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U.S. DEPARTMENT OF COMMERCE / National Bureau of Standards

## Bibliography of Low Energy Electron and Photon Cross Section Data (through December 1974)

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<sup>1</sup> Headquarters and Laboratories at Gaithersburg, Maryland, unless otherwise noted; mailing address Washington, D.C. 20234.

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# Bibliography of Low Energy Electron and Photon Cross Section Data

(through December 1974)

to Special publication, no. 426.

Lee J. Kieffer

Laboratory Astrophysics Division  
Institute for Basic Standards  
National Bureau of Standards  
Boulder, Colorado 80302



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## Foreword

The National Standard Reference Data System was established in 1963 for the purpose of promoting the critical evaluation and dissemination of numerical data of the physical sciences. The program is coordinated by the Office of Standard Reference Data of the National Bureau of Standards but involves the efforts of many groups in universities, government laboratories, and private industry. The primary aim of the program is to provide compilations of critically evaluated physical and chemical property data. These tables are published in the *Journal of Physical and Chemical Reference Data*, in the NSRDS-NBS series of the National Bureau of Standards, and through other appropriate channels.

The task of critical evaluation is carried out in various data centers, each with a well-defined technical scope. A necessary preliminary step to the critical evaluation process is the retrieval from the world scientific literature of all papers falling within the scope of the center. Each center, therefore, builds up a comprehensive well-indexed bibliographical file which forms the base for the evaluation task. Bibliographies derived from these files are published when they appear to be of value to research workers and others interested in the particular technical area.

Further information on NSRDS and the publications which form the primary output of the program may be obtained by writing to the Office of Standard Reference Data, National Bureau of Standards, Washington, DC 20234.

David R. Lide, Jr., Chief  
Office of Standard Reference Data



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# Bibliography of Low Energy Electron and Photon Cross Section Data (through December 1974)

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A bibliography of original reports of measurements or calculations of electron, positron and photon cross sections and their ions is presented. A detailed index to the bibliography allows retrieval of cross section data for specific processes and atomic or molecular species. A comprehensive author index is included. The bibliography covers the period 1921 through calendar year 1974 but some references late in 1974 may not have been found and included. No references were found prior to 1921.

Key words: Atom; collision cross section; detachment; dissociation; elastic scattering; electron; excitation; fluorescence; ion; ionization; molecule; photon; positron.

## Introduction

### History

This bibliography is the result of a continuing literature survey which was begun in 1960 and originally encompassed only electron and positron collision cross section data. In 1967 the collection of photon cross section references was begun. The search for references in both cases was retrospective and included all papers reporting measurements or calculations of such cross sections or their equivalents (see below) for atoms and small molecules. This means that the earliest papers in our collection go back to the beginning of modern atomic and molecular physics in the 1920's. In fact the earliest papers in our collection are the classic electron transmission measurements of Ramsauer and electron drift tube measurements of Townsend which were published in 1921. The organization responsible for continuing this survey is the Low Energy Atomic Collision Cross Section Information Center which is located in the Joint Institute for Laboratory Astrophysics, University of Colorado, Boulder, Colorado 80302.

### Scope

This bibliography contains references to original research papers which report measurements or theoretical calculations of cross sections for electron and photon collisions with free atoms and small molecules and their positive and negative ions. Free radicals are included. The choice of molecular species is somewhat arbitrary. The general criteria for inclusion were that the species

be important in modeling planetary and stellar atmospheres, galactic gas clouds, gas discharges and lasers, or low temperature plasmas. There also is included a small but significant group of references containing positron scattering cross section data.

Papers reporting measurements or calculations of the following quantities are included, since under proper conditions cross sections have been or can be simply derived from them.

- For electron impact:
- (1) scattering phase shifts
  - (2) scattering lengths
  - (3) ionization efficiencies
  - (4) excitation efficiencies
- For photon impact:
- (1) absorption coefficients
  - (2) ionization coefficients

The energy range for electron cross section data is 0–10 keV. This should not be taken literally since in many cases measurements are made over a wide range and might only partly overlap this range. It is unlikely though that references will be found for primary electron energies above 50 keV.

The criterion that we have attempted to apply in our selection of the papers containing photon cross sections is that the data in the papers should be for wavelength regions of continuous absorption. For atoms, this clearly means those wavelength regions above the first ionization limit. Indeed, until elastic scattering becomes important, the absorption and ionization continua cross sections are identical. In the case of molecules this clear-cut distinction cannot be made since we now have ionization and dissociation continua overlaid in many cases by discrete structure with variable efficiencies for preionization, predissociation and photoexcitation. We have therefore restricted our search primarily to the wavelength range represented by the ultraviolet region of the spectrum (1.0 to

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300 nm).

In addition to references from the formal scientific literature we have included theses, reports given at meetings in some cases, and company or agency reports which have been printed and circulated. However, reference is not made to material that is unavailable either through library facilities or government document centers. No classified material is included. Very few items have been included from the published proceedings of national and international conferences, not only because of the enormous increase in the number of these conferences, but also because the data presented are usually published more formally later. There is also a tendency for authors to publish material which is identical to that which they have reported on at a meeting and also issued as a company or agency report. In some cases it is possible to verify that one of these situations is so and in those cases only one reference, the formal publication, if there is one, is kept in the bibliography. In many cases it is not possible to make a precise distinction among such documents. Because of this, there may be cases of duplication in the sense that there may be more than one reference to the same original data. We have tried to keep this to a minimum consistent with our aim of collecting references to all published data.

Inclusion of a reference in this bibliography does not imply a value judgment about the accuracy of the data. It is only asserted that the references included report a measured electron, positron, or photon scattering cross section.

References identified on or before 28 February 1975 and bearing a publication date on or before 31 December 1974 are included. This means that the bibliography is essentially complete through calendar year 1974. There are probably some references from obscure or nonstandard sources which have not been identified and included. These are normally found through abstracting services which in some cases are 6 months to 1 year behind publication dates.

The references are indexed by a hierarchy of terms which describe in detail the cross section data to be found in the reference. First of all there are three large groupings: the electron, positron and photon lists. Within each of these large groupings the order of the index terms is as follows:

- (1) Process (see Contents).
- (2) Experimental or Theoretical.
- (3) Normalized or Relative (the data are con-

sidered normalized if given in absolute units.)

- (4) Atomic or Molecular Species (including the degree of ionization of the target). The common chemical symbols for the atomic species come first and are alphabetically ordered. They are followed by diatomics, triatomics, etc. The molecular symbols are alphabetically ordered. If a subscript appears, one merely treats it as a repeating symbol for purposes of ordering.
- (5) The states of the target and their ordering are as follows:
  - (a) Neutral unexcited species.
  - (b) Negative ions, indicated by a superscript minus sign following the atomic or molecular symbol.
  - (c) Neutral excited species, indicated by a superscript asterisk following the atomic or molecular symbol.
  - (d) Positively charged ions, indicated by a superscript plus sign and an integer indicating the degree of ionization following the atomic or molecular symbol.

The index categories are generally self-explanatory but a few comments about the process terms are in order. The terms that we have chosen are based more on experimental techniques than the, perhaps, more logical theoretical categories. Thus, for example, the category "Absorption" in the photon index has no theoretical subsection, as the theoretical papers will deal specifically with ionization or dissociation. However, in the laboratory, the quantities measured are usually the total absorption cross section and the photoionization or photodissociation yield. In these cases, a paper reporting total absorption cross sections is listed under "Absorption," while a paper reporting photoionization or dissociation yields is listed under "Ionization" or "Dissociation." This listing procedure has been followed even for papers which claim to measure "ionization" cross sections for atoms using absorption techniques. Those papers listed under the category "Photoionization, Experimental," have all measured the cross section by detecting the number of positive ions created.

A large amount of data is now becoming available using mass spectrometry and photoelectron techniques. These techniques measure a quantity which should yield the relative partial photoionization cross section for the production of ion fragments, or of the parent ion in a particular energy state. We have listed the papers using these techniques



under "Ionization, Relative."

Category "Total Scattering" in the electron index includes theoretical papers that give a total cross section which is the sum of elastic and inelastic cross sections. It also includes any references to experimentally determined cross sections in which the experiment does not distinguish between elastically and inelastically scattered electrons even if the experiment is carried out in an energy range in which only elastic scattering is expected.

### **Organization**

This report consists of three parts: an index to the bibliography, the list of citations in the bibliography, and an author index.

#### *Index*

The index is a list of references which are identified by our accession number, the first author's surname and the last two digits of the year of publication. (For example, 66 means 1966.) The accession number identifies the reference in our list of citations.

#### *Bibliography*

In this section the complete citations for all references are given. The citations are listed in numerical order by accession number. All authors'

surnames and initials and the title are given as well as journal name, volume, inclusive pages and year of publication. For non-journal references, standard identifying information used by libraries for cataloging is given.

#### *Author Index*

In this section all authors are listed alphabetically by surname. After each author's name is a list of accession numbers indicating which references he authored or coauthored.

#### *Acknowledgments*

The Atomic Collision Cross Section Information Center is part of the National Standard Reference Data System of the National Bureau of Standards. The Center is supported by the Office of Standard Reference Data of the National Bureau of Standards.

The collection of this material began almost 14 years ago and during that long period many individuals have made major contributions. The author would like to especially thank Dr. R. D. Hudson of NASA-Johnson Space Craft Center for his invaluable help in collecting and classifying the references in the photon bibliography. Finally, the author would like to thank Patricia L. Ruttenberg who made this publication possible via computer assisted typesetting.





# I. Electron Cross Section Index

## TOTAL SCATTERING EXPERIMENTAL

### Normalized

Ar	1 Brode, 25 72 Mayer, 21 74 Ramsauer, 21 76 Rusch, 26 86 Ramsauer, 29 95 Ramsauer, 32 160 Green, 30 175 Gaertner, 31 197 Townsend, 22 292 Engelhardt, 64 454 Drawin, 56 538 Hammer, 56 819 Bowe, 60 1007 Brode, 32 1062 Frost, 64 1577 Daiber, 65 1752 Wahlin, 31 1891 Aberth, 63 1962 Golden, 66 2328 Ny, 37 2906 Polushkin, 66 2957 Gavallas, 67 3568 Volkov, 68 6179 Schultes, 74	10 Normand, 30 73 Ramsauer, 21 75 Ramsauer, 23 82 Bruche, 27 94 Ramsauer, 32 116 Fuchtbauer, 34 174 Kollath, 28 186 Ramsauer, 23 199 Townsend, 22 312 Phelps, 51 530 Pack, 61 637 Langmuir, 28 846 Aberth, 63 1041 Bulewicz, 62 1473 Harris, 63 1591 Kozlov, 65 1786 Kozlov, 65 1945 Daiber, 66 2327 Ramsauer, 31 2440 Baldwin, 67 2956 Polushkin, 66 3204 Tice, 67 4711 Delpech, 72
Ar <sup>+</sup>	4492 Celotta, 71	
C	305 Maecker, 55	
Cd	8 Brode, 30	46 Brode, 25
Cs	6 Brode, 29 132 Morgulis, 63 182 Chen, 62 768 Mullaney, 61 785 Roehling, 63 872 Meyerand Jr., 63 2906 Polushkin, 66 4397 Visconti, 71	16 Perel, 62 149 Mirlin, 62 764 Boeckner, 33 769 Flavin, 63 850 Flavin, 63 1473 Harris, 63 3873 Postma, 69 5518 Kulik, 72
Cs <sup>+1</sup>	764 Boeckner, 33	
F	559 Maecker, 56	
Fe	305 Maecker, 55	
H	305 Maecker, 55 454 Drawin, 56 502 Wiese, 63 1018 Neynaber, 61	322 Brackmann, 58 493 Kolesnikov, 62 538 Hammer, 56
He	1 Brode, 25 72 Mayer, 21 74 Ramsauer, 21 86 Ramsauer, 29 116 Fuchtbauer, 34 161 Palmer, 31	10 Normand, 30 73 Ramsauer, 21 82 Bruche, 27 94 Ramsauer, 32 160 Green, 30 174 Kollath, 28

## TOTAL SCATTERING EXPERIMENTAL

### Normalized

He	186 Ramsauer, 23 201 Townsend, 23 249 Chen, 61 312 Phelps, 51 317 Anderson, 56 530 Pack, 61 637 Langmuir, 28 869 Golden, 65 995 Goodrich, 37 1062 Frost, 64 1473 Harris, 63 1591 Kozlov, 65 2327 Ramsauer, 31 2433 Crompton, 67 2906 Polushkin, 66 2957 Gavallas, 67 3568 Volkov, 68 4355 Crompton, 70	192 Francis, 47 233 Dougal, 58 306 Anderson, 55 314 Gould, 54 454 Drawin, 56 594 Hirshfield, 58 819 Bowe, 60 888 Phelps, 60 1041 Bulewicz, 62 1348 Goldan, 65 1489 Crompton, 65 1786 Kozlov, 65 2328 Ny, 37 2440 Baldwin, 67 2956 Polushkin, 66 3204 Tice, 67 3702 Hoffmann, 69 6179 Schultes, 74
He <sup>+</sup>	868 Neynaber, 63	
He <sup>+1</sup>	233 Dougal, 58	306 Anderson, 55
Hg	21 Tate, 32 47 Brode, 29 117 Fuchtbauer, 35 160 Green, 30 172 Beuthe, 27 637 Langmuir, 28 1746 Maxwell, 26	46 Brode, 25 69 Arnot, 35 157 Jones, 28 161 Palmer, 31 598 McCutchen, 58 675 Simons, 38
K	6 Brode, 29 2956 Polushkin, 66 4397 Visconti, 71	16 Perel, 62 3147 Collins, 68 5653 Kasdan, 73
Kr	75 Ramsauer, 23 95 Ramsauer, 32 174 Kollath, 28 312 Phelps, 51 819 Bowe, 60 2326 Ramsauer, 31 3702 Hoffmann, 69	86 Ramsauer, 29 118 Fuchtbauer, 35 186 Ramsauer, 23 439 Pack, 62 1062 Frost, 64 3568 Volkov, 68
Li	16 Perel, 62	
N	26 Neynaber, 63 2753 Hermann, 67	305 Maecker, 55
Na	6 Brode, 29 5653 Kasdan, 73	16 Perel, 62
Ne	10 Normand, 30 82 Bruche, 27 86 Ramsauer, 29 116 Fuchtbauer, 34 186 Ramsauer, 23 637 Langmuir, 28	74 Ramsauer, 21 84 Bruche, 29 94 Ramsauer, 32 174 Kollath, 28 312 Phelps, 51 819 Bowe, 60

## TOTAL SCATTERING EXPERIMENTAL

Normalized

Ne	1019 Chen, 64 1400 Gilardini, 57 2326 Ramsauer, 31 2957 Cavallas, 67 3702 Hoffmann, 69	1041 Bulewicz, 62 1473 Harris, 63 2328 Ny, 37 3568 Volkov, 68 4183 Salop, 70
O	305 Maecker, 55 1013 Neynaber, 61 1577 Daiber, 65 2170 Sunshine, 67	325 Lin, 59 1490 Sunshine, 65 1945 Daiber, 66 2178 Sunshine, 65
Rb	6 Brode, 29	4397 Visconti, 71
Tl	13 Brode, 31	
Xe	75 Ramsauer, 23 95 Ramsauer, 32 186 Ramsauer, 23 439 Pack, 62 1062 Frost, 64 3568 Volkov, 68	86 Ramsauer, 29 117 Fuchtbauer, 35 312 Phelps, 51 819 Bowe, 60 2326 Ramsauer, 31 3702 Hoffmann, 69
Zn	8 Brode, 30	46 Brode, 25
Br <sub>2</sub>	683 Bailey, 37	
CO	1 Brode, 25 87 Ramsauer, 30 174 Kollath, 28 259 Bruche, 27 2326 Ramsauer, 31 6179 Schultes, 74	10 Normand, 30 94 Ramsauer, 32 200 Skinker, 23 439 Pack, 62 3203 Tice, 67
Cl <sub>2</sub>	37 Fisk, 37	682 Bailey, 35
CsCl	6303 Becker, 74	
CsF	4957 Slater, 72	6215 Slater, 74
D <sub>2</sub>	188 Bernstein, 62 1375 Golden, 65 1787 Golden, 66	439 Pack, 62 1428 Hall, 55 3204 Tice, 67
HCl	80 Bruche, 26	2088 Bailey, 30
H <sub>2</sub>	1 Brode, 25 72 Mayer, 21 77 Bruche, 26 87 Ramsauer, 30 94 Ramsauer, 32 174 Kollath, 28 181 Frost, 62 188 Bernstein, 62 199 Townsend, 22 312 Phelps, 51 360 Bekefi, 58 538 Hammer, 56	10 Normand, 30 73 Ramsauer, 21 79 Bruche, 27 93 Ramsauer, 30 160 Green, 30 175 Gaertner, 31 186 Ramsauer, 23 195 Townsend, 21 240 Varnerin Jr., 51 352 Crompton, 52 530 Pack, 61 637 Langmuir, 28

## TOTAL SCATTERING EXPERIMENTAL

Normalized

H <sub>2</sub>	685 Forester, 61 1375 Golden, 65 1787 Golden, 66 3204 Tice, 67 6179 Schultes, 74	1043 Frost, 62 1507 Dubovoi, 60 2327 Ramsauer, 31 4062 Crompton, 69
HF	84 Bruche, 29	
I <sub>2</sub>	677 Healey, 38	
KI	6302 Slater, 74	
K <sub>2</sub>	5900 Miller, 73	
N <sub>2</sub>	1 Brode, 25 26 Neynaber, 63 72 Mayer, 21 77 Bruche, 26 87 Ramsauer, 30 181 Frost, 62 195 Townsend, 21 312 Phelps, 51 352 Crompton, 52 637 Langmuir, 28 685 Forester, 61 846 Aberth, 63 1041 Bulewicz, 62 1473 Harris, 63 1591 Kozlov, 65 1891 Aberth, 63 2326 Ramsauer, 31 6002 Baldwin, 74	10 Normand, 30 37 Fisk, 37 73 Ramsauer, 21 79 Bruche, 27 174 Kollath, 28 186 Ramsauer, 23 218 Engelhardt, 64 316 Anderson, 56 530 Pack, 61 684 Haas, 57 687 Bayes, 62 982 Stotz, 63 1043 Frost, 62 1577 Daiber, 65 1786 Kozlov, 65 1997 Golden, 66 3204 Tice, 67 6179 Schultes, 74
NO	200 Skinker, 23 6430 Zecca, 74	259 Bruche, 27
Na <sub>2</sub>	5900 Miller, 73	
O <sub>2</sub>	87 Ramsauer, 30 259 Bruche, 27 846 Aberth, 63 1891 Aberth, 63 2170 Sunshine, 67 4183 Salop, 70	195 Townsend, 21 377 Silverman, 57 1577 Daiber, 65 2078 Chantry, 66 2178 Sunshine, 65 6179 Schultes, 74
CO <sub>2</sub>	72 Mayer, 21 87 Ramsauer, 30 94 Ramsauer, 32 198 Skinker, 22 439 Pack, 62 687 Bayes, 62 3203 Tice, 67	81 Ramsauer, 27 93 Ramsauer, 30 174 Kollath, 28 259 Bruche, 27 685 Forester, 61 2326 Ramsauer, 31 6179 Schultes, 74
HCN	687 Bayes, 62	3203 Tice, 67
H <sub>2</sub> O	84 Bruche, 29 687 Bayes, 62	439 Pack, 62 1450 Takeda, 60

## TOTAL SCATTERING EXPERIMENTAL

## Normalized

H <sub>2</sub> O	2088 Bailey, 30 6179 Schultes, 74	3203 Tice, 67
N <sub>2</sub> O	93 Ramsauer, 30 174 Kollath, 28 259 Bruche, 27 687 Bayes, 62 6179 Schultes, 74	159 Bailey, 32 200 Skinker, 23 439 Pack, 62 3203 Tice, 67 6430 Zecca, 74
SO <sub>2</sub>	687 Bayes, 62	3203 Tice, 67
C <sub>2</sub> H <sub>2</sub>	85 Bruche, 29	
NH <sub>3</sub>	84 Bruche, 29 687 Bayes, 62 3203 Tice, 67	439 Pack, 62 2088 Bailey, 30
CCl <sub>4</sub>	991 Holst, 31	
CD <sub>4</sub>	3204 Tice, 67	
CF <sub>4</sub>	3204 Tice, 67	
CH <sub>3</sub> Cl	991 Holst, 31	
CH <sub>4</sub>	1 Brode, 25 87 Ramsauer, 30 174 Kollath, 28 259 Bruche, 27 973 Frommhold, 59 2326 Ramsauer, 31	84 Bruche, 29 89 Bruche, 30 192 Francis, 47 685 Forester, 61 1833 Fink, 65 3204 Tice, 67
C <sub>2</sub> H <sub>4</sub>	85 Bruche, 29 685 Forester, 61	203 Bannon, 28
C <sub>2</sub> H <sub>6</sub>	89 Bruche, 30	6198 Duncan, 74

## Relative

Ar	126 Rusch, 25 4963 Sanche, 72	171 Zachmann, 27
Cd	180 Minkowski, 23	
He	469 Hughes, 35 4963 Sanche, 72	4006 Golden, 70
Hg	163 Pearson, 31 486 Kessler, 65	180 Minkowski, 23
K	16 Perel, 62	329 Rubin, 60
Kr	126 Rusch, 25	4963 Sanche, 72
Ne	126 Rusch, 25	4963 Sanche, 72

## TOTAL SCATTERING EXPERIMENTAL

## Relative

O	170 Baerwald, 25	
Xe	4963 Sanche, 72	
H <sub>2</sub>	126 Rusch, 25 171 Zachmann, 27	170 Baerwald, 25 4013 Hall, 70
O <sub>2</sub>	1013 Neynaber, 61	4791 Gray, 72
CH <sub>4</sub>	209 Glockler, 24	

## TOTAL SCATTERING THEORETICAL

## Normalized

Ar	60 O'Malley, 63	452 Gryzinski, 59
Cs	810 Damburg, 61 1282 Robinson, 62	1023 Salmona, 61
He	60 O'Malley, 63	
K	810 Damburg, 61	
Kr	60 O'Malley, 63	
Li	810 Damburg, 61	990 Karule, 64
Na	810 Damburg, 61	
Ne	60 O'Malley, 63	
Xe	60 O'Malley, 63	

## ELASTIC SCATTERING EXPERIMENTAL

## Normalized

Ar	187 Berman, 49 292 Engelhardt, 64 637 Langmuir, 28 1909 Mazing, 66 5035 Beynon, 72 5989 Williams, 74 6311 Gupta, 74	273 Allen, 37 330 Westin, 49 734 Graham, 54 4087 Afrosimov, 69 5146 Choudhury, 69 6247 Lewis, 74
Cs	1346 Balling, 64 3202 Nighan, 67 5091 Beynon, 72	1909 Mazing, 66 5056 Nighan, 72



## ELASTIC SCATTERING EXPERIMENTAL

## Normalized

Cu	6194 Williams, 74	
H	1031 Gilbody, 61 5988 Williams, 74 6191 Lloyd, 74	5553 Teubner, 73 6187 Teubner, 74
He	165 Hughes, 32 274 Goldan, 63 637 Langmuir, 28 995 Goodrich, 37 3209 Vriens, 68 3817 Bromberg, 69 4408 Chamberlain, 70 5069 Crooks, 72 6315 Sethuraman, 74	273 Allen, 37 330 Westin, 49 734 Graham, 54 1277 Hughes, 36 3565 Schearer, 68 3975 Gibson, 69 4560 Truhlar, 71 5146 Choudhury, 69
Hg	21 Tate, 32 486 Kessler, 65 1535 Kessler, 64 3983 Bromberg, 69	69 Arnot, 35 637 Langmuir, 28 3811 Eitel, 68 5541 Rockwood, 73
K	2822 Rubin, 59 4689 Slevin, 70 5035 Beynon, 72	4561 Collins, 71 4926 Slevin, 72
Kr	739 Chen, 63 5146 Choudhury, 69	4087 Afrosimov, 69
Na	679 Dehmelt, 58 5091 Beynon, 72	1944 Balling, 66 5612 Davis, 73
Ne	187 Berman, 49 330 Westin, 49 734 Graham, 54 4862 Robertson, 72	273 Allen, 37 637 Langmuir, 28 4087 Afrosimov, 69 5146 Choudhury, 69
Rb	522 Balling, 64	5612 Davis, 73
Xe	739 Chen, 63 5146 Choudhury, 69	4087 Afrosimov, 69
CO	374 Lassetre, 53 4112 Bromberg, 70 5084 Truhlar, 72	3817 Bromberg, 69 4967 Comer, 71 5145 Truhlar, 72
D <sub>2</sub>	260 Engelhardt, 63	
H <sub>2</sub>	260 Engelhardt, 63 4137 Trajmar, 70 4734 Linder, 71 6187 Teubner, 74	637 Langmuir, 28 4388 Weingartshofer, 7 5553 Teubner, 73 6191 Lloyd, 74
N <sub>2</sub>	381 Lassetre, 57 3817 Bromberg, 69 4672 Comer, 71	637 Langmuir, 28 4112 Bromberg, 70 5084 Truhlar, 72
O <sub>2</sub>	4724 Trajmar, 71	4735 Linder, 71

## ELASTIC SCATTERING EXPERIMENTAL

## Normalized

O <sub>2</sub>	5135 Nelson, 72	6047 Bromberg, 74
CO <sub>2</sub>	6047 Bromberg, 74	
H <sub>2</sub> O	6066 Lassetre, 74	
C <sub>2</sub> H <sub>2</sub>	5200 Cottrell, 68	
CH <sub>4</sub>	190 Edmisten, 49	5468 John, 49
C <sub>2</sub> H <sub>4</sub>	5200 Cottrell, 68	
C <sub>2</sub> H <sub>6</sub>	190 Edmisten, 49	5200 Cottrell, 68
Relative		
Ar	11 McMillen, 30 22 Webb, 35 52 Arnot, 31 129 Ramsauer, 31 1347 Kuyatt, 65 3513 Schackert, 68	20 Hughes, 32 49 Bullard, 31 59 Mohr, 32 837 Porteus, 63 2290 Mehr, 67
Au	1111 Reichert, 63	
Bi	3570 Haug, 68	
Cd	62 Childs, 33	
H	230 Harnwell, 29 1593 Kleinpoppen, 65	1512 McGowan, 65 3774 Tai, 69
He	3 Dymond, 27 53 Bullard, 31 158 Harnwell, 29 253 Dymond, 29 517 Schulz, 63 529 Schulz, 64 1347 Kuyatt, 65 1529 Ehrhardt, 65 2912 Chamberlain, 67 3850 Gibson, 69	11 McMillen, 30 120 Poultney, 34 193 Werner, 31 300 Schulz, 63 518 Fleming, 63 1001 Hughes, 34 1470 Ehrhardt, 65 2290 Mehr, 67 3513 Schackert, 68 6346 Arnou, 74
Hg	50 Arnot, 31 144 Arnot, 32 191 Arnot, 29 245 Arnot, 33 1347 Kuyatt, 65 1427 Deichsel, 65 1475 Rose, 30 2823 Yeates, 67 4406 Eitel, 71	137 Nicoll, 33 164 Gage, 33 219 Jordan, 33 1002 Jordan, 34 1425 Deichsel, 61 1431 Steidl, 65 1596 Deichsel, 66 4150 Gronemeier, 70 5114 Hanne, 72
K	30 McMillen, 34 610 Franken, 58	329 Rubin, 60 2947 Collins, 67



## ELASTIC SCATTERING EXPERIMENTAL

Relative

K	5000 Hils, 72 5979 Hils, 71	5314 Gehenn, 71
Kr	22 Webb, 35 529 Schulz, 64 2290 Mehr, 67	52 Arnot, 31 1347 Kuyatt, 65 3513 Schackert, 68
Na	4779 Andrick, 72	
Ne	52 Arnot, 31 59 Mohr, 32 158 Harnwell, 29 529 Schulz, 64 1347 Kuyatt, 65 3513 Schackert, 68	53 Bullard, 31 137 Nicoll, 33 300 Schulz, 63 1004 Hughes, 33 2290 Mehr, 67 5317 Heindorff, 73
Xe	52 Arnot, 31 1347 Kuyatt, 65 3513 Schackert, 68	529 Schulz, 64 2290 Mehr, 67
Zn	64 Childs, 33	
Br <sub>2</sub>	65 Arnot, 34	
CO	52 Arnot, 31	3377 Ehrhardt, 68
D <sub>2</sub>	1471 Kuyatt, 66	
HD	1471 Kuyatt, 66	
H <sub>2</sub>	11 McMillen, 30 31 Webb, 35 53 Bullard, 31 129 Ramsauer, 31 230 Harnwell, 29 1303 Geiger, 64 3252 Ehrhardt, 68	23 Hughes, 32 52 Arnot, 31 59 Mohr, 32 158 Harnwell, 29 1085 Kuyatt, 64 1471 Kuyatt, 66 3377 Ehrhardt, 68
I <sub>2</sub>	65 Arnot, 34 3935 Hilgner, 69	2628 Hilgner, 67
N <sub>2</sub>	52 Arnot, 31 59 Mohr, 32 158 Harnwell, 29 1924 Schulz, 66 4999 Gehenn, 72 5037 Kambara, 72	53 Bullard, 31 138 Massey, 33 300 Schulz, 63 2179 Ehrhardt, 67 5012 Shyn, 72
O <sub>2</sub>	4373 Boness, 70	4375 Spence, 70
CO <sub>2</sub>	59 Mohr, 32	129 Ramsauer, 31
H <sub>2</sub> O	3934 Hilgner, 69 6423 Seng, 74	5360 Trajmar, 73
H <sub>2</sub> S	59 Mohr, 32	

## ELASTIC SCATTERING EXPERIMENTAL

Relative

C <sub>2</sub> H <sub>2</sub>	1286 Childs, 34	
PH <sub>3</sub>	59 Mohr, 32	
CCl <sub>4</sub>	65 Arnot, 34 3934 Hilgner, 69	1287 Hill, 36
CF <sub>4</sub>	1287 Hill, 36	
CH <sub>4</sub>	52 Arnot, 31 59 Mohr, 32	53 Bullard, 31 137 Nicoll, 33
C <sub>2</sub> H <sub>4</sub>	1286 Childs, 34	
C <sub>2</sub> H <sub>6</sub>	1286 Childs, 34	
C <sub>2</sub> H <sub>5</sub> I	3935 Hilgner, 69	

## ELASTIC SCATTERING THEORETICAL

Normalized

Ar	60 O'Malley, 63 106 Allis, 31 397 Barbieri, 51 449 Kivel, 59 471 Moiseiwitsch, 61 657 Zwicky, 23 821 Bauer, 63 1059 Biberman, 64 1579 Brackett, 63 3248 Yates, 68 3844 Sheorey, 69 4421 Fink, 70 4553 Thompson, 71 4687 Garbaty, 71 5312 Furness, 73 5821 Furness, 73 6000 Amusia, 74 6236 Bromberg, 74	99 Holtsmark, 29 185 Holtsmark, 28 409 Tietz, 59 450 Kivel, 59 495 Moiseiwitsch, 63 818 Martynenko, 63 875 Karle, 64 1139 Thompson, 66 1650 Lenander, 66 3802 Meister, 68 3998 Gryzinski, 70 4485 Berg, 71 4612 Fink, 70 5086 Schwarz, 72 5581 Geltman, 73 5955 Pindzola, 74 6115 Khare, 74
Ar <sup>*</sup>	3826 Robinson, 69	
Ar <sup>+1</sup>	3825 Manson, 69	
Au	1646 Schonfelder, 66 4612 Fink, 70	4421 Fink, 70
Au <sup>+1</sup>	3825 Manson, 69	
B	884 Pilyankevich, 60 4303 Hunt, 70	2177 Snodgrass, 66

## Normalized

B <sup>+4</sup>	4674 Shimamura, 71	
Ba	6075 Fabrikant, 73	6076 Fabrikant, 73
Be	884 Pilyankevich, 60 6075 Fabrikant, 73	4303 Hunt, 70 6076 Fabrikant, 73
Be <sup>+1</sup>	3348 Feautrier, 68	
Be <sup>+2</sup>	884 Pilyankevich, 60	
Be <sup>+3</sup>	3844 Sheorey, 69	4674 Shimamura, 71
Be <sup>+4</sup>	3844 Sheorey, 69	
Bi	1646 Schonfelder, 66 4612 Fink, 70	4421 Fink, 70
Br	1152 Arnot, 34	2060 Robinson, 67
C	884 Pilyankevich, 60 1102 McDowell, 64 1114 Malik, 61 2060 Robinson, 67 3260 Henry, 68 3704 Smith, 69 4421 Fink, 70 5581 Geltman, 73	1057 Cooper, 62 1110 Myerscough, 64 1539 Myerscough, 65 2616 Smith, 67 3700 Henry, 69 4303 Hunt, 70 4612 Fink, 70 6415 Thomas, 74
C <sup>+2</sup>	884 Pilyankevich, 60	
C <sup>+4</sup>	884 Pilyankevich, 60	
Ca	557 Kamenetskii, 62 6075 Fabrikant, 73	1448 Bely, 63 6076 Fabrikant, 73
Ca <sup>+1</sup>	3825 Manson, 69	
Cl	267 Bullard, 30 1057 Cooper, 62	745 Tietz, 60 2060 Robinson, 67
Cs	36 Garrett, 63 810 Damburg, 61 1343 Crown, 65 1491 Karule, 65 1542 Karule, 65 1864 Karule, 65 1897 Crown, 65 4421 Fink, 70 5195 Karule, 72 5696 Karule, 66 6425 Walker, 74	359 Stone, 63 1178 Basu, 66 1469 Karule, 65 1523 Garrett, 64 1665 Wilkins, 66 1865 Karule, 65 2002 Peterkop, 65 4612 Fink, 70 5590 Burke, 73 5996 Burke, 74
Eu <sup>+1</sup>	3825 Manson, 69	
F	572 Hoerni, 53 1287 Hill, 36	1057 Cooper, 62 2060 Robinson, 67

## Normalized

F <sup>+1</sup>	3825 Manson, 69	
Ga <sup>+1</sup>	3825 Manson, 69	
Ge <sup>+1</sup>	3825 Manson, 69	
H	25 Morse, 33 32 Gorshanova, 62 55 McDougall, 32 127 Huang, 49 162 Burke, 62 220 Kamenetskii, 62 244 Geltman, 60 287 Chandrasekhar, 46 301 O'Malley, 62 362 Kato, 51 384 Borowitz, 57 398 Massey, 50 405 Massey, 51 412 Seaton, 57 429 Bransden, 56 448 Krall, 60 463 Ohmura, 59 495 Moiseiwitsch, 63 503 Temkin, 63 512 Temkin, 63 537 Omidvar, 59 543 Staver, 49 552 Hara, 61 560 Veklenko, 63 567 Wu, 60 586 Percival, 57 712 Burke, 61 722 Lawson, 61 795 Kamenetskii, 61 855 McEachran, 60 859 Smith, 60 879 Malik, 60 897 Nutt, 64 903 Pu, 63 908 Kyle, 63 935 Ochkur, 58 980 Schwartz, 62 1009 Burke, 63 1022 Smith, 62 1026 Saraph, 61 1033 Lippmann, 61 1074 Somerville, 63 1084 Rosenberg, 60 1092 Sloan, 64 1169 Kraidy, 66 1461 Scott, 65 1496 Hahn, 62 1510 Tietz, 63 1524 Taylor, 65 1551 Damburg, 63 1553 Damburg, 63	28 Corinaldesi, 63 44 Burke, 62 83 Burke, 63 151 Burke, 62 168 Saraph, 62 234 Massey, 56 276 Akerib, 61 296 Gailitis, 63 351 Bell, 63 369 Ochkur, 57 393 Boyet, 54 403 Altshuler, 53 408 Ohmura, 58 416 Bransden, 58 447 Schwartz, 61 457 Demkov, 58 490 Schwartz, 61 498 Temkin, 63 511 Borowitz, 54 520 Malik, 59 542 Damburg, 62 544 Moiseiwitsch, 59 553 Mittleman, 62 561 Ohmura, 60 571 McEachran, 61 706 Temkin, 61 716 Veklenko, 64 744 McEachran, 63 812 Robinson, 61 856 Damburg, 63 864 Malik, 63 896 Smith, 60 899 John, 60 904 Kyle, 64 918 Burke, 62 967 Greenberg, 57 981 Muravev, 63 1015 Smith, 61 1025 Kingston, 61 1030 Temkin, 61 1051 Temkin, 62 1083 Waddington, 64 1087 Vainshtein, 63 1130 Klein, 55 1414 Lane, 64 1487 Gailitis, 65 1505 Damburg, 65 1511 Tietz, 61 1550 Damburg, 63 1552 Damburg, 63 1580 Armstead, 65

## Normalized

H	1686 Levin, 66	1703 Banerjee, 65
	1708 John, 66	1747 Kang, 66
	1770 Moiseiwitsch, 65	1773 Rudge, 65
	1847 Burke, 66	1869 Gailitis, 65
	1898 Kyle, 64	1904 Gupta, 67
	1976 Ormonde, 63	2059 Houston, 68
	2126 Jha, 66	2129 Jha, 66
	2159 Holt, 68	2749 Jha, 67
	2754 Michels, 67	2758 Kelly, 67
	2959 Callaway, 68	2968 Banerjee, 67
	3058 Rabik, 67	3215 Sloan, 68
	3258 Armstead, 68	3370 Ball, 68
	3371 Madan, 68	3394 Jha, 67
	3404 Kelly, 68	3511 Schlessinger, 68
	3701 Garrett, 69	3728 Truhlar, 68
	3738 Mohr, 69	3742 Ormonde, 69
	3774 Tai, 69	3801 McDonald, 69
	3822 Franco, 68	3926 Peat, 68
	3938 Oberoi, 69	3949 Burke, 69
	3992 Ormonde, 70	4071 Birman, 69
	4075 Mohr, 70	4076 Moiseiwitsch, 70
	4121 Reinhardt, 70	4229 Callaway, 70
	4232 Steelhammer, 70	4335 Rudge, 70
	4403 Elsberry, 69	4421 Fink, 70
	4493 Garibotti, 71	4496 Shelton, 71
	4562 Seiler, 71	4612 Fink, 70
	4632 Shimamura, 71	4637 Garrett, 71
	4657 Hutton, 72	4717 Garibotti, 71
	4725 Shimamura, 68	4727 McDonald, 71
	4730 Peterkop, 71	4778 Burke, 72
	4844 Jamieson, 71	4845 Rudge, 72
	4861 Zarlingo, 72	4925 Sil, 72
	4958 Adelman, 72	4960 Truhlar, 72
	5007 Murtaugh, 72	5066 Alton, 72
	5153 Knirk, 72	5154 Knirk, 72
	5279 Burke, 73	5357 Holt, 73
	5543 Thomas, 73	5654 Byron Jr., 73
	5659 Saha, 73	5661 Winters, 73
	5733 Callaway, 73	5823 Saha, 73
	5848 Decoster, 73	5893 McWhirter, 73
	5952 Oberoi, 73	5954 Hahn, 74
	5991 Baer, 73	6003 Mathur, 74
	6004 Heller, 74	6046 Kouri, 74
	6113 Ghosh, 73	6120 Hahn, 74
	6184 Byron Jr., 74	6190 Chung, 73
	6192 Rescigno, 74	6265 Winters, 74
	6266 Flannery, 74	6267 Truhlar, 74
	6304 Callaway, 74	6348 Ajmera, 74
	6420 Chaudhuri, 74	6426 Zon, 74
	6461 Flannery, 74	6469 Abdallah Jr., 74
H <sup>-</sup>	3522 McDowell, 68	
H <sup>+</sup>	429 Bransden, 56	433 Swan, 54
	593 Omidvar, 64	722 Lawson, 61
	859 Smith, 60	904 Kyle, 64
	935 Ochkur, 58	1074 Somerville, 63

## Normalized

H <sup>+</sup>	5153 Knirk, 72	5154 Knirk, 72
	6469 Abdallah Jr., 74	
He	25 Morse, 33	54 Massey, 32
	55 McDougall, 32	60 O'Malley, 63
	106 Allis, 31	136 Mott, 29
	206 Tietz, 63	221 Feenberg, 32
	258 Kolos, 61	383 Sachl, 58
	388 Byatt, 56	397 Barbieri, 51
	409 Tietz, 59	449 Kivel, 59
	459 Moiseiwitsch, 53	462 Huzinaga, 60
	471 Moiseiwitsch, 61	495 Moiseiwitsch, 63
	515 Mukherjee, 62	544 Moiseiwitsch, 59
	562 Tietz, 59	565 Hashino, 63
	590 Kolos, 60	657 Zwicky, 23
	760 Matora, 60	818 Martynenko, 63
	821 Bauer, 63	822 Bell, 63
	849 Hashino, 63	866 Marriott, 63
	976 La Bahn, 64	977 Muravev, 63
	1024 Moiseiwitsch, 61	1048 Mukherjee, 61
	1056 Inokuti, 61	1114 Malik, 61
	1182 Banerjee, 66	1256 Williamson, 65
	1283 Kar, 37	1308 Ghosh, 35
	1376 La Bahn, 65	1407 Khare, 65
	1408 Khare, 65	1485 Kestner, 65
	1493 Khare, 64	1516 Gurchumeliya, 63
	1590 Williamson, 62	1659 Husain, 66
	1704 Banerjee, 65	1775 Zhikhareva, 65
	1817 Orient, 66	1827 La Bahn, 66
	1853 Zhikhareva, 66	1894 Schenter, 66
	1905 Peterkop, 65	2005 Pu, 66
	2059 Houston, 68	2075 Lawson, 66
	2114 Gupta, 66	2127 Banerjee, 66
	2714 Malinowska-Ada, 67	2751 Banerjee, 67
	2959 Callaway, 68	3340 Herzenberg, 68
	3341 Kennedy, 68	3452 Jha, 67
	3567 Doughty, 68	3586 Houston, 68
	3683 Peterkop, 68	3686 Michels, 69
	3705 Roy, 68	3749 Khare, 69
	3772 La Bahn, 69	3844 Sheorey, 69
	3876 Tully, 69	3936 Burke, 69
	3972 Bransden, 69	3982 Bonham, 69
	3992 Ormonde, 70	4069 Bransden, 79
	4071 Birman, 69	4081 La Bahn, 69
	4122 Franco, 70	4208 Purcell, 70
	4231 Khare, 70	4307 La Bahn, 70
	4334 Bransden, 70	4342 La Bahn, 70
	4347 Mittleman, 70	4351 Bonham, 71
	4352 Johnson, 70	4421 Fink, 70
	4497 Khare, 71	4560 Truhlar, 71
	4612 Fink, 70	4665 Joachain, 71
	4673 Holt, 71	4686 Joachain, 71
	4717 Garibotti, 71	4722 Duxler, 71
	4755 Banerji, 70	4778 Burke, 72
	4991 Woollings, 72	5055 Sinfailam, 72
	5086 Schwarz, 72	5217 Yarlagadda, 73
	5282 Houston, 73	5283 Knowles, 73



## Normalized

He	5315 Berrington, 73 5601 Thomas, 73 5823 Saha, 73 5894 Oberoi, 73 5910 Murtaugh, 73 6186 Byron Jr., 74 6248 Wichmann, 74 6307 Buckley, 74 6456 Inokuti, 74	5581 Geltman, 73 5661 Winters, 73 5893 McWhirter, 73 5895 Smith, 73 6111 Thomas, 73 6236 Bromberg, 74 6265 Winters, 74 6421 Jhanwar, 74 6467 Maiti, 74
He <sup>+</sup>	514 Bhattacharyya, 61 1658 Marriott, 66 3826 Robinson, 69 6248 Wichmann, 74	1364 Husain, 67 3516 Sklarew, 68 3936 Burke, 69
He <sup>+1</sup>	422 Seaton, 57 845 Sloan, 63 1092 Sloan, 64 3825 Manson, 69 4674 Shimamura, 71 5952 Oberoi, 73	670 McCarroll, 64 1080 Burke, 64 1847 Burke, 66 4660 Schneider, 71 4844 Jamieson, 71 5954 Hahn, 74
Hg	109 Bunyan, 63 562 Tietz, 59 1424 Bunyan, 65 3731 Walker, 69 3802 Meister, 68 4222 Walker, 70 4442 Walker, 70 4612 Fink, 70 5082 Carse, 72 5480 Gergory, 73	557 Kamenetskii, 62 592 Gajewski, 58 1646 Schonfelder, 66 3773 Yates, 69 4201 Zhirnov, 69 4421 Fink, 70 4491 Fink, 71 4956 Mohr, 72 5150 Huo, 72 5711 Salo, 73
Hg <sup>+1</sup>	3825 Manson, 69	
I	2060 Robinson, 67	3248 Yates, 68
K	810 Damburg, 61 959 Garrett, 64 1491 Karule, 65 1542 Karule, 65 1865 Karule, 65 3881 Damburg, 68 5554 Walters, 73 5696 Karule, 66	821 Bauer, 63 1469 Karule, 65 1523 Garrett, 64 1864 Karule, 65 2002 Peterkop, 65 5195 Karule, 72 5556 Sinfailam, 73
K <sup>+1</sup>	3825 Manson, 69	
Kr	60 O'Malley, 63 156 Arnot, 34 471 Moiseiwitsch, 61 818 Martynenko, 63 1199 Mukherjee, 61 4421 Fink, 70 4612 Fink, 70 5581 Geltman, 73 6463 Lewis, 74	104 Holtmark, 30 449 Kivel, 59 495 Moiseiwitsch, 63 821 Bauer, 63 3248 Yates, 68 4485 Berg, 71 4635 Dobay-Szegleth, 71 6236 Bromberg, 74

## Normalized

Kr <sup>+</sup>	3826 Robinson, 69	
Li	810 Damburg, 61 835 Veldre, 59 1097 Vinkalns, 64 1491 Karule, 65 1515 Karule, 63 1571 Stone, 66 1865 Karule, 65 2893 Garrett, 65 3348 Feautrier, 68 4303 Hunt, 70 4642 Lan, 71 4784 Tripathi, 72 5195 Karule, 72 5556 Sinfailam, 73 5600 Bardsley, 73 6456 Inokuti, 74	821 Bauer, 63 990 Karule, 64 1469 Karule, 65 1498 Garrett, 65 1542 Karule, 65 1864 Karule, 65 2002 Peterkop, 65 3057 Marriott, 67 3838 Burke, 69 4556 Dai, 71 4648 Mathur, 71 4801 Norcross, 71 5554 Walters, 73 5587 Sarkar, 73 5696 Karule, 66
Li <sup>+1</sup>	3522 McDowell, 68	3825 Manson, 69
Li <sup>+2</sup>	4674 Shimamura, 71	
Mg	4223 Van Blerkom, 70 6075 Fabrikant, 73	5904 Fabrikant, 74 6076 Fabrikant, 73
Mg <sup>+</sup>	4223 Van Blerkom, 70	
N	387 Robinson, 57 407 Hammerling, 57 1114 Malik, 61 1650 Lenander, 66 2616 Smith, 67 3260 Henry, 68 3704 Smith, 69 4553 Thompson, 71 5597 Ormonde, 73 6415 Thomas, 74	399 Klein, 58 597 Byatt, 59 1579 Brackett, 63 2211 Mjolsness, 67 2714 Malinowska-Ada, 67 3700 Henry, 69 4303 Hunt, 70 5581 Geltman, 73 6246 Wedde, 74
Na	106 Allis, 31 810 Damburg, 61 959 Garrett, 64 1052 Salmona, 61 1491 Karule, 65 1520 Salmona, 63 1542 Karule, 65 1864 Karule, 65 2002 Peterkop, 65 3881 Damburg, 68 4801 Norcross, 71 5082 Carse, 72 5273 Tripathi, 73 5556 Sinfailam, 73	499 Salmona, 59 812 Robinson, 61 1023 Salmona, 61 1469 Karule, 65 1498 Garrett, 65 1523 Garrett, 64 1587 Salmona, 65 1865 Karule, 65 2893 Garrett, 65 4642 Lan, 71 5006 Moores, 72 5195 Karule, 72 5554 Walters, 73 5696 Karule, 66
Na <sup>+</sup>	5987 Moores, 74	
Na <sup>+1</sup>	422 Seaton, 57	719 Seaton, 58



