS. J. 199 637 (1975).
220	(H)+(CO)	T	1	Chu, S., Dalgarno, A., The Rotational Excitation Of Carbon Monoxide By Hydrogen Atom Impact, PROC. ROY. SOC., LONDON 342 191 (1975).
221	(C^+)+(H_2)	T	2	Chu, Shih-I, Dalgarno, A., Fine Structure Transitions Of C^+ In Collisions With H_2, J. CHEM. PHYS. 62 4089 (1975).
222	(HD)+(H_2)	T	2	Chu, Shih-I, Effective Potential Study Of The Rotational Excitation Of HD By Collision With H_2, J. CHEM. PHYS. 62 4089 (1975).
223	(HE)+(H_2)	T	2	Chu, Shih-I, Dalgarno, A., Approximations For The Rotational Excitation Of Molecules By Atoms, J. CHEM. PHYS. 63 4115 (1975).
224	(H,HE,BE^+,BE^{2+},O^+,O^{2+},O^{3+},HE,HE^+,HE	E	4	Church, D. A., Electronic State Alignment, Orientation, And Coherence Produced By Beam-Foil Collisions, IN ICPEAC, INVITED LECTURES, P.540, UNIVERSITY OF WASHINGTON PRESS, SEATTLE, WASHINGTON (1975).
225	(HE^+)+(HE)	E	3	Clark, D. A., Macek, J., Smith, W. W., Interference Effects In The Polarization Of The Emitted Light From He^+ Excitation Of He $3^1,^3$ D States At Low Energies, IN ICPEAC, P.731, UNIVERSITY OF WASHINGTON PRESS, SEATTLE, WASHINGTON (1975).
226	(H_2)+(HE)	T	1	Clark, A. P., Dickinson, A. S., On The Use Of The Rolos-Wolniewicz Potential For Collinear Vibrational Excitation Of H_2 By He, J. PHYS. B 8 L364 (1975).
227	(HD)+(H)	T	2	Clarke, J. H., Allison, D. J., Quantum Vibrational Transition Probabilities For The Morse Oscillator, J. CHEM. PHYS. 60 713 (1974).
228	Undef	T	1	Clarke, James H., Moore, John H., Thiele, Everett, Reaction Matrix Method For Computing Probabilities Of Vibration-Translation Energy Transfer Range Of Applicability For The Collinear Collision Of An Atom And A Diatomic, J. CHEM. PHYS. 55 3201 (1971).
229	(CL^+)+(AL,TI,CU^+	E	5	Cocke, C. L., Randall, R., Curnutte, B., Impact Parameter Dependence Of Chlorine K-X Ray Production In Violent Cl-Al, Cl-Ti And Cl-Cu Collisions, VIII ICPEAC, P.714, INSTITUTE OF PHYSICS, BELGRAD, YUGOSLAVIA (1973).
230	(P,F^{3+},F^{4+},F^{5+},F^{6+},F^{7+})+(AR)	E	5	Cocke, C. L., Randall, R. R., Curnutte, B., Argon K-Auger Cross Sections In Collision With 30 Mev Fluorine Ions, IN ICPEAC, P.933, UNIVERSITY OF WASHINGTON PRESS, SEATTLE, WASHINGTON (1975).
231	(HE)+(HE)	E	2	Cohen, J. S., Evans, S. A., Lane, Neal F., Quantum - Mechanical Calculation Of Cross Sections For Inelastic Atom - Atom Collisions. II. Model Calculation Under Various Coupling Conditions, PHYS. REV. A 4 2240 (1971).
232	(H_2,D_2)+(D_2)	T	2	Cohen, J. C., Alexander, M. H., Semiclassical S-Matrix Theory Of Vibrationally Inelastic Collisions Between Two Diatomic Molecules, J. CHEM. PHYS. 61 3967 (1974).
233	(HE^+,HE^+)+(HE)	T	3	Cohen, J. S., Schneider, B., Collisions Of He^+ (^2S) And He^+ With He Excitation And Charge Transfer, Elastic Scattering, And Diffusion, PHYS. REV. A 11 884 (1975).
234	(HCN)+(HCN,HE,AR,XE)	E	1	Cohen, Jonathan B., Wilson, E. Bright, Rotational Energy Transfer In Pure HCN And In HCN - Rare Gas Mixtures By Microwave Double Resonance And Pressure Broadening, J. CHEM. PHYS. 58 462 (1973).
235	(LI^+)+(HE)	E	4	Cole, A. J., Lowe, M. P., Excitation Of Helium By Lithium Ions, VIII ICPEAC, P.184, INSTITUTE OF PHYSICS, BELGRAD, YUGOSLAVIA (1973).
236	(LI^+)+(HE)	E	4	Cole, A. J., Lowe, M. P., Excitation Of Helium By Lithium Ions, VIII ICPEAC, P.184, INSTITUTE OF PHYSICS, BELGRAD, YUGOSLAVIA (1973).

	REACTANTS	EXP OR THEOR.	E RANGE	REFERENCE
237	(HE)+(HF)	T	1	Collins, L. A., Lane, N. F., Rotational Excitation Of HF In Slow Collisions With He, PHYS. REV. A 12 811 (1975).
238	$(H^+)+(H_2)$	T	2	Collins, F. S., Preston, R. K., Cross, R. J., Vibrationally Inelastic Scattering Of $H^+ + H_2$, CHEM. PHYS. LETTERS 25 600 (1974).
239	$(HE^+,HE)+(ZN)$ (Cat. by Abstract Only)	E	6	Collins, George Joseph, Cw Oscillation And Charge - Exchange Excitation In The Zinc - Ion Laser, THESIS, YALE UNIV. (1970).
240	$(H_2)+(CO^+)$	E	1	Compoma, A., Langer, W. D., Edan, D., Swinney, H. L., Collisional Excitation Of Carbon Monoxide By H_2, ASTROPHYS. J. 185 L185 (1973).
241	Undef	T	0	Connor, J. N. L., Semiclassical Theory Of Molecular Collisions Real And Complex-Valued Classical Trajectories For Collinear Atom Morse Oscillator Collisions, MOL. PHYS. 28 1569 (1974).
242	$(H_2^+,H_3^+)+(O_2,CO,CO_2,CH_4)$	E	5	Conrads, R. J., Ford, J. C., Thomas, E. W., Collisional Dissociation Of H_2^+ And H_3^+ On Molecular Targets Leading To Formation Of Excited Hydrogen Atoms, J. CHEM. PHYS. 59 140 (1973).
243	$(H^+)+(HE,NE,AR,KR,XE)$ $(H_2^+)+(H_2,D_2,N_2,NE,AR,KR,XE)$ $(H_3^+)+(NE,AR,KR,XE)$	E	5	Conrads, R. J., Nichols, T. W., Ford, J. C., Thomas, E. W., Formation Of Fast Excited H Atoms Induced By Impact Of H^+, H_2^+ And H_3^+ Atoms On Molecular And Noble Gas Targets, PHYS. REV. A 7 1928 (1973).
244	$(HE^+)+(CO_2)$	E	3	Coplan, M. A., Mentall, J. E., Optical Study Of Charge Exchange Collisions Between He^+ And Co_2, J. CHEM. PHYS. 58 4912 (1973).
245	$(HE^+)+(CO)$	E	3	Coplan, M. Ogilvie, K. W., Optical Studies Of The Products Of C Exchange Between He^+ And Co, J. CHEM. PHYS. 61 2010 (197.).
246	$(H^+)+(H)$	T	4	Corrigall, B., Wallace, R., Coupled State Calculations Of Proton - Hydrogen Atom Scattering With Nonlinear Trajectories, J. PHYS. B 4 1013 (1971).
247	$(AR^*)+(H_2)$	T	1	Cosby, P. C., Moran, T. F., Product Internal State Distributions From Interactions Of Metastable Ar With H_2, J. CHEM. PHYS. 57 4111 (1972).
248	$(AR^*,XE^*)+(HCN,ICN,BRCN)$	E	1	Coxon, J. A., Setser, D. W., Duewer, W. H., Excitation Of Cn Violet (B^2 Sigma+ - X^2 Sigma+) And Red (A^2 Pi Sub I - X^2 Sigma+) Bands By Reaction Of Ar And Xe Metastable Atoms With Cn Containing Compounds, J. CHEM. PHYS. 58 2244 (1973).
249	$(H^*,H^{**})+(HE)$	E	4	Crandall, D. H., York, G., Pol, V., Park, J. T., Collisional Excitation Of H^+ At 50 Kev, PHYS. REV. LETTERS 28 397 (1972).
250	$(H^+)+(HE,AR)$	E	4	Crandall, D. H., Jaecks, D. H., Charge Transfer To The 2s State Of Hydrogen From Close Collisions Of H^+ With He And Ar, PHYS. REV. A 4 2271 (1971).
251	Undef	T	1	Cross, R. J., Jr., Semiclassical Transition Probabilities For Rotationally Inelastic Scattering, J. CHEM. PHYS. 55 510 (1971).
252	Undef	T	0	Cross, R. J., Jr., Sudden And Semiclassical Approximations In Inelastic And Reactive Scattering, J. CHEM. PHYS. 58 5178 (1973).
253	Undef	T	0	Csanak, Gy., Taylor, H. S., Verracchio, E. F., Quantum Mechanical Theory Of Translation Internal Mode Energy Transfer In Collisions Of Atoms With Diatomic Systems, J. CHEM. PHYS. 61 263 (1974).
254	Undef	T	1	Curry, Bill P., Erratum Analytical Theory Of Multiquantum Vibrational Excitation In Molecular Collision (51, 4351 (1969)), J. CHEM. PHYS. 54 3661 (1971).
255	Undef	T	2	Curtiss, C. F., Semiclassical Theory Of Rotational Excitation In Collisions Of Diatomic Molecules, J. CHEM. PHYS. 63 2730 (1975).
256	$(CS^*)+(HE,NE,AR,KR,XE)$	T	1	Cuvellier, J., Fournier, P. R., Gounand, F., Pascale, J., Berlande, J., Inelastic Collisions Involving Excited Cesium Atoms At Thermal Energies, PHYS. REV. A 11 945 (1975).
257	$(CS^*)+(HE,NE,XE)$	E	1	Cuvellier, J., Gounand, F., Berlande, J., Collisional Excitation Transfer In Cesium Vapor, VIII ICPEAC, P.615, INSTITUTE OF PHYSICS, BEOGRAD, YUGOSLAVIA (1973).
258	$(HG^*)+(NA)$	E	1	Czajkowski, M., Skardis, G., Krause, L., Sensitized Fluorescence In Sodium Induced In Collisions With (Hg $6^3 P_1$) Atoms, CAN. J. PHYS. 51 334 (1973).
259	$(H_2^+)+(N_2)$	E	4	D'Incan, J., Topouzkhanian, A., A New Band System Of N_2^+ Excited From Impact By Hydrogen Ions On A Nitrogen Target, Z. NATURFORSCH. 29A 1377 (1974).
260	$(HE^+)+(HE)$	E	4	Dashchenko, A. I., Zapesochnyi, I. P., Imre, A. I., Bukstich, V. S., Danch, F. F., Kel'Man, V. A., Excitation Of The Resonance Level Of He^+ In Electron-Atom Electron-Ion, And Ion-Atom Collisions, SOVIET PHYS.-JETP 40 249 (1975).
261	Undef	E	5	Datz, S., Moak, C. D., Appleton, B. R., Brown, M. D., Carlson, T. A., Differentiation In 2p Sub 3/2 And 2p Sub 1/2 Vacancy Production In Iodine Ions In Atomic Collisions At 15 To 60 Mev, VII ICPEAC, P.409, NORTH-HOLLAND PUBL. CO., AMSTERDAM (1971).
262	$(I^+)+(KR,BR_2)$	E	5	Datz, S., Electronic States Of Ions Recoiling Into Vacuum And Gases, PHYS. SCR. (SWEDEN) 11 149 (1975).

	REACTANTS	EXP OR THEOR.	E RANGE	REFERENCE
263	(I^+)+(C,AL,S,TI,CR,NI,SE,ZR,MO,RH,AG, CD,I,LA,GD,TA,AU,PB) (HE^+,I^+) +(NAI)	E	5	Datz, S., Moak, C. D., Appleton, B. R., Carlson, T. A., Differentiation In L - Subshell Vacancy Production In Iodine Ions By Atomic Collisions At 15-60 Mev, PHYS. REV. LETTERS 27 363 (1971).
264	(LI^+)+(N_2)	E	3	David, R., Faubel, M., Toennies, J. P., Measurements Of Differential Cross Sections For Vibrational Quantum Transitions In Scattering Of Li^+ On N_2, CHEM. PHYS. LETTERS 18 87 (1973).
265	(H^+,D^+)+(HE,AR,KR)	E	3	Dawson, H. R., Loyd, D. H., Electron Capture Into The 3s And 4s States Of Atomic Hydrogen By H^+ And D^+ Impact On Ar, He, And Kr, PHYS. REV. A 9 166 (1974).
266	Undef (Cat. by Abstract Only)	E	0	De Heer, F. J., Excitation In Collisions Between Ions And Atoms Observed By Light Intens ty Measurements, NED. TIJDSCHR. NATUURK. (NETHERLANDS) 37 265 (1971).
267	(H^+,H_2^+,HE^+)+(AR)	E	5	De Heer, F. J., Van Eck, J., Stolterfoht, N., Charge State Dependence Of The Argon Fluorescence Yield Studied By H^+, H_2^+ And He^+ Impact, VIII ICPEAC,P.725, INSTITUTE OF PHYSICS, BEOGRAD, YUGGSLAVIA (1973).
268	(H^+,H_2^+,HE^+)+(AR)	E	5	De Heer, F. J., Van Eck, J., Stolterfoht, N., Charge State Dependence Of The Argon Fluorescence Yield Studed by H^+, H_2^+ And He^+ Impact, VIII ICPEAC, P. 725, INSTITUTE OF PHYSICS, BEOGRAD, YUGGSLAVIA (1973).
269	(AR)+(N_2)	T	2	De Pristo, A. E., Alexander, M. H., An L-Dominant Simplification Of The Close-Coupled Equations For Collisions Between Atoms And Diatomic Molecules, J. CHEM. PHYS. 63 3552 (1975).
270	(LI^+)+(N_2)	T	2	De Pristo, A. E., Alexander, M. H., L-Dominant Study Of Rotationally Inelastic Li^+ - N_2 Collisions, J. CHEM. PHYS. 63 5327 (1975).
271	(K)+(AR,N_2O) (K,RB)+(N_2O) (Cat. by Abstract Only)	E	1	Della Valle, James A., The Velocity Dependence Of The Total Cross Section For K - Ar And K, Rb, Cs - N_2 O Collisions, THESIS, UNIV. OF CONNECTICUT (1970).
272	Undef	T	3	Delos, J. B., Studies Of The Potential Curve Crossing Problem. III. Collisional Spectroscopy Of Close Crossings, PHYS. REV. A 9 1626 (1974).
273	Undef	T	0	Delos, John B., Thorson, Walter, R., Solution Of The Two - State Potential - Curve - Crossing Problem, PHYS. REV. LETTERS 28 647 (1972).
274	(H^+)+(HE^+)	T	3	Demkov, Yu. N., Certain Problems In The Heavy Particle Collisions, VIII ICPEAC, INVITED LECTURE, P.27, INSTITUTE OF PHYSICS, BEOGRAD, YUGOSLAVIA (1973).
275	(C^+,N^+,O^+,NE^+,AR^+,KR^+,XE^+)+(C)	E	5	Der, R. C., Fortner, R. J., Kavanagh, T. M., Kahn, J. M., Production Of Carbon K X - Rays By Heavy - Ion Bombardment, PHYS. REV. A 4 556 (1971).
276	(AR^+)+(C,CH_4,AR) (C^+)+(AR) (H^+)+(C)	E	4	Der, R. C., Fortner, R. J., Kavanagh, T. M., Garcia, J. D., Differences In Inner - Shell Vacancy Production For Ar - C Collisions In Gas Versus Solid Targets, PHYS. REV. LETTERS 27 1631 (1971).
277	(S^+)+(AR)	E	5	Der, R. C., Fortner, R. J., Kavanagh, T. M., L X-Ray Spectra From S-Ar Collisions, VIII ICPEAC, P.721, INSTITUTE OF PHYSICS, BEOGRAD, YUGOSLAVAIA (1973).
278	(K^+,NE^+,LI^+,NA^+,K^+)+(N_2)	E	4	Desesquelles, J., Do Cao, G., Voissade, A., Study Of The Rotational Excitation Of The N_2^+ B2 Sigma State By Heavy Ion Bombardment, J. PHYS. (PARIS) 36 795 (1975).
279	(CS^+)+(HE)	T	3	Devdariani, A. Z., Bobashev, S. V., Cross Section For The Excitation Of Cs II Resonance Lines Near The Threshold Of The Cs^+ + He Reaction Threshold, SOVIET PHYS.-JETP 33 260 (1971).
280	(N_2)+(HE)	T	1	Dickinson, A. S., Richards, D., Rotational Excitation Of Diatomic Molecules By Atoms, J. PHYS. B 7 1916 (1974).
281	Undef	T	0	Diestler, D. J., Feuer, P., Quantum-Mechanical Transition Probabilities For Atom-Atomic-Oscillator Collisions With Morse Potential Interaction, J. CHEM. PHYS. 54 4626 (1971).
282	(CO)+(CO)	T	1	Dillon, T. A., Stephenson, J. C., Multiquantum Vibrational-Energy Exchange, PHYS. REV. A 6 1460 (1972).
283	(HCL,HF,DF)+(CO_2)	T	1	Dillon, T. A., Stephenson, J. C., Effect Of The Straight Path Approximation And Exchange Forces On Vibrational Energy Transfer, J. CHEM. PHYS. 58 3849 (1973).
284	(HF^+,DF^+)+(CO_2)	T	1	Dillon, T. A., Stephenson, J. C., Energy Transfer During Orbiting Collisions, J. CHEM. PHYS. 60 4286 (1974).
285	(NA^+)+(D_2,HD,H_2)	E	2	Dimpfl, W. L., Mahan, B. H., Large Angle Inelastic Scattering Of Na^+ By D_2, J. CHEM. PHYS. 60 3238 (1974).
286	(NA,NA^+,K,K^+)+(H_2,D_2)	E	2	Dittner, Peter F., Datz, Sheldon, Collision-Induced Vibrational Excitation And Dissociation Of Hydrogen With Alkali Atoms And Ions From 2 To 50 Ev, J. CHEM. PHYS. 54 4228 (1971).
287	(H)+(C)	E	5	Dobberstein, P., Andra, H. J., Wittmann, W., Bukow, H. H., Zero - Field Quantum Beats In Lyman - Alpha Radiation Subsequent To Beam - Foil Interaction Of Protons, Z. PHYS. 257 272 (1972).
288	(H^+)+(HE,O_2) (H_2^+,H^+)+(C_2H_6) (HE^+, N_2^+)+(N_2) (AR^+) (N_2^+)+(KR)	E	3	Doering, J. P., Inelastic Scattering Of Positive Ions, BER. BUNSENGES. PHYS. CHEM. (GERMANY) 77 593 (1973).
289	(H)+(H_2)	T	1	Doll, J. D., George, T. F., Miller, W. H., Complex - Valued Classical Trajectories For Reactive Tunnelling In Three - Dimensional Collisions Of H And H_2, J. CHEM. PHYS. 58 1343 (1973).

REACTANTS	EXP OR THEOR.	E RANGE	REFERENCE
290 (HE)+(H_2)	T	2	Doll, Jimmie D., Miller, William H., Classical S - Matrix For Vibrational Excitation Of H_2 By Collision With He In Three Dimensions, J. CHEM. PHYS. 57 5019 (1972).
291 (H^+)+(CS)	E	3	Donnally, B. L., O'Dell, J. E., The Fraction Of Hydrogen Atoms In The 2s State Produced By Charge Exchange Between Protons And Cesium Vapor, VII ICPEAC, P.821, NORTH-HOLLAND PUBL. CO., AMSTERDAM (1971).
292 (H^+)+(H_2)	E	2	Dose, V., Hett, W., Production Of Lyman-Alpha Radiation In H (2s) -H_2 Collisions, J. PHYS. B 7 L454 (1974).
293 (N_2O)+(N_2O) (CO_2)+(CO_2)	E	1	Doyennette, L., Margottin-Maclou, M., Chakroun, A., Gueguen, H., Henry, L., Vibrational Energy Transfer From The (00^0 1) Level Of[16] N_2 O And[12] Co_2 To The (N,m Fermi, 1) Levels Of These Molecules And Of Their Isotopic Species, J. CHEM. PHYS. 62 440 (1975).
294 (HE)+(H_2)	T	2	Drake, G. W. F., Holt, A. R., Improved Quantum Calculation Of The Vibrational Excitation Of H_2 In Collinear Collisions With Helium, J. PHYS. B 8 494 (1975).
295 (HE)+(HE) (NE)+(NE) (AR)+(AR) (KR)+(KR) (XE)+(XE)	T	2	Drawin, H. W., Emard, F., Atom-Atom Excitation And Ionization In Shock Waves Of The Noble Gases, PHYS. LETTERS A 43 333 (1973).
296 Review	T	0	Drukarev, G. F., Excitation And Ionization Of Atoms By Electron And Proton Impact Approximate Expressions And Scaling Relations For The Cross Sections, PHYSICS OF IONIZED GASES, P.1 (1973).
297 (HE)+(H_2)	T	2	Duff, J. W., Truhlar, D. G., Use Of Semiclassical Collision Theory To Compare Analytic Fits To The Interaction Potential For Vibrational Excitation Of H_2 By He, J. CHEM. PHYS. 63 4418 (1975).
298 Review	T	2	Dugan, J. V., Jr., Magee, J. L., Momentum Transfer And Total Scattering Cross Sections For Ions With Polar Molecules, J. CHEM. PHYS. 58 5816 (1973).
299 (N_2,O,AR)+(H_2O,CO_2,NH_3)	E	0	Dunn, M. G., Skinner, G. T., Treanor, C. E., Infrared Radiation From H_2 O, Co_2, Or Nh_3 Collisionally Excited By N_2, O, Or Ar, AIAA J. 13 803 (1975).
300 (HE^+,O^+,N^+,N_2^+,O_2^+,AR^+,H^+)+(N_2)	E	5	Dunn, Jerry L., Holland, Redus F., Fluorescence Efficiencies Of Nitrogen Excited By 1-5-Mev Positive Ions, J. CHEM. PHYS. 54 470 (1971).
301 (HE^*)+(HE)	E	1	Dupont-Roc, Jacques, Leduc, Michele, Laloe, Franck, New Value For The Metastability Exchange Cross Section In Helium, PHYS. REV. LETTERS 27 467 (1971).
302 (K)+(HE,NE,AR,KR,XE)	E	3	Duren, R., Rick, M., Pauly, H., Measurements Of The Electronic Excitation In Atomic Collisions Of Potassium With The Rare Gases, CHEM. PHYS. LETTERS 27 118 (1974).
303 (H^+)+(HE,NE,AR,H_2)	E	3	Durup, J., Appell, J., Fehsenfeld, F. C., Fournier, P., Collision - Radiation - Collision Three - Step Processes, And A Measurement Of The Probability Ratios For Neutralization Of 4 Kev Protons Into Either H (2p) Or H (3), J. PHYS. B 5 L110 (1972).
304 (HE)+(H_2)	T	2	Eastes, W., Secrest, D., Calculation Of Rotational And Vibrational Transitions For The Collision Of An Atom With A Rotating Vibrating Diatomic Oscillator, J. CHEM. PHYS. 56 640 (1972).
305 Undef	T	0	Eastes, W., Doll, J. D., Semiclassical Calculation Of The Harmonic Oscillator Transition Probability For A Collinear Hard Sphere Collision, J. CHEM. PHYS. 60 297 (1974).
306 Undef	T	0	Eastes, Walter, S - Matrix Elements For Excited Rotational State Transitions, J. CHEM. PHYS. 59 3534 (1973).
307 (LI^+)+(H_2) (H^+)+(H_2)	T	2	Eckelt, P., Korsch, H. J., Philipp, V., Energy Loss Spectra For Vibro-Rotational Molecular Excitation In An Impulseive Spectator Model, J. PHYS. B 7 1649 (1974).
308 Undef	T	2	Englot, G. F., Rabitz, H., Dimensionality Control Of Coupled Scattering Equations Using Partitioning Techniques The Case Of Two Molecules, PHYS. REV. A 10 2187 (1974).
309 (HE^+)+(H_2)	E	3	Eriksen, F. J., Jaecks, D. H., Coherence Effects In He^+ + H_2 Collisions, IX ICPEAC, P.1148, UNIVERSITY OF WASHINGTON PRESS, SEATTLE, WASHINGTON (1975).
310 (HE^+)+(HE)	T	2	Eu, B. C., Tsien, T. P., Uniform Wkb Theory Of Inelastic Collisions Application To He^+ He Inelastic Collisions, PHYS. REV. A 7 648 (1973).
311 (HE^*)+(HE)	T	3	Evans, S. A., Cohen, J. S., Lane, Neal F., Quantum - Mechanical Calculation Of Cross Sections For Inelastic Atom - Atom Collisions. I. Inelastic 2^3 S Going To 2^3 P Collisions Between Metastable And Ground - State Helium Atoms, PHYS. REV. A 4 2235 (1971).
312 (HE^+)+(HE)	T	2	Evans, S. A., Lane, N. F., Quantum Mechanical Calculation Of Inelastic Cross Sections For 1^1 S Going To 2^3 S Excitation In Collisions Of Ground State He Atoms With He^+ Ions, PHYS. REV. A 8 1385 (1973).
313 (H_2)+(H_2CO)	T	2	Evans, N. J., II, Cross Sections For Collisional Excitation Of Interstellar Formaldehyde, ASTROPHYS. J. 201 112 (1975).
314 (NH_3)+(H_2) (Cat. by Abstract Only)	E	0	Fabris, A., Oka, T., Observations Of Delta K Equal Or 3 Transitions Induced In Nh_3 By Collisions With H_2, PHYS. CAN. 27 54 (1971).
315 (NH_3^*)+(H_2)	E	1	Fabris, Allan R., Oka, Takeshi, Observation Of Delta K Equal Plus Or Minus 3 Transitions In Nh_3 - H_2 Collisions, J. CHEM. PHYS. 56 3168 (1972).

