ADF09: direct resolved dielectronic recombination coefficients

Formatting conventions and variable storage are given below LS-coupled and intermediate coupled (IC) state selective dielectronic recombination coefficients. LS-coupled data comes as transfer files from Nigel Badnell's dielectronic calculations dated '93. The IC data is the product of the DR-Project which is currently running. The latter also produces LS data as a by-product. Data for an ion is specified by the isoelectronic sequence of the final (ie. recombined) ion and nuclear charge of the element. In LS-coupling, there are distinct blocks of data for LS-resolved low levels and bundle-n levels. The former is divided according to recombining ion metastable parents(including ground state) and the latter by both parents and recombined ion spin system. Representative bundle-n levels are used. In IC-coupling, there are distinct blocks of data for J-resolved low levels, nl and parent resolved moderately excited levels and n/parent resolved highly excited levels. In the organisation, recombination data is provided as a function of actual temperature. Typically up to 20 temperatures may be given. The older 1993 tabulations used the temperature set Te(k)=z1**2*theta(k) where z1 is the recombining ion charge and theta= 1.0d3, 2.0d3, 5.0d3, 1.0d4, 2.0d4, 5.0d4, 1.0d5, 2.0d5, 5.0d5, 1.0d6. The new 2002 tabulations use the temperature set Te(k)=z1**2*theta(k) with theta=1.0d1, 2.0d1, 5.0d1, 1.0d2, 2.0d2, 5.0d2, 1.0d3, 2.0d3, 5.0d3, 1.0d4, 2.0d4, 5.0d4, 1.0d5, 2.0d5, 5.0d5, 1.0d6, 2.0d6, 5.0d6, 1.0d7. The secondary Auger rate coefficient associated with metastable parent change is required.

Utilising subroutines :

ADAS204 ADAS208 ADAS212 ADAS410

Formatted files to ADF09 specification :

Database Status Date = March 17, 2003 Data type =drc files Data root =/.../adas/adas/adf09/

Recombining seq.	*Members*	*Library*	*n-n'*	*Comments*	*Quality*
H-like.	Ar,B,Be,C,Fe,He,Li, Mg,O,Sn,Y,	nrb93#h	1-2	LS resolution	medium
He-like	Ar,B,Be,C,Fe,Li,Mg, O,Sn,Y	nrb93#he	1-2, 2-2	LS resolution	medium
Li-like	Ar,B,Be,C,Fe,Mg, O,Sn,Y	nrb93#li	1-2, 2-2, 2-3	LS resolution	medium
Be-like	Ar,B,C,Fe,Mg, O,Sn,Y	nrb93#be	2-2, 2-3	LS resolution	medium
B-like	Ar,C,Fe,Mg, O,Sn,Y	nrb93#b	2-2, 2-3	LS resolution	medium
C-like	Ar, Fe,Mg,O,Y	nrb93#c	2-2, 2-3	LS resolution	medium
N-like	Ar,Fe,Mg,O,Y	nrb93#n	2-2, 2-3	LS resolution	medium
O-like	Ar,Fe,Mg,Y	nrb93#o	2-2, 2-3	LS resolutiio	medium

F-like	Ar,Fe,Mg,Y	nrb93#f	2-2, 2-3	LS resolution	medium
Ne-like	Ar,Fe,Mg,Y	nrb93#ne	2-3	LS resolution	medium
H-like.	C, N, Ne	mom93#h	1-2	LS resolution	medium
He-like	C, N, Ne	mom93#he	1-2, 2-2	LS resolution	medium
Li-like	C, N, Ne	mom93#li	1-2, 2-2, 2-3	LS resolution	medium
Be-like	C, N, Ne	mom93#be	2-2, 2-3	LS resolution	medium
B-like	C, N, O, Ne	mom93#b	2-2, 2-3	LS resolution	medium
C-like	N, O, Ne	mom93#c	2-2, 2-3	LS resolution	medium
N-like	O, Ne	mom93#n	2-2, 2-3	LS resolution	medium
O-like	Ne, Mg	mom93#o	2-2, 2-3	LS resolution	medium
F-like	Ne, Mg	mom93#f	2-2, 2-3	LS resolution	medium
H-like.	Extended element range	nrb00#h	1-2	IC & LS resolution	high
He-like	Extended element range	mb00#he	1-2, 2-3	IC & LS resolution	high
Li-like	Extended element range	jc00#li	2-2, 2-3	IC & LS resolution	high
Be-like	Extended element range	jc00#be	2-2, 2-3	IC & LS resolution	high
N-like	Extended element range	dmm00#n	2-2, 2-3	IC & LS resolution	high

Notes: 1. The formerly named ‘mom96’ data have been renamed as ‘mom93’ since they are of the same calculation type as for the ‘nrb93’ data. The year number is therefore being used to mark the first year of a calculation type. The new year number ‘00’ has been introduced for the intermediate coupling ‘ic’ dielectronic data. ‘00’ is also used for new ‘ls’ dielectronic data which has extended temperature ranges and is patterned on the ‘ic’ fomat.

Data lines for LS coupled file – 1993 style:	*Format:*
[prescribed text], SEQ, [prescribed text],IZ0	1a5,1a2,1a11,i2
[blank line]	1a80
[prescribed text], BWNP,[prescribed text],NPRNTI,NPRNTF	1a40,f12.1,1a10,i2,10x,i2

[prescribed text field]	1a23
[prescribed text field]	1a56
[prescribed text field]	1a56
for iprt=1,NPRNT	
INDP, CFGP, ISP, ILP ,XJP,WNPI	i6,5x,1a20,1x,i1,1x,i1,1x,f4.1,1x,f11.1
repeat	
[blank line]	1a80
[prescribed text], BWNR, [prescribed text], NTRM	1a40,f12.1,1a9,i3
[prescribed text field]	1a28
[prescribed text field]	1a56
[prescribed text field]	1a56
for indx=1,NTRM	
INDX,INDP,CFGT,IS, IL, XJ, WNRT	i6,5x,1a20,1x,i1,1x,i1,1x,f4.1,1x,f11.1
repeat	
[blank line]	1a80
[prescribed text field],NREP	1a61,i3
[prescribed text field]	1a56
[prescribed text field](CTRNS(I),I=1, NPRNT*(NPRNT-1)/2)	1a21,10(7x,1a3)
for irep=1,NREP	
IREP,NR,(AAMPM(IN),IN=1,NPRNT*(NPRNT-1)/2)	2i6,9x,10(e10.2)
repeat	
[blank line]	1a80
[blank line]	1a80
[blank line]	1a80
for iprti=1,NPRNT	

```
        [prescribed text field]                                          1a33
        [prescribed text field],IPRTI, TRMPRI, SPNPRI                    6x,i2,10x,1a4,9x,i2
        [blank line]                                                     1a80
        [prescribed text field],(TE(IT),IT=1,MAXT)                       11x,10e10.2/11x,10e10.2
        for itrm=1,NTRM
            INDX, (ALT(IT),IT=1,MAXT)                                    i6,5x,10e10.2/11x,10e10.2
        repeat
        [blank line]                                                     1a80
        [blank line]                                                     1a80
        for IPRTF=1,NPRTF
            [prescribed text field]                                      1a42
            [prescribed text field],IPRTF, TRMPRF, SPNPRF,NSYSF          6x,i2,10x,1a4,9x,i2,7x,i2
            for isys=1,NSYS
                [prescribed text field]                                  1a111
                [prescribed text field],IS,SPNSYS                        1a98,i2,9x,i2
                [prescribed text field]                                  1a7
                [prescribed text field]                                  1a7
                for irep=1,NREP
                    IREP, (ANT(IT),IT=1,MAXT)                            i6,5x,10e10.2/11x,10e10.2
                repeat
            repeat
        repeat
repeat
[blank line]                                                             1a80
[blank line]                                                             1a80
```

[prescribed comment line]	1a80
[prescribed comment line]	1a80
[prescribed comment line]	1a80

variable identification :

name	*meaning*
SEQ	sequence identifier (two characters)
IZ0	nuclear charge
CCPLG	coupling scheme, '/LS/' => LS coupling
BWNP	binding wave number of lowest parent (cm-1)
NPRNTI	number of initial metastable parents (including ground parent)
NPRNTF	number of final metastable parents (including ground parent)
INDP	index of parent
CFGP	configuration (or Eissner code therefor) for parent.
ISP	multiplicity of parent ($2S_p+1$)
ILP	lotal orbital quantum number (L_p) for parent
XJP	(statist. weight - 1)/2 of parent term
WNPI	energy of parent term relative to lowest parent (cm-1)
BWNR	binding energy of lowest term relative to lowest parent (cm-1)
NTRM	number of terms in LS-resolved set
INDX	index value for term
INDP	index of parent
CFGT	configuration (or Eissner code thereof) for term.
IS	multiplicity for level (2*S+1)
IL	total orbital quantum number for term

XJ	(statist. weight - 1)/2 for term
WNRT	energy of term relative to ground (cm-1)
AATP()	specifies metastable to metastable secondary Auger path for terms
NREP	number of representative n-shells
CTRNS()	specifies metastable to metastable secondary Auger path, written as m'-m where m' and m are metastable parent indices.
IREP	index of representative n-shells
NR	principal quantum number
AAMPM()	Auger rate coefficients (sec-1)
IPRTI	index of initial parent
TRMPRI	term specification of initial parent
SPNPRI	spin multiplicity of initial parent
TE()	prescribed electron temperatures (K)
MAXT	number of temperatures
INDX	index of term
ALT()	dielectronic coefficients for term for the initial parent
IPRTF	index of final parent
TRMPRF	term specification of finalparent
SPNPRF	spin multiplicity of final parent
NSYSF	number of spin systems associated with recombination to this final parent (1 or 2)
IS	index of spin system
SPNSYS	spin multiplicity of spin system
IREP	index of representative n-shell
ANT()	dielectronic coefficients for n-shell

