

ADF08: direct resolved radiative recombination coefficients

Provides resolved radiative recombination coefficient data. Formatting conventions and variable storage are given below.

Utilising subroutines :

ADAS208 ADAS211

Formatted files to ADF08 specification :

Database Status	Date = January, 12 1999	Data type =rrc files	Data root =/.../adas/adas/adf08/	
<i>Recombining seq.</i>	<i>Members</i>	<i>Library</i>	<i>Comments</i>	<i>Quality</i>
various		radrec	older versions	varied
bare nucl.	B, Be, C, H, He, O	rrc93##	LS resolution	high
H-like.	B, Be,C, He, O	rrc93#h	LS resolution	medium
He-like	B, Be, C, O	rrc93#he	LS resolution	medium
Li-like	B, Be, C, O	rrc93#li	LS resolution	medium
Be-like	B, C, O	rrc93#be	LS resolution	medium
B-like	C, O	rrc93#b	LS resolution	medium
C-like	O	rrc93#c	LS resolution	medium
N-like	O	rrc93#n	LS resolution	medium
Ti-like	Cr	rrc93#ti	LS resolution	medium
V-like	Cr	rrc93#v	LS resolution	medium
Zr-like	Mo	rrc93#zr	LS resolution	medium
Nb-like	Mo	rrc93#nb	LS resolution	medium
bare nucl.	C,	rrc96##	LS resolution	high
H-like.	C,	rrc96#h	LS resolution	medium
He-like	C,	rrc96#he	LS resolution	medium
Li-like	C	rrc96#li	LS resolution	medium
Be-like	C	rrc96#be	LS resolution	medium
B-like	C	rrc96#b	LS resolution	medium

bare nucl.	N, O	rrc98##	LS resolution	high
H-like.	N, O	rrc98#h	LS resolution	medium
He-like	N, O	rrc98#he	LS resolution	medium
Li-like	N, O	rrc98#li	LS resolution	medium
Be-like	N, O	rrc98#be	LS resolution	medium
B-like	N, O	rrc98#b	LS resolution	medium
C-like	N, O	rrc98#c	LS resolution	medium
N-like	O	rrc98#n	LS resolution	medium

- Notes:
1. In the individual data set names, the recombining ion symbol is followed by 'ls' to indicate LS resolution.
 2. For proton or deuteron recombination, the 'ls' postfix on the dataset names is followed by 'h' or 'l' to denote high and low temperature ranges.

Data lines :

```

seq='SEQ'  nucchg=IZ0                      ADFID
parent term indexing      bwnp= BWNP  nprnt= NPRNT
-----
indp code      wnp
-----
for indp=1,NPRNT
      INDP  CCPI      WNPI
repeat
ls resolved term indexing  bwnr= BWNR  nlev= NLEV
-----
indx code      s l  xj      wnr
-----

```

Format:

```

for indx=1,NLEV
      INDX CCI      (M)L( WJ)      WNRI
repeat
for IPRT=1,NPRNT
      -----
      prt=IP trmprt= (TP) spnprt= SP nsys= NSYS
      indx Te=  TE1   TE2   TE3   TE4   TE5   TE6
      ---- ---
      for indx=1,NLEV
            INDX  ALT1I  ALT2I  ALT3I  ALT4I  ALT5I  ALT6I
      repeat
repeat
      -----
      DESCRIPTIVE TEXT
      -----

```

variable identification :

<i>name</i>	<i>meaning</i>
SEQ	sequence identifier (two characters)
IZO	nuclear charge
ADFID	ADAS data file type code (ADF08)
BWNP	binding wave number of lowest parent(cm-1)
NPRNT	number of metastable parents
INDP	index of parent
CCPI	configuration (or Eissner code therefor) for parent.

WNPI	energy of parent relative to lowest parent (cm-1)
BWNR	binding wave number of lowest resolved level (cm-1)
NLEV	number of levels in LS-resolved set
INDX	index value for level
CCI	configuration (or Eissner code therefor) for level.
M	multiplicity for level (2*S+1)
L	total orbital quantum number for level
WJ	(statist. weight - 1)/2 in LS case or J quantum number in LSJ case.
WNRI	energy of level relative to ground (cm-1)
IP	index of parent
TP	term specification of parent
SP	spin multiplicity of parent
TE1,--	electron temperatures (K)
INDX	index of level
ALT1I,--	radiative recombination coefficients for level

Table B8c - example.

PARENT TERM INDEXING		BWNP= 624383.8		NPRNTI= 2	
INDP	CODE	S L	WI	WNP	
1	2S2 2P1	(2)1	(2.5)	0.0	
2	2S1 2P2	(4)1	(5.5)	71641.0	
LS RESOLVED TERM INDEXING		BWNR= 443086.0		NTRM= 26	
INDX	CODE	S L	WJ	WNR	
1	2S2 2P2	(3)1	(4.0)	208.	{1}2.000 {2}1.333
2	2S2 2P2	(1)2	(2.0)	20274.	{1}2.000
3	2S2 2P2	(1)0	(0.0)	43186.	{1}2.000
4	2S1 2P3	(5)0	(2.0)	60325.	{2}3.000

5	2S1 2P3	(3)2(7.0)	120041.	{2}2.000
6	2S1 2P3	(3)1(4.0)	142384.	{2}2.000
7	2S1 2P3	(1)2(2.0)	187052.	{X}
8	2S1 2P3	(3)0(1.0)	197086.	{2}2.000
24	2S2 2P1 3D1	(1)3(3.0)	331820.	{1}1.0
25	2S2 2P1 3D1	(1)1(1.0)	332777.	{1}1.0
26	2P4	(1)0(0.0)	343305.	{X}0.0

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

INDEX	TE=	9.00D+03	1.80D+04	4.50D+04	9.00D+04	1.80D+05	4.50D+05	9.00D+05	1.80D+06
1		1.33D-12	9.40D-13	5.90D-13	4.10D-13	2.79D-13	1.57D-13	9.39D-14	5.16D-14
2		6.84D-13	4.83D-13	3.03D-13	2.11D-13	1.44D-13	8.09D-14	4.85D-14	2.67D-14
3		1.24D-13	8.76D-14	5.50D-14	3.83D-14	2.61D-14	1.47D-14	8.80D-15	4.84D-15
24		3.58D-14	2.38D-14	1.30D-14	7.63D-15	4.12D-15	1.60D-15	7.15D-16	2.99D-16
25		1.40D-14	9.30D-15	5.03D-15	2.91D-15	1.55D-15	5.89D-16	2.58D-16	1.06D-16

 PRTI= 2 TRMPRT= (4P) SPNPRT= 4

INDEX	TE=	9.00D+03	1.80D+04	4.50D+04	9.00D+04	1.80D+05	4.50D+05	9.00D+05	1.80D+06
1		1.83D-13	1.31D-13	8.52D-14	6.30D-14	4.77D-14	3.42D-14	2.66D-14	1.96D-14
4		5.80D-13	4.09D-13	2.57D-13	1.78D-13	1.21D-13	6.81D-14	4.08D-14	2.24D-14
5		9.11D-13	6.43D-13	4.04D-13	2.81D-13	1.91D-13	1.08D-13	6.47D-14	3.55D-14
6		4.91D-13	3.46D-13	2.17D-13	1.51D-13	1.03D-13	5.76D-14	3.45D-14	1.89D-14
8		1.18D-13	8.30D-14	5.15D-14	3.53D-14	2.35D-14	1.29D-14	7.57D-15	4.11D-15