## Normalized

Na <sup>+1</sup>	3744 Peixoto, 69	3825 Manson, 69
Ne	60 O'Malley, 63 185 Holtmark, 28 409 Tietz, 59 471 Moiseiwitsch, 61 821 Bauer, 63 1059 Biberman, 64 3844 Sheorey, 69 4553 Thompson, 71 4687 Garbaty, 71 6111 Thomas, 73 6236 Bromberg, 74 6463 Lewis, 74	106 Allis, 31 267 Bullard, 30 449 Kivel, 59 495 Moiseiwitsch, 63 944 Frenkiel, 60 1139 Thompson, 66 4421 Fink, 70 4612 Fink, 70 5581 Geltman, 73 6115 Khare, 74 6456 Inokuti, 74
Ne <sup>*</sup>	3826 Robinson, 69	
Ne <sup>+1</sup>	3744 Peixoto, 69	3825 Manson, 69
Ni <sup>+1</sup>	3825 Manson, 69	
O	71 Bates, 47 208 Yamanouchi, 47 399 Klein, 58 407 Hammerling, 57 588 Henry, 67 812 Robinson, 61 878 Gingo, 66 1057 Cooper, 62 1579 Brackett, 63 1832 Seaton, 53 2060 Robinson, 67 2211 Mjolsness, 67 2714 Malinowska-Ada, 67 3704 Smith, 69 4837 Duncan, 72 5581 Geltman, 73 5664 Saraph, 73 6246 Wedde, 74	169 Brehm, 59 387 Robinson, 57 400 Temkin, 57 409 Tietz, 59 597 Byatt, 59 821 Bauer, 63 928 Mitra, 40 1569 Myerscough, 65 1650 Lenander, 66 2016 Breig, 66 2071 Garrett, 67 2616 Smith, 67 3700 Henry, 69 4303 Hunt, 70 5005 Lan, 72 5597 Ormonde, 73 6114 Rountree, 74 6415 Thomas, 74
O <sup>-</sup>	3744 Peixoto, 69	
P	4553 Thompson, 71	
Pb	4421 Fink, 70	4612 Fink, 70
Rb	3771 Balling, 69 4612 Fink, 70	4421 Fink, 70
Rh <sup>+1</sup>	3825 Manson, 69	
S	1176 Tietz, 60	2060 Robinson, 67
Sc <sup>+1</sup>	3825 Manson, 69	
Si	2060 Robinson, 67	

## Normalized

Si <sup>+1</sup>	3825 Manson, 69	
Sr	6075 Fabrikant, 73	6076 Fabrikant, 73
Ta <sup>+1</sup>	3825 Manson, 69	
Tl	106 Allis, 31	
U	572 Hoerni, 53 875 Karle, 64	592 Gajewski, 58
Xe	60 O'Malley, 63 818 Martynenko, 63 3802 Meister, 68 4485 Berg, 71 5581 Geltman, 73 6463 Lewis, 74	449 Kivel, 59 3342 Karaivanov, 68 4421 Fink, 70 4612 Fink, 70 6236 Bromberg, 74
Xe <sup>*</sup>	3826 Robinson, 69	
Xe <sup>+1</sup>	3825 Manson, 69	
Y <sup>+1</sup>	3825 Manson, 69	
Zn	106 Allis, 31	
Zn <sup>+1</sup>	3825 Manson, 69	
Br <sub>2</sub>	1152 Arnot, 34	1191 Shaw, 40
CN	3707 Itikawa, 69 4644 Allison, 71	3871 Itikawa, 69
CO	4323 Singh, 70 4794 Gianturco, 72	4555 Crawford, 71 5448 Szabo, 74
Cl <sub>2</sub>	893 Sheppard, 66	
HCl	3707 Itikawa, 69 4564 Itikawa, 71	3871 Itikawa, 69
H <sub>2</sub>	34 Fisk, 36 251 Massey, 30 421 Carter, 58 434 Carson, 54 1311 Roscoe, 38 1452 Takayanagi, 65 1993 Lane, 67 2777 Wilkins, 67 3876 Tully, 69 4088 Lane, 69 4137 Trajmar, 70 5013 Sams, 72 5271 Ford, 73 5448 Szabo, 74 6110 Onda, 74 6328 Chang, 74	54 Massey, 32 411 Nagahara, 54 428 Massey, 56 893 Sheppard, 66 1408 Khare, 65 1816 Oksyuk, 66 2464 Hara, 67 3843 Henry, 69 3946 Hara, 69 4116 Truhlar, 70 4560 Truhlar, 71 5083 Khare, 72 5358 Demkov, 71 5727 Liu, 73 6115 Khare, 74

## ELASTIC SCATTERING THEORETICAL

## ELASTIC SCATTERING THEORETICAL

## Normalized

$H_2^{+1}$	2027 Temkin, 67 4000 Temkin, 69	3411 Weinberg, 68
$N_2$	34 Fisk, 36 895 Chen, 63 1816 Oksyuk, 66 4128 Krauss, 70 5071 Burke, 72 5990 Brandt, 73 6246 Wedde, 74	893 Sheppard, 66 1452 Takayanagi, 65 1852 Chen, 66 5063 Truhlar, 72 5448 Szabo, 74 6006 Sawada, 74 6328 Chang, 74

$O_2$	34 Fisk, 36 1816 Oksyuk, 66 6328 Chang, 74	1666 Geltman, 66 6246 Wedde, 74
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$CO_2$	4323 Singh, 70
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$H_2O$	385 Altshuler, 57 3675 Crawford, 68	2057 Shimizu, 63 5448 Szabo, 74
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$N_2O$	4323 Singh, 70
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$NH_3$	385 Altshuler, 57 5448 Szabo, 74	2057 Shimizu, 63
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$CH_4$	70 Buckingham, 41	5448 Szabo, 74
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## Relative

Ar	655 Henneberg, 33	4003 Weiss, 69
Bi	4174 Fink, 70	
Cl	1287 Hill, 36	
F	1287 Hill, 36	
H	68 Massey, 34	
He	51 Massey, 31 68 Massey, 34 639 Morse, 32	54 Massey, 32 302 Fano, 61
$He^{+1}$	440 Bransden, 53	
Hg	653 Henneberg, 32 4003 Weiss, 69	655 Henneberg, 33
Kr	113 Voss, 33 1294 Hughes, 35	655 Henneberg, 33 4003 Weiss, 69
O	48 Mott, 30	
$H_2$	54 Massey, 32 863 Gryzinski, 63	194 Massey, 32

## Relative

$N_2$	138 Massey, 33	194 Massey, 32
$C_2H_2$	726 Hughes, 33	
$CCl_4$	1287 Hill, 36	
$CF_4$	1287 Hill, 36	
$CH_4$	70 Buckingham, 41	726 Hughes, 33
$C_2H_4$	726 Hughes, 33	

## IONIZATION EXPERIMENTAL

## Normalized

Ag	1081 Lyubimov, 63 2825 Crawford, 66 2918 Crawford, 67	2729 Pavlov, 67 2917 Crawford, 67 6119 Piacente, 73
Al	3974 Hink, 69	
Ar	2 Compton, 25 225 Smith, 30 357 Tozer, 60 626 Asundi, 63 831 Peterson, 63 1105 Englander-Gold, 64 1329 Fox, 61 1705 Schram, 66 1863 Schram, 66 2123 Hammer, 67 2899 Melton, 67 3693 Dolgov-Savelev, 68 3819 Van Der Wiel, 69 4129 Latimer, 70 4204 Clout, 71 4405 Opal, 71 4670 Van Der Wiel, 71 5140 Luyken, 72 5658 Fletcher, 73 6306 Ogurtsov, 73	12 Bleakney, 30 340 Lampe, 57 613 Bennett, 66 743 Asundi, 63 946 Glick, 64 1281 Schram, 65 1459 Rapp, 65 1748 Schram, 66 2120 Srinivasan, 67 2744 Gaudin, 67 3569 Peresse, 65 3767 Mercer, 67 4087 Afrosimov, 69 4133 Grissom, 70 4305 Feltsan, 70 4426 Van Der Wiel, 71 5116 Grissom, 72 5441 Van Raan, 73 5810 Rostovikova, 73 6347 Tan, 74
$Ar^{+1}$	723 Latypov, 64	5193 Hasted, 72
$Ar^{+2}$	723 Latypov, 64	5193 Hasted, 72
$Ar^{+3}$	5193 Hasted, 72	
Au	4709 Salem, 71 6119 Piacente, 73	5544 Schroeder, 73
Ba	1502 McFarland, 65	2713 McFarland, 67

## IONIZATION EXPERIMENTAL

Normalized

Ba	4866 Vainshtein, 72	
Ba <sup>+1</sup>	3296 Peart, 68 5054 Feeney, 72	4448 Feeney, 71 5214 Peart, 73
C	589 Glupe, 67	4551 Hink, 71
C <sup>+1</sup>	4706 Aitken, 71	
C <sup>+4</sup>	5085 Engelhardt, 72	
Ca	1502 McFarland, 65 3985 Rakhovskii, 69 4317 Karstensen, 70 4866 Vainshtein, 72	2713 McFarland, 67 4173 Schramm, 69 4703 Okuno, 71 6220 Schneider, 74
Cd	1687 Pottie, 66 4353 Aleinikov, 70 6119 Piacente, 73	4212 Anderson, 70 5015 Varshavskii, 70
Cs	1104 McFarland, 65 1875 Heil, 66 2715 Korchevoi, 67 3699 Zapesochnyi, 69	1217 Brink, 64 1972 Zapesochnyi, 66 3455 Nygaard, 68 6497 Aleksakhin, 74
Cu	2729 Pavlov, 67 5544 Schroer, 73	2917 Crawford, 67 6119 Piacente, 73
F <sup>+7</sup>	5085 Engelhardt, 72	
H	320 Fite, 58 978 Rothe, 62 2784 McGowan, 68	491 Boyd, 60 1106 Boksenberg, 62 2955 McGowan, 68
He	2 Compton, 25 225 Smith, 30 340 Lampe, 57 626 Asundi, 63 743 Asundi, 63 799 Silverman, 64 974 Harrison, 56 1105 Englander-Gold, 64 1329 Fox, 61 1706 Schram, 66 1858 Adamczyk, 66 1895 Zapesochnyi, 65 2690 Weaver, 67 3541 MoustafaMoussa, 67 3819 Van Der Wiel, 69 4133 Grissom, 70 4426 Van Der Wiel, 71 4781 Peterson, 72 5008 Oda, 72 5069 Crooks, 72 5817 Tahira, 72 5981 Balashov, 73 6344 Samoilov, 74	29 Liska, 34 335 Boyd, 58 373 Lassettre, 53 674 Compton, 18 787 Hughes, 63 942 St. John, 64 995 Goodrich, 37 1281 Schram, 65 1459 Rapp, 65 1748 Schram, 66 1863 Schram, 66 1942 Anderson, 67 2744 Gaudin, 67 3569 Peresse, 65 4113 Vriens, 68 4405 Opal, 71 4671 Peterson, 71 4842 Van Der Wiel, 71 5062 Van Der Wiel, 72 5116 Grissom, 72 5818 Tahira, 72 6030 Samoilov, 73

## IONIZATION EXPERIMENTAL

Normalized

He <sup>*</sup>	280 Fite, 63 4007 Long, 70	3589 Long, 67
He <sup>+1</sup>	907 Dolder, 61	3995 Peart, 69
Hg	2 Compton, 25 21 Tate, 32 40 Nottingham, 39 224 Smith, 31 303 Riede, 54 1329 Fox, 61 4213 Varshavskii, 70	4 Jones, 27 29 Liska, 34 69 Arnot, 35 228 Bleakney, 30 974 Harrison, 56 4212 Anderson, 70
Hg <sup>+1</sup>	723 Latypov, 64	
Hg <sup>+2</sup>	723 Latypov, 64	
In	6262 Shimon, 74	
K	88 Funk, 30 1104 McFarland, 65 2715 Korchevoi, 67 6497 Aleksakhin, 74	773 Feldman, 63 1217 Brink, 64 3699 Zapesochnyi, 69
K <sup>+1</sup>	1568 Hooper, 66	2977 Peart, 68
Kr	340 Lampe, 57 626 Asundi, 63 1105 Englander-Gold, 64 1459 Rapp, 65 1748 Schram, 66 3051 Srinivasan, 67 4087 Afrosimov, 69 4297 El-Sherbini, 70 4452 Rozgachev, 70 5140 Luyken, 72 5818 Tahira, 72	357 Tozer, 60 743 Asundi, 63 1281 Schram, 65 1705 Schram, 66 1863 Schram, 66 3569 Peresse, 65 4133 Grissom, 70 4405 Opal, 71 5008 Oda, 72 5441 Van Raan, 73 6052 Rostovikova, 73
Kr <sup>+1</sup>	723 Latypov, 64	
Kr <sup>+2</sup>	723 Latypov, 64	
Li	773 Feldman, 63 3063 Aleksakhin, 67 5592 Jalin, 73	1104 McFarland, 65 3699 Zapesochnyi, 69
Li <sup>+1</sup>	1421 Lineberger, 66 3296 Peart, 68 3995 Peart, 69	2721 Wareing, 67 3947 Peart, 69
Mg	4306 Okuno, 70 5731 Aleksakhin, 73	4866 Vainshtein, 72
Mg <sup>+1</sup>	3400 Martin, 68	
Mg <sup>+2</sup>	3948 Peart, 69	

IONIZATION EXPERIMENTAL

IONIZATION EXPERIMENTAL

Normalized

N	589 Glupe, 67 1268 Smith, 62	831 Peterson, 63
N <sup>+1</sup>	261 Harrison, 63	5193 Hasted, 72
N <sup>+2</sup>	4706 Aitken, 71	5193 Hasted, 72
N <sup>+5</sup>	5085 Engelhardt, 72	
Na	88 Funk, 30 1217 Brink, 64 3699 Zapesochnyi, 69	1104 McFarland, 65 1683 Zapesochnyi, 65 6497 Aleksakhin, 74
Na <sup>+1</sup>	1568 Hooper, 66	2977 Peart, 68
Ne	2 Compton, 25 225 Smith, 30 589 Glupe, 67 743 Asundi, 63 1105 Englander-Gold, 64 1329 Fox, 61 1706 Schram, 66 1858 Adamczyk, 66 2744 Gaudin, 67 3819 Van Der Wiel, 69 4110 Hertz, 69 4405 Opal, 71 4842 Van Der Wiel, 71 4959 Walker, 72 5116 Grissom, 72 5441 Van Raan, 73 5658 Fletcher, 73	12 Bleakney, 30 340 Lampe, 57 626 Asundi, 63 831 Peterson, 63 1281 Schram, 65 1459 Rapp, 65 1748 Schram, 66 1863 Schram, 66 3569 Peresse, 65 4087 Afrosimov, 69 4133 Grissom, 70 4426 Van Der Wiel, 71 4900 Smirmov, 72 5039 Walker, 71 5140 Luyken, 72 5551 Smirmov, 73
Ne <sup>+1</sup>	264 Dolder, 64 5193 Hasted, 72	723 Latypov, 64
Ne <sup>+2</sup>	5193 Hasted, 72	
Ne <sup>+3</sup>	5193 Hasted, 72	
Ne <sup>+8</sup>	5085 Engelhardt, 72	
O	323 Fite, 59 978 Rothe, 62	589 Glupe, 67 1106 Boksenberg, 62
O <sup>+1</sup>	4707 Aitken, 71	4848 Mahadevan, 72
O <sup>+2</sup>	4707 Aitken, 71	
O <sup>+6</sup>	602 Jahoda, 62	5085 Engelhardt, 72
Pb	2729 Pavlov, 67 4333 Pavlov, 70	3643 Wang, 69 6119 Piacente, 73
Rb	773 Feldman, 63 1217 Brink, 64 2715 Korchevoi, 67	1104 McFarland, 65 1969 Zapesochnyi, 66 3699 Zapesochnyi, 69

Normalized

Rb	5484 Nygaard, 73	6497 Aleksakhin, 74
Sn	6119 Piacente, 73	
Sr	1502 McFarland, 65 4703 Okuno, 71 6051 Starodub, 73	2713 McFarland, 67 4866 Vainshtein, 72
Tl	1502 McFarland, 65 5593 Nepipov, 73	2713 McFarland, 67
Xe	340 Lampe, 57 626 Asundi, 63 1105 Englander-Gold, 64 1459 Rapp, 65 1748 Schram, 66 3569 Peresse, 65 4133 Grissom, 70 4405 Opal, 71 5441 Van Raan, 73 6465 Rostovikova, 73	357 Tozer, 60 743 Asundi, 63 1281 Schram, 65 1705 Schram, 66 1863 Schram, 66 4087 Afrosimov, 69 4297 El-Sherbini, 70 5140 Luyken, 72 5591 Rostovikova, 73
Xe <sup>+1</sup>	723 Latypov, 64	
Xe <sup>+2</sup>	723 Latypov, 64	
Zn	1687 Pottie, 66 4353 Aleinikov, 70	4212 Anderson, 70 5630 Penkin, 72
CO	18 Tate, 32 867 Craggs, 58 1105 Englander-Gold, 64 1459 Rapp, 65 3064 Skubenich, 67 4349 Aarts, 70 4658 Holland, 72 4814 El-Sherbini, 72 5057 Tisone, 72	340 Lampe, 57 938 Asundi, 63 1329 Fox, 61 2120 Srinivasan, 67 3374 Skubenich, 67 4405 Opal, 71 4685 Ajello, 71 4864 Koppe, 72 5903 Van Der Wiel, 72
Cl <sub>2</sub>	5143 Center, 72	
D <sub>2</sub>	260 Engelhardt, 63 1281 Schram, 65 1863 Schram, 66	1105 Englander-Gold, 64 1459 Rapp, 65 5485 Cowling, 73
F <sub>2</sub>	5143 Center, 72	
HCl	2 Compton, 25	340 Lampe, 57
HD	1396 Briglia, 65	
H <sub>2</sub>	2 Compton, 25 41 Newhall, 42 320 Fite, 58 340 Lampe, 57 1105 Englander-Gold, 64 1459 Rapp, 65	18 Tate, 32 260 Engelhardt, 63 335 Boyd, 58 974 Harrison, 56 1281 Schram, 65 1748 Schram, 66



## IONIZATION EXPERIMENTAL

Normalized

H <sub>2</sub>	1858 Adamczyk, 66 2954 McGowan, 68 5485 Cowling, 73	1863 Schram, 66 4405 Opal, 71
N <sub>2</sub>	2 Compton, 25 153 Cook, 62 340 Lampe, 57 857 Silverman, 65 992 Sheridan, 61 1106 Boksenberg, 62 1214 McConkey, 67 1329 Fox, 61 1504 McConkey, 65 1863 Schram, 66 1968 Hayakawa, 65 2923 Fowler, 67 3024 Nishimura, 68 3064 Skubenich, 67 3527 Peresse, 67 3769 Srivastava, 69 4083 Koval, 69 4405 Opal, 71 4647 Koppe, 71 4682 McConkey, 71 4800 Shemansky, 71 4864 Koppe, 72 5650 Mark, 73 5903 Van Der Wiel, 72	18 Tate, 32 333 Stewart, 56 831 Peterson, 63 946 Glick, 64 1105 Englander-Gold, 64 1123 Hayakawa, 64 1281 Schram, 65 1459 Rapp, 65 1748 Schram, 66 1881 Daly, 66 2785 Holland, 67 2964 Srivastava, 68 3051 Srinivasan, 67 3524 Srivastava, 68 3710 Stanton, 69 4080 Borst, 70 4326 Lawrence, 70 4428 Sheridan, 71 4658 Holland, 72 4749 Tisone, 72 4814 El-Sherbini, 72 5070 Halas, 72 5728 Crowe, 73 6142 VanDeRunstraat, 74
NO	18 Tate, 32 946 Glick, 64 1459 Rapp, 65 4714 Stone, 72 4841 Aarts, 71	340 Lampe, 57 1105 Englander-Gold, 64 4405 Opal, 71 4715 Mentall, 72
O <sub>2</sub>	18 Tate, 32 334 Stewart, 58 377 Silverman, 57 861 Prasad, 61 946 Glick, 64 1105 Englander-Gold, 64 1281 Schram, 65 1459 Rapp, 65 1838 Nishimura, 66 3024 Nishimura, 68 3387 Korol, 68 3578 Skubenich, 68 4125 Borst, 70 4405 Opal, 71 5057 Tisone, 72	323 Fite, 59 340 Lampe, 57 853 Craggs, 57 938 Asundi, 63 1075 Silverman, 64 1106 Boksenberg, 62 1289 Schulz, 62 1748 Schram, 66 1863 Schram, 66 3064 Skubenich, 67 3527 Peresse, 67 3760 McConkey, 69 4337 Srivastava, 70 4683 Aarts, 71 5525 Koppe, 72
Te <sub>2</sub>	1687 Pottie, 66	
CO <sub>2</sub>	340 Lampe, 57 938 Asundi, 63 1105 Englander-Gold, 64 1700 Nishimura, 66	865 Craggs, 60 948 Bhalla, 60 1459 Rapp, 65 3024 Nishimura, 68

## IONIZATION EXPERIMENTAL

Normalized

CO <sub>2</sub>	3246 McConkey, 68 4336 Sroka, 70 4684 Ajello, 71 4995 Adamczyk, 72 5816 Mentall, 73	3527 Peresse, 67 4405 Opal, 71 4712 Mumma, 72 5088 Koval, 72 6388 Tsurubuchi, 74
H <sub>2</sub> O	340 Lampe, 57 3212 Gomet, 67	1782 Schutten, 66 4405 Opal, 71
H <sub>2</sub> S	340 Lampe, 57	
N <sub>2</sub> O	1105 Englander-Gold, 64 1771 Latimer, 65	1459 Rapp, 65
C <sub>2</sub> H <sub>2</sub>	18 Tate, 32 2744 Gaudin, 67 5142 Azria, 72	340 Lampe, 57 4405 Opal, 71
C <sub>2</sub> N <sub>2</sub>	5307 Korol, 72	
NH <sub>3</sub>	340 Lampe, 57	4405 Opal, 71
CD <sub>4</sub>	1690 Schram, 66	1863 Schram, 66
CH <sub>3</sub> Cl	340 Lampe, 57	
CH <sub>4</sub>	340 Lampe, 57 946 Glick, 64 1459 Rapp, 65 1858 Adamczyk, 66 2899 Melton, 67 4405 Opal, 71	356 Tozer, 58 1105 Englander-Gold, 64 1690 Schram, 66 1863 Schram, 66 3527 Peresse, 67
C <sub>2</sub> H <sub>4</sub>	340 Lampe, 57 1690 Schram, 66	1459 Rapp, 65
SF <sub>6</sub>	940 Asundi, 64	1459 Rapp, 65
C <sub>2</sub> H <sub>6</sub>	340 Lampe, 57	1690 Schram, 66
Relative		
Ag	566 Blais, 60 4077 Rovner, 70 4785 Abouaf, 71	1578 De Maria, 65 4429 Cabaud, 71
Al	659 Crawford, 62	4346 Gingerich, 70
Ar	12 Bleakney, 30 213 Stevenson, 42 280 Fite, 63 304 Hanle, 52 483 Cottin, 59 539 Hayakawa, 55 625 Jesse, 25	66 Mohr, 34 242 Morrison, 59 283 Fiquet-Fayard, 63 339 Otvos, 56 525 Krauss, 59 550 Hagstrum, 56 692 Kuyatt, 63

# IONIZATION EXPERIMENTAL

Relative

Ar	704 Hickam, 54 781 Fox, 60 986 Blanc, 62 1038 Kaneko, 61 1070 Dorman, 61 1124 Fiquet-Fayard, 62 1244 Morrison, 53 1453 Stuber, 65 1919 Fiquet-Fayard, 65 3835 Marchand, 69 4127 Carlson, 70 4238 McConkey, 70 4404 Yamamoto, 71 4736 Bolduc, 71 4751 Morrison, 71 5113 Zhukov, 72 5285 Weigold, 73 5905 Ehrhardt, 74	777 Brink, 61 958 Melton, 62 1034 Foner, 61 1069 Dorman, 59 1100 Becker, 64 1162 Fiquet-Fayard, 62 1373 Simpson, 65 1530 Fiquet-Fayard, 65 2349 Schram, 64 3990 Ziesel 4211 Okudaira, 70 4381 Van Der Wiel, 70 4557 Ehrhardt, 71 4743 Bolduc, 71 4968 McConkey, 72 5159 Crowe, 72 5814 Hood, 73
Ar <sup>*</sup>	280 Fite, 63	
Ar <sup>+1</sup>	713 Kupriyanov, 64	
Au	566 Blais, 60	
Ba	2761 Ziesel, 67 4300 Okudaira, 70	3990 Ziesel 4703 Okuno, 71
Bi	2900 Kohl, 67	
C	659 Crawford, 62	5980 Wang, 70
Ca	283 Fiquet-Fayard, 63 1124 Fiquet-Fayard, 62 4077 Rovner, 70	1045 Kaneko, 63 2660 Kupriyanov, 66 4300 Okudaira, 70
Cd	313 Hickam, 54 4315 Abouaf, 70	1578 De Maria, 65 5808 Newell, 73
Co	1874 Cooper Jr., 66	
Cr	4439 Rolinski, 70	
Cs	216 Tate, 34	5598 Nygaard, 73
Cs <sup>+1</sup>	3050 Emelyanov, 67	
Cu	566 Blais, 60	
Fe	1874 Cooper Jr., 66	
Ga	4346 Gingerich, 70	
Ge	2944 Lin, 67	
H	1508 McGowan, 65	

# IONIZATION EXPERIMENTAL

Relative

He	27 Hughes, 33 66 Mohr, 34 304 Hanle, 52 339 Otvos, 56 525 Krauss, 59 625 Jesse, 25 704 Hickam, 54 986 Blanc, 62 1215 Hutchison, 63 1373 Simpson, 65 1538 Haidt, 65 1919 Fiquet-Fayard, 65 3747 Ehrhardt, 69 3878 Brion, 68 4090 Suzuki, 70 4381 Van Der Wiel, 70 4661 Quemener, 71 4998 Ehrhardt, 72 5814 Hood, 73 6230 McCarthy, 74	35 Bleakney, 36 280 Fite, 63 331 Stanton, 60 353 Fox, 58 539 Hayakawa, 55 692 Kuyatt, 63 777 Brink, 61 1076 Zapesochnyi, 63 1244 Morrison, 53 1530 Fiquet-Fayard, 65 1871 Lipeles, 65 3531 Krige, 68 3835 Marchand, 69 3999 Oda, 70 4238 McConkey, 70 4557 Ehrhardt, 71 4968 McConkey, 72 5705 Sutton, 71 5999 Sutton, 74
He <sup>*</sup>	4113 Vriens, 68	6001 Shearer-Izumi, 74
He <sup>+1</sup>	4848 Mahadevan, 72	
Hg	12 Bleakney, 30 66 Mohr, 34 215 Bell, 39 1070 Dorman, 61 1244 Morrison, 53 3528 Zapesochnyi, 64	14 Haupt, 31 211 McFadden, 46 313 Hickam, 54 1095 Bleakney, 29 1578 De Maria, 65 3872 Varshavskii, 69
Hg <sup>+1</sup>	713 Kupriyanov, 64	
Hg <sup>+2</sup>	713 Kupriyanov, 64	
In	4346 Gingerich, 70	4785 Abouaf, 71
K	150 Brink, 62 283 Fiquet-Fayard, 63 1124 Fiquet-Fayard, 62 1919 Fiquet-Fayard, 65 6252 Vukstich, 74	216 Tate, 34 1039 Kaneko, 61 1530 Fiquet-Fayard, 65 3990 Ziesel
Kr	216 Tate, 34 310 Fox, 53 410 Burns, 61 524 Frost, 57 550 Hagstrum, 56 704 Hickam, 54 958 Melton, 62 1034 Foner, 61 1070 Dorman, 61 1137 Kiser, 62 1244 Morrison, 53 1530 Fiquet-Fayard, 65 2349 Schram, 64	283 Fiquet-Fayard, 63 339 Otvos, 56 523 Frost, 55 526 Frost, 58 692 Kuyatt, 63 781 Fox, 60 986 Blanc, 62 1038 Kaneko, 61 1107 Morrison, 64 1215 Hutchison, 63 1453 Stuber, 65 1919 Fiquet-Fayard, 65 2762 Ziesel, 67

# IONIZATION EXPERIMENTAL

Relative

Kr	2797 Mehlhorn, 65 4559 Lossing, 71	3990 Ziesel 4751 Morrison, 71
Kr <sup>+1</sup>	713 Kupriyanov, 64 3768 Latypov, 68	1492 Baker, 65
Kr <sup>+2</sup>	713 Kupriyanov, 64	
Li	150 Brink, 62	5465 Adler, 73
Mg	1039 Kaneko, 61 2969 Fiquet-Fayard, 68 4300 Okudaira, 70	1920 Ziesel, 65 4211 Okudaira, 70 4744 Karstensen, 71
Mn	4315 Abouaf, 70	
N <sup>+1</sup>	1881 Daly, 66	4848 Mahadevan, 72
Na	150 Brink, 62 466 Dibeler, 59 1919 Fiquet-Fayard, 65 3990 Ziesel	216 Tate, 34 1039 Kaneko, 61 1920 Ziesel, 65
Ne	12 Bleakney, 30 213 Stevenson, 42 280 Fite, 63 481 Cloutier, 59 625 Jesse, 25 704 Hickam, 54 1039 Kaneko, 61 1244 Morrison, 53 1453 Stuber, 65 3990 Ziesel 4381 Van Der Wiel, 70 5824 Tahira, 73	66 Mohr, 34 242 Morrison, 59 339 Otvos, 56 525 Krauss, 59 692 Kuyatt, 63 986 Blanc, 62 1068 Dorman, 61 1373 Simpson, 65 1920 Ziesel, 65 4127 Carlson, 70 4751 Morrison, 71
Ne <sup>*</sup>	280 Fite, 63	
Ne <sup>+1</sup>	713 Kupriyanov, 64	
Ni	1874 Cooper Jr., 66	
Pb	2944 Lin, 67	4077 Rovner, 70
Rb	216 Tate, 34 2366 Shimon, 64 2969 Fiquet-Fayard, 68	283 Fiquet-Fayard, 63 2762 Ziesel, 67 3990 Ziesel
Se	1578 De Maria, 65	
Sn	2944 Lin, 67	
Sr	283 Fiquet-Fayard, 63 2762 Ziesel, 67 4300 Okudaira, 70	2660 Kupriyanov, 66 3990 Ziesel
Te	1578 De Maria, 65	

# IONIZATION EXPERIMENTAL

Relative

Ti	4439 Rolinski, 70	
Tl	4077 Rovner, 70	4346 Gingerich, 70
U	1261 Mann, 64	4970 Blackburn, 72
V	4439 Rolinski, 70	
Xe	216 Tate, 34 271 Fox, 54 308 Kuyatt, 63 353 Fox, 58 525 Krauss, 59 591 Burns, 63 704 Hickam, 54 854 Clarke, 54 1034 Foner, 61 1070 Dorman, 61 1137 Kiser, 62 1453 Stuber, 65 4751 Morrison, 71	242 Morrison, 59 304 Hanle, 52 310 Fox, 53 481 Cloutier, 59 550 Hagstrum, 56 692 Kuyatt, 63 707 Fox, 60 986 Blanc, 62 1069 Dorman, 59 1107 Morrison, 64 1244 Morrison, 53 3874 Brion, 69
Xe <sup>+1</sup>	713 Kupriyanov, 64	
Xe <sup>+2</sup>	713 Kupriyanov, 64	
Zn	283 Fiquet-Fayard, 63 1167 Fiquet-Fayard, 63 2760 Ziesel, 67 3990 Ziesel	313 Hickam, 54 1578 De Maria, 65 2969 Fiquet-Fayard, 68
Bi <sub>2</sub>	2900 Kohl, 67	
Br <sub>2</sub>	708 Frost, 60	
CO	17 Vaughan, 31 271 Fox, 54 339 Otvos, 56 941 Fineman, 62 1068 Dorman, 61 1648 Zapesochnyi, 61 2969 Fiquet-Fayard, 68	214 Hagstrum, 41 310 Fox, 53 625 Jesse, 25 1038 Kaneko, 61 1096 Hogness, 28 1742 Cuthbert, 66
CO <sup>+1</sup>	1742 Cuthbert, 66	
Cl <sub>2</sub>	526 Frost, 58	708 Frost, 60
D <sub>2</sub>	539 Hayakawa, 55	
HCl	339 Otvos, 56 1244 Morrison, 53	707 Fox, 60
HD	539 Hayakawa, 55	
H <sub>2</sub>	9 Bleakney, 30 66 Mohr, 34 255 Smyth, 24	41 Newhall, 42 170 Baerwald, 25 339 Otvos, 56



IONIZATION EXPERIMENTAL			IONIZATION EXPERIMENTAL		
Relative			Relative		
H <sub>2</sub>	539 Hayakawa, 55 625 Jesse, 25 660 Kallmann, 27 1292 Briglia, 65 1415 McGowan, 65 5595 Crowe, 73	570 Gryzinski, 63 659 Crawford, 62 1164 Briglia, 65 1303 Geiger, 64 1508 McGowan, 65 5665 Weigold, 73	CO <sub>2</sub>	2119 Sjogren, 66	6112 Jackson, 74
Hg <sub>2</sub>	211 McFadden, 46		COS	2969 Fiquet-Fayard, 68	
IBr	708 Frost, 60		CS <sub>2</sub>	339 Otvos, 56 2969 Fiquet-Fayard, 68	531 Collin, 60
ICl	708 Frost, 60		D <sub>2</sub> O	4895 Appell, 73	
I <sub>2</sub>	526 Frost, 58	708 Frost, 60	HCN	339 Otvos, 56	
N <sub>2</sub>	17 Vaughan, 31 214 Hagstrum, 41 339 Otvos, 56 625 Jesse, 25 778 Dorman, 60 953 Stewart, 55 1068 Dorman, 61 1244 Morrison, 53 1530 Fiquet-Fayard, 65 1888 Peresse, 65 2614 Kieffer, 67 3878 Brion, 68 5286 Borst, 73	66 Mohr, 34 271 Fox, 54 523 Frost, 55 660 Kallmann, 27 854 Clarke, 54 1038 Kaneko, 61 1108 Dorman, 63 1509 Fineman, 65 1648 Zapesochnyi, 61 2174 Koval, 66 2969 Fiquet-Fayard, 68 4117 Carlson, 70	H <sub>2</sub> O	483 Cottin, 59 924 Mann, 40 4895 Appell, 73 5481 Morrison, 73	558 Schulz, 60 1919 Fiquet-Fayard, 65 5359 Lindemann, 72
N <sub>2</sub> <sup>+1</sup>	1881 Daly, 66		H <sub>2</sub> S	339 Otvos, 56 2969 Fiquet-Fayard, 68	1530 Fiquet-Fayard, 65 5481 Morrison, 73
NO	214 Hagstrum, 41 854 Clarke, 54 1530 Fiquet-Fayard, 65 2969 Fiquet-Fayard, 68	481 Cloutier, 59 1068 Dorman, 61 1648 Zapesochnyi, 61	N <sub>2</sub> O	339 Otvos, 56 1916 Connolly, 65	1067 Curran, 61
O <sub>2</sub>	167 Randolph, 58 255 Smyth, 24 339 Otvos, 56 526 Frost, 58 985 Brion, 64 1108 Dorman, 63 2174 Koval, 66 2870 Peresse, 67	214 Hagstrum, 41 334 Stewart, 58 341 Frost, 58 778 Dorman, 60 1089 McGowan, 64 1888 Peresse, 65 2308 Turner, 68 3878 Brion, 68	SnCl <sub>2</sub>	4216 Buchanan, 69	
S <sub>2</sub>	1578 De Maria, 65		C <sub>2</sub> H <sub>2</sub>	3808 Brion, 69	4354 Lossing, 70
Se <sub>2</sub>	1578 De Maria, 65		C <sub>2</sub> N <sub>2</sub>	339 Otvos, 56	
Te <sub>2</sub>	1578 De Maria, 65		H <sub>2</sub> O <sub>2</sub>	1132 Foner, 62	
UO	1261 Mann, 64		NH <sub>3</sub>	924 Mann, 40 1530 Fiquet-Fayard, 65 5520 Morrison, 73	1068 Dorman, 61 2969 Fiquet-Fayard, 68
CO <sub>2</sub>	339 Otvos, 56 847 Asundi, 63 1244 Morrison, 53 1888 Peresse, 65	531 Collin, 60 1068 Dorman, 61 1530 Fiquet-Fayard, 65 1919 Fiquet-Fayard, 65	PH <sub>3</sub>	339 Otvos, 56	
			CH <sub>3</sub> Br	339 Otvos, 56	524 Frost, 57
			CH <sub>3</sub> Cl	339 Otvos, 56	524 Frost, 57
			CH <sub>3</sub> F	524 Frost, 57	
			CH <sub>3</sub> I	339 Otvos, 56	524 Frost, 57
			CH <sub>4</sub>	66 Mohr, 34 524 Frost, 57 625 Jesse, 25 2658 Brehm, 67 5516 Morrison, 73	339 Otvos, 56 539 Hayakawa, 55 2510 Ehrhardt, 67 4742 Appell, 71
			SnCl <sub>4</sub>	4216 Buchanan, 69	
			C <sub>2</sub> H <sub>4</sub>	339 Otvos, 56	539 Hayakawa, 55
			C <sub>2</sub> H <sub>6</sub>	339 Otvos, 56	



# IONIZATION THEORETICAL

Normalized

Ag	140 Burhop, 40 455 Hill, 51 1014 Gryzinski, 65	452 Gryzinski, 59 999 Wetzell, 36 2901 Kolbenstvedt, 67
Ag <sup>+1</sup>	4340 Mathur, 70	
Al	3582 Gaudin, 68 4168 Peach, 70	3585 Peach, 68
Al <sup>+2</sup>	3003 Bely, 68	
Ar	147 Neu, 58 1014 Gryzinski, 65 1457 Vriens, 65 1484 Kurepa, 63 1557 Bauer, 65 2640 Vainshtein, 67 3456 Koozekanani, 68 3585 Peach, 68 4339 Amusia, 70 4398 Manson, 71 4782 Manson, 72 4927 Omidvar, 72 5582 Wallace, 73	881 Golant, 59 1159 Vriens, 64 1463 Robinson, 65 1506 Kingston, 65 2076 Koozekanani, 66 2799 Vainshtein, 67 3582 Gaudin, 68 4168 Peach, 70 4376 McGuire, 71 4399 Tripathi, 70 4890 Roy, 72 5447 Furness, 73 6299 Khare, 74
Ar <sup>*</sup>	1159 Vriens, 64	
Ar <sup>+1</sup>	4340 Mathur, 70	
Ar <sup>+2</sup>	4340 Mathur, 70	
Au	2901 Kolbenstvedt, 67	
B	3581 Gaudin, 68 4168 Peach, 70 5014 Stingl, 72	3585 Peach, 68 4376 McGuire, 71
Ba	1502 McFarland, 65 4866 Vainshtein, 72	2713 McFarland, 67
Ba <sup>+1</sup>	4340 Mathur, 70	4728 Bely, 71
Be	1273 Peach, 65 1655 Peach, 66 3581 Gaudin, 68 4376 McGuire, 71	1502 McFarland, 65 2713 McFarland, 67 3837 Tripathi, 69
C	3581 Gaudin, 68 4168 Peach, 70 4927 Omidvar, 72	3585 Peach, 68 4376 McGuire, 71
C <sup>+1</sup>	4838 Moores, 72	5014 Stingl, 72
C <sup>+4</sup>	2946 Beigman, 68	
C <sup>+5</sup>	2946 Beigman, 68	

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Normalized

Ca	1502 McFarland, 65 3837 Tripathi, 69	2713 McFarland, 67 4866 Vainshtein, 72
Ca <sup>+1</sup>	960 Zirin, 62	
Ca <sup>+9</sup>	3003 Bely, 68	
Cd	3837 Tripathi, 69	
Cd <sup>+1</sup>	4340 Mathur, 70	
Cl	3582 Gaudin, 68 4168 Peach, 70	3585 Peach, 68
Cs	1165 Michael, 63 1502 McFarland, 65 2905 Garcia, 67 3877 Liepinsh, 68 4615 Tripathi, 71 5611 Roy, 73	1464 McFarland, 65 2713 McFarland, 67 3735 Tripathi, 69 4399 Tripathi, 70 5479 Tiwary, 73 5708 Liepinsh, 72
Cs <sup>*</sup>	1272 Sheldon, 65	
Cs <sup>+1</sup>	4089 Mathur, 69	
F	3581 Gaudin, 68 4168 Peach, 70	3585 Peach, 68 4376 McGuire, 71
Fe <sup>+13</sup>	443 Schwartz, 59 1058 Kulander, 63	455 Hill, 51
Fe <sup>+14</sup>	1849 Rudge, 66	
Fe <sup>+15</sup>	1849 Rudge, 66	3003 Bely, 68
H	61 Massey, 33 282 Yavorskii, 45 390 Geltman, 56 461 Morand, 59 587 Kogan, 59 825 Kingston, 64 844 Veldre, 63 852 Peterkop, 59 892 Burgess, 63 996 Akerib, 60 1044 Drawin, 61 1115 Ochkur, 63 1165 Michael, 63 1262 Prasad, 65 1426 Veldre, 62 1457 Vriens, 65 1472 Veldre, 65 1541 Ochkur, 65 1547 Veldre, 63 1582 Veldre, 65 1655 Peach, 66 1878 Vinkalns, 65	101 Veldre, 62 307 Stauffer, 63 424 McCarroll, 57 533 Geltman, 63 671 Stabler, 64 829 Peterkop, 59 848 Omidvar, 63 863 Gryzinski, 63 913 Akerib, 61 1014 Gryzinski, 65 1071 Omidvar, 64 1129 Peterkop, 62 1168 Abrines, 66 1273 Peach, 65 1436 Burke, 65 1458 Omidvar, 65 1476 Presnyakov, 65 1544 Rudge, 65 1548 Veldre, 63 1595 Kingston, 65 1848 Rudge, 66 1879 Vinkalns, 65

Normalized

H	1951 McDowell, 66 2736 Crothers, 67 2901 Kolbenstvedt, 67 3584 Vriens, 68 3745 Garcia, 69 3987 Tavad, 69 4239 Vriens, 70 4440 Felden, 71 4840 Felden, 72 5066 Alton, 72 5139 Felden, 72 5822 Gryzinski, 73 5986 Callaher, 74 6182 Geltman, 74	2077 Omidvar, 67 2756 Bratsev, 67 3580 Gaudin, 68 3737 Luffman, 69 3746 Omidvar, 69 4235 Bell, 70 4433 Kim, 71 4746 Gryzinski, 72 4859 Hidalgo, 72 5068 Golden, 71 5709 Tsuji, 73 5899 Schulz, 73 6132 Golden, 74
H <sup>-</sup>	5284 Tweed, 73	
H <sup>+</sup>	307 Stauffer, 63 430 Swan, 55 1071 Omidvar, 64 1458 Omidvar, 65 1595 Kingston, 65 1694 Kingston, 66 2023 Kingston, 66 3526 Kyle, 68 4093 Banks, 69 6342 Knapp, 74	413 McCrea, 60 848 Omidvar, 63 1436 Burke, 65 1526 Omidvar, 65 1656 Prasad, 66 1848 Rudge, 66 3507 Kingston, 68 3584 Vriens, 68 5213 Percival, 73
He	24 Wetzel, 33 147 Neu, 58 452 Gryzinski, 59 765 Itoh, 60 863 Gryzinski, 63 1014 Gryzinski, 65 1115 Ochkur, 63 1273 Peach, 65 1345 Lee, 65 1484 Kurepa, 63 1554 Lyash, 63 1557 Bauer, 65 1788 Byron Jr., 66 2836 Catlow, 67 2965 Pecul, 67 3581 Gaudin, 68 3932 Bell, 69 3996 Oldham, 69 4070 Aberg, 69 4320 Khare, 70 4376 McGuire, 71 4782 Manson, 72 4899 Tripathi, 72 5002 Ishihara, 72 5079 Stingl, 72 5081 Gillespie, 72 5284 Tweed, 73 5589 Phillips, 73 5738 Lipovetskii, 73	61 Massey, 33 390 Geltman, 56 455 Hill, 51 838 Van De Walle, 61 999 Wetzel, 36 1044 Drawin, 61 1159 Vriens, 64 1302 Sloan, 65 1457 Vriens, 65 1506 Kingston, 65 1555 Veldre, 63 1655 Peach, 66 1942 Anderson, 67 2837 Inokuti, 67 3062 Omidvar, 67 3747 Ehrhardt, 69 3941 Economides, 69 4001 Inokuti, 69 4235 Bell, 70 4345 Bell, 70 4433 Kim, 71 4890 Roy, 72 4927 Omidvar, 72 5003 Kim, 72 5080 Pavlichenkov, 72 5092 Balashov, 72 5552 Roy, 73 5652 Tahira, 73 5899 Schulz, 73

Normalized

He	6233 Jacobs, 74	6410 Geltman, 74
He <sup>+</sup>	1159 Vriens, 64	4393 Briggs, 71
He <sup>+1</sup>	57 Burgess, 63 735 Burgess, 60 1159 Vriens, 64 1772 Rudge, 65 3750 Thomas, 69	417 Burgess, 61 892 Burgess, 63 1436 Burke, 65 3061 Kyle, 67 4433 Kim, 71
Hg	140 Burhop, 40 642 Prasad, 63 1115 Ochkur, 63 1557 Bauer, 65 3062 Omidvar, 67	455 Hill, 51 783 Yavorskii, 47 1159 Vriens, 64 2695 Perlman, 60 3837 Tripathi, 69
Hg <sup>+</sup>	1159 Vriens, 64	
Hg <sup>+1</sup>	4340 Mathur, 70	
Hg <sup>+2</sup>	4340 Mathur, 70	
K	1272 Sheldon, 65 1502 McFarland, 65 2905 Garcia, 67 3804 Tripathi, 69 4010 Stern, 70 4399 Tripathi, 70 5611 Roy, 73	1464 McFarland, 65 2713 McFarland, 67 3735 Tripathi, 69 3877 Liepinsh, 68 4398 Manson, 71 4927 Omidvar, 72
K <sup>+1</sup>	3750 Thomas, 69 4619 Tripathi, 71	4089 Mathur, 69 4966 Peach, 71
Kr	147 Neu, 58 1484 Kurepa, 63 2974 Koozekanani, 67 3456 Koozekanani, 68 4399 Tripathi, 70 4927 Omidvar, 72	1457 Vriens, 65 1506 Kingston, 65 3249 Koozekanani, 68 4339 Amusia, 70 4890 Roy, 72 6299 Khare, 74
Kr <sup>+1</sup>	4340 Mathur, 70	
Kr <sup>+2</sup>	4340 Mathur, 70	
Li	570 Gryzinski, 63 1014 Gryzinski, 65 1146 Wu, 44 1272 Sheldon, 65 1299 McDowell, 65 1502 McFarland, 65 1951 McDowell, 66 2905 Garcia, 67 3581 Gaudin, 68 3877 Liepinsh, 68 4309 Liepinsh, 70 4927 Omidvar, 72	873 Peach, 63 1044 Drawin, 61 1190 Wu, 40 1273 Peach, 65 1464 McFarland, 65 1655 Peach, 66 2836 Catlow, 67 3062 Omidvar, 67 3804 Tripathi, 69 4010 Stern, 70 4376 McGuire, 71