Table B9b – example – LS coupling – 1993 style

SEQ='N ' NUCCHG= 8

PARENT TERM INDEXING BWNP= 16047558.5 NPRNTI= 4 NPRNTF= 7

INDP	CODE	S	L	WI	WNP
1	2S2 2P2	(3)	1	(4.0)	0.0
2	2S2 2P2	(1)	2	(2.0)	23155.5
3	2S2 2P2	(1)	0	(0.0)	42332.1
4	2S1 2P3	(5)	0	(2.0)	49238.2
5	2S1 2P3	(3)	2	(7.0)	124557.2*
6	2S1 2P3	(3)	1	(4.0)	147712.7*
7	2S1 2P3	(1)	2	(2.0)	205728.5*

LS RESOLVED TERM INDEXING BWNR= 16302223.5 NTRM=215

INDX	CODE	S	L	WJ	WNR
1	2S2 2P3	(4)	0	(1.5)	0.0
2	2S2 2P3	(2)	2	(4.5)	33383.6
.	. .				
214	2S2 2P2 4S1	(2)	0	(0.5)	255502.9
215	2S1 2P3 3D1	(4)	2	(9.5)	258520.1

N-SHELL INDEXING & AUGER RATES NREP= 42

IREP	N	M'-M =	2-1	3-1	4-1	3-2	4-2	4-3
1	1		0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2	2		0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3	3		0.00E+00	0.00E+00	8.27E+11	0.00E+00	0.00E+00	0.00E+00
4	4		0.00E+00	6.40E+13	7.27E+13	0.00E+00	0.00E+00	0.00E+00
5	5		1.24E+14	1.35E+13	1.84E+13	9.51E+11	0.00E+00	0.00E+00
.	.							
40	700		6.64E+02	1.33E+02	1.77E+02	6.74E+01	0.00E+00	0.00E+00
41	811		3.18E+02	6.62E+01	8.46E+01	4.15E+01	0.00E+00	0.00E+00
42	999		1.12E+02	1.24E+01	2.05E+01	1.39E+01	0.00E+00	0.00E+00

PRTI= 1 TRMPRT= (3P) SPNPRT= 3

INDX	TE= 4.00E+03	8.00E+03	2.00E+04	4.00E+04	8.00E+04	2.00E+05	4.00E+05	8.00E+05	2.00E+06	4.00E+06
1	7.31E-20	5.04E-18	4.15E-17	1.02E-16	2.04E-16	2.05E-16	1.21E-16	5.58E-17	1.66E-17	6.19E-18
2	1.16E-12	8.11E-13	3.48E-13	1.56E-13	6.47E-14	1.89E-14	7.11E-15	2.61E-15	6.76E-16	2.41E-16
3	1.17E-13	1.02E-13	6.12E-14	3.32E-14	1.54E-14	4.75E-15	1.81E-15	6.68E-16	1.73E-16	6.18E-17
4	3.63E-15	1.97E-14	3.88E-14	4.45E-14	4.12E-14	2.23E-14	1.05E-14	4.30E-15	1.19E-15	4.34E-16
.	. .									
214	1.52E-17	1.36E-16	3.03E-16	2.42E-16	1.31E-16	4.32E-17	1.67E-17	6.18E-18	1.61E-18	5.73E-19
215	4.24E-18	5.82E-16	6.08E-15	7.99E-15	5.58E-15	2.14E-15	8.72E-16	3.31E-16	8.74E-17	3.13E-17

PRTF= 1 TRMPRT= (3P) SPNPRT= 3 NSYS= 2

```
                                                                                                    SYS= 1  SPNSYS= 2
  IREP
  ----
    2       1.28E-12  9.13E-13  4.09E-13  1.89E-13  8.01E-14  2.36E-14  8.92E-15  3.28E-15  8.49E-16  3.03E-16
    3       4.46E-20  7.89E-17  7.19E-15  3.22E-14  5.49E-14  4.15E-14  2.17E-14  9.40E-15  2.69E-15  9.91E-16
    4       1.74E-25  3.40E-19  1.73E-15  2.35E-14  6.70E-14  6.90E-14  4.01E-14  1.82E-14  5.38E-15  2.00E-15
   .       .         .
   41       4.92E-30  9.86E-24  1.20E-18  3.81E-17  1.37E-16  1.47E-16  8.53E-17  3.87E-17  1.14E-17  4.24E-18
   42       4.89E-30  5.41E-24  6.54E-19  2.07E-17  7.44E-17  7.97E-17  4.62E-17  2.09E-17  6.16E-18  2.29E-18


----------------------------------------
PRTF= 2  TRMPRT= (1D)  SPNPRT= 1  NSYS= 1
                                                                                                    ----------------
                                                                                                    SYS= 1  SPNSYS= 2
  IREP
  ----
    3       2.03E-13  1.48E-13  7.10E-14  4.37E-14  4.51E-14  3.28E-14  1.72E-14  7.46E-15  2.14E-15  7.87E-16
    4       1.56E-13  1.10E-13  5.07E-14  2.55E-14  2.27E-14  2.03E-14  1.18E-14  5.43E-15  1.61E-15  6.00E-16
    5       3.10E-15  3.84E-15  2.50E-15  1.80E-15  4.37E-15  6.10E-15  3.92E-15  1.87E-15  5.68E-16  2.13E-16


----------------------------------------
PRTF= 3  TRMPRT= (1S)  SPNPRT= 1  NSYS= 1
                                                                                                    ----------------
                                                                                                    SYS= 1  SPNSYS= 2
  IREP
  ----
    3       1.68E-14  2.55E-14  1.98E-14  1.10E-14  5.32E-15  1.91E-15  8.13E-16  3.21E-16  8.76E-17  3.18E-17


----------------------------------------
PRTF= 4  TRMPRT= (5S)  SPNPRT= 5  NSYS= 1
                                                                                                    ----------------
                                                                                                    SYS= 1  SPNSYS= 4
  IREP
  ----
    2       3.63E-15  1.97E-14  3.88E-14  4.45E-14  4.12E-14  2.23E-14  1.05E-14  4.29E-15  1.19E-15  4.34E-16
    3       7.63E-18  2.12E-16  1.20E-15  1.43E-15  9.75E-16  3.73E-16  1.52E-16  5.79E-17  1.53E-17  5.49E-18


----------------------------------------
PRTF= 5  TRMPRT= (3D)  SPNPRT= 3  NSYS= 2
                                                                                                    ----------------
                                                                                                    SYS= 1  SPNSYS= 2
  IREP
  ----
    2       7.87E-18  1.05E-17  9.09E-16  8.11E-15  1.71E-14  1.34E-14  6.96E-15  2.99E-15  8.50E-16  3.13E-16

                                                                                                    ----------------
                                                                                                    SYS= 2  SPNSYS= 4
  IREP
  ----


----------------------------------------
PRTF= 6  TRMPRT= (3P)  SPNPRT= 3  NSYS= 2
                                                                                                    ----------------
                                                                                                    SYS= 1  SPNSYS= 2
```

```
  ----
    2       1.27E-18  9.13E-19  6.63E-17  1.15E-15  2.91E-15  2.44E-15  1.29E-15  5.60E-16  1.60E-16  5.90E-17

  IREP                                                                                    ----------------
                                                                                          SYS= 2  SPNSYS= 4
  IREP
  ----


----------------------------------------
PRTF= 7  TRMPRT= (1D)  SPNPRT= 1  NSYS= 1
                                                                                          ----------------
                                                                                          SYS= 1  SPNSYS= 2
  IREP
  ----
    2       1.82E-21  1.28E-19  9.16E-18  5.71E-17  1.39E-16  1.26E-16  6.93E-17  3.07E-17  8.88E-18  3.28E-18



--------------------------------
PRTI= 2  TRMPRT= (1D)  SPNPRT= 1

  INDX TE=  4.00E+03  8.00E+03  2.00E+04  4.00E+04  8.00E+04  2.00E+05  4.00E+05  8.00E+05  2.00E+06  4.00E+06
  ---- ---
    2       1.24E-15  6.98E-16  1.33E-15  1.67E-15  1.32E-15  6.25E-16  2.84E-16  1.15E-16  3.19E-17  1.16E-17
    3       4.93E-14  2.40E-14  9.72E-15  4.89E-15  2.52E-15  9.61E-16  4.11E-16  1.62E-16  4.40E-17  1.59E-17
    6       6.81E-16  1.14E-14  3.45E-14  3.12E-14  1.83E-14  6.37E-15  2.51E-15  9.37E-16  2.45E-16  8.76E-17
    7       1.94E-19  4.13E-17  5.32E-16  1.09E-15  1.34E-15  8.15E-16  3.93E-16  1.62E-16  4.52E-17  1.65E-17
   .       .         .
  205       9.25E-28  1.08E-22  2.14E-18  1.86E-16  1.12E-15  1.57E-15  9.84E-16  4.64E-16  1.39E-16  5.22E-17
  214       1.80E-16  1.62E-16  8.50E-17  4.00E-17  1.65E-17  4.58E-18  1.67E-18  6.01E-19  1.54E-19  5.44E-20


----------------------------------------
PRTF= 1  TRMPRT= (3P)  SPNPRT= 3  NSYS= 1
                                                                                          ----------------
                                                                                          SYS= 1  SPNSYS= 2
  IREP
  ----
    2       5.05E-14  2.47E-14  1.10E-14  6.56E-15  3.84E-15  1.59E-15  6.95E-16  2.77E-16  7.58E-17  2.75E-17
    3       6.85E-16  1.20E-14  4.76E-14  6.79E-14  6.34E-14  3.29E-14  1.52E-14  6.16E-15  1.69E-15  6.16E-16
    4       6.43E-22  1.44E-17  4.85E-15  2.36E-14  3.33E-14  2.01E-14  9.60E-15  3.95E-15  1.10E-15  3.99E-16
    5       2.52E-24  1.22E-18  1.72E-15  1.14E-14  1.80E-14  1.15E-14  5.58E-15  2.32E-15  6.46E-16  2.36E-16
   .       .         .
   41       1.38E-29  3.03E-22  3.78E-18  5.12E-17  1.14E-16  8.80E-17  4.52E-17  1.93E-17  5.45E-18  2.00E-18
   42       5.83E-30  1.28E-22  1.63E-18  2.26E-17  5.12E-17  4.00E-17  2.06E-17  8.82E-18  2.50E-18  9.18E-19


----------------------------------------
PRTF= 2  TRMPRT= (1D)  SPNPRT= 1  NSYS= 1
                                                                                          ----------------
                                                                                          SYS= 1  SPNSYS= 2
  IREP
  ----
    3       1.74E-17  3.48E-16  2.83E-15  2.89E-14  9.13E-14  9.03E-14  5.06E-14  2.25E-14  6.55E-15  2.42E-15
    4       4.50E-25  2.86E-20  6.69E-16  3.89E-14  1.86E-13  2.29E-13  1.38E-13  6.36E-14  1.89E-14  7.04E-15
    5       1.93E-31  5.87E-24  7.59E-18  5.21E-16  2.70E-15  3.48E-15  2.12E-15  9.87E-16  2.94E-16  1.10E-16
```

