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STANDARDS

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# Bibliography of Low Energy Electron Collision Cross Section Data



United States Department of Commerce  
National Bureau of Standards  
Miscellaneous Publication 289

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UNITED STATES DEPARTMENT OF COMMERCE

Alexander B. Trowbridge, *Acting Secretary*

NATIONAL BUREAU OF STANDARDS • A. V. Astin, *Director*

# Bibliography Of Low Energy Electron Collision Cross Section Data

L. J. Kieffer

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



National Bureau of Standards Miscellaneous Publication 289

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BIBLIOGRAPHY OF LOW ENERGY ELECTRON  
COLLISION CROSS SECTION DATA†

L. J. Kieffer

A bibliography of low energy electron collision cross section data is presented. Only references which report original measurements or calculations of electron collision cross sections are included. The cross section data for each process are listed by atomic species in order of their atomic number. The data for molecules are listed in arbitrary order.

Key Words: atom, molecule, electron, collision cross section

INTRODUCTION

The Joint Institute for Laboratory Astrophysics (JILA) maintains an Information Center for collecting reports which contain information of interest to plasma physicists and astrophysicists. Because of the availability of information from other data centers, our scope is confined to low energy atomic collision data. Our obligation to the National Standard Reference Data System requires that we make available to the general scientific and technical community critically evaluated data for electron and photon collisions with atoms and simple molecules.

This Bibliography has been issued previously in report form (JILA Reports #4 and #34, and JILA Information Center Report #2). All previous versions of this bibliography, and this one, have included all of the bibliographic material in our files at the time of publication. The current literature for this publication was searched through October 1966. Because we rely upon the abstracting journals to obtain references from sources which do not in general contain information of interest, there may be some material from late 1966 which is not included in this bibliography. The current scientific literature will be searched for this material on a continuing basis and all future bibliographic material will be issued in conjunction with the publication of critically evaluated data.

† This research was supported in part by the Advanced Research Projects Agency (Project DEFENDER), monitored by the U. S. Army Research Office-Durham, under Contract DA-31-124-ARO-D-139, and in part by the National Bureau of Standards through the National Standard Reference Data Program.

## Electron Scattering Cross Section Bibliography

The criterion used in choosing the references for this bibliography is that the publication contain original measurements or calculations of electron cross sections in the energy range 0 to 10 KeV for specific atomic or molecular targets. The upper limit on the energy was not used as an absolute limit but indicates the order of magnitude of interest. This means that one should not expect to find electron collision cross sections in the range of 50 KeV and above.

Papers containing the following quantities, which are not explicitly cross sections, have also been collected:

1. phase shifts,
2. scattering lengths,
3. ionization efficiencies,
4. excitation efficiencies.

The reason for including these quantities is that under the proper conditions cross sections have been or can be simply derived from them.

Published manuscripts, theses, reports given at meetings, and company or agency reports which have been printed and circulated are included in the bibliography. However, reference is not made to material that is unavailable either through library facilities or government document centers. (No classified material is included.)

There is a tendency for authors to publish material which is identical to that which they have reported on at a meeting (which is printed and circulated) and also issued as a company or agency report. In some cases it is possible to verify that this is so and in those cases only one reference (the formal publication if there is one) is kept in our bibliography. In most cases it is not possible to make such a precise distinction among such documents, since only some of the material may have been made available before. 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 all published data.

Inclusion of a reference in this bibliography does not imply a value judgment about the accuracy of the information. We only assert that this reference reports a measured or calculated electron collision cross section (or the equivalent as described previously). The question of the accuracy of the data is to be covered in separate published critical reviews [see, for example, Reviews of Modern Physics, 38, 1, (1966)].

### Description of the Bibliography Format

The Electron Cross Section Bibliography is divided into three main sections. The first section describes the data which are in the references included in the bibliography. The data are categorized by a

hierarchy of descriptors in the following order:

1. Process (e.g., elastic scattering, electronic excitation, etc.)
2. Experimental or Theoretical
3. Normalized or Relative  
(The data are considered normalized if given in absolute units.)
4. Atomic or Molecular Species including the degree of ionization of the species.  
(A negative ion is indicated by a minus sign; neutral unexcited species by a blank; neutral excited species by a star; and a positive ion by a number indicating the degree of positive ionization. All of these symbols follow the atomic species, which are listed in ascending order of nuclear charge, Z. Molecular species are listed in arbitrary order.)
5. The references in which the data described are found.  
The references are identified by an arbitrary file number, the first author and the year of publication (e.g., 63 implies 1963).

The following comments about categories (see Contents) are necessary in order to use the bibliography properly. Category ELASTIC SCATTERING, for theoretical papers, includes all references to elastic scattering cross section computations except differential elastic scattering cross section references, which are given in a separate category. In the case of experimental papers only those references in which cross section measurements were reported with energy discrimination for the scattered electrons are included under ELASTIC SCATTERING.

Category TOTAL SCATTERING includes theoretical papers which 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.

The second section lists the title, authors and complete reference for the paper cited. These are ordered by their "file" number.

The abbreviations for journal titles are taken from Chemical Abstracts or if not abstracted there, from Science Abstracts, Section A: Physics Abstracts.

The third section consists of an alphabetical author index. After each name is a list of the "file" numbers of articles authored or co-authored to be found in the bibliographic section.

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The author would like to gratefully acknowledge the assistance of the staff of the JILA Information Center. The computer programs used for this report were written by Patricia Ruttenberg. The manuscript was prepared by Mary Ann Lefler and Elizabeth Hosack.

## ELECTRON PAPERS

## TOTAL ELASTIC SCATTERING EXPERIMENTAL

## TOTAL ELASTIC SCATTERING THEORETICAL

## NORMALIZED

## NORMALIZED

H	0933 COOTY,64		H	0490 SCHWARTZ,61	0495 MOISEIWITSCH,63	
HE	0273 ALLEN,37 0330 WESTIN,49 0734 GRAHAM,54	0274 GOLOAN,63 0637 LANGMUIR,28		0498 TEMKIN,63 0512 TEMKIN,63 0537 OMIOVAR,59 0543 STAVER,49 0553 MITTELMAN,62 0561 OHMURA,60 0571 MCEACHRAN,61 0706 TEMKIN,61 0716 VEKLENKO,64 0744 MCEACHRAN,63 0812 ROBINSON,61 0856 OAMBURG,63 0864 MALIK,64 0896 SMITH,60 0899 JOHN,60 0904 KYLE,64 0935 OCHKUR,58 0980 SCHWARTZ,62 1009 BURKE,63 1022 SMITH,62 1026 SARAPH,61 1033 LIPPMPANN,61 1074 SOMERVILLE,63 1084 ROSENBERG,60 1092 SLOAN,64 1487 GAILITIS,65 1505 OAMBURG,65 1511 TIETZ,63 1550 OAMBURG,63 1552 OAMBURG,63 1580 ARMSTEAD,65 1703 BANERJEE,65 1747 KANG,66 1773 RUOGE,65 1869 GAILITIS,65		0503 TEMKIN,63 0520 MALIK,59 0542 OAMBURG,62 0552 HARA,61 0560 VEKLENKO,63 0567 WU,60 0586 PERCIVAL,57 0712 BURKE,61 0722 LAWSON,61 0795 KAMENETSKII,61 0855 MCEACHRAN,60 0859 SMITH,60 0879 MALIK,60 0897 NUTT,64 0903 PU,63 0908 KYLE,64 0967 GREENBERG,57 0981 MURAEV,63 1015 SMITH,61 1025 KINGSTON,61 1030 TEMKIN,61 1051 TEMKIN,62 1083 WAODINGTON,64 1087 VAINSHTEIN,63 1414 LANE,64 1496 HAHN,62 1510 TIETZ,63 1524 TAYLOR,65 1551 OAMBURG,63 1553 OAMBURG,63 1686 LEVIN,63 1708 JOHN,66 1770 MOISEIWITSCH,65 1847 BURKE,66 1898 KYLE,64
AR	0273 ALLEN,37 0330 WESTIN,49 0734 GRAHAM,54	0292 ENGELHAROT,64 0637 LANGMUIR,28 1909 MAZING,66				
KR	0739 CHEN,63					
RB	0522 BALLING,64					
XE	0739 CHEN,63					
CS	1346 BALLING,64	1909 MAZING,66				
HG	0069 ARNOT,35	0637 LANGMUIR,28				
H2	0260 ENGELHAROT,63	0637 LANGMUIR,28				
N2	0381 LASSETTRE,57	0637 LANGMUIR,28				
C O	0374 LASSETTRE,53					
O2	0260 ENGELHAROT,63					
RELATIVE						
H	1593 KLEINPOPPEN,65		H	0429 BRANSOEN,56	0433 SWAN,54	
HE	0300 SCHULZ,63 0518 FLEMING,63 1347 KUYATT,65	0517 SCHULZ,63 0529 SCHULZ,64		0593 OMIOVAR,64 0859 SMITH,60 0935 OCHKUR,58	0722 LAWSON,61 0904 KYLE,64 1074 SOMERVILLE,63	
NE	0052 ARNOT,31 0529 SCHULZ,64 1347 KUYATT,65	0300 SCHULZ,63 1004 HUGHES,33	HE	0025 MORSE,33 0055 MCDOUGALL,32 0106 ALLIS,31 0388 BYATT,56 0409 TIETZ,59 0459 MOISEIWITSCH,53 0495 MOISEIWITSCH,63 0562 TIETZ,59 0657 ZWICKY,23 0818 MARTYNENKO,63 0822 RELL,64 0866 MARRIOTT,64 0977 MURAEV,63 1114 MALIK,61 1376 LABAHN,65 1516 GURCHUMELIYA,63 1659 HUSAIN,66 1775 ZHIKHAREVA,65 1827 LABAHN,66 1894 SCHENTER,66	0054 MASSEY,32 0060 OMALLEY,63 0206 TIETZ,63 0397 BARBIERE,51 0449 KIVEL,59 0471 MOISEIWITSCH,61 0515 MUKHERJEE,62 0565 HASINO,63 0765 MATORA,60 0821 BAUER,63 0849 HASHINO,63 0976 LABAHN,64 1024 MOISEIWITSCH,61 1256 WILLIAMSON,65 1485 KESTNER,65 1590 WILLIAMSON,62 1704 BANERJEE,65 1817 ORIENT,66 1853 ZHIKHAREVA,66 1905 PETERKOP,65	
AR	0020 HUGHES,32 0052 ARNOT,31	0049 BULLARD,31 1347 KUYATT,65				
K	0610 FRANKEN,58					
KR	0052 ARNOT,31 1347 KUYATT,65	0529 SCHULZ,64				
XE	0052 ARNOT,31 1347 KUYATT,65	0529 SCHULZ,64				
HG	1347 KUYATT,65					
H2	0052 ARNOT,31 1471 KUYATT,66	1085 KUYATT,64				
N2	0052 ARNOT,31 1924 SCHULZ,66	0300 SCHULZ,63	HE	1658 MARRIOTT,66		
C O	0052 ARNOT,31		HE	1 0422 SEATON,57 0845 SLOAN,64 1092 SLOAN,64	0670 MCCARROLL,64 1080 BURKE,64 1847 BURKE,66	
C H4	0052 ARNOT,31					
H O	1471 KUYATT,66		LI	0810 OAMBURG,60 0835 VELORE,59 1097 VINKALNS,64 1491 KARULE,65 1515 KARULE,64 1571 STONE,66 1865 KARULE,65	0821 BAUER,64 0990 KARULE,64 1469 KARULE,65 1498 GARRETT,65 1542 KARULE,65 1864 KARULE,65 2002 PETERKOP,65	
O2	1471 KUYATT,66		RE	0884 PILYANKEVICH,60		
TOTAL ELASTIC SCATTERING THEORETICAL			RE	2 0884 PILYANKEVICH,60		
			B	0884 PILYANKEVICH,60		

## NORMALIZED

H	0028 CORINALDESI,63 0044 BURKE,62 0083 BURKE,63 0151 BURKE,62 0168 SARAPH,62 0234 MASSEY,56 0276 AKEMIB,61 0296 GAILITIS,63 0351 BELL,63 0369 OCHKUR,57 0393 BOYE,54 0403 ALTHSULER,53 0408 OHMURA,58 0416 BRANSOEN,58 0447 SCHWARTZ,61 0457 OEMKOV,58	0032 GORSHANOVA,62 0055 MCDOUGALL,32 0127 HUANG,49 0166 BURKE,62 0220 KAMENETSKII,62 0244 GELTMAN,60 0287 CHANORASEKHAR,46 0301 OMALLEY,62 0362 KATO,51 0384 BOROWITZ,57 0398 MASSEY,56 0405 MASSEY,51 0412 SEATON,57 0429 BRANSOEN,56 0448 KRALL,50 0463 OHMURA,59	C	0884 PILYANKEVICH,60 1102 MCDOWELL,64 1114 MALIK,61	I057 COOPER,62 1110 MYERSCOUGH,64 1539 MYERSCOUGH,65
			C	2 0884 PILYANKEVICH,60	
			C	4 0884 PILYANKEVICH,60	
			N	0387 ROBINSON,57 0407 HAMMERLING,57 1114 MALIK,61	0399 KLEIN,58 0597 BYATT,59 1650 LENANDER,66
			O	0071 BATES,47 0208 YAMANOUCHI,47 0399 KLEIN,58	0169 BREHM,59 0387 ROBINSON,57 0400 TEMKIN,57

