

ELECTRON IMPACT EXCITATION  
OF POSITIVE IONS CALCULATED  
IN THE COULOMB-BORN-APPROXIMATION  
—A DATA LIST AND COMPARATIVE SURVEY—

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August 1979

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Abstract

Theoretical results on the electron impact excitation of positive ions are surveyed through the end of 1978. As a guide to the available data, a list of references is made. The list shows ion species, transitions, energy range and methods of calculation for the respective data. Based on the literature survey, the validity of the Coulomb-Born approximation is investigated. Comparisons with the results of the close-coupling and the distorted-wave methods are briefly summarized.

## 1. Introduction

The excitation of highly ionized ions by electron impact has been investigated for long time in relation to problems in laboratory and astrophysical plasmas. Recently, the excitation cross sections are required for the estimate of energy-loss rate and diagnostic purposes for fusion plasmas. There have been a great deal of calculations of electron-impact excitation of ions. It is important to provide an access to the data relevantly needed in the fusion research. Reliability of the calculated values also should be known when they are actually used. The Coulomb-Born (CB) approximation is useful for high incident energies, but it may be less accurate for lower energies. The close-coupling (CC) and distorted-wave (DW) approximations, which are more elaborate than the CB method, are used for the low energy region. Because of the extreme simplicity, however, the CB approximation is often employed even near threshold. Thus it is interesting to see quantitatively the difference between the CB approximation and the more accurate methods.

The purpose of the present report is to survey the published theoretical works, especially based on the CB approximation, and to make a classified list of the cross sections so far calculated. Comparisons of the cross sections obtained in the CB and other methods are briefly summarized. A list of the abbreviations and the nomenclature of the symbols used in the present paper is given in Appendix A.

## 2. Data List

Theoretical data on the electron-impact excitation of positive ions are listed in Appendix C. From the first column to the eighth column, ion species, transition, number of electron, energy range, original expression for cross section, method of calculation, year and reference number are shown respectively. For the literature up to 1977, we have referred to the bibliography prepared by Takayanagi and Iwai.<sup>1)</sup> The correspondence between the present reference numbers and those in their bibliography is shown in Appendix B. In addition, we have surveyed the original literature through the end of 1978. Those are listed also in Appendix B. The present data list is almost complete for the CB result, but not for others. Many further references should be added to this list in the future.

## 3. A Comparison between the CBI (CBOI) and CBII (CBOII) Approximations

In the CB<sup>I</sup>I (or CBOII) approximation (called hereafter the approximation II), one uses the exact relation between the scattering matrix  $S$  and the reactance matrix  $R$ ,

$$S = (I + iR) / (I - iR)$$

In the CBI (or CBOI) approximation (the approximation I), an approximate formula

$$S = I + 2iR$$

is employed. The approximation II always satisfies the unitarity condition, but the approximation I does not. Thus we would expect that the approximation II should be superior to the approximation I. A comparison of the cross sections

obtained in the approximations I and II is made for various transitions in Table 1. The systems listed have one single electron in the outer shell. Except for the transitions 2p-3s, 2p-3p and 2p-3d, the result may be summarized as follows:

- (1) For the ions with  $z = 1$

The cross sections of the approximation I agree within a factor of 2 with those of the approximation II.

- (2) For the ions with  $z \geq 5$

As the value of  $z$  increases, the difference between the two sets decreases. For  $z \geq 5$  the two sets agree within 10%.

#### 4. Comparisons of the CB Approximation with the CC and DW Methods

Comparisons of the cross sections calculated in the CB approximation with the CC and DW results can be made in the following four cases. In each case, the best available results obtained in the CB or modified CB (e.i., CBII, CBOI, CBOII) methods are compared with the more elaborate ones. The typical comparisons are shown in Figs. 1 - 34 and Tables 2 - 5. The important conclusions of the comparison are summarized as follows:

- (1) For  $nl \rightarrow n' l'$  transitions in the ions with  $N = 1, 3, 11$  and  $19$  (see Table 2)

The difference between the cross sections of the CB approximation and those of the CC or DW method is within a factor of 2 for the ions with  $z \leq 5$  and within 20% for  $z > 5$  near threshold. It becomes much less as

the energy increases.

(2) The fine-structure transitions in the ions with

$N = 6, 7, 8, 9, 14, 15, 16$  and  $17$  (Table 3)

The difference between the collision strengths of the CBOI approximation and those of the CC or DW methods at threshold is within a factor of 2 for  $z \leq 5$  and within 30% for  $z > 5$ , except for the transitions

$3p^2\ 3P_0 - 3p^2\ 3P_1$  and  $3p^3\ 2P_{1/2} - 3p^3\ 2P_{3/2}$ .

(3) For the intra-valence shell ( $n\ell^P n\ell^Q - n\ell^R n\ell^S$ )

transitions in the ions with  $N = 5$  and  $13$  (Table 4)

The difference between the cross sections of the CB approximation and those of the CC or DW method is within a factor of 2 for  $z = 1$  and within 10% for  $z = 13$ , at threshold.

(4) For the ions with  $N = 2, 4$  and  $12$  (Table 5)

Figures 24, 25, 26, 33 and 34 show that the cross sections are sensitive to the choice of the target wave function for the transitions  $1s^2\ ^1S - 1s2s\ ^1, ^3S$  and  $2s^2\ ^1S - 2s2p\ ^1P$ . Since the amount of scatter of the cross sections of various approximations is large as shown in Table 5, no general conclusion can be drawn in this case of comparison. For the optically allowed transitions, however, the comparison can be summarized: For the ions with  $N = 2$ , the CB cross sections agree to within 15% with those of the CC or DW methods at threshold. For the  $N = 4$  and  $12$  ions, the difference between the two sets is within a factor of 2 for  $z < 5$  and within 30% for  $z \geq 5$ , at threshold. Calculations

using the CBO approximation for the ions with  $N = 4$  and 12 are desirable to enable a comparison with other methods.

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#### Reference

- 1) K. Takayanagi and T. Iwai, IPPJ-AM-7, Inst. Plasma Phys., Nagoya University, Nagoya, Japan (1978).

Table 1. Comparison of the CBI (CBOI) approximation with the  
CBII (CBOII) approximation for the cross sections at threshold.

N	Transition	Ion	Difference	N	Transition	Ion	Difference
1	1s - 2s	He <sup>+</sup>	f1.7*	11	3s - 3p	Mg <sup>+</sup>	f1.4
1	1s - 2p	He <sup>+</sup>	f1.5			Si <sup>3+</sup>	14%
3	2s - 2p	Be <sup>+</sup>	f1.5			Fe <sup>15+</sup>	3%
		C <sup>3+</sup>	7.5%	11	3p - 3d	Fe <sup>15+</sup>	2%
		N <sup>4+</sup>	8.0%	19	4s - 3d	Ca <sup>+</sup>	8.7%
		O <sup>5+</sup>	3.0%	19	4s - 4p	Ca <sup>+</sup>	f1.6
		Ne <sup>7+</sup>	3.6%			Fe <sup>7+</sup>	6%
		Mg <sup>9+</sup>	0.8%	19	3d - 4p	Ca <sup>+</sup>	f2
3	2s - 3p	Be <sup>+</sup>	f2.8			Fe <sup>7+</sup>	0.1%
		N <sup>4+</sup>	9%	37	5s - 5p	Sr <sup>+</sup>	f1.7
		Ne <sup>7+</sup>	3%	55	6s - 5d	Ba <sup>+</sup>	7%
3	2s - 3s	N <sup>4+</sup>	30%	55	5d - 6p	Ba <sup>+</sup>	f2.0
		Ne <sup>7+</sup>	10%	55	6s - 5p	Ba <sup>+</sup>	f2.6
3	2s - 3d	N <sup>4+</sup>	3.6%	55	6s - 6p	Ba <sup>+</sup>	f1.8
3	2p - 3s	N <sup>4+</sup>	f1.5				
		Ne <sup>7+</sup>	20%				
3	2p - 3p	N <sup>4+</sup>	f2				
		Ne <sup>7+</sup>	f1.4				
3	2p - 3d	N <sup>4+</sup>	f1.6				
		Ne <sup>7+</sup>	24%				

\* f1.7 denotes a factor of 1.7. This indication is similarly used for Tables 2 ~ 5.

Table 2. Comparison of the cross sections of the CB approximation and other methods for the ions with  $N = 1, 3, 11$ , and 19.

N	Transition	Ion	Approximation	Difference	Fig.
1	1s - 2s	$\text{He}^+$	CBOII - 5CCX	40% ( $X < 2$ ), 25% ( $X \geq 3$ )	1
		$\text{C}^{5+}$	CBOI - 3CCX	10% (all X)	2
		$\text{O}^{8+}$	CBOI - DWX	7% (all X)	
		$\text{Ne}^{9+}$	CBOI - 3CCX	5% (all X)	3
1	1s - 2p	$\text{He}^+$	CBOII - 5CCX	10% ( $1.5 < X < 3$ )	4
		$\text{C}^{5+}$	CBOI - 3CCX	9% (all X)	5
1	1s - nP (n=2-6)	$\text{Fe}^{25+}$	CBOI - DWX	2% (all X)	
3	2s - 2p	$\text{Be}^+$	CBOII - 5CCX	20% (all X)	6
		$\text{N}^{4+}$	CBOII - 5CCX	10% (all X)	7
		$\text{Ne}^{7+}$	CBII - 2CCX	2% (all X)	
3	2s - 3p	$\text{N}^{4+}$	CBII - 5CCX	f1.5 ( $X=1.5$ ), 7% ( $X \geq 3$ )	8
		$\text{Ne}^{7+}$	CBII - 5CCX	15% ( $X=1.5$ ), 5% ( $X > 2$ )	
3	2s - 3s	$\text{N}^{4+}$	CBII - 5CCX	15% ( $X=1.5$ ), 13% ( $X=3.5$ )	9
		$\text{Ne}^{7+}$	CBII - 5CCX	6% (all X)	
3	2s - 3d	$\text{N}^{4+}$	CBII - 5CCX	10% ( $X=1.4$ ), 4% ( $X=3.5$ )	
		$\text{Ne}^{7+}$	CBII - 5CCX	15% ( $X=1.4$ ), 12% ( $X=3$ )	
3	2p - 3s	$\text{N}^{4+}$	CBII - 5CCX	26% ( $X=1.7$ ), 4% ( $X=4.6$ )	
		$\text{Ne}^{7+}$	CBII - 5CCX	18% (all X)	
3	2p - 3p	$\text{N}^{4+}$	CBII - 5CCX	10% (all X)	
		$\text{Ne}^{7+}$	CBII - 5CCX	17% (all X)	

3	$2p - 3d$	$N^{4+}$	CBII	- 5CCX	12% ( $X=1.5$ ), 6% ( $X=4$ )	
		$Ne^{7+}$	CBII	- 5CCX	15% ( $X=1.5$ ), 10% ( $X=3$ )	
11	$3s - 3p$	$Mg^+$	CBOII	- 3CCX	f1.4 ( $X < 2$ ), 20% ( $X \geq 3$ )	10
		$Fe^{15+}$	CBII	- DWX, DWNX	8% (all X)	
11	$3s - 3d$	$Mg^+$	CBII	- 3CCX	14% ( $X=1$ ), 10% ( $X=2.5$ )	11
11	$3p - 3d$	$Fe^{15+}$	CBII	- DWX	10% (all X)	
19	$4s - 3d$	$Ca^+$	CBII	- 3CCX	30% (all X)	
19	$4s - 4p$	$Ca^+$	CBOII	- 3CCX	f1.7 ( $X=1$ ), 11% ( $X \geq 4$ )	12

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Table 3. Comparison of the collision strengths calculated in the CB approximation and other methods for the FS transitions at threshold.

N	Config.	Transition	Approximation	Maximum difference for $z \leq 5$	Fig.
6 ( $2p^2$ ):	$3P_0$	- $3P_1$	CBOI - ER+DW	35%	
		- $3P_2$	CBOI - ER+DW	15%	13
	$3P_1$	- $3P_2$	CBOI - ER+DW	20%	
7 ( $2p^3$ ):	$2P_{1/2}$	- $2P_{3/2}$	CBOI - ER+DW	f1.7	
8 ( $2p^4$ ):	$3P_0$	- $3P_1$	CBOI - ER+DW	20%	
		- $3P_2$	CBOI - ER+DW	16%	14
	$3P_1$	- $3P_2$	CBOI - ER+DW	10%	
9 ( $2p^5$ ):	$2P_{1/2}$	- $2P_{3/2}$	CBOI - ER+DW	25%	15
14 ( $3p^2$ ):	$3P_0$	- $3P_1$	CBOI - DWX	f2.4	f1.7 (z=5)
		- $3P_2$	CBOI - DWX	f1.7	20% (z=5)
	$3P_1$	- $3P_2$	CBOI - DWX	f2.0	30% (z=5)
15 ( $3p^3$ ):	$2P_{1/2}$	- $2P_{3/2}$	CBOI - CCX, DWX	f2.0	f1.9 (z=5), 3% (z=11)
16 ( $3p^4$ ):	$3P_0$	- $3P_2$	CBI - DWNX	f2.0	30% (z=5)
17 ( $3p^5$ ):	$2P_{1/2}$	- $2P_{3/2}$	CBOI - DWX	f2.0	25% (z=5)
					19

Table 4. Comparison of the CB approximation and the other methods for the ions with N = 5 and 13.

N	Transition	Ion	Approximation	Difference	Fig.
5	$2s^2 2p \ 2_p - 2s2p^2 \ 2_D$	$C^+$	$CBO_{II} - 5CCX$	$f1.5(X=1), 30\%(X=8)$	20
	$- \ 4_p$	$C^+$	$CBO_{II} - 5CCX$	$7\%(X=1), 34\%(X=3.5)$	
	$- \ 2_p$	$C^+$	$CBO_{II} - 5CCX$	$f2.0(X=1), 23\%(X>3)$	
	$- \ 2_s$	$C^+$	$CBO_{II} - 5CCX$	$f2.0(X=1), 25\%(X \geq 3)$	21
5	$2s^2 2p \ 2_{P_{1/2}} - 2s^2 2p \ 2_{P_{3/2}}$	$C^+ - A^{13+}$	$CBO_{II} - ER+DW, CCX$	$8\%(X=1, z=1), 1\%(X=1, z \geq 2)$	22
13	$3s^2 3p \ 2_{P_{1/2}} - 3s^2 3p \ 2_{P_{3/2}}$	$Si^+ - Ni^{15+}$	$CBO_{II} - DWX$	$f1.9(X=1, z=2), 32\%(X=1, z=13)$	23
13	$3s^2 3p \ 2_p - 3s3p^2 \ 2_s$	$[2_D \atop 2_P \atop - 3s^2 3d \ 2_D]$	$Fe^{13+}$	$CBI - CCNX$	10\%(X=1)
11	$3s^2 3p \ 2_{P_J} - 3s3p^2 \ 2_{S_J}$	$[2_{D_J} \atop 2_{P_J} \atop - 3s^2 3d \ 2_{D_J}]$	$Fe^{13+}$	$CBI - CCNX$	8\%(X=1)

Table 5. Comparison of the CB approximation and the other methods for the ions with  $N = 2$ , 4 and 12.

N	Transition	Ion	Approximation	Difference	Fig.
2	$1s^2 \ 1s - 1s2s \ 1s$	$Li^+$	CBOI - DWX	f2.6 (X=1), 10% (X=4)	24
		$C^{4+}$	CBOI - 5CCX	30% (X=1), 6% (X ≥ 3)	25
		$O^{6+}$	CBI - DWX	f2.4 (X=1), 20% (X=3)	
2	$1s^2 \ 1s - 1s2s \ 3s$	$Li^+$	CBOI - DWX	f300 (X=1), f2 (X=4)	26
		$C^{4+}$	CBOI - 5CCX	f2.2 (X=1), 25% (X=4)	
		$O^{6+}$	CBOI - CCX	35% (X=1), 8% (X=2)	27
2	$1s^2 \ 1s - 1s2p \ 3p$	$C^{4+}$	CBOI - 5CCX	25% (X=1), 33% (X=4)	
2	$1s2s \ 3s - 1s2s \ 1s$	$C^{4+}$	CBOI - 5CCX	35% (X=1), 30% (X=8)	28
		$C^{4+}$	CBOI - 5CCX	f1.8 (X=1), f2 (X=4)	
2	$1s^2 \ 1s - 1s2p \ 1p$	$C^{4+}$	CBOI - 5CCX	15% (all X)	
2	$1s2s \ 1s - 1s2p \ 1p$	$C^{4+}$	CBOI - DWX	8% (all X)	30
		$O^{6+}$	CBI - 5CCX	5% (all X)	
2	$1s2s \ 3s - 1s2p \ 3p$	$C^{4+}$	CBOI - DWX	6% (X=1), 1% (X ≥ 2)	
		$O^{6+}$	CBI - 5CCX	10% (all X)	31

4	$2s^2 1s$	-	$2s2p\ 3p$	$C^{2+}$	CBOII - R-mat	24% ( $X=1$ ) , 23% ( $X=5.5$ )	32
	-	$2s2p\ 1p$	$C^{2+}$	CBI - 5CCX	f2 ( $X=1$ ) , 32% ( $X \geq 3$ )	33	
	$O^{4+}$		$O^{4+}$	CBI - DWX	f1.4 ( $X=1$ ) , 30% ( $X \geq 3$ )	34	
	$Ne^{6+}$		$Ne^{6+}$	CBI - DWX	30% ( $X=1$ ) , 25% ( $X \geq 3$ )		
4	$2s2p\ 3p_0$	-	$2s2p\ 3p_2$	$B^+ - Ca^{16+}$	CBI - DWNX	f2 ( $X=1, z=1$ ) , 15% ( $X=1, z \geq 2$ )	
12	$3s3p\ 3p_0$	-	$3s3p\ 3p_2$	$Al^+ - Ni^{16+}$	CBI - DWNX	20% ( $X=1, all\ X$ )	
12	$3s^2 1s$	-	$3s3p\ 3p$	$Fe^{14+}$	CBI - DWX	5.4% ( $X=1.4$ )	
	-	$1p$		$Fe^{14+}$	CBI - DWX	1% ( $X=1.4$ )	
	-	$3s3d\ 1D$		$Fe^{14+}$	CBI - DWX	f1.7 ( $X=1$ )	
12	$3s^2 1s_0$	-	$3s3p\ 3p_0$	$Fe^{14+}$	CBI - DWX	7.5% ( $X=1.4$ )	
	-	$3p_1$		$Fe^{14+}$	CBI - DWX	f1.7 ( $X=1.4$ )	
	-	$3p_2$		$Fe^{14+}$	CBI - DWX	2.7% ( $X=1.3$ )	
	-	$1p_1$		$Fe^{14+}$	CBI - DWX	1.5% ( $X=1$ )	

**Figure Captions**

**Fig. 1. to Fig. 12.** Cross sections for the electron impact excitation as a function of  $X$ .

**Fig. 13. to Fig. 19.** Collision strengths for the electron impact excitation as a function of  $z$  at threshold.

**Fig. 20. and Fig. 21.** Cross sections for the electron impact excitation as a function of  $X$ .

**Fig. 22. and Fig. 23.** Collision strengths for the electron impact excitation as a function of  $z$  at threshold.

**Fig. 24. to Fig. 32.** Cross sections for the electron impact excitation as a function of  $X$ .

**Fig. 33. and Fig. 34.** Cross sections for the electron impact excitation as a function of  $X$ . The notation  $m \times n$  in the approximation implies  $m$  lower state and  $n$  upper state configurations.