PRTF= 3 TRMPRT= (1S) SPNPRT= 1 NSYS= 1

IREP	SYS= 1 SPNSYS= 2									
3	1.67E-13	7.67E-14	2.72E-14	1.33E-14	1.19E-14	9.59E-15	5.34E-15	2.39E-15	6.96E-16	2.58E-16
4	1.06E-15	6.94E-16	3.10E-16	1.40E-16	5.65E-17	1.55E-17	5.66E-18	2.03E-18	5.18E-19	1.84E-19

PRTF= 5 TRMPRT= (3D) SPNPRT= 3 NSYS= 1

IREP	SYS= 1 SPNSYS= 2									
2	2.64E-17	4.59E-16	3.47E-15	1.44E-14	2.34E-14	1.59E-14	7.91E-15	3.33E-15	9.35E-16	3.42E-16

PRTF= 6 TRMPRT= (3P) SPNPRT= 3 NSYS= 1

IREP	SYS= 1 SPNSYS= 2									
2	1.60E-19	6.29E-19	3.46E-16	2.96E-15	5.80E-15	4.45E-15	2.32E-15	1.00E-15	2.85E-16	1.05E-16

PRTF= 7 TRMPRT= (1D) SPNPRT= 1 NSYS= 1

IREP	SYS= 1 SPNSYS= 2									
2	2.12E-18	3.83E-17	1.65E-16	1.90E-16	1.35E-16	5.65E-17	2.43E-17	9.52E-18	2.57E-18	9.29E-19

PRTI= 3 TRMPRT= (1S) SPNPRT= 1

INDX	TE= 4.00E+03	8.00E+03	2.00E+04	4.00E+04	8.00E+04	2.00E+05	4.00E+05	8.00E+05	2.00E+06	4.00E+06
2	2.51E-19	1.46E-17	9.07E-17	1.20E-16	1.06E-16	5.83E-17	2.87E-17	1.22E-17	3.47E-18	1.28E-18
3	1.21E-19	1.16E-17	4.54E-16	1.30E-15	1.48E-15	8.11E-16	3.80E-16	1.55E-16	4.30E-17	1.57E-17
6	2.63E-15	4.29E-14	1.08E-13	8.25E-14	4.28E-14	1.36E-14	5.20E-15	1.91E-15	4.95E-16	1.76E-16
8	8.95E-17	1.46E-15	3.69E-15	2.81E-15	1.47E-15	4.71E-16	1.81E-16	6.66E-17	1.73E-17	6.15E-18
.	.	.								
204	5.90E-32	1.45E-24	2.70E-18	1.93E-16	9.67E-16	1.20E-15	7.22E-16	3.33E-16	9.87E-17	3.68E-17
205	5.75E-26	2.24E-22	1.03E-18	6.52E-17	3.12E-16	3.77E-16	2.25E-16	1.03E-16	3.05E-17	1.14E-17

PRTF= 1 TRMPRT= (3P) SPNPRT= 3 NSYS= 1

IREP	SYS= 1 SPNSYS= 2									
2	3.72E-19	2.61E-17	5.45E-16	1.42E-15	1.58E-15	8.69E-16	4.08E-16	1.68E-16	4.65E-17	1.70E-17
3	2.63E-15	4.36E-14	1.25E-13	1.18E-13	7.48E-14	2.80E-14	1.14E-14	4.33E-15	1.14E-15	4.11E-16

5	9.79E-23	3.27E-18	1.52E-15	8.99E-15	1.37E-14	8.48E-15	4.04E-15	1.66E-15	4.60E-16	1.68E-16
.	.	.								
41	2.13E-27	1.99E-21	6.01E-18	6.38E-17	1.30E-16	9.60E-17	4.86E-17	2.05E-17	5.79E-18	2.12E-18
42	1.15E-27	1.07E-21	3.23E-18	3.43E-17	7.00E-17	5.16E-17	2.61E-17	1.10E-17	3.11E-18	1.14E-18
4	4.34E-21	5.94E-17	1.58E-14	7.07E-14	6.15E-14	5.08E-14	2.34E-14	9.45E-15	2.58E-15	9.38E-16

PRTF= 2 TRMPRT= (1D) SPNPRT= 1 NSYS= 1

									SYS= 1	SPNSYS= 2
IREP										
3	9.04E-17	1.52E-15	5.16E-15	3.01E-14	8.72E-14	8.19E-14	4.50E-14	1.98E-14	5.73E-15	2.12E-15
4	2.34E-23	1.74E-19	5.44E-16	3.23E-14	1.53E-13	1.84E-13	1.09E-13	5.00E-14	1.48E-14	5.51E-15
5	5.90E-32	1.45E-24	2.70E-18	1.93E-16	9.67E-16	1.20E-15	7.22E-16	3.33E-16	9.87E-17	3.68E-17

PRTF= 3 TRMPRT= (1S) SPNPRT= 1 NSYS= 1

									SYS= 1	SPNSYS= 2
IREP										
3	1.53E-18	3.98E-17	4.22E-16	6.68E-15	2.09E-14	1.99E-14	1.09E-14	4.82E-15	1.39E-15	5.15E-16

PRTF= 5 TRMPRT= (3D) SPNPRT= 3 NSYS= 1

									SYS= 1	SPNSYS= 2
IREP										
2	2.28E-16	3.75E-15	1.41E-14	2.72E-14	3.00E-14	1.65E-14	7.69E-15	3.14E-15	8.65E-16	3.15E-16

PRTF= 6 TRMPRT= (3P) SPNPRT= 3 NSYS= 1

									SYS= 1	SPNSYS= 2
IREP										
2	2.72E-18	4.76E-17	1.30E-15	5.10E-15	6.40E-15	3.58E-15	1.66E-15	6.75E-16	1.86E-16	6.76E-17

PRTF= 7 TRMPRT= (1D) SPNPRT= 1 NSYS= 1

									SYS= 1	SPNSYS= 2
IREP										
2	3.11E-17	5.09E-16	1.29E-15	9.80E-16	5.11E-16	1.64E-16	6.30E-17	2.32E-17	6.03E-18	2.15E-18

PRTI= 4 TRMPRT= (5S) SPNPRT= 5

INDX	TE= 4.00E+03	8.00E+03	2.00E+04	4.00E+04	8.00E+04	2.00E+05	4.00E+05	8.00E+05	2.00E+06	4.00E+06
----	---									

```
     4       4.00E-14  1.21E-13  1.37E-13  1.02E-13  6.01E-14  2.23E-14  9.08E-15  3.46E-15  9.18E-16  3.30E-16
     5       8.28E-23  9.88E-18  5.19E-15  2.34E-14  2.95E-14  1.60E-14  7.32E-15  2.94E-15  8.02E-16  2.91E-16
     9       2.36E-13  1.21E-13  8.68E-14  6.60E-14  4.18E-14  1.62E-14  6.71E-15  2.57E-15  6.84E-16  2.46E-16
     .       .         .         .         .         .         .         .         .         .         .
     1       5.58E-14  2.19E-14  7.19E-15  3.91E-15  2.45E-15  1.19E-15  5.74E-16  2.41E-16  6.79E-17  2.49E-17
   190       7.96E-21  3.83E-17  3.30E-15  9.06E-15  9.33E-15  4.56E-15  2.02E-15  7.97E-16  2.16E-16  7.80E-17
   207       9.62E-39  3.90E-27  1.82E-20  1.72E-18  9.96E-18  1.35E-17  8.34E-18  3.90E-18  1.17E-18  4.36E-19


 ----------------------------------------
 PRTF= 1  TRMPRT= (3P)  SPNPRT= 3  NSYS= 1
                                                                                  -----------------
                                                                                  SYS= 1  SPNSYS= 4
   IREP
   ----
     2       5.58E-14  2.19E-14  7.19E-15  3.91E-15  2.45E-15  1.19E-15  5.74E-16  2.41E-16  6.79E-17  2.49E-17
     3       1.69E-12  8.41E-13  4.53E-13  2.93E-13  1.73E-13  6.58E-14  2.71E-14  1.04E-14  2.76E-15  9.93E-16
     4       2.91E-16  1.00E-14  7.31E-14  1.10E-13  1.01E-13  5.04E-14  2.29E-14  9.19E-15  2.51E-15  9.13E-16
     5       2.48E-18  1.24E-15  3.11E-14  6.70E-14  7.43E-14  4.29E-14  2.05E-14  8.45E-15  2.35E-15  8.57E-16
     .       .         .
    41       3.82E-23  6.31E-19  1.08E-16  3.57E-16  3.97E-16  2.03E-16  9.08E-17  3.62E-17  9.83E-18  3.56E-18
    42       2.06E-23  3.38E-19  5.61E-17  1.79E-16  1.94E-16  9.68E-17  4.30E-17  1.71E-17  4.63E-18  1.67E-18


 ----------------------------------------
 PRTF= 4  TRMPRT= (5S)  SPNPRT= 5  NSYS= 2
                                                                                  -----------------
                                                                                  SYS= 1  SPNSYS= 4
   IREP
   ----
     2       4.00E-14  1.21E-13  1.37E-13  1.02E-13  6.01E-14  2.23E-14  9.08E-15  3.46E-15  9.18E-16  3.30E-16
     3       1.01E-38  4.76E-27  2.76E-20  2.88E-18  1.76E-17  2.47E-17  1.55E-17  7.28E-18  2.19E-18  8.19E-19

                                                                                  -----------------
                                                                                  SYS= 2  SPNSYS= 6
   IREP
   ----


 ----------------------------------------
 PRTF= 5  TRMPRT= (3D)  SPNPRT= 3  NSYS= 1
                                                                                  -----------------
                                                                                  SYS= 1  SPNSYS= 4
   IREP
   ----


 ----------------------------------------
 PRTF= 6  TRMPRT= (3P)  SPNPRT= 3  NSYS= 1
                                                                                  -----------------
                                                                                  SYS= 1  SPNSYS= 4
   IREP
   ----


C-------------------------------------------------------------------------------
C ADAS ADF09 DATA - SCCS info: @(#)nrb93#c_o2ls22.dat  2.1 Date 01/09/01
C-------------------------------------------------------------------------------
```