## TOTAL ELASTIC SCATTERING THEORETICAL DIFFERENTIAL ELASTIC SCATTERING EXPERIMENTAL

## NORMALIZED

O	0407 HAMMERLING,57 0812 ROBINSON,61 0928 MITRA,40 1569 MYERSCOUGH,65 1832 SEATON,52	0597 BYATT,59 0821 BAUER,64 1057 COOPER,62 1650 LENANDER,66	H	1031 GILBODY,61 HE 0165 HUGHES,32 0637 LANGMUIR,28 1277 HUGHES,36	0330 WESTIN,49 0995 GOODRICH,31
F	0572 HOERNI,53	1057 COOPER,62	NE	0187 BERMAN,49 0637 LANGMUIR,28	0330 WESTIN,49
NE	0060 O'MALLEY,63 0185 HOLTSMARK,28 0409 TIETZ,59 0471 MOISEIWITSCHE,61 0821 BAUER,64 1059 BIBERMAN,64	0106 ALLIS,31 0267 BULLARD,30 0449 KIVEL,59 0495 MOISEIWITSCHE,63 0944 FRENKIEL,62	AR	0187 BERMAN,49 0637 LANGMUIR,28	0330 WESTIN,49
NA	0106 ALLIS,31 0810 DAMBURG,60 0959 GARRETT,64 1052 SALMONA,61 1491 KARULE,65 1520 SALMONA,63 1542 KARULE,65 1864 KARULE,65 2002 PETERKOP,65	0499 SALMONA,59 0812 ROBINSON,61 1023 SALMONA,61 1469 KARULE,65 1498 GARRETT,65 1523 GARRETT,64 1587 SALMONA,65 1865 KARULE,65	H2	0637 LANGMUIR,28	0637 LANGMUIR,28
NA	1 0422 SEATON,57	1057 COOPER,62	N2	0637 LANGMUIR,28	0637 LANGMUIR,28
CL	0267 BULLARD,30	1057 COOPER,62	C 0	0374 LA55ETRE,53	0374 LA55ETRE,53
AR	0060 O'MALLEY,63 0106 ALLIS,31 0397 BAHIERE,51 0450 KIVEL,59 0495 MOISEIWITSCHE,63 0818 MARTYNENKO,63 0875 KARLE,64 1579 BRACKETT,63	0099 HOLTSMARK,29 0185 HOLTSMARK,28 0449 KIVEL,59 0471 MOISEIWITSCHE,61 0657 ZWICKY,23 0821 BAUER,64 1059 BIBERMAN,64 1650 LENANOEM,66	HE	0003 DYNAMIC,27 0053 BULLARD,31 0158 HARNWELL,29 0253 DYNAMIC,29 1470 EHRHARDT,65	0011 MCMILLEN,30 0120 POULTNEY,34 0193 WERNER,31 1001 HUGHES,34 1529 EHRHARDT,65
K	0810 DAMBURG,60 1469 KARULE,65 1523 GARRETT,64 1864 KARULE,65 2002 PETERKOP,65	0959 GARRETT,64 1491 KARULE,65 1542 KARULE,65 1865 KARULE,65	NE	0052 ARNOT,31 0059 MOHR,32 0158 HARNWELL,29	0053 BULLARD,31 0137 NICOLL,33 1004 HUGHES,33
CA	0557 KAMENETSKII,60	1448 BELY,64	AR	0011 MCMILLEN,30 0022 WEBB,35 0052 ARNOT,31 0129 RAMSAUER,31	0020 HUGHES,32 0049 BULLARD,31 0059 MOHR,32 0437 PORTEUS,64
ZN	0106 ALLIS,31		K	0030 MCMILLEN,34	0329 RUBIN,60
KR	0060 O'MALLEY,63 0449 KIVEL,59 0495 MOISEIWITSCHE,63 0821 BAUER,64	0104 HOLTSMARK,30 0471 MOISEIWITSCHE,61 0818 MARTYNENKO,63	ZN	0064 CHILO,53	
XE	0060 O'MALLEY,63 0818 MARTYNENKO,63	0449 KIVEL,59	KR	0022 WEBB,35	0052 ARNOT,31
C5	0036 GARRETT,63 0810 DAMBURG,60 1469 KARULE,65 1523 GARRETT,64 1864 KARULE,65 1897 CROWN,65	0359 STONE,63 1343 CRUWN,65 1491 KARULE,65 1542 KARULE,65 1865 KARULE,65 2002 PETERKOP,65	CO	0062 CHILO,53	
HG	0557 KAMENETSKII,60 0592 GAJEWSKI,58	0562 TIETZ,59	XE	0052 ARNOT,31	
TL	0106 ALLIS,31		AU	1111 REICHERT,63	
U	0572 HOERNI,53 0875 KARLE,64	0592 GAJEWSKI,58	HG	0050 ARNOT,31 0144 ARNOT,32 0191 ARNOT,29 0245 ARNOT,33 1002 JORDAN,34 1427 OEICHSEL,65 1475 ROSE,30	0137 NICOLL,33 0164 GAGGE,33 0219 JORDAN,33 0486 KESSLER,65 1425 OEICHSEL,61 1431 STEIDL,65 1596 OEICHSEL,66
H2	0034 FI5K,36 0251 MASSEY,30 0421 CARTER,58 0434 CARSON,54 1816 OKSYUK,66	0054 MA55EY,32 0411 NAGAHARA,54 0428 MASSEY,56 1452 TAKAYANAGI,65	H2	0011 MCMILLEN,30 0031 WEBB,35 0053 BULLARD,31 0129 RAMSAUER,31 0230 HARNWELL,29	0023 HUGHES,32 0052 ARNOT,31 0059 MOHR,32 0158 HARNWELL,29 1303 GEIGER,64
O2	0034 FI5K,36 1816 OKSYUK,66	1666 GELTMAN,66	C 2H2	1286 CHILO,54	
N2	0034 FI5K,36 1452 TAKAYANAGI,65 1852 CHEN,66	0895 CHEN,64 1816 OKSYUK,66	C 0	0052 ARNOT,31	
H2O	0385 ALTSCHULER,57		BR2	0065 ARNOT,34	
N M3	0385 ALTSCHULER,57		C H4	0052 ARNOT,31 0059 MOHR,32	0053 BULLARD,31 0137 NICOLL,33
C H4	0070 BUCKINGHAM,41		I2	0065 ARNOT,34	
			H2S	0059 MOHR,32	
			P H3	0059 MOHR,32	
			C CL4	0065 ARNOT,34	1287 HILL,36
			C 2H4	1286 CHILO,54	
			C 2H6	1286 CHILO,54	

## RELATIVE

C F4 1287 HILL,36

## OIFFERENTIAL ELASTIC SCATTERING THEORETICAL

## NORMALIZED

H	0025 MORSE,33	0028 CORINALDESI,63
	0083 BURKE,63	0127 HUANG,49
	0151 BURKE,62	0234 MASSEY,56
	0244 GELTMAN,60	0301 OMALLEY,62
	0416 BRANSOEN,58	0490 SCHARTZ,61
	0511 BOHWITZ,54	0544 MOISEIWITSCH,59
	0567 WU,60	0855 MCEACHERN,60
	0879 MALIK,67	0899 JOHN,69
	0903 PU,63	0918 BURKE,62
	0935 OCHKUR,58	0967 GREENBERG,57
	1022 SMITH,62	1025 KINGSTON,61
	1030 TEMKIN,61	1130 KLEIN,55
	1461 SCOTT,65	1524 TAYLOR,65

H + 0935 OCHKUR,58

HE	0025 MORSE,33	0136 MOTT,33
	0221 FEENBERG,32	0258 KOLOS,61
	0383 SACH,58	0462 HUZINAGA,60
	0544 MOISEIWITSCH,59	0590 KOLOS,60
	0976 LABAHN,64	1048 MUKHERJEE,61
	1056 INOKUTI,61	1283 KAR,37
	1308 GHOSH,35	1407 KHARE,65
	1408 KHARE,65	1493 KHARE,64
	1817 ORIENT,66	

HE + 0514 BHATTACHARYYA,61

LI 1865 KARULE,65

BE 0884 PILYANKEVICH,60

BE 2 0884 PILYANKEVICH,60

B 0884 PILYANKEVICH,60

C 0884 PILYANKEVICH,60

C 2 0884 PILYANKEVICH,60

C 4 0884 PILYANKEVICH,60

N 1579 BRACKETT,63

O 0409 TIETZ,59 1579 BRACKETT,63

F 0572 HOERNI,53 1287 HILL,36

NA 1865 KARULE,65

NA 1 0719 SEATON,58

S 1176 TIETZ,68

CL 0745 TIETZ,60

AR 0409 TIETZ,59 0821 BAUER,64

1579 BRACKETT,63

K 0821 BAUER,64 1469 KARULE,65

1864 KARULE,65 1865 KARULE,65

BR 1152 ARNOT,34

KR 0156 ARNOT,34 1199 MUKHERJEE,61

CS 1865 KARULE,65

AU 1646 SCHONFELDER,66

HG 0109 BUNYAN,63 1424 BUNYAN,65

1646 SCHONFELDER,66

BI 1646 SCHONFELDER,66

U 0572 HOERNI,53

H2 0251 MASSEY,30 1311 ROSCOE,38

1408 KHARE,65

BR2 1152 ARNOT,34 1191 SHAW,40

## RELATIVE

H 0068 MASSEY,34

## RELATIVE

HE	0051 MASSEY,31	0054 MASSEY,32
	0068 MASSEY,34	0302 FANO,61
	0639 MORSE,32	

HE 1 0440 BRANSOEN,53

O 0048 MOTT,30

F 1287 HILL,36

CL 1287 HILL,36

AR	0655 HENNEBERG,33	
	0113 VOSS,33	0655 HENNEBERG,33
	1294 HUGHES,35	

KR	0653 HENNEBERG,32	0655 HENNEBERG,33
	0054 MOISEIWITSCH,59	
	0653 HENNEBERG,33	

HG 0653 HENNEBERG,32 0194 MASSEY,32

H2 0054 MASSEY,32 0194 MASSEY,32

0963 GRYZINSKI,64

N2 0138 MASSEY,33 0194 MASSEY,32

C242 0726 HUGHES,33

C H4 0070 BUCKINGHAM,41 0726 HUGHES,33

C CL4 1287 HILL,36

C2H4 0726 HUGHES,33

C F4 1287 HILL,36

## ELECTRONIC EXCITATION

## EXPERIMENTAL

## NORMALIZED

H	0321 FITE,58	0326 FITE,59
	0327 LICHTEN,59	0332 STEBBINGS,60
	0936 SCHULTZ,60	1466 SMITH,65

HE	0056 LEES,32	0123 OORRESTEIN,42
	0124 OORRESTEIN,42	0125 WOODENBERG,41
	0192 FRANCIS,47	0318 SCHULZ,57

	0336 CORRIGAN,58	0338 STEWART,59
	0373 LASSETTRE,53	0379 SILVERMAN,57
	0464 FRISH,58	0477 YAKHONTOV,60

	0485 LIN,62	0554 HUGHES,63
	0600 PHELPS,58	0637 LANGMUIR,28
	0742 ST.JOHN,60	0787 HUGHES,63

	0799 SILVERMAN,64	0800 LASSETTRE,64
	0871 FLEMING,63	0886 GABRIEL,60
	1049 ST.JOHN,64	1088 FLEMING,64

	1265 JONES,48	1323 YAKHONTOV,59
	1455 MILLER,64	1528 HOLT,65
	1583 ZAPESOCHNYI,65	1677 HOLT,66

	1760 LASHMORE-OAVIES,65	1892 HOLT,65
	1895 ZAPESOCHNYI,65	

HE	0759 RORBEN,63	
	1803 DANCE,66	

LI 0773 FELOMAN,63 1072 HUGHES,64

NE	0122 MILATZ,40	0123 OORRESTEIN,42
	0124 OORRESTEIN,42	0147 BERMAN,64
	0205 HADEISHI,163	0288 HERRMANN,36

	0637 LANGMUIR,28	1094 TIEN,64
	1339 HADEISHI,165	1531 FRISH,63
	1584 REVALO,65	

NA	0141 LOVERIDGE,31	0290 CHRISTOPHER,35
	0414 VOLKOVA,61	1517 ZAPESOCHNYI,65
	1683 ZAPESOCHNYI,65	

AR	0187 BERMAN,49	0288 HERRMANN,36
	0637 LANGMUIR,28	0755 VOLKOVA,59
	1823 ZAPESOCHNYI,66	

K	0141 LOVERIDGE,31	0275 FABRIKANT,39
	0344 VOLKOVA,59	0505 VOLKOVA,62
	0749 VOLKOVA,59	0773 FELOMAN,63
	1517 ZAPESOCHNYI,65	1533 VOLKOVA,63
	1680 ZAPESOCHNYI,65	

FE	0929 BELOUSOVA,61	
	1047 VOLKOVA,60	1823 ZAPESOCHNYI,66
	0773 FELOMAN,63	

PB	0773 FELOMAN,63	1517 ZAPESOCHNYI,65
	1801 ZAPESOCHNYI,66	

## ELECTRONIC EXCITATION

## EXPERIMENTAL

## ELECTRONIC EXCITATION

## EXPERIMENTAL

## NORMALIZED

## RELATIVE

CD	1758 PENKIN,66		NA	0015 MICHELS,31	0111 HAFT,33
XE	0474 VOLKOVA,60	1823 ZAPESOCHNYI,66		0506 ZAPESOCHNYI,62	1078 ZAPESOCHNYI,63
XE	1 0474 VOLKOVA,60			1648 ZAPESOCHNYI,61	
CS	0279 MOHLER,32	1467 NOLAN,65	AR	0020 HUGHES,32	0058 MOHR,32
	1517 ZAPESOCHNYI,65	1801 ZAPESOCHNYI,66		0063 NICOLL,33	0067 WHIDINGTON,34
	1910 KORCHEVOI,66	1972 ZAPESOCHNYI,66		0115 FISCHER,33	0119 MAIER-LEIBNITZ,35
SA	1 0929 BELOUSOVA,61			0178 MINKOWSKI,23	0304 HANLE,52
HG	0021 TATE,32	0069 ARNOT,35	K	0344 VOLKOVA,59	0692 KUYATT,63
	0176 JONGERIUS,61	0303 RIEDE,54		1015 LARCHE,31	0968 SKERBELE,60
	0513 JONGERIUS,60	0623 CROZIER,28		1079 ZAPESOCHNYI,63	1411 RAFF,62
	0637 LANGMUIR,28		ZN	0178 MINKOWSKI,23	1776 KUPRIYANOV,66
TL	0121 STROHMEIER,37			0692 KUYATT,63	
H2	0181 FROST,62	0260 ENGELHARDT,63		1325 GUK,57	1301 OLMSTED,65
	0321 FITE,58	0327 LICHTEN,59	KR	1 1325 GUK,57	1776 KUPRIYANOV,66
	0354 CORRIGAN,58	0637 LANGMUIR,28		1078 ZAPESOCHNYI,63	
	0652 LUNT,62	0804 LASSETTRE,64	R8	1078 ZAPESOCHNYI,63	
	0921 LEGLER,63	1265 JONES,43	AG	0289 FUHRMANN,39	
O2	0376 LASSETTRE,54	0377 SILVERMAN,57	CO	0105 LARCHE,31	0180 HINKOWSKI,23
	0381 LASSETTRE,57	0652 LUNT,62		0504 ZAPESOCHNYI,62	1079 ZAPESOCHNYI,63
	0794 LASSETTRE,64	0798 LASSETTRE,64	XE	0178 MINKOWSKI,23	0304 HANLE,52
	1310 SCHULZ,62			0308 KUYATT,64	0692 KUYATT,63
N2	0218 ENGELHAROT,64	0375 LASSETTRE,53		1325 GUK,57	1776 KUPRIYANOV,66
	0378 SILVERMAN,57	0381 LASSETTRE,57			
	0637 LANGMUIR,28	0652 LUNT,62	XE	1 1325 GUK,57	
	0643 LASSETTRE,64	0857 SILVERMAN,65			
	0921 LEGLER,63	1296 WILLIAMS,35	CS	0476 BOGDANOVA,60	1040 ZAPESOCHNYI,64
				1078 ZAPESOCHNYI,63	
H20	0382 LASSETTRE,58		HG	0040 NOTTINGHAM,39	0058 MOHR,32
C 02	0380 SHILOFF,57	1205 MEYER,65		0078 ZAPESOCHNYI,61	0092 HANLE,30
C 0	0372 LASSETTRE,53	0374 LASSETTRE,53		0096 VETTERLIN,39	0108 THIEME,32
	0794 LASSETTRE,64	0803 LASSETTRE,64		0112 ORNSTEIN,33	0114 SEILER,33
	0968 SKERBELE,60			0115 FISCHER,33	0137 NICOLL,33
C H4	0190 EOMISTEN,49	0192 FRANCIS,47		0142 FABRIKANT,37	0164 GAGGE,33
C2H6	0190 EOMISTEN,49			0173 VAN VOORHIS,34	0176 JONGERIUS,61
				0179 HANLE,29	0180 MINKOWSKI,23
				0191 ARNOT,29	0222 BOGOANOVA,63
				0229 OSTENSEN,29	0231 BRATTAIN,29
				0262 SCHAFFERNICHT,30	0315 JONGERIUS,56
				0319 SCHULZ,58	0476 BOGOANOVA,60
				0513 JONGERIUS,60	0546 SMIT,56
				0634 LEE,39	0635 WHITE,26
				0656 BRICOUT,28	0665 WHITNEY,29
				0808 FRISH,54	0816 SIEBERTZ,31
				0882 ZAPESOCHNYI,62	0965 BAKIS,59
				1077 ZAPESOCHNYI,63	1079 ZAPESOCHNYI,63
				1153 ENOE,29	1233 FRISH,56
				1275 VALASEK,27	1290 ROZGACHEV,58
				1324 BOGOANOVA,59	1475 ROSE,30
				1521 ZAPESOCHNYI,65	1534 BOGOANOVA,63
				1570 SMIT,65	1575 FYODOROV,65
			TL	0289 FUHRMANN,39	
			P8	0289 FUHRMANN,39	
			H2	0059 MOHR,32	0063 NICOLL,33
				0158 HARNWELL,29	0173 VAN VOORHIS,34
				0232 BRAESFIELD,29	0270 KRUITHOF,35
				0319 SCHULZ,58	0987 COOLIDGE,44
				1301 OLMSTED,65	1303 GEIGER,64
				1411 RAFF,62	1585 BOERSCH,65
				1692 HEIJEMAN,66	
			N2	0059 MOHR,32	0108 THIEME,32
				0137 NICOLL,33	0158 HARNWELL,29
				0328 SCHULZ,59	0334 STEWART,58
				0475 ZAPESOCHNYI,60	0612 LASSETTRE,65
				0632 LANGSTROTH,34	0752 KISHKO,59
				0953 STEWART,55	0968 SKERBELE,60
				0989 THOMPSON,34	1157 RUDBERG,30
				1298 LANGSTROTH,35	1301 OLMSTED,65
				1312 LANGSTROTH,35	1406 WINTERS,65
				1480 LASSETTRE,65	1481 SKERBELE,65
				1597 GEIGER,65	1648 ZAPESOCHNYI,61
				1679 MEYER,66	1693 HEIJEMAN,66
			N2	1 0039 BUNOY,37	0343 ZAPESOCHNYI,59
				0757 KISHKO,60	
			H20	0558 SCHULZ,60	0968 SKERBELE,60
				1411 RAFF,62	1419 SKERBELE,65
				1481 SKERBELE,65	1824 SKERBELE,66
			N H3	0968 SKERBELE,60	1481 SKERBELE,65