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Normalized

Li <sup>+1</sup>	1044 Drawin, 61	3750 Thomas, 69
	3941 Economides, 69	4074 Moores, 70
	4082 Kim, 70	4089 Mathur, 69
	4433 Kim, 71	4619 Tripathi, 71
	4927 Omidvar, 72	4966 Peach, 71
	5284 Tweed, 73	5552 Roy, 73
Li <sup>+2</sup>	1044 Drawin, 61	
Mg	1502 McFarland, 65	1654 Peach, 66
	1655 Peach, 66	2713 McFarland, 67
	3582 Gaudin, 68	3837 Tripathi, 69
	4168 Peach, 70	4866 Vainshtein, 72
	4927 Omidvar, 72	
Mg <sup>+1</sup>	3003 Bely, 68	4074 Moores, 70
	4089 Mathur, 69	4966 Peach, 71
Mg <sup>+2</sup>	4838 Moores, 72	4966 Peach, 71
N	453 Seaton, 59	1463 Robinson, 65
	1557 Bauer, 65	2836 Catlow, 67
	3581 Gaudin, 68	3585 Peach, 68
	4168 Peach, 70	4376 McGuire, 71
	4927 Omidvar, 72	4966 Peach, 71
N <sup>+1</sup>	3750 Thomas, 69	4089 Mathur, 69
	4838 Moores, 72	
N <sup>+2</sup>	4838 Moores, 72	5014 Stingl, 72
Na	1183 Bates, 65	1272 Sheldon, 65
	1464 McFarland, 65	1476 Presnyakov, 65
	1502 McFarland, 65	1654 Peach, 66
	1655 Peach, 66	2905 Garcia, 67
	3582 Gaudin, 68	3735 Tripathi, 69
	3804 Tripathi, 69	3877 Liepinsh, 68
	4010 Stern, 70	4168 Peach, 70
	4376 McGuire, 71	4398 Manson, 71
	4927 Omidvar, 72	
Na <sup>+1</sup>	3750 Thomas, 69	4089 Mathur, 69
	4619 Tripathi, 71	4838 Moores, 72
	4966 Peach, 71	
Na <sup>+2</sup>	4838 Moores, 72	
Ne	147 Neu, 58	210 Inokuti, 62
	455 Hill, 51	1115 Ochkur, 63
	1159 Vriens, 64	1457 Vriens, 65
	1463 Robinson, 65	1484 Kurepa, 63
	1506 Kingston, 65	1557 Bauer, 65
	2974 Koozekanani, 67	3249 Koozekanani, 68
	3456 Koozekanani, 68	3581 Gaudin, 68
	3585 Peach, 68	4168 Peach, 70
	4339 Amusia, 70	4376 McGuire, 71
	4890 Roy, 72	4927 Omidvar, 72

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Ne	4966 Peach, 71	5582 Wallace, 73
	5608 Saxon, 73	6299 Khare, 74
	6342 Knapp, 74	
Ne <sup>*</sup>	1159 Vriens, 64	
Ne <sup>+1</sup>	1159 Vriens, 64	3750 Thomas, 69
	4089 Mathur, 69	4838 Moores, 72
Ni	140 Burhop, 40	452 Gryzinski, 59
	455 Hill, 51	1014 Gryzinski, 65
	1044 Drawin, 61	1115 Ochkur, 63
	2695 Perlman, 60	2901 Kolbenstvedt, 67
O	453 Seaton, 59	1463 Robinson, 65
	1557 Bauer, 65	2836 Catlow, 67
	3062 Omidvar, 67	3581 Gaudin, 68
	3585 Peach, 68	4168 Peach, 70
	4376 McGuire, 71	4927 Omidvar, 72
	4930 Kazaks, 72	
O <sup>+1</sup>	4838 Moores, 72	
O <sup>+2</sup>	4838 Moores, 72	
O <sup>+3</sup>	5014 Stingl, 72	
O <sup>+4</sup>	143 Trefftz, 63	1046 Malik, 61
O <sup>+5</sup>	143 Trefftz, 63	814 Varsavsky, 63
P	3582 Gaudin, 68	3585 Peach, 68
	4168 Peach, 70	
P <sup>+4</sup>	3003 Bely, 68	
Rb	1272 Sheldon, 65	1464 McFarland, 65
	1502 McFarland, 65	2713 McFarland, 67
	2905 Garcia, 67	3735 Tripathi, 69
	4399 Tripathi, 70	5611 Roy, 73
Rb <sup>+1</sup>	4089 Mathur, 69	
S	3582 Gaudin, 68	3585 Peach, 68
	4168 Peach, 70	
Si	3582 Gaudin, 68	3585 Peach, 68
	4168 Peach, 70	
Sn	2901 Kolbenstvedt, 67	
Sn <sup>+1</sup>	4340 Mathur, 70	
Sn <sup>+49</sup>	57 Burgess, 63	
Sr	1502 McFarland, 65	2713 McFarland, 67
	4866 Vainshtein, 72	

# IONIZATION THEORETICAL

# IONIZATION THEORETICAL

Normalized

Relative

Sr <sup>+1</sup>	960 Zirin, 62	4340 Mathur, 70
Tl	1502 McFarland, 65	2713 McFarland, 67
Xe	147 Neu, 58 1484 Kurepa, 63 4339 Amusia, 70 5847 Chiandusso, 73	1457 Vriens, 65 1506 Kingston, 65 4890 Roy, 72 6299 Khare, 74
Xe <sup>+1</sup>	4340 Mathur, 70	
Xe <sup>+2</sup>	4340 Mathur, 70	
Zn	3837 Tripathi, 69	4927 Omidvar, 72
Zn <sup>+1</sup>	4340 Mathur, 70	
CO	642 Prasad, 63 1558 Bauer, 65	1557 Bauer, 65
H <sub>2</sub>	147 Neu, 58 455 Hill, 51 1014 Gryzinski, 65 1115 Ochkur, 63 1557 Bauer, 65 3803 Prok, 69 5216 Liu, 73 6298 Bottcher, 74	452 Gryzinski, 59 863 Gryzinski, 63 1044 Drawin, 61 1457 Vriens, 65 1558 Bauer, 65 4320 Khare, 70 5305 Sharma, 72
H <sub>2</sub> <sup>+1</sup>	4120 Mathur, 70	
N <sub>2</sub>	147 Neu, 58 1457 Vriens, 65 1558 Bauer, 65 4320 Khare, 70 5305 Sharma, 72	642 Prasad, 63 1557 Bauer, 65 3803 Prok, 69 5003 Kim, 72
NO	1557 Bauer, 65	1558 Bauer, 65
O <sub>2</sub>	642 Prasad, 63 1557 Bauer, 65 3574 Takayanagi, 67	1457 Vriens, 65 1558 Bauer, 65 4320 Khare, 70
CO <sub>2</sub>	4002 Strickland, 69	
C <sub>2</sub> H <sub>2</sub>	1557 Bauer, 65	1558 Bauer, 65
CH <sub>4</sub>	210 Inokuti, 62	

Relative

Ag	1144 De La Ripelle, 49
Ar	1144 De La Ripelle, 49

Ar <sup>+</sup>	3525 Koozekanani, 68	
H	1144 De La Ripelle, 49	
He	1144 De La Ripelle, 49 5313 Salin, 73	1673 Mittleman, 66
Kr	1144 De La Ripelle, 49	
Kr <sup>+</sup>	3525 Koozekanani, 68	
Na	1144 De La Ripelle, 49	
Ne	1144 De La Ripelle, 49	
Ne <sup>+</sup>	3525 Koozekanani, 68	
Xe	1144 De La Ripelle, 49	
D <sub>2</sub>	5 Krauss, 57	
H <sub>2</sub>	5 Krauss, 57	

## DETACHMENT EXPERIMENTAL

Normalized

H <sup>-</sup>	1880 Tisone, 66 2904 Tisone, 68 4437 Walton, 70 4720 Walton, 71	2788 Dance, 67 4344 Peart, 70 4503 Peart, 71 5667 Peart, 73
O <sup>-</sup>	2904 Tisone, 68	
O <sub>3</sub> <sup>-</sup>	4938 Wong, 72	

Relative

PH <sub>2</sub> <sup>-</sup>	4793 Smyth, 72
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## DETACHMENT THEORETICAL

Normalized

Cl <sup>-</sup>	1300 Massey, 36 5662 John, 73	1463 Robinson, 65
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## Normalized

H <sup>-</sup>	415 Geltman, 60 576 Rudge, 64 1483 Tietz, 63 2116 Rogalski, 66 3736 Bely, 69 4924 Faisal, 72 6314 Roy, 74	470 McDowell, 63 1125 Geltman, 60 1764 Smirnov, 66 3415 Inokuti, 68 4433 Kim, 71 5478 John, 73
K <sup>-</sup>	5662 John, 73	5897 John, 73
Li <sup>-</sup>	5662 John, 73	5897 John, 73
Na <sup>-</sup>	5662 John, 73	5897 John, 73
O <sup>-</sup>	365 Watanabe, 50	
Rb <sup>-</sup>	5662 John, 73	

## ELECTRONIC EXCITATION EXPERIMENTAL

## Normalized

Ar	187 Berman, 49 637 Langmuir, 28 1823 Zapesochnyi, 66 3767 Mercer, 67 4087 Afrosimov, 69 4204 Clout, 71 4839 Lloyd, 72 5277 McConkey, 73 5737 Ballou, 73 6347 Tan, 74	288 Herrmann, 36 755 Volkova, 59 2833 Feltsan, 67 3945 Schaper, 69 4129 Latimer, 70 4305 Feltsan, 70 5034 Winicur, 71 5441 Van Raan, 73 6005 Borst, 74
Ar <sup>+1</sup>	5001 Imre, 72 6134 Tan, 74	5830 Zapesochnyi, 73
Ar <sup>+7</sup>	4962 Datla, 72	
Ba <sup>+1</sup>	929 Belousova, 61 4314 Bacon, 69 4905 Beigman, 71 6193 Crandall, 74	2938 Bacon, 68 4331 Pace, 70 5557 Pace, 73
C <sup>+4</sup>	5085 Engelhardt, 72	
Ca	4115 Heyner, 69 4317 Karstensen, 70 6466 Garga, 74	4173 Schramm, 69 5523 Ehlers, 73
Ca <sup>+1</sup>	5831 Taylor, 73	
Cd	1758 Penkin, 66 4212 Anderson, 70	2967 Penkin, 67 4353 Aleinikov, 70

## Normalized

Cd	4609 Newell, 71 5087 Vesnicheva, 72 6254 Sovter, 74	5015 Varshavskii, 70 5160 Newell, 72
Cs	279 Mohler, 32 1517 Zapesochnyi, 65 1910 Korchevoi, 66 2069 Zapesochnyi, 66 2830 Zapesochnyi, 67 6497 Aleksakhin, 74	1467 Nolan, 65 1801 Zapesochnyi, 66 1972 Zapesochnyi, 66 2715 Korchevoi, 67 3777 Hertel, 69
Cu	6194 Williams, 74	
F <sup>+7</sup>	5085 Engelhardt, 72	
Fe	929 Belousova, 61	
H	321 Fite, 58 327 Lichten, 59 936 Schulz, 60 2021 Hils, 66 3027 Long, 68 3836 McGowan, 69 4495 Oed, 71 5655 Koschmieder, 73	326 Fite, 59 332 Stebbings, 60 1486 Smith, 65 2902 Kleinpoppen, 68 3373 Williams, 68 4206 Kauppila, 70 4770 Walker Jr., 70 5984 Williams, 74
H <sup>+</sup>	5643 Banks, 73	
He	56 Lees, 32 124 Dorrestein, 42 192 Francis, 47 336 Corrigan, 58 373 Lassettre, 53 464 Frisch, 58 485 Lin, 62 600 Phelps, 58 742 St. John, 60 799 Silverman, 64 871 Fleming, 63 1049 St. John, 64 1265 Jones, 48 1455 Miller, 64 1583 Zapesochnyi, 65 1760 Lashmore-Davie, 65 1895 Zapesochnyi, 65 2757 Shpenik, 67 2841 Vriens, 68 2916 Lucas, 63 3583 Jobe, 68 3687 Aarts, 68 3814 Lassettre, 69 3846 Anderson, 69 4114 Truhlar, 70 4198 Lassettre, 70 4408 Chamberlain, 70 4616 Van Raan, 71 4771 Weaver, 70	123 Dorrestein, 42 125 Woudenberg, 41 318 Schulz, 57 338 Stewart, 59 379 Silverman, 57 477 Yakhontova, 60 554 Hughes, 63 637 Langmuir, 28 787 Hughes, 63 800 Lassettre, 64 886 Gabriel, 60 1088 Fleming, 64 1323 Yakhontova, 59 1528 Holt, 65 1677 Holt, 66 1892 Holt, 65 2690 Weaver, 67 2838 Jobe, 67 2903 Jobe, 67 2929 MoustafaMoussa, 67 3590 Zapesochnyi, 67 3729 MoustafaMoussa, 69 3830 Brongersma, 68 3945 Schaper, 69 4132 Bogdanova, 70 4218 Van Eck, 70 4565 McConkey, 71 4740 Rice, 72 4857 Opal, 72

## Normalized

He	4952 Smirnov, 71 4997 Donaldson, 72 5069 Crooks, 72 5572 Anderson, 73 5815 Truhlar, 73 5820 Hall, 73 6005 Borst, 74 6195 Van Raan, 74 6411 Van Raan, 74	4992 Crooks, 72 5011 Peresse, 72 5276 Madison, 73 5599 Trajmar, 73 5819 Pochat, 73 5898 Mathur, 73 6030 Samoilov, 73 6344 Samoilov, 74
He <sup>*</sup>	759 Robben, 63	6253 Gerasimov, 74
He <sup>+1</sup>	1805 Norcross, 66 6384 Dashchenko, 74	5829 Dolder, 73 6464 Dashchenko, 74
Hg	21 Tate, 32 176 Jongerius, 62 513 Jongerius, 50 637 Langmuir, 28 2626 Anderson, 67 2757 Shpenik, 67 3848 Borst, 69 4135 Borst, 68 4212 Anderson, 70 4338 Korotkov, 70 4946 Hanne, 72 5541 Rockwood, 73	69 Arnot, 35 303 Riede, 54 623 Crozier, 28 877 Anderson, 66 2643 Frisch, 67 2923 Fowler, 67 4009 Skerbele, 70 4167 Varshavskii, 69 4213 Varshavskii, 70 4752 Skerbele, 72 5482 Skerbele, 73
In	6262 Shimon, 74	
K	141 Loveridge, 31 344 Volkova, 59 749 Volkova, 59 1517 Zapesochnyi, 65 1680 Zapesochnyi, 65 2715 Korchevoi, 67 2830 Zapesochnyi, 67 3776 Hertel, 69 4689 Slevin, 70 6497 Aleksakhin, 74	275 Fabrikant, 39 505 Volkova, 62 773 Feldman, 63 1533 Volkova, 63 2069 Zapesochnyi, 66 2759 Feldman, 67 3519 Hertel, 68 3778 Hertel, 69 4926 Slevin, 72
Kr	474 Volkova, 60 2795 Feltsan, 67 4087 Afrosimov, 69 5441 Van Raan, 73	1823 Zapesochnyi, 66 3945 Schaper, 69 4452 Rozgachev, 70
Kr <sup>+1</sup>	5830 Zapesochnyi, 73	
Li	773 Feldman, 63 2726 Aleksakhin, 67 3063 Aleksakhin, 67	1072 Hughes, 64 2759 Feldman, 67 6351 Leep, 74
Mg	5731 Aleksakhin, 73	
N	4667 Stone, 71	5706 Stone, 71
N <sup>+3</sup>	4903 Johnston, 71	

## Normalized

N <sup>+4</sup>	5158 Boland, 70	6050 Bradbury, 73
N <sup>+5</sup>	5085 Engelhardt, 72	
Na	141 Loveridge, 31 414 Volkova, 61 1683 Zapesochnyi, 65 2971 Frisch, 67 4961 Enemark, 72	290 Christoph, 35 1517 Zapesochnyi, 65 2830 Zapesochnyi, 67 3778 Hertel, 69 6497 Aleksakhin, 74
Ne	122 Milatz, 40 124 Dorrestein, 42 205 Hadeishi, 63 637 Langmuir, 28 1339 Hadeishi, 65 1584 Revald, 65 2909 Zapesochnyi, 67 3945 Schaper, 69 4110 Hertz, 69 4900 Smirnov, 72 4959 Walker, 72 5441 Van Raan, 73 5551 Smirnov, 73 6134 Tan, 74	123 Dorrestein, 42 187 Berman, 49 288 Herrmann, 36 1094 Tien, 64 1531 Frisch, 63 2725 Feltsan, 66 3322 Guk, 57 4087 Afrosimov, 69 4451 Sharpton, 70 4953 Bogdanova, 71 5039 Walker, 71 5524 Bogdanova, 72 5629 Sharpton, 68
Ne <sup>*</sup>	3457 Khaikin, 68	
Ne <sup>+6</sup>	4903 Johnston, 71	4906 Tondello, 71
Ne <sup>+7</sup>	4904 Kunze, 71	
Ne <sup>+8</sup>	5085 Engelhardt, 72	
O	4667 Stone, 71 6181 Stone, 74	5706 Stone, 71
O <sup>+4</sup>	4903 Johnston, 71	
O <sup>+6</sup>	5085 Engelhardt, 72	
Rb	773 Feldman, 63 1801 Zapesochnyi, 66 2069 Zapesochnyi, 66 2759 Feldman, 67 3776 Hertel, 69 6497 Aleksakhin, 74	1517 Zapesochnyi, 65 1969 Zapesochnyi, 66 2715 Korchevoi, 67 2830 Zapesochnyi, 67 3777 Hertel, 69
Si <sup>+10</sup>	4903 Johnston, 71	
Sr	6051 Starodub, 73	6387 Aleksakhin, 74
Sr <sup>+1</sup>	4905 Beigman, 71	
Tl	121 Strohmeier, 37 5593 Nepipov, 73	5089 Shimon, 72 5982 Zapesochnyi, 73
Xe	474 Volkova, 60	1823 Zapesochnyi, 66

## ELECTRONIC EXCITATION EXPERIMENTAL

Normalized

Xe	3000 Feltsan, 68 4087 Afrosimov, 69 5441 Van Raan, 73 6465 Rostovikova, 73	3945 Schaper, 69 4130 Allen, 69 5591 Rostovikova, 73
Xe <sup>+1</sup>	474 Volkova, 60	
Zn	4212 Anderson, 70 4858 Newell, 72 5268 Penkin, 71	4353 Aleinikov, 70 5160 Newell, 72 5630 Penkin, 72
CN	5666 Korol, 73	
CO	372 Lassettre, 53 794 Lassettre, 64 968 Skerbele, 60 3374 Skubenich, 67 3989 Brongersma, 69 4326 Lawrence, 70 4387 Lassettre, 71 4653 Skerbele, 71 4685 Ajello, 71 5833 Wells, 73	374 Lassettre, 53 803 Lassettre, 64 3064 Skubenich, 67 3830 Brongersma, 68 4220 Aarts, 70 4349 Aarts, 70 4420 Mumma, 71 4658 Holland, 72 4864 Koppe, 72
D <sub>2</sub>	3831 Vroom, 69 4945 Cox, 72	4694 Cox, 70
H <sub>2</sub>	181 Frost, 62 321 Fite, 58 354 Corrigan, 58 652 Lunt, 62 921 Legler, 63 3813 Kuppermann, 68 4131 Weaver, 70 4487 McGowan, 69 4668 Kauppila, 71 4850 Stone, 72	260 Engelhardt, 63 327 Lichten, 59 637 Langmuir, 28 804 Lassettre, 64 1265 Jones, 48 3831 Vroom, 69 4388 Weingartshofer, 7 4659 Mumma, 71 4771 Weaver, 70 5115 McConkey, 72
N <sub>2</sub>	218 Engelhardt, 64 378 Silverman, 57 637 Langmuir, 28 813 Lassettre, 64 921 Legler, 63 1989 Zapesochnyi, 66 2976 Holland, 68 3687 Aarts, 68 3743 Hasted, 69 3830 Brongersma, 68 3851 McConkey, 69 3981 Simpson, 69 3989 Brongersma, 69 4080 Borst, 70 4226 Ajello, 70 4343 Skerbele, 70 4647 Koppe, 71 4658 Holland, 72 4713 Mumma, 71	375 Lassettre, 53 381 Lassettre, 57 652 Lunt, 62 857 Silverman, 65 1296 Williams, 35 2128 Jobe, 67 3064 Skubenich, 67 3710 Stanton, 69 3769 Srivastava, 69 3833 Sroka, 69 3943 Srivastava, 69 3984 Aarts, 69 3991 Ajello, 69 4083 Koval, 69 4326 Lawrence, 70 4428 Sheridan, 71 4655 Aarts, 71 4682 McConkey, 71 4788 Borst, 72

## ELECTRONIC EXCITATION EXPERIMENTAL

Normalized

N <sub>2</sub>	4800 Shemansky, 71 4864 Koppe, 72 5308 Kisker, 72 6142 VanDeRunstraat, 74	4853 Borst, 72 5215 Chutjian, 73 5706 Stone, 71 6235 Imami, 74
N <sub>2</sub> <sup>+1</sup>	3338 Lee, 68 6188 Crandall, 74	6053 Dashchenko, 73
NO	4326 Lawrence, 70 4715 Mentall, 72	4714 Stone, 72 4841 Aarts, 71
O <sub>2</sub>	376 Lassettre, 54 381 Lassettre, 57 794 Lassettre, 64 1310 Schulz, 62 4125 Borst, 70 4326 Lawrence, 70 4659 Mumma, 71 4683 Aarts, 71 4724 Trajmar, 71 4851 Trajmar, 72 5525 Koppe, 72 5832 Cartwright, 73	377 Silverman, 57 652 Lunt, 62 798 Lassettre, 64 3760 McConkey, 69 4298 Konishi, 70 4337 Srivastava, 70 4664 Cartwright, 71 4688 Ajello, 71 4735 Linder, 71 5033 Wells, 71 5734 Wong, 73
CO <sub>2</sub>	380 Shiloff, 57 3830 Brongersma, 68 4336 Sroka, 70 4684 Ajello, 71 6388 Tsurubuchi, 74	1205 Meyer, 65 3989 Brongersma, 69 4420 Mumma, 71 4748 Wells, 72
D <sub>2</sub> O	4487 McGowan, 69	
H <sub>2</sub> O	382 Lassettre, 58 4326 Lawrence, 70 5267 Sushanin, 71 6066 Lassettre, 74 6214 Morgan, 74	3812 Vroom, 69 4487 McGowan, 69 6065 Lassettre, 74 6135 Tsurubuchi, 74 6468 Beenakker, 74
C <sub>2</sub> H <sub>2</sub>	3830 Brongersma, 68	6231 Koppe, 74
NH <sub>3</sub>	4427 Sushanin, 69 4505 Harshbarger, 71	4487 McGowan, 69 6214 Morgan, 74
CD <sub>4</sub>	3832 Vroom, 69	
CH <sub>4</sub>	190 Edmisten, 49 3832 Vroom, 69 4487 McGowan, 69 5468 John, 49 6231 Koppe, 74	192 Francis, 47 3940 Sroka, 69 4646 Aarts, 71 6214 Morgan, 74
C <sub>2</sub> H <sub>4</sub>	3832 Vroom, 69 4646 Aarts, 71	3989 Brongersma, 69
C <sub>2</sub> H <sub>6</sub>	190 Edmisten, 49	3832 Vroom, 69



## Relative

Ag	289 Fuhrmann, 39	
Ar	20 Hughes, 32	58 Mohr, 32
	63 Nicoll, 33	67 Whiddington, 34
	115 Fischer, 33	119 Maier-Lelbnitz, 35
	178 Minkowski, 23	304 Hanle, 52
	344 Volkova, 59	692 Kuyatt, 63
	837 Porteus, 63	968 Skerbele, 60
	1301 Olmsted III, 65	1411 Raff, 62
	1527 Chamberlain, 65	1776 Kupriyanov, 66
	2176 Dowell, 66	2911 Cavallas, 67
	2962 Pichanick, 68	4133 Grissom, 70
	4241 Brion, 70	4418 Grojean, 71
	5072 Lloyd, 72	5113 Zhukov, 72
	6178 Tam, 73	6237 Cvejanovic, 74
Ba	4783 Aleksakhin, 71	
Be	6312 Aleksakhin, 74	
Ca	3512 Karstensen, 68	4783 Aleksakhin, 71
Cd	105 Larche, 31	180 Minkowski, 23
	504 Zapesochnyi, 62	1079 Zapesochnyi, 63
	1648 Zapesochnyi, 61	2074 Zapesochnyi, 66
	2907 Zapesochnyi, 66	3419 Zapesochnyi, 60
Cd*	6457 Mazing, 74	
Cs	476 Bogdanova, 60	1040 Zapesochnyi, 64
	1078 Zapesochnyi, 63	3514 Hertel, 68
	5809 Postoi, 73	
H	110 Ornstein, 33	269 Ornstein, 35
	532 Kleinpoppen, 62	609 Gailitis, 63
	629 Hughes, 23	922 Chamberlain, 64
He	3 Dymond, 27	11 McMillen, 30
	27 Hughes, 33	58 Mohr, 32
	63 Nicoll, 33	67 Whiddington, 34
	100 Ornstein, 30	108 Thieme, 32
	119 Maier-Lelbnitz, 35	120 Poultney, 34
	158 Harnwell, 29	173 Van Voorhis, 34
	178 Minkowski, 23	223 Smit, 35
	226 Michels, 30	227 Lamb Jr., 57
	235 Glockler, 29	253 Dymond, 29
	263 Hanle, 29	293 Priestley, 35
	304 Hanle, 52	319 Schulz, 58
	328 Schulz, 59	361 Smit, 58
	492 McFarland, 63	510 McFarland, 62
	513 Jongerius, 50	516 Smit, 63
	519 Heddle, 63	521 McFarland, 62
	551 Lassetre, 64	564 St. John, 62
	612 Lassetre, 65	620 Coles, 37
	628 Hughes, 23	651 Lees, 29
	663 Hertz, 25	668 Womer, 34
	692 Kuyatt, 63	747 McFarland, 64

## Relative

He	753 Dolgov, 59	880 Maurer, 34
	912 St. John, 61	968 Skerbele, 60
	1027 Higginson, 61	1073 McFarland, 64
	1076 Zapesochnyi, 63	1090 Schulz, 64
	1140 Simpson, 66	1148 Elenbaas, 30
	1304 Chamberlain, 65	1411 Raff, 62
	1417 Chamberlain, 65	1513 Heddle, 65
	1521 Zapesochnyi, 65	1527 Chamberlain, 65
	1572 Cermak, 66	1588 Ehrhardt, 65
	1753 Boersch, 65	1776 Kupriyanov, 66
	1781 Cermak, 66	1839 Mehlhorn, 66
	1982 Doering, 66	2072 Soltysik, 67
	2074 Zapesochnyi, 66	2175 Dugan, 67
	2176 Dowell, 66	2541 McFarland, 67
	2642 Heddle, 67	2648 Heddle, 67
	2650 Ehrhardt, 67	2911 Cavallas, 67
	2912 Chamberlain, 67	2915 Doering, 67
	2962 Pichanick, 68	3391 Andrick, 68
	3410 Ehrhardt, 68	3748 Whitteker, 67
	3807 Ionikh, 69	3813 Kuppermann, 68
	3880 Brion, 68	3979 Wei, 67
	3980 Heideman, 69	3989 Brongersma, 69
	4113 Vriens, 68	4133 Grissom, 70
	4209 Heideman, 70	4227 Peresse, 70
	4228 Peresse, 70	4241 Brion, 70
	4242 Hall, 70	4380 Peresse, 70
	4382 Heideman, 71	4407 Burrow, 70
	4416 Hall, 71	4563 Kay, 71
	4750 Kisker, 72	4777 Hall, 72
	4790 Brongersma, 72	5067 Showalter, 71
	5072 Lloyd, 72	5309 Kisker, 72
	5521 Skerbele, 73	5634 Eminyan, 73
	5705 Sutton, 71	5994 Knoop, 73
	5998 Heddle, 73	6045 Heddle, 74
	6049 Heddle, 74	6237 Cvejanovic, 74
	6382 Heppner, 74	6385 Eminyan, 74
He <sup>+</sup>	2422 Daly, 67	3323 Redhead, 68
Hg	40 Nottingham, 39	58 Mohr, 32
	78 Zapesochnyi, 61	92 Hanle, 30
	96 Vetterlein, 39	108 Thieme, 32
	112 Ornstein, 33	114 Seller, 33
	115 Fischer, 33	137 Nicoll, 33
	142 Fabrikant, 37	164 Gagne, 33
	173 Van Voorhis, 34	179 Hanle, 29
	180 Minkowski, 23	191 Arnot, 29
	222 Bogdanova, 63	229 Ostensen, 29
	231 Brattain, 29	262 Schaffernicht, 30
	315 Jongerius, 56	319 Schulz, 58
	476 Bogdanova, 60	513 Jongerius, 50
	546 Smit, 56	634 Lee, 39
	635 White, 26	656 Bricout, 28
	665 Whitney, 29	808 Frisch, 54
	816 Siebertz, 31	882 Zapesochnyi, 54
	965 Bakis, 59	1077 Zapesochnyi, 63
	1079 Zapesochnyi, 63	1153 Ende, 29



## ELECTRONIC EXCITATION EXPERIMENTAL

Relative

Hg	1233 Frisch, 56	1275 Valasek, 27
	1290 Rozgachev, 58	1324 Bogdanova, 59
	1475 Rose, 30	1521 Zapesochnyi, 65
	1534 Bogdanova, 63	1570 Smit, 65
	1575 Fyodorov, 65	1988 Bogdanova, 66
	2074 Zapesochnyi, 66	2620 Bogdanova, 67
	2823 Yeates, 67	3418 Zapesochnyi, 65
	3528 Zapesochnyi, 64	3809 Skerbeles, 69
	3980 Heideman, 69	4091 Bogdanova, 68
	4150 Gronemeier, 70	4406 Eitel, 71
K	5114 Hanne, 72	
	344 Volkova, 59	2074 Zapesochnyi, 66
	2757 Shpenik, 67	3849 Rubin, 69
K <sup>+1</sup>	4787 Goldstein, 72	
	6341 Vukstich, 74	
Kr	178 Minkowski, 23	607 Devyatov, 55
	692 Kuyatt, 63	1301 Olmsted III, 65
	1325 Guk, 57	1776 Kupriyanov, 66
	2176 Dowell, 66	2962 Pichanick, 68
	4241 Brion, 70	4418 Grojean, 71
	4441 Bogdanova, 69	5309 Kisker, 72
	5995 Zhukov, 73	
Kr <sup>+1</sup>	1325 Guk, 57	
Li	1586 Hafner, 65	1990 Aleksakhin, 66
	5111 Aleksakhin, 72	5465 Adler, 73
Mg	2907 Zapesochnyi, 66	4744 Karstensen, 71
N	2074 Zapesochnyi, 66	
Na	15 Michels, 31	111 Haft, 33
	506 Zapesochnyi, 62	1078 Zapesochnyi, 63
	1648 Zapesochnyi, 61	5111 Aleksakhin, 72
	5466 Hafner, 73	
Na <sup>+1</sup>	6341 Vukstich, 74	
Ne	59 Mohr, 32	119 Maier-Lelbnitz, 35
	137 Nicoll, 33	152 Hanle, 30
	158 Harnwell, 29	178 Minkowski, 23
	268 Milatz, 35	663 Hertz, 25
	692 Kuyatt, 63	1076 Zapesochnyi, 63
	1153 Ende, 29	1301 Olmsted III, 65
	1648 Zapesochnyi, 61	1776 Kupriyanov, 66
	2176 Dowell, 66	2911 Gavallas, 67
	2962 Pichanick, 68	3970 Grissom, 69
	4133 Grissom, 70	4241 Brion, 70
	4750 Kisker, 72	5309 Kisker, 72
	6178 Tam, 73	
Ne <sup>+1</sup>	67 Whiddington, 34	

## ELECTRONIC EXCITATION EXPERIMENTAL

Relative

Pb	289 Fuhrmann, 39	
Rb	1078 Zapesochnyi, 63	2366 Shimon, 64
Sr <sup>*</sup>	6383 Shafranosh, 74	
Tl	289 Fuhrmann, 39	5306 Shimon, 72
Xe	178 Minkowski, 23	304 Hanle, 52
	308 Kuyatt, 63	692 Kuyatt, 63
	1325 Guk, 57	1776 Kupriyanov, 66
	2176 Dowell, 66	2962 Pichanick, 68
	3874 Brion, 69	4241 Brion, 70
	5308 Kisker, 72	5995 Zhukov, 73
Xe <sup>+1</sup>	1325 Guk, 57	
Zn	105 Larche, 31	1077 Zapesochnyi, 63
	1079 Zapesochnyi, 63	2074 Zapesochnyi, 66
	2757 Shpenik, 67	2907 Zapesochnyi, 66
Br <sub>2</sub>	983 Swick, 61	
CO	328 Schulz, 59	475 Zapesochnyi, 60
	1301 Olmsted III, 65	1418 Meyer, 65
	1481 Skerbeles, 65	1743 Silverman, 64
	1841 Koval, 66	1887 Skerbeles, 66
	2694 Skerbeles, 67	3205 Freund, 67
	3743 Hasted, 69	3813 Kuppermann, 68
	3834 Rempt, 69	3979 Wei, 67
	3989 Brongersma, 69	4109 Brion, 70
	4310 Rendina, 70	4379 Hubin-Franskin, 70
	4418 Grojean, 71	4718 Newton, 71
	4847 Swanson, 72	5729 Collin, 73
CO <sup>+1</sup>	39 Bundy, 37	
D <sub>2</sub>	987 Coolidge, 44	2939 Dowell, 67
	3939 Hall, 69	
H <sub>2</sub>	59 Mohr, 32	63 Nicoll, 33
	158 Harnwell, 29	173 Van Voorhis, 34
	232 Brasefield, 29	270 Kruithof, 35
	319 Schulz, 58	987 Coolidge, 44
	1301 Olmsted III, 65	1303 Geiger, 64
	1411 Raff, 62	1585 Boersch, 65
	1692 Heideman, 66	1889 Cahill, 67
	2939 Dowell, 67	3545 Trajmar, 68
	3939 Hall, 69	3944 Ehrhardt, 69
	3979 Wei, 67	4310 Rendina, 70
	4418 Grojean, 71	
N <sub>2</sub>	59 Mohr, 32	108 Thieme, 32
	137 Nicoll, 33	158 Harnwell, 29
	328 Schulz, 59	334 Stewart, 58
	475 Zapesochnyi, 60	612 Lassetre, 65
	632 Langstroth, 34	752 Kishko, 59

## ELECTRONIC EXCITATION EXPERIMENTAL

## ELECTRONIC EXCITATION EXPERIMENTAL

Relative

Relative

N <sub>2</sub>	953 Stewart, 55	968 Skerbele, 60
	989 Thompson, 34	1157 Rudberg, 30
	1298 Langstroth, 35	1301 Olmsted III, 65
	1312 Langstroth, 35	1406 Winters, 65
	1480 Lassettre, 65	1481 Skerbele, 65
	1597 Geiger, 65	1648 Zapesochnyi, 61
	1679 Meyer, 66	1693 Heideman, 66
	1983 Lassettre, 66	2174 Koval, 66
	2179 Ehrhardt, 67	2659 Skerbele, 67
	2827 Lassettre, 62	2915 Doering, 67
	3762 Burns, 69	3813 Kuppermann, 68
	3824 Ridge, 69	3875 Freund, 69
	3969 Williams III, 69	3971 Bensimon, 69
	3979 Wei, 67	3989 Brongersma, 69
	4111 Williams III, 69	4242 Hall, 70
	4310 Rendina, 70	4385 Freund, 71
N <sub>2</sub> <sup>+1</sup>	5036 Finn, 72	5157 Danilevskii, 72
	5308 Kisker, 72	5464 Lawton, 73
	5522 Mazeau, 73	5545 Mazeau, 73
	5555 Kurzweg, 73	6237 Cvejjanovic, 74
	39 Bundy, 37	343 Zapesochnyi, 59
NO	757 Kishko, 60	
	612 Lassettre, 65	1841 Koval, 66
	3743 Hasted, 69	4418 Grojean, 71
O <sub>2</sub>	5112 Povch, 72	
	2174 Koval, 66	3743 Hasted, 69
CO <sub>2</sub>	3978 Sroka, 68	
	59 Mohr, 32	612 Lassettre, 65
	1047 Kishko, 63	1401 Lassettre, 63
	1841 Koval, 66	3989 Brongersma, 69
COS	4509 Foo, 71	
	4509 Foo, 71	
CS <sub>2</sub>		
	558 Schulz, 60	968 Skerbele, 60
	1411 Raff, 62	1419 Skerbele, 65
	1481 Skerbele, 65	1824 Skerbele, 66
	3823 Miller, 69	4400 Trajmar, 71
	4723 Mielczarek, 71	4729 Azria, 71
H <sub>2</sub> O	5360 Trajmar, 73	
N <sub>2</sub> O	4509 Foo, 71	
NO <sub>2</sub>		
	4418 Grojean, 71	4614 Bulger, 71
SO <sub>2</sub>	4776 Edqvist, 70	
	4509 Foo, 71	4614 Bulger, 71
C <sub>2</sub> H <sub>2</sub>		
	1374 Bowman, 65	1812 Geiger, 65
	2172 Doering, 67	2915 Doering, 67
	3813 Kuppermann, 68	3979 Wei, 67

H <sub>2</sub> CO	4613 Weiss, 71	6386 Chutjian, 74
NH <sub>3</sub>	968 Skerbele, 60	1481 Skerbele, 65
	4419 Harshbarger, 71	
CH <sub>4</sub>	137 Nicoll, 33	1374 Bowman, 65
	1588 Ehrhardt, 65	2510 Ehrhardt, 67
	3810 Brongersma, 69	5280 Dicoum, 73
C <sub>2</sub> H <sub>4</sub>	1374 Bowman, 65	1411 Raff, 62
	3979 Wei, 67	3989 Brongersma, 69
	4304 Krauss, 69	4378 Hubin-Franskin, 70
SF <sub>6</sub>	1856 Simpson, 66	
C <sub>2</sub> H <sub>6</sub>	1374 Bowman, 65	2696 Lassettre, 67
	3810 Brongersma, 69	

## ELECTRONIC EXCITATION THEORETICAL

Normalized

Al <sup>+2</sup>	4643 Davis, 71	4704 Mathur, 71
Al <sup>+4</sup>	792 Varsavsky, 61	
Al <sup>+5</sup>	792 Varsavsky, 61	3294 Czyzak, 67
Al <sup>+6</sup>	792 Varsavsky, 61	
Al <sup>+7</sup>	792 Varsavsky, 61	
Al <sup>+8</sup>	792 Varsavsky, 61	
Al <sup>+9</sup>	792 Varsavsky, 61	
Al <sup>+10</sup>	792 Varsavsky, 61	
Al <sup>+11</sup>	6133 Oran, 74	
Al <sup>+12</sup>	6133 Oran, 74	
Ar	1867 Veldre, 65	1970 Veldre, 65
	4318 Bonham, 70	4339 Amusia, 70
	4639 Canas, 71	4640 Sawada, 71
	5588 Amusia, 73	
Ar <sup>+1</sup>	5656 Brandi, 73	
Ar <sup>+2</sup>	3294 Czyzak, 67	
Ar <sup>+3</sup>	2335 Czyzak, 67	4199 Czyzak, 70

Normalized

Ar <sup>+4</sup>	442 Czyzak, 63 1992 Bely, 67	1696 Bely, 66 3294 Czyzak, 67
Ar <sup>+7</sup>	792 Varsavsky, 61	4962 Datla, 72
Ar <sup>+10</sup>	3294 Czyzak, 67	
Ar <sup>+11</sup>	792 Varsavsky, 61	3294 Czyzak, 67
Ar <sup>+12</sup>	792 Varsavsky, 61	1992 Bely, 67
Ar <sup>+13</sup>	792 Varsavsky, 61	
B	884 Pilyankevich, 20	
B <sup>+1</sup>	6422 Burgess, 74	
B <sup>+3</sup>	3579 Lyash, 67	
Ba	6048 Kim, 73	
Ba <sup>+1</sup>	1876 Petrini, 65	4014 Davis, 70
Be	884 Pilyankevich, 60	5059 Kulander, 72
Be <sup>+1</sup>	775 Bely, 63 1850 Bely, 66 4008 Tripathi, 70 4230 Bely, 70 4965 Petrini, 72	1305 Bely, 64 2118 Bely, 66 4084 Blaha, 69 4704 Mathur, 71
Be <sup>+2</sup>	884 Pilyankevich, 60 6116 Tully, 74	3579 Lyash, 67
C	884 Pilyankevich, 60 3700 Henry, 69 5009 Poshyunaite, 70	2616 Smith, 67 3704 Smith, 69
C <sup>+1</sup>	714 Seaton, 58	909 Seaton, 55
C <sup>+2</sup>	884 Pilyankevich, 60 5151 Flower, 72	2733 Beigman, 67 5983 Flower, 73
C <sup>+3</sup>	775 Bely, 63 4704 Mathur, 71	4084 Blaha, 69 4965 Petrini, 72
C <sup>+4</sup>	884 Pilyankevich, 60 2733 Beigman, 67	1546 Vainshtein, 63 3579 Lyash, 67
C <sup>+5</sup>	1474 Vainshtein, 65	1546 Vainshtein, 63
Ca	1448 Bely, 63 4330 Vainshtein, 70 5155 Simsic, 72 6250 Robb, 74	3060 Beigman, 67 5059 Kulander, 72 6048 Kim, 73
Ca <sup>+1</sup>	720 Van Regemorter, 60	1054 Van Regemorter, 61

Normalized

Ca <sup>+1</sup>	1122 Van Regemorter, 60 1876 Petrini, 65 4008 Tripathi, 70 4234 Saraph, 70 6422 Burgess, 74	1138 Bely, 66 3518 Burke, 68 4084 Blaha, 69 5304 Tully, 73
Ca <sup>+4</sup>	3294 Czyzak, 67	
Ca <sup>+5</sup>	2335 Czyzak, 67	4199 Czyzak, 70
Ca <sup>+6</sup>	1992 Bely, 67	3294 Czyzak, 67
Ca <sup>+7</sup>	792 Varsavsky, 61	
Ca <sup>+8</sup>	792 Varsavsky, 61	
Ca <sup>+9</sup>	792 Varsavsky, 61	4704 Mathur, 71
Ca <sup>+14</sup>	792 Varsavsky, 61	1992 Bely, 67
Cd	3837 Tripathi, 69	4663 Savchenko, 71
Cl <sup>+1</sup>	3294 Czyzak, 67	4244 Conneely, 70
Cl <sup>+2</sup>	2335 Czyzak, 67	4199 Czyzak, 70
Cl <sup>+3</sup>	442 Czyzak, 63 1992 Bely, 67	1696 Bely, 66 3294 Czyzak, 67
Cl <sup>+10</sup>	792 Varsavsky, 61	
Cl <sup>+11</sup>	792 Varsavsky, 61	
Cl <sup>+12</sup>	792 Varsavsky, 61	
Co <sup>+10</sup>	792 Varsavsky, 61	
Co <sup>+11</sup>	792 Varsavsky, 61	
Co <sup>+12</sup>	792 Varsavsky, 61	
Co <sup>+13</sup>	792 Varsavsky, 61	
Co <sup>+14</sup>	792 Varsavsky, 61	
Co <sup>+15</sup>	792 Varsavsky, 61	
Co <sup>+16</sup>	792 Varsavsky, 61	4372 Golshani, 70
Cr <sup>+7</sup>	792 Varsavsky, 61	
Cr <sup>+8</sup>	792 Varsavsky, 61	3294 Czyzak, 67
Cr <sup>+9</sup>	792 Varsavsky, 61	4199 Czyzak, 70
Cr <sup>+10</sup>	792 Varsavsky, 61 3294 Czyzak, 67	1992 Bely, 67

## Normalized

Cr <sup>+11</sup>	792 Varsavsky, 61	
Cr <sup>+12</sup>	792 Varsavsky, 61	
Cr <sup>+13</sup>	792 Varsavsky, 61	
Cs	1063 Hansen, 64 1456 Witting, 65 1540 Vainshtein, 65 3709 Mathur, 69 4738 Karule, 71 5708 Liepinsh, 72	1072 Hughes, 64 1469 Karule, 65 1813 Vainshtein, 64 4554 Karule, 71 5651 Felden, 73 5710 Brandus, 73
Cs <sup>*</sup>	1272 Sheldon, 65	
Cu <sup>+18</sup>	4372 Golshani, 70	
F <sup>+1</sup>	404 Seaton, 53 3294 Czyzak, 67	484 Seaton, 55
F <sup>+2</sup>	404 Seaton, 53 3294 Czyzak, 67	484 Seaton, 55 3739 Martins, 69
F <sup>+3</sup>	404 Seaton, 53	484 Seaton, 55
F <sup>+5</sup>	792 Varsavsky, 61	
F <sup>+6</sup>	792 Varsavsky, 61	4704 Mathur, 71
Fe <sup>+1</sup>	909 Seaton, 55	
Fe <sup>+7</sup>	1943 Czyzak, 66	4084 Blaha, 69
Fe <sup>+9</sup>	792 Varsavsky, 61	
Fe <sup>+10</sup>	792 Varsavsky, 61	3294 Czyzak, 67
Fe <sup>+11</sup>	792 Varsavsky, 61 4199 Czyzak, 70	2335 Czyzak, 67
Fe <sup>+12</sup>	792 Varsavsky, 61 2115 Bely, 66 4608 Flower, 71	1992 Bely, 67 3294 Czyzak, 67
Fe <sup>+13</sup>	437 Blaha, 62 547 Bely, 62 923 Woolley, 48 4608 Flower, 71	455 Hill, 51 792 Varsavsky, 61 2832 Petrini, 67
Fe <sup>+14</sup>	792 Varsavsky, 61	4608 Flower, 71
Fe <sup>+15</sup>	775 Bely, 63 1932 Krueger, 65 4372 Golshani, 70	792 Varsavsky, 61 4084 Blaha, 69 4704 Mathur, 71
Fe <sup>+16</sup>	3013 Bely, 67	4608 Flower, 71

## Normalized

H	32 Gorshanova, 62 51 Massey, 31 91 Damburg, 62 128 Peterkop, 62 155 Seaton, 62 234 Massey, 56 278 Damburg, 62 350 Kingston, 60 389 Borowitz, 56 418 Khashaba, 58 423 Bates, 57 425 Bransden, 57 432 Opik, 55 438 Massey, 53 458 Erskine, 52 534 Somerville, 62 542 Damburg, 62 549 Kingston, 60 567 Wu, 60 593 Omidvar, 64 671 Stabler, 64 721 Seaton, 61 809 Hellund, 60 828 Pomilla, 63 859 Smith, 60 892 Burgess, 63 904 Kyle, 64 913 Akerib, 61 919 Milford, 60 996 Akerib, 60 1014 Gryzinski, 65 1050 Scanlon, 61 1074 Somerville, 63 1115 Ochkur, 63 1135 Peterkop, 60 1246 Stauffer, 65 1409 Bell, 65 1457 Vriens, 65 1466 Omidvar, 65 1474 Vainshtein, 65 1532 Crothers, 65 1550 Damburg, 63 1552 Damburg, 63 1557 Bauer, 65 1581 Vainshtein, 65 1657 Kingston, 66 1718 Ormonde, 63 1773 Rudge, 65 1813 Vainshtein, 64 1851 Kingston, 66 1868 Veldre, 65 1886 Coleman, 65 1985 Faisal, 65 2013 Stauffer, 66 2067 Omidvar, 64 2126 Jha, 66 2655 Inokuti, 67	44 Burke, 62 83 Burke, 63 97 Damburg, 62 154 Damburg, 62 183 Elsasser, 27 277 Goldstein, 33 296 Gailitis, 63 351 Bell, 63 391 Hart, 56 420 Marriott, 58 424 McCarroll, 57 429 Bransden, 56 435 Rothenstein, 54 446 McCoyd, 60 507 Damburg, 63 540 Milford, 60 545 Robinson, 63 563 Lynn, 59 580 Huck, 57 648 Damburg, 63 712 Burke, 61 722 Lawson, 61 826 Presnyakov, 63 829 Peterkop, 59 874 Taylor, 63 896 Smith, 60 908 Kyle, 63 914 Moiseiwitsch, 61 935 Ochkur, 58 1009 Burke, 63 1037 Hummer, 61 1061 Vainshtein, 64 1109 Cunningham, 64 1130 Klein, 55 1171 Crothers, 65 1257 Moiseiwitsch, 65 1416 Tait, 63 1461 Scott, 65 1468 Vriens, 65 1479 Coleman, 65 1546 Vainshtein, 63 1551 Damburg, 63 1553 Damburg, 63 1560 Eissner, 63 1594 Vriens, 65 1697 Coleman, 66 1747 Kang, 66 1793 Bielski, 65 1847 Burke, 66 1859 Ormonde, 66 1877 McCarroll, 65 1898 Kyle, 64 1999 Burke, 66 2022 Morrison, 66 2077 Omidvar, 67 2159 Holt, 68 2733 Beigman, 67
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## Normalized