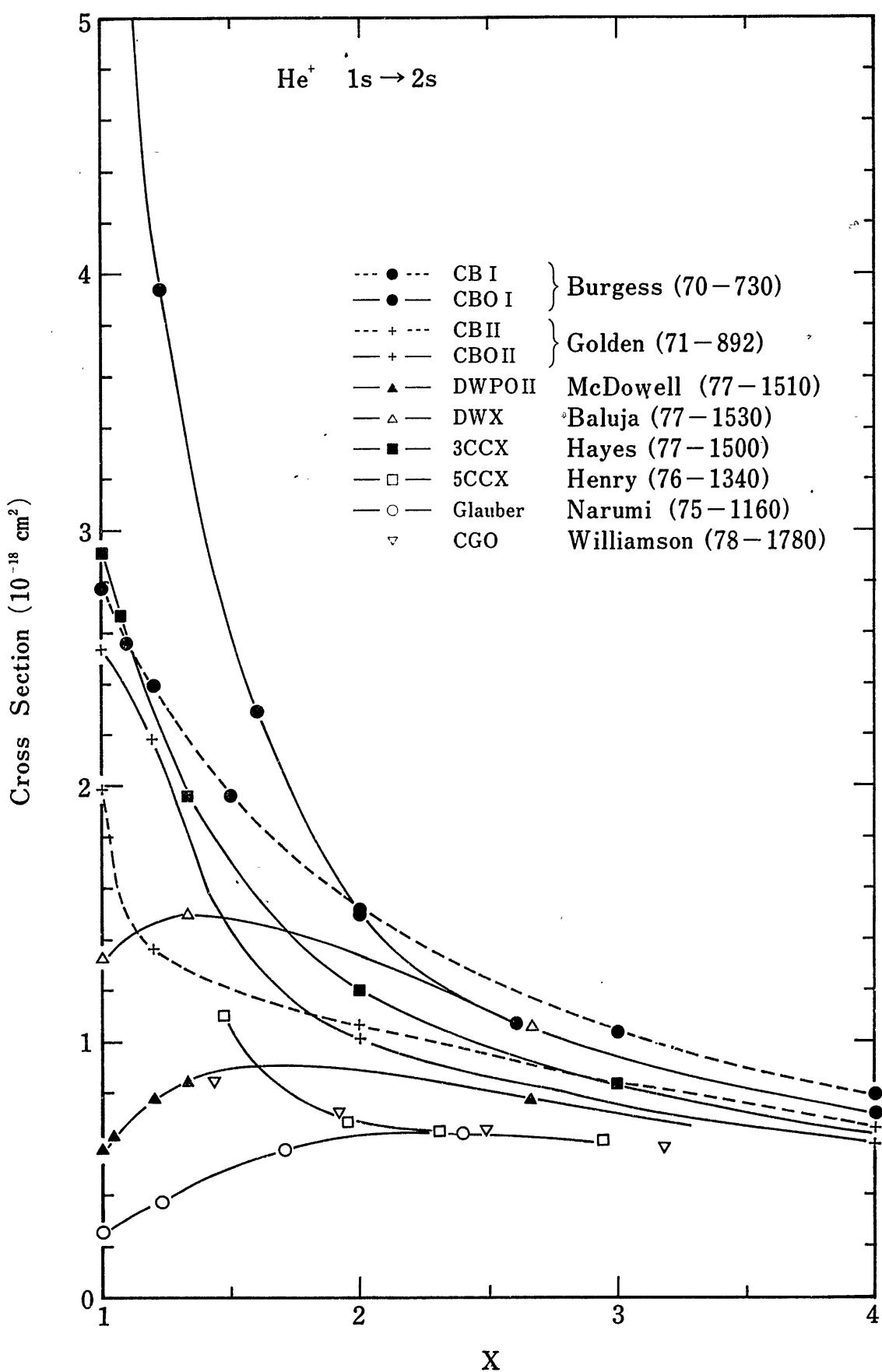


Fig 1

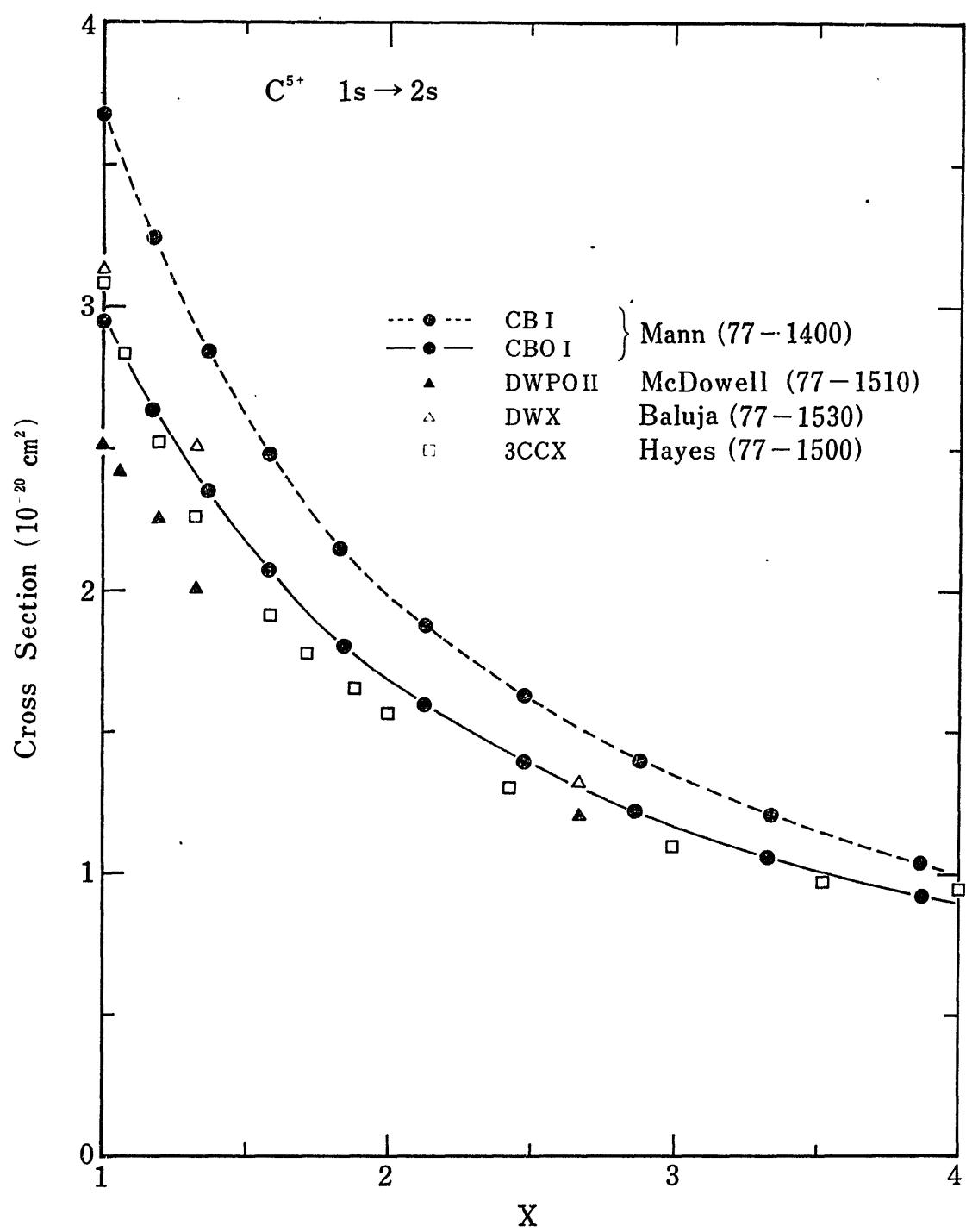


Fig 2

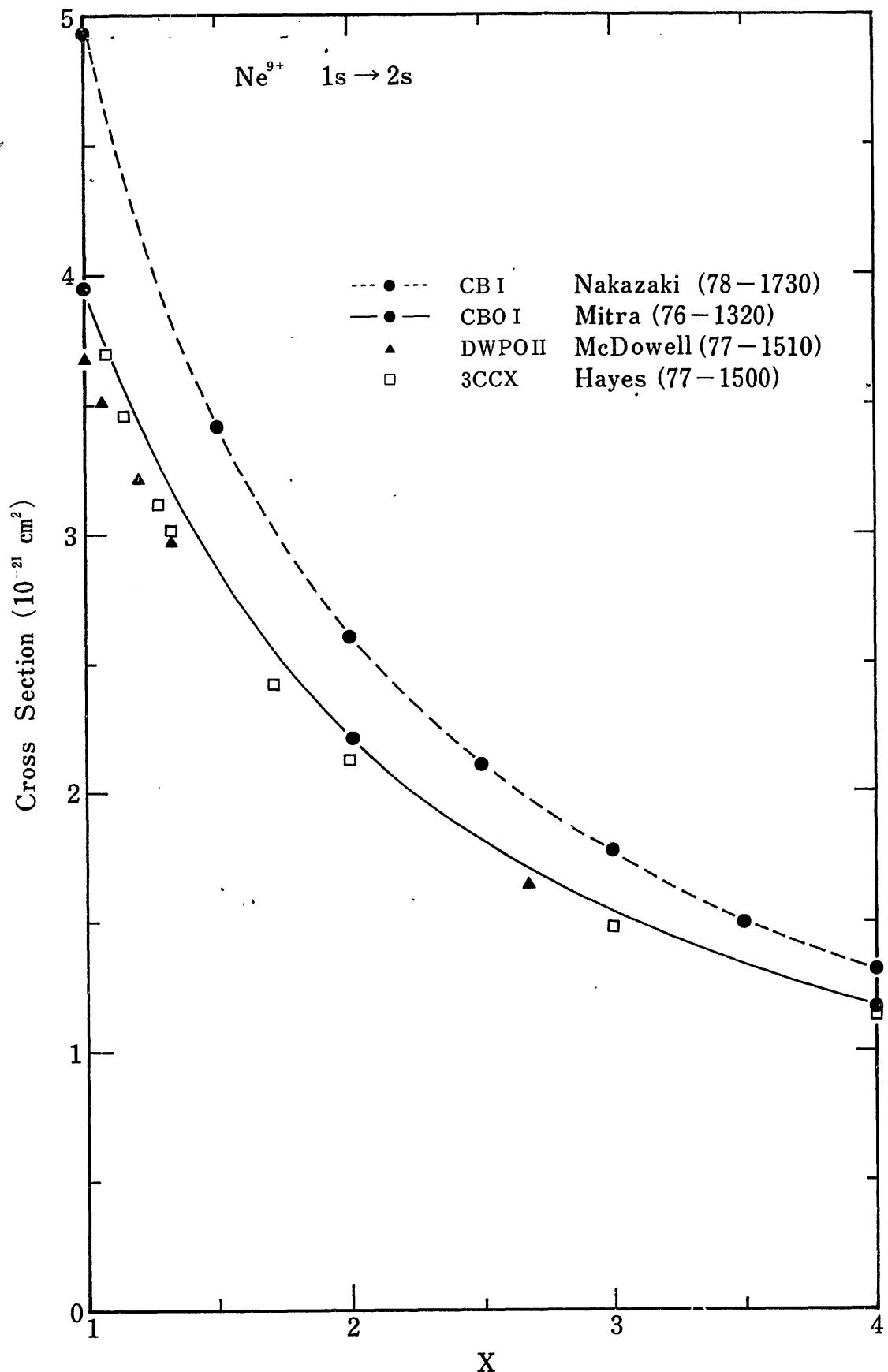


Fig 3

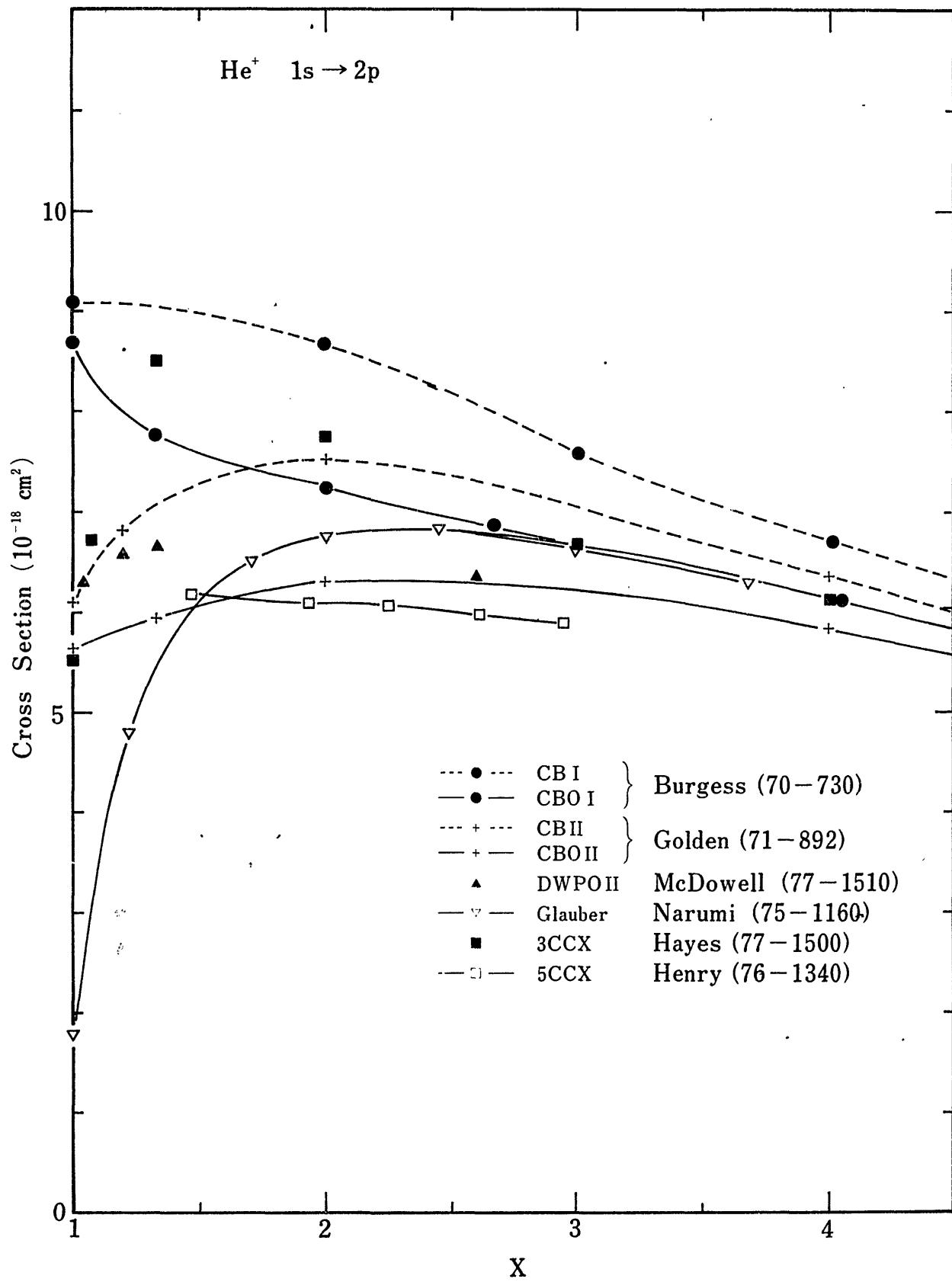


Fig 4

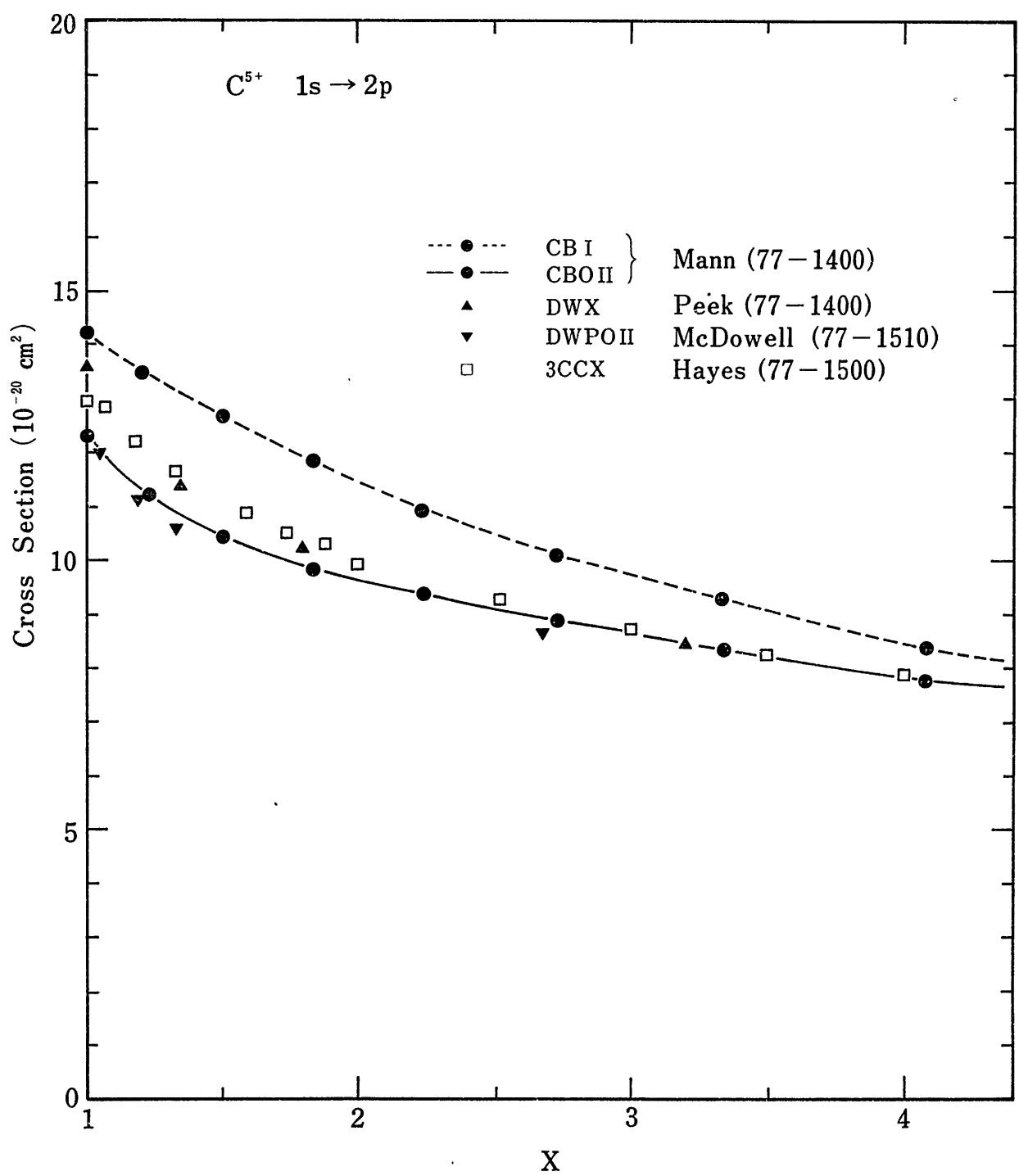


Fig 5

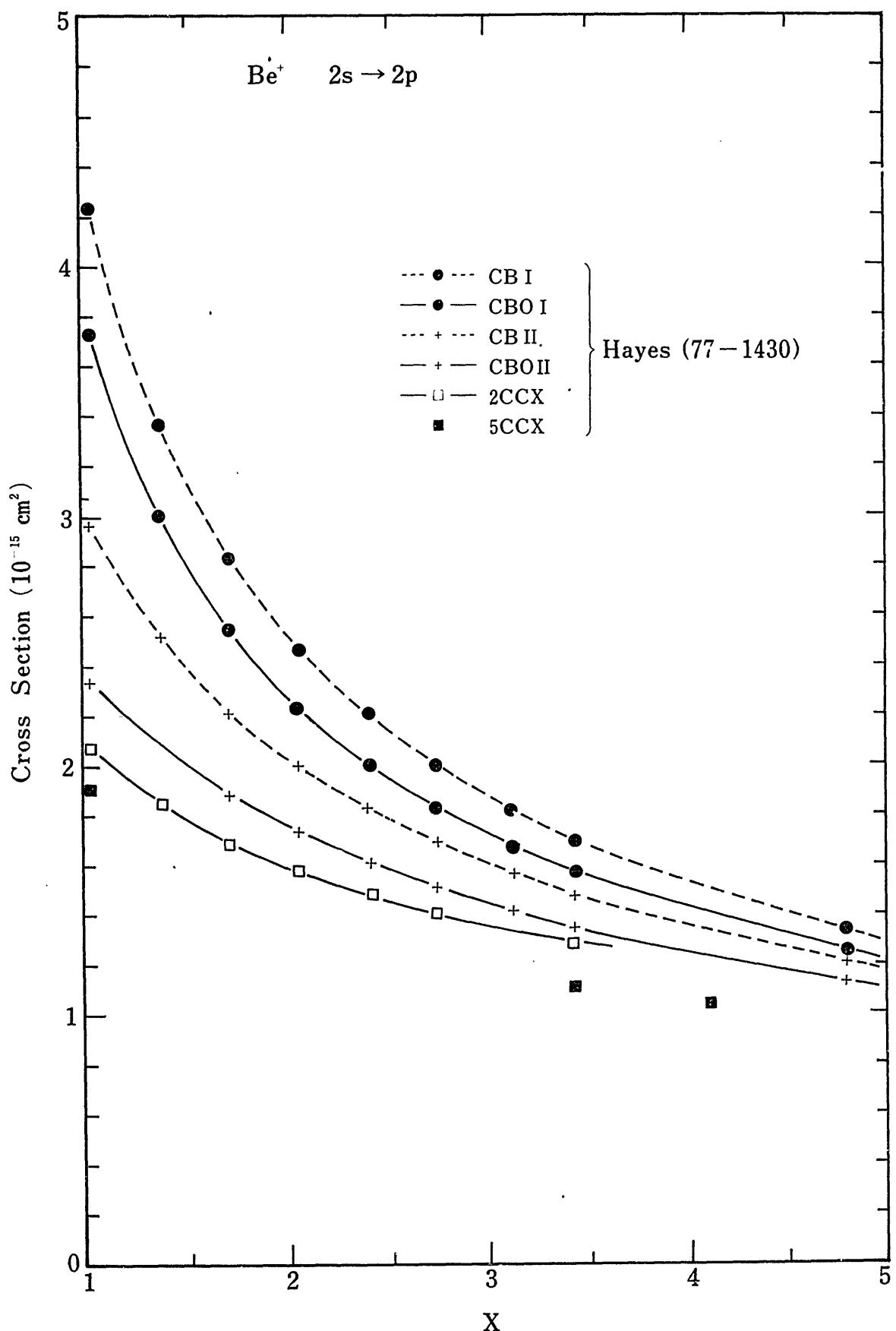


Fig 6

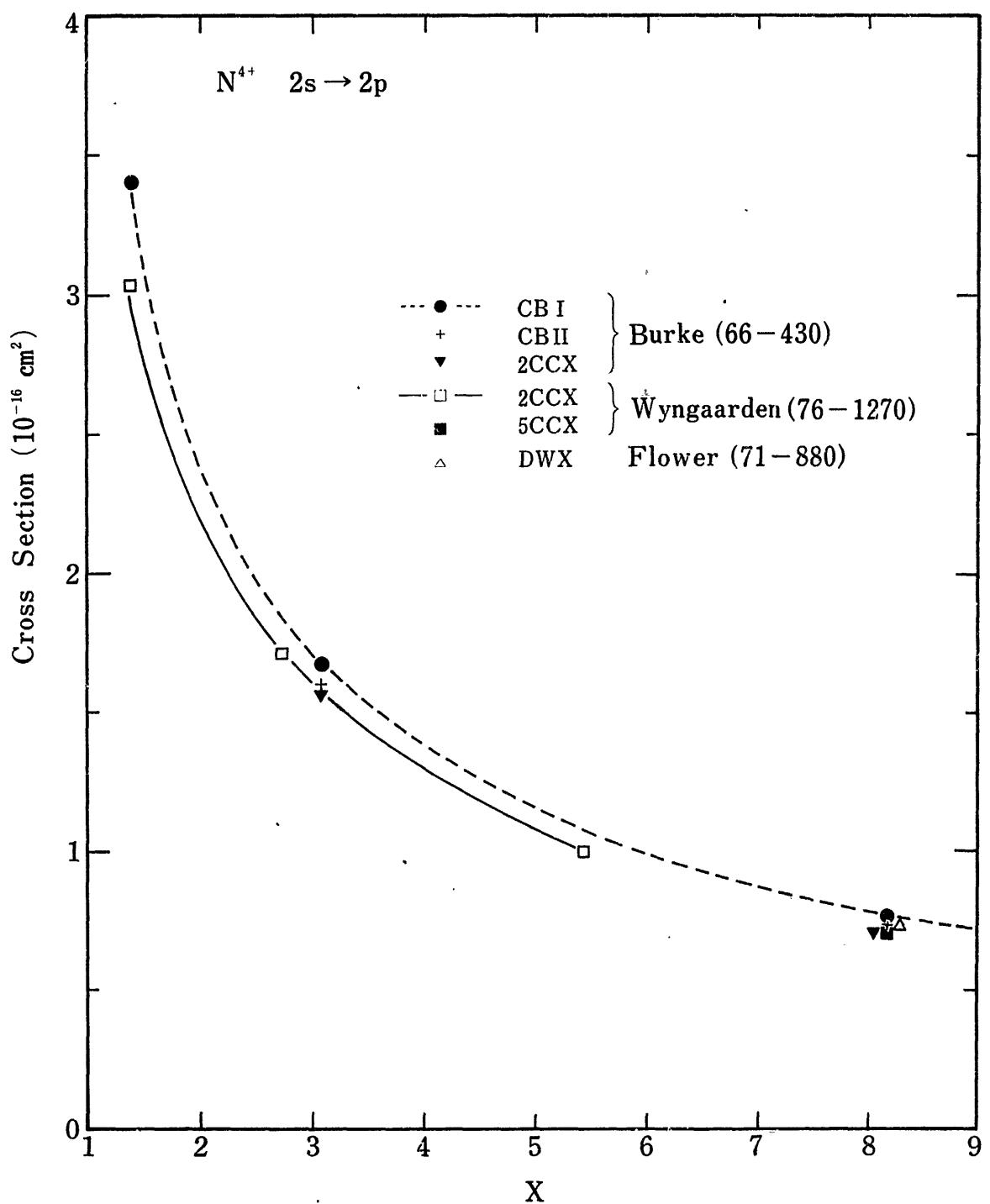


Fig 7

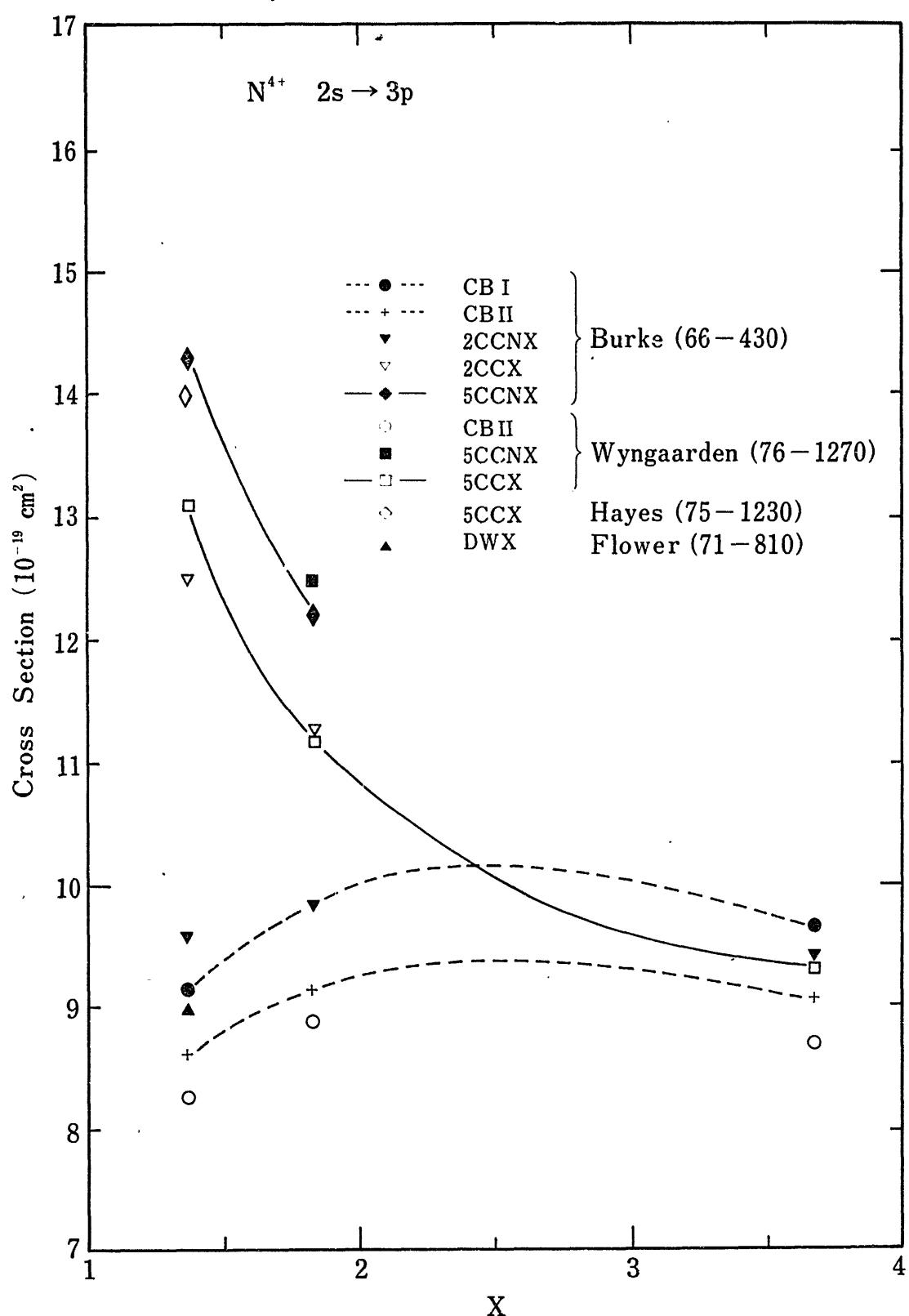


Fig 8

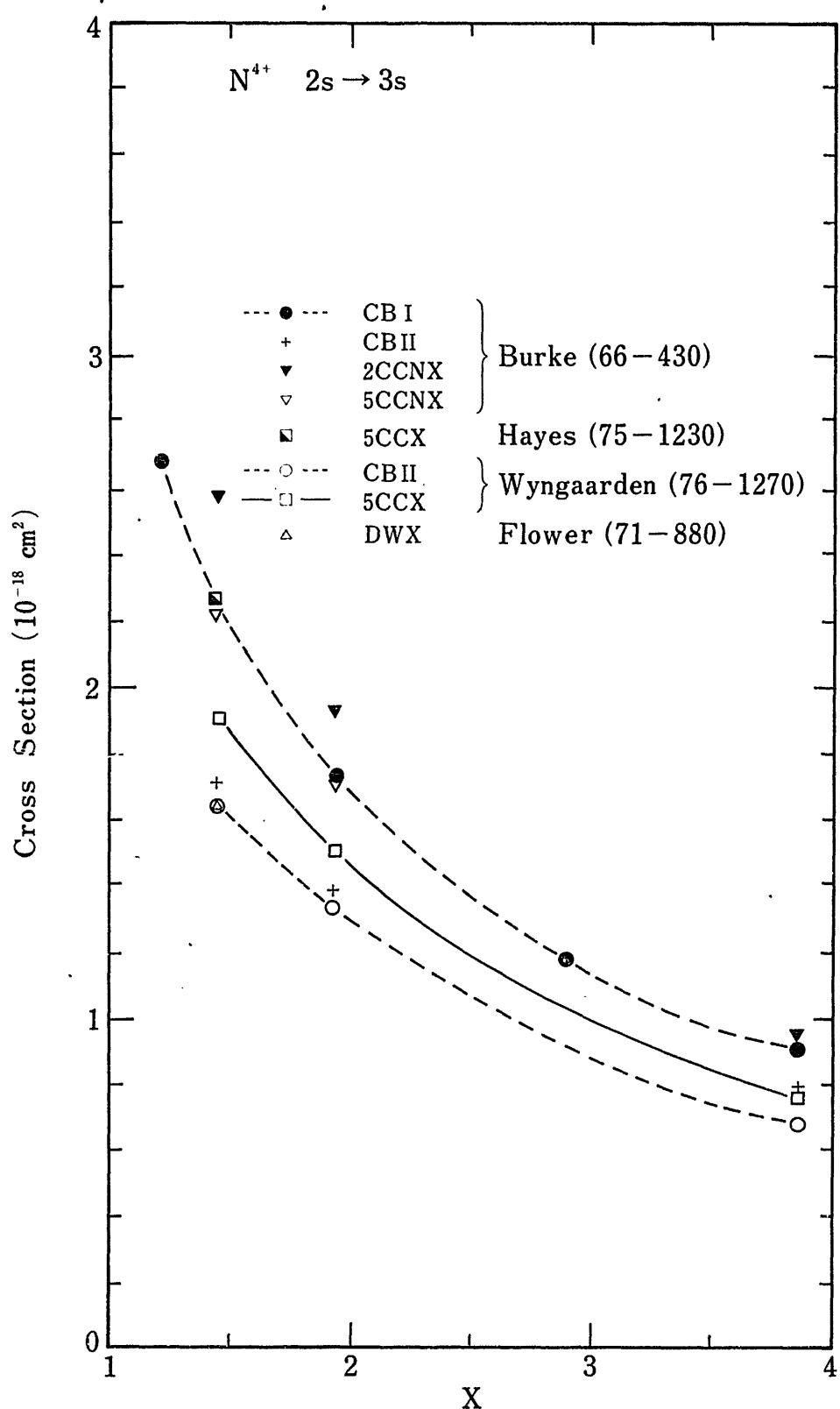


Fig 9

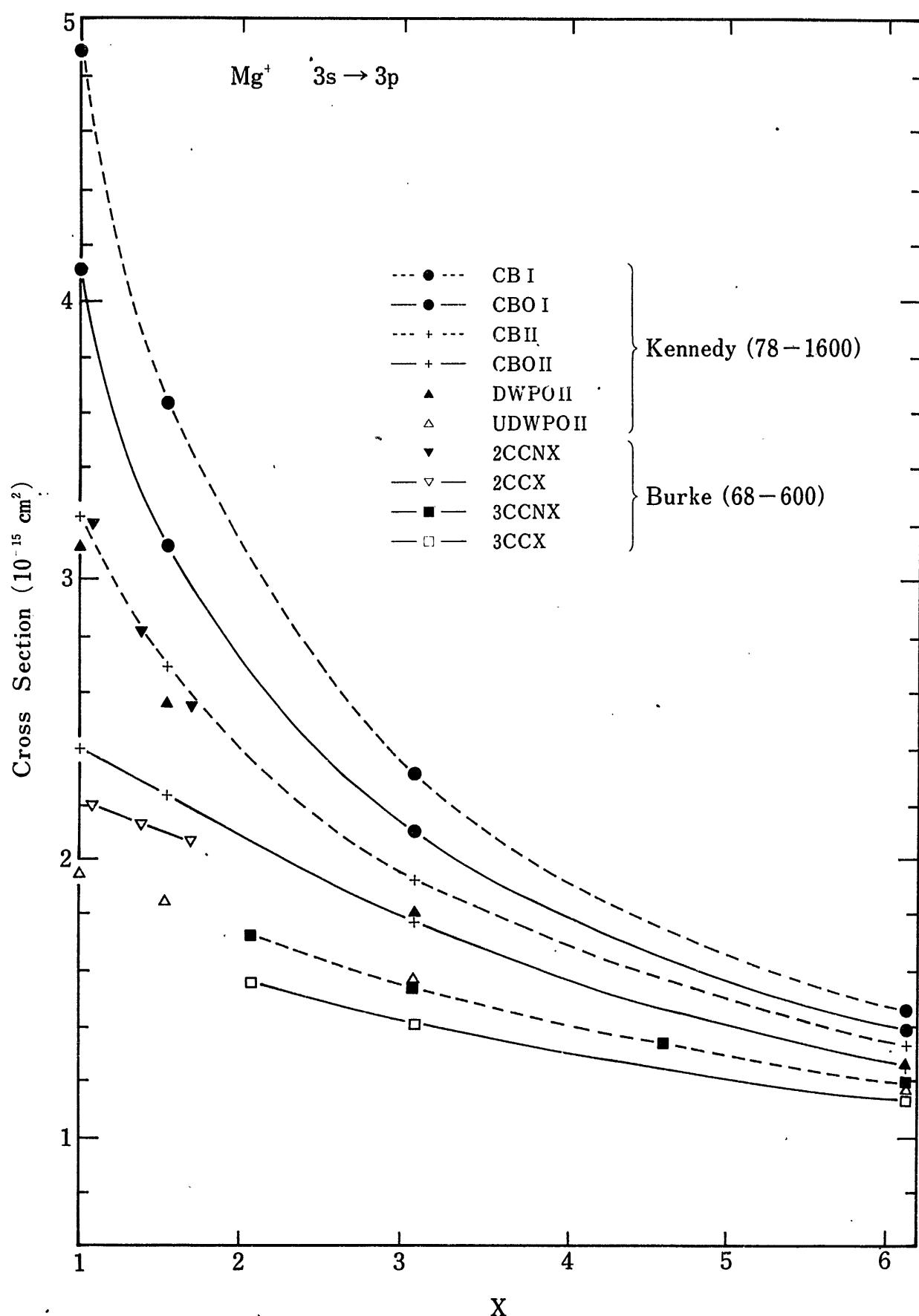


Fig 10

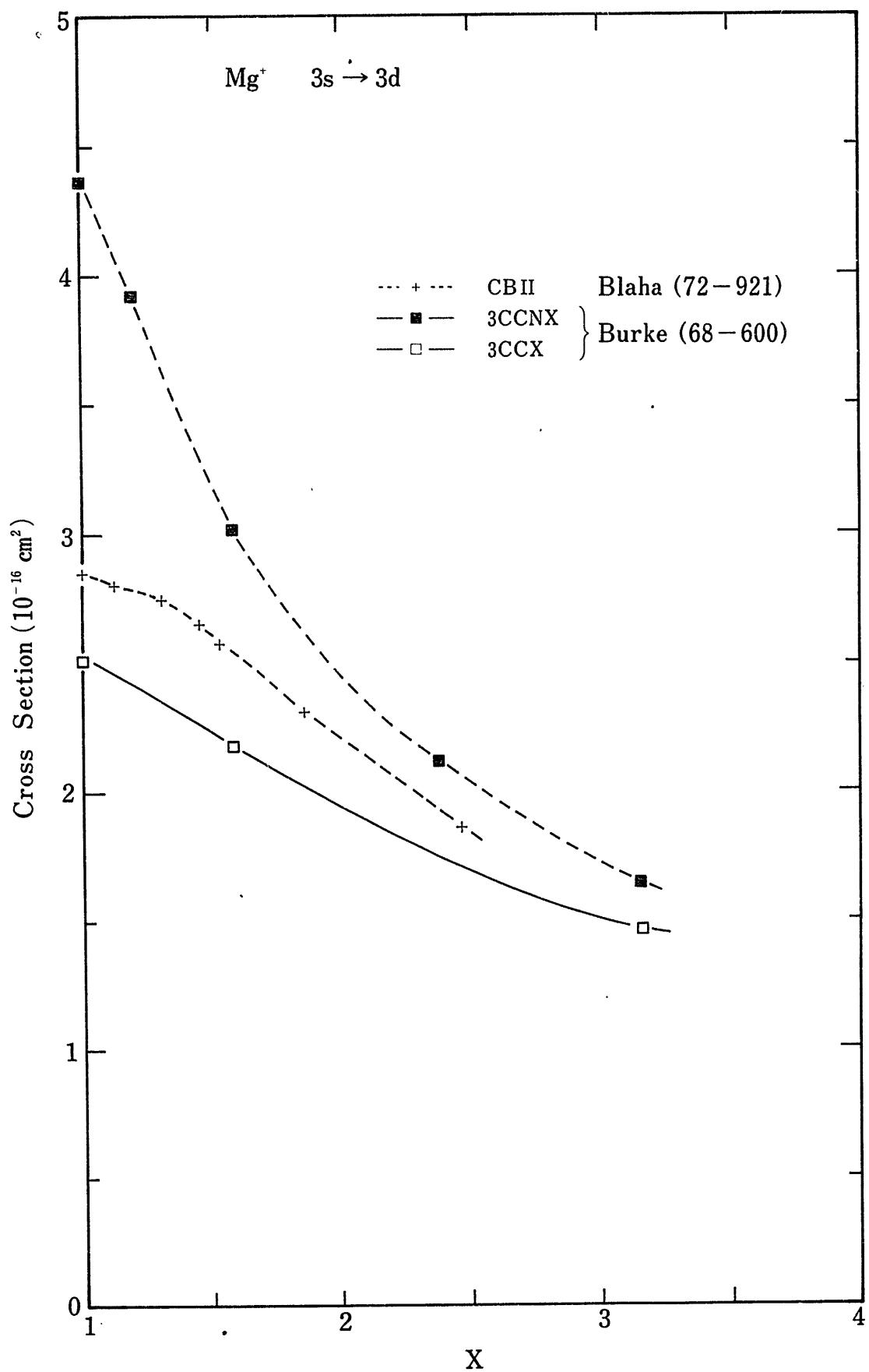


Fig 11

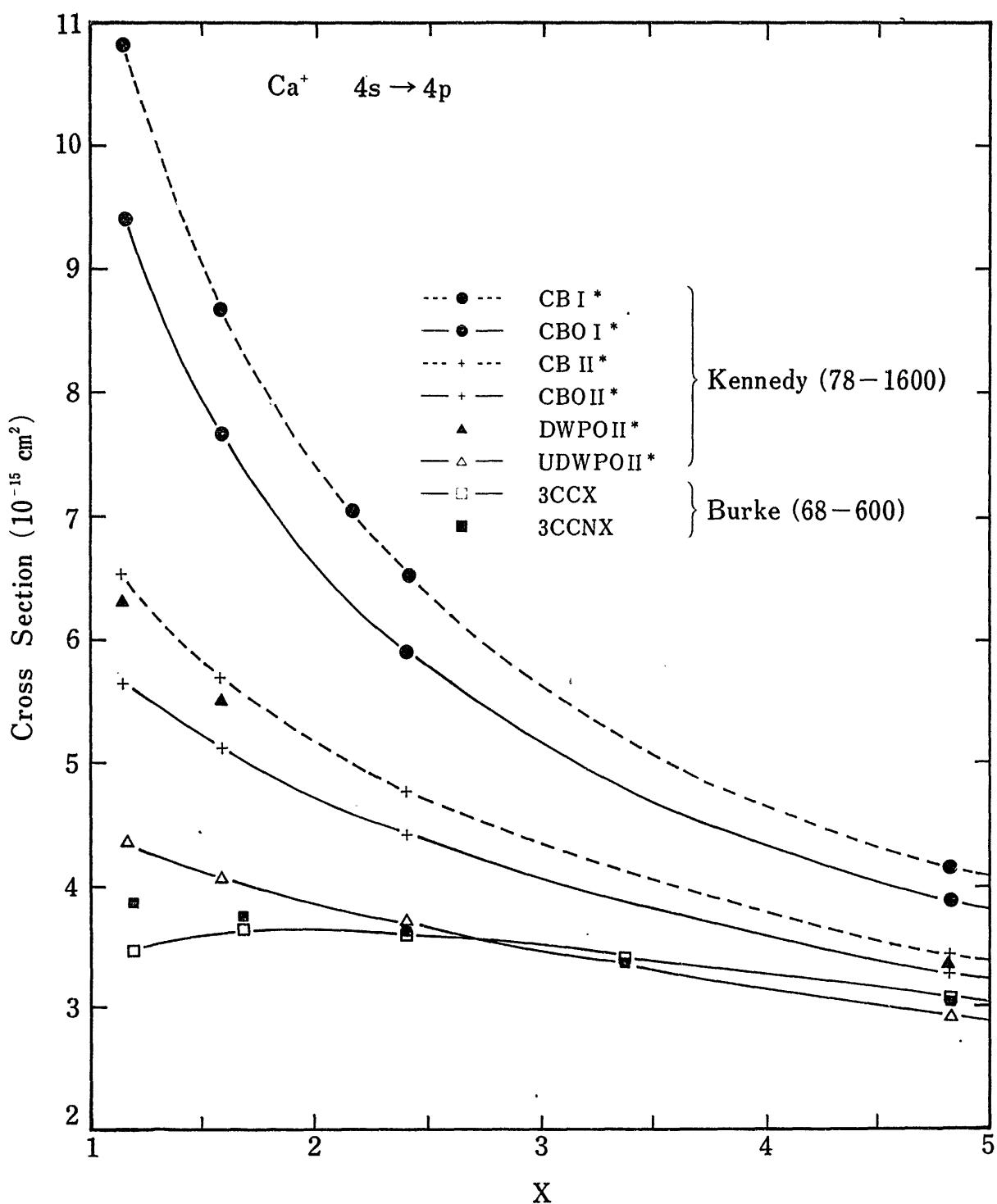


Fig 12

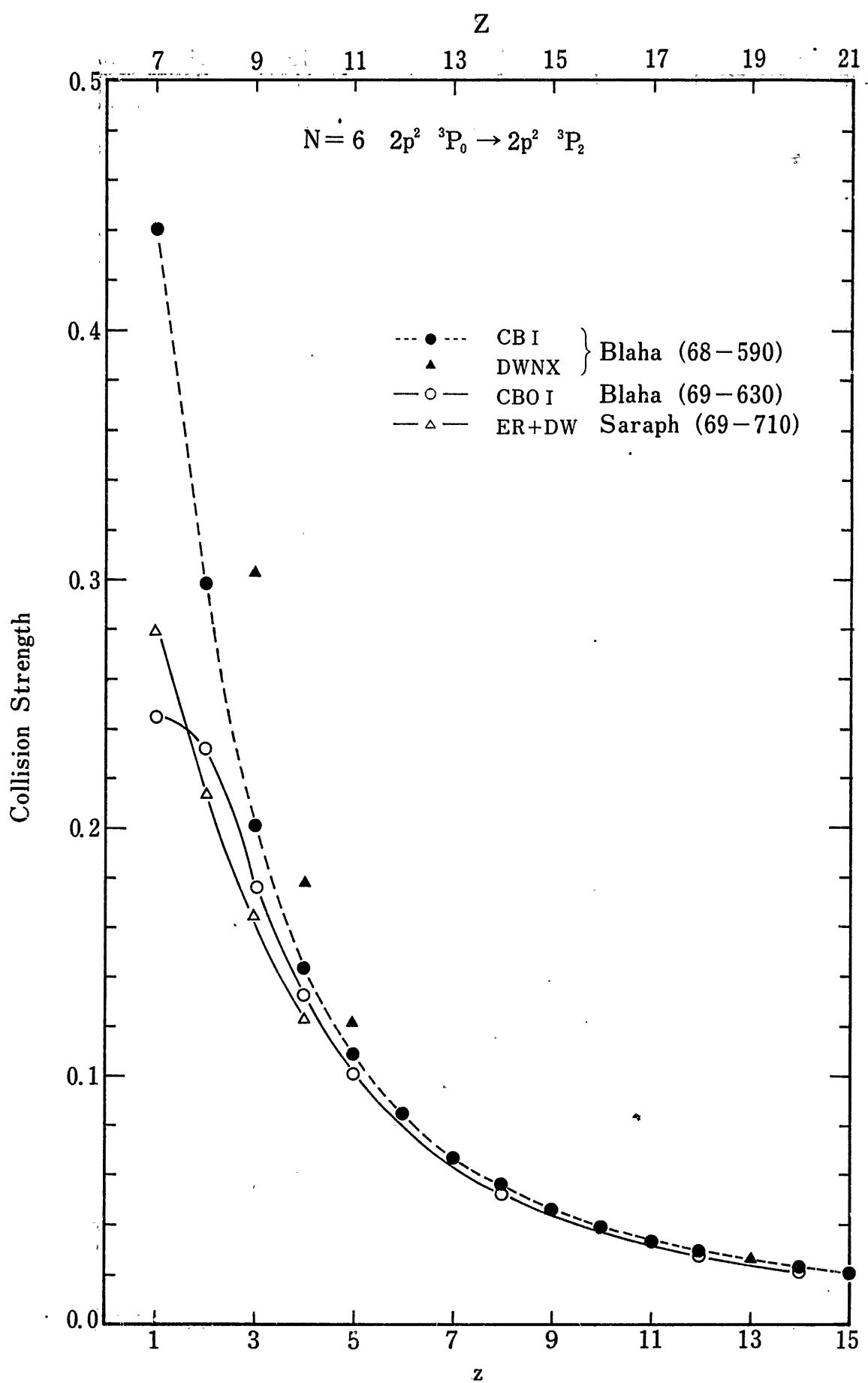


Fig 13

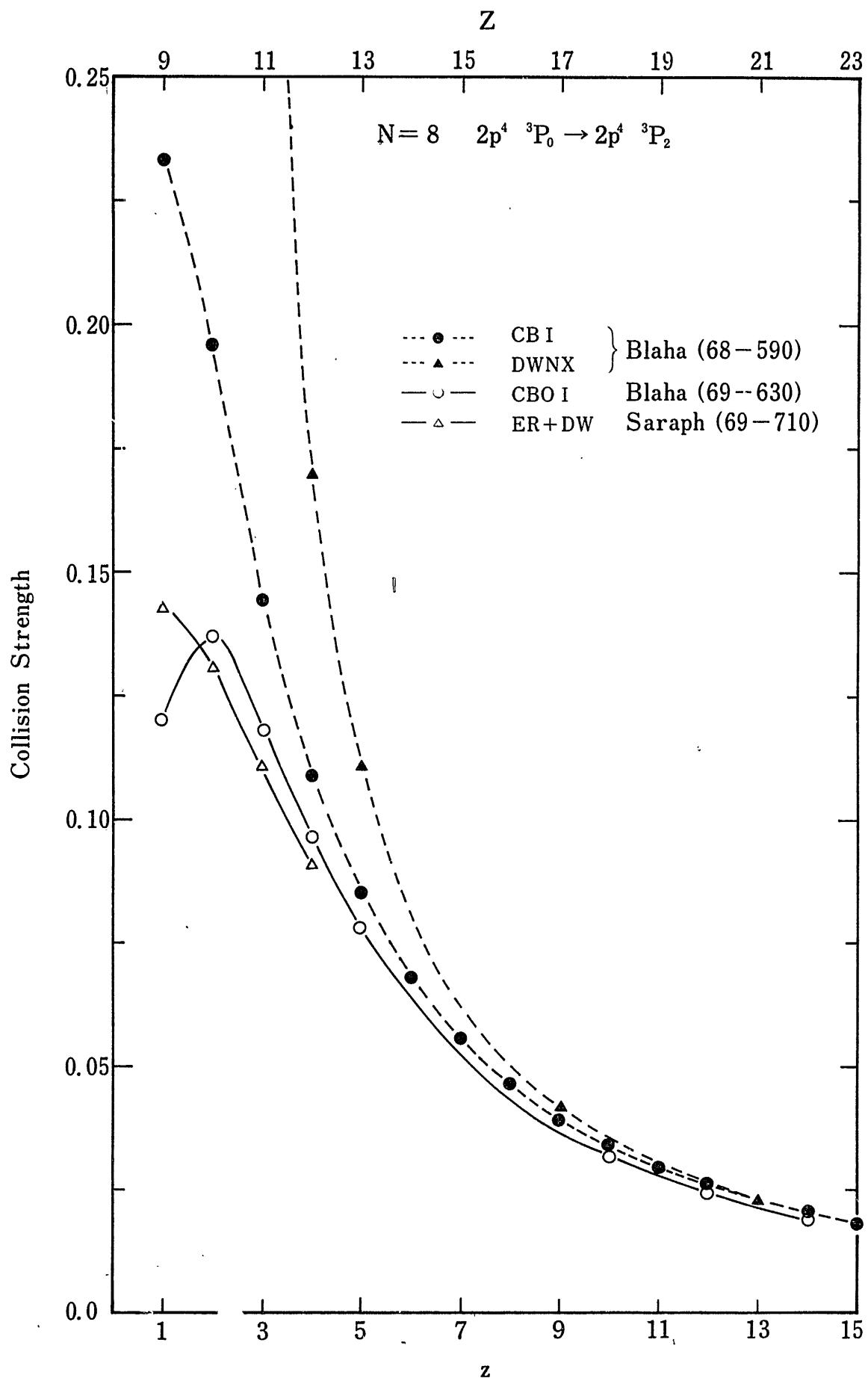


Fig 14

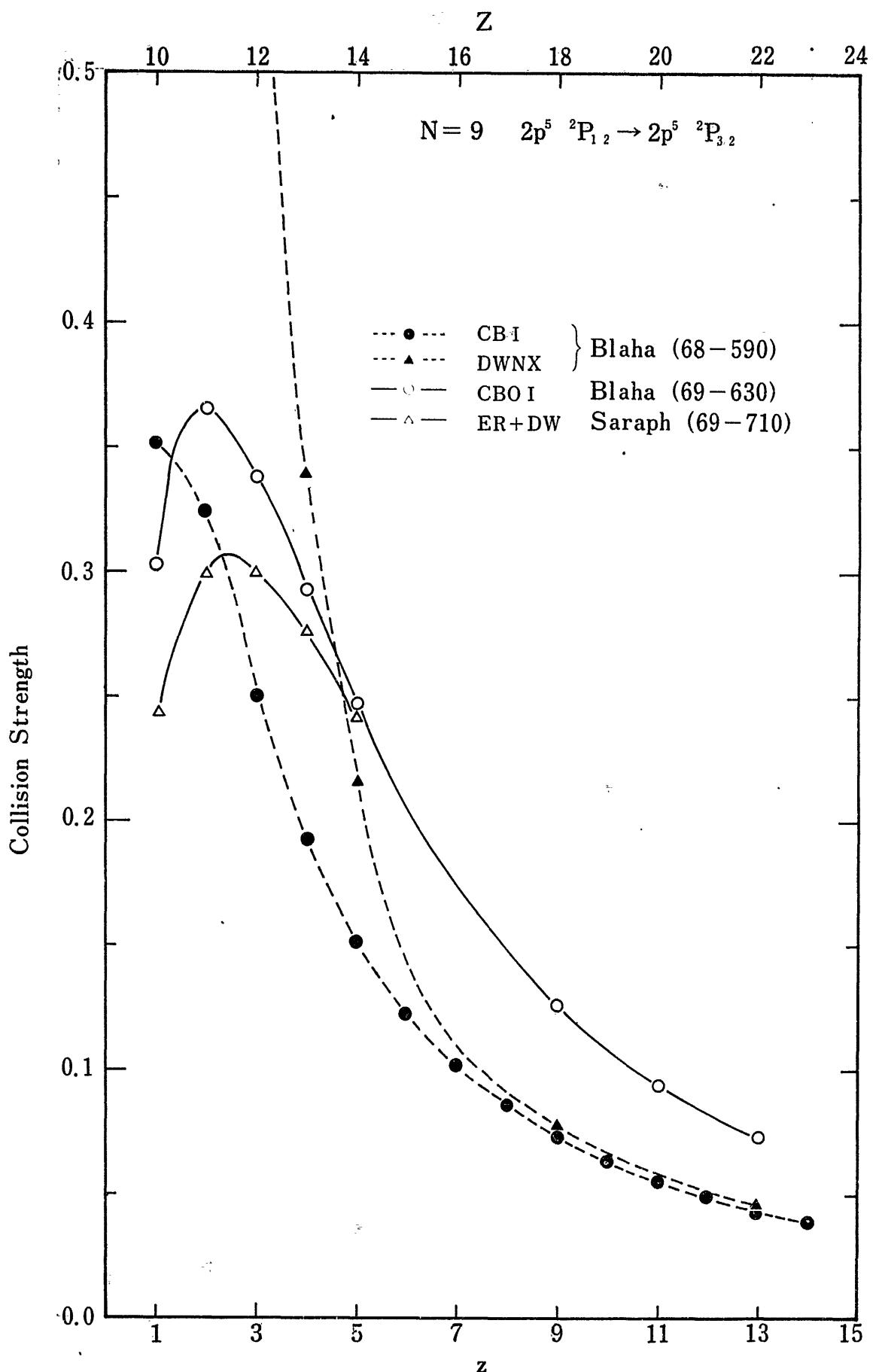


Fig 15

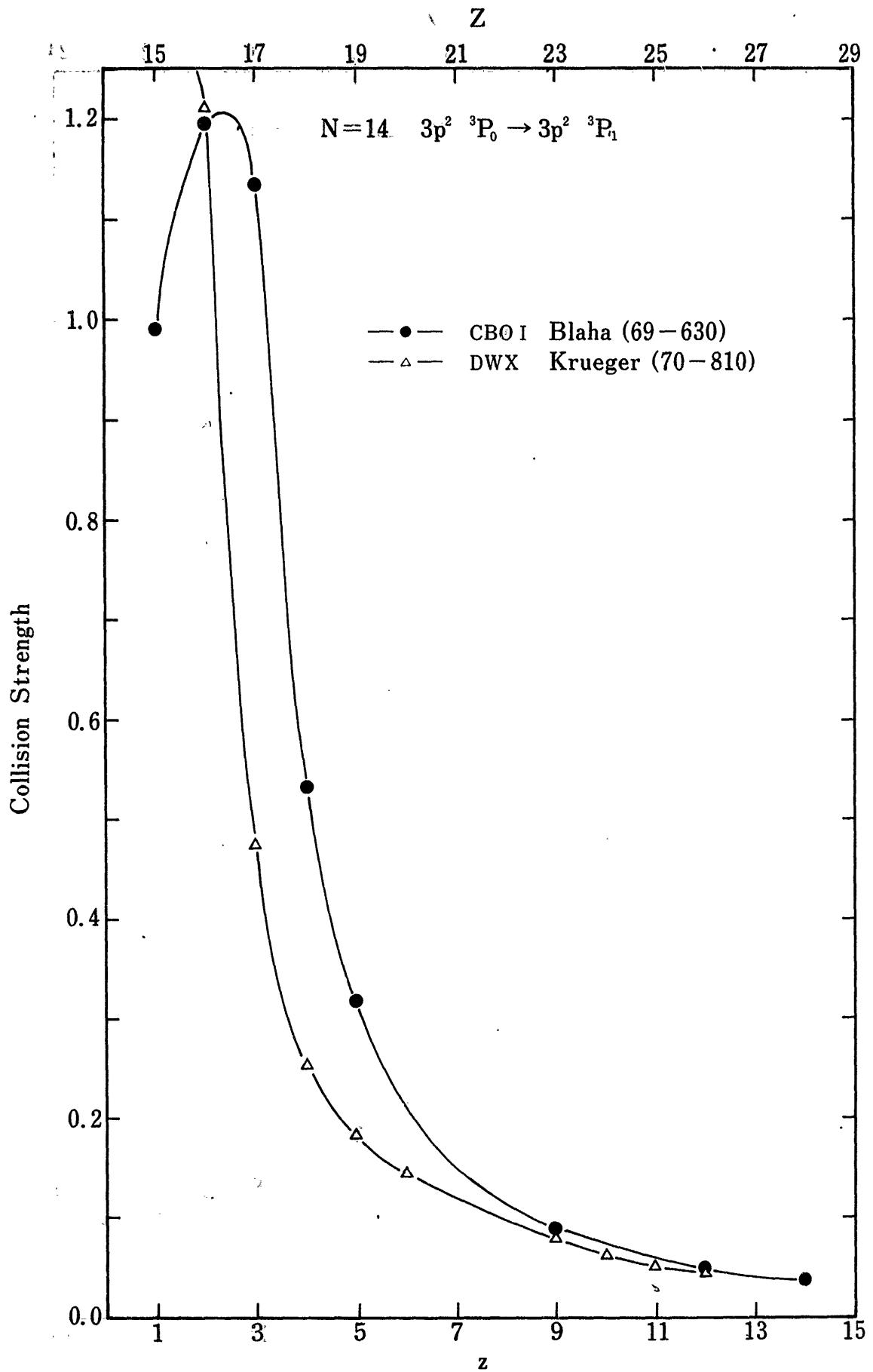


Fig 16

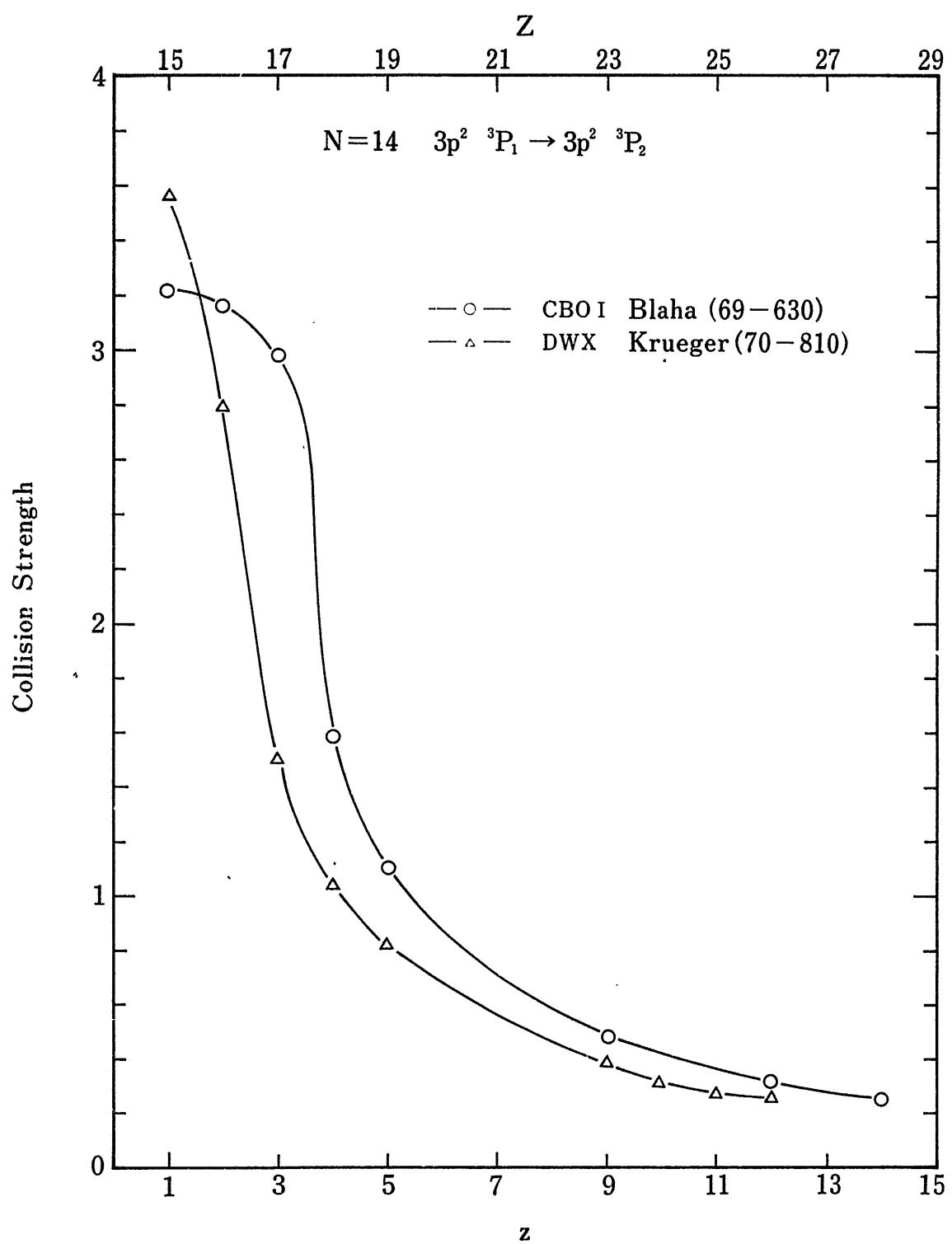


Fig 17

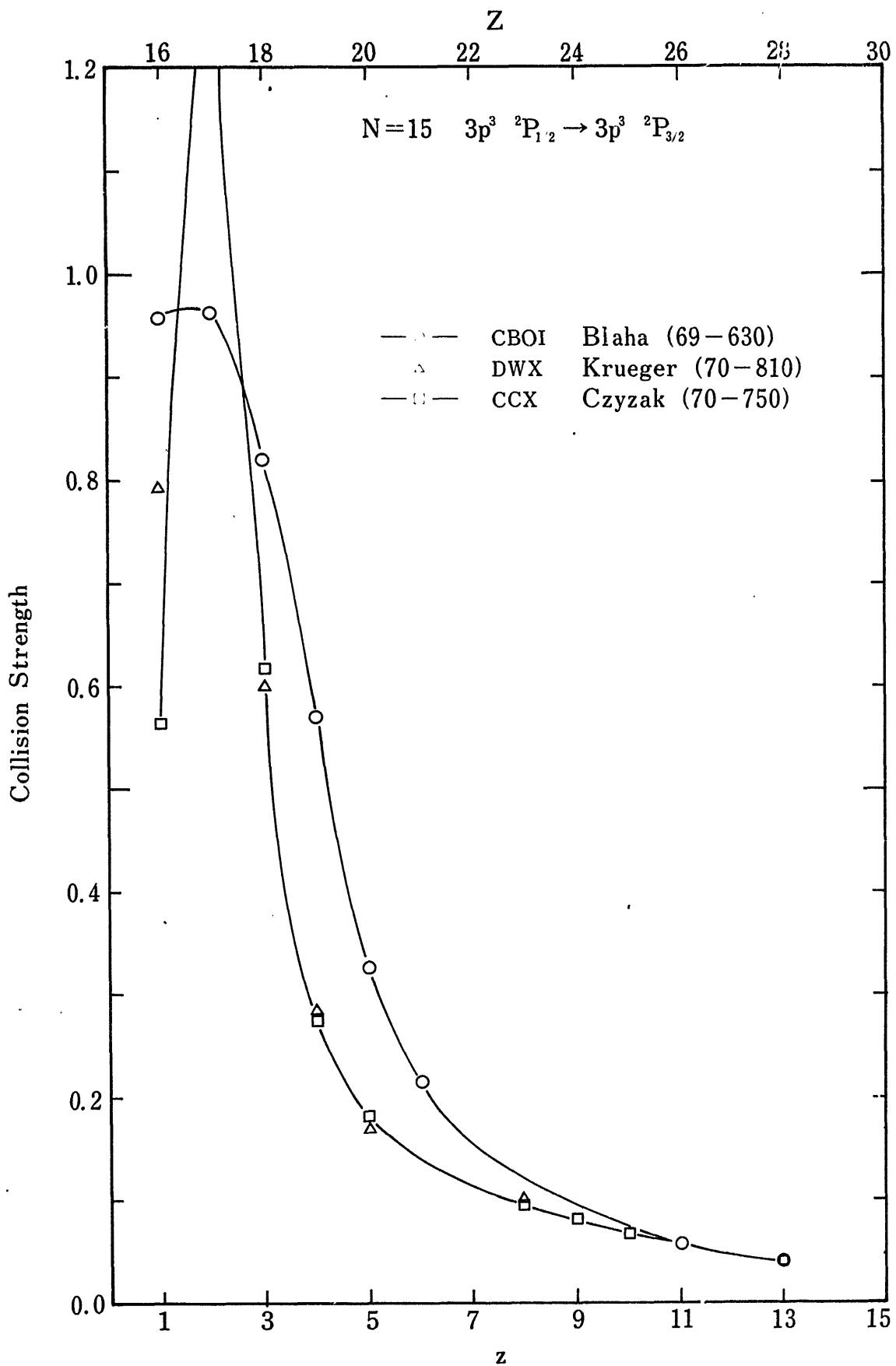


Fig 18

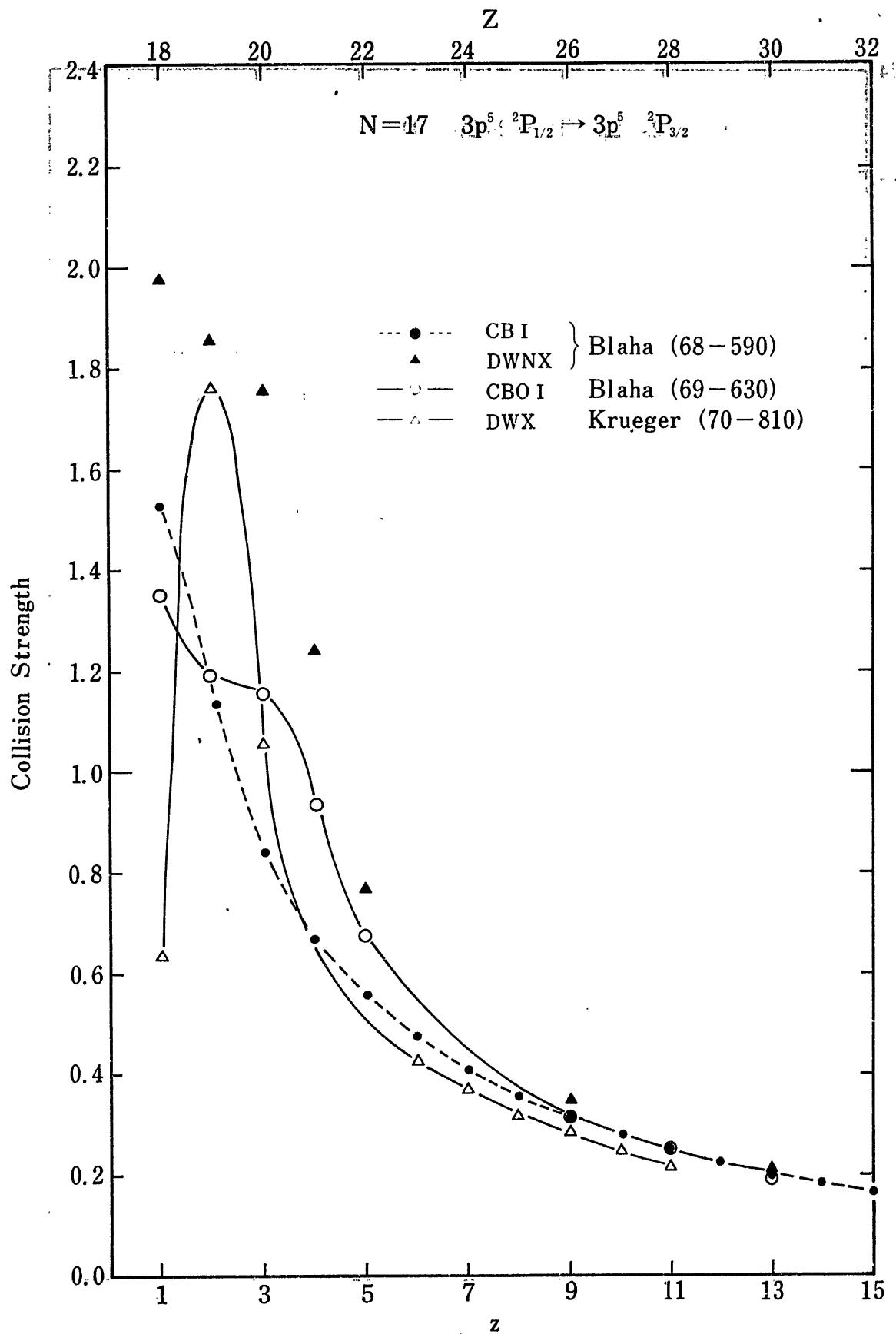


Fig 19

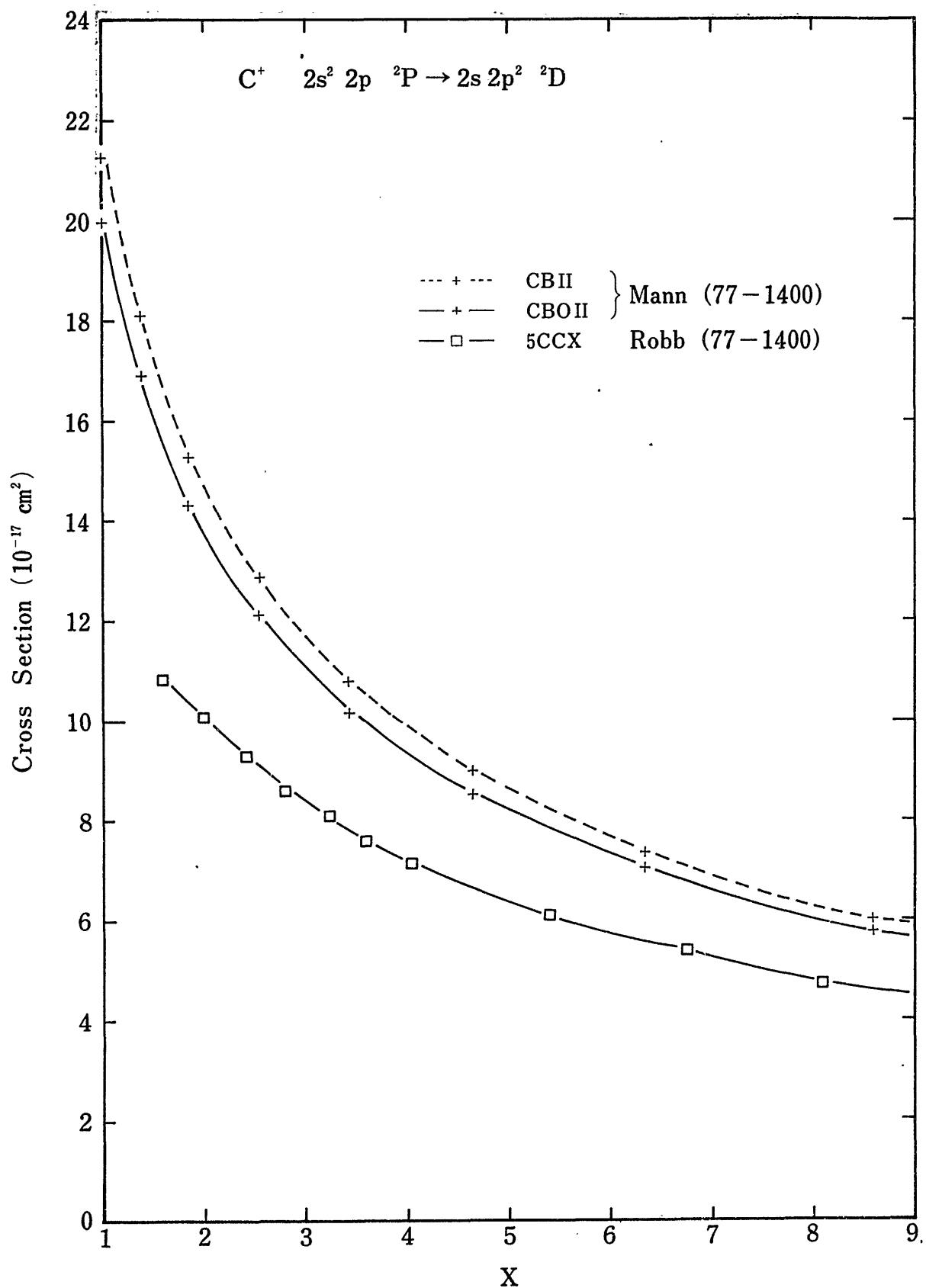


Fig 20

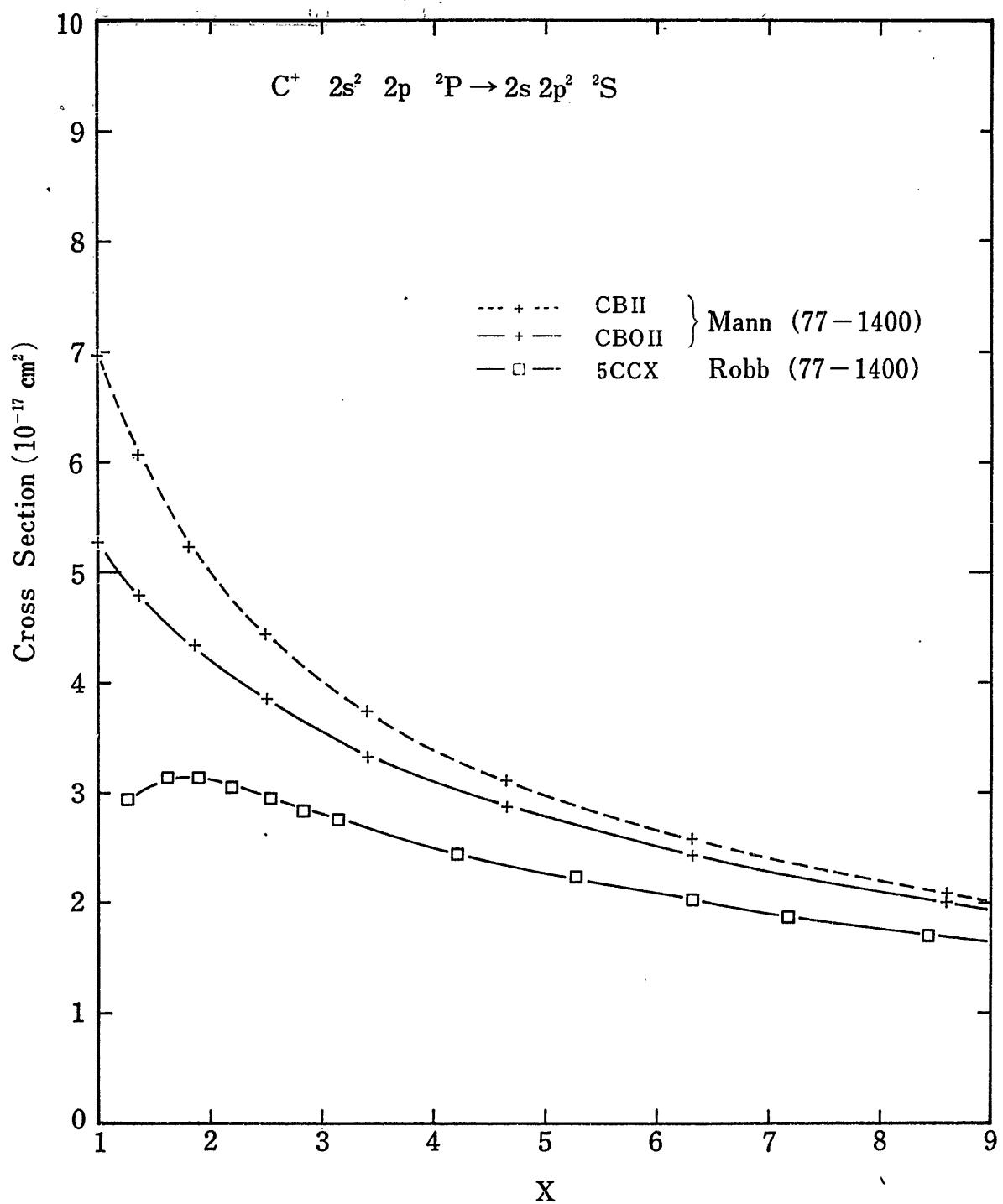


Fig 21

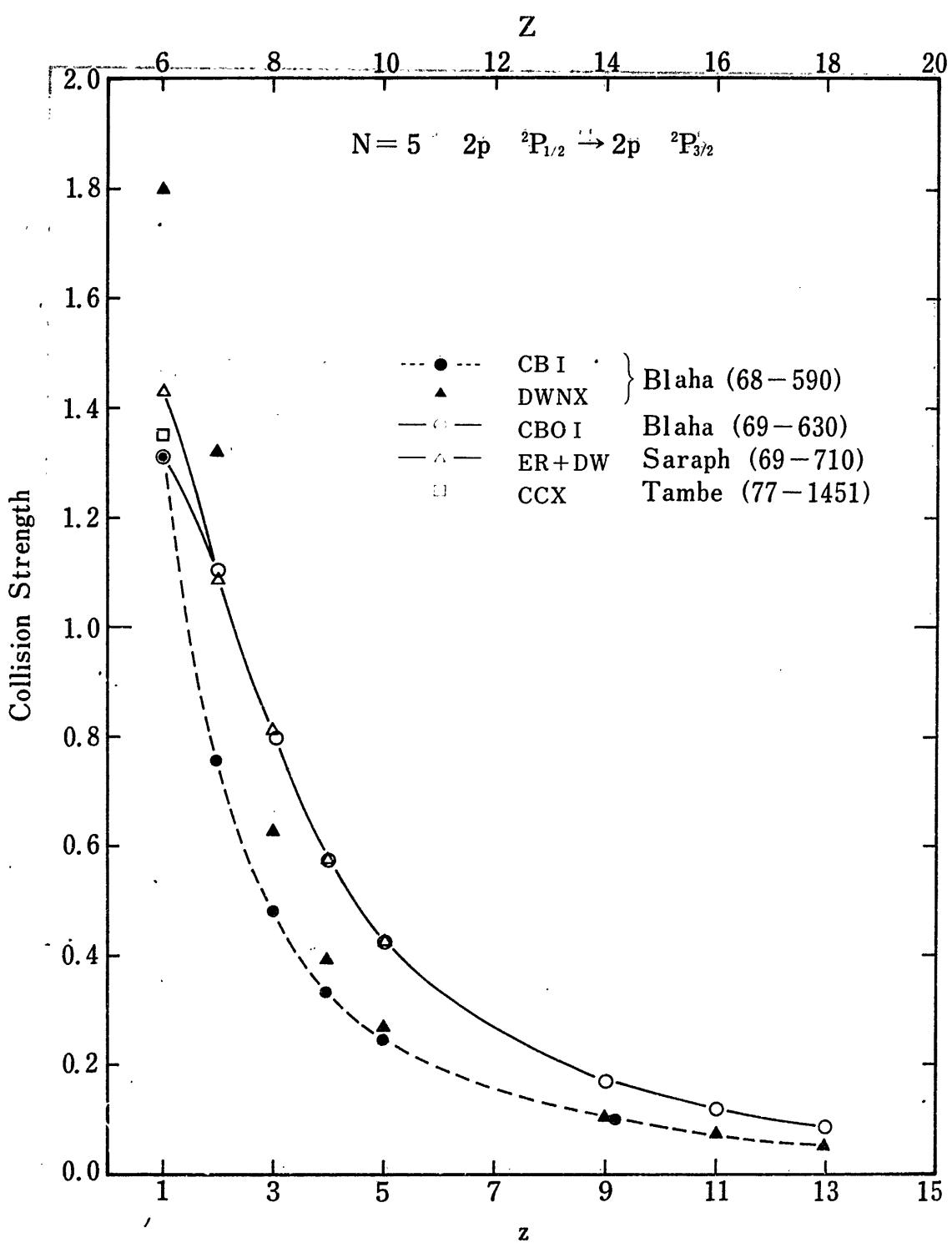


Fig 22

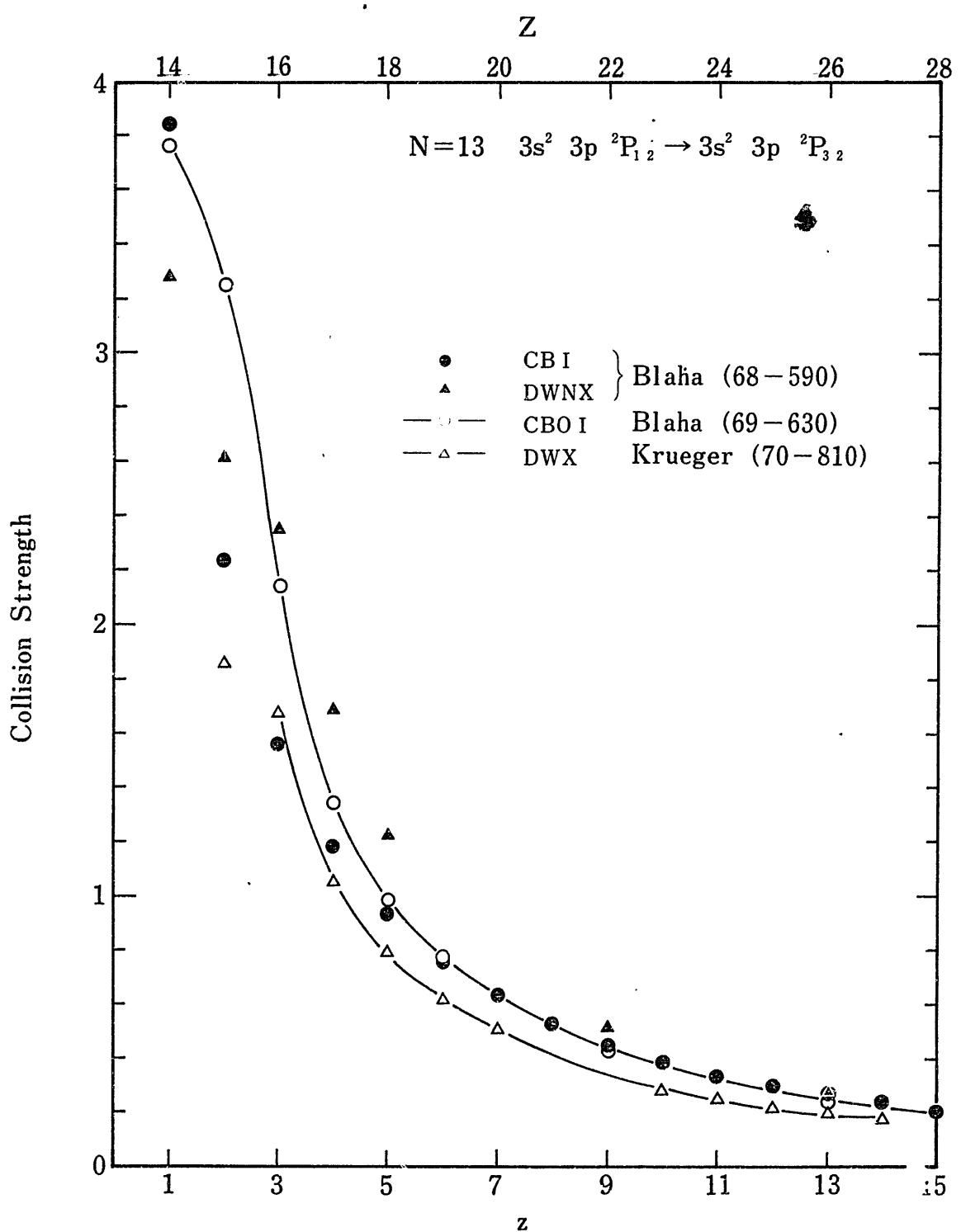


Fig 23

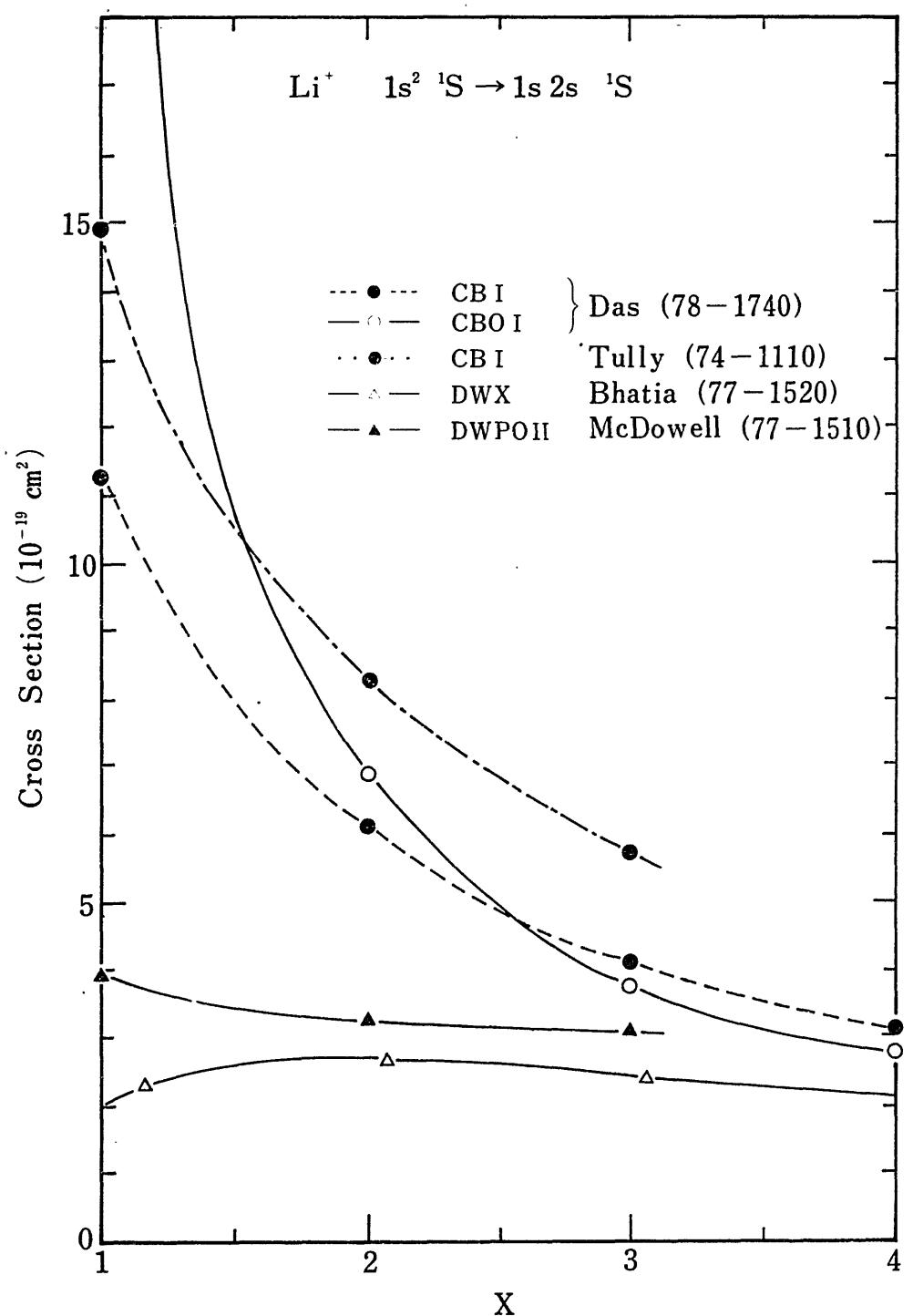


Fig 24

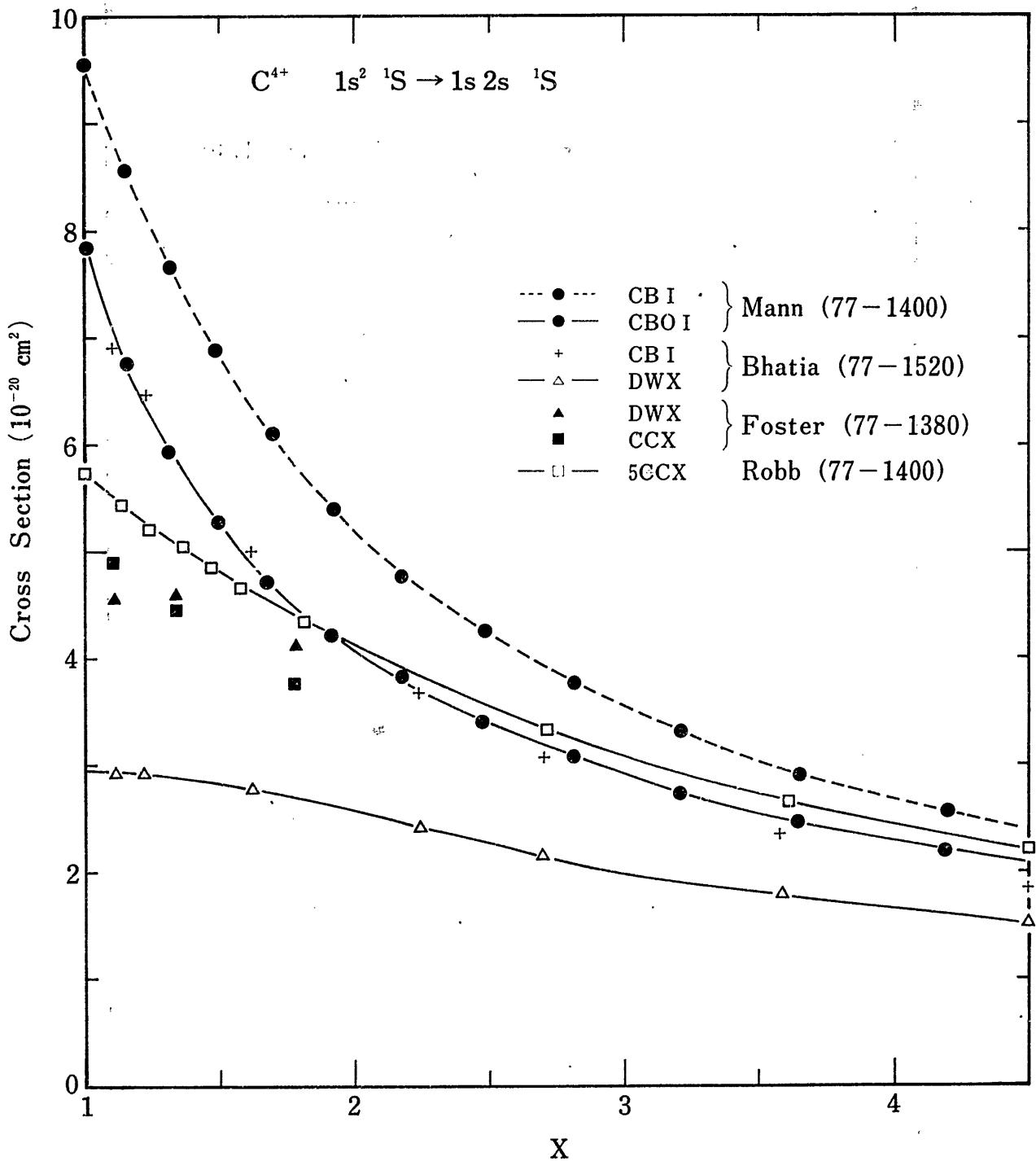


Fig 25

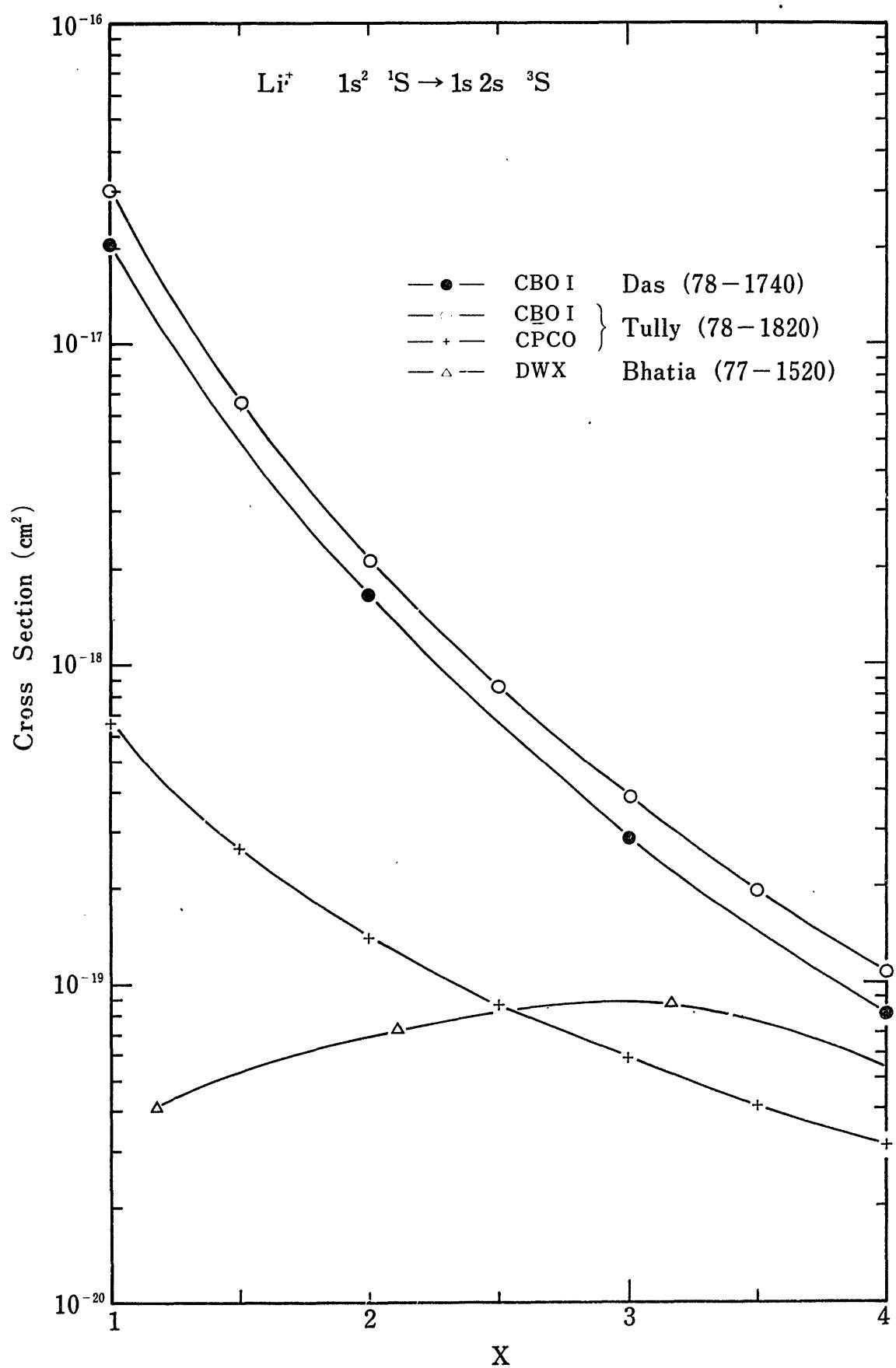


Fig 26

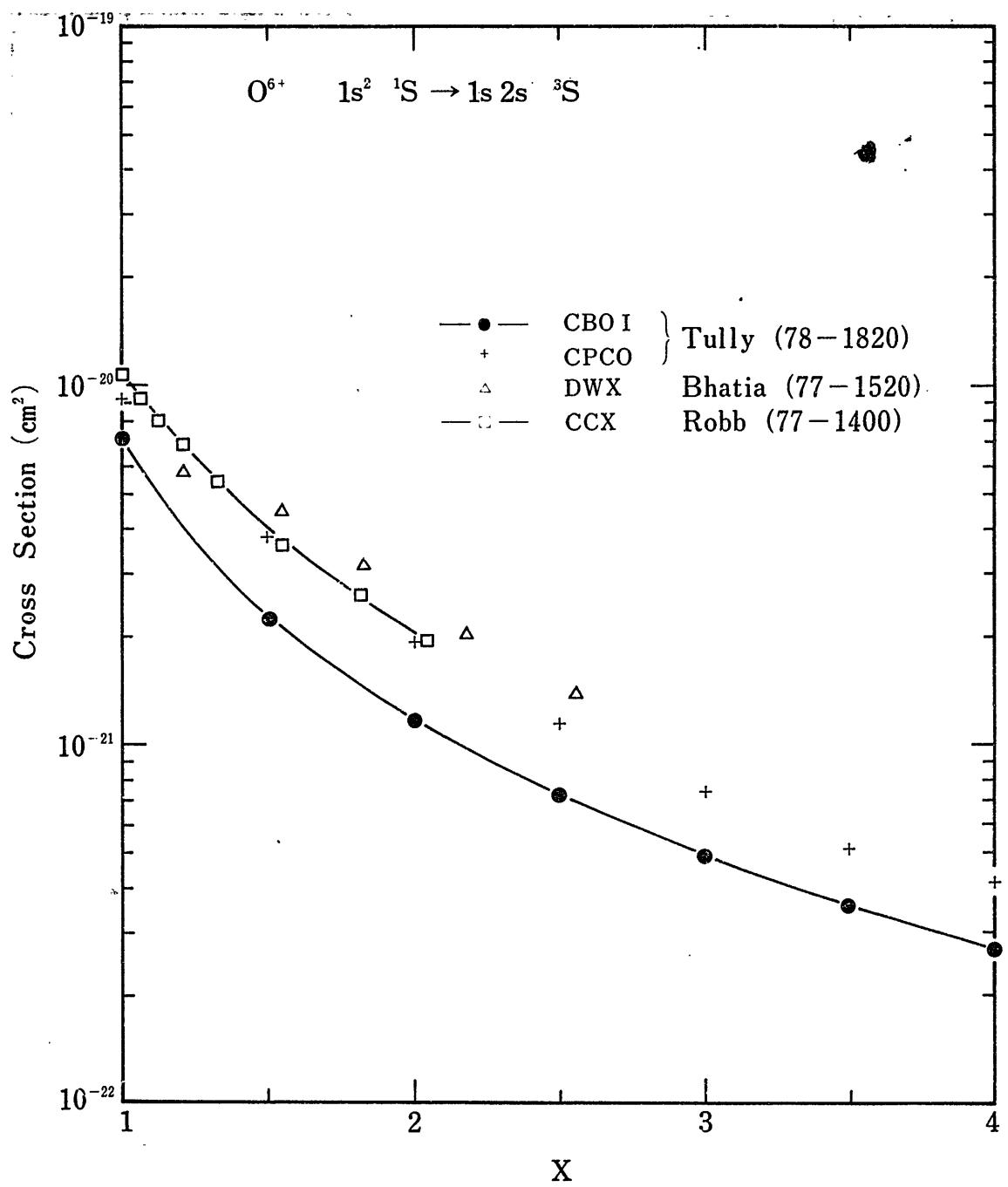


Fig 27

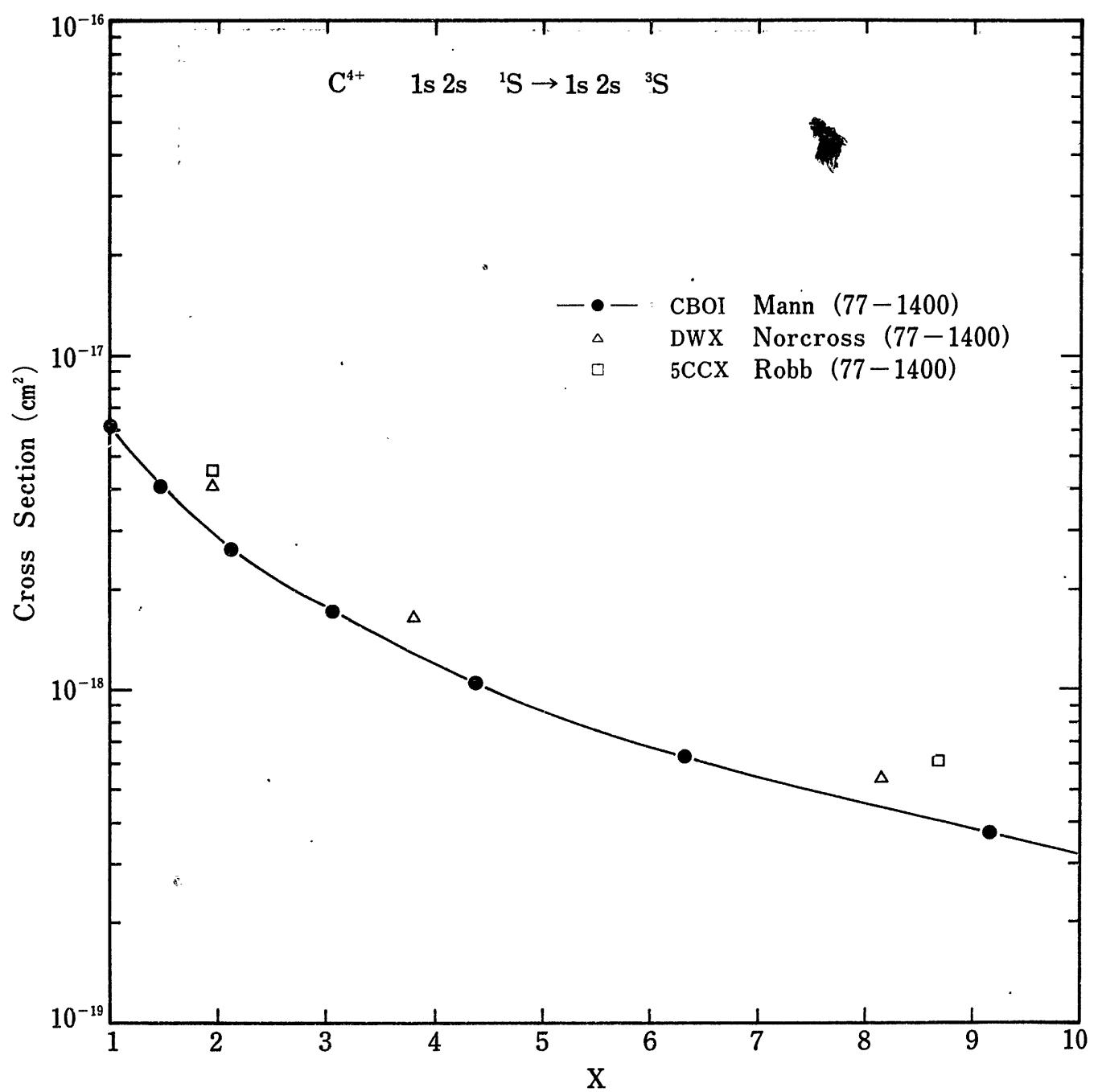


Fig 28

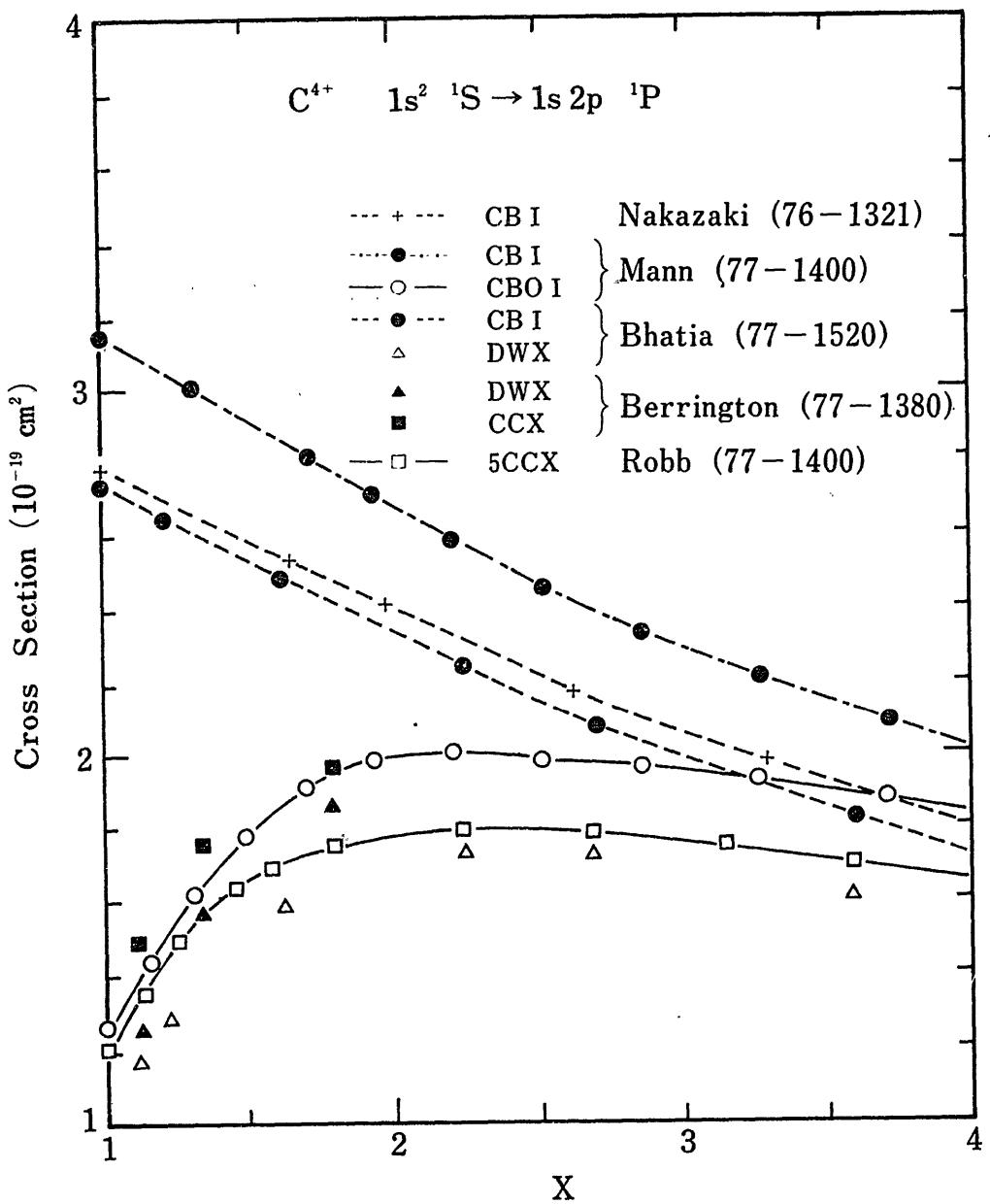


Fig 29

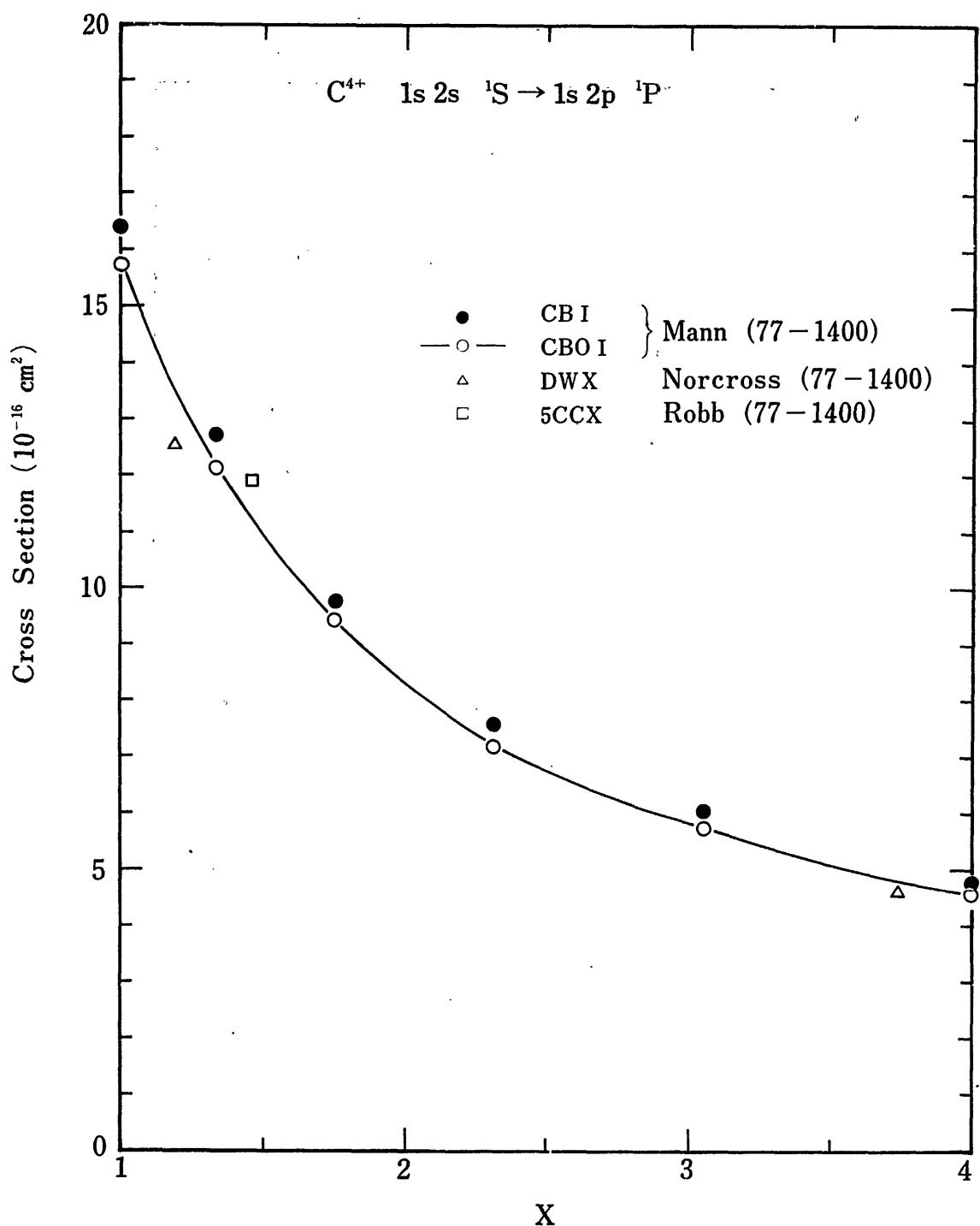


Fig 30

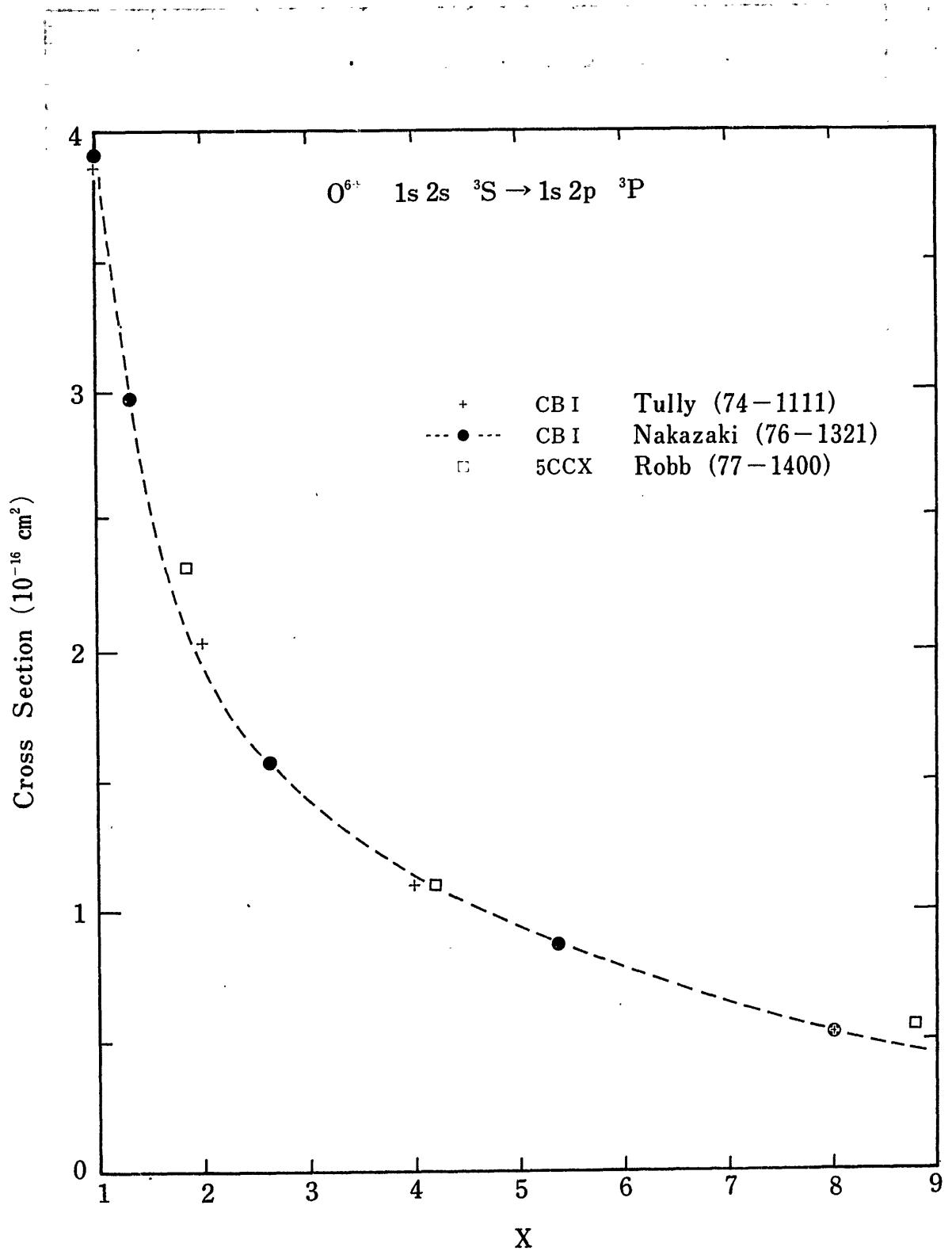


Fig 31

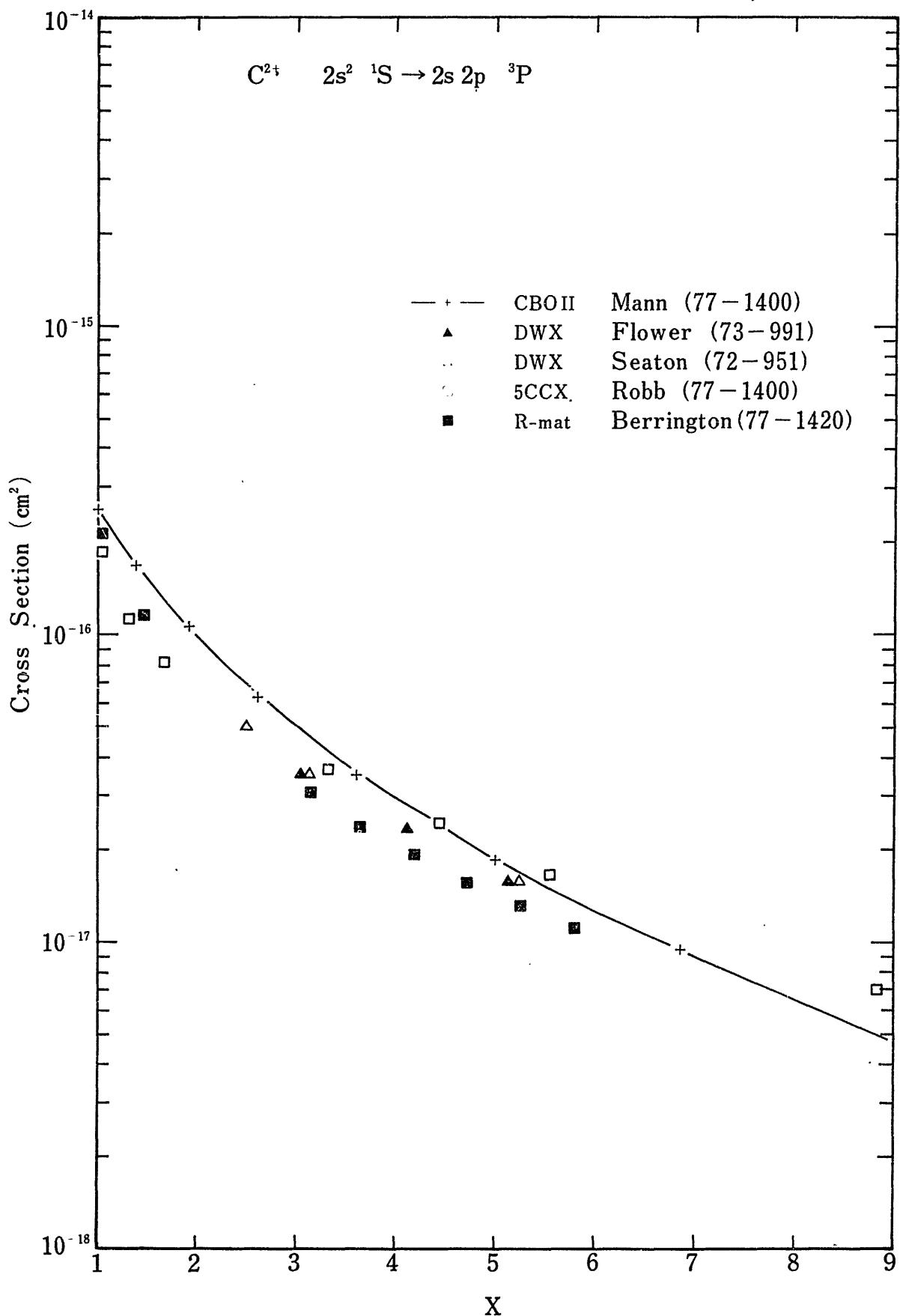


Fig 32

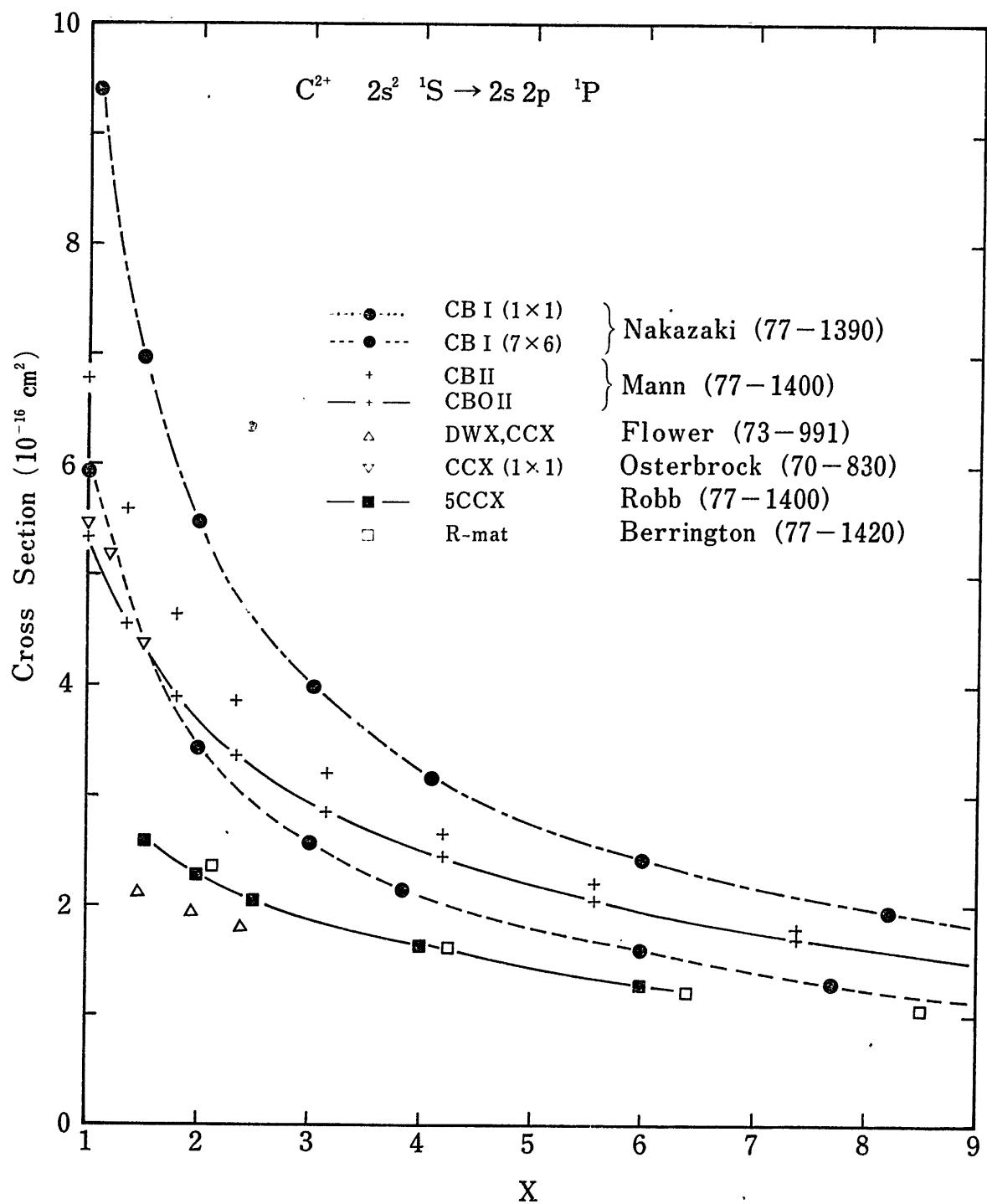


Fig 33

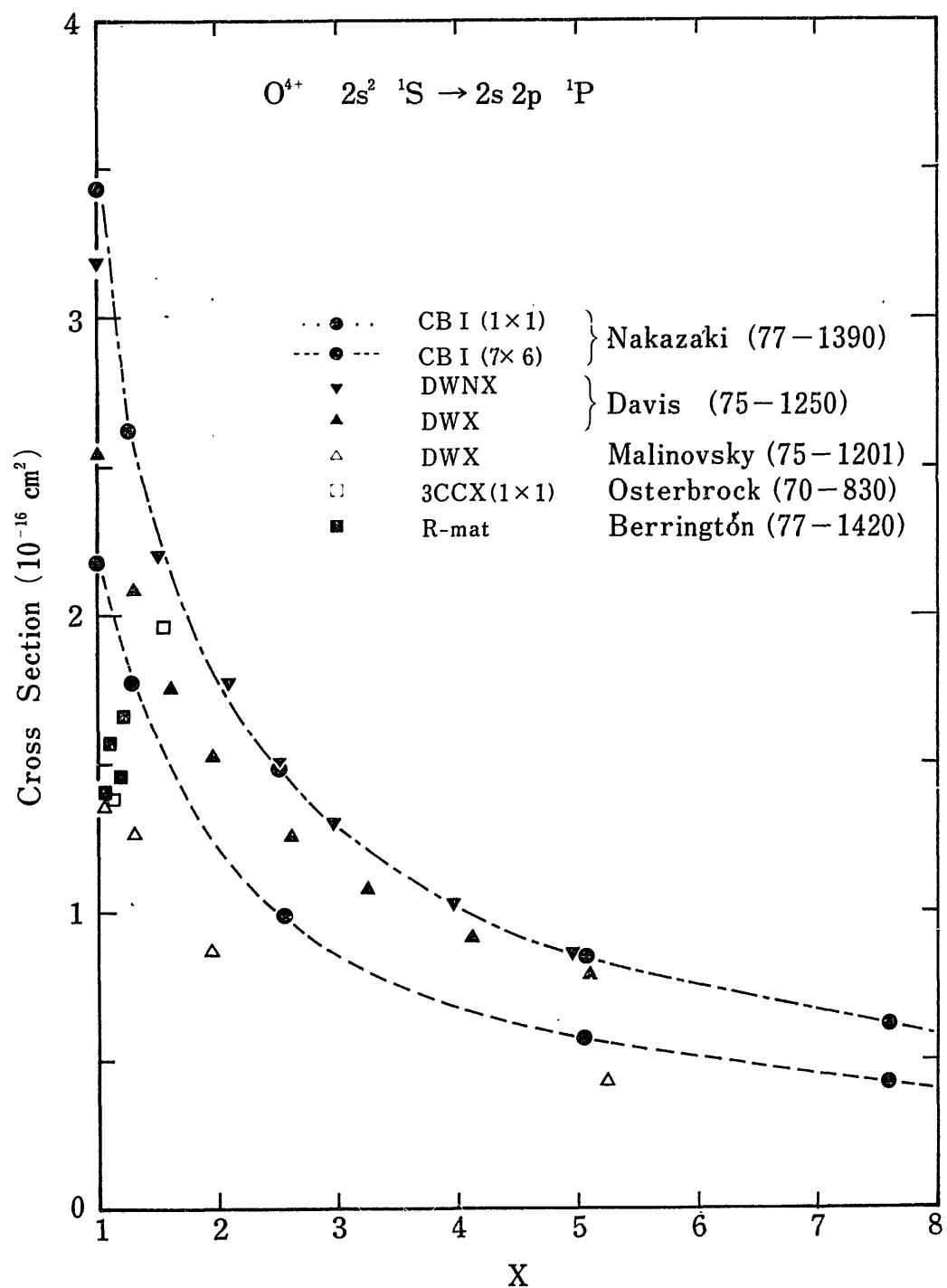


Fig 34

## Appendix A - Abbreviations and Symbols

### 1). For the ion

Z	nuclear charge
N	number of electrons
Z	$Z = Z - N$

### 2). Approximate methods of calculation

B	Born
BETHE	Bethe
BETHE-B	Bethe-Born
BINARY	binary encounter
CB	Coulomb-Born
CB'	Coulomb-Bethe
CBB	Coulomb-Born-Bely
CBO	Coulomb-Born-Oppenheimer
CC	close coupling
CCNX	CC without exchange
CCX	CC with exchange
CDW	Coulomb-distorted wave
CGO	Coulomb-Glauber-Ochkur
CPCO	Coulomb-projected-Coulomb-Oppenheimer
DW	distorted wave
DWNX	DW without exchange
DWX	DW with exchange
DWFO	distorted wave polarized orbital
ER	exact resonance
GCPBO	generalized Coulomb-projected Born
GLAUBER	Glauber
IP	impact parameter
OF	orthogonalized function
RCBO	relativistic CBO
R-MAT	R-matrix
RER-MAT	relativistic R-Matrix
SC	semiclassical
SCB	simplified CB
others	For other symbols, see the original literature

3). Data

CS            cross section  
DCS          differential cross section  
G            Gaunt factor  
OMEGA        collision strength

4). Unit of impact energy

AU            atomic units  
EV            electron volt  
RY            Rydberg  
X            in units of the excitation energy  
others        For other units, see the original literature

5) State

ZS            ns    ( n =  $\infty$  )  
3S3P 3P        3s3p  $^3P$   
3S3P2 2D5/3     3s3p  $^2P$   $^2D_{5/3}$   
2S2 2P 2P1/2    2s  $^2P$   $^2P_{1/2}$

6). Ion

ZZ            Z =  $\infty$

Appendix B. Reference numbers corresponding to the bibliography  
of Takayanagi and Iwai<sup>1)</sup> (T & I).