	REACTANTS	EXP OR THEOR.	E RANGE	REFERENCE
342	$(H_2^+)+(H_2)$	T	3	Flannery, M. R., Mc Cann, K. J., Moran, T. F., Direct Vibrational Excitation Via Charge Exchange in Symmetric Ion-Molecule Collisions, J. CHEM. PHYS. 63 1462 (1975).
343	$(H)+(HE,LI^+)$	T	4	Flannery, M. R., Ionization Of He (1 S^2) And Li^+ (1 S^2) By Hydrogen Atom Impact, PHYS. REV. A 7 531 (1973).
344	$(H_2^+,H_3^+)+(HE)$	E	5	Ford, J. C., Mc Coy, F. M., Conrads, R., Thomas, E. W., Formation Of Fast Excited H Atoms. III. Collisional Dissociation Of H_2^+ And H_3^+ On Helium, PHYS. REV. A 5 1705 (1972).
345	$(H_2^+)+(HE)$ $(H^+)+(H_2,AR,H_2,HE)$	E	5	Ford, J. C., Mc Coy, F., Thomas, E. W., Formation Of Excited H Atoms (N Equal 3) By High Energy Charge Transfer And Dissociation, VII ICPEAC, P.810, NORTH-HOLLAND PUBL. CO., AMSTERDAM (1971).
346	$(H^+)+(HE,AR)$	E	5	Ford, J. C., Thomas, E. W., Formation Of Fast Excited H Atoms. I. Charge - Transfer Neutralization Of H^+ In He And Ar, PHYS. REV. A 5 1694 (1972).
347	$(H^+)+(H_2,N_2,NO,O_2,CO,CO_2,CH_4,C_2H_2,C_2H_4,C_2H_6)$	E	5	Ford, J. C., Thomas, E. W., Formation Of Fast Excited H Atoms. II. Charge - Transfer Neutralization Of H^+ In Molecular Gases, PHYS. REV. A 5 1701 (1972).
348	$(B^+)+(AR)$	E	5	Fortner, R. J., Garcia, J. D., Ueno, M., X-Ray Transitions In Hydrogen Like, Helium-Like And Lithium-Like Boron, PHYS. LETTERS A 47 93 (1974).
349	$(CL^+,AR^+)+(AR)$	E	5	Fortner, R. J., Uono, M., Production Of Argon L X-Rays In Cl^+ Going To Ar Collisions, PHYS. LETTERS A 47 267 (1974).
350	$(P^+,S^+,CL^+,AR^+,K^+)+(AR)$	E	5	Fortner, R. J., X-Ray Production Cross Sections Of Sigma Electron Promotion, J. PHYS. B 7 L240 (1974).
351	$(AR^+)+(AR)$	E	5	Fortner, R. J., Garcia, J. D., Argon L-Shell Fluorescence Yields In Ar^+ Ar Collisions, J. PHYS. B 6 L146 (1973).
352	$(AR^+,NE^+,NE^{2+})+(SIH_4)$ $(SI^+,SI^{2+})+(NE)$	E	0	Foster, C., Hoogkamer, T., Saris, F. W., K X Ray Production By 90-360 Kev Ar And Ne Collisions With Si. A Comparison Between Gas And Solid Target Experiments, J. PHYS. B 7 2563 (1974).
353	$(AR^+)+(AR,CL_2)$	E	0	Foster, C., Saris, F. W., X-Rays From Ar-Cl2 Carambolages, VIII ICPEAC, P.716, INSTITUTE OF PHYSICS, BEOGRAD, YUGOSLAVIA (1973).
354	$(N_2^+)+(HE)$	E	3	Fournier, P. G., Govers, T. R., Van De Runstraat, C. A., Schopman, Los, J., Predissociation Of N_2^+, VII ICPEAC, P.433, NORTH-HOLLAND PUBL. CO., AMSTERDAM (1971).
355	$(H^+)+(H)$	T	5	Franco, Victor, Thomas, Brian K., Elastic And Inelastic Scattering Of Protons By Hydrogen Atoms, PHYS. REV. A 4 945 (1971).
356	$(LI^+)+(HE)$	E	3	Francois, R., Dhuicq, D., Barat, M., Elastic And Inelastic Scattering Of Li^+ Ions By He, J. PHYS. B 5 963 (1972).
357	$(HE)+(HE)$	E	3	Francois, R., Dhuicq, D., Barat, M., Differential Cross - Section Measurements For Ionization Processes In He - He Collisions In The Kev Energy Range, VII ICPEAC, P.135, NORTH-HOLLAND PUBL. CO., AMSTERDAM (1971).
358	$(CH_3CL)+(CH_3CL,H_2,HE)$	E	1	Frenkel, L., Marantz, H., Sullivan, T., Spectroscopy And Collisional Transfer In CH_3 Cl By Microwave - Laser Double Resonance, PHYS. REV. A 3 1640 (1971).
359	$(C^+)+(O_2,N_2)$	T	2	Fullerton, D. C., Moran, T. F., Calculated Ion Molecule Reactions Of C^+ With O_2 And N_2, INT. J. MASS SPECTROM. ION PHYS. 9 15 (1972).
360	$(HE^+)+(AU)$	E	5	Gaillard, M. J., Poizat, J. C., Remillieux, J., Gaillard, M. L., Another Experimental Evidence For Coherent Electronic Excitation Of Channeled He^+ Ions, PHYS. LETTERS A 45 [illegible] (1973).
361	$(H^+,HE^{2+})+(H)$	T	0	Gallaher, D. F., Msezane, A., Calculation Of One-Electron Two-Centre Exchange Matrix Elements In Ion-Atom Collisions, J. PHYS. B 7 127 (1974).
362	$(HE)+(H_2)$	T	2	Garbarino, J. R., Bartell, M. A., Morse Oscillator Wavefunctions In High Energy Scattering Calculations, J. CHEM. PHYS. 61 743 (1974).
363	$(N^+)+(H)$	T	5	Garcia, J. D., Particle-Foil Interactions, NUCL. INSTR. METHODS 110 245 (1973).
364	$(HE^{2+})+(AL,MG,FE,NI,CU,ZR,NB,MO,PD,AG,SN,CE,TA,W,PT,AU,PB)$ $(H^+)+(NI,C,O,MG,AL,CA,TI)$	T	5	Garcia, J. D., X - Ray Production By Alpha - Particle Impact, PHYS. REV. A 4 955 (1971).
365	Undef (Cat. by Abstract Only)	T	5	Garibyan, G. M., Shi, Y., On The Problems Of X-Ray Radiation Generated By A Fast Charge On Single Atoms And Molecules, ASTROFIZIKA (USSR) 11 161 (1975).
366	$(H^+)+(H)$	T	3	Gaussorgues, C., Le Sech, C., Masnou-Seeuws, F., Mc Carroll, R., Riera, A., Common Trajectory Methods For The Calculation Of Differential Cross Sections For Inelastic Transitions In Atom (Ion) Atom Collisions. II. Application To Proton-Hydrogen Scattering, J. PHYS. B 8 253 (1975).
367	$(H^+)+(H)$	T	3	Gaussorgues, C., Salin, A., Differential And Total Cross Sections For Excitation Of The N Equal 2 Level Of Hydrogen By Proton Impact, J. PHYS. B 4 503 (1971).
368	$(H^+)+(H)$	T	3	Gaussorgues, C., Lesech, C., Mc Carroll, R., Seeuws, F. M., Riera, A., Trajectory Effect In Slow Proton-Hydrogen Collisions, VIII ICPEAC, P.763, INSTITUTE OF PHYSICS, BEOGRAD, YUGOSLAVIA (1973).
369	$(HE^+)+(HE)$	T	4	Gaussorgues, C., Differential Scattering Cross Section For Excitation In He^+ He Collisions, J. PHYS. B 6 675 (1973).

	REACTANTS	EXP OR THEOR.	L RANGE	REFERENCE
316	Review	T	5	Fano, U., Macek, J. H., Impact Excitation And Polarization Of The Emitted Light, REV. MOD. PHYS. 45 553 (1973).
317	(H+)+(HE,H2)	E	5	Fastrup, B., Hermann, G., Hessel, Q., Differential Investigation Of The Velocity Dependence Of K - Shell Excitations In Collisions Involving C, O, N, Ne And Na, VII ICPEAC, P.368, NORTH-HOLLAND PUBL. CO., AMSTERDAM (1971).
318	Review	E	5	Fastrup, B., Experimental Studies Of Inner-Shell Excitation In Slow Ion-Atom Collisions, IX ICPEAC, INVITED LECTURES, P.361, UNIVERSITY OF WASHINGTON PRESS, SEATTLE, WASHINGTON (1975).
319	Under	E	5	Fastrup, B., Hermann, G., Hessel Q. C., Experimental Study Of The Effect Of Velocity And Outer - Shell Configuration On The Probability For Producing K Vacancies In Violent Ion - Atom Collisions At Low Energies, PHYS. REV. LETTERS 27 1102 (1971).
320	(N+,NA+)+(HE,H2) (HE+,F+)+(NE) (NE+)+(N2,NN2,NE)	E	5	Fastrup, B., Hermann, G., Hessel, Q. C., Experimental Study Of The Effect Of Velocity And Outer - Shell Configuration On The Probability For Producing K Vacancies In Violent Ion - Atom Collisions At Low Energies, PHYS. REV. LETTERS 27 771 (1971).
321	(NE+,C+)+(N2,NN2)	E	5	Fastrup, B., Crone, A., Influence Of The Molecular Nature Of The Target On The Probability Of Producing K Vacancies, PHYS. REV. LETTERS 29 825 (1972).
322	(LI+)+(H2)	E	2	Faubel, M., Rudolph, K., Toennies, J. P., Differential Cross Sections For The Rotational Excitation Of H- And P-H2 By Li+ Ions At 0.6-3 Ev, IX ICPEAC, P.49, UNIVERSITY OF WASHINGTON PRESS, SEATTLE, WASHINGTON (1975).
323	(N2+)+(XE,AR,NE)	E	3	Fayeton, J., Perrot, A., Fournier, P., Barat, M., Collisions Of N2+ Ions On Noble Gas Atoms. II. Non - Dissociative Collisions At 0.3-3 Kev, J. PHYS. (PARIS) 32 743 (1971).
324	(MG+)+(NE,AR,KR)	E	3	Fayeton, J., Barat, M., Mg+ - Rare Gas Collision Spectroscopy, IX ICPEAC, P.625, UNIVERSITY OF WASHINGTON PRESS, SEATTLE, WASHINGTON (1975).
325	(H+,NE+)+(H)	T	3	Fayeton, J., Mouver, J. C., Barat, M., Inelastic Processes In H+ On H And Ne+ On H Collisions In The Kev Energy Range, VIII ICPEAC, P.753, INSTITUTE OF PHYSICS, BEOGRAD, YUGOSLAVIA (1973).
326	(H+)+(H)	T	0	Felden, M., Excitation Cross-Section Of The Protons Colliding With Hydrogen Atoms, PHYS. LETTERS A 51 226 (1975).
327	(AR+,NE+)+(N2)	E	3	Fernandez, S. M., Eriksen, F. J., Bray, A. V., Pollock, E., Inelastic Processes In Ion-Molecule Collisions Ar+ And Ne+ On N2 At Low-Kev Energies, PHYS. REV. A 12 1492 (1975).
328	(H+)+(FE+12,FE+13)	T	3	Figger, H., Heidt, J., Sloboy, A., Walther, H., Lifetime Measurements In The Co I And Fe I Spectra Using Tunable Dye Laser Excitation, ASTRON. ASTROPHYS. 42 389 (1975).
329	(AR+)+(H2+)	E	1	Fink, Ewald H., Wollach, Daniel, Moore, C. Bradley, Near - Resonant Electronic Energy Transfer From Argon To Hydrogen, J. CHEM. PHYS. 56 3460 (1972).
330	Under	T	0	Fisenich-Englot, G., Rabitz, H., Studies Of Inelastic Molecular Collisions Using Impact Parameter Methods. I. Model Calculations, J. CHEM. PHYS. 62 1409 (1975).
331	(HE)+(H2) (AR)+(TLF)	T	2	Fisenich-Englot, G., Rabitz, H., Studies Of Inelastic Molecular Collisions Using Impact Parameter Methods. II. Exact And High-Energy Approximate Calculations, J. CHEM. PHYS. 62 2747 (1975).
332	(H+,H2+)+(HE)	E	4	Fitzwilson, R. L., Sowers, L., Thomas, E. W., The Angular Distribution Of Fast Metastable Hydrogen Formed By Charge Transfer And Dissociation Processes, VII ICPEAC, P.600, NORTH-HOLLAND PUBL. CO., AMSTERDAM (1971).
333	(H+)+(HE,AR,N2,O2)	L	4	Fitzwilson, R. L., Thomas, E. W., Formation Of Metastable Hydrogen Atoms By Charge Transfer, PHYS. REV. A 3 1385 (1971).
334	(H+)+(HE)	E	4	Fitzwilson, R. L., Thomas, E. W., Angular Distribution Of Metastable Hydrogen Formed By Electron Capture In A Helium Target, PHYS. REV. A 6 1050 (1972).
335	(HE+)+(H)	T	0	Flannery, M. R., Mc Conn, R. J., Elastic And 2s And 2p Inelastic Scattering Of Atomic Hydrogen By Helium Ions, J. PHYS. B 7 1349 (1974).
336	(H)+(H2)	T	2	Flannery, M. R., Mc Conn, R. J., A New Multistate Semiclassical Orbital Treatment Of Heavy-Particle Collisions H-H2 Rotational Excitation, J. PHYS. B 8 1387 (1975).
337	(H)+(H)	T	4	Flannery, M. R., Mc Conn, R. J., Differential Cross Sections For Elastic Scattering And For The 2s And 2p Excitations Of H (1s) By Hydrogen Atom Impact, PHYS. REV. A 9 1947 (1974).
338	(H)+(HE)	T	4	Flannery, M. R., Mc Conn, R. J., Differential Cross Sections For Elastic And Inelastic Hydrogen-Helium Collisions, J. PHYS. B 7 840 (1974).
339	(H+)+(HE)	T	5	Flannery, M. R., Mc Conn, R. J., Elastic And The 2s + And 2p + Inelastic Differential Cross Sections For Proton-Helium Scattering, J. PHYS. B 7 1358 (1974).
340	(H+,H)+(H)	T	4	Flannery, M. R., Mc Conn, R. J., Differential Cross Sections In The Multistate Impact Parameter Description Of Heavy Particle Collisions, PHYS. REV. A 8 2191 (1973).
341	(H)+(H,HE)	T	5	Flannery, M. R., Mc Conn, R. J., Differential Cross Sections For Elastic Scattering And The 2s And 2p Collisional Excitation Of H(1s) By Hydrogen And Helium, VIII, ICPEAC, P.164, INSTITUTE OF PHYSICS, BEOGRAD, YUGOSLAVIA (1973).

	REACTANTS	EXP OR THEOR.	E RANGE	REFERENCE
370	Under	T	1	Gay, J. C., Influence Of A Resonance Defect On The Cross-Sections Of Nearly Resonant Collisions. II. Case Of A 1-0 Resonance Transition And Applications, J. PHYS. (PARIS) 35 813 (1974).
371	(RB)+(RB)	E	0	Gottlieb, P., Eibl, M., Spin Dependence Of The Total Cross - Section Of Rubidium Atoms Colliding With Thermal Energies, VII ICPEAC, P.962, NORTH-HOLLAND PUBL. CO., AMSTERDAM (1971).
372	(H+)+(HF)	T	3	Gentry, W. R., Ion-Dipole Scattering In Classical Perturbation Theory, J. CHEM. PHYS. 60 2967 (1974).
373	(H+,D+)+(H_2)	T	3	Gentry, W. R., Giese, C. F., Application Of A Classical Trajectory Model To Vibrational Excitation In High Energy H+ + H_2 Collisions, PHYS. REV. A 11 90 (1975).
374	(LI+)+(H_2)	T	2	Gentry, W. R., Giese, C. F., Vibrational Excitation In The Decent Approximation The Large-Angle Scattering Of LI+ From H_2, J. CHEM. PHYS. 62 1460 (1975).
375	(NE+)+(NE,NE,AR) (NE+)+(NE)	E	3	Gerber, G., Richoux, A., Steffen, B., Ion Spectra From Low Collisions Of Ne+ With Ne, Ne, Ar, And Ar Of N_2+ with Ne, J. PHYS. B 6 1036 (1973).
376	(NE+)+(H_2)	E	5	Geissner, U., Combecher, D., Excitation Of H_2 By Ne+ Impact, .III ICPEAC, P.669, INSTITUTE OF PHYSICS, BEOGRAD, YUGOSLAVIA (1973).
377	(NE+)+(H_2)	E	5	Geissner, U., Combecher, D., Excitation Of H_2 By Ne+ Impact, VIII ICPEAC, P.668, INSTITUTE OF PHYSICS, BEOGRAD, YUGOSLAVIA (1973).
378	(N+)+(AR) (N+)+(AR)+(O_2)	E	3	Ghosh, S. N., Sahai, Y., Bhatnal, B. R., Spectra Of Ar + (Ar, O_2) Mixture Excited By Low-Energy Proton Bombardment, INDIAN J. PURE APPL. PHYS. 10 296 (1972).
379	(N+)+(H)	T	5	Ghosh, A. S., Sil, N. C., Inelastic Proton - Hydrogen Scattering By Glauber Approximation, J. PHYS. B 4 836 (1971).
380	(HCL)+(HCL,AR) (AR)+(AR)	E	2	Giese, C. F., Chow, P., Rotational Excitation In Collisions Of HCl Molecules, II ICPEAC, P.63, UNIVERSITY OF WASHINGTON PRESS, SEATTLE, WASHINGTON (1975).
381	(N+)+(N_2,ND,D_2)	T	2	Giese, C. F., Gentry, W. R., Classical Trajectory Treatment Of Inelastic Scattering In Collisions Of N+ with N_2, ND, And D_2, PHYS. REV. A 10 2156 (1974).
382	(NE)+(NE)	E	3	Gilbody, M. B., Blair, W. J. F., Simpson, F. A., Mc Cullough, R. W., Excitation In Fast He - He Collisions The Influence Of Metastable Atoms, J. PHYS. B 5 L181 (1972).
383	(HE2+)+(H_2)	E	4	Gilbody, M. B., Dunn, K. F., Gilmore, F. J., Metastable Helium Atom Formation In Fast He^{2+} - H_2 Collisions, J. PHYS. B 7 L147 (1974).
384	(NE+)+(H_2,NE)	E	5	Gilbody, M. B., Dunn, K. F., Browning, R., Latimer, C. J., Formation Of Metastable Helium Atoms In 10-200 Kev Charge Changing Collisions, VII ICPEAC, P.785, NORTH-HOLLAND PUBL. CO., AMSTERDAM (1971).
385	(NE+)+(H_2,NE,NE,AR,KR,N_2)	E	5	Gilbody, M. B., Dunn, K. F., Browning, R., Latimer, C. J., Formation Of Metastable Helium Atoms By Electron Capture During The Passing Of Fast He+ Ions Through Gases, J. PHYS. B 4 800 (1971).
386	Review	T	4	Gilbody, M. B., Metastable Species In Fast Atomic Collisions. I. Formation Processes, 7TH YUGOSLAV SYMPOSIUM AND SUMMER SCHOOL ON THE PHYSICS OF IONIZED GASES, P.167, NOVINJ (1974).
387	Under	T	0	Gordon, Robert J., Kuppermann, Aron, String - Pluching Model For Vibrational Excitation Of Molecules, J. CHEM. PHYS. 58 5774 (1973).
388	Under	T	1	Gottdiener, L., The Multiple-Collision Region In Non-reactive Atom-Diatom Collisions, MOL. PHYS. 29 1585 (1975).
389	(CO+)+(CO_2)	E	1	Gower, M. C., Cartwell, A. I., Vibration-Vibration Energy Transfer In Co_2 Glow Discharges, APPL. PHYS. LETTERS 21 556 (1972).
390	(NE+)+(NE)	E	1	Grandin, J. P., Hennecart, D., Husson, X., Lecler, J., Vienne, J. F., Barrat-Rachmasson, M., Population Transfers Between 2p Levels Of Neon, Induced By Neon Atoms In Their Ground State, J. PHYS. (PARIS) 36 767 (1975).
391	(H+)+(NE)	E	4	Gray, H. L., Hasselton, H. H., Krause, D., Jr., Soltysik, E. A., Direct Excitation Of The 4 Equal 3 Triplet States In Helium By Proton Impact, VII ICPEAC, P.831, NORTH-HOLLAND PUBL. CO., AMSTERDAM (1971).
392	(NE+)+(NE)	E	4	Gray, H. L., Hasselton, H. H., Krause, D., Jr., Soltysik, E. A., New Measurements Of Excitation Transfer In Helium, VII ICPEAC, P.833, NORTH-HOLLAND PUBL. CO., AMSTERDAM (1971).
393	(HCL)+(NE)	T	1	Green, S., Monchick, L., Validity Of Approximate Methods In Molecular Scattering Thermal Hcl-He Collisions, J. CHEM. PHYS. 63 4128 (1975).
394	(H_2)+(H_2)	T	2	Green, S., Rotational Excitation In H_2 - H_2 Collisions Close-Coupling Calculations, J. CHEM. PHYS. 64 2271 (1976).
395	(NE+)+(GA,TL,AG) (NE+)+(GE) (AR+)+(CA)	E	1	Green, J. M., Webb, C. E., The Production Of Excited Metal Ions In Thermal Energy Charge Transfer And Penning Reactions, J. PHYS. B 7 1698 (1974).
396	(NE+)+(ZN)	E	1	Green, J. M., Willing, G. J., Webb, C. E., Collisional Excitation And Destruction Of Excited Zn II Levels In A Helium Afterglow, J. PHYS. B 6 1045 (1973).

	REACTANTS	EXP OR THEOR.	E RANGE	REFERENCE
397	(HF*)+(O$_2$,CO,NO,CO$_2$,N$_2$,D$_2$,H$_2$,HE,AR, HF,D$_2$O,H$_2$O) (CO*)+(HF,CO$_2$,CO,N$_2$) (N$_2$*)+(HF) (NO*)+(HF,NO) (H$_2$*) +(CO)	E	1	Green, W. H., Moncick, J. K., Laser-Excited Vibrational Energy Transfer Studies Of Hf, Co, And No, IEEE J. QUANT. ELECTRON. QE-9 58 (1973).
398	(HD)+(HE)	T	1	Green, S., Rotational Excitation Of Hd By Collisions with He, PHYSICA 76 609 (1974).
399	(HE)+(HCN)	T	2	Green, S., Thaddeus, P., Rotational Excitation Of Hcn by Collisions, ASTROPHYS. J. 191 653 (1974).
400	(HE,H$_2$)+(H$_3$O*,HCO*)	T	2	Green, S., Rotational Excitation Of Molecular Ions In Interstellar Clouds, ASTROPHYS. J. 201 366 (1975).
401	(H)+(HI)	T	5	Gres, M., Greiner, W., Interferences Of Molecular X-Rays In Heavy Ion Collisions, Z. PHYS. 274 165 (1975).
402	Undef	T	2	Gressner, J., On The Threshold Behaviour For Inelastic Atom-Atom Collisions, PHYSICA 64 558 (1973).
403	(H*,H$_2$*)+(HE)	E	4	Gresnard, J., Hirszowski, J., Lefebvre, P., De Palmas, M., Etude De La Raie 3^1 P - 2^1 S De L Helium Excite Par Un Faisceau D Ions Hydrogene A Energie Moyenne, COMPT. REND. 272 937 (1971).
404	(CO$_2$*)+(HF) (HF*)+(CO$_2$)	T	1	Grozdev, P. F., Preobrazhenskii, I. G., Quasi-Resonant Transfer Of Excitation Energy In The Co$_2$ Hf System, OPT. SPECTROS. 37 345 (1974).
405	Undef	T	0	Gudzenko, L. I., Yakovlenko, S. I., Radiative Collisions In Exchange Interactions, SOVIET PHYS.-TECH. PHYS. 20 150 (1975).
406	(CO$_2$)+(N$_2$)	E	1	Guegnan, M., Yzambart, F., Chanroux, A., Margottin-Maclou, M., Doyennette, L., Henry, L., Temperature Dependence Of The Vibration-Vibration Transfer Rates From Co$_2$ And N$_2$ C Excited In The (00^0 1) Vibrational Level To^{1,0} N$_2$ And^{1,0} N$_2$ Molecules, CHEM. PHYS. LETTERS 35 198 (1975).
407	(LI)+(N$_2$,CO)	T	2	Guerin, M. G. L., Eu, B. C., Rotational Inelastic Scattering Of Li-N$_2$ And Li-Co Systems, MOL. PHYS. 27 481 (1974).
408	(HE*)+(HE)	E	2	Guerin, M. G., Isiem, T. P., Eu, B. C., Eisen, F. E., Comment On The Accuracy Of The Uniform wkb Theory Of Inelastic Collisions, PHYS. REV. A 9 995 (1974).
409	(HE*,NE*,AR*)+(CO)	E	4	Gusev, V. A., Polyakova, G. N., Erko, V. F., Zats, A. V., Obeyuk, A. A., And Fogel, Y. M., Production Of Charged And Excited Particles During Collisions Of He*, Ne*, And Ar* Ions With Co Molecules, SOVIET PHYS.-JETP 32 863 (1971).
410	(HE*,NE*,AR*)+(CO)	E	4	Gusev, V. A., Polyakova, G. N., Erko, V. F., Zats, A. V., Obeyuk, A. A., Fogel, Y. M., Production Of Charged And Excited Particles During Collisions Of He*, Ne*, And Ar* Ions With Co Molecules, SOVIET PHYS.-JETP 32 863 (1971).
411	(H*,C*,N*,O*,NE*)+(AS)	T	5	Halpern, A. M., Law, J., K-Vacancy Creation By High-Z Heavy-Ion Impact, PHYS. REV. LETTERS 31 4 (1973).
412	Review	E	1	Hancock, J. K., Starr, D. F., Green, W. H., Measurement Of The Rate Of Excitation And Deactivation Of Co$_2$ (001), N$_2$ (001), Co$_2$ (001), And C$_2$ N$_2$ (00100) Using Laser Excited Co As A Pumping Source, J. CHEM. PHYS. 61 3017 (1974).
413	(F)+(N$_2$)	T	1	Hansel, R. D., A Semiclassical Theory Of Translation-Vibration Coupling In Nonadiabatic Chemical Reactions, BER. BUNSENGES. PHYS. CHEM. (GERMANY) 79 265 (1975).
414	Undef	T	2	Hansen, C. Frederick, Pearson, Walter E., Semiclassical Theory Of Vibrational Excitation For Diatomic Molecules with Conserved Collision Energy, J. CHEM. PHYS. 54 1535 (1971).
415	Undef (Cat. by Abstract Only)	T	5	Hansteen, J. M., Rosebank, O. P., Atomic Coulomb Excitation By Heavy Charged Particles, NUCL. PHYS. A (NETHERLANDS) 201 541 (1973).
416	Undef (Cat. by Abstract Only)	T	5	Hansteen, J. M., Some Theoretical Aspects Of X-Ray Production In Matter, PHYS. FENN. (FINLAND) 9 11 (1974).
417	(H$^-$)+(HE,AR)	E	3	Harnois, M., Risley, J. S., Geballe, R., Electron Detachment Cross Sections To The N Equal 4 States Of Hydrogen For 1-5 Kev Collisions Of H$^-$ with He, And Ar, IX ICPEAC, P.735, UNIVERSITY OF WASHINGTON PRESS, SEATTLE, WASHINGTON (1975).
418	(C*)+(N$_2$)	E	2	Harris, M. M., Crowley, M. G., Leventhal, J. J., Luminescence From C* (N$_2$, N) Ch* Below 20 Ev, PHYS. REV. LETTERS 34 67 (1975).
419	(O*)+(N$_2$)	E	2	Harris, M. M., Leventhal, J. J., N$_2$* Meinel Radiation From O* - N$_2$ Collisions, IX ICPEAC, P.991, UNIVERSITY OF WASHINGTON PRESS, SEATTLE, WASHINGTON (1975).
420	Undef	T	2	Harris, R. M., Herschbach, D. R., Translational-To-Vibrational Energy Transfer Impulsive Approximation For Half-Collisions, J. CHEM. PHYS. 54 3657 (1971).
421	(HE*)+(O$_2$)	E	3	Harris, M. M., Crowley, M. G., Leventhal, J. J., Luminescence From He* -O$_2$ Collisions At Low Energy, CHEM. PHYS. LETTERS 29 540 (1974).
422	Undef	E	2	Hartmann, O. R., Lebert, R. M., Chun, M. U., Electron-And Ion-Impact Investigation Of Sulphur Dichloride And Disulphur Dichloride, Z. PHYS. CHEM., FRANKFURT (GERMANY) 92 311 (1974).
423	(H*)+(HE)	E	5	Hasselkamp, D., Hippler, R., Scharmann, A., Schartner, K. H., Absolute Excitation Cross Sections For The 4^1 S, 4^1 D And 3^1 P Levels Of Helium Excited By Fast Protons, Z. PHYS. 244 254 (1971).
424	(H*)+(HE)	E	5	Hasselkamp, D., Hippler, R., Scharmann, A., Schartner, K. H., Determination Of The Excitation Cross - Section Ratios Sigma, 1 Sub P / Sigma, 1 Sub S And Sigma, 1 Sub P / Sigma, 1 Sub D And Of The Polarization Of The, 1 Sub P -, 1 Sub S Transition Of He Excited By Fast Protons, VII ICPEAC, P.455, NORTH-HOLLAND PUBL. CO, AMSTERDAM (1971).

