

ADAS Subroutine d9spc2

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      SUBROUTINE D9SPC2( DSNAME, IBSEL , IZIN  , IZ0IN  ,
&                      ITVAL  , IDVAL  , TVAL  , DVAL  ,
&                      WLNPTH ,
&                      PECA   , LTRNG  , LDRNG  ,
&                      TITLX  , IRCODE
&                      )
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C-----
C
C ***** FORTRAN77 SUBROUTINE: D9PSC2 *****
C
C PURPOSE: TO EXTRACT AND INTERPOLATE PHOTON EMISSIVITIES FOR
C          EMITTING IONS.
C
C          DERIVED FROM D5SPC2
C
C          THIS ROUTINE TAKES AS INPUT THE NAMES OF THE PHOTON
C          EMISSIVITY FILES AND CHECKS THEY ARE THERE BEFORE
C          OPENING THEM AND EXTRACTING ALL REQUIRED INFORMATION.
C
C CALLING PROGRAM: D9SPEC
C
C SUBROUTINE:
C
C INPUT : (I*4)  IBSEL  = INDEX OF DATA-BLOCK SELECTED FOR ANALYSIS
C INPUT : (I*4)  IZIN   = ION CHARGE OF EMITTING ION
C INPUT : (I*4)  IZ0IN  = NUCLEAR CHARGE OF EMITTING ION
C
C INPUT : (I*4)  ITVAL  = NO. OF ELECTRON TEMPERATURE VALUES
C INPUT : (I*4)  IDVAL  = NO. OF ELECTRON DENSITY VALUES
C INPUT : (R*8)  TVAL() = ELECTRON TEMPERATURES (UNITS: EV)
C                      DIMENSION: TEMPERATURE INDEX
C INPUT : (R*8)  DVAL() = ELECTRON DENSITIES (UNITS: CM-3)
C                      DIMENSION: DENSITY INDEX
C
C OUTPUT: (R*8)  WLNPTH = SELECTED BLOCK WAVELENGTH (ANGSTROMS)
C
C OUTPUT: (R*8)  PECA(,) = PHOTON EMISSIVITIES.
C                      1ST DIM: TEMPERATURE INDEX
C                      2ND DIM: DENSITY INDEX
C OUTPUT: (L*4)  LTRNG() = .TRUE.  => OUTPUT 'PECA()' VALUE WAS INTER-
C                      POLATED FOR THE USER ENTERED
C                      ELECTRON TEMPERATURE 'TVAL()'.
C                      .FALSE. => OUTPUT 'PECA()' VALUE WAS EXTRA-
C                      POLATED FOR THE USER ENTERED
C                      ELECTRON TEMPERATURE 'TVAL()'.
C                      DIMENSION: TEMPERATURE INDEX
C OUTPUT: (L*4)  LDRNG() = .TRUE.  => OUTPUT 'PECA()' VALUE WAS INTER-
C                      POLATED FOR THE USER ENTERED
C                      ELECTRON DENSITY 'DVAL()'.
C                      .FALSE. => OUTPUT 'PECA()' VALUE WAS EXTRA-
C                      POLATED FOR THE USER ENTERED
```



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C      (R*8)   TETA(,)   = INPUT DATA SET -
C                      ELECTRON TEMPERATURES (UNITS: eV)
C                      1st DIMENSION: ELECTRON TEMPERATURE INDEX
C                      2nd DIMENSION: DATA-BLOCK INDEX
C      (R*8)   TEDA(,)   = INPUT DATA SET -
C                      ELECTRON DENSITIES      (UNITS: cm-3)
C                      1st DIMENSION: ELECTRON DENSITY      INDEX
C                      2nd DIMENSION: DATA-BLOCK INDEX
C      (R*8)   PEC(,,)   = INPUT DATA SET -
C                      FULL SET OF IONIZATIONS PER PHOTON
C                      1st DIMENSION: ELECTRON TEMPERATURE INDEX
C                      2nd DIMENSION: ELECTRON DENSITY      INDEX
C                      3rd DIMENSION: DATA-BLOCK INDEX
C
C      (C*10)  CWAVEL()  = INPUT FILE - WAVELENGTH (ANGSTROMS)
C                      DIMENSION: DATA-BLOCK INDEX
C      (C*8)   CFILE()   = INPUT FILE - SPECIFIC ION FILE SOURCE
C                      DIMENSION: DATA-BLOCK INDEX
C      (C*8)   CTYPE()   = INPUT FILE - TYPE OF DATA (IE EXCIT., ETC)
C                      DIMENSION: DATA-BLOCK INDEX
C      (C*2)   CINDM()   = INPUT FILE - METASTABLE INDEX
C                      DIMENSION: DATA-BLOCK INDEX

```

C ROUTINES:

ROUTINE	SOURCE	BRIEF DESCRIPTION
E3DATA	ADAS	FETCH INPUT DATA FROM SELECTED DATA SET
E3CHKB	ADAS	CHECK VALIDITY OF ION AND 'IBSEL'
E3SPLN	ADAS	INTERPOLATE DATA WITH TWO WAY SPLINES
E3TITL	ADAS	CREATE DESCRIPTIVE TITLE FOR OUTPUT

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C DATE: 7th December 1995

C-----
C VERSION: 1.1 DATE: 12-03-98

C MODIFIED: RICHARD MARTIN
C - PUT UNDER SCCS CONTROL

C VERSION: 1.2 DATE: 29-05-2002

C MODIFIED: Martin O'Mullane
C - Change dimension of arrays from e3data as the 96 pecs
C can have 24 entries. It is not necessary to tie
C these dimensions to the global NTDIM/NDDIM used
C in the rest of the program.

C-----
C-----
CHARACTER*120 DSNAME, TITLX
INTEGER IBSEL, IDVAL, IRCODE, ITVAL

INTEGER	IZOIN,	IZIN	
LOGICAL	LDRNG (IDVAL),		LTRNG (ITVAL)
REAL*8	DVAL (NDDIM),	PECA (NTDIM, NDDIM)	
REAL*8	TVAL (NTDIM),	WLNTH	