Present	T&I	Present	T&I	Present	T&I	Present	T&I
10	40T1	290	64T2	570	67T12	860	70T19
20	41T1	300	64T3	581	68T2	870	71T4
30	48T1	310	64T4	590	68T3	880	71T5
40	50T1	320	64T5	591	*	881	71T13
50	51T1	330	65T2	600	68T4	882	*
60	53T1	340	65T3	610	68T5	890	71T8
70	53T2	350	65T4	620	68T6	891	71T15
80	54T1	360	66T1	630	69T2	892	71T7
90	55T1	370	66T5	640	69T3	893	71T2
91	55T2	380	66T4	650	69T4	894	71T3
100	55T3	381	66T15	660	69T6	895	71T6
110	57T1	382	66T10	670	69T7	900	72T3
120	58T1	390	66T2	680	69T10	910	72T4
130	60T2	400	66T3	690	69T11	911	*
140	60T3	410	66T3	700	69T13	920	72T6
150	61T1	420	66T6	710	69T15	921	72T2
160	61T3	430	66T8	720	70T1	930	72T7
170	61T4	440	*	730	70T2	931	72T5
180	61T5	450	66T9	740	70T3	940	72T8
181	*	460	66T13	750	70T4	950	72T11
190	62T2	470	66T14	760	70T7	951	*
200	62T1	480	67T1	770	70T6	960	72T12
210	62T3	490	67T2	780	70T5	970	73T1
220	62T4	500	67T3	790	70T8	980	73T3
230	63T1	510	67T4	800	70T9	990	73T4
240	63T3	520	67T5	810	70T11	991	73T2
250	63T4	530	67T6	820	70T15	1000	73T5
260	63T5	540	67T7	830	70T16	1010	73T7
270	63T8	550	67T8	840	70T17	1011	73T8
280	64T1	560	67T11	850	70T18	1020	73T9

1030	73T12	1201	75T10	1360	*	1600	*
1031	73T14	1210	75T7	1370	77T15	1610	*
1040	74T3	1211	75T8	1380	*	1650	*
1050	74T4	1221	*	1390	77T18	1660	*
1060	74T6	1230	75T6	1400	77T16	1670	*
1070	74T9	1231	75T18	1410	77T20	1680	*
1090	74T14	1240	75T16	1411	77T4	1690	*
1091	74T8	1241	75T5	1420	77T2	1700	*
1100	*	1250	75T20	1430	77T13	1710	*
1101	74T13	1251	75T17	1440	77T19	1720	*
1110	74T15	1252	75T11	1450	77T21	1730	*
1111	74T17	1260	*	1451	77T22	1740	*
1120	74T16	1261	75T19	1460	77T7	1750	*
1130	74T18	1270	76T15	1470	*	1760	*
1131	74T2	1280	76T2	1480	77T6	1770	*
1132	74T11	1290	76T17	1500	77T12	1780	*
1140	74T5	1291	76T4	1510	77T17	1790	*
1141	74T1	1300	*	1520	77T3	1800	*
1142	74T10	1311	76T13	1530	77T1	1810	*
1143	*	1312	76T6	1540	77T5	1820	*
1150	75T14	1313	76T9	1550	*		
1160	75T13	1320	76T10	1560	77T8		
1170	75T12	1321	76T11	1570	*		
1180	*	1322	76T12	1580	*		
1190	75T15	1330	76T5	1590	*		
1191	75T1	1340	76T8	1591	*		
1200	75T3	1350	76T16	1592	*		

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## **Appendix C**

**List of the references for cross sections in various approximate methods. For symbols and references, see Appendix A and Appendix B, respectively.**

*	ION	TRANSITION	NUMBER	E.	ENERGY RANGE	DATA	METHOD	YEAR	REF.	*
*	HE +	1S	2S	1	EV=40.5 - 65.3	CS	DW	53	-	60
*	HE +	1S	2S	1	K =0.8672 - 3.0	CS	CB	66	-	240
*	HE +	1S	2S	1	K =0.8672 - 3.0	DCS	CB	66	-	240
*	HE +	1S	2S	1	EV=40.8 - 217.6	CS	CC	64	-	280
*	HE +	1S	2S	1	EV=44.2 - 217.6	CS	CC	64	-	290
*	HE +	1S	2S	1	RY=3.24 - 6.0	DCS	CC	64	-	300
*	HE +	1S	2S	1	RY=4.0 - 6.76	CS	CC	64	-	320
*	HE +	1S	2S	1	EV=42.8 - 760	CS	BINARY	67	-	550
*	HE +	1S	2S	1	EV=42 - 52	CS	CC	67	-	560
*	HE +	1S	2S	1	RY=3.0 - 3.355	CS	CC	69	-	650
*	HE +	1S	2S	1	X =1.0 - 5.33	CS	CBI	70	-	730
*	HE +	1S	2S	1	X =1.0 - 5.33	CS	CBI	70	-	730
*	HE +	1S	2S	1	X =1.0 - 5.33	CS	CBOI	70	-	730
*	HE +	1S	2S	1	X =1.0 - 5.33	CS	CBOII	70	-	730
*	HE +	1S	2S	1	X =1.0	CS	CB	71	-	890
*	HE +	1S	2S	1	X =1.0 - 4.0	CS	CBI	71	-	892
*	HE +	1S	2S	1	X =1.0 - 4.0	CS	CBOII	71	-	892
*	HE +	1S	2S	1	RY=DE - 50.00	CS	DWPO	73	-	1011
*	HE +	1S	2S	1	X =1.0 - 4.0	OMEGA	CBI	73	-	1031
*	HE +	1S	2S	1	RY=3.005 - 10.0	CS	DWPO	74	-	1070
*	HE +	1S	2S	1	E =E1	CS	RCB	74	-	1130
*	HE +	1S	2S	1	E =E1	CS	RCBO	74	-	1130
*	HE +	1S	2S	1	EV=40.8 - 300	CS	GLAUBER	75	-	1160
*	HE +	1S	2S	1	EV=50 - 500	CS	GLAUBER	75	-	1211
*	HE +	1S	2S	1	EV=100	DCS	GCPR	75	-	1231
*	HE +	1S	2S	1	EV=100	DCS	GCPBO	75	-	1231
*	HE +	1S	2S	1	EV=100 - 1000	CS	IP	76	-	1280
*	HE +	1S	2S	1	RY=3.0 - 3.3	CS	DW	76	-	1290
*	HE +	1S	2S	1	EV=40.8 - 1300	CS	CBI	76	-	1320
*	HE +	1S	2S	1	EV=40.8 - 1300	CS	CBOI	76	-	1320
*	HE +	1S	2S	1	EV=61.2 - 136	CS	CC	76	-	1340
*	HE +	1S	2S	1	X =1.0 - 4.0	OMEGA	CC	77	-	1500
*	HE +	1S	2S	1	X =1.0 - 4.0	OMEGA	DW	77	-	1500
*	HE +	1S	2S	1	X =1.0 - 26.67	CS	DWPOII	77	-	1510
*	HE +	1S	2S	1	X =1.0 - 26.67	OMEGA	DW	77	-	1530
*	HE +	1S	2S	1	EV=42 - 300	CS	GLA	77	-	1591
*	HE +	1S	2S	1	X =1 - 50	CS	CB	78	-	1660
*	HE +	1S	2S	1	X =1.5 - 6.0	CS	CB	78	-	1690
*	HE +	1S	2S	1	X =2.0	CS	CBO	78	-	1700
*	HE +	1S	2S	1	X =2.0	CS	CBO	78	-	1700
*	HE +	1S	2S	1	EV=40.8 - 1000	CS	DW	78	-	1710
*	HE +	1S	2S	1	X =1 - 30	CS	CB	78	-	1730
*	HE +	1S	2S	1	EV=58.5 - 1000.0	CS	CBO	78	-	1780
*	HE +	1S	2S	1	RY=3.24 - 6.0	CS	CC	78	-	1790
*	HE +	1S	3S	1	K =0.9487 - 3.0	CS	CB	66	-	240
*	HE +	1S	3S	1	K =0.9487 - 3.0	DCS	CB	66	-	240
*	HE +	1S	3S	1	X =1.0	CS	CBI	71	-	890
*	HE +	1S	3S	1	X =1.0 - 7.0	CS	CBI	71	-	892
*	HE +	1S	3S	1	RY=DE - 50.00	CS	DWPO	73	-	1011
*	HE +	1S	3S	1	X =1.0 - 4.0	OMEGA	CBI	73	-	1031
*	HE +	1S	3S	1	X =1.5 - 6.0	CS	CB	78	-	1690
*	HE +	1S	3S	1	X =2.0	CS	CB	78	-	1700
*	HE +	1S	3S	1	X =2.0	CS	CBO	78	-	1700
*	HE +	1S	4S	1	RY=DE - 50.00	CS	DWPO	73	-	1011
*	HE +	1S	4S	1	X =1.0 - 4.0	OMEGA	CBI	73	-	1031
*	HE +	1S	4S	1	X =1.5 - 6.0	CS	CB	78	-	1690
*	HE +	1S	5S	1	RY=DE - 50.00	CS	DWPO	73	-	1011
*	HE +	1S	5S	1	X =1.0 - 4.0	OMEGA	CBI	73	-	1031
*	HE +	1S	5S	1	X =1.5 - 6.0	CS	CB	78	-	1690
*	HE +	1S	6S	1	X =1.0 - 4.0	OMEGA	CBI	73	-	1031
*	HE +	1S	6S	1	X =1.5 - 6.0	CS	CB	78	-	1690
*	HE +	1S	6S	1	X =2.0	CS	CB	78	-	1700
*	HE +	1S	6S	1	X =2.0	CS	CBO	78	-	1700
*	HE +	1S	7S	1	X =1.5 - 6.0	CS	CB	78	-	1690
*	HE +	1S	8S	1	X =1.5 - 6.0	CS	CB	78	-	1690
*	HE +	1S	9S	1	X =1.5 - 6.0	CS	CB	78	-	1690
*	HE +	1S	10S	1	X =1.5 - 6.0	CS	CB	78	-	1690
*	HE +	1S	ZS	1	X =1.0 - 4.0	OMEGA	CBI	73	-	1031
*	HE +	1S	ZS	1	X =1.5 - 6.0	CS	CB	78	-	1690
*	HE +	1S	ZS	1	X =2.0	CS	CBO	78	-	1700
*	HE +	1S	2P	1	X =1 - 6	CS	CB	61	-	150
*	HE +	1S	2P	1	EV=40.8 - 217.6	CS	CC	64	-	280
*	HE +	1S	2P	1	EV=44.2 - 217.6	CS	CC	64	-	290
*	HE +	1S	2P	1	RY=4.0 - 6.76	CS	CC	64	-	320
*	HE +	1S	2P	1	RY=3.0 - 3.355	CS	CC	69	-	650
*	HE +	1S	2P	1	X =1.0 - 5.33	CS	CBI	70	-	730
*	HE +	1S	2P	1	X =1.0 - 5.33	CS	CBI	70	-	730
*	HE +	1S	2P	1	X =1.0 - 5.33	CS	CBOI	70	-	730
*	HE +	1S	2P	1	X =1.0 - 5.33	CS	CBOII	70	-	730
*	HE +	1S	2P	1	X =1.0	CS	CB	71	-	890
*	HE +	1S	2P	1	X =1.0 - 4.0	CS	CBI	71	-	892
*	HE +	1S	2P	1	X =1.0 - 4.0	CS	CBOII	71	-	892
*	HE +	1S	2P	1	X =1.0 - 4.0	OMEGA	CBI	73	-	1031
*	HE +	1S	2P	1	EV=40.8 - 300	CS	GLAUBER	75	-	1160

*	ION	TRANSITION	NUMBER	E.	ENERGY RANGE	DATA	METHOD	YEAR	REF.	*
*	HE +	1S	2P	1	RY=4.0 - 16.0	CS	CBOI	75	-	1170 *
*	HE +	1S	2P	1	RY=3.005 - 30.0	CS	DWPOI	75	-	1170 *
*	HE +	1S	2P	1	RY=3.005 - 30.0	CS	DWPOII	75	-	1170 *
*	HE +	1S	2P	1	EV=100 - 1000	CS	IP	76	-	1280 *
*	HE +	1S	2P	1	EV=61.2 - 136	CS	CC	76	-	1340 *
*	HE +	1S	2P	1	X =1.0 - 4.0	OMEGA	CC	77	-	1500 *
*	HE +	1S	2P	1	X =1.0 - 4.0	OMEGA	DW	77	-	1500 *
*	HE +	1S	2P	1	X =1.0 - 26.67	CS	DWPOII	77	-	1510 *
*	HE +	1S	2P	1	X =1.0 - 4.0	OMEGA	DW	77	-	1530 *
*	HE +	1S	2P	1	X =1 - 40	CS	CB	78	-	1660 *
*	HE +	1S	2P	1	EV=40.8 - 300	CS	DW	78	-	1710 *
*	HE +	1S	2P	1	X =1 - 30	CS	CB	78	-	1730 *
*	HE +	1S	2P	1	RY=3.24 - 6.0	CS	CC	78	-	1790 *
*	HE +	1S	3P	1	RY=3.65 - 5.0	CS	CC	64	-	300 *
*	HE +	1S	3P	1	X =1.0	CS	CB	71	-	890 *
*	HE +	1S	3P	1	X =1.0 - 7.0	CS	CBI	71	-	892 *
*	HE +	1S	3P	1	X =1.0 - 4.0	OMEGA	CBI	73	-	1031 *
*	HE +	1S	3P	1	RY=3.6 - 30.0	CS	DWPOI	75	-	1170 *
*	HE +	1S	4P	1	X =1.0 - 4.0	OMEGA	CBI	73	-	1031 *
*	HE +	1S	5P	1	X =1.0 - 4.0	OMEGA	CBI	73	-	1031 *
*	HE +	1S	6P	1	X =1.0 - 4.0	OMEGA	CBI	73	-	1031 *
*	HE +	1S	ZP	1	X =1.0 - 4.0	OMEGA	CBI	73	-	1031 *
*	HE +	1S	3D	1	X =1.0	CS	CB	71	-	890 *
*	HE +	1S	3D	1	X =1.0 - 7.0	CS	CB	71	-	892 *
*	HE +	1S	3D	1	X =1.0 - 4.0	OMEGA	CBI	73	-	1031 *
*	HE +	1S	4D	1	X =1.0 - 4.0	OMEGA	CBI	73	-	1031 *
*	HE +	1S	5D	1	X =1.0 - 4.0	OMEGA	CBI	73	-	1031 *
*	HE +	1S	6D	1	X =1.0 - 4.0	OMEGA	CBI	73	-	1031 *
*	HE +	1S	ZD	1	X =1.0 - 4.0	OMEGA	CBI	73	-	1031 *
*	HE +	1L	2L'	1	X =1 - 10	CS	SE	71	-	891 *
*	HE +	1L	3L'	1	X =1 - 10	CS	SE	71	-	891 *
*	HE +	2S	3S	1	X =1.0	CS	CB	71	-	890 *
*	HE +	2S	3S	1	X =1.0 - 7.0	CS	CBI	71	-	892 *
*	HE +	2S	3P	1	X =1.0	CS	CB	71	-	890 *
*	HE +	2S	3P	1	X =1.0 - 7.0	CS	CBI	71	-	892 *
*	HE +	2S	3D	1	X =1.0	CS	CB	71	-	890 *
*	HE +	2S	3D	1	X =1.0 - 7.0	CS	CBI	71	-	892 *
*	HE +	2P	3S	1	X =1.0	CS	CB	71	-	890 *
*	HE +	2P	3S	1	X =1.0 - 7.0	CS	CBI	71	-	892 *
*	HE +	2P	3P	1	X =1.0	CS	CB	71	-	890 *
*	HE +	2P	3P	1	X =1.0 - 7.0	CS	CBI	71	-	892 *
*	HE +	2P	3D	1	X =1.0	CS	CB	71	-	890 *
*	HE +	2P	3D	1	X =1.0 - 7.0	CS	CBI	71	-	892 *
*	HE +	2L	3L'	1	X =1 - 10	CS	SE	71	-	891 *
*	HE +	1S	2P1/2	1	E =E1	CS	RCB	74	-	1130 *
*	HE +	1S	2P1/2	1	E =E1	CS	RCBO	74	-	1130 *
*	HE +	1S	2P3/2	1	E =E1	CS	RCBO	74	-	1130 *
*	HE +	1S	2P3/2	1	E =E1	CS	RCB	74	-	1130 *
*	HE +	2S	2P1/2	1	E =E1	CS	RCB	74	-	1130 *
*	HE +	2S	2P1/2	1	E =E1	CS	RCBO	74	-	1130 *
*	HE +	2S	2P3/2	1	E =E1	CS	RCBO	74	-	1130 *
*	HE +	2S	2P3/2	1	E =E1	CS	RCB	74	-	1130 *
*	HE +	2P1/2	2P3/2	1	E =E1	CS	RCB	74	-	1130 *
*	HE +	2P1/2	2P3/2	1	E =E1	CS	RCBO	74	-	1130 *
*	LI +	2+	1S	2S	K =0.8672 - 3.0	CS	CB	66	-	240 *
*	LI +	2+	1S	2S	X =1.0 - 10.0	CS	CBI	76	-	1320 *
*	LI +	2+	1S	2S	X =1.0 - 10.0	CS	CBOI	76	-	1320 *
*	LI +	2+	1S	2S	X =1.0 - 4.0	OMEGA	CC	77	-	1500 *
*	LI +	2+	1S	2S	X =1.0 - 4.0	OMEGA	DW	77	-	1500 *
*	LI +	2+	1S	3S	X =1.5 - 6.0	CS	CB	78	-	16'0 *
*	LI +	2+	1S	3S	X =1.5 - 6.0	CS	CB	66	-	240 *
*	LI +	2+	1S	4S	X =1.5 - 6.0	CS	CB	78	-	1690 *
*	LI +	2+	1S	5S	X =1.5 - 6.0	CS	CB	78	-	1690 *
*	LI +	2+	1S	6S	X =1.5 - 6.0	CS	CB	78	-	1690 *
*	LI +	2+	1S	7S	X =1.5 - 6.0	CS	CB	78	-	1690 *
*	LI +	2+	1S	8S	X =1.5 - 6.0	CS	CB	78	-	1690 *
*	LI +	2+	1S	9S	X =1.5 - 6.0	CS	CB	78	-	1690 *
*	LI +	2+	1S	10S	X =1.5 - 6.0	CS	CB	78	-	1690 *
*	LI +	2+	1S	ZS	X =1.5 - 6.0	CS	CB	78	-	1690 *
*	LI +	2+	1S	2P	X =1.0 - 4.0	OMEGA	CC	77	-	1500 *
*	LI +	2+	1S	2P	X =1.0 - 4.0	OMEGA	DW	77	-	1500 *
*	LI +	1S2	1S	1S2S 1S	X =1.0	CS	CBI	66	-	470 *
*	LI +	1S2	1S	1S2S 1S	X =1,2,3,INF	OMEGA	CBI	74	-	1110 *
*	LI +	1S2	1S	1S2S 1S	RY=13.41	CS	DW	75	-	1200 *
*	LI +	1S2	1S	1S2S 1S	X =1	CS	OFX	75	-	1260 *
*	LI +	1S2	1S	1S2S 1S	X =1.0 - 10.0	CS	DWPOII	77	-	1510 *
*	LI +	1S2	1S	1S2S 1S	X =1.0	CS	CB	77	-	1510 *
*	LI +	1S2	1S	1S2S 1S	X =1.0	CS	CBO	77	-	1510 *
*	LI +	1S2	1S	1S2S 1S	RY=5.0 - 20.0	CS	CB	77	-	1520 *
*	LI +	1S2	1S	1S2S 1S	RY=5.0 - 20.0	CS	DW	77	-	1520 *
*	LI +	1S2	1S	1S2S 1S	X =1.2	DCS	CBOI	78	-	1740 *
*	LI +	1S2	1S	1S2S 1S	X =1 - 5	CS	CBI	78	-	1740 *
*	LI +	1S2	1S	1S2S 1S	X =1 - 5	CS	CBOI	78	-	1740 *
*	LI +	1S2	1S	1S2S 3S	X =1.04 - 47.0	CS	OF	67	-	480 *

*	*	ION	TRANSITION	NUMBER	E.	ENERGY RANGE	DATA	METHOD	YEAR	REF.	*
*	*	Li +	1S2 1S	1S2S 3S	2	X =1.04 - 47.0	CS	CBOI	67	-	480
*	*	Li +	1S2 1S	1S2S 3S	2	X =1	CS	OFX	75	-	1260
*	*	Li +	1S2 1S	1S2S 3S	2	RY=5 - 20	CS	DW	77	-	1520
*	*	Li +	1S2 1S	1S2S 3S	2	X =1 - 5	CS	CBI	78	-	1740
*	*	Li +	1S2 1S	1S2S 3S	2	X =1 - 5	CS	CBOI	78	-	1740
*	*	Li +	1S2 1S	1S2S 3S	2	X =1.5	DCS	CBOI	78	-	1740
*	*	Li +	1S2 1S	1S2S 3S	2	X =1.0 - 10.0	CS	CPCO	78	-	1820
*	*	Li +	1S2 1S	1S3S 1S	2	X =1.2-3,INF	OMEGA	CBI	74	-	1110
*	*	Li +	1S2 1S	1S4S 1S	2	X =1.2-3,INF	OMEGA	CBI	74	-	1110
*	*	Li +	1S2 1S	1S5S 1S	2	X =1.2-3,INF	OMEGA	CBI	74	-	1110
*	*	Li +	1S2 1S	1S6S 1S	2	X =1.2-3,INF	OMEGA	CBI	74	-	1110
*	*	Li +	1S2 1S	1S2P 1P	2	X =1.2-3	OMEGA	CBI	74	-	1110
*	*	Li +	1S2 1S	1S2P 1P	2	X =1	CS	OFX	75	-	1260
*	*	Li +	1S2 1S	1S2P 1P	2	X =1.0 - 10.0	CS	DWPOII	77	-	1510
*	*	Li +	1S2 1S	1S2P 1P	2	RY=5 - 20	CS	CB	77	-	1520
*	*	Li +	1S2 1S	1S2P 1P	2	RY=5 - 20	CS	DW	77	-	1520
*	*	Li +	1S2 1S	1S2P 3P	2	X =1	CS	OFX	75	-	1260
*	*	Li +	1S2 1S	1S2P 3P	2	RY=5 - 20	CS	DW	77	-	1520
*	*	Li +	1S2 1S	1S3P 1P	2	X =1.2-3	OMEGA	CBI	74	-	1110
*	*	Li +	1S2 1S	1S4P 1P	2	X =1.2-3	OMEGA	CBI	74	-	1110
*	*	Li +	1S2 1S	1S5P 1P	2	X =1.2-3	OMEGA	CBI	74	-	1110
*	*	Li +	1S2 1S	1S6P 1P	2	X =1.2-3	OMEGA	CBI	74	-	1110
*	*	Li +	1S2S 1S	1S3S 1S	2	X =1.0 - INF	OMEGA	CBI	74	-	1111
*	*	Li +	1S2S 1S	1S4S 1S	2	X =1.0 - INF	OMEGA	CBI	74	-	1111
*	*	Li +	1S2S 1S	1S5S 1S	2	X =1.0 - INF	OMEGA	CBI	74	-	1111
*	*	Li +	1S2S 1S	1S6S 1S	2	X =1.0 - INF	OMEGA	CBI	74	-	1111
*	*	Li +	1S2S 1S	1S2P 1P	2	X =1.0 - 8.0	OMEGA	CBI	74	-	1111
*	*	Li +	1S2S 1S	1S2P 1P	2	X =INF	OMEGA	B	74	-	1111
*	*	Li +	1S2S 1S	1S3P 1P	2	X =1.0 - 8.0	OMEGA	CBI	74	-	1111
*	*	Li +	1S2S 1S	1S3P 1P	2	X =INF	OMEGA	B	74	-	1111
*	*	Li +	1S2S 1S	1S4P 1P	2	X =1.0 - 8.0	OMEGA	CBI	74	-	1111
*	*	Li +	1S2S 1S	1S4P 1P	2	X =INF	OMEGA	B	74	-	1111
*	*	Li +	1S2S 1S	1S5P 1P	2	X =1.0 - 8.0	OMEGA	CBI	74	-	1111
*	*	Li +	1S2S 1S	1S5P 1P	2	X =INF	OMEGA	B	74	-	1111
*	*	Li +	1S2S 1S	1S6P 1P	2	X =1.0 - 8.0	OMEGA	CBI	74	-	1111
*	*	Li +	1S2S 3S	1S3S 3S	2	X =1.0 - INF	OMEGA	CBI	74	-	1111
*	*	Li +	1S2S 3S	1S4S 3S	2	X =1.0 - INF	OMEGA	CBI	74	-	1111
*	*	Li +	1S2S 3S	1S5S 3S	2	X =1.0 - INF	OMEGA	CBI	74	-	1111
*	*	Li +	1S2S 3S	1S6S 3S	2	X =1.0 - INF	OMEGA	CBI	74	-	1111
*	*	Li +	1S2S 3S	1S2P 3P	2	X =1.0 - 8.0	OMEGA	CBI	74	-	1111
*	*	Li +	1S2S 3S	1S2P 3P	2	X =INF	OMEGA	B	74	-	1111
*	*	Li +	1S2S 3S	1S3P 3P	2	X =1.0 - 8.0	OMEGA	CBI	74	-	1111
*	*	Li +	1S2S 3S	1S3P 3P	2	X =INF	OMEGA	B	74	-	1111
*	*	Li +	1S2S 3S	1S4P 3P	2	X =1.0 - 8.0	OMEGA	CBI	74	-	1111
*	*	Li +	1S2S 3S	1S4P 3P	2	X =INF	OMEGA	B	74	-	1111
*	*	Li +	1S2S 3S	1S5P 3P	2	X =1.0 - 8.0	OMEGA	CBI	74	-	1111
*	*	Li +	1S2S 3S	1S5P 3P	2	X =INF	OMEGA	B	74	-	1111
*	*	Li +	1S2S 3S	1S6P 3P	2	X =1.0 - 8.0	OMEGA	CBI	74	-	1111
*	*	Li +	1S2S 3S	1S6P 3P	2	X =INF	OMEGA	B	74	-	1111
*	*	BE 3+	1S	2S	1	K =0.8672 - 3.0	CS	CB	66	-	240
*	*	BE 3+	1S	2S	1	X =1.0 - 4.0	OMEGA	CBI	73	-	1031
*	*	BE 3+	1S	2S	1	EV=400 - 4000	CS	IP	76	-	1280
*	*	BE 3+	1S	2S	1	X =1.0 - 26.67	OMEGA	DW	77	-	1530
*	*	BE 3+	1S	2S	1	X =1.5 - 6.0	CS	CB	78	-	1690
*	*	BE 3+	1S	3S	1	X =1.0 - 4.0	OMEGA	CBI	73	-	1031
*	*	BE 3+	1S	3S	1	X =1.5 - 6.0	CS	CB	78	-	1690
*	*	BE 3+	1S	4S	1	X =1.0 - 4.0	OMEGA	CBI	73	-	1031
*	*	BE 3+	1S	4S	1	X =1.5 - 6.0	CS	CB	78	-	1690
*	*	BE 3+	1S	5S	1	X =1.0 - 4.0	OMEGA	CBI	73	-	1031
*	*	BE 3+	1S	5S	1	X =1.5 - 6.0	CS	CB	78	-	1690
*	*	BE 3+	1S	6S	1	X =1.0 - 4.0	OMEGA	CBI	73	-	1031
*	*	BE 3+	1S	6S	1	X =1.5 - 6.0	CS	CB	78	-	1690
*	*	BE 3+	1S	7S	1	X =1.5 - 6.0	CS	CB	78	-	1690
*	*	BE 3+	1S	8S	1	X =1.5 - 6.0	CS	CB	78	-	1690
*	*	BE 3+	1S	9S	1	X =1.5 - 6.0	CS	CB	78	-	1690
*	*	BE 3+	1S	10S	1	X =1.5 - 6.0	CS	CB	78	-	1690
*	*	BE 3+	1S	2S	1	X =1.0 - 4.0	OMEGA	CBI	73	-	1031
*	*	BE 3+	1S	2S	1	X =1.5 - 6.0	CS	CB	78	-	1690
*	*	BE 3+	1S	2P	1	X =1.0 - 4.0	OMEGA	CBI	73	-	1031
*	*	BE 3+	1S	2P	1	EV=400 - 4000	CS	IP	76	-	1280
*	*	BE 3+	1S	3P	1	X =1.0 - 4.0	OMEGA	CBI	73	-	1031
*	*	BE 3+	1S	4P	1	X =1.0 - 4.0	OMEGA	CBI	73	-	1031
*	*	BE 3+	1S	5P	1	X =1.0 - 4.0	OMEGA	CBI	73	-	1031
*	*	BE 3+	1S	6P	1	X =1.0 - 4.0	OMEGA	CBI	73	-	1031
*	*	BE 3+	1S	ZP	1	X =1.0 - 4.0	OMEGA	CBI	73	-	1031
*	*	BE 3+	1S	3D	1	X =1.0 - 4.0	OMEGA	CBI	73	-	1031
*	*	BE 3+	1S	4D	1	X =1.0 - 4.0	OMEGA	CBI	73	-	1031
*	*	BE 3+	1S	5D	1	X =1.0 - 4.0	OMEGA	CBI	73	-	1031
*	*	BE 3+	1S	6D	1	X =1.0 - 4.0	OMEGA	CBI	73	-	1031
*	*	BE 3+	1S	ZD	1	X =1.0 - 4.0	OMEGA	CBI	73	-	1031
*	*	BE 2+	1S2 1S	1S2S 1S	2	X =1.2-3,INF	OMEGA	CBI	74	-	1110
*	*	BE 2+	1S2 1S	1S2S 1S	2	X =1.0 - 10.0	CS	DWPOII	77	-	1510
*	*	BE 2+	1S2 1S	1S2S 1S	2	X =1.0 - 4.0	CS	CB	77	-	1510
*	*	BE 2+	1S2 1S	1S2S 1S	2	X =1.0 - 4.0	CS	CBO	77	-	1510

*	ION	TRANSITION	NUMBER	E.	ENERGY RANGE	DATA	METHOD	YEAR	REF.	*
*	BE 2+	1S2 1S	1S2S 1S	2	RY=10 - 25	CS	CB	77	-	1520 *
*	BE 2+	1S2 1S	1S2S 1S	2	RY=10 - 25	CS	DW	77	-	1520 *
*	BE 2+	1S2 1S	1S2S 3S	2	RY=10 - 25	CS	DW	77	-	1520 *
*	BE 2+	1S2 1S	1S2S 3S	2	X =1.0 - 10.0	CS	CPCO	78	-	1820 *
*	BE 2+	1S2 1S	1S3S 1S	2	X =1.2,3,INF	OMEGA	CBI	74	-	1110 *
*	BE 2+	1S2 1S	1S4S 1S	2	X =1.2,3,INF	OMEGA	CBI	74	-	1110 *
*	BE 2+	1S2 1S	1S5S 1S	2	X =1.2,3,INF	OMEGA	CBI	74	-	1110 *
*	BE 2+	1S2 1S	1S6S 1S	2	X =1.2,3,INF	OMEGA	CBI	74	-	1110 *
*	BE 2+	1S2 1S	1S2P 1P	2	X =1.2,3	OMEGA	CBI	74	-	1110 *
*	BE 2+	1S2 1S	1S2P 1P	2	X =1.0 - 10.0	CS	DWPOII	77	-	1510 *
*	BE 2+	1S2 1S	1S2P 1P	2	RY=10 - 25	CS	CB	77	-	1520 *
*	BE 2+	1S2 1S	1S2P 1P	2	RY=10 - 25	CS	DW	77	-	1520 *
*	BE 2+	1S2 1S	1S2P 3P	2	RY=10 - 25	CS	DW	77	-	1520 *
*	BE 2+	1S2 1S	1S3P 1P	2	X =1.2,3	OMEGA	CBI	74	-	1110 *
*	BE 2+	1S2 1S	1S4P 1P	2	X =1.2,3	OMEGA	CBI	74	-	1110 *
*	BE 2+	1S2 1S	1S5P 1P	2	X =1.2,3	OMEGA	CBI	74	-	1110 *
*	BE 2+	1S2 1S	1S6P 1P	2	X =1.2,3	OMEGA	CBI	74	-	1110 *
*	BE 2+	1S2S 1S	1S3S 1S	2	X =1.0 - INF	OMEGA	CBI	74	-	1111 *
*	BE 2+	1S2S 1S	1S4S 1S	2	X =1.0 - INF	OMEGA	CBI	74	-	1111 *
*	BE 2+	1S2S 1S	1S5S 1S	2	X =1.0 - INF	OMEGA	CBI	74	-	1111 *
*	BE 2+	1S2S 1S	1S6S 1S	2	X =1.0 - INF	OMEGA	CBI	74	-	1111 *
*	BE 2+	1S2S 1S	1S2P 1P	2	X =1.0 - 8.0	OMEGA	CBI	74	-	1111 *
*	BE 2+	1S2S 1S	1S2P 1P	2	X =INF	OMEGA	B	74	-	1111 *
*	BE 2+	1S2S 1S	1S3P 1P	2	X =1.0 - 8.0	OMEGA	CBI	74	-	1111 *
*	BE 2+	1S2S 1S	1S3P 1P	2	X =INF	OMEGA	B	74	-	1111 *
*	BE 2+	1S2S 1S	1S4P 1P	2	X =1.0 - 8.0	OMEGA	CBI	74	-	1111 *
*	BE 2+	1S2S 1S	1S4P 1P	2	X =INF	OMEGA	B	74	-	1111 *
*	BE 2+	1S2S 1S	1S5P 1P	2	X =1.0 - 8.0	OMEGA	CBI	74	-	1111 *
*	BE 2+	1S2S 1S	1S5P 1P	2	X =INF	OMEGA	B	74	-	1111 *
*	BE 2+	1S2S 1S	1S6P 1P	2	X =1.0 - 8.0	OMEGA	CBI	74	-	1111 *
*	BE 2+	1S2S 1S	1S6P 1P	2	X =INF	OMEGA	B	74	-	1111 *
*	BE 2+	1S2S 3S	1S3S 3S	2	X =1.0 - INF	OMEGA	CBI	74	-	1111 *
*	BE 2+	1S2S 3S	1S4S 3S	2	X =1.0 - INF	OMEGA	CBI	74	-	1111 *
*	BE 2+	1S2S 3S	1S5S 3S	2	X =1.0 - INF	OMEGA	CBI	74	-	1111 *
*	BE 2+	1S2S 3S	1S6S 3S	2	X =1.0 - INF	OMEGA	CBI	74	-	1111 *
*	BE 2+	1S2S 3S	1S2P 3P	2	X =1.0 - 8.0	OMEGA	CBI	74	-	1111 *
*	BE 2+	1S2S 3S	1S2P 3P	2	X =INF	OMEGA	B	74	-	1111 *
*	BE 2+	1S2S 3S	1S3P 3P	2	X =1.0 - 8.0	OMEGA	CBI	74	-	1111 *
*	BE 2+	1S2S 3S	1S3P 3P	2	X =INF	OMEGA	B	74	-	1111 *
*	BE 2+	1S2S 3S	1S4P 3P	2	X =1.0 - 8.0	OMEGA	CBI	74	-	1111 *
*	BE 2+	1S2S 3S	1S4P 3P	2	X =INF	OMEGA	B	74	-	1111 *
*	BE 2+	1S2S 3S	1S5P 3P	2	X =1.0 - 8.0	OMEGA	CBI	74	-	1111 *
*	BE 2+	1S2S 3S	1S5P 3P	2	X =INF	OMEGA	B	74	-	1111 *
*	BE 2+	1S2S 3S	1S6P 3P	2	X =1.0 - 8.0	OMEGA	CBI	74	-	1111 *
*	BE 2+	1S2S 3S	1S6P 3P	2	X =INF	OMEGA	B	74	-	1111 *
*	BE +	2S	3S	3	X =1.3,5	OMEGA	CBI	66	-	381 *
*	BE +	2S	4S	3	X =1.3,5	OMEGA	CBI	66	-	381 *
*	BE +	2S	4S	3	X =1.0	OMEGA	CBI	72	-	960 *
*	BE +	2S	5S	3	X =1.3,5	OMEGA	CBI	66	-	381 *
*	BE +	2S	5S	3	X =1.0	OMEGA	CBI	72	-	960 *
*	BE +	2S	6S	3	X =1.3,5	OMEGA	CBI	66	-	381 *
*	BE +	2S	6S	3	X =1.0	OMEGA	CBI	72	-	960 *
*	BE +	2S	7S	3	X =1.3,5	OMEGA	CBI	66	-	381 *
*	BE +	2S	7S	3	X =1 - 6	CMEGA	CBI	63	-	230 *
*	BE +	2S	2P	3	X =1 - 6	OMVEA	CBII	63	-	230 *
*	BE +	2S	2P	3	X =1 - 6	OMEGA	CB'II	63	-	230 *
*	BE +	2S	2P	3	X =1 - 6	OMEGA	CB'II	63	-	230 *
*	BE +	2S	2P	3	X =1 - 10	OMEGA	CBI	66	-	360 *
*	BE +	2S	2P	3	X =1 - 10	OMEGA	CBII	66	-	360 *
*	BE +	2S	2P	3	X =1 - 3	OMEGA	CB'	66	-	360 *
*	BE +	2S	2P	3	X =1.0	OMEGA	SCBI	69	-	640 *
*	BE +	2S	2P	3	X =1.0	OMEGA	SCBII	69	-	640 *
*	BE +	2S	2P	3	X =1.0	OMEGA	CBI	69	-	640 *
*	BE +	2S	2P	3	X =1.0	OMEGA	CBII	69	-	640 *
*	BE +	2S	2P	3	X =1 - 8	CS	CB	74	-	1120 *
*	BE +	2S	2P	3	X =1 - 8	CS	B	74	-	1120 *
*	BE +	2S	2P	3	EV=4.08 - 990.0	CS	CBI	77	-	1430 *
*	BE +	2S	2P	3	EV=4.08 - 990.0	CS	CBII	77	-	1430 *
*	BE +	2S	2P	3	EV=4.08 - 990.0	CS	CBOI	77	-	1430 *
*	BE +	2S	2P	3	EV=4.08 - 990.0	CS	CBII	77	-	1430 *
*	BE +	2S	2P	3	EV=4.08 - 95.2	CS	CC	77	-	1430 *
*	BE +	2S	2P	3	EV=4.08 - 108.8	CS	UDWPOII	78	-	1600 *
*	BE +	2S	2P	3	EV=4.08 - 108.8	CS	CBII	78	-	1600 *
*	BE +	2S	2P	3	EV=4.08 - 108.8	CS	CBOII	78	-	1600 *
*	BE +	2S	2P	3	RY=2.5,8	OMEGA	CC	78	-	1650 *
*	BE +	2S	3P	3	X =1 - 10	OMEGA	CBI	66	-	360 *
*	BE +	2S	3P	3	X =1 - 10	OMEGA	CBII	66	-	360 *
*	BE +	2S	3P	3	X =1 - 3	OMEGA	CB'	66	-	360 *
*	BE +	2S	3P	3	X =1 - 8	CS	B	74	-	1120 *
*	BE +	2S	3P	3	X =1 - 8	CS	CB	74	-	1120 *
*	BE +	2S	4P	3	X =1 - 10	OMEGA	CBI	66	-	360 *
*	BE +	2S	4P	3	X =1.0	OMEGA	CBII	72	-	960 *
*	BE +	2S	5P	3	X =1 - 10	OMEGA	CBI	66	-	360 *
*	BE +	2S	5P	3	X =1.0	OMEGA	CBI	72	-	960 *
*	BE +	2S	6P	3	X =1 - 10	OMEGA	CBI	66	-	360 *

*	ION	TRANSITION	NUMBER E.	ENERGY RANGE	DATA	METHOD	YEAR	REF.	*
*	BE +	2S	6P	3 X =1.0	OMEGA	CBI	72	-	960 *
*	BE +	2S	7P	3 X =1 - 10	OMEGA	CBI	66	-	360 *
*	BE +	2S	3D	3 X =1.3.5	OMEGA	CBI	66	-	381 *
*	BE +	2S	4D	3 X =1.3.5	OMEGA	CBI	66	-	381 *
*	BE +	2S	4D	3 X =1.0	OMEGA	CBI	72	-	960 *
*	BE +	2S	5D	3 X =1.3.5	OMEGA	CBI	66	-	381 *
*	BE +	2S	5D	3 X =1.0	OMEGA	CBI	72	-	960 *
*	BE +	2S	6D	3 X =1.3.5	OMEGA	CBI	66	-	381 *
*	BE +	2S	6D	3 X =1.0	OMEGA	CBI	72	-	960 *
*	BE +	2S	7D	3 X =1.3.5	OMEGA	CBI	66	-	381 *
*	BE +	2S	6F	3 X =1.0.2.0.3.0	OMEGA	CBI	72	-	960 *
*	BE +	2S	5F	3 X =1.0.2.0.3.0	OMEGA	CBI	72	-	960 *
*	BE +	2S	4F	3 X =1.0.2.0.3.0	OMEGA	CBI	72	-	960 *
*	BE +	2P	3S	3 X =1.0.1.5.2.0	OMEGA	CBI	70	-	720 *
*	BE +	2P	4S	3 X =1.0.1.5.2.0	OMEGA	CBI	70	-	720 *
*	BE +	2P	7S	3 X =1.0.1.5.2.0	OMEGA	CBI	70	-	720 *
*	BE +	2P	3P	3 X =1.0.1.5.2.0	OMEGA	CBI	70	-	720 *
*	BE +	2P	4P	3 X =1.0.1.5.2.0	OMEGA	CBI	70	-	720 *
*	BE +	2P	7P	3 X =1.0.1.5.2.0	OMEGA	CBI	70	-	720 *
*	BE +	2P	3D	3 X =1.0.1.5.2.0	OMEGA	CBI	70	-	720 *
*	BE +	2P	4D	3 X =1.0.1.5.2.0	OMEGA	CBI	70	-	720 *
*	BE +	2P	7D	3 X =1.0.1.5.2.0	OMEGA	CBI	70	-	720 *
*	B 3+	1S2 1S	1S2S 1S	2 X =1.0 - 10.0	CS	DWPOII	77	-	1510 *
*	B 3+	1S2 1S	1S2S 1S	2 RY=1. - 50	CS	CB	77	-	1520 *
*	B 3+	1S2 1S	1S2S 1S	2 RY=1. - 50	CS	DW	77	-	1520 *
*	B 3+	1S2 1S	1S2S 3S	2 RY=18.27.50	CS	DW	77	-	1520 *
*	B 3+	1S2 1S	1S2S 3S	2 X =1.0 - 10.0	CS	CPCO	78	-	1820 *
*	B 3+	1S2 1S	1S2P 1P	2 X =1.0 - 10.0	CS	DWPOII	77	-	1510 *
*	B 3+	1S2 1S	1S2P 1P	2 RY=18.27.50	CS	CB	77	-	1520 *
*	B 3+	1S2 1S	1S2P 1P	2 RY=18.27.50	CS	DW	77	-	1520 *
*	B 3+	1S2 1S	1S2P 3P	2 RY=18.27.50	CS	DW	77	-	1520 *
*	B +	2S2 1S	2S2P 1P	4 RY=0.471.1.241	OMEGA	CC	70	-	830 *
*	B +	2S2 1S	2S2P 3P	4 RY=0.471.1.241	OMEGA	CC	70	-	830 *
*	B +	2S2P 3P0	2S2P 3P2	4 X =1.0	OMEGA	CB	68	-	590 *
*	B +	2S2P 3P0	2S2P 3P2	4 X =1.0	OMEGA	DW	68	-	590 *
*	C 5+	1S	2S	1 K =0.8672 - 3.0	CS	B	66	-	240 *
*	C 5+	1S	2S	1 X =1.0	CS	CB	71	-	890 *
*	C 5+	1S	2S	1 X =1.0 - 10.0	CS	CBI	76	-	1320 *
*	C 5+	1S	2S	1 X =1.0 - 10.0	CS	CBOI	76	-	1320 *
*	C 5+	1S	2S	1 X =1.01 - 20.0	OMEGA	CBI	77	-	1400 *
*	C 5+	1S	2S	1 X =1.01 - 20.0	OMEGA	CBOI	77	-	1400 *
*	C 5+	1S	2S	1 X =1.0 - 4.0	OMEGA	CC	77	-	1500 *
*	C 5+	1S	2S	1 X =1.0 - 4.0	OMEGA	DW	77	-	1500 *
*	C 5+	1S	2S	1 X =1.0 - 26.67	CS	DWPOII	77	-	1510 *
*	C 5+	1S	2S	1 X =1.0 - 26.67	OMEGA	DW	77	-	1530 *
*	C 5+	1S	2S	1 X =1.0 - 1.1	OMEGA	CC	78	-	1670 *
*	C 5+	1S	2S	1 X =1 - 10	CS	CB	78	-	1730 *
*	C 5+	1S	3S	1 K =0.9487 - 3.0	CS	B	66	-	240 *
*	C 5+	1S	3S	1 X =1.0	CS	CB	71	-	890 *
*	C 5+	1S	3S	1 X =1.01 - 20.0	OMEGA	CBI	77	-	1400 *
*	C 5+	1S	3S	1 X =1.01 - 20.0	OMEGA	CBOI	77	-	1400 *
*	C 5+	1S	4S	1 X =1.01 - 20.0	OMEGA	CBOI	77	-	1400 *
*	C 5+	1S	2P	1 X =1.0	CS	CB	71	-	890 *
*	C 5+	1S	2P	1 X =1.01 - 20.0	OMEGA	CBI	77	-	1400 *
*	C 5+	1S	2P	1 X =1.01 - 20.0	OMEGA	CBOI	77	-	1400 *
*	C 5+	1S	2P	1 X =1.01 - 2.78	OMEGA	CC	77	-	1400 *
*	C 5+	1S	2P	1 X =1.0 - 4.0	OMEGA	CC	77	-	1500 *
*	C 5+	1S	2P	1 X =1.0 - 4.0	OMEGA	DW	77	-	1500 *
*	C 5+	1S	3P	1 X =1.0 - 26.67	CS	DWPOII	77	-	1510 *
*	C 5+	1S	3P	1 X =1.01 - 20.0	OMEGA	CC	78	-	1670 *
*	C 5+	1S	3P	1 X =1.01 - 20.0	OMEGA	CBOI	77	-	1400 *
*	C 5+	1S	2P	1 X =1.0 - 1.1	CS	CB	78	-	1730 *
*	C 5+	1S	2P	1 X =1 - 10	CS	CB	71	-	890 *
*	C 5+	1S	3P	1 X =1.0	CS	CB	71	-	890 *
*	C 5+	1S	3P	1 X =1.01 - 20.0	OMEGA	CBI	77	-	1400 *
*	C 5+	1S	3P	1 X =1.01 - 20.0	OMEGA	CBOI	77	-	1400 *
*	C 5+	1S	4P	1 X =1.01 - 20.0	OMEGA	CBOI	77	-	1400 *
*	C 5+	1S	5P	1 X =1.01 - 20.0	OMEGA	CBOI	77	-	1400 *
*	C 5+	1S	3D	1 X =1.0	CS	CB	71	-	890 *
*	C 5+	1S	3D	1 X =1.01 - 20.0	OMEGA	CBOI	77	-	1400 *
*	C 5+	1S	3D	1 X =1.01 - 20.0	OMEGA	CBI	77	-	1400 *
*	C 5+	2S	3S	1 X =1.0	CS	CB	71	-	890 *
*	C 5+	2S	3P	1 X =1 - 7.76	CS	DW	61	-	160 *
*	C 5+	2S	3P	1 X =1 - 7.76	CS	B	61	-	160 *
*	C 5+	2S	3P	1 X =1.0	CS	CB	71	-	890 *
*	C 5+	2S	3D	1 X =1.0	CS	CB	71	-	890 *
*	C 5+	2P	3S	1 X =1.0	CS	CB	71	-	890 *
*	C 5+	2P	3P	1 X =1.0	CS	CB	71	-	890 *
*	C 5+	2P	3D	1 X =1.0	CS	CB	71	-	890 *
*	C 4+	1S2 1S	1S2S 1S	2 AU=12.5.15.20	OMEGA	DW	77	-	1380 *
*	C 4+	1S2 1S	1S2S 1S	2 AU=12.5.15.20	OMEGA	CC	77	-	1380 *
*	C 4+	1S2 1S	1S2S 1S	2 X =1.01 - 100.0	OMEGA	CBI	77	-	1400 *
*	C 4+	1S2 1S	1S2S 1S	2 X =1.01 - 100.0	OMEGA	CBOI	77	-	1400 *
*	C 4+	1S2 1S	1S2S 1S	2 X =1.01 - 25.0	OMEGA	CC	77	-	1400 *
*	C 4+	1S2 1S	1S2S 1S	2 X =1.0 - 10.0	CS	DWPOII	77	-	1510 *
*	C 4+	1S2 1S	1S2S 1S	2 RY=25 - 100	CS	CB	77	-	1520 *
*	C 4+	1S2 1S	1S2S 1S	2 RY=25 - 100	CS	DW	77	-	1520 *

*	ION.	TRANSITION	NUMBER	E.	ENERGY RANGE	DATA	METHOD	YEAR	REF.	*
* C 4+	1S2 1S	1S2S 3S	2	X = 1.04	- 47.0	CS	OF	67	-	480
* C 4+	1S2 1S	1S2S 3S	2	X = 1.04	- 47.0	CS	CBOI	67	-	480
* C 4+	1S2 1S	1S2S 3S	2	AU=12.5	.15.20	OMEGA	DW	77	-	1380
* C 4+	1S2 1S	1S2S 3S	2	AU=12.5	.15.20	OMEGA	CC	77	-	1380
* C 4+	1S2 1S	1S2S 3S	2	X = 1.01	- 25.0	OMEGA	CBOI	77	-	1400
* C 4+	1S2 1S	1S2S 3S	2	X = 1.03	- 5.51	OMEGA	CC	77	-	1400
* C 4+	1S2 1S	1S2S 3S	2	RY=25	- 100	CS	DW	77	-	1520
* C 4+	1S2 1S	1S2S 3S	2	X = 1.0	- 10.0	CS	CPCO	78	-	1820
* C 4+	1S2 1S	1S2P 1P	2	EV=307.8	- 20000	CS	CB	76	-	1321
* C 4+	1S2 1S	1S2P 1P	2	AU=12.5	.15.20	OMEGA	DW	77	-	1380
* C 4+	1S2 1S	1S2P 1P	2	AU=12.5	.15.20	OMEGA	CC	77	-	1380
* C 4+	1S2 1S	1S2P 1P	2	X = 1.01	- 25.0	OMEGA	CBI	77	-	1400
* C 4+	1S2 1S	1S2P 1P	2	X = 1.01	- 25.0	OMEGA	CBOI	77	-	1400
* C 4+	1S2 1S	1S2P 1P	2	X = 1.00	- 4.47	OMEGA	CC	77	-	1400
* C 4+	1S2 1S	1S2P 1P	2	X = 1.0	- 10.0	CS	DWPOII	77	-	1510
* C 4+	1S2 1S	1S2P 1P	2	RY=25	- 100	CS	DW	77	-	1520
* C 4+	1S2 1S	1S2P 1P	2	RY=25	- 100	CS	CB	77	-	1520
* C 4+	1S2 1S	1S2P 3P	2	AU=12.5	.15.20	OMEGA	DW	77	-	1380
* C 4+	1S2 1S	1S2P 3P	2	AU=12.5	.15.20	OMEGA	CC	77	-	1380
* C 4+	1S2 1S	1S2P 3P	2	X = 1.01	- 25.0	OMEGA	CBOI	77	-	1400
* C 4+	1S2 1S	1S2P 3P	2	X = 1.01	- 4.51	OMEGA	CC	77	-	1400
* C 4+	1S2 1S	1S2P 3P	2	RY=25	- 100	CS	DW	77	-	1520
* C 4+	1S2 1S	1S3P 1P	2	EV=354.4	- 20000	CS	CB	76	-	1321
* C 4+	1S2S 1S	1S2P 1P	2	X = 1.01	- 1000.0	OMEGA	CBI	77	-	1400
* C 4+	1S2S 1S	1S2P 1P	2	X = 1.01	- 1000.0	OMEGA	CBOI	77	-	1400
* C 4+	1S2S 1S	1S2P 1P	2	X = 1.43	- 309.95	OMEGA	CC	77	-	1400
* C 4+	1S2S 1S	1S2P 3P	2	X = 34.6	- 7486.52	OMEGA	CC	77	-	1400
* C 4+	1S2S 1S	1S3P 1P	2	X = 1	- 7.76	CS	B	61	-	160
* C 4+	1S2S 1S	1S3P 1P	2	X = 1	- 7.76	CS	DW	61	-	160
* C 4+	1S2S 3S	1S2S 1S	2	X = 1.01	- 250.0	OMEGA	CBOI	77	-	1400
* C 4+	1S2S 3S	1S2S 1S	2	X = 1.96	- 209.96	OMEGA	CC	77	-	1400
* C 4+	1S2S 3S	1S2P 1P	2	X = 1.01	- 1729.0	OMEGA	CBOI	77	-	1400
* C 4+	1S2S 3S	1S2P 1P	2	X = 1.17	- 125.41	OMEGA	CC	77	-	1400
* C 4+	1S2S 3S	1S2P 3P	2	EV=54.4	- 1000	CS	CB	76	-	1321
* C 4+	1S2S 3S	1S2P 3P	2	X = 1.01	- 1000.0	OMEGA	CBI	77	-	1400
* C 4+	1S2S 3S	1S2P 3P	2	X = 1.01	- 1000.0	OMEGA	CBOI	77	-	1400
* C 4+	1S2S 3S	1S3P 3P	2	X = 1.89	- 252.85	OMEGA	CC	77	-	1400
* C 4+	1S2S 3S	1S2P 3P	2	EV=54.5	- 2000	CS	CB	76	-	1321
* C 4+	1S2P 3P	1S3S 3S	2	EV=47.7	- 2000	CS	CB	76	-	1321
* C 4+	1S2P 3P	1S2P 1P	2	X = 1.46	- 323.29	OMEGA	CC	77	-	1400
* C 3+	2S	3S	3	X = 1.01	- 100.0	OMEGA	CBOII	77	-	1400
* C 3+	2S	3S	3	X = 1.01	- 100.0	OMEGA	CBII	77	-	1400
* C 3+	2S	3S	3	RY=2.752	- 16.0	OMEGA	CC	77	-	1560
* C 3+	2S	4S	3	X = 1.0		OMEGA	CBI	72	-	960
* C 3+	2S	5S	3	X = 1.0		OMEGA	CBI	72	-	960
* C 3+	2S	6S	3	X = 1.0		OMEGA	CBI	72	-	960
* C 3+	2S	2P	3	X = 1	- 6	OMEGA	CBI	63	-	230
* C 3+	2S	2P	3	X = 1	- 6	OMVEA	CBII	63	-	230
* C 3+	2S	2P	3	X = 1	- 6	OMEGA	CB'II	63	-	230
* C 3+	2S	2P	3	X = 1	- 6	OMEGA	CB''II	63	-	230
* C 3+	2S	2P	3	X = 1.0		OMEGA	CBII	69	-	640
* C 3+	2S	2P	3	X = 1.0		OMEGA	SCBII	69	-	640
* C 3+	2S	2P	3	X = 1.0		OMEGA	SCBII	69	-	640
* C 3+	2S	2P	3	X = 1.0		OMEGA	CBII	69	-	640
* C 3+	2S	2P	3	X = 1.01	- 400.0	OMEGA	CBOII	77	-	1400
* C 3+	2S	2P	3	X = 1.01	- 400.0	OMEGA	CBII	77	-	1400
* C 3+	2S	2P	3	X = 1.01	- 27.01	OMEGA	CC	77	-	1400
* C 3+	2S	2P	3	RY=0.8	- 16.0	CS	CC	77	-	1411
* C 3+	2S	2P	3	RY=1.4	- 2.6	CS	CC	77	-	1540
* C 3+	2S	2P	3	RY=0.592	- 16.0	OMEGA	CC	77	-	1560
* C 3+	2S	2P	3	K = 2.5	- 18	CS	BETHE	77	-	1580
* C 3+	2S	3P	3	X = 1.01	- 100.0	OMEGA	CBII	77	-	1400
* C 3+	2S	3P	3	X = 1.01	- 100.0	OMEGA	CBOII	77	-	1560
* C 3+	2S	3P	3	RY=2.910	- 16.0	OMEGA	CC	77	-	1560
* C 3+	2S	4P	3	X = 1.0		OMEGA	CBI	72	-	960
* C 3+	2S	5P	3	X = 1.0		OMEGA	CBI	72	-	960
* C 3+	2S	6P	3	X = 1.0		OMEGA	CBI	72	-	960
* C 3+	2S	3D	3	X = 1.01	- 100.0	OMEGA	CBOI	77	-	1400
* C 3+	2S	3D	3	X = 1.01	- 100.0	OMEGA	CBII	77	-	1400
* C 3+	2S	3D	3	RY=2.951	- 16.0	OMEGA	CC	77	-	1560
* C 3+	2S	4D	3	X = 1.0		OMEGA	CBI	72	-	960
* C 3+	2S	5D	3	X = 1.0		OMEGA	CBI	72	-	960
* C 3+	2S	6D	3	X = 1.0		OMEGA	CBI	72	-	960
* C 3+	2S	4F	3	X = 1.0,2,0,3,0		OMEGA	CBI	72	-	960
* C 3+	2S	5F	3	X = 1.0,2,0,3,0		OMEGA	CBI	72	-	960
* C 3+	2S	6F	3	X = 1.0,2,0,3,0		OMEGA	CBI	72	-	960
* C 3+	2P	3S	3	RY=2.160	- 16.0	OMEGA	CC	77	-	1560
* C 3+	2P	3P	3	RY=2.318	- 16.00	OMEGA	CC	77	-	1560
* C 3+	2P	3D	3	RY=2.359	- 16.0	OMEGA	CC	77	-	1560
* C 3+	1S2 2S	1S2S2	3	X = 1.01	- 25.0	OMEGA	CBOI	77	-	1400
* C 3+	1S2 2S	1S2SP 4P	3	X = 1.01	- 25.0	OMEGA	CBOII	77	-	1400
* C 3+	1S2 2S	1S2S(1S)2P 2P	3	X = 1.01	- 25.0	OMEGA	CBOII	77	-	1400
* C 3+	1S2 2S	1S2S(3S)2P 2P	3	X = 1.01	- 25.0	OMEGA	CBOII	77	-	1400
* C 3+	1S2 2S	1S2SP 2P	3	X = 1.01	- 25.0	OMEGA	CBII	77	-	1400
* C 3+	1S2 2S	1S2S2P 2P	3	X = 1.01	- 25.0	OMEGA	CBOII	77	-	1400

*	ION	TRANSITION	NUMBER	E.	ENERGY RANGE	DATA	METHOD	YEAR	REF.	*
*	C 2+	2S2 1S	2S2P 1P	4	RY=0.951 - 1.551	OMEGA	CC	70	-	830 *
*	C 2+	2S2 1S	2S2P 1P	4	E =2.0.2.5	OMEGA	DW	72	-	910 *
*	C 2+	2S2 1S	2S2P 1P	4	E =2.0.2.5	OMEGA	CC	72	-	910 *
*	C 2+	2S2 1S	2S2P 1P	4	RY=1.186 - 2.486	OMEGA	DW	72	-	951 *
*	C 2+	2S2 1S	2S2P 1P	4	RY=1.186	OMEGA	CC	72	-	951 *
*	C 2+	2S2 1S	2S2P 1P	4	RY=1.5.2.0.2.5	OMEGA	DW	73	-	991 *
*	C 2+	2S2 1S	2S2P 1P	4	RY=1.5.2.0.2.5	OMEGA	CC	73	-	991 *
*	C 2+	2S2 1S	2S2P 1P	4	RY=12.98 - 4000	CS	CB	77	-	1390 *
*	C 2+	2S2 1S	2S2P 1P	4	X =1.01 - 300.0	OMEGA	CBOII	77	-	1400 *
*	C 2+	2S2 1S	2S2P 1P	4	X =1.01 - 300.0	OMEGA	CBOII	77	-	1400 *
*	C 2+	2S2 1S	2S2P 1P	4	X =1.51 - 26.12	OMEGA	CC	77	-	1400 *
*	C 2+	2S2 1S	2S2P 1P	4	RY=0.94 - 10.0	OMEGA	R-MAT	77	-	1420 *
*	C 2+	2S2 1S	2S2P 3P	4	X =1.0 - 4.0	CS	CBOI	67	-	480 *
*	C 2+	2S2 1S	2S2P 3P	4	X =1.0 - 4.0	CS	OF	67	-	480 *
*	C 2+	2S2 1S	2S2P 3P	4	RY=0.950 - 1.550	OMEGA	CC	70	-	830 *
*	C 2+	2S2 1S	2S2P 3P	4	E =2.0.2.5	OMEGA	DW	72	-	910 *
*	C 2+	2S2 1S	2S2P 3P	4	E =2.0.2.5	OMEGA	CC	72	-	910 *
*	C 2+	2S2 1S	2S2P 3P	4	RY=1.186 - 2.486	OMEGA	DW	72	-	951 *
*	C 2+	2S2 1S	2S2P 3P	4	RY=1.186	OMEGA	CC	72	-	951 *
*	C 2+	2S2 1S	2S2P 3P	4	RY=0.56 - 2.2	OMEGA	DW	73	-	990 *
*	C 2+	2S2 1S	2S2P 3P	4	RY=1.5.2.0.2.5	OMEGA	DW	73	-	991 *
*	C 2+	2S2 1S	2S2P 3P	4	RY=1.5.2.0.2.5	OMEGA	CC	73	-	991 *
*	C 2+	2S2 1S	2S2P 3P	4	X =1.01 - 600.0	OMEGA	CBOII	77	-	1400 *
*	C 2+	2S2 1S	2S2P 3P	4	X =1.01 - 57.49	OMEGA	CC	77	-	1400 *
*	C 2+	2S2 1S	2S2P 3P	4	RY=0.48 - 12.0	OMEGA	R-MAT	77	-	1420 *
*	C 2+	2S2 1S	2S2P 3P	4	E =2.0.2.5	OMEGA	CC	72	-	910 *
*	C 2+	2S2 1S	2P2 1S	4	E =2.0.2.5	OMEGA	DW	72	-	910 *
*	C 2+	2S2 1S	2P2 1S	4	RY=2.486	OMEGA	DW	72	-	951 *
*	C 2+	2S2 1S	2P2 1S	4	RY=1.5.2.0.2.5	OMEGA	DW	73	-	991 *
*	C 2+	2S2 1S	2P2 1S	4	RY=1.5.2.0.2.5	OMEGA	CC	73	-	991 *
*	C 2+	2S2 1S	2P2 3P	4	E =2.0.2.5	OMEGA	CC	72	-	910 *
*	C 2+	2S2 1S	2P2 3P	4	E =2.0.2.5	OMEGA	DW	72	-	910 *
*	C 2+	2S2 1S	2P2 3P	4	RY=1.186 - 2.486	OMEGA	DW	72	-	951 *
*	C 2+	2S2 1S	2P2 3P	4	RY=1.5.2.0.2.5	OMEGA	DW	73	-	991 *
*	C 2+	2S2 1S	2P2 3P	4	RY=1.5.2.0.2.5	OMEGA	CC	73	-	991 *
*	C 2+	2S2 1S	2P2 1D	4	X =1.18 - 20.59	OMEGA	CC	77	-	1400 *
*	C 2+	2S2 1S	2P2 1D	4	E =2.0.2.5	OMEGA	DW	72	-	910 *
*	C 2+	2S2 1S	2P2 1D	4	E =2.0.2.5	OMEGA	CC	72	-	910 *
*	C 2+	2S2 1S	2P2 1D	4	RY=1.486.2.486	OMEGA	DW	72	-	951 *
*	C 2+	2S2 1S	2P2 1D	4	RY=1.5.2.0.2.5	OMEGA	DW	73	-	991 *
*	C 2+	2S2 1S	2P2 1D	4	RY=1.5.2.0.2.5	OMEGA	CC	73	-	991 *
*	C 2+	2S2 1S	2S3S 1S	4	X =1.01 - 150.0	OMEGA	CBOII	77	-	1400 *
*	C 2+	2S2 1S	2S3S 3S	4	X =1.01 - 150.0	OMEGA	CBOII	77	-	1400 *
*	C 2+	2S2 1S	2S3P 1P	4	X =1.01 - 150.0	OMEGA	CBOII	77	-	1400 *
*	C 2+	2S2 1S	2S3P 3P	4	X =1.01 - 150.0	OMEGA	CBOII	77	-	1400 *
*	C 2+	2S2 1S	2S3D 1D	4	X =1.01 - 150.0	OMEGA	CBOII	77	-	1400 *
*	C 2+	2S2 1S	2S3D 3D	4	X =1.01 - 150.0	OMEGA	CBOII	77	-	1400 *
*	C 2+	2S2P 1P	2P2 1S	4	RY=2.486	OMEGA	DW	72	-	951 *
*	C 2+	2S2P 1P	2P2 3P	4	RY=1.486.2.486	OMEGA	DW	72	-	951 *
*	C 2+	2S2P 1P	2P2 3P	4	X =1.89 - 33.69	OMEGA	CC	77	-	1400 *
*	C 2+	2S2P 1P	2P2 3P	4	RY=1.486.2.486	OMEGA	DW	72	-	951 *
*	C 2+	2S2P 1P	2P2 1D	4	X =1.42 - 25.40	OMEGA	CC	77	-	1400 *
*	C 2+	2S2P 3P	2S2P 1P	4	RY=1.186 - 2.486	OMEGA	DW	72	-	951 *
*	C 2+	2S2P 3P	2S2P 1P	4	X =1.93 - 17.58	OMEGA	CC	77	-	1400 *
*	C 2+	2S2P 3P	2P2 1S	4	RY=2.486	OMEGA	DW	72	-	951 *
*	C 2+	2S2P 3P	2P2 3P	4	RY=1.486.2.486	OMEGA	DW	72	-	951 *
*	C 2+	2S2P 3P	2P2 3P	4	X =1.29 - 11.78	OMEGA	CC	77	-	1400 *
*	C 2+	2S2P 3P	2P2 1D	4	RY=1.486.2.486	OMEGA	DW	72	-	951 *
*	C 2+	2S2P 3P	2P2 1D	4	X =1.17 - 10.64	OMEGA	CC	77	-	1400 *
*	C 2+	2P2 3P	2P2 1S	4	RY=2.486	OMEGA	DW	72	-	951 *
*	C 2+	2P2 3P	2P2 1D	4	RY=1.486.2.486	OMEGA	DW	72	-	951 *
*	C 2+	2P2 1D	2P2 1S	4	RY=2.486	OMEGA	DW	72	-	951 *
*	C 2+	2S2 1S0	2S2P 1P1	4	RY=1.186 - 2.486	OMEGA	DW	72	-	951 *
*	C 2+	2S2 1S0	2S2P 3P0	4	RY=1.186 - 2.486	OMEGA	DW	72	-	951 *
*	C 2+	2S2 1S0	2S2P 3P1	4	RY=1.186 - 2.486	OMEGA	DW	72	-	951 *
*	C 2+	2S2 1S0	2S2P 3P2	4	RY=1.186 - 2.486	OMEGA	DW	72	-	951 *
*	C 2+	2S2 1S0	2P2 1S0	4	RY=2.486	OMEGA	DW	72	-	951 *
*	C 2+	2S2 1S0	2P2 3P0	4	RY=1.486.2.486	OMEGA	DW	72	-	951 *
*	C 2+	2S2 1S0	2P2 3P0	4	RY=1.486.2.486	OMEGA	DW	72	-	951 *
*	C 2+	2S2 1S0	2P2 3P1	4	RY=1.486.2.486	OMEGA	DW	72	-	951 *
*	C 2+	2S2 1S0	2P2 3P2	4	RY=1.486.2.486	OMEGA	DW	72	-	951 *
*	C 2+	2S2 1S0	2P2 1D2	4	RY=1.486.2.486	OMEGA	DW	72	-	951 *
*	C 2+	2S2P 1P1	2P2 1S0	4	RY=2.4.36	OMEGA	DW	72	-	951 *
*	C 2+	2S2P 1P1	2P2 3P0	4	RY=1.486.2.486	OMEGA	DW	72	-	951 *
*	C 2+	2S2P 1P1	2P2 3P1	4	RY=1.486.2.486	OMEGA	DW	72	-	951 *
*	C 2+	2S2P 1P1	2P2 3P2	4	RY=1.486.2.486	OMEGA	DW	72	-	951 *
*	C 2+	2S2P 1P1	2P2 1D2	4	RY=1.486.2.486	OMEGA	DW	72	-	951 *
*	C 2+	2S2P 3P0	2S2P 1P1	4	RY=1.186 - 2.486	OMEGA	DW	72	-	951 *
*	C 2+	2S2P 3P0	2S2P 3P1	4	RY=1.186 - 2.486	OMEGA	DW	72	-	951 *
*	C 2+	2S2P 3P0	2S2P 3P2	4	X =1.0	OMEGA	CB	68	-	590 *
*	C 2+	2S2P 3P0	2S2P 3P2	4	X =1.0	OMEGA	DW	68	-	590 *
*	C 2+	2S2P 3P0	2S2P 3P2	4	RY=1.186 - 2.486	OMEGA	DW	72	-	951 *
*	C 2+	2S2P 3P0	2P2 1S0	4	RY=2.486	OMEGA	DW	72	-	951 *
*	C 2+	2S2P 3P0	2P2 3P0	4	RY=1.486.2.486	OMEGA	DW	72	-	951 *

*	ION	TRANSITION	NUMBER	E.	ENERGY RANGE	DATA	METHOD	YEAR	REF.	*
*	C 2+	2S2P 3P0	2P2 3P1	4	RY=1.486,2.486	OMEGA	DW	72	-	951 *
*	C 2+	2S2P 3P0	2P2 3P2	4	RY=1.486,2.486	OMEGA	DW	72	-	951 *
*	C 2+	2S2P 3P0	2P2 1D2	4	RY=1.486,2.486	OMEGA	DW	72	-	951 *
*	C 2+	2S2P 3P1	2S2P 1P1	4	RY=1.186 - 2,486	OMEGA	DW	72	-	951 *
*	C 2+	2S2P 3P1	2S2P 3P2	4	RY=1.186 - 2,486	OMEGA	DW	72	-	951 *
*	C 2+	2S2P 3P1	2P2 1S0	4	RY=2.486	OMEGA	DW	72	-	951 *
*	C 2+	2S2P 3P1	2P2 3P0	4	RY=1.486,2.486	OMEGA	DW	72	-	951 *
*	C 2+	2S2P 3P1	2P2 3P1	4	RY=1.486,2.486	OMEGA	DW	72	-	951 *
*	C 2+	2S2P 3P1	2P2 3P2	4	RY=1.486,2.486	OMEGA	DW	72	-	951 *
*	C 2+	2S2P 3P1	2P2 1D2	4	RY=1.486,2.486	OMEGA	DW	72	-	951 *
*	C 2+	2S2P 3P2	2S2P 1P1	4	RY=1.186 - 2,486	OMEGA	DW	72	-	951 *
*	C 2+	2S2P 3P2	2P2 1S0	4	RY=2.486	OMEGA	DW	72	-	951 *
*	C 2+	2S2P 3P2	2P2 3P0	4	RY=1.486,2.486	OMEGA	DW	72	-	951 *
*	C 2+	2S2P 3P2	2P2 3P1	4	RY=1.486,2.486	OMEGA	DW	72	-	951 *
*	C 2+	2S2P 3P2	2P2 3P2	4	RY=1.486,2.486	OMEGA	DW	72	-	951 *
*	C 2+	2P2 3P0	2P2 1S0	4	RY=1.486,2.486	OMEGA	DW	72	-	951 *
*	C 2+	2P2 3P0	2P2 3P1	4	RY=1.486,2.486	OMEGA	DW	72	-	951 *
*	C 2+	2P2 3P0	2P2 3P2	4	RY=1.486,2.486	OMEGA	DW	72	-	951 *
*	C 2+	2P2 3P0	2P2 1D2	4	RY=1.486,2.486	OMEGA	DW	72	-	951 *
*	C 2+	2P2 3P1	2P2 1S0	4	RY=2.486	OMEGA	DW	72	-	951 *
*	C 2+	2P2 3P1	2P2 3P2	4	RY=1.486,2.486	OMEGA	DW	72	-	951 *
*	C 2+	2P2 3P2	2P2 1S0	4	RY=2.486	OMEGA	DW	72	-	951 *
*	C 2+	2P2 3P2	2P2 3P1	4	RY=1.486,2.486	OMEGA	DW	72	-	951 *
*	C 2+	2P2 3P2	2P2 1D2	4	RY=1.486,2.486	OMEGA	DW	72	-	951 *
*	C +	2S2 2P 2P	2S2 3'S 2S	5	X =1.01 - 100,0	OMEGA	CBII	77	-	1400 *
*	C +	2S2 2P 2P	2S2 3S 2S	5	X =1.01 - 100,0	OMEGA	CBOII	77	-	1400 *
*	C +	2S2 2P 2P	2S2 3P 2P	5	X =1.01 - 100,0	OMEGA	CBII	77	-	1400 *
*	C +	2S2 2P 2P	2S2 3P 2P	5	X =1.01 - 100,0	OMEGA	CBOII	77	-	1400 *
*	C +	2S2 2P 2P	2S2 3D 2D	5	X =1.01 - 100,0	OMEGA	CBII	77	-	1400 *
*	C +	2S2 2P 2P	2S2 3D 2D	5	X =1.01 - 100,0	OMEGA	CBOII	77	-	1400 *
*	C +	2S2 2P 2P	2S2P2 25	5	X =1.01 - 100,0	OMEGA	CBII	77	-	1400 *
*	C +	2S2 2P 2P	2S2P2 25	5	X =1.01 - 100,0	OMEGA	CBOII	77	-	1400 *
*	C +	2S2 2P 2P	2S2P2 25	5	X =1.01 - 100,0	OMEGA	CC	77	-	1400 *
*	C +	2S2 2P 2P	2S2P2 25	5	X =1.26 - 10,54	OMEGA	CC	77	-	1400 *
*	C +	2S2 2P 2P	2S2P2 2P	5	X =1.01 - 100,0	OMEGA	CBII	77	-	1400 *
*	C +	2S2 2P 2P	2S2P2 2P	5	X =1.01 - 100,0	OMEGA	CBOII	77	-	1400 *
*	C +	2S2 2P 2P	2S2P2 2P	5	X =1.08 - 8,97	OMEGA	CC	77	-	1400 *
*	C +	2S2 2P 2P	2S2P2 4P	5	RY=0.348 - 0,75	OMEGA	CC	72	-	920 *
*	C +	2S2 2P 2P	2S2P2 4P	5	X =1.0 - 200	OMEGA	CBOII	77	-	1400 *
*	C +	2S2 2P 2P	2S2P2 4P	5	X =1.0 - 28,84	OMEGA	CC	77	-	1400 *
*	C +	2S2 2P 2P	2S2P2 2D	5	X =1.01 - 100,0	OMEGA	CBII	77	-	1400 *
*	C +	2S2 2P 2P	2S2P2 2D	5	X =1.01 - 100,0	OMEGA	CBOII	77	-	1400 *
*	C +	2S2 2P 2P	2S2P2 2D	5	X =1.62 - 13,49	OMEGA	CC	77	-	1400 *
*	C +	2S2P2 2S	2S2P2 2P	5	X =1.40 - 115,37	OMEGA	CC	77	-	1400 *
*	C +	2S2P2 4P	2S2P2 2P	5	X =1.09 - 25,70	OMEGA	CC	77	-	1400 *
*	C +	2S2P2 4P	2S2P2 2D	5	X =2.11 - 50,03	OMEGA	CC	77	-	1400 *
*	C +	2S2P2 4P	2S2P2 2S	5	X =1.39 - 32,77	OMEGA	CC	77	-	1400 *
*	C +	2S2P2 2D	2S2P2 2S	5	X =2.12 - 93,12	OMEGA	CC	77	-	1400 *
*	C +	2S2P2 2D	2S2P2 2P	5	X =1.18 - 51,78	OMEGA	CC	77	-	1400 *
*	C +	2S2 2P 2P1/2	2S2 2P 2P3/2	5	X =1.0	OMEGA	DWBO	55	-	100 *
*	C +	2S2 2P 2P1/2	2S2 2P 2P3/2	5	X =1.0	OMEGA	CB	68	-	590 *
*	C +	2S2 2P 2P1/2	2S2 2F 2P3/2	5	X =1.0	OMEGA	DW	68	-	590 *
*	C +	2S2 2P 2P1/2	2S2 2P 2P3/2	5	X =1.0	OMEGA	CBO	69	-	630 *
*	C +	2S2 2P 2P1/2	2S2 2P 2P3/2	5	RY=0.0,0.05,0.10	OMEGA	ER+DW	69	-	710 *
*	C +	2S2 2P 2P1/2	2S2 2P 2P3/2	5	RY=0.000633 - 0,20	OMEGA	CC	77	-	1451 *
*	N 6+	1S	2S	1	X =1.0	CS	CB	71	-	890 *
*	N 6+	1S	2S	1	X =1.0 - 26,67	CS	DWPOII	77	-	1510 *
*	N 6+	1S	2S	1	X =1 - 10	CS	CB	78	-	1730 *
*	N 6+	1S	3S	1	X =1.0	CS	CB	71	-	890 *
*	N 6+	1S	2P	1	X =1.0	CS	CB	71	-	890 *
*	N 6+	1S	2P	1	X =1.0 - 26,67	CS	DWPOII	77	-	1510 *
*	N 6+	1S	2P	1	X =1 - 10	CS	CB	78	-	1730 *
*	N 6+	1S	3P	1	X =1.0	CS	CB	71	-	890 *
*	N 6+	1S	3D	1	X =1.0	CS	CB	71	-	890 *
*	N 6+	2S	3S	1	X =1.0	CS	CB	71	-	890 *
*	N 6+	2S	3P	1	X =1.0	CS	CB	71	-	890 *
*	N 6+	2P	3P	1	X =1.0	CS	CB	71	-	890 *
*	N 6+	2P	3D	1	X =1.0	CS	CB	71	-	890 *
*	N 5+	1S2 1S	1S2S 1S	2	X =1.0 - 10.0	CS	DWPOII	77	-	1510 *
*	N 5+	1S2 1S	1S2S 1S	2	RY=36,49,75	CS	CB	77	-	1520 *
*	N 5+	1S2 1S	1S2S 1S	2	RY=36,49,75	CS	DW	77	-	1520 *
*	N 5+	1S2 1S	1S2S 3S	2	RY=36,49,75	CS	DW	77	-	1520 *
*	N 5+	1S2 1S	1S2S 3S	2	X =1.0 - 10.0	CS	CPCO	78	-	1820 *
*	N 5+	1S2 1S	1S2P 1P	2	EV=430.5 - 20000	CS	CB	76	-	1321 *
*	N 5+	1S2 1S	1S2P 1P	2	X =1.0 - 10.0	CS	DWPOII	77	-	1510 *
*	N 5+	1S2 1S	1S2P 1P	2	RY=36,49,75	CS	DW	77	-	1520 *
*	N 5+	1S2 1S	1S2P 1P	2	RY=36,49,75	CS	CB	77	-	1520 *
*	N 5+	1S2 1S	1S2P 3P	2	RY=36,49,75	CS	DW	77	-	1520 *
*	N 5+	1S2 1S	1S3P 1P	2	EV=497.7 - 20000	CS	CB	76	-	1321 *
*	N 5+	1S2S 3S	1S2P 3P	2	EV=6.5 - 1000	CS	CB	76	-	1321 *
*	N 5+	1S2S 3S	1S3P 3P	2	EV=76.8 - 2000	CS	CB	76	-	1321 *
*	N 5+	1S2P 3P	1S3S 3S	2	EV=68.6 - 2000	CS	CB	76	-	1321 *