	REACTANTS	EXP OR THEOR.	E RANGE	REFERENCE
425	(H°,H_2°,H_2°,HE°)+(HE)	E	5	Hasselkamp, D., Scharmann, A., Schartner, K. H., Excitation Functions Of The Lower Singlet And Triplet Levels Of Helium Excited By Fast H° -, H_2° -, H_2° - And He° I Ions, VIII ICPEAC, P.651, INSTITUTE OF PHYSICS, BEOGRAD, YUGOSLAVIA (1973).
426	(HE°)+(HE)	E	5	Hasselkamp, D., Hippler, R., Scharmann, A., Schartner, K. H., Cross Sections For The Excitation Of The 4^1 S, 4^1 D And 3^1 P Levels Of Helium Excited By Fast He° Ions, Z. PHYS. 257 43 (1972).
427	(H°,H_2°,H_2°)+(HE)	E	5	Hasselkamp, D., Scharmann, A., Schartner, K. H., Excitation Functions Of The Lower Singlet And Triplet And Triplet Levels Of Helium Excited By Fast H° -, H_2° -, H_2° - And He° I Ions, VIII ICPEAC, P.651, INSTITUTE OF PHYSICS, BEOGRAD, YUGOSLAVIA (1973).
428	(HE°,HE°,H°)+(HE) (HE°)+(HE)	E	5	Hasselkamp, D., Scharmann, A., Schartner, K. H., On The Production Of Excited States Of Helium In He° + He - Collisions, IX ICPEAC, P.733, UNIVERSITY OF WASHINGTON PRESS, SEATTLE, WASHINGTON (1975).
429	(H°)+(H)	T	0	Hatton, G. J., Chen, J. C. Y., Ishihara, T., Watson, R. M., Theoretical Investigation Of The Nonadiabatic Interactions And The Translational Factors In Proton-Hydrogen Collisions, PHYS. REV. A 12 1201 (1975).
430	(AR°)+(HBR)	E	3	Haugh, Michael J., Hayes, Kyle D., Predissociation And Dissociation Energy Of Ar°, J. PHYS. CHEM. 75 1472 (1971).
431	(HE°)+(HCL,HBR)	E	3	Haugh, M. J., Production Of Excited States In The Collision Of He° With HCl And HBr Selective Production Of The Nu Equal 0 Level In The A^2 Sigma State Of The Molecule - Ion, J. CHEM. PHYS. 56 4681 (1972).
432	(HE°,NE°,AR°)+(HBR,HCL)	E	3	Haugh, M. J., Production Of Metastables In Ion-Molecule Collisions, J. CHEM. PHYS. 59 37 (1973).
433	(N°,N,NE°,HE°)+(CO_2)	E	4	Haugh, M. J., Birely, J. H., Formation Of Electronically Excited Co_2° In Collisions Of N°, N, Ne°, And He° With Co_2, J. CHEM. PHYS. 60 264 (1974).
434	(H)+(H_2)	T	0	Hayes, E. F., Wells, C. A., Bauri, D. J., Erratum Close - Coupling Studies Of Rotational Excitation In H - H_2 Collisions (A 4 1017 1971), PHYS. REV. A 7 1198 (1973).
435	(H,HE)+(H_2)	T	2	Hayes, Edward F., Wells, Charles A., Bauri, Donald J., Close - Coupling Studies Of Rotational Excitation In H - H_2 Collisions, PHYS. REV. A 4 1017 (1971).
436	(N_2°)+(H_2°)	E	1	Hays, G. N., Oskam, H. J., Reaction Rate Constant For 2 N_2 (A^3 Sigma Sub U^+) Going To N_2 (X^1 Sigma Sub G^+, Nu Prime Greater Than 0), J. CHEM. PHYS. 59 6388 (1973).
437	(N_2°)+(N_2)	E	1	Hays, G. N., Oskam, H. J., Population Of N_2 (B^3 Pi Sub G) By N_2 (A^3 Sigma Sub U) During The Nitrogen Afterglow, J. CHEM. PHYS. 59 1507 (1973).
438	(H)+(C)	E	5	Heckmann, P. H., Bukow, H. H., Tiefert, P., Relative Initial Populations Of Fall Excited Hydrogen Atoms In The 2p And 3d States, Z. PHYS. 264 183 (1973).
439	Undef	E	1	Heidner, R. F., III, Kasper, J. V. V., An Experimental Rate Constant For H + H_2 (Nu Double Prime Equal 1) Going To H + H_2 (Nu Double Prime Equal 0), CHEM. PHYS. LETTERS 15 179 (1972).
440	(H°,D°)+(H_2)	E	3	Herrero, F. A., Doering, J. P., Vibrational Excitation Of H_2 By Proton Impact, PHYS. REV. A 5 702 (1972).
441	(H°,D°)+(H_2)	E	3	Herrero, F. A., Doering, J. P., Vibrational Excitation Of H_2 By Proton Impact, PHYS. REV. A 5 702 (1972).
442	(H_2°)+(HE,NE,AR,KR,H_2)	E	3	Herrero, F. A., Doering, J. P., Superelastic Collisions Of Vibrationally Excited H_2° With Atoms And Molecules, PHYS. REV. LETTERS 29 603 (1972).
443	(H°,H_2°)+(H_2,N_2,AR,CO)	E	3	Hess, W. R., Electron Capture Into The N Equal 3, 4 States Of H By Low Energy H°, H_2°, Impact On Gases, PHYS. REV. A 9 2036 (1974).
444	(H°,H_2°)+(H_2)	E	3	Hess, W. R., Electron Capture Into The N Equal 3, 4 States Of H By Low Energy H°, H_2° Impact On Hydrogen Gas, PHYS. LETTERS 41A 66 (1972).
445	Undef	T	5	Hill, R. W., Merzbacher, E., Polarization In Distant Coulomb Collisions Of Charged Particles with Atoms, PHYS. REV. A 9 156 (1974).
446	(H°)+(HE)	E	4	Hippler, R., Schartner, K. H., Absolute Cross Sections For The Excitation Of N^1 P Levels Of Helium By Proton Impact (150-1000 Kev), J. PHYS. B 7 618 (1974).
447	(H°)+(HE)	E	5	Hippler, R., Schartner, K. H., Vacuum-Uv Measurements Of The 2^1 P-, 3^1 P-, And 4^1 P-Excitation Functions Of Helium Excited By Fast Protons, VIII ICPEAC, P.649, INSTITUTE OF PHYSICS, BEOGRAD, YUGOSLAVIA (1973).
448	(H°)+(HE)	E	5	Hippler, R., Schartner, K. H., Vacuum-Uv Measurements Of The 2^1 P-, 3^1 P-, And 4^1 P-Excitation Functions Of Helium Excited By Fast Protons, VIII ICPEAC, P.649, INSTITUTE OF PHYSICS, BEOGRAD, YUGOSLAVIA (1973).
449	(H°)+(NE,AR)	E	5	Hippler, R., Schartner, K. H., Absolute Cross Sections For The Excitation Of The I ^{1}, And 1 S^0 Levels Of Neon And Argon By Proton Impact (100 Kev To 1150 Kev), Z. PHYS. 270 225 (1974).
450	(NE°)+(NE)	E	5	Hippler, R., Schartner, K. H., Meyer, H. F., 2s Vacancy Sharing In Symmetric Ne° - Ne Collisions, IX ICPEAC, P.1163, UNIVERSITY OF WASHINGTON PRESS, SEATTLE, WASHINGTON (1975).

	REACTANTS	EXP OR THEOR.	E RANGE	REFERENCE
451	$(F)+(H_2)$	T	1	Hofacker, G. L., Rosch, N., Semiclassical Evaluation Of The Translational-Vibrational Coupling From The Potential Energy Surface Of An Atom-Diatom Reaction, BER. BUNSENGES. PHYS. CHEM. (GERMANY) 77 661 (1973).
452	$(H,H^+,HE,HE^+,HE^+)+(N_2)$	E	5	Hoffman, J. M., Lockwood, G. J., Miller, G. H., Emission Cross Sections For The N_2 Second Positive (0,0) Transition For H, H^+, He, And He^+ Impact, PHYS. REV. A 7 118 (1973).
453	$(H^+)+(N_2)$	E	5	Hoffman, J. M., Lockwood, G. J., Miller, G. H., Absolute Emission Cross Section For N_2^+ (3914 Angstrom) For Protons Incident On N_2 Gas, PHYS. REV. A 11 841 (1975).
454	$(F^+,NE^+,NA^+)+(N_2)$	E	4	Hoffman, J. M., Lockwood, G. J., Miller, G. H., Emission Cross Sections For N_2^+ (3914 Angstrom) For F^+, Ne^+, And Na^+ Ions Incident On N_2 Gas, PHYS. REV. A 9 187 (1974).
455	$(H^+)+(N_2)$	E	4	Hoffman, J. M., Lockwood, G. J., Miller, G. H., Emission Cross Sections For N_2^+ (3914 Angstrom) From H^+ On N_2, VIII ICPEAC, P.667, INSTITUTE OF PHYSICS, BEOGRAD, YUGOSLAVIA (1973).
456	$(H^+)+(N_2)$	E	4	Hoffman, J. M., Lockwood, G. J., Miller, G. H., Emission Cross Sections For N_2^+ (3914 Angstrom) From H^+ On N_2, VIII ICPEAC, P.667, INSTITUTE OF PHYSICS, BEOGRAD, YUGOSLAVIA (1973).
457	$(HE^+)+(N_2)$	E	3	Holland, Redus F., Maier, William B., Production Of Light By Collisions Of 2.5-490 Ev He^+ With N_2, N_2^+ Second Negative, And Unresolved Emissions Between 1200 And 3200 A, J. CHEM. PHYS. 55 1299 (1971).
458	$(H^+)+(HE)$	T	3	Holt, A. R., Hunt, J., Moiseiwitsch, B. L., Application Of A Simplified Second Born Approximation To The Scattering Of Electrons And Protons By Helium Atoms, VII ICPEAC, P.6?, NORTH-HOLLAND PUBL. CO., AMSTERDAM (1971).
459	$(NE^+,NE^{2+})+(SIH_4)$ $(SI^+,SI^{2+})+(NE)$ $(AR^+)+(SIH_4)$ (Cat. by Abstract Only)	E	5	Hooghamer, T., Foster, C., Saris, F. W., X-Ray Production In Collisions Of Ar And Ne With Si. A Comparison Between Gas And Solid Target Experiments, PHYS. FENN. (FINLAND) 9 41 (1974).
460	$(F^{q+},O^{q+})+(NE,HE)$ $(O^{7+},F^{8+},O^{8+},F^{7+})+(HE,NE,AR)$	E	5	Hopkins, F., Kauffman, R. L., Woods, C. W., Richard, P., K X-Ray Transitions In One And Two Electron Oxygen And Fluorine Projectiles Produced In Helium, Neon, And Argon Targets, PHYS. REV. A 9 2413 (1974).
461	$(HCL^*)+(HCL)$	E	1	Hopkins, Barbara M., Chen, Hao-Lin, Vibrational Excitation And Relaxation Of Hcl (V Equal 2) State, J. CHEM. PHYS. 57 3816 (1972).
462	$(HE^*)+(HCL)$	E	2	Hotop, H., Hubler, G., Kaufhold, L., On The Verticality In The Penning Process Comparison Of He (2^1 S, 2^3 S) Penning Ionization And HeI (584.3 Angstrom) Photoionization Of Hcl, INT. J. MASS SPECTROM. ION PHYS. 17 163 (1975).
463	$(H^+)+(H)$	E	3	Houver, J. C., Fayeton, J., Abignoli, M., Barat, M., Measurement Of The Differential Cross Section For H (N Equal 2) Direct Excitation In H^+ - On - H Collisions, PHYS. REV. LETTERS 28 1433 (1972).
464	$(H^+)+(H)$	E	3	Houver, J. Ch., Fayeton, J., Abignoli, M., Barat, M., Measurement Of The Differential Cross Section For H(n Equal 2) Direct Excitation In H^+-on-H Collisions, PHYS. REV. LETTERS 28 1433 (1972).
465	$(H^+)+(H)$	E	3	Houver, J. C., Fayeton, J., Barat, M., Elastic And Inelastic Differential Measurements For H^+ On H Collisions In The 250 Ev-2000ev Energy Range, J. PHYS. B 7 1358 (1974).
466	$(TL)+(HE)$	E	1	Hsieh, J. C., Baird, J. C., Level-Crossing Spectroscopy In 7? Thallium. I. Studies Of Coherence-Narrowing Collision-Broadening, And Buffer-Gas Effects, PHYS. REV. A ? 141 (1972).
467	$(CO_2)+(N_2)$	E	1	Huetz-Aubert, M., Chevalier, P., Echanges Simultanes Vibration Translation V-T, Vibration-Rotation V-R Et Rotation Translation R-T Dans Les Collisions Des Molecules Co_2 (CI? ?) Et P H_2 O? U H_2, COMPT. REND. 276B 211 (1973).
468	$(HE^+)+(NE)$	E	2	Hughes, B. M., Jones, E. G., Tiernan, T. O., Vacuum Ultraviolet Emissions From He^+ / Rare Gas Collisions, VIII ICPEAC, P.223, INSTITUTE OF PHYSICS, BEOGRAD, YUGOSLAVIA (1973).
469	$(H)+(HE,NE,AR,H_2,O_2,N_2)$	E	4	Hughes, R. H., Petefish, H. M., Kisner, H., Excitation Of H Atoms To The N Equal 3 States By The Impact Of 10 To 35 Kev Ground - State H Atoms In He, Ne, Ar, H_2, O_2 And N_2, PHYS. REV. A 5 2103 (1972).
470	$(H)+(H_2,N_2)$	E	4	Hughes, R. H., Kouri, R. F., Excitation Of H Atoms To The 4s State By 10 To 35 Kev Ground - State H - Atom Impact On H_2 And N_2, J. CHEM. PHYS. 57 4603 (1972).
471	$(H)+(HE,NE,AR,N_2)$	E	5	Hughes, R. H., Choe, Song-Sik, Production Of Lyman - Alpha Radiation By 20- To 120 Kev Hydrogen - Atom Impact On He, Ne, Ar And N_2, PHYS. REV. A 5 656 (1972).
472	$(H)+(HE,NE,AR,N_2)$	E	5	Hughes, R. H., Choe, Song-Sik, Excitation To The 2s State Of Hydrogen By 20- To 120 Kev Hydrogen - Atom Impact On He, Ne, Ar And N_2, PHYS. REV. A 5 1758 (1972).
473	$(HE^+)+(NE,AR,KR,XE)$	E	3	Hughes, B. M., Jones, E. G., Tiernan, T. O., Vacuum Ultraviolet Emissions From He^+ /rare Gas Collisions, VIII ICPEAC, P.223, INSTITUTE OF PHYSICS, BEOGRAD, YUGOSLAVIA (1973).
474	$(H^+)+(HE,NE,AR,H_2,O_2,N_2)$	E	5	Hughes, R. H., Stokes, E. D., Choe, S., King, T. J., Electron Capture Into The N Equal 2 States Of Hydrogen By Fast Proton Impact On Gases, PHYS. REV. A 4 1453 (1971).
475	$(H^+)+(H_2)$	E	5	Hughes, R. H., King, T. J., Choe, Song-Sik, Cross Sections For The Production Of Lyman - Alpha Radiation By Fast - Proton Impact On H_2, PHYS. REV. A ? 644 (1972).

	REACTANTS	EXP OR THEOR.	E RANGE	REFERENCE
476	Undef	T	1	Hunter, L. W., Curtiss, C. F., Molecular Collisions. XVIII. Formal Theory Of Rotational And Vibrational Excitation In Collisions Of Polyatomic Molecules, J. CHEM. PHYS. 58 3447 (1973).
477	Undef	T	1	Hunter, L. W., Curtiss, C. F., Molecular Collisions. XVIII. Restricted Distorted Wave Approximation To Rotational And Vibrational Excitation Of Polyatomic Molecules, J. CHEM. PHYS. 58 3457 (1973).
478	Undef	T	1	Hunter, L. W., On Infinite Order Sudden Approximations For An Arbitrary Potential Energy, J. CHEM. PHYS. 62 2855 (1975).
479	(H$^+$)+(CH$_3$CL,CD$_3$CL)	T	2	Hyatt, D., Stanton, L., Close Collision Cross Sections For Ions And Symmetric Top Molecules, J. CHEM. SOC., FARADAY TRANS. II 340 (1973).
480	(AR$^+$,KR$^+$,XE$^+$)+(K,RB,CS)	T	2	Ice, G. E., Olson, R. E., Low-Energy Ar$^+$, Kr$^+$, Xe$^+$ + K, Rb, Cs Charge Transfer Total Cross Sections, PHYS. REV. A 11 111 (1975).
481	(HE$^+$)+(HE,NA,MG)	E	5	Il'in, R. N., Oparin, V. A., Serenkov, I. T., Solov'Ev, E. S., Fedorenko, N. V., Production Of Highly Excited 3S-10D Rev Helium Atoms During Charge Exchange And Their Ionization In A Strong Electric Field, SOVIET PHYS.-JETP 32 59 (1971).
482	(HE$^+$)+(HE)	E	1	Illett, C. S., Young, Jr., W. T., Additional Excitation Transfer between Excited Helium Atoms And Neon In He-Ne Laser Discharges, J. APPL. PHYS. 43 725 (1972).
483	Review	T	0	Inokuti, Mineo, Inelastic Collisions Of Fast Charged Particles with Atoms And Molecules - The Bethe Theory Revisited, REV. MOD. PHYS. 43 297 (1971).
484	(HE$^+$)+(HE)	E	0	Ionikh, Yu. Z., Penkin, N. P., Excitation Of The 4p - 3s Lines Of Neon In A Helium - Neon Mixture, OPT. SPECTROS. 31 453 (1971).
485	(H$^+$)+(HE)	E	1	Ionikh, Yu. Z., Penkin, N. P., Kuranov, A. L., Excitation Of Neon 2p-4d Lines During Collision Of The Second Kind with Helium Atoms In The 2^1S_0 State, OPT. SPECTROS. 34 671 (1973).
486	(H)+(H_2)	T	4	Ioup, J. W., Hussen, A., Vibrational Rotational Excitation In Atom Diatomic Molecule Collisions, PHYS. REV. A 8 2495 (1973).
487	(HE$^+$)+(H_2)	E	3	Isler, R. C., Nathan, R. D., Optical Excitation And Polarization In Low - Energy Collisions Of He$^+$ + H_2, PHYS. REV. A 6 1036 (1972).
488	(HE$^+$)+(AR)	E	3	Isler, R. C., Inelastic Collisions Of He$^+$ And Ar, PHYS. REV. A 10 117 (1974).
489	(HE$^+$)+(HE) (AR$^+$)+(AR)	E	3	Isler, R. C., Murray, E. E., Inelastic Collisions Of Ar$^+$ + Ne And Ar$^+$ + Ar, IX ICPEAC, P.869, UNIVERSITY OF WASHINGTON PRESS, SEATTLE, WASHINGTON (1975).
490	(H_2^+)+(HE,AR,KR)	E	2	Isler, R. C., Polarizations Of The Balmer- Alpha And Beta - Lines Produced By Dissociative Collisions Of H_2^+ with The Rare Gases, PHYS. REV. A 9 1665 (1974).
491	(HE$^+$)+(HE)	E	3	Isler, R. C., Excitation Of Low Excited States Of He I And He I By He$^+$ + Ne Collisions, PHYS. REV. A 10 2093 (1974).
492	(HE)+(HD)	T	2	Itikawa, Y., Differential Cross Section For Rotational Transition In Low Energy Hd-He Collisions, J. PHYS. SOC., JAP. 37 254 (1974).
493	(H_2)+(H_2)	T	2	Itikawa, Y., Calculation Of Rotation Of Rotational Transition Probabilities In Molecular Collisions Application Of H_2 + H_2, J. PHYS. SOC., JAP. 39 1054 (1975).
494	(HD)+(HE)	T	1	Itikawa, Yukikazu, Takayanagi, Kazuo, Rotational Transitions In The Hd Molecule In Low - Energy Hd - He Collisions, J. PHYS. SOC., JAP. 32 1669 (1972).
495	(H$^+$)+(H)	T	5	Jacobs, V., Analytical Expressions For Excitation And Ionization Cross -Sections And Rate Coefficients of Hydrogen - Like Ions By Electron And Proton Impact, J. QUANT. SPECTROS. RADIATIVE TRANSFER 12 243 (1972).
496	(H_2^+)+(HE)	E	4	Jaecks, D. H., De Nijn, W., Martin, P. J., Angular Dependence Of H (2p) And H (2s) Formed In H_2^+ - He Collisions, VII ICPEAC, P.424, NORTH-HOLLAND PUBL. CO., AMSTERDAM (1971).
497	(HE$^+$)+(HE)	E	4	Jaecks, D. H., Coincidence Studies Between Photons And Scattered Particles, VIII ICPEAC, INVITED LECTURE, P.137, INSTITUTE OF PHYSICS, BELGRAD, YUGOSLAVIA (1973).
498	(HE$^+$)+(HE)	E	3	Jaecks, D. H., Eriksen, F. J., De Nijn, W., Macek, J., Polarized-Photon, Scattered-Atom Coincidence Measurements In He$^+$ He Collisions, PHYS. REV. LETTERS 35 721 (1975).
499	(H$^+$)+(HE)	E	4	Jaecks, D. H., De Nijn, W., Martin, P. J., Differential Charge Transfer Measurements In H$^+$ - He Collisions Leading To The Formation Of H (2p) And H (2s), VII ICPEAC, P.605, NORTH-HOLLAND PUBL. CO., AMSTERDAM (1971).
500	Undef	T	0	Janev, R. K., Salin, A., Exchange Interaction Between Ionic And Covalent States Of Two Atoms At Large Distances, J. PHYS. B 5 177 (1972).
501	(H$^+$)+(FE,CU,ZR,MO,RH,AG,SN,BA,SM,TB, TA,PT,AU,PB,U)	E	5	Jarvis, O. N., Whitehead, C., Walsh, M., Production Of K X-Rays By 140 - Mev Protons, PHYS. REV. A 6 1149 (1972).
502	(CO$^+$)+(CO)	T	1	Jeffers, W. Q., Kelley, J. Daniel, Calculations Of V-V Transfer Probabilities In Co-Co Collisions, J. CHEM. PHYS. 55 3433 (1971).

	REACTANTS	EXP OR THEOR.	E RANGE	REFERENCE
503	(HG*)+(HE)	E	4	Jensen, K., Jepsen, J., Petersen, S. E., Worje, L., Andresen, P., Excitation Of The Magnesium 2p⁵ Configuration In Mg⁺ - He Collisions, Z. PHYS. 270 75 (1974).
504	(H⁺)+(HE)	T	4	Joachain, C. J., Vanderpoorten, R., Inelastic Scattering Of Electrons And Protons By Atoms At Intermediate Energies. II, J. PHYS. B 7 817 (1974).
505	(H⁺)+(H,HE)	T	5	Joachain, C. J., Vanderpoorten, R., The Excitation Of Atomic Hydrogen And Helium By A Fast Charged Particle, VII ICPEAC, P.743, NORTH-HOLLAND PUBL. CO., AMSTERDAM (1971).
506	(H⁺)+(H)	T	5	Joachain, C. J., Vanderpoorten, R., Inelastic Scattering Of Electrons And Protons By Atoms At Intermediate Energies, J. PHYS. B 6 622 (1973).
507	(HE⁺)+(HE)	E	2	Jobe, John D., St. John, Robert M., Distribution Of Excitation Transfer In Helium, PHYS. REV. 5 295 (1972).
508	(H⁺,HE⁺,O⁺⁺,O⁺⁺)+(AR)	E	5	Johnson, B. M., Matthews, D. L., Smith, L. E., Moore, C. F., A High Resolution Study Of Ar Lmm Auger Electrons Produced By Ion Bombardment, J. PHYS. B 6 L365 (1973).
509	(N⁵⁺)+(X)	E	5	Jones, F. C., Reno, M., Purser, R. M., Vogel, D. J., Knutson, A. R., Projectile Energy Dependence Of The Al K Sub Alpha Satellite Structure, VIII ICPEAC, P.720, INSTITUTE OF PHYSICS, BEOGRAD, YUGOSLAVIA (1973).
510	(HE⁺)+(LI)	T	2	Junker, B. R., Browne, J. C., Inelastic Scattering Cross Sections For Li⁺ On He The Adiabatic Molecular Model, PHYS. REV. A 10 2078 (1974).
511	(AR⁺,KR⁺,XE⁺,AL⁺)+(AR,H$_2$,HE,CO,XE,H$_2$, O$_2$)	E	2	Kodota, K., Kaneko, Y., Neutralization Method For Detection Of Metastable Ions And Its Application To The Production Of Metastable Rare Gas Ions By Electron Impact, J. PHYS. SOC., JAP. 38 524 (1975).
512	(HE⁺)+(AG)	E	2	Korobat, E. A., Kravchenko, V. F., Popenin, V. F., Excitation Of Ag II Lines By A Pulse Discharge In Mixture Of Silver Vapour With Helium, ZH. PRIKL. SPEKTROSK. (USSR) 15 145 (1971).
513	(HE⁺,NE⁺,XE⁺,A⁺⁺,KR⁺)+(N$_2$)	E	1	Kossel, T. T., Fishburne, E. S., Energy Transfer Between N_2 And Electronically Excited Inert Gas Atoms And Ions, J. CHEM. PHYS. 54 1343 (1971).
514	(O⁺⁺,O⁺⁺,O⁺⁺)+(HE)	E	5	Kauffman, Robert L., Hopkins, Forrest, Woods, C. W., Richard, Patrick, High-Resolution Study Of Be K Alpha X-ray Transitions As A Function Of Oxygen-Projectile Charge State, PHYS. REV. LETTERS 31 961 (1973).
515	(O⁺⁺,O⁺⁺,O⁺⁺)+(HE)	E	5	Kauffman, Robert L., Hopkins, Forrest, Woods, C. W., Richard, Patrick, High-Resolution Study Of Be K Alpha X-ray Transitions As A Function Of Oxygen-Projectile Charge State, PHYS. REV. LETTERS 31 1095 (1973).
516	(CL⁺⁺,CL⁺⁺⁺,CL⁺⁺⁺)+(HE)	T	5	Kauffman, R. L., Woods, C. W., Jopison, R. A., Richard, P., Comparisons Of Cross Sections And Omega Sub K bar In 40-50 Mev Cl⁺⁹ + Be, IN ICPEAC, P.335, UNIVERSITY OF WASHINGTON PRESS, SEATTLE, WASHINGTON (1975).
517	Undef	T	0	Kay, Kenneth G., Rice, Stuart A., Intramolecular Vibrational Energy Transfer A Study Of Representations, J. CHEM. PHYS. 58 4052 (1973).
518	Undef	T	0	Kelley, J. Daniel, Vibrational Energy Transfer Processes In Collisions Between Diatomic Molecules, J. CHEM. PHYS. 56 6108 (1972).
519	Review	E	3	Kempter, V., Electronic Excitation In Collisions Between Neutrals, MOLECULAR SCATTERING, PHYSICAL AND CHEMICAL APPLICATIONS, P.417, WILEY-INTERSCIENCE, LONDON, ENGLAND (1975).
520	(K)+(H$_2$,O$_2$,CO,NO,CO$_2$,C$_2$H$_4$,C$_6$H$_6$)	E	2	Kempter, V., Kubler, B., Le Breton, P., Loren, J., Muchlenbrauch, W., Excitation Of Alkali Atoms In Collisions With Molecules. Population Of The States K (n^2 S) And K (n^2 P), CHEM. PHYS. LETTERS 21 164 (1973).
521	(K)+(NO,H$_2$,O$_2$,CO$_2$,NO$_2$)	E	2	Kempter, V., Koch, W., Schmidt, C., Population Of The Potassium Fine Structure States 4^2 P Sub 1/2 And 4^2 P Sub 3/2 In Collisions With Mercury And Several Molecules, J. PHYS. B 7 1300 (1974).
522	(K)+(NG,K,XA)	E	2	Kempter, V., Koch, W., Kubler, B., Muchlenbrauch, W., Schmidt, C., Excitation In Atom-Atom Collisions. K + Hg, K + K, And Na + K, CHEM. PHYS. LETTERS 29 11 (1974).
523	Review	E	3	Kempter, V., Optical Emission In Slow Atomic Collisions, IX ICPEAC, INVITED LECTURES, P.417, UNIVERSITY OF WASHINGTON PRESS, SEATTLE, WASHINGTON (1975).
524	(K)+(AR,KR,XE)	E	3	Kempter, V., Kubler, B., Muchlenbrauch, W., A New System Of Oscillations In The Potassium-Rare Gas Scattering, J. PHYS. B 7 109 (1974).
525	(K)+(AR,KR,XE)	E	3	Kempter, V., Kubler, B., Muchlenbrauch, W., Excitation In Collisions Between Potassium And Rare Gas Atoms, J. PHYS. B 7 2373 (1974).
526	(HE)+(NE)	E	3	Kempter, V., Veith, F., Zahnle, L., Excitation Processes In Low-Energy Collisions Between Ground State Helium Atoms, J. PHYS. B 6 1041 (1973).
527	(HE)+(HE) (AR)+(AR)	E	3	Kempter, V., Veith, F., Zahnle, L., Study Of The Optical Emission In Ne + Ne And Ar + Ar Collisions In The Range 1 To 500 Ev, J. PHYS. B 6 2045 (1973).
528	(HE)+(HE) (AR)+(AR)	E	3	Kempter, V., Veith, F., Zahnle, L., Study Of The Optical Emission In Collisions Between Ne And Ar-Atoms At Low Energies, IN ICPEAC, P.617, UNIVERSITY OF WASHINGTON PRESS, SEATTLE, WASHINGTON (1975).