## ELECTRONIC EXCITATION

## EXRIMENTAL

## ELECTRONIC EXCITATION

## THEORETICAL

## RELATIVE

N O	0612 LASSETTRE,65	1841 KOVAL,66
C2M2	1374 BOWMAN,65	1812 GEIGER,65
C O 2	0059 MOHR,62	0612 LASSETTRE,65
	1047 KISHKO,63	1A01 LASSETTRE,65
	1841 KOVAL,66	
C O	0328 SCHULZ,59	0475 ZAPESOCHNYI,60
	1301 OLMSTEAD,65	1418 MEYER,65
	1481 SKERBELE,65	1743 SILVERMAN,64
	1841 KOVAL,66	1887 SKERBELE,66
C O 1	0039 BUNOY,37	
BR2	0983 SWICK,61	
C M 4	0137 NICOLL,33	1374 BOWMAN,65
	1588 EHMHAROT,65	
O 2	0987 COOLIOGE,44	
C2M4	1374 BOWMAN,65	1411 RAFF,62
C2M6	1374 BOWMAN,65	
S F 6	1856 SIMPSON,66	

## ELECTRONIC EXCITATION THEORETICAL

## NORMALIZED

H	0032 GORSHANOVA,62	0044 BURKE,62
	0051 MASSEY,31	0083 BURKE,63
	0091 DAMBURG,62	0097 DAMBURG,62
	0128 RETERKOP,62	0154 DAMBURG,62
	0155 SEATON,62	0183 ELSASSER,27
	023A MASSEY,56	0277 GOLOSTEIN,33
	0278 DAMBURG,62	0296 GAILITIS,63
	0350 KINGSTON,60	0351 BELL,63
	0389 BOROWITZ,56	0391 HART,55
	0418 KHASHABA,58	0420 MARRIOTT,58
	0423 BATES,57	0424 MCCARROLL,57
	0425 BRANSON,57	0429 BRANSON,56
	0432 OPIK,55	0435 ROTHENSTEIN,5A
	0438 MASSEY,53	0466 MCCOYO,60
	0458 ERSKINE,52	0507 DAMBURG,63
	0534 SOMERVILLE,62	0540 MILFORD,60
	0542 DAMBURG,62	0545 ROBINSON,63
	0549 KINGSTON,60	0563 LYNN,59
	0567 WU,60	0580 HUCK,57
	0585 SEATON,62	0593 OMIDVAR,64
	0648 DAMBURG,63	0671 STABLER,64
	0712 BURKE,61	0721 SEATON,61
	0722 LAWSON,61	0809 HELLUNG,60
	0826 RRESNYAKOV,64	0828 POMILLA,64
	0829 PETERKOP,59	0859 SMITH,60
	0866 MARRIOTT,64	0874 TAYLOR,64
	0892 BURGESS,63	0896 SMITH,60
	0904 KYLE,64	0908 KYLE,64
	0913 AKERIB,61	0914 MOISEIWITSCH,61
	0919 MILFORD,60	0935 DCHKUR,58
	0996 AKERIB,60	1009 BURKE,63
	1014 GRYZINSKI,65	1037 HUMMER,61
	1050 SCANLON,61	1061 VAINSHTEIN,64
	1074 SOMERVILLE,63	1109 CUNNINGHAM,64
	1115 DCHKUR,63	1130 KLEIN,55
	1135 PETERKOP,60	1246 STAUFFER,65
	1257 MOISEIWITSCH,65	1409 BELL,65
	1416 TAIT,63	1457 VRIENS,65
	1461 SCOTT,65	1466 OMIDVAR,65
	1468 VRIENS,65	1474 VAINSHTEIN,64
	1479 COLEMAN,65	1532 CROTHERS,65
	1546 VAINSHTEIN,61	1550 DAMBURG,63
	1551 DAMBURG,63	1552 DAMBURG,63
	1553 DAMBURG,63	1557 BAUER,65
	1560 EISSNER,64	1594 VRIENS,65
	1657 KINGSTON,66	1697 COLEMAN,66
	1718 ORMONDE,64	1747 KANG,66
	1773 RUOGE,65	1793 BIELSKI,65
	1813 VAINSHTEIN,64	1847 BURKE,66
	1851 KINGSTON,66	1859 ORMONDE,66
	1868 VELDRE,65	1877 MCCARROLL,65
	1886 COLEMAN,65	1898 KYLE,64
	1985 FAISAL,65	
H *	0103 MCCOYO,63	0413 MCCREA,60
	0419 BOYO,58	0431 SEATON,55
	0445 FISHER,60	0446 MCCOYO,60
	0593 OMIDVAR,64	0826 PRESNYAKOV,6A
	0859 SMITH,60	0954 SARAH,6A
	1074 SOMERVILLE,63	1103 YAVORSKY,47
	1466 OMIDVAR,65	1468 VRIENS,65

## NORMALIZED

H *	1522 ROMILLA,63	1657 KINGSTON,66
	1674 VELDRE,65	1718 ORMONDE,64
	1851 KINGSTON,66	1868 VELDRE,65
HE	0051 MASSEY,31	0061 MASSEY,33
	0139 MASSEY,35	0155 SEATON,62
	0234 MASSEY,56	0281 YAVORSKY,44
	0311 BECKER,64	0349 MASSEY,60
	0367 MOISEIWITSCH,57	0391 MART,56
	0395 ALTHSLER,53	0396 ALTHSLER,52
	0432 ORIK,55	0435 ROTHENSTEIN,54
	0461 MASSEY,52	0452 GRYZINSKI,59
	0460 MASSEY,54	0462 HUZINAGA,60
	0555 BECKER,63	0616 MASSEY,31
	0676 KAR,40	0718 OCHKUR,64
	0740 PERCIVAL,58	0754 VAINSHTEIN,59
	0760 MATORA,60	0765 ITOH,60
	0801 LASSETTRE,64	0863 GRYZINSKI,64
	0892 BURGESS,63	1014 GRYZINSKI,65
	1091 SILVERMAN,58	1115 OCHKUR,63
	1212 BECKER,64	1246 STAUFFER,65
	1265 JONES,48	1546 VAINSHTEIN,61
	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	
HE *	1103 YAVORSKY,47	1658 MARRIOTT,66
	1804 OCHKUR,66	
HE 1	0417 BURGESS,61	0436 BRANDSEN,53
	0669 BURKE,64	0670 MCCAHROL,64
	1080 BURKE,64	1340 BURKE,64
	1847 BURKE,66	

LI	0830 VELDRE,59	0836 VELDRE,59
	0990 KARULE,6A	1072 HUGHES,64
	1146 WU,44	1190 WU,40
	1469 KARULE,65	1515 KARULE,64
	1813 VAINSHTEIN,6A	
LI 1	1688 SURAL,66	
BE	0844 RILYANKEVICH,60	
RE 1	0775 BELY,63	1305 BELY,6A
	1850 BELY,66	
BE 2	0884 PILYANKEVICH,60	
B	0884 PILYANKEVICH,60	
C	0884 PILYANKEVICH,60	
C 1	0714 SEATON,58	0909 SEATON,55
C 2	0884 PILYANKEVICH,60	
C 3	0775 BELY,63	
C 4	0884 PILYANKEVICH,60	1546 VAINSHTEIN,61
C 5	1474 VAINSHTEIN,64	1546 VAINSHTEIN,61
N 1	0404 SEATON,53	0484 SEATON,55
	0714 SEATON,58	1696 BELY,66
N 4	1536 TAYLOR,65	1653 BURKE,66
	1850 BELY,66	
O	0248 YAMANOUCHI,40	0366 YAMANOUCHI,50
	0427 PERCIVAL,57	0484 SEATON,55
	1832 SEATON,52	
O 1	0404 SEATON,53	0484 SEATON,55
	0843 SEATON,57	1216 ALLER,48
O 2	0265 HEBB,40	0404 SEATON,53
	0484 SEATON,55	0714 SEATON,58
	1696 BELY,66	
O 5	0775 BELY,63	0792 VARSAVSKY,61
	0818 VARSAVSKY,63	0970 BELY,62
	1017 VARSAVSKY,62	
F 1	0404 SEATON,53	0484 SEATON,55
F 2	0404 SEATON,53	0484 SEATON,55
F 3	0404 SEATON,53	0484 SEATON,55
F 5	0792 VARSAVSKY,61	
F 6	0792 VARSAVSKY,61	

ELECTRONIC EXCITATION			THEORETICAL		
NORMALIZED			NORMALIZED		
NE 1S76 VELDRE,65	1681 801KOVA,65		P 11 0792 VARSAVSKY,61		
1866 VELDRE,65	1867 VELDRE,65		P 12 0792 VARSAVSKY,61		
NE 2 0404 SEATON,S3	0484 SEATON,SS		S 1 0404 SEATON,S3	0442 CZYZAK,64	
NE 3 0404 SEATON,S3	0484 SEATON,SS		0484 SEATON,SS		
NE 4 0404 SEATON,S3	0484 SEATON,SS		S 2 0442 CZYZAK,64	1696 BELY,66	
NE 5 0792 VARSAVSKY,61			S 8 0792 VARSAVSKY,61		
NE 6 0792 VARSAVSKY,61	1850 BELY,66		S 9 0792 VARSAVSKY,61		
NE 7 0792 VARSAVSKY,61			S 10 0792 VARSAVSKY,61		
NA 01SS SEATON,62	0431 SEATON,SS		S 11 0792 VARSAVSKY,61		
0452 GRYZINSKI,S9	0497 SOMERVILLE,61				
1014 GRYZINSKI,65	1023 SALMONA,61		CL 3 0442 CZYZAK,64	1696 BELY,66	
1072 HUGHES,64	1115 OCHKUR,63		CL 10 0792 VARSAVSKY,61		
1251 BARNES,65	1319 VELDRE,65		CL 11 0792 VARSAVSKY,61		
1414 LANE,64	1469 KARULE,65		CL 12 0792 VARSAVSKY,61		
1474 VAINSSTEIN,64	1520 SALMONA,63				
1546 VAINSSTEIN,61	1587 SALMONA,65				
1792 BIELSKI,65	1813 VAINSSTEIN,64				
NA 0 056B LANE,64			AR 1867 VELORE,65		
NA 3 0404 SEATON,S3	0484 SEATON,SS		AR 4 0442 CZYZAK,64	1696 BELY,66	
NA 4 0404 SEATON,S3	0484 SEATON,SS		AR 7 0792 VARSAVSKY,61		
0792 VARSAVSKY,61			AR 11 0792 VARSAVSKY,61		
NA S 0792 VARSAVSKY,61			AR 12 0792 VARSAVSKY,61		
NA 6 0792 VARSAVSKY,61			AR 13 0792 VARSAVSKY,61		
NA 7 0792 VARSAVSKY,61			K 1072 HUGHES,64	1469 KARULE,65	
NA 8 0792 VARSAVSKY,61			1813 VAINSSTEIN,64		
MG 1 0775 BELY,63	1053 VAN REGEMORTER,61		K 7 0792 VARSAVSKY,61		
1122 VAN REGEMORTER,60			K 8 0792 VARSAVSKY,61		
MG 4 0404 SEATON,S3	0484 SEATON,SS		K 12 0792 VARSAVSKY,61		
0792 VARSAVSKY,61			K 13 0792 VARSAVSKY,61		
MG 5 0792 VARSAVSKY,61			CA 1448 BELY,64		
MG 6 0792 VARSAVSKY,61			CA 1 0720 VAN REGEMORTER,60	1054 VAN REGEMORTER,61	
MG 7 0792 VARSAVSKY,61			1122 VAN REGEMORTER,60	1876 PETRINI,65	
MG 8 0792 VARSAVSKY,61			CA 7 0792 VARSAVSKY,61		
MG 9 0775 BELY,63	0792 VARSAVSKY,61		CA H 0792 VARSAVSKY,61		
AL 4 0792 VARSAVSKY,61			CA 9 0792 VARSAVSKY,61		
AL S 0792 VARSAVSKY,61			CA 14 0792 VARSAVSKY,61		
AL 6 0792 VARSAVSKY,61			SC 6 0792 VARSAVSKY,61		
AL 7 0792 VARSAVSKY,61			SC 7 0792 VARSAVSKY,61		
AL 8 0792 VARSAVSKY,61			SC 8 0792 VARSAVSKY,61		
AL 9 0792 VARSAVSKY,61			SC 9 0792 VARSAVSKY,61		
AL 10 0792 VARSAVSKY,61			SC 10 0792 VARSAVSKY,61		
SI 1 0714 SEATON,SB	0909 SEATON,SS		TI 6 0792 VARSAVSKY,61		
SI 3 0775 BELY,63			TI 7 0792 VARSAVSKY,61		
SI S 0792 VARSAVSKY,61			TI 8 0792 VARSAVSKY,61		
SI 6 0792 VARSAVSKY,61			TI 9 0792 VARSAVSKY,61		
SI 7 0792 VARSAVSKY,61			TI 10 0792 VARSAVSKY,61		
SI 8 0792 VARSAVSKY,61			TI 11 0792 VARSAVSKY,61		
SI 9 0792 VARSAVSKY,61			V 6 0792 VARSAVSKY,61		
SI 10 0792 VARSAVSKY,61			V 7 0792 VARSAVSKY,61		
SI 11 0792 VARSAVSKY,61			V 8 0792 VARSAVSKY,61		
P 6 0792 VARSAVSKY,61			V 9 0792 VARSAVSKY,61		
P 7 0792 VARSAVSKY,61			V 10 0792 VARSAVSKY,61		
P B 0792 VARSAVSKY,61			V 11 0792 VARSAVSKY,61		
P 9 0792 VARSAVSKY,61			V 12 0792 VARSAVSKY,61		
P 10 0792 VARSAVSKY,61			CR 7 0792 VARSAVSKY,61		