H	2736 Crothers, 67	2749 Jha, 67
	2791 Burke, 67	2792 Taylor, 67
	3054 McDowell, 67	3055 Burke, 67
	3058 Rabik, 67	3065 Vainshtein, 67
	3388 Marriott, 68	3572 Peresse, 65
	3580 Gaudin, 68	3642 Kolodziejski, 68
	3728 Truhlar, 68	3742 Ormonde, 69
	3775 Kyle, 68	3805 Ochkur, 68
	3839 Kyle, 69	3924 Gumble, 69
	3933 Holt, 69	3942 Lloyd, 69
	3992 Ormonde, 70	4123 Tai, 70
	4215 Ghosh, 69	4224 Ghosh, 70
	4232 Steelhammer, 70	4233 Shelton, 70
	4318 Bonham, 70	4321 Perrott, 70
	4322 Jamieson, 70	4324 McCavert, 70
	4327 Geltman, 70	4330 Vainshtein, 70
	4377 Shelton, 71	4396 Bhadra, 71
	4417 Shimamura, 71	4435 Burke, 70
	4440 Felden, 71	4445 Mandelberg, 70
	4446 Beigman, 70	4669 Sheorey, 71
	4701 Thomas, 71	4708 Geltman, 71
	4721 Byron Jr., 71	4754 Ghosh, 70
	4840 Felden, 72	4845 Rudge, 72
	4854 Bransden, 72	4860 Smith, 72
	4923 Damburg, 72	4925 Sil, 72
	4964 Chen, 72	4996 Burnashev, 72
	5004 Ling, 72	5066 Alton, 72
	5068 Golden, 71	5139 Felden, 72
	5153 Knirk, 72	5154 Knirk, 72
	5156 Burnashev, 72	5162 Hutton, 72
	5279 Burke, 73	5281 Grujic, 73
	5316 Woollings, 73	5454 McDowell, 73
	5483 Joachain, 73	5657 Hambro, 73
	5659 Saha, 73	6054 Potapov, 73
	6185 McDowell, 74	6197 Baye, 74
	6234 Roy, 74	6266 Flannery, 74
	6267 Truhlar, 74	6304 Callaway, 74
	6458 Flannery, 74	6461 Flannery, 74
	6469 Abdallah Jr., 74	
H <sup>+</sup>	103 McCoyd, 63	413 McCrea, 60
	419 Boyd, 58	431 Seaton, 55
	445 Fisher, 60	446 McCoyd, 60
	593 Omidvar, 64	826 Presnyakov, 63
	859 Smith, 60	954 Saraph, 64
	1074 Somerville, 63	1103 Yavorskii, 47
	1466 Omidvar, 65	1468 Vriens, 65
	1522 Pomilla, 64	1657 Kingston, 66
	1674 Veldre, 65	1718 Ormonde, 63
	1851 Kingston, 66	1868 Veldre, 65
	1946 Pluta, 66	2063 Purcell, 52
	2786 Monnin, 67	3214 Van Blerkom, 68
	3933 Holt, 69	3997 Percival, 70
	4092 Podlubnyi, 69	4341 Flannery, 70
	4849 Omidvar, 72	5517 Sobeslavsky, 73
He	51 Massey, 31	61 Massey, 33

## Normalized

He	139 Massey, 35	155 Seaton, 62
	234 Massey, 56	281 Yavorskii, 44
	311 Becker, 64	349 Massey, 60
	391 Hart, 56	395 Altshuler, 53
	396 Altshuler, 52	432 Opik, 55
	435 Rothenstein, 54	441 Massey, 52
	452 Gryzinski, 59	460 Massey, 54
	462 Huzinaga, 60	555 Becker, 63
	616 Massey, 31	676 Kar, 40
	718 Ochkur, 64	740 Percival, 58
	754 Vainshtein, 59	760 Matora, 60
	765 Itoh, 60	801 Lassettre, 64
	863 Gryzinski, 63	866 Marriott, 63
	892 Burgess, 63	1014 Gryzinski, 65
	1091 Silverman, 58	1115 Ochkur, 63
	1212 Becker, 64	1246 Stauffer, 65
	1265 Jones, 48	1546 Vainshtein, 63
	1557 Bauer, 65	1558 Bauer, 65
	1567 Lassettre, 65	1590 Williamson, 62
	1644 Joachain, 65	1645 Joachain, 65
	1663 Silverman, 66	1682 Ochkur, 65
	1695 Fox, 66	1710 Bell, 66
	1767 Fox, 65	1793 Bielski, 65
	1846 Burke, 66	1941 Joachain, 66
	2017 Vriens, 67	2685 Morrison, 67
	2733 Beigman, 67	2750 Banerjee, 67
	2837 Inokuti, 67	3002 Kennedy, 68
	3018 Bell, 68	3019 Bell, 68
	3059 Lyash, 67	3206 Miller, 68
	3208 Bell, 68	3211 Lin, 68
	3255 Kang, 68	3341 Kennedy, 68
	3344 Cartwright, 68	3521 Kim, 68
	3579 Lyash, 67	3587 Bell, 68
	3698 Vainshtein, 69	3730 Van Den Bos, 69
	3733 Bell, 69	3936 Burke, 69
	3973 Kim, 69	3992 Ormonde, 70
	4001 Inokuti, 69	4114 Truhlar, 70
	4181 Flannery, 70	4232 Steelhammer, 70
	4301 Vanderpoorten, 70	4316 Steelhammer, 70
	4318 Bonham, 70	4376 McGuire, 71
	4392 Schneider, 70	4507 Vriens, 70
	4560 Truhlar, 71	4654 Ojha, 71
	4662 Tripathi, 71	4719 Holt, 71
	4721 Byron Jr., 71	4739 Byron Jr., 72
	4740 Rice, 72	4782 Manson, 72
	4856 Hidalgo, 72	4921 Kohl, 72
	4991 Woollings, 72	4996 Burnashev, 72
	5081 Gillespie, 72	5090 Yates, 72
	5156 Burnashev, 72	5161 Ojha, 72
	5272 Ojha, 73	5315 Berrington, 73
	5316 Woollings, 73	5660 Nicholls, 73
	5725 Chan, 73	5735 Ormonde, 73
	5738 Lipovetskii, 73	5815 Truhlar, 73
	5825 Gillespie, 73	5852 Balashov, 73
	5894 Oberoi, 73	5895 Smith, 73
	5902 Franco, 73	5933 Terebey, 74
	5972 Banyard, 74	6183 Joachain, 74

## Normalized

He	6189 Chan, 74 6248 Wichmann, 74 6300 Huo, 74 6345 McCurdy Jr., 74 6350 Chan, 74 6419 McCann, 74	6196 Baye, 74 6249 Mathur, 74 6316 Thomas, 74 6349 Ojha, 73 6417 Truhlar, 74 6460 Seddon, 74
He <sup>+</sup>	367 Moiseiwitsch, 57 1658 Marriott, 66 2013 Stauffer, 66 3847 Kim, 69 4330 Vainshtein, 70	1103 Yavorskii, 47 1804 Ochkur, 66 3056 Burke, 67 3936 Burke, 69 4393 Briggs, 71
He <sup>+1</sup>	417 Burgess, 61 669 Burke, 64 1080 Burke, 64 1847 Burke, 66 3061 Kyle, 67 3992 Ormonde, 70 6185 McDowell, 74	436 Bransden, 53 670 McCarroll, 64 1340 Burke, 63 2427 Ormonde, 67 3734 Burke, 69 4119 Burgess, 70
Hg	202 Yavorskii, 46 452 Gryzinski, 59 2769 Lin, 64 3616 Yavorskii, 52 4663 Savchenko, 71 5082 Carse, 72	272 Yavorskii, 45 1414 Lane, 64 3216 McConnell, 68 3837 Tripathi, 69 4782 Manson, 72 5275 Madison, 73
Hg <sup>+</sup>	1103 Yavorskii, 47	
K	1072 Hughes, 64 1540 Vainshtein, 65 3709 Mathur, 69 4554 Karule, 71 4782 Manson, 72 5155 Simsic, 72 5651 Felden, 73	1469 Karule, 65 1813 Vainshtein, 64 4324 McCavert, 70 4738 Karule, 71 4863 McCavert, 72 5554 Walters, 73
K <sup>+3</sup>	3294 Czyzak, 67	
K <sup>+4</sup>	2335 Czyzak, 67	4199 Czyzak, 70
K <sup>+5</sup>	3294 Czyzak, 67	
K <sup>+7</sup>	792 Varsavsky, 61	
K <sup>+8</sup>	792 Varsavsky, 61	
K <sup>+12</sup>	792 Varsavsky, 61	
K <sup>+13</sup>	792 Varsavsky, 61	1992 Bely, 67
Kr	1970 Veldre, 65 4339 Amusia, 70	4318 Bonham, 70 4639 Ganas, 71
Li	830 Veldre, 59 990 Karule, 64	836 Veldre, 59 1072 Hughes, 64

## Normalized

Li	1146 Wu, 44 1469 Karule, 65 1540 Vainshtein, 65 3057 Marriott, 67 3838 Burke, 69 4422 Felden, 71 4700 Tripathi, 71 4738 Karule, 71 4863 McCavert, 72 5554 Walters, 73 6029 Zhvirblis, 73	1190 Wu, 40 1515 Karule, 63 1813 Vainshtein, 64 3709 Mathur, 69 4324 McCavert, 70 4554 Karule, 71 4702 Felden, 71 4780 Mathur, 72 5155 Simsic, 72 5651 Felden, 73
Li <sup>+</sup>	6029 Zhvirblis, 73	
Li <sup>+1</sup>	1688 Sural, 66 3579 Lyash, 67 4641 Sural, 69 6460 Seddon, 74	2733 Beigman, 67 4082 Kim, 70 6116 Tully, 74
Mg	4223 Van Blerkom, 70 5155 Simsic, 72 6048 Kim, 73	5059 Kulander, 72 5904 Fabrikant, 74 6250 Robb, 74
Mg <sup>+</sup>	4223 Van Blerkom, 70	
Mg <sup>+1</sup>	775 Bely, 63 1122 Van Regemorter, 60 4008 Tripathi, 70	1053 Van Regemorter, 61 3518 Burke, 68 6422 Burgess, 74
Mg <sup>+4</sup>	404 Seaton, 53 792 Varsavsky, 61	484 Seaton, 55 3294 Czyzak, 67
Mg <sup>+5</sup>	792 Varsavsky, 61	3294 Czyzak, 67
Mg <sup>+6</sup>	792 Varsavsky, 61	2020 Saraph, 66
Mg <sup>+7</sup>	792 Varsavsky, 61	
Mg <sup>+8</sup>	792 Varsavsky, 61	
Mg <sup>+9</sup>	775 Bely, 63 4965 Petrini, 72	792 Varsavsky, 61
Mn <sup>+8</sup>	792 Varsavsky, 61	
Mn <sup>+9</sup>	792 Varsavsky, 61	3294 Czyzak, 67
Mn <sup>+10</sup>	792 Varsavsky, 61	4199 Czyzak, 70
Mn <sup>+11</sup>	792 Varsavsky, 61 3294 Czyzak, 67	1992 Bely, 67
Mn <sup>+12</sup>	792 Varsavsky, 61	
Mn <sup>+13</sup>	792 Varsavsky, 61	
Mn <sup>+14</sup>	792 Varsavsky, 61	

## Normalized

N	1970 Veldre, 65 3700 Henry, 69 5597 Ormonde, 73 5907 Ganas, 73	2616 Smith, 67 3704 Smith, 69 5813 Ganas, 73
N <sup>+1</sup>	404 Seaton, 53 714 Seaton, 58 1992 Bely, 67 3700 Henry, 69 5009 Poshyunaite, 70 5826 Jackson, 73	484 Seaton, 55 1696 Bely, 66 2020 Saraph, 66 4202 Seaton, 69 5597 Ormonde, 73 5992 Saraph, 74
N <sup>+2</sup>	5826 Jackson, 73	
N <sup>+3</sup>	5597 Ormonde, 73	
N <sup>+4</sup>	1536 Taylor, 65 1850 Bely, 66 4084 Blaha, 69 4230 Bely, 70 4704 Mathur, 71	1653 Burke, 66 2118 Bely, 66 4124 Davis, 70 4608 Flower, 71 6429 Henry, 74
N <sup>+5</sup>	3579 Lyash, 67	
Na	155 Seaton, 62 452 Gryzinski, 59 1014 Gryzinski, 65 1072 Hughes, 64 1251 Barnes, 65 1414 Lane, 64 1474 Vainshtein, 65 1540 Vainshtein, 65 1581 Vainshtein, 65 1793 Bielski, 65 2065 Presnyakov, 66 3709 Mathur, 69 4329 Williamson Jr, 70 4554 Karule, 71 4702 Felden, 71 4782 Manson, 72 5006 Moores, 72 5155 Simsic, 72 5274 Korff, 73 5594 Brandus, 73	431 Seaton, 55 497 Somerville, 61 1023 Salmona, 61 1115 Ochkur, 63 1319 Veldre, 56 1469 Karule, 65 1520 Salmona, 63 1546 Vainshtein, 63 1587 Salmona, 65 1813 Vainshtein, 64 3065 Vainshtein, 67 4324 McCavert, 70 4330 Vainshtein, 70 4610 Hertel, 71 4738 Karule, 71 4863 McCavert, 72 5082 Carse, 72 5273 Tripathi, 73 5554 Walters, 73 5651 Felden, 73
Na <sup>*</sup>	568 Lane, 64	
Na <sup>+3</sup>	404 Seaton, 53 3294 Czyzak, 67	484 Seaton, 55
Na <sup>+4</sup>	404 Seaton, 53 792 Varsavsky, 61 3739 Martins, 69	484 Seaton, 55 3294 Czyzak, 67
Na <sup>+5</sup>	792 Varsavsky, 61	1992 Bely, 67
Na <sup>+6</sup>	792 Varsavsky, 61	

## Normalized

Na <sup>+7</sup>	792 Varsavsky, 61	
Na <sup>+8</sup>	792 Varsavsky, 61	
Ne	1576 Veldre, 65 1866 Veldre, 65 1970 Veldre, 65 4318 Bonham, 70 4639 Ganas, 71 4741 Collins, 71 5906 Albat, 74	1681 Boikova, 65 1867 Veldre, 65 3994 Vainshtein, 68 4339 Amusia, 70 4640 Sawada, 71 5608 Saxon, 73
Ne <sup>+2</sup>	404 Seaton, 53 3294 Czyzak, 67 6424 Pradhan, 74	484 Seaton, 55 3879 Henry, 68
Ne <sup>+3</sup>	404 Seaton, 53 3294 Czyzak, 67 3879 Henry, 68	484 Seaton, 55 3739 Martins, 69
Ne <sup>+4</sup>	404 Seaton, 53 2020 Saraph, 66	484 Seaton, 55
Ne <sup>+5</sup>	792 Varsavsky, 61	
Ne <sup>+6</sup>	792 Varsavsky, 61	1850 Bely, 66
Ne <sup>+7</sup>	792 Varsavsky, 61 4230 Bely, 70 4965 Petrini, 72	2118 Bely, 66 4704 Mathur, 71
Ni <sup>+11</sup>	792 Varsavsky, 61	
Ni <sup>+12</sup>	792 Varsavsky, 61	3294 Czyzak, 67
Ni <sup>+13</sup>	792 Varsavsky, 61	
Ni <sup>+14</sup>	792 Varsavsky, 61 3294 Czyzak, 67	1992 Bely, 67
Ni <sup>+15</sup>	792 Varsavsky, 61	
Ni <sup>+16</sup>	792 Varsavsky, 61	
Ni <sup>+17</sup>	792 Varsavsky, 61	4372 Golshani, 70
O	248 Yamanouchi, 40 427 Percival, 57 1832 Seaton, 53 2013 Stauffer, 66 2824 Breig, 66 3704 Smith, 69 5005 Lan, 72 5287 Sawada, 73 5664 Saraph, 73	366 Yamanouchi, 50 484 Seaton, 55 1970 Veldre, 65 2616 Smith, 67 3700 Henry, 69 4930 Kazaks, 72 5065 Rountree, 72 5597 Ormonde, 73 6428 Tambe, 74
O <sup>+1</sup>	404 Seaton, 53	484 Seaton, 55

Normalized

O <sup>+1</sup>	843 Seaton, 57	1216 Aller, 48
	3294 Czyzak, 67	3700 Henry, 69
	3739 Martins, 69	3870 Martins, 69
	4004 Eissner, 69	5597 Ormonde, 73
O <sup>+2</sup>	265 Hebb, 40	404 Seaton, 53
	484 Seaton, 55	714 Seaton, 58
	1696 Bely, 66	1992 Bely, 67
	2020 Saraph, 66	3069 Miyamoto, 41
	3700 Henry, 69	3732 Eissner, 69
	4004 Eissner, 69	4202 Seaton, 69
	5009 Poshynaite, 70	5597 Ormonde, 73
	5826 Jackson, 73	6462 Eissner, 74
O <sup>+4</sup>	3060 Beigman, 67	
O <sup>+5</sup>	775 Bely, 63	792 Varsavsky, 61
	814 Varsavsky, 63	970 Bely, 62
	1017 Varsavsky, 62	4084 Blaha, 69
	4704 Mathur, 71	4965 Petrini, 72
O <sup>+6</sup>	3579 Lyash, 67	6116 Tully, 74
P <sup>+1</sup>	1992 Bely, 67	3294 Czyzak, 67
	4244 Conneely, 70	
P <sup>+4</sup>	4704 Mathur, 71	
P <sup>+6</sup>	792 Varsavsky, 61	
P <sup>+7</sup>	792 Varsavsky, 61	
P <sup>+8</sup>	792 Varsavsky, 61	
P <sup>+9</sup>	792 Varsavsky, 61	
P <sup>+10</sup>	792 Varsavsky, 61	
P <sup>+11</sup>	792 Varsavsky, 61	
P <sup>+12</sup>	792 Varsavsky, 61	
Rb	1072 Hughes, 64	1540 Vainshtein, 65
	1813 Vainshtein, 64	3709 Mathur, 69
	5651 Felden, 73	
S <sup>+1</sup>	404 Seaton, 53	442 Czyzak, 63
	484 Seaton, 55	2335 Czyzak, 67
	4199 Czyzak, 70	4244 Conneely, 70
S <sup>+2</sup>	442 Czyzak, 63	1696 Bely, 66
	1992 Bely, 67	3294 Czyzak, 67
S <sup>+3</sup>	5196 Brocklehurst, 72	
S <sup>+8</sup>	792 Varsavsky, 61	

Normalized

S <sup>+9</sup>	792 Varsavsky, 61	
S <sup>+10</sup>	792 Varsavsky, 61	2020 Saraph, 66
S <sup>+11</sup>	792 Varsavsky, 61	
Sc <sup>+6</sup>	792 Varsavsky, 61	
Sc <sup>+7</sup>	792 Varsavsky, 61	
Sc <sup>+8</sup>	792 Varsavsky, 61	
Sc <sup>+9</sup>	792 Varsavsky, 61	
Sc <sup>+10</sup>	792 Varsavsky, 61	
Si <sup>+1</sup>	714 Seaton, 58	909 Seaton, 55
	4236 Roberts, 70	
Si <sup>+3</sup>	775 Bely, 63	4084 Blaha, 69
Si <sup>+5</sup>	792 Varsavsky, 61	
Si <sup>+6</sup>	792 Varsavsky, 61	
Si <sup>+7</sup>	792 Varsavsky, 61	
Si <sup>+8</sup>	792 Varsavsky, 61	
Si <sup>+9</sup>	792 Varsavsky, 61	
Si <sup>+10</sup>	792 Varsavsky, 61	
Si <sup>+11</sup>	792 Varsavsky, 61	4608 Flower, 71
	4954 Kastner, 72	
Sr	6048 Kim, 73	
Sr <sup>+1</sup>	6422 Burgess, 74	
Ti <sup>+6</sup>	792 Varsavsky, 61	
Ti <sup>+7</sup>	792 Varsavsky, 61	
Ti <sup>+8</sup>	792 Varsavsky, 61	
Ti <sup>+9</sup>	792 Varsavsky, 61	
Ti <sup>+10</sup>	792 Varsavsky, 61	
Ti <sup>+11</sup>	792 Varsavsky, 61	
V <sup>+6</sup>	792 Varsavsky, 61	
V <sup>+7</sup>	792 Varsavsky, 61	3294 Czyzak, 67
V <sup>+8</sup>	792 Varsavsky, 61	2335 Czyzak, 67



## Normalized

V <sup>+8</sup>	4199 Czyzak, 70	
V <sup>+9</sup>	792 Varsavsky, 61 3294 Czyzak, 67	1992 Bely, 67
V <sup>+10</sup>	792 Varsavsky, 61	
V <sup>+11</sup>	792 Varsavsky, 61	
V <sup>+12</sup>	792 Varsavsky, 61	
Xe	1970 Veldre, 65 4639 Ganas, 71	4339 Amusia, 70 4782 Manson, 72
Zn	3837 Tripathi, 69	4663 Savchenko, 71
Zn <sup>+24</sup>	2020 Saraph, 66	
CO	5171 Szabo, 72	6117 Chung, 74
H <sub>2</sub>	45 Roscoe, 41 2024 Khare, 66 2627 Khare, 67 2913 Miller, 67 3344 Cartwright, 68 3803 Prok, 69 5216 Liu, 73	194 Massey, 32 2066 Khare, 66 2773 Cartwright, 67 2914 Rozsnyai, 67 3545 Trajmar, 68 4232 Steelhammer, 70 5358 Demkov, 71
H <sub>2</sub> <sup>+1</sup>	1055 Peek, 64 2914 Rozsnyai, 67	1342 Callaway, 65 3842 Peek, 69
N <sub>2</sub>	1557 Bauer, 65 2914 Rozsnyai, 67 4443 Cartwright, 70 5171 Szabo, 72	1558 Bauer, 65 4169 Cartwright, 69 5061 Chung, 72 5305 Sharma, 72
N <sub>2</sub> <sup>+1</sup>	1557 Bauer, 65	5514 Michels, 72
N <sub>2</sub> <sup>+1</sup>	1558 Bauer, 65	
NO	1557 Bauer, 65	1558 Bauer, 65
O <sub>2</sub>	1557 Bauer, 65 3574 Takayanagi, 67	1558 Bauer, 65 5469 Julienne, 72
CO <sub>2</sub>	4002 Strickland, 69	6345 McCurdy Jr., 74
H <sub>2</sub> O	294 Niira, 49	3823 Miller, 69
CH <sub>4</sub>	4432 Poshynaite, 70	
C <sub>2</sub> H <sub>4</sub>	4328 Miller, 69	
C <sub>2</sub> H <sub>6</sub>	4432 Poshynaite, 70	

## Relative

Ar	68 Massey, 34	
Ca <sup>+1</sup>	963 Jefferies, 54	
He	284 Massey, 33 639 Morse, 32 5152 Bonham, 72	386 Baranger, 57 1297 Llewellyn-Jones, 36 6459 Joachain, 74
Hg	19 Penney, 32	
N	484 Seaton, 55	
Ne	68 Massey, 34	
O <sup>+1</sup>	876 Aller, 50	
O <sup>+2</sup>	876 Aller, 50	
D <sub>2</sub>	987 Coolidge, 44	
H <sub>2</sub>	987 Coolidge, 44	

## DE-EXCITATION EXPERIMENTAL

## Normalized

Cs <sup>*</sup>	279 Mohler, 32	
He	5310 Gerasimov, 72	
He <sup>*</sup>	569 Phelps, 55	
Hg <sup>*</sup>	4067 Korotkov, 68	
Ne <sup>*</sup>	2698 Khaikin, 66	4438 Sakurai, 71

## Relative

Hg <sup>*</sup>	102 Latyscheff, 30 3071 Burrow, 66	2646 Burrow, 67
N <sub>2</sub> <sup>*</sup>	3543 Burrow, 68	

## DE-EXCITATION THEORETICAL

## DISSOCIATION EXPERIMENTAL

Normalized

Ba <sup>+</sup>	4072 Davis, 70	
Cs <sup>*</sup>	1456 Witting, 65	
H <sup>*</sup>	2063 Purcell, 52	
He <sup>*</sup>	426 Marriott, 57 3936 Burke, 69	1658 Marriott, 66 6263 Nesbet, 74
Hg <sup>*</sup>	202 Yavorskii, 46	
Na <sup>*</sup>	5987 Moores, 74	
O <sup>*</sup>	366 Yamanouchi, 50	

## DISSOCIATION EXPERIMENTAL

Normalized

CO	1460 Rapp, 65 4685 Ajello, 71	4326 Lawrence, 70 4814 El-Sherbini, 72
D <sub>2</sub>	260 Engelhardt, 63 4694 Cox, 70	3831 Vroom, 69 4945 Cox, 72
D <sub>2</sub> <sup>+1</sup>	2171 Dunn, 67	
H <sub>2</sub>	260 Engelhardt, 63 1566 Corrigan, 65 3831 Vroom, 69 4606 Mumma, 70 4668 Kauppila, 71 5038 Lucas, 69	354 Corrigan, 58 2945 De Heer, 67 4487 McGowan, 69 4659 Mumma, 71 4771 Weaver, 70 5115 McConkey, 72
H <sub>2</sub> <sup>+1</sup>	1501 Dunn, 65 1503 Dunn, 65 2790 Dance, 67 4865 Peart, 72	1502 McFarland, 65 2171 Dunn, 67 4726 Peart, 71 5016 Peart, 72
N <sub>2</sub>	992 Sheridan, 61 4226 Ajello, 70 4617 Winters, 66 4655 Aarts, 71 4800 Shemansky, 71 5070 Halas, 72	3833 Sroka, 69 4606 Mumma, 70 4647 Koppe, 71 4713 Mumma, 71 4814 El-Sherbini, 72 5706 Stone, 71
N <sub>2</sub> <sup>+1</sup>	2772 Van Zyl, 67	
NO	1460 Rapp, 65 4714 Stone, 72	4326 Lawrence, 70 4715 Mentall, 72
O <sub>2</sub>	376 Lassetre, 54 1075 Silverman, 64	377 Silverman, 57 1460 Rapp, 65

Normalized

O <sub>2</sub>	2782 Sroka, 67 4606 Mumma, 70 4683 Aarts, 71 5033 Wells, 71	4326 Lawrence, 70 4659 Mumma, 71 4688 Ajello, 71 5525 Koppe, 72
O <sub>2</sub> <sup>+1</sup>	2772 Van Zyl, 67	
CO <sub>2</sub>	1460 Rapp, 65 4319 Barton, 70 4420 Mumma, 71 4684 Ajello, 71 4748 Wells, 72 5088 Koval, 72	3759 Corvin, 69 4336 Sroka, 70 4606 Mumma, 70 4712 Mumma, 72 4995 Adamczyk, 72
D <sub>2</sub> O	4487 McGowan, 69	
H <sub>2</sub> O	382 Lassetre, 58 4326 Lawrence, 70 5267 Sushanin, 71 6135 Tsurubuchi, 74 6468 Beenakker, 74	3812 Vroom, 69 4487 McGowan, 69 5846 Bose, 73 6214 Morgan, 74
N <sub>2</sub> O	1460 Rapp, 65	
C <sub>2</sub> H <sub>2</sub>	6231 Koppe, 74	
C <sub>2</sub> N <sub>2</sub>	5307 Korol, 72	
NH <sub>3</sub>	4427 Sushanin, 69 6214 Morgan, 74	4487 McGowan, 69
CD <sub>4</sub>	3832 Vroom, 69	
CH <sub>4</sub>	2899 Melton, 67 4487 McGowan, 69 6214 Morgan, 74	3832 Vroom, 69 4646 Aarts, 71 6231 Koppe, 74
C <sub>2</sub> H <sub>4</sub>	3832 Vroom, 69	4646 Aarts, 71
C <sub>2</sub> H <sub>6</sub>	3832 Vroom, 69	

Relative

Br <sub>2</sub>	708 Frost, 60	
CO	778 Dorman, 60 4705 Loch, 71	941 Fineman, 62 6026 Smyth, 74
Cl <sub>2</sub>	708 Frost, 60	
H <sub>2</sub>	3001 Leventhal, 67 4423 Czarnik, 71 4705 Loch, 71 5595 Crowe, 73	3756 Clampitt, 69 4638 Misakian, 71 5194 Misakian, 72

# DISSOCIATION EXPERIMENTAL

# DISSOCIATION THEORETICAL

Relative

Relative

I <sub>2</sub>	526 Frost, 58 778 Dorman, 60	708 Frost, 60
N <sub>2</sub>	2737 Niehaus, 67 5908 Smyth, 73	5157 Danilevskii, 72
N <sub>2</sub> <sup>+2</sup>	1881 Daly, 66	
NO	481 Cloutier, 59	4705 Loch, 71
O <sub>2</sub>	167 Randolph, 58 778 Dorman, 60 4633 Borst, 71 6074 Van Brunt, 74	526 Frost, 58 4490 Freund, 71 4705 Loch, 71
CO <sub>2</sub>	3205 Freund, 67	
COS	4710 MacNeil, 69	
CS <sub>2</sub>	4710 MacNeil, 69	
D <sub>2</sub> O	4498 Freund, 71	4895 Appell, 73
H <sub>2</sub> O	4498 Freund, 71 4895 Appell, 73	4729 Azria, 71 5356 Tsurubuchi, 73
N <sub>2</sub> O	3205 Freund, 67	3756 Clampitt, 69
NH <sub>3</sub>	5520 Morrison, 73	
CCl <sub>4</sub>	950 Marriott, 54	1231 Craggs, 52
CH <sub>4</sub>	4742 Appell, 71	5516 Morrison, 73

## DISSOCIATION THEORETICAL

Normalized

HD <sup>+1</sup>	4666 Rai Dastidar, 71	
H <sub>2</sub>	194 Massey, 32 1862 Khare, 66	695 Edelstein, 58 3344 Cartwright, 68
H <sub>2</sub> <sup>+1</sup>	370 Ivash, 58 1465 Peek, 65 2691 Zare, 67 3842 Peek, 69 6232 Peek, 74	394 Kerner, 53 2210 Peek, 67 2966 Oksyuk, 67 4120 Mathur, 70 6251 Liu, 74
H <sub>2</sub> O	294 Niira, 49	

HD<sup>+1</sup> 4955 Saha, 72

H<sub>2</sub> 33 Sasaki, 35

## DISSOCIATIVE IONIZATION EXPERIMENTAL

Normalized

CO	1105 Englander-Gold, 64	1410 Rapp, 65
D <sub>2</sub>	1105 Englander-Gold, 64	
H <sub>2</sub>	41 Newhall, 42 1410 Rapp, 65	1105 Englander-Gold, 64 1858 Adamczyk, 66
H <sub>2</sub> <sup>+1</sup>	5828 Peart, 73	
N <sub>2</sub>	153 Cook, 62 1105 Englander-Gold, 64 1881 Daly, 66 3833 Sroka, 69	946 Glick, 64 1410 Rapp, 65 3527 Peresse, 67 4226 Ajello, 70
NO	946 Glick, 64 1410 Rapp, 65	1105 Englander-Gold, 64
O <sub>2</sub>	946 Glick, 64 1410 Rapp, 65 3527 Peresse, 67	1105 Englander-Gold, 64 2782 Sroka, 67 4683 Aarts, 71
CO <sub>2</sub>	1105 Englander-Gold, 64 3527 Peresse, 67 5985 Crowe, 74	1410 Rapp, 65 4606 Mumma, 70
H <sub>2</sub> O	1782 Schutzen, 66	
N <sub>2</sub> O	1105 Englander-Gold, 64	1410 Rapp, 65
C <sub>2</sub> H <sub>2</sub>	2744 Gaudin, 67	
CH <sub>4</sub>	946 Glick, 64 1410 Rapp, 65 2899 Melton, 67	1105 Englander-Gold, 64 1858 Adamczyk, 66 3527 Peresse, 67

Relative

H	465 Schaeffer, 50
Bi <sub>2</sub>	2900 Kohl, 67
Br <sub>2</sub>	708 Frost, 60

## DISSOCIATIVE IONIZATION EXPERIMENTAL

Relative

CO	17 Vaughan, 31 214 Hagstrum, 41 778 Dorman, 60 1096 Hogness, 28	107 Hagstrum, 51 667 Tate, 32 941 Fineman, 62 1742 Cuthbert, 66
Cl <sub>2</sub>	526 Frost, 58	708 Frost, 60
D <sub>2</sub>	456 Bauer, 47 2647 Kieffer, 67 4449 Van Brunt, 20	465 Schaeffer, 50 3023 Fiquet-Fayard, 68
HCl	1518 Hanson, 37	
H <sub>2</sub>	7 Sasaki, 35 41 Newhall, 42 130 Sasaki, 41 214 Hagstrum, 41 364 Dunn, 63 456 Bauer, 47 660 Kallmann, 27 1402 Lozier, 30 4449 Van Brunt, 20	9 Bleakney, 30 107 Hagstrum, 51 135 Sasaki, 35 255 Smyth, 24 451 Stevenson, 60 465 Schaeffer, 50 1106 Boksenberg, 62 2647 Kieffer, 67 5739 Crowe, 73
I <sub>2</sub>	526 Frost, 58 778 Dorman, 60	708 Frost, 60
N <sub>2</sub>	17 Vaughan, 31 214 Hagstrum, 41 667 Tate, 32 953 Stewart, 55 2614 Kieffer, 67 5811 Stockdale, 73	107 Hagstrum, 51 660 Kallmann, 27 854 Clarke, 54 1543 Briglia, 64 5728 Crowe, 73
NO	107 Hagstrum, 51 481 Cloutier, 59 1691 Dorman, 66	214 Hagstrum, 41 1518 Hanson, 37
O <sub>2</sub>	107 Hagstrum, 51 255 Smyth, 24 526 Frost, 58 2308 Turner, 68 6074 Van Brunt, 74 6313 Schopman, 74	214 Hagstrum, 41 341 Frost, 58 778 Dorman, 60 5811 Stockdale, 73 6301 Van Brunt, 74 6381 Stockdale, 74
CO <sub>2</sub>	2119 Sjogren, 66	6112 Jackson, 74
HCN	1224 Stevenson, 50	
H <sub>2</sub> O	298 Sjogren, 63 924 Mann, 40	483 Cottin, 59
N <sub>2</sub> O	1067 Curran, 61	1691 Dorman, 66
BCl <sub>3</sub>	1118 Marriott, 57	
C <sub>2</sub> N <sub>2</sub>	1224 Stevenson, 50	

## DISSOCIATIVE IONIZATION EXPERIMENTAL

Relative

H <sub>2</sub> O <sub>2</sub>	1132 Foner, 62	
NH <sub>3</sub>	924 Mann, 40	
CCl <sub>4</sub>	133 Fox, 61 1231 Craggs, 52	950 Marriott, 54
CF <sub>4</sub>	2215 Dibeler, 48	
CH <sub>2</sub> Br <sub>2</sub>	2731 Gutbier, 54	
CH <sub>2</sub> Cl <sub>2</sub>	2731 Gutbier, 54	
CH <sub>3</sub> Br	2731 Gutbier, 54	
CH <sub>3</sub> Cl	2731 Gutbier, 54	
CH <sub>4</sub>	527 Geerk, 50 1691 Dorman, 66	539 Hayakawa, 55 2658 Brehm, 67
SiF <sub>4</sub>	2215 Dibeler, 48	
C <sub>2</sub> H <sub>4</sub>	539 Hayakawa, 55	
SF <sub>6</sub>	133 Fox, 61	2215 Dibeler, 48

## DISSOCIATIVE IONIZATION THEORETICAL

Relative

D <sub>2</sub>	342 Stevenson, 47	
H <sub>2</sub>	342 Stevenson, 47 1144 De La Ripelle, 49	364 Dunn, 63 3068 McCulloh, 68

## DISSOCIATIVE ATTACHMENT EXPERIMENTAL

Normalized

CO	867 Craggs, 58 988 Rapp, 64 1289 Schulz, 62	938 Asundi, 63 1105 Englander-Gold, 64 1460 Rapp, 65
DBr	3007 Christophorou, 68	
DCl	3007 Christophorou, 68	6264 Azria, 74
D <sub>2</sub>	1372 Rapp, 64 1460 Rapp, 65	1451 Rapp, 65 2763 Schulz, 67



## DISSOCIATIVE ATTACHMENT EXPERIMENTAL

## Normalized

DI	3007 Christophorou, 68	
HBr	766 Buchelnikova, 59	3007 Christophorou, 68
HCl	766 Buchelnikova, 59 3007 Christophorou, 68	2088 Bailey, 30 6264 Azria, 74
HD	1451 Rapp, 65 2763 Schulz, 67	1460 Rapp, 65
H <sub>2</sub>	324 Schulz, 59 988 Rapp, 64 1451 Rapp, 65 2763 Schulz, 67	957 Khvostenko, 58 1372 Rapp, 64 1460 Rapp, 65 4558 Spence, 71
HI	3007 Christophorou, 68	
I <sub>2</sub>	134 Buchdahl, 41 654 Keeffe, 62	541 Biondi, 58 1064 Biondi, 58
NO	988 Rapp, 64 1460 Rapp, 65	1105 Englander-Gold, 64
O <sub>2</sub>	131 Chanin, 59 337 Tozer, 58 853 Craggs, 57 938 Asundi, 63 988 Rapp, 64 1289 Schulz, 62 1565 Christophorou, 65 3989 Brongersma, 69 4892 Christophorou, 71	134 Buchdahl, 41 766 Buchelnikova, 59 861 Prasad, 61 943 Thompson, 59 1105 Englander-Gold, 64 1460 Rapp, 65 3841 Henderson, 69 4134 Spence, 69
O <sub>2</sub> <sup>+</sup>	5909 Burrow, 73	
CO <sub>2</sub>	865 Craggs, 60 988 Rapp, 64 1289 Schulz, 62 4134 Spence, 69 5993 Spence, 74	938 Asundi, 63 1105 Englander-Gold, 64 1460 Rapp, 65 5278 Stamatovic, 73
D <sub>2</sub> O	2560 Compton, 67	
D <sub>2</sub> S	4846 Fiquet-Fayard, 72	
HDS	4846 Fiquet-Fayard, 72	
H <sub>2</sub> O	766 Buchelnikova, 59 2088 Bailey, 30 5144 Melton, 72	1016, Hurst, 61 2560 Compton, 67
H <sub>2</sub> S	4846 Fiquet-Fayard, 72 5707 Tronc, 73	4852 Azria, 72
N <sub>2</sub> O	988 Rapp, 64 1460 Rapp, 65 4892 Christophorou, 71	1105 Englander-Gold, 64 3845 Chaney, 69

## DISSOCIATIVE ATTACHMENT EXPERIMENTAL

## Normalized

NO <sub>2</sub>	776 Fox, 60	
C <sub>2</sub> D <sub>2</sub>	5142 Azria, 72	
C <sub>2</sub> H <sub>2</sub>	5142 Azria, 72	
ND <sub>3</sub>	3207 Sharp, 69	3763 Compton, 69
NH <sub>3</sub>	2088 Bailey, 30 3763 Compton, 69	3207 Sharp, 69
SbCl <sub>3</sub>	1270 Grob, 63	
CCl <sub>4</sub>	3006 Christophorou, 68	4892 Christophorou, 71
CCl <sub>3</sub> F	3006 Christophorou, 68	
CCl <sub>2</sub> F <sub>2</sub>	3006 Christophorou, 68	
CD <sub>4</sub>	2205 Sharp, 67	
CH <sub>4</sub>	2205 Sharp, 67	2899 Melton, 67
SF <sub>6</sub>	858 Hickam, 56 4431 Lehmann, 70	1460 Rapp, 65 4494 Christophorou, 70
Relative		
Br <sub>2</sub>	708 Frost, 60	
CO	17 Vaughan, 31 107 Hagstrum, 51 481 Cloutier, 59 941 Fineman, 62 3834 Rempt, 69 5663 Harland, 72	18 Tate, 32 214 Hagstrum, 41 667 Tate, 32 3292 Chantry, 68 4299 Stamatovic, 70
Cl <sub>2</sub>	526 Frost, 58	708 Frost, 60
HBr	699 Frost, 58	
HCl	699 Frost, 58 1518 Hanson, 37	1119 Fox, 57
H <sub>2</sub>	232 Brasfield, 29 2577 Dowell, 68	1592 Schulz, 65
HF	699 Frost, 58	
HI	699 Frost, 58	
I <sub>2</sub>	467 Fox, 58 1120 Frost, 58	708 Frost, 60
InBr	3417 Khvostenko, 64	

## DISSOCIATIVE ATTACHMENT EXPERIMENTAL

Relative

LiCl	2910 Ebinghaus, 64	
NO	18 Tate, 32 214 Hagstrum, 41 1263 Frost, 58 3292 Chantry, 68 4649 Paquet, 71 6416 Van Brunt, 74	107 Hagstrum, 51 481 Cloutier, 59 1518 Hanson, 37 4302 Locht, 70 5663 Harland, 72
NaCl	2910 Ebinghaus, 64	
O <sub>2</sub>	18 Tate, 32 166 Muschlitz Jr., 57 214 Hagstrum, 41 341 Frost, 58 699 Frost, 58 3878 Brion, 68 4348 Van Brunt, 70	107 Hagstrum, 51 167 Randolph, 58 280 Fite, 63 526 Frost, 58 1525 Fite, 65 4302 Locht, 70
O <sub>2</sub> <sup>+</sup>	280 Fite, 63	
TlBr	3416 Khvostenko, 65	
TlCl	3416 Khvostenko, 65	
CO <sub>2</sub>	847 Asundi, 63 5058 Chantry, 72	2975 Kraus, 61 5663 Harland, 72
CS <sub>2</sub>	2975 Kraus, 61	
D <sub>2</sub> O	5707 Tronc, 73	6427 Trajmar, 74
D <sub>2</sub> S	5707 Tronc, 73	
H <sub>2</sub> O	18 Tate, 32 324 Schulz, 59 558 Schulz, 60 957 Khvostenko, 58 1709 Trepka, 63 5707 Tronc, 73	298 Sjogren, 63 483 Cottin, 59 924 Mann, 40 1117 Muschlitz Jr., 56 4073 Doumont, 69 6427 Trajmar, 74
H <sub>2</sub> S	2730 Neuert, 53	2975 Kraus, 61
H <sub>2</sub> Se	2730 Neuert, 53	
N <sub>2</sub> O	347 Knox, 58 1067 Curran, 61 3986 Chantry, 69	932 Schulz, 61 1116 Rudolph, 59
O <sub>3</sub>	1066 Curran, 61	
SO <sub>2</sub>	2975 Kraus, 61	5663 Harland, 72
AsH <sub>3</sub>	1163 Ebinghaus, 64	
BCl <sub>3</sub>	1118 Marriott, 57	

## DISSOCIATIVE ATTACHMENT EXPERIMENTAL

Relative

C <sub>2</sub> H <sub>2</sub>	18 Tate, 32	
C <sub>2</sub> N <sub>2</sub>	1230 McDowell, 52	1231 Craggs, 52
NH <sub>3</sub>	924 Mann, 40	2975 Kraus, 61
PH <sub>3</sub>	1163 Ebinghaus, 64	
C <sub>2</sub> H <sub>2</sub> O	4214 Collin, 70	
CCl <sub>4</sub>	133 Fox, 61 1231 Craggs, 52	950 Marriott, 54 3878 Brion, 68
CF <sub>4</sub>	1231 Craggs, 52	
CH <sub>4</sub>	1709 Trepka, 63	
SiCl <sub>4</sub>	2706 Vought, 47	3641 Jager, 68
SiH <sub>4</sub>	1163 Ebinghaus, 64	
C <sub>2</sub> H <sub>4</sub>	1709 Trepka, 63	
SF <sub>6</sub>	133 Fox, 61 699 Frost, 58 971 Curran, 61	481 Cloutier, 59 746 Buchelnikova, 58 1239 Ahearn, 53
C <sub>2</sub> H <sub>6</sub>	1709 Trepka, 63	

## DISSOCIATIVE ATTACHMENT THEORETICAL

Normalized

D <sub>2</sub>	5519 Dubrovskii, 67	
HD	5519 Dubrovskii, 67	
H <sub>2</sub>	207 Chen, 63 5519 Dubrovskii, 67	2004 Bardsley, 66
O <sub>2</sub>	4922 Birtwistle, 72	

## VIBRATIONAL EXCITATION EXPERIMENTAL

Normalized

CO	984 Schulz, 64 4136 Burrow, 69 5084 Truhlar, 72	3377 Ehrhardt, 68 4967 Comer, 71 5141 Chutjian, 72
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## VIBRATIONAL EXCITATION EXPERIMENTAL

## Normalized

CO	5901 Boness, 73	
D <sub>2</sub>	260 Engelhardt, 63 4611 Comer, 71	4136 Burrow, 69
H <sub>2</sub>	260 Engelhardt, 63 1043 Frost, 62 4136 Burrow, 69 4388 Weingartshofer, 7 4611 Comer, 71 6118 Wong, 74	984 Schulz, 64 3377 Ehrhardt, 68 4138 Trajmar, 70 4484 Crompton, 70 4734 Linder, 71
N <sub>2</sub>	218 Engelhardt, 64 984 Schulz, 64 4672 Comer, 71 5064 Spence, 72 5901 Boness, 73	684 Haas, 57 4136 Burrow, 69 5010 Pavlovic, 72 5084 Truhlar, 72
NO	4566 Spence, 71	
O <sub>2</sub>	1310 Schulz, 62 4735 Linder, 71	4724 Trajmar, 71 5734 Wong, 73
CO <sub>2</sub>	1478 Geiger, 65 5064 Spence, 72	3389 Boness, 68 6109 Boness, 74
N <sub>2</sub> O	1478 Geiger, 65	
C <sub>2</sub> H <sub>4</sub>	1478 Geiger, 65	
C <sub>2</sub> H <sub>6</sub>	6198 Duncan, 74	

## Relative

CO	98 Harries, 27 3546 Skerbele, 68	328 Schulz, 59
H <sub>2</sub>	686 Ramlen, 31	1977 Menendez, 66
N <sub>2</sub>	98 Harries, 27 328 Schulz, 59 3343 Hall, 68	299 Schulz, 63 1021 Schulz, 62 3546 Skerbele, 68
NO	3546 Skerbele, 68	
O <sub>2</sub>	3546 Skerbele, 68	4375 Spence, 70
CO <sub>2</sub>	1065 Boersch, 64 3770 Andrick, 69 4126 Stamatovic, 69	3547 Skerbele, 68 4118 Larkin, 70
H <sub>2</sub> O	3547 Skerbele, 68 6423 Seng, 74	5360 Trajmar, 73
N <sub>2</sub> O	932 Schulz, 61	4118 Larkin, 70