	REACTANTS	EXP OR THEOR.	E RANGE	REFERENCE
529	Review	T	5	Kessel, Q. C., Fastrup, B., The Production Of Inner Shell Vacancies In Heavy Ion Atom Collisions, CASE STUDIES IN ATOMIC PHYSICS 3 137 (1973).
530	$(H^+)(H)$	T	4	Khandelwal, G. S., Shelton, J. E., Algebraic Equations For Cross Sections For Excitation Of H Atoms To 4p Or 5s States By Fast Protons, J. PHYS. B 4 1103 (1971).
531	$(H^+)(H)$	E	4	Khayrallah, G. A., Koch, P. M., Bayfield, J. E., Highly - Excited States In H^+ - H Charge Transfer Collisions, VII ICPEAC, P.813, NORTH-HOLLAND PUBL. CO., AMSTERDAM (1971).
532	$(HE^{++})(HE,AR,H_2,N_2)$	E	4	Khayrallah, G. A., Bayfield, J. E., Electron Transfer In Low-Energy He^{++} Collisions. II. Formation Of He^+ (2s) In Collisions With He, Ar, H_2, And N_2, PHYS. REV. A 11 930 (1975).
533	$(AR^{17+},NE^{9+})(NE)$ $(AR^{17+},NE^{9+},N^{6+})(NE)$	E	5	Kienle, P., Kleber, M., Povh, B., Diamond, R. M., Stephens, F. S., Grosse, E., Maier, M. R., Proetel, D., Radiative Capture And Bremsstrahlung Of Bound Electrons Induced By Heavy Ions, PHYS. REV. LETTERS 31 1099 (1973).
534	$(HE^+)(N_2,O_2)$	E	3	Kimura, M., Nishitani, T., Production Of CN^+ (A, B ...) By He^+ Impact On N_2 ..., J. PHYS. SOC. JAP. 35 ... (1973).
535	$(HE^+,AR^+)(CO)$ $(HE^+)(CO_2,NE,AR)$ $(AR^+)(NE,AR)$	E	3	Kimura, M., Iwai, I., Horie, T., Micro-Channel Plate Type Image-Intensifying Detector System For Spectroscopic Study In Electronic And Atomic Collisions By Crossed-Beam Technique, J. PHYS. SOC. JAP. 37 1686 (1974).
536	$(NE^+)(NE)$	T	6	Kishinevskii, L. M., Characteristic Energy Losses In Ne^+ - Ne Collisions, SOVIET PHYS.-TECH. PHYS. 15 2027 (1971).
537	(AR)(SI) (Cal. by Abstract Only)	E	4	Kistemaker, J., Detection Of Characteristic X-Ray Radiation Produced In Two Consecutive Heavy Collisions Between Heavy Atoms, FIZ. ... 23 301 (1972).
538	$(H)(CO_2,O_2,N_2,AR)$	E	4	Kiechner, E. W., Stern, R. C., Absolute Cross Sections For Excitation Of The 4s State Of Hydrogen From Collisions With Atomic And Molecular Targets, IX ICPEAC, P.304, UNIVERSITY OF WASHINGTON PRESS, SEATTLE, WASHINGTON (1975).
539	$(SF_6^*)(HE,AR,KR,XE)$	E	1	Knudtson, J. Thomas, Flynn, George W., Laser Fluorescence Study Of The Equilibration Of Excited Vibrational States Of SF_6 During SF_6 - Rare Gas Collisions, J. CHEM. PHYS. 58 1467 (1973).
540	Undef	T	0	Kocbach, L., A Note On The Impact Parameter Treatment Of Excitation And Ionization By H^+, J. PHYS. B 7 L??? (1974).
541	$(HE,N,AR)(H_2O)$	T	2	Kolb, C. E., Baum, H. R., Tait, K. S., Classical Calculations Of H_2O Rotational Excitation In Energetic Atom - Molecule Collisions, J. CHEM. PHYS. 57 3409 (1972).
542	$(H^+)(HE,NE,AR,KR,XE)$	T	1	Kompaneets, A. S., Transitions Between The 2s And 2p States Of Atomic Hydrogen In Collisions With Slow Noble Gas Atoms, THEOR. EXPER. CHEM. 4 115 (1972).
543	$(H^+,D^+)(H)$	E	4	Kondow, T., Girnius, R. J., Chong, Y. P., Fite, W. L., Production Of Lyman Alpha Radiation In Collisions Of Protons And Hydrogen Atoms, PHYS. REV. A 10 1167 (1974).
544	$(K_2^*)(K)$	E	1	Kopeikina, I. N., Yanson, M. L., Excitation Energy Transfer Due To Molecular-Atomic Collisions In Potassium Vapor, OPT. SPECTROSC. 3?
545	Undef	T	0	Koppel, Louis N., Lin, J., Do - Variational Study Of Collinear Atom - Diatom Collisions, J. CHEM. PHYS. 58 1963 (1973).
546	$(LI^+)(H_2)$	T	2	Kouri, D. J., Mc Guire, P., A Coupled-States Approximation Study Of Li^+ - H_2 Collisions, CHEM. PHYS. LETTERS 29 414 (1974).
547	$(LI^+)(H_2)$	T	2	Kouri, D. J., Wells, C. A., Comparisons Of Morse And Harmonic Oscillator Models For Vibration-Rotation Excitation Of H_2 By Li^+, J. CHEM. PHYS. 60 2296 (1974).
548	$(NA)(H_2^*,D_2^*,N_2^*)$	E	1	Krause, H. F., Fricke, J., Fite, W. L., Excitation Of Na D-Line Radiation In Collisions Of Sodium Atoms With Internally Excited H_2, D_2, And N_2, J. CHEM. PHYS. 56 4593 (1972).
549	$(H^+)(HE)$	E	4	Krause, Daniel, Jr., Soltysik, Edward A., Singlet - Triplet Mixing In The N Equal 3 States Of Helium, PHYS. REV. A 6 694 (1972).
550	$(H^+)(HE)$	E	4	Krause, Daniel, Jr., Soltysik, Edward A., New Measurements Of Excitation Transfer In Low - Density Helium Gas, PHYS. REV. A 5 2044 (1972).
551	$(H_2^*,D_2^*,N_2^*)(NA)$ (Cal. by Abstract Only)	E	1	Krause, Herbert Francis, Differential Cross Section For The Reactive Scattering Of Deuterium Atoms By Hydrogen Molecules Cross Sections For The Excitation Of Na (3P P) By Collisions With Internally Excited Molecular Hydrogen, Deuterium And Nitrogen, THESIS, UNIV. OF PITTSBURGH (1970).
552	$(HG^*)(H_2)$	E	2	Krause, H. F., Johnson, S. G., Datz, S., Crossed Molecular Beam Study Of An Excited Atom Reaction Of Hg (6p Prime 3 P0) With Hydrogen, IX ICPEAC, P.303, UNIVERSITY OF WASHINGTON PRESS, SEATTLE, WASHINGTON (1975).
553	$(K^+)(HE,NE,AR)$ (Cal. by Abstract Only)	T	0	Krivenko, I. V., Rakitskaya, ..., Pop, S. S., Zapesochnyi, I. P., On Applicability Of Three-Term Mode. To Describe Structure Of Excitation Sections At Ion-Atom Collisions, UKR. FIZ. ZH. (USSR) 17 530 (1972).
554	(K)(K)	T	2	Kruger, H., Benisch, W., On The Phenomenological Treatment Of Potassium-Potassium Excitation Collisions By A First Order Born Approach, J. PHYS. B 7 1891 (1974).

	REACTANTS	EXP OR THEOR.	E RANGE	REFERENCE
555	(NE)+(NE*) (Cat. by Abstract Only)	T	1	Kruglevskii, V. A., Ivanskii, ..., The Evaluation of Cross-Sections For Inelastic Collisions Of Metastable And Excited Neon Atoms, LATV. PSR ZINAT. AKAD. VESTIS FIZ. TEHN. ZIN. (USSR) NO.6 3 (1974).
556	(H*)+(H)	T	3	Kubach, C., Sidis, V., Differential Cross Section From Quantal Solutions For Excitation Of H Into 2p State In H+ + H Collisions, J. PHYS. B 8 [illegible] (1975).
557	(H*)+(NE)	E	3	Kubach, C., Benoit, C., Sidis, V., Pommier, J., Barat, M., Charge Exchange In H+ Rare Gas Collisions. IX ICPEAC, P.147, UNIVERSITY OF WASHINGTON PRESS, SEATTLE, WASHINGTON (1975).
558	Review	E	5	Kubo, H., Jundt, F. C., Purser, K. H., Target Z Dependence of Projectile K Alpha X-Ray Production Cross Sections In High-Energy Heavy-Ion-Atom Collisions, PHYS. REV. LETTERS 31 674 (1973).
559	(AR)+(O_2)	T	2	Kuksenko, B. V., Losev, S. A., Probability of Excitation of Vibrations And Dissociation Of Diatomic Molecules, THEOR. EXPER. CHEM. 5 335 (1969).
560	(I_2*)+(I_2,H_2,HE,N)	E	1	Kurzel, R. B., Steinfeld, J. I., Hatzenbuhler, D. A., Leroi, G. E., Energy-Transfer Processes In Monochromatically Excited Iodine Molecules. V. Rotational Energy Transfer In Argon-Excited I_2, J. CHEM. PHYS. 55 [illegible] (1971).
561	(BA*,BA²*,AL*,B*,NE*,AR*,KE*,N_2*,H_2*, N*,O*)+(H_2) (Cat. by Abstract Only)	E	5	Kurzweg, Lutz, Excitation Of 2p1/2 & 2p3/2 Doublets In Collisions Of Heavy Ions With H_2. Observation Of Fine Structure Effects In Hydrogen Lyman - Alpha Using The Beam - Foil Method. THESIS, UNIV. OF PITTSBURGH (1976).
562	(H_2*)+(N_2)	E	2	Kurzweg, L., Egbert, G. T., Burns, D. J., Contribution Of The Metastable C³ Sigma ... State To The Population Of The C³ Pi Sub u State Of N_2 Following Electron Impact Excitation, PHYS. REV. A 7 1966 (1973).
563	(H*)+(HE,NE,AR,KR,XE) (Cat. by Abstract Only)	T	8	Kvlividze, V. A., Svetlov, P. A., 2s Going To 2p Transitions In The Hydrogen Atom In Collision With Inert Gas Atoms, VESTN. MOSK. UNIV., FIZ. ASTRON. (USSR) 14 104 (1973).
564	(LI*)+(H_2)	T	2	La Budde, Robert A., Bernstein, Richard B., Classical Study of Rotational Excitation Of A Rigid Rotor Li+ + H_2, J. CHEM. PHYS. 55 5499 (1971).
565	(AR)+(N_2)	T	2	La Budde, Robert A., Rotational Excitation Of A Rigid Rotor Comparison Of Two Approximate Classical Models With Exact Classical Results, J. CHEM. PHYS. 57 [illegible] (1972).
566	(LI*)+(H_2)	T	2	LaBudde, R. A., Bernstein, R. B., Classical Study Of Rotational Excitation Of A Rigid Rotor Li+ + H_2. II. Correspondence With Quantal Results, J. CHEM. PHYS. 55 [illegible] (1973).
567	(H*)+(AG)	E	5	Laegsgaard, E., Feldman, L. C., Andersen, J. U., Impact Parameter Dependence Of Inner Shell Excitation By Protons, VIII ICPEAC, P.414, [illegible] (1973).
568	(H*)+(SE,AG)	E	5	Laegsgaard, E., Andersen, J. U., Feldman, L. C., Impact - Parameter Dependence Of K - Shell Ionization By Protons, PHYS. REV. LETTERS 29 1206 (1972).
569	(H_2)+(NE,CO)	E	1	Lalita, Krovvidi, Bloom, Myer, Nuclear Spin Relaxation In Dilute Gas Mixtures, CAN. J. PHYS. 49 1018 (1971).
570	(C*)+(H)	T	2	Landman, D. A., Proton Collisional Excitation In The Ground Configurations Of Fe+13 And Fe+9, ASTRON. ASTROPHYS. 43 245 (1975).
571	(H*)+(C,CH_4)	E	5	Langenberg, A., Van Eck, J., Fluorescence Yield Of Carbon, PHYS. REV. LETTERS 31 71 (1973).
572	(H*,HE*)+(CH_4,N_2)	E	5	Langenberg, A., Van Eck, J., K-Shell Ionization Of CH_4, N_2 And Ne By H+ And He+, VIII ICPEAC, P.73, INSTITUTE OF PHYSICS, BEOGRAD, YUGOSLAVIA (1973).
573	(H*,H_2*,HE*,HE²*)+(AR)	E	5	Langenberg, A., De Heer, F. J., Van Eck, J., Ar L-Shell Ionization By Electrons And Light Ions. Determination Of X-Ray Emission Cross Sections And Mean Fluorescence Yields For Charge-State Distributions, J. PHYS. B 8 [illegible] (1975).
574	(H*,H_2*,HE*)+(AR)	T	5	Langenberg, A., De Heer, F. J., Van Eck, J., Outershell Charge State Distribution And Fluorescence, IX ICPEAC, P.525, UNIVERSITY OF WASHINGTON PRESS, SEATTLE, WASHINGTON (1975).
575	(CD*)+(N_2)	E	1	Lanlepce, A., Cramer, ..., Collisional Transfer Induced By Nitrogen, Between (5 S, 5 P) Triplet Levels Of Cadmium Atoms, J. PHYS. (PARIS) 22 653 (1972).
576	(HG*)+(HG)	E	1	Lanlepce, A., Collisional Excitation Transfer Between The (6s, 6d) Levels of Mercury Atoms, Induced By Collisions With Nitrogen Molecules, J. PHYS. (PARIS) 35 923 (1974).
577	(AR*)+(AR)	T	4	Larkins, F. P., Charge State Dependence Of X-Ray And Auger Electron Emission Spectra For Rare - Gas Atoms. I. The Argon Atom, J. PHYS. B 4 1 (1971).
578	(NE*)+(NE)	T	4	Larkins, F. P., Charge State Dependence Of X-Ray And Auger Electron Emission Spectra For Rare - Gas Atoms. II. The Neon Atom, J. PHYS. B 4 14 (1971).
579	(NE*)+(NE,AR) (AR*)+(AR)	T	8	Larkins, F. P., Correlation Diagrams Their Use In The Interpretation Of Heavy - Ion - Atom Inelastic Collisions, J. PHYS. B 5 571 (1972).
580	(HE*)+(HE)	E	3	Latypov, Z. Z., Shaporenko, A. A., Scattering Of He+ Ions By The Core Of The He Atom, SOVIET PHYS.-TECH. PHYS. 15 [illegible] (1975).
581	(NA)+(SO_2,NO_2)	E	2	Lebreton, P. R., Mecklenbrauck, W., Schultz, A., Schlier, Ch., Electronic Excitation In Fast Collisions Of Na With SO_2 And NO_2, J. CHEM. PHYS. 55 2900 (1971).

	REACTANTS	EXP OR THEOR.	E RANGE	REFERENCE
582	(HE*)+(HE)	T	2	Lenamon, L., Browne, J. C., Olson, R. E., Theoretical Low Energy Inelastic Scattering Cross Sections For He (2^3 S) + He (1^1 S) Going To He (2^1 P) + He (1^1 S) Curve Crossing Between The 2^3 Sigma Sub G+ And 2^3 Pi Sub G States Of He_2, PHYS. REV. A 8 [illegible] (1973).
583	(H+)+(N_2,O_2)	E	4	Lenormand, J., Le Doucen, R., Emission Cross-Sections Of The Balmer H Sub Alpha, H Sub Beta, H Sub Gamma Lines, Produced By Impact Of 10-130 Kev Protons On N_2 And O_2, REV. PHYS. APPL. (FRANCE) 10 257 (1975).
584	(LI+)+(HE)	T	4	Lesech, C., Mc Carroll, R., Baudon, J., Charge Exchange In Li+ He Collisions, J. PHYS. B 5 L11 (1972).
585	(LI+)+(H_2)	T	2	Lester, William A., Jr., Schaefer, Joachim, Coupled Channel Study Of Rotational Excitation Of H_2 By Li+ Collisions, J. CHEM. PHYS. 59 3676 (1973).
586	(LI+)+(H_2)	T	2	Lester, W. A., Jr., Schaefer, J., Rotational Transitions In H_2 By Li+ Collisions At E Sub C.M. Equal 0.6 Ev Comparison With Experiment, J. CHEM. PHYS. 60 1672 (1974).
587	(CO*)+(CO)	T	1	Lev-On, M., Paine, W. E., Millikan, R. C., Multiquantum Rotational Transitions In The Mechanism Of Vibrational Energy Exchange Application To Co* - Co, CHEM. PHYS. LETTERS 26 55 (1974).
588	(HE_2+,HE+)+(N_2)	E	2	Leventhal, J. J., Earl, J. D., Harris, H. H., Anomalous Vibrational State Distribution In N_2+ With N_2, PHYS. REV. LETTERS 35 719 (1975).
589	(O+)+(N_2)	E	2	Leventhal, J. J., Harris, H. H., Photon Emission From O+ - N_2 Reactive Scattering, IX ICPEAC, P.575, UNIVERSITY OF WASHINGTON PRESS, SEATTLE, WASHINGTON (1975).
590	Undef	T	1	Levine, R. D., Opacity Analysis Of Inelastic Molecular Collisions. VI. The Sudden Approximation For Rotational Excitation, J. CHEM. PHYS. 54 397 (1971).
591	Undef	T	2	Levine, R. D., Bernstein, R. B., Post - Threshold Energy Dependence Of The Cross Section For Endoergic Processes Vibrational Excitation And Reactive Scattering, J. CHEM. PHYS. 56 2281 (1972).
592	(H+)+(HE,NE,AR,KR)	T	3	Levy, H., II, Born Wave Cross - Section Calculations For Collisional Quenching Of Metastable H (2 S) By Helium, Neon, Argon, And Krypton, PHYS. REV. A 3 1987 (1971).
593	(HE2+,H+)+(CL,CA,TI,NI,CU)	E	5	Lewis, C. W., Watson, R. L., Natowitz, J. B., Projectile Dependence Of K X-Ray Emission Induced By Alpha Particles And Deuterons, PHYS. REV. A 5 1773 (1972).
594	Undef	T	5	Lichten, W., Molecular Orbital X-Rays, PHYS. REV. A [illegible] (1974).
595	(K*)+(AR,HE) (RB*)+(HE)	E	1	Lijnse, P. L., Electronic Excitation Transfer Collisions In Flames. VII. Some Alkali-Doublet Mixing Cross Sections For Inert Gas Collisions, At 1720 K, J. QUANT. SPECTROSC. RADIAT. TRANSFER 14 1195 (1974).
596	(K*)+(N_2,O_2,H_2,H_2O)	E	1	Lijnse, P. L., Hornman, J. C., Electronic Excitation Transfer Collisions In Flames. V. Cross Sections For Quenching And Doublet Mixing Of K (4^2 P) Doublet By N_2, [illegible], J. QUANT. SPECTROSC. RADIAT. TRANSFER 14 [illegible] (1974).
597	(H+)+(H_2)	T	2	Lin, Y. W., George, T. F., Morokuma, K., Semiclassical Treatment Of Charge Exchange At Low Energies Collinear H+ + H_2 Collisions, J. PHYS. B 8 265 (1975).
598	(HE+)+(AR)	E	3	Lipeles, M., Charge-Transfer Excitation Of Ar+ In Low-Energy He+ + Ar Collisions, PHYS. REV. A 4 [illegible] (1971).
599	(HE+)+(AR)	E	3	Lipeles, M., Charge-Transfer Excitation Of Ar+ In Low-Energy He+ + Ar Collisions, PHYS. REV. A 4 [illegible] (1971).
600	(H+)+(HE)	T	5	Lipovetsky, S. S., Senashenko, V. S., Ionization Of Helium Atoms By Fast Charged Particles Via Optically Forbidden Autoionizing States, VIII ICPEAC, P.525, INSTITUTE OF PHYSICS, BEOGRAD, YUGOSLAVIA (1973).
601	Undef	T	2	Lorner, David J., Inelastic Nonreactive Scattering Three Atoms Interacting Via Three Interatomic Potential Energies, J. CHEM. PHYS. 54 1799 (1971).
602	(LI+)+(HE)	E	3	Lorents, D. C., Conklin, G. M., Elastic And Inelastic Scattering In The Li+ + He System, J. PHYS. B [illegible] (1972).
603	(LI+)+(HE)	E	3	Lorents, D. C., Conklin, G. M., Excitation In Li+ + He Collisions, VII ICPEAC, P.130, NORTH-HOLLAND PUBL. CO., AMSTERDAM (1971).
604	(K)+(O_2)	T	2	Los, J., Chemi-Ionization By Dynamic Coupling, VIII ICPEAC, INVITED LECTURE, P.[illegible], INSTITUTE OF PHYSICS, BEOGRAD, YUGOSLAVIA (1973).
605	(AR)+(O_2)	T	1	Losev, S. A., Vibrational Excitation And Dissociation Of A Diatomic Molecule In The Diffusion Approximation, THEOR. EXPER. CHEM. 5 [illegible] (1969).
606	(HE*)+(HE)	E	3	Lott, O. E., III, Gilca, R. C., Llewellyn, J. A., Helium Emission Spectra. I. Intermediate Pressure Studies, J. QUANT. SPECTROSC. RADIAT. TRANSFER 15 [illegible] (1975).
607	(LI+)+(N_2)	E	3	Lowe, R. P., Ferguson, H. I. S., Rotational Excitation In Li+ - N_2 Collisions, CAN. J. PHYS. 49 1680 (1971).
608	(H+,D+)+(H_2,N_2,O_2)	E	3	Loyd, J. H., Dawson, H. R., Measurement Of The Cross Section For Charge Transfer Into The States H (2s) And H (4s) For H+ And D+ Incident On H_2, N_2, And O_2, PHYS. REV. A 11 [illegible] (1975).
609	(I+)+(SE,BR,KR)	E	5	Lutz, H. O., Stein, J., Datz, S., Moak, C. D., Collisional X-Ray Excitation In Solid And Gaseous Targets By Heavy - Ion Bombardment, PHYS. REV. LETTERS 28 8 (1972).

	REACTANTS	EXP OR THEO.	E RANGE	REFERENCE
610	(AR+)+(CU,C,SI,AL,AR)	E	5	Mac Donald, James R., Brown, Matt D., Noncharacteristic X-Ray Bands Produced In Targets Of C, Al, Si And Solid Ar By Argon Ions At Mev Energies, PHYS. REV. LETTERS 29 (1972).
611	(F7+,F8+,F9+)+(AR)	E	5	Mac Donald, J. R., Richard, P., Cocke, C. L., Brown, M., Sellin, I. A., One-And Two-Electron Excited States Produced By Electron Exchange, Excitation, And Electron Capture In Collisions Of Fluorine Ions In Argon Gas At 30.0 Mev, PHYS. REV. LETTERS 31 [illegible] (1973).
612	(F3+,F5+,F7+,F8+,F9+)+(AR,KR,XE)	E	5	Mac Donald, James R., Winters, Loren, Brown, Matt D., Chiao, Tang, Ellsworth, Louis D., Dependence Of X-Ray Yields In Argon, Krypton, And Xenon Upon The Charge State Of Fluorine Ions At 35.7 Mev, PHYS. REV. LETTERS 29 1291 (1972).
613	(C+)+(C)	E	5	Mac Donald, J. R., Brown, M. D., Chiao, T., Observation Of A C X-Ray Band Emitted By The Transient C-C System Formed At Kev Energies, PHYS. REV. LETTERS 30 471 (1973).
614	Undef	T	2	Macek, Joseph, Jaecks, D. H., Theory of Atomic Photon - Particle Coincidence Measurements, PHYS. REV. A 4 2288 (1971).
615	Undef	T	8	Macek, J. H., Briggs, J. S., Vacancy Occupation Probabilities In Ion Atom Collisions, J. PHYS. B 6 841 (1973).
616	Review	T	3	Macek, J., Alignment And Orientation In Atomic Collisions, IX ICPEAC, INVITED LECTURES, P.827, UNIVERSITY OF WASHINGTON PRESS, SEATTLE, WASHINGTON (1975).
617	(NE+)+(H2,D2)	E	3	Mahan, Bruce H., Winn, John S., Inelastic Scattering Of Ne+ By H2 And D2, J. CHEM. PHYS. 57 4321 (1972).
618	(H+)+([illegible])	T	3	Malinovsky, M., New Calculations Of Atomic Data Concerning [illegible] Lines Of [illegible], ASTRON. ASTROPHYS. 43 101 (1975).
619	Undef	T	3	Manson, Steven Trent, Theoretical Study Of Generalized Oscillator Strengths In Atoms Comparison With Experiment And Other Calculations, PHYS. REV. A 5 668 (1972).
620	([illegible])+(AR)	T	5	Mapleton, R. A., Doherty, N., [illegible], P., Electron Capture From Argon By Multiply Charged Atomic Oxygen Ions, PHYS. REV. A [illegible] 1449 (1973).
621	(H+)+(NE)	T	5	Mapleton, R. A., Doherty, N. [illegible], [illegible], Electron Capture From Ne (1s2) By Protons. III, PHYS. REV. A 9 1013 (1974).
622	Undef	T	8	Marcus, R. A., Theory Of Semiclassical Transition Probabilities (S Matrix) For Inelastic And Reactive Collisions. III. Uniformization Using Exact Trajectories, J. CHEM. PHYS. 56 311 (1972).
623	Undef	T	[illegible]	Marcus, R. A., Theory Of Semiclassical Transition Probabilities (S Matrix) For Inelastic And Reactive Collisions, J. CHEM. PHYS. 54 3965 (1971).
624	Undef	T	1	Marcus, R. A., Theory Of Semiclassical Transition Probabilities (S Matrix) For Inelastic And Reactive Collisions. Uniformization With Elastic Collision Trajectories, J. CHEM. PHYS. 56 3548 (1972).
625	(HE)+(CO)	T	2	Marriott, R., The Vibrational Excitation Of Co By Collision With Helium, VII ICPEAC, P.241, NORTH-HOLLAND PUBL. CO., AMSTERDAM (1971).
626	(H+)+(HE)	E	4	Martin, P. J., Jaecks, D. H., Differential Charge Transfer Studies In H+ + He Going To H (1s, 2s, 2p) + He+, PHYS. REV. A 8 2429 (1973).
627	Review	T	3	Masnou-Seeuws, F., Mc Carroll, R., Excitation By Proton Impact Of Fine Structure Transitions In Positive Ions Of P2 Configuration, ASTRON. + ASTROPHYS. 17 441 (1972).
628	(NA+)+(HE)	T	1	Masnou-Seeuws, F., Mc Carroll, R., Use Of Hunds Coupling Scheme In The Theory Of Fine Structure Transitions In Atom-Atom Collisions Application To Na (3p) He Collisions, J. PHYS. B 7 2230 (1974).
629	(H)+(LI,NA,K,RB,CS)	T	5	Mathur, K. C., Tripathi, A. N., Joshi, S. K., Excitation Of Hydrogen In Collisions With Alkali - Metal Atoms, PHYS. REV. A 6 1264 (1972).
630	(H+)+(HE)	T	5	Mathur, K. C., Rudge, M. R. H., The Excitation Of [illegible] States In Helium By Proton Impact, J. PHYS. B 6 2551 (1973).
632	(CL+[illegible])+(NE)	E	5	Matthews, D. L., Johnson, B. M., Hoffmann, G. W., Moore, C. F., Metastable X-Ray Emission Following Violent Cl[illegible] Ne Collisions, PHYS. LETTERS A 49 195 (1974).
633	(NE+)+(NE)	E	5	Matthews, D. L., Fortner, R. J., Burch, D., Johnson, B., Moore, C. F., Charge State Distributions For 0.1-1.0 Mev Ne+ + Ne Collisions Using K X-Ray Measurements, PHYS. LETTERS A 56 441 (1975).
634	(CL+[illegible])+(NE)	T	5	Matthews, D. L., Fortner, R. J., Chen, M. H., Crasemann, B., Sequential Stripping In Highly Ionized Neon, IX ICPEAC, P.961, UNIVERSITY OF WASHINGTON PRESS, SEATTLE, WASHINGTON (1975).
635	(H+,HE+)+(NE)	E	5	Matthews, D. L., Johnson, B. M., Mackey, J. J., Moore, C. F., High Resolution Ne KLL Auger Spectra Produced By H+ And He+ Bombardment, PHYS. LETTERS A 45 447 (1973).
636	(H+,O[illegible],O[illegible])+(NE)	E	5	Matthews, D. L., Johnson, B. M., Smith, L. E., Mackey, J. J., Moore, C. F., Measured K-Shell Fluorescence Yields For Multiply [illegible]ized Neon, PHYS. LETTERS A 48 93 (1974).