Data lines for LS coupled file:	*Format:*
[prescribed text], SEQ, [prescribed text],IZ0, CCPLG	1a5,1a2,1a13,i2,50x,1a4
[blank line]	1a80
[prescribed text], BWNP,[prescribed text],NPRNTI,NPRNTF	1a45,f12.1,1a10,i2,10x,i2
[prescribed text field]	1a23
[prescribed text field]	1a56
[prescribed text field]	1a56
for iprt=1,NPRNT	
INDP, CFGP, ISP, ILP ,XJP,WNPI	i6,10x,1a20,1x,i1,1x,i1,1x,f4.1,1x,f11.1
repeat	
[blank line]	1a80
[prescribed text], BWNR, [prescribed text], NTRM	1a45,f12.1,1a8,i4
[prescribed text field]	1a28
[prescribed text field]	1a56
[prescribed text field]	1a56
for indx=1,NTRM	
INDX,INDP,CFGT,IS, IL, XJ, WNRT,(AATP(IP1),IP1=1,INDP-1)	2i6,4x,1a20,1x,i1,1x,i1,1x,f4.1,1x,f11.1,4x,5(e10.2)
repeat	
[blank line]	1a80
[prescribed text field],NREP	1a61,i3
[prescribed text field]	1a56
[prescribed text field](CTRNS(I),I=1, NPRNT*(NPRNT-1)/2)	1a21,10(7x,1a3)
for irep=1,NREP	
IREP,NR,(AAMPM(IN),IN=1,NPRNT*(NPRNT-1)/2)	2i6,9x,10(e10.2)

```
repeat
[blank line]                                                    1a80
[blank line]                                                    1a80
[blank line]                                                    1a80
for iprti=1,NPRNT
        [prescribed text field]                                 1a33
        [prescribed text field],IPRTI, TRMPRI, SPNPRI           6x,i2,10x,1a4,9x,i2
        [prescribed text field],(TE(IT),IT=1,MAXT)              11x,10e10.2/11x,10e10.2
        for itrm=1,NTRM
                INDX, (ALT(IT),IT=1,MAXT)                       i6,5x,10e10.2/11x,10e10.2
        repeat
        [blank line]                                            1a80
        [blank line]                                            1a80
        for IPRTF=1,NPRTF
                [prescribed text field]                         1a42
                [prescribed text field],IPRTF, TRMPRF, SPNPRF,NSYSF     6x,i2,10x,1a4,9x,i2,8x,i2
                for isys=1,NSYS
                        [prescribed text field]                 1a111
                        [prescribed text field],IS,SPNSYS       1a98,i2,9x,i2
                        [prescribed text field]                 1a7
                        [prescribed text field]                 1a7
                        for irep=1,NREP
                                IREP, (ANT(IT),IT=1,MAXT)               i6,5x,10e10.2/11x,10e10.2
                        repeat
                repeat
```

repeat	
repeat	
[blank line]	1a80
[blank line]	1a80
[blank line]	1a80
[prescribed text field]	1a33
[prescribed text field]	1a33
for it=1,MAXT	
TE,(ALFT(IPRTI),IPRT=1,NPRNTI)	1e10.2,1x,10e10.2
repeat	
[blank line]	1a80
[prescribed comment line]	1a80
[prescribed comment line]	1a80
[prescribed comment line]	1a80
[prescribed comment line]	1a80

variable identification :

name	*meaning*
SEQ	sequence identifier (two characters)
IZ0	nuclear charge
CCPLG	coupling scheme, ‘/LS/’ => LS coupling
BWNP	binding wave number of lowest parent (cm-1)
NPRNTI	number of initial metastable parents (including ground parent)
NPRNTF	number of final metastable parents (including ground parent)
INDP	index of parent

CFGP	configuration (or Eissner code therefor) for parent.
ISP	multiplicity of parent ($2S_p+1$)
ILP	lotal orbital quantum number (L_p) for parent
XJP	(statist. weight - 1)/2 of parent term
WNPI	energy of parent term relative to lowest parent (cm-1)
BWNR	binding energy of lowest term relative to lowest parent (cm-1)
NTRM	number of terms in LS-resolved set
INDX	index value for term
INDP	index of parent
CFGT	configuration (or Eissner code thereof) for term.
IS	multiplicity for level (2*S+1)
IL	total orbital quantum number for term
XJ	(statist. weight - 1)/2 for term
WNRT	energy of term relative to ground (cm-1)
AATP()	specifies metastable to metastable secondary Auger path for terms
NREP	number of representative n-shells
CTRNS()	specifies metastable to metastable secondary Auger path, written as m'-m where m' and m are metastable parent indices.
IREP	index of representative n-shells
NR	principal quantum number
AAMPM()	Auger rate coefficients (sec-1)
IPRTI	index of initial parent
TRMPRI	term specification of initial parent
SPNPRI	spin multiplicity of initial parent
TE()	prescribed electron temperatures (K)
MAXT	number of temperatures

INDX	index of term
ALT()	dielectronic coefficients for term for the initial parent
IPRTF	index of final parent
TRMPRF	term specification of finalparent
SPNPRF	spin multiplicity of final parent
NSYSF	number of spin systems associated with recombination to this final parent (1 or 2)
IS	index of spin system
SPNSYS	spin multiplicity of spin system
IREP	index of representative n-shell
ANT()	dielectronic coefficients for n-shell

Table B9c – example – LS coupling

```
SEQ='BE'     NUCCHG=22                                                  /LS/

   PARENT TERM INDEXING                BWNP= 114642063.9   NPRNTI= 2   NPRNTF= 2
   --------------------
   INDP         CODE                S L   WI        WNP
   ----         ----                - -   --  ----------
     1          2S1                (2)0( 0.5)        0.0
     2          2P1                (2)1( 2.5)   314856.2

   LS RESOLVED TERM INDEXING           BWNR= 125431244.2   NTRM= 180
   -------------------------
   INDX  INDP   CODE                S L   WJ        WNR       AUGER RATES:  INDP-INDP', INDP'=1,...INDP-1
   ----  ----   ----                - -   --  ----------      -----------
     1     1    2S2                (1)0( 0.0)        0.0
     2     1    2S1 2P1            (3)1( 4.0)   283994.3
     3     1    2S1 2P1            (1)1( 1.0)   555243.9
     4     2    2P2                (3)1( 4.0)   734460.7
     5     2    2P2                (1)2( 2.0)   827490.4
     6     2    2P2                (1)0( 0.0)  1023228.1
     7     2    2P1 3S1            (3)1( 4.0)  6474866.4
.       .          .
   174     2    2P1 8F1            (3)2( 7.0) 10485299.8
   175     2    2P1 8G1            (3)3(10.0) 10485351.4
   176     2    2P1 8G1            (1)3( 3.0) 10485399.7
   177     2    2P1 8F1            (1)4( 4.0) 10485651.6
   178     2    2P1 8F1            (1)2( 2.0) 10485836.4
   179     2    2P1 8D1            (1)3( 3.0) 10486217.0
   180     2    2P1 8D1            (1)1( 1.0) 10486227.3
```

N-SHELL INDEXING & AUGER RATES NREP= 42

IREP	N	M'-M = 2-1
1	1	0.00E+00
2	2	0.00E+00
3	3	0.00E+00
.	.	.
40	700	1.00E+04
41	811	4.80E+03
42	999	1.69E+03

PRTI= 1 TRMPRT= (2S) SPNPRT= 2

INDX	TE=	3.61E+03	7.22E+03	1.80E+04	3.61E+04	7.22E+04	1.80E+05	3.61E+05	7.22E+05	1.80E+06	3.61E+06
		7.22E+06	1.80E+07	3.61E+07	7.22E+07	1.80E+08	3.61E+08	7.22E+08	1.80E+09	3.61E+09	
1		2.29E-27	4.59E-20	5.54E-16	8.22E-15	2.41E-14	3.10E-14	2.19E-14	1.14E-14	3.67E-15	1.41E-15
		5.21E-16	1.35E-16	4.83E-17	1.71E-17	4.35E-18	1.54E-18	5.44E-19	1.38E-19	4.87E-20	
2		2.44E-25	3.63E-18	3.56E-14	4.91E-13	1.38E-12	1.75E-12	1.22E-12	6.34E-13	2.05E-13	7.87E-14
		2.90E-14	7.53E-15	2.68E-15	9.53E-16	2.42E-16	8.55E-17	3.03E-17	7.66E-18	2.71E-18	
.		.	.								
179		3.76E-27	8.02E-20	9.79E-16	1.45E-14	4.24E-14	5.44E-14	3.82E-14	1.98E-14	6.40E-15	2.46E-15
		9.07E-16	2.35E-16	8.39E-17	2.98E-17	7.56E-18	2.68E-18	9.46E-19	2.39E-19	8.47E-20	
180		1.20E-27	2.64E-20	3.28E-16	4.89E-15	1.44E-14	1.84E-14	1.29E-14	6.63E-15	2.13E-15	8.19E-16
		3.02E-16	7.83E-17	2.79E-17	9.91E-18	2.51E-18	8.89E-19	3.14E-19	7.96E-20	2.81E-20	