*	ION	TRANSITION	NUMBER	E.	ENERGY RANGE	DATA	METHOD	YEAR	REF.	*
*	N 4+	2S	3S	3	X =1,3,5	OMEGA	CBI	66	-	381
*	N 4+	2S	3S	3	RY=5.0 - 32.00	CS	CBI	66	-	430
*	N 4+	2S	3S	3	RY=6.0 - 16.0	CS	CBII	66	-	430
*	N 4+	2S	3S	3	RY=6.0 - 16.0	CS	CCNX	66	-	430
*	N 4+	2S	3S	3	RY=6.0 - 16.0	CS	CCX	66	-	430
*	N 4+	2S	3S	3	RY=6.0	OMEGA	DW	71	-	880
*	N 4+	2S	3S	3	RY=6.0	OMEGA	CC	74	-	1103
*	N 4+	2S	3S	3	RY=6.0	OMEGA	CCX	75	-	1230
*	N 4+	2S	3S	3	RY=6.8,16	CS	CC	76	-	1270
*	N 4+	2S	3S	3	RY=6.8,16	CS	CBII	76	-	1270
*	N 4+	2S	4S	3	X =1,3,5	OMEGA	CBI	66	-	381
*	N 4+	2S	5S	3	X =1,3,5	OMEGA	CBI	66	-	381
*	N 4+	2S	6S	3	X =1,3,5	OMEGA	CBI	66	-	381
*	N 4+	2S	7S	3	X =1,3,5	OMEGA	CBI	66	-	381
*	N 4+	2P	2P	3	X =1 - 10	OMEGA	CBI	66	-	360
*	N 4+	2S	2P	3	X =1 - 10	OMEGA	CBII	66	-	360
*	N 4+	2S	2P	3	X =1 - 3	OMEGA	CB'	66	-	360
*	N 4+	2S	2P	3	RY=1.0 - 32.0	CS	CBI	66	-	430
*	N 4+	2S	2P	3	RY=2.25 - 16.0	CS	CBII	66	-	430
*	N 4+	2S	2P	3	RY=2.25 - 16.0	CS	CCNX	66	-	430
*	N 4+	2S	2P	3	RY=2.25 - 16.0	CS	CCX	66	-	430
*	N 4+	2S	2P	3	X =1.0	OMEGA	SCB1	69	-	640
*	N 4+	2S	2P	3	X =1.0	OMEGA	SCBII	69	-	640
*	N 4+	2S	2P	3	X =1.0	OMEGA	CBI	69	-	640
*	N 4+	2S	2P	3	X =1.0	OMEGA	CBII	69	-	640
*	N 4+	2S	2P	3	RY=2.25,6.0	OMEGA	DW	71	-	880
*	N 4+	2S	2P	3	PARAMETERS	GAUNT	CLASSIC	74	-	1050
*	N 4+	2S	2P	3	X =1 - 8	CS	B	74	-	1120
*	N 4+	2S	2P	3	X =1 - 8	CS	CB	74	-	1120
*	N 4+	2S	2P	3	RY=6.0	OMEGA	CCX	75	-	1230
*	N 4+	2S	2P	3	RY=0.74 - 5.88	G	DW	75	-	1250
*	N 4+	2S	2P	3	RY=1.0 - 22.4	CS	CC	76	-	1270
*	N 4+	2S	2P	3	RY=6.8,16	CS	CBII	76	-	1270
*	N 4+	2S	3P	3	X =1 - 10	OMEGA	CBI	66	-	360
*	N 4+	2S	3P	3	X =1 - 10	OMEGA	CBII	66	-	360
*	N 4+	2S	3P	3	X =1 - 3	OMEGA	CB'	66	-	360
*	N 4+	2S	3P	3	RY=5.0 - 32.0	CS	CBI	66	-	430
*	N 4+	2S	3P	3	RY=6.0 - 16.0	CS	CBII	66	-	430
*	N 4+	2S	3P	3	RY=6.0 - 16.0	CS	CCNX	66	-	430
*	N 4+	2S	3P	3	RY=6.0 - 16.0	CS	CCX	66	-	430
*	N 4+	2S	3P	3	RY=6.0	OMEGA	DW	71	-	880
*	N 4+	2S	3P	3	PARAMETERS	GAUNT	CLASSIC	74	-	1050
*	N 4+	2S	3P	3	RY=6.0	OMEGA	CC	74	-	1103
*	N 4+	2S	3P	3	X =1 - 8	CS	CB	74	-	1120
*	N 4+	2S	3P	3	X =1 - 8	CS	B	74	-	1120
*	N 4+	2S	3P	3	RY=0.0	OMEGA	CCX	75	-	1230
*	N 4+	2S	3P	3	RY=4.35 - 34.84	G	DW	75	-	1250
*	N 4+	2S	3P	3	RY=6.8,16	CS	CBII	76	-	1270
*	N 4+	2S	3P	3	RY=6.8,16	CS	CC	76	-	1270
*	N 4+	2S	4P	3	X =1 - 10	OMEGA	CBI	66	-	360
*	N 4+	2S	5P	3	X =1 - 10	OMEGA	CBI	66	-	360
*	N 4+	2S	6P	3	X =1 - 10	OMEGA	CBI	66	-	360
*	N 4+	2S	7P	3	X =1 - 10	OMEGA	CBI	66	-	360
*	N 4+	2S	3D	3	X =1,3,5	OMEGA	CBI	66	-	381
*	N 4+	2S	3D	3	RY=5.0 - 32.0	CS	CBI	66	-	430
*	N 4+	2S	3D	3	RY=6.0 - 16.0	CS	CBII	66	-	430
*	N 4+	2S	3D	3	RY=6.0 - 16.0	CS	CCNX	66	-	430
*	N 4+	2S	3D	3	RY=6.0 - 16.0	CS	CCX	66	-	430
*	N 4+	2S	3D	3	RY=6.0	OMEGA	DW	71	-	880
*	N 4+	2S	3D	3	RY=6.0	OMEGA	CC	74	-	1103
*	N 4+	2S	3D	3	RY=6.0	OMEGA	CCX	75	-	1230
*	N 4+	2S	3D	3	RY=6.8,16	CS	CC	76	-	1270
*	N 4+	2S	3D	3	RY=6.8,16	CS	CBII	76	-	1270
*	N 4+	2S	4D	3	X =1,3,5	OMEGA	CBI	66	-	381
*	N 4+	2S	5D	3	X =1,3,5	OMEGA	CBI	66	-	381
*	N 4+	2S	6D	3	X =1,3,5	OMEGA	CBI	66	-	381
*	N 4+	2S	7D	3	X =1,3,5	OMEGA	CBI	66	-	381
*	N 4+	3S	3P	3	RY=5.0 - 32.0	CS	CBI	66	-	430
*	N 4+	3S	3D	3	RY=5.0 - 32.0	CS	CBI	66	-	430
*	N 4+	4S	5P	3	EV=1.3,1.7,2,6	CS+G	IP	70	-	770
*	N 4+	6S	6P	3	EV=1.3,1.7,2,6	CS+G	IP	70	-	770
*	N 4+	6S	7P	3	EV=4 - 100	CS+G	IP	70	-	760
*	N 4+	7S	7P	3	EV=1.3,1.7,2,6	CS+G	IP	70	-	770
*	N 4+	2P	3S	3	RY=5.0 - 32.0	CS	CBI	66	-	430
*	N 4+	2P	3S	3	X =1.0,1.5,2,0	OMEGA	CBI	70	-	720
*	N 4+	2P	3S	3	RY=6.0	OMEGA	DW	71	-	880
*	N 4+	2P	3S	3	RY=6.8,16	CS	CBII	76	-	1270
*	N 4+	2P	3S	3	RY=6.8,16	CS	CC	76	-	1270
*	N 4+	2P	4S	3	RY=6,8,16	CS	CC	76	-	1270
*	N 4+	2P	7S	3	X =1.0,1.5,2,0	OMEGA	CBI	70	-	720
*	N 4+	2P	7S	3	RY=5.0 - 32.0	CS	CBI	66	-	430
*	N 4+	2P	3P	3	X =1.0,1.5,2,0	OMEGA	CBI	70	-	720
*	N 4+	2P	3P	3	RY=6.0	OMEGA	DW	71	-	880
*	N 4+	2P	3P	3	RY=6,8,16	CS	CC	76	-	1270
*	N 4+	2P	3P	3	RY=6,8,16	CS	CBII	76	-	1270

*	ION	TRANSITION	NUMBER	E.	ENERGY RANGE	DATA	METHOD	YEAR	REF.	*
*	N 4+	2P	4P	3	X =1.0,1.5,2.0	OMEGA	CBI	70	-	720 *
*	N 4+	2P	7P	3	X =1.0,1.5,2.0	OMEGA	CBI	70	-	720 *
*	N 4+	2P	3D	3	RY=5.0 - 32.0	CS	CBI	66	-	430 *
*	N 4+	2P	3D	3	X =1.0,1.5,2.0	OMEGA	CBI	70	-	720 *
*	N 4+	2P	3D	3	RY=6.0	OMEGA	DW	71	-	880 *
*	N 4+	2P	3D	3	RY=6.8,16	CS	CBI	76	-	1270 *
*	N 4+	2P	3D	3	RY=6.8,16	CS	CC	76	-	1270 *
*	N 4+	2P	4D	3	X =1.0,1.5,2.0	OMEGA	CBI	70	-	720 *
*	N 4+	2P	7D	3	X =1.0,1.5,2.0	OMEGA	CBI	70	-	720 *
*	N 4+	3P	3D	3	RY=5.0 - 32.0	CS	CBI	66	-	430 *
*	N 4+	5P	5D	3	EV=1.3,1.7,2.6	CS,G	IP	70	-	770 *
*	N 4+	5P	6S	3	EV=4 - 100	CS,G	IP	70	-	760 *
*	N 4+	6P	7S	3	EV=4 - 100	CS,G	IP	70	-	760 *
*	N 4+	6P	7D	3	EV=4 - 100	CS,G	IP	70	-	760 *
*	N 4+	6P	6D	3	EV=1.3,1.7,2.6	CS,G	IP	70	-	770 *
*	N 4+	7P	7D	3	EV=1.3,1.7,2.6	CS,G	IP	70	-	770 *
*	N 4+	7D	7F	3	EV=1.3,1.7,2.6	CS,G	IP	70	-	770 *
*	N 3+	2S2 1S	2S2P 1P	4	RY=1.159 - 1.859	OMEGA	CC	70	-	830 *
*	N 3+	2S2 1S	2S2P 1P	4	RY=1.25 - 4.25	CS	CC	73	-	1020 *
*	N 3+	2S2 1S	2S2P 1P	4	RY=4.0,5.0,7.0	CS	CC	73	-	1020 *
*	N 3+	2S2 1S	2S2P 1P	4	PARAMETERS	GAUNT	CLASSIC	74	-	1050 *
*	N 3+	2S2 1S	2S2P 1P	4	RY=1.19 - 9.53	G	DW	75	-	1250 *
*	N 3+	2S2 1S	2S2P 1P	4	EV=16,29 - 4000	CS	CB	77	-	1390 *
*	N 3+	2S2 1S	2S2P 3P	4	RY=1.159 - 1.859	OMEGA	CC	70	-	830 *
*	N 3+	2S2 1S	2S2P 3P	4	RY=1.25 - 4.25	CS	CC	73	-	1020 *
*	N 3+	2S2 1S	2S2P 3P	4	RY=4.0,5.0,7.0	CS	CC	73	-	1020 *
*	N 3+	2S2 1S	2S3P 1P	4	PARAMETERS	GAUNT	CLASSIC	74	-	1050 *
*	N 3+	2S2 1S	2S3P 1P	4	RY=3.69 - 29.49	G	DW	75	-	1250 *
*	N 3+	2S3P 1P	2S3P 3P	4	RY=4.0,5.0,7.0	CS	CC	73	-	1020 *
*	N 3+	2S2P 3P0	2S2P 3P2	4	X =1.0	OMEGA	DW	68	-	590 *
*	N 3+	2S2P 3P0	2S2P 3P2	4	X =1.0	OMEGA	CB	68	-	590 *
*	N 2+	2S2 2P 2P	2S2 3S 2S	5	RY=2.02 - 16.13	G	DW	75	-	1250 *
*	N 2+	2S2 2P 2P	2S2P2 4P	5	RY=0.522 - 0.95	OMEGA	CC	73	-	1000 *
*	N 2+	2S2 2P 2P	2S2P2 2D	5	PARAMETERS	GAUNT	CLASSIC	74	-	1050 *
*	N 2+	2S2 2P 2P	2S2P2 2D	5	RY=0.92 - 7.36	G	DW	75	-	1250 *
*	N 2+	2S2 2P 2P1/2	2S2 2P 2P3/2	5	X =1.0	OMEGA	CB	68	-	590 *
*	N 2+	2S2 2P 2P1/2	2S2 2P 2P3/2	5	X =1.0	OMEGA	DW	68	-	590 *
*	N 2+	2S2 2P 2P1/2	2S2 2P 2P3/2	5	X =1.0	OMEGA	CBO	69	-	630 *
*	N 2+	2S2 2P 2P1/2	2S2 2P 2P3/2	5	RY=0.0,0.05,0.10	OMEGA	ER+DW	69	-	710 *
*	N +	2P2 3P	2P2 1S	6	X =1.0	OMEGA	ER	53	-	70 *
*	N +	2P2 3P	2P2 1S	6	RY=0.0,0.0,2.0,0.4	OMEGA	ER+DW	66	-	460 *
*	N +	2P2 3P	2P2 1S	6	EV3=0.0 - 10.0	OMEGA	CC	69	-	670 *
*	N +	2P2 3P	2P2 1S	6	RY=0.0,0.05,0.10	OMEGA	ER+DW	69	-	710 *
*	N +	2P2 3P	2P2 1S	6	RY=0.3 - 0.8	OMEGA	CC	74	-	1090 *
*	N +	2P2 3P	2P2 1S	6	RY=0.3 - 1.25	OMEGA	R-MAT	75	-	1240 *
*	N +	2P2 3P	2P2 1D	6	X =1.0	OMEGA	ER	53	-	70 *
*	N +	2P2 3P	2P2 1D	6	X =1.0	OMEGA	CBB	66	-	390 *
*	N +	2P2 3P	2P2 1D	6	RY3=0.0,0.2,0.4	OMEGA	ER+DW	66	-	460 *
*	N +	2P2 3P	2P2 1D	6	X =1.0	OMEGA	CBB	67	-	500 *
*	N +	2P2 3P	2P2 1D	6	EV2=0.0 - 10.0	OMEGA	CC	69	-	670 *
*	N +	2P2 3P	2P2 1D	6	RY=0.0 - 0.10	OMEGA	ER+DW	69	-	710 *
*	N +	2P2 3P	2P2 1D	6	RY=0.12 - 0.8	OMEGA	CC	74	-	1090 *
*	N +	2P2 3P	2P2 1D	6	RY=0.13 - 1.25	OMEGA	R-MAT	75	-	1240 *
*	N +	2P2 3P	2P2 3D	6	RY=0.94 - 2.00	CS	CC	73	-	1020 *
*	N +	2P2 1D	2P2 1S	6	X =1.0	OMEGA	DW	55	-	90 *
*	N +	2P2 1D	2P2 1S	6	RY3=0.0,0.2,0.4	OMEGA	ER+DW	66	-	460 *
*	N +	2P2 1D	2P2 1S	6	EV3=0.0 - 10.0	OMEGA	CC	69	-	670 *
*	N +	2P2 1D	2P2 1S	6	RY=0.0,0.05,0.10	OMEGA	ER+DW	69	-	710 *
*	N +	2S2 2P2	2S2P3	6	RY=0.84 - 6.72	G	DW	75	-	1250 *
*	N +	2S2 2P2 3P	2S2P3 5S	6	RY=0.430 - 0.90	OMEGA	CC	73	-	1000 *
*	N +	2S2 2P2 3P	2S2P3 3D	6	PARAMETERS	GAUNT	CLASSIC	74	-	1050 *
*	N +	2P2 3P0	2P2 3P1	6	X =1.0	OMEGA	CBO	69	-	630 *
*	N +	2P2 3P0	2P2 3P1	6	RY=0.0,0.05,0.10	OMEGA	ER+DW	69	-	710 *
*	N +	2P2 3P0	2P2 3P2	6	X =1.0	OMEGA	DW	68	-	590 *
*	N +	2P2 3P0	2P2 3P2	6	X =1.0	OMEGA	CB	68	-	590 *
*	N +	2P2 3P0	2P2 3P2	6	X =1.0	OMEGA	CBO	69	-	630 *
*	N +	2P2 3P0	2P2 3P2	6	RY=0.0,0.05,0.10	OMEGA	ER+DW	69	-	710 *
*	N +	2P2 3P1	2P2 3P2	6	X =1.0	OMEGA	CBO	69	-	630 *
*	N +	2P2 3P1	2P2 3P2	6	RY=0.0,0.05,0.10	OMEGA	ER+DW	69	-	710 *
*	O 7+	1S	2S	1	X =1.0	CS	CB	71	-	890 *
*	O 7+	1S	2S	1	X =1.0 - 4.0	OMEGA	CBI	73	-	1031 *
*	O 7+	1S	2S	1	X =1	CS	OFX	75	-	1260 *
*	O 7+	1S	2S	1	EV=1600 - 16000	CS	IP	76	-	1280 *
*	O 7+	1S	2S	1	X =1.0 - 26.67	CS	DWPOII	77	-	1510 *
*	O 7+	1S	2S	1	X =1.0 - 30	CS	CB	78	-	1530 *
*	O 7+	1S	3S	1	X =1.0	CS	CP	71	-	890 *
*	O 7+	1S	3S	1	X =1.0 - 4.0	OMEGA	LBI	73	-	1031 *
*	O 7+	1S	4S	1	X =1.0 - 4.0	OMEGA	CBI	73	-	1031 *
*	O 7+	1S	5S	1	X =1.0 - 4.0	OMEGA	CBI	73	-	1031 *
*	O 7+	1S	6S	1	X =1.0 - 4.0	OMEGA	CBI	73	-	1031 *
*	O 7+	1S	ZS	1	X =1.0 - 4.0	OMEGA	CBI	73	-	1031 *
*	O 7+	1S	2P	1	X =1.0	CS	CB	71	-	890 *
*	O 7+	1S	2P	1	X =1.0 - 4.0	OMEGA	CBI	73	-	1031 *
*	O 7+	1S	2P	1	X =1	CS	OFX	75	-	1260 *

*	ION	TRANSITION	NUMBER E.	ENERGY RANGE	DATA	METHOD	YEAR	REF.	*
*	O 7+	1S 2P	1	EV=1600 - 16000	CS	IP	76	-	1280 *
*	O 7+	1S 2P	1	X = 1.04 - 5.21	OMEGA	CC	77	-	1400 *
*	O 7+	1S 2P	1	X = 1.0 - 26.67	CS	DWPOII	77	-	1510 *
*	O 7+	1S 2P	1	X = 1 - 30	CS	CB	78	-	1730 *
*	O 7+	1S 3P	1	X = 1.0	CS	CB	71	-	890 *
*	O 7+	1S 3P	1	X = 1.0 - 4.0	OMEGA	CBI	73	-	1031 *
*	O 7+	1S 4P	1	X = 1.0 - 4.0	OMEGA	CBI	73	-	1031 *
*	O 7+	1S 5P	1	X = 1.0 - 4.0	OMEGA	CBI	73	-	1031 *
*	O 7+	1S 6P	1	X = 1.0 - 4.0	OMEGA	CBI	73	-	1031 *
*	O 7+	1S 2ZP	1	X = 1.0 - 4.0	OMEGA	CBI	73	-	1031 *
*	O 7+	1S 3D	1	X = 1.0	CS	CB	71	-	890 *
*	O 7+	1S 3D	1	X = 1.0 - 4.0	OMEGA	CBI	73	-	1031 *
*	O 7+	1S 4D	1	X = 1.0 - 4.0	OMEGA	CBI	73	-	1031 *
*	O 7+	1S 5D	1	X = 1.0 - 4.0	OMEGA	CBI	73	-	1031 *
*	O 7+	1S 6D	1	X = 1.0 - 4.0	OMEGA	CBI	73	-	1031 *
*	O 7+	1S 2ZD	1	X = 1.0 - 4.0	OMEGA	CBI	73	-	1031 *
*	O 7+	2S 3S	1	X = 1.0	CS	CB	71	-	890 *
*	O 7+	2S 3D	1	X = 1.0	CS	CB	71	-	890 *
*	O 7+	2P 3S	1	X = 1.0	CS	CB	71	-	890 *
*	O 7+	2P 3D	1	X = 1.0	CS	CB	71	-	890 *
*	O 6+	1S2S 1S	1S2S 1S	2 X = 1.2,3,INF	OMEGA	CBI	74	-	1110 *
*	O 6+	1S2S 1S	1S2S 1S	2 X = 1.01 - 2.02	OMEGA	CC	77	-	1400 *
*	O 6+	1S2S 1S	1S2S 1S	2 X = 1.0 - 10.0	CS	DWPOII	77	-	1510 *
*	O 6+	1S2S 1S	1S2S 1S	2 RY=50 - 125.2	CS	CB	77	-	1520 *
*	O 6+	1S2S 1S	1S2S 1S	2 RY=50 - 125.2	CS	DW	77	-	1520 *
*	O 6+	1S2S 1S	1S2S 3S	2 X = 1.03 - 2.04	OMEGA	CC	77	-	1400 *
*	O 6+	1S2S 1S	1S2S 3S	2 RY=50 - 105	CS	DW	77	-	1520 *
*	O 6+	1S2S 1S	1S2S 3S	2 X = 1.0 - 10.0	CS	CPCO	78	-	1820 *
*	O 6+	1S2S 1S	1S3S 1S	2 X = 1.2,3,INF	OMEGA	CBI	74	-	1110 *
*	O 6+	1S2S 1S	1S3S 1S	2 X = 1	CS	OFX	75	-	1260 *
*	O 6+	1S2S 1S	1S3S 3S	2 X = 1	CS	OFX	75	-	1260 *
*	O 6+	1S2S 1S	1S4S 1S	2 X = 1.2,3,INF	OMEGA	CBI	74	-	1110 *
*	O 6+	1S2S 1S	1S5S 1S	2 X = 1.2,3,INF	OMEGA	CBI	74	-	1110 *
*	O 6+	1S2S 1S	1S6S 1S	2 X = 1.2,3,INF	OMEGA	CBI	74	-	1110 *
*	O 6+	1S2P 1P	1S2P 1P	2 KT=20 - 350	RATE	CB	68	-	591 *
*	O 6+	1S2P 1P	1S2P 1P	2 X = 1.2,3,INF	OMEGA	CBI	74	-	1110 *
*	O 6+	1S2P 1S	1S2P 1P	2 X = 1 - 10	CS	OFX	75	-	1260 *
*	O 6+	1S2P 1S	1S2P 1P	2 EV=573.7 - 20000	CS	CB	76	-	1321 *
*	O 6+	1S2P 1F	1S2P 1F	2 X = 1.00 - 2.00	OMEGA	CC	77	-	1400 *
*	O 6+	1S2P 1S	1S2P 1P	2 X = 1.0 - 10.0	CS	DWPOII	77	-	1510 *
*	O 6+	1S2P 1S	1S2P 1P	2 RY=50 - 126.3	CS	DW	77	-	1520 *
*	O 6+	1S2P 1S	1S2P 1P	2 RY=50 - 126.3	CS	CB	77	-	1520 *
*	O 6+	1S2P 1S	1S2P 3P	2 KT=20 - 350	RATE	CB	68	-	591 *
*	O 6+	1S2P 1S	1S2P 3P	2 X = 1 - 10	CS	OFX	75	-	1260 *
*	O 6+	1S2P 1S	1S2P 3P	2 X = 1.01 - 2.02	OMEGA	CC	77	-	1400 *
*	O 6+	1S2P 1S	1S2P 3P	2 RY=50 - 105	CS	DW	77	-	1520 *
*	O 6+	1S2P 1S	1S3P 1P	2 X = 1.2,3,INF	OMEGA	CBI	74	-	1110 *
*	O 6+	1S2P 1S	1S3P 1P	2 X = 1	CS	OFX	75	-	1260 *
*	O 6+	1S2P 1S	1S3P 1P	2 EV=665.2 - 20000	CS	CB	76	-	1321 *
*	O 6+	1S2P 1S	1S3P 3P	2 X = 1	CS	OFX	75	-	1260 *
*	O 6+	1S2P 1S	1S4P 1P	2 X = 1.2,3,INF	OMEGA	CBI	74	-	1110 *
*	O 6+	1S2P 1S	1S5P 1P	2 X = 1.2,3,INF	OMEGA	CBI	74	-	1110 *
*	O 6+	1S2P 1S	1S6P 1P	2 X = 1.2,3,INF	OMEGA	CBI	74	-	1110 *
*	O 6+	1S2D 1D	1S3D 1D	2 X = 1 - 10	CS	OFX	75	-	1260 *
*	O 6+	1S2S 1S	1S3D 3D	2 X = 1 - 10	CS	OFX	75	-	1260 *
*	O 6+	1S2S 1S	1S4D 1D	2 X = 1	CS	OFX	75	-	1260 *
*	O 6+	1S2S 1S	1S4D 3D	2 X = 1	CS	OFX	75	-	1260 *
*	O 6+	1S2S 1S	1S4F 1F	2 X = 1	CS	OFX	75	-	1260 *
*	O 6+	1S2S 1S	1S4F 3F	2 X = 1	CS	OFX	75	-	1260 *
*	O 6+	1S2S 1S	1S5S 1S	2 X = 1.0 - INF	OMEGA	CBI	74	-	1111 *
*	O 6+	1S2S 1S	1S4S 1S	2 X = 1.0 - INF	OMEGA	CBI	74	-	1111 *
*	O 6+	1S2S 1S	1S5S 1S	2 X = 1.0 - INF	OMEGA	CBI	74	-	1111 *
*	O 6+	1S2S 1S	1S6S 1S	2 X = 1.0 - INF	OMEGA	CBI	74	-	1111 *
*	O 6+	1S2S 1S	1S2P 1P	2 X = 1.0 - 8.0	OMEGA	CBI	74	-	1111 *
*	O 6+	1S2S 1S	1S2P 1P	2 X = INF	OMEGA	B	74	-	1111 *
*	O 6+	1S2S 1S	1S2P 1P	2 X = 1.31 - 139.56	OMEGA	CC	77	-	1400 *
*	O 6+	1S2S 1S	1S3P 1P	2 X = 1.0 - 8.0	OMEGA	CBI	74	-	1111 *
*	O 6+	1S2S 1S	1S3P 1P	2 X = INF	OMEGA	B	74	-	1111 *
*	O 6+	1S2S 1S	1S4P 1P	2 X = 1.0 - 8.0	OMEGA	CBI	74	-	1111 *
*	O 6+	1S2S 1S	1S4P 1P	2 X = INF	OMEGA	B	74	-	1111 *
*	O 6+	1S2S 1S	1S5P 1P	2 X = 1.0 - 8.0	OMEGA	CBI	74	-	1111 *
*	O 6+	1S2S 1S	1S5P 1P	2 X = INF	OMEGA	B	74	-	1111 *
*	O 6+	1S2S 1S	1S6P 1P	2 X = 1.0 - 8.0	OMEGA	CBI	74	-	1111 *
*	O 6+	1S2S 1S	1S6P 1P	2 X = INF	OMEGA	B	74	-	1111 *
*	O 6+	1S2S 3S	1S3S 3S	2 X = 1.0 - INF	OMEGA	CBI	74	-	1111 *
*	O 6+	1S2S 3S	1S4S 3S	2 X = 1.0 - INF	OMEGA	CBI	74	-	1111 *
*	O 6+	1S2S 3S	1S5S 3S	2 X = 1.0 - INF	OMEGA	CBI	74	-	1111 *
*	O 6+	1S2S 3S	1S6S 3S	2 X = 1.0 - INF	OMEGA	CBI	74	-	1111 *
*	O 6+	1S2S 3S	1S2P 1P	2 X = 1.09 - 43.81	OMEGA	CC	77	-	1400 *
*	O 6+	1S2S 3S	1S2P 3P	2 T = 0.8 - 3.0*10(6)	RATE	CB	71	-	882 *
*	O 6+	1S2S 3S	1S2P 3P	2 X = 1.0 - 8.0	OMEGA	CBI	74	-	1111 *
*	O 6+	1S2S 3S	1S2P 3P	2 X = INF	OMEGA	B	74	-	1111 *
*	O 6+	1S2S 3S	1S2P 3P	2 EV=7.5 - 1000	CS	CB	76	-	1321 *

*	ION	TRANSITION	NUMBER	E.	ENERGY RANGE	DATA	METHOD	YEAR	REF.
*	O 6+	1S2S 3S	1S2P 3P	2	X =1.85 - 73.93	OMEGA	CC	77	- 1400
*	O 6+	1S2S 3S	1S3P 3P	2	X =1.0 - 8.0	OMEGA	CBI	74	- 1111
*	O 6+	1S2S 3S	1S3P 3P	2	X =INF	OMEGA	B	74	- 1111
*	O 6+	1S2S 3S	1S3P 3P	2	EV=102.9 - 2000	CS	CB	76	- 1321
*	O 6+	1S2S 3S	1S4P 3P	2	X =INF	OMEGA	CBI	74	- 1111
*	O 6+	1S2S 3S	1S5P 3P	2	X =1.0 - 8.0	OMEGA	B	74	- 1111
*	O 6+	1S2S 3S	1S5P 3P	2	X =INF	OMEGA	CBI	74	- 1111
*	O 6+	1S2S 3S	1S6P 3P	2	X =1.0 - 8.0	OMEGA	CBI	74	- 1111
*	O 6+	1S2S 3S	1S6P 3P	2	X =INF	OMEGA	B	74	- 1111
*	O 6+	1S2P 3P	1S2S 1S	2	X =5.10 - 438.46	OMEGA	CC	77	- 1400
*	O 6+	1S2P 3P	1S3S 3S	2	EV=93.4 - 2000	CS	CB	76	- 1321
*	O 5+	2S	3S	3	X =1 - 1.32	CS	GREEN,F	75	- 1190
*	O 5+	2S	4S	3	X =1.0	OMEGA	CBI	72	- 960
*	O 5+	2S	5S	3	X =1.0	OMEGA	CBI	72	- 960
*	O 5+	2S	6S	3	X =1.0	OMEGA	CBI	72	- 960
*	O 5+	2S	2P	3	RY=0.878 - 25.0	CS	CB	62	- 190
*	O 5+	2S	2P	3	X =1 - 6	OMEGA	CBI	63	- 230
*	O 5+	2S	2P	3	X =1 - 6	OMVEA	CBI	63	- 230
*	O 5+	2S	2P	3	X =1 - 6	OMEGA	CBI	63	- 230
*	O 5+	2S	2P	3	X =1 - 6	OMEGA	CBI	63	- 230
*	O 5+	2S	2P	3	X =1 - 6	OMEGA	CBI	63	- 230
*	O 5+	2S	2P	3	X =1 - 6	OMEGA	IP	63	- 270
*	O 5+	2S	2P	3	X =1 - 6	OMEGA	SCB	69	- 640
*	O 5+	2S	2P	3	X =1.0	OMEGA	SCBII	69	- 640
*	O 5+	2S	2P	3	X =1.0	OMEGA	CBI	69	- 640
*	O 5+	2S	2P	3	X =1.0	OMEGA	CBI	69	- 640
*	O 5+	2S	2P	3	PARAMETERS	GAUNT	CLASSIC	74	- 1050
*	O 5+	2S	2P	3	RY=0.88 - 7.06	G	DW	75	- 1250
*	O 5+	2S	2P	3	X =1.02 - 79.26	OMEGA	CC	77	- 1400
*	O 5+	2S	3P	3	X =1.0	CS	CB	62	- 190
*	O 5+	2S	3P	3	X =1 - 4	CS	IP	63	- 270
*	O 5+	2S	3P	3	PARAMETERS	GAUNT	CLASSIC	74	- 1050
*	O 5+	2S	3P	3	RY=6.07 - 97.14	G	DW	75	- 1250
*	O 5+	2S	4P	3	X =1 - 4	CS	IP	63	- 270
*	O 5+	2S	4P	3	X =1.0	OMEGA	CBI	72	- 960
*	O 5+	2S	5P	3	X =1.0	OMEGA	CBI	72	- 960
*	O 5+	2S	6P	3	X =1.0	OMEGA	CBI	72	- 960
*	O 5+	2S	4D	3	X =1.0	OMEGA	CBI	72	- 960
*	O 5+	2S	5D	3	X =1.0	OMEGA	CBI	72	- 960
*	O 5+	2S	6D	3	X =1.0	OMEGA	CBI	72	- 960
*	O 5+	2S	4F	3	X =1.02,0.3,0	OMEGA	CBI	72	- 960
*	O 5+	2S	5F	3	X =1.02,0.3,0	OMEGA	CBI	72	- 960
*	O 5+	2S	6F	3	X =1.02,0.3,0	OMEGA	CBI	72	- 960
*	O 5+	2P	3S	3	X =1 - 1.32	CS	GREEN,F	75	- 1190
*	O 4+	2S2 1S	2S2P 1P	4	RY=2.068	OMEGA	CC	70	- 830
*	O 4+	2S2 1S	2S2P 1P	4	PARAMETERS	GAUNT	CLASSIC	74	- 1050
*	O 4+	2S2 1S	2S2P 1P	4	RY=1.45 - 11.58	G	DW	75	- 1250
*	O 4+	2S2 1S	2S2P 1P	4	X =1 - 10	CS	OFX	75	- 1260
*	O 4+	2S2 1S	2S2P 1P	4	EV=19.71 - 4000	CS	CB	77	- 1390
*	O 4+	2S2 1S	2S2P 1R	4	RY=1.45 - 1.8	OMEGA	R-MAT	77	- 1420
*	O 4+	2S2 1S	2S2P 3P	4	RY=1.468 - 2.068	OMEGA	CC	70	- 830
*	O 4+	2S2 1S	2S2P 3P	4	RY=0.75 - 1.25	OMEGA	DW	73	- 990
*	O 4+	2S2 1S	2S2P 3P	4	X =1 - 10	CS	OFX	75	- 1260
*	O 4+	2S2 1S	2S3S 1S	4	RY=0.75 - 10.0	OMEGA	R-MAT	77	- 1420
*	O 4+	2S2 1S	2S3S 3S	4	X =1	CS	OFX	75	- 1260
*	O 4+	2S2 1S	2S3P 1P	4	PARAMETERS	GAUNT	CLASSIC	74	- 1050
*	O 4+	2S2 1S	2S3P 1P	4	RY=5.29 - 42.37	G	DW	75	- 1250
*	O 4+	2S2 1S	2S3P 1P	4	X =1	CS	OFX	75	- 1260
*	O 4+	2S2 1S	2S3P 3P	4	X =1	CS	OFX	75	- 1260
*	O 4+	2S2	2P2	4	X =1 - 25	CS	IP	67	- 490
*	O 4+	2S2	2P2	4	X =1 - 25	CS	B	67	- 490
*	O 4+	2S2 1S0	2S2P 3PJ	4	RY=1.6 - 8.0	OMEGA	DW	75	- 1201
*	O 4+	2S2 1S0	2S2P 1P1	4	RY=1.6 - 8.0	OMEGA	DW	75	- 1201
*	O 4+	2S2 1S0	2P2 3PJ	4	RY=2.0,3.0,8.0	OMEGA	DW	75	- 1201
*	O 4+	2S2 1S0	2P2 1D2	4	RY=3.0,8.0	OMEGA	DW	75	- 1201
*	O 4+	2S2 1S0	2P2 1S0	4	RY=3.0,8.0	OMEGA	DW	75	- 1201
*	O 4+	2S2 1S0	2S3S 3S1	4	RY=8.0	OMEGA	DW	75	- 1201
*	O 4+	2S2 1S0	2S3S 1S0	4	RY=8.0	OMEGA	DW	75	- 1201
*	O 4+	2S2 1S0	2S3P 1P1	4	RY=8.0	OMEGA	DW	75	- 1201
*	O 4+	2S2 1S0	2S3P 3PJ	4	RY=8.0	OMEGA	DW	75	- 1201
*	O 4+	2S2 1S0	2S3D 3DJ	4	RY=8.0	OMEGA	DW	75	- 1201
*	O 4+	2S2 1S0	2S3D 1D2	4	RY=8.0	OMEGA	DW	75	- 1201
*	O 4+	2S2P 3P0	2S2P 3P1	4	RY=1.6 - 8.0	OMEGA	DW	75	- 1201
*	O 4+	2S2P 3P0	2S2P 3P2	4	X =1.0	OMEGA	CB	68	- 590
*	O 4+	2S2P 3P0	2S2P 3P2	4	X =1.0	OMEGA	DW	68	- 590
*	O 4+	2S2P 3P0	2S2P 3P2	4	RY=1.6 - 8.0	OMEGA	DW	75	- 1201
*	O 4+	2S2P 3P0	2S2P 1P1	4	RY=1.6 - 8.0	OMEGA	DW	75	- 1201
*	O 4+	2S2P 3P0	2P2 3PJ	4	RY=2.0,3.0,8.0	OMEGA	DW	75	- 1201
*	O 4+	2S2P 3P0	2P2 1D2	4	RY=3.0,8.0	OMEGA	DW	75	- 1201
*	O 4+	2S2P 3P0	2P2 1S0	4	RY=3.0,8.0	OMEGA	DW	75	- 1201
*	O 4+	2S2P 3P0	2S3S 3S1	4	RY=8.0	OMEGA	DW	75	- 1201
*	O 4+	2S2P 3P0	2S3S 1S0	4	RY=8.0	OMEGA	DW	75	- 1201
*	O 4+	2S2P 3P0	2S3P 1P1	4	RY=8.0	OMEGA	DW	75	- 1201
*	O 4+	2S2P 3P0	2S3P 3PJ	4	RY=8.0	OMEGA	DW	75	- 1201

*	ION	TRANSITION	NUMBER	E.	ENERGY RANGE	DATA	METHOD	YEAR	REF.	*
*	O 4+	2S2P 3P0	2S3D 1D2	4	RY=8.0	OMEGA	DW	75	-	1201 *
*	O 4+	2S2P 3P0	2S3D 3DJ	4	RY=8.0	OMEGA	DW	75	-	1201 *
*	O 4+	2S2P 3P1	2S2P 3P2	4	RY=1.6 - 8.0	OMEGA	DW	75	-	1201 *
*	O 4+	2S2P 3P1	2S2P 1P1	4	RY=1.6 - 8.0	OMEGA	DW	75	-	1201 *
*	O 4+	2S2P 3P1	2P2 3PJ	4	RY=2.0,3.0,8.0	OMEGA	DW	75	-	1201 *
*	O 4+	2S2P 3P1	2P2 1D2	4	RY=3.0,8.0	OMEGA	DW	75	-	1201 *
*	O 4+	2S2P 3P1	2P2 1S0	4	RY=3.0,8.0	OMEGA	DW	75	-	1201 *
*	O 4+	2S2P 3P1	2S3S 3S1	4	RY=3.0,8.0	OMEGA	DW	75	-	1201 *
*	O 4+	2S2P 3P1	2S3S 1S0	4	RY=3.0,8.0	OMEGA	DW	75	-	1201 *
*	O 4+	2S2P 3P1	2S3P 1P1	4	RY=8.0	OMEGA	DW	75	-	1201 *
*	O 4+	2S2P 3P1	2S3P 3PJ	4	RY=8.0	OMEGA	DW	75	-	1201 *
*	O 4+	2S2P 3P1	2S3D 3DJ	4	RY=8.0	OMEGA	DW	75	-	1201 *
*	O 4+	2S2P 3P1	2S3D 1D2	4	RY=8.0	OMEGA	DW	75	-	1201 *
*	O 4+	2S2P 3P2	2S2P 1P1	4	RY=1.6 - 8.0	OMEGA	DW	75	-	1201 *
*	O 4+	2S2P 3P2	2P2 3PJ	4	RY=2.0,3.0,8.0	OMEGA	DW	75	-	1201 *
*	O 4+	2S2P 3P2	2P2 1D2	4	RY=3.0,8.0	OMEGA	DW	75	-	1201 *
*	O 4+	2S2P 3P2	2P2 1S0	4	RY=3.0,8.0	OMEGA	DW	75	-	1201 *
*	O 4+	2S2P 3P2	2S3S 3S1	4	RY=8.0	OMEGA	DW	75	-	1201 *
*	O 4+	2S2P 3P2	2S3S 1S0	4	RY=8.0	OMEGA	DW	75	-	1201 *
*	O 4+	2S2P 3P2	2S3P 1P1	4	RY=8.0	OMEGA	DW	75	-	1201 *
*	O 4+	2S2P 3P2	2S3P 3PJ	4	RY=8.0	OMEGA	DW	75	-	1201 *
*	O 4+	2S2P 3P2	2S3D 3DJ	4	RY=8.0	OMEGA	DW	75	-	1201 *
*	O 3+	2S2 2P 2P	2S2P2 2S	5	X =1.16 - 38.66	OMEGA	CC	77	-	1400 *
*	O 3+	2S2 2P 2P	2S2P2 2P	5	X =1.02 - 34.16	OMEGA	CC	77	-	1400 *
*	O 3+	2S2 2P 2P	2S2P2 4P	5	X =3.01 - 100.32	OMEGA	CC	77	-	1400 *
*	O 3+	2S2 2P 2P	2S2P2 2D	5	PARAMETERS	GAUNT	CLASSIC	74	-	1050 *
*	O 3+	2S2 2P 2P	2S2P2 2D	5	RY=1.16 - 9.25	G	DW	75	-	1250 *
*	O 3+	2S2 2P 2P	2S2P2 2D	5	X =1.49 - 49.54	OMEGA	CC	77	-	1400 *
*	O 3+	2S2P2 2S	2S2P2 2P	5	X =1.21 - 285.94	OMEGA	CC	77	-	1400 *
*	O 3+	2S2P2 4P	2S2P2 2S	5	X =1.26 - 62.28	OMEGA	CC	77	-	1400 *
*	O 3+	2S2P2 4P	2S2P2 2P	5	X =1.04 - 51.29	OMEGA	CC	77	-	1400 *
*	O 3+	2S2P2 4P	2S2P2 2D	5	X =1.96 - 96.88	OMEGA	CC	77	-	1400 *
*	O 3+	2S2P2 2D	2S2P2 2S	5	X =1.73 - 172.59	OMEGA	CC	77	-	1400 *
*	O 3+	2S2P2 2D	2S2P2 2P	5	X =1.08 - 107.86	OMEGA	CC	77	-	1400 *
*	O 3+	2S2 2P 2P1/2	2S2 2P 2P3/2	5	X =1.0	OMEGA	CB	68	-	590 *
*	O 3+	2S2 2P 2P1/2	2S2 2P 2P3/2	5	X =1.0	OMEGA	DW	68	-	590 *
*	O 3+	2S2 2P 2P1/2	2S2 2P 2P3/2	5	X =1.0	OMEGA	CBO	69	-	630 *
*	O 3+	2S2 2P 2P1/2	2S2 2P 2P3/2	5	RY=0.0,0.05,0.10	OMEGA	ER+DW	69	-	710 *
*	O 2+	2P2 3P	2P2 1S	6	X =1.0	OMEGA	ER	53	-	70 *
*	O 2+	2P2 3P	2P2 1S	6	RY3=0.0,0.2,0.4	OMEGA	ER+DW	66	-	460 *
*	O 2+	2P2 3P	2P2 1S	6	RY3=0.0 - 0.20	VAR	69	-	660 *	
*	O 2+	2P2 3P	2P2 1S	6	EV3=0.0 - 10.0	OMEGA	CC	69	-	670 *
*	O 2+	2P2 3P	2P2 1S	6	RY=0.0	OMEGA	ER+DW	69	-	710 *
*	O 2+	2P2 3P	2P2 1S	6	RY=0.0,0.05,0.10	OMEGA	ER+DW	69	-	710 *
*	O 2+	2P2 3P	2P2 1S	6	RY=0.39 - 0.99	OMEGA	CC	74	-	1140 *
*	O 2+	2P2 3P	2P2 1D	6	X =1.0	OMEGA	ER	53	-	70 *
*	O 2+	2P2 3P	2P2 1D	6	X =1.0	OMEGA	CBB	66	-	390 *
*	O 2+	2P2 3P	2P2 1D	6	RY3=0.0,0.2,0.4	OMEGA	ER+DW	66	-	460 *
*	O 2+	2P2 3P	2P2 1D	6	X =1.0	OMEGA	CBB	67	-	500 *
*	O 2+	2P2 3P	2P2 1D	6	RY3=0.0 - 0.35	VAR	69	-	660 *	
*	O 2+	2P2 3P	2P2 1D	6	EV2=0.0 - 10.0	OMEGA	CC	69	-	670 *
*	O 2+	2P2 3P	2P2 1D	6	RY=0.0	OMEGA	ER+DW	69	-	710 *
*	O 2+	2P2 3P	2P2 1D	6	RY=0.0 - 0.10	OMEGA	ER+DW	69	-	710 *
*	O 2+	2P2 3P	2P2 1D	6	RY=0.2 - 0.7	OMEGA	CC	74	-	1140 *
*	O 2+	2P2 3P	2P2 1D	6	EV=2.5 - 30.0	CS	DW	77	-	1410 *
*	O 2+	2P2 1D	2P2 1S	6	X =1.0	OMEGA	DW	55	-	90 *
*	O 2+	2P2 1D	2P2 1S	6	RY3=0.0,0.2,0.4	OMEGA	ER+DW	66	-	460 *
*	O 2+	2P2 1D	2P2 1S	6	RY3=0.0 - 0.20	VAR	69	-	660 *	
*	O 2+	2P2 1D	2P2 1S	6	EV3=0.0 - 10.0	OMEGA	CC	69	-	670 *
*	O 2+	2P2 1D	2P2 1S	6	RY=0.0	OMEGA	ER+DW	69	-	710 *
*	O 2+	2P2 1D	2P2 1S	6	RY=0.0 - 0.10	OMEGA	ER+DW	69	-	710 *
*	O 2+	2P2 1D	2P2 1S	6	RY=0.0,0.05,0.10	OMEGA	ER+DW	69	-	710 *
*	O 2+	2P2 1D	2P2 1S	6	RY=0.19 - 0.79	OMEGA	CC	74	-	1140 *
*	O 2+	2S2 2P2	2S2P3	6	RY=1.09 - 8.80	G	DW	75	-	1250 *
*	O 2+	2S2 2P2 3P	2S2P3 3S	6	RY=1.85 - 5.00	CS	CC	73	-	1020 *
*	O 2+	2S2 2P2 3P	2S2P3 5S	6	RY=0.550 - 1.15	OMEGA	CC	73	-	1000 *
*	O 2+	2S2 2P2 3P	2S2P3 3D	6	PARAMETERS	GAUNT	CLASSIC	74	-	1050 *
*	O 2+	2P2 3P0	2P2 3P1	6	X =1.0	OMEGA	ER+DW	53	-	70 *
*	O 2+	2P2 3P0	2P2 3P1	6	X =1.0	OMEGA	ER+DW	55	-	.90 *
*	O 2+	2P2 3P0	2P2 3P1	6	X =1.0	OMEGA	CBO	69	-	630 *
*	O 2+	2P2 3P0	2P2 3P1	6	RY=0.0,0.05,0.10	OMEGA	ER+DW	69	-	710 *
*	O 2+	2P2 3P0	2P2 3P2	6	X =1.0	OMEGA	ER+DW	53	-	70 *
*	O 2+	2P2 3P0	2P2 3P2	6	X =1.0	OMEGA	ER+DW	55	-	90 *
*	O 2+	2P2 3P0	2P2 3P2	6	X =1.0	OMEGA	CB	68	-	590 *
*	O 2+	2P2 3P0	2P2 3P2	6	X =1.0	OMEGA	DW	68	-	590 *
*	O 2+	2P2 3P0	2P2 3P2	6	X =1.0	OMEGA	CBO	69	-	630 *
*	O 2+	2P2 3P0	2P2 3P2	6	RY=0.0,0.05,0.10	OMEGA	ER+DW	69	-	710 *
*	O 2+	2P2 3P1	2P2 3P2	6	X =1.0	OMEGA	ER+DW	53	-	70 *
*	O 2+	2P2 3P1	2P2 3P2	6	X =1.0	OMEGA	ER+DW	55	-	90 *
*	O 2+	2P2 3P1	2P2 3P2	6	X =1.0	OMEGA	CBO	69	-	630 *
*	O 2+	2P2 3P1	2P2 3P2	6	RY=0.0,0.05,0.10	OMEGA	ER+DW	69	-	710 *
*	O +	2P3 4S	2P3 2P	7	X =1.0	OMEGA	ER	53	-	70 *
*	O +	2P3 4S	2P3 2P	7	RY3=0.0	OMEGA	ER+DW	67	-	540 *
*	O +	2P3 4S	2P3 2P	7	FV3=0.0 - 10.0	OMEGA	CC	69	-	670 *
*	O +	2P3 4S	2P3 2P	7	RY=0.0,0.05,0.10	OMEGA	ER+DW	69	-	710 *

*	*	ION	TRANSITION	NUMBER	E.	ENERGY RANGE	DATA	METHOD	YFAR	REF.	*
*	O +	2P3 4S	2P3 2P	7	RY3=0,0		OMEGA	CC	76	-	1311
*	O +	2P3 4S	2P3 2D	7	X =1,0		OMEGA	ER	53	-	70
*	O +	2P3 4S	2P3 2D	7	RY3=0,0		OMEGA	ER+DW	67	-	540
*	O +	2P3 4S	2P3 2D	7	EV2=0,0 - 10,0		OMEGA	CC	69	-	670
*	O +	2P3 4S	2P3 2D	7	RY=0,0 - 0.10		OMEGA	ER+DW	69	-	710
*	O +	2P3 4S	2P3 2D	7	RY3=-0.1244 - 0,1		OMEGA	CC	76	-	1311
*	O +	2P3 2D	2P3 2P	7	X =1,0		OMEGA	DW	55	-	90
*	O +	2P3 2D	2P3 2P	7	RY3=0,0		OMEGA	ER+DW	67	-	540
*	O +	2P3 2D	2P3 2P	7	EV3=0,0 - 10,0		OMEGA	CC	69	-	670
*	O +	2P3 2D	2P3 2P	7	RY=0,0		OMEGA	ER+DW	69	-	710
*	O +	2P3 2D	2P3 2P	7	RY=0,0,0.05,0.10		OMEGA	ER+DW	69	-	710
*	O +	2P3 2D	2P3 2P	7	RY3=0,0		OMEGA	CC	76	-	1311
*	O +	2P3 4S	2P2 3S 4P	7	RY=1,70 - 13,50		G	DW	75	-	1250
*	O +	2P3 4S	2P2 3S 4P	7	RY=1,70 - 13,50		G	DW	75	-	1250
*	O +	2S2 2P3 4S	2S2P4 4S	7	RY=1,16 - 2,60		CS	CC	73	-	1020
*	O +	2S2 2P3 4S	2S2P4 4P	7	PARAMETERS		GAUNT	CLASSIC	74	-	1050
*	O +	2S2 2P3 4S	2S2P4 4P	7	RY=1,10 - 8,70		G	DW	75	-	1250
*	O +	2P3 4S	2P3 2P1/2	7	EP1=0,36878 - +0,1		OMEGA	ER+DW	69	-	690
*	O +	2P3 4S	2P3 2P3/2	7	EP1=0,36878 - +0,1		OMEGA	ER+DW	69	-	690
*	O +	2P3 4S	2P3 2D3/2	7	EP1=0,2444 - 0,4688		OMEGA	ER+DW	69	-	690
*	O +	2P3 4S	2P3 2D5/2	7	EP1=0,2444 - 0,4688		OMEGA	ER+DW	69	-	690
*	O +	2P3 2P1/2	2P3 4S3/2	7	X =1,0		OMEGA	ER	57	-	110
*	O +	2P3 2P1/2	2P3 2P3/2	7	X =1,0		OMEGA	ER	57	-	110
*	O +	2P3 2P1/2	2P3 2P3/2	7	X =1,0		OMEGA	CBC	69	-	630
*	O +	2P3 2P1/2	2P3 2P3/2	7	RY=0,0,0.05,0.10		OMEGA	ER+DW	69	-	710
*	O +	2P3 2P1/2	2P3 2D3/2	7	X =1,0		OMEGA	ER	57	-	110
*	O +	2P3 2P1/2	2P3 2D5/2	7	X =1,0		OMEGA	ER	57	-	110
*	O +	2P3 2P1/2	2P3 4S3/2	7	X =1,0		OMEGA	ER	57	-	110
*	O +	2P3 2P3/2	2P3 4S3/2	7	X =1,0		OMEGA	ER	57	-	110
*	O +	2P3 2P3/2	2P3 2D3/2	7	X =1,0		OMEGA	ER	57	-	110
*	O +	2P3 2P3/2	2P3 2D5/2	7	X =1,0		OMEGA	ER	57	-	110
*	O +	2P3 2D1/2	2P3 2P3/2	7	EP1=0,36878 - +0,1		OMEGA	ER+DW	69	-	690
*	O +	2P3 2D3/2	2P3 4S3/2	7	X =1,0		OMEGA	ER	57	-	110
*	O +	2P3 2D3/2	2P3 2P1/2	7	EP1=0,36878 - +0,1		OMEGA	ER+DW	69	-	690
*	O +	2P3 2D3/2	2P3 2P1/2	7	RY=0,0,0.05,0.10		OMEGA	ER+DW	69	-	710
*	O +	2P3 2D3/2	2P3 2P3/2	7	EP1=0,36878 - +0,1		OMEGA	ER+DW	69	-	690
*	O +	2P3 2D3/2	2P3 2P3/2	7	RY=0,0,0.05,0.10		OMEGA	ER+DW	69	-	710
*	O +	2P3 2D3/2	2P3 2D5/2	7	X =1,0		OMEGA	ER	57	-	110
*	O +	2P3 2D3/2	2P3 2D5/2	7	EP1=0,2444 - 0,4688		OMEGA	ER+DW	69	-	690
*	O +	2P3 2D3/2	2P3 2D5/2	7	RY=0,0,0.05,0.10		OMEGA	ER+DW	69	-	710
*	O +	2P3 2D5/2	2P3 4S3/2	7	X =1,0		OMEGA	ER	57	-	110
*	O +	2P3 2D5/2	2P3 2P1/2	7	EP1=0,36878 - +0,1		OMEGA	ER+DW	69	-	690
*	O +	2P3 2D5/2	2P3 2P1/2	7	RY=0,0,0.05,0.10		OMEGA	ER+DW	69	-	710
*	O +	2P3 2D5/2	2P3 2P3/2	7	EP1=0,36878 - +0,1		OMEGA	ER+DW	69	-	690
*	O +	2P3 2D5/2	2P3 2P3/2	7	RY=0,0,0.05,0.10		OMEGA	ER+DW	69	-	710
*	O +	2P3 2D5/2	2P3 2D3/2	7	RY3=0,0		OMEGA	ER+DW	69	-	680
*	O +	2P3 2D5/2	2P3 2D3/2	7	RY3=0,0,0.05,0.1		OMEGA	CC	76	-	1311
*	F 7+	1S2 1S	1S2S 1S	2	X =1,0 - 10,0		CS	DWPOII	77	-	1510
*	F 7+	1S2 1S	1S2S 1S	2	RY=60,81,160		CS	CB	77	-	1520
*	F 7+	1S2 1S	1S2S 1S	2	RY=60,81,160		CS	DW	77	-	1520
*	F 7+	1S2 1S	1S2S 3S	2	RY=60,81,160		CS	DW	77	-	1520
*	F 7+	1S2 1S	1s2P 1P	2	X =1,0 - 10,0		CS	DWPOII	77	-	1510
*	F 7+	1S2 1S	1s2P 1P	2	RY=60,81,160		CS	DW	77	-	1520
*	F 7+	1S2 1S	1S2P 3P	2	RY=60,81,160		CS	CB	77	-	1520
*	F 5+	2S2P 3P0	2S2P 3P2	4	X =1,0		OMEGA	CB	68	-	590
*	F 5+	2S2P 3P0	2S2P 3P2	4	X =1,0		OMEGA	DW	68	-	590
*	F 4+	2S2 2P 2P1/2	2S2 2P 2P3/2	5	X =1,0		OMEGA	CB	68	-	590
*	F 4+	2S2 2P 2P1/2	2S2 2P 2P3/2	5	X =1,0		OMEGA	DW	68	-	590
*	F 4+	2S2 2P 2P1/2	2S2 2P 2P3/2	5	X =1,0		OMEGA	CBO	69	-	630
*	F 4+	2S2 2P 2P1/2	2S2 2P 2P3/2	5	RY=0,0,0.05,0.10		OMEGA	ER+DW	69	-	710
*	F 3+	2P2 3P	2P2 1S	6	X =1,0		OMEGA	ER	53	-	70
*	F 3+	2P2 3P	2P2 1S	6	RY=0,0,0.05,0.10		OMEGA	ER+DW	69	-	710
*	F 3+	2P2 3P	2P2 1D	6	X =1,0		OMEGA	ER+DW	69	-	70
*	F 3+	2P2 3P	2P2 1D	6	RY=0,0 - 0.10		OMEGA	ER+DW	69	-	710
*	F 3+	2P2 1D	2P2 1S	6	X =1,0		OMEGA	DW	55	-	90
*	F 3+	2P2 3P0	2P2 3P1	6	RY=0,0,0.05,0.10		OMEGA	ER+DW	69	-	710
*	F 3+	2P2 3P0	2P2 3P1	6	X =1,0		OMEGA	CBO	69	-	630
*	F 3+	2P2 3P0	2P2 3P1	6	RY=0,0,0.05,0.10		OMEGA	ER+DW	69	-	710
*	F 3+	2P2 3P0	2P2 3P2	6	X =1,0		OMEGA	CB	68	-	590
*	F 3+	2P2 3P0	2P2 3P2	6	X =1,0		OMEGA	DW	68	-	590
*	F 3+	2P2 3P0	2P2 3P2	6	X =1,0		OMEGA	CBO	69	-	630
*	F 3+	2P2 3P0	2P2 3P2	6	RY=0,0,0.05,0.10		OMEGA	ER+DW	69	-	710
*	F 3+	2P2 3P1	2P2 3P2	6	X =1,0		OMEGA	CBO	69	-	630
*	F 3+	2P2 3P1	2P2 3P2	6	RY=0,0,0.05,0.10		OMEGA	ER+DW	69	-	710
*	F 2+	2P3 4S	2P3 2P	7	X =1,0		OMEGA	ER	53	-	70
*	F 2+	2P3 4S	2P3 2P	7	RY3=0,0		OMEGA	ER+DW	67	-	540
*	F 2+	2P3 4S	2P3 2P	7	RY=0,0,0.05,0.10		OMEGA	ER+DW	69	-	710
*	F 2+	2P3 4S	2P3 2D	7	X =1,0		OMEGA	ER	53	-	70
*	F 2+	2P3 4S	2P3 2D	7	RY3=0,0		OMEGA	ER+DW	67	-	540
*	F 2+	2P3 4S	2P3 2D	7	RY=0,0 - 0.10		OMEGA	ER+DW	69	-	710
*	F 2+	2P3 2D	2P3 2P	7	X =1,0		OMEGA	DW	55	-	90
*	F 2+	2P3 2D	2P3 2P	7	RY3=0,0		OMEGA	ER+DW	67	-	540
*	F 2+	2P3 2D	2P3 2P	7	RY=0,0,0.05,0.10		OMEGA	ER+DW	69	-	710
*	F 2+	2P3 4S	2P3 2P1/2	7	EP1=0,11746 - +0,1		OMEGA	ER+DW	69	-	690

*	ION	TRANSITION	NUMBER	E.	ENERGY RANGE	DATA	METHOD	YEAR	REF.	*
*	F 2+	2P3 4S	2P3 2P3/2	7	EP1=0.11746 - +0.1	OMEGA	ER+DW	69	-	690 *
*	F 2+	2P3 4S	2P3 2D3/2	7	EP1=0.0777 - 0.2175	OMEGA	ER+DW	69	-	690 *
*	F 2+	2P3 4S	2P3 2D5/2	7	EP1=0.0777 - 0.2175	OMEGA	ER+DW	69	-	690 *
*	F 2+	2P3 2P1/2	2P3 2P3/2	7	X =1.0	OMEGA	CBO	69	-	630 *
*	F 2+	2P3 2P1/2	2P3 2P3/2	7	RY=0.0,0.05+0.10	OMEGA	ER+DW	69	-	710 *
*	F 2+	2P3 2D1/2	2P3 2P3/2	7	EP1=0.11746 - +0.1	OMEGA	ER+DW	69	-	690 *
*	F 2+	2P3 2D3/2	2P3 2P1/2	7	EP1=0.11746 - +0.1	OMEGA	ER+DW	69	-	690 *
*	F 2+	2P3 2D3/2	2P3 2P1/2	7	RY=0.0,0.05+0.10	OMEGA	ER+DW	69	-	710 *
*	F 2+	2P3 2D3/2	2P3 2P3/2	7	EP1=0.11746 - +0.1	OMEGA	ER+DW	69	-	690 *
*	F 2+	2P3 2D3/2	2P3 2P3/2	7	RY=0.0,0.05+0.10	OMEGA	ER+DW	69	-	710 *
*	F 2+	2P3 2D3/2	2P3 2D5/2	7	EP1=0.0777 - 0.2175	OMEGA	ER+DW	69	-	690 *
*	F 2+	2P3 2D3/2	2P3 2D5/2	7	RY=0.0,0.05+0.10	OMEGA	ER+DW	69	-	710 *
*	F 2+	2P3 2D5/2	2P3 2P1/2	7	EP1=0.0,0.05+0.10	OMEGA	ER+DW	69	-	710 *
*	F 2+	2P3 2D5/2	2P3 2P3/2	7	EP1=0.11746 - +0.1	OMEGA	ER+DW	69	-	690 *
*	F 2+	2P3 2D5/2	2P3 2P3/2	7	RY=0.0,0.05+0.10	OMEGA	ER+DW	69	-	710 *
*	F +	2P4 3P	2P4 1S	8	X =1.0	OMEGA	ER	53	-	70 *
*	F +	2P4 3P	2P4 1S	8	RY3=0,0	OMEGA	ER+DW	67	-	540 *
*	F +	2P4 3P	2P4 1S	8	RY=0.0,0.5+0.10	OMEGA	ER+DW	69	-	710 *
*	F +	2P4 3P	2P4 1D	8	X =1.0	OMEGA	ER	53	-	70 *
*	F +	2P4 3P	2P4 1D	8	RY3=0,0	OMEGA	ER+DW	67	-	540 *
*	F +	2P4 3P	2P4 1D	8	RY=0.0 - 0.10	OMEGA	ER+DW	69	-	710 *
*	F +	2P4 1D	2P4 1S	8	X =1.0	OMEGA	DW	55	-	90 *
*	F +	2P4 1D	2P4 1S	8	RY3=0,0	OMEGA	ER+DW	67	-	540 *
*	F +	2P4 1D	2P4 1S	8	RY=0.0,0.5+0.10	OMEGA	ER+DW	69	-	710 *
*	F +	2P4 3P0	2P4 3P1	8	X =1.0	OMEGA	CBO	69	-	630 *
*	F +	2P4 3P0	2P4 3P1	8	RY=0.0,0.05+0.10	OMEGA	ER+DW	69	-	710 *
*	F +	2P4 3P0	2P4 3P2	8	X =1.0	OMEGA	CB	68	-	590 *
*	F +	2P4 3P0	2P4 3P2	8	X =1.0	OMEGA	DW	68	-	590 *
*	F +	2P4 3P0	2P4 3P2	8	X =1.0	OMEGA	CBO	69	-	630 *
*	F +	2P4 3P0	2P4 3P2	8	RY=0.0,0.05+0.10	OMEGA	ER+DW	69	-	710 *
*	F +	2P4 3P1	2P4 3P2	8	X =1.0	OMEGA	CBO	69	-	630 *
*	F +	2P4 3P1	2P4 3P2	8	RY=0.0,0.05+0.10	OMEGA	ER+DW	69	-	710 *
*	NE 9+	1S	2S	1	X =1.0	CS	CB	71	-	890 *
*	NE 9+	1S	2S	1	X =1.0 - 10.0	CS	CB1	76	-	1320 *
*	NE 9+	1S	2S	1	X =1.0 - 10.0	CS	CBO1	76	-	1320 *
*	NE 9+	1S	2S	1	X =1.0 - 4.0	OMEGA	CC	77	-	1500 *
*	NE 9+	1S	2S	1	X =1.0 - 4.0	OMEGA	DW	77	-	1500 *
*	NE 9+	1S	2S	1	X =1.0 - 26.67	CS	DWPOII	77	-	1510 *
*	NE 9+	1S	2S	1	X =1.0 - 26.67	OMEGA	DW	77	-	1530 *
*	NE 9+	1S	2S	1	X =1.0 - 1.08	OMEGA	CC	78	-	1670 *
*	NE 9+	1S	2S	1	X =1.5 - 6.0	CS	CB	78	-	1690 *
*	NE 9+	1S	2S	1	X =1 - 10	CS	CB	78	-	1730 *
*	NE 9+	1S	3S	1	X =1.0	CS	CB	71	-	890 *
*	NE 9+	1S	3S	1	X =1.5 - 6.0	CS	CB	78	-	1690 *
*	NE 9+	1S	4S	1	X =1.5 - 6.0	CS	CB	78	-	1690 *
*	NE 9+	1S	5S	1	X =1.5 - 6.0	CS	CB	78	-	1690 *
*	NE 9+	1S	6S	1	X =1.5 - 6.0	CS	CB	78	-	1690 *
*	NE 9+	1S	7S	1	X =1.5 - 6.0	CS	CB	78	-	1690 *
*	NE 9+	1S	8S	1	X =1.5 - 6.0	CS	CB	78	-	1690 *
*	NE 9+	1S	9S	1	X =1.5 - 6.0	CS	CB	78	-	1690 *
*	NE 9+	1S	10S	1	X =1.5 - 6.0	CS	CB	78	-	1690 *
*	NE 9+	1S	2P	1	X =1.0	CS	CB	78	-	1690 *
*	NE 9+	1S	2P	1	X =1.0 - 4.0	OMEGA	CC	77	-	1500 *
*	NE 9+	1S	2P	1	X =1.0 - 4.0	OMEGA	DW	77	-	1500 *
*	NE 9+	1S	2P	1	X =1.0 - 26.67	CS	DWPOII	77	-	1510 *
*	NE 9+	1S	2P	1	X =1.02 - 1.08	OMEGA	CC	78	-	1670 *
*	NE 9+	1S	2P	1	X =1 - 10	CS	CB	78	-	1730 *
*	NE 9+	1S	3P	1	X =1.0	CS	CB	71	-	890 *
*	NE 9+	1S	3P	1	X =1.0	CS	CB	71	-	890 *
*	NE 9+	1S	3P	1	X =1.0	CS	CB	71	-	890 *
*	NE 9+	2S	3S	1	X =1.0	CS	CB	71	-	890 *
*	NE 9+	2S	3S	1	X =1.0	CS	CB	71	-	890 *
*	NE 9+	2P	3S	1	X =1.0	CS	CB	71	-	890 *
*	NE 9+	2P	3S	1	X =1.0	CS	CB	71	-	890 *
*	NE 9+	2P	3S	1	X =1.0	CS	CB	71	-	890 *
*	NE 8+	1S2 1S	1S2S 1S	2	X =1.0 - 10.0	CS	DWPOII	77	-	1510 *
*	NE 8+	1S2 1S	1S2S 1S	2	RY=75,100,200	CS	CB	77	-	1520 *
*	NE 8+	1S2 1S	1S2S 1S	2	RY=75,100,200	CS	DW	77	-	1520 *
*	NE 8+	1S2 1S	1S2S 3S	2	RY=75,100,200	CS	DW	77	-	1520 *
*	NE 8+	1S2 1S	1S2P 1P	2	EV=921.1 - 20000	CS	CB	76	-	1321 *
*	NE 8+	1S2 1S	1S2P 1P	2	X =1.0 - 10.0	CS	DWPOII	77	-	1510 *
*	NE 8+	1S2 1S	1S2P 1P	2	RY=75,100,200	CS	DW	77	-	1520 *
*	NE 8+	1S2 1S	1S2P 1P	2	RY=75,100,200	CS	CB	77	-	1520 *
*	NE 8+	1S2 1S	1S3P 1P	2	RY=75,100,200	CS	CB	77	-	1520 *
*	NE 8+	1S2 1S	1S3P 1P	2	EV=1072.8 - 20000	CS	CB	76	-	1321 *
*	NE 8+	1S2 1S	1S2P 3P	2	RY=75,100,200	CS	DW	77	-	1520 *
*	NE 8+	1S2S 3S	1S2P 3P	2	T =2.0 - 6.0*10(6)	RATE	CB	71	-	882 *
*	NE 8+	1S2S 3S	1S2P 3P	2	EV=9.6 - 1000	CS	CB	76	-	1321 *
*	NE 8+	1S2S 3S	1S3P 3P	2	EV=166.4 - 2000	CS	CB	76	-	1321 *
*	NE 8+	1S2P 3P	1S3S 3S	2	EV=154.2 - 2000	CS	CB	76	-	1321 *
*	NE 7+	2S	3S	3	X =1.3,5	OMEGA	CB1	66	-	381 *
*	NE 7+	2S	3S	3	RY=14,18,30	OMEGA	CB1	76	-	1350 *
*	NE 7+	2S	3S	3	RY=14,18,30	OMEGA	CC	76	-	1350 *
*	NE 7+	2S	4S	3	X =1.3,5	OMEGA	CB1	66	-	381 *