	REACTANTS	EXP OR THEOR.	E RANGE	REFERENCE
637	$(H^+)(NE)$	E	5	Matthews, D. L., Moore, C. F., Schneider, D., The K X-Ray Spectrum Of Ne Following Electron And Proton Bombardment, PHYS. LETTERS A 48 27 (1974).
638	$(H)(H_2)$	T	2	Mc Cann, K. J., Flannery, M. R., A Multistate Semiclassical Orbital Treatment Of Heavy-Particle Collisions With Application To H-H2 Rotational Transitions, CHEM. PHYS. LETTERS 35 124 (1975).
639	$(H,HE)(H_2)$	T	2	Mc Cann, K. J., Flannery, M. R., New Semiclassical Treatments Of Rotational And Vibrational Transitions In Heavy-Particle Collisions. I. H-H2 And He-H2 Collisions, J. CHEM. PHYS. 63 4695 (1975).
640	$(H)(H_2)$	T	2	Mc Cann, K. J., Flannery, M. R., A New Multistate Time-Dependent Orbital Treatment Of Heavy-Particle Collisions With Application To Rotational Transitions, IX ICPEAC, P.56, UNIVERSITY OF WASHINGTON PRESS, SEATTLE, WASHINGTON (1975).
641	$(LI^+)(HE)$	E	3	Mc Carroll, R., Piacentini, R. D., Elastic And Inelastic Scattering In Li+ - He Collisions, J. PHYS. B 5 573 (1972).
642	$(HE^+)(HE)$	T	3	Mc Carroll, R., Piacentini, R. D., Rotational Coupling Effects On The Differential Elastic And Inelastic Cross Sections In He+ - He Collisions, J. PHYS. B 4 1676 (1971).
643	$(H^+)(H);(HE^+,LI^+)(HE)(HE)(HE)$	T	3	Mc Carroll, R., Excitation And Ionization In Ion-Atom Collisions (Theoretical Aspects), VIII ICPEAC, P.71, INSTITUTE OF PHYSICS, BEOGRAD, YUGOSLAVIA (1973).
644	$(O^{3+})(NE)$	E	5	Mc Crary, D. G., Senglaub, M., Richard, Patrick, 1s - 2p Transitions In Ne Bombarded With 21 - Mev Oxygen Ions, PHYS. REV. A 5 263 (1972).
645	$(HE,HE^+)(HE)$	E	4	Mc Cullough, R. W., Blair, W. W. F., Simpson, F. R., Gilbody, H. B., Excitation In Collisions Between Fast Metastable And Ground State Helium Atoms, VIII ICPEAC, P.447, INSTITUTE OF PHYSICS, BEOGRAD, YUGOSLAVIA (1973).
646	$(HE)(HE)$	E	4	Mc Cullough, R. W., Blair, W. W. F., Simpson, F. R., Gilbody, H. B., Excitation In Collisions Between Fast Metastable And Ground State Helium Atoms, VIII ICPEAC, P.447, INSTITUTE OF PHYSICS, BEOGRAD, YUGOSLAVIA (1973).
647	$(H^+,HE^+,HE^+,HE)(MG)$	E	4	Mc Cullough, R. W., Goffe, T. V., Simpson, F. R., Gilbody, H. B., Excitation Of Magnesium By H+, H2 (1s), He+, He (1S S) And He (2S S) Impact, IX ICPEAC, P.949, UNIVERSITY OF WASHINGTON PRESS, SEATTLE, WASHINGTON (1975).
648	$(HE^+)(HE)$	E	4	Mc Cullough, R. W., Simpson, F. R., Gilbody, H. B., Excitation In Fast He (2S S) - He (1S S) Collisions, J. PHYS. B 6 L322 (1973).
649	$(HE)(H_2)$	T	2	Mc Guire, P., Elastic And Inelastic Angular Distributions In The J Sub Z Conserving Coupled States Approximation For Molecular Collisions, CHEM. PHYS. LETTERS 23 575 (1973).
650	$(HE)(H_2)$	T	2	Mc Guire, P., Coupled-States Approach For Elastic And For Rotationally And Vibrationally Inelastic Atom-Molecule Collisions, J. CHEM. PHYS. 62 525 (1975).
651	$(H)(H_2,D_2)$	T	2	Mc Guire, P., Krueger, H., Elastic And Rotationally Inelastic H-H2 And H-D2 Collisions, J. CHEM. PHYS. 63 1090 (1975).
652	Undef	T	6	Mc Guire, J. H., Parallel Interpretations For Level Matching Enhancements In Inner-Shell Vacancy Production In Ion Atom Collisions, PHYS. LETTERS A 60 397 (1976).
653	$(LI^+)(H_2)$	T	2	Mc Guire, P., Fremerey, H., Coupled-Channel Investigation Of Elastic And Inelastic Collisions Between Li+ And H2, VIII ICPEAC, P.83, INSTITUTE OF PHYSICS, BEOGRAD, YUGOSLAVIA (1973).
654	$(LI^+)(H_2)$	T	2	Mc Guire, P., Fremerey, H., Coupled - Channel Investigation Of Elastic And Inelastic Collisions Between Li+ And H2, VIII ICPEAC, P.83, INSTITUTE OF PHYSICS, BEOGRAD, YUGOSLAVIA (1973).
655	$(H_2)(HE,H)(DD_2)(H);(H_2)(H_2)$	T	2	Mc Kenzie, R. L., Vibration-Translation Energy Transfer In Anharmonic Diatomic Molecules. I. A Comparative Evaluation Of The Semiclassical Approximation, J. CHEM. PHYS. 63 1655 (1975).
656	$(H^+)(HE,AR)$	E	4	Mc Knight, R. H., Jaecks, D. H., Scattering With Charge Exchange To The State H (2p) For The Systems H+ + He And H+ + Ar, PHYS. REV. A 4 2281 (1971).
657	$(LI^+)(LI)$	T	3	Mc Millan, W. L., Theory Of One - Electron Molecules. I. Li2+, PHYS. REV. A 4 69 (1971).
658	$(H^+,H)(H_2)$	E	4	Mc Neal, R. J., Birely, J. H., Cross - Sections For Emission Of Lyman - Alpha Radiation In Collisions Of 1-25 keV H+ And H With H2, VII ICPEAC, P.413, NORTH-HOLLAND PUBL. CO., AMSTERDAM (1971).
659	Review	T	5	Mc Neal, R. J., Birely, J. H., Laboratory Studies Of Collisions Of Energetic H+ And Hydrogen With Atmospheric Constituents, REV. GEOPHYS. SPACE PHYS. 11 633 (1973).
660	$(OCS)(OCS)$	T	0	Mehrotra, S. C., Boggs, J. E., A Semiclassical, Nonperturbative Approach To The Description Of Molecular Collisions, J. CHEM. PHYS. 62 1453 (1975).
661	$(N_2)(AR)$	T	0	Mehrotra, S. C., Boggs, J. E., A Semiclassical, Nonperturbative Approach To Collision-Induced Transitions Between Rotational Levels For The N2 Ar System, J. CHEM. PHYS. 63 4619 (1975).
662	$(CS^+)(N_2)$	T	1	Mellins, V. P., Fishman, V. M., Quenching Cross Section Of The Resonance Excitation Of An Alkali Additive Atom By A Diatomic Molecule, HIGH TEMP. 12 433 (1974).

REACTANTS	EXP OR THEOR.	E RANGE	REFERENCE
663 (HE*)+(ZN) (HE*)+(CA)	T	2	Seltus, [illegible], The Charge Exchange Mechanism in Metal Vapor Lasers, J. Phys. B 7 [illegible] (1974).
664 (HE*)+(CO,CO$_2$)	E	3	Rentall, J. [illegible], Ogilvie, R. [illegible], Caplan, [illegible], Optical [illegible] of The Charge Exchange Products of [illegible], VIII ICPEAC, P.573, INSTITUTE OF PHYSICS, [illegible] YUGOSLAVIA (1973).
665 (N$_2$)+(N$_2$)	T	1	Rouleau, J., [illegible], Probabilities de Transition et Sections Efficaces de Collision: Calcule et Resultats pour Les Molecules d'Azote Considerees Comme Oscillateurs de Morse, COMPT. REND. [illegible] (1973).
666 (CO$_2$)+(H$_2$)	E	1	Reyer, [illegible], [illegible], Thomas, [illegible], Interaction of Upper State (00°1) Effects In The Detection of Quantum Transfer In Vibrationally Inelastic Collisions of CO$_2$ with Hydrogen, PHYS. REV. A 11 [illegible] (1975).
667 Review	E	5	Meyerhof, W. E., [illegible] ICPEAC, P.673, [illegible] UNIVERSITY OF WASHINGTON PRESS, SEATTLE, WASHINGTON (1973).
668 (BR*)+(BR,KBR,ZR,TC,RE,TA)	E	5	Meyerhof, W. E., [illegible], Triplett, [illegible], Observation of a Small [illegible] From [illegible] Collisions, PHYS. REV. LETTERS [illegible] (1973).
669 (HE)+(H$_2$)	T	2	Micha, D. A., Rotenberg, [illegible], Angular Distributions for The Vibrational Excitation of Diatomic Molecules by Atoms: Results for H$_2$ + HE In The [illegible], VIII ICPEAC, [illegible], BELGRADE, YUGOSLAVIA (1973).
670 (HE)+(H$_2$)	T	2	Micha, D. A., Rotenberg, [illegible], Collision Energy Dependence of Angular Distributions for Vibrational Excitation of H$_2$ by [illegible], CHEM. PHYS. LETTERS 13 [illegible] (1972).
671 (AR*,LI*)+(H$_2$) (HE*)+(HE)	T	2	Micha, D. A., Fuss, [illegible], Collision Dynamics of Three Interacting Atoms: The Multiple-Collision Expansion, J. CHEM. PHYS. [illegible] (1973).
672 (LI*,NA*)+(N$_2$)	E	3	Mickle, R. [illegible], Ferguson, [illegible], Rotational Excitation In LI$^+$ - N$_2$, NA$^+$ - N$_2$ Collisions, VIII ICPEAC, P.300, [illegible] (1973).
673 (NA*,LI*)+(N$_2$)	E	3	Mickle, R. [illegible], Ferguson, [illegible], Rotational Excitation In LI$^+$ - N$_2$, NA$^+$ - N$_2$ Collisions, [illegible] (1973).
674 (N*)+(F)	T	0	Mies, F. H., Molecular Theory of Fine - Structure Transitions [illegible], VIII ICPEAC, [illegible] (1973).
675 Undef	T	0	Miller, William H., George, Thomas F., Semiclassical Theory of Electronic Transitions In Low Energy Atomic and Molecular Collisions Involving Several Nuclear Degrees of Freedom, J. CHEM. PHYS. [illegible] (1972).
676 Undef	T	1	Miller, William H., Classical S Matrix for Rotational Excitation: Quenching of Quantum Effects in Molecular Collisions, J. CHEM. PHYS. [illegible] (1971).
677 (CO$_2$)+(D$_2$)	E	1	Miller, D. J., Millikan, R. C., Vibration-Vibration Energy Exchange Between Carbon Monoxide and Oxygen, [illegible] LETTERS [illegible] 10 (1970).
678 (H$^-$)+(H)	T	3	Mizuno, Junya, [illegible], Theoretical Investigation of Complex Potentials for Atomic Collisions. [illegible] Semiclassical Descriptions of Atomic Collisions, PHYS. REV. A 6 [illegible] (1972).
679 (I*)+(AU,TH,U)	T	5	Mokler, P. H., [illegible], Armbruster, [illegible] Superheavy, [illegible] Transiently Formed [illegible] Atom Collisions, PHYS. REV. LETTERS [illegible] (1972).
680 (I)+(YB,AU,PB,BI,U) (HE)+(HG)	E	5	Mokler, P. H., Armbruster, P., [illegible], Kraft, [illegible], Stein, H. J., Experimental Evidence for Anisotropy of Non-Characteristic [illegible], VIII ICPEAC, P.561, UNIVERSITY OF WASHINGTON PRESS, SEATTLE, WASHINGTON (1973).
681 (I*)+(HF,YB,AU)	E	5	Mokler, P. H., Energy Shift of Characteristic [illegible] In Collisions Between [illegible] Targets, PHYS. REV. LETTERS [illegible] (1972).
682 (HE*)+(CS)	E	4	Montmagnon, J. L., De Palmas, [illegible], Lefevre, [illegible], Neutralization of Fast Helium Ions by Cesium, PHYS. LETTERS A [illegible] (1973).
683 (H*,H$_2$*,HE*)+(O$_2$)	T	2	Moore, John H., Jr., Ion-Impact Excitation [illegible] From [illegible], J. CHEM. PHYS. [illegible] (1973).
684 (H*)+(O$_2$,NE,HE,AR,N$_2$)	E	3	Moore, J. H., Jr., Investigation of The [illegible] Rule In Collisions of [illegible] with HE, NE, AR, [illegible], PHYS. REV. A 8 [illegible] (1973).
685 (H**)+(HE,NE,AR,N$_2$)	E	3	Moore, J. H., Inelastic and Superelastic Scattering [illegible], VIII ICPEAC, P.657, INSTITUTE OF PHYSICS, [illegible], YUGOSLAVIA (1973).
686 (H*)+(HE,NE,AR,N$_2$)	E	3	Moore, J. H., Inelastic and Superelastic Scattering of [illegible], VIII ICPEAC, P.657, INSTITUTE OF PHYSICS, [illegible], YUGOSLAVIA (1973).
687 (H*,H$_2$*,H*)+(N$_2$,CO)	E	3	Moore, J. H., Jr., Vibrational Excitation In [illegible] Molecule Collisions At 2-7 Times 10[illegible] Cm/sec, PHYS. REV. A [illegible] 2043 (1974).
688 (H*)+(KR,XE)	E	3	Moore, J. H., Jr., Wigner Spin Rule In H$^+$ - KR and H$^+$ - XE Collisions, PHYS. REV. A 10 [illegible] (1974).

	REACTANTS	EXP OR THEOR.	E RANGE	REFERENCE
689	(H^+,H,HE^+)+(CO,N_2)	E	3	Moore, J. H., Jr., The Excitation Near-UV Emission by H^+, H, And He^+ Impact On CO, And N_2 At 0.7-10 keV, J. GEOPHYS. RES. 80 3727 (1975).
690	Review	E	5	Moore, C. F., High-Resolution X-Ray and Auger Electron Measurements in Ion-Atom Collisions, IX ICPEAC, INVITED LECTURES, P.447, UNIVERSITY OF WASHINGTON PRESS, SEATTLE, WASHINGTON (1975).
691	(H^+)+(N_2)	E	3	Moore, J. H., Jr., Electronic Excitation Of N_2 And Dissociative Excitation Of O_2 By Proton Impact, J. GEOPHYS. RES. 77 5567 (1972).
692	([illegible],[illegible])+(NE)	E	4	Moore, C. F., Mackey, J. J., Smith, L. E., Bolger, J., Johnson, B. M., Matthews, D. L., Observation Of A Projectile Charge Dependence For The Neon K-Auger Electron Spectrum, J. PHYS. B 7 L302 (1974).
693	(CO^+)+(AR)	E	1	Moran, T. F., Petty, F., Turner, G. S., Pure Rotational Excitation in CO^+ - Ar Interactions By Ion Beam Collision Spectroscopy, CHEM. PHYS. LETTERS [illegible] 379 (1971).
694	(N_2^+)+(N_2) (O_2^+)+(O_2) (CO^+)+(CO) (NO^+)+(NO)	T	3	Moran, T. F., Mc Cann, K. J., Flannery, M. R., et al., Vibrational Excitation of Ions And Molecules Via Charge Exchange in N_2^+ - N_2, O_2^+ - O_2, CO^+ - CO, And NO^+ - NO Collisions, J. CHEM. PHYS. 61 3857 (1974).
695	(HE^+,NE^+,AR^+,KR^+)+(H_2)	T	2	Moran, T. F., Fullerton, D. C., Rotational Excitation of Ion-Molecule Reaction Products: Comparison Of The Statistical Phase-Space Model with Experiment, J. CHEM. PHYS. 56 21 (1972).
696	(LI^+)+(NE)	T	3	Moraon, F. J., Marcuzzi, [illegible], Duncan C. R., Shapes Of Optical Emission Lines From Atoms Excited By Fast Ion Impact. I. Calculated Profiles, CAN. J. PHYS. 53 2422 (1975).
697	(H)+(H)	T	4	Morgan, T. J., Geddes, J., Gilbody, H. B., Excitation of The 2s And 2p States Of Hydrogen In Fast Collisions between Hydrogen Atoms, J. PHYS. B 7 142 (1974).
698	(H^+)+(H)	E	4	Morgan, T. J., Geddes, J., Gilbody, H. B., Formation of H (2s) And H (2p) Atoms In Collisions Of 2-26 keV Protons with Hydrogen Atoms, J. PHYS. B 6 2118 (1973).
699	(H^+)+(H)	E	4	Morgan, T. J., Geddes, J., Gilbody, H. B., Formation Of H (2p) And H (2s) Atoms In H^+ - H (1s) Collisions, VIII ICPEAC, P.727, INSTITUTE OF PHYSICS, BELGRADE, YUGOSLAVIA (1973).
700	(H^+)+(H)	E	4	Morgan, T. J., Geddes, J., Gilbody, H. B., Formation Of H (2p) And H (2s) Atoms in H^+ - H (1s) Collisions, VIII ICPEAC, P.727, INSTITUTE OF PHYSICS, BELGRADE, YUGOSLAVIA (1973).
701	(H_2^+)+(HE,N_2,H_2)	T	4	Morgan, Thomas J., Berkner, Klaus H., Pyle, Robert V., Cross Sections For The Destruction Of 1 - To 25 - keV / Nucleon B^3 Sigma Sub U+ And C^3 Pi Sub U Hydrogen Molecules In Collisions with H_2 Gas, PHYS. REV. LETTERS 26 602 (1971).
702	(H_2^+,D_2^+)+(MG)	E	4	Morgan, Thomas J., Berkner, Klaus H., Pyle, Robert V., Production (in Mg Vapor) and Loss (in H_2 Gas) of 1- To 25-keV / Nucleon B^3 Sigma Sub U+ And C^3 Pi Sub U Hydrogen Molecules, PHYS. REV. A 5 1591 (1972).
703	(NE)+(NE)	E	3	Morgenstern, R., Barat, M., Lorents, D. C., Inelastic Scattering in Ne^+ + Ne Collisions, J. PHYS. B 6 L330 (1973).
704	(HE)+(HE)	E	3	Morgenstern, R., Barat, M., Lorents, D. C., Inelastic Differential Scattering Of He (1^1S) by He (1^1S), VIII ICPEAC, P.103, INSTITUTE OF PHYSICS, BELGRADE, YUGOSLAVIA (1973).
705	(H_2)+(H_2)	T	2	Morse, R. I., Semiclassical Transition Probabilities for Collinear Diatom - Diatom Collisions, J. CHEM. PHYS. 56 [illegible] (1972).
706	Undef	T	0	Morse, Robert I., La Bracque, Rodney J., Collinear Collisions Of An Atom And A Morse Oscillator: An Appropriate Semiclassical Approach, J. CHEM. PHYS. 55 [illegible] (1971).
707	([illegible],[illegible])+(NE)	T	5	Mowat, J. Richard, Pegg, D. J., Peterson, R. S., Griffin, P. M., Sellin, I. A., Projectile Structure Effects in Neon K X-Ray Production By Fast, Highly Ionized Argon Beams, PHYS. REV. LETTERS 29 1577 (1972).
708	([illegible])+(NE,AR)	E	5	Mowat, J. R., Sellin, I. A., Pegg, D. J., Peterson, R. S., Brown, M. D., Mac Donald, J. R., Exponential Projectile Charge Dependence Of Ar K And Ne K X-Ray Production By Fast, Highly Ionized Argon Beams In Thin Neon Targets, PHYS. REV. LETTERS 30 1289 (1973).
709	([illegible])+(NE,AR)	E	5	Mowat, J. R., Sellin, I. A., Pegg, D. J., Peterson, R. S., Brown, M. D., Mac Donald, J. R., Exponential Projectile Charge Dependence Of Ar K And Ne K X-Ray Production By Fast, Highly-Ionized Argon Beams In Neon Targets, VIII ICPEAC, P.727, INSTITUTE OF PHYSICS, BELGRADE, YUGOSLAVIA (1973).
710	([illegible])+(H)	T	4	Moszone, A., Gallaher, D. F., Close Coupling Calculations for Massive Ion-Hydrogen Atom Collisions In The Linear Trajectory Model, J. PHYS. B 6 2330 (1973).
711	(HE^{2+})+(HE)	T	5	Mukherjee, S. C., Roy, K., Sil, N. C., Electron Capture And Excitation In He^{2+} He Collisions, J. PHYS. B 6 467 (1973).
712	Review	T	5	Muller, [illegible], Radiative Processes In Transient Quasi-Molecules, IX ICPEAC, INVITED LECTURES, P.481, UNIVERSITY OF WASHINGTON PRESS, SEATTLE, WASHINGTON (1975).
713	(C^{5+})+(AR)	E	5	Murnick, D. E., Leventhal, M., Kugel, H. W., Determination Of The Hydrogenic - Carbon Lamb Shift via 2S Sub 1/2 Metastable Quenching, PHYS. REV. LETTERS 27 1625 (1971).

	REACTANTS	EXP OR THEOR.	E RANGE	REFERENCE
714	(HE*)(H$_2$)	E	3	Nathan, [illegible], Polarization of the [illegible] Produced In He* + H$_2$ Collisions, PHYS. [illegible] [illegible] (1971).
715	(RB,TL)(HE,AR)	E	1	Neumann, [illegible], Collisional Excitation of Metastable Levels of Barium And Thallium [illegible], Z. PHYS. 252 [illegible] (1972).
716	(K,K*)(H$_2$)	E	3	Neff, [illegible], The Selective Efficiency of [illegible] Atoms Excited From A Meteor, ASTROPHYS. J. 173 [illegible] (1972).
717	(AR)(HCL)	T	1	Neilsen, Walter [illegible], [illegible] A Semiclassical Study of Molecular Collisions. II. Application To HCl + Argon, J. CHEM. PHYS. [illegible] 4149 (1973).
718	Review	E	2	Neoh, [illegible], Herschbach, [illegible], Reactive And Nonreactive [illegible] Of Electronic Excitation And Molecular Dissociation In Hyperthermal Collisions of Alkali Atoms With [illegible], J. CHEM. PHYS. [illegible] 1829 (1972).
719	(HE*,LI)(HE)	T	4	Nielsen, [illegible], [illegible] Excitation In Collisions Of Li And He* With He And Ne, [illegible], UNIVERSITY OF WASHINGTON PRESS, SEATTLE, WASHINGTON (1973).
720	(K*)(HE,NE,AR,H$_2$,CH$_4$,CD$_4$)	E	1	Nienhuis, [illegible], Coherence Transfer Between The [illegible] 1/2 And P [illegible] 3/2 States in Potassium, Induced In Collisions With Noble Gas Atoms And With Molecules, CAN. J. PHYS. 51 [illegible] (1973).
721	(RB*)(HE,NE,AR,KR,XE)	E	1	Nienhuis, [illegible], Coherence Transfer Between The [illegible] 1/2 And [illegible] 3/2 States in Rubidium, Induced In Collisions With Noble Gas Atoms, CAN. J. PHYS. 51 [illegible] (1973).
722	(HE*)(HE)	T	3	Nikitin, [illegible], Calculation of Transition Probabilities Using The Landau - Zener Model, [illegible] 522 (1972).
723	(HE*)(HE)	T	4	Nikitin, [illegible], Excitation Mechanism In The He* + He System, [illegible] PHYS.-JETP LETTERS 21 [illegible] (1975).
724	(HCL*)(HCL) (HBR*)(HBR)	E	1	Noter, [illegible], Temperature Dependence Of Vibration - To - Vibration Energy Transfer In HCl And HBr, J. CHEM. PHYS. [illegible] (1973).
725	(H*,H$_2$*,HE)(HE)	E	5	Oda, [illegible], Comparison of [illegible] Emission Cross Sections From Autoionizing States Of Helium By Electron Impact And H*, H$_2$*, And He Impacts, J. PHYS. [illegible] L389 (1973).
726	(AR*)(AR)	E	3	Ogurtsov, [illegible], Decay Of Autoionization States In Collisions Of Heavy Atomic Particles, VIII ICPEAC, [illegible] P.779, UNIVERSITY OF WASHINGTON PRESS, SEATTLE, WASHINGTON (1973).
727	(H*)(HE)	T	5	Ojha, [illegible], Born Cross Sections For The Excitation Of Helium By Fast Protons, [illegible] 2253 (1973).
728	(HE*)(HE)	T	2	Olson, Ronald [illegible], Low - Energy Theoretical Inelastic - Scattering Differential Cross Sections For The Process He* + He Going To He* + He [illegible] (1972).
729	(HE*)(HE)	T	3	Olson, [illegible], Anderson, [illegible], Collision Spectroscopy Of The He* He System, J. PHYS. [illegible] (1972).
730	(O*,[illegible])(AL)	E	5	Olsen, [illegible], Experimental Energy Dependence of Aluminum Multiple Inner Shell Ionization From [illegible] To [illegible] MeV Oxygen Bombardment, PHYS. LETTERS A [illegible] (1973).
731	(HE*)(HE)	T	3	Olson, [illegible], Smith, [illegible], Collision Spectroscopy. Semi-Classical Theory Of Inelastic Scattering With Applications To He* + He, PHYS. REV. A [illegible] (1973).
732	(HE)(HE)	T	3	Olson, [illegible], Theoretical Cross Sections For He (1^{1}S) + He (2^{1}S) Going To He (1^{1}S) + He (2^{3}P) And He (2^{3}S), J. PHYS. B [illegible] (1972).
733	(LI*)(H)	T	3	Olson, Ronald [illegible], Charge Transfer At Large Internuclear Distances Application To Asymmetric Alkali - Ion - Alkali - Atom Systems, PHYS. REV. A [illegible] 1422 (1972).
734	(HE*)(K,RB,CS)	T	4	Olson, [illegible], Smith, [illegible], Effect of Long Range Forces In Near Resonant Charge Transfer Application To He* + K, Rb, And Cs, PHYS. REV. A 7 1529 (1973).
735	(HE*)(HE)	E	2	Olson, [illegible], Morgenstern, [illegible], Lorents, [illegible], Peterson, [illegible], Low Energy Inelastic Scattering of He [illegible] On He (1^{1}S), PHYS. REV. A 8 2387 (1973).
736	(HE*)(HE)	T	0	Olson, [illegible], Lorents, [illegible], Inelastic Differential Scattering Cross - Sections For He* + He Leading To The He* + He [illegible] Final State, VII ICPEAC, P.113, NORTH-HOLLAND PUBL. CO., AMSTERDAM (1971).
737	(H*)(H)	T	4	Omidvar, [illegible], Asymptotic Form Of The Charge-Exchange Cross Section In Three-Body Rearrangement Collisions, PHYS. REV. A 12 911 (1975).
738	(H*)(H)	T	5	Omidvar, [illegible], Asymptotic Form For The Cross Section For The Coulomb Interacting Rearrangement Collisions, PHYS. REV. LETTERS [illegible] (1973).
739	(CL*,AR*)(AR)	E	5	Mona, [illegible], Garcia, [illegible], Fortner, [illegible], X-Ray Cross Sections For Cl*, Ar* Going To Ar Collisions, [illegible] ICPEAC, P.[illegible], UNIVERSITY OF WASHINGTON PRESS, SEATTLE, WASHINGTON (1973).
740	(N$_2$*)(C)	E	5	Mona, [illegible], Garcia, [illegible], Anomalous Low Energy X-Ray Satellites In Heavy Ion-Induced K-Shell X-Rays, VIII ICPEAC, P.[illegible], INSTITUTE OF PHYSICS, BEOGRAD, YUGOSLAVIA (1973).