PRTF= 1 TRMPRT= (2S) SPNPRT= 2 NSYS= 2

SYS= 1 SPNSYS= 1

IREP										
2	5.58E-26	9.91E-19	1.08E-14	1.55E-13	4.47E-13	5.72E-13	4.03E-13	2.10E-13	6.78E-14	2.61E-14
	9.62E-15	2.50E-15	8.90E-16	3.16E-16	8.02E-17	2.84E-17	1.00E-17	2.54E-18	8.98E-19	
12	4.10E-26	8.57E-19	1.00E-14	1.27E-13	2.70E-13	2.00E-13	1.01E-13	4.28E-14	1.21E-14	4.42E-15
	1.59E-15	4.07E-16	1.44E-16	5.11E-17	1.29E-17	4.58E-18	1.62E-18	4.10E-19	1.45E-19	
.	.	.								
41	0.00E+00	7.75E-45	1.75E-26	1.28E-20	6.54E-18	1.30E-16	1.97E-16	1.44E-16	5.63E-17	2.30E-17
	8.75E-18	2.31E-18	8.30E-19	2.95E-19	7.51E-20	2.66E-20	9.41E-21	2.38E-21	8.42E-22	
42	0.00E+00	4.16E-45	9.42E-27	6.92E-21	3.52E-18	7.00E-17	1.06E-16	7.76E-17	3.04E-17	1.24E-17
	4.72E-18	1.25E-18	4.47E-19	1.59E-19	4.05E-20	1.43E-20	5.07E-21	1.28E-21	4.54E-22	

SYS= 2 SPNSYS= 3

IREP										
2	2.44E-25	3.63E-18	3.56E-14	4.91E-13	1.38E-12	1.75E-12	1.22E-12	6.34E-13	2.05E-13	7.87E-14
	2.90E-14	7.53E-15	2.68E-15	9.53E-16	2.42E-16	8.55E-17	3.03E-17	7.66E-18	2.71E-18	
12	1.27E-25	2.59E-18	3.00E-14	3.79E-13	8.02E-13	5.94E-13	3.00E-13	1.27E-13	3.58E-14	1.31E-14
	4.72E-15	1.21E-15	4.28E-16	1.52E-16	3.84E-17	1.36E-17	4.80E-18	1.21E-18	4.29E-19	
41	0.00E+00	1.82E-44	4.11E-26	3.01E-20	1.53E-17	3.05E-16	4.62E-16	3.38E-16	1.32E-16	5.41E-17
	2.06E-17	5.43E-18	1.95E-18	6.94E-19	1.76E-19	6.24E-20	2.21E-20	5.59E-21	1.98E-21	
42	0.00E+00	9.75E-45	2.21E-26	1.62E-20	8.25E-18	1.64E-16	2.48E-16	1.82E-16	7.11E-17	2.91E-17
	1.10E-17	2.92E-18	1.05E-18	3.73E-19	9.48E-20	3.36E-20	1.19E-20	3.01E-21	1.06E-21	

```
----------------------------------------
PRTF= 2  TRMPRT= (2P)  SPNPRT= 2  NSYS= 2
                                                                                  -----------------
                                                                                  SYS= 1  SPNSYS= 1
  IREP
  ----
    2       1.99E-25  4.24E-18  5.24E-14  7.83E-13  2.31E-12  2.98E-12  2.10E-12  1.09E-12  3.54E-13  1.36E-13
            5.02E-14  1.30E-14  4.64E-15  1.65E-15  4.18E-16  1.48E-16  5.23E-17  1.32E-17  4.68E-18
    3       9.94E-26  2.03E-18  2.44E-14  3.61E-13  1.06E-12  1.37E-12  9.63E-13  5.00E-13  1.62E-13  6.22E-14
            2.29E-14  5.95E-15  2.12E-15  7.53E-16  1.91E-16  6.76E-17  2.39E-17  6.05E-18  2.14E-18
        .         .         .         .         .         .         .         .         .         .
   40       0.00E+00  4.26E-52  9.63E-34  7.07E-28  3.60E-25  7.15E-24  1.08E-23  7.92E-24  3.10E-24  1.27E-24
            4.82E-25  1.27E-25  4.57E-26  1.63E-26  4.13E-27  1.46E-27  5.18E-28  1.31E-28  4.64E-29
   41       0.00E+00  1.04E-52  2.34E-34  1.72E-28  8.76E-26  1.74E-24  2.63E-24  1.93E-24  7.54E-25  3.09E-25
            1.17E-25  3.10E-26  1.11E-26  3.96E-27  1.01E-27  3.56E-28  1.26E-28  3.19E-29  1.13E-29

                                                                                  -----------------
                                                                                  SYS= 2  SPNSYS= 3
  IREP
  ----
    2       1.57E-25  2.72E-18  2.99E-14  4.30E-13  1.24E-12  1.59E-12  1.12E-12  5.81E-13  1.88E-13  7.22E-14
            2.66E-14  6.91E-15  2.46E-15  8.75E-16  2.22E-16  7.85E-17  2.78E-17  7.03E-18  2.49E-18
    3       3.60E-25  6.50E-18  7.27E-14  1.05E-12  3.03E-12  3.86E-12  2.70E-12  1.40E-12  4.50E-13  1.73E-13
            6.37E-14  1.65E-14  5.90E-15  2.09E-15  5.31E-16  1.88E-16  6.64E-17  1.68E-17  5.95E-18
        .         .         .         .         .         .         .         .         .         .
   40       0.00E+00  1.00E-51  2.26E-33  1.66E-27  8.45E-25  1.68E-23  2.54E-23  1.86E-23  7.28E-24  2.98E-24
            1.13E-24  2.99E-25  1.07E-25  3.82E-26  9.71E-27  3.44E-27  1.22E-27  3.08E-28  1.09E-28
   41       0.00E+00  2.42E-52  5.49E-34  4.03E-28  2.05E-25  4.08E-24  6.17E-24  4.51E-24  1.77E-24  7.23E-25
            2.75E-25  7.26E-26  2.60E-26  9.28E-27  2.36E-27  8.34E-28  2.95E-28  7.47E-29  2.64E-29



--------------------------------
PRTI= 2  TRMPRT= (2P)  SPNPRT= 2

  INDX TE=  3.61E+03  7.22E+03  1.80E+04  3.61E+04  7.22E+04  1.80E+05  3.61E+05  7.22E+05  1.80E+06  3.61E+06
  ---- ---  7.22E+06  1.80E+07  3.61E+07  7.22E+07  1.80E+08  3.61E+08  7.22E+08  1.80E+09  3.61E+09


----------------------------------------
PRTF= 1  TRMPRT= (2S)  SPNPRT= 2  NSYS= 2
                                                                                  -----------------
                                                                                  SYS= 1  SPNSYS= 1
  IREP
  ----

                                                                                  -----------------
                                                                                  SYS= 2  SPNSYS= 3
  IREP
  ----


----------------------------------------
PRTF= 2  TRMPRT= (2P)  SPNPRT= 2  NSYS= 2
                                                                                  -----------------
                                                                                  SYS= 1  SPNSYS= 1
  IREP
  ----
```

```
                                                                                                SYS= 2  SPNSYS= 3
    IREP
    ----

                                                                                                ----------------


     T(K)     ALFT( 1)  ALFT( 2)  ALFT( 3)  ALFT( 4)  ALFT( 5)  ALFT( 6)  ALFT( 7)  ALFT( 8)  ALFT( 9)  ALFT(10)
     ----     --------  --------  --------  --------  --------  --------  --------  --------  --------  --------
   3.61E+03   3.58E-24  0.00E+00
   7.22E+03   7.03E-17  0.00E+00
   1.80E+04   8.23E-13  0.00E+00
   3.61E+04   1.20E-11  0.00E+00
   7.22E+04   3.53E-11  0.00E+00
   1.80E+05   5.66E-11  0.00E+00
   3.61E+05   4.89E-11  0.00E+00
   7.22E+05   2.89E-11  0.00E+00
   1.80E+06   1.01E-11  0.00E+00
   3.61E+06   4.01E-12  0.00E+00
   7.22E+06   1.50E-12  0.00E+00
   1.80E+07   3.93E-13  0.00E+00
   3.61E+07   1.40E-13  0.00E+00
   7.22E+07   4.99E-14  0.00E+00
   1.80E+08   1.27E-14  0.00E+00
   3.61E+08   4.49E-15  0.00E+00
   7.22E+08   1.59E-15  0.00E+00
   1.80E+09   4.02E-16  0.00E+00
   3.61E+09   1.42E-16  0.00E+00

C-----------------------------------------------------------------------------------------------------------
C
C
C
C-----------------------------------------------------------------------------------------------------------

C-------------------------------------------------------------------------
C ADAS ADF09 DATA - SCCS info: @(#)jc00#li_ti19ls22.dat     2.1 Date 11/19/01
C-------------------------------------------------------------------------
```

Data lines for IC coupled file:	*Format:*
[prescribed text], SEQ, [prescribed text],IZ0, CCPLG	1a5,1a2,1a11,i2,50x,1a4
[blank line]	1a80
[prescribed text], BWNP,[prescribed text],NPRNTI,NPRNTF	1a45,f12.1,1a10,i2,10x,i2
[prescribed text field]	1a23
[prescribed text field]	1a56