## VIBRATIONAL EXCITATION EXPERIMENTAL

## Relative

N <sub>2</sub> O	4126 Stamatovic, 69
CH <sub>4</sub>	5280 Dicoum, 73

## VIBRATIONAL EXCITATION THEORETICAL

## Normalized

CO	1564 Breig, 65 2824 Breig, 66 4078 Itikawa, 70	2769 Lin, 64 3977 Itikawa, 69
H <sub>2</sub>	43 Wu, 47 434 Carson, 54 962 Chen, 62 1564 Breig, 65 2824 Breig, 66 4116 Truhlar, 70 4444 Henry, 70 4747 Henry, 72 5271 Ford, 73 5736 Chang, 73	184 Massey, 35 724 Takayanagi, 64 1488 Takayanagi, 65 2798 Takayanagi, 65 3806 Abram, 69 4138 Trajmar, 70 4745 Faisal, 72 5060 Ritchie, 72 5596 Truhlar, 73
H <sub>2</sub> <sup>+1</sup>	3684 Boikova, 68	
HeH <sup>+1</sup>	3684 Boikova, 68	
N <sub>2</sub>	402 Kerner, 53 964 Chen, 64 1852 Chen, 66 5060 Ritchie, 72	895 Chen, 63 1564 Breig, 65 2824 Breig, 66 5063 Truhlar, 72

NO	2769 Lin, 64	
O <sub>2</sub>	5515 Koike, 73	5951 Koike, 73
CO <sub>2</sub>	1478 Geiger, 65	
H <sub>2</sub> O	6180 Itikawa, 74	
N <sub>2</sub> O	1478 Geiger, 65	
C <sub>2</sub> H <sub>4</sub>	1478 Geiger, 65	

## Relative

N <sub>2</sub>	1331 Herzenberg, 62	4502 Birtwistle, 71
CO <sub>2</sub>	4424 Itikawa, 71	4552 Andrick, 71

# ROTATIONAL EXCITATION EXPERIMENTAL

## Normalized

D <sub>2</sub>	260 Engelhardt, 63	
H <sub>2</sub>	260 Engelhardt, 63 3252 Ehrhardt, 68 4450 Gibson, 70 6118 Wong, 74	1043 Frost, 62 4062 Crompton, 69 4734 Linder, 71
N <sub>2</sub>	181 Frost, 62 316 Anderson, 56	218 Engelhardt, 64

## Relative

D <sub>2</sub>	42 Bennett, 42
H <sub>2</sub>	42 Bennett, 42

# ROTATIONAL EXCITATION THEORETICAL

## Normalized

CH <sup>+1</sup>	6268 Chu, 74	
CN	3706 Takayanagi, 68 3871 Itikawa, 69	3707 Itikawa, 69 4644 Allison, 71
CO	724 Takayanagi, 64 4555 Crawford, 71	4323 Singh, 70 6283 Ray, 74
CsCl	6305 Rudge, 74	
CsF	6305 Rudge, 74	
D <sub>2</sub>	4210 Takayanagi, 70	4634 Henry, 71
HCl	3707 Itikawa, 69 4564 Itikawa, 71	3871 Itikawa, 69
HD	4210 Takayanagi, 70	4414 Hara, 71
H <sub>2</sub>	392 Gerjuoy, 55 702 Dalgarno, 65 1452 Takayanagi, 65 1666 Geltman, 66 1993 Lane, 67 3025 Ardill, 68 3806 Abram, 69 3843 Henry, 69 4088 Lane, 69 4444 Henry, 70 4747 Henry, 72 5013 Sams, 72	434 Carson, 54 1093 Takayanagi, 64 1573 Sampson, 65 1816 Oksyuk, 66 2826 Sampson, 63 3349 Lane, 68 3828 Chang, 69 4079 Hara, 69 4237 Burke, 70 4447 Chang, 70 4753 Shimamura, 71 6418 Chang, 74

# ROTATIONAL EXCITATION THEORETICAL

## Normalized

H <sub>2</sub> <sup>+1</sup>	4308 Chang, 70	
KI	6305 Rudge, 74	
N <sub>2</sub>	401 Gerjuoy, 55 1082 Mjolsness, 64 1452 Takayanagi, 65 1666 Geltman, 66 1852 Chen, 66 4855 Hara, 72 5827 Chandra, 73	402 Kerner, 53 1341 Dalgarno, 63 1573 Sampson, 65 1816 Oksyuk, 66 2826 Sampson, 63 5071 Burke, 72
NO	6283 Ray, 74	
O <sub>2</sub>	1477 Takayanagi, 65 1666 Geltman, 66 1816 Oksyuk, 66	1589 Takayanagi, 65 1676 Sampson, 66
CO <sub>2</sub>	4323 Singh, 70	
H <sub>2</sub> O	385 Altshuler, 57 4792 Itikawa, 72	4737 Itikawa, 71
N <sub>2</sub> O	4323 Singh, 70	
H <sub>2</sub> CO	4737 Itikawa, 71	4792 Itikawa, 72
NH <sub>3</sub>	385 Altshuler, 57 4737 Itikawa, 71	4415 Itikawa, 71

# FREE – FREE EMISSION EXPERIMENTAL

## Normalized

Ar	5467 Batenin, 71
He	5467 Batenin, 71

# FREE – FREE EMISSION THEORETICAL

## Normalized

H	1087 Vainshtein, 63	1414 Lane, 64
H <sup>+1</sup>	1414 Lane, 64	
N	256 De Vore, 64 2211 Mjolsness, 67	939 Breene Jr., 61



# FREE - FREE EMISSION THEORETICAL

Normalized

$N^{+1}$  256 De Vore, 64  
 $O$  574 Breene Jr., 63 2211 Mjolsness, 67

# RADIATIVE RECOMBINATION EXPERIMENTAL

Normalized

$Ar^{+1}$  355 Kenty, 28 969 Mies, 61  
 $C^{+6}$  6412 Irons, 74  
 $Cs^{+1}$  1213 Mohler, 29 2888 Agnew, 66  
 $H^{+1}$  241 Fowler, 59 346 Craggs, 47  
 $Kr^{+1}$  969 Mies, 61  
 $O^{+7}$  602 Jahoda, 62  
 $Xe^{+1}$  969 Mies, 61  
 $He_2^{+1}$  802 Johnson, 50

Relative

$Ar^{+1}$  969 Mies, 61  
 $Kr^{+1}$  969 Mies, 61  
 $Xe^{+1}$  969 Mies, 61

# RADIATIVE RECOMBINATION THEORETICAL

Normalized

$C^{+5}$  4891 Bain, 71  
 $Ca^{+1}$  960 Zirin, 62  
 $Cs^{+1}$  1803 Dance, 66  
 $Fe^{+13}$  455 Hill, 51  
 $H^{+1}$  146 Bates, 62 243 Bates, 39  
358 Zanstra, 46 444 Bates, 62  
1010 Stueckelberg, 30 1414 Lane, 64

# RADIATIVE RECOMBINATION THEORETICAL

Normalized

$He^{+1}$  715 Burgess, 60 960 Zirin, 62  
 $Mg^{+9}$  455 Hill, 51  
 $Ne^{+9}$  4891 Bain, 71  
 $O^{+1}$  243 Bates, 39 934 Breene Jr., 61  
1180 Massey, 43 6413 Julienne, 74  
 $O^{+7}$  4891 Bain, 71  
 $Sr^{+1}$  960 Zirin, 62

Relative

$H^{+1}$  295 Cillie, 32

# RADIATIVE ATTACHMENT EXPERIMENTAL

Normalized

$H$  90 Branscomb, 62 1008 Branscomb, 62  
 $Hg$  1279 Hey, 30  
 $O$  38 Branscomb, 58 90 Branscomb, 62  
1008 Branscomb, 62  
 $O_2$  90 Branscomb, 62 1008 Branscomb, 62

Relative

$F$  1774 Popp, 65  
 $I$  839 Steiner, 63

# RADIATIVE ATTACHMENT THEORETICAL

Normalized

$Cl$  1300 Massey, 36  
 $Cs$  5953 Janev, 73  
 $H$  1166 Jen, 33 1300 Massey, 36

# RADIATIVE ATTACHMENT THEORETICAL

# DISSOCIATIVE RECOMBINATION THEORETICAL

## Normalized

H	1316 Lochte-Holtgre, 58	6414 Callaway, 74
Hg	1300 Massey, 36	
K	5953 Janev, 73	
Li	5953 Janev, 73	
Na	297 Huang, 45 5953 Janev, 73	1300 Massey, 36
O	247 Yamanouchi, 40 1180 Massey, 43	1141 Bates, 43 1197 Branscomb, 57
Rb	5953 Janev, 73	

## Normalized

CH <sup>+1</sup>	5631 Krauss, 73	5632 Bardsley, 73
H <sub>2</sub> <sup>+1</sup>	368 Bauer, 56	1665 Wilkins, 66
N <sub>2</sub> <sup>+1</sup>	5514 Michels, 72	
NO <sup>+1</sup>	189 Nisbet, 63 1482 Gibbons, 63	579 Squires Jr., 61
O <sub>2</sub> <sup>+1</sup>	189 Nisbet, 63	

# DISSOCIATIVE RECOMBINATION EXPERIMENTAL

## Normalized

Ar <sub>2</sub> <sup>+1</sup>	1344 Biondi, 64	
Cs <sub>2</sub> <sup>+1</sup>	177 Hammer, 63	
D <sub>2</sub> <sup>+1</sup>	5896 Peart, 73	
H <sub>2</sub> <sup>+1</sup>	5997 Peart, 74	
Kr <sub>2</sub> <sup>+1</sup>	254 Richardson, 52	
N <sub>2</sub> <sup>+1</sup>	698 Faire, 58 1344 Biondi, 64	703 Bialecke, 58
NO <sup>+1</sup>	920 Doering, 62	
Ne <sub>2</sub> <sup>+1</sup>	1344 Biondi, 64	
O <sub>2</sub> <sup>+1</sup>	1344 Biondi, 64	
CO <sub>2</sub> <sup>+1</sup>	5724 Gutcheck, 73	
H <sub>3</sub> <sup>+1</sup>	6343 Peart, 74	
NH <sub>3</sub> <sup>+1</sup>	887 Court, 64	
N <sub>4</sub> <sup>+1</sup>	1344 Biondi, 64	

## II. Positron Cross Section Index

### TOTAL SCATTERING EXPERIMENTAL

#### Normalized

Ar	5366 Canter, 73	6008 Canter, 74
He	5017 Canter, 72 6008 Canter, 74	5366 Canter, 73
Kr	5366 Canter, 73	6008 Canter, 74
Ne	5366 Canter, 73	6008 Canter, 74
Xe	6008 Canter, 74	
CO	6177 Coleman, 74	
D <sub>2</sub>	6177 Coleman, 74	
H <sub>2</sub>	6177 Coleman, 74	
N <sub>2</sub>	6177 Coleman, 74	

### ELASTIC SCATTERING EXPERIMENTAL

#### Normalized

Ar	1196 Marder, 56 6143 Jaduszliwer, 74	6121 Jaduszliwer, 74
He	1196 Marder, 56 4757 Costello, 72 6308 Jaduszliwer, 74	4623 Rodionov, 71 5586 Jaduszliwer, 73
Ne	1196 Marder, 56 6143 Jaduszliwer, 74	6121 Jaduszliwer, 74

#### Relative

He	5163 Jaduszliwer, 72
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### ELASTIC SCATTERING THEORETICAL

#### Normalized

Ar	905 Massey, 58 1195 Teutsch, 56 4882 Hewson, 72	1121 Malik, 61 3937 Orth, 69
B <sup>+</sup>	4674 Shimamura, 71	

### ELASTIC SCATTERING THEORETICAL

#### Normalized

Be <sup>+</sup>	4674 Shimamura, 71	
C	1121 Malik, 61	
F	1121 Malik, 61	
H	83 Burke, 63 204 Temkin, 62 709 Ruffine, 60 905 Massey, 58 917 Spruch, 60 1015 Smith, 61 1192 Drachman, 65 1422 McEachran, 65 1494 Allison, 61 1499 Hahn, 65 1571 Stone, 66 1900 Kleinman, 65 2059 Houston, 68 2959 Callaway, 68 3350 Drachman, 68 3840 Rahman, 69 4395 Bhatia, 71 4489 Kramer, 71 4550 Wakid, 71 4622 Doolen, 71 4632 Shimamura, 71 4730 Peterkop, 71 5019 Humberston, 72 5355 Banerji, 73 5892 Chan, 73 5911 Moussa, 73 6120 Hahn, 74	148 Damburg, 63 536 Rotenberg, 62 859 Smith, 60 906 Moussa, 59 933 Cody, 64 1025 Kingston, 61 1210 Moiseiwitsch, 58 1443 Hahn, 63 1495 Bransden, 62 1500 Kleinman, 65 1580 Armstead, 65 2012 Bransden, 66 2774 Fels, 67 3052 Drachman, 67 3701 Garrett, 69 4394 Houston, 71 4401 Matese, 71 4493 Garibotti, 71 4562 Seiler, 71 4624 Feautrier, 71 4637 Garrett, 71 4935 Fon, 72 5197 Stein, 72 5836 Wakid, 73 5893 McWhirter, 73 5956 Bhatia, 74
H <sup>+</sup>	859 Smith, 60	
He	905 Massey, 58 1195 Teutsch, 56 1494 Allison, 61 2059 Houston, 68 2959 Callaway, 68 3053 Kraidy, 67 4402 Husain, 70 4755 Banerji, 70 5834 Humberston, 73 5893 McWhirter, 73 6269 Aulenkamp, 74 6309 Moussa, 74	1121 Malik, 61 1485 Kestner, 65 1819 Drachman, 66 2070 Hashino, 66 3052 Drachman, 67 4394 Houston, 71 4731 Drachman, 71 5266 Moussa, 73 5835 Wardle, 73 6007 Bransden, 74 6307 Buckley, 74
He <sup>+</sup>	4674 Shimamura, 71	
Kr	4882 Hewson, 72	
Li	4695 Dai, 71	5587 Sarkar, 73
Li <sup>+</sup>	4674 Shimamura, 71	

## ELASTIC SCATTERING THEORETICAL

Normalized

N	1121 Malik, 61	
Ne	905 Massey, 58 1195 Teutsch, 56	1121 Malik, 61
O	1121 Malik, 61	
U <sup>+6</sup>	1519 Singh, 62	
H <sub>2</sub>	905 Massey, 58 6122 Baille, 74 6409 Darewych, 74	4434 Lodge, 71 6310 Hara, 74
N <sub>2</sub>	5912 Darewych, 74	

## IONIZATION THEORETICAL

Normalized

H	645 Cheshire, 64	4350 Dirks, 71
He	3827 Ferrante, 69	
H <sub>2</sub>	5018 Mukherjee, 72	

## DETACHMENT THEORETICAL

Normalized

H <sup>-</sup>	576 Rudge, 64
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## ELECTRONIC EXCITATION THEORETICAL

Normalized

H	83 Burke, 63 859 Smith, 60 2937 Damburg, 66 5004 Ling, 72	148 Damburg, 63 1257 Moiseiwitsch, 65 4550 Wakid, 71 5197 Stein, 72
H <sup>*</sup>	859 Smith, 60	
He	5725 Chan, 73	

## VIBRATIONAL EXCITATION THEORETICAL

Normalized

H <sub>2</sub> <sup>+1</sup>	4697 Faisal, 71
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## ROTATIONAL EXCITATION THEORETICAL

Normalized

H <sub>2</sub>	2783 Takayanagi, 67 6122 Baille, 74	4855 Hara, 72 6409 Darewych, 74
H <sub>2</sub> <sup>+1</sup>	4697 Faisal, 71	
N <sub>2</sub>	2783 Takayanagi, 67	4855 Hara, 72
O <sub>2</sub>	4855 Hara, 72	



### III. Photon Cross Section Index

#### ABSORPTION EXPERIMENTAL

Normalized

Ag	2874 Wolf, 33	3016 Haensel, 68
Al	2621 Kozlov, 66	4165 Kozlov, 69
Ar	575 Samson, 63 870 Rustgi, 64 1355 Metzger, 65 1826 Wulleumier, 65 2703 Lukirskii, 63 2857 Parratt, 39 2973 Hudson, 68 3253 Henke, 67 3402 Blackwell, 64 3779 Madden, 69 4149 Wulleumier, 70 5021 Starr, 72 5472 Brolley, 73	691 Huffman, 63 1235 Lee, 55 1359 Cairns, 65 2508 Huffman, 63 2722 Wulleumier, 63 2898 Woernle, 30 3005 Henke, 67 3401 Wheaton, 64 3685 Dershem, 31 4029 Levy, 69 4152 Yoshino, 69 5303 Carlson, 73
Au	2874 Wolf, 33 3017 Jaegle, 66	3016 Haensel, 68
Ba	3754 Hudson, 70 5740 Carlsten, 73	4540 Kozlov, 70
Be	2705 Peterson Jr., 63	
Bi	3016 Haensel, 68	3020 Jaegle, 67
C	3378 Fomichev, 68	4453 Hofmann, 71
Ca	1717 Ditchburn, 60 2310 Jutsum, 54 2697 Hudson, 67 4139 Hudson, 67 5098 McIlrath, 72	1845 Newsom, 66 2635 Kelm, 62 3506 Newsom, 68 4815 Carter, 71
Cd	1293 Ross, 65	3765 Marr, 69
Cs	1241 Mohler, 29 2666 Braddick, 35	1242 Braddick, 34 3067 Marr, 68
Cu	3016 Haensel, 68	
Ga	2867 Startsev, 67	3337 Kozlov, 68
H	1732 Beynon, 65	2026 Beynon, 66
He	308 Kuyatt, 63 647 Baker Jr., 61 1350 Lowry, 65 1359 Cairns, 65 3005 Henke, 67 3685 Dershem, 31	509 Axelrod, 59 1235 Lee, 55 1351 Madden, 65 2301 Lukirskii, 64 3253 Henke, 67 4818 Chow, 71
Hg	4459 Lincke, 70	
In	1225 Marr, 54	2867 Startsev, 67

#### ABSORPTION EXPERIMENTAL

Normalized

In	2961 Marr, 66	3337 Kozlov, 68
K	1228 Ditchburn, 43 1689 Ditchburn, 28 3067 Marr, 68	1405 Hudson, 65 2862 Hudson, 67
Kr	575 Samson, 63 1255 Rustgi, 64 2301 Lukirskii, 64 2507 Huffman, 63 3253 Henke, 67 3685 Dershem, 31 5548 Carter, 73	691 Huffman, 63 1355 Metzger, 65 2426 Pery-Thorne, 60 3005 Henke, 67 3402 Blackwell, 64 5472 Brolley, 73
Li	1353 Hudson, 65 2619 Hudson, 67 2704 Baker Jr., 62	2552 Marr, 63 2669 Tunstead, 53
Mg	1740 Ditchburn, 53	
N	1769 Ehler, 55	2214 Morris, 66
Na	1377 Bott, 39 1739 Ditchburn, 53 2619 Hudson, 67 5475 Wolff, 72	1719 Ditchburn, 50 2613 Hudson, 64 3004 Hudson, 68
Ne	308 Kuyatt, 63 1678 Ditchburn, 60 1826 Wulleumier, 65 2722 Wulleumier, 63 3005 Henke, 67 3685 Dershem, 31 4159 Wulleumier, 70	1226 Lee, 53 1755 Ederer, 64 2512 Lee, 52 2898 Woernle, 30 3253 Henke, 67 4149 Wulleumier, 70
O	1404 Cairns, 65	
Pb	3764 Heppinstall, 69	
Pt	2874 Wolf, 33	
Rb	3067 Marr, 68	
S	2898 Woernle, 30	4756 Tondello, 72
Si	2380 Rich, 67	
Si*	2380 Rich, 67	
Sn	3016 Haensel, 68	
Sr	3816 Hudson, 69	
Th	3293 Bezdenzhnykh, 67	
Tl	2480 Marr, 54	2621 Kozlov, 66

Normalized

U	3293 Bezdenezhnykh, 67	
Xe	691 Huffman, 63	1255 Rustgi, 64
	1355 Metzger, 65	1360 Matsunaga, 65
	1777 Lukirskii, 66	2301 Lukirskii, 64
	2508 Huffman, 63	2687 White, 34
	2717 Watanabe, 65	2872 Deslattes, 68
	3005 Henke, 67	3253 Henke, 67
	3346 Shardanand 68	3402 Blackwell, 64
	3577 Shardanand 68	3685 Dershem, 31
	4034 Wulleumier, 69	5472 Brolley, 73
	5548 Carter, 73	
Xe <sup>+1</sup>	2861 Cairns, 62	
Zn	3761 Marr, 69	
AgBr	4038 Davidovits, 69	
AgCl	4038 Davidovits, 69	
AgI	4038 Davidovits, 69	
Br <sub>2</sub>	3012 Sulzmann, 67	3645 Seery, 64
	4929 Carver, 72	
BrCl	3645 Seery, 64	
CO	1245 Sun, 55	1271 Huffman, 64
	1359 Cairns, 65	1626 Cook, 65
	1702 Cairns, 66	2599 Messner, 33
	2718 Thompson, 63	2770 Watanabe, 53
	4358 Myer, 70	5021 Starr, 72
	5693 Lee, 73	
Cl <sub>2</sub>	2844 Jacobs, 65	2898 Woernle, 30
	3645 Seery, 64	5311 Zakharyan, 72
	5841 Gibson, 33	
CsBr	2625 Davidovits, 67	
CsCl	2625 Davidovits, 67	
Cs <sub>2</sub>	1707 Lapp, 66	3399 Creek, 68
	5074 Marr, 72	
CsI	2625 Davidovits, 67	
D <sub>2</sub>	1149 Cook, 64	5472 Brolley, 73
HBr	2735 Romand, 49	3912 Huebert, 68
HCl	1393 Romand, 48	2735 Romand, 49
	4358 Myer, 70	4977 Hayes, 72
H <sub>2</sub>	688 Cook, 63	1149 Cook, 64
	1561 Samson, 65	1756 Ehler, 57

Normalized

H <sub>2</sub>	2026 Beynon, 66	2319 Lee, 52
	2379 Bunch, 58	2599 Messner, 33
	2770 Watanabe, 53	3257 Comes, 68
	4025 Comes, 68	4162 Comes, 70
	5021 Starr, 72	5192 Carlson, 72
	5472 Brolley, 73	
HI	2735 Romand, 49	3912 Huebert, 68
IBr	3645 Seery, 64	
ICl	3645 Seery, 64	
I <sub>2</sub>	4152 Yoshino, 69	4363 Myer, 70
	4929 Carver, 72	
KBr	2625 Davidovits, 67	
KCl	2625 Davidovits, 67	
KI	2625 Davidovits, 67	
K <sub>2</sub>	1228 Ditchburn, 43	1405 Hudson, 65
	1707 Lapp, 66	3399 Creek, 68
LiBr	2625 Davidovits, 67	
LiCl	2625 Davidovits, 67	
LiI	2625 Davidovits, 67	
N <sub>2</sub>	500 Weissler, 52	636 Itamoto, 61
	688 Cook, 63	916 Cook, 64
	1187 Samson, 64	1232 Curtis, 54
	1234 Wainfan, 55	1252 Cook, 64
	1253 Cook, 65	1561 Samson, 65
	1641 Clark, 52	2431 Preston, 40
	2599 Messner, 33	2674 Watanabe, 56
	2699 Huffman, 63	2741 Astoin, 57
	2746 Huffman, 64	2770 Watanabe, 53
	2871 Ditchburn, 54	2898 Woernle, 30
	3005 Henke, 67	3253 Henke, 67
	3376 Greiner, 57	3685 Dershem, 31
	3784 Hudson, 69	3833 Sroka, 69
	3914 Lutz, 69	4362 Comes, 69
	4464 Cook, 70	4870 Carter, 72
	5021 Starr, 72	5472 Brolley, 73
	5549 Watson, 73	5693 Lee, 73
N <sub>2</sub> <sup>*</sup>	2216 Appleton, 67	
NO	622 Watanabe, 58	1060 Astoin, 57
	2062 Metzger, 67	2479 Marmo, 53
	2596 Granier, 56	2598 Mayence, 52
	2605 Sun, 55	2641 Watanabe, 67
	2672 Watanabe, 54	2675 Watanabe, 53
	2683 Walker, 55	2718 Thompson, 63

# ABSORPTION EXPERIMENTAL

## Normalized

NO	2770 Watanabe, 53 2851 Watanabe, 53 5021 Starr, 72 5695 Gardner, 73	2850 Metzger, 63 4982 Hasson, 71 5693 Lee, 73
NaBr	2625 Davidovits, 67	
NaCl	2625 Davidovits, 67	
NaI	2625 Davidovits, 67	
Na <sub>2</sub>	1394 Hudson, 65	2613 Hudson, 64
O <sub>2</sub>	508 Weissler, 52 641 Matsunaga, 61 916 Cook, 64 1187 Samson, 64 1252 Cook, 64 1561 Samson, 65 1641 Clark, 52 1749 Ditchburn, 62 1799 Hudson, 66 2313 Ladenburg, 33 2318 Lee, 55 2431 Preston, 40 2638 Watanabe, 52 2674 Watanabe, 56 2718 Thompson, 63 2770 Watanabe, 53 2782 Sroka, 67 2871 Ditchburn, 54 3005 Henke, 67 3376 Greiner, 57 3573 Ogawa, 68 3685 Dershem, 31 4151 Bixon, 69 4177 Shardanand 69 4470 Ackerman, 70 4983 Hasson, 71 5021 Starr, 72 5693 Lee, 73	622 Watanabe, 58 774 Huffman, 64 1131 Heilpern, 46 1234 Wainfan, 55 1280 Metzger, 64 1612 Aboud, 55 1715 Ditchburn, 53 1797 Goldstein, 66 1967 Blake, 66 2314 Ladenburg, 32 2384 Matsunaga, 67 2599 Messner, 33 2673 Watanabe, 53 2688 Kosinskaya, 65 2746 Huffman, 64 2778 De Reilhac, 64 2828 Sroka, 65 2898 Woernle, 30 3253 Henke, 67 3542 Hudson, 68 3638 Watanabe, 58 3758 Gaily, 69 4164 Losev, 69 4462 Ogawa, 70 4523 Ogawa, 71 4984 Hasson, 71 5472 Brolley, 73 5694 Watson, 73
O <sub>2</sub> <sup>*</sup>	4457 Ogawa, 70	
RbBr	2625 Davidovits, 67	
RbCl	2625 Davidovits, 67	
RbI	2625 Davidovits, 67	
Rb <sub>2</sub>	3399 Creek, 68	
SiO	3386 Main, 68	
TlBr	4038 Davidovits, 69	
TlCl	4038 Davidovits, 69	

# ABSORPTION EXPERIMENTAL

## Normalized

TII	4038 Davidovits, 69	
Xe <sub>2</sub>	3346 Shardanand 68	3577 Shardanand 68
CO <sub>2</sub>	1042 Nakata, 65 1359 Cairns, 65 1711 Cook, 66 2252 Inn, 53 2599 Messner, 33 2770 Watanabe, 53 3685 Dershem, 31 4759 Shemansky, 72 5096 De More, 72 5165 Heimerl, 70 5838 Carlson, 73	1245 Sun, 55 1702 Cairns, 66 1759 Wilkinson, 50 2431 Preston, 40 2718 Thompson, 63 3533 Harward, 68 4523 Ogawa, 71 5021 Starr, 72 5097 Samson, 72 5693 Lee, 73 6471 Slinger, 74
COS	2654 Matsunaga, 67 3913 Cook, 69	2850 Metzger, 63 4146 Breckenridge, 70
CS <sub>2</sub>	2850 Metzger, 63 4872 Okabe, 72	3916 Cook, 69
D <sub>2</sub> O	1060 Astoin, 57 2732 Johannin-Gille,55 3639 Katayama, 73	1821 Laufer, 65 2738 Johannin-Gille,55
H <sub>2</sub> O	688 Cook, 63 1143 Astoin, 56 1172 Metzger, 64 1759 Wilkinson, 50 2431 Preston, 40 2677 Watanabe, 53 2738 Johannin-Gille,55 2770 Watanabe, 53 3639 Katayama, 73	1060 Astoin, 57 1147 Watanabe, 64 1619 Astoin, 53 1821 Laufer, 65 2597 Johannin-Gille,53 2718 Thompson, 63 2740 Johannin-Gille,56 2871 Ditchburn, 54 3755 Schurgers, 68
H <sub>2</sub> S	1147 Watanabe, 64 3005 Henke, 67 4977 Hayes, 72	1855 La Villa, 66 3253 Henke, 67 5021 Starr, 72
ICN	4358 Myer, 70	
N <sub>2</sub> O	1060 Astoin, 57 1220 Zelikoff, 53 2598 Mayence, 52 2683 Walker, 55 2770 Watanabe, 53 2864 Cook, 68 4520 Weiss, 71 5693 Lee, 73	1142 Astoin, 55 1371 Romand, 52 2610 Romand, 49 2718 Thompson, 63 2850 Metzger, 63 4024 Holliday, 68 5021 Starr, 72
NOCl	3295 Lenzi, 68	
NO <sub>2</sub>	622 Watanabe, 58 2244 Hall, 52	1328 Nakayama, 59 3295 Lenzi, 68
O <sub>3</sub>	862 Vassy, 48	1368 Vigroux, 52

# ABSORPTION EXPERIMENTAL

Normalized

$O_3$	1369 Ny, 33 2423 Ogawa, 58 2668 Tanaka, 53 2700 Vigroux, 52 2702 Vigroux, 52 2734 Vigroux, 53 2889 Vigroux, 50 3508 Griggs, 68 5843 De More, 64	1430 Vigroux, 48 2633 Inn, 53 2684 Hearn, 61 2701 Vigroux, 52 2723 Vigroux, 50 2770 Watanabe, 53 2890 Ny, 32 5032 Stelman, 72 6080 Simons, 73
$SO_2$	2636 Golomb, 62 2718 Thompson, 63	2637 Warneck, 64 2898 Woernle, 30
$C_2D_2$	4483 Person, 70	
$C_2H_2$	1172 Metzger, 64 2375 Moe, 52 2599 Messner, 33 4483 Person, 70	2342 Schoen, 62 2482 Nakayama, 64 2682 Walker, 55
$H_2CO$	4460 Gentieu, 70	4796 Mentall, 71
$H_2O_2$	2707 Holt, 48	3755 Schurgers, 68
$HNCO$	4458 Okabe, 70	
$HN_3$	3509 Okabe, 68	
$NF_3$	2801 La Paglia, 61	
$NH_3$	605 Thompson, 46 1172 Metzger, 64 2604 Sun, 55 2672 Watanabe, 54 2770 Watanabe, 53	617 Tannenbaum, 53 2209 Watanabe, 65 2671 Walker, 55 2718 Thompson, 63 5021 Starr, 72
$O_4$	4177 Shardanand 69	
$PH_3$	4977 Hayes, 72	
$C_3O_2$	2692 Roebber, 67	
$C_2HCN$	5741 Okabe, 73	
$CCl_4$	2898 Woernle, 30 3253 Henke, 67	3005 Henke, 67
$CD_4$	1821 Laufer, 65	
$CF_4$	1395 Cook, 65	2376 Moe, 52
$CH_4$	870 Rustgi, 64 1234 Wainfan, 55 1759 Wilkinson, 50 2301 Lukirskii, 64 2599 Messner, 33 2770 Watanabe, 53	1172 Metzger, 64 1701 Ditchburn, 55 1821 Laufer, 65 2376 Moe, 52 2604 Sun, 55 2871 Ditchburn, 54

# ABSORPTION EXPERIMENTAL

Normalized

$CH_4$	3914 Lutz, 69 5021 Starr, 72	4826 Koch, 71 5693 Lee, 73
$HNO_3$	5164 Schmidt, 72 5851 Biaume, 74	5353 Johnston, 73
$NCN_3$	3919 Okabe, 69	
$SiH_4$	4977 Hayes, 72	
$C_2D_4$	2121 Wilkinson, 55 3544 Person, 68	2121 Wilkinson, 55
$C_2H_4$	1172 Metzger, 64 1759 Wilkinson, 50 2342 Schoen, 62 2682 Walker, 55 5693 Lee, 73	1229 Zelikoff, 53 2121 Wilkinson, 55 2599 Messner, 33 3544 Person, 68
$CD_3OD$	4832 Person, 71	
$CH_3OH$	4832 Person, 71	
$N_2H_4$	3755 Schurgers, 68	
$N_2O_4$	2244 Hall, 52	
$C_3D_4$	4483 Person, 70	
$C_3H_4$	4483 Person, 70	
$SF_6$	1854 Codling, 66 1856 Simpson, 66 5101 Vinogradov, 72	1855 La Villa, 66 2663 Zimkina, 67
$C_2F_6$	3005 Henke, 67	3253 Henke, 67
$C_2H_6$	1172 Metzger, 64 2599 Messner, 33 3253 Henke, 67 5693 Lee, 73	2342 Schoen, 62 3005 Henke, 67 4826 Koch, 71
$C_3D_6$	4483 Person, 70	
$C_3H_6$	4483 Person, 70	
$C_2D_5OD$	4832 Person, 71	
$C_2H_5OH$	4832 Person, 71	
$C_3H_8$	4826 Koch, 71	
Relative		
Ar	577 Schnopper, 63	3566 Nakamura, 68



# ABSORPTION EXPERIMENTAL

Relative

Be	3398 Swanson, 68	
Cs	1238 Mohler, 26	
Na	2245 Harrison, 24	2246 Harrison, 25
Ne	2381 Codling, 67	
Sr	2490 Garton, 68	
Xe	3688 Haensel, 69	
Ar <sub>2</sub>	2970 Wilkinson, 68	
BeO	3398 Swanson, 68	
H <sub>2</sub>	2485 Comes, 67	4040 Chupka, 69
NaBr	3247 Haensel, 68	
NaCl	3247 Haensel, 68	
NaF	3247 Haensel, 68	
NaI	3247 Haensel, 68	
Na <sub>2</sub>	2246 Harrison, 25	
CO <sub>2</sub>	691 Huffman, 63	
GeF <sub>2</sub>	3918 Hauge, 68	
H <sub>2</sub> O	1754 Patch, 65	
O <sub>3</sub>	1370 Vigroux, 52	2511 Barbier, 42
CH <sub>4</sub>	3532 Chun, 68	
C <sub>2</sub> D <sub>6</sub>	4031 Pearson, 69	
C <sub>2</sub> H <sub>6</sub>	4031 Pearson, 69	

# SCATTERING EXPERIMENTAL

Normalized

Ar	4144 Cairns, 70
H <sub>2</sub>	5192 Carlson, 72

# SCATTERING EXPERIMENTAL

Relative

Ar	2689 Shardanand 67 2875 Wollan, 31	2720 Heddle, 62
He	2689 Shardanand 67	2875 Wollan, 31
Kr	2720 Heddle, 62	
Ne	2689 Shardanand 67	2875 Wollan, 31
Xe	2720 Heddle, 62	
H <sub>2</sub>	2689 Shardanand 67 2875 Wollan, 31	2720 Heddle, 62
N <sub>2</sub>	2689 Shardanand 67	2720 Heddle, 62
O <sub>2</sub>	2875 Wollan, 31	

# SCATTERING THEORETICAL

Normalized

Ar	741 Woo, 47	
C	4511 Tarafdar, 69	
Cl	741 Woo, 47	
H	672 Himmell, 67 3162 Gavril, 67	2775 Gavril, 67 4361 Miller, 70
H <sup>+</sup>	2781 Zernik, 64	
He	2719 Chan, 65 4511 Tarafdar, 69	2842 Kim, 68
Kr	741 Woo, 47	
N	4511 Tarafdar, 69	
Na	2779 Heddle, 64	
Ne	741 Woo, 47	
O	741 Woo, 47	4511 Tarafdar, 69
Pr <sup>+3</sup>	2963 Koningstein, 68	
Tm <sup>+3</sup>	2963 Koningstein, 68	
Xe	741 Woo, 47	
N <sub>2</sub>	2958 Dalgarno, 67	

## IONIZATION EXPERIMENTAL

## IONIZATION EXPERIMENTAL

## Normalized

Ar	575 Samson, 63 993 Samson, 64 1355 Metzger, 65 5474 Lynch, 73 6271 Samson, 74	926 Comes, 64 1234 Wainfan, 55 5169 Watson, 72 6200 Kemeny, 74 6451 Houlgate, 74
Ar <sup>+</sup>	1835 Asinovskii, 65	
Ba	6131 Lutjens, 73	
Ba <sup>+</sup>	6201 Carlsten, 74	
C	4527 Marrone, 71	
Cd	4148 Cairns, 69	4969 Cairns, 70
Cs	1382 Cooke, 31 2320 Little, 27	2312 Kunz, 34
Cs <sup>+</sup>	4972 Klucharyev, 72	
H	2855 Beynon, 65	
He	1188 Samson, 64 5169 Watson, 72	4973 Krause, 72
He <sup>+</sup>	5476 Stebbings, 73	6145 Dunning, 74
Hg	6229 Dehmer, 74	
Kr	575 Samson, 63 4807 Ederer, 71 6200 Kemeny, 74	1355 Metzger, 65 4893 El-Sherbini, 72 6271 Samson, 74
Mg <sup>+</sup>	4918 Bradley, 73	
N	2942 Comes, 68	4527 Marrone, 71
Ne	926 Comes, 64 5169 Watson, 72	1562 Samson, 65 6200 Kemeny, 74
No	4066 Peatman, 69	
O	2943 Comes, 68	
S	4756 Tondello, 72	
Sr	6131 Lutjens, 73	
U	6256 Cukier, 74	
Xe	1179 Ederer, 64 1355 Metzger, 65 4035 Cairns, 69 4969 Cairns, 70 6271 Samson, 74	1189 Samson, 64 1360 Matsunaga, 65 4893 El-Sherbini, 72 6200 Kemeny, 74

## Normalized

Zn	4148 Cairns, 69	4969 Cairns, 70
Br <sub>2</sub>	4929 Carver, 72	
CO	1359 Cairns, 65 4877 Bahr, 72 6452 Lee, 74	1626 Cook, 65 4975 Judge, 72
D <sub>2</sub>	1149 Cook, 64	
H <sub>2</sub>	688 Cook, 63 1234 Wainfan, 55 4025 Comes, 68	1149 Cook, 64 3257 Comes, 68 4937 Samson, 72
I <sub>2</sub>	4152 Yoshino, 69 6270 Akopyan, 73	4929 Carver, 72
N <sub>2</sub>	582 Blake, 67 916 Cook, 64 1234 Wainfan, 55 3379 Judge, 68 4362 Comes, 69	688 Cook, 63 1187 Samson, 64 1253 Cook, 65 3682 Samson, 59
N <sub>2</sub> <sup>+</sup>	5024 Cook, 72	
NO	2062 Metzger, 67 2675 Watanabe, 53 2850 Metzger, 63	2672 Watanabe, 54 2683 Walker, 55 4877 Bahr, 72
O <sub>2</sub>	582 Blake, 67 1187 Samson, 64 1252 Cook, 64 1798 Samson, 66 2674 Watanabe, 56 3250 Frost, 68 4521 Carlson, 71	916 Cook, 64 1234 Wainfan, 55 1731 Blake, 65 2384 Matsunaga, 67 2943 Comes, 68 3682 Samson, 59 4769 Carlson, 70
O <sub>2</sub> <sup>+</sup>	4156 Clark, 70	
CO <sub>2</sub>	1042 Nakata, 65 1359 Cairns, 65 3682 Samson, 59 4877 Bahr, 72 5148 Lee, 72 5547 Carlson, 73	1234 Wainfan, 55 1711 Cook, 66 4806 Wauchop, 71 5097 Samson, 72 5174 Samson, 73 5838 Carlson, 73
COS	2654 Matsunaga, 67 3913 Cook, 69	2850 Metzger, 63
CS <sub>2</sub>	2850 Metzger, 63	3916 Cook, 69
D <sub>2</sub> O	3639 Katayama, 73	
H <sub>2</sub> O	582 Blake, 67 1147 Watanabe, 64 1234 Wainfan, 55 4813 Cairns, 71	688 Cook, 63 1172 Metzger, 64 3639 Katayama, 73

## IONIZATION EXPERIMENTAL

## Normalized

H <sub>2</sub> S	1147 Watanabe, 64	
N <sub>2</sub> O	2683 Walker, 55	2850 Metzger, 63
	2864 Cook, 68	4877 Bahr, 72
	6068 Lee, 74	
NO <sub>2</sub>	1328 Nakayama, 59	
C <sub>2</sub> D <sub>2</sub>	4483 Person, 70	
C <sub>2</sub> H <sub>2</sub>	1172 Metzger, 64	2342 Schoen, 62
	2482 Nakayama, 64	2682 Walker, 55
	4483 Person, 70	
H <sub>2</sub> CO	4796 Mentall, 71	
NH <sub>3</sub>	1172 Metzger, 64	2209 Watanabe, 65
	2671 Walker, 55	2672 Watanabe, 54
	2676 Watanabe, 57	4877 Bahr, 72
CF <sub>4</sub>	1395 Cook, 65	
CH <sub>4</sub>	1172 Metzger, 64	1234 Wainfan, 55
C <sub>2</sub> D <sub>4</sub>	3544 Person, 68	
C <sub>2</sub> H <sub>4</sub>	1172 Metzger, 64	2342 Schoen, 62
	2682 Walker, 55	3544 Person, 68
CD <sub>3</sub> OD	4832 Person, 71	
CH <sub>3</sub> OH	4832 Person, 71	
C <sub>3</sub> D <sub>4</sub>	4483 Person, 70	
C <sub>3</sub> H <sub>4</sub>	4483 Person, 70	
C <sub>2</sub> H <sub>6</sub>	1172 Metzger, 64	2342 Schoen, 62
C <sub>3</sub> D <sub>6</sub>	4483 Person, 70	
C <sub>3</sub> H <sub>6</sub>	4483 Person, 70	
C <sub>2</sub> D <sub>5</sub> OD	4832 Person, 71	
C <sub>2</sub> H <sub>5</sub> OH	4832 Person, 71	

## Relative

Ag	4835 Tegeder, 71	
Ar	1883 Villarejo, 67	2600 Schonheit, 61
	2622 Carlson, 67	2639 Comes, 61
	2678 Weissler, 59	3413 Samson, 68
	3591 Vroom, 65	4036 Vroom, 69

## IONIZATION EXPERIMENTAL

## Relative

Ar	4465 Vilesov, 70	4467 McGowan, 69
	4762 Mitchell, 72	4804 Carlson, 71
	4985 Niehaus, 72	6175 Dunning, 74
Ar*	5844 Stebbings, 73	
Au	4835 Tegeder, 71	
Cd	3256 Berkowitz, 68	4359 Harrison, 70
Cs	496 Boeckner, 30	1238 Mohler, 26
	2222 Popescu, 66	2316 Lawrence, 29
Cu	4835 Tegeder, 71	
Eu	4528 Parr, 71	
H	4482 Jonathan, 70	
He	2622 Carlson, 67	2678 Weissler, 59
	3694 Samson, 69	
Hg	1699 Brehm, 66	2846 Frost, 67
	3256 Berkowitz, 68	4365 Cairns, 70
	4774 Blake, 71	4985 Niehaus, 72
K	2315 Lawrence, 25	2317 Lawrence, 29
	2840 Williams, 67	
Kr	1883 Villarejo, 67	2624 Berkowitz, 67
	3413 Samson, 68	3591 Vroom, 65
	3883 Krause, 69	4467 McGowan, 69
	4798 Codling, 71	4804 Carlson, 71
	4985 Niehaus, 72	6175 Dunning, 74
N	528 Comes, 67	4482 Jonathan, 70
	6079 Dehmer, 74	
Ne	2622 Carlson, 67	2678 Weissler, 59
	3413 Samson, 68	5022 Lynch, 72
No	4166 Baer, 69	
O	4482 Jonathan, 70	5914 Dehmer, 73
Rb	2316 Lawrence, 29	
Tm	4528 Parr, 71	
Xe	1699 Brehm, 66	1883 Villarejo, 67
	2386 Nicholson, 63	3413 Samson, 68
	3454 Brundle, 68	3591 Vroom, 65
	4467 McGowan, 69	4798 Codling, 71
	4804 Carlson, 71	4985 Niehaus, 72
Yb	3510 Parr, 68	4360 Parr, 70

## IONIZATION EXPERIMENTAL

## Relative

Zn	3818 Harrison, 69	4359 Harrison, 70
Br <sub>2</sub>	2377 Morrison, 60 4522 Dibeler, 70 4833 Potts, 71	3591 Vroom, 65 4526 Cornford, 71
CO	1177 Schoen, 64 2678 Weissler, 59 4538 Hotop, 70 4978 Natalis, 72	2624 Berkowitz, 67 3591 Vroom, 65 4804 Carlson, 71
Cl <sub>2</sub>	3591 Vroom, 65 4833 Potts, 71	4526 Cornford, 71
ClF	4454 Dibeler, 70	
CsBr	4037 Berkowitz, 69	
CsCl	4037 Berkowitz, 69	
Cs <sub>2</sub>	2222 Popescu, 66	
CsF	4037 Berkowitz, 69	
CsI	4037 Berkowitz, 69	
DCI	4357 Weiss, 70	
D <sub>2</sub>	1320 Dibeler, 65 3254 Villarejo, 68 5260 Browning, 73	2739 Spohr, 67 3591 Vroom, 65
DF	4811 Berkowitz, 71	
F <sub>2</sub>	3591 Vroom, 65 4526 Cornford, 71 4819 Chupka, 71	4039 Dibeler, 69 4811 Berkowitz, 71 4833 Potts, 71
HBr	3591 Vroom, 65	
HCl	2396 Nicholson, 65 3640 Krauss, 68	3591 Vroom, 65 4357 Weiss, 70
HD	1320 Dibeler, 65	3591 Vroom, 65
H <sub>2</sub>	930 Comes, 64 2485 Comes, 67 2739 Spohr, 67 3372 Chupka, 68 3453 Turner, 68 3915 Berkowitz, 69 4465 Vilesov, 70 4535 Asbrink, 70 4541 Brehm, 71 5260 Browning, 73	1320 Dibeler, 65 2624 Berkowitz, 67 3254 Villarejo, 68 3396 Chupka, 68 3591 Vroom, 65 4040 Chupka, 69 4467 McGowan, 69 4538 Hotop, 70 4804 Carlson, 71
HF	3591 Vroom, 65	4039 Dibeler, 69

## IONIZATION EXPERIMENTAL

## Relative

HF	4811 Berkowitz, 71	4819 Chupka, 71
HI	2377 Morrison, 60	3591 Vroom, 65
IBr	4833 Potts, 71	
ICl	4833 Potts, 71	
I <sub>2</sub>	2377 Morrison, 60 4363 Myer, 70 4833 Potts, 71	3591 Vroom, 65 4526 Cornford, 71
N <sub>2</sub>	891 Comes, 61 1177 Schoen, 64 2678 Weissler, 59 3915 Berkowitz, 69 4537 Samson, 70 4804 Carlson, 71	931 Comes, 64 2624 Berkowitz, 67 3591 Vroom, 65 4467 McGowan, 69 4538 Hotop, 70 4978 Natalis, 72
NO	237 Frost, 60 2251 Hurzeler, 58 2624 Berkowitz, 67 2678 Weissler, 59 3575 Samson, 68 4524 Edqvist, 70 4821 Edqvist, 71 5222 Killgoar Jr., 73	1664 Reese, 66 2386 Nicholson, 63 2641 Watanabe, 67 2739 Spohr, 67 3591 Vroom, 65 4809 Brion, 72 4880 Bahr, 71 6448 Hertz, 74
NaI	1979 Berkowitz, 66	
O <sub>2</sub>	1177 Schoen, 64 2386 Nicholson, 63 2678 Weissler, 59 2739 Spohr, 67 3453 Turner, 68 3591 Vroom, 65 4467 McGowan, 69 4536 Jonathan, 70 4878 Bahr, 71	1699 Brehm, 66 2624 Berkowitz, 67 2727 Dibeler, 67 2865 Vilesov, 67 3549 Doolittle, 68 3820 Natalis, 68 4534 Branton, 70 4537 Samson, 70
O <sub>2</sub> <sup>+</sup>	4536 Jonathan, 70	
S <sub>2</sub>	3886 Berkowitz, 69	
Se <sub>2</sub>	3886 Berkowitz, 69	
Te <sub>2</sub>	3886 Berkowitz, 69	
TII	1979 Berkowitz, 66	
BrCN	3011 Dibeler, 67	
CO <sub>2</sub>	2678 Weissler, 59 2739 Spohr, 67 4030 Bahr, 69 5513 Sroka, 73 5891 McCulloh, 73	2727 Dibeler, 67 3571 Collin, 68 4911 Samson, 73 5839 Judge, 73