## ELECTRONIC EXCITATION

## THEORETICAL

## ELECTRONIC EXCITATION

## THEORETICAL

## NORMALIZED

CR B 0792 VARSAVSKY,61  
 CR 9 0792 VARSAVSKY,61  
 CR 10 0792 VARSAVSKY,61  
 CR 11 0792 VARSAVSKY,61  
 CR 12 0792 VARSAVSKY,61  
 CR 13 0792 VARSAVSKY,61  
 MN B 0792 VARSAVSKY,61  
 MN 9 0792 VARSAVSKY,61  
 MN 10 0792 VARSAVSKY,61  
 MN 11 0792 VARSAVSKY,61  
 MN 12 0792 VARSAVSKY,61  
 MN 13 0792 VARSAVSKY,61  
 MN 14 0792 VARSAVSKY,61  
 FE 1 0909 SEATON,SS  
 FE 7 1943 CZYZAK,66  
 FE 9 0792 VARSAVSKY,61  
 FE 10 0792 VARSAVSKY,61  
 FE 11 0792 VARSAVSKY,61  
 FE 12 0792 VARSAVSKY,61

FE 13 0437 BLAMA,62  
 0547,BELY,62  
 0923 WOOLLEY,48

FE 14 0792 VARSAVSKY,61

FE 15 0775 BELY,63  
 1932 KRUEGER,65

CO 10 0792 VARSAVSKY,61

CO 11 0792 VARSAVSKY,61

CO 12 0792 VARSAVSKY,61

CO 13 0792 VARSAVSKY,61

CO 14 0792 VARSAVSKY,61

CO 15 0792 VARSAVSKY,61

CO 16 0792 VARSAVSKY,61

NI 11 0792 VARSAVSKY,61

NI 12 0792 VARSAVSKY,61

NI 13 0792 VARSAVSKY,61

NI 14 0792 VARSAVSKY,61

NI 15 0792 VARSAVSKY,61

NI 16 0792 VARSAVSKY,61

NI 17 0792 VARSAVSKY,61

RB 1072 HUGHES,64  
 CS 1063 HANSEN,64  
 1456 WITTING,65  
 1813 VAINSHTEIN,64

CS \* 1272 SHELOON,65

BA 1 1876 PETRINI,65

HG 0202 YAVORSKY,46  
 0452 GRYZINSKI,59

HG \* 1103 YAVORSKY,47

H2 0045 ROSCOE,41

H2 1 1055 PEEK,64

O2 1557 BAUER,65

N2 1557 BAUER,65

## NORMALIZED

N2 1 1557 BAUER,65  
 H2O 0294 NIIRI,49  
 N O 1557 BAUER,65

## RELATIVE

HE 0284 MASSEY,33  
 0639 MORSE,32  
 N 0484 SEATON,SS  
 O 1 0876 ALLER,50  
 O 2 0876 ALLER,50  
 NE 0068 MASSEY,34  
 AR 0068 MASSEY,34  
 CA 1 0963 JEFFERIES,54  
 HG 0019 PENNEY,32  
 H2 0987 COOLIOGE,44  
 O2 0987 COOLIOGE,44

## ELECTRON DETACHMENT

## EXPERIMENTAL

## NORMALIZED

H - 1B80 TISONE,66

## ELECTRON DETACHMENT

## THEORETICAL

## NORMALIZED

H - 0415 GELTMAN,60  
 0576 RUOGE,64  
 1483 TIETZ,63  
 O - 0365 WATANABE,50  
 CL - 1300 MASSEY,36

1463 ROBINSON,65

## OE-EXCITATION

## EXPERIMENTAL

## NORMALIZED

HE \* 0569 PHELPS,SS  
 CS \* 0279 MOHLER,32

## RELATIVE

HG \* 0102 LATYSCHEFF,30

## OE-EXCITATION

## THEORETICAL

## NORMALIZED

HE \* 0426 MARRIOTT,S7  
 O \* 0366 YAMANUCHI,50  
 CS \* 1456 WITTING,65  
 HG \* 0202 YAVORSKY,46

IONIZATION		EXPERIMENTAL		IONIZATION		EXPERIMENTAL	
NORMALIZED				NORMALIZED			
H	0320 FITE,58 0978 ROTHE,62	0491 BOYO,60 1106 BOKSENBERG,61		CS	1104 MCFARLAND,65 1875 HEIL,66		1217 BRINK,64 1972 ZAPESOCHNYI,66
HE	0002 COMPTON,25 0225 SMITH,30 0340 LAMPE,57 0626 ASUNDI,63 0743 ASUNDI,63 0799 SILVERMAN,64 0974 HARRISON,56 1105 ENGLANDER-GOLOEN,64 1329 FOX,61 1706 SCHRAM,66 1858 ADAMCZYK,66 1895 ZAPESOCHNYI,65	0029 LISKA,34 0335 BOYD,58 0373 LASSETTRE,53 0674 COMPTON,18 0787 HUGHES,63 0942 ST JOHN,64 0995 GOORICH,37 1281 SCHRAM,65 1459 RAPP,65 1748 SCHRAM,66 1863 SCHRAM,66		BA	1502 MCFARLAND,65		
HE *	0280 FITE,63			HG	0002 COMPTON,25 0021 TATE,32 0040 NOTTINGHAM,39 0224 SMITH,31 0303 RIEDE,54 1329 FDX,61		0004 JONES,27 0029 LISKA,34 0069 ARNDT,JS 0228 BLEAKNEY,30 0974 HARRISON,56
HE	1 0907 OOLDER,61			HG	1 0723 LATYPDV,64		
LI	0773 FELDMAN,63	1104 MCFARLAND,65		HG	2 0723 LATYPDV,64		
LI	1 1421 LINEBERGER,65			TL	1S02 MCFARLAND,65		
N	0831 PETERSON,64	1268 SMITH,62		H2	0002 COMPTON,25 0041 NEWHALL,42 0320 FITE,58 0340 LAMPE,57 1105 ENGLANDER-GOLOEN,64 1281 SCHRAM,65 1748 SCHRAM,66 1863 SCHRAM,66		0018 TATE,32 0260 ENGELHARDT,63 0335 BYD,58 0974 HARRISON,56 1106 BOKSENBERG,61 1459 RAPP,65 1858 ADAMCZYK,66
N	1 0261 HARRISON,63			O2	0018 TATE,32 0334 STEWART,58 0377 SILVERMAN,57 0861 PRASAO,61 0946 GLICK,64 1105 ENGLANDER-GOLOEN,64 1281 SCHRAM,65 1706 SCHRAM,66 1858 ADAMCZYK,66		0323 FITE,59 0340 LAMPE,57 0853 CRAGGS,57 0938 ASUNO,63 1075 SILVEHMAN,64 1106 BOKSENBERG,61 1289 SCHULZ,62 1748 SCHRAM,66 1863 SCHRAM,66
O	0323 FITE,59 0978 ROTHE,62	0602 JAHDAA,52 1106 BOKSENBERG,61		N2	0002 COMPTON,25 0153 COOK,62 0340 LAMPE,57 0857 SILVERMAN,65 0992 SHERIDAN,61 1106 BOKSENBERG,61 1281 SCHRAM,65 1748 SCHRAM,66		0018 TATE,32 0333 STEWAHT,56 0831 PETERSON,64 0946 GLICK,64 1105 ENGLANDER-GOLOEN,64 1123 HAYAKAWA,64 1329 FOX,61 1504 MCCONKEY,65 1863 SCHRAM,66
NE	0002 COMPTON,25 0225 SMITH,30 0626 ASUNDI,63 0831 PETERSON,64 1281 SCHRAM,65 1459 RAPP,65 1748 SCHRAM,66 1863 SCHRAM,66	0012 BLEAKNEY,30 0340 LAMPE,57 0743 ASUNDI,63 1105 ENGLANDER-GOLOEN,64 1329 FDZ,61 1706 SCHRAM,66 1858 ADAMCZYK,66		H2D	0340 LAMPE,57		1782 SCHUTTEN,66
NE	1 0264 DDLDER,63	0723 LATYPDV,64		N H3	0340 LAMPE,57		
NA	0088 FUNK,30 1217 BRINK,64	1104 MCFARLAND,65 1683 ZAPESOCHNYI,65		N O	0018 TATE,32 0946 GLICK,64 1459 RAPP,65		0340 LAMPE,57 1105 ENGLANDER-GOLOEN,64
NA	1 1568 HOOPER,66			C2H2	0018 TATE,32		0340 LAMPE,57
AR	0002 COMPTON,25 0225 SMITH,30 0357 TOZER,60 0743 ASUNO,63 0946 GLICK,64 1281 SCHRAM,65 1459 RAPP,65 1748 SCHRAM,66	0012 BLEAKNEY,30 0340 LAMPE,57 0626 ASUNDI,63 0831 PETERSON,64 1105 ENGLANDER-GOLOEN,64 1329 FDZ,61 1705 SCHRAM,66 1863 SCHRAM,66		N20	1105 ENGLANDER-GOLOEN,64 1771 LATIMER,65		1459 RAPP,65
AR	1 0723 LATYPDV,64			C D2	0340 LAMPE,57 0938 ASUNO,63 1105 ENGLANDER-GOLOEN,64 1700 NISHIMURA,66		0865 CRAGGS,60 0948 BHALLA,60 1459 RAPP,65
AR	2 0723 LATYPDV,64			C D	0018 TATE,32 0867 CRAGGS,58 1105 ENGLANDER-GOLOEN,64 1459 RAPP,65		0340 LAMPE,57 0938 ASUNO,63 1329 FOX,61
K	0088 FUNK,30 1104 MCFARLAND,65	0773 FELDMAN,63 1217 BRINK,64		H CL	0002 COMPTON,25		0340 LAMPE,57
K	1 1568 HOOPER,66			C H4	0340 LAMPE,57 0946 GLICK,64 1459 RAPP,65 1858 ADAMCZYK,66		0356 TOZER,58 1105 ENGLANDER-GOLOEN,64 1690 SCHRAM,66 1863 SCHRAM,66
CA	1S02 MCFARLAND,65			H2S	0340 LAMPE,57		
ZN	1687 POTTIE,66			H O	1396 BRIGLIA,65		
KR	0340 LAMPE,57 0626 ASUNO,63 1105 ENGLANDER-GOLOEN,64 1459 RAPP,65 1748 SCHRAM,66	0357 TOZER,60 0743 ASUNDI,63 1281 SCHRAM,65 1705 SCHRAM,66 1863 SCHRAM,66		D2	0260 ENGELHARDT,63 1281 SCHRAM,65 1863 SCHRAM,66		1105 ENGLANDER-GOLOEN,64 1459 RAPP,65
KR	1 0723 LATYPDV,64			C2H4	0340 LAMPE,57		1459 RAPP,65
KR	2 0723 LATYPDV,64			C2H6	0340 LAMPE,57		1690 SCHRAM,66
R8	0773 FELDMAN,63 1217 BRINK,64	1104 MCFARLAND,65		S F6	0940 ASUNO,64		1459 RAPP,65
SR	1S02 MCFARLAND,65			C H3CL	0340 LAMPE,57		
AG	1081 LYUHIMOV,63			C D4	1690 SCHRAM,66		1863 SCHRAM,66
CO	1687 POTTIE,66			TE2	1687 POTTIE,66		
XE	0340 LAMPE,57 0626 ASUNO,63 1105 ENGLANDER-GOLOEN,64 1459 RAPP,65 1748 SCHRAM,66	0357 TOZER,60 0743 ASUNO,63 1281 SCHRAM,65 1705 SCHRAM,66 1863 SCHRAM,66					
XE	1 0723 LATYPDV,64						
XE	2 0723 LATYPDV,64						