	REACTANTS	EXP OR THEOR.	E RANGE	REFERENCE
741	$(C^{+},AR^{+})+(O_2)$	E	2	Ottinger, Ch., Simonis, J., Rotational Excitation Of Reaction Products $C^{+} + O_2$ Going To CO^{+} (A2 Pi) + O, Phys. Rev. Letters 35 [illegible] (1975).
742	$(MG^{+})+(NA,K)$ $(SR^{+})+(HE,AR,KR,XE)$	E	3	[illegible], V. I., [illegible], [illegible], A. B., Excitation Processes In Collisions Between Alkali-Earth Ions And Atoms Of The Inert Gases And Alkali Metals, VIII ICPEAC, p. 461, Institute Of Physics, Beograd, Yugoslavia (1973).
743	$(MG^{+})+(HE,NE,AR,KR,XE)$	E	3	[illegible], V. ..., Shpenik, O. B., Zapesochnyi, I. P., Excitation In Collisions Between Magnesium Ions And Inert Gas Atoms, Soviet Phys.-Tech. Phys. 1[illegible] 342 (1976).
744	$(BA^{+})+(XE)$	E	3	[illegible], V. I., Belousov, [illegible], [illegible], Shpenik, O. B., The Specificity Of The Threshold Excitation And Polarization Behaviour Of Ba^{+} Resonance Radiation In Collisions Of Barium Ions With Inert Gas Atoms, IX ICPEAC, p. 761, University Of Washington Press, Seattle, Washington (1975).
745	$(MG^{+})+(NA,K)$ $(SR^{+})+(HE,NE,AR,XE)$	E	3	[illegible], V. I., [illegible], [illegible], A. B., Zapesochnyi, I. P., Shpenik, O. B., Excitation Processes In Collisions Between Alkali-Earth Ions And Atoms Of The Inert Gases And Alkali Metals, VIII ICPEAC, p. 461, Institute Of Physics, Beograd, Yugoslavia (1973).
746	$(AR)+(N_2)$	T	2	Pack, R. T., Close Coupling Test Of Classical And Semiclassical Cross Sections For Rotationally Inelastic Ar-N2 Collisions, J. Chem. Phys. 62 3143 (1975).
747	$(AR^{+})+(C,MG,AL,TI,FE,NI,CU)$	E	4	[illegible], R., Bell, F., Argon L X-Ray Spectra From Collisions Of Argon Ions With Various Solid State Targets, Phys. Letters A 43 351 (1973).
748	Undef	T	4	Parilis, E. S., Verleger, V. K., Doppler Shift Of Light At Atomic Collisions In Gases, VIII ICPEAC, p. 629, [illegible] (1973).
749	$(AR^{+})+(AR)$	T	4	Parilis, E. S., Verleger, V. K., Doppler Profile Of An Atomic Line In The Differential Excitation Cross Section, Soviet Phys.-Tech. Phys. 19 1567 (1975).
750	$(LI^{+})+(HE)$	E	4	Park, J. T., Pol, V., Lawler, J., George, J., Excitation Of The He(2¹S And 2¹P) States By 15-100-keV Li^{+} Bombardment, Phys. Rev. Letters 30 1011 (1973).
751	$(HE^{+})+(HE)$	E	4	Park, J. T., [illegible], Angular Scattering Of 25-100 keV He^{+} In The Excitation Of He Atoms To The N Equal 2 States, VIII ICPEAC, p. 477, Institute Of Physics, Beograd, Yugoslavia (1973).
752	$(H^{+})+(HE)$	E	5	Park, J. T., Pol, V., Angular Scattering Of 25-100 keV H^{+} In The Excitation Of He Atoms To The N Equal 2 States, VIII ICPEAC, p. 477, Institute Of Physics, Beograd, Yugoslavia (1973).
753	$(H^{+})+(H)$	E	5	Park, J. T., Aldag, J. E., George, J. M., Excitation Of Atomic Hydrogen To The N Equal 2 States By 15-200 keV Protons, Phys. Rev. Letters 34 1253 (1975).
754	$(LI^{+})+(HE)$	E	5	Park, J. T., Pol, V., Lawler, J., George, J., Aldag, J., Parker, J., Peacher, J. L., Differential Cross Sections For Elastic And Inelastic Scattering Of 15-100-keV Li^{+} By He, Phys. Rev. A 11 857 (1975).
755	$(H^{+})+(O_2)$	E	5	Park, John T., Schowengerdt, F. D., Schoonover, D. R., Collision Cross Sections For The Excitation Of The Schumann-Runge Dissociation Continuum In Molecular Oxygen By 25-150 keV Protons, Phys. Rev. A 3 679 (1971).
756	Undef	T	1	Pattengill, M. D., Curtiss, C. F., Bernstein, R. B., Molecular Collisions. XIV. First-Order Approximation Of The Generalized Phase Shift Treatment Of Rotational Excitation: Atom-Rigid Rotor, J. Chem. Phys. 54 2197 (1971).
757	$(AR)+(N_2)$	T	1	Pattengill, M. D., A Comparison Of Classical Trajectory And Exact Quantal Cross Sections For Rotationally Inelastic Ar-N2 Collisions, Chem. Phys. Letters 36 25 (1975).
758	Undef	T	2	Pattengill, M. D., Curtiss, C. F., Bernstein, R. B., Molecular Collisions. XV. Classical Limit Of The Generalized Phase Shift Treatment Of Rotational Excitation: Atom-Rigid Rotor, J. Chem. Phys. 55 3682 (1971).
759	$(AR)+(N_2)$	T	2	Pattengill, M. D., La Budde, R. A., Bernstein, R. B., Curtiss, C. F., Molecular Collisions. XVI. Comparison Of GPS With Classical Trajectory Calculations Of Rotational Inelasticity For The Ar-N2 System, J. Chem. Phys. 55 5517 (1971).
760	$(AR)+(N_2)$	T	2	Pattengill, M. D., An Application Of The Semiclassical Approximation Of The Generalized Phase Shift Treatment Of Rotational Excitation Ar-N2, J. Chem. Phys. 62 3137 (1975).
761	$(H)+(HE)$	T	4	Peacher, J. L., [illegible], Eikonal Distorted Wave Calculation For The Excitation Of H By He, Phys. Rev. A 9 2371 (1974).
762	Undef	T	0	Pechukas, Philip, Davis, Jon P., Semiclassical Theory Of Weak Vibrational Excitation, J. Chem. Phys. 56 4970 (1972).
763	$(HE^{-})+(H_2)$	E	4	Pedersen, E. H., Hvelplund, P., Electron Detachment For 50 keV He^{-} Ions Leading To Metastable And Ground-State Atoms, J. Phys. B 6 2088 (1973).
764	$(ZN^{+})+(ZN)$	E	1	Penkin, N. P., Redko, T. P., Determination Of Cross Sections For Transitions Between The 4³P₀,₁,₂ States Of Zn I In The Case Of Collisions With Atoms And Electrons, Opt. Spectrosc. 30 1 (1971).

	REACTANTS	EXP OR THEOR.	E RANGE	REFERENCE
765	Undef	T	3	Penner, A. P., Wallace, R., Semiclassical Collision Theory Within The Feynman Path-Integral Formalism. II. Application To Vibrational Excitation, PHYS. REV. A 9 1136 (1974).
766	Undef	T	0	Percival, I. C., Combined Theory Of Classical Excitation Of Atoms By Charged Particles, J. PHYS. B 6 2236 (1973).
767	Undef	T	3	Percival, I. C., Richards, D., Excitation Of Highly Excited Hydrogenic Ions And Atoms By Charged Particles. II, J. PHYS. B 4 918 (1971).
768	(LI+)+(CS,RB,K)	E	4	Perel, Julius, Daley, Howard L., Charge - Transfer Collisions Involving Electron Transfer To Excited States, PHYS. REV. A 4 162 (1971).
769	(LI+)+(CS,RB,K) (HG+)+(CS)	E	4	Perel, J., Daley, H. L., Charge-Transfer Collisions Involving Electron Transfer To Excited States, PHYS. REV. A 4 162 (1971).
770	Undef (Cat. by Abstract Only)	T	0	Petrashen, A. G., Rebane, V. N., Rebane, T. K., The Probabilities Of The Transitions Between Degenerated Atomic Magnetic Sublevels Induced By Collisions, VESTN. LENINGRAD UNIV., FIZ., KHIM. (USSR) NO.4 25 (1973).
771	(CO+)+(AR)	E	2	Petty, Frederick, Moran, T. F., Vibrationally Inelastic Low - Energy CO^+ Ar Collisions, PHYS. REV. 5 266 (1972).
772	(HG+)+(HE,NE,AR,KR,XE,N_2)	E	1	Pheneuf, R. A., Pitre, J., Hammond, K., Krause, L., Collisional Depolarization Of Mercury Resonance Radiation, CAN. J. PHYS. 51 [illegible] (1973).
773	(H+)+(H)	T	3	Piacentini, R. D., Chidichimo-Frank, M. C., Elastic And Inelastic H^+ - H Collisions, VIII ICPEAC, P.751, INSTITUTE OF PHYSICS, BEOGRAD, YUGOSLAVIA (1973).
774	(NE+)+(C)	T	5	Piacentini, R. D., Salin, A., Carbon K-Shell X-Ray Production By Neon Ion Impact, J. PHYS. B 7 1311 (1974).
775	(C+,N+,O+,NE+)+(BE)	T	5	Piacentini, R. D., Salin, A., Theoretical Study Of The Creation Of Vacancies In The K-Shell Of Beryllium By Heavy Ion Impact, IX ICPEAC, P.1054, UNIVERSITY OF WASHINGTON PRESS, SEATTLE, WASHINGTON (1975).
776	(HE++)+(H)	T	4	Piacentini, R. D., Salin, A., Molecular Treatment Of The He^{++} H Collisions, J. PHYS. B 7 1666 (1974).
777	(N_2+)+(N,O)	[illegible]	1	Picard-Bersellini, A., Rossetti, C., Navibrational Luminescence Of N, O Excited By Active Nitrogen, J. MOL. SPECTROSC. 59 216 (1975).
778	Undef	T	0	Pierre, Anthony G. St., Classical Phase Space Description Of Rotationally Inelastic Scattering, J. CHEM. PHYS. 59 5304 (1973).
779	(CS)+(CS,HE,NE,AR,KR,XE)	E	1	Pimbert, M., Cuvellier, J., Pascale, J., Gounand, F., Collisional Excitation Transfer In Caesium Vapour, VII ICPEAC, P.667, NORTH-HOLLAND PUBL. CO., AMSTERDAM (1971).
780	(C+)+(HE,NE,AR,KR,XE,CS)	E	1	Pimbert, M., Excitation Transfer Between Highly Excited Levels In A Cesium Atom By Atomic Collisions, J. PHYS. (PARIS) 33 331 (1972).
781	(HE+,HE_2+,NE+)+(N_2,CO)	E	1	Piper, L. G., Gundel, L., Velazco, J. E., Setser, D. W., Excitation Of Nitrogen And Carbon Monoxide Ionic Emissions By He (2^3 S), He^+, And He_2^+, J. CHEM. PHYS. 62 3883 (1975).
782	(HG+)+(N_2)	E	1	Pitre, J., Hammond, K., Krause, L., 6^3P_1 - 6^3P_0 Excitation Transfer In Mercury, Induced In Collisions With N_2 Molecules, PHYS. REV. A 6 2101 (1972).
783	(HE+)+(HE)	E	5	Pol, V., Kauppila, W., Park, J. T., Absolute Differential Elastic And Inelastic Scattering Cross Sections In 25-140 Kev He^+ + He Collisions, PHYS. REV. A 8 2990 (1973).
784	(HE+)+(HE)	E	5	Pol, V., Kauppila, W., Park, J. T., Absolute Differential Elastic-And Inelastic-Scattering Cross Sections In 25-140 Kev He^+ + He Collisions, PHYS. REV. A 8 2990 (1973).
785	Undef	T	0	Pritchard, E., Levine, R. D., Bounds For Transition Probabilities In Collision Theory, PHYS. REV. A 9 2398 (1974).
786	(H+)+(H)	T	3	Ponce, V. H., Electronic Translation Factor In Low Energy Proton - Hydrogen Atom Collisions, VII ICPEAC, P.[illegible], NORTH-HOLLAND PUBL. CO., AMSTERDAM (1971).
787	(K+)+(AR,HE,NE)	E	4	Pop, S. S., Zapesochnyi, I. P., Excitation Of Potassium Ions By Collisions With Argon Atoms, OPT. SPECTROSC. 31 [illegible] (1971).
788	(K+)+(NE)	E	4	Pop, S. S., Krivskii, I. Y., Zapesochnyi, I. P., Beletskaya, M. V., Absolute Measurements Of Excitation Functions For K II Lines Produced In Collisions Between K^+ Ions And Ne Atoms, SOVIET PHYS.-JETP 32 380 (1971).
789	(K+)+(HE)	[illegible]	4	Pop, S. S., Krivskii, I. Yu., Zapesochnyi, I. P., Beletskaya, M. V., Absolute Measurements Of The Excitation Functions For The K II Lines Generated By Collisions Between K^+ Ions And Helium Atoms, SOVIET PHYS.-JETP 31 424 (1971).
790	(H+)+(N_2)	T	3	Porter, H. S., Green, A. E. S., Comparison Of Monte Carlo And Continuous Slowing-Down Approximation Treatments Of 1-Kev Proton Energy Deposition In N_2, J. APPL. PHYS. [illegible] [illegible] (1975).
791	(H+,D+)+(CS)	E	3	Pradel, P., Roussel, F., Schlachter, A. S., Spiess, G., Valance, A., Formation Of H (N Equal 2) Atoms By The Nearly Resonant Process H^+ In Cs. Multiple Collision Processes, PHYS. REV. A 10 797 (1974).
792	(H_2CO+)+(H_2CO) (HDCO+)+(HDCO) (HCN+)+(HCN) (DCN+)+(DCN)	T	1	Prakash, V., Boggs, J. E., Theoretical Studies Of Collision-Induced Transitions Between Molecular Rotational Energy States, J. CHEM. PHYS. 57 [illegible] (1972).

	REACTANTS	EXP OR THEOR.	E RANGE	REFERENCE
793	Undef	T	0	Presnyakov, L. P., Shevelko, V. P., Vainshtein, L. A., Excitation Of Multicharged Ions By Proton Impact, VII ICPEAC, P.485, NORTH-HOLLAND PUBL. CO., AMSTERDAM (1971).
794	(H*)+(CS)	E	4	Presnyakov, L. P., Shevel'ko, V. P., Possibility Of Producing Inverted Population In Atomic Beams By Charge Exchange Of Protons With Atoms, SOVIET PHYS.-JETP LETTERS 13 703 (1971).
795	(NA*)+(RB)	E	2	Pritchard, D. E., Apt, J., Velocity Dependence Of Na* + Rb Going To Na + Rb* Excitation Transfer Cross Section, IX ICPEAC, P.247, UNIVERSITY OF WASHINGTON PRESS, SEATTLE, WASHINGTON (1975).
796	Undef	T	0	Rabitz, Herschel, Impact Parameter Methods With Effective Potentials For Inelastic Molecular Collisions, J. CHEM. PHYS. 58 3975 (1973).
797	(HE)+(H$_2$)	T	2	Rabitz, H., Zarur, G., Vibration-Rotation Inelasticity In He-H$_2$, J. CHEM. PHYS. 61 5076 (1974).
798	(HE*)+(HE)	E	2	Rahmat, G., Vassilev, G., Baudon, J., Interference Effects In 4^3 S And 4^1 S Excitation Differential Cross Sections In He* He Collisions, VIII ICPEAC, P.226, INSTITUTE OF PHYSICS, BEOGRAD, YUGOSLAVIA (1973).
799	(HE*)+(HE)	E	3	Rahmat, G., Vassilev, Baudon, J., Barat, P., Differential Measurement Of The He 3^3 P Excitation, In He* - He Collisions, By Using An Ion - Photon Coincidence Method, PHYS. REV. LETTERS 26 1411 (1971).
800	(HE*)+(HE)	E	3	Rahmat, G., Vassilev, G., Baudon, J., Interference Effects In 4^3 S And 4^1 S Excitation, In He* On He Collisions At Low Energies, J. PHYS. B 8 1302 (1975).
801	(HE*)+(HE)	E	3	Rahmat, G., Vassilev, G., Baudon, J., Interference Effects In 4^3 S And 4^1 S Excitation Differential Cross Sections In He* He Collisions, VIII ICPEAC, P.226, INSTITUTE OF PHYSICS, BEOGRAD (1973).
802	(HE*)+(HE)	E	3	Rahmat, G., Vassilev, G., Baudon, J., Barat, P., Determination Of The (3 P^3 P) Excitation Differential Cross-Section, In He* - He Collisions, Using A Ion-Photon Coincidence Method, VII ICPEAC, P.113, NORTH-HOLLAND PUBL. CO., AMSTERDAM (1971).
803	(H)+(CL$_2$)	T	1	Rankin, C. C., Miller, William H., Classical S Matrix For Linear Reactive Collisions Of H + Cl$_2$, J. CHEM. PHYS. 55 3150 (1971).
804	(HE2*)+(H,H*)	T	4	Rapp, Donald, Electron Transfer And Excitation In Collisons Of He^{2+} With H, J. CHEM. PHYS. 58 2043 (1973).
805	(NA*,LI*)+(NA) (NA*)+(LI)	T	4	Rapp, Donald, Chang, Chi-Ming, Electron Capture And Excitation In Alkali Ion - Atom Collisions Using And Atomic Eigenfunction Expansion, J. CHEM. PHYS. 59 1276 (1973).
806	(H*)+(H)	T	5	Rapp, Donald, Dinwiddie, David, Storm, David, Sharp, Terry E., Coupled - State Calculations Of H* - H Scattering, PHYS. REV. A 5 1290 (1972).
807	(HE2*)+(H)	T	5	Rapp, D., Electron Capture And Excitation In Collisions Of He^{2+} With H. II. Convergence Of The Atomic Expansion, J. CHEM. PHYS. 61 3777 (1974).
808	(N$_2$*)+(N$_2$)	E	1	Ravodina, O. V., Popova, T. N., Possibility Of Energy Transfer From The A^3 Pi Sub G To The B^3 Pi Sub G State In Molecular Nitrogen, OPT. SPECTROS. 38 145 (1975).
809	Undef	E	1	Rebane, V. N., Petrashen, A. G., Calculation Of Probabilities For Collision Induced Transitions Between Levels Of Hyperfine Structure Of Atoms, OPT. SPECTROS. [illegible] 472 (1974).
810	(HE)+(N$_2$)	T	1	Redmon, M. J., Micha, D. A., A Computational Method For Multi-Channel Scattering Calculations. Applications To Rotational Excitation And Long Lived States Of He-N$_2$, CHEM. PHYS. LETTERS 24 341 (1974).
811	(NO)+(O$_3$)	E	1	Redpath, Anthony E., Menzinger, Michael, Molecular Beam Chemiluminescence. I. Kinetic Energy Dependence Of The No + O$_3$ Going To No$_2$* + O$_2$ Reaction, CAN. J. CHEM. [illegible] 3063 (1971).
812	(NA)+(HE)	T	2	Reid, R. H. G., The Elastic Approximation For Fine - Structure Transition Cross - Sections In Alkali - Helium Collisions, VII ICPEAC, P.575, NORTH-HOLLAND PUBL. CO., AMSTERDAM (1971).
813	(O*)+(CA)	E	5	Richard, Patrick, Hodge, W., Moore, C. Fred, Direct Observation Of K Alpha Hypersatellites In Heavy - Ion Collisions, PHYS. REV. LETTERS 29 393 (1972).
814	Undef	T	0	Richards, D., Excitation Of Highly Excited Hydrogenic Ions And Atoms By Charged Particles. Iv, J. PHYS. B 6 [illegible] (1973).
815	(CO)+(COS)	E	1	Richman, D. C., Lev-On, M., Millikan, R. C., The Temperature Dependence Of Vibration-Vibration Energy Exchange Between Co And Cos, INT. J. CHEM. KINETICS 7 33 (1975).
816	(H*)+(HE)	E	5	Ridder, D., Stolterfoht, N., Ziem, P., Excitation Of The 2s2p (Sup 1 P) Resonance Of He By Protons Of 300 To 500 Kev, VIII ICPEAC, P.521, INSTITUTE OF PHYSICS, BEOGRAD, YUGOSLAVIA (1973).
817	(H*)+(AR)	E	5	Ridder, D., Dieringer, J., Stolterfoht, N., Widths And Intensities Of Highly Resolved Lines In Argon L$_{23}$ Auger Spectra, IX ICPEAC, P.419, UNIVERSITY OF WASHINGTON PRESS, SEATTLE, WASHINGTON (1975).
818	(O)+(CO$_2$,H$_2$O)	T	1	Rieger, T. J., Tait, K. S., Baum, H. R., Atmospheric Interaction From High Altitude Rocket Exhausts, J. QUANT. SPECTROS. RADIATIVE TRANSFER 15 1117 (1975).

	REACTANTS	EXP OR THEOR.	E RANGE	REFERENCE
815	$(H_2)+(H_2,HE)$	T	1	Riehl, J. W., Fisher, C. J., Baloga, J. D., Kinsey, J. L., Spin - Lattice Relaxation And The Anisotropic Part Of The H_2 - He And H_2 Ne Intermolecular Potential, J. CHEM. PHYS. [illegible] (1973).
820	Undef	T	0	Riesenfeld, P. W., Interlevel-Excitation Probability in Heavy-Ion Collisions By Using Relativistic Molecular States, LETT. NUOVO CIMENTO (ITALY) 10 [illegible] (1974).
821	$(H^+)+(H)$	T	3	Riley, M. E., Strong Coupling Semiclassical Methods. The Average Approximation For Atom-Atom Collisions, PHYS. REV. A 8 742 (1973).
822	$(H^+)+(HE,AR)$	E	4	Risley, J. S., De Heer, F. J., Kerkdijk, C. B., Electron Transfer Cross Sections To Low-Lying Excited States Of Hydrogen Produced In 2-15 Kev Collisions Of H^+ On He And Ar, IX ICPEAC, P.33, UNIVERSITY OF WASHINGTON PRESS, SEATTLE, WASHINGTON (1975).
823	$(H^-)+(HE)$	E	3	Risley, J. S., De Heer, F. J., Kerkdijk, C. B., Electron Detachment Cross Sections To Low-Lying Excited States Of Hydrogen Produced In 1-6 Kev Collisions Of H^- On He And Ar, IX ICPEAC, P.33, UNIVERSITY OF WASHINGTON PRESS, SEATTLE, WASHINGTON (1975).
824	$(H^+)+(H_2)$	T	3	Ritchie, Burke, Semiclassical Theory For Low - Energy Molecular Collisions, H^+ - H_2 Vibrational Excitation, PHYS. REV. A [illegible] 1902 (1972).
825	$(H)+(H)$	T	4	Ritchie, Burke, Nonadiabatic Atom - Atom Collisions Two - State Impact - Parameter Calculation Of The H (1s) + H (1s) Equals H (1s) + H (2s) Cross Section Including Electron Exchange, PHYS. REV. A 3 [illegible] (1971).
826	$(H^+)+(HE)$	T	3	Ritchie, Burke, Theory Of Nearly Symmetric Excited - State - Excited - State Electron Capture In Ion - Atom Inelastic Scattering, PHYS. REV. LETTERS 2[illegible] [illegible] (1971).
827	$(H^+)+(H_2)$	T	3	Ritchie, Burke, Theory Of Small - Energy Transfer Collisions In Dominant Long - Ranged Forces H^+ H_2 And [illegible] H_2 Vibrational Excitation, PHYS. REV. A [illegible] 1450 (1972).
828	Undef	T	0	Roberts, R. E., Analytical Distorted Wave Born Series For Vibrational Inelastic Scattering, J. CHEM. PHYS. [illegible] [illegible] (1971).
829	Undef	T	1	Roberts, R. E., Diestler, D. J., Exact Quantum - Mechanical Transition Probabilities For The Landau - Teller Interaction, J. CHEM. PHYS. [illegible] [illegible] (1972).
830	Undef	T	2	Roberts, R. E., Diestler, D. J., Influence Of Attractive Forces On The Quantum - Mechanical Transition Probabilities For Atom - Diatomic Oscillator Collisions, J. CHEM. PHYS. [illegible] 2990 (1972).
831	$(CS^*)+(N_2,H_2)$	E	1	Rocchiccioli, J., Transfert D Excitation Dans Une Vapeur Saturee De Cesium Induit Par Une Collision Avec Une Molecule D Azote Ou D Hydrogene, COMPT. REND. 274B [illegible] (1972).
832	$(CO^*)+(CO,N_2,HE)$	T	1	Rockwood, S. D., Brau, J. E., Proctor, W. A., Canavan, [illegible], Time-Dependent Calculations Of Carbon Monoxide Laser Kinetics, IEEE J. QUANT. ELECTRON. QE-9 [illegible] (1973).
833	$(CSCL)+(CSCL)$ $(NO)+(NO)$	T	2	Roguvin, D., A Scaling Relationship For Inelastic Rotational Collisions And Application Of The Sudden Approximation To Molecular Collisions, J. PHYS. B 7 1210 (1974).
834	$(HE^+)+(HE)$	T	3	Rosenthal, H., Nonadiabatic Effects In Slow Atomic Collisions. I. He^+ + He, PHYS. REV. A 4 1030 (1971).
835	$(H^+)+(H)$	T	4	Rosenthal, H., Proton - Hydrogen Collisions Molecular Treatment Of The H (2 P) Excitation, PHYS. REV. LETTERS 27 635 (1971).
836	$(HE^+)+(HE)$	E	1	Rosner, S. D., Pipkin, F. M., Temperature Dependence Of The Helium Metastability - Exchange Cross Section In The Range 15-115 K, PHYS. REV. A 5 1909 (1972).
837	Undef	T	2	Rotenberg, Manuel, Optical Potential For The Rotational Excitation Of Diatomic Molecules By Atoms, PHYS. REV. A 4 220 (1971).
838	$(H^+)+(C^+)$	T	1	Roueff, E., Van Regemorter, H., C[illegible] P Fine Structure Transitions In Collisions With Hydrogen Atoms, VIII ICPEAC, P.623, INSTITUTE OF PHYSICS, BELGRADE, YUGOSLAVIA (1973).
839	$(H^+)+(CS)$	E	3	Roussel, F., Pradel, P., Valance, A., Cross Section For The Production Of H (2s) In Proton-Cesium Collisions, VIII ICPEAC, P.747, INSTITUTE OF PHYSICS, BELGRADE, YUGOSLAVIA (1973).
840	$(H^+)+(H)$	T	5	Roy, B. N., Excitation Of Atomic Hydrogen In The Valenstein, INDIAN J. PHYS. 43 [illegible] (1969).
841	$(H^+,HE^{2+})+(HE)$	T	5	Roy, K., Mukherjee, S. C., Excitation Of Helium By Protons And Alpha Particles, PHYS. LETTERS A 44 147 (1973).
842	$(H^+)+(H^-)$	T	3	Roy, K., Mukherjee, S. C., Charge Transfer In H^+ - H Collisions, PHYS. REV. A 7 130 (1973).
844	$(I_2^*)+(HE,NE,AR,KR,XE)$	T	2	Rubinson, M., Garetz, B., Steinfeld, J. I., Energy Transfer Processes In Monochromatically Excited Iodine. IX. Classical Trajectory And Semiclassical Calculations Of Vibrationally And Rotationally Inelastic Cross Sections, J. CHEM. PHYS. 60 3082 (1974).

REACTANTS	EXP OR THEOR.	E RANGE	REFERENCE
R45 (H*)+(H)	T	2	Robinson, William, Set of Empirical Total Atomic Binding Energies B Sub Z, And Their Derivatives Delta B Sub Z / Delta Z, For All Z Less Than or Equal To 18, PHYS. REV. A 6 701 (1972).
R46 (N_2*)+(NE) (N*,3**,AR*)+(AR)	E	5	Rudd, M. E., Mechanisms Of Electron Production In Ion-Atom Collisions, RADIAT. RES. 64 153 (1975).
R47 Undef	T	2	Russek, A., Rotationally Induced Transitions In Atomic Collisions, PHYS. REV. A 4 1918 (1971).
R48 Undef	T	0	Russell, Dennis, Curtiss, C. F., Molecular Collisions. XIX. The Distorted Wave Approximation To Atom - Rigid Symmetric Top Rotational Excitation, J. CHEM. PHYS. 59 1574 (1973).
R49 (NE*)+(N_2)	E	3	Sadeghi, G. H., Moran, T. F., Vibrational Distribution Of N_2* B2 Sigma Products From Ne* + N_2 Collisions, J. CHEM. PHYS. 57 805 (1972).
R50 (CO*)+(CO)	E	1	Sackett, Philip B., Hordvik, Audun Schlossberg, Howard, Measurement Of The V-V Energy Transfer Rate From CO (V Equal 2) Using Tunable Parametric Oscillator Excitation, APPL. PHYS. LETTERS 22 367 (1973).
R51 (HG*)+(HG)	E	1	Saintout, L., Cheron, B., Leclerc, D., Study Of Orientation Transfer By Collisions Of The Second Kind Between** Hg And** Hg Atoms, OPT. COMMUN. (NETHERLANDS) 3 63 (1971).
R52 (H*)+(H)	T	4	Salin, A., Charge Exchange Between Protons And Atomic Hydrogen Comparison Between Theory And Experiment, J. PHYS. B 4 1125 (1971).
R53 (HE*,N_2*)+(K,RB)	E	3	Salop, A., Lorents, D. C., Peterson, J. R., Charge-Transfer Excitation Produced In Collisions Of He* And N_2* With Alkali Atoms, J. CHEM. PHYS. 54 1187 (1971).
R54 (NE*,C*,O*,NE*)+(TI,FE,CO,ZN,SN)	E	5	Saltmarsh, M. J., Van Der Woude, A., Ludemann, C. A., Energy Shifts And Relative Intensities Of K X-Rays Produced By Swift Heavy Ions, PHYS. REV. LETTERS 29 329 (1972).
R55 Undef (Cat. by Abstract Only)	E	5	Saris, F. W., Spectroscopy Of Molecular X-Ray Emission In Heavy Ion Scattering (A New Kind Of X-Ray), ATOMKERNENERGIE (GERMANY) 24 77 (1974).
R56 (AR*)+(C,AL,SI,FE)	E	5	Saris, F. W., Van Der Weg, W. F., Tawara, H., Laubert, Ronald, Radiative Transitions Between Quasimolecular Levels During Energetic Atom - Atom Collisions, PHYS. REV. LETTERS 28 717 (1972).
R57 (AR)+(AR)	E	5	Saris, F. W., Phelps, C. R., Comments On Ar L-Shell Fluorescence Yields In Ar* Ar Collisions, J. PHYS. B 7 1115 (1974).
R58 (NE*,C*,N*,O*,AL*,CI*,TI*,FE*,CU*)+(AR)	E	5	Saris, F. W., Cross Sections For Ar L-Shell X-Ray Emission In Collisions Of He*, C*, N*, O*, Al*, Cl*, Ti*, Fe*, Cu* On Ar, PHYSICA 52 290 (1971).
R59 (AR*,AR**)+(AR,CL_2,HCL)	E	5	Saris, F. W., Foster, C., Langenberg, A., Van Eck, J., Differences In K X-Ray Production Cross Sections And X-Ray Spectra Measured In Ar-Cl_2 And In Ar-Ar, Ar-HCl Collisions, J. PHYS. B 7 1494 (1974).
R60 (H)+(HE)	E	4	Sawers, I., Thomas, E. W., Small Angle Scattering Of Metastable Hydrogen Formed By Collisions Of Neutral Hydrogen Atoms With Gas Targets, PHYS. REV. A 10 822 (1974).
R61 (H)+(HE,AR)	E	4	Sawers, I., Thomas, E. W., Small-Angle Scattering Of Metastable Hydrogen Formed By Collisions Of Neutral Hydrogen Atoms With Gas Targets, PHYS. REV. A 10 822 (1974).
R62 (H_2*)+(HE,AR,H_2,N_2)	E	4	Sawers, I., Fitzwilson, R. L., Ford, J. C., Thomas, E. W., Angular Distribution Of Metastable Hydrogen Formed By Dissociation Of H_2*, PHYS. REV. A 6 1414 (1972).
R63 (N_2,N_2*,N*,O_2,O_2*,O*,AR*,NA*)+(MG,CA)	E	3	Savage, H. F., Boitnott, C. A., Light Emission Measurements Of Calcium And Magnesium At Simulated Meteor Conditions. I. Cross - Section Measurements, ASTROPHYS. J. 167 341 (1971).
R64 (H)+(H_2)	T	1	Saxon, Roberta P., Light, John C., Quantum Calculations of Planar Reactive H + H_2. II. Application, J. CHEM. PHYS. 56 3885 (1972).
R65 (LI*)+(H_2)	T	2	Schaefer, J., Lester, W. A., Jr., Ahmed, D., Wells, C. A., Anharmonicity In Rotational And Vibrational Excitation Of H_2 By Li* Collisions, CHEM. PHYS. LETTERS 24 185 (1974).
R66 (LI*)+(H_2)	T	2	Schaefer, J., Lester, W. A., Jr., Theoretical Study Of Inelastic Scattering Of H_2 By Li* On SCF And CI Potential Energy Surfaces, J. CHEM. PHYS. 62 1913 (1975).
R67 (NE*)+(NE)	E	5	Schartner, K. H., Schafer, H., Hippler, R., Cross Sections For Ne K X-Ray Production In Ne* Ne Collisions, PHYS. LETTERS A 46 31 (1973).
R68 (HE*,NE*,AR*)+(AR)	E	5	Schartner, K. H., Schafer, H., Hippler, R., Cross Sections For The Ar-L X-Ray Emission In Collisions Of He*, Ne* And Ar* Ions With Ar Atoms, J. PHYS. B 7 1111 (1974).
R69 (NE*)+(NE)	E	5	Schartner, K. H., Hippler, R., Beyer, H. F., Excitation Of The Ne-Resonance Transitions In Ne* Ne Collisions, IX ICPEAC, P.447, UNIVERSITY OF WASHINGTON PRESS, SEATTLE, WASHINGTON (1975).
R70 (F)+(HD)	T	2	Schatz, G. C., Kuppermann, A., Quantum Dynamical Resonance Effects In The Collinear F + HD (DH) And H + FH Reactions, IX ICPEAC, P.505, UNIVERSITY OF WASHINGTON PRESS, SEATTLE, WASHINGTON (1975).
R71 (H)+(H_2)	T	2	Schatz, G. C., Kuppermann, A., Inelastic And Elastic Quantum Mechanical Non-Reactive Cross Sections For 3-D H + H_2, IX ICPEAC, P.503, UNIVERSITY OF WASHINGTON PRESS, SEATTLE, WASHINGTON (1975).

