ADF17: condensed projection matrices

Provides condensed projection data. Formatting conventions and variable storage are given below.

Utilising subroutines :

ADAS208

Formatted files to ADF17 specification :

Database Status Date = March 17, 2003 Data type = condensed projection matrices Data root = /.../adas/adas/adf17/

sequence	*members*	*libraries*	*Comments*	*Resolution*	*Quality*
Hydrogen	be3ls,c5ls,h0ls,he1ls,o7ls	cbnm93#h	Dickson '93 grids	LS metastable	medium
Helium	be2ls,c4ls,he0ls,o6ls	cbnm93#he	Dickson '93 grids	LS metastable	medium
Lithium	be1ls,c3ls,o5ls	cbnm93#li	Dickson '93 grids	LS metastable	medium
Beryllium	c2ls,o4ls	cbnm93#be	Dickson '93 grids	LS metastable	medium
Boron	c1ls,o3ls	cbnm93#b	Dickson '93 grids	LS metastable	medium
Carbon	c0ls,o2ls	cbnm93#c	Dickson '93 grids	LS metastable	medium
Nitrogen	o1ls	cbnm93#n	Dickson '93 grids	LS metastable	medium
Oxygen	o0ls	cbnm93#o	Dickson '93 grids	LS metastable	medium
Hydrogen	he1ls, li2ls,c5ls, n6ls, o7ls,ne9ls	cbnm96#h	'96' grids	LS metastable	medium
Helium	he0ls,li1ls, c4ls, n5ls, o6ls, ne8ls	cbnm96#he	'96' grids	LS metastable	medium
Lithium	li0ls,c3ls, n4ls, o5ls, ne7ls	cbnm96#li	'96' grids	LS metastable	medium
Beryllium	c2ls, n3ls, o4ls, ne6ls	cbnm96#be	'96' grids	LS metastable	medium
Boron	c1ls, n2ls, o3ls,ne5ls	cbnm96#b	'96' grids	LS metastable	medium
Carbon	c0ls, n1ls, o2ls,ne4ls	cbnm96#c	'96' grids	LS metastable	medium
Nitrogen	n0ls, o1ls,ne3ls	cbnm96#n	'96' grids	LS metastable	medium
Oxygen	o0ls, ne2ls	cbnm96#o	'96' grids	LS metastable	medium
Fluorine	ne1ls	cbnm96#f	'96' grids	LS metastable	medium
Neon	ne0ls	cbnm96#ne	'96' grids	LS metastable	medium

Hydrogen	h0ls	cbnm97#h	‘96’ grids	LS metastable	medium

Notes:

1. 1996 is now the year number used for the output from the GCR Project.

Data lines : *Format:*

SEQM, NUCGM, NPRTM, MAXDM, MAXTM

IEDMAT,IECION,IETREC,IEDREC,IERREC,IEXREC,IERSYS,IEFPRS,IEFPRE

(DENSM(IN),IN=1,MAXTM)

(TEM(IT),IT=1,MAXTM)

for IPRT=1,NPRTM

IPRTM, TRMPM, SPNPM

for SPNSYS

SSYSM(IPRT, ISYSM), NSHLM(IPRT,ISYSM)

for IN=1,MAXDM

for IT=1,MAXTM

for I=1,NSHLM

NM, (PCRTMP(I,J),J=1,5),
(PIOTMP(I,J),J=1,4),

PRHTMP(I)

repeat

for I=1,NSHLM

NM, (DCRTMP(I,J),J=1,5),
(DIOMAT(IT,IN,I,J),J=1,4),

DTREC(IT,I),DDREC(IT,I),
DRREC(IT,I),DXREC(IT,I)

repeat

(PQPTMP(J),J=1,4)

repeat

repeat

variable identification :

name	*meaning*
SEQM	sequence identifier
NUCGM	nuclear charge
NPRTM	number of parents
MAXDM	number of densities
MAXTM	number of densities
IEDMAT	(0=> PCRL added onto PCRMAT; 1=> not added)
IECION	(0=> PCION added onto PCRMAT; 1=> not added)
IETREC	(0=> PTREC added onto PCRRHS; 1=> not added)
IEDREC	(0=> PDREC added onto PCRRHS; 1=> not added)
IERREC	(0=> PRREC added onto PCRRHS; 1=> not added)
IEXREC	(0=> PXREC added onto PCRRHS; 1=> not added)
IERSYS	(0=> recom. rates multiplied by spin system weight 1=> not multiplied)
IEFPRS	
IEFPRE	
DENSM()	electron densities (cm-3)
TEM()	electron temperatures (K)

IPRTM	parent index
TRMPM	parent term specification
SPNPM	parent spin (multiplicity)
SSYSM(,)	spin systems based
NSHLM(,)	number of n-shells
NM	n-shell
PCRTMP(,)	projected collisional radiative matrix
PIOTMP(,)	projected ionisation matrix
PRHTMP()	projected right hand side matrix
DCRTMP()	projected direct colliisonal radiative matrix
DIOMAT(,,,)	direct collisional radiative ionisation matrix
DTREC(,)	direct three body recombination coefficients
DDREC(,)	direct dielectronic recombination coefficients
DRREC(,)	direct radiative recombination coefficients
DXREC(,)	direct charge exchange recombination coefficients
PQPTMP()	indirect parent QC coefficient