*	ION	TRANSITION	NUMBER E.	ENERGY RANGE	DATA	METHOD	YEAR	REF.	*
*	NE 7+ 2S	4S	3	X = 1.0, 2.0, 3.0, 4.0	OMEGA	CBI	72	-	960 *
*	NE 7+ 2S	5S	3	X = 1.3, 5	OMEGA	CBI	66	-	381 *
*	NE 7+ 2S	5S	3	X = 1.0, 2.0, 3.0, 4.0	OMEGA	CBI	72	-	960 *
*	NE 7+ 2S	6S	3	X = 1.3, 5	OMEGA	CBI	66	-	381 *
*	NE 7+ 2S	6S	3	X = 1.0	OMEGA	CBI	72	-	960 *
*	NE 7+ 2S	7S	3	X = 1.3, 5	OMEGA	CBI	66	-	381 *
*	NE 7+ 2S	2P	3	X = 1 - 10	OMEGA	CBI	66	-	360 *
*	NE 7+ 2S	2P	3	X = 1 - 10	OMEGA	CBI	66	-	360 *
*	NE 7+ 2S	2P	3	X = 1 - 3	OMEGA	CBI	66	-	360 *
*	NE 7+ 2S	2P	3	X = 1 - 8	CS	CB	74	-	1120 *
*	NE 7+ 2S	2P	3	X = 1 - 8	CS	B	74	-	1120 *
*	NE 7+ 2S	2P	3	RY=1.6 - 30.0	OMEGA	CBI	76	-	1350 *
*	NE 7+ 2S	2P	3	RY=1.6 - 30.0	OMEGA	CC	76	-	1350 *
*	NE 7+ 2S	2P	3	X = 1 - 200	OMEGA	DW	77	-	1550 *
*	NE 7+ 2S	2P	3	X = 1 - 200	OMEGA	BU	77	-	1550 *
*	NE 7+ 2S	3P	3	X = 1 - 10	OMEGA	CBI	66	-	360 *
*	NE 7+ 2S	3P	3	X = 1 - 10	OMEGA	CBI	66	-	360 *
*	NE 7+ 2S	3P	3	X = 1 - 3	OMEGA	CB'	66	-	360 *
*	NE 7+ 2S	3P	3	X = 1 - 8	CS	E	74	-	1120 *
*	NE 7+ 2S	3P	3	X = 1 - 8	CS	C3	74	-	1120 *
*	NE 7+ 2S	3P	3	RY=14.18, 30	OMEGA	CBI	76	-	1350 *
*	NE 7+ 2S	3P	3	RY=14.18, 30	OMEGA	CC	76	-	1350 *
*	NE 7+ 2S	4P	3	X = 1 - 10	OMEGA	CBI	66	-	360 *
*	NE 7+ 2S	4P	3	X = 1.0, 2.0, 3.0, 4.0	OMEGA	CBI	72	-	960 *
*	NE 7+ 2S	5P	3	X = 1 - 10	QMEGA	CBI	66	-	360 *
*	NE 7+ 2S	5P	3	X = 1.0, 2.0, 3.0, 4.0	OMEGA	CBI	72	-	960 *
*	NE 7+ 2S	6P	3	X = 1 - 10	OMEGA	CBI	66	-	360 *
*	NE 7+ 2S	6P	3	X = 1.0	OMEGA	CBI	72	-	960 *
*	NE 7+ 2S	7P	3	X = 1 - 10	OMEGA	CBI	66	-	360 *
*	NE 7+ 2S	3D	3	X = 1.3, 5	OMEGA	CBI	66	-	381 *
*	NE 7+ 2S	3D	3	RY=14.18, 30	OMEGA	CBI	76	-	1350 *
*	NE 7+ 2S	3D	3	RY=14.18, 30	OMEGA	CC	76	-	1350 *
*	NE 7+ 2S	4D	3	X = 1.3, 5	OMEGA	CBI	66	-	381 *
*	NE 7+ 2S	4D	3	X = 1.0, 2.0, 3.0, 4.0	OMEGA	CBI	72	-	960 *
*	NE 7+ 2S	5D	3	X = 1.3, 5	OMEGA	CBI	66	-	381 *
*	NE 7+ 2S	5D	3	X = 1.0, 2.0, 3.0, 4.0	OMEGA	CBI	72	-	960 *
*	NE 7+ 2S	6D	3	X = 1.3, 5	OMEGA	CBI	66	-	381 *
*	NE 7+ 2S	6D	3	X = 1.0	OMEGA	CBI	72	-	960 *
*	NE 7+ 2S	7D	3	X = 1.3, 5	OMEGA	CBI	66	-	381 *
*	NE 7+ 2S	4F	3	X = 1.0, 2.0, 3.0, 4.0	OMEGA	CBI	72	-	960 *
*	NE 7+ 2S	5F	3	X = 1.0, 2.0, 3.0, 4.0	OMEGA	CBI	72	-	960 *
*	NE 7+ 2S	6F	3	X = 1.0, 2.0, 3.0	OMEGA	CBI	72	-	960 *
*	NE 7+ 2P	3S	3	X = 1.0, 1.5, 2.0	OMEGA	CBI	70	-	720 *
*	NE 7+ 2P	3S	3	RY=14.18, 30	OMEGA	CBI	76	-	1350 *
*	NE 7+ 2P	3S	3	RY=14.18, 30	OMEGA	CC	76	-	1350 *
*	NE 7+ 2P	4S	3	RY=14.18, 30	OMEGA	CBI	76	-	1350 *
*	NE 7+ 2P	7S	3	X = 1.0, 1.5, 2.0	OMEGA	CBI	70	-	720 *
*	NE 7+ 2P	3P	3	X = 1.0, 1.5, 2.0	OMEGA	CBI	70	-	720 *
*	NE 7+ 2P	3P	3	RY=14.18, 30	OMEGA	CBI	76	-	1350 *
*	NE 7+ 2P	3P	3	RY=14.18, 30	OMEGA	CC	76	-	1350 *
*	NE 7+ 2P	4P	3	X = 1.0, 1.5, 2.0	OMEGA	CBI	70	-	720 *
*	NE 7+ 2P	7P	3	X = 1.0, 1.5, 2.0	OMEGA	CBI	70	-	720 *
*	NE 7+ 2P	3D	3	X = 1.0, 1.5, 2.0	OMEGA	CBI	70	-	720 *
*	NE 7+ 2P	3D	3	RY=14.18, 30	OMEGA	CBI	76	-	1350 *
*	NE 7+ 2P	3D	3	RY=14.18, 30	OMEGA	CC	76	-	1350 *
*	NE 7+ 2P	4D	3	X = 1.0, 1.5, 2.0	OMEGA	CBI	70	-	720 *
*	NE 7+ 2P	7D	3	X = 1.0, 1.5, 2.0	OMEGA	CBI	70	-	720 *
*	NE 6+ 2S2 1S	2S2P 1P	4	RY=1.983, 2.783, 5.00	OMEGA	CC	70	-	830 *
*	NE 6+ 2S2 1S	2S2P 1P	4	GEV=35 - 1000	OMEGA	DW	77	-	1360 *
*	NE 6+ 2S2 1S	2S2P 1P	4	EV=26.55 - 4000	CS	CB	77	-	1390 *
*	NE 6+ 2S2 1S	2S2P 3P	4	RY=1.983, 2.783, 5.00	OMEGA	CC	70	-	830 *
*	NE 6+ 2S2 1S	2S2P 3P	4	GEV=15 - 1000	OMEGA	DW	77	-	1360 *
*	NE 6+ 2S2 1S	2P2 3P	4	GEV=50 - 1000	OMEGA	DW	77	-	1360 *
*	NE 6+ 2S2 1S	2P2 1D	4	GEV=50 - 1000	OMEGA	DW	77	-	1360 *
*	NE 6+ 2S2 1S	2P2 1S	4	GEV=50 - 1000	OMEGA	DW	77	-	1360 *
*	NE 6+ 2S2 1S	2S3S 3S	4	GEV=50 - 1000	OMEGA	DW	77	-	1360 *
*	NE 6+ 2S2 1S	2S3S 1S	4	GEV=50 - 1000	OMEGA	DW	77	-	1360 *
*	NE 6+ 2S2 1S	2S3P 1P	4	GEV=50 - 1000	OMEGA	DW	77	-	1360 *
*	NE 6+ 2S2 1S	2S3P 3P	4	GEV=50 - 1000	OMEGA	DW	77	-	1360 *
*	NE 6+ 2S2 1S	2S3D 3D	4	GEV=50 - 1000	OMEGA	DW	77	-	1360 *
*	NE 6+ 2S2 1S	2S3D 1D	4	GEV=50 - 1000	OMEGA	DW	77	-	1360 *
*	NE 6+ 2S2 1S	2P3S 3P	4	GEV=50 - 1000	OMEGA	DW	77	-	1360 *
*	NE 6+ 2S2 1S	2P3S 1P	4	GEV=50 - 1000	OMEGA	DW	77	-	1360 *
*	NE 6+ 2S2P 3P	2S2P 1P	4	GEV=35 - 1000	OMEGA	DW	77	-	1360 *
*	NE 6+ 2S2P 3P	2P2 3P	4	GEV=50, 500, 1000	OMEGA	DW	77	-	1360 *
*	NE 6+ 2S2P 3P	2P2 1D	4	GEV=50, 500, 1000	OMEGA	DW	77	-	1360 *
*	NE 6+ 2S2P 3P	2P2 1S	4	GEV=50, 500, 1000	OMEGA	DW	77	-	1360 *
*	NE 6+ 2S2P 3P	2S3S 3S	4	GEV=50, 500, 1000	OMEGA	DW	77	-	1360 *
*	NE 6+ 2S2P 3P	2S3S 1S	4	GEV=500, 1000	OMEGA	DW	77	-	1360 *
*	NE 6+ 2S2P 3P	2S3P PS	4	GEV=500, 1000	OMEGA	DW	77	-	1360 *
*	NE 6+ 2S2P 3P	2S3P 3P	4	GEV=500, 1000	OMEGA	DW	77	-	1360 *
*	NE 6+ 2S2P 3P	2S3D 3D	4	GEV=500, 1000	OMEGA	DW	77	-	1360 *
*	NE 6+ 2S2P 3P	2S3D 1D	4	GEV=500, 1000	OMEGA	DW	77	-	1360 *
*	NE 6+ 2S2P 3P	2P3S 3P	4	GEV=500, 1000	OMEGA	DW	77	-	1360 *
*	NE 6+ 2S2P 3P	2P3S 1P	4	GEV=500, 1000	OMEGA	DW	77	-	1360 *

*	ION	TRANSITION	NUMBER	E,	ENERGY RANGE	DATA	METHOD	YEAR	REF.	*
*	NE 6+	2S2P 1P	2P2 3P	4	GEV=50..500..1000	OMEGA	DW	77	-	1360 *
*	NE 6+	2S2P 1P	2P2 1D	4	GEV=50..500..1000	OMEGA	DW	77	-	1360 *
*	NE 6+	2S2P 1P	2P2 1S	4	GEV=50..500..1000	OMEGA	DW	77	-	1360 *
*	NE 6+	2S2P 1P	2S3S 3S	4	GEV=500..1000	OMEGA	DW	77	-	1360 *
*	NE 6+	2S2P 1P	2S3S 1S	4	GEV=500..1000	OMEGA	DW	77	-	1360 *
*	NE 6+	2S2P 1P	2S3P 1P	4	GEV=500..1000	OMEGA	DW	77	-	1360 *
*	NE 6+	2S2P 1P	2S3P 3P	4	GEV=500..1000	OMEGA	DW	77	-	1360 *
*	NE 6+	2S2P 1P	2S3D 3D	4	GEV=500..1000	OMEGA	DW	77	-	1360 *
*	NE 6+	2S2P 1P	2S3D 1D	4	GEV=500..1000	OMEGA	DW	77	-	1360 *
*	NE 6+	2S2P 1P	2P3S 3P	4	GEV=500..1000	OMEGA	DW	77	-	1360 *
*	NE 6+	2S2P 1P	2P3S 1P	4	GEV=500..1000	OMEGA	DW	77	-	1360 *
*	NE 6+	2P2 3P	2P2 1D	4	GEV=50..500..1000	OMEGA	DW	77	-	1360 *
*	NE 6+	2P2 3P	2P2 1S	4	GEV=50..500..1000	OMEGA	DW	77	-	1360 *
*	NE 6+	2P2 3P	2S3S 3S	4	GEV=500..1000	OMEGA	DW	77	-	1360 *
*	NE 6+	2P2 3P	2S3S 1S	4	GEV=500..1000	OMEGA	DW	77	-	1360 *
*	NE 6+	2P2 3P	2S3P 1P	4	GEV=500..1000	OMEGA	DW	77	-	1360 *
*	NE 6+	2P2 3P	2S3D 3D	4	GEV=500..1000	OMEGA	DW	77	-	1360 *
*	NE 6+	2P2 3P	2S3D 1D	4	GEV=500..1000	OMEGA	DW	77	-	1360 *
*	NE 6+	2P2 3P	2P3S 3P	4	GEV=500..1000	OMEGA	DW	77	-	1360 *
*	NE 6+	2P2 3P	2P3S 1P	4	GEV=500..1000	OMEGA	DW	77	-	1360 *
*	NE 6+	2P2 1D	2P2 1S	4	GEV=50..500..1000	OMEGA	DW	77	-	1360 *
*	NE 6+	2P2 1D	2S3S 3S	4	GEV=500..1000	OMEGA	DW	77	-	1360 *
*	NE 6+	2P2 1D	2S3S 1S	4	GEV=500..1000	OMEGA	DW	77	-	1360 *
*	NE 6+	2P2 1D	2S3P 1P	4	GEV=500..1000	OMEGA	DW	77	-	1360 *
*	NE 6+	2P2 1D	2S3P 3P	4	GEV=500..1000	OMEGA	DW	77	-	1360 *
*	NE 6+	2P2 1D	2S3D 3D	4	GEV=500..1000	OMEGA	DW	77	-	1360 *
*	NE 6+	2P2 1D	2S3D 1D	4	GEV=500..1000	OMEGA	DW	77	-	1360 *
*	NE 6+	2P2 1D	2S3P 3P	4	GEV=500..1000	OMEGA	DW	77	-	1360 *
*	NE 6+	2P2 1D	2S3D 3D	4	GEV=500..1000	OMEGA	DW	77	-	1360 *
*	NE 6+	2P2 1D	2P3S 3P	4	GEV=500..1000	OMEGA	DW	77	-	1360 *
*	NE 6+	2P2 1D	2P3S 1P	4	GEV=500..1000	OMEGA	DW	77	-	1360 *
*	NE 6+	2P2 1S	2S3S 3S	4	GEV=500..1000	OMEGA	DW	77	-	1360 *
*	NE 6+	2P2 1S	2S3S 1S	4	GEV=500..1000	OMEGA	DW	77	-	1360 *
*	NE 6+	2P2 1S	2S3P 1P	4	GEV=500..1000	OMEGA	DW	77	-	1360 *
*	NE 6+	2P2 1S	2S3D 3D	4	GEV=500..1000	OMEGA	DW	77	-	1360 *
*	NE 6+	2P2 1S	2S3D 1D	4	GEV=500..1000	OMEGA	DW	77	-	1360 *
*	NE 6+	2P2 1S	2P3S 3P	4	GEV=500..1000	OMEGA	DW	77	-	1360 *
*	NE 6+	2P2 1S	2P3S 1P	4	GEV=500..1000	OMEGA	DW	77	-	1360 *
*	NE 6+	2S2P 3P0	2S2P 3P2	4	X =1.0	OMEGA	CB	68	-	590 *
*	NE 5+	2S2 2P 2P1/2	2S2 2P 2P3/2	5	X =1.0	OMEGA	CB	68	-	590 *
*	NE 5+	2S2 2P 2P1/2	2S2 2P 2P3/2	5	X =1.0	OMEGA	DW	68	-	590 *
*	NE 5+	2S2 2P 2P1/2	2S2 2P 2P3/2	5	X =1.0	OMEGA	CBO	69	-	630 *
*	NE 5+	2S2 2P 2P1/2	2S2 2P 2P3/2	5	RY=0.0..0.05..0.10	OMEGA	ER+DW	69	-	710 *
*	NE 5+	2S2 2P 2P3/2	2S2P2 2P3/2	5	G	DW	76	-	1330 *	
*	NE 4+	2P2 3P	2P2 1S	6	X =1.0	OMEGA	ER	53	-	70 *
*	NE 4+	2P2 3P	2P2 1S	6	RY3=0..0..0..2..0..4	OMEGA	ER+DW	66	-	460 *
*	NE 4+	2P2 3P	2P2 1S	6	X =1.0	OMEGA	CC	68	-	610 *
*	NE 4+	2P2 3P	2P2 1S	6	RY=0..0..0..05..0..10	OMEGA	ER+DW	69	-	710 *
*	NE 4+	2P2 3P	2P2 1D	6	X =1.0	OMEGA	ER	53	-	70 *
*	NE 4+	2P2 3P	2P2 1D	6	RY3=0..0..0..2..0..4	OMEGA	ER+DW	66	-	460 *
*	NE 4+	2P2 3P	2P2 1D	6	X =1.0	OMEGA	CC	68	-	610 *
*	NE 4+	2P2 3P	2P2 1D	6	RY=0..0..0..2..0..4	OMEGA	ER+DW	69	-	710 *
*	NE 4+	2P2 3P	2P2 1D	6	X =1.0	OMEGA	ER	69	-	630 *
*	NE 4+	2P2 3P	2P2 1D	6	RY=0..0..0..0..1..0	OMEGA	ER+DW	69	-	710 *
*	NE 4+	2P2 1D	2P2 1S	6	X =1.0	OMEGA	DW	55	-	90 *
*	NE 4+	2P2 1D	2P2 1S	6	RY3=0..0..0..2..0..4	OMEGA	ER+DW	66	-	460 *
*	NE 4+	2P2 1D	2P2 1S	6	X =1.0	OMEGA	CC	68	-	610 *
*	NE 4+	2P2 1D	2P2 1S	6	RY=0..0..0..05..0..10	OMEGA	ER+DW	69	-	710 *
*	NE 4+	2P2 3P0	2P2 3P1	6	X =1.0	OMEGA	CBO	69	-	630 *
*	NE 4+	2P2 3P0	2P2 3P1	6	RY=0..0..0..05..0..10	OMEGA	ER+DW	69	-	710 *
*	NE 4+	2P2 3P0	2P2 3P2	6	X =1.0	OMEGA	CB	68	-	590 *
*	NE 4+	2P2 3P0	2P2 3P2	6	X =1.0	OMEGA	DW	68	-	590 *
*	NE 4+	2P2 3P0	2P2 3P2	6	X =1.0	OMEGA	CBO	69	-	630 *
*	NE 4+	2P2 3P0	2P2 3P2	6	RY=0..0..0..05..0..10	OMEGA	ER+DW	69	-	710 *
*	NE 4+	2P2 3P1	2P2 3P2	6	X =1.0	OMEGA	CBO	69	-	630 *
*	NE 4+	2P2 3P1	2P2 3P2	6	RY=0..0..0..05..0..10	OMEGA	ER+DW	69	-	710 *
*	NE 3+	2P3 4S	2P3 2P	7	X =1.0	OMEGA	ER	53	-	70 *
*	NE 3+	2P3 4S	2P3 2P	7	RY3=0..0..0..0..0..0	OMEGA	ER+DW	67	-	540 *
*	NE 3+	2P3 4S	2P3 2P	7	X =1.0	OMEGA	CC	68	-	610 *
*	NE 3+	2P3 4S	2P3 2P	7	RY=0..0..0..05..0..10	OMEGA	ER+DW	69	-	710 *
*	NE 3+	2P3 4S	2P3 2D	7	X =1.0	OMEGA	ER+DW	69	-	710 *
*	NE 3+	2P3 4S	2P3 2D	7	RY=0..0..0..0..0..0	OMEGA	ER	53	-	70 *
*	NE 3+	2P3 4S	2P3 2D	7	X =1.0	OMEGA	ER+DW	67	-	540 *
*	NE 3+	2P3 4S	2P3 2D	7	RY3=0..0..0..0..0..0	OMEGA	ER	67	-	540 *
*	NE 3+	2P3 4S	2P3 2D	7	X =1.0	OMEGA	CC	68	-	610 *
*	NE 3+	2P3 4S	2P3 2D	7	RY=0..0..0..05..0..10	OMEGA	ER+DW	69	-	710 *
*	NE 3+	2P3 4S	2P3 2D	7	X =1.0	OMEGA	DW	55	-	90 *
*	NE 3+	2P3 2D	2P3 2P	7	RY3=0..0..0..0..0..0	OMEGA	ER+DW	67	-	540 *
*	NE 3+	2P3 2D	2P3 2P	7	X =1.0	OMEGA	CC	68	-	610 *
*	NE 3+	2P3 2D	2P3 2P	7	RY=0..0..0..05..0..10	OMEGA	ER+DW	69	-	710 *
*	NE 3+	2P3 4S	2P3 2P1/2	7	EP1=0..06483 - +0..1	OMEGA	ER+DW	69	-	690 *
*	NE 3+	2P3 4S	2P3 2P3/2	7	EP1=0..06483 - +0..1	OMEGA	ER+DW	69	-	690 *
*	NE 3+	2P3 4S	2P3 2D3/2	7	EP1=0..0..34 - 0..1648	OMEGA	ER+DW	69	-	690 *
*	NE 3+	2P3 4S	2P3 2D5/2	7	EP1=0..0..34 - 0..1648	OMEGA	ER+DW	69	-	690 *
*	NE 3+	2P3 2P1/2	2P3 2P3/2	7	X =1.0	OMEGA	CBO	69	-	630 *
*	NE 3+	2P3 2P1/2	2P3 2P3/2	7	RY=0..0..0..05..0..10	OMEGA	ER+DW	69	-	710 *
*	NE 3+	2P3 2D1/2	2P3 2P3/2	7	FP1=0..04683 - +0..1	OMEGA	ER+DW	69	-	690 *
*	NE 3+	2P3 2D3/2	2P3 2P1/2	7	EP1=0..06483 - +0..1	OMEGA	ER+DW	69	-	690 *
*	NE 3+	2P3 2D3/2	2P3 2P1/2	7	RY=0..0..0..05..0..10	OMEGA	ER+DW	69	-	710 *

*	ION	TRANSITION	NUMBER	E.	ENERGY RANGE	DATA	METHOD	YEAR	REF.	*
*	NE 3+	2P3 2D3/2	2P3 2P3/2	7	EP1=0.06483 ~ +0.1	OMEGA	ER+DW	69	-	690 *
*	NE 3+	2P3 2D3/2	2P3 2P3/2	7	RY=0.0,0,05+0.10	OMEGA	ER+DW	69	-	710 *
*	NE 3+	2P3 2D3/2	2P3 2D5/2	7	EP1=0.0434 - 0.1648	OMEGA	ER+DW	69	-	690 *
*	NE 3+	2P3 2D3/2	2P3 2P1/2	7	RY=0.0,0,05+0.10	OMEGA	ER+DW	69	-	710 *
*	NE 3+	2P3 2D5/2	2P3 2P1/2	7	EP1=0.06483 ~ +0.1	OMEGA	ER+DW	69	-	690 *
*	NE 3+	2P3 2D5/2	2P3 2P3/2	7	RY=0.0,0,05+0.10	OMEGA	ER+DW	69	-	710 *
*	NE 3+	2P3 2D5/2	2P3 2P3/2	7	EP1=0.06483 ~ +0.1	OMEGA	ER+DW	69	-	690 *
*	NE 3+	2P3 2D5/2	2P3 2P3/2	7	RY=0.0,0,05+0.10	OMEGA	ER+DW	69	-	710 *
*	NE 2+	2P4 3↑	2P4 1S	8	X =1.0	OMEGA	ER	53	-	70 *
*	NE 2+	2P4 3P	2P4 1S	8	RY3=0.0	OMEGA	ER+DW	67	-	540 *
*	NE 2+	2P4 3P	2P4 1S	8	X =1.0	OMEGA	CC	68	-	610 *
*	NE 2+	2P4 3P	2P4 1S	8	RY=0.0,0,5,0,10	OMEGA	ER+DW	69	-	710 *
*	NE 2+	2P4 3P	2P4 1S	8	RY=0.49 - 1.0	OMEGA	CC	74	-	1132 *
*	NE 2+	2P4 3P	2P4 1D	8	X =1.0	OMEGA	ER	53	-	70 *
*	NE 2+	2P4 3P	2P4 1D	8	RY3=0.0	OMEGA	ER+DW	67	-	540 *
*	NE 2+	2P4 3P	2P4 1D	8	X =1.0	OMEGA	CC	68	-	610 *
*	NE 2+	2P4 3P	2P4 1D	8	RY=0.0 - 0.10	OMEGA	ER+DW	69	-	710 *
*	NE 2+	2P4 3P	2P4 1D	8	RY=0.24 - 1.0	OMEGA	CC	74	-	1132 *
*	NE 2+	2P4 1D	2P4 1S	8	X =1.0	OMEGA	DW	55	-	90 *
*	NE 2+	2P4 1D	2P4 1S	8	RY3=0.0	OMEGA	ER+DW	67	-	540 *
*	NE 2+	2P4 1D	2P4 1S	8	X =1.0	OMEGA	CC	68	-	610 *
*	NE 2+	2P4 1D	2P4 1S	8	RY=0.0,0,5,0,10	OMEGA	ER+DW	69	-	710 *
*	NE 2+	2P4 1D	2P4 1S	8	X =1.0	OMEGA	R-MAT	77	-	1590 *
*	NE +	2P5 2P1/2	2P5 2P3/2	9	X =1.0	OMEGA	CB	68	-	590 *
*	NE +	2P5 2P1/2	2P5 2P3/2	9	X =1.0	OMEGA	DW	68	-	590 *
*	NE +	2P5 2P1/2	2P5 2P3/2	9	X =1.0	OMEGA	CBO	69	-	630 *
*	NE +	2P5 2P1/2	2P5 2P3/2	9	RY=0.0,0,05,0,10	OMEGA	ER+DW	69	-	710 *
*	NE +	2P2P4(1/2)	2S2P2 2P4(1/2)	9	RY=2.5	CS	RER-MAT	77	-	1590 *
*	NE +	2P2 2P3(3/2)	2S2P2 2P4(1/2)	9	RY=2.5	CS	RER-MAT	77	-	1590 *
*	NE +	2P2 2P3(3/2)	2P2P4(1/2)	9	RY=2.5	CS	RER-MAT	77	-	1590 *
*	NA 7+	2S2 1S0	2S2P 1P1	4		G	DW	76	-	1330 *
*	NA 7+	2S2P 3P0	2S2P 3P2	4	X =1.0	OMEGA	CB	68	-	590 *
*	NA 6+	2S2 2P 2P1/2	2S2 2P 2P3/2	5	X =1.0	OMEGA	CB	68	-	590 *
*	NA 5+	2P2 3P	2P2 1D	6	X =1.0	OMEGA	CBB	67	-	500 *
*	NA 5+	2P2 3P0	2P2 3P1	6	X =1.0	OMEGA	CBO	69	-	630 *
*	NA 5+	2P2 3P0	2P2 3P2	6	X =1.0	OMEGA	CB	68	-	590 *
*	NA 5+	2P2 3P0	2P2 3P2	6	X =1.0	OMEGA	DW	68	-	590 *
*	NA 5+	2P2 3P0	2P2 3P2	6	X =1.0	OMEGA	CBO	69	-	630 *
*	NA 5+	2P2 3P1	2P2 3P2	6	X =1.0	OMEGA	CBO	69	-	630 *
*	NA 4+	2P3 4S	2P3 2P	7	X =1.0	OMEGA	ER	53	-	70 *
*	NA 4+	2P3 4S	2P3 2P	7	RY3=0.0	OMEGA	ER+DW	67	-	540 *
*	NA 4+	2P3 4S	2P3 4S	7	RY=0.0,0,05,0,10	OMEGA	ER+DW	69	-	710 *
*	NA 4+	2P3 4S	2P3 2D	7	X =1.0	OMEGA	ER	53	-	70 *
*	NA 4+	2P3 4S	2P3 2D	7	RY3=0.0	OMEGA	ER+DW	67	-	540 *
*	NA 4+	2P3 4S	2P3 2D	7	RY=0.0 - 0.10	OMEGA	ER+DW	69	-	710 *
*	NA 4+	2P3 2D	2P3 2P	7	X =1.0	OMEGA	DW	55	-	90 *
*	NA 4+	2P3 2D	2P3 2P	7	RY3=0.0	OMEGA	ER+DW	67	-	540 *
*	NA 4+	2P3 2D	2P3 2P	7	RY=0.0,0,05,0,10	OMEGA	ER+DW	69	-	710 *
*	NA 4+	2P3 2D	2P3 2P	7	X =1.0	OMEGA	ER+DW	69	-	710 *
*	NA 4+	2P3 2D	2P3 2P1/2	7	EP1=0.0,0,05,0,10	OMEGA	ER+DW	69	-	690 *
*	NA 4+	2P3 2D	2P3 2P1/2	7	EP1=0.04173 - +0.1	OMEGA	ER+DW	69	-	690 *
*	NA 4+	2P3 2D	2P3 2P1/2	7	EP1=0.04173 - +0.1	OMEGA	F2+- W	69	-	690 *
*	NA 4+	2P3 2D	2P3 2D3/2	7	EP1=0.0275 - 0.1417	OMEGA	+DW	69	-	690 *
*	NA 4+	2P3 2D	2P3 2D5/2	7	EP1=0.0275 - 0.1417	OMEGA	ER+DW	69	-	690 *
*	NA 4+	2P3 2P1/2	2P3 2P3/2	7	X =1.0	OMEGA	CBO	69	-	630 *
*	NA 4+	2P3 2P1/2	2P3 2P3/2	7	RY=0.0,0,05,0,10	OMEGA	ER+DW	69	-	710 *
*	NA 4+	2P3 2D1/2	2P3 2P3/2	7	EP1=0.04173 - +0.1	OMEGA	ER+DW	69	-	690 *
*	NA 4+	2P3 2D3/2	2P3 2P1/2	7	EP1=0.04173 - +0.1	OMEGA	ER+DW	69	-	690 *
*	NA 4+	2P3 2D3/2	2P3 2P1/2	7	RY=0.0,0,05,0,10	OMEGA	ER+DW	69	-	710 *
*	NA 4+	2P3 2D3/2	2P3 2P3/2	7	EP1=0.04173 - +0.1	OMEGA	ER+DW	69	-	690 *
*	NA 4+	2P3 2D3/2	2P3 2P3/2	7	RY=0.0,0,05,0,10	OMEGA	ER+DW	69	-	710 *
*	NA 4+	2P3 2D3/2	2P3 2D5/2	7	EP1=0.0275 - 0.1417	OMEGA	ER+DW	69	-	690 *
*	NA 4+	2P3 2D3/2	2P3 2D5/2	7	RY=0.0,0,05,0,10	OMEGA	ER+DW	69	-	710 *
*	NA 4+	2P3 2D5/2	2P3 2P1/2	7	EP1=0.04173 - +0.1	OMEGA	ER+DW	69	-	690 *
*	NA 4+	2P3 2D5/2	2P3 2P1/2	7	RY=0.0,0,05,0,10	OMEGA	ER+DW	69	-	710 *
*	NA 4+	2P3 2D5/2	2P3 2P3/2	7	EP1=0.04173 - +0.1	OMEGA	ER+DW	69	-	690 *
*	NA 4+	2P3 2D5/2	2P3 2P3/2	7	RY=0.0,0,05,0,10	OMEGA	ER+DW	69	-	710 *
*	NA 3+	2P4 3P	2P4 1S	8	X =1.0	OMEGA	ER	53	-	70 *
*	NA 3+	2P4 3P	2P4 1S	8	RY3=0.0	OMEGA	ER+DW	67	-	540 *
*	NA 3+	2P4 3P	2P4 1S	8	RY=0.0,0,5,0,10	OMEGA	ER+DW	69	-	710 *
*	NA 3+	2P4 3P	2P4 1D	8	X =1.0	OMEGA	ER	53	-	70 *
*	NA 3+	2P4 3P	2P4 1D	8	RY3=0.0	OMEGA	ER+DW	67	-	540 *
*	NA 3+	2P4 3P	2P4 1D	8	RY=0.0,0,5,0,10	OMEGA	ER+DW	69	-	710 *
*	NA 3+	2P4 3P	2P4 1D	8	X =1.0	OMEGA	CBO	69	-	630 *
*	NA 3+	2P4 3P	2P4 1D	8	RY=0.0,0,05,0,10	OMEGA	ER+DW	69	-	710 *
*	NA 3+	2P4 1D	2P4 1S	8	X =1.0	OMEGA	DW	55	-	90 *
*	NA 3+	2P4 1D	2P4 1S	8	RY3=0.0	OMEGA	ER+DW	67	-	540 *
*	NA 3+	2P4 1D	2P4 1S	8	RY=0.0,0,5,0,10	OMEGA	ER+DW	69	-	710 *
*	NA 3+	2P4 3P0	2P4 3P1	8	X =1.0	OMEGA	ER	69	-	630 *
*	NA 3+	2P4 3P0	2P4 3P1	8	RY=0.0,0,05,0,10	OMEGA	ER+DW	69	-	710 *

*	ION	TRANSITION	NUMBER	E.	ENERGY RANGE	DATA	METHOD	YEAR	REF.	*
*	NA 3+	2P4 3P0	2P4 3P2	8	X =1.0	OMEGA	CB	68	-	590 *
*	NA 3+	2P4 3P0	2P4 3P2	8	X =1.0	OMEGA	DW	68	-	590 *
*	NA 3+	2P4 3P0	2P4 3P2	8	X =1.0	OMEGA	CBO	69	-	630 *
*	NA 3+	2P4 3P0	2P4 3P2	8	RY=0.0.0.05+0.10	OMEGA	ER+DW	69	-	710 *
*	NA 3+	2P4 3P1	2P4 3P2	8	X =1.0	OMEGA	CBO	69	-	630 *
*	NA 3+	2P4 3P1	2P4 3P2	8	RY=0.0.0.05+0.10	OMEGA	ER+DW	69	-	710 *
*	NA 2+	2P5 2P1/2	2P5 2P3/2	9	X =1.0	OMEGA	CB	68	-	590 *
*	NA 2+	2P5 2P1/2	2P5 2P3/2	9	X =1.0	OMEGA	DW	68	-	590 *
*	NA 2+	2P5 2P1/2	2P5 2P3/2	9	X =1.0	OMEGA	CBO	69	-	630 *
*	NA 2+	2P5 2P1/2	2P5 2P3/2	9	RY=0.0.0.05+0.10	OMEGA	ER+DW	69	-	710 *
*	MG 10+	1S2S 3S	1S2P 3P	2	T =3.0 - 12.0*10(6)	RATE	CB	71	-	882 *
*	MG 9+	2S	2P	3	X =1 - 6	OMEGA	CBII	63	-	230 *
*	MG 9+	2S	2P	3	X =1 - 6	OMEGA	CB'II	63	-	230 *
*	MG 9+	2S	2P	3	X =1 - 6	OMEGA	CB''II	63	-	230 *
*	MG 9+	2S	2P	3	X =1 - 6	OMEGA	CB'''II	63	-	230 *
*	MG 9+	2S 2S1/2	2P 2P3/2	3		G	DW	76	-	1330 *
*	MG 8+	2S2 1S0	2S2P 1P1	4		G	DW	76	-	1330 *
*	MG 8+	2S2P 3P0	2S2P 3P2	4	X =1.0	OMEGA	CB	68	-	590 *
*	MG 8+	2S2P 3P2	2P2 3F2	4		G	DW	76	-	1330 *
*	MG 7+	2S2 2P 2P1/2	2S2 2P 2P3/2	5	X =1.0	OMEGA	CB	68	-	590 *
*	MG 7+	2S2 2P 2P3/2	2S2P2 2P3/2	5		G	DW	76	-	1330 *
*	MG 6+	2P2 3P	2P2 1S	6	RY3=0.0	OMEGA	ER+DW	66	-	460 *
*	MG 6+	2P2 3P	2P2 1S	6	RY=0.0.0.05+0.10	OMEGA	ER+DW	69	-	710 *
*	MG 6+	2P2 3P	2P2 1D	6	RY3=0.0	OMEGA	ER+DW	66	-	460 *
*	MG 6+	2P2 3P	2P2 1D	6	RY=0.0 - 0.10	OMEGA	ER+DW	69	-	710 *
*	MG 6+	2P2 1D	2P2 1S	6	RY3=0.0	OMEGA	ER+DW	66	-	460 *
*	MG 6+	2P2 1D	2P2 1S	6	RY=0.0.0.05+0.10	OMEGA	ER+DW	69	-	710 *
*	MG 6+	2P2 3P0	2P2 3P2	6	X =1.0	OMEGA	CB	68	-	590 *
*	MG 6+	2S2 2P2 3P1	2S2P3 3S1	6		G	DW	76	-	1330 *
*	MG 5+	2P3 4S	2P3 2P	7	RY3=0.0	OMEGA	ER+DW	67	-	540 *
*	MG 5+	2P3 4S	2P3 2P	7	RY=0.0.0.05+0.10	OMEGA	ER+DW	69	-	710 *
*	MG 5+	2P3 4S	2P3 2D	7	RY3=0.0	OMEGA	ER+DW	67	-	540 *
*	MG 5+	2P3 4S	2P3 2D	7	RY=0.0 - 0.10	OMEGA	ER+DW	69	-	710 *
*	MG 5+	2P3 2D	2P3 2P	7	RY3=0.0	OMEGA	ER+DW	67	-	540 *
*	MG 5+	2P3 2D	2P3 2P	7	RY=0.0.0.05+0.10	OMEGA	ER+DW	69	-	710 *
*	MG 5+	2P3 2P1/2	2P3 2P3/2	7	X =1.0	OMEGA	CBO	69	-	630 *
*	MG 5+	2S2 2P3 2P3/2	2S2P4 2P3/2	7		G	DW	76	-	1330 *
*	MG 5+	2S2 2P3 4S3/2	2S2P4 4P1/2	7		G	DW	76	-	1330 *
*	MG 4+	2P4 3P	2P4 1S	8	X =1.0	OMEGA	ER	53	-	70 *
*	MG 4+	2P4 3P	2P4 1S	8	RY3=0.0	OMEGA	ER+DW	67	-	540 *
*	MG 4+	2P4 3P	2P4 1S	8	RY=0.0.0.5+0.10	OMEGA	ER+DW	69	-	710 *
*	MG 4+	2P4 3P	2P4 1D	8	X =1.0	OMEGA	ER	53	-	70 *
*	MG 4+	2P4 3P	2P4 1D	8	RY3=0.0	OMEGA	ER+DW	67	-	540 *
*	MG 4+	2P4 3P	2P4 1D	8	RY=0.0 - 0.10	OMEGA	ER+DW	69	-	710 *
*	MG 4+	2P4 1D	2P4 1S	8	X =1.0	OMEGA	DW	55	-	90 *
*	MG 4+	2P4 1D	2P4 1S	8	RY3=0.0	OMEGA	ER+DW	67	-	540 *
*	MG 4+	2P4 1D	2P4 1S	8	RY=0.0.0.5+0.10	OMEGA	ER+DW	69	-	710 *
*	MG 4+	2P4 3P0	2P4 3P1	8	X =1.0	OMEGA	CBO	69	-	630 *
*	MG 4+	2P4 3P0	2P4 3P1	8	RY=0.0.0.05+0.10	OMEGA	ER+DW	69	-	710 *
*	MG 4+	2P4 3P0	2P4 3P2	8	X =1.0	OMEGA	CB	68	-	590 *
*	MG 4+	2P4 3P0	2P4 3P2	8	X =1.0	OMEGA	DW	68	-	590 *
*	MG 4+	2P4 3P0	2P4 3P2	8	X =1.0	OMEGA	CBO	69	-	630 *
*	MG 4+	2P4 3P0	2P4 3P2	8	RY=0.0.0.05+0.10	OMEGA	ER+DW	69	-	710 *
*	MG 4+	2P4 3P1	2P4 3P2	8	X =1.0	OMEGA	CBO	69	-	630 *
*	MG 4+	2P4 3P1	2P4 3P2	8	RY=0.0.0.05+0.10	OMEGA	ER+DW	69	-	710 *
*	MG 3+	2P5 2P1/2	2P5 2P3/2	9	X =1.0	OMEGA	CB	68	-	590 *
*	MG 3+	2P5 2P1/2	2P5 2P3/2	9	X =1.0	OMEGA	CBO	69	-	630 *
*	MG 3+	2P5 2P1/2	2P5 2P3/2	9	X =1.0	OMEGA	ER+DW	69	-	710 *
*	MG 3+	2P5 2P1/2	2P5 2P3/2	9	RY=0.0.0.05+0.10	OMEGA	CBII	72	-	921 *
*	MG +	3S	4S	11	RY=0.6361 - 1.6	OMEGA	CBII	72	-	921 *
*	MG +	3S	5S	11	RY=0.8455 - 1.6	OMEGA	CBII	72	-	921 *
*	MG +	3S	6S	11	RY=0.9404 - 1.6	OMEGA	CBII	72	-	921 *
*	MG +	3S	3P	11	RY2=0.0.0.1	OMEGA	CBI	60	-	140 *
*	MG +	3S	3P	11	RY2=0.0.0.1	OMEGA	CBII	60	-	140 *
*	MG +	3S	3P	11	RY=0.0.1.0.326	CS	CBI	61	-	170 *
*	MG +	3S	3P	11	RY=0.0.1.0.326	CS	CBII	61	-	170 *
*	MG +	3S	3P	11	X =1 - 4	OMEGA	CBI	63	-	230 *
*	MG +	3S	3P	11	X =1 - 4	OMEGA	CBII	63	-	230 *
*	MG +	3S	3P	11	X =1 - 4	OMEGA	CB'I	63	-	230 *
*	MG +	3S	3P	11	X =1 - 4	OMEGA	CB''I	63	-	230 *
*	MG +	3S	3P	11	RY=0.35.0.45.0.55	CS	CC	68	-	600 *
*	MG +	3S	3P	11	RY=0.3256 - 1.6	OMEGA	CBII	72	-	921 *
*	MG +	3S	3P	11	X =1 - 100	OMEGA	CB'I	74	-	1131 *
*	MG +	3S	3P	11	X =1 - 100	OMEGA	CB''I	74	-	1131 *
*	MG +	3S	3P	11	X =1 - 100	OMEGA	CBI	74	-	1131 *
*	MG +	3S	3P	11	X =1 - 100	OMEGA	CBII	74	-	1131 *
*	MG +	3S	3P	11	X =1 - 100	OMEGA	CDWI	74	-	1131 *
*	MG +	3S	3P	11	X =1 - 100	OMEGA	CDWII	74	-	1131 *
*	MG +	3S	3P	11	EV=4.5 - 54.4	CS	CBI	78	-	1600 *
*	MG +	3S	3P	11	EV=4.5 - 54.4	CS	CBII	78	-	1600 *
*	MG +	3S	3P	11	EV=4.5 - 54.4	CS	CBOI	78	-	1600 *
*	MG +	3S	3P	11	EV=4.5 - 54.4	CS	CBOII	78	-	1600 *
*	MG +	3S	3P	11	EV=4.5 - 54.4	CS	DWPOII	78	-	1600 *
*	MG +	3S	3P	11	EV=4.5 - 54.4	CS	UDWPOII	78	-	1600 *
*	MG +	3S	4P	11	RY=0.7349 - 1.6	OMEGA	CBII	72	-	921 *

*	ION	TRANSITION	NUMBER E,	ENERGY RANGE	DATA	METHOD	YEAR	REF.	*
*	MG +	3S	5P	11 RY=0.8882 - 1.6	OMEGA	CBII	72	-	921 *
*	MG +	3S	3D	11 RY=0.67 - 2.0	CS	CC	68	-	600 *
*	MG +	3S	3D	11 RY=0.6515 - 1.6	OMEGA	CBII	72	-	921 *
*	MG +	3S	4D	11 RY=0.8503 - 1.6	OMEGA	CBII	72	-	921 *
*	MG +	3S	5D	11 RY=0.9424 - 1.6	OMEGA	CBII	72	-	921 *
*	MG +	4S	5S	11 RY=0.8455 - 1.6	OMEGA	CBII	72	-	921 *
*	MG +	4S	6S	11 RY=0.9404 - 1.6	OMEGA	CBII	72	-	921 *
*	MG +	4S	4P	11 RY=0.7349 - 1.6	OMEGA	CBII	72	-	921 *
*	MG +	4S	5P	11 RY=0.8882 - 1.6	OMEGA	CBII	72	-	921 *
*	MG +	4S	3D	11 RY=0.6515 - 1.6	OMEGA	CBII	72	-	921 *
*	MG +	4S	4D	11 RY=0.8503 - 1.6	OMEGA	CBII	72	-	921 *
*	MG +	4S	5D	11 RY=0.9424 - 1.6	OMEGA	CBII	72	-	921 *
*	MG +	5S	6S	11 RY=0.9404 - 1.6	OMEGA	CBII	72	-	921 *
*	MG +	5S	5P	11 RY=0.8882 - 1.6	OMEGA	CBII	72	-	921 *
*	MG +	5S	4D	11 RY=0.8503 - 1.6	OMEGA	CBII	72	-	921 *
*	MG +	5S	5D	11 RY=0.9424 - 1.6	OMEGA	CBII	72	-	921 *
*	MG +	6S	5D	11 RY=0.9424 - 1.6	OMEGA	CBII	72	-	921 *
*	MG +	3P	4S	11 RY=0.6361 - 1.6	OMEGA	CBII	72	-	921 *
*	MG +	3P	5S	11 RY=0.8455 - 1.6	OMEGA	CBII	72	-	921 *
*	MG +	3P	6S	11 RY=0.9404 - 1.6	OMEGA	CBII	72	-	921 *
*	MG +	3P	4P	11 RY=0.7349 - 1.6	OMEGA	CBII	72	-	921 *
*	MG +	3P	5P	11 RY=0.8882 - 1.6	OMEGA	CBII	72	-	921 *
*	MG +	3P	3D	11 RY=0.6515 - 1.6	OMEGA	CBII	72	-	921 *
*	MG +	3P	4D	11 RY=0.8503 - 1.6	OMEGA	CBII	72	-	921 *
*	MG +	3P	5D	11 RY=0.9424 - 1.6	OMEGA	CBII	72	-	921 *
*	MG +	4P	5S	11 RY=0.8455 - 1.6	OMEGA	CBII	72	-	921 *
*	MG +	4P	6S	11 RY=0.9404 - 1.6	OMEGA	CBII	72	-	921 *
*	MG +	4P	5P	11 RY=0.8882 - 1.6	OMEGA	CBII	72	-	921 *
*	MG +	4P	4D	11 RY=0.8503 - 1.6	OMEGA	CBII	72	-	921 *
*	MG +	4P	5D	11 RY=0.9424 - 1.6	OMEGA	CBII	72	-	921 *
*	MG +	5P	6S	11 RY=0.9404 - 1.6	OMEGA	CBII	72	-	921 *
*	MG +	5P	5D	11 RY=0.9424 - 1.6	OMEGA	CBII	72	-	921 *
*	MG +	3D	5S	11 RY=0.8455 - 1.6	OMEGA	CBII	72	-	921 *
*	MG +	3D	6S	11 RY=0.9404 - 1.6	OMEGA	CBII	72	-	921 *
*	MG +	3D	4P	11 RY=0.7349 - 1.6	OMEGA	CBII	72	-	921 *
*	MG +	3D	5P	11 RY=0.8882 - 1.6	OMEGA	CBII	72	-	921 *
*	MG +	3D	4D	11 RY=0.8503 - 1.6	OMEGA	CBII	72	-	921 *
*	MG +	3D	5D	11 RY=0.9424 - 1.6	OMEGA	CBII	72	-	921 *
*	MG +	4D	6S	11 RY=0.9404 - 1.6	OMEGA	CBII	72	-	921 *
*	MG +	4D	5P	11 RY=0.8882 - 1.6	OMEGA	CBII	72	-	921 *
*	MG +	4D	5D	11 RY=0.9424 - 1.6	OMEGA	CBII	72	-	921 *
*	MG +	3S 2S1/2	3P 2PJ	11 PARAMETERS	CS	BETHE	78	-	1750 *
*	MG +	3S 2S1/2	4P 2PJ	11 PARAMETERS	CS	BETHE	78	-	1750 *
*	MG +	3P 2P1/2	3P 2P3/2	11 RY=0.3256 - 1.6	OMEGA	CBII	72	-	921 *
*	MG +	3P 2P1/2	4P 2P3/2	11 RY=0.7349 - 1.6	OMEGA	CBII	72	-	921 *
*	MG +	3P 2P1/2	5P 2P3/2	11 RY=0.8882 - 1.6	OMEGA	CBII	72	-	921 *
*	MG +	3P 2P1/2	3D 2D3/2	11 RY=0.6515 - 1.6	OMEGA	CBII	72	-	921 *
*	MG +	3P 2P1/2	4D 2D3/2	11 RY=0.8503 - 1.6	OMEGA	CBII	72	-	921 *
*	MG +	3P 2P1/2	5D 2D3/2	11 RY=0.9424 - 1.6	OMEGA	CBII	72	-	921 *
*	MG +	4P 2P1/2	4P 2P3/2	11 RY=0.7349 - 1.6	OMEGA	CBII	72	-	921 *
*	MG +	4P 2P1/2	5P 2P3/2	11 RY=0.8882 - 1.6	OMEGA	CBII	72	-	921 *
*	MG +	4P 2P1/2	4D 2D3/2	11 RY=0.8503 - 1.6	OMEGA	CBII	72	-	921 *
*	MG +	5P 2P1/2	5P 2P3/2	11 RY=0.9424 - 1.6	OMEGA	CBII	72	-	921 *
*	MG +	5P 2P1/2	5D 2D3/2	11 RY=0.9424 - 1.6	OMEGA	CBII	72	-	921 *
*	MG +	3D 2D3/2	3D 2D5/2	11 RY=0.6515 - 1.6	OMEGA	CBII	72	-	921 *
*	MG +	3D 2D3/2	4P 2P1/2	11 RY=0.7349 - 1.6	OMEGA	CBII	72	-	921 *
*	MG +	3D 2D3/2	5P 2P1/2	11 RY=0.8882 - 1.6	OMEGA	CBII	72	-	921 *
*	MG +	3D 2D3/2	4D 2D5/2	11 RY=0.8503 - 1.6	OMEGA	CBII	72	-	921 *
*	MG +	3D 2D3/2	5D 2D5/2	11 RY=0.9424 - 1.6	OMEGA	CBII	72	-	921 *
*	MG +	4D 2D3/2	5P 2P1/2	11 RY=0.8882 - 1.6	OMEGA	CBII	72	-	921 *
*	MG +	4D 2D3/2	4D 2D5/2	11 RY=0.8503 - 1.6	OMEGA	CBII	72	-	921 *
*	MG +	4D 2D3/2	5D 2D5/2	11 RY=0.9424 - 1.6	OMEGA	CBII	72	-	921 *
*	MG +	5D 2D3/2	5D 2D5/2	11 RY=0.9424 - 1.6	OMEGA	CBII	72	-	921 *
*	AL 12+	1L	2L	1 X =1 - 10	CS	SE	77	-	1470 *
*	AL 10+	2S	2P	3 X =1.0 - 4.0	OMEGA	DW	76	-	1312 *
*	AL 10+	2S	3S	3 X =1.0 - 4.0	OMEGA	DW	76	-	1312 *
*	AL 10+	2S	3P	3 X =1.0 - 4.0	OMEGA	DW	76	-	1312 *
*	AL 10+	2S	3D	3 X =1.0 - 4.0	OMEGA	DW	76	-	1312 *
*	AL 10+	2S	4D	3 X =1.0 - 4.0	OMEGA	DW	76	-	1312 *
*	AL 10+	3S	3P	3 X =1.0 - 4.0	OMEGA	DW	76	-	1312 *
*	AL 10+	3S	3D	3 X =1.0 - 4.0	OMEGA	DW	76	-	1312 *
*	AL 10+	3S	4D	3 X =1.0 - 4.0	OMEGA	DW	76	-	1312 *
*	AL 10+	2P	3S	3 X =1.0 - 4.0	OMEGA	DW	76	-	1312 *
*	AL 10+	2P	3P	3 X =1.0 - 4.0	OMEGA	DW	76	-	1312 *
*	AL 10+	2P	3D	3 X =1.0 - 4.0	OMEGA	DW	76	-	1312 *
*	AL 10+	2P	4D	3 X =1.0 - 4.0	OMEGA	DW	76	-	1312 *
*	AL 10+	3P	3D	3 X =1.0 - 4.0	OMEGA	DW	76	-	1312 *
*	AL 10+	3P	4D	3 X =1.0 - 4.0	OMEGA	DW	76	-	1312 *
*	AL 10+	3D	4D	3 X =1.0 - 4.0	OMEGA	DW	76	-	1312 *
*	AL 9+	2S2P 3P0	2S2P 3P2	4 X =1.0	OMEGA	CB	68	-	590 *
*	AL 9+	2S2P 3P0	2S2P 3P2	4 X =1.0	OMEGA	DW	68	-	590 *
*	AL 8+	2S2 2P 2P1/2	2S2 2P 2P3/2	5 X =1.0	OMEGA	CB	68	-	590 *
*	AL 8+	2S2 2P 2P1/2	2S2P2 2D3/2	5 X =1.0	G	DW	76	-	1930 *
*	AL 7+	2S2 2P2 3P0	2S2P3 3D1	6	G	DW	76	-	1330 *

*	ION	TRANSITION	NUMBER	E,	ENERGY RANGE	DATA	METHOD	YEAR	REF.	*
*	AL 7+	2P2 3P0	2P2 3P2	6	X = 1.0	OMEGA	CB	68	-	590 *
*	AL 5+	2P4 3P	2P4 1S	8	RY=0.0	OMEGA	ER+DW	67	-	540 *
*	AL 5+	2P4 3P	2P4 1D	8	RY=0.0	OMEGA	ER+DW	69	-	710 *
*	AL 5+	2P4 3P	2P4 1D	8	RY=0.0 - 0.10	OMEGA	ER+DW	67	-	540 *
*	AL 5+	2P4 1D	2P4 1S	8	RY=0.0	OMEGA	ER+DW	67	-	540 *
*	AL 5+	2P4 1D	2P4 1S	8	RY=0.0,0.5,0.10	OMEGA	ER+DW	69	-	710 *
*	AL 5+	2P4 3P0	2P4 3P1	8	X = 1.0	OMEGA	CBO	69	-	630 *
*	AL 5+	2P4 3P0	2P4 3P2	8	X = 1.0	OMEGA	CB	68	-	590 *
*	AL 5+	2P4 3P0	2P4 3P2	8	X = 1.0	OMEGA	DW	68	-	590 *
*	AL 5+	2P4 3P0	2P4 3P2	8	X = 1.0	OMEGA	CBO	69	-	630 *
*	AL 5+	2P4 3P1	2P4 3P2	8	X = 1.0	OMEGA	CBO	69	-	630 *
*	AL 4+	2P5 2P1/2	2P5 2P3/2	9	X = 1.0	OMEGA	CB	68	-	590 *
*	AL 4+	2P5 2P1/2	2P5 2P3/2	9	X = 1.0	OMEGA	DW	68	-	590 *
*	AL 4+	2P5 2P1/2	2P5 2P3/2	9	RY=0.0,0.05,0.10	OMEGA	CBO	69	-	630 *
*	AL 2+	3S 2S1/2	3P 2PJ	11	PARAMETERS	CS	BETHE	78	-	1750 *
*	AL 2+	3S 2S1/2	4P 2PJ	11	PARAMETERS	CS	BETHE	78	-	1750 *
*	AL +	3S3P 3P0	3S3P 3P2	12	X = 1.0	OMEGA	CB	68	-	590 *
*	AL +	3S3P 3P0	3S3P 3P2	12	X = 1.0	OMEGA	DW	68	-	590 *
*	SI 13+	1S	2S	1	X = 1.0 - 26.67,	OMEGA	DW	77	-	1530 *
*	SI 13+	1S	2P	1	X = 1 - 5	OMEGA	DW	77	-	1592 *
*	SI 12+	1S2 1S	1S2S 1S	2	RY=138,196	CS	DWPOII	77	-	1510 *
*	SI 12+	1S2 1S	1S2S 1S	2	RY=138,196,400	CS	CB	77	-	1520 *
*	SI 12+	1S2 1S	1S2S 1S	2	RY=138,196,400	CS	DW	77	-	1520 *
*	SI 12+	1S2 1S	1S2S 3S	2	RY=138,196,400	CS	DW	77	-	1520 *
*	SI 12+	1S2 1S	1S2S 3S	2	X = 1 - 5	OMEGA	DW	77	-	1592 *
*	SI 12+	1S2 1S	1S2P 1P	2	RY=138,196	CS	DWPOII	77	-	1510 *
*	SI 12+	1S2 1S	1S2P 1P	2	RY=138,196,400	CS	DW	77	-	1520 *
*	SI 12+	1S2 1S	1S2P 1P	2	RY=138,196,400	CS	CB	77	-	1520 *
*	SI 12+	1S2 1S	1S2P 1P	2	X = 1 - 5	OMEGA	DW	77	-	1592 *
*	SI 12+	1S2 1S	1S2P 3P	2	RY=138,196,400	CS	DW	77	-	1520 *
*	SI 12+	1S2 1S	1S2P 3P	2	X = 1 - 5	OMEGA	DW	77	-	1592 *
*	SI 12+	1S2 1S	1S2P 3P	2	X = 1 - 5	OMEGA	DW	77	-	1592 *
*	SI 12+	1S2 1S	1S3P 1P	2	X = 1 - 5	OMEGA	DW	77	-	1592 *
*	SI 12+	1S2 1S	1S4P 1P	2	X = 1 - 5	OMEGA	DW	77	-	1592 *
*	SI 12+	1S2 3S	1S2P 1P	2	X = 1 - 5	OMEGA	DW	77	-	1592 *
*	SI 12+	1S2S 3S	1S2P 3P	2	T = 4.0 - 20.0*10(6)	RATE	CB	71	-	882 *
*	SI 12+	1S2P 3P	1S2P 1P	2	RY=138,196	OMEGA	DW	74	-	1091 *
*	SI 12+	1S2 1S0	1S2S 1S0	2	RY=138,196	OMEGA	DW	74	-	1091 *
*	SI 12+	1S2 1S0	1S2S 3S1	2	RY=138,196	OMEGA	DW	74	-	1091 *
*	SI 12+	1S2 1S0	1S2P 1P1	2	RY=138,196	OMEGA	DW	74	-	1091 *
*	SI 12+	1S2 1S0	1S2P 1P1	2	X = 1.0 - 5.333	OMEGA	RCBO	78	-	1770 *
*	SI 12+	1S2 1S0	1S2P 3P1	2	Y = 1.0 - 5.333	OMEGA	RCBO	78	-	1770 *
*	SI 12+	1S2 1S0	1S2P 3P3	2	RY=138,196	OMEGA	DW	74	-	1091 *
*	SI 12+	1S2S 1S0	1S2P 1P1	2	RY=196	OMEGA	DW	74	-	1091 *
*	SI 12+	1S2S 3S1	1S2S 1S0	2	RY=138,196	OMEGA	DW	74	-	1091 *
*	SI 12+	1S2S 3S1	1S2P 1P1	2	RY=196	OMEGA	DW	74	-	1091 *
*	SI 12+	1S2P 3P0	1S2S 1S0	2	RY=196	OMEGA	DW	74	-	1091 *
*	SI 12+	1S2P 3P0	1S2P 3P1	2	RY=196	OMEGA	DW	74	-	1091 *
*	SI 12+	1S2P 3P1	1S2S 1S0	2	RY=196	OMEGA	DW	74	-	1091 *
*	SI 12+	1S2P 3P2	1S2S 1S0	2	RY=196	OMEGA	DW	74	-	1091 *
*	SI 12+	1S2P 3P1	1S2P 3P2	2	RY=196	OMEGA	DW	74	-	1091 *
*	SI 11+	2S	3S	3	RY=22.4,30.0	OMEGA	DW	71	-	880 *
*	SI 11+	2S	3S	3	X = 2.0 - 10.0	OMEGA	B	72	-	930 *
*	SI 11+	2S	4S	3	X = 2.0 - 10.0	OMEGA	B	72	-	930 *
*	SI 11+	2S	5S	3	X = 2.0 - 10.0	OMEGA	B	72	-	930 *
*	SI 11+	2S	6S	3	X = 2.0 - 10.0	OMEGA	B	72	-	930 *
*	SI 11+	2S	7S	3	X = 2.0 - 10.0	OMEGA	B	72	-	930 *
*	SI 11+	2S	2P	3	RY=5.0,22.4,30.0	OMEGA	DW	71	-	880 *
*	SI 11+	2S	2P	3	X = 2.0 - 10.0	OMEGA	B	72	-	930 *
*	SI 11+	2S	2P	3	X = 1.25 - 10.0	OMEGA	CB	72	-	930 *
*	SI 11+	2S	3P	3	RY=22.4,30.0	OMEGA	DW	71	-	880 *
*	SI 11+	2S	3P	3	X = 2.0 - 10.0	OMEGA	B	72	-	930 *
*	SI 11+	2S	3P	3	X = 1.25 - 10.0	OMEGA	CB	72	-	930 *
*	SI 11+	2S	4P	3	X = 2.0 - 10.0	OMEGA	B	72	-	930 *
*	SI 11+	2S	4P	3	X = 1.25,2.0+5.0	OMEGA	CB	72	-	930 *
*	SI 11+	2S	5P	3	X = 2.0 - 10.0	OMEGA	B	72	-	930 *
*	SI 11+	2S	5P	3	X = 1.25,2.0+5.0	OMEGA	CB	72	-	930 *
*	SI 11+	2S	6P	3	X = 2.0 - 10.0	OMEGA	B	72	-	930 *
*	SI 11+	2S	6P	3	X = 1.25,2.0+5.0	OMEGA	CB	72	-	930 *
*	SI 11+	2S	7P	3	X = 2.0 - 10.0	OMEGA	B	72	-	930 *
*	SI 11+	2S	7P	3	X = 1.25,2.0+5.0	OMEGA	CB	72	-	930 *
*	SI 11+	2S	3D	3	RY=22.4,30.0	OMEGA	DW	71	-	880 *
*	SI 11+	2S	3D	3	X = 2.0 - 10.0	OMEGA	B	72	-	930 *
*	SI 11+	2S	3D	3	X = 1.0,2.0	OMEGA	CB	72	-	930 *
*	SI 11+	2S	4D	3	X = 2.0 - 10.0	OMEGA	B	72	-	930 *
*	SI 11+	2S	4D	3	X = 1.0,2.0	OMEGA	CB	72	-	930 *
*	SI 11+	2S	5D	3	X = 2.0 - 10.0	OMEGA	B	72	-	930 *
*	SI 11+	2S	6D	3	X = 2.0 - 10.0	OMEGA	B	72	-	930 *
*	SI 11+	2S	7D	3	X = 2.0 - 10.0	OMEGA	CB	72	-	930 *
*	SI 11+	3S	3P	3	X = 1.0 - 10.0	OMEGA	CB	72	-	930 *
*	SI 11+	3S	4P	3	X = 1.0 - 10.0	OMEGA	CB	72	-	930 *

*	ION	TRANSITION	NUMBER	E.	ENERGY RANGE	DATA	METHOD	YEAR	REF.	*
*	SI 11+	3S	7P	3	X =1.0 - 10.0	OMEGA	CB	72	-	930 *
*	SI 11+	3S	3D	3	X =1.0 - 10.0	OMEGA	CB	72	-	930 *
*	SI 11+	3S	4D	3	X =1.0 - 10.0	OMEGA	CB	72	-	930 *
*	SI 11+	3S	7D	3	X =1.0 - 10.0	OMEGA	CB	72	-	930 *
*	SI 11+	2P	3S	3	RY=22,4,30,0	OMEGA	DW	71	-	880 *
*	SI 11+	2P	3P	3	RY=22,4,30,0	OMEGA	DW	71	-	880 *
*	SI 11+	2P	3D	3	X =1.25,2.0,3.0	OMEGA	CB	72	-	930 *
*	SI 11+	2P	4D	3	X =1.25,2.0,3.0	OMEGA	CB	72	-	930 *
*	SI 11+	2P	7D	3	X =1.25,2.0,3.0	OMEGA	CB	72	-	930 *
*	SI 11+	2S 2S1/2	2P 2P3/2	3	X =1 - 5	OMEGA	DW	77	-	1592 *
*	SI 11+	2S 2S1/2	2P 2P3/2	3	X =1 - 5	OMEGA	DW	77	-	1592 *
*	SI 11+	2S 2S1/2	3P 2P3/2	3	X =1 - 5	OMEGA	DW	77	-	1592 *
*	SI 11+	2S 2S1/2	4P 2P3/2	3	X =1 - 5	OMEGA	DW	77	-	1592 *
*	SI 11+	2S 2S1/2	3D 2D	3	X =1 - 5	OMEGA	DW	77	-	1592 *
*	SI 11+	2S 2S1/2	3S 2S0	3	X =1 - 5	OMEGA	DW	77	-	1592 *
*	SI 10+	2S2 1S	2S2P 1P1	4	X =1 - 5	OMEGA	DW	77	-	1592 *
*	SI 10+	2S2 1S	2S3P 1P1	4	X =1 - 5	OMEGA	DW	77	-	1592 *
*	SI 10+	2S2 1S	2S3D 1D1	4	X =1 - 5	OMEGA	DW	77	-	1592 *
*	SI 10+	2S2 1S	2S4P 1P1	4	X =1 - 5	OMEGA	DW	77	-	1592 *
*	SI 10+	2S2 1S	2S4D 1D2	4	X =1 - 5	OMEGA	DW	77	-	1592 *
*	SI 10+	2S2 1S	2S5P 1P1	4	X =1 - 5	OMEGA	DW	77	-	1592 *
*	SI 10+	2S2 1S	2S5D 1D2	4	X =1 - 5	OMEGA	DW	77	-	1592 *
*	SI 10+	2S2P 3P0	2S2P 3P2	4	X =1.0	OMEGA	CB	68	-	590 *
*	SI 9+	2S2 2P 2P1/2	2S2 3S 2S1/2	5	EV=DE,260.0	OMEGA	CB	76	-	1291 *
*	SI 9+	2S2 2P 2P1/2	2S2 4S 2S1/2	5	X =1 - 5	OMEGA	DW	77	-	1592 *
*	SI 9+	2S2 2P 2P1/2	2S2 2P 2P3/2	5	X =1.0	OMEGA	CB	68	-	590 *
*	SI 9+	2S2 2P 2P1/2	2S2 2P 2P3/2	5	X =1.0	OMEGA	DW	68	-	590 *
*	SI 9+	2S2 2P 2P1/2	2S2 2P 2P3/2	5	X =1.0	OMEGA	CBO	69	-	630 *
*	SI 9+	2S2 2P 2P1/2	2S2 2P 2P3/2	5	EV=DE,86.0	OMEGA	CB	76	-	1291 *
*	SI 9+	2S2 2P 2P1/2	2S2 3P 2P1/2	5	EV=DE,260.0	OMEGA	CB	76	-	1291 *
*	SI 9+	2S2 2P 2P1/2	2S2 3P 2P3/2	5	EV=DE,260.0	OMEGA	CB	76	-	1291 *
*	SI 9+	2S2 2P 2P1/2	2S2 3D 2D1/2	5	X =1 - 5	OMEGA	DW	77	-	1592 *
*	SI 9+	2S2 2P 2P1/2	2S2 3D 2D3/2	5	EV=DE,260.0	OMEGA	CB	76	-	1291 *
*	SI 9+	2S2 2P 2P1/2	2S2 3D 2D5/2	5	EV=DE,260.0	OMEGA	CB	76	-	1291 *
*	SI 9+	2S2 2P 2P1/2	2S2 4D 2D3/2	5	X =1 - 5	OMEGA	DW	77	-	1592 *
*	SI 9+	2S2 2P 2P1/2	2S2P2 2S1/2	5	EV=DE - 260.0	OMEGA	CB	76	-	1291 *
*	SI 9+	2S2 2P 2P1/2	2S2P2 2P1/2	5	EV=DE - 260.0	OMEGA	CB	76	-	1291 *
*	SI 9+	2S2 2P 2P1/2	2S2P2 2P3/2	5	EV=DE - 260.0	OMEGA	CB	76	-	1291 *
*	SI 9+	2S2 2P 2P1/2	2S2P2 2D3/2	5	EV=DE - 260.0	OMEGA	CB	76	-	1291 *
*	SI 9+	2S2 2P 2P1/2	2S2P2 2D5/2	5	X =1 - 5	OMEGA	DW	77	-	1592 *
*	SI 9+	2S2 2P 2P1/2	2S2 3S 2S1/2	5	EV=DE,260.0	OMEGA	CB	76	-	1291 *
*	SI 9+	2S2 2P 2P3/2	2S2 3S 2S1/2	5	X =1 - 5	OMEGA	DW	77	-	1592 *
*	SI 9+	2S2 2P 2P3/2	2S2 3P 2P1/2	5	EV=DE,260.0	OMEGA	CB	76	-	1291 *
*	SI 9+	2S2 2P 2P3/2	2S2 3P 2P3/2	5	EV=DE,260.0	OMEGA	CB	76	-	1291 *
*	SI 9+	2S2 2P 2P3/2	2S2 3D 2D3/2	5	EV=DE,260.0	OMEGA	CB	76	-	1291 *
*	SI 9+	2S2 2P 2P3/2	2S2 3D 2D5/2	5	EV=DE,260.0	OMEGA	CB	76	-	1291 *
*	SI 9+	2S2 2P 2P3/2	2S2 5D 2D5/2	5	X =1 - 5	OMEGA	DW	77	-	1592 *
*	SI 9+	2S2 2P 2P3/2	2S2 6D 2D5/2	5	X =1 - 5	OMEGA	DW	77	-	1592 *
*	SI 9+	2S2 2P 2P3/2	2S2P2 2S1/2	5	EV=DE - 260.0	OMEGA	CB	76	-	1291 *
*	SI 9+	2S2 2P 2P3/2	2S2P2 2P1/2	5	EV=DE - 260.0	OMEGA	CB	76	-	1291 *
*	SI 9+	2S2 2P 2P3/2	2S2P2 2P3/2	5	EV=DE - 260.0	OMEGA	CB	76	-	1291 *
*	SI 9+	2S2 2P 2P3/2	2S2P2 2D3/2	5	EV=DE - 260.0	OMEGA	CB	76	-	1291 *
*	SI 9+	2S2 2P 2P3/2	2S2P2 2D5/2	5	EV=DE - 260.0	OMEGA	CB	76	-	1291 *
*	SI 9+	2S2 2P 2P3/2	2S2 5D 2D5/2	5	X =1 - 5	OMEGA	DW	77	-	1592 *
*	SI 9+	2S2 2P 2P3/2	2P3 2P1/2	5	EV=DE	OMEGA	CB	76	-	1291 *
*	SI 9+	2S2 2P 2P3/2	2P3 2P3/2	5	EV=DE	OMEGA	CB	76	-	1291 *
*	SI 9+	2S2 2P 2P3/2	2P3 2D3/2	5	EV=DE	OMEGA	CB	76	-	1291 *
*	SI 9+	2S2 2P 2P3/2	2P3 2D5/2	5	EV=DE	OMEGA	CB	76	-	1291 *
*	SI 8+	2P2 3P	2P3P 3D	6	X =1 - 5	OMEGA	DW	77	-	1592 *
*	SI 8+	2P2 3P	2P3D 3D	6	X =1 - 5	OMEGA	DW	77	-	1592 *
*	SI 8+	2P2 3P	2S2P3 3S	6	X =1 - 5	OMEGA	DW	77	-	1592 *
*	SI 8+	2P2 3P	2S2P3 3P	6	X =1 - 5	OMEGA	DW	77	-	1592 *
*	SI 8+	2P2 3P	2S2P3 3D	6	X =1 - 5	OMEGA	DW	77	-	1592 *
*	SI 8+	2P2 3P0	2P2 3P1	6	X =1.0	OMEGA	CBO	69	-	630 *
*	SI 8+	2P2 3P0	2P2 3P2	6	X =1.0	OMEGA	CB	68	-	590 *
*	SI 8+	2P2 3P0	2P2 3P2	6	X =1.0	OMEGA	CBO	69	-	630 *
*	SI 8+	2P2 3P1	2P2 3P2	6	X =1.0	OMEGA	CBO	69	-	630 *
*	SI 8+	2S2 2P2 3P1	2S2P3 3P2	6		G	DW	76	-	1330 *
*	SI 7+	2P3 4S	2P2(3P)3S 4P	7	X =1 - 5	OMEGA	DW	77	-	1592 *
*	SI 7+	2P3 4S	2P2(3P)3D 4P	7	X =1 - 5	OMEGA	DW	77	-	1592 *
*	SI 7+	2S2 2P3 4S3/2	2S2P4 4P3/2	7		G	DW	76	-	1330 *
*	SI 7+	2S2 2P3 2D3/2	2S2P4 2D3/2	7		G	DW	76	-	1330 *
*	SI 6+	2P4 3P	2P3(4S)3D 3D	8	X =1 - 5	OMEGA	DW	77	-	1592 *
*	SI 6+	2P4 3P	2P3(2D)3S 3D	8	X =1 - 5	OMEGA	DW	77	-	1592 *
*	SI 6+	2P4 3P0	2P4 3P2	8	X =1.0	OMEGA	CB	68	-	590 *
*	SI 6+	2S2 2P4 3P2	2S2P5 3P2	8		G	DW	76	-	1330 *
*	SI 5+	2P5 2P	2P4(1S)3S 2S	9	X =1 - 5	OMEGA	DW	77	-	1592 *
*	SI 5+	2P5 2P	2P4(1D)3S 2D	9	X =1 - 5	OMEGA	DW	77	-	1592 *
*	SI 5+	2P5 2P	2P4(3P)3S 2P	9	X =1 - 5	OMEGA	DW	77	-	1592 *
*	SI 5+	2P5 2P	2P4(3P)3D 2D	9	X =1 - 5	OMEGA	DW	77	-	1592 *
*	SI 5+	2P5 2P1/2	2P5 2P3/2	9	X =1.0	OMEGA	CB	68	-	590 *
*	SI 5+	2P5 2P1/2	2P5 2P3/2	9	X =1.0	OMEGA	DW	68	-	590 *