REACTANTS	EXP OR THEOR.	E RANGE	REFERENCE
872 $(HE^*)+(ZN,CD,CA,SR,BA,HG,PB,YB,N_2,EU)$ $(HE^*)+(ZN)$	E	1	Schearer, L. D., Optical Pumping In A Flowing Helium Afterglow with Additive Metal Impurity Atoms, PHYS. REV. A 10 [illegible] (1974).
873 $(HE^*)+(SR)$	E	1	Schearer, L. D., Riseberg, L. A., Coherence Transfer In A Penning Ionizing Collision, PHYS. REV. LETTERS 26 [illegible] (1971).
874 $(H,HE)+(H_2)$ $(H)+(T_2)$	T	2	Schinke, R., Toennies, J. P., Semiclassical Calculations of Vibrational Energy Transfer Comparison Of The Harmonic And The Morse Oscillator In Collinear And Perpendicular Collisions with A Structureless Atom, J. CHEM. PHYS. 62 [illegible]871 (1975).
875 $(H^+)+(CS)$	E	3	Schlachter, A. S., Tuan, Vu. N., Gautherin, G., Fraction Of Hydrogen Atoms In The 2s State By Charge Exchange between Protons And Cesium Vapor, VIII ICPEAC, P.751, INSTITUTE OF PHYSICS, BEOGRAD, YUGOSLAVIA (1973).
876 $(D,D^+)+(CS)$	E	3	Schlachter, A. S., Spiess, G., Pradel, P., Determination of Cross Sections For Collisions Of Hydrogen Ions In Cesium Vapor, VIII ICPEAC, P.745, INSTITUTE OF PHYSICS, BEOGRAD, YUGOSLAVIA (1973).
877 $(H^+)+(HE)$	E	5	Schneider, D., Burch, D. F., Stolterfoht, N., Simultaneous Measurements Of X-Rays And Auger-Electrons By 100-[illegible]-Kev H^+ On He, VIII ICPEAC, P.722, INSTITUTE OF PHYSICS, BEOGRAD, YUGOSLAVIA (1973).
878 $(O^{8+},H^+)+(N_2)$	E	5	Schnopper, H. W., Delvaille, J. P., Kalata, K., Sohval, A. R., Abdulwahab, M., Jones, K. W., Wegner, H. E., X-Ray Measurements Of Bremsstrahlung And Electron Capture by Fast Positive Ions, PHYS. LETTERS A 47 61 (1974).
879 $(HE^+)+(HE)$ (Cat. by Abstract Only)	E	4	Schoonover, Donald Ray, Absolute Excitation Cross Sections of He^+ In 20-100 Kev He^+ - He Collisions Using Energy - Loss Spectrometry, THESIS, UNIV. OF MISSOURI, ROLLA (1970)
880 $(HE^+)+(HE)$	E	4	Schoonover, D. R., Park, J. T., Absolute Cross - Section Functions For 2^1S, 2^3S, 2^1P And 2^3P Excitations In 20-[illegible] Kev He^+ - He Collisions, VII ICPEAC, P.[illegible], NORTH-HOLLAND PUBL. CO., AMSTERDAM (1971).
881 $(HE^+)+(HE)$	E	5	Schoonover, D. R., Park, John T., Absolute Excitation Cross Sections Of He^+ In 20 - 100 - Kev He^+ - He Collisions Using Energy - Loss Spectrometry, PHYS. REV. A 3 [illegible] (1971).
882 $(CL^{7+})+(CL_2)$	T	5	Scofield, J. H., Fortner, R. J., Matthews, D. L., Production of L X Rays In Energetic Cl Going To Cl Collisions, IX ICPEAC, P.41[illegible], UNIVERSITY OF WASHINGTON PRESS, SEATTLE, WASHINGTON (1975).
883 $(AR)+(N_2)$	T	1	Scott, Paul R., Orientational Averaging Of Rotational Transition Probabilities Computed Using The Sudden Approximation, J. CHEM. PHYS. 58 644 (1973).
884 Review	T	0	Secrest, Don, Eastes, Walter, Effects Of An Attractive Well Potential On The Atom - Diatomic Molecule Collinear Collision, J. CHEM. PHYS. 56 2502 (1972).
885 Undef	T	1	Secrest, D., Theory Of Rotational And Vibrational Energy Transfer In Molecules, ANNUAL REVIEW OF PHYSICAL CHEMISTRY 24 375 (1973).
886 Review	T	2	Secrest, D., Theory Of Angular Momentum Decoupling Approximations For Rotational Transitions In Scattering, J. CHEM. PHYS. 62 710 (1975).
887 $(H^+,H,HE^+)+(LI^{2+})$ $(H,H^+)+(LI^+)$	T	5	Seddon, G. J., Banyard, K. E., Electron Correlation And The 1^1S Going To 2^1P, 3^1P Excitation Cross Sections For He, J. PHYS. B 7 2476 (1974).
888 $(CO_2^*)+(CO_2)$	T	1	Seeber, Knut N., Radiative And Collisional Transitions Between Coupled Vibrational Modes Of CO_2, J. CHEM. PHYS. 55 [illegible] (1971).
889 $(O^+,F^+)+(C)$	E	0	Sellin, I. A., Pegg, D. J., Brown, Matt, Smith, Winthrop W., Donnally, Bailey, Spectra Of Autoionization Electrons Emitted By Fast, Metastable Beams Of Highly Stripped Oxygen And Fluorine Ions, PHYS. REV. LETTERS 27 1108 (1971).
890 (CS OR *)+(AR)	E	0	Serapinas, P. D., On The Problem Of The Interaction Of Excited Atoms Of Alkali Metals With Inert Gases, PHYSICS OF ATOMIC COLLISIONS 51 81 (1971).
891 $(H^+)+(AU)$	E	5	Shafroth, S. M., Bissinger, G. A., Waltner, A. W., [illegible] X-Ray Production By 0.5-10-Mev Protons, PHYS. REV. A 7 [illegible] (1973).
892 $(H^+)+(AG,BI)$	E	5	Shafroth, S. M., Coulomb Excitation Of Atomic Electrons In Heavy Ion-Atom Collisions, J. FRANKLIN INST. 298 [illegible] (1974).
893 $(HE^+)+(HE,AR,KR,H_2,N_2,O_2)$	E	4	Shah, M. B., Gilbody, H. B., 1s-2s Excitation of Fast He^+ Ions In Passage Through Gases, J. PHYS. B 7 L122 (1974).
894 $(HE^{2+})+(H)$	E	3	Shah, M. B., Gilbody, H. B., Charge Transfer In He^{2+}-H Collisions In The Energy Range 6-60 Kev, J. PHYS. B 7 [illegible] (1974).
896 $(HE^{2+})+(K)$	E	3	Shah, M. B., Gilbody, H. B., Charge Transfer And Formation Of Metastable He^+ (2s) Ions In Collisions Of He^{2+} Ions with Potassium, J. PHYS. B 7 637 (1974).
896 $(HE^{2+})+(HE,AR,KR,H_2,N_2,O_2)$	E	4	Shah, M. B., Gilbody, H. B., Formation Of He^+(2s) Metastable Ions In Passage Of 13-60 Kev He^{2+} Ions Through Gases, J. PHYS. B 7 256 (1974).
897 $(H^+)+(H)$	T	4	Shakeshaft, R., Sturmian Basis Functions In The Coupled State Impact Parameter Method For H^+ + H Scattering, J. PHYS. B 8 1114 (1975).

	REACTANTS	EXP OR THEOR.	E RANGE	REFERENCE
898	(HE^{2+})+(KR,N_2,H_2,AR,O_2,NE)	E	4	Shah, M. B., Gilbody, H. B., Formation of He$^+$ [illegible] Metastable Ions In Collisions Involving 10-[illegible] Kev He^{2+} Ions, VIII ICPEAC, P.7[illegible], INSTITUTE OF PHYSICS, [illegible] (1973).
899	(O_2)+(O_2,AR,HE)	E	2	Sharma, Ramesh D., Brau, Kurt [illegible], Excitation Processes [illegible] Schumann-Runge System, J. CHEM. PHYS. [illegible] (1973).
900	(H)+(H)	T	3	Shields, R. M., Feacher, J. L., Eikonal Approximation Applied To Atom-Atom Excitation At Intermediate Energies: Excitation Of H by H, PHYS. REV. A [illegible] (1973).
901	(H_2)+(AR)	E	2	Shin, Hyung Kyu, Excitation of Molecular Vibration [illegible] Collision. Simultaneous Vibrational And Rotational Transitions In Hydrogen + Argon At High Collision Velocities, J. PHYS. CHEM. 7[illegible] (1973).
902	Undef	T	1	Shin, H. K., Excitation Of Molecular Vibration [illegible] Dependence Of The Rotation-Averaged Transition Probability On The Impact Parameter, J. PHYS. CHEM. [illegible] (1973).
903	(O_2)+(AR)	T	1	Shin, H. K., Dependence Of Vibrational Transition Probabilities On The Rotation Angles And Impact Parameter In [illegible] Collisions, J. PHYS. CHEM. 7[illegible] (1973).
904	(H_2*)+(H_2) (I_2*)+(I_2)	T	1	Shin, H. K., Nonadjacent Vibrational Transitions In [illegible] Collisions. Interference Between One-And-Two-Quantum Excitation Processes, J. PHYS. CHEM. 77 [illegible] (1973).
905	(H_2*)+(AR)	T	2	Shin, H. K., Vibrational Transitions In Atom + Diatom Systems. Use Of The Lennard-Jones Potential, J. [illegible] 77 1665 (1973).
906	(O)+(H_2)	T	2	Shipsey, Edward J., Calculation Of Transition Probabilities For Collinear Atom - Diatom Collisions With Nonseparable Interactions, J. CHEM. PHYS. [illegible] 117[illegible] (1973).
907	(HE*)+(HE)	T	2	Shipsey, E. J., Browne, J. C., [illegible], Theoretical Low-Energy Scattering Cross Sections For He [illegible] Going To or Coming From He (2^3 S) + He [illegible], PHYS. REV. A [illegible] 1336 (1973).
908	(ZN*)+(CD)	E	3	Shpenik, O. B., Zapesochnyi, I. P., Kavtilpulis, [illegible], Excitation Of Atoms In Slow Ion - Atomic Collisions, SOVIET PHYS.-JETP 3[illegible] 2[illegible] (1973).
909	(MG*,CA*,SR*,BA*)+(HE,NE,AR,KR) (Cat. by Abstract Only)	E	3	Shpenik, O. B., [illegible], V. [illegible], Zapesochnyi, I. P., Resonance Radiation Excitation With Low Energy Collisions Between Alkali-Earth Ions and Rare Gas Atoms, [illegible]
910	(ZN*,CD*)+(ZN)	E	3	Shpenik, O. B., Zapesochny, I. P., Kavtilpulis, [illegible], Investigation Of The Excitation Processes In Low-Energy Ion-Atom Collisions, VII ICPEAC, P.[illegible], NORTH-HOLLAND PUBL. CO., AMSTERDAM (1971).
911	(AR*)+(AR)	T	2	Sidis, V., Barat, M., Dhuicq, D., Molecular [illegible] Collisions, J. PHYS. B [illegible] (1975).
912	(H*)+(AR)	T	3	Sidis, V., Some Energy Curves Of ArH$^+$ And Their Use In The Study Of Scattering Of H$^+$ By Ar, J. PHYS. [illegible] (1972).
913	(HE)+(AR)	T	3	Sidis, V., Some Diabatic States Of The (He - Ar) System, VII ICPEAC, P.1[illegible], NORTH-HOLLAND PUBL. CO., AMSTERDAM (1971).
914	(HE*)+(AR)	E	3	Sidis, V., Barat, M., Brenot, J. C., Pommier, J., Collision Spectroscopy Of Charge Transfer Processes In He$^+$ Ar Collisions, IX ICPEAC, P.507, UNIVERSITY OF WASHINGTON PRESS, SEATTLE, WASHINGTON (1975).
915	(H*)+(H)	T	4	Sil, N. C., Chowdhuri, J., Ghosh, A. [illegible], Charge Transfer In Proton-Hydrogen Collisions By The Faddeev Approach. II, PHYS. REV. A 1[illegible] (1975).
916	Undef	T	1	Sires, [illegible], Classical Theory Of Vibrational Energy Transfer Between Vibrationally Excited Polyatomic Collision Partners An Exact Approach, [illegible] PHYS. CHEM. (GERMANY) 77 [illegible] (1973).
917	Undef	T	1	Sires, [illegible], Hensel, V., Kohlmaier, [illegible], Classical Theory Of Vibrational Energy Transfer Between Vibrationally Excited Polyatomic Collision Partners Higher Order Perturbation Theory, BER. BUNSENGES. PHYS. CHEM. (GERMANY) 77 43[illegible] (1973).
918	(O*)+(CO,N_2)	E	1	Slanger, T. G., Black, [illegible], Electronic To Vibrational Energy Transfer Efficiency In The [illegible] Systems, J. CHEM. PHYS. 60 [illegible] (1974).
919	(HE*)+(HE) (C*)+(C)	T	5	Smirnov, B. M., Lumen, [illegible], Vacancy Formation In K-Shell In Close Encounter Of Heavy Atoms, IX ICPEAC, P.[illegible], UNIVERSITY OF WASHINGTON PRESS, SEATTLE, WASHINGTON (1975).
920	Undef	T	0	Smirnov, V. A., Mikhailov, A. [illegible], Inelastic Collisions Of Highly Excited Atoms, OPT. SPECTROSC. 30 [illegible] (1971).
921	(H*)+(HE)	T	1	Smirnov, V. A., Inelastic Collisions Between Highly Excited Atoms And Inert Gas Atoms, OPT. SPECTROSC. 37 [illegible] (1974).
922	(O*,FE*)+(C)	E	5	Smith, W. W., Browne, M., Sellin, I. A., [illegible], Collisional Excitation Of Metastable Autoionizing States Of Lithium Like Ions In Fast Beams - Spectra and Yields, VII ICPEAC, P.511, NORTH-HOLLAND PUBL. CO., AMSTERDAM (1971).
923	(AR*)+(AR)	E	4	Smith, W. W., Thoe, R. [illegible], Coincidence Measurements [illegible] Yield Vs. Final Charge State In Ar$^+$ Ar Differential Scattering, VIII ICPEAC, P.71[illegible], INSTITUTE OF PHYSICS, BEOGRAD, YUGOSLAVIA (1973).
924	(O**)+(C,AL,NI,AG,AU) (F**)+(C)	E	5	Smith, W. W., Donnally, B., Pegg, D. J., [illegible], Beam Fractions In The Lowest Quartet Metastable Autoionizing State For O^{5+} And F^{6+} Beams After Passage Through Foils, PHYS. REV. A 7 [illegible] (1973).

	REACTANTS	EXP TYP THEOR.	E RANGE	REFERENCE
925	Nodef	E	5	Sahal, A. P., Jones, A. de, Wagner, W. E., Evidence for Radiative Electron Capture By Fast, Highly Stripped Heavy Ions, PHYS. REV. LETTERS 29 454 (1972).
926	(AR*)+(N,) (Cat. by Abstract Only)	E	1	Sahabe, M., Morei, M., Cross-Sections For Excitation Of N, (C³ Pi Sub U, Nu Prime Equal 0,1) On Thermal Collisions Of Nitrogen Molecules with Metastable Argon atoms, REP. FAC. ENG. OSAKA CITY UNIV. (JAPAN) 13 163 (1972).
927	(AR)+(H,O)	E	1	Sahabe, Mamoru, Morei, Akira, Iwai, Tomoji, On the Dissociative Collision of water Molecule with Metastable Argon, J. PHYS. SOC., JAP. 30 1281 (1971).
928	(AR*)+(H,)	E	1	Sahabe, Mamoru, Rotational Excitation Of OH (A² Sigma⁺ Nu Prime Equal 1) Resulting from Dissociative Collision Of H, O with Metastable Argon Atoms, J. PHY.SOC., JAP. 32 473 (1972).
929	(NE*)+(CD) (Cat. by Abstract Only)	E	2	Sasaki, M. T. I., Shevera, V. S., Charge Exchange with Helium Ion Excitation in Cadmium Atoms, UKR. FIZ. ZH. (USSR) 19 1395 (1974).
930	(AR*)+(CD)	E	2	Sasaki, M. T. I., Shevera, V. S., Zapesochny, I. P., Charge-Exchange Excitation Of Argon Ions In Collisions with Cadmium Atoms, 14 ICPEAC, P.179, UNIVERSITY OF WASHINGTON PRESS, SEATTLE, WASHINGTON (1975).
931	(NE*,HE*,AR*)+(CD,Zn)	E	3	Sasaki, M. T. I., Shevera, V. S., Charge Exchange Of Ne*, He* And Ar* In Interact States Of Cadmium And Zinc Ions At Low Energies, SOVIET PHYS.-JETP LETTERS 22 262 (1975).
932	(H*)+(CS)	E	3	Spiess, G., Valance, A., Pradel, P., Cross Sections for The Production Of H (2s) And H (2p) In Proton-Cesium Collisions From 3.5 To 25 Kev, VII ICPEAC, P.823, NORTH-HOLLAND PUBL. CO., AMSTERDAM (1971).
933	(H*)+(CS)	E	3	Spiess, G., Valance, A., Pradel, P., Absolute Detection And Collisional Destruction Of 2.5 Kev Metastable Hydrogen Atoms Produced By A Charge - Exchange Process In Cesium Vapor, PHYS. REV. A 6 744 (1972).
934	(H)+(H,)	T	2	Spitzer, L., Jr., Zweibel, E. G., On The Theory of H, Rotational Excitation, ASTROPHYS. J. 191 1127 (1974).
935	(O,*)+(AR,O,)	T	1	Stallcop, James R., Corrections To Vibrational Transition Probabilities Calculated From A Three - Dimensional Model, J. CHEM. PHYS. 50 4085 (1972).
936	(AR)+(O,)	T	2	Stallcop, J. R., Inelastic Scattering In Atom Diatomic Molecule Collisions. I. Rotational Transitions In The Sudden Approximation, J. CHEM. PHYS. 51 5085 (1974).
937	(AR*)+(CO,)	E	1	Starr, W. L., Dissociation-Excitation Reactions Of Argon Metastables with Carbon Dioxide, J. CHEM. PHYS. 55 5415 (1971).
938	(I*)+(TE)	E	5	Stein, H. J., Lutz, H. O., Mehler, P. H., Armbruster, P., Impact - Parameter Dependence Of X - Ray Production In Collisions Between Energetic Heavy Ions And Atoms, PHYS. REV. A 5 2126 (1972).
939	(CO*)+(CO*)	E	1	Stephenson, J. C., Vibrational Excitation And Deexcitation Of The Co (V Equal 1) And Co (V Equal 2) States, APPL. PHYS. LETTERS 22 576 (1973).
940	(HE*)+(HE)	E	3	Stern, M., Gauyacq, J. P., Sidis, V., Coastal Inelastic Cross Sections For One-Electron (1¹ S Going To 2¹ P, 2³ P) And Two-Electron Excitations in He* + He Collisions At 2 And 3 Kev, IX ICPEAC, P.601, UNIVERSITY OF WASHINGTON PRESS, SEATTLE, WASHINGTON (1975).
941	(H*,H,*)+(MG)	E	4	Stewart, L. D., Parsen, H. R., Excited State Atomic Hydrogen Population Resulting From 10 Kev Proto And 20 Kev H,* Beams Colliding With A Magnesium Vapor Target, PHYS. REV. A 9 144 (1973).
942	(H*)+(HE,NE,AR,KR,XE) (Cat. by Abstract Only)	E	0	Stewart, Thurman Edward, Proton Excitation Of Vuv Radiation From The Noble Gases, THESIS, UNIV. OF KENTUCKY (1970).
943	(H*)+(AR)	E	5	Stewart, T. E., Hurst, G. S., Bortell, D. P., Parks, J. E., Vacuum - Ultraviolet Emission From Proton - Excited Helium Gas, PHYS. REV. A 3 1991 (1971).
944	(H)+(H,)	T	1	Stine, J. R., Marcus, R. A., Semiclassical S Matrix Theory For A Compound State Resonance In The Reactive Collinear H + H, Collisions, CHEM. PHYS. LETTERS 25 575 (1974).
945	(H*)+(HE,NE,AR,H,,O,) (Cat. by Abstract Only)	E	5	Stokes, Everett Donald, Electron Capture Into The N Equal 2 Levels Of Hydrogen By Protons Passing Through Gas Targets, THESIS, UNIV. OF ARKANSAS (1971).
946	(H*)+(HE)	E	5	Stolterfoht, N., Bidder, D., Ziem, P., Shape Parameter Analysis Of The 2s (Sup 1 S) Autoionization State Excited By Proton Impact On Helium, PHYS. LETTERS 42A 240 (1972).
947	(CL*)+(NE) (Cat. by Abstract Only)	E	5	Stolterfoht, N., Schneider, D., Burch, D., Simons, H., Braley, J. S., K-Shell Ionization And Fluorescence Yield In 50-Kev Cl⁺ + Ne Collisions, PHYS. FINN. (FINLAND) 7 49 (1974).
948	(H*)+(NE)	E	5	Stolterfoht, N., Gabler, H., Leithäuser, U., High resolution Ne Auger Spectrum Produced in 4.2 Kev H* Ne Collisions, PHYS. LETTERS A 45 391 (1973).
949	(Ne⁺)+(Ne)	E	5	Stolterfoht, N., Burch, F. D., Schneider, D., Auger Spectra Produced In 50-To-600-Kev Ne* - Ne Collisions, VIII ICPEAC, P.731, INSTITUTE OF PHYSICS, BELGRAD, YUGOSLAVIA (1973).
950	(AR*)+(AR)	E	5	Stolterfoht, N., Schneider, D., Gabler, H., Argon L-Shell Auger Spectra Produced In Ar* - Ar Collisions, PHYS. LETTERS A 47 271 (1974).

	REACTANTS	EXP OR THEOR.	E RANGE	REFERENCE
951	(NE)+(NA,NE,O_2,N_2)	E	5	Stolterfoht, N., Ziem, P., Ridder, D., Gas Target Experiments Of K-Shell Vacancy Sharing In Asymmetric Ion-Atom Collisions, J. PHYS. B 7 L409 (1974).
952	(H^+)+(H)	T	4	Storm, D., Impact Parameter Method For Proton Hydrogen Atom Collisions. I. The Time Dependent Impact Parameter Model, PHYS. REV. A 8 1765 (1973).
953	(LI^+)+(HE)	E	3	Strecminsky, M., Abignoli, M., Baudon, J., On-Line Computer Control Of Differential Scattering Measurements On Ion-Atom Collisions, NUCL. INSTR. METHODS 101 427 (1972).
954	Undef	T	1	Strekalov, M. L., Resonant Excitation In Collisions Of Identical Atoms, SOVIET PHYS.-DOKLADY 19 767 (1975).
955	Undef	T	0	Strom, David, Thiele, Everett, Collinear Collision Between A Particle And A Harmonic Oscillator With A Morse Potential Interaction, J. CHEM. PHYS. 59 3313 (1973).
956	(H^+)+(H)	T	4	Strom, D., Rapp, D., Impact Parameter Method For Proton Hydrogen Atom Collisions. III. The Use Of Non-Hydrogenic Expansion Functions In Coupled State Calculations, PHYS. REV. A 8 1784 (1973).
957	(H^+)+(H)	T	4	Strom, D., Impact Parameter Method For Proton Hydrogen Atom Collisions. II. The Coupled State Calculation, And Convergence Of The Two Centered Traveling Hydrogenic Expansion, PHYS. REV. A 8 1777 (1973).
958	(H^+)+(N_2)	E	4	Suchannek, R. G., Sheridan, J. R., Excitation Of The (5,2) Band Of The First Positive Band System Of N_2 By Proton Impact On Nitrogen, J. CHEM. PHYS. 62 3825 (1975).
959	(H^+)+(N_2)	E	3	Suchannek, R., Murray, J. R., Sheridan, J. R., Cross - Section For Excitation Of The 3p States Of Hydrogen By 2-10 Kev Proton Impact On N_2, VII ICPEAC, P.826, NORTH-HOLLAND PUBL. CO., AMSTERDAM (1971).
960	(H^+)+(AR,N_2)	E	4	Suchannek, R. G., Sheridan, J. R., Measurement Of Cross Sections For Excitation Of The 2p States Of Atomic Hydrogen By Charge-Exchange Collisions Of Protons In Argon And Nitrogen, PHYS. REV. A 12 460 (1975).
961	(H^+)+(AR,N_2)	E	4	Suchannek, R. G., Sheridan, J. R., Excitation Cross Sections For The 2p-State Of Atomic Hydrogen In Charge Exchange Collisions By Protons, IX ICPEAC, P.585, UNIVERSITY OF WASHINGTON PRESS, SEATTLE, WASHINGTON (1975).
962	(H^+)+(N_2,AR)	E	4	Suchannek, R. G., Sheridan, J. R., H Alpha Emission In Charge Exchange Collisions Of Protons In Nitrogen And Argon, GEOPHYS. RES. LETT. 2 267 (1975).
963	(N_2O)+(CO)	E	1	Suitor, J. W., Roby, W. C., Vibration-Vibration Energy Exchange Between N_2O And Co, INT. J. CHEM. KINETICS 7 1 (1975).
964	(H^+)+(H)	T	5	Sullivan, J., Coleman, J. P., Bransden, B. H., The Use Of Second Order Potentials In The Theory Of The Scattering Of Charged Particle By Atoms. III. A Four - Channel Approximation For Electron And Proton Scattering By Hydrogen Atoms, J. PHYS. B 5 2061 (1972).
965	(LI^+)+(H_2)	T	2	Sutherley, T. A., Askenam, W. A., Classical S-Matrix Calculations Of Vibrational Transition Probabilities In The LI^+ H_2 System, J. PHYS. B 8 2538 (1975).
966	(I_2^*)+(AR) (Cat. by Abstract Only)	E	1	Tachibana, K., Nomo, A., Matsumoto, A., Fukuda, K., Interaction Potential For Vibrational-Translational Energy Transfer In Collision Between I_2^* And Ar, MEM. FAC. ENG. KYOTO UNIV. (JAPAN) 36 125 (1974).
967	(H^+)+(H)	T	4	Tai, H., Serjeant, L., Detailed Balance As A Check On Impact Parameter Calculations, J. PHYS. B 6 1626 (1973).
968	(H^+)+(H) (Cat. by Abstract Only)	T	4	Tai, Hsiang, Calculations Of Electron And Proton Collisions By Atomic Hydrogen, THESIS, UNIV. OF PITTSBURGH (1976).
969	(HF,HCL,OH)+(HE,O,AR)	T	2	Tait, R. S., Kolb, C. E., Baum, H. R., Classical Calculations Of Rotational And Vibrational Excitation In Energetic Atom-Diatomic Hydride Collisions, J. CHEM. PHYS. 59 3128 (1973).
970	(H,D)+(H_2)	T	2	Tang, K. T., Choi, B. H., Three-Dimensional Quantum Mechanical Studies Of H + H_2 And D + H_2 Reactive Scatterings, IX ICPEAC, P.367, UNIVERSITY OF WASHINGTON PRESS, SEATTLE, WASHINGTON (1975).
971	Undef	T	5	Taulbjerg, K., Vaaben, J., A Scaling Law For K-Excitation In Hetero-Nuclear Collisions, IX ICPEAC, P.1044, UNIVERSITY OF WASHINGTON PRESS, SEATTLE, WASHINGTON (1975).
972	(C^+,N^+,O^+,NE^+,AR^+,KR^+,XE^+)+(C)	T	5	Taulbjerg, Knud, Sigmund, Peter, Deduction Of Heavy - Ion X - Ray Production Cross Sections From Thick - Target Yields, PHYS. REV. A 5 1285 (1972).
973	(NE^+)+(NE) (AR^+)+(AR) (KR^+)+(KR)	E	5	Tawara, H., Foster, C., De Heer, F. J., X-Ray Productions In Symmetric Heavy Ion Atom Collisions, PHYS. LETTERS A 43 266 (1973).
974	(HE^+)+(H_2)	E	5	Tawara, H., Charge Changing Processes For Helium Beam Involving Metastable Atoms In Molecular Hydrogen, J. PHYS. SOC., JAP. 31 871 (1971).
975	(H^+,HE^+)+(ZN,PB)	E	5	Tawara, H., Ishii, K., Morita, S., Kaji, H., Hsu, C. N., Shiokawa, T., Zn K- And Pb L-Shell Ionization By Proton And He^{+} Ion Bombardment, PHYS. REV. A 9 1617 (1974).
976	Undef	E	5	Teplova, Ya. A., Dmitriev, I. S., Nikolaev, V. S., About The Peculiarities Of Formation Of Metastable Particle In Beams Of Fast Multiply-Charged Ions, VIII ICPEAC, P.850, INSTITUTE OF PHYSICS, BEOGRAD, YUGOSLAVIA (1973).