Table B17c - (data set right hand side incomplete - extended records used)

```
SEQUENCE = BE   NUCCHG = 6   NPARNT = 1   MAXD = 8   MAXT =12

IEDMAT = 0   IECION = 0   IETREC = 0   IEDREC = 0   IERREC = 0   IEXREC = 0   IERSYS = 0   IEFPRS = 0   IEFPRE = 1

NE(CM-3) =   2.19D+00  2.19D+03  2.19D+06  2.19D+09  2.19D+12  2.19D+15  2.19D+18  2.19D+21
TE(K)    =   4.50D+03  9.00D+03  1.80D+04  4.50D+04  9.00D+04  1.80D+05  4.50D+05  9.00D+05  1.80D+06  4.50D+06  9.00D+06  1.80D+07

IPRT =  1     TRMPRT = (2S)     SPNPRT =  2.
-------------------------------------------
                                            SPNSYS =  1.     NSHEL =  4
                                            --------------------------
ID= 1 IT= 1 N= 2   4.7110177062D-46-3.4695454293D+09-7.6262217993D+08-2.3980476208D+08                  1.1794820136D-62
            N= 3  -4.7110174206D-46 3.4695454293D+09-7.2823476024D+08-1.7848851190D+08                  4.5762217755D-24
            N= 4  -2.8548724255D-53-7.1165450634D-14 1.4908569402D+09-2.1873221154D+08                  6.6282007374D-17
            N= 5  -1.0462862210D-56-2.4392077064D-17-5.3979811644D-10 6.3702548552D+08                  1.9465468787D-13
      (DIR) N= 2   4.7110177062D-46-3.4695454293D+09-7.6262217993D+08-2.3980476208D+08                  1.1794820118D-62
            N= 3  -4.7110174206D-46 3.4695454293D+09-7.2823476024D+08-1.7848851190D+08                  4.5762217471D-24
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```
            N= 4  -2.8548697673D-53-7.1165393594D-14 1.4908569402D+09-2.1873221154D+08                6.6282006979D-17
            N= 5  -1.0427932507D-56-2.4317070644D-17-5.3824604211D-10 6.3702548552D+08                1.9465468665D-13
                                                                                                      0.0000000000D+00

ID= 1 IT= 2 N= 2   5.3149309656D-27-3.4695454293D+09-7.6262217993D+08-2.3980476208D+08                7.5730401486D-36
            N= 3  -5.3142292866D-27 3.4695454293D+09-7.2823476024D+08-1.7848851190D+08                2.6304465451D-16
            N= 4  -6.9260886215D-31-1.1610445257D-10 1.4908569402D+09-2.1873221154D+08                1.7395984088D-12
            N= 5  -9.0625678853D-33-1.3744224121D-12-1.5727158663D-08 6.3702548552D+08                1.4395062543D-10
      (DIR) N= 2   5.3149303326D-27-3.4695454293D+09-7.6262217993D+08-2.3980476208D+08                7.5730401423D-36
            N= 3  -5.3142290915D-27 3.4695454293D+09-7.2823476024D+08-1.7848851190D+08                2.6304465385D-16
            N= 4  -6.9241949464D-31-1.1607863029D-10 1.4908569402D+09-2.1873221154D+08                1.7395984046D-12
            N= 5  -8.8216911940D-33-1.3414624025D-12-1.5401533252D-08 6.3702548552D+08                1.4395062505D-10
                                                                                                      0.0000000000D+00

                                              SPNSYS =  3.     NSHEL =  4
                                              --------------------------
ID= 1 IT= 1 N= 2   9.6942914961D-39-3.4398711235D+09-7.3080447937D+08-2.2699665813D+08                2.0092571353D-55
            N= 3  -9.6942908721D-39 3.4398711235D+09-7.2823476024D+08-1.7848851190D+08                4.5762217758D-24
            N= 4  -6.2380918324D-46-7.1165451714D-14 1.4590392396D+09-2.1873221154D+08                6.6282007378D-17
            N= 5  -2.3286404147D-49-2.4393497335D-17-5.3982747696D-10 6.2421738157D+08                1.9465468788D-13
      (DIR) N= 2   9.6942914961D-39-3.4398711235D+09-7.3080447937D+08-2.2699665813D+08                2.0092571312D-55
            N= 3  -9.6942908721D-39 3.4398711235D+09-7.2823476024D+08-1.7848851190D+08                4.5762217471D-24
            N= 4  -6.2380857480D-46-7.1165393594D-14 1.4590392396D+09-2.1873221154D+08                6.6282006979D-17
            N= 5  -2.3206456406D-49-2.4317070644D-17-5.3824604211D-10 6.2421738157D+08                1.9465468665D-13
                                                                                                      0.0000000000D+00

ID= 1 IT= 2 N= 2   2.5130119811D-23-3.4398711235D+09-7.3080447937D+08-2.2699665813D+08                2.9863157116D-32
            N= 3  -2.5126601751D-23 3.4398711235D+09-7.2823476024D+08-1.7848851190D+08                2.6304465451D-16
            N= 4  -3.4717523370D-27-1.1610495867D-10 1.4590392396D+09-2.1873221154D+08                1.7395984089D-12
            N= 5  -4.6277813621D-29-1.3750699818D-12-1.5733519696D-08 6.2421738157D+08                1.4395062543D-10
      (DIR) N= 2   2.5130116492D-23-3.4398711235D+09-7.3080447937D+08-2.2699665813D+08                2.9863157082D-32
            N= 3  -2.5126600725D-23 3.4398711235D+09-7.2823476024D+08-1.7848851190D+08                2.6304465385D-16
            N= 4  -3.4707564194D-27-1.1607863029D-10 1.4590392396D+09-2.1873221154D+08                1.7395984046D-12
            N= 5  -4.5011377348D-29-1.3414624025D-12-1.5401533252D-08 6.2421738157D+08                1.4395062505D-10
                                                                                                      0.0000000000D+00
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