[prescribed text field]	1a56
for iprt=1,NPRNT	
INDP, CFGP, ISP, ILP ,XJP,WNPI	i6,10x,1a20,1x,i1,1x,i1,1x,f4.1,1x,f11.1
repeat	
[blank line]	1a80
[prescribed text], BWNR, [prescribed text], NLVL	1a45,f12.1,1a8,i4
[prescribed text field]	1a28
[prescribed text field]	1a56
[prescribed text field]	1a56
for indx=1,NLVL	
INDX, INDP, CFGL, IS, IL, XJ, WNRL, (AALP(IP1),IP1=1,INDP-1)	i6,10x,1a20,1x,i1,1x,i1,1x,f4.1,1x,f11.1,4x,5(e10.2)
repeat	
[blank line]	1a80
[prescribed text field],NLREP	1a61,i3
[prescribed text field]	1a56
[prescribed text field](CTRNS(I),I=1, NPRNT*(NPRNT-1)/2)	1a21,10(7x,1a3)
for ilrep=1,NLREP	
ILREP,NR,LR,(AALMPM(IN),IN=1,NPRNT*(NPRNT-1)/2)	2i6,i4,5x,10(e10.2)
repeat	
[blank line]	1a80
[prescribed text field],NREP	1a61,i3
[prescribed text field]	1a56
[prescribed text field](CTRNS(I),I=1, NPRNT*(NPRNT-1)/2)	1a21,10(7x,1a3)
for irep=1,NREP	
IREP,NR,(AANMPM(IN),IN=1,NPRNT*(NPRNT-1)/2)	2i6,9x,10(e10.2)

```
repeat
[blank line]                                                    1a80
[blank line]                                                    1a80
[blank line]                                                    1a80
for iprti=1,NPRNTI
        [prescribed text field]                                 1a33
        [prescribed text field],IPRTI, LVLPRI                   6x,i2,10x,a9
        [prescribed text field],(TE(IT),IT=1,MAXT)              1a11,10e10.2/11x,10e10.2
        for ilvl=1,NLVL
                INDX, (ALL(IT),IT=1,MAXT)                       i6,5x,10e10.2/11x,10e10.2
        repeat
        [blank line]                                            1a80
        for IPRTF=1,NPRNTF
                [prescribed text field]                         1a110
                [prescribed text field],IPRTF, LVLPRF           90x,i2,10x,1a9
                        [prescribed text field]                 1a8
                        [prescribed text field]                 1a8
                        for ilrep=1,NLREP
                                ILREP, (ANLL(IT),IT=1,MAXT)     i6,5x,10e10.2/11x,10e10.2
                        repeat
                        [prescribed text field]                 1a8
                        [prescribed text field]                 1a8
                        for inrep=1,NREP
                                INREP, (ANL(IT),IT=1,MAXT)      i6,5x,10e10.2/11x,10e10.2
                        repeat
```

	repeat	
repeat		
[blank line]		1a80
[blank line]		1a80
[blank line]		1a80
[prescribed text field]		1a33
[prescribed text field]		1a33
for it=1,MAXT		
	TE,(ALFT(IPRTI),IPRT=1,NPRNTI)	1e10.2,1x,10e10.2
repeat		
[blank line]		1a80
[prescribed comment line]		1a80
[prescribed comment line]		1a80
[prescribed comment line]		1a80
[prescribed comment line]		1a80

variable identification :

name	*meaning*
SEQ	sequence identifier (two characters)
IZ0	nuclear charge
CCPLG	coupling scheme, ‘/LS/’ => LS coupling
BWNP	binding wave number of lowest parent (cm-1)
NPRNTI	number of initial metastable parents (including ground parent)
NPRNTF	number of final metastable parents (including ground parent)
INDP	index of parent

CFGP	configuration (or Eissner code therefor) for parent.
ISP	multiplicity of parent ($2S_p+1$)
ILP	total orbital quantum number (L_p) for parent
XJP	J-valueof parent level
WNPI	energy of parent term relative to lowest parent (cm-1)
BWNR	binding energy of lowest level relative to lowest parent (cm-1)
NLVL	number of levels in IC-resolved set
INDX	index value for level
INDP	index of parent
CFGT	configuration (or Eissner code thereof) for level.
IS	multiplicity for level (2*S+1)
IL	total orbital quantum number for term
XJ	J-value for level
WNRL	energy of level relative to ground (cm-1)
AALP()	specifies metastable to metastable secondary Auger path for levels
NLREP	number of representative nl-shells
CTRNS()	specifies metastable to metastable secondary Auger path, written as m'-m where m' and m are metastable parent indices.
ILREP	index of representative n-shells
NR	principal quantum number
LR	orbital quantum number
AALMPM()	Auger rate coefficients (sec-1)
NREP	number of representative n-shells
CTRNS()	specifies metastable to metastable secondary Auger path, written as m'-m where m' and m are metastable parent indices.
IREP	index of representative n-shells
NR	principal quantum number

AAMPM()	Auger rate coefficients (sec-1)
IPRTI	index of initial parent level
LVLPRI	level specification of initial parent
TE()	prescribed electron temperatures (K)
MAXT	numbre of temperatures
INDX	index of term
ALL()	dielectronic coefficients for level for the initial parent
IPRTF	index of final parent
LVLPRF	level specification of final parent
ILREP	index of representative nl-shell
ANLL()	dielectronic coefficients for nl-shell
IREP	index of representative n-shell
ANL()	dielectronic coefficients for n-shell