## IONIZATION EXPERIMENTAL

Relative

COS	2727 Dibeler, 67	3571 Collin, 68
CS <sub>2</sub>	2727 Dibeler, 67	3571 Collin, 68
CICN	3011 Dibeler, 67	
DCN	3781 Baker, 68	
D <sub>2</sub> O	1699 Brehm, 66	3454 Brundle, 68
FCN	3011 Dibeler, 67	
HCN	3251 Dibeler, 68 3781 Baker, 68	3691 Berkowitz, 69
H <sub>2</sub> O	1699 Brehm, 66 2739 Spohr, 67 4465 Vilesov, 70	2623 Dibeler, 66 3454 Brundle, 68
H <sub>2</sub> S	3392 Dibeler, 68	
ICN	3011 Dibeler, 67	
MgI <sub>2</sub>	1979 Berkowitz, 66	
N <sub>2</sub> O	2678 Weissler, 59 2873 Dibeler, 67 5633 Sroka, 73	2739 Spohr, 67 3591 Vroom, 65 6199 Coppens, 74
NO <sub>2</sub>	1840 Frost, 62 2873 Dibeler, 67 4776 Edqvist, 70	2678 Weissler, 59 3591 Vroom, 65 5691 Killgoar Jr., 73
SO <sub>2</sub>	2636 Golomb, 62	3392 Dibeler, 68
XeF <sub>2</sub>	4161 Brundle, 70	
C <sub>2</sub> D <sub>2</sub>	1684 Botter, 66 3781 Baker, 68 5840 Dibeler, 73	2612 Dibeler, 64 5257 Dibeler, 73
C <sub>2</sub> H <sub>2</sub>	1684 Botter, 66 2396 Nicholson, 65 2739 Spohr, 67 4163 Omura, 69 5257 Dibeler, 73 5840 Dibeler, 73	1699 Brehm, 66 2612 Dibeler, 64 3781 Baker, 68 4364 Omura, 68 5512 Sieck, 73
C <sub>2</sub> N <sub>2</sub>	3011 Dibeler, 67	
CF <sub>3</sub>	2776 Lifshitz, 67	
CH <sub>2</sub> Cl	2396 Nicholson, 65	
ND <sub>3</sub>	4028 Branton, 69	4534 Branton, 70
NH <sub>3</sub>	237 Frost, 60	2623 Dibeler, 66

## IONIZATION EXPERIMENTAL

Relative

NH <sub>3</sub>	3591 Vroom, 65 4534 Branton, 70	4028 Branton, 69
C <sub>2</sub> H <sub>3</sub> CN	5741 Okabe, 73	
CD <sub>4</sub>	1357 Dibeler, 65 5512 Sieck, 73	2396 Nicholson, 65
CF <sub>4</sub>	4041 Walter, 69	4539 Bull, 70
CH <sub>3</sub> Cl	2219 Dibeler, 65 3640 Krauss, 68	2396 Nicholson, 65
CH <sub>3</sub> F	3640 Krauss, 68	
CH <sub>3</sub> I	2377 Morrison, 60	4166 Baer, 69
CH <sub>4</sub>	1357 Dibeler, 65 2396 Nicholson, 65 4465 Vilesov, 70 5512 Sieck, 73	1699 Brehm, 66 3026 Chupka, 68 4808 Potts, 72
GeH <sub>4</sub>	4808 Potts, 72	
SiF <sub>4</sub>	4539 Bull, 70	
SiH <sub>4</sub>	4808 Potts, 72	
SnH <sub>4</sub>	4808 Potts, 72	
C <sub>2</sub> D <sub>4</sub>	4534 Branton, 70	
C <sub>2</sub> F <sub>4</sub>	4041 Walter, 69	
C <sub>2</sub> H <sub>4</sub>	1699 Brehm, 66 2396 Nicholson, 65 4534 Branton, 70	2025 Botter, 66 3757 Chupka, 69
CHDCHD	2025 Botter, 66	
CH <sub>3</sub> CN	2396 Nicholson, 65	
CH <sub>3</sub> OD	4370 Omura, 69	
CH <sub>3</sub> OH	4370 Omura, 69	
CH <sub>3</sub> NO <sub>2</sub>	2396 Nicholson, 65	
SF <sub>6</sub>	1857 Dibeler, 66	
C <sub>2</sub> H <sub>6</sub>	2396 Nicholson, 65 5512 Sieck, 73	2802 Chupka, 67

# IONIZATION THEORETICAL

Normalized

Ag	2845 Matese, 65 4475 McGinn, 70	3520 McGuire, 68
Ag <sup>+1</sup>	925 Cooper, 62	
Al	2652 Peach, 62 2843 Manson, 68 4244 Conneely, 70	2670 Vainshtein, 60 3520 McGuire, 68 4881 Chapman, 72
Al <sup>+1</sup>	4516 McGinn, 71	
Al <sup>+2</sup>	4475 McGinn, 70	6144 Shevelko, 74
Al <sup>+3</sup>	5264 Farnoux, 73	
Al <sup>+4</sup>	5264 Farnoux, 73	
Al <sup>+5</sup>	5264 Farnoux, 73	
Ar	741 Woo, 47 1660 Dalgarno, 52 2843 Manson, 68 3520 McGuire, 68 3884 Mendez, 68 4366 Starace, 70 4466 Amusia, 70 4517 Amusia, 71 4764 Kennedy, 72 5223 Amusia, 71 5957 Lin, 74 6496 Amusia, 74	925 Cooper, 62 2506 Cooper, 64 2868 Conneely, 67 3766 Amusia, 69 4142 Amusia, 69 4367 Thomas, 70 4468 Manson, 70 4763 Kirkpatrick, 72 4881 Chapman, 72 5262 Kelly, 73 6450 Monaghan, 74
Ar <sup>+1</sup>	4881 Chapman, 72	
Ar <sup>+2</sup>	4881 Chapman, 72	
Ar <sup>+3</sup>	4881 Chapman, 72	
Ar <sup>+4</sup>	4881 Chapman, 72	
As	3520 McGuire, 68	
Au	2686 Farnoux, 67 3917 Farnoux, 69	2843 Manson, 68 4879 Farnoux, 72
B	1321 Bates, 39 2829 Vainshtein, 53	2742 Vainshtein, 54 3520 McGuire, 68
B <sup>+1</sup>	4516 McGinn, 71	
B <sup>+2</sup>	4027 McDowell, 69	4475 McGinn, 70
B <sup>+3</sup>	4805 Bell, 71	4868 Bell, 72
Ba	3993 Drapatz, 69 6453 Fliflet, 74	5890 Wendin, 73

# IONIZATION THEORETICAL

Normalized

Ba <sup>*</sup>	3993 Drapatz, 69	
Ba <sup>+1</sup>	6144 Shevelko, 74	
Be	1236 Bates, 46 2999 Altick, 68 4516 McGinn, 71 5302 Dubau, 73	2856 Altick, 64 3520 McGuire, 68 4795 McGinn, 72 5692 Dubau, 73
Be <sup>+1</sup>	4027 McDowell, 69	4475 McGinn, 70
Be <sup>+2</sup>	4868 Bell, 72	
Bi	2686 Farnoux, 67 4879 Farnoux, 72	3917 Farnoux, 69
Br	3520 McGuire, 68	
C	1321 Bates, 39 2359 Praderie, 64 2742 Vainshtein, 54 3520 McGuire, 68	1624 Bates, 49 2429 Praderie, 64 2829 Vainshtein, 53 4367 Thomas, 70
C <sup>*</sup>	578 Norman, 63	
C <sup>+1</sup>	1236 Bates, 46	
C <sup>+2</sup>	3390 Hidalgo, 68	4516 McGinn, 71
C <sup>+3</sup>	3390 Hidalgo, 68 4475 McGinn, 70 5742 John, 73	4027 McDowell, 69 5172 Leibowitz, 72
C <sup>+4</sup>	3390 Hidalgo, 68 4868 Bell, 72	4514 Stingl, 70
Ca	1330 Bates, 40 2601 Seaton, 55 2856 Altick, 64 4795 McGinn, 72	2221 Moores, 66 2742 Vainshtein, 54 3520 McGuire, 68 6496 Amusia, 74
Ca <sup>+1</sup>	1330 Bates, 40 2242 Green, 49 4475 McGinn, 70	2056 Burgess, 60 2243 Green, 50 5099 Black, 72
Cd	3520 McGuire, 68	4824 Hyman, 71
Cl	741 Woo, 47 4244 Conneely, 70	3520 McGuire, 68
Co	3520 McGuire, 68	
Cr	3520 McGuire, 68	
Cs	1288 McGuire, 67 2602 Seaton, 51 4455 Beigman, 70	2378 Moskvina, 63 2848 McGuire, 65 4867 Weisheit, 72

Normalized

Normalized

Cs	4873 Chang, 72 5265 Norcross, 73	5221 McGinn, 73
Cs <sup>+</sup>	5041 Weisheit, 72	
Cu	2843 Manson, 68 4475 McGinn, 70	3520 McGuire, 68
Cu <sup>+1</sup>	925 Cooper, 62	
Eu	2843 Manson, 68	
F	1321 Bates, 39	3520 McGuire, 68
F <sup>+1</sup>	1236 Bates, 46	
F <sup>+6</sup>	4027 McDowell, 69	
F <sup>+7</sup>	4868 Bell, 72	
Fe	3520 McGuire, 68 4825 Kelly, 71	4766 Kelly, 72 5025 Kelly, 72
Fm	2843 Manson, 68	
Ga	2670 Vainshtein, 60	3520 McGuire, 68
Ge	2843 Manson, 68	3520 McGuire, 68
H	1258 Burgess, 64 2218 Chow Chiu, 67 2849 Volkov, 65 6033 Broad, 74	1330 Bates, 40 2432 Zernik, 65 3815 Lin, 68
H <sup>+</sup>	2748 Yaakobi, 67 3815 Lin, 68	2849 Volkov, 65
He	925 Cooper, 62 1221 Stewart, 60 1545 Burke, 65 2213 Bell, 67 2607 Stewart, 63 2679 Wheeler, 33 2848 McGuire, 65 2859 Korwien, 34 2863 Salpeter, 62 3520 McGuire, 68 4154 Brown, 70 4472 Jacobs, 71 4519 Bell, 70 4716 Bell, 73 4805 Bell, 71 4869 Jacobs, 72 5170 Hyman, 72 6174 Rescigno, 74	1211 Johnston, 64 1288 McGuire, 67 2056 Burgess, 60 2249 Huang, 48 2649 Peach, 67 2835 Byron Jr., 67 2852 Dalgarno, 57 2860 Vinti, 32 3347 Dalgarno, 67 4141 Brown, 70 4461 Wendin, 70 4510 Brown, 71 4716 Bell, 73 4799 Brown, 71 4868 Bell, 72 5093 Dalgarno, 72 5219 Jacobs, 72
He <sup>+</sup>	2249 Huang, 48	4514 Stingl, 70

He <sup>+</sup>	4830 Norcross, 71 6094 Jacobs, 74	5837 Bell, 73 6176 Jacobs, 74
Hg	2845 Matese, 65	4824 Hyman, 71
I	1288 McGuire, 67 3520 McGuire, 68	2848 McGuire, 65
In	1288 McGuire, 67 2848 McGuire, 65	1893 McGuire, 65 3520 McGuire, 68
K	1193 Bates, 47 2056 Burgess, 60 2428 Phillips, 32 2848 McGuire, 65 4371 Smith, 70 4475 McGinn, 70 4873 Chang, 72 5221 McGinn, 73	1288 McGuire, 67 2378 Moskvina, 63 2602 Seaton, 51 3520 McGuire, 68 4455 Beigman, 70 4867 Weisheit, 72 5026 Smith, 71 6093 La Bahn, 74
K <sup>+1</sup>	1219 Seaton, 50	
Kr	741 Woo, 47 1288 McGuire, 67 2848 McGuire, 65 3520 McGuire, 68 4517 Amusia, 71 5223 Amusia, 71 6496 Amusia, 74	925 Cooper, 62 2843 Manson, 68 2941 Comes, 68 3708 Cooper, 69 4764 Kennedy, 72 5473 Amusia, 73
Li	842 Tait, 63 2056 Burgess, 60 2378 Moskvina, 63 2608 Stewart, 54 2728 Sewell, 67 2848 McGuire, 65 3523 Chang, 68 4027 McDowell, 69 4371 Smith, 70 4469 Cooper, 70 4801 Norcross, 71 5026 Smith, 71	1288 McGuire, 67 2218 Chow Chiu, 67 2478 Hargreaves, 29 2649 Peach, 67 2748 Yaakobi, 67 3520 McGuire, 68 3890 Gezalov, 68 4145 Matese, 69 4455 Beigman, 70 4475 McGinn, 70 4927 Omidvar, 72 5117 Caves, 72
Li <sup>-</sup>	4516 McGinn, 71	
Li <sup>+</sup>	3890 Gezalov, 68	
Li <sup>+1</sup>	2217 Bell, 67 2649 Peach, 67 4140 Gezalov, 68 4805 Bell, 71	2607 Stewart, 63 2681 Zhirnov, 62 4799 Brown, 71 4868 Bell, 72
Mg	2652 Peach, 62 3520 McGuire, 68 4795 McGinn, 72 5477 Bates, 73	2856 Altick, 64 4516 McGinn, 71 5302 Dubau, 73 6297 Thompson, 74

# IONIZATION THEORETICAL

Normalized

Mg <sup>+1</sup>	2056 Burgess, 60 5099 Black, 72	4475 McGinn, 70 6144 Shevelko, 74
Mg <sup>+2</sup>	5264 Farnoux, 73	
Mg <sup>+3</sup>	5264 Farnoux, 73	5742 John, 73
Mg <sup>+4</sup>	5264 Farnoux, 73	
Mg <sup>+10</sup>	4805 Bell, 71	4868 Bell, 72
Mn	3520 McGuire, 68	
Mo	3520 McGuire, 68	
N	1321 Bates, 39 1661 Dalgarno, 60 1733 Breene Jr., 65 2652 Peach, 62 2829 Vainshtein, 53 3520 McGuire, 68 4367 Thomas, 70 4827 Koppel, 71 5470 Ganas, 73	1624 Bates, 49 1667 Dalgarno, 60 1830 Henry, 66 2742 Vainshtein, 54 3213 Henry, 68 3992 Ormonde, 70 4786 Davis, 73 4831 Ormonde, 71 6146 Cherepkov, 74
N <sup>*</sup>	578 Norman, 63	4831 Ormonde, 71
N <sup>+1</sup>	1211 Johnston, 64 3879 Henry, 68	1236 Bates, 46 3992 Ormonde, 70
N <sup>+2</sup>	3390 Hidalgo, 68	
N <sup>+3</sup>	3390 Hidalgo, 68	
N <sup>+4</sup>	1627 Ivanova, 64 4027 McDowell, 69	3390 Hidalgo, 68
N <sup>+5</sup>	4868 Bell, 72	
Na	925 Cooper, 62 1670 Rudkjobing, 40 2218 Chow Chiu, 67 2602 Seaton, 51 2665 Boyd, 64 2829 Vainshtein, 53 2848 McGuire, 65 4371 Smith, 70 4801 Norcross, 71 5026 Smith, 71 6093 La Bahn, 74	1288 McGuire, 67 2056 Burgess, 60 2378 Moskvina, 63 2649 Peach, 67 2742 Vainshtein, 54 2843 Manson, 68 3520 McGuire, 68 4475 McGinn, 70 4867 Weisheit, 72 5221 McGinn, 73
Na <sup>+1</sup>	1236 Bates, 46	5264 Farnoux, 73
Na <sup>+2</sup>	5264 Farnoux, 73	
Na <sup>+3</sup>	5264 Farnoux, 73	

# IONIZATION THEORETICAL

Normalized

Nb	3520 McGuire, 68	
Ne	741 Woo, 47 1218 Seaton, 51 1337 Sewell, 65 2603 Seaton, 54 3520 McGuire, 68 4764 Kennedy, 72 5149 Amusia, 72 5223 Amusia, 71	925 Cooper, 62 1321 Bates, 39 2058 Henry, 67 2742 Vainshtein, 54 4517 Amusia, 71 4816 Chang, 71 5220 Luke, 73 5264 Farnoux, 73
Ne <sup>+1</sup>	1236 Bates, 46 3879 Henry, 68	3390 Hidalgo, 68 5264 Farnoux, 73
Ne <sup>+2</sup>	3390 Hidalgo, 68 5264 Farnoux, 73	3879 Henry, 68
Ne <sup>+3</sup>	3390 Hidalgo, 68 5742 John, 73	3879 Henry, 68
Ne <sup>+4</sup>	3390 Hidalgo, 68	3879 Henry, 68
Ne <sup>+7</sup>	4027 McDowell, 69	
Ne <sup>+8</sup>	4805 Bell, 71	4868 Bell, 72
Ni	3520 McGuire, 68	
O	690 Dalgarno, 64 1321 Bates, 39 1661 Dalgarno, 60 1733 Breene Jr., 65 2652 Peach, 62 2771 Henry, 67 2896 Yamanouchi, 40 3703 Henry, 68 4761 Missavage, 72 4827 Koppel, 71 5470 Ganas, 73 6375 Manson, 74	741 Woo, 47 1624 Bates, 49 1667 Dalgarno, 60 2056 Burgess, 60 2742 Vainshtein, 54 2894 Stewart, 65 3520 McGuire, 68 4367 Thomas, 70 4786 Davis, 73 4979 Kennedy, 72 6173 Starace, 74
O <sup>+1</sup>	1236 Bates, 46 2895 Yamanouchi, 42 4761 Missavage, 72	1830 Henry, 66 3213 Henry, 68
O <sup>+2</sup>	2891 Yamanouchi, 41 3879 Henry, 68	3390 Hidalgo, 68 4761 Missavage, 72
O <sup>+3</sup>	3390 Hidalgo, 68 5742 John, 73	4761 Missavage, 72
O <sup>+4</sup>	3390 Hidalgo, 68	4761 Missavage, 72
O <sup>+5</sup>	1627 Ivanova, 64 4761 Missavage, 72	4027 McDowell, 69
O <sup>+6</sup>	4761 Missavage, 72	4805 Bell, 71



## IONIZATION THEORETICAL

Normalized

O <sup>+6</sup>	4868 Bell, 72	
P	3520 McGuire, 68	4244 Conneely, 70
P <sup>+4</sup>	6144 Shevelko, 74	
Pb	2845 Matese, 65	
Pd	3520 McGuire, 68	
Pt	3917 Farnoux, 69	
Rb	1288 McGuire, 67 2378 Moskvina, 63 2848 McGuire, 65 4475 McGinn, 70 4873 Chang, 72	1903 Farnoux, 67 2602 Seaton, 51 3520 McGuire, 68 4867 Weisheit, 72 5221 McGinn, 73
Rh	2843 Manson, 68	3520 McGuire, 68
Ru	3520 McGuire, 68	
S	3520 McGuire, 68 4817 Chapman, 71	4244 Conneely, 70
S <sup>+1</sup>	4817 Chapman, 71	
S <sup>+2</sup>	4817 Chapman, 71	
S <sup>+3</sup>	4817 Chapman, 71	
Sb	1288 McGuire, 67 2848 McGuire, 65	1893 McGuire, 65 3520 McGuire, 68
Sc	3520 McGuire, 68	
Se	3520 McGuire, 68	
Si	2868 Conneely, 67 4244 Conneely, 70	3520 McGuire, 68 4881 Chapman, 72
Si <sup>+1</sup>	2056 Burgess, 60	
Si <sup>+2</sup>	4516 McGinn, 71	
Si <sup>+3</sup>	4475 McGinn, 70	6144 Shevelko, 74
Sn	1288 McGuire, 67 2848 McGuire, 65	1903 Farnoux, 67 3520 McGuire, 68
Sr	2856 Altick, 64	3520 McGuire, 68
Ta	1903 Farnoux, 67	3917 Farnoux, 69
Tc	3520 McGuire, 68	
Te	1288 McGuire, 67	1893 McGuire, 65

## IONIZATION THEORETICAL

Normalized

Te	2848 McGuire, 65	3520 McGuire, 68
Ti	3520 McGuire, 68	
U	2845 Matese, 65	
V	3520 McGuire, 68	
Xe	741 Woo, 47 1893 McGuire, 65 2506 Cooper, 64 2843 Manson, 68 2941 Comes, 68 4366 Starace, 70 4517 Amusia, 71 4764 Kennedy, 72 5149 Amusia, 72 5473 Amusia, 73 6450 Monaghan, 74	1288 McGuire, 67 2079 Comes, 66 2618 Brandt, 67 2848 McGuire, 65 3520 McGuire, 68 4468 Manson, 70 4758 Wendin, 72 4775 Wendin, 71 5223 Amusia, 71 6092 Walker, 74 6496 Amusia, 74
Y	3520 McGuire, 68	
Zn	3520 McGuire, 68 6092 Walker, 74 6496 Amusia, 74	4824 Hyman, 71 6228 Fliflet, 74
Zn <sup>+1</sup>	4475 McGinn, 70	
Zr	3520 McGuire, 68	
CH	5166 Walker, 72	
CO	6219 Huang, 74	6501 Rabalais, 74
Cl <sub>2</sub>	4760 Thiel, 71	
D <sub>2</sub>	6171 Itikawa, 73	
F <sub>2</sub>	4760 Thiel, 71	
HCl	4760 Thiel, 71	
H <sub>2</sub>	1599 Flannery, 65 2869 Khare, 67 3891 Kaplan, 69 4981 Shaw, 72 6171 Itikawa, 73 6449 Martin, 74	2057 Shimizu, 63 3412 Khare, 68 4042 Tully, 68 5690 Kelly, 73 6298 Bottcher, 74 6501 Rabalais, 74
H <sub>2</sub> <sup>+</sup>	5023 Cohn, 72	
H <sub>2</sub> <sup>+1</sup>	2204 Bates, 53	3517 Bates, 68
HF	4760 Thiel, 71	
N <sub>2</sub>	3889 Schneider, 69 6219 Huang, 74	4356 Tuckwell, 70 6501 Rabalais, 74

# IONIZATION THEORETICAL

Normalized

O <sub>2</sub>	3821 Dixon, 69	4513 Tuckwell, 71
H <sub>2</sub> O	6501 Rabalais, 74	
H <sub>2</sub> S	6501 Rabalais, 74	
C <sub>2</sub> H <sub>2</sub>	3692 Kaplan, 68	
CH <sub>4</sub>	1660 Dalgarno, 52	6501 Rabalais, 74

Relative

Ar	4471 Manson, 70	
He	2631 Byron Jr., 67	
Kr	2645 Krause, 67	4471 Manson, 70
Ne	4471 Manson, 70	
Xe	4471 Manson, 70	4473 Manson, 71
H <sub>2</sub>	4976 Dill, 72	
O <sub>2</sub>	4518 Smith, 70	

# DETACHMENT EXPERIMENTAL

Normalized

Ag <sup>-</sup>	5354 Hotop, 73	
Au <sup>-</sup>	5354 Hotop, 73	
B <sup>-</sup>	5845 Kaiser, 73	
Br <sup>-</sup>	3780 Rothe, 69	
C <sup>-</sup>	599 Seman, 62 4525 Feldmann, 70	1008 Branscomb, 62
Cl <sup>-</sup>	3780 Rothe, 69 5094 Pietsch, 72	4829 Muck, 68
Cs <sup>-</sup>	5845 Kaiser, 73	
F <sup>-</sup>	949 Berry, 63 4476 Mandl, 71	2644 Popp, 67
Ga <sup>-</sup>	5845 Kaiser, 73	

# DETACHMENT EXPERIMENTAL

Normalized

H <sup>-</sup>	1222 Smith, 59 1291 Bohn, 65	1223 Smith, 59
I <sup>-</sup>	817 Steiner, 62 3780 Rothe, 69	3414 Steiner, 68
K <sup>-</sup>	5845 Kaiser, 73	
Li <sup>-</sup>	5845 Kaiser, 73	
O <sup>-</sup>	38 Branscomb, 58 1632 Branscomb, 65	1628 Branscomb, 65 2667 Smith, 60
P <sup>-</sup>	5845 Kaiser, 73	
Pb <sup>-</sup>	5845 Kaiser, 73	
Pt <sup>-</sup>	5354 Hotop, 73	
Sb <sup>-</sup>	5845 Kaiser, 73	
Si <sup>-</sup>	4822 Feldmann, 71	
CH <sup>-</sup>	4525 Feldmann, 70	
MgH <sup>-</sup>	5845 Kaiser, 73	
OD <sup>-</sup>	1628 Branscomb, 65	1669 Branscomb, 66
OH <sup>-</sup>	1628 Branscomb, 65	1669 Branscomb, 66
O <sub>2</sub> <sup>-</sup>	468 Burch, 58 5147 Burt, 72	1628 Branscomb, 65
PH <sup>-</sup>	5845 Kaiser, 73	
PtN <sup>-</sup>	5354 Hotop, 73	
SH <sup>-</sup>	3548 Steiner, 68	
SO <sup>-</sup>	4525 Feldmann, 70	
NH <sub>2</sub> <sup>-</sup>	4822 Feldmann, 71	
NO <sub>2</sub> <sup>-</sup>	1628 Branscomb, 65 6257 Herbst, 74	3887 Warneck, 69
O <sub>3</sub> <sup>-</sup>	4812 Byerly Jr., 71	5510 Burt, 72
SO <sub>2</sub> <sup>-</sup>	4525 Feldmann, 70	
CO <sub>3</sub> <sup>-</sup>	5168 Burt, 72	
O <sub>4</sub> <sup>-</sup>	5100 Burt, 72	

## DETACHMENT EXPERIMENTAL

## DETACHMENT THEORETICAL

Relative

Normalized

Ag <sup>-</sup>	5716 Bennett, 72		C <sup>-</sup>	666 Myerscough, 63	1057 Cooper, 62
Ca <sup>-</sup>	6473 Heinicke, 74			1101 Moskvina, 64	1266 Myerscough, 65
Cs <sup>-</sup>	5915 Patterson, 74			1295 Myerscough, 64	1830 Henry, 66
				2060 Robinson, 67	2787 Breene Jr., 59
				3260 Henry, 68	6379 Ishihara, 74
H <sup>-</sup>	979 Smith, 55	1386 Branscomb, 55	Cl <sup>-</sup>	1057 Cooper, 62	1929 Moskvina, 65
	1386 Branscomb, 55			2060 Robinson, 67	4244 Conneely, 70
I <sup>-</sup>	839 Steiner, 63		Cs <sup>-</sup>	5075 John, 72	
K <sup>-</sup>	5915 Patterson, 74		F <sup>-</sup>	1057 Cooper, 62	1101 Moskvina, 64
O <sup>-</sup>	979 Smith, 55			1929 Moskvina, 65	2060 Robinson, 67
				6379 Ishihara, 74	
Rb <sup>-</sup>	5915 Patterson, 74		H <sup>-</sup>	371 Geltman, 62	561 Ohmura, 60
S <sup>-</sup>	4463 Lineberger, 70			894 Chandrasekhar, 58	1166 Jen, 33
Se <sup>-</sup>	5726 Hotop, 73			1203 Tietz, 61	1227 Henrich, 44
C <sub>2</sub> <sup>-</sup>	4797 Lineberger, 72			1243 Chandrasekhar, 45	1384 Chandrasekhar, 58
OD <sup>-</sup>	6034 Hotop, 74			1385 Chandrasekhar, 45	1392 John, 60
OH <sup>-</sup>	6034 Hotop, 74			1629 Weinberg, 65	1794 Doughty, 66
O <sub>2</sub> <sup>-</sup>	5716 Bennett, 72			2241 Geltman, 56	2309 John, 60
SH <sup>-</sup>	5715 Smyth, 72	6374 Eyler, 74		2373 Massey, 40	2374 Mitchell Jr., 59
SO <sup>-</sup>	5716 Bennett, 72			2382 Bell, 67	2680 Williamson, 42
SeH <sup>-</sup>	4980 Smyth, 72	5715 Smyth, 72		2693 Rudkjobing, 43	2724 Jen, 36
AsH <sub>2</sub> <sup>-</sup>	4871 Smyth, 72	5715 Smyth, 72		2747 Krogdahl, 67	2794 Macek, 67
NH <sub>2</sub> <sup>-</sup>	4871 Smyth, 72	5715 Smyth, 72		2803 Tietz, 62	4512 Postma, 71
NO <sub>2</sub> <sup>-</sup>	6081 Richardson, 74			4515 Dutta, 71	5026 Smith, 71
PH <sub>2</sub> <sup>-</sup>	5715 Smyth, 72			5170 Hyman, 72	6255 Jacobs, 74
H <sub>3</sub> O <sub>2</sub> <sup>-</sup>	3564 Golub, 68		I <sup>-</sup>	2060 Robinson, 67	
CaH <sup>-</sup>	6473 Heinicke, 74		K <sup>-</sup>	1929 Moskvina, 65	5075 John, 72
				6408 Moores, 74	
			Li <sup>-</sup>	1203 Tietz, 61	1929 Moskvina, 65
				2241 Geltman, 56	2681 Zhirnov, 62
				2803 Tietz, 62	4158 Yaakobi, 69
				5020 John, 72	5075 John, 72
				5167 John, 72	6408 Moores, 74
			N <sup>-</sup>	1101 Moskvina, 64	3260 Henry, 68
			Na <sup>-</sup>	1929 Moskvina, 65	5075 John, 72
				6408 Moores, 74	
			O <sup>-</sup>	247 Yamanouchi, 40	399 Klein, 58
				588 Henry, 67	885 Gillespie, 64
				1057 Cooper, 62	1101 Moskvina, 64
				1635 Breene Jr., 65	2060 Robinson, 67
				2071 Garrett, 67	2892 Bates, 46
				3888 Schneider, 69	5005 Lan, 72
				5073 Chase, 72	
			Rb <sup>-</sup>	5075 John, 72	
			S <sup>-</sup>	2060 Robinson, 67	4244 Conneely, 70

## DETACHMENT THEORETICAL

Normalized

Br<sup>-</sup> 2060 Robinson, 67

## DETACHMENT THEORETICAL

## FLUORESCENCE EXPERIMENTAL

## Normalized

Si<sup>-</sup> 2060 Robinson, 67 4244 Conneely, 70

## Relative

S<sup>-</sup> 4834 Rau, 71

## Relative

O<sub>3</sub> 5575 Ridley, 73

C<sub>2</sub>N<sub>2</sub> 6376 Jackson, 74

## DISSOCIATION EXPERIMENTAL

## FLUORESCENCE EXPERIMENTAL

## Normalized

## Normalized

CO 5095 Monahan, 72 6452 Lee, 74

N<sub>2</sub> 5095 Monahan, 72 6378 Lee, 74

O<sub>2</sub> 4769 Carlson, 70 5095 Monahan, 72  
6067 Carlson, 74 6378 Lee, 74

CO<sub>2</sub> 5095 Monahan, 72 5148 Lee, 72  
5174 Samson, 73 5218 Lawrence, 72  
5261 Judge, 73 5546 Gentieu, 73  
5547 Carlson, 73

N<sub>2</sub>O 5095 Monahan, 72 6068 Lee, 74  
6377 McEwan, 74

C<sub>2</sub>HCN 5741 Okabe, 73

## Relative

K<sub>2</sub> 5558 Alzetta, 73

N<sub>2</sub> 5471 Lee, 73

NO 5977 Hertz, 74 6448 Hertz, 74

NaI 4765 Earl, 72

NaK 5558 Alzetta, 73

Na<sub>2</sub> 5558 Alzetta, 73

O<sub>2</sub> 5575 Ridley, 73

CO<sub>2</sub> 5513 Sroka, 73 5575 Ridley, 73  
5839 Judge, 73

N<sub>2</sub>O 5575 Ridley, 73 5633 Sroka, 73  
6472 Hertz, 74

Br<sub>2</sub><sup>-</sup> 6470 Rackwitz, 74

Cl<sub>2</sub><sup>-</sup> 6470 Rackwitz, 74

CsF 4828 Mandl, 71

D<sub>2</sub><sup>+1</sup> 4936 Von Busch, 72

F<sub>2</sub><sup>-</sup> 6470 Rackwitz, 74

H<sub>2</sub> 2477 Beyer, 67 4025 Comes, 68  
4162 Comes, 70 4368 Mentall, 70  
4937 Samson, 72 5352 Fryar, 73

H<sub>2</sub><sup>+1</sup> 4936 Von Busch, 72

I<sub>2</sub> 6447 Burde, 74

I<sub>2</sub><sup>-</sup> 6470 Rackwitz, 74

N<sub>2</sub> 3682 Samson, 59 4179 Beyer, 69  
5352 Fryar, 73 6378 Lee, 74

O<sub>2</sub> 1280 Metzger, 64 1797 Goldstein, 66  
2384 Matsunaga, 67 2943 Comes, 68  
3250 Frost, 68 3682 Samson, 59  
4151 Bixon, 69 4179 Beyer, 69  
4769 Carlson, 70 5352 Fryar, 73  
5850 Lin, 74 6067 Carlson, 74  
6378 Lee, 74

CO<sub>2</sub> 3682 Samson, 59 4928 Lawrence, 72  
5261 Judge, 73 5352 Fryar, 73  
5546 Gentieu, 73 6471 Slinger, 74

H<sub>2</sub>O 2477 Beyer, 67 4813 Cairns, 71

C<sub>2</sub>H<sub>2</sub> 2342 Schoen, 62

CO<sub>3</sub> 6172 Moseley, 74

NH<sub>3</sub> 2477 Beyer, 67 4877 Bahr, 72

PH<sub>3</sub> 1313 Kley, 65



## DISSOCIATION EXPERIMENTAL

## DISSOCIATION EXPERIMENTAL

## Normalized

## Relative

CH <sub>4</sub>	1701 Ditchburn, 55	4974 Welch, 72
C <sub>2</sub> H <sub>4</sub>	2342 Schoen, 62	
C <sub>2</sub> H <sub>6</sub>	2342 Schoen, 62	

## Relative

Br <sub>2</sub>	2377 Morrison, 60	4522 Dibeler, 70
CO	2678 Weissler, 59	
Cl <sub>2</sub>	4820 Diesen, 71	
ClF	4454 Dibeler, 70	
D <sub>2</sub>	5260 Browning, 73	
DF	4811 Berkowitz, 71	
F <sub>2</sub>	4039 Dibeler, 69 4819 Chupka, 71	4811 Berkowitz, 71
HCl	3640 Krauss, 68	
H <sub>2</sub>	772 Beyer, 64 5260 Browning, 73	2866 Berkowitz, 67 6082 McCulloh, 74
H <sub>2</sub> <sup>+1</sup>	6009 Van Asselt, 74	
HF	4039 Dibeler, 69 4819 Chupka, 71	4811 Berkowitz, 71
I <sub>2</sub>	2377 Morrison, 60	
KI	6323 Earl, 74	
LiI	6323 Earl, 74	
N <sub>2</sub>	931 Comes, 64	2678 Weissler, 59
NO	772 Beyer, 64 6448 Hertz, 74	2678 Weissler, 59
NaBr	6323 Earl, 74	
NaI	1979 Berkowitz, 66	4765 Earl, 72
O <sub>2</sub>	772 Beyer, 64 2727 Dibeler, 67 5575 Ridley, 73	2678 Weissler, 59 3549 Doolittle, 68 5958 Lawrence, 73
S <sub>2</sub>	3886 Berkowitz, 69	
Se <sub>2</sub>	3886 Berkowitz, 69	

Te <sub>2</sub>	3886 Berkowitz, 69	
TII	1979 Berkowitz, 66	
BrCN	3011 Dibeler, 67	
CO <sub>2</sub>	772 Beyer, 64 2727 Dibeler, 67 5040 Inn, 72 5575 Ridley, 73	2678 Weissler, 59 4836 Welge, 71 5258 Lee, 73
COS	2727 Dibeler, 67	
CS <sub>2</sub>	2727 Dibeler, 67	4872 Okabe, 72
CICN	3011 Dibeler, 67	
FCN	3011 Dibeler, 67	
HCN	3251 Dibeler, 68	3691 Berkowitz, 69
H <sub>2</sub> O	772 Beyer, 64	2623 Dibeler, 66
H <sub>2</sub> S	3392 Dibeler, 68	
ICN	3011 Dibeler, 67	
MgI <sub>2</sub>	1979 Berkowitz, 66	
N <sub>2</sub> O	2678 Weissler, 59 4823 Gilpin, 71 5633 Sroka, 73	2873 Dibeler, 67 5575 Ridley, 73
NOCl	4876 Busch, 72	
NO <sub>2</sub>	2678 Weissler, 59 4874 Busch, 72	2873 Dibeler, 67 4875 Busch, 72
O <sub>3</sub>	5575 Ridley, 73	
SO <sub>2</sub>	3392 Dibeler, 68	
C <sub>2</sub> D <sub>2</sub>	1684 Botter, 66	
C <sub>2</sub> H <sub>2</sub>	1684 Botter, 66 5512 Sieck, 73	2025 Botter, 66
C <sub>2</sub> N <sub>2</sub>	3011 Dibeler, 67	
NH <sub>3</sub>	2623 Dibeler, 66	2853 Okabe, 67
Na <sub>2</sub> I <sub>2</sub>	1979 Berkowitz, 66	
CD <sub>4</sub>	1357 Dibeler, 65	5512 Sieck, 73
CF <sub>4</sub>	4041 Walter, 69	

## DISSOCIATION EXPERIMENTAL

Relative

CH <sub>3</sub> Cl	2219 Dibeler, 65	3640 Krauss, 68
CH <sub>3</sub> F	3640 Krauss, 68	
CH <sub>4</sub>	1357 Dibeler, 65 5512 Sieck, 73	3026 Chupka, 68
C <sub>2</sub> F <sub>4</sub>	4041 Walter, 69	
C <sub>2</sub> H <sub>4</sub>	1699 Brehm, 66	3757 Chupka, 69
CHDCHD	2025 Botter, 66	
C <sub>2</sub> H <sub>6</sub>	5512 Sieck, 73	

## DISSOCIATION THEORETICAL

Normalized

Cl <sub>2</sub>	5842 Gibson, 33	5978 Wilkins, 64
D <sub>2</sub>	4456 Allison, 69	
D <sub>2</sub> <sup>+1</sup>	2876 Dunn, 68	3259 Dunn, 68
HD	4456 Allison, 69	
H <sub>2</sub>	3988 Dalgarno, 69 4810 Allison, 71	4456 Allison, 69
H <sub>2</sub> <sup>+1</sup>	2800 Oksyuk, 67 3259 Dunn, 68	2876 Dunn, 68 6407 Argyros, 74
O <sub>2</sub>	2606 Stueckelberg, 32 5263 Allison, 71	4803 Smith, 71

Relative

F <sub>2</sub>	6317 Eletskaa, 74
H <sub>2</sub>	4474 Julienne, 71
O <sub>2</sub>	4151 Bixon, 69

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Aden, A. L.	698					Anderson, R. J.	877 5572	1942	2626	3846	4212			
Adler, A.	5465					Anderson, V. E.	4892							
Adler, S. E.	4820					Andrick, A.	3770							
Afrosimov, V. V.	4087					Andrick, D.	3391	4552	4779					
Agnew, L.	2888					Appell, J.	4742	4895						
Ahearn, A. J.	1239					Appleton, J. P.	2216							
Aitken, K. L.	4706	4707				Ardill, R. W. B.	3025							
Ajello, J. M.	3991	4226	4684	4685	4688	Argyros, J. D.	6407							
Ajmera, M. P.	6190	6348				Armstead, R. L.	1580	3258						
Akerib, R.	276	913	996			Arnot, F. L.	50 156	52 191	65 245	69 1152	144			
Akopyan, M. E.	2865	6270				Arnow, M. M.	6346							
Albat, R.	5906					Arnquist, W. N.	163							
Aleinikov, V. A.	4353					Asbrink, L.	4524	4535	4776	4821				
Aleksakhin, I. S.	1990 5111 6312	2726 5731 6383	3063 5809 6387	3699 6051 6466	4783 6252 6497	Ashihara, O.	4564							
Allen, C. W.	923					Asinovskii, E. I.	1835							
Allen, H. W.	273					Astoin, N.	1060 2740	1142 2741	1143	1619	2596			



Asundi, R. K.	626 1592	743 2763	847	938	940	Baker, F. A.	1492							
Atkinson, G. H.	6374					Bakia, R.	965							
Atkinson, R.	5575					Balashov, V. V.	5092	5852	5981					
Atkinson, W. R.	241					Baldwin, G. C.	2440	6002						
Aubrey, B. B.	177	1490	2170			Ball, J. S.	3370							
Aulenkamp, H.	6269					Balling, L. C.	522	1346	1944	3771	5612			
Austin, J. M.	3761	3765				Ballou, J. K.	5737							
Awad, G. L.	5193					Baluja, K. L.	4496							
Awan, A. M.	3743					Bandel, H. W.	869	1375	1787	1962				
Axelrod, N. N.	509					Banerjee, S. N.	1182 2129	1703 2750	1704 2751	2126 2968	2127 3452			
Azria, R.	4729 6264	4846	4852	5142	5707	Banerji, G.	4755	5355						
Baas, R. Ch.	5140					Banks, D.	4093	5643						
Backx, C.	4790					Bannon, J.	203							
Bacon, F. M.	1568	2938	4314			Banyard, K. E.	5972	6460						
Baer, M.	5991					Baranger, E.	386							
Baer, T.	4166					Barbier, D.	2511							
Baerwald, H.	170					Barbiere, D.	397							
Bagus, P. S.	6048					Bardi, G.	6119							
Bahr, J. L.	4030	4877	4878	4880		Bardsley, J. N.	2004	4891	5600	5632	6263			
Bailey, J. E.	683					Barnes, L. L.	1251							
Bailey, T. L.	1117					Bartky, C. D.	1557	1558						
Bailey, V. A.	159 682	195 2088	197	199	201	Barton, M. J.	4319							
Baille, P.	5912	6122	6409			Barua, A. K.	4666	4955	6283					
Bain, R. A.	4891					Bassel, R. H.	3774	4123						
Baines, G. O.	69	156				Basu, D.	6113							
Bair, E. J.	6080					Basu, R.	1178							
Bajwa, G. S.	3402					Batenin, V. M.	1835	5467						
Baker Jr., D. J.	647	2704				Bates, D. R.	71 1141 1321 2892	146 1180 1330 3517	243 1183 1624	423 1193 2204	444 1236 2373			
Baker, C.	3781					Bates, G. N.	5477							

Bauer, E.	368	821	1557	1558	Bennett, W.	1196				
Bauer, N.	456				Bensimon, J.	3971	5280			
Baye, D.	6196	6197			Berg, R. A.	4208	4485	5582		
Bayes, K. D.	687				Berkowitz, J.	1979	2624	2802	2866	3256
Bayliss, N. S.	5841	5842				3372	3396	3691	3757	3886
Beach, J. Y.	456					3915	4037	4040	4041	4811
Beaty, E. C.	4405	4671	4781	4812	4857	4819	5222	5691	5914	6079
Beauchamp, J. L.	3824					6229				
Becker, P. M.	311	555	1100	1212	Berman, A. S.	187	372	794		
Becker, R. A.	1252				Bernstein, M. J.	188				
Becker, W. G.	6215	6302	6303		Berrington, K. A.	5315				
Bederson, B.	16	329	846	1490	2170	Berry, R. S.	949	1629	3411	3876
	2947	3849	4492	4561	4787		3889	4042	4981	3888
	5653									
Bedo, D. E.	647				Beuthe, H.	172				
Beenakker, C. I. M.	4646	6468			Beyer, K. D.	772	2477	4179		
Begun, G. M.	1116				Beynon, J. D. E.	1732	2026	2855	5035	5091
Beigman, I. L.	2733	2946	3060	4446	4455	Bezdeneshnykh, G. V.	3293			
	4905					Bhadra, K.	4396			
Bekefi, G.	360					Bhalla, M. S.	948			
Bell, K. L.	351	822	1409	1710	2213	Bhatia, A. K.	4395	4924	5956	6255
	2217	2382	3018	3019	3208	Bhattacharyya, T.	514			
	3587	3733	3932	4235	4345	Bhattacharyya, S.	6234	6314		
	4519	4716	4805	4868	5837	Bialecke, E. P.	703			
Bell, M. E.	215					Biaume, F.	4470	5851		
Bellisio, J. A.	4038					Biberman, L. M.	1059			
Belousova, I. M.	929					Bielski, A.	1793			
Bely, F.	2115	3013				Bien, F.	3012			
Bely, O.	547	775	970	1138	1305	Bilinsky, S.	1294			
	1448	1696	1850	1992	2115	Biondi, M. A.	131	541	1064	1344
	2118	3003	3013	3736	4230	Birman, A.	4071			
	4728	5304				Birtwistle, D. T.	4502	4922		
Benade, J. M.	674					Bixon, M.	4151			
Bennett, R. A.	5716	6172				Blacet, F. E.	2244			
Bennett, W. H.	42									
Bennett, W. R.	613									



Black, G.	6471					5286	5833	6005	6235
Black, J. H.	5099					Bortner, T. E.	1016		
Blackburn, P. E.	4970					Bose, N.	5846		
Blackwell, H. E.	3402					Bott, J.	1377		
Blaha, M.	437	4084	4954			Bottcher, C.	6298		
Blais, N. C.	566					Botter, R.	1684	2025	3580
Blake, A. J.	582	1731	1967	4030	4774		5592	6001	3581
	4877	4878	4880			Bowe, J. C.	819		3582
Blanc, C.	986					Bowman, C. R.	1374		
Blanc, D.	986					Boyce, J. C.	2314		
Bleakney, W.	9	12	35	228	1095	Boyd, A. H.	1183	2665	
Blue, G. D.	4346					Boyd, R. L. F.	335	491	
Boeckner, C.	496	764	1213	1241		Boyd, T. J. M.	419		
Boerboom, A. J. H.	1706	1782	1858	2349	3989	Boyet, H.	393		
	4995					Brackett, J. W.	1579		
Boersch, H.	1065	1585	1753			Brackmann, R. T.	280	320	321
Bogachyov, G. G.	5111						326	332	1525
Bogdanova, I. P.	222	476	1324	1534	1988	Bradbury, J. N.	6050		322
	2620	4091	4132	4441	4953	Braddick, H. J. J.	1242	2666	323
	5524					Bradley, D. J.	4918		6112
Bohn, A.	1291					Bradley, J. E. S.	2871		
Boikova, R. F.	1681	3684				Brandi, H. S.	5656		
Boksenberg, A.	491	1106				Brandt, A. F.	116		
Boland, B. C.	5158					Brandt, M. A.	5990		
Bolduc, E.	4736	4743				Brandt, W.	2618		
Bolotin, A. B.	3059	3579	4432	5009		Brandus, L.	4741	5594	5710
Boness, M. J. W.	3389	4373	5010	5734	5901	Branscomb, L. M.	38	90	468
	6109						839	979	1008
Bonham, R. A.	875	3982	4318	4351	5152		1628	1632	1669
Bonsen, T. F. M.	3584	4093	4113			Bransden, B. H.	416	425	429
Borne, T. B.	4066						1495	2012	3972
Borowitz, S.	384	389	393	511	913		4854	5315	5661
	967					Branton, G. R.	4028	4534	436
Borst, W. L.	3848	4080	4125	4135	4633	Brasefield, C. J.	232		440
	4712	4748	4788	4853	5033				4069
									4334
									6265