IONIZATION		EXPERIMENTAL		IONIZATION		EXPERIMENTAL	
RELATIVE				RELATIVE			
H	1508 MCGOWAN,65			RB	0216 TATE,34		0283 FIQUET-FAYARD,63
HE	0027 HUGHES,33	0035 BLEAKNEY,36		SR	0283 FIQUET-FAYARD,63		
	0066 MOHR,34	0280 FITE,63		AG	0566 BLAIS,60	157B OE MARIA,65	
	0304 HANLE,52	0331 STANTON,60		CO	0313 HICKAM,54	157B DE MARIA,65	
	0339 OTVOS,56	0353 FOX,58		TE	1578 DE MARIA,65		
	0529 KHAUSS,59	0531 HAYAKAWA,55		XE	0216 TATE,34	0242 MORRISON,59	
	0625 JESSE,25	0692 KUYATT,63			0271 FOX,54	0304 HANLE,52	
	0704 HICKAM,54	0777 BRINK,61			0308 KUYATT,64	0310 FOX,53	
	0986 BLANC,62	1076 ZAPE50CHNYI,63			0353 FOX,59	0481 CLOUTIER,59	
	1215 HUTCHISON,64	1244 MORRISON,53			0525 KHAUSS,59	0591 BURNS,64	
	1373 SIMPSON,65	1530 FIQUET-FAYARD,65			0692 KUYATT,63	0704 HICKAM,54	
	1538 MAIDT,65	1871 LIPELES,65			0707 FOX,60	0854 CLARKE,54	
	1919 FIQUET-FAYARD,65				0986 BLANC,62	1034 FONER,61	
LI	0150 BRINK,62				1069 OORMAN,59	1070 DORMAN,61	
C	0659 CRAFORD,62				1107 MORRISON,64	1137 KISEK,62	
NE	0012 BLEAKNEY,30	0066 MOHR,34			1244 MORRISON,53	1453 STUBER,65	
	0213 STEVENSON,42	0242 MORRISON,59					
	0280 FITE,63	0339 OTVOS,56					
	0481 CLOUTIER,59	0525 KRAUSS,59		XE	1 0713 KUPRIYANOV,64		
	0625 JESSE,25	0692 KUYATT,63			2 0713 KUPRIYANOV,64		
	0704 HICKAM,54	0986 BLANC,62					
	1039 KANEKO,61	1069 OORMAN,61		CS	0216 TATE,34		
	1244 MORRISON,53	1373 SIMPSON,65					
	1453 STUBER,65	1920 ZIESEL,65		AU	0566 BLAIS,60		
NE	0 0280 FITE,63						
NE	1 0713 KUPRIYANOV,64			MG	0012 BLEAKNEY,30	0014 HAUPPT,31	
NA	0150 BRINK,62	0216 TATE,34			0066 MOHR,34	0211 MCFADEEN,46	
	0466 OIBELER,59	1039 KANEKO,61			0215 BELL,39	0313 HICKAM,54	
	1919 FIQUET-FAYARD,65	1920 ZIESEL,65			1070 OORMAN,61	1095 BLEAKNEY,29	
MG	1039 KANEKO,61	1920 ZIESEL,65			1244 MORRISON,53	157B OE MARIA,65	
AL	0659 CRAFORD,62			MG	1 0713 KUPRIYANOV,64		
AR	0012 BLEAKNEY,30	0066 MOHR,34			2 0713 KUPRIYANOV,64		
	0213 STEVENSON,42	0242 MORRISON,59					
	0280 FITE,63	0283 FIQUET-FAYARD,63		U	1261 MANN,64		
	0304 HANLE,52	0339 OTVOS,56					
	0483 COTTIN,59	0525 KRAUSS,59		H2	0009 BLEAKNEY,30	0041 NEWHALL,42	
	0539 HAYAKAWA,55	0625 JE55E,25			0066 MOHR,34	0170 BAERWALD,25	
	0692 KUYATT,63	0704 HICKAM,54			0255 SMYTH,24	0339 OTVOS,56	
	0777 BRINK,61	0781 FOX,60			0539 HAYAKAWA,55	0625 JE55E,25	
	0986 MELTON,62	0986 BLANC,62			0659 CRAFORD,62	0660 KALLMANN,27	
	1034 FONER,61	1038 KANEKO,61			1164 BRIGLIA,65	1292 BRIGLIA,65	
	1069 OORMAN,61	1070 DORMAN,61			1303 GEIGER,64	1415 MCGOWAN,65	
	1100 BECKER,64	1124 FIQUET-FAYARD,62			1500 MCGOWAN,65		
	1162 FIQUET-FAYARD,62	1244 MORRISON,53		02	0167 RANDOLPH,58	0214 HAGSTRUM,41	
	1373 SIMPSON,65	1453 STUBER,65			0255 SMYTH,24	0334 STEWART,58	
	1530 FIQUET-FAYARD,65	1919 FIQUET-FAYARD,65			0339 OTVOS,56	0341 FROST,58	
AR	0 0280 FITE,63				0526 FROST,59	0778 ODRMAN,60	
AR	1 0713 KUPRIYANOV,64				0985 BRION,64	1089 MCGOWAN,64	
K	0150 BRINK,62	0216 TATE,34			1108 DORMAN,63		
	0283 FIQUET-FAYARD,63	1039 KANEKO,61		N2	0017 VAUGHAN,31	0066 MOHR,34	
	1124 FIQUET-FAYARD,62	1530 FIQUET-FAYARD,65			0214 HAGSTRUM,41	0271 FOX,54	
	1919 FIQUET-FAYARD,65				0339 OTVOS,56	0523 FROST,59	
CA	0283 FIQUET-FAYARD,63	1045 KANEKO,63			0625 JE55E,25	0660 KALLMANN,27	
	1124 FIQUET-FAYARD,62				0778 ODRMAN,60	0854 CLARKE,54	
FE	1874 COOPER,66				0953 STEWART,55	1038 KANEKO,61	
CO	1874 COOPER,66				1066 OORMAN,61	1108 OORMAN,63	
NI	1874 COOPER,66				1244 MORRISON,53	1509 FINEMAN,65	
CU	0566 BLAIS,67				1530 FIQUET-FAYARD,65	1648 ZAPE50CHNYI,61	
ZN	0283 FIQUET-FAYARD,63	0313 HICKAM,54			1987 HAYAKAWA,65		
	1167 FIQUET-FAYARD,63	1578 OE MARIA,65		H2D	0483 COTTIN,59	0558 SCHULZ,60	
SE	1578 OE MARIA,65				0924 MANN,40	1919 FIQUET-FAYARD,65	
KR	0216 TATE,34	0283 FIQUET-FAYARD,63		N M3	1068 OORMAN,61	1S30 FIQUET-FAYARD,65	
	0310 FOX,53	0339 OTVOS,56					
	0410 BURNS,61	0523 FROST,55		N 0	0214 HAGSTRUM,41	0481 CLOUTIER,59	
	0524 FROST,57	0526 FROST,59			0854 CLARKE,54	1068 DORMAN,61	
	0692 KUYATT,63	0704 HICKAM,54			1530 FIQUET-FAYARD,65	1648 ZAPE50CHNYI,61	
	0781 FOX,60	0958 MELTON,62		CL2	0526 FROST,59	0708 FROST,60	
	0986 BLANC,62	1038 FONER,61			0339 OTVOS,56	1067 CURRAN,61	
	1038 KANEKO,61	1070 DORMAN,61			1916 CONNOLLY,65		
	1107 MDRRI50N,64	1137 KISEK,62		N2D	0339 OTVOS,56		
	1215 HUTCHISON,64	1244 MORRISON,53			1500 FIQUET-FAYARD,65		
	1453 STUBER,65	1530 FIQUET-FAYARD,65		C 02	0339 OTVOS,56	0531 COLLIN,60	
	1919 FIQUET-FAYARD,65				0847 ASUNDI,64	1068 DORMAN,61	
KR	1 0713 KUPRIYANOV,64	1492 BAKER,65			1244 MORRISON,53	1530 FIQUET-FAYARD,65	
KR	2 0713 KUPRIYANOV,64				1919 FIQUET-FAYARD,65		
				C 0	0017 VAUGHAN,31	0214 HAGSTRUM,41	
					0271 FOX,53	0310 FOX,53	
					0339 OTVOS,56	0625 JE55E,25	
					0941 FINEMAN,62	1038 KANEKO,61	
					1068 OORMAN,61	1096 HQNE55,28	
					1648 ZAPE50CHNYI,61	1742 CUTHERBERT,66	

IONIZATION		EXPERIMENTAL		IONIZATION		THEORETICAL	
RELATIVE		NORMALIZED					
H CL	0339 OTV05+56 1244 MORH150N+53	0707 FOX+60		HE	1345 LEE+65 1484 KUREPA+63 1554 LYASH+63 1557 BAUER+65 1788 BYRDN+66	1457 VRIENS+65 1506 KINGSTON+65 1555 VELORE+63 1655 PEACH+66	
C H4	0066 MOHN+34 0524 FROST+57 0625 JESE+55	0339 OTV05+56 0539 HAYAKAWA+55		HE *	1060 VRIENS+64		
I2	0526 FROST+59	0708 FROST+60		HE	1 0057 BURGE55+63 0735 BURGE55+60 1060 VRIENS+64 1772 RUOGE+65	0417 BURGE55+61 0892 BURGE55+63 1436 BURKE+65	
H25	0339 OTV05+56	1530 FIQUET+FAYARD+65					
P H3	0339 OTV05+56						
C 52	0339 OTV05+56	0531 COLLIN+60		L,I	0570 GRYZINSKI+63 1014 GRYZINSKI+65 1146 WU+44 1272 SHELDON+65 1299 McDOWELL+65 1502 MCFARLAND+65	0873 PEACH+64 1044 DRAWIN+61 1190 WU+40 1273 PEACH+65 1464 MCFARLAND+65 1655 PEACH+66	
H D	0539 HAYAKAWA+55			L,I	1 1044 DRAWIN+61		
D2	0539 HAYAKAWA+55			L,I	2 1044 DRAWIN+61		
C2H4	0339 OTV05+56	0539 HAYAKAWA+55		HE	1273 PEACH+65 1655 PEACH+66	1502 MCFARLAND+65	
C2H6	0339 OTV05+56			N	0453 SEATON+59 1557 BAUER+65	1463 ROBINSON+65	
HG2	0211 MCFADEN+46			D	0453 SEATON+59 1557 BAUER+65	1463 ROBINSON+65	
C H3CL	0339 OTV05+56	0524 FROST+57					
C H3BR	0339 OTV05+56	0524 FROST+57					
C H3I	0339 OTV05+56	0524 FROST+57					
I CL	0708 FRDST+60			O	4 0143 TREFFTZ+63	1046 MALIK+61	
I BR	0708 FROST+60			O	5 0143 TREFFTZ+63	0814 VARSAVSKY+63	
H202	1132 FONER+62			NE	0147 NEU+58 0455 HILL+51 1115 OCHKUR+63 1463 ROBINSON+65 1506 KINGSTON+65	0210 INOKUTI+62 1060 VRIENS+64 1457 VRIENS+65 1484 KUREPA+63 1557 BAUER+65	
C2N2	0339 OTV05+56			NE *	1060 VRIENS+64		
H C N	0339 OTV05+56			NE	1 1060 VRIENS+64		
C H3F	0524 FRUST+57			NA	1272 SHELDON+65 1476 PRESNYAKOV+65 1654 PEACH+66	1464 MCFARLAND+65 1502 MCFARLAND+65 1655 PEACH+66	
U D	1261 MANN+64			MG	1502 MCFARLAND+65 1655 PEACH+66	1654 PEACH+66	
TE2	1578 OE MARIA+65			AR	0147 NEU+58 1014 GRYZINSKI+65 1457 VRIENS+65 1484 KUREPA+63 1557 BAUER+65	0881 GOLANT+59 1060 VRIENS+64 1463 ROBINSON+65 1506 KINGSTON+65	
SE2	1578 OE MARIA+65						
52	1578 OE MARIA+65						
IONIZATION		THEORETICAL					
NORMALIZED							
H	0061 MASSEY+33 0282 YAVORSKY+45 0390 GELTMAN+56 0461 MDRANO+59 0587 KOGAN+59 0825 KINGSTON+64 0844 VELORE+64 0852 PETERKOP+59 0892 BURGE55+63 0996 AKERIB+60 1044 DRAWIN+61 1115 OCHKUR+63 1165 MICHAEL+63 1273 PEACH+65 1436 BURKE+65 1458 OMIOVAR+65 1476 PRESNYAKOV+65 1544 RUOGE+65 1548 VELDRE+63 1595 KINGSTON+65 1848 RUDGE+66 1879 VINKALNS+65	0101 VELDRE+62 0307 STAUFFER+63 0424 MCCARROLL+57 0533 GELTMAN+63 0671 STAUBLER+64 0829 PETERKOP+59 0848 OMIOVAR+64 0863 GRYZINSKI+64 0913 AKERIB+61 1014 GRYZINSKI+65 1071 DMIOVAR+64 1129 PETERKOP+62 1262 PRASAD+65 1426 VELDRE+62 1457 VRIENS+65 1472 VELDRE+65 1541 OCHKUR+65 1547 VELORE+63 1582 VELDRE+65 1655 PEACH+66 1678 VINKALNS+65		AR *	1060 VRIENS+64		
				K	1272 SHELDON+65 1502 MCFARLAND+65	1464 MCFARLAND+65	
				CA	1502 MCFARLAND+65		
				CA	1 0960 ZIRIN+62		
				FE	13 0443 SCHWARTZ+59 1058 KULANDER+63	0455 HILL+51	
				FE	14 1849 RUOGE+66		
				FE	15 1849 RUOGE+66		
				NI	0140 BURHOP+40 0455 HILL+51 1044 DRAWIN+61	0452 GRYZINSKI+59 1014 GRYZINSKI+65 1115 OCHKUR+63	
				R8	1272 SHELDON+65 1502 MCFARLAND+65	1464 MCFARLAND+65	
				SR	1502 MCFARLAND+65		
				SR	1 0960 ZIRIN+62		
H *	0307 STAUFFER+63 0430 SWAN+55 1071 OMIOVAR+64 1458 DMIOVAR+65 1595 KINGSTON+65 1694 KINGSTON+66	0413 MCCREA+60 0848 DMIOVAR+64 1436 BURKE+65 1526 DMIOVAR+65 1655 PRASAD+66 1848 RUOGE+66		RB	1272 SHELDON+65 1502 MCFARLAND+65	1464 MCFARLAND+65	
				SR	1502 MCFARLAND+65		
				SR	1 0960 ZIRIN+62		
HE	0024 WETZEL+33 0147 NEU+58 0452 GRYZINSKI+59 0765 ITDH+60 0863 GRYZINSKI+64 1014 GRYZINSKI+65 1060 VRIENS+64 1273 PEACH+65	0061 MASSEY+33 0390 GELTMAN+56 0455 HILL+51 0838 VAN DE WALLE+61 0999 WETZEL+36 1044 DRAWIN+61 1115 OCHKUR+63 1302 SLOAN+65		AG	0140 BURHOP+40 0455 HILL+51 1014 GRYZINSKI+65	0452 GRYZINSKI+59 0999 WETZEL+36	
				SN	49 0057 BURGE55+63		
				XE	0147 NEU+58 1484 KUREPA+63	1457 VRIENS+65 1506 KINGSTON+65	

## IONIZATION

## THEORETICAL

## DISSOCIATION

## EXPERIMENTAL

## NORMALIZED

## RELATIVE

C5	II65 MICHAEL,63 1502 MCFAPLAND,65	1464 MCFAPLAND,65	O2	0167 RANDOLRH,58 0778 ODRMAN,60	0526 FROST,54
C5	1272 SMELOON,65		H2O	0924 MANN,40	
BA	1502 MCFAPLAND,65		N H3	0924 MANN,40	
MG	0140 BUPHOR,40 0542 PPASAO,63 1060 VPIENS,64 1557 BAUER,65	0455 MILL,51 0783 YAVORSKY,47 1115 OCHKUR,53	N O	0481 CLOUTIEP,59	
HG	I060 VRIENS,64		CL2	0708 FP05T,60	
TL	1502 MCFAPLAND,65		C O	0778 ODRMAN,60	0941 FINEMAN,62
NO	1558 BAUER,65		B2	0708 FP05T,60	
H2	0147 NEU,58 0455 MILL,51 0863 GRYZINSKI,64 1044 URWIN,61 1457 VPIENS,65 1558 BAUER,65	0452 GRYZINSKI,59 0570 GRYZINSKI,63 1014 GRYZINSKI,65 1115 OCHKUR,53 1557 BAUER,55	C CL4	0950 MAPRIOTT,54	1231 CRAGGS,62
O2	0642 PRASAD,63 1557 BAUER,65	1457 VRIENS,55 1558 BAUER,45	DISSOCIATION		
N2	0147 NEU,58 1457 VPIENS,65 1558 BAUER,65	0642 RRASAO,63 1557 BAUER,65	THEORETICAL		
N D	1557 BAUER,65		H2	0194 MASSEY,32 1862 KHARE,66	0695 EDELSTEIN,58
C2M2	1557 BAUER,65	1558 BAUER,65	H2	1 0370 IVASH,58 1465 REEK,65	0394 KERNER,53
C O	0642 PRASAD,63 1558 BAUER,65	1557 BAUER,65	H2O	0294 NIIRAE,49	
C M4	0210 INOKUTI,62		RELATIVE		
RELATIVE			M2	0033 SASAKI,35	