	REACTANTS	EXP OR THEOR.	E RANGE	REFERENCE
977	Undef	T	.	Thiele, Everett, Katz, Ronnie, Collision Of An Atom And A Diatomic, The Adiabatic Approximation, J. CHEM. PHYS. 55 3195 (1971).
978	(AR+)+(AR)	E	0	Thoe, R. S., Smith, W. W., Scattered-Ion-X-Ray Coincidences In Ar+ - Ar Collisions: Dependence Of The Ar L-X-Ray Yield On Final Charge State, PHYS. REV. LETTERS 30 525 (1973).
979	(H)+(HE)	E	4	Thomas, E. W., Sauers, I., Excitation And Angular Scattering Of Fast H By Impact On A Target Of He, VIII ICPEAC, P.[illegible], INSTITUTE OF PHYSICS, BEOGRAD, YUGOSLAVIA (1973).
980	(H)+(HE)	E	4	Thomas, E. W., Sauers, I., Excitation And Angular Scattering Of Fast H By Impact On A Target Of He, VIII ICPEAC, P.[illegible], INSTITUTE OF PHYSICS, BEOGRAD, YUGOSLAVIA (1973).
981	Review	E	5	Thomas, E. W., (Book), EXCITATION HEAVY PARTICLE COLLISIONS, WILEY-INTERSCIENCE, NEW YORK (1972).
982	(CL)+(HCL)	T	1	Thommarson, R. L., Berend, G. C., A Classical Trajectory Study Of The Effect Of Reaction Barrier Height On The Vibrational Energy Transfer Efficiency In The Cl + HCl System, INT. J. CHEM. KINETICS 5 629 (1973).
983	(H_2)+(I,CL) (HCL)+(H,CL)	T	2	Thompson, Donald L., On A Classical Trajectory Study Of Energy Transfer In Some Atom - Diatomic Molecule Systems, J. CHEM. PHYS. 56 3570 (1972).
984	(BA+,LA+,CE+,PR+,ND+,SM+)+(AL)	E	4	Thompson, M. W., Neilson, G. W., Effects Of Inner Shell Excitation On The Stopping Power Of Solids For Heavy Ions, PHYS. LETTERS A 49 151 (1974).
985	Undef	T	3	Thorson, Walter R., Delos, John B., Boorstein, Seth A., Studies Of The Potential - Curve Crossing Problem. I. Analysis Of Stueckelberg's Method, PHYS. REV. A 4 1052 (1971).
986	(H)+(C)	E	6	Tielert, R., Bukow, H. H., Heckmann, P. H., Woodruff, R., Buttlar, H. V., Beam Foil Spectroscopy Using Hydrogen Ions As Incident Particles, Z. PHYS. 264 [illegible] (1973).
987	(H)+(C)	E	5	Tielert, R., Bukow, H. H., A Correlated Fit Method Including Cascade Corrections In Beam Foil Experiments Of Hydrogen, Z. PHYS. 264 119 (1973).
988	(NA+)+(NE)	E	3	Tolk, N. H., White, C. W., Neff, S. H., Lichten, W., Strong Optical Polarization Effects In Radiation From Low-Energy Na+ -Ne Collisions, PHYS. REV. LETTERS 31 671 (1973).
989	(NA+)+(NE)	E	3	Tolk, N. H., Tully, J. C., White, C. W., Kraus, J., Quasimolecular States Responsible For Quantum-Mechanical Phase Interference In Low-Energy Na+ -Ne Inelastic Collisions, IX ICPEAC, P.725, UNIVERSITY OF WASHINGTON PRESS, SEATTLE, WASHINGTON (1975).
990	(NA+)+(NE)	T	3	Tolk, N. H., Tully, J. C., White, C. W., Kraus, J., Monge, A. A., Neff, S. H., Quasimolecular States Responsible For Quantum-Mechanical Phase Interference In Low-Energy Na+ -Ne Inelastic Collisions, PHYS. REV. LETTERS 35 1175 (1975).
991	(HE+)+(I)	E	1	Tolmachev, Yu. A., Measurement Of The Effective Cross Section For Charge Transfer In He+ -I2, OPT. SPECTROSC. 33 [illegible] (1972).
992	(H+)+(H_2)	T	1	Top, Z. H., Baer, M., Quantum Mechanical Treatment Of The Collinear H+ + H_2 System. The Uncoupled System, CHEM. PHYS. LETTERS 24 352 (1974).
993	(C+)+(H,HE,H_2)	T	1	Toshima, N., Fine-Structure Excitation Of Singly-Ionized Carbon Atom By Collision With Helium Atom, J. PHYS. SOC. JAPAN 38 1464 (1975).
994	(H+)+(HE)	T	5	Tripathi, A. N., Mathur, K. C., Joshi, S. K., Excitation Of Helium By Proton Impact, PHYS. REV. A 3 [illegible] (1971).
995	(H+,D+)+(D,H)	T	5	Tripathi, D. N., Rai, D. K., Cross Sections For Single - Electron Capture In Collisions Of Protons And Deuterons With Atoms, PHYS. REV. A 5 1063 (1972).
996	Undef	T	0	Truhlar, Donald G., Semiclassical Treatment Of Rainbow Maxima In Differential Cross Sections For Inelastic Scattering, J. CHEM. PHYS. 58 3107 (1973).
997	(AR)+(N_2,F_2,CL_2,BR_2,I_2,TLF)	T	1	Tsien, Thomas P., Parker, Gregory A., Pack, Russell T., Rotationally Inelastic Molecular Scattering. Computational Tests Of Some Simple Solutions Of The Strong Coupling Problem, J. CHEM. PHYS. 59 5373 (1972).
998	(H+,D+)+(CS)	E	3	Tuan, V. N., Gautherin, G., Schlachter, A. S., Formation Of Metastable Hydrogen Atoms By Charge Exchange Of Protons In Cesium Vapor, PHYS. REV. A 9 1242 (1974).
999	(H+)+(CS)	E	3	Tuan, V. N., Schlachter, A. S., Gautherin, G., Fraction Of Hydrogen Atoms In The Metastable 2s State By Charge Exchange Of Protons In Cesium Vapor, NUCL. INSTR. METHODS 114 [illegible] (1974).
1000	(CD+)+(HE,NE,AR,KR,XE)	T	1	Tudorache, S., Energy Transfer Between The Levels Of The (5s, 5d) Configuration Of Cd Atoms In The Presence Of Noble Gases, REV. ROUM. PHYS. (RUMANIA) 18 [illegible] (1973).
1001	(CS+)+(RB) (Cat. by Abstract Only)	E	0	Tudorache, S., Energy Transfer In The Collision Of Two Alkaline Atoms Of Various Nature, REVUE ROUM. PHYS. 16 [illegible] (1971).
1002	(H+)+(H_2,HF,HCL,N_2,CO)	E	6	Udseth, H., Giese, C. F., Gentry, W. R., Rotational Excitation In Low Energy Proton-Molecule Collisions, VIII ICPEAC, P.[illegible], INSTITUTE OF PHYSICS, BEOGRAD, YUGOSLAVIA (1973).
1003	(H+)+(H_2,D_2)	E	2	Udseth, H., Giese, C. F., Gentry, W. R., Vibrational Excitation In Collisions Of H+ With H_2 And D_2, VII ICPEAC, P.[illegible], NORTH-HOLLAND PUBL. CO., AMSTERDAM (1971).

REACTANTS	EXP OR THEOR.	E RANGE	REFERENCE
1004 (H$^+$)+(H$_2$)	E	2	Udseth, H., Giese, C. F., Gentry, W. R., Differential Cross Sections For Excitation Of Resolved Vibrational States In H$^+$ + H$_2$ (Nu Equal 3) Nonreactive Collisions, J. Chem. Phys. 54 3642 (1971).
1005 (H$^+$)+(H$_2$,HD,D$_2$)	E	2	Udseth, H., Giese, C. F., Gentry, W. R., Transition Probabilities And Differential Cross Sections For Vibrational Excitation In Collisions Of H$^+$ with H$_2$, HD And D$_2$, Phys. Rev. A 8 2483 (1973).
1006 (H$^+$)+(H$_2$,HD,D$_2$,N$_2$,CO,HCL,HF)	E	2	Udseth, H., Giese, C. F., Gentry, W. R., Rotational Excitation In The Small-Angle Scattering Of Protons From Diatomic Molecules, J. Chem. Phys. 60 3051 (1974).
1007 (H$^+$)+(CH$_4$,CD$_4$)	E	2	Udseth, H., Giese, C. F., Gentry, W. R., Vibrational Excitation In Collisions Of H$^+$ with CH$_4$ And CD$_4$, And The Hypothesis Of A Potential Energy Surface-Hopping Mechanism, IX ICPEAC, P.[illegible], University Of Washington Press, Seattle, Washington (1975).
1008 (H$^+$)+(CS)	T	3	Valance, A., Spiess, G., Calculation Of Inelastic Cross-Sections For H$^+$ + Cs Going To H (N Equal [illegible]) + Cs$^+$, IX ICPEAC, P.95, University Of Washington Press, Seattle, Washington (1975).
1009 (HE$^+$,NE$^+$)+(N$_2$)	E	4	Van De Runstraat, C. A., Govers, T. R., Fournier, P. G., De Heer, F. J., Ion - Impact Excitation And Lifetime Of The C^2 Sigma Sub U$^+$ State Of N$_2^+$, VII ICPEAC, P.[illegible], North-Holland Publ. Co., Amsterdam (1971).
1010 (K$^+$)+(H$_2$,D$_2$)	E	3	Van Dop, H., Boerboom, A. J. H., Los, J., Energy - Loss Measurements Of K$^+$ Ions In Head - On Collisions with He, H$_2$, And D$_2$, Physica 54 223 (1971).
1011 (HCL)+(HCL,HE) (CO)+(CO)	T	1	Vargin, A. N., Ganina, N. A., Konyukhov, V. K., Selyakov, V. I., Calculation Of The Probabilities Of Rotational Transitions Of Diatomic Molecules In Collision with Heavy Particles, Zh. Prikl. Mekh. Tekh. Fiz. (USSR) [illegible]
1012 Undef	T	2	Varracchio, E. F., Atom-Diatom Inelastic Scattering. A Comparison Of The Many-Body And Distorted Wave Theories. Mol. Phys. 30 1117 (1975).
1013 (HE$^+$)+(HE)	E	3	Vassilev, G., Rahmat, G., Slevin, J., Baudon, J., Measurements Of Photon Polarization And Angular Correlations For He$^+$ He Collisions Using An Ion-Photon Coincidence Technique, Phys. Rev. Letters 34 444 (1975).
1014 Undef	E	0	Vdovin, Yu. A., Yermachenko, V. M., Maskevitsh, V. K., Atomic Collisions with Transitions Between Zeeman Sublevels, VII ICPEAC, P.663, North-Holland Publ. Co., Amsterdam (1971).
1015 (LI$^+$,NE$^+$,NG$^+$,BE$^+$)+(HE)	E	4	Veje, E., Andresen, B., Jensen, K., Petersen, H. B., Experimental Studies Of Rydberg State Excitations In Ion-Atom Collisions, IX ICPEAC, P.737, University Of Washington Press, Seattle, Washington (1975).
1016 (HE$^+$)+(HE)	E	4	Veje, E., Andresen, B., Jensen, K., Oscillatory Behaviour Of Rydberg State Total Cross Sections In The Collision He$^+$-He, 10-75 Kev, IX ICPEAC, P.739, University Of Washington Press, Seattle, Washington (1975).
1017 Review	T	2	Verter, M. R., Rabitz, H., Sources Of Rotational Cross Section Asymmetry Sigma (J Going To J + Delta J) / Sigma (J Going To J-Delta J) In Molecule-Atom And Molecule-Molecule Systems, J. Chem. Phys. 61 3707 (1974).
1018 (HF)+(HF) (HCL)+(HCL) (DCL)+(DCL) (HBR)+(HBR) (OCS)+(OCS) (HCN)+(HCN) (CLCN)+(CLCN) (BRCN)+(BRCN)	T	1	Verter, Michael R., Rabitz, Herschel, Relative Contributions Of Delta J Equal 2 And Delta J Equal 1 Transitions In Rotationally Inelastic Collisions Of Polar Molecules, J. Chem. Phys. 59 3916 (1973).
1019 Undef	E	1	Vienne-Casalta, D., Barrat, J. P., Experimental Study Of Excitation Transfer Between Mercury Atoms In The 6^{3}P$_0$ And 6^{1}S$_0$ Levels, J. Phys. (Paris) 36 367 (1975).
1020 (H$^+$,H)+(AR)	T	5	Vinogradov, A. V., Urnov, A. M., Shevelko, V. P., The Angular Momentum Distribution Of Highly Excited Hydrogen Atoms In Charge Transfer Reactions And H + Atom Collisions, VII ICPEAC, P.457, North-Holland Publ. Co., Amsterdam (1971).
1021 (H)+(AR)	T	5	Vinogradov, A. V., Urnov, A. M., Shevel'Ko, V. P., Orbital Quantum Number Distribution Of Highly Excited Atoms Produced In Collisions Between Heavy Particles, Soviet Phys.-JETP 33 1110 (1971).
1022 (H$^+$)+(LI,NA,K,RB,CS)	T	5	Vinogradov, A. V., Shevel'Ko, V. P., Role Of Inner Shells In Charge - Exchange Between Protons And Multielectron Atoms, Soviet Phys.-JETP 32 323 (1971).
1023 (NA,K,RB,CS)+(O)	T	4	Vora, R. B., Turner, J. E., Compton, R. N., Single Electron Excitation And Transfer In Collisions Of Alkali-Metal And Oxygen Atoms, Phys. Rev. A 9 2532 (1974).
1024 (H$^+$)+(AR)	E	4	Vujovic, M., Matic, M., Cobic, B., Gordeev, Y. S., Attenuation Method For Fast Ion Beams Metastable State Population And Cross Section Measurements, J. Phys. B 5 2085 (1972).
1025 (H$_2$)+(AR) (O$_2$,I$_2$)+(HE)	T	1	Wagner, Albert F., Mc Koy, Vincent, Quantum Mechanical Calculations Of Rotational - Vibrational Scattering In Homonuclear Diatom - Atom Collisions, J. Chem. Phys. 58 2604 (1973).
1026 (H$^+$)+(HE)	E	5	Wagner, E. B., Young, J. P., Kinetics Of He (2^{3}S) Using Resonance Ionization Spectroscopy, Phys. Rev. Letters [illegible] 1154 (1975).
1027 (H)+(H$_2$)	T	2	Walker, R. B., Wyatt, R. E., Three-Dimensional Reaction Cross Sections From Planar Scattering Data, Mol. Phys. [illegible] (1974).

	REACTANTS	EXP OR THEOR.	E RANGE	REFERENCE
1028	$(HE_2^+)+(CO)$	E	1	Waller, P. A., Collins, C. B., Cunningham, A. J., Stimulated Emission From CO^+ Pumped By Charge Transfer From He_2^+ In The Afterglow Of An E-Beam Discharge, APPL. PHYS. LETTERS 27 323 (1975).
1029	Undef	T	0	Walters, D. L., Bhalla, C. P., Non - Relativistic Auger Rates, X-Ray Rates And Fluorescence Yields For The 2p Shell, VII ICPEAC, P.404, NORTH-HOLLAND PUBL. CO., AMSTERDAM (1971).
1030	$(HE)+(H_2)$	T	2	Wartell, P. A., Cross, R. J., Jr., Semiclassical Theory Of Vibrationally Inelastic Scattering In Three Dimensions, J. CHEM. PHYS. 55 4943 (1971).
1031	$(HE)+(HD)$	T	2	Wartell, P. A., Sudden Approximation Applied To Vibrational Inelastic Scattering He - H_2, J. CHEM. PHYS. 58 4786 (1973).
1032	$(NE^+)+(H)$	T	0	Watson, R. M., Chen, J. C. Y., Eikonal Approximation For Non - Adiabatic Electronic Transitions In Atomic Collisions, VII ICPEAC, P.446, NORTH-HOLLAND PUBL. CO., AMSTERDAM (1971).
1033	$(HE^{++})+(FE,NI,CU,ZN,PD,AG,SN,TE,ND,GD,TM,TA,AU)$	T	5	Watson, R. L., Moret, T. L., Hansen, J. S., Li, T. K., Ejection Of Inner-Shell Electrons By Coulomb Excitation In Heavy Charged Particle Collisions, VIII ICPEAC, P.734, INSTITUTE OF PHYSICS, BEOGRAD, YUGOSLAVIA (1973).
1034	$(HE^*)+(CO_2)$	E	1	Wauchop, T. S., Broida, H. P., Absolute Measurements Of Light Emission From CO_2^+ And CO In The Interaction Of He (2^3 S) With CO_2, J. QUANT. SPECTROS. RADIATIVE TRANSFER 12 371 (1972).
1035	$(H^+)+(N_2)$	E	3	Wehrenberg, P. J., Clark, K. C., Photon Particle Coincidence Measurement Of Charge Transfer Excitation Of The N_2^+ First Negative 3914 Angstrom Band By Protons, PHYS. REV. A 8 173 (1973).
1036	$(H^+)+(N_2)$	E	4	Wehrenberg, P. J., Clark, K. C., Photon - Particle Coincidence Measurement Of Charge Transfer Excitation Of The N_2^+ First Negative 3914 Band By Protons, VII ICPEAC, P.267, NORTH-HOLLAND PUBL. CO., AMSTERDAM (1971).
1037	$(O^-)+(NA^+)$	E	2	Weiner, John, Peatman, William B., Berry, R. Stephen, Charge Transfer In Na^+ - O^- Collisions At Low Relative Energy, PHYS. REV. A 4 1824 (1971).
1038	$(C^+)+(H)$	T	1	Weisheit, Jon C., Lane, Neal F., Low - Energy Elastic And Fine - Structure Excitation Scattering Of Ground - State C^+ Ions By Hydrogen Atoms, PHYS. REV. A 4 171 (1971).
1039	$(C^+)+(H)$	T	2	Weisheit, J. C., Lane, N. F., Atomic Fine Structure Excitation Cross - Sections At Low Energies Application To C^+ (2p) - H (2s) Scattering, VII ICPEAC, P.673, NORTH-HOLLAND PUBL. CO., AMSTERDAM (1971).
1040	$(LI^+)+(H_2)$	T	2	White, R. Allen, Hayes, Edward F., Quantum Mechanical Studies Of The Vibrational Excitation Of H_2 By Li^+, J. CHEM. PHYS. 57 2985 (1972).
1041	$(D)+(HD)$ $(H)+(HD,H_2,D_2)$	T	2	Wilson, David J., Quantum Vibrational Transition Probabilities In Atom-Diatomic Molecule Collisions. V. Effects Of Mass And Well Depth, J. CHEM. PHYS. 54 540 (1971).
1042	$(RB)+(NE)$	T	1	Wilson, A. D., Shimoni, Y., Quantal Close-Coupling Calculations On Fine Structure Transitions In Rubidium-Neon Collisions, J. PHYS. B 7 1543 (1974).
1043	Undef	T	2	Wilson, David J., Locker, David J., Quantum Vibrational Transition Probabilities In Atom - Diatomic Molecule Collisions. A Tractable Three - Dimensional Model, J. CHEM. PHYS. 57 5393 (1972).
1044	$(HG^*)+(CO,HF)$	T	2	Wilson, A. D., Levine, R. D., Simple Models Of Vibrational Excitation In Energy Transfer Molecular Collisions, MOL. PHYS. 27 1197 (1974).
1045	$(HE^+)+(HE)$	T	5	Winter, T. G., Lin, C. C., Electron Capture Into Excited States Of Helium By Helium-Ion Impact On Helium, PHYS. REV. A 12 434 (1975).
1046	$(CL^+)+(HE,NE,AR,KR,XE)$	E	5	Winters, L., Mac Donald, J. R., Brown, M., Ellsworth, L. D., Chiao, T., Pettus, E. W., Chlorine K X-Ray Production In Collisions Of Chlorine Ions With Gas Targets, VIII ICPEAC, P.741, INSTITUTE OF PHYSICS, BEOGRAD, YUGOSLAVIA (1973).
1047	$(AR)+(AR)$	T	2	Wojciechowski, P. H., Weymann, H. D., Multistep Initial Ionization Behind Strong Shock Waves In Argon, J. CHEM. PHYS. 61 1369 (1974).
1048	$(I^+,AG^+)+(I,AG)$	E	5	Wolfli, W., Stoller, C., Bonani, G., Suter, M., Stockli, M., Evidence For Induced Transitions Between Molecular States Formed Transiently In Heavy-Ion-Atom Collisions, LETT. NUOVO CIMENTO (ITALY) 14 577 (1975).
1049	$(H)+(H_2)$	T	2	Wolken, G., Jr., Miller, W. H., Karplus, M., Theoretical Studies Of H + H_2 Rotationally Inelastic Scattering, J. CHEM. PHYS. 56 4930 (1972).
1050	$(H)+(H_2)$	T	2	Wolken, G., Jr., Karplus, M., Theoretical Studies Of H + H_2 Reactive Scattering, J. CHEM. PHYS. 60 351 (1974).
1051	$(CL^+)+(C,MG,AL,CA,SC,TI,FE,NI,CU)$	E	5	Woods, C. W., Hopkins, Forrest, Kauffman, Robert L., Elliott, D. O., Jamison, K. A., Richard, Patrick, Anomalous Target Z Dependence Of Double To Single K-Shell Vacancy Production In Cl-Beam X Rays, PHYS. REV. LETTERS 31 1 (1973).
1052	$(NA)+(I)$	T	2	Woolley, A. M., Semi - Classical Scattering Theory And Total Cross Sections For Systems With Many Crossing Points, MOL. PHYS. 22 607 (1971).

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1053	Under	T	0	Yau, S. J., Yau, H. Y. Sun, Collisional Excitation Of Vibrational Energy Of An Initially Excited Harmonic Oscillator, J. CHEM. PHYS. 56 4626 (1971).
1054	Review	E	2	Yardley, J. T., Population Inversion And Energy Transfer In Gas Lasers, APPL. OPT. 10 1760 (1971).
1055	(H°,H$_2$°,HE°)+(HE)	E	5	Yarn, G. W., Jr., Park, J. T., Pol, V., Crandell, G. H., Absolute Cross Sections For Excitation Of Neon By Impact Of 20-100 Kev H°, H$_2$° And He°, PHYS. REV. A 6 1457 (1972).
1056	(H$_2$)+(AR)	T	2	Young, A. W., Shin, H. K., Simultaneous Vibrational And Rotational Transitions In Hydrogen + Argon At High Collisions Velocities Collisions At Nonzero Impact Parameters, CHEM. PHYS. LETTERS 21 267 (1973).
1057	(SR°)+(HE,NE,AR,KR,XE)	E	3	Zapesochnyi, I. P., Tschimishov, V. L., Shpenik, O. B., Excitation Collisions Of Strontium Ions With Inert Gases, SOVIET PHYS.-TECH. PHYS. 20 47 (1975).
1058	(CS°)+(HE,NE,AR)	E	4	Zapesochnyi, I. P., Pop, S. S., Excitation Of Cs° Ions In The Slow Collisions With He, Ne, And Ar Atoms, VII ICPEAC, P.591, NORTH-HOLLAND PUBL. CO., AMSTERDAM (1971).
1059	(CS°)+(HE,NE,AR)	E	4	Zapesochnyi, I. P., Pop, S. S., Excitatio Cross Sections For Cs II Lines Due To Collisions Of Cs° Ions With He, Ne, And Ar Atoms, OPT. SPECTROS. 33 226 (1972).
1060	(H$_2$)+(H$_2$)	T	2	Zarur, G., Rabitz, H., Effective Potential Formulation Of Molecule - Molecule Collisions With Application To $H_2 - H_2$, J. CHEM. PHYS. 60 2057 (1974).
1061	(HE)+(H$_2$)	T	2	Zarur, George, Rabitz, Herschel, Rotationally Inelastic Scattering With Effective Potentials, J. CHEM. PHYS. 59 963 (1973).
1062	(ZN°,CD°)+(ZN) (CA°)+(CD)	E	3	Zavilopulo, A. N., Investigation Of The Excitation Processes In Low - Energy Ion - Atom Collisions, VII ICPEAC, P.554, NORTH-HOLLAND PUBL. CO., AMSTERDAM (1971).
1063	(CD)+(ZN)	E	3	Zavilopulo, A. N., Zapesochnyi, I. P., Shpenik, O. B., Kirilin, I. F., Energy Dependence Of The Cd A Resonance Line Excited In Low - Energy Cs + Zn Collisions, VII ICPEAC, 597, NORTH-HOLLAND PUBL. CO., AMSTERDAM (1971).
1064	(CD°)+(CD)	E	3	Zavilopulo, A. N., Shpenik, O. B., Zapesochnyi, I. P., Excitation Of Cadmium Atoms By Slow Cd° Ions, OPT. SPECTROS. 32 341 (1972).
1065	(MG°)+(CD)	E	3	Zavilopulo, A. N., Zapesochnyi, I. P., Shpenik, O. B., Excitation Of Resonance Levels Of Cd I, Mg I, And Mg II Due To Collisions Of Magnesium Ions With Cadmium Atoms, OPT. SPECTROS. 32 573 (1972).
1066	(MG°)+(RB,CS)	E	3	Zavilopulo, A. N., Zapesochnyi, I. P., Panev, G. S., Shaina, O. A., Shpenik, O. B., Interference Effects In Collision Of Magnesium Ions With Rubidium And Cesium Atoms, SOVIET PHYS.-JETP LETTERS 18 245 (1973).
1067	(CS°)+(HE,AR,XE,CS)	T	1	Zeebekov, A. A., Nikitin, E. E., Reznikov, A. I., Excitation Transfer In Collisions Of Highly Excited Alkali Atoms, VII ICPEAC, P.659, NORTH-HOLLAND PUBL. CO., AMSTERDAM (1971).
1068	(H°,HE°)+(LI)	E	5	Ziem, P., Bruch, R., Stolterfoht, N., Autoionization Spectra Of Li I And Li II Excited By H° And He° Impact, J. PHYS. B 8 L480 (1975).
1069	(H°,HE°)+(LI)	E	5	Ziem, P., Leithauser, J., Stolterfoht, N., Autoionization Lines In Electron Spectra Of Li I And Li II Excited By H° And He° Impact, IX ICPEAC, P.455, UNIVERSITY OF WASHINGTON PRESS, SEATTLE, WASHINGTON (1975).
1070	(F,DF)+(H$_2$)	T	2	Zimmerman, I. H., George, T. F., Quantum Resonance Effects In Electronic-To-Vibrational Energy Transfer In Molecular Collisions, J. CHEM. PHYS. 61 2466 (1974).
1071	(H$_2$°)+(CO)	E	1	Zittel, Paul F., Moore, C. Bradley, Vibration-To-Vibration Energy Transfer In H_2 -Co, APPL. PHYS. LETTERS 21 51 (1972).

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†Ar reactants out of sequence; AR^{2+} and AR^{4+} reactions are listed at the end of the AR section, after AR^{12+}-AR^{17+}

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