Bratsev, V. F.	1682	1804	2756			Brooker, P. G.	5035	5091		
Brattain, W. H.	231					Brose, H. L.	203			
Brauman, J. I.	4793	4871	4980	6081		Brown, F. C.	4977			
Braun, J. C.	4840					Brown, H.	4492			
Breckenridge, W. H.	4146					Brown, R. L.	4141	4154	4510	
Bredig, M. A.	660					Brown, R. T.	4799			
Breen, F. H.	287					Brown, S. C.	312	314	360	594 1400
Breene Jr., R. G.	574 2787	934	939	1635	1733	Browne, H. N.	821			
Brehm, B.	1699	2658	4541			Browne, J. C.	5271			
Brehm, J. J.	169					Browning, R.	5260	5352		
Breig, E. L.	1564	2016	2824	4815		Bruche, E.	77 85	79 89	80 259	82 84
Bricout, P.	656					Brueckner, K. A.	399			
Briggs, J. S.	4393					Brundle, C. R.	3454	4161		
Briglia, D. D.	988 1410	1164 1451	1292 1460	1372 1543	1396	Brytov, I. A.	1777	2301		
Brink, G. O.	150	777	1217			Buchanan, A. S.	4216			
Brinkmann, R. T.	3545					Buchdahl, R.	134			
Brion, C. E.	985 4109	3808 4241	3874 4509	3878 4809	3880 6178	Buchelnikova, I. S.	766			
Britton, D.	3645					Buchelnikova, N. S.	746			
Broad, J. T.	6033					Buckingham, R. A.	70	243		
Broadfoot, A. L.	4800					Buckley, B. D.	6307			
Brocklehurst, M.	5196					Bulewicz, E. M.	1041			
Brode, R. B.	1 47	6 219	8 1007	13	46	Bulger, J. S.	4614			
Brodhead, D. C.	2625					Bull, W. E.	4539			
Brody, M. D.	3643					Bullard, E. C.	49	53	138	267
Broida, H. P.	4806					Bunch, S. M.	2379			
Brolley, J. E.	4352	5472				Bundy, F. P.	39			
Bromberg, J. P.	3817	3983	4112	6047	6236	Bunyan, P. J.	109	1424		
Bronco, C. J.	742					Burch, D. S.	38	468	1222	1223
Brongersma, H. H.	3810	3830	3989	4790		Burde, D. H.	6447			
						Burgess, A.	57 1258	417 2056	715 4119	735 6422 892



Burhop, E. H. S.	140					Carlson, R. W.	4521	4769	5192	5303	5471
Burke, P. G.	83	151	162	669	874		5547	5693	5838	6067	6378
	918	1009	1015	1080	1340		6452				
	1436	1545	1653	1846	1847	Carlson, T. A.	2622	2645	4117	4127	4539
	1999	2616	2791	2792	3055		4804				
	3056	3518	3700	3734	3742						
	3838	3936	3949	4237	4327	Carlsten, J. L.	5740	6201			
	4435	4778	4869	5071	5170						
	5219	5279	5590	5827	5996	Carriere, J. D.	4507				
Burke, V. M.	44	162	712			Carse, G. D.	5082				
Burnashev, M. A.	4996	5156				Carson, T. R.	434				
Burns, D. J.	1214	3246	3762	4682	5555	Carter, C.	421				
Burns, J. F.	410	591				Carter, D. E.	5663				
Burrow, P. D.	2646	3071	3543	4136	4407	Carter, J. G.	4494				
	5909										
Burt, J. A.	5100	5147	5168	5510		Carter, V. L.	1353	1405	1799	2619	2697
							2862	2973	3004	3542	3754
Burt, B. P.	347						3784	3816	4139	4815	4870
							5548				
Busch, G. E.	4874	4875	4876			Cartwright, D. C.	2773	3344	3545	3728	4114
							4169	4443	4560	4664	4724
Byatt, W. J.	388	597					4740	5215	5832	6417	
Byerly Jr., R.	4812					Carver, J. H.	582	1731	1967	4030	4877
							4878	4880	4929		
Byron Jr., F. W.	1788	2631	2835	4721	4739						
	5654	6184	6186			Catlow, G. W.	2836				
Cabaud, B.	4429					Caves, T. C.	5117				
Cahill, P.	1889					Celotta, R. J.	4492				
Cairns, R. B.	1187	1359	1404	1561	1702	Center, R. E.	5143				
	1732	1798	2861	3413	3818						
	4035	4144	4148	4365	4813	Cermak, V.	1572	1781			
	4969										
Callaway, J.	976	1342	1827	2959	3516	Chalonge, D.	2511				
	3772	3938	4081	4229	4307	Chamberlain, G. E.	922	1304	1373	1417	1527
	4562	5733	6304	6414			1692	1693	2912	4408	
Cannon, C. G.	2871					Champion, K. S. W.	698				
Canter, K. F.	5017	5366	6008			Chan, F. T.	5601	5725	6189	6350	
Caplinger, E.	1268					Chan, Y. F.	5892				
Carbaty, E. A.	6093					Chan, Y. M.	2719				
Carignan, G. R.	5012					Chandra, N.	5071	5827	6297		
Carleton, N. P.	992	3338	4428			Chandrasekhar, S.	287	894	1243	1384	1385
Carlson, K. D.	2900					Chaney, E. L.	3845				

Chang, E. S.	2005 4308	3523 4447	3828 4747	4000 6328	4027 6418	Christoph, W.	290				
Chang, J.-J.	4873					Christophorou, L. G.	1565 4494	2560 4892	3006	3007	3845
Chang, T. N.	4816	5736				Chu, S.-I.	6268				
Chanin, L. M.	131					Chun, H. U.	3532				
Chantry, P. J.	2078	3292	3986	5058		Chung, K. T.	6190	6348			
Chapman, R. D.	4817	4881				Chung, S.	5061	5274	6117		
Chase, R. L.	5073	6453				Chupka, W. A.	1979 3372 3915 5222	2776 3396 4040 5691	2802 3691 4041 5914	2866 3757 4811 6079	3026 3886 4819
Chaudhuri, J.	6420					Chutjian, A.	5141	5215	6386		
Chen, C. L.	182	249	739	1019		Cillie, G.	295				
Chen, J. C. Y.	207 3370	895 4489	962 4964	964 5004	1852 5657	Cirg, I.	142				
Chen, S. T.	5572	5725	6189	6350		Clampitt, R.	3756				
Chen, S.-Y.	2328					Clark, C. D.	5661	6265			
Chenault, R. L.	1238					Clark, I. D.	4156				
Cherepkov, N. A.	3766 5149 6496	4142 5223	4339 5588	4466 6000	4517 6146	Clark, K. C.	1641				
Chernysheva, L. V.	3766 5223	4142 5473	4466 6000	4517 6146	5149 6496	Clarke, E. M.	854 2954	1089 2955	1509	1512	2784
Cheshire, I. M.	645					Clout, P. N.	4204				
Chiandusso, C.	5847					Cloutier, G. G.	481				
Chiari, J.	2969	3023	4846			Coblentz, W. W.	1241				
Chibisov, M. I.	818	1764				Cochsan, L. W.	685				
Childs, E. C.	62	64	1286			Codling, K.	1351 4762	1854 4798	2381 5022	3398 6451	3779
Ching, B. K.	1252	1395				Cody, R. J.	6376				
Chinnov, V. F.	5467					Cody, W. J.	933				
Choi, C. K.	3255					Coffin, E. M.	617				
Choong, S.-P.	1369	2890				Cohen, M. H.	1485				
Choudhury, A. L.	1364	1659				Cohn, A.	5023				
Choudhury, M. H.	5146					Coleman, J. P.	1479 5661	1697 6265	1886	4854	5315
Chow Chiu, L.-Y.	2218					Coleman, P. G.	5017	5366	6008	6177	
Chow, K. W.	4818										
Chow, R. K. M.	1342										



Coles, S. B.	620					Cotte, M.	3971				
Collin, J. E.	531 4379	3571 4978	3820 5729	4214	4378	Cottin, M.	483				
Collins, C. B.	4741					Cottrell, T. L.	5200				
Collins, R. E.	2947	3147	3849	4561		Court, G. R.	887				
Comeaux, A. R.	4036	4467				Cowling, I. R.	5485	5658			
Comer, J.	4611	4672	4967			Cox, D. M.	3027	4694	4945		
Comes, F. J.	528 2079 2943	891 2485 3257	926 2639 4025	930 2941 4162	931 2942 4362	Craggs, J. D.	337 861 948	346 865 950	357 867 1118	847 938 1231	853 940 3051
Compton, D. M. J.	2308					Craigie, M.	6046				
Compton, K. T.	2	674				Crandall, D. H.	6188	6193			
Compton, R. N.	1565 4133	2560 5116	3007	3763	3970	Crawford, C. K.	659 5980	2825	2917	2918	3643
Conneely, M. J.	2868	3704	4244	4469	4831	Crawford, O. H.	3675	4555			
Connolly, J. G.	1916					Creek, D. M.	3067	3399			
Connor, T. R.	1344					Crompton, R. W.	352 4484	1489	2433	4062	4355
Cook, C. J.	153					Crooks, G. B.	4992	5069			
Cook, G. R.	688 1253 1711 2850 5024	916 1280 2062 2864	1149 1355 2379 3913	1172 1395 2423 3916	1252 1626 2678 4464	Crothers, D. S. F.	1171	1532	2736		
Cooke, F. M.	1382					Crowe, A.	4238 5739	4968 5985	5159	5595	5728
Coolidge, A. P.	987					Crown, J. C.	1343	1897			
Cooper Jr., J. L.	1874					Crozier, W. D.	673				
Cooper, J. W.	925 3056 4847	1057 3708	1846 3936	2506 4469	2843 4471	Csanak, Gy.	5217	6316			
Coplan, M. A.	5816					Cukier, M.	6256				
Coppens, P.	6199					Cunningham, G. M.	1109				
Corinaldesi, E.	28					Curley, E. K.	1512	3836			
Cornford, A. B.	4526					Curran, R. K.	133	971	1066	1067	
Corrigan, S. J. B.	336	354	1566	3759		Curtis, J. P.	1232	1612			
Corvin, K. K.	3759					Cuthbert, J.	1742				
Costello, D. G.	4757					Cvejanovic, S.	6237				
						Czarnik, J. W.	4423				
						Czyzak, S. J.	442	1932	1943	2335	3294

	4199					De Jongh, J. P.	4218	4616		
Dahler, J. S.	311	555	5059			De La Ripelle, F.	1144			
Dai, B. T.	4556	4695				De Maria, G.	1578			
Daiber, J. W.	1577	1945				De More, W. B.	5096	5843	5850	
Dalgarno, A.	416	436	440	690	702	De Reilhac, L.	2778			
	1341	1660	1661	1667	2719	De Vore, R. V.	256			
	2852	2958	3347	3988	4456	Debies, T. P.	6501			
	4555	4644	4810	5093	5117	Decoster, A.	5848			
	5263	6268				Degeilh, A.	986			
Dalton, B. J.	4042					Degges, T.	2958			
Daly, N. R.	1881	2422				Dehmelt, H. G.	679			
Damany-Astoin, N.	2778					Dehmer, J. L.	6229			
Damburg, R. Ya.	32	91	97	148	154	Dehmer, P. M.	5914	6079		
	278	296	507	542	609	Deichsel, H.	1425	1427	1431	1596
	648	810	835	836	856	Deleanu, L.	5811	6381		
	1505	1550	1551	1552	1553	Delpech, J.-F.	4711			
	2937	3881	4923			Delwiche, J.	4978			
Dance, D. F.	1803	2788	2790			Demeter, A. M.	6341			
Danch, F. F.	5830	6464				Demkov, Yu. N.	457	5358		
Danielson, P. M.	4970					Dershem, E.	3685			
Danilevskii, N. P.	4864	5088	5157	5525	6231	Deslattes, R. D.	1855	2872		
Danner, D.	3770					Desprez-Rebaud, S.	461			
Darewych, J. W.	4434	5912	6122	6409		Devyatov, A. M.	474	607	755	1325
Dashchenko, A. I.	78	5001	5830	6053	6384		3322			1533
	6464					Dhez, P.	3020	6256		
Datla, R. U.	4962					Dibeler, V. H.	466	525	1320	1357
Davidovits, P.	2625	3543	4038				1857	2025	2215	2219
Davies, A. R.	5597	5895					2623	2727	2873	3011
Davis, F. J.	5135						3392	3640	4039	4454
Davis, J.	4014	4072	4124	4643	4786		5257	5741	5840	4522
	6133	6413				Dibelius, N. R.	768			
Davis, S. J.	5612					Dickson, H. W.	3007			
Davison, W. D.	3025					Dicoum, E. M.	5280			
De Heer, F. J.	1281	1690	1748	1782	2349	Diesen, R. W.	4820			
	2945	3541	3687	3729	3812					
	3831	3832	3984	4220	4297					
	4349	4646	4655	4683	4841					
	5140	6142	6468							



Dill, D.	4976	6375				DuBois, R. D.	4992				
Dillon, M. A.	2659 3814	2694 4198	2696	3546	3547	Dubau, J.	5302	5692			
Dirks, J. F.	4350					Dubovoi, L. V.	1507				
Ditchburn, R. W.	1228 1715 1749	1242 1717 2666	1678 1719 2871	1689 1739	1701 1740	Dubrovskii, G. V.	5519				
Dixon, R. N.	3821					Dudko, D. Y.	2906	2956			
Dobay-Szegleth, A.	4635					Dugan Jr., J. V.	1272				
Doering, J. P.	920 4111	1982 5036	2172	2915	3969	Dugan, J. L. G.	2175				
Dolder, K. T.	261 3296 3975 4720 5667 6343	264 3400 3995 4726 5828	907 3850 4344 4865 5829	2721 3947 4437 5016 5896	2977 3948 4503 5214 5997	Dukelskii, V. M.	957				
Dolgov, G. G.	753	754				Duncan, A. B. F.	605	2375	2376	2801	
Dolgov-Savelev, G. G.	3693					Duncan, C. W.	6198				
Donaldson, F. G.	4565	4997	5115	5277	6134	Duncan, D. P.	4837	4921			
Doolen, G. D.	4622	4859				Duncanson, W. E.	2088				
Doolittle, P. H.	3549					Dunn, G. H.	364 2772 6188	1501 2876 6193	1503 3259	2171 4936	2647 5831
Dorman, F. H.	778 1691	1068	1069	1070	1108	Dunning, F. B.	5476	5844	6145	6175	
Dorrestein, R.	123	124				Durup, J.	4895				
Dougal, A. A.	233	703	1450			Dutta, C. M.	4515				
Doughty, N. A.	1794	3567				Dutta, N. C.	4515				
Doumont, M.	4073					Duxler, W. M.	2959	4722			
Dowell, J. T.	1310 3207	2176	2205	2577	2939	Dymond, E. G.	3	253			
Doyle, H.	5093					Earl, B. L.	4765	6323			
Drachman, R. J.	1192 4395	1819 4731	3052	3350	4394	Eaton, C. R.	3874	3880			
Drapatz, S. W.	3993					Ebinghaus, H.	1163	2910			
Drawin, H. W.	454	1044				Economides, D. G.	3941				
Dronov, A. P.	4905					Edelstein, L. A.	695				
Drowart, J.	6199					Ederer, D. L.	1179 4807	1350	1755	2381	3779
						Edlefsen, N. E.	2316	2317			
						Edmisten, W. C.	190				
						Edqvist, O.	4524	4776	4821		
						Egbert, G. T.	5555				

Ehler, A. W.	1756	1769	2379			Erskine, G. A.	458			
Ehlers, V. J.	5523					Ewart, P.	4918			
Ehrhardt, H.	1470	1529	1588	2179	2510	Eyb, M.	3391	4779		
	2624	2650	3252	3377	3391	Eyler, J. R.	6374			
	3410	3747	3770	3944	4388	Fabre, B.	5848			
	4557	4998	5905			Fabrikant, I. I.	5904	6075	6076	
Eiserike, H.	4395	5956				Fabrikant, V.	142	275		
Eissa, H.	1710					Fairchild, C. E.	4423			
Eissner, W.	1560	3732	4004	6462		Faire, A. C.	698			
Eitel, W.	3811	4406				Faisal, F. H. M.	4697	4745	4924	
Ejiri, A.	3566					Faisal, F.	1985			
El-Sherbini, Th. M.	3819	4297	4814	4893	5903	Fajen, F. E.	4451	5737		
Elbert, D. D.	1384					Fano, U.	302	4834		
Elder, F. A.	3510					Farnoux, F. C.	1903	2686	3917	4034 4879
Elenbaas, W.	100	1148					5264	5847		
Eletskii, A. V.	6317					Farren, J.	1742			
Elford, M. T.	2433	4355	5054			Feautrier, N.	3348	4624	5005	
Elgin, R. L.	3005	3253				Fedorova, G. M.	2729			
Ellison, F. O.	6219					Fedorova, N. I.	5157			
Elsasser, W.	183					Feenberg, E.	221			
Elsberry, R. T.	4403					Feeney, R. K.	4448	5054		
Elzer, A.	528	926	2942	2943		Felden, M. A.	4702	5139	5651	
Emeleus, K. G.	1916					Felden, M. M.	4422	4440	4702	4840 5139
Emelyanov, A. M.	3050						5651			
Eminyan, M.	5634	6385				Feldman, P.	773	2759		
Emmanuel, C. B.	1058					Feldmann, D.	4525	4822	6470	6473
Emmel, R. H.	4559					Fels, M. F.	2774			
Ende, W.	1153					Feltsan, P. V.	1076	1583	1648	1823 1895
Enemark, E. A.	4961						2725	2795	2833	2909 3000
Engelhardt, A. G.	218	260	292				4305	5113	5995	
Engelhardt, W.	5085					Fenner, W. R.	5192			
Englander, P.	16					Ferrante, G.	3827			
Englander-Golden, P.	1105	1410	1459			Feser, S.	3323			



Fickes, M. G.	4957	6215	6302	6303		Fontana, P. R.	672				
Field, F. H.	340					Foo, V. Y.	4509				
Fijnaut, H. M.	1570					Foote, P. D.	1238				
Fineman, M. A.	941 2954	1415	1508	1509	2784	Ford, A. L.	5271				
Fink, M.	3773 4612	3982 4921	4174 5480	4421	4491	Forester, D. W.	685				
Fink, X.	1833					Foster, T. C.	6379				
Finn, T. G.	5036					Fournier, A. Y.	2072				
Fiquet-Fayard, F.	283 1919 5142	1124 2969 5707	1162 3023	1167 4729	1530 4846	Fowler, R. G.	241	742	912	2923	
Firsov, O. B.	818					Fox, M. A.	1695	1767			
Fischer, O.	115					Fox, R. E.	133 467 858	271 704 1064	310 707 1067	318 776 1119	353 781 1329
Fishel, M. G.	6199					Fradkin, E. E.	1681				
Fisher, E. I.	1255					Francis, S. A.	192				
Fisher, L.	445					Franco, V.	3822	4122	4123	5902	
Fisk, J. B.	34	37				Franken, P.	610				
Fite, W. L.	280 326 4206	320 332 4668	321 1031 6112	322 1525	323 3841	Franklin, J. L.	340	5663			
Fizgeer, B. M.	4647	4864				Fraser, P. A.	571 1422	744 1794	855 3053	1022 5892	1169
Flannery, M. R.	1599 6458	4181 6461	4341	6266	6419	Fraun, J. C.	5139				
Flavin, R. K.	769	850	872			Freeston, M. W.	4235				
Fleming, R. J.	518	871	1088			Frenkiel, P.	499	944			
Fletcher, J.	5485	5658				Freund, R. S.	3205 5908	3875 6026	4385	4490	4498
Fliflet, A. W.	6228	6453				Frey, R.	4541				
Flower, D. R.	4608	5151	5983			Fridkin, L. A.	1970				
Fogel, Ya. M.	1841	2174	4083	4647	5157	Friedman, S. I.	2440				
Fomichev, V. A.	2663	3378				Frisch, S. E.	464 2971	808	1233	1531	2643
Fon, W. C.	4935					Frish, M. S.	5310				
Foner, S. N.	1034	1132				Frommhold, L.	973	5013			
Fong, J. C.	5472					Frost, D. C.	237 699 2846	341 708 3250	523 1120 4028	524 1263 4526	526 1840 4534
						Frost, L. S.	181	888	1043	1062	

Fryar, J.	5260	5352				Gatsyuk, N. A.	5089				
Fuchtbauer, C.	116	117	118			Gaudin, A.	2744	3580	3581	3582	
Fuhrmann, H.	289					Gavallaa, L. A.	2911	2957			
Fuller, C. H.	1255					Gavrila, M.	2775	3162			
Fundingsland, O. T.	312	698				Geballe, R.	167	4007			
Fung, A. C.	4401					Geerk, J.	527				
Funk, H.	88					Gehenn, W.	4999	5314			
Furness, J. B.	5312	5447	5821	6247		Geiger, J.	1065	1303	1478	1585	1597
Fyodorov, V. L.	1575						1812				
Gabathuler, E.	334	338				Geitsi, I. I.	222	1534			
Gabriel, A. H.	886					Celebart, F.	4228	5011			
Gaertner, H.	175					Geltman, S.	38	244	371	390	415
Gagge, A. P.	164						533	1093	1125	1452	1477
Gailitis, M. K.	296	609	648	835	1487		1666	1993	2060	2241	3949
	1869						4088	4327	4708	4856	5581
Gaily, T. D.	3758						6182	6410			
Gajewski, T.	592					Gentieu, E. P.	4368	4460	4796	5546	
Gallagher, A.	4961	5523	6351			Geracitano, R.	3827				
Gallaher, D. F.	3949	4935	5986			Gerasimov, G. N.	5310	6253			
Ganas, P. S.	4639	4930	5287	5470	5813	Gergory, D.	5480				
	5907	6006				Gerjuoy, E.	386	392	401	448	4123
Garbaty, E. A.	4687						4669	4701	5543		
Garcia, J. D.	2905	3745	3750			Gezalov, Kh. B.	3890	4140			
Gardner, A. B.	5022	5474	5695			Ghita, C.	2222				
Gardner, J. L.	4877	4878	4880	4911	4929	Ghosh, A. S.	4215	4224	4396	4754	4925
	5097	5174	6271				5355	5587	5659	5823	6113
Garga, I. I.	3528	4783	5731	6051	6387		6420	6467			
	6466					Ghosh, M.	1308				
Garibotti, C. R.	4493	4717				Ghosh, S. P.	928				
Garrett, W. R.	36	959	1498	1523	2071	Gianturco, F. A.	4794				
	2893	3701	3970	4133	4637	Gibbons, J. J.	1482				
	5066	5116				Gibson, D. K.	4062	4450	4484		
Garrison, R. L.	2214					Gibson, C. E.	5841	5842			
Garton, W. R. S.	2426	2490				Gibson, J. R.	3850	3975	6315		
						Giedt, R. R.	2844				



Giessner, B. G.	4559					Gomet, J. C.	3212				
Gilardini, A. L.	1400					Goodings, J. M.	4614				
Gilbody, H. B.	1031					Goodrich, M.	995				
Gillespie, E. S.	5081	5825				Gordeev, Yu. S.	4087				
Gillespie, J.	885					Gorden Jr., R.	5512				
Gilpin, R.	4823	4836				Gordon, S. M.	3531				
Gingerich, K. A.	4346					Gorokhov, L. N.	3050				
Gingo, P. J.	878					Gorshanova, A. F.	32				
Girnius, R. J.	4668					Gossler, F.	117				
Givens, M. P.	509					Gould, L.	314				
Glaser, F. M.	612	2827				Goursaud, S.	4852	5707			
Glassgold, A. E.	2856					Govers, T. R.	6142				
Glick, R. E.	946					Graham, R.	5353				
Glockler, G.	209	235				Graham, W. J.	734				
Glupe, G.	589					Granier, J.	1142	1371	2596	2741	
Goddard III, W. A.	5832					Grasdalen, G. L.	2490				
Godling, K.	5474					Gray, E. P.	391				
Golant, V. E.	881					Gray, R. L.	2072	4791			
Goldan, P. D.	274	1348				Grechukhin, D. P.	2849				
Golden, D. E.	869	1375	1787	1962	1997	Green, A. E. S.	4002	4208	4485	4491	4639
	4006	4992	5735	5895			4640	4930	5582	5813	6006
Golden, J. E.	6132					Green, G. W.	335				
Golden, L. B.	5068					Green, L. C.	2242	2243			
Goldfinger, P.	1578					Green, M. C.	160				
Goldman, A.	5164					Green, T. A.	3842				
Goldstein, L.	233	249	274	277	306	Greenberg, H.	384	967			
	316	317	1348			Greiner, H.	3376				
Goldstein, M.	2947	3849	4561	4787		Gresteau, F.	5522				
Goldstein, R.	1797					Gribovskii, S. A.	1777				
Golomb, D.	2636					Griffith, T. C.	5017	5366	6008	6177	
Golshani, M.	4372					Griggs, M.	3508				
Golub, S.	3564					Grimm, F. A.	4539				

Grissom, J. T.	3970	4133	5116			Hagstrum, H. D.	107	214	550		
Grob, V. E.	1270					Hahn, Y. B.	5484	5598			
Groce, D. E.	4757					Hahn, Y.	1443	1496	1499	1500	4350
Grojean, R. E.	4310	4418					5954	6120			
Gronemeier, K. H.	4150					Haidt, D.	1538				
Grosjean, C. C.	838					Halas, St.	5070				
Gruen, H.	5906					Hall, B. I. H.	1428				
Grujic, P.	5281					Hall, R. I.	3343	3939	4013	4242	4416
							4777	5522	5545	5820	6427
Gryzinski, M.	452	570	863	1014	3998	Hall, T. C.	2244				
	4746	5822				Hambro, L.	5657				
Guha, B. K.	1519					Hammer, J. M.	177	538	2123		
Guier, W. H.	391					Hammerling, P.	407				
Guk, S. S.	1325	3322				Hanle, W.	92	152	179	263	304
Gumble, R. S.	3924					Hannay, N. B.	1239				
Gunduz, D. H.	5544					Hanne, F.	4946	5114			
Gupta, S. B.	1904	2114				Hansen, L. K.	1063				
Gupta, S. C.	6311					Hanson, E. E.	1518				
Gurchumeliya, A. D.	1516					Hanson, H. P.	1089	1509	2784	2954	
Gurevich, D. B.	929					Hanson, R. J.	522				
Gutbier, H.	2731					Hara, S.	2464	3946	4079	4414	4855
Gutcheck, R. A.	5724						6310	6409			
Guyon, P. M.	4811					Hara, Y.	408	463	552		
Cyftopoulos, E. P.	1456					Hargreaves, J.	2478				
Haarhoff, P. C.	3531					Harkness, R. W.	1096				
Haas, R.	684					Harland, P. W.	5663				
Haddad, G. N.	1967					Harlee, F. N.	1357				
Hadeishi, T.	205	1339				Harnwell, G. P.	158	230			
Haensel, R.	3016	3247	3688	5475		Harries, W.	98				
Hafner, H.	1586	5466				Harris, F. E.	2754	3686			
Haft, G.	111					Harris, L. P.	1473	1707			
Hagemann, R.	2744	5592				Harris, W.	469				



Harrison, A. J.	617					Heilpern, W.	1131				
Harrison, G. R.	2245	2246				Heimerl, J.	5165				
Harrison, H.	974	3818	4035	4148	4359	Heindorff, T.	5317				
	4365	4813	4969			Heinicke, E.	6470	6473			
Harrison, M. F. A.	261	264	907	1803	2788	Heiss, P.	6248	6269			
	2790	4706	4707			Heller, E. J.	6004				
Harshbarger, W. R.	4419	4505	5521			Helliwell, T. M.	4367				
Hart, R. W.	391					Hellund, E. J.	809				
Harteck, P.	2718					Hender, M. A.	4565	4968	4997		
Harun-Ar-Rashid, A. M.	1985					Henderson, W. R.	1525	3841			
Harward, C. N.	3533					Hendrickson, C. G.	1072				
Haselton, H. H.	4791					Henglein, A.	3641	4073			
Hashino, T.	565	849	2070			Henke, B. L.	3005	3253			
Hasson, V.	4982	4983	4984			Henneberg, W.	653	655			
Hasted, J. B.	1492	3743	4118	4509	5193	Henneker, W. H.	6449				
Hastings, J. M.	465					Heno, Y.	2686				
Haug, R.	3570					Henrich, L. R.	1227				
Hauge, R.	3918					Henry, R. J. W.	588	690	702	1830	2058
Haupt, C. R.	14						2616	2771	3213	3260	3349
Hayakawa, S.	1123	1968					3700	3703	3843	3879	4444
							4634	4747	4817	4881	5065
Hayakawa, T.	539						6114	6428	6429		
Hayes, E. F.	5154					Heppinstall, R.	2961	3764			
Hayes, W.	4977					Heppner, R. A.	6382				
Healey, R. H.	677	682				Herbst, E.	6257				
Hearn, A. G.	2684					Hergenrother, R. C.	1001				
Hebb, M. H.	265					Herm, R. R.	1883	4765	6323		
Heddle, D. W. O.	519	886	922	1513	1715	Hermann, V.	4388				
	2642	2648	2720	2779	4204	Hermann, W.	2753				
	5998	6045	6049			Herring, D. F.	4757				
Heenen, P.-H.	6196	6197				Herring, F. G.	4028				
Heideman, H. G. M.	516	1417	1527	1692	1693	Herrmann, O.	288				
	3980	4209	4382	4616		Hertel, I. V.	3514	3519	3776	3777	3778
Heil, H.	1875						4610				

Hertz, G.	663					Hogness, T. F.	1096							
Hertz, H.	4110	5977	6448	6472		Holland, R. F.	2785	2976	4658					
Herzenberg, A.	1331 5010	2004	3340	3806	4502	Holliday, M. G.	4024							
Hesselbacher, K. H.	4557	4998	5905			Holloway, J. H.	4811							
Hettel, H. J.	3803					Holst, W.	991							
Heubner, W.	3742					Holt, A. R.	2159	3933	4673	4719	5357			
Hewson, P. W.	4882					Holt, H. K.	1528	1677	1892	1977				
Hey, W.	1279					Holt, R. B.	802	2707						
Heyland, G. R.	5017	5366	6008	6177		Holtmark, J.	99	104	185	991				
Heyner, W.	4115					Hood, S. T.	4839	5072	5285	5665	5814			
Hibbert, A.	6297					Hooker, W. J.	3386							
Hickam, W. M.	271	310	313	704	858	Hooper, J. W.	1421 5054	1568 5557	2938	4314	4448			
Hidalgo, M. B.	3390	4708	4856	4859	6182	Hopwood, W.	346							
Higginson, G. S.	518	871	1027	1088		Horie, T.	5356	6135						
Hilgner, W.	2628	3934	3935			Hotop, H.	4538	5354	5726	5915	6034			
Hill, E. R.	455					Houlgate, R. G.	6451							
Hill, S.	1287					Houston, S. K.	2059	3586	4394	5282				
Hils, D.	2021	5000	5979			Huang, J.-T. J.	6219							
Himmell, L. C.	672					Huang, K.	297							
Hink, W.	3974	4551				Huang, S. S.	127	2249						
Hipple, J. A.	213					Huber, P.	1833							
Hirshfield, J. L.	594					Hubin-Franskin, M. J.	4378	4379	5729					
Hobart, J.	610					Huck, R. J.	580							
Hoch, M.	4439					Hudson, R. D.	1353 2613 3004 4139	1394 2619 3542 4815	1405 2697 3754 5548	1717 2862 3784	1799 2973 3816			
Hodges, H. L.	1094					Hudson, R. L.	1132							
Hoerni, J. A.	572					Huebert, B. J.	3912							
Hoffmann, C. R.	3702					Huestis, D. L.	4664							
Hofft, J.	5317					Huffman, R. E.	691 2692	774 2699	1271 2746	2507 3639	2508 4029			
Hofmann, M.	4779					Hughes, A. L.	20	23	27	165	469			
Hofmann, W.	4453													



	628 1277	629 1294	726	1001	1004	Inui, T.	248							
						Iolin, Ye.	1426							
Hughes, R. H.	554 4131	787 5572	1072	2690	3846	Ionikh, Yu. Z.	3807							
Hughes, V. W.	1195					Irons, F. E.	6412							
Huijnen, M. L. H.	4209					Ishihara, T.	4816	4861	5002	5657	6379			
Hull, S. E.	3821					Israilev, I. M.	3293							
Humberston, J. W.	5019	5834				Itamoto, F. K.	636							
Hummer, D. G.	332	1037	4119			Itikawa, Y.	3706 4415 6171	3707 4424 6180	3871 4564	3977 4737	4078 4792			
Hunt, J.	4303	4673	4719											
Hunt, W. J.	5832					Itoh, T.	765							
Huo, W. M.	5150	6300				Ivanov, S. I.	4647							
Hurst, G. S.	1016	1565				Ivanov, V. K.	5149	5473	6496					
Hurzeler, H.	2251	2377				Ivanova, A. V.	1627	3890	4140					
Husain, D.	1364	1659	3840	4402		Ivash, E. V.	370							
Hustrulid, A.	924					Iwai, T.	5356	6135	6388					
Hutchison, D. A.	1215					Jackson, A. R. G.	5826							
Hutt, P. K.	6007					Jackson, H. T.	2071							
Hutton, N. A.	4657	5162				Jackson, R. S.	1360							
Huzinaga, S.	462					Jackson, W. M.	6112	6376						
Hyman, H. A.	613	4824	5170			Jacobs, T. A.	2844							
Ibers, J. A.	572					Jacobs, V. L.	4869 6233	5170 6255	5219	6094	6176			
Ida, A.	4152					Jacobs, V.	4472							
Iguchi, Y.	3566					Jaduszliwer, B.	5163	5586	6121	6143	6308			
Imami, M.	5286	6235				Jaegle, P.	3017	3020	6256					
Imre, A. I.	5001	5830	6053	6384	6464	Jager, K.	3641	4073						
Inghram, M. G.	1883	2251	2377	4360		Jahoda, F. C.	602	5158						
Ingram, J. C.	4174					Jalin, R.	5592							
Inn, E. C. Y.	1220 2673	2252 2675	2633 2770	2638 2851	2668 5040	Jamieson, M. J.	4322	4844						
Innes, K. K.	4031					Janev, R. K.	5156	5588	5953					
Inokuti, M.	210 2842 3973	1056 2945 4001	2655 3415 4082	2783 3521 4433	2837 3847 6456	Jefferies, J. T.	963							

Jen, C. K.	1166	2724				Kanomata, I.	1045	4211	4306	
Jenkin, J. G.	6200					Kaplan, I. G.	3692	3891		
Jesse, W. P.	625					Kaptsov, N. A.	607			
Jette, A. N.	1889					Kar, K. C.	676	1283		
Jha, R.	1182 2129	1703 2749	1704 2968	2126 3394	2127 3452	Karaivanov, V.	3342			
Jhanwar, B. L.	6421					Karle, J.	875	983		
Joachain, C. J.	1644 2835 5483 6459	1645 4665 5654	1788 4686 6183	1941 4739 6184	2631 4964 6186	Karpushkina, E. I.	2849			
Jobe, J. D.	2128	2838	2903	3583		Karstensen, F.	3512	4115	4317	4744
Jochims, H. W.	5977	6448	6472			Karule, E. M.	148 1469 1864 4738	844 1491 1865 5195	990 1515 2937 5696	1097 1542 3881 4554
Johannin-Gilles, A.	1619	2597	2732	2738	2740	Kasdan, A.	4787	5653	5900	5915
John, G. S.	5468					Kastner, S.	4954			
John, T. L.	416 5020 5742	899 5075 5897	1392 5167	1708 5478	2309 5662	Katayama, D. H.	3639			
Johnson, J. D.	4352					Kato, T.	362			
Johnson, R. A.	802					Kauppila, W. E.	4206	4668	6188	
Johnson, W. R.	2845					Kay, R. B.	554	4563	5999	
Johnston, H. L.	1759					Kazaks, P. A.	4930			
Johnston, H.	5353					Keeffe, W. M.	654			
Johnston, R. R.	1211					Keesing, R. G. W.	1513 6049	2642	2648	5998 6045
Johnston, W. D.	4903					Keever, W. C.	5163			
Jonas, A. E.	4804					Keitel, G.	3688			
Jonathan, N.	4482	4536				Kelly, H. P.	2758 5025 5955	3404 5073 6228	4766 5166 6453	4825 5262
Jones, D. G. C.	4130					Kelm, S.	2635			
Jones, E. A.	801	804	1265			Kelman, V. A.	5001	5830	6464	
Jones, G. R.	4161					Kemeny, P. C.	6200			
Jones, G.	3937	4882				Kennedy, D. J.	3002 3733 6375	3018 4468	3019 4764	3341 4979 3587 6173
Jones, H. A.	637					Kenty, C.	355			
Jones, T. J. L.	5158					Kerner, E. H.	394	402		
Kang, I. J.	1747	3255								



Kerr, L. W.	1027					Kivel, B.	325	407	449	450
Kessler, J.	486 3935	1535 4406	2628 4946	3811 5114	3934	Kivelson, D.	687	3203	3204	
Kestner, N. R.	1485					Kjeldaas Jr., T.	310	704		
Khaikin, A. S.	2698	3457				Klein, M. M.	389	399	1130	
Khanna, V. M.	3918					Kleinman, C. J.	1500	1900		
Khare, S. P.	1407 2066 4231 6299	1408 2627 4320 6421	1493 2869 4497	1862 3412 5083	2024 3749 6115	Kleinpoppen, H.	532 2902	1538 5000	1586 5634	1593 5655 2021 6385
Khashaba, S.	418					Klemperer, W.	3205			
Khodeev, Yu. A.	3050					Kley, D.	1313			
Khvostenko, V. I.	957	3416	3417			Kleymenov, V. I.	2865			
Kieffer, L. J.	364 6074	2614 6301	2647 6416	4348	4449	Klopfenstein, R. W.	2432			
Killgoar Jr., P. C.	5222	5691				Klucharyev, A. N.	2643	2971	4972	
Kim, Y. K.	2837 3973 5003	2842 4001 6048	3415 4082	3521 4393	3847 4433	Knapp, E. W.	6342			
Kinc, J.	4746					Knirk, D. L.	5153	5154		
Kindlmann, P. J.	613					Knoop, F. W. E.	4790	5994		
King, N. M.	436					Knowles, D. J.	4216			
Kingston, A. E.	146 1025 1851 3002 3587 4519	350 1506 2023 3018 3733 4716	444 1595 2213 3019 3932 4805	549 1657 2217 3208 4235 4868	825 1694 2382 3507 4345 5837	Knowles, M.	5283			
Kinney, J. D.	1104					Knox, B. E.	347			
Kirkpatrick, R. C.	4763					Knuth, E. L.	5034			
Kiser, R. W.	1137					Koch, E. E.	4826			
Kishko, S. M.	343 1648 5666	475 3387	752 4427	757 5267	1047 5307	Kockarts, G.	4470			
Kisker, E.	4750	5308	5309			Kogan, V. I.	587			
Kistemaker, J.	1281 3989	1706 5994	1782	1858	2349	Kohl, D. A.	4837	4921		
Kitamura, M. Y.	1328					Kohl, F. J.	2900			
						Koike, F.	5515	5951		
						Kolbenstvedt, H.	2901			
						Kolesnikov, V. N.	493			
						Kollath, R.	86 129	87 174	93 2326	94 2327 95
						Kolodziejski, R.	3642			
						Kolos, W.	258	590		
						Kondo, T.	4364			

Koningstein, J. A.	2963					Krause, M. O.	2645	3883	4117	4127	4973
Konishi, A.	4090	4298				Krauss, M.	5	525	1320	1357	2913
Koons, H. C.	1924						3206	3640	3823	4128	4304
Koozekanani, S. H.	2076	2974	3249	3456	3525		4796	4847	5469	5631	6430
Koppe, V. T.	1841	2174	4083	4647	4864	Kravchenko, V.	810				
	5088	5157	5525	6231		Krige, G. J.	3531				
Koppel, J. U.	4827					Krogdahl, W. S.	2747				
Koppendorfer, W.	5085					Krop, H. B.	6468				
Kopystynska, A.	5558					Kropf, A.	5				
Korchevoi, Yu. P.	132	1910	2715			Krotkov, R.	1528	1677			
Korff, D. F.	5274					Krueger, T. K.	442	1932	1943	2335	3294
							4199				
Korol, V. I.	3387	5307	5666			Kruger, H.	532	1538	1586		
Korotkov, A. I.	4067	4338				Krugler, J. I.	4660				
Korwien, H.	2859					Kruithof, A. A.	270				
Koschmieder, H.	2021	5655				Kubach, C.	4742				
Kosinskaya, I. V.	2688					Kuchinka, M. Iu.	752				
Koski, W. S.	5359					Kuchitsu, K.	5037				
Koster, G. F.	5656					Kudryavtsev, E. M.	4905				
Koster, H.	4744					Kulander, J. L.	1058				
Kotani, M.	2896					Kulander, K. C.	5059				
Kouri, D. J.	5013	5154	5991	6046		Kulik, P. P.	5518				
Koval, A. G.	1841	2174	4083	4647	4864	Kulik, V. Ya.	5518				
	5088	5157	5525	6231		Kumar, V.	4030	4877	4878	4880	
Kozlov, G. I.	1591	1786				Kumazaki, T.	1968				
Kozlov, M. G.	2621	2867	3337	4165	4540	Kunc, J.	5822				
Kraidy, M.	1169	3053				Kunkel, W. B.	759				
Kraiss, E.	2902					Kunz, C.	3016	3247	3688		
Krall, N. A.	448					Kunz, J.	2312				
Kramer, P. J.	4489					Kunze, H. J.	4903	4904	4962		
Krasnow, M. E.	372	373	375	376	381	Kuppermann, A.	2773	3545	3728	3813	4114
	794	798	800	813			4138	4400	4851	5360	
Kraus, K.	1163	2975				Kupriyanov, S. E.	713	723	1776	2660	3768
Krause Jr., D.	4791										



Kuralova, A. V.	474					Larrabee, J. C.	691 2692	774 2699	1271 2746	2507	2508
Kurepa, J. M.	5998	6049				Lashmore-Davies, C. N.	1760				
Kurepa, M. V.	743	938	1484			Lassettre, E. N.	372 377 382	373 378 551	374 379 612	375 380 794	376 381 798
Kurzweg, L.	5555						799 813	800 857	801 1075	803 1091	804 1205
Kushlis, R. J.	5816						1401 1567 1887	1418 1663 1983	1419 1679 2659	1480 1743 2694	1481 1824 2696
Kuyatt, C. E.	308 1527 3209 6430	692 1692 4408	1085 1693 4520	1347 1856 4613	1471 2912 4847		2827 4009 4653 6066	3546 4198 4752	3547 4343 5482	3809 4387 5521	3814 4505 6065
Kyle, H. L.	904 3775	908 3839	1898 4927	3061	3526						
La Bahn, R. W.	976 4081 4550	1376 4145 4687	1827 4307 4722	2959 4342 6093	3772 4371	Latimer, I. D.	1504	1771	1916	4129	
La Paglia, S. R.	2801					Latypov, Z. Z.	713	723	3768		
La Villa, R. E.	1855					Latyscheff, G. D.	102				
Ladenburg, R.	2313	2314				Lau, H. S. M.	3340				
Lahmani, M.	1124					Lauer, J. E.	1657	1851			
Lamb Jr., W. E.	227					Laufer, A. H.	1821				
Lamkin, J. C.	1030					Launay, J. M.	5151	5983			
Lamoureux, M.	5264					Laviana, E.	5099				
Lampe, F. W.	340	1100				Lavrov, V. M.	4087				
Lan, V. K.	2115	3348	4624	4642	5005	Lawrence, E. O.	2315	2316	2317		
Landau, M.	5545					Lawrence, G. M.	4326 6301	4357 6377	4928	5218	5958
Lane Jr., F. O.	597					Lawson, J.	722	933	2075		
Lane, N. F.	568 3843	1251 4088	1414 4634	1993	3349	Lawson, W.	722				
Lang, J.	5549	5694				Lawton, S. A.	5464				
Langhans, L.	3377	3410				Lazzizzera, I.	6430				
Langmuir, I.	637					Le Dourneuf, M.	5005				
Langstroth, G. O.	632	1298	1312			Le Nadan, A.	4227	4228	4380		
Lapp, M.	1707					Lea, K. R.	3001				
Larche, K.	105					Leckey, R. C. G.	6200				
Larkin, I. W.	4118					Ledingham, R. B.	3005	3253			
						Lee, A. H.	634				
						Lee, A. R.	3338				

Lee, E. T. P.	1345	1942	2626	4212		Lin, C. D.	5957			
Lee, L. C.	4975	5148	5258	5261	5303	Lin, C.-L.	5850			
	5471	5693	5839	6068	6378	Lin, H. E.	28			
	6452					Lin, S. C.	325			
Lee, P.	500	508	1226	1235	2318	Lin, S. H.	3211	3815		
	2319	2512				Lin, S.-M.	4765			
Leep, D.	6351					Lin, S.-S.	2944			
Lees, J. H.	56	651				Lincke, R.	4459	4835		
Lefevre Le Gentil, M.-C	461					Lindeman, H.	110	112	269	
Legler, W.	921					Lindemann, E.	5359			
Leherissey, E. S.	4377					Linder, F.	1588	2510	3252	3377
Lehmann, B.	4431						4388	4734	4735	6423
Leibowitz, E. M.	5172					Lindholm, E.	4524	4776	4821	
Leiby, C. C.	249					Lindner, H.	486	1535		
Leipunski, A. I.	102	1279				Lineberger, W. C.	1421	1568	4463	4797
Lenander, C. J.	1650						5726	5915	6034	6257
Lent, R. E.	3005	3253				Ling, R. T.	5004			
Lenzi, M.	2853	3295				Lipeles, M.	1871			
Leroi, G. E.	5222	5691				Lipovetskii, S. S.	5092	5738	5852	5981
Lessmann, W.	891	930	931	2639		Lippmann, B. A.	1033			
Leventhal, M.	3001					Lipsky, L.	2058	2427	2868	4244
Levin, F. S.	1686					Lipsky, S.	4232	4316		
Levy, M. E.	4029					Liska, J. W.	29			
Lewis, B. A.	1536	1653				Liston, S. K.	2873	3011	3251	3392
Lewis, B. R.	6191	6247	6463			Little, E. M.	2320			
Lewis, J.	4786					Liu, J. W.	3982	5216	5727	6251
Lichten, W.	327					Livingston, S.	5544			
Liepinsh, A. K.	3877	4309	5708			Llewellyn, J. A.	946			
Liese gang, J.	6200					Llewellyn-Jones, F.	1297			
Lifshitz, C.	2776	3256	4041			Lloyd, C. R.	4839	5072	5553	6187
Lin, C. C.	485	564	568	942	1049					6191
	1109	1251	1345	1564	1942	Lloyd, D.	3054			
	2016	2626	2769	2923	4451	Lloyd, M. D.	3942			
	5061	5274	5737	6117						