H	1144 DE LA PIRELLE,49	
HE	1144 DE LA RIPELLE,49	1673 MITTELMAN,66
NE	1144 DE LA RIRELLE,49	
NA	1144 DE LA PIPELLE,49	
AR	1144 DE LA RIPELLE,49	
KP	1144 DE LA PIPELLE,49	
AG	1144 DE LA PIRELLE,49	
XE	1144 DE LA RIPELLE,49	
H2	0005 KRAUSS,57	
O2	0005 KRAUSS,57	

		FREE-FREE EMISSION	THEORETICAL
		NORMALIZED	
M	1414 LANE,64		
H	1 1414 LANE,64		
N	0256 DEVORE,64		0939 BREENE,61
N	1 0256 DEVOP,64		
O	0574 BPEENE,63		

## DISSOCIATIVE IONIZATION EXPERIMENTAL

		NORMALIZED			
H2	0260 ENGELMARDT,63 1566 CORRIGAN,65	0354 CORPIGAN,58	M2	0041 NEWMALL,42 1410 RAPP,65	1105 ENGLANDER-GOLDEN,64 1858 ADAMCZYK,66
H2	1 1501 DUNN,65	1503 DUNN,65	O2	0946 GLICK,64 1410 PAPP,65	1105 ENGLANDER-GOLDEN,64
D2	0376 LASSETTRE,54 1075 SILVERMAN,64	0377 SILVERMAN,57 1460 RAPP,65	N2	0153 COOK,62 1105 ENGLANDER-GOLDEN,64	0946 GLICK,64 1410 PAPP,65
N2	0992 SMEPIDAN,61		H2O	1782 SCHUTTEN,66	
H2O	0382 LASSETTRE,58		N D	0946 GLICK,64 1410 RAPP,65	1105 ENGLANDER-GOLDEN,64
N O	1460 RAPP,65		N2O	1105 ENGLANDER-GOLDEN,64	1410 RAPP,65
N2O	1460 PAPP,65		C O2	1105 ENGLANDER-GOLDEN,64	1410 RAPP,65
C O2	1460 RAPP,65		C D	1105 ENGLANDER-GOLDEN,64	1410 RAPP,65
C D	1460 RAPP,65		C M4	0946 GLICK,64 1410 RAPP,65	1105 ENGLANDER-GOLDEN,64 1858 ADAMCZYK,66
D2	0260 ENGELMARDT,63		O2	1105 ENGLANDER-GOLDEN,64	
RELATIVE			RELATIVE		

## DISSOCIATIVE IONIZATION

## EXPERIMENTAL

## RADIATIVE ATTACHMENT

## EXPERIMENTAL

## RELATIVE

## RELATIVE

H2	0007 SASAKI,35 0041 NEWHALL,42 0130 SASAKI,41 0214 HAGSTRUM,41 0364 OUNN,63 0456 BAUER,47 0660 KALLMANN,27	0009 BLEAKNEY,30 0107 HAGSTRUM,51 0135 SASAKI,35 0255 SMYTH,24 0451 STEVENSON,60 0465 SCHAEFFER,50 1402 LOZIER,30	F 1774 POPP,65 I 0839 STEINER,64	RADIATIVE ATTACHMENT THEORETICAL
O2	0107 HAGSTRUM,51 0255 SMYTH,24 0526 FROST,59	0214 HAGSTRUM,41 0341 FROST,58 0778 DORMAN,60	NORMALIZED	
N2	0017 VAUGHAN,31 0214 HAGSTRUM,41 0667 TATE,32 0953 STEWART,55	0107 HAGSTRUM,51 0660 KALLMANN,27 0854 CLARKE,54 1543 BRIGLIA,64	H 1166 JEN,33 1316 LOCHTE-HOLTGREVEN,SB	1300 MASSEY,36
H2O	0298 SJOGREN,63 0924 MANN,40	0483 COTTIN,59	O 0247 YAMANOUCHI,40 1180 MASSEY,43	1141 BATES,43 1197 BRANSCOMB,57
N H3	0924 MANN,40		NA 0297 HUANG,45	1300 MASSEY,36
N O	0107 HAGSTRUM,51 0481 CLOUTIER,59 1691 DORMAN,66	0214 HAGSTRUM,41 1518 HANSON,37	CL 1300 MASSEY,36	
CL2	0526 FROST,59	0708 FROST,60	HG 1300 MASSEY,36	
N2O	1067 CURRAN,61	1691 DORMAN,66		DISSOCIATIVE RECOMBINATION EXPERIMENTAL
C O	0017 VAUGHAN,31 0214 HAGSTRUM,41 0778 OHMAN,60 1096 HOGNESS,28	0107 HAGSTRUM,51 0667 TATE,32 0941 FINEMAN,62 1742 CUTHEART,66	NORMALIZED	
BR2	0708 FROST,60		O2 1 1344 RIONDI,64	
H CL	1518 HANSON,37		N2 1 0698 FAIRE,SB 1344 BIONOI,64	0703 BIALECKE,SB
C H4	0527 GEEKES, 1691 DORMAN,66	0539 HAYAKAWA,55	N H3 1 0887 COURT,64	
I2	0526 FROST,59 0778 DORMAN,60	0708 FROST,60	N O 1 0920 OERLING,62	
C CL4	0133 FOX,61 1231 CRAGGS,S2	0950 MARRIOTT,54	NE2 1 1344 RIONOI,64	
O2	0456 BAUER,47	0465 SCHAEFFER,50	AR2 1 1344 RIONOI,64	
C2H4	0539 HAYAKAWA,55		KR2 1 0254 RICHARDSON,S2	
S F6	0133 FOX,61		CS2 1 0177 HAMMER,63	
B CL3	1118 MARRIOTT,57		N4 1 1344 BIONOI,64	
H2O2	1132 FUNER,62			DISSOCIATIVE RECOMBINATION THEORETICAL
C2N2	1224 STEVENSON,50			
H C N	1224 STEVENSON,50		NORMALIZED	
T	0465 SCHAEFFER,50		H2 1 0368 BAUER,56	1665 WILKINS,66
			O2 1 0189 NISBET,63	
	DISSOCIATIVE IONIZATION	THEORETICAL	N O 1 0189 NISBET,63 1482 GIBBONS,63	0579 SQUIRES,61

## RELATIVE

## RADIATIVE CAPTURE

## EXPERIMENTAL

H2	0342 STEVENSON,47 1144 DE LA RIPELLE,49	0364 OUNN,63		
O2	0342 STEVENSON,47		NORMALIZED	
			H 1 0241 FOWLER,59	0346 CRAGGS,47
			AR 1 0355 KENTY,28	0969 MIES,61
			KR 1 0969 MIES,61	
			XE 1 0969 MIES,61	
			CS 1 1213 MOHLER,29	
H	0090 BRANSCOMB,62	1008 BRANSCOMB,62	HE2 1 0802 JOHNSON,50	
O	0038 BRANSCOMB,58 1008 BRANSCOMB,62	0090 BRANSCOMB,62	RFLATIVE	
HG	1279 HEY,30		AR 1 0969 MIES,61	
O2	0090 BRANSCOMB,62	1008 BRANSCOMB,62	KR 1 0969 MIES,61	
			XE 1 0969 MIES,61	

## RADIATIVE CAPTURE

## THEORETICAL

## VIBRATIONAL EXCITATION

## EXPERIMENTAL

## NORMALIZED

H 1	0146 BATES+67 0358 ZANSTRA+46 1010 STUECKELBERG+30	0243 BATES+79 0444 BATES+62 1414 LANE+64	D2 0260 ENGELHARDT+63
HE 1	0715 BURGE+55,60	0960 ZIRIN+62	C2H4 1478 GEIGER+65
O 1	0243 BATES+39 1180 MASSEY+43	0934 BREENE+61	RELATIVE
MG 9	0455 HILL+51		H2 0686 RAMIEN+31
CA 1	0960 ZIRIN+62		N2 0098 HARRIES+27 0328 SCHULZ+59
FE 13	0455 HILL+51		N2O 0932 SCHULZ+61
SR 1	0960 ZIRIN+62		C O2 1065 ROERSCH+64
CS 1	1805 NORCROSS+66		C O 0098 HARRIES+27
			0328 SCHULZ+49

## RELATIVE

			VIBRATIONAL EXCITATION	THEORETICAL
H 1	0245 CILLIE+32			
NORMALIZED				
ROTATIONAL EXCITATION		EXPERIMENTAL	H2 0043 WU+47 0434 CARSON+54 0962 CHEN+62 1564 BREIG+65	0184 MASSEY+35 0724 TAKAYANAGI+64 1488 TAKAYANAGI+65
H2	0260 ENGELHARDT+63	1043 FROST+42	N2 0402 KERNER+53 0964 CHEN+64 1852 CHEN+66	0895 CHEN+64 1564 BREIG+65
N2	0181 FROST+62 0316 ANDERSON+56	0218 ENGELHARDT+64	N2O 1478 GEIGER+65	
O2	0260 ENGELHARDT+63		C O2 1478 GEIGER+65	
RELATIVE			C O 1564 BREIG+65	
H2	0042 BENNETT+42		C2H4 1478 GEIGER+65	
RELATIVE				
ROTATIONAL EXCITATION		THEORETICAL	N2 1331 HERZENBERG+62	
NORMALIZED				
O1550CIATIVE ATTACHMENT				
H2	0392 GERJUOT+55 0702 DALGARNO+65 1452 TAKAYANAGI+65 1666 GELTMAN+66	0434 CARSON+54 1093 TAKAYANAGI+64 1573 SAMPSON+65 1816 OKSYUK+66	NORMALIZED	
O2	1477 TAKAYANAGI+65 1666 GELTMAN+66 1816 OKSYUK+66	1589 TAKAYANAGI+65 1676 SAMPSON+66	H2 0324 SCHULZ+59 0988 RAPP+64 1451 RAPP+65	0957 KHVOSTENKO+58 1372 RAPP+64 1460 RAPP+65
N2	0401 GERJUOT+55 1082 MJOLNESS+64 1452 TAKAYANAGI+65 1666 GELTMAN+66 1852 CHEN+66	0402 KERNER+53 1341 DALGARNO+63 1573 SAMPSON+65 1816 OKSYUK+66	O2 0131 CHANIN+59 0337 TOZER+58 0853 CRAGGS+57 0938 ASUNOI+63 0988 RAPP+64 1289 SCHULZ+62 1565 CHRISTOPHOROU+65	0134 BUCHOAHM+41 0766 BUCHELNIKOVA+59 0861 PRASAD+61 0943 THOMPSON+59 1105 ENGLANDER-GOLOEN+64 1460 RAPP+65
H2O	0385 ALTHULER+57		H2O 0766 BUCHELNIKOVA+59	1016 HURST+61
N H3	0385 ALTHULER+57		N O 0988 RAPP+64 1460 RAPP+65	1105 ENGLANDER-GOLOEN+64
C O	0724 TAKAYANAGI+64		N2O 0988 RAPP+64 1460 RAPP+65	1105 ENGLANDER-GOLOEN+64
VIBRATIONAL EXCITATION		EXPERIMENTAL	C O2 0865 CRAGGS+60 0988 RAPP+64 1289 SCHULZ+62	0938 ASUNOI+63 1105 ENGLANDER-GOLOEN+64 1460 RAPP+65
NORMALIZED				
H2	0260 ENGELHARDT+63 1043 FROST+62	0984 SCHULZ+64	C O 0867 CRAGGS+58 0988 RAPP+64 1289 SCHULZ+62	0938 ASUNOI+63 1105 ENGLANDER-GOLOEN+64 1460 RAPP+65
O2	1310 SCHULZ+62		H CL 0766 BUCHELNIKOVA+59	
N2	0218 ENGELHARDT+64 0984 SCHULZ+64	0684 HAA5+57	I2 0134 BUCHOAHM+41 0654 KEFFEE+62	0541 B1ONDI+58 1064 B1ONDI+58
N2O	1478 GEIGER+65		H O 1451 RAPP+65	1460 RAPP+65
O2	1478 GEIGER+65		O2 1372 RAPP+64 1460 RAPP+65	1451 RAPP+65
C O	0984 SCHULZ+64		S F6 0858 HICKAM+56	1460 RAPP+65