Table B9d – example – IC coupling

```
SEQ='BE'     NUCCHG=22                                                  /IC/

   PARENT LEVEL INDEXING               BWNP= 115364486.4   NPRNTI= 3   NPRNTF= 3
   --------------------
   INDP         CODE                S L   WI        WNP
   ----         ----                - -   --  ----------
     1          2S1                (2)0( 0.5)        0.0
     2          2P1                (2)1( 0.5)   321167.0
     3          2P1                (2)1( 1.5)   380369.2

   IC RESOLVED LEVEL INDEXING          BWNR= 126230568.4   NLVL= 346
   --------------------------
   INDX  INDP   CODE                S L   WJ        WNR       AUGER RATES:  INDP-INDP', INDP'=1,...INDP-1
   ----  ----   ----                - -   --  ----------      -----------
     1     1    2S2                (1)0( 0.0)        0.0
     2     1    2S1 2P1            (3)1( 0.0)   285612.6
     3     1    2S1 2P1            (3)1( 1.0)   302702.5
     4     1    2S1 2P1            (3)1( 2.0)   344814.8
     5     1    2S1 2P1            (1)1( 1.0)   599880.5
     6     2    2P2                (3)1( 0.0)   772927.5
     7     2    2P2                (3)1( 1.0)   801384.0
```

```
  341     3    2P1 8J1            (3)6( 6.0) 10627481.4
  342     3    2P1 8I1            (3)5( 5.0) 10627492.5
  343     3    2P1 8H1            (3)4( 4.0) 10627530.5
  344     3    2P1 8G1            (3)3( 2.0) 10627531.5
  345     3    2P1 8G1            (3)3( 3.0) 10627628.7
  346     3    2P1 8F1            (1)2( 2.0) 10627740.7

  NL-SHELL INDEXING & AUGER RATES                    NLREP= 55
  ------------------------------
  ILREP   N   L  M'-M =    2-1       3-1       3-2
    1     1   0       0.00E+00  0.00E+00  0.00E+00
    2     2   0       0.00E+00  0.00E+00  0.00E+00
    3     2   1       0.00E+00  0.00E+00  0.00E+00
    4     3   0       0.00E+00  0.00E+00  0.00E+00
       .      .
   52    10   6       0.00E+00  0.00E+00  0.00E+00
   53    10   7       0.00E+00  0.00E+00  0.00E+00
   54    10   8       0.00E+00  0.00E+00  0.00E+00
   55    10   9       0.00E+00  0.00E+00  0.00E+00

  N-SHELL INDEXING & AUGER RATES                     NREP= 42
  ------------------------------
  INREP   N  M'-M =        2-1       3-1       3-2
    1     1           0.00E+00  0.00E+00  0.00E+00
    2     2           0.00E+00  0.00E+00  0.00E+00
    3     3           0.00E+00  0.00E+00  0.00E+00
    4     4           0.00E+00  0.00E+00  0.00E+00
.      .      .
   40   700          6.04E+03  1.11E+04  1.23E+03
   41   811          2.89E+03  5.30E+03  5.89E+02
   42   999          1.02E+03  1.87E+03  2.08E+02



 -------------------------
 PRTI= 1  LVLPRT= (2S  0.5)

  INDX TE=  3.61E+03  7.22E+03  1.80E+04  3.61E+04  7.22E+04  1.80E+05  3.61E+05  7.22E+05  1.80E+06  3.61E+06
  ---- ---  7.22E+06  1.80E+07  3.61E+07  7.22E+07  1.80E+08  3.61E+08  7.22E+08  1.80E+09  3.61E+09
    1       1.63E-20  8.93E-17  1.02E-14  3.35E-14  4.57E-14  3.73E-14  2.28E-14  1.11E-14  3.47E-15  1.32E-15
            4.84E-16  1.25E-16  4.46E-17  1.58E-17  4.01E-18  1.42E-18  5.02E-19  1.27E-19  4.49E-20
    2       7.03E-19  2.61E-15  1.77E-13  4.64E-13  5.71E-13  4.38E-13  2.60E-13  1.24E-13  3.82E-14  1.44E-14
            5.28E-15  1.36E-15  4.85E-16  1.72E-16  4.36E-17  1.54E-17  5.46E-18  1.38E-18  4.89E-19
       .      .         .
  345       1.59E-21  6.27E-17  1.71E-14  6.78E-14  9.75E-14  7.92E-14  4.81E-14  2.33E-14  7.25E-15  2.76E-15
            1.01E-15  2.61E-16  9.31E-17  3.30E-17  8.38E-18  2.96E-18  1.05E-18  2.65E-19  9.38E-20
  346       1.01E-21  4.02E-17  1.10E-14  4.39E-14  6.40E-14  5.37E-14  3.33E-14  1.64E-14  5.14E-15  1.96E-15
            7.19E-16  1.86E-16  6.63E-17  2.35E-17  5.97E-18  2.11E-18  7.47E-19  1.89E-19  6.68E-20

                                                                                 -------------------------
                                                                                 PRTF= 1  LVLPRT= (2S  0.5)
  ILREP
  -----
    2       1.63E-20  8.93E-17  1.02E-14  3.35E-14  4.57E-14  3.73E-14  2.28E-14  1.11E-14  3.47E-15  1.32E-15
            4.84E-16  1.25E-16  4.46E-17  1.58E-17  4.01E-18  1.42E-18  5.02E-19  1.27E-19  4.49E-20
    3       2.76E-18  1.36E-14  1.44E-12  4.53E-12  6.03E-12  4.87E-12  2.98E-12  1.46E-12  4.54E-13  1.73E-13
            6.34E-14  1.64E-14  5.84E-15  2.07E-15  5.26E-16  1.86E-16  6.58E-17  1.67E-17  5.89E-18

  INREP
```

```
  2       2.78E-18  1.37E-14  1.45E-12  4.56E-12  6.08E-12  4.91E-12  3.01E-12  1.47E-12  4.58E-13  1.74E-13
          6.39E-14  1.65E-14  5.89E-15  2.09E-15  5.30E-16  1.87E-16  6.63E-17  1.68E-17  5.93E-18
 11       7.66E-20  2.75E-15  7.17E-13  2.57E-12  2.89E-12  1.46E-12  6.52E-13  2.59E-13  7.02E-14  2.54E-14
-----     9.08E-15  2.31E-15  8.20E-16  2.90E-16  7.35E-17  2.60E-17  9.19E-18  2.32E-18  8.22E-19
    .         .
 41       0.00E+00  3.35E-41  5.40E-25  8.72E-20  2.61E-17  4.42E-16  6.54E-16  4.75E-16  1.86E-16  7.59E-17
          2.89E-17  7.63E-18  2.74E-18  9.74E-19  2.48E-19  8.77E-20  3.10E-20  7.85E-21  2.78E-21
 42       0.00E+00  1.79E-41  2.89E-25  4.67E-20  1.40E-17  2.37E-16  3.51E-16  2.55E-16  9.97E-17  4.07E-17
          1.55E-17  4.09E-18  1.47E-18  5.23E-19  1.33E-19  4.70E-20  1.66E-20  4.21E-21  1.49E-21

                                                                                --------------------------
                                                                                PRTF= 2  LVLPRT= (2P  0.5)
ILREP
-----
  3       3.37E-18  1.88E-14  2.06E-12  6.60E-12  8.91E-12  7.22E-12  4.40E-12  2.14E-12  6.66E-13  2.53E-13
          9.28E-14  2.40E-14  8.55E-15  3.03E-15  7.69E-16  2.72E-16  9.62E-17  2.43E-17  8.61E-18
  4       7.42E-19  2.81E-15  1.92E-13  5.06E-13  6.27E-13  4.86E-13  2.90E-13  1.39E-13  4.26E-14  1.61E-14
          5.89E-15  1.52E-15  5.42E-16  1.92E-16  4.87E-17  1.72E-17  6.10E-18  1.54E-18  5.46E-19
.     .         .
 50       2.16E-19  1.18E-15  1.00E-13  2.83E-13  3.55E-13  2.65E-13  1.53E-13  7.19E-14  2.18E-14  8.22E-15
          3.00E-15  7.74E-16  2.76E-16  9.77E-17  2.48E-17  8.76E-18  3.10E-18  7.84E-19  2.77E-19
 51       2.82E-19  1.55E-15  1.32E-13  3.69E-13  4.55E-13  3.28E-13  1.85E-13  8.57E-14  2.58E-14  9.69E-15
          3.53E-15  9.10E-16  3.24E-16  1.15E-16  2.91E-17  1.03E-17  3.64E-18  9.21E-19  3.26E-19
 52       3.35E-19  1.84E-15  1.57E-13  4.34E-13  5.23E-13  3.58E-13  1.97E-13  8.93E-14  2.66E-14  9.94E-15
          3.61E-15  9.30E-16  3.31E-16  1.17E-16  2.97E-17  1.05E-17  3.72E-18  9.41E-19  3.33E-19
 53       3.48E-19  1.92E-15  1.63E-13  4.45E-13  5.18E-13  3.34E-13  1.76E-13  7.80E-14  2.28E-14  8.49E-15
          3.08E-15  7.91E-16  2.81E-16  9.97E-17  2.53E-17  8.93E-18  3.16E-18  7.99E-19  2.83E-19
 54       3.03E-19  1.67E-15  1.41E-13  3.79E-13  4.23E-13  2.53E-13  1.27E-13  5.50E-14  1.58E-14  5.83E-15
          2.11E-15  5.40E-16  1.92E-16  6.80E-17  1.72E-17  6.09E-18  2.16E-18  5.45E-19  1.93E-19
 55       1.95E-19  1.08E-15  9.08E-14  2.38E-13  2.52E-13  1.38E-13  6.60E-14  2.75E-14  7.72E-15  2.83E-15
          1.02E-15  2.61E-16  9.25E-17  3.27E-17  8.29E-18  2.93E-18  1.04E-18  2.62E-19  9.28E-20

INREP
-----
  2       3.37E-18  1.88E-14  2.06E-12  6.60E-12  8.91E-12  7.22E-12  4.40E-12  2.14E-12  6.66E-13  2.53E-13
          9.28E-14  2.40E-14  8.55E-15  3.03E-15  7.69E-16  2.72E-16  9.62E-17  2.43E-17  8.61E-18
  3       3.67E-18  1.70E-14  1.33E-12  3.68E-12  4.66E-12  3.62E-12  2.15E-12  1.03E-12  3.15E-13  1.19E-13
          4.35E-14  1.12E-14  4.00E-15  1.42E-15  3.59E-16  1.27E-16  4.50E-17  1.14E-17  4.02E-18
.     .         .
 40       0.00E+00  1.73E-48  2.76E-32  3.88E-27  8.66E-25  1.05E-23  1.35E-23  9.06E-24  3.37E-24  1.36E-24
          5.12E-25  1.35E-25  4.82E-26  1.72E-26  4.36E-27  1.54E-27  5.46E-28  1.38E-28  4.88E-29
 41       0.00E+00  4.19E-49  6.68E-33  9.41E-28  2.10E-25  2.54E-24  3.26E-24  2.20E-24  8.19E-25  3.29E-25
          1.24E-25  3.26E-26  1.17E-26  4.16E-27  1.06E-27  3.74E-28  1.32E-28  3.35E-29  1.18E-29

                                                                                --------------------------
                                                                                PRTF= 3  LVLPRT= (2P  1.5)
ILREP
-----
  3       8.72E-19  6.92E-15  1.12E-12  4.05E-12  5.74E-12  4.78E-12  2.94E-12  1.44E-12  4.48E-13  1.70E-13
          6.26E-14  1.62E-14  5.76E-15  2.05E-15  5.19E-16  1.84E-16  6.49E-17  1.64E-17  5.81E-18
  4       4.41E-20  1.06E-15  2.17E-13  7.83E-13  1.10E-12  9.17E-13  5.74E-13  2.84E-13  8.95E-14  3.42E-14
          1.26E-14  3.25E-15  1.16E-15  4.11E-16  1.04E-16  3.69E-17  1.31E-17  3.30E-18  1.17E-18
.     .         .
 54       2.64E-20  1.03E-15  2.80E-13  1.07E-12  1.37E-12  8.69E-13  4.45E-13  1.94E-13  5.60E-14  2.07E-14
          7.51E-15  1.93E-15  6.84E-16  2.42E-16  6.14E-17  2.17E-17  7.68E-18  1.94E-18  6.87E-19
 55       2.73E-20  1.07E-15  2.91E-13  1.08E-12  1.32E-12  7.58E-13  3.64E-13  1.52E-13  4.26E-14  1.56E-14
          5.62E-15  1.44E-15  5.10E-16  1.81E-16  4.57E-17  1.62E-17  5.72E-18  1.45E-18  5.12E-19

INREP
```

```
     2       8.72E-19  6.92E-15  1.12E-12  4.05E-12  5.74E-12  4.78E-12  2.94E-12  1.44E-12  4.48E-13  1.70E-13
             6.26E-14  1.62E-14  5.76E-15  2.05E-15  5.19E-16  1.84E-16  6.49E-17  1.64E-17  5.81E-18
     3       2.08E-19  6.40E-15  1.55E-12  5.96E-12  8.58E-12  7.23E-12  4.51E-12  2.23E-12  7.01E-13  2.67E-13
   -----     9.82E-14  2.54E-14  9.06E-15  3.22E-15  8.15E-16  2.89E-16  1.02E-16  2.58E-17  9.13E-18
.      .         .
    40       0.00E+00  0.00E+00  2.28E-34  3.82E-28  2.94E-25  7.48E-24  1.23E-23  9.38E-24  3.76E-24  1.55E-24
             5.92E-25  1.57E-25  5.63E-26  2.01E-26  5.10E-27  1.81E-27  6.39E-28  1.62E-28  5.72E-29
    41       0.00E+00  0.00E+00  5.52E-35  9.25E-29  7.12E-26  1.81E-24  2.98E-24  2.27E-24  9.12E-25  3.76E-25
             1.44E-25  3.80E-26  1.37E-26  4.87E-27  1.24E-27  4.38E-28  1.55E-28  3.92E-29  1.39E-29



-------------------------
PRTI= 2  LVLPRT= (2P  0.5)

  INDX TE=  3.61E+03  7.22E+03  1.80E+04  3.61E+04  7.22E+04  1.80E+05  3.61E+05  7.22E+05  1.80E+06  3.61E+06
  ---- ---  7.22E+06  1.80E+07  3.61E+07  7.22E+07  1.80E+08  3.61E+08  7.22E+08  1.80E+09  3.61E+09
    1       1.05E-15  7.83E-15  1.65E-14  1.50E-14  9.37E-15  3.46E-15  1.40E-15  5.28E-16  1.39E-16  4.99E-17
            1.77E-17  4.51E-18  1.60E-18  5.65E-19  1.43E-19  5.05E-20  1.79E-20  4.52E-21  1.60E-21
    2       1.45E-20  1.06E-19  2.45E-19  2.72E-19  2.01E-19  8.36E-20  3.52E-20  1.36E-20  3.63E-21  1.30E-21
            4.66E-22  1.18E-22  4.19E-23  1.48E-23  3.76E-24  1.33E-24  4.70E-25  1.19E-25  4.20E-26
.      .         .
  345       6.38E-18  4.73E-17  9.45E-17  7.97E-17  4.66E-17  1.64E-17  6.50E-18  2.44E-18  6.39E-19  2.28E-19
            8.13E-20  2.06E-20  7.30E-21  2.58E-21  6.54E-22  2.31E-22  8.17E-23  2.07E-23  7.31E-24
  346       9.64E-17  7.18E-16  1.46E-15  1.26E-15  7.47E-16  2.66E-16  1.06E-16  3.98E-17  1.04E-17  3.73E-18
            1.33E-18  3.37E-19  1.19E-19  4.22E-20  1.07E-20  3.78E-21  1.34E-21  3.38E-22  1.20E-22

                                                                                  -------------------------
                                                                                  PRTF= 1  LVLPRT= (2S  0.5)
  ILREP
  -----
    2       1.05E-15  7.83E-15  1.65E-14  1.50E-14  9.37E-15  3.46E-15  1.40E-15  5.28E-16  1.39E-16  4.99E-17
            1.77E-17  4.51E-18  1.60E-18  5.65E-19  1.43E-19  5.05E-20  1.79E-20  4.52E-21  1.60E-21
    3       1.57E-13  1.15E-12  2.37E-12  2.12E-12  1.31E-12  4.77E-13  1.92E-13  7.23E-14  1.90E-14  6.82E-15
            2.43E-15  6.17E-16  2.18E-16  7.73E-17  1.96E-17  6.91E-18  2.44E-18  6.18E-19  2.19E-19

  INREP
  -----
    2       1.58E-13  1.16E-12  2.39E-12  2.14E-12  1.31E-12  4.80E-13  1.93E-13  7.29E-14  1.92E-14  6.87E-15
            2.45E-15  6.21E-16  2.20E-16  7.78E-17  1.97E-17  6.96E-18  2.46E-18  6.23E-19  2.20E-19
   21       2.25E-13  1.59E-12  2.43E-12  1.56E-12  7.45E-13  2.26E-13  8.47E-14  3.08E-14  7.94E-15  2.83E-15
            1.00E-15  2.54E-16  8.98E-17  3.18E-17  8.04E-18  2.84E-18  1.01E-18  2.54E-19  8.99E-20
.      .         .
   41       3.28E-24  2.74E-19  1.16E-16  4.88E-16  5.95E-16  3.16E-16  1.43E-16  5.73E-17  1.56E-17  5.66E-18
            2.03E-18  5.16E-19  1.83E-19  6.48E-20  1.64E-20  5.80E-21  2.05E-21  5.19E-22  1.83E-22
   42       1.75E-24  1.47E-19  6.24E-17  2.62E-16  3.19E-16  1.70E-16  7.69E-17  3.08E-17  8.39E-18  3.04E-18
            1.09E-18  2.77E-19  9.83E-20  3.48E-20  8.81E-21  3.11E-21  1.10E-21  2.79E-22  9.85E-23

                                                                                  -------------------------
                                                                                  PRTF= 2  LVLPRT= (2P  0.5)
  ILREP
  -----
    3       2.33E-13  1.72E-12  3.58E-12  3.20E-12  1.96E-12  7.14E-13  2.87E-13  1.08E-13  2.85E-14  1.02E-14
            3.63E-15  9.22E-16  3.27E-16  1.16E-16  2.92E-17  1.03E-17  3.66E-18  9.25E-19  3.27E-19

  INREP
  -----
    2       2.33E-13  1.72E-12  3.58E-12  3.20E-12  1.96E-12  7.14E-13  2.87E-13  1.08E-13  2.85E-14  1.02E-14
            3.63E-15  9.22E-16  3.27E-16  1.16E-16  2.92E-17  1.03E-17  3.66E-18  9.25E-19  3.27E-19
```