*	ION	TRANSITION	NUMBER	E.	ENERGY RANGE	DATA	METHOD	YEAR	REF.	*
*	SI 5+	2P5 2P1/2	2P5 2P3/2	9	X = 1.0	OMEGA	CBO	69	-	630 *
*	SI 5+	2P5 2P1/2	2P5 2P3/2	9	RY=0.0,0.05,0.10	OMEGA	ER+DW	69	-	710 *
*	SI 3+	3S	3P	11	X = 1 - 4	OMEGA	CBI	63	-	230 *
*	SI 3+	3S	3P	11	X = 1 - 4	OMEGA	CBII	63	-	230 *
*	SI 3+	3S	3P	11	X = 1 - 4	OMEGA	CBIII	63	-	230 *
*	SI 3+	3S	3P	11	X = 1 - 4	OMEGA	SCBII	69	-	640 *
*	SI 3+	3S	3P	11	X = 1.0	OMEGA	SCBIII	69	-	640 *
*	SI 3+	3S	3P	11	X = 1.0	OMEGA	CBI	69	-	640 *
*	SI 3+	3S	3P	11	X = 1.0	OMEGA	CBII	69	-	640 *
*	SI 3+	3S 2S1/2	3P 2PJ	11	RY=0.7,1.5,2.5	OMEGA	DW	75	-	1241 *
*	SI 3+	3S 2S1/2	3D 2DJ	11	RY=1.5,2.5	OMEGA	DW	75	-	1241 *
*	SI 3+	3P 2P1/2	3P 2P3/2	11	RY=0.7,1.5,2.5	OMEGA	DW	75	-	1241 *
*	SI 3+	3P 2P1/2	3D 2DJ	11	RY=1.5,2.5	OMEGA	DW	75	-	1241 *
*	SI 3+	3P 2P3/2	3D 2DJ	11	RY=1.5,2.5	OMEGA	DW	75	-	1241 *
*	SI 3+	3D 2D3/2	3D 2D5/2	11	RY=1.5,2.5	OMEGA	DW	75	-	1241 *
*	SI 2+	3S3P 3P0	3S3P 3P2	12	X = 1.0	OMEGA	CB	68	-	590 *
*	SI 2+	3S3P 3P0	3S3P 3P2	12	X = 1.0	OMEGA	DW	68	-	590 *
*	SI +	3S2 3P 2P	3S2 4S 2S	13	X = 1.1 - 4.5	G	SC	70	-	850 *
*	SI +	3S2 3P 2P	3S2 3D 2D	13	X = 1.1 - 4.5	G	SC	70	-	850 *
*	SI +	3S2 3P 2P	3S3P2 2S	13	X = 1.1 - 4.5	G	SC	70	-	850 *
*	SI +	3S2 3P 2P	3S3P2 2P	13	X = 1.1 - 4.5	G	SC	70	-	850 *
*	SI +	3S2 3P 2P	3S3P2 2D	13	X = 1.1 - 4.5	G	SC	70	-	850 *
*	SI +	3P 2P1/2	3P 2P3/2	13	X = 1.0	OMEGA	DWBO	55	-	100 *
*	SI +	3P 2P1/2	3P 2P3/2	13	X = 1.0	OMEGA	CB	68	-	590 *
*	SI +	3P 2P1/2	3P 2P3/2	13	X = 1.0	OMEGA	DW	68	-	590 *
*	SI +	3P 2P1/2	3P 2P3/2	13	X = 1.0	OMEGA	CBO	69	-	630 *
*	P 11+	2S2P 3P0	2S2P 3P2	4	X = 1.0	OMEGA	CB	68	-	590 *
*	P 10+	2S2 2P 2P1/2	2S2 2P 2P3/2	5	X = 1.0	OMEGA	CB	68	-	590 *
*	P 9+	2P2 3P0	2P2 3P2	6	X = 1.0	OMEGA	CB	68	-	590 *
*	P 9+	2P2 3P0	2P2 3P2	6	X = 1.0	OMEGA	DW	68	-	590 *
*	P 7+	2P4 3P0	2P4 3P2	8	X = 1.0	OMEGA	CB	68	-	590 *
*	P 6+	2P5 2P1/2	2P5 2P3/2	9	X = 1.0	OMEGA	CB	68	-	590 *
*	P 4+	3S 2S1/2	3P 2PJ	11	PARAMETERS	CS	BETHE	78	-	1750 *
*	P 4+	3S 2S1/2	4P 2PJ	11	PARAMETERS	CS	BETHE	78	-	1750 *
*	P 3+	3S3P 3P0	3S3P 3P2	12	X = 1.0	OMEGA	CB	68	-	590 *
*	P 3+	3S3P 3P0	3S3P 3P2	12	X = 1.0	OMEGA	DW	68	-	590 *
*	P 2+	3P 2P1/2	3P 2P3/2	13	X = 1.0	OMEGA	CB	68	-	590 *
*	P 2+	3P 2P1/2	3P 2P3/2	13	X = 1.0	OMEGA	DW	68	-	590 *
*	P 2+	3P 2P1/2	3P 2P3/2	13	X = 1.0	OMEGA	CBO	69	-	630 *
*	P 2+	3P 2P1/2	3P 2P3/2	13	X = 1.0	OMEGA	DW	70	-	810 *
*	P 2+	3P2 3P	3P2 1S	14	RY3=0.0005	OMEGA	ER+DW	67	-	540 *
*	P 2+	3P2 3P	3P2 1S	14	RY3=0.2 - 2.0	OMEGA	CC	70	-	740 *
*	P 2+	3P2 3P	3P2 1D	14	X = 1.0	OMEGA	DW	70	-	810 *
*	P 2+	3P2 3P	3P2 1D	14	RY3=0.0005	OMEGA	ER+DW	67	-	500 *
*	P 2+	3P2 3P	3P2 1D	14	RY3=0.2 - 2.0	OMEGA	ER+DW	67	-	540 *
*	P 2+	3P2 1D	3P2 1S	14	E3=0.0	OMEGA	CC	70	-	740 *
*	P 2+	3P2 1D	3P2 1S	14	RY3=0.2 - 2.0	OMEGA	ER+DW	67	-	540 *
*	P 2+	3P2 1D	3P2 1S	14	E3=0.0	OMEGA	CC	70	-	740 *
*	P 2+	3P2 3P0	3P2 3P1	14	X = 1.0	OMEGA	DW	70	-	810 *
*	P 2+	3P2 3P0	3P2 3P1	14	E3=0.0,0.05,0.10	OMEGA	CBO	69	-	630 *
*	P 2+	3P2 3P0	3P2 3P2	14	X = 1.0	OMEGA	DW	70	-	810 *
*	P 2+	3P2 3R0	3P2 3P2	14	X = 1.0	OMEGA	CB	68	-	590 *
*	P 2+	3P2 3P0	3P2 3P2	14	X = 1.0	OMEGA	DW	68	-	590 *
*	P 2+	3P2 3P0	3P2 3P2	14	E3=0.0,0.05,0.10	OMEGA	CBO	69	-	630 *
*	P 2+	3P2 3P0	3P2 3P2	14	X = 1.0	OMEGA	DW	70	-	810 *
*	P 2+	3P2 3P1	3P2 3P2	14	X = 1.0	OMEGA	CBO	69	-	630 *
*	P 2+	3P2 3P1	3P2 3P2	14	E3=0.0,0.05,0.10	OMEGA	DW	70	-	810 *
*	S 12+	2S2P 3P0	2S2P 3P2	4	X = 1.0	OMEGA	CB	68	-	590 *
*	S 11+	2S2 2P 2P1/2	2S2 2P 2P3/2	5	X = 1.0	OMEGA	CB	68	-	590 *
*	S 11+	2S2 2P 2P1/2	2S2 2P 2P3/2	5	X = 1.0	OMEGA	CBO	69	-	630 *
*	S 10+	2P2 3P	2P2 1S	6	RY3=0.0	OMEGA	ER+DW	66	-	460 *
*	S 10+	2P2 3P	2P2 1D	6	RY3=0.0	OMEGA	ER+DW	66	-	460 *
*	S 10+	2P2 1D	2P2 1S	6	RY3=0.0	OMEGA	ER+DW	66	-	460 *
*	S 10+	2P2 3P0	2P2 3P2	6	X = 1.0	OMEGA	CB	68	-	590 *
*	S 9+	2P3 2P1/2	2P3 2P3/2	7	X = 1.0	OMEGA	CBO	69	-	630 *
*	S 8+	2P4 3P0	2P4 3P2	8	X = 1.0	OMEGA	CB	68	-	590 *
*	S 7+	2P5 2P1/2	2P5 2P3/2	9	X = 1.0	OMEGA	CB	68	-	590 *
*	S 5+	3S 2S1/2	3P 2PJ	11	RY=1.0,2.5,3.5	OMEGA	DW	75	-	1241 *
*	S 5+	3S 2S1/2	3D 2DJ	11	RY=2.5,3.5	OMEGA	DW	75	-	1241 *
*	S 5+	3P 2P1/2	3P 2P3/2	11	RY=1.0,2.5,3.5	OMEGA	DW	75	-	1241 *
*	S 5+	3P 2P1/2	3D 2DJ	11	RY=2.5,3.5	OMEGA	DW	75	-	1241 *
*	S 5+	3P 2P3/2	3D 2DJ	11	RY=2.5,3.5	OMEGA	DW	75	-	1241 *
*	S 5+	3D 2D3/2	3D 2D5/2	11	RY=2.5,3.5	OMEGA	DW	75	-	1241 *
*	S 4+	3S3P 3P0	3S3P 3P2	12	X = 1.0	OMEGA	CB	68	-	590 *
*	S 4+	3S3P 3P0	3S3P 3P2	12	X = 1.0	OMEGA	DW	68	-	590 *
*	S 3+	3P 2P1/2	3P 2P3/2	13	X = 1.0	OMEGA	CB	68	-	590 *
*	S 3+	3P 2P1/2	3P 2P3/2	13	X = 1.0	OMEGA	ER	64	-	310 *
*	S 3+	3P 2P1/2	3P 2P3/2	13	X = 1.0	OMEGA	ER+DW	67	-	540 *
*	S 3+	3P 2P1/2	3P 2P3/2	13	X = 1.0	OMEGA	DW	70	-	810 *
*	S 2+	3P2 3P	3P2 1S	14	K = 0.01	OMEGA	CB	64	-	310 *
*	S 2+	3P2 3P	3P2 1S	14	K = 0.01	OMEGA	ER	64	-	310 *
*	S 2+	3P2 3P	3P2 1S	14	RY3=0.0005	OMEGA	ER+DW	67	-	540 *
*	S 2+	3P2 3P	3P2 1S	14	E3=0.0,0.05,0.10	OMEGA	DW	70	-	810 *

*	ION	TRANSITION	NUMBER	E.	ENERGY RANGE	DATA	METHOD	YEAR	REF.	*
*	S 2+	3P2 3P	3P2 1D	14	K =0.01	OMEGA	CB	64	-	310 *
*	S 2+	3P2 3P	3P2 1D	14	K =0.01	OMEGA	ER	64	-	310 *
*	S 2+	3P2 3P	3P2 1D	14	X =1.0	OMEGA	CBB	66	-	390 *
*	S 2+	3P2 3P	3P2 1D	14	X =1.0	OMEGA	CBB	67	-	500 *
*	S 2+	3P2 3P	3P2 1D	14	RY3=0.0005	OMEGA	ER+DW	67	-	540 *
*	S 2+	3P2 3P	3P2 1D	14	E3=0.0,0.05,0.10	OMEGA	DW	70	-	810 *
*	S 2+	3P2 1D	3P2 1S	14	K =0.01	OMEGA	CB	64	-	310 *
*	S 2+	3P2 1D	3P2 1S	14	K =0.01	OMEGA	ER	64	-	310 *
*	S 2+	3P2 1D	3P2 1S	14	RY3=0.0005	OMEGA	ER+DW	67	-	540 *
*	S 2+	3P2 1D	3P2 1S	14	E3=0.0,0.05,0.10	OMEGA	DW	70	-	810 *
*	S 2+	3P2 3P0	3P2 3P1	14	X =1.0	OMEGA	CBO	69	-	630 *
*	S 2+	3P2 3P0	3P2 3P1	14	E3=0.0,0.05,0.10	OMEGA	DW	70	-	810 *
*	S 2+	3P2 3P0	3P2 3P2	14	X =1.0	OMEGA	CB	68	-	590 *
*	S 2+	3P2 3P0	3P2 3P2	14	X =1.0	OMEGA	DW	68	-	590 *
*	S 2+	3P2 3P0	3P2 3P2	14	X =1.0	OMEGA	CBO	69	-	630 *
*	S 2+	3P2 3P0	3P2 3P2	14	E3=0.0,0.05,0.10	OMEGA	DW	70	-	810 *
*	S 2+	3P2 3P1	3P2 3P2	14	X =1.0	OMEGA	CBO	69	-	630 *
*	S 2+	3P2 3P1	3P2 3P2	14	E3=0.0,0.05,0.10	OMEGA	DW	70	-	810 *
*	S +	3P3 4S	3P3 2P	15	X =1.0	OMEGA	ER	53	-	70 *
*	S +	3P3 4S	3P3 2P	15	RY3=0.0005	OMEGA	DW	67	-	530 *
*	S +	3P3 4S	3P3 2P	15	RY3=0.2 - 2.0	OMEGA	CC	70	-	740 *
*	S +	3P3 4S	3P3 2P	15	E3=0.0,0.05,0.10	OMEGA	DW	70	-	810 *
*	S +	3P3 4S	3P3 2D	15	X =1.0	OMEGA	ER	53	-	70 *
*	S +	3P3 4S	3P3 2D	15	RY3=0.0005	OMEGA	DW	67	-	530 *
*	S +	3P3 4S	3P3 2D	15	RY3=0.2 - 2.0	OMEGA	CC	70	-	740 *
*	S +	3P3 4S	3P3 2D	15	E3=0.0,0.05,0.10	OMEGA	DW	70	-	810 *
*	S +	3P3 2P	3P3 4S	15	E =BLOW, ABOVE 4P	RATE	CC	78	-	1810 *
*	S +	3P3 2D	3P3 4S	15	E =BLOW, ABOVE 4P	RATE	CC	78	-	1810 *
*	S +	3P3 2D	3P3 2P	15	X =1.0	OMEGA	DW	55	-	90 *
*	S +	3P3 2D	3P3 2P	15	RY3=0.0005	OMEGA	DW	67	-	530 *
*	S +	3P3 2D	3P3 2P	15	RY3=0.2 - 2.0	OMEGA	CC	70	-	740 *
*	S +	3P3 2D	3P3 2P	15	E3=0.0,0.05,0.10	OMEGA	DW	70	-	810 *
*	S +	3P3 2D	3P3 4S	15	E =BLOW, ABOVE 4P	RATE	CC	78	-	1810 *
*	S +	3P3 2D	3P3 4S	15	E =BLOW, ABOVE 4P	RATE	CC	78	-	1810 *
*	S +	3P3 2D	3P3 2P	15	X =1.0	OMEGA	DW	55	-	90 *
*	S +	3P3 2D	3P3 2P	15	RY3=0.0005	OMEGA	CC	70	-	750 *
*	S +	3P3 2D	3P3 2P	15	RY3=0.2 - 2.0	OMEGA	CC	70	-	740 *
*	S +	3P3 2D	3P3 2P	15	E3=0.0,0.05,0.10	OMEGA	DW	70	-	810 *
*	S +	3P3 4S	3P3 2P1/2	15	EP3=0.0,0.05,0.1	OMEGA	CC	70	-	750 *
*	S +	3P3 4S	3P3 2P3/2	15	EP3=0.0,0.05,0.1	OMEGA	CC	70	-	750 *
*	S +	3P3 4S	3P3 2D3/2	15	EP3=-DEP - 0.1	OMEGA	CC	70	-	750 *
*	S +	3P3 4S	3P3 2D5/2	15	EP3=-DEP - 0.1	OMEGA	CC	70	-	750 *
*	S +	3P3 2P1/2	3P3 2P3/2	15	X =1.0	OMEGA	CBO	69	-	630 *
*	S +	3P3 2P1/2	3P3 2P3/2	15	EP3=0.0,0.05,0.1	OMEGA	CC	70	-	750 *
*	S +	3P3 2P1/2	3P3 2P3/2	15	E3=0.0,0.05,0.10	OMEGA	DW	70	-	810 *
*	S +	3P3 2D3/2	3P3 2P1/2	15	EP3=0.0,0.05,0.1	OMEGA	CC	70	-	750 *
*	S +	3P3 2D3/2	3P3 2P3/2	15	EP3=0.0,0.05,0.1	OMEGA	CC	70	-	750 *
*	S +	3P3 2D3/2	3P3 2PJ	15	E3=0.0,0.05,0.10	OMEGA	DW	70	-	810 *
*	S +	3P3 2D3/2	3P3 2D5/2	15	EP3=-DEP - 0.1	OMEGA	CC	70	-	750 *
*	S +	3P3 2D3/2	3P3 2D5/2	15	E3=0.0,0.05,0.10	OMEGA	DW	70	-	810 *
*	S +	3P3 2D3/2	3P3 2D5/2	15	E =BLOW, ABOVE 4P	RATE	CC	78	-	1810 *
*	S +	3P3 2D5/2	3P3 2P1/2	15	EP3=0.0,0.05,0.1	OMEGA	CC	70	-	750 *
*	S +	3P3 2D5/2	3P3 2P3/2	15	EP3=0.0,0.05,0.1	OMEGA	CC	70	-	750 *
*	S +	3P3 2D5/2	3P3 2P3/2	15	EP3=0.0,0.05,0.1	OMEGA	DW	70	-	810 *
*	CL 3+	3P2 3P	3P2 1D	14	K =0.01	OMEGA	CB	64	-	310 *
*	CL 3+	3P2 3P	3P2 1D	14	K =0.01	OMEGA	ER	64	-	310 *
*	CL 3+	3P2 3P	3P2 1D	14	X =1.0	OMEGA	CBB	66	-	390 *
*	CL 3+	3P2 3P	3P2 1D	14	X =1.0	OMEGA	CBB	67	-	500 *
*	CL 3+	3P2 3P	3P2 1D	14	RY3=0.0005	OMEGA	ER+DW	67	-	540 *
*	CL 3+	3P2 3P	3P2 1D	14	E3=0.0,0.05,0.10	OMEGA	DW	70	-	810 *
*	CL 13+	2S2P 3P0	2S2P 3P2	4	X =1.0	OMEGA	CB	68	-	590 *
*	CL 12+	2S2 2P 2P1/2	2S2 2P 2P3/2	5	X =1.0	OMEGA	CB	68	-	590 *
*	CL 11+	2P2 3P0	2P2 3P2	6	X =1.0	OMEGA	CB	68	-	590 *
*	CL 9+	2P4 3P0	2P4 3P2	8	X =1.0	OMEGA	CB	68	-	590 *
*	CL 9+	2P4 3P0	2P4 3P2	8	X =1.0	OMEGA	DW	68	-	590 *
*	CL 8+	2P5 2P1/2	2P5 2P3/2	9	X =1.0	OMEGA	CB	68	-	590 *
*	CL 5+	3S3P 3P0	3S3P 3P2	12	X =1.0	OMEGA	CB	68	-	590 *
*	CL 5+	3S3P 3P0	3S3P 3P2	12	X =1.0	OMEGA	DW	68	-	590 *
*	CL 4+	3P 2P1/2	3P 2P3/2	13	X =1.0	OMEGA	CB	68	-	590 *
*	CL 4+	3P 2P1/2	3P 2P3/2	13	X =1.0	OMEGA	DW	68	-	590 *
*	CL 4+	3P 2P1/2	3P 2P3/2	13	X =1.0	OMEGA	CBO	69	-	630 *
*	CL 4+	3P 2P1/2	3P 2P3/2	13	E3=0.0,0.05,0.10	OMEGA	DW	70	-	810 *
*	CL 3+	3P2 3P	3P2 1S	14	K =0.01	OMEGA	CB	64	-	310 *
*	CL 3+	3P2 3P	3P2 1S	14	K =0.01	OMEGA	ER	64	-	310 *
*	CL 3+	3P2 3P	3P2 1S	14	RY3=0.0005	OMEGA	ER+DW	67	-	540 *
*	CL 3+	3P2 3P	3P2 1S	14	E3=0.0,0.05,0.10	OMEGA	DW	70	-	810 *
*	CL 3+	3P2 3P	3P2 1D	14	K =0.01	OMEGA	CB	64	-	310 *
*	CL 3+	3P2 3P	3P2 1D	14	K =0.01	OMEGA	ER	64	-	310 *
*	CL 3+	3P2 3P	3P2 1D	14	X =1.0	OMEGA	CBB	66	-	390 *
*	CL 3+	3P2 3P	3P2 1D	14	X =1.0	OMEGA	CBB	67	-	500 *
*	CL 3+	3P2 3P	3P2 1D	14	RY3=0.0005	OMEGA	ER+DW	67	-	540 *
*	CL 3+	3P2 3P	3P2 1D	14	E3=0.0,0.05,0.10	OMEGA	DW	70	-	810 *
*	CL 3+	3P2 1D	3P2 1S	14	K =0.01	OMEGA	CB	64	-	310 *
*	CL 3+	3P2 1D	3P2 1S	14	K =0.01	OMEGA	ER	64	-	310 *
*	CL 3+	3P2 1D	3P2 1S	14	RY3=0.0005	OMEGA	ER+DW	67	-	540 *
*	CL 3+	3P2 1D	3P2 1S	14	E3=0.0,0.05,0.10	OMEGA	DW	70	-	810 *
*	CL 3+	3P2 3P0	3P2 3P1	14	X =1.0	OMEGA	CBO	69	-	630 *
*	CL 3+	3P2 3P0	3P2 3P1	14	E3=0.0,0.05,0.10	OMEGA	DW	70	-	810 *
*	CL 3+	3P2 3P0	3P2 3P2	14	X =1.0	OMEGA	CB	68	-	590 *
*	CL 3+	3P2 3P0	3P2 3P2	14	X =1.0	OMEGA	DW	68	-	590 *
*	CL 3+	3P2 3P0	3P2 3P2	14	X =1.0	OMEGA	CBO	69	-	630 *

*	ION	TRANSITION	NUMBER	E.	ENERGY RANGE	DATA	METHOD	YEAR	REF.	*
*	CL 3+	3P2 3P0	3P2 3P2	14	E3=0.0.0.05+0.10	OMEGA	DW	70	-	810 *
*	CL 3+	3P2 3P1	3P2 3P2	14	X =1.0	OMEGA	CBO	69	-	630 *
*	CL 3+	3P2 3P1	3P2 3P2	14	E3=0.0.0.05+0.10	OMEGA	DW	70	-	810 *
*	CL 2+	3P3 4S	3P3 2D	15	RY3=0.0005	OMEGA	DW	67	-	530 *
*	CL 2+	3P3 4S	3P3 2D	15	RY1=0.3 - 1.0	OMEGA	CC	70	-	740 *
*	CL 2+	3P3 4S	3P3 2P	15	E3=0.0.0.05+0.10	OMEGA	DW	70	-	810 *
*	CL 2+	3P3 4S	3P3 2P	15	RY3=0.0005	OMEGA	DW	67	-	530 *
*	CL 2+	3P3 4S	3P3 2P	15	RY1=0.3 - 1.0	OMEGA	CC	70	-	740 *
*	CL 2+	3P3 4S	3P3 2P	15	E3=0.0.0.05+0.10	OMEGA	DW	70	-	810 *
*	CL 2+	3P3 2D	3P3 2P	15	RY3=0.0005	OMEGA	DW	67	-	530 *
*	CL 2+	3P3 2D	3P3 2P	15	RY1=0.3 - 1.0	OMEGA	CC	70	-	740 *
*	CL 2+	3P3 2D	3P3 2P	15	E3=0.0.0.05+0.10	OMEGA	DW	70	-	810 *
*	CL 2+	3P3 4S	3P3 2P1/2	15	EP3=0.0.0.05+0.1	OMEGA	CC	70	-	750 *
*	CL 2+	3P3 4S	3P3 2P3/2	15	EP3=0.0.0.05+0.1	OMEGA	CC	70	-	750 *
*	CL 2+	3P3 4S	3P3 2D5/2	15	EP3=-DEP - 0.1	OMEGA	CC	70	-	750 *
*	CL 2+	3P3 2P1/2	3P3 2P3/2	15	EP3=0.0.0.05+0.1	OMEGA	CC	70	-	750 *
*	CL 2+	3P3 2P1/2	3P3 2P3/2	15	E3=0.0.0.05+0.10	OMEGA	DW	70	-	810 *
*	CL 2+	3P3 2D3/2	3P3 2P1/2	15	EP3=0.0.0.05+0.1	OMEGA	CC	70	-	750 *
*	CL 2+	3P3 2D3/2	3P3 2P3/2	15	EP3=0.0.0.05+0.1	OMEGA	CC	70	-	750 *
*	CL 2+	3P3 2D3/2	3P3 2P	15	E3=0.0.0.05+0.10	OMEGA	DW	70	-	810 *
*	CL 2+	3P3 2D3/2	3P3 2D5/2	15	EP3=-DEP - 0.1	OMEGA	CC	70	-	750 *
*	CL 2+	3P3 2D5/2	3P3 2P1/2	15	EP3=0.0.0.05+0.1	OMEGA	CC	70	-	750 *
*	CL 2+	3P3 2D5/2	3P3 2P3/2	15	EP3=0.0.0.05+0.1	OMEGA	CC	70	-	750 *
*	CL 2+	3P3 2D5/2	3P3 2P	15	E3=0.0.0.05+0.10	OMEGA	DW	70	-	810 *
*	CL +	3P4 3P	3P4 1S	16	RY3=0.0005	OMEGA	ER+DW	67	-	540 *
*	CL +	3P4 3P	3P4 1D	16	RY3=0.0005	OMEGA	ER+DW	67	-	540 *
*	CL +	3P4 3P	3P4 1D	16	E3=0.0.0.05+0.10	OMEGA	DW	70	-	810 *
*	CL +	3P4 1D	3P4 1S	16	RY3=0.0005	OMEGA	ER+DW	67	-	540 *
*	CL +	3P4 3P0	3P4 3P2	16	X =1.0	OMEGA	CB	68	-	590 *
*	CL +	3P4 3P0	3P4 3P	16	X =1.0	OMEGA	DW	68	-	590 *
*	CL +	3P4 3P0	3P4 3P1	16	X =1.0	OMEGA	CBO	69	-	630 *
*	CL +	3P4 3P1	3P4 3P0	16	X =1.0	OMEGA	DW	70	-	810 *
*	CL +	3P4 3P1	3P4 3P2	16	X =1.0	OMEGA	CBO	69	-	630 *
*	CL +	3P4 3P2	3P4 3PJ	16	E3=0.0.0.05+0.10	OMEGA	DW	70	-	810 *
*	A 15+	2S	2P	3	RY=2.309 - 116.0	OMEGA	CC	77	-	1560 *
*	A 15+	2S	3S	3	RY=37.838 - 116.0	OMEGA	CC	77	-	1560 *
*	A 15+	2S	3P	3	RY=38.495 - 116.0	OMEGA	CC	77	-	1560 *
*	A 15+	2S	3D	3	RY=38.718 - 116.0	OMEGA	CC	77	-	1560 *
*	A 15+	2P	3S	3	RY=35.529 - 116.0	OMEGA	CC	77	-	1560 *
*	A 15+	2P	3P	3	RY=36.186 - 116.0	OMEGA	CC	77	-	1560 *
*	A 15+	2P	3D	3	RY=36.408 - 116.0	OMEGA	CC	77	-	1560 *
*	A 14+	2S2P 3P0	2S2P 3P2	4	X =1.0	OMEGA	CB	68	-	590 *
*	A 14+	2S2P 3P0	2S2P 3P2	4	X =1.0	OMEGA	DW	68	-	590 *
*	A 13+	2S2 2P 2P1/2	2S2 2P 2P3/2	5	X =1.0	OMEGA	CB	68	-	590 *
*	A 13+	2S2 2P 2P1/2	2S2 2P 2P3/2	5	X =1.0	OMEGA	DW	68	-	590 *
*	A 13+	2S2 2P 2P1/2	2S2 2P 2P3/2	5	X =1.0	OMEGA	CBO	69	-	630 *
*	A 12+	2P2 3P	2P2 1D	6	X =1.0	OMEGA	CBB	67	-	500 *
*	A 12+	2P2 3P0	2P2 3P2	6	X =1.0	OMEGA	CB	68	-	590 *
*	A 12+	2P2 3P0	2P2 3P2	6	X =1.0	OMEGA	CBO	69	-	630 *
*	A 12+	2P2 3P0	2P2 3P1	6	X =1.0	OMEGA	CBO	69	-	630 *
*	A 12+	2P2 3P1	2P2 3P2	6	X =1.0	OMEGA	CBO	69	-	630 *
*	A 12+	2S2 2P2 3P1	2S2P3 3D2	6	G DW	76	-	1330 *		
*	A 11+	2P3 4S	2P3 2P	7	RY3=0.0	OMEGA	ER+DW	67	-	540 *
*	A 11+	2P3 4S	2P3 2D	7	RY3=0.0	OMEGA	ER+DW	67	-	540 *
*	A 11+	2P3 2D	2P3 2P	7	RY3=0.0	OMEGA	ER+DW	67	-	540 *
*	A 11+	2P3 2P1/2	2P3 2P3/2	7	X =1.0	OMEGA	CBO	69	-	630 *
*	A 10+	2P4 3P	2P4 1S	8	RY3=0.0	OMEGA	ER+DW	67	-	540 *
*	A 10+	2P4 3P	2P4 1D	8	RY3=0.0	OMEGA	ER+DW	67	-	540 *
*	A 10+	2P4 3P0	2P4 3P1	8	X =1.0	OMEGA	CBO	69	-	630 *
*	A 10+	2P4 3P0	2P4 3P2	8	X =1.0	OMEGA	CB	68	-	590 *
*	A 10+	2P4 3P0	2P4 3P2	8	X =1.0	OMEGA	CBO	69	-	630 *
*	A 10+	2P4 3P1	2P4 3P2	8	X =1.0	OMEGA	CBO	69	-	630 *
*	A 9+	2P5 2P1/2	2P5 2P3/2	9	X =1.0	OMEGA	CB	68	-	590 *
*	A 9+	2P5 2P1/2	2P5 2P3/2	9	X =1.0	OMEGA	DW	68	-	590 *
*	A 9+	2P5 2P1/2	2P5 2P3/2	9	X =1.0	OMEGA	CBO	69	-	630 *
*	A 7+	3S	3P	11	TEV=10 - 300	RATE	CBII	72	-	900 *
*	A 7+	3S	3D	11	TEV=10 - 300	RATE	CBII	72	-	900 *
*	A 7+	3S	4D	11	TEV=10 - 300	RATE	CBII	72	-	900 *
*	A 7+	3S	4F	11	TEV=10 - 300	RATE	CBII	72	-	900 *
*	A 7+	3S	5S	11	TEV=10 - 300	RATE	CBII	72	-	900 *
*	A 7+	3S	4S	11	TEV=10 - 300	RATE	CBII	72	-	900 *
*	A 7+	3S	4P	11	TEV=10 - 300	RATE	CBII	72	-	900 *
*	A 7+	3S	5P	11	TEV=10 - 300	RATE	CBII	72	-	900 *
*	A 7+	3S	5D	11	TEV=10 - 300	RATE	CBII	72	-	900 *
*	A 7+	3S	5F	11	TEV=10 - 300	RATE	CBII	72	-	900 *
*	A 7+	3P	3D	11	TEV=10 - 300	RATE	CBII	72	-	900 *
*	A 7+	3P	4S	11	TEV=10 - 300	RATE	CBII	72	-	900 *
*	A 7+	3P	4P	11	TEV=10 - 300	RATE	CBII	72	-	900 *
*	A 7+	3P	4D	11	TEV=10 - 300	RATE	CBII	72	-	900 *
*	A 7+	3P	5S	11	TEV=10 - 300	RATE	CBII	72	-	900 *

*	ION	TRANSITION	NUMBER	E,	ENERGY RANGE	DATA	METHOD	YEAR	REF.
*	A 7+	3P	5P	11	TEV=10 - 300	RATE	CBII	72	- 900
*	A 7+	3P	5D	11	TEV=10 - 300	RATE	CBII	72	- 900
*	A 7+	3D	4S	11	TEV=10 - 300	RATE	CBII	72	- 900
*	A 7+	3D	4P	11	TEV=10 - 300	RATE	CBII	72	- 900
*	A 7+	3D	4D	11	TEV=10 - 300	RATE	CBII	72	- 900
*	A 7+	3D	5S	11	TEV=10 - 300	RATE	CBII	72	- 900
*	A 7+	3D	5P	11	TEV=10 - 300	RATE	CBII	72	- 900
*	A 7+	3D	5D	11	TEV=10 - 300	RATE	CBII	72	- 900
*	A 7+	3S 2S1/2	3P 2PJ	11	PARAMETERS	CS	BETHE	78	- 1750
*	A 7+	3S 2S1/2	4P 2PJ	11	PARAMETERS	CS	BETHE	78	- 1750
*	A 6+	3S3P 3P0	3S3P 3P2	12	X =1.0	OMEGA	CB	68	- 590
*	A 5+	3P 2P1/2	3P 2P3/2	13	X =1.0	OMEGA	CB	68	- 590
*	A 5+	3P 2P1/2	3P 2P3/2	13	X =1.0	OMEGA	DW	68	- 590
*	A 5+	3P 2P1/2	3P 2P3/2	13	X =1.0	OMEGA	CBO	69	- 630
*	A 5+	3P 2P1/2	3P 2P3/2	13	E3=0.0.0.05.0,10	OMEGA	DW	70	- 810
*	A 4+	3P2 3P	3P2 1S	14	K =0.01	OMEGA	CB	64	- 310
*	A 4+	3P2 3P	3P2 1S	14	K =0.01	OMEGA	ER	64	- 310
*	A 4+	3P2 3P	3P2 1S	14	RY3=0.0005	OMEGA	ER+DW	67	- 540
*	A 4+	3P2 3P	3P2 1S	14	E3=0.0.0.05.0,10	OMEGA	DW	70	- 810
*	A 4+	3P2 3P	3P2 1D	14	K =0.01	OMEGA	CB	64	- 310
*	A 4+	3P2 3P	3P2 1D	14	K =0.01	OMEGA	ER	64	- 310
*	A 4+	3P2 3P	3P2 1D	14	X =1.0	OMEGA	CBB	66	- 390
*	A 4+	3P2 3P	3P2 1D	14	X =1.0	OMEGA	CBB	67	- 500
*	A 4+	3P2 3P	3P2 1D	14	RY3=0.0005	OMEGA	ER+DW	67	- 540
*	A 4+	3P2 1D	3P2 1S	14	E3=0.0.0.05.0,10	OMEGA	DW	70	- 810
*	A 4+	3P2 1D	3P2 1S	14	K =0.01	OMEGA	CB	64	- 310
*	A 4+	3P2 1D	3P2 1S	14	RY3=0.0005	OMEGA	ER+DW	67	- 540
*	A 4+	3P2 1D	3P2 1S	14	E3=0.0.0.05.0,10	OMEGA	DW	70	- 810
*	A 4+	3P2 1D	3P2 1S	14	K =0.01	OMEGA	ER	64	- 310
*	A 4+	3P2 1D	3P2 1S	14	RY3=0.0005	OMEGA	ER+DW	67	- 540
*	A 4+	3P2 3P0	3P2 3P1	14	X =1.0	OMEGA	CBO	69	- 630
*	A 4+	3P2 3P0	3P2 3P1	14	E3=0.0.0.05.0,10	OMEGA	DW	70	- 810
*	A 4+	3P2 3P0	3P2 3P2	14	X =1.0	OMEGA	CB	68	- 590
*	A 4+	3P2 3P0	3P2 3P2	14	X =1.0	OMEGA	DW	68	- 590
*	A 4+	3P2 3P0	3P2 3P2	14	X =1.0	OMEGA	CBO	69	- 630
*	A 4+	3P2 3P0	3P2 3P2	14	E3=0.0.0.05.0,10	OMEGA	DW	70	- 810
*	A 4+	3P2 3P1	3P2 3P2	14	X =1.0	OMEGA	CBO	69	- 630
*	A 4+	3P2 3P1	3P2 3P2	14	E3=0.0.0.05.0,10	OMEGA	DW	70	- 810
*	A 3+	3P3 4S	3P3 2P	15	RY3=0.0005	OMEGA	DW	67	- 530
*	A 3+	3P3 4S	3P3 2P	15	RY3=0.68074	OMEGA	CC	70	- 740
*	A 3+	3P3 4S	3P3 2P	15	E3=0.0.0.05.0,10	OMEGA	DW	70	- 810
*	A 3+	3P3 4S	3P3 2D	15	RY3=0.0005	OMEGA	DW	67	- 530
*	A 3+	3P3 4S	3P3 2D	15	RY3=0.68074	OMEGA	CC	70	- 740
*	A 3+	3P3 4S	3P3 2D	15	E3=0.0.0.05.0,10	OMEGA	DW	70	- 810
*	A 3+	3P3 2D	3P3 2P	15	RY3=0.0005	OMEGA	DW	67	- 530
*	A 3+	3P3 2D	3P3 2P	15	RY3=0.68074	OMEGA	CC	70	- 740
*	A 3+	3P3 2D	3P3 2P	15	E3=0.0.0.05.0,10	OMEGA	DW	70	- 810
*	A 3+	3P3 2D	3P3 2P	15	E3=0.0.0.05.0,10	OMEGA	CC	70	- 750
*	A 3+	3P3 4S	3P3 2P1/2	15	EP3=0.0.0.05.0.1	OMEGA	CC	70	- 750
*	A 3+	3P3 4S	3P3 2P3/2	15	EP3=0.0.0.05.0.1	OMEGA	CC	70	- 750
*	A 3+	3P3 4S	3P3 2D3/2	15	EP3=-DEP - 0.1	OMEGA	CC	70	- 750
*	A 3+	3P3 4S	3P3 2D5/2	15	EP3=-DEP - 0.1	OMEGA	CC	70	- 750
*	A 3+	3P3 2P1/2	3P3 2P3/2	15	X =1.0	OMEGA	CBO	69	- 630
*	A 3+	3P3 2P1/2	3P3 2P3/2	15	EP3=0.0.0.05.0.1	OMEGA	CC	70	- 750
*	A 3+	3P3 2P1/2	3P3 2P3/2	15	E3=0.0.0.05.0.10	OMEGA	DW	70	- 810
*	A 3+	3P3 2D3/2	3P3 2P1/2	15	EP3=0.0.0.05.0.1	OMEGA	CC	70	- 750
*	A 3+	3P3 2D3/2	3P3 2P3/2	15	EP3=0.0.0.05.0.1	OMEGA	CC	70	- 750
*	A 3+	3P3 2D3/2	3P3 2D5/2	15	EP3=-DEP - 0.1	OMEGA	CC	70	- 750
*	A 3+	3P3 2D3/2	3P3 2D5/2	15	E3=0.0.0.05.0.10	OMEGA	DW	70	- 810
*	A 3+	3P3 2D3/2	3P3 2P1/2	15	E3=0.0.0.05.0.10	OMEGA	DW	70	- 810
*	A 3+	3P3 2D3/2	3P3 2P3/2	15	EP3=0.0.0.05.0.1	OMEGA	CC	70	- 750
*	A 3+	3P3 2D5/2	3P3 2P1/2	15	EP3=0.0.0.05.0.1	OMEGA	CC	70	- 750
*	A 3+	3P3 2D5/2	3P3 2P3/2	15	EP3=0.0.0.05.0.1	OMEGA	CC	70	- 750
*	A 3+	3P3 2D5/2	3P3 2PJ	15	E3=0.0.0.05.0.10	OMEGA	DW	70	- 810
*	A 2+	3P4 3P	3P4 1S	16	RY3=0.0005	OMEGA	ER+DW	67	- 540
*	A 2+	3P4 3P	3P4 1D	16	RY3=0.0005	OMEGA	ER+DW	67	- 540
*	A 2+	3P4 3P	3P4 1D	16	E3=0.0.0.05.0.10	OMEGA	DW	70	- 810
*	A 2+	3P4 1D	3P4 1S	16	RY3=0.0005	OMEGA	ER+DW	67	- 540
*	A 2+	3P4 3P0	3P4 3P1	16	X =1.0	OMEGA	CBO	69	- 630
*	A 2+	3P4 3P0	3P4 3P2	16	X =1.0	OMEGA	CB	68	- 590
*	A 2+	3P4 3P0	3P4 3P2	16	X =1.0	OMEGA	DW	68	- 590
*	A 2+	3P4 3P0	3P4 3P2	16	X =1.0	OMEGA	CBO	69	- 630
*	A 2+	3P4 3P1	3P4 3P0	16	E3=0.0.0.05.0.10	OMEGA	DW	70	- 810
*	A 2+	3P4 3P1	3P4 3P1	16	X =1.0	OMEGA	CBO	69	- 630
*	A 2+	3P4 3P2	3P4 3P1	16	X =1.0	OMEGA	DW	70	- 810
*	A +	3P5 2P1/2	3P5 2P3/2	17	X =1.0	OMEGA	CB	68	- 590
*	A +	3P5 2P1/2	3P5 2P3/2	17	X =1.0	OMEGA	DW	68	- 590
*	A +	3P5 2P1/2	3P5 2P3/2	17	X =1.0	OMEGA	CBO	69	- 630
*	A +	3P5 2P1/2	3P5 2P3/2	17	E =0.0.0.05.0.10	OMEGA	DW	70	- 810
*	A +	3P5 2P3/2	3P4(1D)4P 2F5/2	17	RY=2.0 - 5.0	CS	DW	73	- 970
*	A +	3P5 2P3/2	3P4(1D)4P 2F7/2	17	RY=2.0 - 5.0	CS	DW	73	- 970
*	A +	3P5 2P3/2	3P4(1D)4P 2P3/2	17	RY=2.0 - 5.0	CS	DW	73	- 970
*	A +	3P5 2P3/2	3P4(1D)4P 2P1/2	17	RY=2.0 - 5.0	CS	DW	73	- 970
*	A +	3P5 2P3/2	3P4(1D)4P 2D5/2	17	RY=2.0 - 5.0	CS	DW	73	- 970
*	A +	3P5 2P3/2	3P4(1D)4P 2D3/2	17	RY=2.0 - 5.0	CS	DW	73	- 970
*	A +	3P5 2P3/2	3P4(3P)4P 4P5/2	17	RY=2.0 - 5.0	CS	DW	73	- 970
*	A +	3P5 2P3/2	3P4(3P)4P 4P3/2	17	RY=2.0 - 5.0	CS	DW	73	- 970
*	A +	3P5 2P3/2	3P4(3P)4P 4P1/2	17	RY=2.0 - 5.0	CS	DW	73	- 970

*	ION	TRANSITION	NUMBER E.	ENERGY RANGE	DATA	METHOD	YEAR	REF.	*
*	A +	3P5 2P3/2	3P4(3P)4P 4D1/2	17 RY=2.0 - 5.0	CS	DW	73	-	970 *
*	A +	3P5 2P3/2	3P4(3P)4P 4D1/2	17 RY=2.0 - 5.0	CS	DW	73	-	970 *
*	A +	3P5 2P3/2	3P4(3P)4P 4D5/2	17 RY=2.0 - 5.0	CS	DW	73	-	970 *
*	A +	3P5 2P3/2	3P4(3P)4P 4D3/2	17 RY=2.0 - 5.0	CS	DW	73	-	970 *
*	A +	3P5 2P3/2	3P4(3P)4P 2D5/2	17 RY=2.0 - 5.0	CS	DW	73	-	970 *
*	A +	3P5 2P3/2	3P4(3P)4P 2D3/2	17 RY=2.0 - 5.0	CS	DW	73	-	970 *
*	A +	3P5 2P3/2	3P4(3P)4P 2P1/2	17 RY=2.0 - 5.0	CS	DW	73	-	970 *
*	A +	3P5 2P3/2	3P4(3P)4P 2P3/2	17 RY=2.0 - 5.0	CS	DW	73	-	970 *
*	A +	3P5 2P3/2	3P4(3P)4P 4S3/2	17 RY=2.0 - 5.0	CS	DW	73	-	970 *
*	K 15+	2S2P 3P0	2S2P 3P2	4 X =1.0	OMEGA	CB	68	-	590 *
*	K 14+	2S2 2P 2P1/2	2S2 2P 2P3/2	5 X =1.0	OMEGA	CB	68	-	590 *
*	K 13+	2P2 3P0	2P2 3P2	6 X =1.0	OMEGA	CB	68	-	590 *
*	K 13+	2P2 3P0	2P2 3P2	6 X =1.0	OMEGA	DW	68	-	590 *
*	K 11+	2P4 3P0	2P4 3P2	8 X =1.0	OMEGA	CB	68	-	590 *
*	K 10+	2P5 2P1/2	2P5 2P3/2	9 X =1.0	OMEGA	CB	68	-	590 *
*	K 7+	3S3P 3P0	3S3P 3P2	12 X =1.0	OMEGA	CB	68	-	590 *
*	K 6+	3P 2P1/2	3P 2P3/2	13 X =1.0	OMEGA	CB	68	-	590 *
*	K 6+	3P 2P1/2	3P 2P3/2	13 X =1.0	OMEGA	CBO	69	-	630 *
*	K 6+	3P 2P1/2	3P 2P3/2	13 E3=0.0,0.05,0.10	OMEGA	DW	70	-	810 *
*	K 5+	3P2 3P	3P2 1S	14 RY3=0.0005 .	OMEGA	ER+DW	67	-	540 *
*	K 5+	3P2 3P	3P2 1S	14 E3=0.0	OMEGA	DW	70	-	810 *
*	K 5+	3P2 3P	3P2 1D	14 RY3=0.0005	OMEGA	ER+DW	67	-	540 *
*	K 5+	3P2 3P	3P2 1D	14 E3=0.0,0.05,0.10	OMEGA	DW	70	-	810 *
*	K 5+	3P2 1D	3P2 1S	14 RY3=0.0005	OMEGA	ER+DW	67	-	540 *
*	K 5+	3P2 1D	3P2 1S	14 E3=0.0	OMEGA	DW	70	-	810 *
*	K 5+	3P2 3P0	3P2 3P1	14 X =1.0	OMEGA	CBO	69	-	630 *
*	K 5+	3P2 3P0	3P2 3P1	14 E3=0.0	OMEGA	DW	70	-	810 *
*	K 5+	3P2 3P0	3P2 3P2	14 X =1.0	OMEGA	CB	68	-	590 *
*	K 5+	3P2 3P0	3P2 3P2	14 X =1.0	OMEGA	DW	68	-	590 *
*	K 5+	3P2 3P0	3P2 3P2	14 X =1.0	OMEGA	CBO	69	-	630 *
*	K 5+	3P2 3P0	3P2 3P2	14 E3=0.0	OMEGA	DW	70	-	810 *
*	K 5+	3P2 3P1	3P2 3P2	14 X =1.0	OMEGA	CBO	69	-	630 *
*	K 5+	3P2 3P1	3P2 3P2	14 E3=0.0	OMEGA	DW	70	-	810 *
*	K 4+	3P3 4S	3P3 2P	15 RY3=0.0005	OMEGA	DW	67	-	530 *
*	K 4+	3P3 4S	3P3 2P	15 E3=0.0	OMEGA	DW	70	-	810 *
*	K 4+	3P3 4S	3P3 2D	15 RY3=0.0005	OMEGA	DW	67	-	530 *
*	K 4+	3P3 4S	3P3 2D	15 E3=0.0	OMEGA	DW	70	-	810 *
*	K 4+	3P3 4S	3P3 2D	15 RY3=0.0005	OMEGA	DW	67	-	530 *
*	K 4+	3P3 4S	3P3 2D	15 E3=0.0	OMEGA	DW	70	-	810 *
*	K 4+	3P3 2D	3P3 2P	15 RY3=0.0005	OMEGA	DW	67	-	530 *
*	K 4+	3P3 2D	3P3 2P	15 E3=0.0	OMEGA	DW	70	-	810 *
*	K 4+	3P3 2D	3P3 2P1/2	15 EP3=0.0,0.05,0.1	OMEGA	CC	70	-	750 *
*	K 4+	3P3 2D	3P3 2P3/2	15 EP3=0.0,0.05,0.1	OMEGA	CC	70	-	750 *
*	K 4+	3P3 4S	3P3 2D3/2	15 EP3=-DEP - 0.1	OMEGA	CC	70	-	750 *
*	K 4+	3P3 4S	3P3 2D5/2	15 EP3=-DEP - 0.1	OMEGA	CC	70	-	750 *
*	K 4+	3P3 2P1/2	3P3 2P3/2	15 X =1.0	OMEGA	CBO	69	-	630 *
*	K 4+	3P3 2P1/2	3P3 2P3/2	15 EP3=0.0,0.05,0.1	OMEGA	CC	70	-	750 *
*	K 4+	3P3 2P1/2	3P3 2P3/2	15 E3=0.0	OMEGA	DW	70	-	810 *
*	K 4+	3P3 2D3/2	3P3 2P1/2	15 EP3=0.0,0.05,0.1	OMEGA	CC	70	-	750 *
*	K 4+	3P3 2D3/2	3P3 2P3/2	15 EP3=0.0,0.05,0.1	OMEGA	CC	70	-	750 *
*	K 4+	3P3 2D3/2	3P3 2D5/2	15 EP3=-DEP - 0.1	OMEGA	CC	70	-	750 *
*	K 4+	3P3 2D3/2	3P3 2D5/2	15 E3=0.0	OMEGA	DW	70	-	810 *
*	K 4+	3P3 2D3/2	3P3 2D5/2	15 E3=0.0	OMEGA	DW	70	-	810 *
*	K 4+	3P3 2D3/2	3P3 2P	15 E3=0.0	OMEGA	DW	70	-	810 *
*	K 4+	3P3 2D3/2	3P3 2P	15 EP3=0.0,0.05,0.1	OMEGA	CC	70	-	750 *
*	K 4+	3P3 2D3/2	3P3 2P	15 EP3=0.0,0.05,0.1	OMEGA	CC	70	-	750 *
*	K 4+	3P3 2D5/2	3P3 2P1/2	15 EP3=0.0,0.05,0.1	OMEGA	CC	70	-	750 *
*	K 4+	3P3 2D5/2	3P3 2P3/2	15 EP3=0.0,0.05,0.1	OMEGA	CC	70	-	750 *
*	K 4+	3P3 2D5/2	3P3 2P	15 E3=0.0	OMEGA	DW	70	-	810 *
*	K 3+	3P4 3P	3P4 1D	16 RY3=0.0005	OMEGA	ER+DW	67	-	540 *
*	K 3+	3P4 3P	3P4 1D	16 E3=0.0,0.05,0.10	OMEGA	DW	70	-	810 *
*	K 3+	3P4 3P	3P4 1S	16 RY3=0.0005	OMEGA	ER+DW	67	-	540 *
*	K 3+	3P4 1D	3P4 1S	16 RY3=0.0005	OMEGA	ER+DW	67	-	540 *
*	K 3+	3P4 3P0	3P4 3P2	16 X =1.0	OMEGA	CB	68	-	590 *
*	K 3+	3P4 3P0	3P4 3P2	16 X =1.0	OMEGA	DW	68	-	590 *
*	K 3+	3P4 3P0	3P4 3P2	16 X =1.0	OMEGA	CBO	69	-	630 *
*	K 3+	3P4 3P0	3P4 3P1	16 X =1.0	OMEGA	CBO	69	-	630 *
*	K 3+	3P4 3P1	3P4 3P0	16 E3=0.0,0.05,0.10	OMEGA	DW	70	-	810 *
*	K 3+	3P4 3P1	3P4 3P2	16 X =1.0	OMEGA	CBO	69	-	630 *
*	K 3+	3P4 3P2	3P4 3P1	16 X =1.0	OMEGA	DW	70	-	810 *
*	K 2+	3P5 2P1/2	3P5 2P3/2	17 X =1.0	OMEGA	CB	68	-	590 *
*	K 2+	3P5 2P1/2	3P5 2P3/2	17 X =1.0	OMEGA	CBO	69	-	630 *
*	K 2+	3P5 2P1/2	3P5 2P3/2	17 X =1.0	OMEGA	CBO	69	-	630 *
*	K 2+	3P5 2P1/2	3P5 2P3/2	17 E =0.0,0.05,0.10	OMEGA	DW	70	-	810 *
*	CA 19+	1S2 1S	2S	1 X =1.0 - 26.67	OMEGA	DW	77	-	1530 *
*	CA 18+	1S2 1S	1S2S 1S	2 RY=288,400	CS	DWPOLI	77	-	1510 *
*	CA 18+	1S2 1S	1S2S 1S	2 RY=288,400,600	CS	CB	77	-	1520 *
*	CA 18+	1S2 1S	1S2S 3S	2 RY=288,400,600	CS	DW	77	-	1520 *
*	CA 18+	1S2 1S	1S2P 1P	2 RY=288,400	CS	DW	77	-	1520 *
*	CA 18+	1S2 1S	1S2P 1P	2 RY=288,400,600	CS	DW	77	-	1520 *
*	CA 18+	1S2 1S	1S2P 1P	2 RY=288,400,600	CS	CB	77	-	1520 *
*	CA 18+	1S2 1S	1S2P 3P	2 RY=288,400,600	CS	DW	77	-	1520 *
*	CA 18+	1S2S 3S	1S2P 3P	2 T =6.0 - 25.0*10(6)	RATE	CB	71	-	882 *
*	CA 18+	1S?P 3P	1S2P 1P	2 RY=288,400	OMEGA	DW	74	-	1091 *
*	CA 18+	1S2 1S0	1S2S 1S0	2 RY=288,400	OMEGA	DW	74	-	1091 *
*	CA 18+	1S2 1S0	1S2S 3S1	2 RY=288,400	OMEGA	DW	74	-	1091 *
*	CA 18+	1S2 1S0	1S2P 1P1	2 RY=288,400	OMEGA	DW	74	-	1091 *
*	CA 18+	1S2 1S0	1S2P 3PJ	2 RY=288,400	OMEGA	DW	74	-	1091 *

*	ION	TRANSITION	NUMBER	E.	ENERGY RANGE	DATA	METHOD	YEAR	REF.	*
*	CA 18+	1S2S 3S0	1S2P 1P1	2	RY=400	OMEGA	DW	74	-	1091 *
*	CA 18+	1S2S 3S1	1S2S 1S0	2	RY=288,400	OMEGA	DW	74	-	1091 *
*	CA 18+	1S2S 3S1	1S2P 1P1	2	RY=400	OMEGA	DW	74	-	1091 *
*	CA 18+	1S2S 3S1	1S2P 3PJ	2	RY=400	OMEGA	DW	74	-	1091 *
*	CA 18+	1S2P 3P0	1S2S 1S0	2	RY=400	OMEGA	DW	74	-	1091 *
*	CA 18+	1S2P 3P0	1S2P 3P1	2	RY=400	OMEGA	DW	74	-	1091 *
*	CA 18+	1S2P 3P0	1S2P 3P2	2	RY=400	OMEGA	DW	74	-	1091 *
*	CA 18+	1S2P 3P1	1S2S 1S0	2	RY=400	OMEGA	DW	74	-	1091 *
*	CA 18+	1S2P 3P2	1S2S 1S0	2	RY=400	OMEGA	DW	74	-	1091 *
*	CA 16+	2S2 1S0	2S2P 1P1	4		G	DW	76	-	1330 *
*	CA 16+	2S2P 3P0	2S2P 3P2	4	X =1.0	OMEGA	CB	68	-	590 *
*	CA 15+	2S2 2P 2P1/2	2S2 2P 2P3/2	5	X =1.0	OMEGA	CB	68	-	590 *
*	CA 14-	2P2 3P	2P2 1D	6	X =1.0	OMEGA	CBB	67	-	500 *
*	CA 14+	2P2 3P0	2P2 3P2	6	X =1.0	OMEGA	CB	68	-	590 *
*	CA 14+	2P2 3P0	2P2 3P1	6	X =1.0	OMEGA	CBO	69	-	630 *
*	CA 14+	2P2 3P1	2P2 3P2	6	X =1.0	OMEGA	CBO	69	-	630 *
*	CA 13+	2P3 2P1/2	2P3 2P3/2	7	X =1.0	OMEGA	CBO	69	-	630 *
*	CA 12+	2P4 3P0	2P4 3P1	8	X =1.0	OMEGA	CBO	69	-	630 *
*	CA 12+	2P4 3P0	2P4 3P2	8	X =1.0	OMEGA	CBO	69	-	630 *
*	CA 12+	2P4 3P1	2P4 3P2	8	X =1.0	OMEGA	CBO	69	-	630 *
*	CA 11+	2P5 2P1/2	2P5 2P3/2	9	X =1.0	OMEGA	CB	68	-	590 *
*	CA 11+	2P5 2P1/2	2P5 2P3/2	9	X =1.0	OMEGA	CBO	69	-	630 *
*	CA 9+	3S	3P	11	X =1 - 16	OMEGA	DWNX	78	-	1610 *
*	CA 9+	3S	3D	11	X =1 8	OMEGA	DWNX	78	-	1610 *
*	CA 9+	3S	4S	11	X =1 4	OMEGA	DWNX	78	-	1610 *
*	CA 9+	3S	4D	11	X =1 3	OMEGA	DWNX	78	-	1610 *
*	CA 9+	3S	4F	11	X =1 3	OMEGA	DWNX	78	-	1610 *
*	CA 9+	4S	4P	11	X =1 - 16	OMEGA	DWNX	78	-	1610 *
*	CA 9+	4S	4D	11	X =1 - 16	OMEGA	DWNX	78	-	1610 *
*	CA 9+	4S	4F	11	X =1 - 16	OMEGA	DWNX	78	-	1610 *
*	CA 9+	3P	3D	11	X =1 16	OMEGA	DWNX	78	-	1610 *
*	CA 9+	3P	4S	11	X =1 4	OMEGA	DWNX	78	-	1610 *
*	CA 9+	3P	4P	11	X =1 4	OMEGA	DWNX	78	-	1610 *
*	CA 9+	3P	4D	11	X =1 4	OMEGA	DWNX	78	-	1610 *
*	CA 9+	3P	4F	11	X =1 4	OMEGA	DWNX	78	-	1610 *
*	CA 9+	4P	4D	11	X =1 - 16	OMEGA	DWNX	78	-	1610 *
*	CA 9+	4P	4F	11	X =1 - 16	OMEGA	DWNX	78	-	1610 *
*	CA 9+	3D	4S	11	X =1 8	OMEGA	DWNX	78	-	1610 *
*	CA 9+	3D	4P	11	X =1 8	OMEGA	DWNX	78	-	1610 *
*	CA 9+	3D	4D	11	X =1 8	OMEGA	DWNX	78	-	1610 *
*	CA 9+	3D	4F	11	X =1 8	OMEGA	DWNX	78	-	1610 *
*	CA 9+	4D	4F	11	X =1 - 16	OMEGA	DWNX	78	-	1610 *
*	CA 9+	3S 2S1/2	3P 2PJ	11	RY=1.7,4,1,6,0	OMEGA	DW	75	-	1241 *
*	CA 9+	3S 2S1/2	3P 2P3/2	11		G	DW	76	-	1330 *
*	CA 9+	3S 2S1/2	3D 2DJ	11	RY=4,1,6,0	OMEGA	DW	75	-	1241 *
*	CA 9+	3P 2P1/2	3P 2P3/2	11	RY=1.7,4,1,6,0	OMEGA	DW	75	-	1241 *
*	CA 9+	3P 2P1/2	3D 2DJ	11	RY=4,1,6,0	OMEGA	DW	75	-	1241 *
*	CA 9+	3P 2P3/2	3D 2DJ	11	RY=4,1,6,0	OMEGA	DW	75	-	1241 *
*	CA 9+	3D 2D3/2	3D 2D5/2	11	RY=4,1,6,0	OMEGA	DW	75	-	1241 *
*	CA 8+	3S2 1S0	3S3P 1P1	12		G	DW	76	-	1330 *
*	CA 8+	3S3P 3P0	3S3P 3P2	12	X =1.0	OMEGA	CB	68	-	590 *
*	CA 7+	3P 2P1/2	3P 2P3/2	13	X =1.0	OMEGA	CB	68	-	590 *
*	CA 7+	3P 2P1/2	3P 2P3/2	13	E3=0.0,0.05,0.10	OMEGA	DW	70	-	810 *
*	CA 6+	3P2 3P	3P2 1S	14	RY3=0.0005	OMEGA	ER+DW	67	-	540 *
*	CA 6+	3P2 3P	3P2 1S	14	E3=0.0	OMEGA	DW	70	-	810 *
*	CA 6+	3P2 3P	3P2 1D	14	X =1.0	OMEGA	CBB	67	-	500 *
*	CA 6+	3P2 3P	3P2 1D	14	RY3=0.0005	OMEGA	ER+DW	67	-	540 *
*	CA 6+	3P2 3P	3P2 1D	14	E3=0.0	OMEGA	DW	70	-	810 *
*	CA 6+	3P2 1D	3P2 1S	14	RY3=0.0005	OMEGA	ER+DW	67	-	540 *
*	CA 6+	3P2 1D	3P2 1S	14	E3=0.0	OMEGA	DW	70	-	810 *
*	CA 6+	3P2 3P0	3P2 3P1	14	E3=0.0	OMEGA	DW	70	-	810 *
*	CA 6+	3P2 3P0	3P2 3P2	14	X =1.0	OMEGA	CB	68	-	590 *
*	CA 6+	3P2 3P0	3P2 3P2	14	E3=0.0	OMEGA	DW	70	-	810 *
*	CA 6+	3P2 3P1	3P2 3P2	14	E3=0.0	OMEGA	DW	70	-	810 *
*	CA 5+	3P3 4S	3P3 2P	15	RY3=0.0005	OMEGA	DW	67	-	530 *
*	CA 5+	3P3 4S	3P3 2P	15	E3=0.0	OMEGA	DW	70	-	810 *
*	CA 5+	3P3 4S	3P3 2D	15	RY3=0.0005	OMEGA	DW	67	-	530 *
*	CA 5+	3P3 4S	3P3 2D	15	E3=0.0	OMEGA	DW	70	-	810 *
*	CA 5+	3P3 2D	3P3 2P	15	RY3=0.0005	OMEGA	DW	67	-	530 *
*	CA 5+	3P3 2D	3P3 2P	15	E3=0.0	OMEGA	DW	70	-	810 *
*	CA 5+	3P3 4S	3P3 2P1/2	15	EP3=0.0,0.05,0.1	OMEGA	CC	70	-	750 *
*	CA 5+	3P3 4S	3P3 2P3/2	15	EP3=0.0,0.05,0.1	OMEGA	CC	70	-	750 *
*	CA 5+	3P3 4S	3P3 2D3/2	15	EP3=-DEP - 0.1	OMEGA	CC	70	-	750 *
*	CA 5+	3P3 4S	3P3 2D5/2	15	EP3=-DEP - 0.1	OMEGA	CC	70	-	750 *
*	CA 5+	3P3 2P1/2	3P3 2P3/2	15	X =1.0	OMEGA	CBO	69	-	630 *
*	CA 5+	3P3 2P1/2	3P3 2P3/2	15	EP3=0.0,0.05,0.1	OMEGA	CC	70	-	750 *
*	CA 5+	3P3 2P1/2	3P3 2P3/2	15	E3=0.0	OMEGA	DW	70	-	810 *
*	CA 5+	3P3 2D3/2	3P3 2P1/2	15	EP3=0.0,0.05,0.1	OMEGA	CC	70	-	750 *
*	CA 5+	3P3 2D3/2	3P3 2P3/2	15	EP3=0.0,0.05,0.1	OMEGA	CC	70	-	750 *
*	CA 5+	3P3 2D3/2	3P3 2P3/2	15	EP3=0.0,0.05,0.1	OMEGA	DW	70	-	810 *
*	CA 5+	3P3 2D3/2	3P3 2P1/2	15	E3=0.0	OMEGA	CC	70	-	750 *

*	ION	TRANSITION	NUMBER	E,	ENERGY RANGE	DATA	METHOD	YEAR	REF.	
*	CA 5+	3P3 2D3/2	3P3 2D5/2	15	E3=0,0	OMEGA	DW	70	-	810
*	CA 5+	3P3 2D5/2	3P3 2P1/2	15	EP3=0,0,0.05,0,1	OMEGA	CC	70	-	750
*	CA 5+	3P3 2D5/2	3P3 2P3/2	15	EP3=0,0,0.05,0,1	OMEGA	CC	70	-	750
*	CA 5+	3P3 2D5/2	3P3 2PJ	15	E3=0,0	OMEGA	DW	70	-	810
*	CA 4+	3P4 3P	3P4 1S	16	RY3=0,0005	OMEGA	ER+DW	67	-	540
*	CA 4+	3P4 3P	3P4 1D	16	RY3=0,0005	OMEGA	ER+DW	67	-	540
*	CA 4+	3P4 3P	3P4 1D	16	E3=0,0	OMEGA	DW	70	-	810
*	CA 4+	3P4 1D	3P4 1S	16	RY3=0,0005	OMEGA	ER+DW	67	-	540
*	CA 4+	3P4 3P0	3P4 3P1	16	X =1,0	OMEGA	CBO	69	-	630
*	CA 4+	3P4 3P0	3P4 3P2	16	X =1,0	OMEGA	CB	68	-	590
*	CA 4+	3P4 3P0	3P4 3P2	16	X =1,0	OMEGA	DW	68	-	590
*	CA 4+	3P4 3P0	3P4 3P2	16	X =1,0	OMEGA	CBO	69	-	630
*	CA 4+	3P4 3P1	3P4 3P0	16	E3=0,0	OMEGA	DW	70	-	810
*	CA 4+	3P4 3P1	3P4 3P2	16	X =1,0	OMEGA	CBO	69	-	630
*	CA 4+	3P4 3P2	3P4 3P1	16	E3=0,0	OMEGA	DW	70	-	810
*	CA 3+	3P5 2P1/2	3P5 2P3/2	17	X =1,0	OMEGA	CB	68	-	590
*	CA 3+	3P5 2P1/2	3P5 2P3/2	17	X =1,0	OMEGA	DW	68	-	590
*	CA 3+	3P5 2P1/2	3P5 2P3/2	17	X =1,0	OMEGA	CBO	69	-	630
*	CA 3+	3P5 2P1/2	3P5 2P3/2	17	E =0,0,0.05,0,10	OMEGA	DW	70	-	810
*	CA +	2S	2D	19	RY=0.25 - 0.70	OMEGA	CC	70	-	860
*	CA +	2S	2D	19	RY=0.212 - 0.143	OMEGA	CC	70	-	860
*	CA +	4S	5S	19	X =1,0,2,0	OMEGA	CBI	73	-	1030
*	CA +	4S	5S	19	X =2,0 - INF	OMEGA	B	73	-	1030
*	CA +	4S	6S	19	X =1,0,2,0	OMEGA	CBI	73	-	1030
*	CA +	4S	6S	19	X =2,0 - INF	OMEGA	B	73	-	1030
*	CA +	4S	7S	19	X =1,0,2,0	OMEGA	CBI	73	-	1030
*	CA +	4S	7S	19	X =2,0 - INF	OMEGA	B	73	-	1030
*	CA +	4S	8S	19	X =1,0,2,0	OMEGA	CBI	73	-	1030
*	CA +	4S	8S	19	X =2,0 - INF	OMEGA	B	73	-	1030
*	CA +	4S	9S	19	X =1,0,2,0	OMEGA	CBI	73	-	1030
*	CA +	4S	9S	19	X =2,0 - INF	OMEGA	B	73	-	1030
*	CA +	4S	10S	19	X =1,0,2,0	OMEGA	CBI	73	-	1030
*	CA +	4S	10S	19	X =2,0 - INF	OMEGA	B	73	-	1030
*	CA +	4S	4P	19	RY2=0,0,0,1	OMEGA	CBI	60	-	130
*	CA +	4S	4P	19	RY2=0,0,0,1	OMEGA	CBII	60	-	130
*	CA +	4S	4P	19	RY2=0,0,0,1	OMEGA	CB'II	60	-	130
*	CA +	4S	4P	19	RY2=0,0,0,1	OMEGA	CB''II	60	-	130
*	CA +	4S	4P	19	RY2=0,0,0,1	OMEGA	CBIII	60	-	140
*	CA +	4S	4P	19	RY2=0,0,0,1	OMEGA	CBII	60	-	140
*	CA +	4S	4P	19	X =1,0,2,0,3,0	OMEGA	CBI	65	-	350
*	CA +	4S	4P	19	X =1,0,2,0,3,0	OMEGA	CBII	65	-	350
*	CA +	4S	4P	19	X =1,0,2,0,3,0	OMEGA	CB'II	65	-	350
*	CA +	4S	4P	19	X =1,0,2,0,3,0	OMEGA	CB''II	65	-	350
*	CA +	4S	4P	19	X =1,0	OMEGA	CBII	65	-	350
*	CA +	4S	4P	19	RY=0.25 - 1.0	CS	CC	68	-	600
*	CA +	4S	4P	19	X =1,0	OMEGA	SCBII	69	-	640
*	CA +	4S	4P	19	X =1,0	OMEGA	SCBII	69	-	640
*	CA +	4S	4P	19	X =1,0	OMEGA	CBI	69	-	640
*	CA +	4S	4P	19	X =1,0	OMEGA	CBI	69	-	640
*	CA +	4S	4P	19	EV=3,3 - 54,4	CS	CBI	78	-	1600
*	CA +	4S	4P	19	EV=3,3 - 54,4	CS	CBII	78	-	1600
*	CA +	4S	4P	19	EV=3,3 - 108,8	CS	CBOI	78	-	1600
*	CA +	4S	4P	19	EV=3,3 - 108,8	CS	CBOII	78	-	1600
*	CA +	4S	4P	19	EV=3,3 - 108,8	CS	DWPOII	78	-	1600
*	CA +	4S	4P	19	EV=3,3 - 108,8	CS	UDWPOII	78	-	1600
*	CA +	4S	5P	19	X =1,0,2,0	OMEGA	CBI	73	-	1030
*	CA +	4S	5P	19	X =2,0 - INF	OMEGA	B	73	-	1030
*	CA +	4S	6P	19	X =1,0,2,0	OMEGA	CBI	73	-	1030
*	CA +	4S	6P	19	X =2,0 - INF	OMEGA	B	73	-	1030
*	CA +	4S	7P	19	X =1,0,2,0	OMEGA	CBI	73	-	1030
*	CA +	4S	7P	19	X =2,0 - INF	OMEGA	B	73	-	1030
*	CA +	4S	8P	19	X =1,0,2,0	OMEGA	CBI	73	-	1030
*	CA +	4S	9P	19	X =1,0,2,0	OMEGA	CBI	73	-	1030
*	CA +	4S	9P	19	X =2,0 - INF	OMEGA	B	73	-	1030
*	CA +	4S	10P	19	X =1,0,2,0	OMEGA	CBI	73	-	1030
*	CA +	4S	10P	19	X =2,0 - INF	OMEGA	B	73	-	1030
*	CA +	4S	3D	19	R2=1,062,0,2062	CS	CBI	61	-	180
*	CA +	4S	3D	19	R2=1,062	CS	CB'	61	-	180
*	CA +	4S	3D	19	X =1,85,3,70,5,55	OMEGA	CBII	65	-	350
*	CA +	4S	3D	19	X =1,85,3,70,5,55	OMEGA	CB'II	65	-	350
*	CA +	4S	3D	19	X =1,85,3,70,5,55	OMEGA	CB''II	65	-	350
*	CA +	4S	3D	19	E =BLOW, ABOVE 4P	OMEGA	CB	66	-	420
*	CA +	4S	3D	19	RY=0,25 - 1,0	CS	CC	68	-	600
*	CA +	4S	5D	19	X =1,0,2,0	OMEGA	CBII	73	-	1030
*	CA +	4S	5D	19	X =2,0 - INF	OMEGA	B	73	-	1030
*	CA +	4S	6D	19	X =1,0,2,0	OMEGA	CBII	73	-	1030
*	CA +	4S	6D	19	X =2,0 - INF	OMEGA	B	73	-	1030
*	CA +	4S	7D	19	X =1,C-2,0	OMEGA	CBI	73	-	1030
*	CA +	4S	7D	19	X =2,0 - INF	OMEGA	B	73	-	1030
*	CA +	4S	8D	19	X =1,0,2,0	OMEGA	CBII	73	-	1030
*	CA +	4S	8D	19	X =2,0 - INF	OMEGA	B	73	-	1030
*	CA +	4S	9D	19	X =1,0,2,0	OMEGA	CBII	73	-	1030
*	CA +	4S	9D	19	X =2,0 - INF	OMEGA	B	73	-	1030
*	CA +	4S	10D	19	X =1,0,2,0	OMEGA	CBI	73	-	1030

*	ION	TRANSITION	NUMBER	E.	ENERGY RANGE	DATA	METHOD	YEAR	REF.	*		
*	CA +	4S	10D	19	X =2.0 - INF	OMEGA	B	73	-	1030 *		
*	CA +	4S	5F	19	X =1.0-2.0	OMEGA	CBI	73	-	1030 *		
*	CA +	4S	5F	19	X =2.0 - INF	OMEGA	B	73	-	1030 *		
*	CA +	4S	6F	19	X =1.0-2.0	OMEGA	CBI	73	-	1030 *		
*	CA +	4S	6F	19	X =2.0 - INF	OMEGA	B	73	-	1030 *		
*	CA +	4S	7F	19	X =1.0-2.0	OMEGA	CBI	73	-	1030 *		
*	CA +	4S	7F	19	X =2.0 - INF	OMEGA	B	73	-	1030 *		
*	CA +	4S	8F	19	X =1.0-2.0	OMEGA	CBI	73	-	1030 *		
*	CA +	4S	8F	19	X =2.0 - INF	OMEGA	B	73	-	1030 *		
*	CA +	4S	9F	19	X =1.0-2.0	OMEGA	CBI	73	-	1030 *		
*	CA +	4S	9F	19	X =2.0 - INF	OMEGA	B	73	-	1030 *		
*	CA +	4S	10F	19	X =1.0-2.0	OMEGA	CBI	73	-	1030 *		
*	CA +	4S	10F	19	X =2.0 - INF	OMEGA	B	73	-	1030 *		
*	CA +	3D	4P	19	RY2=0.0,0.1	OMEGA	CBI	60	-	130 *		
*	CA +	3D	4P	19	RY2=0.0,0.1	OMEGA	CBI	60	-	130 *		
*	CA +	3D	4P	19	RY2=0.0,0.1	OMEGA	CBI	60	-	130 *		
*	CA +	3D	4P	19	RY2=0.0,0.1	OMEGA	CBI	60	-	140 *		
*	CA +	3D	4P	19	RY2=0.0,0.1	OMEGA	CBI	60	-	140 *		
*	CA +	3D	4P	19	X =1.0	OMEGA	CBI	65	-	350 *		
*	CA +	3D	4P	19	X =1.0-3.18-5.36	OMEGA	CBI	65	-	350 *		
*	CA +	3D	4P	19	X =1.0-3.18-5.36	OMEGA	CBI	65	-	350 *		
*	CA +	3D	4P	19	X =1.0-3.18-5.36	OMEGA	CBI	65	-	350 *		
*	CA +	3D	4P	19	X =1.0	OMEGA	SCB	69	-	640 *		
*	CA +	3D	4P	19	X =1.0	OMEGA	SCBII	69	-	640 *		
*	CA +	3D	4P	19	X =1.0	OMEGA	CBI	69	-	640 *		
*	CA +	3D	4P	19	X =1.0	OMEGA	CBI	69	-	640 *		
*	CA +	4S	2S1/2	4P	2P1/2	RY=0.3	CS	DWCB	54	-	80 *	
*	CA +	4S	2S1/2	4P	2P1/2	RY2=0.0,0.1	OMEGA	CBI	60	-	130 *	
*	CA +	4S	2S1/2	4P	2P3/2	RY=0.3	CS	DWCB	54	-	80 *	
*	CA +	4S	2S1/2	4P	2P3/2	RY2=0.0,0.1	OMEGA	CBI	60	-	130 *	
*	CA +	4S	2S1/2	4P	2P3/2	X =1 - 300	OMEGA	CBI	74	-	1131 *	
*	CA +	4S	2S1/2	4P	2P3/2	X =1 - 300	OMEGA	CBI	74	-	1131 *	
*	CA +	4S	2S1/2	4P	2P3/2	X =1 - 300	OMEGA	CBI	74	-	1131 *	
*	CA +	4S	2S1/2	4P	2P3/2	X =1 - 300	OMEGA	CBI	74	-	1131 *	
*	CA +	4S	2S1/2	4P	2P3/2	X =1 - 300	OMEGA	CBI	74	-	1131 *	
*	CA +	4S	2S1/2	4P	2P3/2	X =1 - 300	OMEGA	CBI	74	-	1131 *	
*	CA +	4S	2S1/2	4P	2P3/2	X =1 - 300	OMEGA	CBI	74	-	1131 *	
*	CA +	4S	2S1/2	4P	2P3/2	X =1 - 300	OMEGA	CBI	74	-	1131 *	
*	CA +	4P	2P1/2	4P	2P3/2	RY=0.25 - 0.70	OMEGA	CC	70	-	860 *	
*	CA +	3D	2D3/2	4P	2P1/2	RY=0.25 - 0.70	OMEGA	CC	70	-	860 *	
*	CA +	3D	2D3/2	4P	2P3/2	RY=0.25 - 0.70	OMEGA	CC	70	-	860 *	
*	CA +	3D	2D3/2	3D	2D5/2	RY=0.25 - 0.70	OMEGA	CC	70	-	860 *	
*	CA +	3D	2D3/2	3D	2D5/2	RY=0.212 - 0.143	OMEGA	CC	70	-	860 *	
*	CA +	3D	2D5/2	4P	2P1/2	RY=0.25 - 0.70	OMEGA	CC	70	-	860 *	
*	CA +	3D	2D5/2	4P	2P3/2	RY=0.25 - 0.70	OMEGA	CC	70	-	860 *	
*	SC 15+	2P2	3P0	2P2	3P2	6	X =1.0	OMEGA	CB	68	-	590 *
*	SC 13+	2P4	3P0	2P4	3P2	8	X =1.0	OMEGA	CB	68	-	590 *
*	SC 13+	2P4	3P0	2P4	3P2	8	X =1.0	OMEGA	DW	68	-	590 *
*	SC 12+	2P5	2P1/2	2P5	2P3/2	9	X =1.0	OMEGA	CB	68	-	590 *
*	SC 9+	3S3P	3P0	3S3P	3P2	12	X =1.0	OMEGA	DW	68	-	590 *
*	SC 9+	3S3P	3P0	3S3P	3P2	12	X =1.0	OMEGA	CB	68	-	590 *
*	SC 8+	3P	2P1/2	3P	2P3/2	13	X =1.0	OMEGA	CB	68	-	590 *
*	SC 7+	3P2	3P0	3P2	3P2	14	X =1.0	OMEGA	CB	68	-	590 *
*	SC 6+	3P3	2P1/2	3P3	2P3/2	15	X =1.0	OMEGA	CBO	69	-	630 *
*	SC 5+	3P4	3P0	3P4	3P1	16	X =1.0	OMEGA	CBO	69	-	630 *
*	SC 5+	3P4	3P0	3P4	3P2	16	X =1.0	OMEGA	CB	68	-	590 *
*	SC 5+	3P4	3P0	3P4	3P2	16	X =1.0	OMEGA	DW	68	-	590 *
*	SC 5+	3P4	3P0	3P4	3P2	16	X =1.0	OMEGA	CBO	69	-	630 *
*	SC 5+	3P4	3P1	3P4	3P2	16	X =1.0	OMEGA	CBO	69	-	630 *
*	SC 4+	3P5	2P1/2	3P5	2P3/2	17	X =1.0	OMEGA	CB	68	-	590 *
*	SC 4+	3P5	2P1/2	3P5	2P3/2	17	X =1.0	OMEGA	DW	68	-	590 *
*	SC 4+	3P5	2P1/2	3P5	2P3/2	17	X =1.0	OMEGA	CBO	69	-	630 *
*	TI 14+	2P4	3P0	2P4	3P1	8	X =1.0	OMEGA	CBO	69	-	630 *
*	TI 14+	2P4	3P0	2P4	3P2	8	X =1.0	OMEGA	CB	68	-	590 *
*	TI 14+	2P4	3P0	2P4	3P2	8	X =1.0	OMEGA	CBO	69	-	630 *
*	TI 14+	2P4	3P1	2P4	3P2	8	X =1.0	OMEGA	CBO	69	-	630 *
*	TI 13+	2P5	2P1/2	2P5	2P3/2	9	X =1.0	OMEGA	CB	68	-	590 *
*	TI 13+	2P5	2P1/2	2P5	2P3/2	9	X =1.0	OMEGA	DW	68	-	590 *
*	TI 13+	2P5	2P1/2	2P5	2P3/2	9	X =1.0	OMEGA	CBO	69	-	630 *
*	TI 10+	3S3P	3P0	3S3P	3P2	12	X =1.0	OMEGA	CB	68	-	590 *
*	TI 9+	3P	2P1/2	3P	2P3/2	13	X =1.0	OMEGA	CB	68	-	590 *
*	TI 9+	3P	2P1/2	3P	2P3/2	13	X =1.0	OMEGA	DW	68	-	590 *
*	TI 9+	3P	2P1/2	3P	2P3/2	13	X =1.0	OMEGA	CBO	69	-	630 *
*	TI 8+	3P2	3P0	3P2	3P2	14	X =1.0	OMEGA	CB	68	-	590 *
*	TI 6+	3P4	3P0	3P4	3P2	16	X =1.0	OMEGA	CB	68	-	590 *
*	TI 5+	3P5	2P1/2	3P5	2P3/2	17	X =1.0	OMEGA	CB	68	-	590 *
*	TI 5+	3P5	2P1/2	3P5	2P3/2	17	X =1.0	OMEGA	DW	68	-	590 *
*	T! 5+	3P5	2P1/2	3P5	2P3/2	17	X =1.0	OMEGA	CBO	69	-	630 *
*	V 15+	2P4	3P0	2P4	3P2	8	X =1.0	OMEGA	CB	68	-	590 *
*	V 14+	2P5	2P1/2	2P5	2P3/2	9	X =1.0	OMEGA	CB	68	-	590 *
*	V 11+	3S3P	3P0	3S3P	3P2	12	X =1.0	OMEGA	CB	68	-	590 *
*	V 10+	3P	2P1/2	3P	2P3/2	13	X =1.0	OMEGA	CB	68	-	590 *
*	V 10+	3P	2P1/2	3P	2P3/2	13	E3=0.0-0.05+0.10	OMEGA	DW	70	-	810 *
*	V 9+	3P2	3P	3P2	1S	14	RY3=0.0005	OMEGA	ER+DW	67	-	540 *
*	V 9+	3P2	3P	3P2	1S	14	E3=0.0	OMEGA	DW	70	-	810 *