## 0155OOCIATIVE ATTACHMENT

## EXPERIMENTAL

## TOTAL SCATTERING

## EXPERIMENTAL

## NORMALIZED

N O2	0776 FOX+60		H	0305 MAECKER,55 0454 ORAWIN,56 0502 WIESE,63 1018 NEYNABER,61	0322 BRACKMANN+58 0493 KOLESNIKOV+62 0538 HAMMER+56
H 8R	0766 BUCHELN1KOVA+59				
58 CL3	1270 GROH,63		HE	0001 BROOE,25 0072 MAYER,21 0074 RAMSAUER,21 0086 RAMSAUER,29 0116 FUCHTBÄUER,34 0161 PALMER,31 0186 RAMSAUER,23 0201 TOWNSEND,23 0249 CHEN,61 0312 PHELPS,51 0317 ANGERSON,56 0530 PACK,61 0637 LANGMUIR,28 0869 GOLOEN,65 0995 GOORICH,37 1062 FROST,64 1473 HARRIS,63 1591 KOZLOV,65	0010 NORMANO,30 0073 RAMSAUER,21 0082 BRUCHE,27 0094 RAMSAUER,32 0160 GREEN,30 0174 KOLLATH,28 0192 FRANCIS,47 0233 DOUGAL,58 0306 ANERSON,55 0314 GOOLIN,54 0454 ORAWIN,56 0594 HIRSHFIELD,58 0819 BOWE,60 0888 PHELPS,60 1041 BULEWICZ,62 1348 GOLOEN,65 1489 CRUMTON,65 1786 KOZLOV,65
RELATIVE					
H2	0232 BRASEFIELD,29	1592 SCHULZ,65			
O2	0018 TATE,32 0166 MUSCHLITZ,57 0214 HAGSTRUM,41 0341 FROST,58 0699 FROST,58	0107 HAGSTRUM,51 0167 RANOLPH,58 0280 FLITE,63 0526 FROST,59 1525 FLITE,65			
O2 *	0280 FLITE,63				
H20	0018 TATE,32 0324 SCHULZ,59 0558 SCHULZ,60 0957 KHVOSTENKO,58 1709 TREPKA,63	0298 SJOGREN,63 0483 COTTIN,59 0924 MANN,64 1117 MUSCHLITZ,56			
N H3	0924 MANN,40		HE *	0868 NEYNABER,64	
N O	0018 TATE,32 0214 HAGSTRUM,41 1263 FROST,58	0107 HAGSTRUM,51 0481 CLOUTIER,59 1518 HANSON,37	HE 1	0233 DOUGAL,58	0306 ANERSON,55
C2H2	0018 TATE,32		LI	0016 PEREL,62	
CL2	0526 FROST,59	0708 FROST,60	C	0305 MAECKER,55	
N20	0347 KNOX,58 1067 CURRAN,61	0932 SCHULZ,61 1116 RUDOLPH,59	N	0026 NEYNABER,63	0305 MAECKER,55
C O2	0847 ASUNOI,64		O	0305 MAECKER,55 1013 NEYNABER,61 1577 OA18ER,65	0325 LIN,59 1490 SUNSHINE,65
C O	0017 VAUGHAN,31 0107 HAGSTRUM,51 0481 CLOUTIER,59 0941 FINEMAN,62	0018 TATE,32 0214 HAGSTRUM,41 0667 TATE,32	F	0559 MAECKER,56	
BR2	0708 FROST,60		NE	0010 NORMANO,30 0082 BRUCHE,27 0086 RAMSAUER,29 0116 FUCHTBÄUER,34 0186 RAMSAUER,23 0637 LANGMUIR,28 1019 CHEN,64 1400 GILAROINI,57	0074 RAMSAUER,21 0084 BRUCHE,29 0094 RAMSAUER,32 0174 KOLLATH,28 0312 PHELPS,51 0819 BOWE,60 1041 BULEWICZ,62 1473 HARRIS,63
H CL	0699 FROST,58 1518 HANSON,37	1119 FOX,57	NA	0006 BROOE,29	0016 PEREL,62
C H4	1709 TREPKA,63		AR	0031 BROOE,25 0072 MAYER,21 0074 RAMSAUER,21 0076 RUSCH,26 0086 RAMSAUER,29 0095 RAMSAUER,32 0160 GREEN,30 0175 GAERTNER,31 0197 TOWNSEND,22 0292 ENGELHART,64 0454 ORAWIN,56 0538 HAMMER,56 0819 BOWE,60 1007 BROOE,32 1062 FROST,64 1577 OA18ER,65 1752 WAHLIN,31 1891 ABERTH,63	0013 NORMANO,30 0073 RAMSAUER,21 0075 RAMSAUER,23 0082 BRUCHE,27 0094 RAMSAUER,32 0174 KOLLATH,28 0186 RAMSAUER,23 0199 TOWNSEND,22 0312 PHELPS,51 0530 PACK,61 0637 LANGMUIR,28 0846 ABERTH,64 1041 BULEWICZ,62 1473 HARRIS,63
I2	0467 FOX,58 1120 FROST,58	0708 FROST,60			
P H3	1163 EBINGHAUS,64				
C CL4	0133 FOX,61 1231 CRAGGS,52	0950 MARRIOTT,54			
C2H4	1709 TREPKA,63				
H F	0699 FROST,58				
C2H6	1709 TREPKA,63				
S F6	0133 FOX,61 0699 FROST,58 1239 AHEARN,53	0481 CLOUTIER,59 0971 CURRAN,61			
H I	0699 FROST,58		K	0006 BROOE,29	0016 PEREL,62
B CL3	1118 MARRIOTT,57		FE	0305 MAECKER,55	
H 8R	0699 FROST,58		ZN	0008 BROOE,30	0046 BROOE,25
C2N2	1230 MCOWELL,52	1231 CRAGGS,52	KR	0075 RAMSAUER,23 0095 RAMSAUER,32 0174 KOLLATH,28 0312 PHELPS,51 0819 BOWE,60	0086 RAMSAUER,29 0118 FUCHTBÄUER,35 0186 RAMSAUER,23 0439 PACK,62 1062 FROST,64
C F4	1231 CRAGGS,52				
O3	1066 CURRAN,61				
A5 H3	1163 EBINGHAUS,64		RH	0006 BROOE,29	
51 H4	1163 EBINGHAUS,64		CO	0008 BROOE,30	0046 BROOE,25
0155OOCIATIVE ATTACHMENT	THEORETICAL		XE	0075 RAMSAUER,23 0095 RAMSAUER,32 0186 RAMSAUER,23 0439 PACK,62 1062 FROST,64	0046 RAMSAUER,29 0117 FUCHTBÄUER,35 0312 PHELPS,51 0819 BOWE,60
NORMALIZED			C5	0006 BROOE,29 0132 MORGULIS,63 0182 CHEN,62 0768 MULLANEY,61 0785 ROEHLING,63 0872 MEYERANO,64	0016 PEREL,62 0149 MIRLIN,62 0764 BÜCKNER,33 0769 FLAVIN,63 0850 FLAVIN,63 1473 HARRIS,63
H2	0207 CHEN,63				

## TOTAL SCATTERING

## EXPERIMENTAL

## TOTAL SCATTERING

## EXPERIMENTAL

## NORMALIZED

## NORMALIZED

C5	1 0764 BOECKNER+33		C2H4	0085 BRUCHE+29 0685 FORESTER+61	0203 BANNON+28
HG	0021 TATE,32 0047 BRODE,29 0117 FUCHTBRAUER,35 0160 GREEN,30 0172 BEUTH,27 0637 LANGMUIR,28 1746 MAXWELL,26	0046 BROOKE,25 0069 ARNOT,35 0157 JONES,24 0161 PALMER,31 0598 MCCUTCHEON,58 0675 SIMONS,38	C2H6	0089 BRUCHE+30	
TL	0013 BRODE,31		S 02	0687 BAYES,62	
H2	0001 BRODE,25 0072 MAYER,21 0077 BRUCHE,26 0087 RAMSAUER,30 0094 RAMSAUER,32 0174 KOLLATH,28 0181 FROST,62 0188 BERNSTEIN,62 0199 TOWNSEND,22 0312 PHELPS,51 0360 BEKEFIS,58 0538 HAMMER,56 0685 FORESTER,61 1375 GOLDEN,65 1787 GOLDEN,66	0010 NORMAND,30 0073 RAMSAUER,21 0079 BRUCHE,27 0093 RAMSAUER,30 0160 GREEN,30 0175 GAERTNER,31 0186 RAMSAUER,23 0193 TOWNSEND,21 0240 VARNERIN,51 0352 CROMPTON,52 0530 PACK,61	HE	0469 HUGHES,35	
O2	0067 RAMSAUER,30 0259 BRUCHE,27 0846 ABERTH,64 1891 ABERTH,63	0195 TOWNSEND,21 0377 SILVERMAN,57 1577 OALBER,65	NE	0126 RUSCH,25	
N2	0001 BRODE,25 0026 NEYNABER,63 0072 MAYER,21 0077 BRUCHE,26 0087 RAMSAUER,30 0181 FROST,62 0195 TOWNSEND,21 0312 PHELPS,51 0352 CROMPTON,52 0637 LANGMUIR,28 0685 FORESTER,61 1891 ABERTH,63	0010 NORMAND,30 0037 FISK,37 0073 RAMSAUER,21 0079 BRUCHE,27 0174 KOLLATH,28 0186 RAMSAUER,23 0218 ENGELHARDT,64 0316 ANDERSON,56 0530 PACK,61 0684 HAAS,57 0687 BAYES,62 0982 STOTZ,63	C H4	0209 GLOCKLER,24	
H20	0084 BRUCHE,29 0687 BAYES,62	0439 PACK,62 1450 TAKEOA,60	HE	0060 OMALLEY,63	
N H3	0084 BRUCHE,29 0687 BAYES,62	0439 PACK,62	AR	0060 OMALLEY,63	0452 GRYZINSKI,59
N 0	0200 SKINKER,23	0259 BRUCHE,27	K	0810 OAMBURG,60	
C2H2	0085 BRUCHE,29		KR	0060 OMALLEY,63	
CL2	0037 FISK,37	0682 BAILEY,35	XE	0060 OMALLEY,63	
N20	0093 RAMSAUER,30 0174 KOLLATH,28 0259 BRUCHE,27 0687 BAYES,62	0159 BAILEY,32 0200 SKINKER,23 0439 PACK,62	C5	0810 OAMBURG,60 1282 ROBINSON,62	1023 SALMONA,61
C 02	0072 MAYER,21 0087 RAMSAUER,30 0094 RAMSAUER,32 0198 SKINKER,22 0439 PACK,62 0687 BAYES,62	0081 RAMSAUER,27 0093 RAMSAUER,30 0174 KOLLATH,28 0259 BRUCHE,27 0685 FORESTER,61			
C 0	0001 BRODE,25 0087 RAMSAUER,30 0174 KOLLATH,28 0259 BRUCHE,27	0010 NORMAND,30 0094 RAMSAUER,32 0200 SKINKER,23 0439 PACK,62			
BR2	0683 BAILEY,37				
H CL	0080 BRUCHE,27				
C H4	0001 BROOKE,25 0087 RAMSAUER,30 0174 KOLLATH,28 0259 BRUCHE,27 0973 FROMMHOL,59	0084 BRUCHE,29 0089 BRUCHE,30 0192 FRANCIS,47 0685 FORESTER,61 1833 FINK,65			
04	0991 HOLST,31				
12	0677 HEALEY,38				
C CL4	0991 HOLST,31				
O2	0188 BERNSTEIN,62 1375 GOLDEN,65 1787 GOLDEN,66	0439 PACK,62 1428 HALL,55			

## NORMALIZED

TOTAL ELASTIC SCATTERING EXPERIMENTAL

H 0645 CHESHIRE+64

## NORMALIZED

HE 1196 MARDER+S6  
 NE 1196 MARDER+S6  
 AR 1196 MARDER+S6

TOTAL ELASTIC SCATTERING THEORETICAL

## NORMALIZED

H	0083 BURKE+63	0148 OAMBURG+63
	0204 TEMKIN+62	0490 SCHWARTZ+61
	0536 ROTENBERG+62	0709 RUFFINE+60
	0859 SMITH+60	0905 MASSEY+59
	0906 MOUSSA+59	0917 SPRUCH+60
	1015 SMITH+61	1025 KINGSTON+61
	1192 DRACHMAN+65	1210 MOISEIWITSCH+58
	1422 MCEACHERN+65	1443 HAHN+64
	1494 ALLISON+61	1495 BRANSOEN+62
	1499 HAHN+65	1500 KLEINMAN+65
	1571 STONE+66	1580 ARMSTEAD+65
	1900 KLEINMAN+65	
H *	0859 SMITH+60	
HE	0905 MASSEY+58	1121 MALIK+61
	1195 TEUTSCH+56	1485 KESTNER+65
	1494 ALLISON+61	1819 DRACHMAN+66
C	1121 MALIK+61	
N	1121 MALIK+61	
O	1121 MALIK+61	
F	1121 MALIK+61	
NE	0905 MASSEY+58	1121 MALIK+61
	1195 TEUTSCH+56	
AR	0905 MASSEY+58	1121 MALIK+61
	1195 TEUTSCH+56	
U	6 1519 SINGH+62	
H2	0905 MASSEY+58	

DIFFERENTIAL ELASTIC SCATTERING THEORETICAL

## NORMALIZED

H	0490 SCHWARTZ+61	0536 ROTENBERG+62
	0544 MOISEIWITSCH+59	0906 MOUSSA+59
HE	0544 MOISEIWITSCH+59	

ELECTRONIC EXCITATION THEORETICAL

## NORMALIZED

H	0083 BURKE+63	0148 OAMBURG+63
	0859 SMITH+60	1257 MOISEIWITSCH+65
H *	0859 SMITH+60	

ELECTRON DETACHMENT THEORETICAL

## NORMALIZED

H - 0576 RUOGE+64

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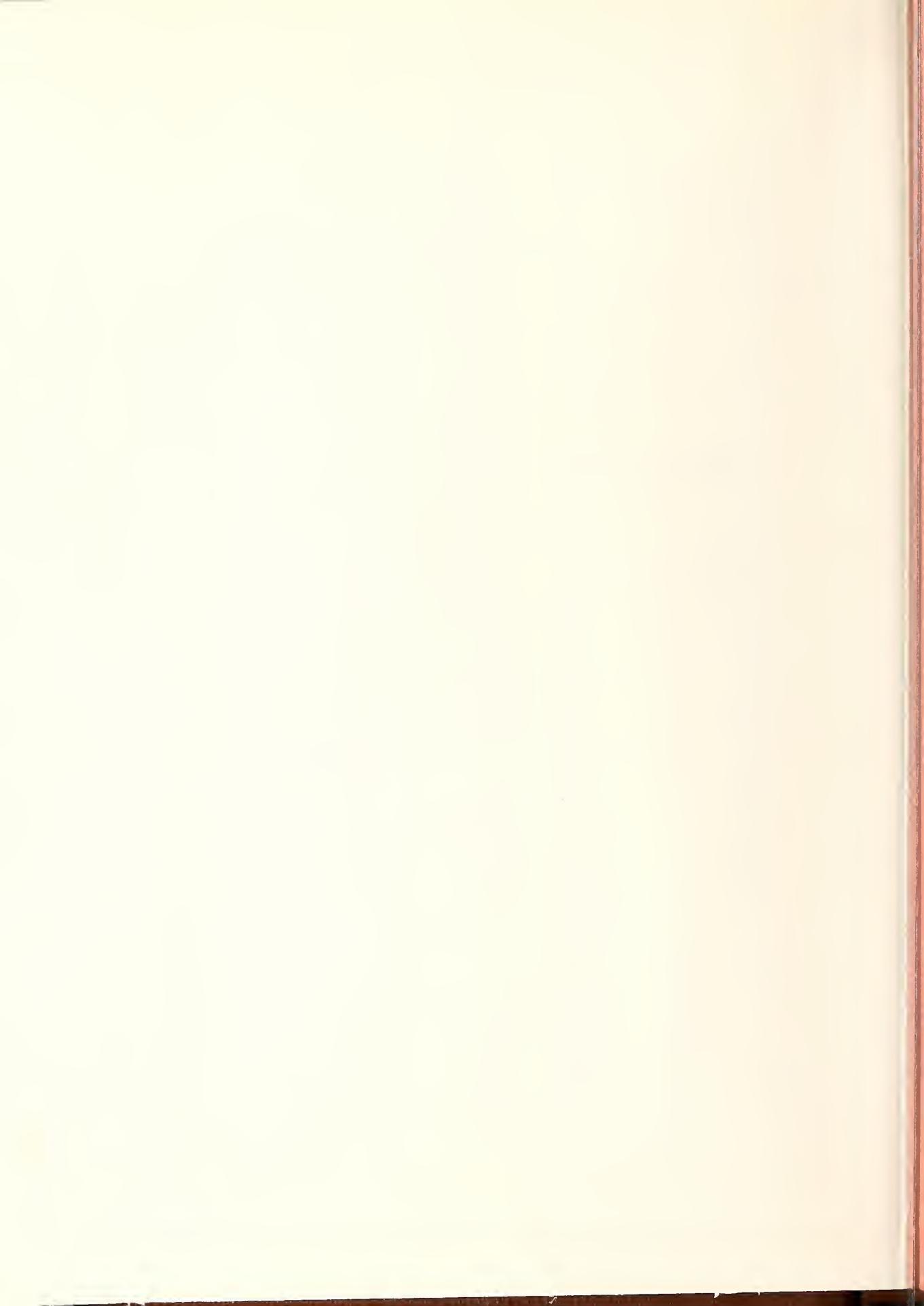
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MAIMAN T H	227		MENZEL D H	265					
MAKINSON K E B	683		MEYERAND R G	769	850	872			
MALASPINA L	1578		MEYER R D	1480					
MALESSET C	986		MEYER V D	551 1679	612 1887	1205	1418	1419	
MALIK F B	520	864	879	1046	1114	MICHAEL J A	1165		
	1121	1659	MICHELS W C	15	226				
MANDL F	1331		MIELCZAREK S R	1085	1347	1373	1471	1456	
MANN J B	566	1261	MIES F W	969					
MANN M M	924		MIIDA J	365					
MANN R A	36	959	MILATZ J M W	122	125	268			
MARCH N H	421		MILFORD S N	103 1050	445	446	540	919	
MARDER S	1195		MILLER F L	1049	1455				
MARIND L L	26	868	978	1013	1018	MILLER W D	1374		
MARRIDTT J	950	1118	MILLER W F	859					
MARKIDTT R	420	426	866	1654		MINKOWSKI R	178	180	
MARTIN J B	1057		MIRLIN D N	149					
MARTYNENKO YU V	818		MISKELLY D	423					
MASSEY H S W	49	51	53	54	61	MITRA S K	928		
	62	64	68	70	71				
	138	139	184	194	234				
	243	251	267	284	349				
	398	405	418	428	438				
	441	458	460	615	845				
	905	933	1141	1190	1300				