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                                                                          -------------------------
                                                                          PRTF= 3  LVLPRT= (2P  1.5)
  ILREP
  -----
    3     3.10E-13  2.32E-12  4.88E-12  4.42E-12  2.75E-12  1.01E-12  4.08E-13  1.54E-13  4.07E-14  1.46E-14
          5.19E-15  1.32E-15  4.67E-16  1.65E-16  4.18E-17  1.48E-17  5.23E-18  1.32E-18  4.67E-19
    4     4.67E-14  3.41E-13  7.04E-13  6.29E-13  3.86E-13  1.41E-13  5.67E-14  2.14E-14  5.63E-15  2.02E-15
          7.18E-16  1.82E-16  6.46E-17  2.29E-17  5.78E-18  2.04E-18  7.23E-19  1.83E-19  6.47E-20
.       .        .
   54     3.50E-16  2.56E-15  4.68E-15  3.61E-15  1.98E-15  6.66E-16  2.60E-16  9.65E-17  2.52E-17  8.99E-18
          3.19E-18  8.11E-19  2.87E-19  1.01E-19  2.57E-20  9.08E-21  3.21E-21  8.12E-22  2.87E-22
   55     5.46E-17  3.99E-16  7.21E-16  5.51E-16  3.00E-16  1.00E-16  3.90E-17  1.45E-17  3.77E-18  1.35E-18
          4.78E-19  1.21E-19  4.30E-20  1.52E-20  3.85E-21  1.36E-21  4.81E-22  1.22E-22  4.30E-23

  INREP
  -----
    2     3.10E-13  2.32E-12  4.88E-12  4.42E-12  2.75E-12  1.01E-12  4.08E-13  1.54E-13  4.07E-14  1.46E-14
          5.19E-15  1.32E-15  4.67E-16  1.65E-16  4.18E-17  1.48E-17  5.23E-18  1.32E-18  4.67E-19
    3     3.34E-13  2.48E-12  5.15E-12  4.58E-12  2.80E-12  1.02E-12  4.10E-13  1.55E-13  4.07E-14  1.46E-14
          5.18E-15  1.32E-15  4.66E-16  1.65E-16  4.17E-17  1.48E-17  5.22E-18  1.32E-18  4.67E-19
.       .        .
   40     1.02E-31  8.53E-27  3.62E-24  1.52E-23  1.85E-23  9.85E-24  4.46E-24  1.78E-24  4.86E-25  1.76E-25
          6.31E-26  1.61E-26  5.70E-27  2.02E-27  5.11E-28  1.81E-28  6.39E-29  1.62E-29  5.71E-30
   41     2.46E-32  2.07E-27  8.78E-25  3.69E-24  4.50E-24  2.39E-24  1.08E-24  4.33E-25  1.18E-25  4.28E-26
          1.53E-26  3.90E-27  1.38E-27  4.90E-28  1.24E-28  4.38E-29  1.55E-29  3.92E-30  1.39E-30


-------------------------
PRTI= 3  LVLPRT= (2P  1.5)

  INDX TE=  3.61E+03  7.22E+03  1.80E+04  3.61E+04  7.22E+04  1.80E+05  3.61E+05  7.22E+05  1.80E+06  3.61E+06
  ---- ---  7.22E+06  1.80E+07  3.61E+07  7.22E+07  1.80E+08  3.61E+08  7.22E+08  1.80E+09  3.61E+09
                                                                          -------------------------
                                                                          PRTF= 1  LVLPRT= (2S  0.5)
  ILREP
  -----

  INREP
  -----

                                                                          -------------------------
                                                                          PRTF= 2  LVLPRT= (2P  0.5)
  ILREP
  -----

  INREP
  -----

                                                                          -------------------------
                                                                          PRTF= 3  LVLPRT= (2P  1.5)
  ILREP
  -----

  INREP
  -----
```

```
          T(K)     ALFT( 1)  ALFT( 2)  ALFT( 3)  ALFT( 4)  ALFT( 5)  ALFT( 6)  ALFT( 7)  ALFT( 8)  ALFT( 9)  ALFT(10)
          ----     --------  --------  --------  --------  --------  --------  --------  --------  --------  --------
        3.61E+03   3.02E-17  3.33E-12  0.00E+00
        7.22E+03   1.91E-13  2.46E-11  0.00E+00
        1.80E+04   2.41E-11  5.52E-11  0.00E+00
        3.61E+04   8.08E-11  6.10E-11  0.00E+00
        7.22E+04   1.12E-10  4.51E-11  0.00E+00
        1.80E+05   1.10E-10  1.88E-11  0.00E+00
        3.61E+05   8.25E-11  7.93E-12  0.00E+00
        7.22E+05   4.62E-11  3.07E-12  0.00E+00
        1.80E+06   1.58E-11  8.19E-13  0.00E+00
        3.61E+06   6.21E-12  2.95E-13  0.00E+00
        7.22E+06   2.31E-12  1.05E-13  0.00E+00
        1.80E+07   6.05E-13  2.68E-14  0.00E+00
        3.61E+07   2.16E-13  9.48E-15  0.00E+00
        7.22E+07   7.68E-14  3.35E-15  0.00E+00
        1.80E+08   1.95E-14  8.49E-16  0.00E+00
        3.61E+08   6.90E-15  3.00E-16  0.00E+00
        7.22E+08   2.44E-15  1.06E-16  0.00E+00
        1.80E+09   6.18E-16  2.69E-17  0.00E+00
        3.61E+09   2.18E-16  9.50E-18  0.00E+00

      C-----------------------------------------------------------------------------------------------------------
      C
      C
      C
      C-----------------------------------------------------------------------------------------------------------

      C-------------------------------------------------------------------------
      C ADAS ADF09 DATA - SCCS info: @(#)jc00#li_ti19ic22.dat     2.1 Date 11/19/01
      C-------------------------------------------------------------------------
```