*	ION	TRANSITION	NUMBER	E.	ENERGY RANGE	DATA	METHOD	YEAR	REF.	*
*	V 9+	3P2 3P	3P2 1D	14	X =1.0	OMEGA	CBB	67	-	500
*	V 9+	3P2 3P	3P2 1D	14	RY3=0.0005	OMEGA	ER+DW	67	-	540
*	V 9+	3P2 3P	3P2 1D	14	E3=0.0	OMEGA	DW	70	-	810
*	V 9+	3P2 1D	3P2 1S	14	RY3=0.0005	OMEGA	ER+DW	67	-	540
*	V 9+	3P2 1D	3P2 1S	14	E3=0.0	OMEGA	DW	70	-	810
*	V 9+	3P2 3P0	3P2 3P1	14	X =1.0	OMEGA	CBO	69	-	630
*	V 9+	3P2 3P0	3P2 3P1	14	E3=0.0	OMEGA	DW	70	-	810
*	V 9+	3P2 3P0	3P2 3P2	14	X =1.0	OMEGA	CB	68	-	590
*	V 9+	3P2 3P0	3P2 3P2	14	X =1.0	OMEGA	DW	68	-	590
*	V 9+	3P2 3P0	3P2 3P2	14	X =1.0	OMEGA	CBO	69	-	630
*	V 9+	3P2 3P0	3P2 3P2	14	E3=0.0	OMEGA	DW	70	-	810
*	V 9+	3P2 3P1	3P2 3P2	14	X =1.0	OMEGA	CBO	69	-	630
*	V 9+	3P2 3P1	3P2 3P2	14	E3=0.0	OMEGA	DW	70	-	810
*	V 8+	3P3 4S	3P3 2P	15	RY3=0.0005	OMEGA	DW	67	-	530
*	V 8+	3P3 4S	3P3 2P	15	E3=0.0	OMEGA	DW	70	-	810
*	V 8+	3P3 4S	3P3 2D	15	RY3=0.0005	OMEGA	DW	67	-	530
*	V 8+	3P3 4S	3P3 2D	15	E3=0.0	OMEGA	DW	70	-	810
*	V 8+	3P3 2D	3P3 2P	15	RY3=0.0005	OMEGA	DW	67	-	530
*	V 8+	3P3 2D	3P3 2P	15	E3=0.0	OMEGA	DW	70	-	810
*	V 8+	3P3 4S	3P3 2P1/2	15	EP3=0.0..0.05.0.1	OMEGA	CC	70	-	750
*	V 8+	3P3 4S	3P3 2P3/2	15	EP3=0.0..0.05.0.1	OMEGA	CC	70	-	750
*	V 8+	3P3 4S	3P3 2D3/2	15	EP3=-DEP - 0.1'	OMEGA	CC	70	-	750
*	V 8+	3P3 4S	3P3 2D5/2	15	EP3=-DEP - 0.1	OMEGA	CC	70	-	750
*	V 8+	3P3 2P1/2	3P3 2P3/2	15	EP3=0.0..0.05.0.1	OMEGA	CC	70	-	750
*	V 8+	3P3 2P1/2	3P3 2P3/2	15	E3=0.0	OMEGA	DW	70	-	810
*	V 8+	3P3 2D3/2	3P3 2P1/2	15	EP3=0.0..0.05.0.1	OMEGA	CC	70	-	750
*	V 8+	3P3 2D3/2	3P3 2P3/2	15	EP3=-DEP - 0.1	OMEGA	CC	70	-	750
*	V 8+	3P3 2D3/2	3P3 2D5/2	15	E3=0.0	OMEGA	DW	70	-	810
*	V 8+	3P3 2D3/2	3P3 2D5/2	15	EP3=0.0..0.05.0.1	OMEGA	CC	70	-	750
*	V 8+	3P3 2D5/2	3P3 2P1/2	15	EP3=0.0..0.05.0.1	OMEGA	CC	70	-	750
*	V 8+	3P3 2D5/2	3P3 2P3/2	15	EP3=0.0..0.05.0.1	OMEGA	CC	70	-	750
*	V 8+	3P3 2D5/2	3P3 2P3/2	15	E3=0.0	OMEGA	DW	70	-	810
*	V 7+	3P4 3P	3P4 1S	16	RY3=0.0005	OMEGA	ER+DW	67	-	540
*	V 7+	3P4 3P	3P4 1D	16	RY3=0.0005	OMEGA	ER+DW	67	-	540
*	V 7+	3P4 3P	3P4 1D	16	E3=0.0	OMEGA	DW	70	-	810
*	V 7+	3P4 1D	3P4 1S	16	RY3=0.0005	OMEGA	ER+DW	67	-	540
*	V 7+	3P4 3P0	3P4 3P2	16	X =1.0	OMEGA	CB	68	-	590
*	V 7+	3P4 3P1	3P4 3P0	16	E3=0.0	OMEGA	DW	70	-	810
*	V 7+	3P4 3P2	3P4 3P1	16	E3=0.0	OMEGA	DW	70	-	810
*	V 6+	3P5 2P1/2	3P5 2P3/2	17	X =1.0	OMEGA	CB	68	-	590
*	V 6+	3P5 2P1/2	3P5 2P3/2	17	E =0.0..0.05.0.10	OMEGA	DW	70	-	810
*	CR 15+	2P5 2P1/2	2P5 2P3/2	9	X =1.0	OMEGA	CB	68	-	590
*	CR 12+	3S3P 3P0	3S3P 3P2	12	X =1.0	OMEGA	CB	68	-	590
*	CR 11+	3P 2P1/2	3P 2P3/2	13	X =1.0	OMEGA	CB	68	-	590
*	CR 11+	3P 2P1/2	3P 2P3/2	13	E3=0.0..0.05.0.10	OMEGA	DW	70	-	810
*	CR 10+	3P2 3P	3P2 1S	14	RY3=0.0005	OMEGA	ER+DW	67	-	540
*	CR 10+	3P2 3P	3P2 1S	14	E1=0.0	OMEGA	DW	70	-	810
*	CR 10+	3P2 3P	3P2 1D	14	X =1.0	OMEGA	CBB	67	-	500
*	CR 10+	3P2 3P	3P2 1D	14	RY3=0.0005	OMEGA	ER+DW	67	-	540
*	CR 10+	3P2 3P	3P2 1D	14	E3=0.0	OMEGA	DW	70	-	810
*	CR 10+	3P2 1D	3P2 1S	14	RY3=0.0005	OMEGA	ER+DW	67	-	540
*	CR 10+	3P2 1D	3P2 1S	14	E3=0.0	OMEGA	DW	70	-	810
*	CR 10+	3P2 3P0	3P2 3P1	14	E3=0.0	OMEGA	DW	70	-	810
*	CR 10+	3P2 3P0	3P2 3P2	14	X =1.0	OMEGA	CB	68	-	590
*	CR 10+	3P2 3P0	3P2 3P2	14	E3=0.0	OMEGA	DW	70	-	810
*	CR 10+	3P2 3P1	3P2 3P2	14	E3=0.0	OMEGA	DW	70	-	810
*	CR 9+	3P3 4S	3P3 2P	15	E3=0.0	OMEGA	DW	70	-	810
*	CR 9+	3P3 4S	3P3 2D	15	E3=0.0	OMEGA	DW	70	-	810
*	CR 9+	3P3 2D	3P3 2P	15	E3=0.0	OMEGA	DW	70	-	810
*	CR 9+	3P3 4S	3P3 2P1/2	15	EP3=0.0..0.05.0.1	OMEGA	CC	70	-	750
*	CR 9+	3P3 4S	3P3 2P3/2	15	EP3=0.0..0.05.0.1	OMEGA	CC	70	-	750
*	CR 9+	3P3 4S	3P3 2D3/2	15	EP3=-DEP - 0.1	OMEGA	CC	70	-	750
*	CR 9+	3P3 4S	3P3 2D5/2	15	EP3=-DEP - 0.1	OMEGA	CC	70	-	750
*	CR 9+	3P3 4S	3P3 2P3/2	15	EP3=0.0..0.05.0.1	OMEGA	CC	70	-	750
*	CR 9+	3P3 2P1/2	3P3 2P3/2	15	E3=0.0	OMEGA	DW	70	-	810
*	CR 9+	3P3 2D3/2	3P3 2P1/2	15	EP3=0.0..0.05.0.1	OMEGA	CC	70	-	750
*	CR 9+	3P3 2D3/2	3P3 2P3/2	15	EP3=0.0..0.05.0.1	OMEGA	CC	70	-	750
*	CR 9+	3P3 2D3/2	3P3 2D5/2	15	EP3=-DEP - 0.1	OMEGA	CC	70	-	750
*	CR 9+	3P3 2D3/2	3P3 2D5/2	15	E3=0.0	OMEGA	DW	70	-	810
*	CR 9+	3P3 2D3/2	3P3 2P1/2	15	F3=0.0	OMEGA	DW	70	-	810
*	CR 9+	3P3 2D5/2	3P3 2P1/2	15	FP3=0.0..0.05.0.1	OMEGA	CC	70	-	750
*	CR 9+	3P3 2D5/2	3P3 2P3/2	15	EP3=0.0..0.05.0.1	OMEGA	CC	70	-	750
*	CR 9+	3P3 2D5/2	3P3 2P3/2	15	EP3=0.0..0.05.0.1	OMEGA	CC	70	-	750
*	CR 9+	3P3 2D5/2	3P3 2P3/2	15	E3=0.0	OMEGA	DW	70	-	810
*	CR 8+	3P4 3P	3P4 1S	16	RY3=0.0005	OMEGA	ER+DW	67	-	540
*	CR 8+	3P4 3P	3P4 1D	16	RY3=0.0005	OMEGA	ER+DW	67	-	540
*	CR 8+	3P4 3P	3P4 1D	16	F3=0.0	OMEGA	DW	70	-	810
*	CR 8+	3P4 1D	3P4 1S	16	RY3=0.0005	OMEGA	ER+DW	67	-	540
*	CR 8+	3P4 3P0	3P4 3P2	16	X =1.0	OMEGA	CB	68	-	590
*	CR 8+	3P4 3P1	3P4 3P0	16	E3=0.0	OMEGA	DW	70	-	810
*	CR 8+	3P4 3P2	3P4 3P1	16	F3=0.0	OMEGA	DW	70	-	810
*	CR 7+	3P5 2P1/2	3P5 2P3/2	17	X =1.0	OMEGA	CB	68	-	590
*	CR 7+	3P5 2P1/2	3P5 2P3/2	17	E =0.0..0.05.0.10	OMEGA	DW	70	-	810
*	MN 24+	1S	2S	1	E =0.8E1,E1+4E1	CS	RCB	74	-	1130
*	MN 24+	1S	2S	1	E =0.8E1,E1+4E1	CS	RCBO	74	-	1130

*	ION	TRANSITION	NUMBER	E.	ENERGY RANGE	DATA	METHOD	YEAR	REF.	*
*	MN 24+	1S	2S	.1	E1=0.8,1.0,4.0	CS	RCR	75	-	1261
*	MN 24+	1S	2S	1	E1=0.8,1.0,4.0	CS	RCBO	75	-	1261
*	MN 24+	1S	2P1/2	1	E =0.8E1,E1,4E1	CS	RCB	74	-	1130
*	MN 24+	1S	2P1/2	1	E =0.8E1,E1,4E1	CS	RCBO	74	-	1130
*	MN 24+	1S	2P1/2	1	E1=0.8,1.0,4.0	CS	RCBO	75	-	1261
*	MN 24+	1S	2P3/2	1	E =0.8E1,E1,4E1	CS	RCB	74	-	1130
*	MN 24+	1S	2P3/2	1	E =0.8E1,E1,4E1	CS	RCBO	74	-	1130
*	MN 24+	1S	2P3/2	1	E1=0.8,1.0,4.0	CS	RCB	75	-	1261
*	MN 24+	1S	2P3/2	1	E1=0.8,1.0,4.0	CS	RCBO	75	-	1261
*	MN 24+	2S	2P1/2	1	E =0.8E1,E1,4E1	CS	RCB	74	-	1130
*	MN 24+	2S	2P1/2	1	E =0.8E1,E1,4E1	CS	RCBO	74	-	1130
*	MN 24+	2S	2P1/2	1	E1=1.0	CS	RCBO	75	-	1261
*	MN 24+	2S	2P1/2	1	E1=1.0	CS	RCB	75	-	1261
*	MN 24+	2S	2P3/2	1	E1=1.0	CS	RCB	75	-	1261
*	MN 24+	2S	2P3/2	1	E1=1.0	CS	RCBO	75	-	1261
*	MN 24+	2P1/2	2P3/2	1	E =0.8E1,E1,4E1	CS	RCB	74	-	1130
*	MN 24+	2P1/2	2P3/2	1	E =0.8E1,E1,4E1	CS	RCBO	74	-	1130
*	MN 24+	2P1/2	2P3/2	1	E1=1.0	CS	RCB	75	-	1261
*	MN 24+	2P1/2	2P3/2	1	E1=1.0	CS	RCBO	75	-	1261
*	MN 13+	3S3P 3P0	3S3P 3P2	12	X =1.0	OMEGA	CB	68	-	590
*	MN 12+	3P 2P1/2	3P 2P3/2	13	X =1.0	OMEGA	CB	68	-	590
*	MN 12+	3P 2P1/2	3P 2P3/2	13	E3=0.0,0.05,0.10	OMEGA	DW	70	-	810
*	MN 11+	3P2 3P	3P2 1S	14	RY3=0.0005	OMEGA	ER+DW	67	-	540
*	MN 11+	3P2 3P	3P2 1S	14	E3=0.0,0.05,0.10	OMEGA	DW	70	-	810
*	MN 11+	3P2 3P	3P2 1D	14	E1=1.0	CS	RCBO	75	-	1261
*	MN 11+	3P2 3P	3P2 1D	14	X =1.0	CS	RCB	75	-	1261
*	MN 11+	3P2 3P	3P2 1D	14	E3=0.0,0.05,0.10	OMEGA	CB	68	-	590
*	MN 11+	3P2 3P	3P2 1D	14	E3=0.0,0.05,0.10	OMEGA	DW	70	-	810
*	MN 11+	3P2 1D	3P2 1S	14	RY3=0.0005	OMEGA	ER+DW	67	-	540
*	MN 11+	3P2 1D	3P2 1S	14	E3=0.0,0.05,0.10	OMEGA	DW	70	-	810
*	MN 11+	3P2 3F0	3P2 3P1	14	E3=0.0,0.05,0.10	OMEGA	DW	70	-	810
*	MN 11+	3P2 3P0	3P2 3P2	14	X =1.0	OMEGA	CB	68	-	590
*	MN 11+	3P2 3P0	3P2 3P2	14	E3=0.0,0.05,0.10	OMEGA	DW	70	-	810
*	MN 11+	3P2 3P1	3P2 3P2	14	E3=0.0,0.05,0.10	OMEGA	DW	70	-	810
*	MN 10+	3P3 4S	3P3 2P	15	E3=0.0	OMEGA	DW	70	-	810
*	MN 10+	3P3 4S	3P3 2D	15	E3=0.0	OMEGA	DW	70	-	810
*	MN 10+	3P3 4S	3P3 2P	15	E3=0.0	OMEGA	DW	70	-	810
*	MN 10+	3P3 4S	3P3 2D3/2	15	E3=0.0	OMEGA	CC	70	-	750
*	MN 10+	3P3 4S	3P3 2D5/2	15	E3=0.0	OMEGA	CC	70	-	750
*	MN 10+	3P3 2P1/2	3P3 2P3/2	15	E3=0.0,0.05,0.1	OMEGA	CC	70	-	750
*	MN 10+	3P3 2P1/2	3P3 2P3/2	15	E3=0.0	OMEGA	DW	70	-	810
*	MN 10+	3P3 2D3/2	3P3 2P1/2	15	E3=0.0,0.05,0.1	OMEGA	CC	70	-	750
*	MN 10+	3P3 2D3/2	3P3 2P3/2	15	E3=0.0,0.05,0.1	OMEGA	CC	70	-	750
*	MN 10+	3P3 2D3/2	3P3 2P3/2	15	E3=0.0,0.05,0.1	OMEGA	DW	70	-	810
*	MN 10+	3P3 2D5/2	3P3 2P1/2	15	E3=0.0,0.05,0.1	OMEGA	CC	70	-	750
*	MN 10+	3P3 2D5/2	3P3 2P3/2	15	E3=0.0,0.05,0.1	OMEGA	CC	70	-	750
*	MN 10+	3P3 2D5/2	3P3 2D5/2	15	E3=0.0,0.05,0.1	OMEGA	CC	70	-	750
*	MN 10+	3P3 2D3/2	3P3 2D5/2	15	E3=0.0,0.05,0.1	OMEGA	CC	70	-	750
*	MN 10+	3P3 2D3/2	3P3 2D5/2	15	E3=0.0,0.05,0.1	OMEGA	DW	70	-	810
*	MN 9+	3P4 3P	3P4 1S	16	RY3=0.0005	OMEGA	ER+DW	67	-	540
*	MN 9+	3P4 3P	3P4 1D	16	RY3=0.0005	OMEGA	ER+DW	67	-	540
*	MN 9+	3P4 3P	3P4 1D	16	E3=0.0	OMEGA	DW	70	-	810
*	MN 9+	3P4 1D	3P4 1S	16	RY3=0.0005	OMEGA	ER+DW	67	-	540
*	MN 9+	3P4 3P0	3P4 3P2	16	X =1.0	OMEGA	CB	68	-	590
*	MN 9+	3P4 3P0	3P4 3P2	16	X =1.0	OMEGA	DW	68	-	590
*	MN 9+	3P4 3P1	3P4 3P0	16	E3=0.0	OMEGA	DW	70	-	810
*	MN 9+	3P4 3P1	3P4 3P2	16	E3=0.0	OMEGA	DW	70	-	810
*	MN 8+	3P5 2P1/2	3P5 2P3/2	17	X =1.0	OMEGA	CB	68	-	590
*	MN 8+	3P5 2P1/2	3P5 2P3/2	17	E =0.0,0.05,0.10	OMEGA	DW	70	-	810
*	FE 25+	1S	2S	1	X =1.0	CS	CB	71	-	890
*	FE 25+	1S	2S	1	X =1.0 - 26.67	OMEGA	DW	77	-	1530
*	FE 25+	1S	3S	1	X =1.0	CS	CB	71	-	890
*	FE 25+	1S	2P	1	X =1.0	CS	CB	71	-	890
*	FE 25+	1S	2P	1	X =1.0 - 4.0	OMEGA	DW	77	-	1530
*	FE 25+	1S	3P	1	X =1.0	CS	CB	71	-	890
*	FE 25+	1S	3P	1	X =1.0 - 4.0	OMEGA	DW	77	-	1530
*	FE 25+	1S	4P	1	X =1.0 - 4.0	OMEGA	DW	77	-	1530
*	FE 25+	1S	5P	1	X =1.0 - 4.0	OMEGA	DW	77	-	1530
*	FE 25+	1S	6P	1	X =1.0 - 4.0	OMEGA	DW	77	-	1530
*	FE 25+	1S	3D	1	X =1.0	CS	CB	71	-	890
*	FE 25+	1S	3S	1	X =1.0	CS	CB	71	-	890
*	FE 25+	2S	3P	1	X =1.0	CS	CB	71	-	890
*	FE 25+	2S	3D	1	X =1.0	CS	CB	71	-	890
*	FE 25+	2P	3S	1	X =1.0	CS	CB	71	-	890
*	FE 25+	2P	3P	1	X =1.0	CS	CB	71	-	890
*	FE 25+	2P	3D	1	X =1.0	CS	CB	71	-	890
*	FE 24+	1S2 1S	1S2S 1S	2	RY=493.3,676.0	CS	DWPOII	77	-	1510
*	FE 24+	1S2 1S	1S2S 1S	2	RY=493.3 - 976.0	CS	CB	77	-	1520
*	FE 24+	1S2 1S	1S2S 1S	2	RY=493.3 - 976.0	CS	DW	77	-	1520
*	FE 24+	1S2 1S	1S2S 3S	2	RY=493.3 - 976.0	CS	DW	77	-	1520
*	FE 24+	1S2 1S	1S2P 1P	2	RY=493.3,676.0	CS	DWPOII	77	-	1510
*	FE 24+	1S2 1S	1S2P 1P	2	RY=493.3 - 976.0	CS	DW	77	-	1520
*	FE 24+	1S2 1S	1S2P 1P	2	RY=493.3 - 976.0	CS	CB	77	-	1520

*	ION	TRANSITION	NUMBER	E.	ENERGY RANGE	DATA	METHOD	YEAR	REF.	*
*	FE 24+	1S2 1S	1S2P 3P	2	RY=493.3 - 976.0	CS	DW	77	-	1520
*	FE 24+	1S2S 1S	1S2P 3P	2	RY=676	OMEGA	DW	74	-	1091
*	FE 24+	1S2P 3P	1S2S 1S	2	RY=676	OMEGA	DW	74	-	1091
*	FE 24+	1S2P 3P	1S2P 1P	2	RY=493.676	OMEGA	DW	74	-	1091
*	FE 24+	1S2 1S	1S2P 1P1	2		G	DW	76	-	1330
*	FE 24+	1S2 1S	1S2P 3P0	2		G	DW	76	-	1330
*	FE 24+	1S2 1S	1S2P 3P2	2		G	DW	76	-	1330
*	FE 24+	1S2S 3S	1S2P 3P0	2		G	DW	76	-	1330
*	FE 24+	1S2S 3S	1S2P 3P2	2		G	DW	76	-	1330
*	FE 24+	1S2 1S0	1S2S 1S0	2	RY=493.6,676	OMEGA	DW	74	-	1091
*	FE 24+	1S2 1S0	1S2S 3S1	2	RY=493.6,676	OMEGA	DW	74	-	1091
*	FE 24+	1S2 1S0	1S2P 1P1	2	RY=493.6,676	OMEGA	DW	74	-	1091
*	FE 24+	1S2 1S0	1S2P 1P1	2	X =1.0 - 5.333	OMEGA	RCBO	78	-	1770
*	FE 24+	1S2 1S0	1S2P 3P1	2	X =1.0 - 5.333	OMEGA	RCBO	78	-	1770
*	FE 24+	1S2 1S0	1S2P 3P1	2	RY=493.6,676	OMEGA	DW	74	-	1091
*	FE 24+	1S2 1S0	1S2P 3P1	2	X =1.0 - 4.0	OMEGA	RCBO	78	-	1770
*	FE 24+	1S2 1S0	1S3P 3P1	2	X =1.0 - 4.0	OMEGA	RCBO	78	-	1770
*	FE 24+	1S2 1S0	1S4P 1P1	2	X =1.0 - 4.0	OMEGA	RCBO	78	-	1770
*	FE 24+	1S2 1S0	1S5P 1P1	2	X =1.0 - 4.0	OMEGA	RCBO	78	-	1770
*	FE 24+	1S2 1S0	1S4P 3P1	2	X =1.0 - 4.0	OMEGA	RCBO	78	-	1770
*	FE 24+	1S2 1S0	1S5P 3P1	2	X =1.0 - 4.0	OMEGA	RCBO	78	-	1770
*	FE 24+	1S2 1S0	1S3D 1D2	2	X =1.0 - 4.0	OMEGA	RCBO	78	-	1770
*	FE 24+	1S2 1S0	1S4D 1D2	2	X =1.0 - 4.0	OMFGA	RCBO	78	-	1770
*	FE 24+	1S2 1S0	1S5D 1D2	2	X =1.0 - 4.0	OMEGA	RCBO	78	-	1770
*	FE 24+	1S2 1S0	1S3D 3D2	2	X =1.0 - 4.0	OMEGA	RCBO	78	-	1770
*	FE 24+	1S2 1S0	1S4D 3D2	2	X =1.0 - 4.0	OMEGA	RCBO	78	-	1770
*	FE 24+	1S2 1S0	1S5D 3D2	2	X =1.0 - 4.0	OMEGA	RCBO	78	-	1770
*	FE 24+	1S2S 1S0	1S3P 1P1	2	X =1.0 - 4.0	OMEGA	RCBO	78	-	1770
*	FE 24+	1S2S 1S0	1S3P 3P1	2	X =1.0 - 4.0	OMEGA	RCBO	78	-	1770
*	FE 24+	1S2S 1S0	1S4P 1P1	2	X =1.0 - 4.0	OMEGA	RCBO	78	-	1770
*	FE 24+	1S2S 1S0	1S4P 3P1	2	X =1.0 - 4.0	OMEGA	RCBO	78	-	1770
*	FE 24+	1S2S 1S0	1S5P 1P1	2	X =1.0 - 4.0	OMEGA	RCBO	78	-	1770
*	FE 24+	1S2S 1S0	1S5P 3P1	2	X =1.0 - 4.0	OMEGA	RCBO	78	-	1770
*	FE 24+	1S2S 1S0	1S3D 1D2	2	X =1.0 - 4.0	OMEGA	RCBO	78	-	1770
*	FE 24+	1S2S 1S0	1S3D 3D2	2	X =1.0 - 4.0	OMEGA	RCBO	78	-	1770
*	FE 24+	1S2S 1S0	1S4D 1D2	2	X =1.0 - 4.0	OMEGA	RCBO	78	-	1770
*	FE 24+	1S2S 1S0	1S4D 3D2	2	X =1.0 - 4.0	OMEGA	RCBO	78	-	1770
*	FE 24+	1S2S 1S0	1S5D 1D2	2	X =1.0 - 4.0	OMEGA	RCBO	78	-	1770
*	FE 24+	1S2S 1S0	1S5D 3D2	2	X =1.0 - 4.0	OMEGA	RCBO	78	-	1770
*	FE 24+	1S2S 3S1	1S2S 1S0	2	RY=493.6,676	OMEGA	DW	74	-	1091
*	FE 24+	1S2S 3S1	1S2P 1P1	2	RY=676	OMEGA	DW	74	-	1091
*	FE 24+	1S2S 3S1	1S2P 1P1	2	RY=676	OMEGA	DW	74	-	1091
*	FE 24+	1S2S 3S1	1S2P 3P1	2	RY=676	OMEGA	DW	74	-	1091
*	FE 24+	1S2S 3S1	1S3P 1P1	2	X =1.0 - 4.0	OMEGA	RCBO	78	-	1770
*	FE 24+	1S2S 3S1	1S3P 3P1	2	X =1.0 - 4.0	OMEGA	RCBO	78	-	1770
*	FE 24+	1S2S 3S1	1S4P 1P1	2	X =1.0 - 4.0	OMEGA	RCBO	78	-	1770
*	FE 24+	1S2S 3S1	1S4P 3P1	2	X =1.0 - 4.0	OMEGA	RCBO	78	-	1770
*	FE 24+	1S2S 3S1	1S5P 1P1	2	X =1.0 - 4.0	OMEGA	RCBO	78	-	1770
*	FE 24+	1S2S 3S1	1S5P 3P1	2	X =1.0 - 4.0	OMEGA	RCBO	78	-	1770
*	FE 24+	1S2S 3S1	1S3D 1D2	2	X =1.0 - 4.0	OMEGA	RCBO	78	-	1770
*	FE 24+	1S2S 3S1	1S3D 3D2	2	X =1.0 - 4.0	OMEGA	RCBO	78	-	1770
*	FE 24+	1S2S 3S1	1S4D 1D2	2	X =1.0 - 4.0	OMEGA	RCBO	78	-	1770
*	FE 24+	1S2S 3S1	1S4D 3D2	2	X =1.0 - 4.0	OMEGA	RCBO	78	-	1770
*	FE 24+	1S2S 3S1	1S5D 1D2	2	X =1.0 - 4.0	OMEGA	RCBO	78	-	1770
*	FE 24+	1S2S 3S1	1S5D 3D2	2	X =1.0 - 4.0	OMEGA	RCBO	78	-	1770
*	FE 24+	1S2P 1P1	1S3S 1S0	2	X =1.0 - 4.0	OMEGA	RCBO	78	-	1770
*	FE 24+	1S2P 1P1	1S3S 3S1	2	X =1.0 - 4.0	OMEGA	RCBO	78	-	1770
*	FE 24+	1S2P 1P1	1S4S 1S0	2	X =1.0 - 4.0	OMEGA	RCBO	78	-	1770
*	FE 24+	1S2P 1P1	1S4S 3S1	2	X =1.0 - 4.0	OMEGA	RCBO	78	-	1770
*	FE 24+	1S2P 1P1	1S5S 1S0	2	X =1.0 - 4.0	OMEGA	RCBO	78	-	1770
*	FE 24+	1S2P 1P1	1S5S 3S1	2	X =1.0 - 4.0	OMEGA	RCBO	78	-	1770
*	FE 24+	1S2P 3P0	1S2S 1S0	2	RY=676	OMEGA	DW	74	-	1091
*	FE 24+	1S2P 3P0	1S2P 3P1	2	RY=676	OMEGA	DW	74	-	1091
*	FE 24+	1S2P 3P0	1S2P 3P2	2	RY=676	OMEGA	DW	74	-	1091
*	FE 24+	1S2P 3P1	1S2S 1S0	2	RY=676	OMEGA	DW	74	-	1091
*	FE 24+	1S2P 3P1	1S3S 1S0	2	X =1.0 - 4.0	OMEGA	RCBO	78	-	1770
*	FE 24+	1S2P 3P1	1S3S 3S1	2	X =1.0 - 4.0	OMEGA	RCBO	78	-	1770
*	FE 24+	1S2P 3P1	1S4S 1S0	2	X =1.0 - 4.0	OMEGA	RCBO	78	-	1770
*	FE 24+	1S2P 3P1	1S4S 3S1	2	X =1.0 - 4.0	OMEGA	RCBO	78	-	1770
*	FE 24+	1S2P 3P1	1S5S 1S0	2	X =1.0 - 4.0	OMEGA	RCBO	78	-	1770
*	FE 24+	1S2P 3P1	1S5S 3S1	2	X =1.0 - 4.0	OMEGA	RCBO	78	-	1770
*	FE 24+	1S2P 3P2	1S2P 3P1	2	RY=676	OMEGA	RCBO	78	-	1770
*	FE 24+	1S2P 3P2	1S2S 1S0	2	RY=676	OMEGA	DW	74	-	1091
*	FE 24+	2S	3S	3		G	DW	76	-	1330
*	FE 24+	2S	4S	3		G	DW	76	-	1330
*	FE 24+	2S	3P	3		G	DW	76	-	1330
*	FE 24+	2S	4P	3		G	DW	76	-	1330
*	FE 24+	2S	3D	3		G	DW	76	-	1330
*	FE 24+	2S	4D	3		G	DW	76	-	1330
*	FE 24+	2S 2S	2P 2P1/2	3		G	DW	76	-	1330
*	FE 22+	2S2 1S	2S2P 1P	4		G	DW	76	-	1330
*	FE 22+	2S2 1S	2S2P 3P	4		G	DW	76	-	1330
*	FE 22+	2S2 1S	2S3P 1P	4		G	DW	76	-	1330
*	FE 22+	2S2 1S	2S4P 1P	4		G	DW	76	-	1330
*	FE 21+	2S2 2P 2P	2S2 3D 2D	5		G	DW	76	-	1330

*	ION	TRANSITION	NUMBER	E.	ENERGY RANGE	DATA	METHOD	YEAR	REF.	*
*	FE 21+	2S2 2P 2P	2S2 4D 2D	5		G	DW	76	-	1330 *
*	FE 21+	2S2 2P 2P1/2	2S2P2 2S1/2	5		G	DW	76	-	1330 *
*	FE 21+	2S2 2P 2P1/2	2S2P2 2P1/2	5		G	DW	76	-	1330 *
*	FE 21+	2S2 2P 2P1/2	2S2P2 2D3/2	5		G	DW	76	-	1330 *
*	FE 20+	2P2 3P	2P3D 3D	6		G	DW	76	-	1330 *
*	FE 20+	2S2 2P2 3P	2S2P3 3P	6		G	DW	76	-	1330 *
*	FE 20+	2S2 2P2 3P0	2S2P3 3S1	6		G	DW	76	-	1330 *
*	FE 20+	2S2 2P2 3P0	2S2P3 3D1	6		G	DW	76	-	1330 *
*	FE 19+	2S2 2P3 4S	2S2P4 4P	7		G	DW	76	-	1330 *
*	FE 19+	2P3 4S	2P2(3P)3D 4P	7		G	DW	76	-	1330 *
*	FE 19+	2P3 4S	2P2(3P)3D 2D	7		G	DW	76	-	1330 *
*	FE 19+	2P3 4S	2P2(3P)3D 2F	7		G	DW	76	-	1330 *
*	FE 19+	2P3 2P3/2	2P2(3P)3D 2D3/2	7		G	DW	76	-	1330 *
*	FE 19+	2P3 2D5/2	2P2(3P)3D 2D3/2	7		G	DW	76	-	1330 *
*	FE 19+	2P3 2D5/2	2P2(3P)3D 2D3/2	7		G	DW	76	-	1330 *
*	FE 19+	2P3 2D5/2	2P2(3P)3D 2F7/2	7		G	DW	76	-	1330 *
*	FE 19+	2S2 2P3 2P3/2	2S2P4 2D3/2	7		G	DW	76	-	1330 *
*	FE 19+	2S2 2P3 2P3/2	2S2P4 2P3/2	7		G	DW	76	-	1330 *
*	FE 19+	2S2 2P3 2D3/2	2S2P4 2D3/2	7		G	DW	76	-	1330 *
*	FE 19+	2S2 2P4 2D5/2	2P5 2P3/2	7		G	DW	76	-	1330 *
*	FE 18+	2S2 2P4 3P	2S2P5 3P	8		G	DW	76	-	1330 *
*	FE 18+	2P4 3P	2P3(4S)3D 3D	8		G	DW	76	-	1330 *
*	FE 18+	2P4 3P	2P3(2P)3D 1P	8		G	DW	76	-	1330 *
*	FE 18+	2P4 3P	2P3(2P)3D 3D	8		G	DW	76	-	1330 *
*	FE 18+	2P4 3P	2P3(2P)3D 1F	8		G	DW	76	-	1330 *
*	FE 18+	2P4 3P	2P3(2D)3D 3S	8		G	DW	76	-	1330 *
*	FE 18+	2P4 3P	2P3(2D)3D 3P	8		G	DW	76	-	1330 *
*	FE 18+	2P4 3P	2P3(2D)3D 3D	8		G	DW	76	-	1330 *
*	FE 18+	2P4 3P	2P3(2D)3D 1F	8		G	DW	76	-	1330 *
*	FE 18+	2S2P5 1P	2P6 1S0	8		G	DW	76	-	1330 *
*	FE 18+	2S2 2P4 1S0	2S2P5 1P1	8		G	DW	76	-	1330 *
*	FE 18+	2S2 2P4 1D2	2S2P5 1P1	8		G	DW	76	-	1330 *
*	FE 17+	2P5 2P	2P4(1S)3D 2D	9		G	DW	76	-	1330 *
*	FE 17+	2P5 2P	2P4(3P)3D 2D	9		G	DW	76	-	1330 *
*	FE 17+	2P5 2P	2P4(1D)3D 2S	9		G	DW	76	-	1330 *
*	FE 17+	2P5 2P	2P4(1D)3D 2D	9		G	DW	76	-	1330 *
*	FE 17+	2S2 2P5 2P	2S2P6 2S	9		G	DW	76	-	1330 *
*	FE 16+	2P6 1S	2P5 3S 1P	10	RY=4,2,6,0	OMEGA	DW	71	-	880 *
*	FE 16+	2P6 1S	2P5 3S 3P	10	RY=4,2,6,0	OMEGA	DW	71	-	880 *
*	FE 16+	2P6 1S	2P5 3P 1S	10	RY=4,2,6,0	OMEGA	DW	71	-	880 *
*	FE 16+	2P6 1S	2P5 3P 3S	10	RY=4,2,6,0	OMEGA	DW	71	-	880 *
*	FE 16+	2P6 1S	2P5 3P 1P	10	RY=4,2,6,0	OMEGA	DW	71	-	880 *
*	FE 16+	2P6 1S	2P5 3P 3P	10	RY=4,2,6,0	OMEGA	DW	71	-	880 *
*	FE 16+	2P6 1S	2P5 3P 1D	10	RY=4,2,6,0	OMEGA	DW	71	-	880 *
*	FE 16+	2P6 1S	2P5 3P 3D	10	RY=4,2,6,0	OMEGA	DW	71	-	880 *
*	FE 16+	2P6 1S	2P5 3D 1P	10	RY=4,2,6,0	OMEGA	DW	71	-	880 *
*	FE 16+	2P6 1S	2P5 3D 3P	10	RY=4,2,6,0	OMEGA	DW	71	-	880 *
*	FE 16+	2P6 1S	2P5 3D 1D	10	RY=4,2,6,0	OMEGA	DW	71	-	880 *
*	FE 16+	2P6 1S	2P5 3D 3D	10	RY=4,2,6,0	OMEGA	DW	71	-	880 *
*	FE 16+	2P6 1S	2P5 3D 1F	10	RY=4,2,6,0	OMEGA	DW	71	-	880 *
*	FE 16+	2P6 1S	2P5 3D 3F	10	RY=4,2,6,0	OMEGA	DW	71	-	880 *
*	FE 16+	2P6 1S0	2P5 3S 3P1	10	X =1,0	OMEGA	CB	67	-	520 *
*	FE 16+	2P6 1S0	2P5 3P 3P0	10	X =1,0	OMEGA	CB	67	-	520 *
*	FE 16+	2P6 1S0	2P5 3D 3D1	10	X =1,0	OMEGA	CB	67	-	520 *
*	FE 16+	2P6 1S0	2P5 3S 1P1	10		G	DW	76	-	1330 *
*	FE 16+	2P6 1S0	2P5 3D 1P1	10		G	DW	76	-	1330 *
*	FE 16+	2S2 2P6 1S0	2P5 3S 1P1	10	X =1,0	OMEGA	CB	67	-	520 *
*	FE 16+	2S2 2P6 1S0	2P5 3P 1S0	10	X =1,0	OMEGA	CB	67	-	520 *
*	FE 16+	2S2 2P6 1S0	2P5 3P 3P2	10	X =1,0	OMEGA	CB	67	-	520 *
*	FE 16+	2S2 2P6 1S0	2P5 3P 1D2	10	X =1,0	OMEGA	CB	67	-	520 *
*	FE 16+	2S2 2P6 1S0	2P5 3P 3D2	10	X =1,0	OMEGA	CB	67	-	520 *
*	FE 16+	2S2 2P6 1S0	2P5 3D 1P1	10	X =1,0	OMEGA	CB	67	-	520 *
*	FE 16+	2S2 2P6 1S0	2P5 3D 3P1	10	X =1,0	OMEGA	CB	67	-	520 *
*	FE 16+	2S2 2P6 1S0	2S2P6 3S 1P1	10	X =1,0	OMEGA	CB	67	-	520 *
*	FE 16+	2S2 2P6 1S0	2S2P6 3S 1S0	10	X =1,0	OMEGA	CB	67	-	520 *
*	FE 16+	2S2 2P6 1S0	2S2P6 3D 1D2	10	X =1,0	OMEGA	CB	67	-	520 *
*	FE 16+	3S 3P1	3D 3P1	10		G	DW	76	-	1330 *
*	FE 16+	3S 3P1	3D 3D1	10		G	DW	76	-	1330 *
*	FE 15+	3S	3P	11	X =1 - 4	OMEGA	CBII	63	-	230 *
*	FE 15+	3S	3P	11	X =1 - 4	OMEGA	CBII	63	-	230 *
*	FE 15+	3S	3P	11	X =1 - 4	OMEGA	CBII	63	-	230 *
*	FE 15+	3S	3P	11	X =1 - 4	OMEGA	CBII	63	-	230 *
*	FE 15+	3S	3P	11	X =1,0 - 4,0	CS	CBII	65	-	340 *
*	FE 15+	3S	3P	11	X =1,0 - 4,0	CS	CBII	65	-	340 *
*	FE 15+	3S	3P	11	X =1,0	OMEGA	SCBII	69	-	640 *
*	FE 15+	3S	3P	11	X =1,0	OMEGA	SCBII	69	-	640 *
*	FE 15+	3S	3P	11	X =1,0	OMEGA	CBII	69	-	640 *
*	FE 15+	3S	3P	11	X =1,0	OMEGA	CBII	69	-	640 *
*	FE 15+	3S	3P	11	X =25 - 120	CS	CB	70	-	800 *
*	FE 15+	3S	3P	11	X =50	DCS	CB	70	-	800 *
*	FE 15+	3S	3P	11		G	DW	76	-	1330 *
*	FE 15+	3S	3P	11	X =1 - 16	OMEGA	DWNX	78	-	1610 *
*	FE 15+	3S	3D	11		G	DW	76	-	1330 *
*	FE 15+	3S	3D	11	X =1 - 8	OMEGA	DWNX	78	-	1610 *
*	FE 15+	3S	4S	11	X =1 - 3	OMEGA	DWNX	78	-	1610 *

*	ION	TRANSITION	NUMBER	E.	ENERGY RANGE	DATA	METHOD	YEAR	REF.	*
*	FE 15+	3S	4P	11	X = 1 - 3	OMEGA	DWNX	78	-	1610
*	FE 15+	3S	4D	11	X = 1 - 3	OMEGA	DWNX	78	-	1610
*	FE 15+	3S	4F	11	X = 1 - 3	OMEGA	DWNX	78	-	1610
*	FE 15+	3P	3D	11	X = 1.0 - 4.0	CS	CBI	65	-	340
*	FE 15+	3P	3D	11	X = 1.0 - 4.0	CS	CBII	65	-	340
*	FE 15+	3P	3D	11	X = 1.0	OMEGA	SCBI	69	-	640
*	FE 15+	3P	3D	11	X = 1.0	OMEGA	SCBII	69	-	640
*	FE 15+	3P	3D	11	X = 1.0	OMEGA	CBI	69	-	640
*	FE 15+	3P	3D	11	X = 1.0	OMEGA	CBII	69	-	640
*	FE 15+	3P	3D	11	X = 25 - 120	CS	CB	70	-	800
*	FE 15+	3P	3D	11	X = 50	DCS	CB	70	-	800
*	FE 15+	3P	3D	11	X = 1 - 16	OMEGA	DWNX	78	-	1610
*	FE 15+	3P	4S	11	X = 1 - 4	OMEGA	DWNX	78	-	1610
*	FE 15+	3P	4P	11	X = 1 - 4	OMEGA	DWNX	78	-	1610
*	FE 15+	3P	4D	11	X = 1 - 4	OMEGA	DWNX	78	-	1610
*	FE 15+	3P	4F	11	X = 1 - 4	OMEGA	DWNX	78	-	1610
*	FE 15+	3D	4S	11	X = 1 - 8	OMEGA	DWNX	78	-	1610
*	FE 15+	3D	4P	11	X = 1 - 8	OMEGA	DWNX	78	-	1610
*	FE 15+	3D	4D	11	X = 1 - 8	OMEGA	DWNX	78	-	1610
*	FE 15+	3D	4F	11	X = 1 - 8	OMEGA	DWNX	78	-	1610
*	FE 15+	4S	4P	11	X = 1 - 16	OMEGA	DWNX	78	-	1610
*	FE 15+	4S	4D	11	X = 1 - 16	OMEGA	DWNX	78	-	1610
*	FE 15+	4S	4F	11	X = 1 - 16	OMEGA	DWNX	78	-	1610
*	FE 15+	4P	4D	11	X = 1 - 16	OMEGA	DWNX	78	-	1610
*	FE 15+	4D	4F	11	X = 1 - 16	OMEGA	DWNX	78	-	1610
*	FE 15+	3S 2S1/2	3P 2P3/2	11	RY=3.0,6.5,8.0	G	DW	76	-	1330
*	FE 15+	3S 2S1/2	3P 2PJ	11	PARAMETERS	OMEGA	DW	75	-	1241
*	FE 15+	3S 2S1/2	3P 2PJ	11	PARAMETERS	CS	BETHE	78	-	1750
*	FE 15+	3S 2S1/2	4P 2PJ	11	PARAMETERS	CS	BETHE	78	-	1750
*	FE 15+	3S 2S1/2	3D 2DJ	11	RY=6.5,8.0	OMEGA	DW	75	-	1241
*	FE 15+	3P 2P1/2	3P 2P3/2	11	RY=3.0,6.5,8.0	OMEGA	DW	75	-	1241
*	FE 15+	3P 2P1/2	3D 2DJ	11	RY=6.5,8.0	OMEGA	DW	75	-	1241
*	FE 15+	3P 2P3/2	3D 2D3/2	11	RY=6.5,8.0	G	DW	76	-	1330
*	FE 15+	3D 2D3/2	3D 2D5/2	11	RY=6.5,8.0	OMEGA	DW	75	-	1241
*	FE 15+	3P 2P3/2	3D 2D9	11	RY=6.5,8.0	OMEGA	DW	75	-	1241
*	FE 14+	3S2 1S	3S3P 1P	12	X = 1,2,3	OMEGA	CBI	68	-	581
*	FE 14+	3S2 1S	3S3P 1P	12	RY=3.1,6.9	OMEGA	DW	71	-	880
*	FE 14+	3S2 1S	3S3P 1P	12	RY=3.1,6.9	OMEGA	DW	71	-	895
*	FE 14+	3S2 1S	3S3P 1P	12	RY=3.1,6.9	G	DW	71	-	895
*	FE 14+	3S2 1S	3S3P 3P	12	X = 1,4	OMEGA	CBI	68	-	581
*	FE 14+	3S2 1S	3S3P 3P	12	RY=3.1,6.9	OMEGA	DW	71	-	880
*	FE 14+	3S2 1S	3S3P 3P	12	RY=3.1,6.9	OMEGA	DW	71	-	895
*	FE 14+	3S2 1S	3S3P 3P	12	RY=3.1,6.9	G	DW	76	-	1330
*	FE 14+	3S2 1S	3P2 1S	12	RY=6.9	OMEGA	DW	71	-	880
*	FE 14+	3S2 1S	3P2 1S	12	RY=6.9	OMEGA	DW	71	-	895
*	FE 14+	3S2 1S	3P2 3P	12	RY=6.9	OMEGA	DW	71	-	880
*	FE 14+	3S2 1S	3P2 3P	12	RY=6.9	OMEGA	DW	71	-	895
*	FE 14+	3S2 1S	3P2 1D	12	RY=6.9	OMEGA	DW	71	-	880
*	FE 14+	3S2 1S	3P2 1D	12	RY=6.9	OMEGA	DW	71	-	895
*	FE 14+	3S2 1S	3S3D 1D	12	X = 1,2,3	OMEGA	CBI	68	-	581
*	FE 14+	3S2 1S	3S3D 1D	12	RY=6.9	OMEGA	DW	71	-	880
*	FE 14+	3S2 1S	3S3D 1D	12	RY=6.9	OMEGA	DW	71	-	895
*	FE 14+	3S2 1S	3S3D 1D	12	RY=6.9	G	DW	76	-	1330
*	FE 14+	3S2 1S	3S3D 1D	12	RY=6.9	OMEGA	DW	71	-	880
*	FE 14+	3S2 1S	3S3D 1D	12	RY=6.9	OMEGA	DW	71	-	895
*	FE 14+	3S2 1S	3S3D 1D	12	RY=6.9	G	DW	76	-	1330
*	FE 14+	3S2 1S	3S3D 1D	12	X = 1,2	OMEGA	CBI	68	-	581
*	FE 14+	3S3P 1P	3S3D 1D	12	X = 1,2	G	DW	76	-	1330
*	FE 14+	3S3P 1P	3S3D 1D	12	RY=3.1,6.9	OMEGA	DW	71	-	880
*	FE 14+	3S3P 3P	3S3P 1P	12	RY=3.1,6.9	OMEGA	DW	71	-	895
*	FE 14+	3S3P 3P	3S3P 1P	12	RY=3.1	OMEGA	CBI	68	-	581
*	FE 14+	3S3P 3P	3S3D 3D	12	X = 1,2	G	DW	76	-	1330
*	FE 14+	3S3P 3P	3S3D 3D	12	X = 1,2,3	OMEGA	CBI	68	-	581
*	FE 14+	3S3P 3P	3S3D 3D	12	RY=6.9	OMEGA	DW	71	-	880
*	FE 14+	3S3P 3P	3S3D 3D	12	RY=6.9	OMEGA	DW	71	-	895
*	FE 14+	3S3P 1P	3S3D 3D	12	RY=6.9	G	DW	76	-	1330
*	FE 14+	3S3P 1P	3S3D 3D	12	X = 1,2	OMEGA	CBI	68	-	581
*	FE 14+	3S3P 1P	3S3D 3D	12	RY=6.9	G	DW	76	-	1330
*	FE 14+	3S3P 1P	3S3D 3D	12	RY=6.9	OMEGA	DW	71	-	880
*	FE 14+	3S3P 3P	3S3P 1P	12	RY=3.1,6.9	OMEGA	DW	71	-	880
*	FE 14+	3S3P 3P	3S3P 1P	12	RY=3.1	OMEGA	CBOI	68	-	581
*	FE 14+	3S3P 3P	3S3D 3D	12	X = 1,2	G	DW	76	-	1330
*	FE 14+	3S3P 3P	3S3D 3D	12	X = 1	OMEGA	CBOI	68	-	581
*	FE 14+	3S2 1S0	3S3P 3PJ	12	X = 1	OMEGA	CBOI	68	-	581
*	FE 14+	3S2 1S0	3S3P 3PJ	12	RY=3.1	OMEGA	DW	71	-	895
*	FE 14+	3S3P 3P0	3S3P 1P1	12	X = 1	OMEGA	CBOI	68	-	581
*	FE 14+	3S3P 3P0	3S3P 1P1	12	RY=3.1	OMEGA	DW	71	-	895
*	FE 14+	3S3P 3P0	3S3P 3P2	12	X = 1,0	OMEGA	CB	68	-	590
*	FE 14+	3S3P 3P0	3S3P 3P2	12	X = 1,0	OMEGA	CB	68	-	590
*	FE 14+	3S3P 3P0	3S3P 3P2	12	X = 1,0	OMEGA	CBOI	68	-	581
*	FE 14+	3S3P 3P0	3S3P 3P2	12	X = 1,0	OMEGA	CBOI	68	-	581
*	FE 14+	3S3P 3P0	3S3P 3P2	12	X = 1,0	OMEGA	DW	71	-	895
*	FE 14+	3S3P 3P0	3S3P 3P2	12	X = 1	OMEGA	CBOI	68	-	581
*	FE 14+	3S3P 3P0	3S3P 3P2	12	RY=3.1	OMEGA	CBOI	68	-	581
*	FE 14+	3S3P 3P1	3S3P 1P1	12	X = 1	OMEGA	CBOI	68	-	581
*	FE 14+	3S3P 3P1	3S3P 1P1	12	RY=3.1	OMEGA	DW	71	-	895
*	FE 14+	3S3P 3P1	3S3P 3P2	12	X = 1	OMEGA	CBOI	68	-	581
*	FE 14+	3S3P 3P1	3S3P 3P2	12	X = 1	OMEGA	CBOI	68	-	581
*	FE 14+	3S3P 3P1	3S3P 3P2	12	RY=3.1	OMEGA	DW	71	-	895
*	FE 14+	3S3P 3P2	3S3P 1P1	12	X = 1	OMEGA	CBOI	68	-	581
*	FE 14+	3S3P 3P2	3S3P 1P1	12	RY=3.1	OMEGA	DW	71	-	895
*	FE 13+	3S2 3P 2P	3S2 3D 2D	13	X = 1,0	OMEGA	CB	67	-	570
*	FE 13+	3S2 3P 2P	3S2 3D 2D	13	RY=3.95,7.90,11.85	OMEGA	CC	69	-	700
*	FE 13+	3S2 3P 2P	3S2 3D 2D	13	RY=3.95,7.90,11.85	OMEGA	CBI	69	-	700
*	FE 13+	3S2 3P 2P	3S2 3D 2D	13	RY=4.2,6.0	OMEGA	DW	71	-	880
*	FE 13+	3S2 3P 2P	3S2 3D 2D	13	RY=4.2,6.0	G	DW	76	-	1330
*	FE 13+	3S2 3P 2P	3S2 3D 2D	13	X = 1,0	CS	CB	62	-	200
*	FE 13+	3S2 3P 2P	3S3P2 2S	13	X = 1,0	OMEGA	CB	67	-	570
*	FE 13+	3S2 3P 2P	3S3P2 2S	13	X = 1,0	OMEGA	CC	69	-	700
*	FE 13+	3S2 3P 2P	3S3P2 2S	13	RY=3.95,7.90,11.85	OMEGA	CBI	69	-	700
*	FE 13+	3S2 3P 2P	3S3P2 2S	13	RY=3.95,7.90,11.85	OMEGA	CBI	69	-	700









*	ION	TRANSITION	NUMBER	E.	ENERGY RANGE	DATA	METHOD	YEAR	REF.	*
*	FE 11+	3P3 4S	3P3 2D	15	RY3=0.0005	OMEGA	DW	67	-	530 *
*	FE 11+	3P3 4S	3P3. 2D	15	E3=0.0,0.05,0.10	OMEGA	DW	70	-	810 *
*	FE 11+	3P3 2D	3P3 2P	15	RY3=0.0005	OMEGA	DW	67	-	530 *
*	FE 11+	3P3 2D	3P3 2P	15	E3=0.0,0.05,0.10	OMEGA	DW	70	-	810 *
*	FE 11+	3S2 3P3 4S	3S3P4 4P	15		G	DW	76	-	1330 *
*	FE 11+	3P3 4S	3P3 2P1/2	15	EP3=0.0,0.05,0.1	OMEGA	CC	70	-	750 *
*	FE 11+	3P3 4S	3P3 2P3/2	15	EP3=0.0,0.05,0.1	OMEGA	CC	70	-	750 *
*	FE 11+	3P3 4S	3P3 2D3/2	15	EP3=-DEP - 0.1	OMEGA	CC	70	-	750 *
*	FE 11+	3P3 4S	3P3 2D5/2	15	EP3=-DEP - 0.1	OMEGA	CC	70	-	750 *
*	FE 11+	3P3 2P1/2	3P3 2P3/2	15	X =1.0	OMEGA	CBO	69	-	630 *
*	FE 11+	3P3 2P1/2	3P3 2P3/2	15	EP3=0.0,0.05,0.1	OMEGA	CC	70	-	750 *
*	FE 11+	3P3 2P1/2	3P3 2P3/2	15	E3=0.0,0.05,0.10	OMEGA	DW	70	-	810 *
*	FE 11+	3P3 2D3/2	3P3 2P1/2	15	EP3=0.0,0.05,0.1	OMEGA	CC	70	-	750 *
*	FE 11+	3P3 2D3/2	3P3 2P3/2	15	EP3=0.0,0.05,0.1	OMEGA	CC	70	-	750 *
*	FE 11+	3P3 2D3/2	3P3 2D5/2	15	EP3=-DEP - 0.1	OMEGA	CC	70	-	750 *
*	FE 11+	3P3 2D3/2	3P3 2D5/2	15	E3=0.0,0.05,0.10	OMEGA	DW	70	-	810 *
*	FE 11+	3P3 2D3/2	3P3 2PJ	15	E3=0.0,0.05,0.10	OMEGA	DW	70	-	810 *
*	FE 11+	3P3 2D5/2	3P3 2P1/2	15	EP3=0.0,0.05,0.1	OMEGA	CC	70	-	750 *
*	FE 11+	3P3 2D5/2	3P3 2P3/2	15	EP3=0.0,0.05,0.1	OMEGA	CC	70	-	750 *
*	FE 11+	3P3 2D5/2	3P3 2PJ	15	E3=0.0,0.05,0.10	OMEGA	DW	70	-	810 *
*	FE 11+	3S2 3P3 2P3/2	3S3P4 2D3/2	15		G	DW	76	-	1330 *
*	FE 11+	3S2 3P3 2D3/2	3S3P4 2D3/2	15		G	DW	76	-	1330 *
*	FE 11+	3S2 3P3 2P3/2	3S3P4 2P3/2	15		G	DW	76	-	1330 *
*	FE 11+	3S2 3P3 2D3/2	3S3P4 2P3/2	15		G	DW	76	-	1330 *
*	FE 11+	3S2 3P3 4S3/2	3S2 3P3 2DJ	15	EG=6.6RY	OMEGA	DW,CC	77	-	1480 *
*	FE 11+	3S2 3P3 4S3/2	3S2 3P3 2PJ	15	EG=6.6RY	OMEGA	DW,CC	77	-	1480 *
*	FE 11+	3S2 3P3 4S3/2	3S3P4 4PJ	15	EG=6.6RY	OMEGA	DW,CC	77	-	1480 *
*	FE 11+	3S2 3P3 4S3/2	3S3P4 2DJ	15	EG=6.6RY	OMEGA	DW,CC	77	-	1480 *
*	FE 11+	3S2 3P3 4S3/2	3S3P4 2PJ	15	EG=6.6RY	OMEGA	DW,CC	77	-	1480 *
*	FE 11+	3S2 3P3 4S3/2	3S2 3P2 3D 4FJ	15	EG=6.6RY	OMEGA	DW,CC	77	-	1480 *
*	FE 11+	3S2 3P3 4S3/2	3S2 3P2 3D 2FJ	15	EG=6.6RY	OMEGA	DW,CC	77	-	1480 *
*	FE 11+	3S2 3P3 4S3/2	3S2 3P2 3D 4DJ	15	EG=6.6RY	OMEGA	DW,CC	77	-	1480 *
*	FE 11+	3S2 3P3 4S3/2	3S2 3P2 3D 2GJ	15	EG=6.6RY	OMEGA	DW,CC	77	-	1480 *
*	FE 11+	3S2 3P3 4S3/2	3S2 3P2 3D 2PJ	15	EG=6.6RY	OMEGA	DW,CC	77	-	1480 *
*	FE 11+	3S2 3P3 4S3/2	3S2 3P2 3D 4PJ	15	EG=6.6RY	OMEGA	DW,CC	77	-	1480 *
*	FE 11+	3S2 3P3 4S3/2	3S2 3P2 3D 2DJ	15	EG=6.6RY	OMEGA	DW,CC	77	-	1480 *
*	FE 11+	3S2 3P3 4S3/2	3S2 3P2 3D 2SJ	15	EG=6.6RY	OMEGA	DW,CC	77	-	1480 *
*	FE 11+	3S2 3P3 2D	3S2 3P3 2D	15	EG=6.6RY	OMEGA	DW,CC	77	-	1480 *
*	FE 11+	3S2 3P3 2D	3S2 3P3 2PJ	15	EG=6.6RY	OMEGA	DW,CC	77	-	1480 *
*	FE 11+	3S2 3P3 2D	3S3P4 4PJ	15	EG=6.6RY	OMEGA	DW,CC	77	-	1480 *
*	FE 11+	3S2 3P3 2D	3S3P4 2DJ	15	EG=6.6RY	OMEGA	DW,CC	77	-	1480 *
*	FE 11+	3S2 3P3 2D	3S3P4 2PJ	15	EG=6.6RY	OMEGA	DW,CC	77	-	1480 *
*	FE 11+	3S2 3P3 2D	3S2 3P2 3D 4FJ	15	EG=6.6RY	OMEGA	DW,CC	77	-	1480 *
*	FE 11+	3S2 3P3 2D	3S2 3P2 3D 2FJ	15	EG=6.6RY	OMEGA	DW,CC	77	-	1480 *
*	FE 11+	3S2 3P3 2D	3S2 3P2 3D 4DJ	15	EG=6.6RY	OMEGA	DW,CC	77	-	1480 *
*	FE 11+	3S2 3P3 2D	3S2 3P2 3D 2GJ	15	EG=6.6RY	OMEGA	DW,CC	77	-	1480 *
*	FE 11+	3S2 3P3 2D	3S2 3P2 3D 2PJ	15	EG=6.6RY	OMEGA	DW,CC	77	-	1480 *
*	FE 11+	3S2 3P3 2D	3S2 3P2 3D 4PJ	15	EG=6.6RY	OMEGA	DW,CC	77	-	1480 *
*	FE 11+	3S2 3P3 2D	3S2 3P2 3D 2DJ	15	EG=6.6RY	OMEGA	DW,CC	77	-	1480 *
*	FE 11+	3S2 3P3 2D	3S2 3P2 3D 2SJ	15	EG=6.6RY	OMEGA	DW,CC	77	-	1480 *
*	FE 11+	3S2 3P3 2P	3S2 3P3 2PJ	15	EG=6.6RY	OMEGA	DW,CC	77	-	1480 *
*	FE 11+	3S2 3P3 2P	3S3P4 4PJ	15	EG=6.6RY	OMEGA	DW,CC	77	-	1480 *
*	FE 11+	3S2 3P3 2P	3S3P4 2DJ	15	EG=6.6RY	OMEGA	DW,CC	77	-	1480 *
*	FE 11+	3S2 3P3 2P	3S3P4 2PJ	15	EG=6.6RY	OMEGA	DW,CC	77	-	1480 *
*	FE 11+	3S2 3P3 2P	3S2 3P2 3D 4FJ	15	EG=6.6RY	OMEGA	DW,CC	77	-	1480 *
*	FE 11+	3S2 3P3 2P	3S2 3P2 3D 2FJ	15	EG=6.6RY	OMEGA	DW,CC	77	-	1480 *
*	FE 11+	3S2 3P3 2P	3S2 3P2 3D 4DJ	15	EG=6.6RY	OMEGA	DW,CC	77	-	1480 *
*	FE 11+	3S2 3P3 2P	3S2 3P2 3D 2GJ	15	EG=6.6RY	OMEGA	DW,CC	77	-	1480 *
*	FE 11+	3S2 3P3 2P	3S2 3P2 3D 2PJ	15	EG=6.6RY	OMEGA	DW,CC	77	-	1480 *
*	FE 11+	3S2 3P3 2P	3S2 3P2 3D 4PJ	15	EG=6.6RY	OMEGA	DW,CC	77	-	1480 *
*	FE 11+	3S2 3P3 2P	3S2 3P2 3D 2DJ	15	EG=6.6RY	OMEGA	DW,CC	77	-	1480 *
*	FE 11+	3S2 3P3 2P	3S2 3P2 3D 2SJ	15	EG=6.6RY	OMEGA	DW,CC	77	-	1480 *
*	FE 10+	3P4 3P	3P4 1S	16	RY3=0.0005	OMEGA	ER+DW	67	-	540 *
*	FE 10+	3P4 3P	3P4 1D	16	RY3=0.0005	OMEGA	ER+DW	67	-	540 *
*	FE 10+	3P4 3P	3P4 1D	16	E3=0.0,0.05,0.10	OMEGA	DW	70	-	810 *
*	FE 10+	3P4 3P	3P3(2D)3D 3P	16		G	DW	76	-	1330 *
*	FE 10+	3P4 1D	3P4 1S	16	RY3=0.0005	OMEGA	ER+DW	67	-	540 *
*	FE 10+	3S2 3P4 3P	3S3P5 3P	16		G	DW	76	-	1330 *
*	FE 10+	3S2 3P4 1S0	3S3P5 1P1	16		G	DW	76	-	1330 *
*	FE 10+	3S2 3P4 1D2	3S3P5 1P1	16		G	DW	76	-	1330 *
*	FE 10+	3P4 3P0	3P4 3P1	16	X =1.0	OMEGA	CBO	69	-	630 *
*	FE 10+	3P4 3P0	3P4 3P2	16	X =1.0	OMEGA	CB	68	-	590 *
*	FE 10+	3P4 3P0	3P4 3P2	16	X =1.0	OMEGA	CBO	69	-	630 *
*	FE 10+	3P4 3P1	3P4 3P0	16	E3=0.0,0.05,0.10	OMEGA	DW	70	-	810 *
*	FE 10+	3P4 3P1	3P4 3P2	16	X =1.0	OMEGA	CBO	69	-	630 *
*	FE 10+	3P4 3P2	3P4 3PJ	16	E3=0.0,0.05,0.10	OMEGA	DW	70	-	810 *
*	FE 10+	3P4 3P3	3P3(2P)3D 3P	16		G	DW	76	-	1330 *
*	FE 9+	3S2 3P5 2P	3S3P6 2S	17		G	DW	76	-	1330 *
*	FE 9+	3P5 2P1/2	3P5 2P3/2	17	X =1.0	OMEGA	CB	68	-	590 *
*	FE 9+	3P5 2P1/2	3P5 2P3/2	17	X =1.0	OMEGA	DW	68	-	590 *
*	FE 9+	3P5 2P1/2	3P5 2P3/2	17	X =1.0	OMEGA	CBO	69	-	630 *
*	FE 8+	3P6 1S	3P5(2P)3D 3P	18		G	DW	76	-	1330 *
*	FE 8+	3P6 1S	3P5(2P)3D 3D	18		G	DW	76	-	1330 *
*	FE 8+	3P6 1S	3P5(2P)3D 3F	18		G	DW	76	-	1330 *
*	FE 8+	3P6 1S0	3P5 3D 3P0	18	EG=5.5RY	OMEGA	DW,CC	77	-	1460 *



* ION	TRANSITION	NUMBER	E.	ENERGY RANGE	DATA	METHOD	YEAR	REF.	*
* FE 7+	4P	6S	19	X =1.0 - 4.0	OMEGA	CBI	66	-	450 *
* FE 7+	4P	6S	19	X =1.0 - 4.0	OMEGA	CBII	66	-	450 *
* FE 7+	4P	4D	19	X =1.0 - 4.0	OMEGA	CBI	66	-	450 *
* FE 7+	4P	4D	19	X =1.0 - 4.0	OMEGA	CBII	66	-	450 *
* FE 7+	3D	4P	19	X =1.0 - 4.0	OMEGA	CBI	66	-	450 *
* FE 7+	3D	4P	19	X =1.0 - 4.0	OMEGA	CBII	66	-	450 *
* FE 7+	3D	4F	19	X =1.0 - 4.0	OMEGA	CBI	66	-	450 *
* FE 7+	3D	4F	19	X =1.0 - 4.0	OMEGA	CBII	66	-	450 *
* FE 7+	3D	5F	19	X =1.0 - 4.0	OMEGA	CBI	66	-	450 *
* FE 7+	3D	5F	19	X =1.0 - 4.0	OMEGA	CBII	66	-	450 *
* FE 7+	3D	6F	19	X =1.0 - 4.0	OMEGA	CBI	66	-	450 *
* FE 7+	3D	6F	19	X =1.0 - 4.0	OMEGA	CBII	66	-	450 *
* FE 7+	3D	7F	19	X =1.0 - 4.0	OMEGA	CBI	66	-	450 *
* FE 7+	3D	7F	19	X =1.0 - 4.0	OMEGA	CBII	66	-	450 *
* FE 7+	4D	4F	19	X =1.0 - 4.0	OMEGA	CBI	66	-	450 *
* FE 7+	4D	4F	19	X =1.0 - 4.0	OMEGA	CBII	66	-	450 *
* FE 6+	3D2 3P	3D2 1G	20	RY=0.19 - 0.40	OMEGA	DW	70	-	820 *
* FE 6+	3D2 1D	3D2 3P	20	RY=0.19 - 0.40	OMEGA	DW	70	-	820 *
* FE 6+	3D2 1D	3D2 1G	20	RY=0.19 - 0.40	OMEGA	DW	70	-	820 *
* FE 6+	3D2 3F	3D2 3P	20	RY=0.19 - 0.40	OMEGA	DW	70	-	820 *
* FE 6+	3D2 3F	3D2 1D	20	RY=0.19 - 0.40	OMEGA	DW	70	-	820 *
* FE 6+	3D2 3F	3D2 1G	20	RY=0.19 - 0.40	OMEGA	DW	70	-	820 *
* FE +	3D6 4S 6D9/2	3D6 4S 6D5/2	25	X =1.0	OMEGA	DWBO	55	-	100 *
* FE +	3D6 4S 6D9/2	3D6 4S 6D7/2	25	X =1.0	OMEGA	DWBO	55	-	100 *
* CO 16+	3S	3P	11	X =25 - 120	CS	CB	70	-	800 *
* CO 16+	3S	3D	11	X =25 - 120	CS	CB	70	-	800 *
* CO 15+	3S3P 3P0	3S3P 3P2	12	X =1.0	OMEGA	CB	68	-	590 *
* CO 14+	3P 2P1/2	3P 2P3/2	13	X =1.0	OMEGA	CB	68	-	590 *
* CO 13+	3P2 3P0	3P2 3P2	14	X =1.0	OMEGA	DW	68	-	590 *
* CO 13+	3P2 3P0	3P2 3P2	14	X =1.0	OMEGA	CB	68	-	590 *
* CO 10+	3P5 2P1/2	3P5 2P3/2	17	X =1.0	OMEGA	CB	68	-	590 *
* NI 24+	2S2 1S	2S2P 3P	4		G	DW	76	-	1330 *
* NI 17+	3S	3P	11	X =25 - 120	CS	CB	70	-	800 *
* NI 17+	3P	3D	11	X =25 - 120	CS	CB	70	-	800 *
* NI 16+	3S3P 3P0	3S3P 3P2	12	X =1.0	OMEGA	CB	68	-	590 *
* NI 15+	3P 2P1/2	3P 2P3/2	13	X =1.0	OMEGA	CB	68	-	590 *
* NI 15+	3P 2P1/2	3P 2P3/2	13	E3=0.0,0.05,0.10	OMEGA	DW	70	-	810 *
* NI 14+	3P2 3P	3P2 1S	14	RY3=0.0005	OMEGA	ER+DW	67	-	540 *
* NI 14+	3P2 3P	3P2 1D	14	X =1.0	OMEGA	CBB	67	-	500 *
* NI 14+	3P2 3P	3P2 1D	14	RY3=0.0005	OMEGA	ER+DW	67	-	540 *
* NI 14+	3P2 1D	3P2 1S	14	RY3=0.0005	OMEGA	ER+DW	67	-	540 *
* NI 14+	3P2 3P0	3P2 3P1	14	X =1.0	OMEGA	CBO	69	-	630 *
* NI 14+	3P2 3P0	3P2 3P2	14	X =1.0	OMEGA	CB	68	-	590 *
* NI 14+	3P2 3P0	3P2 3P2	14	X =1.0	OMEGA	CBO	69	-	630 *
* NI 14+	3P2 3P1	3P2 3P2	14	X =1.0	OMEGA	CBO	69	-	630 *
* NI 13+	3P3 4S	3P3 2P	15	E3=0.0,0.05,0.10	OMEGA	DW	70	-	810 *
* NI 13+	3P3 4S	3P3 2D	15	E3=0.0,0.05,0.10	OMEGA	DW	70	-	810 *
* NI 13+	3P3 2D	3P3 2P	15	E3=0.0,0.05,0.10	OMEGA	DW	70	-	810 *
* NI 13+	3P3 2P1/2	3P3 2P3/2	15	X =1.0	OMEGA	CBO	69	-	630 *
* NI 13+	3P3 2P1/2	3P3 2P3/2	15	E3=0.0,0.05,0.10	OMEGA	DW	70	-	810 *
* NI 13+	3P3 2D3/2	3P3 2D5/2	15	E3=0.0,0.05,0.10	OMEGA	DW	70	-	810 *
* NI 13+	3P3 2D3/2	3P3 2PJ	15	E3=0.0,0.05,0.10	OMEGA	DW	70	-	810 *
* NI 13+	3P3 2D5/2	3P3 2PJ	15	E3=0.0,0.05,0.10	OMEGA	DW	70	-	810 *
* NI 12+	3P4 3P	3P4 1S	16	RY3=0.0005	OMEGA	ER+DW	67	-	540 *
* NI 12+	3P4 3P	3P4 1D	16	RY3=0.0005	OMEGA	ER+DW	67	-	540 *
* NI 12+	3P4 3P	3P4 1D	16	E3=0.0,0.05,0.10	OMEGA	DW	70	-	810 *
* NI 12+	3P4 1D	3P4 1S	16	RY3=0.0005	OMEGA	ER+DW	67	-	540 *
* NI 12+	3P4 3P0	3P4 3P1	16	X =1.0	OMEGA	CBO	69	-	630 *
* NI 12+	3P4 3P0	3P4 3P2	16	X =1.0	OMEGA	CB	68	-	590 *
* NI 12+	3P4 3P0	3P4 3P2	16	X =1.0	OMEGA	CBO	69	-	630 *
* NI 12+	3P4 3P1	3P4 3P0	16	E3=0.0,0.05,0.10	OMEGA	DW	70	-	810 *
* NI 12+	3P4 3P1	3P4 3P2	16	X =1.0	OMEGA	CBO	69	-	630 *
* NI 12+	3P4 3P2	3P4 3P1	16	E3=0.0,0.05,0.10	OMEGA	DW	70	-	810 *
* NI 11+	3P5 2P1/2	3P5 2P3/2	17	X =1.0	OMEGA	CB	68	-	590 *
* NI 11+	3P5 2P1/2	3P5 2P3/2	17	X =1.0	OMEGA	CBO	69	-	630 *
* CU 18+	3S	3P	11	X =25 - 120	CS	CB	70	-	800 *
* CU 18+	3P	3D	11	X =25 - 120	CS	CB	70	-	800 *
* CU 15+	3P2 3P0	3P2 3P2	14	X =1.0	OMEGA	CB	68	-	590 *
* CU 13+	3P4 3P0	3P4 3P2	16	X =1.0	OMEGA	CB	68	-	590 *
* CU 13+	3P4 3P0	3P4 3P2	16	X =1.0	OMEGA	DW	68	-	590 *
* CU 12+	3P5 2P1/2	3P5 2P3/2	17	X =1.0	OMEGA	CB	68	-	590 *
* ZN 24+	2P2 3P	2P2 1S	6	RY3=0.0	OMEGA	ER+DW	66	-	460 *
* ZN 24+	2P2 3P	2P2 1D	6	RY3=0.0	OMEGA	ER+DW	66	-	460 *
* ZN 24+	2P2 1D	2P2 1S	6	RY3=0.0	OMEGA	ER+DW	66	-	460 *
* ZN 19+	3S	4S	11	X =1 - 3	OMEGA	DWNX	78	-	1610 *
* ZN 19+	3S	4P	11	X =1 - 3	OMEGA	DWNX	78	-	1610 *
* ZN 19+	3S	3D	11	X =1 - 8	OMEGA	DWNX	78	-	1610 *
* ZN 19+	3S	4D	11	X =1 - 3	OMEGA	DWNX	78	-	1610 *
* ZN 19+	3S	4F	11	X =1 - 3	OMEGA	DWNX	78	-	1610 *
* ZN 19+	4S	4P	11	X =1 - 16	OMEGA	DWNX	78	-	1610 *
* ZN 19+	4S	4D	11	X =1 - 16	OMEGA	DWNX	78	-	1610 *
* ZN 19+	4S	4F	11	X =1 - 16	OMEGA	DWNX	78	-	1610 *
* ZN 19+	3P	4S	11	X =1 - 4	OMEGA	DWNX	78	-	1610 *
* ZN 19+	3P	4P	11	X =1 - 4	OMEGA	DWNX	78	-	1610 *