MITTELMAN M H	553	1644	1645	1673		08EOKOV V O	1097
MJOL5NE55 R C	1082	1573	1676			08UKHOV-OENI50V V	493
MOFFETT R J	1341				OCHKUR V I	369	718
						1682	1804
MOMLER F L	279	764	1213		OHMURA H	S61	
					OHMURA T	408	463
MOHR C B U	51	54	58	S9	OKSUKYU YU O	552	561
	63	66	68	139		1816	
	284	441	616	194	OKELLY L B	1016	
M015EIWIT5CH B L	349	350	351	367	OKSYUK YU O	112	
	405	438	459	460	OLDEMAN J	112	
	495	544	549	822	OLDENBERG O	992	
	1024	1210	1257	1408	1493	1301	
	1494	1710	1770	1862	OLMSTEAD J	1466	1526
MONAHAN J E	331				OMALLEY T F	60	301
MOORES O	1448				OMIOVAR K	537	593
MORANO M	461				OPYKHTIN V	1813	
MORGULIS N D	132				ORIENT O J	1817	
MORRISON J O	242	778	1068	1069	ORMONOE S	1718	1846
	1107	1108	1244	1070	ORNSTEIN L S	100	110
MORRISSEY J J	919				OTTERBROCK O E	270	112
MORSE P M	25	106	639	1010	OTSUKA M	843	268
MOTT N F	48	136			OTVOS J W	1987	269
MOUSSA A H	905	906			PACK J L	339	
MOUSTAFA H R	1690	1748	1782		PALMER R R	439	530
MUKHERJEE S C	515	1048	1199		PAVLON V I	888	
MULLANEY G J	768				PEACH G	1081	
MULLER-OUYSING W	1163				PEEK J M	873	1273
MULLER F	1530				PENKIN N P	1299	1654
MUMFORD A J P	859				PENNEY W G	1655	
MURAVEV V T	977	981			PERCIVAL I C	1758	
MUSCHLITZ E E	166	1117			PEREL J	162	427
MUSA T	765				PERRIN R	586	740
MYERSCOUGH V P	1102	1110	1299	1539	PETERKOP R K	154	278
NAGAHARA S	411			1569		507	542
NAKAO T	7	33	130	135		990	829
NALL B H	1034					1129	852
NAROONE M C	574	939				1135	1469
NEUERT H	527	1163	1709			1515	1550
NEU H	147					1552	1864
NEWHALL H F	41					2002	1905
NEWTON A S	1301				PETERSON J R	153	831
NEYNABER R	26	868	978	1013	PETERS T	305	
	1268			1018	PETRINI O	1876	
NICHOLSON A J C	242	778	1069		PETROCELLI A W	941	
NICOLL F H	58	59	63	66	PETROV IU V	369	
NIERENBERG W A	1339			137	PETRUNKIN A M	1115	
NIIRA K	294				PHELPS A V	131	181
NISBET J S	189					312	530
NISHIMURA H	1123	1700	1838	1987		888	569
NOLAN J F	1467				PHILBRICK J W	1090	600
NORCROSS D W	1805				PIACENTE V	1578	
NORMAND C E	10				PIKUS G E	149	
NORMAN G E	1059				PILYANKEVICH A N	884	
NOTTINGHAM W B	40				PIPKN F M	522	1346
NOVICK R	773	1871			POHLE R	503	
NOVOBRANTSEV I V	560				POMILLA F R	445	828
NUTT G L	897				1522		

PDPPI H P	1774		RDTHE E W		26	B68	978	1013	1018
PORTEUS J D	837		ROZGACHEV K I		1268				
POTTIE R F	1687		RURIN K		1290				
PDULTNEY F C	120		RUDBERG E		329				
RRAMALLADA RAO B	1742		RUDO J B		1157				
RRASAO A N	861		RUOGE M R H		159				
PRASAO K	642		RUDDLPH R		1773	57	533	576	1544
RRASAO S S	642	1262 1656	RUFFINE R S		1848	1849	1544	1772	
RREECE E R	1742		RUHLIG A J		709				
PRESNYAKOV L	826	1061 1476 1813	RUSCH M		734				
RRESSLEY G A	1874		RUSSEK A		1343				
PRIESTLY H	293		SACHL V		383				
PRZHONSKII A M	1910		SALERNO J A		1787				
PU R T	903		SALMONA A		499	1023	1052	1520	1587
QUINN T P	189		SAMPSON O H		1082	1573	1676		
RABIK L L	1576	1674 1866 1867 1868	SANDS R		610				
RAETHER M	182		SARADH H		168	954	1026		
RAFF L M	1411		SASAKI N		7	33	130	135	
RAFIQULLAH A K	1659		SAWYER G A		602				
RAIBLE V	1593		SAYERS J		887				
RAKHDVSKII V I	1081		SCANLDN J H		919	1050			
RAMIEN H	686		SCHAFFERNICHT W		465				
RAMSAUER C	73 B7 186	74 93 94	75 95 129	B6	SCHAEFFER D A				
RANODLPH P L	167		SCHENK H		92	262			
RAPP D	988 1396	1105 1410	1164 1451	1292 1459	1372 1460	SCHENTER R E			
RAY B B	928		SCHHEY H M		1894				
REDKO T P	1758		SCHMIDFELDER J L		83	151	918	1033	
REESE R M	466	525	SCHRAM B L		481				
REICHERT E	1111	1427	1431	1596	1281 1858	1690 1863	1705	1706	1748
REICH M J	1753		SCHROOTER K		1424	1646			
REIMERS H J	118		SCHULTZ S		1281	1690	1705	1706	1748
REINHAROT R W	1565		SCHULZ G J		1858	1863			
REITZ J R	359		SCOTT B L		82				
REVALD V F	1531	1584	SCOTT P		1592	1924	936		
RIBE F L	602		SCHULZ P		299	300	318	319	324
RICE S A	1485		SCHUTTEN J		328	517	529	558	932
RICHARDSON J M	254		SCHWARTZ C		984	1021	1090	1289	1310
RIDLEY R O	428		SCHWARTZ S B		1592	1924			
RIEOE D	303	304	SCOTT B L		116				
RINEHART E A	564		SCOTT P		1748	17B2			
RISK C G	218		SEATON M J		1023	1037	1448	1544	1832
ROBBEN F	759		SEILER R		155	168	404	412	416
RDBINSON B B	1463		SEMAN M L		422	431	453	484	533
ROBINSON L B	387	B12 12B2	SEWARO R R		585	712	714	715	719
ROBINSON P D	545		SHAPIRO J		721	722	740	843	909
ROEMLING O	785		SHARR T E		1023	1037	1448	1544	1832
ROSCOE R	45	1311	SHAW C H		1372	1451			
ROSENBERG L	301	917 1084	SHEDDON J W		1191				
ROSE D C	1475		SHEPELENKO F P		1272				
ROTBENBERG M	536		457						
ROTHENSTEIN W	435								

SHERIDAN W F	992					STEBRINGS R F	326	332	1031	1089
SHEVERA V S	504	1079	1648			STEIDL H	1431	1596		
SHIELOS O B	822					STEINER B	839			
SHILOFF J C	380	1401				STEFIN S	392	401		
SHIMON L L	506	1040	1078	1517	1648	STEPHNSH P	835			
	1680	1683	1801	1972		STEVENS D	213	339	342	451 1224
SHINE W W	407					STEWART O T	333	334	338	953
SHOPENK U B	1077	1521				STICKEL W	1065	1597		
SHVETS O M	1507					STONE P M	359	1571	1805	
SIEBERTZ K	816					STOTZ K C	982			
SIL N C	515	1688	1703	1704		STREET K	1301			
SILVERMAN S M	372	373	374	376	377	STROHMEIER G	121			
	378	379	381	794	798	ST JOHN R M	485	564	742	912 942
	799	800	803	857	1075		1049			
	1091	1663	1743			STUER F A	1453			
SIMONS J H	675					STUECKELBERG E C	1010			
SIMPSON J A	308	692	1085	1347	1373	SUGIMURA T	539			
	1471	1527	1856			SULLIVAN F	512	848		
SINGH B	1519					SUNSHINE G	846	1490		
SJOGREN H	298					SURAL O P	1688			
SKERBELE A	612	968	1418	1419	1481	SUTTON O J	352			
	1824	1887				SWAN P	430	433		
SKINKER M F	198	200				SWEENEY J P	564			
SKINNER B G	350	549	1025			SWICK D A	983			
SKINNER H	651					TAIT J H	1416	1653		
SKURENICH V V	1047					TAKAYANAGI K	724	1093	1452	1477 1488
SLOAN I H	845	1092	1302				1589	1666		
SMIRNOV B M	1764					TAKEO A S	1450			
SMITH A C H	1268	1803				TALBOT L	759			
SMITH K	83	669	859	896	933	TATE J T	18	21	214	216 667
	1015	1022	1080	1349	1718		924			
SMITH L G	35					TAYLOR A J	874	1416	1436	1524 1536
SMITH P T	18	216	224	225			1847			
SMITH R A	1300					TAYLOR J E	67			
SMITH S J	38	922	1486			TEMKIN A	204	400	498	503 512
SMIT C	361	513	516	1570			706	904	908	1030 1051
SMIT J A	223	315	361	513	516	TEUTSCH W B	1195			
	546					THALER R M	1894			
SMYTH H	255					THEFME O	108			
SNYDER T M	1191					THOMAS J J	177			
SOBELMAN I	826	1061				THOMAS L H	42			
SOLTYSKI E A	492	510	521			THOMPSON J B	943			
SOMERVILLE J M	683					THOMPSON N	989			
SOMERVILLE W B	497	534	1074			THONEMANN P C	261	264	907	
SOSHNIKOV A K	1680					THORBURN R	337	853	950	
SPONER H	178					TIBBS S R	70			
SPRUCH L	301	917	1084	1443	1496	TIEN P K	1094			
	1499	1500				TIEZ T	206	409	562	745 1176
SQUIRES B E	579	1482					1483	1510	1511	
STAHLER R C	671					TISONE G C	1880			
STACEY G M	1770					TOLK N	1871			
STAFFORD F E	1874					TOPSCHOWSKY M	1585			
STANTON H E	331					TOWNSEND J S	195	197	199	201
STANTON R L	564					TOZER R A	337	356	357	853 865
STAROSTIN A N	716					TREFFTZ E	867			
STAUFFER A O	307	1246					143	879	1046	1114
STAVER T B	543									

TREPKA L V	1709		WHITE O	635
TRUJILLO S M	26 1268	868 978 1013 1018	WHITE E R	382
TULLY J	775		WHITE J V	200
TUNITSKII N N	723		WHITNEY J D	665
ULMER R	532		WIESE W L	502
UNWIN J J	243		WILKINS R L	1665
VAINSHTEIN L	754 1546	826 1813	WILLIAMSON H A	1590
		1061 1097 1474	WILLIAMSON J H	470 1256
VALASEK J	1275		WILLIAMS A	544
VAN DER WIEL M J	1281	1690	WILLIAMS K L	1708
VAN DE WALLE R T	838		WILLIAMS S E	989 1296
VAN EGMOND W	315		WINTERS H F	1406
VAN REGEMORTER H	720	775 1053 1054 1122	WITTING H L	1456
VAN VOORHIS C C	2		WITTMACK K	1478 1812
VAN VOORHIS S N	173		WOJTCZAK L	206
VAN ZYL B	1501	1503	WOLF R	880
VARNERIN L J	240		WOMER R L	668
VARSAVSKY C	792	814 1017	WONG S C	687
VAUGMAN A L	17		WOODCOCK A H	1286 1287
VEKLENKO B A	560	716	WOODWARD C E	659
VELDRE V	101 1319 1555 1866	830 1426 1576 1867	WOOLLEY R	923
		835 1472 1582 1868	WOUDENBERG J P M	122 125
		836 1547 1674	WU C S	1196
VETTERLEIN P	96		WU T Y	43 368 567 1146 1190
VINCENT D	421		YAKHONTOVA V E	464 477 1323
VINKALNS I ZH	844 1878	1097 1879	YAMANOUCHI T	208 247 248 366 408
YAMANOUCHI T	463	1582	YAVORSKY B	202 272 281 282 557
VOLKOVA L M	344 755	414 1533	YUREV V G	149
VON ENGEL A	336	354	YU F C	1146
VOSMALL R E	439		ZACHMANN E	171
VOSS W	113		ZAITSEVA N G	1081
VREGENBERG W J	361		ZANSTRA H	358
VREESWIJK J A	269		ZAPESOCHNYI I P	78 343 475 504 506
VRIENS L	1060	1457 1468		908 882 1040 1076 1077
VRUBLEVSKAYA N A	1909			1078 1079 1233 1517 1521
WADDINGTON J F	1083			1583 1648 1680 1683 1801
WAMLIN H B	1752		ZARE R N	1501 1503
WAHL J J	446		ZHIKHAREVA T V	1775 1853
WALDRON H F	1577		ZIESEL J P	283 1167 1530 1920
WARREN J W	1230	1231	ZIRIN H	443 960
WATANABE M	365		ZWICKY F	657





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