Locht, R.	4214	4302	4705	6313	Lynch, M. J.	5022	5474	5695
Lochte-Holtgreven, W.	1316				Lynn, N.	563	2852	
Lodge, J. G.	4434				Lyubimov, A. P.	1081		
Loewenstein, M.	5021				Maas, J. G.	6009		
Long, D. R.	3589	4007			MacAdam, K. B.	5634	6385	
Long, R. L.	3027				MacNair, D.	1094		
Longmire, M. S.	551	1480			MacNeil, K. A. G.	4710		
Lopatin, S. N.	2865	4465			Macek, J. H.	2794		
Los, J.	6009				Madan, R. N.	3371		
Los-Kozlowski, T.	1793				Madden, R. P.	1351	2381	3779 4798
Losev, S. A.	4164				Madison, D. H.	4377	5275	5276
Lossing, F. P.	4354	4559			Maecker, H.	305	559	
Loveridge, L. E.	141				Magee, J. L.	962		
Lowe, P.	628	629			Mahadevan, P.	4848		
Lowry, J. F.	1350				Mahan, B. H.	920		
Lozier, W. W.	667	1402			Maier II., W. B.	4658		
Lucas, C. B.	519	2916			Maier-Lelbnitz, H.	119		
Lucas, J.	5038				Maiman, T. H.	227		
Lucatorto, T.	5465				Main, R. P.	3386		
Luffman, B. L.	3737				Maiti, N.	6467		
Lukasiewicz, M.	4995				Mak, D. S.	1840		
Luke, T. M.	5220				Makinson, R. E. B.	683		
Lukirskii, A. P.	1777	2301	2703		Makita, T.	4534		
Lukoshyus, P. P.	4432				Malaspina, L.	1578	6119	
Lundqvist S.	2618				Malesset, C.	986		
Lunt, R. W.	652				Malik, F. B.	520	864	879 1046 1114
Lutjens, P.	6131					1121	1364	1659
Lutz, B. L.	3914				Malinowska-Adamska, C.	2714		
Luyken, B. F. J.	5140				Malyuta, D. D.	3568		
Lyash, A. V.	1554	1555	1576	1866	Mandelberg, H. I.	4445		
	1970	3059	3579	5009	Mandl, A.	4476	4828	5143
					Mandl, F.	1331	2004	

Mann, J. B.	566	1261					138	139	184	194	234
							243	251	267	284	349
Mann, M. M.	924						398	405	418	428	438
							441	458	460	616	845
Mann, R. A.	36	959					905	933	1141	1180	1300
							1330	2075	2373		
Manson, S. T.	2843	3708	3825	4398	4468						
	4471	4473	4761	4764	4782	Mastrup, F. N.	1797				
	4979	6173	6375								
						Matese, J. J.	2845	4145	4401		
March, N. H.	421										
						Mathur, K. C.	3709	3735	3837	4008	4089
Marchand, P. D.	3835	4649					4120	4340	4648	4700	4704
							4780	4784	5273	5898	6003
Marder, S.	1196						6249				
Margrave, J. L.	3918					Matora, I. M.	760				
Marino, L. L.	26	868	978	1013	1018	Matsuda, H.	565	849			
Mark, T. D.	5650					Matsunaga, F. M.	641	1042	1360	2384	2641
							2654				
Markin, A. P.	3692	3891									
						Mauer, J. L.	5064				
Marmet, P.	3835	4649	4661	4736	4743						
						Maurer, W.	880				
Marmo, F. F.	2479	2636	2637	2674	2675						
	2851	4144				Maxwell, L. R.	1746				
Marr, G. V.	1225	1293	1739	1740	2480	Mayence, J.	2598	2610			
	2552	2961	3067	3399	3761						
	3764	3765	5074	5474	6451	Mayer, H. F.	72				
Marriott, J.	950	1118				Mazeau, J.	3343	3939	4013	4242	4416
							4777	5522	5545	5820	
Marriott, R.	420	426	866	1658	3057						
	3388					Mazing, M. A.	1909	6457			
Marrone, P. V.	4527					McAllister, H. C.	636				
Martin, J. B.	1057					McCann, K. J.	6266	6419	6458	6461	
Martin, P. H. S.	6449					McCarroll, R.	44	162	424	670	1171
							1532	1877			
Martin, R. M.	3912										
						McCarthy, I. E.	5312	5447	5665	5814	5821
Martin, S. O.	3400	3948					6230	6463			
Martins, P. De A. P.	3739	3870	4004	4199		McCator, G.	4622				
Martynenko, Yu. V.	818					McCavert, P.	4324	4863			
Marusin, V. D.	1988	4091	4132	4441	4953	McClure, B. T.	802				
	5524										
Mass, B.	6050					McConkey, J. W.	1214	1504	1771	1916	3246
							3760	3762	3851	3981	4238
							4565	4682	4968	4997	5115
Massaro, P. A.	4493	4717					5159	5277	5595	5728	5739
							5985	6134	6347		
Massey, H. S. W.	49	51	53	54	61						
	62	64	68	70	71	McConnell, J. C.	3216				



McCorkle, D. L.	4494	4892				McIntyre, H. A. J.	1494				
McCoyd, G. C.	103	446				McKee, J. S. C.	425	429			
McCrea, D.	413					McKirgan, T. V. M.	413				
McCulloh, K. E.	3068 5891	4039 6082	4454	4522	5840	McKoy, V.	6174	6345	6449		
McCurdy Jr., C. W.	6174	6345				McLane, C. K.	2707				
McCusker, M. V.	5000					McLauchlan, J. C.	1152				
McCutchen, C. W.	598					McMillen, J. H.	11 165	20 726	23 1004	27	30
McDaniel, E. W.	1421					McNeal, R. J.	5024				
McDonald, F. A.	3801	4622	4727			McNesby, J. R.	1821				
McDougall, J.	55					McVicar, D. D.	669	1080	1340	1545	
McDowell, C. A.	237 699 1263 4526	341 708 1840 4534	523 1120 2846 4809	524 1230 3250	526 1231 4028	McWhirter, J. D. G.	5893				
McDowell, M. R. C.	307 1110 1479 2836 3839 4069 5454	470 1246 1697 3054 3941 4334 5589	666 1256 1946 3522 3942 4991 6185	873 1295 1951 3523 3972 5283 6456	1102 1299 2013 3775 4027 5316	McWhirter, R. W. P.	146	444	602	4906	5158
McEachran, R. P.	571 1794	744 4434	855	1022	1422	Mehlhorn, W.	589	1839	2797		
McEwan, M. J.	5958	6377				Mehr, J.	2290				
McFadden, T.	211					Meisels, G. G.	4559				
McFarland, R. H.	492 1104	510 1464	521 1502	747 2541	1073 2713	Meister, G.	1470	1529	1588		
McFarlane, R. A.	6447					Meister, H. J.	3802				
McGinn, G.	4475	4516	4795	5221		Mele, A.	3919				
McGowan, J. W.	1089 2784 4036	1415 2954 4467	1508 2955 4487	1509 3373 4757	1512 3836	Melton, C. E.	958	1116	2899	5144	
McGuire, E. J.	1288 4376	1893	2705	2848	3520	Mendez, A. J.	3884				
McGuire, J. H.	4859	6132				Menendez, M. G.	1140	1977			
McHarris, O. A.	1339					Mentall, J. E.	4368 5546	4460 5816	4715 6214	4796	5097
McIlrath, T. J.	5098	5740	6201			Menzel, D. H.	265				
McIntosh, A. I.	4062					Mercer, G. N.	613	3767			
						Mercure, R.	1612				
						Messner, R. H.	2599				
						Metzger, P. H.	688 1355 2864	916 1626	1149 1711	1172 2062	1280 2850
						Meyer, V. D.	551 1480	612 1679	1205 1887	1418 1983	1419

Meyerand Jr., R. G.	769	850	872			Mitchell, P.	4762				
Michael, J. A.	1165					Mitra, S. K.	928				
Michela, H. H.	2754	3686	5514			Mittleman, M. H.	553 2774	1644 4347	1645 4665	1673 4686	1941
Michels, W. C.	15	226				Mityureva, A. A.	3872	4213	5015	5630	
Mielczarek, S. R.	1085 1856 4304	1140 2841 4408	1347 2912 4520	1373 3209 4613	1471 3823 4723	Mix, J. B.	4233				
Mies, F. H.	4128					Miyamoto, A.	5709				
Mies, F. W.	969					Miyamoto, S.	3069				
Miida, J.	365					Mjolsness, R. C.	1082	1573	1676	2211	
Mikawa, Y.	2689					Moddeman, W. E.	4117	4127	4539		
Milatz, J. M. W.	122	125	268			Modinos, A.	4922				
Milford, S. N.	103 1050	445	446	540	919	Moe, G.	2375	2376			
Miller, A. I.	4361					Moffett, R. J.	1341				
Miller, F. L.	1049	1455				Mohler, F. L.	279 1241	496 2215	764	1213	1238
Miller, J. E.	2747					Mohlmann, G. R.	6468				
Miller, K. J.	2913	3206	3823	4328	4723	Mohr, C. B. O.	51 63 194 4075	54 66 284 4956	58 68 441	59 137 616	61 139 3738
Miller, T. M.	5653	5900				Mohr, E. I.	500				
Miller, W. D.	1374					Moi, L.	5558				
Miller, W. F.	859					Moiseiwitsch, B. L.	349 405 495 1024 1494 2159 4719	350 438 544 1210 1710 3216 5893	351 459 549 1257 1770 4076	367 460 822 1408 1862 4303	398 471 914 1493 2059 4673
Mims, C. A.	4765					Moll, P. G.	6195				
Minaeva, L. A.	3994					Molof, R.	4492				
Minh, F. T.	5280					Momigny, J.	4302	4705			
Minkowski, R.	178	180				Monaghan, J. J.	6450				
Mirlin, D. N.	149					Monahan, J. E.	331				
Mirza, I. M.	2964	3524	3769			Monahan, K.	5095				
Misakian, M.	4638	5194				Monnin, C. F.	2786	3803			
Miskelly, D.	423										
Missavage, D. W.	4761										
Missoni, G.	3017	3020									
Mitchell Jr., W. E.	2374										
Mitchell, J. F. B.	5279	5590	5996								



Monterde-Garcia, A.	2753					Mullaney, G. J.	768				
Moore, E. J.	3215					Muller, F.	1530	2969			
Moores, D. L.	2221 5987	3518 6408	4074	4838	5006	Muller-Duysing, W.	1163				
Moores, D.	1448					Mullick, K.	4955				
Morand, M.	461					Mulliken, R. S.	2121				
Moreland, L. D.	4709					Mumford, A. J. P.	859				
Morgan, D. J.	5742					Mumma, M. J.	4420	4606	4659	4712	4713
Morgan, H. D.	4715	6214				Munday, G.	2871				
Morgan, L. A.	3704	5454				Muravev, V. T.	977	981			
Morgulis, N. D.	132					Murcray, D. G.	5164				
Morin, S.	4014	4072	4124	4643		Murtaugh, T. S.	5007	5910			
Morris, A.	4482					Musa, C.	2222				
Morris, J. C.	2214					Muschlitz Jr., E. E.	166	1117	2175		
Morrison, D. J. T.	2022	2685				Musha, T.	765				
Morrison, J. D.	242 1107 4751	778 1108 5481	1068 1244 5516	1069 2251 5520	1070 2377	Myer, J. A.	4358	4363			
Morrissey, J. J.	919					Myerscough, V. P.	666 1299	1102 1539	1110 1569	1266 5454	1295 6185
Morse, P. M.	25	106	639	1010		Nagahara, S.	411				
Morsell, A. L.	3386					Nakai, S.	3566				
Mortensen, O. S.	2963					Nakai, Y.	3566				
Moruzzi, J. L.	5032					Nakamura, M.	3566				
Moseley, J. T.	6172					Nakano, H. H.	4183				
Moskvina, Yu. V.	1101	1929	2378			Nakao, T.	7	33	130	135	
Mott, N. F.	48	136				Nakata, R. S.	1042				
Mottl, J. R.	622	2676				Nakayama, T.	622	1328	2482		
Moussa, A. H.	905	906	5266	5911	6309	Nall, B. H.	1034				
Moustafa Moussa, H. R.	1690 3541	1748 3729	1782	2929	2945	Narain, U.	6185				
Muck, G.	4829					Nardone, M. C.	574	939			
Mukherjee, S. C.	515	1048	1199	5018		Narumi, H.	5709				
						Nashlenas, E.	6029				
						Natalis, P.	3571	3820	4978		

Nayak, R. M.	6299					Norman, G. E.	578	1059	2670	
Nelson, D. R.	5135					Norman, J. H.	4077			
Nepiipov, E. I.	5089	5306	5593	5982	6262	Normand, C. E.	10			
Nesbet, R. K.	5055 6263	5556 6415	5600	5894	5952	Norton, T. G.	3846			
Nestor, C. W.	1364					Nottingham, W. B.	40			
Neu, H.	147					Nounou, P.	4429			
Neuert, H.	527	1163	1709	2730		Novick, R.	773	1871	2759	5465
Neumann, D.	4796					Novikov, V. M.	5311			
Newell, W. R.	4238	4609	4858	5160	5808	Novobrantsev, I. V.	560			
Newhall, H. F.	41					Nussbaumer, H.	3732	4004	4074	
Newsom, G. H.	1845	3506				Nutt, G. L.	897			
Newton, A. S.	1301	3756	4718			Nuttall, J.	3801	4622	4727	
Neynaber, R. H.	26 1268	868	978	1013	1018	Ny, T.-Z.	1369	2328	2890	
Ng, E. W.	4318					Nygaard, K. J.	3455	5484	5598	
Nicholas, J. V.	4918					O'Brien, T. J.	4076			
Nicholls, P. S.	5660					O'Bryan, C. L.	3639			
Nicholls, R. W.	4982	4983	4984			O'Kelly, L. B.	1016			
Nicholson, A. J. C.	242	778	1069	2386	2396	O'Malley, T. F.	60	301	1084	1443 1496
Nicole, P. P.	3544	4483	4832			Obedkov, V. D.	1097	3684	5156	5519
Nicoll, F. H.	58	59	63	66	137	Oberoi, R. S.	3938 6263	4229 6415	4562	5894 5952
Niehaus, A.	2737	4538	4985			Oblinger, C. J.	4439			
Nierenberg, W. A.	1339					Obukhov-Denisov, V. V.	493			
Nighan, W. L.	3202	5056				Ochkur, V. I.	369 1682	718 1804	935 2756	1115 3805 1541 4866
Niira, K.	294					Oda, N.	3999	5008	5652	5824
Nikonova, E. I.	2621					Oed, A.	4495			
Nisbet, J. S.	189					Ogawa, M.	1253 2423 3916 5303 6378	1626 2678 4457 5471 6452	1711 2864 4462 5547	2062 3573 4464 5693 2379 3913 4523 5838
Nishimura, F.	3999	5008	5824			Ogawa, T.	4438			
Nishimura, H.	1123	1700	1838	1968	3024	Ogurtsov, G. N.	6306			
Nolan, J. F.	1467									
Norcross, D. W.	1805 5915	4801 5987	4830 6408	5006	5265					

Ohmura, H.	561					Orth, P. H. R.	3937			
Ohmura, T.	408	463	552	561		Oshio, T.	3566			
Ohta, T.	4438					Ostensen, F. C.	229			
Ojha, S. P.	4654	5161	5272	6349		Osterbrock, D. E.	843			
Okabe, H.	2853 4872	3295 5741	3509	3919	4458	Ostlund, N. S.	5171	5448		
Oksyuk, Yu. D.	1816	2800	2966			Ostrovskii, V. N.	5358			
Okudaira, S.	4211	4300				Otsuka, M.	1968			
Okuno, K.	4306					Ott, W. R.	4206			
Okuno, Y.	4306	4703				Otvos, J. W.	339			
Oldeman, J.	112					Pace, M. O.	4331	5557		
Oldenberg, O.	992	2707	4428			Pack, J. L.	439	530	888	
Oldham, W. J. B.	3996					Padalia, B. D.	4320	6299		
Olmsted III, J.	1301					Paineau, R.	6264			
Olsen, L. A. R.	3874	4109	4241			Palinchak, Y. V.	2907			
Omidvar, K.	537 1466 3062	593 1526 3526	848 2067 3746	1071 2077 4849	1458 3061 4927	Palmer, R. R.	21	161		
Omura, I.	4163	4364	4370			Panchenko, V. E.	3693			
Onda, K.	6110					Paquet, C.	3835	4649	4661	
Oosterhoff, L. J.	3810					Parkinson, D.	1661			
Opal, C. B.	4405	4671	4781	4857		Parkinson, E. M.	3347			
Opik, U.	432	1599	2204	3517		Parkinson, W. H.	2490	6201		
Oppenheimer, M.	5093					Parr, A. C.	3510	4360	4528	
Opykhtin, V.	1540	1813				Parratt, L. G.	2857			
Oran, E. S.	6133	6413				Pasachoff, N. W.	5263			
Orient, O. J.	1817					Paschke, H.	4551			
Ormonde, S.	1718 2427 3936 5735	1846 2791 3992 5815	1859 3055 4469 5895	1976 3056 4831	1999 3742 5597	Patapoff, M.	5096			
Ornstein, L. S.	100 270	110	112	268	269	Patch, R. W.	1754			
						Patterson, T. A.	4797	5726	5915	6034 6257
						Patty, R. R.	3533			
						Paul, D. A. L.	5163	5586	6121	6143 6308
						Paur, R. J.	6080			
						Pavlichenkov, A. V.	5080	5092		



Pavlin, I.	6146					1515	1550	1552	1864	1905
						2002	3683	4554	4730	4738
Pavlov, S. I.	1081	2729	4333							
Pavlovic, Z.	5010					Peters, Th.	305			
Peach, G.	873	1273	1299	1654	1655	Peterson Jr., T. J.	2705			
	2649	2652	3585	4168	4966	Peterson, J. R.	153	831	6172	
Peacher, J. L.	5004					Peterson, W. K.	4405	4671	4781	
Peacock, N. J.	6412					Petkovski, L. J.	5953			
Pearson, E. F.	4031					Petrini, D.	1138	1876	2832	4230
Pearson, J. M.	163						4965	5304		4962
Peart, B.	2977	3296	3400	3947	3948	Petrocelli, A. W.	941			
	3995	4344	4437	4503	4720	Petrov, Iu. V.	369			
	4726	4865	5016	5214	5667	Petrunkin, A. M.	1115			
	5828	5829	5896	5997	6343	Phaneuf, R. A.	6188			
Peat, F. D.	3926					Phelps, A. V.	131	181	218	260
Peatman, W. B.	4066	4166					312	439	530	569
Pecul, K.	258	2965					888	1043	1062	1467
							5032			2078
Pedenon, J. F.	3971					Philbrick, J. W.	1090			
Peek, J. M.	1055	1465	2210	3842	6232	Phillips, D. H.	5589			
Peixoto, E. M. A.	3744					Phillips, M.	2428			
Penkin, N. P.	1758	2967	4167	4213	5015	Piacente, V.	1578	6119		
	5087	5268	5630			Pichanick, F. M. J.	2962	5464		
Penner, S. S.	3012					Pietsch, G.	5094			
Penney, W. G.	19					Pikus, G. E.	149			
Percival, I. C.	162	427	586	740	1168	Pilipenko, D. V.	6231			
	3997	5213	5643			Pilyankevich, A. N.	884			
Perel, J.	16	329				Pindzola, M. S.	5955			
Peresse, J.	1888	2870	3527	3569	3572	Pipkin, F. M.	522	1346		
	4227	4228	4380	5011	5819	Platzman, R. L.	2837			
Perlman, H. S.	2695					Pluta, K. M.	1946			
Perrin, R.	1257					Pochat, A.	4227	4380	5011	5819
Perrott, R. H.	4321					Podlubnyi, L. I.	4092			
Person, J. C.	3544	4483	4832			Poe, R. T.	4722	4816	4861	5002
Pery-Thorne, A.	2426									5736
Peterkop, R. K.	97	101	128	154	278	Pohle, R.	503			
	507	542	829	852	856					
	990	1129	1135	1469	1505					

Poland, H. M.	6377					Pressley Jr., G. A.	1874				
Pollock, W. J.	5200					Preston, J. A.	5159				
Polushkin, I. M.	2906	2956				Preston, W. M.	2431				
Polyudov, A. N.	5092					Price, W. C.	4808	4833			
Pomilla, F. R.	445	828	1522			Priestley, H.	293				
Poole, R. T.	6200					Prok, G. M.	2786	3803			
Poots, C.	2204					Propin, R.	4923				
Popescu, A.	2222					Proshchak, L. I.	4083				
Popescu, I.	2222					Przhonskii, A. M.	1910	2715			
Popova, L. I.	4864	5088	5157	5525		Pu, R. T.	903	2005	2959		
Popp, H.-P.	1774	2644	4829			Pullen, B. P.	4117	4539			
Porter, L. E.	5472					Purcell, E. M.	2063				
Porteus, J. O.	837					Purcell, J. E.	4208	4485	4640		
Poshyunaite, N. P.	4432	5009				Quemener, J. J.	4661	4736	4743		
Postma, A. J.	3873	5056				Quinn, T. P.	189				
Postma, R.	4512					Rabalais, J. W.	6219	6501			
Postoi, E. N.	5111	5809				Rabik, L. L.	1576	1674	1866	1867	1868
Potapov, V. S.	6054						1970	3058	4730	5708	
Pottie, R. F.	1687					Rabyi, V. A.	5518				
Potts, A. W.	4808	4833				Rackwitz, R.	6470	6473			
Poultney, F. C.	120					Radi, H. M. A.	6309				
Povch, M. M.	2725	4305	5112			Radler, K.	5475				
Powell, R. E.	1881	2422				Radojevic, V.	6146				
Praderie, F.	2359	2429				Raether, M.	182				
Pradhan, A. K.	6424					Raff, L. M.	1411				
Prahallada Rao, B. S.	1742					Rafiqullah, A. K.	1364	1659			
Prasad, A. N.	861					Ragle, J. L.	4526				
Prasad, K.	642					Rahman, M.	3840	4402			
Prasad, S. S.	642	1183	1262	1656		Rai Dastidar, T. K.	4666				
Preece, E. R.	1742					Rai, D. K.	3804	4399	4615	4619	4654
Presnyakov, L.	826	1061	1476	1540	1813		4662	4890	4899	5161	5272
	2065	3698					5305	5479	5552	5611	

Raible, V.	1593	5655				Reinhardt, J.	3343	3939	4013	4242	4416
Rakhovskii, V. I.	1081	2729	3985	4866	6457		4777	5522	5545	5820	
Ramlén, H.	686					Reinhardt, P. W.	1565	3763			
Ramsauer, C.	73	74	75	81	86	Reinhardt, W. P.	4121	4958	5007	5910	6033
	87	93	94	95	129		6192				
	186	2326	2327			Reitz, J. R.	359				
Randolph, P. L.	167					Rempt, R. D.	3834				
Raper, O.	5843					Rendina, J. F.	4310	4418			
Rapp, D.	988	1105	1164	1292	1372	Rense, W. A.	1612				
	1396	1410	1451	1459	1460	Rescigno, T. N.	6174	6192	6449		
Rau, A. R. P.	4834					Reuben, B. G.	4024				
Ray, B. B.	928					Revald, V. F.	1531	1584			
Ray, P.	5736					Ribe, F. L.	602				
Ray, S.	6283					Rice, J. K.	3545	3813	4114	4116	4137
Raz, B.	4151						4138	4560	4740		
Read, F. H.	4552	4611	4672	4967	6237	Rice, O. K.	5842				
Redhead, P. A.	3323					Rice, S. A.	1485				
Redko, T. P.	1758	2967	5268			Rich, J. C.	2380				
Rees, J. A.	2120	3051	6311	6315		Richard, M.	4840				
Reese, R. M.	466	525	1320	1357	1664	Richards, D.	3997	5643			
	2612					Richards, H. L.	2175				
Reeves, E. M.	2490					Richardson, J. H.	6081				
Reeves, R. R., Jr.,	2718					Richardson, J. M.	254				
Reeves, M.	5066					Ridge, D. P.	3824				
Refaey, K. M. A.	3757					Ridley, B. A.	5575				
Regnaut, C.	3971					Ridley, R. O.	428				
Rehder, L.	1291					Riede, D.	303	304			
Reich, H. J.	1753					Rinehart, E. A.	564				
Reichert, E.	1111	1427	1431	1596	4999	Risk, C. G.	218				
	5317					Ritchie, B.	5060				
Reid, R. H. G.	4322					Robb, W. D.	4778	6250			
Reimann, C. W.	949					Robben, F.	759				
Reimers, H.-J.	118					Roberts, D. E.	4236				



Roberts, M. J.	4657					Roussier, L.	6264				
Robertson, A. G.	4355	4484	4862			Rovner, L. H.	4077				
Robin, M. B.	4161					Roy, A. C.	3705				
Robinson, B. B.	1463					Roy, B. N.	4890	5552	5611		
Robinson, E. J.	2060	3826				Roy, T.	6234	6314			
Robinson, L. B.	387	812	1282			Rozett, R. W.	5359				
Robinson, P. D.	545					Rozgachev, K. I.	1290	4452			
Robiscoe, R. T.	3001					Rozsnyai, B. F.	2914				
Rockwood, S. D.	5541					Rozuel, D.	5819				
Rodionov, S. N.	4623					Rubin, K.	329	2822	2947	3849	4397
Roebber, J. L.	2692						4926				
Roehling, D.	785					Ruddberg, E.	1157				
Rogalski, M.	2116					Rudd, J. B.	159				
Rolinski, E. J.	4439					Rudd, M. E.	4992				
Romand, J.	1371	1393	2610	2735		Rudge, M. R. H.	57	533	576	1544	1772
Ron, A.	4766	4825					1773	1848	1849	2022	2685
Roscoe, R.	45	1311					4324	4335	4845	4863	5898
Rose, D. C.	1475						6249	6305			
Rosenberg, L.	301	917	1084			Rudkjoberg, M.	1670	2693			
Rosendorff, S.	4071					Rudolph, P. S.	1116	2899			
Rosenstock, H. M.	1664	1684	2025	2623		Ruf, M. W.	4985				
Rosa, K. J.	1293	3514	3519	3776	3777	Ruffine, R. S.	709				
	3778	3809	4482	4536	4609	Ruhlig, A. J.	734				
	4858	5160	5808			Rundel, R. D.	2788	2790	4706	5476	
Rost, K. A.	4610					Ruppel, H. M.	2211				
Rostovikova, G. S.	5591	5810	6052	6465		Rusch, M.	76	126			
Rotenberg, M.	536	2894	3057	3388		Russek, A.	1343				
Rothe, D. E.	3780					Rustgi, O. P.	870	1255			
Rothe, E. W.	26	868	978	1013	1018	Rutherford, J. A.	2308				
	1268					Ryazanov, N. S.	4972				
Rothenstein, W.	435					Sachl, V.	383				
Rountree, S. P.	5065	6114				Sagawa, T.	3566				
						Saha, B. C.	5587	5659	5823		

Saha, S.	4955					Savchenko, V. N.	4663			
Sakai, H.	622	2641				Sawada, T.	4640	5287	6006	
Sakurai, T.	4438					Sawyer, G. A.	602			
Salem, S. I.	4709					Saxon, R. P.	5608			
Salerno, J. A.	1787					Sayers, J.	887			
Salin, A.	5313					Scanlon, J. H.	919	1050		
Salmona, A.	499	1023	1052	1520	1587	Schackert, K.	3513			
Salo, A. S.	5711					Schaeffer, O. A.	465			
Salop, A.	4183					Schaffernicht, W.	92	262		
Salpeter, E. E.	2863					Schaper, M.	3945			
Salzer, H. G.	2079	2941				Scharp De Visser, J. C.	663			
Samoilov, V. P.	5591	5810	6030	6052	6344	Schearer, L. D.	3565			
	6465					Scheibner, H.	3945			
Sampson, D. H.	1082	1573	1676	2826		Schein, M.	3685			
Sams, W. N.	5013					Schenk, H.	305	6448		
Samson, J. A. R.	575	993	1187	1188	1189	Schenter, R. E.	1894			
	1359	1404	1561	1562	1702	Schermann, C.	4242	4416	5820	
	1798	2678	3413	3575	3682	Schey, H. M.	83	151	918	1033
	3694	4144	4358	4363	4537	Schiavone, J. A.	5908	6026		
	4911	4937	5097	5174	6271	Schiff, H. I.	481			
Samsonov, V. V.	6341					Schindler, R. N.	6179			
Sanche, L.	4963					Schlag, E. W.	4066	4166		
Sandeman, R. J.	5098					Schlessinger, L.	3511			
Sands, R.	610					Schmidt, H.	4734	4735		
Sannikov, B. P.	4623					Schmidt, S. C.	5164			
Santoso, B.	5357					Schmitz, B.	4025			
Saprykin, V. N.	3293					Schneider, B.	3888	3889	4392	4660 5217
Saraph, H. E.	168	954	1026	2020	3294	Schneider, M.	4317	6220		
	3732	3739	4004	4199	4234	Schnopper, H. W.	577			
	5664	5992				Schoen, R. I.	1177	2342	3549	3818 4035
Sarkar, K.	5587	5823					4148	4365	4813	4969
Sasaki, N.	7	33	130	135						
Sasaki, T.	3016	3247								
Sasanuma, M.	3566									
Sato, S.	3566									

Schofield, D. G.	4130					Scott, B. L.	1461							
Schonfelder, J. L.	1424	1646				Scott, B.	1875							
Schonheit, E.	2600					Seaton, M. J.	155	168	404	412	416			
Schopman, J.	6313						422	431	453	484	533			
Schram, B. L.	1281	1690	1705	1706	1748		712	714	715	719	721			
	1858	1863	2349				722	740	843	909	1023			
Schramm, J.	4173						1037	1218	1219	1448	1544			
Schreiber, P.	3688						1624	1832	2020	2056	2601			
Schroeer, J. A.	5544						2602	2603	3567	3732	3739			
Schubert, E.	5905						3870	4004	4199	4202	5992			
Schubert, K. E.	3549	3818				Secrest, D.	6046							
Schulter, D.	2635					Seddon, G. J.	5972	6460						
Schultes, E.	6179					Seery, D. J.	3645							
Schulz, G. J.	299	300	318	319	324	Seiler, G. J.	4229	4562						
	328	517	529	558	932	Selin, L. E.	4524	4776						
	984	1021	1090	1289	1310	Seller, R.	114							
	1592	1924	2078	2763	3389	Seman, M. L.	599	817	839					
	4126	4134	4136	4299	4373	Senashenko, V. S.	5080	5092	5738	5852	5981			
	4375	4558	4566	4963	5010	Seng, G.	6423							
	5064	5278	5734	5901	5993	Sergeev, V. M.	4092							
	6109	6118				Sergeev, Yu. L.	6270							
Schulz, M.	3747	4557	5899	6342		Sethuraman, S. K.	6315							
Schulz, P.	116					Seward, R. P.	675							
Schulz, S.	327	936				Sewell, K. G.	1337	2728						
Schumacher, R.	6179					Shafranosh, I. I.	6383							
Schumpe, G.	2941					Shapiro, J.	828							
Schurgers, M.	3755					Shapiro, S. G.	6000							
Schutten, J.	1748	1782	3729			Shardanand	2689	3346	3577	4177				
Schwartz, C.	447	490	980			Sharma, V. N.	4662	5305						
Schwartz, R.	1889					Sharonov, Yu. D.	4900	4952	5551					
Schwartz, S. B.	443	1772	1848	1849	3736	Sharp, T. E.	1372	1451	2205	2577	2939			
	4728						3207	6050						
Schwarz, W. H. E.	5086					Sharpless, R. L.	6471							
Schweig, A.	4760					Sharpton, F. A.	2128	4451	5629					
Schweitzer, G. K.	4539													
Scolsky, R. M.	3686													



Shatalov, O. P.	4164					Shpenik, O. B.	1077	1521	2074	2757	3063
							3418	6254			
Shaw, C. H.	1191					Shustrikov, V. M.	6457				
Shaw, G. B.	4981					Shvets, O. M.	1507				
Shaw, J. R. D.	4918					Shyn, T. W.	5012				
Shchemelinin, S. G.	4087					Siebertz, K.	816				
Shearer-Izumi, W.	6001					Sieck, L. W.	5512				
Sheftel, S. I.	3766	4142	4339	5588		Sil, N. C.	515	1178	1182	1688	1703
Sheldon, J. W.	1272						1704	1904	2114	2126	2127
Shelton, W. N.	4233	4377	4496	5275	5276		2129	2751	2968	3394	3452
Shemansky, D. E.	4759	4800					4215	4224	4754	4755	4925
							5355	5659	6420	6467	
Shemming, J.	2020	3294				Silver, A.	4000				
Sheorey, V. B.	3567	3844	4669	5987	6422	Silverman, S. M.	372	373	374	376	377
Shepelenko, F. P.	457						378	379	381	794	798
							799	800	803	857	1075
Sheppard, R. J.	893						1091	1663	1743		
Sheridan, W. F.	992	4428				Simons, J. H.	675				
Sherman, R. H.	5472					Simons, J. W.	6080				
Shevelko, V. P.	4446	4455	6144			Simons, R. L.	5262				
Shevera, V. S.	504	1079	1648	3419		Simpson, F. R.	3762	3851	3981		
Shields, D. B.	822					Simpson, J. A.	308	692	1085	1140	1347
Shiloff, J. C.	380	1401					1373	1471	1527	1856	2841
Shimamura, H.	4753						2912	2962			
Shimamura, I.	4417	4632	4674	4725		Simsic, P.	5155				
Shimizu, M.	2057					Sinfailam, A. L.	3700	4237	5055	5556	
Shimon, L. L.	506	1040	1078	1517	1648	Singh, B.	1519				
	1680	1683	1801	1969	1972	Singh, Y.	4323				
	2069	2366	5089	5306	5593	Sinha, P.	4224				
	5982	6262				Sjogren, H.	298	2119	4524		
Shine, W. W.	407					Skarsgard, H. M.	3702				
Shipp, G. S.	3402					Skerbele, A. M.	612	968	1418	1419	1481
Shlyapnikov, G. V.	6317						1824	1887	1983	2659	2694
Shobha, P.	4231	4497	5083	6115			2696	3546	3547	3809	3814
Shore, B. W.	3506						4009	4198	4343	4387	4505
Showalter, J. G.	4563	5067					4653	4752	5482	5521	6065
						Skibowski, M.	4826				
						Skinker, M. F.	198	200			

Skinner, B. G.	350	549	1025			Smith, T. S.	4954							
Skinner, H. W. B.	651					Smyth, H. D.	255							
Sklarew, R. C.	3516					Smyth, K. C.	4793 6026	4871	4980	5715	5908			
Skubenich, V. V.	1047 3578	1989 5112	3064	3374	3387	Snodgrass, H. B.	2177							
Slanger, T. G.	6471					Snyder, T. M.	1191							
Slater, J. M.	6301					Sobelman, I. I.	826	1061	2065					
Slater, R. C.	4957	6215	6302	6303		Sobeslavsky, E.	5517							
Slevin, J. A.	4397	4689	4926			Sol, C.	4711							
Slevin, J.	5634	6385				Solodov, E. P.	4623							
Sloan, I. H.	845	1092	1302	3215		Soltysik, E. A.	492	510	521	2072	4791			
Smets, J.	6199					Somerville, J. M.	683							
Smirnov, B. M.	1764	6317				Somerville, W. B.	497	534	1074					
Smirnov, Yu. M.	4900 6030	4952 6052	5551 6344	5591 6465	5810	Sommer, J.	5085							
Smit, C.	361 4209	513 4382	516	1570	3980	Sonntag, B.	3016	3247	5475					
Smit, J. A.	223 546	315 3980	361 4113	513	516	Soshnikov, A. K.	1680							
Smith, V. H., Jr.	5727					Sovter, V. V.	6254							
Smith, A. C. H.	1268	1803	2790			Speier, F.	2943							
Smith, A. L.	4518	4803	4818			Spence, D.	4134 5993	4375	4558	4566	5064			
Smith, D. J.	4482	4536				Spohr, R.	2739	4811						
Smith, E. R.	6114					Sponer, H.	178							
Smith, K.	83 1015 1976 4469	669 1022 2616 5597	859 1080 2868 5895	896 1340 3704	933 1718 4244	Spruch, L.	917 1500	1084 5954	1443	1496	1499			
Smith, L. G.	35					Squires Jr., B. E.	579	1482						
Smith, P. T.	18	216	224	225		Srinivasan, V.	2120	3051						
Smith, R. A.	1300					Srivastava, B. N.	2964	3524	3769	3943	4337			
Smith, R. L.	4371	4860	4960	5026		Sroka, W.	2782 4336 6448	2828 5513 6472	3833 5633	3940 5846	3978 5977			
Smith, S. J.	38 1223 2667	468 1386 3027	922 1486 4945	979 1628 5000	1222 1632	Sruch, L.	301							
						St. John, R. M.	485 1049 3710	564 2128 4129	742 2838 4451	912 2903 4959	942 2923			

Stabler, R. C.	671					Stern, B.	4010				
Stacey, G. M.	1770					Stern, R. C.	4957	6215	6302	6303	
Stafford, F. E.	1874	2944				Sternlicht, R.	5197				
Stair, R.	1241					Stevenson, D. P.	213	339	342	451	1224
Stamatovic, A.	4126	4299	5278			Stevenson, J. G.	5214				
Stanton, H. E.	331	2377				Stewart, A. L.	690	1221	2607	2608	
Stanton, P. N.	3710					Stewart, D. T.	333 5694	334 5695	338	953	5549
Stanton, R. L.	564					Stewart, J. C.	2894				
Starace, A. F.	4366	6173	6375			Stewart, W. B.	4809				
Starikova, G. S.	6030	6344				Stickel, W.	1065	1597			
Starodub, V. P.	4783	5731	6051	6387	6466	Stingl, E.	4514	5014	5079		
Starostin, A. N.	716					Stockdale, J. A. D.	3006	3763	5811	6381	
Starr, W. L.	5021					Stolarski, R. S.	5012				
Startsev, G. P.	2621 4540	2688 5310	2867 6253	3337	4165	Stone, E. J.	4420 5706	4667 6181	4712	4714	4850
Stauffer, A. D.	307	1246	2013	4556	4695	Stone, P. M.	359	1571	1805		
Staver, T. B.	543					Stotskii, G. I.	4333	6457			
Stebbins, R. F.	326 5844	332 6145	1031 6175	1089	5476	Stotz, K. C.	982				
Steeb, E.	3934					Strand, T. G.	3248	6246			
Steelhammer, J. C.	4232	4316				Stredele, B.	4459				
Steidl, H.	1431	1596				Street Jr., K.	1301				
Stein, J. A.	1799					Strickland, D. J.	4002				
Stein, J.	5197					Strohmeier, G.	121				
Stein, S.	392	401				Stuber, F. A.	1453				
Steinberg, M.	2216					Stueckelberg, E. C. G.	1010	2606			
Steiner, B.	817	839	3414	3548	3564	Su, N. C.	4641				
Stelman, D.	5032					Sugiura, T.	539				
Stenhouse, I. A.	4028	4526	4534			Sullivan, E. C.	512	848	3062	4927	
Stepanov, A. M.	3985	4866				Sullivan, J. O.	2637				
Stephenson, L. M.	6081					Sullivan, J.	4854				
Stepinsh, P.	835					Sultanov, A. Sh.	3416	3417			



Sulzmann, K. G. P.	3012					Tarafdar, S. P.	4511							
Summers, C.	2888					Tate, J. T.	18 924	21	214	216	667			
Sun, C. P.	741					Taube, H.	4146							
Sun, H.	1245	2604	2605			Tavard, C.	3987							
Sunshine, G.	846	1490	2170	2178		Taylor, A. J.	874 1847 3838	1416	1436	1524	1536			
Sural, D. P.	1688	4641	5018			Taylor, H. S.	2777	3377	5217	6316				
Sushanin, I. V.	4427	5267				Taylor, I. R.	4716	5837						
Sutton, D. J.	352					Taylor, J. E.	67							
Sutton, J. F.	5705	5999				Taylor, P. O.	5831	6188	6193					
Suzuki, H.	4090	4152	4298	4404		Tegeder, K.	4835							
Swan, P.	430	433				Tekaatt, T.	2624	3747	4557					
Swanson, N.	3398	4847				Temkin, A.	204 706 2027 4745	400 904 3828 5956	498 908 4000 6255	503 1030 4308	512 1051 4395			
Sweeney, J. P.	564					Tenney, A.	5090							
Swick, D. A.	983					Terebey, J. Z.	5933							
Swingler, D. L.	4216					Teubner, P. J. O.	3774 5553 6230	4668 5665 6247	4839 5814 6463	5072 6187	5285 6191			
Szabo, A.	4121	5171	5448			Teutsch, W. B.	1195							
Tahira, S.	3999 5824	5008	5652	5817	5818	Thaler, R. M.	1894							
Tai, H.	3774	4123				Theobald, J. K.	5472							
Tait, J. H.	842	1416	1653	4794		Thiel, W.	4760							
Takahashi, T.	3574					Thieme, O.	108							
Takayanagi, K.	724 1589 3706	1093 1666 3707	1452 2783 3977	1477 2798 4210	1488 3574 4753	Thomas, B. K.	3750	4669	4701	5543	5601			
Takeda, S.	1450					Thomas, G. E.	3874	3878	4718					
Talbot, L.	759					Thomas, G. M.	4367							
Tam, W.-C.	6178					Thomas, J. J.	177							
Tambe, B. R.	6428					Thomas, L. D.	6111	6316	6415					
Tan, K.-H.	6134	6347				Thomas, L. H.	42							
Tanaka, K.	4163	4370				Thompson, B. A.	2718							
Tanaka, Y.	691 2633	774 2668	1271 2699	2507 2746	2508									
Tannenbaum, E.	617													

Thompson, D. G.	1139	4553	4918	6297			4780	4784	5273		
Thompson, J. B.	943					Tripathi, D. N.	3804	4399	4615	4619	4662
Thompson, N.	989						4890	4899	5305		
Thompson, R. J.	605					Tronc, M.	4846	4852	5707	6264	
Thonemann, P. C.	261	264	907			Truhlar, D. G.	3728	4114	4116	4137	4138
Thorburn, R.	337	853	950				4560	4740	4860	4960	5063
Thynne, J. C. J.	4710						5084	5141	5145	5596	5815
Tibbs, S. R.	70					Trujillo, S. M.	5990	6267	6417	6469	
Tice, R.	3203	3204					26	868	978	1013	1018
Tien, P. K.	1094					Tsui, A.	1268				
Tietz, T.	206	409	562	745	1176		5709				
Tisone, G. C.	1203	1483	1510	1511	2803	Tsurubuchi, S.	5356	6135	6388		
Tittel, F. K.	5476					Tuckwell, H. C.	4356	4513			
Tiwari, P.	3804	4654	5161	5272	6349	Tuffin, F.	2870	3527			
Tiwary, S. N.	5479					Tuley Jr., F. H.	4837	4921			
Tolk, N.	1871					Tully, J. A.	4119	5304	6116		
Tombouliau, D. H.	647	1350	1755	2704	2705	Tully, J. C.	3411	3876	3888	4042	
Tondello, G.	4756	4906				Tully, J.	775				
Topschowsky, M.	1585					Tung, J. H.	5572				
Torres, B. W.	3992	5597	5815	5895		Tunitskii, N. N.	723				
Townsend, J. S.	195	197	199	201		Tunstead, J.	1228	2669			
Tozer, B. A.	337	356	357	853	865	Turner, B. R.	2308				
Traeger, J. C.	4751	5481	5516	5520		Turner, D. W.	3453	3454	3781		
Trajmar, S.	3545	3813	4114	4137	4138	Turner, J. E.	5066				
	4400	4560	4664	4724	4740	Tweed, R. J.	5284				
	4851	5084	5141	5145	5215	Ugbabe, A.	6230				
	5360	5599	5815	5832	6194	Ulmer, R.	532				
	6427					Unwin, J. J.	243				
Treffitz, E.	143	879	1046	1114		Urnov, A. M.	4446				
Trepka, L. V.	1709					Ushakov, V. V.	4353				
Tripathi, A. N.	3709	3735	3837	4008	4089	Uy, O. M.	2900				
	4120	4340	4648	4700	4704	Uzan, R.	4429				
						Vainshtein, L. A.	754	826	1061	1087	1474
							1540	1546	1581	1813	2065
							2640	2670	2733	2742	2799

	2829 3994	2946 4330	3060 4455	3065 4866	3698 4905	Veklenko, B. A.	560	716		
						Veldre, V. Ya.	101 1319 1555 1867	830 1426 1576 1868	835 1472 1582 1970	836 1547 1674 1866
Val, J. L.	4728									
Valasek, J.	1275									
Valentine, N. A.	1168					Vesnicheva, G. A.	5087			
Van Asselt, N. P. F. B.	6009					Vetterlein, P.	96			
Van Blerkom, J. K.	3214	4223				Vigroux, E.	1368 2702	1370 2723	1430 2734	2700 2889
Van Brunt, R. J.	2614 6416	4348	4449	6074	6301	Vilesov, F. I.	2865	4465	6270	
Van Dalfsen, W.	4382					Villarejo, D.	1883	3254		
Van De Runstraat, C. A.	6142					Vincent, D.	421			
Van De Walle, R. T.	838					Vinkalns, I. Zh.	844 1878	1097 1879	1472	1548 1582
Van Den Bos, J.	3730					Vinogradov, A. S.	5101			
Van Der Wiel, M. J.	1281 4381 4893	1690 4426 5062	2349 4670 5903	3819 4814	4297 4842	Vinogradov, A. V.	2640	2799	3060	3065 4330
Van Eck, J.	4218	4616	6195	6411		Vinti, J. P.	2860			
Van Egmond, W.	315					Visconti, P. J.	4397	4926		
Van Raan, A. F. J.	4616	5441	6195	6411		Vodar, B.	1393	1619	2740	
Van Regemorter, H.	720 4624	775 5005	1053	1054	1122	Vogt, E. W.	4882			
Van Voorhis, C. C.	2	2313	2314			Volkov, B. I.	2849			
Van Voorhis, S. N.	173					Volkov, Yu. M.	3568			
Van Zyl, B.	1501	1503	2171	2772		Volkova, L. M.	344 755	414 1533	474	505 749
Vanderpoorten, R.	4301	5483	6183	6459		Von Busch, F.	4936			
Vardya, M. S.	4511					Von Engel, A.	336	354	4319	
Varnerin Jr., L. J.	240					Von Puttkamer, E.	2658	2739		
Varney, R. N.	6050					Vorburger, T. V.	4938			
Varsavsky, C. M.	792	814	1017			Voshall, R. E.	439			
Varshavskii, S. P.	3872	4167	4213	5015		Voss, W.	113			
Vasavada, K. V.	2027	4000				Vought, R. H.	2706			
Vassy, A.	862					Vredenberg, W. J.	361			
Vassy, E.	862					Vreeswijk Jr., J. A.	269			
Vaughan, A. L.	17					Vriens, L.	1159	1457	1468	1594 2017



	2841 4113	3209 4239	3584 4507	3819	4093	Walton, D. S.	3995	4344	4437	4503	4720
						Wang, K. L.	2918	3643	5980		
Vroom, D. A.	2846 3831	3250 3832	3591 4036	3687 4467	3812 4487	Wardle, C. E.	5835				
Vrublevskaya, N. A.	1909					Wareing, J. B.	2721				
Vukstich, V. S.	3528 6497	5830	6252	6341	6464	Warneck, P.	2637	3887			
Waber, J. T.	6092					Warren, J. W.	1230	1231			
Waddington, J. F.	1083					Watanabe, K.	622 1229	641 1328	1042 1360	1147 2209	1220 2252
Wade, C.	4954						2384	2482	2636	2638	2641
Waggoner, M. G.	4818						2654	2668	2672	2673	2674
							2675	2676	2677	2770	2851
Wahl, J. J.	446						3638				
Wahlin, H. B.	1752					Watanabe, M.	365	3566			
Wahr, J. C.	4820					Watanabe, T.	2717	5515			
Wainfan, N.	1234					Watkins, L. D.	597				
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