ADF44: envelope feature photon emissivity functions

Provides envelope feature photon emissivity functions. Formatting conventions and variable storage are given below.

Utilising subroutines :

ADAS511 ADAS417

Formatted files to ADF44 specification :

Database Status Date = March 17, 2003 Data type = f_gtn files Data root = /.../adas/adas/adf44/

Element	*Library*	*Prefix*	*Partitions*	*Resolution*	*Filter*	*Comments*	*Quality*
Incomplete – in course of being filled							
Xe	f_gtn02#xe		#1	IC		Baseline	moderate

Notes: 1. Envelope feature emissivity data, specified on a wavelength interval can be subject to a filter or instrument tranmission function. From the utilisation point of view , there is no practical distinction. A six-digit parameter FCODE is used to specify a filter asis done for total power.

Data lines :	*Format:*	
NSEL, SYM, IPL, TEXT,RCODE	i5,4x,'/',1a3,i2,1a54,'/',1a2,'/'	
C80	1a80	
for IPLC=1 to NPL		
IPLA(IPLC),(IP,(IPMA(IP,IM),IM=1,NM(IP)),IP=1,NP)	'//#',i2,'//','P',i2,'/',20i2/8x, P',i2,'/',20i2	
repeat		
C80	1a80	
for ISEL= 1 to NSEL		
FCODE, NPIX , NDENS , NTE , FILMEM, TYPE , INDM , ISEL	a6,i6,2i4,2c8,i2,i5	NB. '/' & 'code=' delimited
WVMIN, WVMAX	2f12.5	

```
        (DENS(IN), IN=1,NDENS)                                  8e9.2
        (TE(IT), IT=1,NTE)                                      8e9.2
        for IN = 1 to NDENS
                for IT = 1 to NTE
                        (FPEC(IPIX,IN,IT,ISEL), IPIX=1,NPIX)    8e9.2
                repeat
    repeat
```

variable identification :

name	*meaning*
NSEL	number of transitions available
SYM	element symbol in form ##+
IPL	partition layer
RCODE	resolution code; LS=> ls-resolution; IC=> intermediate coupling
TEXT	information
NPL	number of partition layers
IPLA()	index of partition layer ’00’ is the root layer
NP	number of partitions in partition layer
IPMA(,)	back reference of members of each partition (referred to parent partition layer) 1st index: partition 2nd index: member
FCODE	Filter character code – if present
NPIX	Number of pixels
NDENS	number of densities
NTE	number of temperatures

ROOTDIR	root directory for emissivity source for current partition
TYPE	type of photon emissivity (excit, recomb, cx)
INDP	index in current partition
ISEL	feature index
WVMIN	minimum wavelength of spectral interval (Angstrom)
WVMAX	maximum wavelength of spectral interval (Angstrom)
DENS()	electron densities (cm-3)
TE()	electron temperatures (eV)
FGTN(,,)	finite density feature photon emissivity functions (cm3 s-1)
	1st parameter pixel index
	2nd parameter electron density index
	3rd parameter electron temperature index

Table B44c

```
    2    /Xe#02 envelope feature photon emissivity functions        /IC/
------------------------------------------------------------------------
//#02//p00/ 00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19
            20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39
            40 41 42 43 44 45 46 47 48 49 50 51 52 53/
------------------------------------------------------------------------
ft1235   128  24  24 /rootlib =        /type = f_excit  /indp =00/isel =    1
   200.00000  1000.00000
 1.00e+01 1.00e+02 1.00e+03 1.00e+04 1.00e+05 1.00e+06 3.00e+06 1.00e+07
 3.00e+07 1.00e+08 3.00e+08 1.00e+09 3.00e+09 1.00e+10 3.00e+10 1.00e+11
 3.00e+11 1.00e+12 3.00e+12 1.00e+13 3.00e+13 1.00e+14 3.00e+14 1.00e+15
 4.31e-02 6.03e-02 8.62e-02 1.29e-01 1.72e-01 2.59e-01 4.31e-01 6.03e-01
 8.62e-01 1.29e+00 1.72e+00 2.59e+00 4.31e+00 6.03e+00 8.62e+00 1.29e+01
 1.72e+01 2.59e+01 4.31e+01 6.03e+01 8.62e+01 1.29e+02 1.72e+02 2.59e+02
 1.00e-74 1.00e-74 1.00e-74 1.00e-74 1.00e-74 1.00e-74 2.82e-30 3.22e-24
        .        .        .
 9.19e-10 1.56e-09 2.51e-09 3.14e-09 3.76e-09 4.36e-09 4.71e-09 5.03e-09
ft1235   128  24  24 /rootlib =        /type = f_excit  /indp =00/isel =    2
    10.00000   100.00000
 1.00e+01 1.00e+02 1.00e+03 1.00e+04 1.00e+05 1.00e+06 3.00e+06 1.00e+07
 3.00e+07 1.00e+08 3.00e+08 1.00e+09 3.00e+09 1.00e+10 3.00e+10 1.00e+11
 3.00e+11 1.00e+12 3.00e+12 1.00e+13 3.00e+13 1.00e+14 3.00e+14 1.00e+15
```

```
 4.31e-02 6.03e-02 8.62e-02 1.29e-01 1.72e-01 2.59e-01 4.31e-01 6.03e-01
 8.62e-01 1.29e+00 1.72e+00 2.59e+00 4.31e+00 6.03e+00 8.62e+00 1.29e+01
 1.72e+01 2.59e+01 4.31e+01 6.03e+01 8.62e+01 1.29e+02 1.72e+02 2.59e+02
 7.95e-14 5.90e-14 5.27e-14 7.86e-14 1.12e-13 1.56e-13 1.68e-13 1.47e-13
      .        .        .
 1.28e-14 8.71e-15 6.27e-15 3.54e-15 2.15e-15 2.51e-15 4.70e-15 1.01e-14
C-----------------------------------------------------------------------
c
c  envelope feature photon emissivity functions:
c
c  information
c  -----------
c
c  nuclear charge  = 54
c  partition layer = 00
c
c  emissivity parent directory:  /home/adas/adas/adf40/fpec#xe/
c  ionis./recom. coefft. directory:  /home/adas/adas/adf11/<>89
c
c
c  population processing code:  adas416
c
c
c  isel  iwvrg   wavelength range (ang)   type   partn-lvl   indp   np
c  ----  -----   ---------------------   ----   ----------  ----   --
c   1.     1.    100.00000 - 1000.00000  f_excit    #02        1     1
c   2.     2.     10.00000 -  100.00000  f_excit    #02        1     1

c
c  code     : adas416
c  producer : h.p.summers
c  date     : 05/03/2002
c
c-----------------------------------------------------------------------------
```