*	*	ION	TRANSITION	NUMBER E,	ENERGY RANGE	DATA	METHOD	YEAR	REF.	*
*	*	ZN 19+	3P	4D	11 X =1 - 4	OMEGA	DWNX	78	-	1610 *
*	*	ZN 19+	3P	4F	11 X =1 - 4	OMEGA	DWNX	78	-	1610 *
*	*	ZN 19+	4P	4D	11 X =1 - 16	OMEGA	DWNX	78	-	1610 *
*	*	ZN 19+	4P	4F	11 X =1 - 16	OMEGA	DWNX	78	-	1610 *
*	*	ZN 19+	3D	4S	11 X =1 - 4	OMEGA	DWNX	78	-	1610 *
*	*	ZN 19+	3D	4P	11 X =1 - 4	OMEGA	DWNX	78	-	1610 *
*	*	ZN 19+	3D	4D	11 X =1 - 4	OMEGA	DWNX	78	-	1610 *
*	*	ZN 19+	3D	4F	11 X =1 - 4	OMEGA	DWNX	78	-	1610 *
*	*	ZN 19+	4D	4F	11 X =1 - 16	OMEGA	DWNX	78	-	1610 *
*	*	ZN 19+	3P 2P1/2	3D	11 X =1 - 16	OMEGA	DWNX	78	-	1610 *
*	*	ZN 19+	3P 2P3/2	3D	11 X =1 - 16	OMEGA	DWNX	78	-	1610 *
*	*	ZN 19+	3S 2S1/2	3P 2P1/2	11 X =1 - 16	OMEGA	DWNX	78	-	1610 *
*	*	ZN 19+	3S 2S1/2	3P 2P3/2	11 X =1 - 16	OMEGA	DWNX	78	-	1610 *
*	*	ZN 14+	3P4 3P0	3P4 3P1	16 X =1.0	OMEGA	CBO	69	-	630 *
*	*	ZN 14+	3P4 3P0	3P4 3P2	16 X =1.0	OMEGA	CB	68	-	590 *
*	*	ZN 14+	3P4 3P0	3P4 3P2	16 X =1.0	OMEGA	CBO	69	-	630 *
*	*	ZN 14+	3P4 3P1	3P4 3P2	16 X =1.0	OMEGA	CBO	69	-	630 *
*	*	ZN 13+	3P5 2P1/2	3P5 2P3/2	17 X =1.0	OMEGA	CB	68	-	590 *
*	*	ZN 13+	3P5 2P1/2	3P5 2P3/2	17 X =1.0	OMEGA	DW	68	-	590 *
*	*	ZN 13+	3P5 2P1/2	3P5 2P3/2	17 X =1.0	OMEGA	CBO	69	-	630 *
*	*	GA 15+	3P4 3P0	3P4 3P2	16 X =1.0	OMEGA	DW	68	-	590 *
*	*	GA 14+	3P5 2P1/2	3P5 2P3/2	17 X =1.0	OMEGA	CB	68	-	590 *
*	*	GE 15+	3P5 2P1/2	3P5 2P3/2	17 X =1.0	OMEGA	CB	68	-	590 *
*	*	KR 25+	3S	3D	11 X =1 - 8	OMEGA	DWNX	78	-	1610 *
*	*	KR 25+	3S	4S	11 X =1 - 3	OMEGA	DWNX	78	-	1610 *
*	*	KR 25+	3S	4P	11 X =1 - 3	OMEGA	DWNX	78	-	1610 *
*	*	KR 25+	3S	4D	11 X =1 - 3	OMEGA	DWNX	78	-	1610 *
*	*	KR 25+	3S	4F	11 X =1 - 3	OMEGA	DWNX	78	-	1610 *
*	*	KR 25+	3P	4S	11 X =1 - 4	OMEGA	DWNX	78	-	1610 *
*	*	KR 25+	3P	4P	11 X =1 - 4	OMEGA	DWNX	78	-	1610 *
*	*	KR 25+	3P	4D	11 X =1 - 4	OMEGA	DWNX	78	-	1610 *
*	*	KR 25+	3P	4F	11 X =1 - 4	OMEGA	DWNX	78	-	1610 *
*	*	KR 25+	3D	4S	11 X =1 - 4	OMEGA	DWNX	78	-	1610 *
*	*	KR 25+	3D	4D	11 X =1 - 4	OMEGA	DWNX	78	-	1610 *
*	*	KR 25+	3D	4F	11 X =1 - 4	OMEGA	DWNX	78	-	1610 *
*	*	KR 25+	4S	4P	11 X =1 - 16	OMEGA	DWNX	78	-	1610 *
*	*	KR 25+	4S	4D	11 X =1 - 16	OMEGA	DWNX	78	-	1610 *
*	*	KR 25+	4S	4F	11 X =1 - 16	OMEGA	DWNX	78	-	1610 *
*	*	KR 25+	4P	4D	11 X =1 - 16	OMEGA	DWNX	78	-	1610 *
*	*	KR 25+	4P	4F	11 X =1 - 16	OMEGA	DWNX	78	-	1610 *
*	*	KR 25+	4D	4F	11 X =1 - 16	OMEGA	DWNX	78	-	1610 *
*	*	KR 2J+	3S 2S1/2	3P 2PJ	11 PARAMETERS	CS	BETHE	78	-	1750 *
*	*	KR 25+	3S 2S1/2	4P 2PJ	11 PARAMETERS	CS	BETHE	78	-	1750 *
*	*	KR 25+	3S 2S1/2	3P 2P1/2	11 X =1 - 16	OMEGA	DWNX	78	-	1610 *
*	*	KR 25+	3S 2S1/2	3P 2P3/2	11 X =1 - 16	OMEGA	DWNX	78	-	1610 *
*	*	KR 25+	3P 2P1/2	3D	11 X =1 - 16	OMEGA	DWNX	78	-	1610 *
*	*	KR 25+	3P 2P3/2?	3D	11 X =1 - 16	OMEGA	DWNX	78	-	1610 *
*	*	SR +	5S	5P	37 X=1 - 100	OMEGA	CB'I	74	-	1131 *
*	*	SR +	5S	5P	37 X=1 - 100	OMEGA	CB''I	74	-	1131 *
*	*	SR +	5S	5P	37 X=1 - 100	OMEGA	CB'I	74	-	1131 *
*	*	SR +	5S	5P	37 X=1 - 100	OMEGA	CDWI	74	-	1131 *
*	*	SR +	5S	5P	37 X=1 - 100	OMEGA	CDWII	74	-	1131 *
*	*	MO 40+	1S2 1S0	1S2P 1P1	2 X =1.0 - 5.333	OMEGA	RCBO	78	-	1770 *
*	*	MO 40+	1S2 1S0'	1S2P 3P1	2 X =1.0 - 5.333	OMEGA	RCBO	78	-	1770 *
*	*	MO 40+	1S2 1S0	1S3P 1P1	2 X =1.0 - 4.0	OMEGA	RCBO	78	-	1770 *
*	*	MO 40+	1S2 1S0	1S3P 3P1	2 X =1.0 - 4.0	OMEGA	RCBO	78	-	1770 *
*	*	MO 40+	1S2 1S0	1S4P 1P1	2 X =1.0 - 4.0	OMEGA	RCBO	78	-	1770 *
*	*	MO 40+	1S2 1S0	1S4P 3P1	2 X =1.0 - 4.0	OMEGA	RCBO	78	-	1770 *
*	*	MO 40+	1S2 1S0	1S5P 1P1	2 X =1.0 - 4.0	OMEGA	RCBO	78	-	1770 *
*	*	MO 40+	1S2 1S0	1S5P 3P1	2 X =1.0 - 4.0	OMEGA	RCBO	78	-	1770 *
*	*	MO 40+	1S2 1S0	1S3D 1D2	2 X =1.0 - 4.0	OMEGA	RCBO	78	-	1770 *
*	*	MO 40+	1S2 1S0	1S3D 3D2	2 X =1.0 - 4.0	OMEGA	RCBO	78	-	1770 *
*	*	MO 40+	1S2 1S0	1S4D 1D2	2 X =1.0 - 4.0	OMEGA	RCBO	78	-	1770 *
*	*	MO 40+	1S2 1S0	1S4D 3D2	2 X =1.0 - 4.0	OMEGA	RCBO	78	-	1770 *
*	*	MO 40+	1S2 1S0	1S5D 1D2	2 X =1.0 - 4.0	OMEGA	RCBO	78	-	1770 *
*	*	MO 40+	1S2 1S0	1S5D 3D2	2 X =1.0 - 4.0	OMEGA	RCBO	78	-	1770 *
*	*	MO 40+	1S2S 1S0	1S3P 1P1	2 X =1.0 - 4.0	OMEGA	RCBO	78	-	1770 *
*	*	MO 40+	1S2S 1S0	1S3P 3P1	2 X =1.0 - 4.0	OMEGA	RCBO	78	-	1770 *
*	*	MO 40+	1S2S 1S0	1S4P 1P1	2 X =1.0 - 4.0	OMEGA	RCBO	78	-	1770 *
*	*	MO 40+	1S2S 1S0	1S4P 3P1	2 X =1.0 - 4.0	OMEGA	RCBO	78	-	1770 *
*	*	MO 40+	1S2S 1S0	1S5P 1P1	2 X =1.0 - 4.0	OMEGA	RCBO	78	-	1770 *
*	*	MO 40+	1S2S 1S0	1S5P 3P1	2 X =1.0 - 4.0	OMEGA	RCBO	78	-	1770 *
*	*	MO 40+	1S2S 1S0	1S3D 1D2	2 X =1.0 - 4.0	OMEGA	RCBO	78	-	1770 *
*	*	MO 40+	1S2S 1S0	1S3D 3D2	2 X =1.0 - 4.0	OMEGA	RCBO	78	-	1770 *
*	*	MO 40+	1S2S 3S1	1S3P 1P1	2 X =1.0 - 4.0	OMEGA	RCBO	78	-	1770 *
*	*	MO 40+	1S2S 3S1	1S3P 3P1	2 X =1.0 - 4.0	OMEGA	RCBO	78	-	1770 *
*	*	MO 40+	1S2S 3S1	1S4P 1P1	2 X =1.0 - 4.0	OMEGA	RCBO	78	-	1770 *
*	*	MO 40+	1S2S 3S1	1S4P 3P1	2 X =1.0 - 4.0	OMEGA	RCBO	78	-	1770 *
*	*	MO 40+	1S2S 3S1	1S5P 1P1	2 X =1.0 - 4.0	OMEGA	RCBO	78	-	1770 *

*	ION	TRANSITION	NUMBER	E.	ENERGY RANGE	DATA	METHOD	YEAR	REF.	*
*	MO 40+	1S2S 3S1	1S5P 3P1	2	X =1.0 - 4.0	OMEGA	RCBO	78	-	1770 *
*	MO 40+	1S2S 3S1	1S3D 1D2	2	X =1.0 - 4.0	OMEGA	RCBO	78	-	1770 *
*	MO 40+	1S2S 3S1	1S3D 3D2	2	X =1.0 - 4.0	OMEGA	RCBO	78	-	1770 *
*	MO 40+	1S2S 3S1	1S4D 1D2	2	X =1.0 - 4.0	OMEGA	RCBO	78	-	1770 *
*	MO 40+	1S2S 3S1	1S4D 3D2	2	X =1.0 - 4.0	OMEGA	RCBO	78	-	1770 *
*	MO 40+	1S2S 3S1	1S5D 1D2	2	X =1.0 - 4.0	OMEGA	RCBO	78	-	1770 *
*	MO 40+	1S2S 3S1	1S5D 3D2	2	X =1.0 - 4.0	OMEGA	RCBO	78	-	1770 *
*	MO 40+	1S2P 1P1	1S3S 1S0	2	X =1.0 - 4.0	OMEGA	RCBO	78	-	1770 *
*	MO 40+	1S2P 1P1	1S3S 3S1	2	X =1.0 - 4.0	OMEGA	RCBO	78	-	1770 *
*	MO 40+	1S2P 1P1	1S4S 1S0	2	X =1.0 - 4.0	OMEGA	RCBO	78	-	1770 *
*	MO 40+	1S2P 1P1	1S4S 3S1	2	X =1.0 - 4.0	OMEGA	RCBO	78	-	1770 *
*	MO 40+	1S2P 1P1	1S5S 1S0	2	X =1.0 - 4.0	OMEGA	RCBO	78	-	1770 *
*	MO 40+	1S2P 3P1	1S3S 1S0	2	X =1.0 - 4.0	OMEGA	RCBO	78	-	1770 *
*	MO 40+	1S2P 3P1	1S3S 3S1	2	X =1.0 - 4.0	OMEGA	RCBO	78	-	1770 *
*	MO 40+	1S2P 3P1	1S4S 1S0	2	X =1.0 - 4.0	OMEGA	RCBO	78	-	1770 *
*	MO 40+	1S2P 3P1	1S4S 3S1	2	X =1.0 - 4.0	OMEGA	RCBO	78	-	1770 *
*	MO 40+	1S2P 3P1	1S5S 1S0	2	X =1.0 - 4.0	OMEGA	RCBO	78	-	1770 *
*	MO 40+	1S2P 3P1	1S5S 3S1	2	X =1.0 - 4.0	OMEGA	RCBO	78	-	1770 *
*	MO 31+	3S	4S	11	X =1 - 3	OMEGA	DWNX	78	-	1610 *
*	MO 31+	3S	4P	11	X =1 - 3	OMEGA	DWNX	78	-	1610 *
*	MO 31+	3S	3D	11	X =1 - 8	OMEGA	DWNX	78	-	1610 *
*	MO 31+	3S	4D	11	X =1 - 3	OMEGA	DWNX	78	-	1610 *
*	MO 31+	3S	4F	11	X =1 - 3	OMEGA	DWNX	78	-	1610 *
*	MO 31+	4S	4P	11	X =1 - 16	OMEGA	DWNX	78	-	1610 *
*	MO 31+	4S	4D	11	X =1 - 16	OMEGA	DWNX	78	-	1610 *
*	MO 31+	4S	4F	11	X =1 - 16	OMEGA	DWNX	78	-	1610 *
*	MO 31+	3P	4S	11	X =1 - 3	OMEGA	DWNX	78	-	1610 *
*	MO 31+	3P	4P	11	X =1 - 3	OMEGA	DWNX	78	-	1610 *
*	MO 31+	3P	4D	11	X =1 - 3	OMEGA	DWNX	78	-	1610 *
*	MO 31+	3P	4F	11	X =1 - 3	OMEGA	DWNX	78	-	1610 *
*	MO 31+	4P	4D	11	X =1 - 16	OMEGA	DWNX	78	-	1610 *
*	MO 31+	4P	4F	11	X =1 - 16	OMEGA	DWNX	78	-	1610 *
*	MO 31+	3D	4S	11	X =1 - 3	OMEGA	DWNX	78	-	1610 *
*	MO 31+	3D	4P	11	X =1 - 3	OMEGA	DWNX	78	-	1610 *
*	MO 31+	3D	4D	11	X =1 - 3	OMEGA	DWNX	78	-	1610 *
*	MO 31+	3D	4F	11	X =1 - 3	OMEGA	DWNX	78	-	1610 *
*	MO 31+	4D	4F	11	X =1 - 16	OMEGA	DWNX	78	-	1610 *
*	MO 31+	3S	3P 2P1/2	11	X =1 - 16	OMEGA	DWNX	78	-	1610 *
*	MO 31+	3S	3P 2P3/2	11	X =1 - 16	OMEGA	DWNX	78	-	1610 *
*	MO 31+	3P 2P3/2	3D	11	X =1 - 16	OMEGA	DWNX	78	-	1610 *
*	MO 31+	3S 2S1/2	3P 2PJ	11	PARAMETERS	CS	BETHE	78	-	1750 *
*	MO 31+	3S 2S1/2	4P 2PJ	11	PARAMETERS	CS	BETHE	78	-	1750 *
*	SN 49+	1S	2S	1	X =1.0	CS	CB	71	-	890 *
*	SN 49+	1S	2S	1	E =0.8E1,E1,4E1	CS	RCB	74	-	1'30 *
*	SN 49+	1S	2S	1	E =0.8E1,E1,4E1	CS	RCBO	74	-	1130 *
*	SN 49+	1S	2S	1	E! =0.8,1.0,4.0	CS	RCBO	75	-	1261 *
*	SN 49+	1S	2S	1	E! =0.8,1.0,4.0	CS	RCB	75	-	1261 *
*	SN 49+	1S	2S	1	X =1.0 - 10.0	CS	CBI	76	-	1320 *
*	SN 49+	1S	2S	1	X =1.0 - 10.0	CS	CBOI	76	-	1320 *
*	SN 49+	1S	2S	1	X =1 - 10	CS	CB	78	-	1730 *
*	SN 49+	1S	3S	1	X =1.0	CS	CB	71	-	890 *
*	SN 49+	1S	2P	1	X =1.0	CS	CB	71	-	890 *
*	SN 49+	1S	2P	1	X =1 - 10	CS	CB	78	-	1730 *
*	SN 49+	1S	3P	1	X =1.0	CS	CB	71	-	890 *
*	SN 49+	1S	3D	1	X =1.0	CS	CB	71	-	890 *
*	SN 49+	2S	3S	1	X =1.0	CS	CB	71	-	890 *
*	SN 49+	2S	3P	1	X =1.0	CS	CB	71	-	890 *
*	SN 49+	2S	3D	1	X =1.0	CS	CB	71	-	890 *
*	SN 49+	2P	3S	1	X =1.0	CS	CB	71	-	890 *
*	SN 49+	2P	3P	1	X =1.0	CS	CB	71	-	890 *
*	SN 49+	2P	3D	1	X =1.0	CS	CB	71	-	890 *
*	SN 49+	1S	2P1/2	1	E =0.8E1,E1,4E1	CS	RCB	74	-	1130 *
*	SN 49+	1S	2P1/2	1	E =0.8E1,E1,4E1	CS	RCBO	74	-	1130 *
*	SN 49+	1S	2P1/2	1	E! =0.8,1.0,4.0	CS	RCB	75	-	1261 *
*	SN 49+	1S	2P1/2	1	E! =0.8,1.0,4.0	CS	RCBO	75	-	1261 *
*	SN 49+	1S	2P3/2	1	E =0.8E1,E1,4E1	CS	RCB	74	-	1130 *
*	SN 49+	1S	2P3/2	1	E =0.8E1,E1,4E1	CS	RCBO	74	-	1130 *
*	SN 49+	1S	2P3/2	1	E! =0.8,1.0,4.0	CS	RCBO	75	-	1261 *
*	SN 49+	1S	2P3/2	1	E! =0.8,1.0,4.0	CS	RCB	75	-	1261 *
*	SN 49+	1S	2P3/2	1	E =0.8E1,E1,4E1	CS	RCB	74	-	1130 *
*	SN 49+	1S	2P3/2	1	E! =0.8,1.0,4.0	CS	RCBO	74	-	1130 *
*	SN 49+	1S	2P3/2	1	E! =0.8,1.0,4.0	CS	RCB	75	-	1261 *
*	SN 49+	2S	2P1/2	1	E =0.8E1,E1,4E1	CS	RCB	74	-	1130 *
*	SN 49+	2S	2P1/2	1	E =0.8E1,E1,4E1	CS	RCBO	74	-	1130 *
*	SN 49+	2P1/2	2P3/2	1	E =0.8E1,E1,4E1	CS	RCB	74	-	1130 *
*	SN 49+	2P1/2	2P3/2	1	E =0.8E1,E1,4E1	CS	RCBO	74	-	1130 *
*	XE 43+	3S 2S1/2	3P 2PJ	11	PARAMETERS	CS	BETHE	78	-	1750 *
*	XE 43+	3S 2S1/2	4P 2PJ	11	PARAMETERS	CS	BETHE	78	-	1750 *
*	BA +	6S	5P	55	X =1.2,3	OMEGA	CB1	65	-	350 *
*	BA +	6S	5P	55	X =1.2,3	OMEGA	CB1I	65	-	350 *
*	BA +	6S	5P	55	X =1.2,3	OMEGA	CB1II	65	-	350 *
*	BA +	6S	5D	55	X =4.8,12	OMEGA	CB1	65	-	350 *
*	BA +	6S	5D	55	X =4.8,12	OMEGA	CB1I	65	-	350 *
*	BA +	6S	5D	55	X =4.8,12	OMEGA	CB1II	65	-	350 *
*	BA +	6S	5D	55	X =4.8,12	OMEGA	CB1III	65	-	350 *

*	*	ION	TRANSITION	NUMBER	E.	ENERGY RANGE	DATA	METHOD	YEAR	REF.	*
*	*	BA +	5D	6P	55	X = 1.0 - 2.33 - 3.67	OMEGA	CBI	65	-	350
*	*	BA +	5D	6P	55	X = 1.0 - 2.33 - 3.67	OMEGA	CBII	65	-	350
*	*	BA +	5D	6P	55	X = 1.0 - 2.33 - 3.67	OMEGA	CB'I	65	-	350
*	*	BA +	5D	6P	55	X = 1.0 - 2.33 - 3.67	OMEGA	CB''I	65	-	350
*	*	BA +	6S 2S1/2	6P 2P1/2	55	EV=3 - 100	CS	IP	70	-	780
*	*	BA +	6S 2S1/2	6P 2P3/2	55	EV=3 - 100	CS	IP	70	-	780
*	*	BA +	6S 2S1/2	6P 2P3/2	55	X = 1 - 300	OMEGA	CB'I	74	-	1131
*	*	BA +	6S 2S1/2	6P 2P3/2	55	X = 1 - 300	OMEGA	CB''I	74	-	1131
*	*	BA +	6S 2S1/2	6P 2P3/2	55	X = 1 - 300	OMEGA	CBII	74	-	1131
*	*	BA +	6S 2S1/2	6P 2P3/2	55	X = 1 - 300	OMEGA	CDWI	74	-	1131
*	*	BA +	6S 2S1/2	6P 2P3/2	55	X = 1 - 300	OMEGA	CDWII	74	-	1131
*	*	BA +	5D 2D3/2	6P 2P1/2	55	EV=0.5 - 30	CS	IP	70	-	790
*	*	BA +	5D 2D3/2	6P 2P3/2	55	EV=0.5 - 30	CS	IP	70	-	790
*	*	BA +	5D 2D5/2	6P 2P3/2	55	EV=0.5 - 30	CS	IP	70	-	790
*	*	W 63+	3S 2S1/2	3P 2PJ	11	PARAMETERS	CS	BETHE	78	-	1750
*	*	W 63+	3S 2S1/2	4P 2PJ	11	PARAMETERS	CS	BETHE	78	-	1750
*	*	AU 68+	3S 2S1/2	3P 2PJ	11	PARAMETERS	CS	BETHE	78	-	1750
*	*	AU 68+	3S 2S1/2	4P 2PJ	11	PARAMETERS	CS	BETHE	78	-	1750
*	*	TH 79+	3S 2S1/2	3P 2PJ	11	PARAMETERS	CS	BETHE	78	-	1750
*	*	TH 79+	3S 2S1/2	4P 2PJ	11	PARAMETERS	CS	BETHE	78	-	1750
*	*	FM 99+	1S	2S	1	E = 0.8E1,E1,4E1	CS	RCB	74	-	1130
*	*	FM 99+	1S	2S	1	E = 0.8E1,E1,4E1	CS	RCBO	74	-	1130
*	*	FM 99+	1S	2S	1	E1=0.8+1.0,4.0	CS	RCB	75	-	1261
*	*	FM 99+	1S	2S	1	E1=0.8+1.0,4.0	CS	RCBO	75	-	1261
*	*	FM 99+	1S	2P1/2	1	E = 0.8E1,E1,4E1	CS	RCB	74	-	1130
*	*	FM 99+	1S	2P1/2	1	E = 0.8E1,E1,4E1	CS	RCBO	74	-	1130
*	*	FM 99+	1S	2P1/2	1	E1=0.8+1.0,4.0	CS	RCB	75	-	1261
*	*	FM 99+	1S	2P1/2	1	E1=0.8+1.0,4.0	CS	RCBO	75	-	1261
*	*	FM 99+	1S	2P3/2	1	E = 0.8E1,E1,4E1	CS	RCB	74	-	1130
*	*	FM 99+	1S	2P3/2	1	E = 0.8E1,E1,4E1	CS	RCBO	74	-	1130
*	*	FM 99+	1S	2P3/2	1	E1=0.8+1.0,4.0	CS	RCB	75	-	1261
*	*	FM 99+	1S	2P3/2	1	E1=0.8+1.0,4.0	CS	RCBO	75	-	1261
*	*	FM 99+	2S	2P1/2	1	E = 0.8E1,E1,4E1	CS	RCA	74	-	1130
*	*	FM 99+	2S	2P1/2	1	E = 0.8E1,E1,4E1	CS	RCBO	74	-	1130
*	*	FM 99+	2P1/2	2P3/2	1	E = 0.8E1,E1,4E1	CS	RCB	74	-	1130
*	*	FM 99+	2P1/2	2P3/2	1	E = 0.8E1,E1,4E1	CS	RCBO	74	-	1130
*	*	ZZ	1S	2S	1	K = 0.8672 - 3.0	CS	CB	66	-	240
*	*	ZZ	1S	2S	1	K = 0.8672 - 3.0	CS	CB	66	-	240
*	*	ZZ	1S	2S	1	X = 1.0 - 5.33	CS	CBI	70	-	730
*	*	ZZ	1S	2S	1	X = 1.0 - 5.33	CS	CBOI	70	-	730
*	*	ZZ	1S	2S	1	X = 1.0	CS	CBO	71	-	890
*	*	ZZ	1S	2S	1	X = 1.0	CS	CBB	71	-	890
*	*	ZZ	1S	2S	1	X = 1.0 - 4.0	CS	CBI	71	-	892
*	*	ZZ	1S	2S	1	X = 1.0 - 4.0	CS	CBOII	71	-	892
*	*	ZZ	1S	2S	1	X = 1.0 - 4.0	OMEGA	CBI	73	-	1031
*	*	ZZ	1S	2S	1	X = 1.0 - 4.0	OMEGA	CBO	74	-	1101
*	*	ZZ	1S	2S	1	EV=25Z2 - 25022	CS	IP	76	-	1280
*	*	ZZ	1S	2S	1	X = 1.5 - 6.0	CS	CB	78	-	1690
*	*	ZZ	1S	2S	1	X = 1.0 - 5.333	OMEGA	CBO	78	-	1760
*	*	ZZ	1S	3S	1	K = 0.9487 - 3.0	CS	CB	66	-	240
*	*	ZZ	1S	3S	1	K = 0.9487 - 3.0	DCS	CB	66	-	240
*	*	ZZ	1S	3S	1	X = 1.0	CS	CBO	71	-	890
*	*	ZZ	1S	3S	1	X = 1.0	CS	CBB	71	-	890
*	*	ZZ	1S	3S	1	X = 1.0 - 7.0	CS	CBI	71	-	892
*	*	ZZ	1S	3S	1	X = 1.0-1.5	CS	CB	72	-	950
*	*	ZZ	1S	3S	1	X = 1.0-1.5	CS	CBO	72	-	950
*	*	ZZ	1S	3S	1	X = 1.0 - 4.0	OMEGA	CBI	73	-	1031
*	*	ZZ	1S	3S	1	X = 1.0 - 4.0	CS	CB	78	-	1690
*	*	ZZ	1S	3S	1	X = 1.0 - 4.0	OMEGA	CBO	78	-	1760
*	*	ZZ	1S	4S	1	X = 1.0 - 4.0	OMEGA	CBI	73	-	1031
*	*	ZZ	1S	4S	1	X = 1.5 - 6.0	CS	CB	78	-	1690
*	*	ZZ	1S	4S	1	X = 1.0 - 4.0	OMEGA	CBO	78	-	1760
*	*	ZZ	1S	5S	1	X = 1.0	CS	CB	71	-	890
*	*	ZZ	1S	5S	1	X = 1.0 - 4.0	OMEGA	CBI	73	-	1031
*	*	ZZ	1S	5S	1	X = 1.5 - 6.0	CS	CB	78	-	1690
*	*	ZZ	1S	5S	1	X = 1.0 - 4.0	OMEGA	CBO	78	-	1760
*	*	ZZ	1S	5S	1	X = 1.0 - 4.0	OMEGA	CBI	73	-	1031
*	*	ZZ	1S	6S	1	X = 1.0	CS	CB	71	-	890
*	*	ZZ	1S	6S	1	X = 1.0 - 4.0	OMEGA	CBI	73	-	1031
*	*	ZZ	1S	6S	1	X = 1.5 - 6.0	CS	CB	78	-	1690
*	*	ZZ	1S	7S	1	X = 1.0	CS	CB	71	-	890
*	*	ZZ	1S	7S	1	X = 1.5 - 6.0	CS	CB	78	-	1690
*	*	ZZ	1S	8S	1	X = 1.5 - 6.0	CS	CB	78	-	1690
*	*	ZZ	1S	9S	1	X = 1.5 - 6.0	CS	CB	78	-	1690
*	*	ZZ	1S	10S	1	X = 1.5 - 6.0	CS	CB	78	-	1690
*	*	ZZ	1S	ZS	1	X = 1.0 - 4.0	OMEGA	CBI	73	-	1031
*	*	ZZ	1S	ZS	1	X = 1.5 - 6.0	CS	CB	78	-	1690
*	*	ZZ	1S	2P	1	X = 1 - 6	CS	CB	61	-	150
*	*	ZZ	1S	2P	1	X = 1.0 - 5.33	CS	CBI	70	-	730
*	*	ZZ	1S	2P	1	X = 1.0 - 5.33	CS	CBOI	70	-	730
*	*	ZZ	1S	2P	1	X = 1.0	CS	CB	71	-	890
*	*	ZZ	1S	2P	1	X = 1.0	CS	CBO	71	-	890

*	*	ION	TRANSITION	NUMBER	E.	ENERGY RANGE	DATA	METHOD	YEAR	REF.	*
*	*	ZZ	1S	2P	1	X =1.0	CS	CBB	71	-	890
*	*	ZZ	1S	2P	1	X =1.0 - 4.0	CS	CBII	71	-	892
*	*	ZZ	1S	2P	1	X =1.0 - 4.0	CS	CBOII	71	-	892
*	*	ZZ	1S	2P	1	PARAMETERS	CS	BETHE-B	72	-	931
*	*	ZZ	1S	2P	1	X =1.0 - 4.0	OMEGA	CBI	73	-	1031
*	*	ZZ	1S	2P	1	PARAMETERS	OMEGA	CBO	74	-	1101
*	*	ZZ	1S	2P	1	X =1.0 - 5.333	OMEGA	CBO	78	-	1760
*	*	ZZ	1S	3P	1	X =1.0	CS	CB	71	-	890
*	*	ZZ	1S	3P	1	X =1.0	CS	CBO	71	-	890
*	*	ZZ	1S	3P	1	X =1.0 - 7.0	CS	CBI	71	-	892
*	*	ZZ	1S	3P	1	PARAMETERS	CS	BETHE-B	72	-	931
*	*	ZZ	1S	3P	1	X =1.0+1.5	CS	CB	72	-	950
*	*	ZZ	1S	3P	1	X =1.0+1.5	CS	CBO	72	-	950
*	*	ZZ	1S	3P	1	X =1.0 - 4.0	OMEGA	CBI	73	-	1031
*	*	ZZ	1S	3P	1	PARAMETERS	OMEGA	CBO	74	-	1101
*	*	ZZ	1S	3P	1	X =1.0 - 4.0	OMEGA	CBO	78	-	1760
*	*	ZZ	1S	4P	1	X =1.0	CS	CB	71	-	890
*	*	ZZ	1S	4P	1	PARAMETERS	CS	BETHE-B	72	-	931
*	*	ZZ	1S	4P	1	X =1.0 - 4.0	OMEGA	CBI	73	-	1031
*	*	ZZ	1S	4P	1	X =1.0 - 4.0	OMEGA	CBO	78	-	1760
*	*	ZZ	1S	5P	1	X =1.0	CS	CB	71	-	890
*	*	ZZ	1S	5P	1	PARAMETERS	CS	BETHE-B	72	-	931
*	*	ZZ	1S	5P	1	X =1.0 - 4.0	OMEGA	CBI	73	-	1031
*	*	ZZ	1S	5P	1	X =1.0 - 4.0	OMEGA	CBO	78	-	1760
*	*	ZZ	1S	6P	1	X =1.0	CS	CB	71	-	890
*	*	ZZ	1S	6P	1	PARAMETERS	CS	BETHE-B	72	-	931
*	*	ZZ	1S	6P	1	X =1.0 - 4.0	OMEGA	CBI	73	-	1031
*	*	ZZ	1S	7P	1	X =1.0	CS	CB	71	-	890
*	*	ZZ	1S	7P	1	PARAMETERS	CS	BETHE-B	72	-	931
*	*	ZZ	1S	ZP	1	X =1.0 - 4.0	OMEGA	CBI	73	-	1031
*	*	ZZ	1S	3D	1	X =1.0	CS	CB	71	-	890
*	*	ZZ	1S	3D	1	X =1.0	CS	CBO	71	-	890
*	*	ZZ	1S	3D	1	X =1.0	CS	CBB	71	-	890
*	*	ZZ	1S	3D	1	X =1.0 - 7.0	CS	CB1	71	-	892
*	*	ZZ	1S	3D	1	X =1.0+1.5	CS	CB	72	-	950
*	*	ZZ	1S	3D	1	X =1.0+1.5	CS	CBO	72	-	950
*	*	ZZ	1S	3D	1	X =1.0 - 4.0	OMEGA	CBI	73	-	1031
*	*	ZZ	1S	3D	1	PARAMETERS	OMEGA	CBO	74	-	1101
*	*	ZZ	1S	3D	1	X =1.0 - 4.0	OMEGA	CBO	78	-	1760
*	*	ZZ	1S	4D	1	X =1.0	CS	CB	71	-	890
*	*	ZZ	1S	4D	1	X =1.0 - 4.0	OMEGA	CBI	73	-	1031
*	*	ZZ	1S	4D	1	X =1.0 - 4.0	OMEGA	CBO	78	-	1760
*	*	ZZ	1S	5D	1	X =1.0	CS	CB	71	-	890
*	*	ZZ	1S	5D	1	X =1.0 - 4.0	OMEGA	CBI	73	-	1031
*	*	ZZ	1S	5D	1	X =1.0 - 4.0	OMEGA	CBO	78	-	1760
*	*	ZZ	1S	6D	1	X =1.0	CS	CB	71	-	890
*	*	ZZ	1S	6D	1	X =1.0 - 4.0	OMEGA	CBI	73	-	1031
*	*	ZZ	1S	7D	1	X =1.0	CS	CB	71	-	890
*	*	ZZ	1S	ZD	1	X =1.0 - 4.0	OMEGA	CBI	73	-	1031
*	*	ZZ	1S	4F	1	X =1.0	CS	CB	71	-	890
*	*	ZZ	1S	5F	1	X =1.0	CS	CB	71	-	890
*	*	ZZ	1S	6F	1	X =1.0	CS	CB	71	-	890
*	*	ZZ	1S	7F	1	X =1.0	CS	CB	71	-	890
*	*	ZZ	1S	5G	1	X =1.0	CS	CB	71	-	890
*	*	ZZ	1S	6G	1	X =1.0	CS	CB	71	-	890
*	*	ZZ	1S	7G	1	X =1.0	CS	CB	71	-	890
*	*	ZZ	1S	6H	1	X =1.0	CS	CB	71	-	890
*	*	ZZ	1S	7H	1	X =1.0	CS	CB	71	-	890
*	*	ZZ	1S	7I	1	X =1.0	CS	CB	71	-	890
*	*	ZZ	2S	3S	1	X =1.0	CS	CB	71	-	890
*	*	ZZ	2S	3S	1	X =1.0	CS	CBO	71	-	890
*	*	ZZ	2S	3S	1	X =1.0	CS	CBB	71	-	890
*	*	ZZ	2S	3S	1	X =1.0 - 7.0	CS	CB1	71	-	892
*	*	ZZ	2S	3S	1	X =1.0+1.5	CS	CB	72	-	950
*	*	ZZ	2S	3S	1	X =1.0+1.5	CS	CBO	72	-	950
*	*	ZZ	2S	3S	1	PARAMETERS	OMEGA	CBO	74	-	1101
*	*	ZZ	2S	3S	1	X =1.0 - INF	OMEGA	CBI	74	-	1111
*	*	ZZ	2S	3S	1	X =1.0 - 4.0	OMEGA	CBO	78	-	1760
*	*	ZZ	2S	4S	1	X =1.0	CS	CB	71	-	890
*	*	ZZ	2S	4S	1	X =1.0 - INF	OMEGA	CBI	74	-	1111
*	*	ZZ	2S	4S	1	X =1.0 - 4.0	OMEGA	CBO	78	-	1760
*	*	ZZ	2S	5S	1	X =1.0	CS	CB	71	-	890
*	*	ZZ	2S	5S	1	X =1.0 - INF	OMEGA	CBI	74	-	1111
*	*	ZZ	2S	5S	1	X =1.0 - 4.0	OMEGA	CBO	78	-	1760
*	*	ZZ	2S	6S	1	X =1.0	CS	CB	71	-	890
*	*	ZZ	2S	7S	1	X =1.0	CS	CB	71	-	890
*	*	ZZ	2S	3P	1	X =1.0	CS	CB	71	-	890
*	*	ZZ	2S	3P	1	X =1.0	CS	CBO	71	-	890
*	*	ZZ	2S	3P	1	X =1.0	CS	CBB	71	-	890
*	*	ZZ	2S	3P	1	X =1.0 - 7.0	CS	CB1	71	-	892
*	*	ZZ	2S	3P	1	PARAMETERS	CS	BETHE-B	72	-	931
*	*	ZZ	2S	3P	1	X =1.0+1.5	CS	CB	72	-	950
*	*	ZZ	2S	3P	1	X =1.0+1.5	CS	CBO	72	-	950
*	*	ZZ	2S	3P	1	PARAMETERS	OMEGA	CBO	74	-	1101

*	ION	TRANSITION	NUMBER	E.	ENERGY RANGE	DATA	METHOD	YEAR	REF.	*
*	ZZ	2S	3P	1	X =1.0 - 8.0	OMEGA	CBI	74	-	1111 *
*	ZZ	2S	3P	1	X =1.0 - 4.0	OMEGA	CBO	78	-	1760 *
*	ZZ	2S	4P	1	X =1.0	CS	CB	71	-	890 *
*	ZZ	2S	4P	1	PARAMETERS	CS	BETHE-B	72	-	931 *
*	ZZ	2S	4P	1	X =1.0 - 8.0	OMEGA	CBI	74	-	1111 *
*	ZZ	2S	4P	1	X =1.0 - 4.0	OMEGA	CBO	78	-	1760 *
*	ZZ	2S	5P	1	X =1.0	CS	CB	71	-	890 *
*	ZZ	2S	5P	1	PARAMETERS	CS	BETHE-B	72	-	931 *
*	ZZ	2S	5P	1	X =1.0 - 8.0	OMEGA	CBI	74	-	1111 *
*	ZZ	2S	5P	1	X =1.0 - 4.0	OMEGA	CBO	78	-	1760 *
*	ZZ	2S	6P	1	X =1.0	CS	CB	71	-	890 *
*	ZZ	2S	6P	1	PARAMETERS	CS	BETHE-B	72	-	931 *
*	ZZ	2S	6P	1	X =1.0 - 8.0	OMEGA	CBI	74	-	1111 *
*	ZZ	2S	7P	1	X =1.0	CS	CB	71	-	890 *
*	ZZ	2S	7P	1	PARAMETERS	CS	BETHE-B	72	-	931 *
*	ZZ	2S	3D	1	X =1.0	CS	CB	71	-	890 *
*	ZZ	2S	3D	1	X =1.0	CS	CBO	71	-	890 *
*	ZZ	2S	3D	1	X =1.0	CS	CBB	71	-	890 *
*	ZZ	2S	3D	1	X =1.0 - 7.0	CS	CBI	71	-	892 *
*	ZZ	2S	3D	1	X =1.0,1.5	CS	CB	72	-	950 *
*	ZZ	2S	3D	1	X =1.0,1.5	CS	CBO	72	-	950 *
*	ZZ	2S	3D	1	PARAMETERS	OMEGA	CBO	74	-	1101 *
*	ZZ	2S	3D	1	X =1.0 - 4.0	OMEGA	CBO	78	-	1760 *
*	ZZ	2S	4D	1	X =1.0	CS	CB	71	-	890 *
*	ZZ	2S	4D	1	X =1.0 - 4.0	OMEGA	CBO	78	-	1760 *
*	ZZ	2S	5D	1	X =1.0	CS	CB	71	-	890 *
*	ZZ	2S	5D	1	X =1.0 - 4.0	OMEGA	CBO	78	-	1760 *
*	ZZ	2S	6D	1	X =1.0	CS	CB	71	-	890 *
*	ZZ	2S	7D	1	X =1.0	CS	CB	71	-	890 *
*	ZZ	2S	4F	1	X =1.0	CS	CB	71	-	890 *
*	ZZ	2S	5F	1	X =1.0	CS	CB	71	-	890 *
*	ZZ	2S	6F	1	X =1.0	CS	CB	71	-	890 *
*	ZZ	2S	7F	1	X =1.0	CS	CB	71	-	890 *
*	ZZ	2S	5G	1	X =1.0	CS	CB	71	-	890 *
*	ZZ	2S	6G	1	X =1.0	CS	CB	71	-	890 *
*	ZZ	2S	7G	1	X =1.0	CS	CB	71	-	890 *
*	ZZ	2S	6H	1	X =1.0	CS	CB	71	-	890 *
*	ZZ	2S	7H	1	X =1.0	CS	CB	71	-	890 *
*	ZZ	2S	7I	1	X =1.0	CS	CB	71	-	890 *
*	ZZ	3S	4S	1	X =1.0	CS	CB	71	-	890 *
*	ZZ	3S	5S	1	X =1.0	CS	CB	71	-	890 *
*	ZZ	3S	6S	1	X =1.0	CS	CB	71	-	890 *
*	ZZ	3S	7S	1	X =1.0	CS	CB	71	-	890 *
*	ZZ	3S	3P	1	PARAMETERS	OMEGA	CBO	74	-	1101 *
*	ZZ	3S	4P	1	X =1.0	CS	CB	71	-	890 *
*	ZZ	3S	5P	1	X =1.0	CS	CB	71	-	890 *
*	ZZ	3S	6P	1	X =1.0	CS	CB	71	-	890 *
*	ZZ	3S	7P	1	X =1.0	CS	CB	71	-	890 *
*	ZZ	3S	3D	1	PARAMETERS	OMEGA	CBO	74	-	1101 *
*	ZZ	3S	4D	1	X =1.0	CS	CB	71	-	890 *
*	ZZ	3S	5D	1	X =1.0	CS	CB	71	-	890 *
*	ZZ	3S	6D	1	X =1.0	CS	CB	71	-	890 *
*	ZZ	3S	7D	1	X =1.0	CS	CB	71	-	890 *
*	ZZ	3S	4F	1	X =1.0	CS	CB	71	-	890 *
*	ZZ	3S	5F	1	X =1.0	CS	CB	71	-	890 *
*	ZZ	3S	6F	1	X =1.0	CS	CB	71	-	890 *
*	ZZ	3S	7F	1	X =1.0	CS	CB	71	-	890 *
*	ZZ	3S	5G	1	X =1.0	CS	CB	71	-	890 *
*	ZZ	3S	6G	1	X =1.0	CS	CB	71	-	890 *
*	ZZ	3S	7G	1	X =1.0	CS	CB	71	-	890 *
*	ZZ	3S	6H	1	X =1.0	CS	CB	71	-	890 *
*	ZZ	3S	7H	1	X =1.0	CS	CB	71	-	890 *
*	ZZ	3S	7I	1	X =1.0	CS	CB	71	-	890 *
*	ZZ	2P	3S	1	X =1.0	CS	CB	71	-	890 *
*	ZZ	2P	3S	1	X =1.0	CS	CBO	71	-	890 *
*	ZZ	2P	3S	1	X =1.0	CS	CBB	71	-	890 *
*	ZZ	2P	3S	1	X =1.0 - 7.0	CS	CBI	71	-	892 *
*	ZZ	2P	3S	1	X =1.0,1.5	CS	CB	72	-	950 *
*	ZZ	2P	3S	1	X =1.0,1.5	CS	CBO	72	-	950 *
*	ZZ	2P	3S	1	PARAMETERS	OMEGA	CBO	74	-	1101 *
*	ZZ	2P	3S	1	X =1.0 - 4.0	OMEGA	CBO	78	-	1760 *
*	ZZ	2P	4S	1	X =1.0	CS	CB	71	-	890 *
*	ZZ	2P	4S	1	X =1.0 - 4.0	OMEGA	CBO	78	-	1760 *
*	ZZ	2P	5S	1	X =1.0	CS	CB	71	-	890 *
*	ZZ	2P	5S	1	X =1.0 - 4.0	OMEGA	CBO	78	-	1760 *
*	ZZ	2P	6S	1	X =1.0	CS	CB	71	-	890 *
*	ZZ	2P	7S	1	X =1.0	CS	CB	71	-	890 *
*	ZZ	2P	3P	1	X =1.0	CS	CB	71	-	890 *
*	ZZ	2P	3P	1	X =1.0	CS	CBO	71	-	890 *
*	ZZ	2P	3P	1	X =1.0	CS	CBB	71	-	890 *
*	ZZ	2P	3P	1	X =1.0 - 7.0	CS	CBI	71	-	892 *
*	ZZ	2P	3P	1	PARAMETERS	CS	BETHE-B	72	-	931 *
*	ZZ	2P	3P	1	X =1.0,1.5	CS	CB	72	-	950 *
*	ZZ	2P	3P	1	X =1.0,1.5	CS	CBO	72	-	950 *
*	ZZ	2P	3P	1	PARAMETERS	OMEGA	CBO	74	-	1101 *

*	ION	TRANSITION	NUMBER	E.	ENERGY RANGE	DATA	METHOD	YEAR	REF.	*
*	ZZ	2P	3P	1	X =1.0 - 4.0	OMEGA	CBO	78	-	1760 *
*	ZZ	2P	4P	1	X =1.0	CS	CB	71	-	890 *
*	ZZ	2P	4P	1	PARAMETERS	CS	BETHE-B	72	-	931 *
*	ZZ	2P	4P	1	X =1.0 - 4.0	OMEGA	CBO	78	-	1760 *
*	ZZ	2P	5P	1	X =1.0	CS	CB	71	-	890 *
*	ZZ	2P	5P	1	PARAMETERS	CS	BETHE-B	72	-	931 *
*	ZZ	2P	5P	1	X =1.0 - 4.0	OMEGA	CBO	78	-	1760 *
*	ZZ	2P	6P	1	X =1.0	CS	CB	71	-	890 *
*	ZZ	2P	6P	1	PARAMETERS	CS	BETHE-B	72	-	931 *
*	ZZ	2P	7P	1	X =1.0	CS	CB	71	-	890 *
*	ZZ	2P	7P	1	PARAMETERS	CS	BETHE-B	72	-	931 *
*	ZZ	2P	3D	1	X =1.0	CS	CB	71	-	890 *
*	ZZ	2P	3D	1	X =1.0	CS	CBB	71	-	890 *
*	ZZ	2P	3D	1	X =1.0	CS	CB	71	-	890 *
*	ZZ	2P	3D	1	X =1.0 - 7.0	CS	CBI	71	-	892 *
*	ZZ	2P	3D	1	X =1.0-1.5	CS	CB	72	-	950 *
*	ZZ	2P	3D	1	X =1.0-1.5	CS	CBO	72	-	950 *
*	ZZ	2P	3D	1	PARAMETERS	OMEGA	CBO	74	-	1101 *
*	ZZ	2P	3D	1	X =1.0 - 4.0	OMEGA	CBO	78	-	1760 *
*	ZZ	2P	4D	1	X =1.0	CS	CB	71	-	890 *
*	ZZ	2P	4D	1	X =1.0 - 4.0	OMEGA	CBO	78	-	1760 *
*	ZZ	2P	5D	1	X =1.0	CS	CB	71	-	890 *
*	ZZ	2P	5D	1	X =1.0 - 4.0	OMEGA	CBO	78	-	1760 *
*	ZZ	2P	6D	1	X =1.0	CS	CB	71	-	890 *
*	ZZ	2P	7D	1	X =1.0	CS	CB	71	-	890 *
*	ZZ	2P	4F	1	X =1.0	CS	CB	71	-	890 *
*	ZZ	2P	5F	1	X =1.0	CS	CB	71	-	890 *
*	ZZ	2P	6F	1	X =1.0	CS	CB	71	-	890 *
*	ZZ	2P	7H	1	X =1.0	CS	CB	71	-	890 *
*	ZZ	2P	7I	1	X =1.0	CS	CB	71	-	890 *
*	ZZ	3P	4S	1	X =1.0	CS	CB	71	-	890 *
*	ZZ	3P	5S	1	X =1.0	CS	CB	71	-	890 *
*	ZZ	3P	6S	1	X =1.0	CS	CB	71	-	890 *
*	ZZ	3P	7S	1	X =1.0	CS	CB	71	-	890 *
*	ZZ	3P	4P	1	X =1.0	CS	CB	71	-	890 *
*	ZZ	3P	4P	1	PARAMETERS	CS	BETHE-B	72	-	931 *
*	ZZ	3P	5P	1	X =1.0	CS	CB	71	-	890 *
*	ZZ	3P	5P	1	PARAMETERS	CS	BETHE-B	72	-	931 *
*	ZZ	3P	6P	1	X =1.0	CS	CB	71	-	890 *
*	ZZ	3P	6P	1	PARAMETERS	CS	BETHE-B	72	-	931 *
*	ZZ	3P	7P	1	X =1.0	CS	CB	71	-	890 *
*	ZZ	3P	7P	1	PARAMETERS	CS	BETHE-B	72	-	931 *
*	ZZ	3P	3D	1	PARAMETERS	OMEGA	CBO	74	-	1101 *
*	ZZ	3P	4D	1	X =1.0	CS	CB	71	-	890 *
*	ZZ	3P	5D	1	X =1.0	CS	CB	71	-	890 *
*	ZZ	3P	6D	1	X =1.0	CS	CB	71	-	890 *
*	ZZ	3P	7D	1	X =1.0	CS	CB	71	-	890 *
*	ZZ	3P	4F	1	X =1.0	CS	CB	71	-	890 *
*	ZZ	3P	5F	1	X =1.0	CS	CB	71	-	890 *
*	ZZ	3P	6F	1	X =1.0	CS	CB	71	-	890 *
*	ZZ	3P	7F	1	X =1.0	CS	CB	71	-	890 *
*	ZZ	3P	5G	1	X =1.0	CS	CB	71	-	890 *
*	ZZ	3P	6G	1	X =1.0	CS	CB	71	-	890 *
*	ZZ	3P	7G	1	X =1.0	CS	CB	71	-	890 *
*	ZZ	3P	6H	1	X =1.0	CS	CB	71	-	890 *
*	ZZ	3P	7H	1	X =1.0	CS	CB	71	-	890 *
*	ZZ	3P	7I	1	X =1.0	CS	CB	71	-	890 *
*	ZZ	4P	5P	1	PARAMETERS	CS	BETHE-B	72	-	931 *
*	ZZ	4P	6P	1	PARAMETERS	CS	BETHE-B	72	-	931 *
*	ZZ	4P	7P	1	PARAMETERS	CS	BETHE-B	72	-	931 *
*	ZZ	5P	6P	1	PARAMETERS	CS	BETHE-B	72	-	931 *
*	ZZ	5P	7P	1	PARAMETERS	CS	BETHE-B	72	-	931 *
*	ZZ	6P	7P	1	PARAMETERS	CS	BETHE-B	72	-	931 *
*	ZZ	3D	4S	1	X =1.0	CS	CB	71	-	890 *
*	ZZ	3D	5S	1	X =1.0	CS	CB	71	-	890 *
*	ZZ	3D	6S	1	X =1.0	CS	CB	71	-	890 *
*	ZZ	3D	7S	1	X =1.0	CS	CB	71	-	890 *
*	ZZ	3D	4P	1	X =1.0	CS	CB	71	-	890 *
*	ZZ	3D	5P	1	X =1.0	CS	CB	71	-	890 *
*	ZZ	3D	6P	1	X =1.0	CS	CB	71	-	890 *
*	ZZ	3D	7P	1	X =1.0	CS	CB	71	-	890 *
*	ZZ	3D	4F	1	X =1.0	CS	CB	71	-	890 *
*	ZZ	3D	5F	1	X =1.0	CS	CB	71	-	890 *
*	ZZ	3D	6F	1	X =1.0	CS	CB	71	-	890 *
*	ZZ	3D	7F	1	X =1.0	CS	CB	71	-	890 *
*	ZZ	3D	5G	1	X =1.0	CS	CB	71	-	890 *



*	*	ION	TRANSITION	NUMBER	E.	ENERGY RANGE	DATA	METHOD	YEAR	REF.	*
*	*	ZZ	1S2S 3S1	1S5D 1D2	2	X =1.0 - 4.0	OMEGA	CBO	78	-	1770
*	*	ZZ	1S2S 3S1	1S5D 3D2	2	X =1.0 - 4.0	OMEGA	CBO	78	-	1770
*	*	ZZ	1S2P 1P1	1S3S 1S0	2	X =1.0 - 4.0	OMEGA	CBO	78	-	1770
*	*	ZZ	1S2P 1P1	1S3S 3S1	2	X =1.0 - 4.0	OMEGA	CBO	78	-	1770
*	*	ZZ	1S2P 1P1	1S4S 1S0	2	X =1.0 - 4.0	OMEGA	CBO	78	-	1770
*	*	ZZ	1S2P 1P1	1S5S 1S0	2	X =1.0 - 4.0	OMEGA	CBO	78	-	1770
*	*	ZZ	1S2P 1P1	1S5S 3S1	2	X =1.0 - 4.0	OMEGA	CBO	78	-	1770
*	*	ZZ	1S2P 3P1	1S3S 1S0	2	X =1.0 - 4.0	OMEGA	CBO	78	-	1770
*	*	ZZ	1S2P 3P1	1S3S 3S1	2	X =1.0 - 4.0	OMEGA	CBO	78	-	1770
*	*	ZZ	1S2P 3P1	1S4S 1S0	2	X =1.0 - 4.0	OMEGA	CBO	78	-	1770
*	*	ZZ	1S2P 3P1	1S4S 3S1	2	X =1.0 - 4.0	OMEGA	CBO	78	-	1770
*	*	ZZ	1S2P 3P1	1S5S 1S0	2	X =1.0 - 4.0	OMEGA	CBO	78	-	1770
*	*	ZZ	1S2P 3P1	1S5S 3S1	2	X =1.0 - 4.0	OMEGA	CBO	78	-	1770
*	*	ZZ	2S	3S	3	X =1.3.5	OMEGA	CBI	66	-	381
*	*	ZZ	2S	4S	3	X =1.3.5	OMEGA	CBI	66	-	381
*	*	ZZ	2S	5S	3	X =1.3.5	OMEGA	CBI	66	-	381
*	*	ZZ	2S	6S	3	X =1.3.5	OMEGA	CBI	66	-	381
*	*	ZZ	2S	7S	3	X =1.3.5	OMEGA	CBI	66	-	381
*	*	ZZ	2S	3P	3	X =1 - 10	OMEGA	CBI	66	-	360
*	*	ZZ	2S	3P	3	X =1 - 10	OMEGA	CB'	66	-	360
*	*	ZZ	2S	3P	3	X =1 - 10	CS	CB	74	-	1120
*	*	ZZ	2S	3P	3	X =1 - 10	CS	B	74	-	1120
*	*	ZZ	2S	7P	3	X =1 - 10	OMEGA	CBI	66	-	360
*	*	ZZ	2S	7P	3	X =1 - 10	OMEGA	CB'	66	-	360
*	*	ZZ	2S	3D	3	X =1.3.5	OMEGA	CBI	66	-	381
*	*	ZZ	2S	4D	3	X =1.3.5	OMEGA	CBI	66	-	381
*	*	ZZ	2S	5D	3	X =1.3.5	OMEGA	CBI	66	-	381
*	*	ZZ	2S	6D	3	X =1.3.5	OMEGA	CBI	66	-	381
*	*	ZZ	2S	7D	3	X =1.3.5	OMEGA	CBI	66	-	381
*	*	ZZ	2P	3S	3	X =1.0.1.5.2.0	OMEGA	CBI	70	-	720
*	*	ZZ	2P	4S	3	X =1.0.1.5.2.0	OMEGA	CBI	70	-	720
*	*	ZZ	2P	7S	3	X =1.0.1.5.2.0	OMEGA	CBI	70	-	720
*	*	ZZ	2P	3P	3	X =1.0.1.5.2.0	OMEGA	CBI	70	-	720
*	*	ZZ	2P	4P	3	X =1.0.1.5.2.0	OMEGA	CBI	70	-	720
*	*	ZZ	2P	7P	3	X =1.0.1.5.2.0	OMEGA	CBI	70	-	720
*	*	ZZ	2P	3D	3	X =1.0.1.5.2.0	OMEGA	CBI	70	-	720
*	*	ZZ	2P	4D	3	X =1.0.1.5.2.0	OMEGA	CBI	70	-	720
*	*	ZZ	2P	7D	3	X =1.0.1.5.2.0	OMEGA	CBI	70	-	720
*	*	ZZ	1S2 2S 2S	1S2S2 2S	3	FORMULATION	CBO		75	-	1150
*	*	ZZ	1S2 2P 2P	1S2P2 2S	3	FORMULATION	CBO		75	-	1150
*	*	ZZ	1S2 2P 2P	1S2P2 2P	3	FORMULATION	CBO		75	-	1150
*	*	ZZ	1S2 2P 2P	1S2P2 4P	3	FORMULATION	CBO		75	-	1150
*	*	ZZ	1S2 2P 2P	1S2P2 2D	3	FORMULATION	CBO		75	-	1150
*	*	ZZ	1S2 2S 2S	1S2S(3S)3S 2S	3	X =1.0.1.5.2.25	OMEGA	CBI	77	-	1450
*	*	ZZ	1S2 2S 2S	1S2S(1S)3S 2S	3	X =1.0.1.5.2.25	OMEGA	CBI	77	-	1450
*	*	ZZ	1S2 2S 2S	1S2P(1P)3P 2S	3	X =1.0.1.5.2.25	OMEGA	CBI	77	-	1450
*	*	ZZ	1S2 2S 2S	1S2P(3P)3P 2S	3	X =1.0.1.5.2.25	OMEGA	CBI	77	-	1450
*	*	ZZ	1S2 2S 2S	1S2S(3S)3D 2D	3	X =1.0.1.5.2.25	OMEGA	CBI	77	-	1450
*	*	ZZ	1S2 2S 2S	1S2S(1S)3D 2D	3	X =1.0.1.5.2.25	OMEGA	CBI	77	-	1450
*	*	ZZ	1S2 2S 2S	1S2P(3P)3P 2D	3	X =1.0.1.5.2.25	OMEGA	CBI	77	-	1450
*	*	ZZ	1S2 2S 2S	1S2P(1P)3P 2D	3	X =1.0.1.5.2.25	OMEGA	CBI	77	-	1450
*	*	ZZ	1S2 2S 2S	1S2P(1P)3P 2D	3	X =1.0.1.5.2.25	OMEGA	CBI	77	-	1450
*	*	ZZ	1S2 2S 2S	1S2S(3S)3P 2P	3	X =1.0.1.5.2.25	OMEGA	CBI	77	-	1450
*	*	ZZ	1S2 2S 2S	1S2S(1S)3P 2P	3	X =1.0.1.5.2.25	OMEGA	CBI	77	-	1450
*	*	ZZ	1S2 2S 2S	1S2P(3P)3S 2P	3	X =1.0.1.5.2.25	OMEGA	CBI	77	-	1450
*	*	ZZ	1S2 2S 2S	1S2P(1P)3S 2P	3	X =1.0.1.5.2.25	OMEGA	CBI	77	-	1450
*	*	ZZ	1S2 2S 2S	1S2P(3P)3D 2P	3	X =1.0.1.5.2.25	OMEGA	CBI	77	-	1450
*	*	ZZ	1S2 2S 2S	1S2P(1P)3D 2P	3	X =1.0.1.5.2.25	OMEGA	CBI	77	-	1450
*	*	ZZ	1S2 2S 2S	1S2S(3S)3S 2S	3	X =1.0.1.5.2.25	3MEGA	CBI	77	-	1450
*	*	ZZ	1S2 2P 2P	1S2S(1S)3S 2S	3	X =1.0.1.5.2.25	3MEGA	CBI	77	-	1450
*	*	ZZ	1S2 2P 2P	1S2P(3P)3P 2S	3	X =1.0.1.5.2.25	3MEGA	CBI	77	-	1450
*	*	ZZ	1S2 2P 2P	1S2P(1P)3P 2S	3	X =1.0.1.5.2.25	3MEGA	CBI	77	-	1450
*	*	ZZ	1S2 2P 2P	1S2P(1P)3S 2P	3	X =1.0.1.5.2.25	3MEGA	CBI	77	-	1450
*	*	ZZ	1S2 2P 2P	1S2P(3P)3D 2P	3	X =1.0.1.5.2.25	OMEGA	CBI	77	-	1450
*	*	ZZ	1S2 2P 2P	1S2P(1P)3D 2D	3	X =1.0.1.5.2.25	OMEGA	CBI	77	-	1450
*	*	ZZ	1S2 2P 2P	1S2P(3P)3P 2D	3	X =1.0.1.5.2.25	OMEGA	CBI	77	-	1450
*	*	ZZ	1S2 2P 2P	1S2P(1P)3P 2D	3	X =1.0.1.5.2.25	OMEGA	CBI	77	-	1450
*	*	ZZ	1S2 2P 2P	1S2S(3S)3S 2S	3	X =1.0.1.5.2.25	OMEGA	CBI	77	-	1450
*	*	ZZ	1S2 2P 2P	1S2S(1S)3S 2S	3	X =1.0.1.5.2.25	OMEGA	CBI	77	-	1450
*	*	ZZ	1S2 2P 2P	1S2P(3P)3P 2S	3	X =1.0.1.5.2.25	OMEGA	CBI	77	-	1450
*	*	ZZ	1S2 2P 2P	1S2P(1P)3P 2S	3	X =1.0.1.5.2.25	OMEGA	CBI	77	-	1450
*	*	ZZ	1S2 2P 2P	1S2P(3P)3D 2D	3	X =1.0.1.5.2.25	OMEGA	CBI	77	-	1450
*	*	ZZ	1S2 2P 2P	1S2P(1P)3D 2D	3	X =1.0.1.5.2.25	OMEGA	CBI	77	-	1450
*	*	ZZ	1S2 2P 2P	1S2P(3P)3F 2F	3	X =1.0.1.5.2.25	OMEGA	CBI	77	-	1450
*	*	ZZ	1S2 2P 2P	1S2P(1P)3D 2F	3	X =1.0.1.5.2.25	OMEGA	CBI	77	-	1450
*	*	ZZ	1S2 3S 2S	1S2S(3S)3S 2S	3	X =1.0.2.0	OMEGA	CBI	77	-	1450
*	*	ZZ	1S2 3S 2S	1S2S(1S)3S 2S	3	X =1.0.2.0	OMEGA	CBI	77	-	1450
*	*	ZZ	1S2 3S 2S	1S2P(3P)3P 2S	3	X =1.0.2.0	OMEGA	CBI	77	-	1450
*	*	ZZ	1S2 3S 2S	1S2P(1P)3P 2S	3	X =1.0.2.0	OMEGA	CBI	77	-	1450
*	*	ZZ	1S2 3S 2S	1S2P(3P)3D 2D	3	X =1.0.2.0	OMEGA	CBI	77	-	1450
*	*	ZZ	1S2 3D 2D	1S2S(3S)3D 2D	3	X =1.0.2.0	OMEGA	CBI	77	-	1450
*	*	ZZ	1S2 3D 2D	1S2S(1S)3D 2D	3	X =1.0.2.0	OMEGA	CBI	77	-	1450
*	*	ZZ	1S2 3D 2D	1S2P(3P)3P 2D	3	X =1.0.2.0	OMEGA	CBI	77	-	1450
*	*	ZZ	1S2 3D 2D	1S2P(1P)3P 2D	3	X =1.0.2.0	OMEGA	CBI	77	-	1450
*	*	ZZ	1S2 3P 2P	1S2S(3S)3P 2P	3	X =1.0.2.0	OMEGA	CBI	77	-	1450
*	*	ZZ	1S2 3P 2P	1S2S(1S)3P 2P	3	X =1.0.2.0	OMEGA	CBI	77	-	1450
*	*	ZZ	1S2 3P 2P	1S2P(3P)3S 2P	3	X =1.0.2.0	OMEGA	CBI	77	-	1450
*	*	ZZ	1S2 3P 2P	1S2P(1P)3S 2P	3	X =1.0.2.0	OMEGA	CBI	77	-	1450
*	*	ZZ	1S2 3P 2P	1S2P(3P)3D 2P	3	X =1.0.2.0	OMEGA	CBI	77	-	1450



*	*	ION	TRANSITION	NUMBER	E.	ENERGY RANGE	DATA	METHOD	YEAR	REF.	*
*	ZZ	2P2 1S	2P3P 3P	4	X	=1.0±1.5	OMEGA	CBO	77	-	1440 *
*	ZZ	2P2 1S	2P3P 1D	4	X	=1.0±1.5	OMEGA	CBO	77	-	1440 *
*	ZZ	2P <sub>-</sub> 1S	2P3P 3D	4	X	=1.0±1.5	OMEGA	CBO	77	-	1440 *
*	ZZ	2P2 1S	2P3D 1P	4	X	=1.0±1.5	OMEGA	CBO	77	-	1440 *
*	ZZ	2P2 1S	2P3D 3P	4	X	=1.0±1.5	OMEGA	CBO	77	-	1440 *
*	ZZ	2P2 1S	2P3D 1D	4	X	=1.0±1.5	OMEGA	CBO	77	-	1440 *
*	ZZ	2P2 1S	2P3D 3D	4	X	=1.0±1.5	OMEGA	CBO	77	-	1440 *
*	ZZ	2P2 1S	2P3D 1F	4	X	=1.0±1.5	OMEGA	CBO	77	-	1440 *
*	ZZ	2P2 1S	2P3D 3F	4	X	=1.0±1.5	OMEGA	CBO	77	-	1440 *
*	ZZ	2S2P 1P	2S3S 1S	4	X	=1.0±1.5	OMEGA	CBO	77	-	1440 *
*	ZZ	2S2P 1P	2S3S 3S	4	X	=1.0±1.5	OMEGA	CBO	77	-	1440 *
*	ZZ	2S2P 1P	2S3P 1P	4	X	=1.0±1.5	OMEGA	CBO	77	-	1440 *
*	ZZ	2S2P 1P	2S3P 3P	4	X	=1.0±1.5	OMEGA	CBO	77	-	1440 *
*	ZZ	2S2P 1P	2S3D 1D	4	X	=1.0±1.5	OMEGA	CBO	77	-	1440 *
*	ZZ	2S2P 1P	2S3D 3D	4	X	=1.0±1.5	OMEGA	CBO	77	-	1440 *
*	ZZ	2S2P 1P	2P2 1S	4	KI	=0.0 - 3.25	OMEGA	CBO	77	-	1440 *
*	ZZ	2S2P 1P	2P3S 1P	4	X	=1.0±1.5	OMEGA	CBO	77	-	1440 *
*	ZZ	2S2P 1P	2P3S 3P	4	X	=1.0±1.5	OMEGA	CBO	77	-	1440 *
*	ZZ	2S2P 1P	2P3P 1S	4	X	=1.0±1.5	OMEGA	CBO	77	-	1440 *
*	ZZ	2S2P 1P	2P3P 3S	4	X	=1.0±1.5	OMEGA	CBO	77	-	1440 *
*	ZZ	2S2P 1P	2P3P 1P	4	X	=1.0±1.5	OMEGA	CBO	77	-	1440 *
*	ZZ	2S2P 1P	2P3P 3P	4	X	=1.0±1.5	OMEGA	CBO	77	-	1440 *
*	ZZ	2S2P 1P	2P3P 1D	4	X	=1.0±1.5	OMEGA	CBO	77	-	1440 *
*	ZZ	2S2P 1P	2P3D 3P	4	X	=1.0±1.5	OMEGA	CBO	77	-	1440 *
*	ZZ	2S2P 1P	2P3D 1F	4	X	=1.0±1.5	OMEGA	CBO	77	-	1440 *
*	ZZ	2S2P 1P	2P3D 3F	4	X	=1.0±1.5	OMEGA	CBO	77	-	1440 *
*	ZZ	2S2P 3P	2S3S 1S	4	X	=1.0±1.5	OMEGA	CBO	77	-	1440 *
*	ZZ	2S2P 3P	2S3S 3S	4	X	=1.0±1.5	OMEGA	CBO	77	-	1440 *
*	ZZ	2S2P 3P	2S3P 1P	4	X	=1.0±1.5	OMEGA	CBO	77	-	1440 *
*	ZZ	2S2P 3P	2S3P 3P	4	X	=1.0±1.5	OMEGA	CBO	77	-	1440 *
*	ZZ	2S2P 3P	2S3D 1D	4	X	=1.0±1.5	OMEGA	CBO	77	-	1440 *
*	ZZ	2S2P 3P	2S3D 3D	4	X	=1.0±1.5	OMEGA	CBO	77	-	1440 *
*	ZZ	2S2P 3P	2P2 1S	4	KI	=0.0 - 3.25	OMEGA	CBO	77	-	1440 *
*	ZZ	2S2P 3P	2P3S 1P	4	X	=1.0±1.5	OMEGA	CBO	77	-	1440 *
*	ZZ	2S2P 3P	2P3S 3P	4	X	=1.0±1.5	OMEGA	CBO	77	-	1440 *
*	ZZ	2S2P 3P	2P3P 1S	4	X	=1.0±1.5	OMEGA	CBO	77	-	1440 *
*	ZZ	2S2P 3P	2P3P 3S	4	X	=1.0±1.5	OMEGA	CBO	77	-	1440 *
*	ZZ	2S2P 3P	2P3P 1P	4	X	=1.0±1.5	OMEGA	CBO	77	-	1440 *
*	ZZ	2S2P 3P	2P3P 3P	4	X	=1.0±1.5	OMEGA	CBO	77	-	1440 *
*	ZZ	2S2P 3P	2P3P 1D	4	X	=1.0±1.5	OMEGA	CBO	77	-	1440 *
*	ZZ	2S2P 3P	2P3D 3D	4	X	=1.0±1.5	OMEGA	CBO	77	-	1440 *
*	ZZ	2S2P 3P	2P3D 1F	4	X	=1.0±1.5	OMEGA	CBO	77	-	1440 *
*	ZZ	2S2P 3P	2P3D 3F	4	X	=1.0±1.5	OMEGA	CBO	77	-	1440 *
*	ZZ	2P2 3P	2P2 1S	6	RY3	=0.0	OMEGA	ER+DW	66	-	460 *
*	ZZ	2P2 3P	2P2 1D	6	RY3	=0.0	OMEGA	ER+DW	66	-	460 *
*	ZZ	2P2 1D	2P2 1S	6	RY3	=0.0	OMEGA	ER+DW	66	-	460 *
*	ZZ	2P3 4S	2P2 3P 2P	7	X	=1.0±1.5	OMEGA	CBO!	76	-	1322 *
*	ZZ	2P3 4S	2P2 3P 2D	7	X	=1.0±1.5	OMEGA	CBO!	76	-	1322 *
*	ZZ	2P3 4S	2P2 3D 2P	7	X	=1.0±1.5	OMEGA	CBO!	76	-	1322 *