

ADAS Subroutine spzd

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SUBROUTINE SPZD( IBSEL , IZ0IN ,  
&                ITVAL , TVAL ,  
&                IZ    , IZ1  ,  
&                PZDA  , LTRNG ,  
&                TITLX , IRCODE  
&                )
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C-----  
C  
C ***** FORTRAN77 SUBROUTINE: SPZD *****  
C  
C PURPOSE: TO EXTRACT AND INTERPOLATE DENSITY INDEPENDENT RADIATED  
C POWER COEFFICIENTS FOR GIVEN ELEMENT NUCLEAR CHARGE AND  
C DATA-BLOCK FOR A SET OF ELECTRON TEMPERATURES.  
C  
C USES THE SAME ROUTINES AS ADAS504, EXCEPT FOR:  
C  
C 'E4FILE' - WHICH OPENS THE REQUESTED FILE.  
C 'E4CHKB' - WHICH CHECKS INPUT VALUES ARE CONSISTENT WITH  
C THE SELECTED DATA-BLOCK 'IBSEL' AND 'IBSEL' IS  
C IN RANGE.  
C  
C THE FIRST OF THESE FUNCTIONS IS CARRIED OUT IN 'ADAS604'  
C VIA ISPF PANELS USING THE ROUTINE 'E4SPF0' - ADAS604 DOES  
C NOT REQUIRE THE ROUTINE 'E4CHKB' AS THE USER CANNOT SELECT  
C AN INVALID VALUE FOR 'IBSEL' OR 'IBSEL'/ELEMENT COMBINATION  
C  
C CALLING PROGRAM: GENERAL USE  
C  
C SUBROUTINE:  
C  
C INPUT : (I*4) IBSEL = INDEX OF DATA-BLOCK SELECTED FOR ANALYSIS  
C INPUT : (I*4) IZ0IN = NUCLEAR CHARGE OF REQUIRED ELEMENT  
C  
C INPUT : (I*4) ITVAL = NUMBER OF ELECTRON TEMPERATURE VALUES  
C INPUT : (R*8) TVAL() = ELECTRON TEMPERATURES (UNITS: EV)  
C DIMENSION: ELECTRON TEMPERATURE INDEX  
C  
C OUTPUT: (I*4) IZ = INPUT FILE - SELECTED DATA BLOCK:  
C RADIATING ION CHARGE  
C (SET TO -1 WHEN WHOLE ELEMENT)  
C OUTPUT: (I*4) IZ1 = INPUT FILE - SELECTED DATA BLOCK:  
C RADIATING ION CHARGE +1  
C (SET TO 1 WHEN WHOLE ELEMENT)  
C  
C OUTPUT: (R*8) PZDA() = ZERO-DENSITY RADIATED POWER COEFFICIENTS  
C DIMENSION: ELECTRON TEMPERATURE INDEX  
C OUTPUT: (L*4) LTRNG() = .TRUE. => OUTPUT 'PZDA()' VALUE WAS INTER-  
C POLATED FOR THE USER ENTERED  
C ELECTRON TEMPERATURE 'TVAL()'.  
C .FALSE. => OUTPUT 'PZDA()' VALUE WAS EXTRA-  
C POLATED FOR THE USER ENTERED
```


C (C*80) DSNAME = FULL NAME OF DATA SET INTERROGATED

C

C (I*4) ISELA() = INPUT DATA FILE: DATA-BLOCK ENTRY INDICES.
C DIMENSION: DATA-BLOCK INDEX

C (I*4) ITA() = INPUT DATA SET-NUMBER OF ELECTRON TEMPERA-
C TURES.
C DIMENSION: DATA-BLOCK INDEX

C (I*4) IZOUT() = INPUT DATA FILE: IONIZING ION INITIAL CHARGE
C DIMENSION: DATA-BLOCK INDEX

C (I*4) IZ1OUT() = INPUT DATA FILE: IONIZING ION FINAL CHARGE
C DIMENSION: DATA-BLOCK INDEX

C

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) PZD(,) = INPUT DATA SET -
C FULL SET OF IONIZATIONS RATE-COEFFICIENTS
C 1st DIMENSION: ELECTRON TEMPERATURE INDEX
C 2nd DIMENSION: DATA-BLOCK INDEX

C

C (C*5) CIION() = INPUT DATA FILE - RADIATING ION
C DIMENSION: DATA-BLOCK INDEX

C (C*5) CITYPE() = INPUT DATA FILE - RADIATION TYPE
C DIMENSION: DATA-BLOCK INDEX

C (C*20) CIINFO() = INPUT DATA FILE - INFORMATION STRING
C DIMENSION: DATA-BLOCK INDEX

C

C ROUTINES:

ROUTINE	SOURCE	BRIEF DESCRIPTION
E4FILE	ADAS	OPEN DATA SET FOR SELECTED ELEMENT
E4DATA	ADAS	FETCH INPUT DATA FROM SELECTED DATA SET
E4CHKB	ADAS	CHECK VALIDITY OF ELEMENT AND 'IBSEL'
E4SPLN	ADAS	INTERPOLATE DATA WITH ONE-WAY SPLINES
E4TITL	ADAS	CREATE DESCRIPTIVE TITLE FOR OUTPUT
XXUID	ADAS	FETCHES/SETS ADAS SOURCE DATA USER ID
XXSPZD	ADAS	FETCHES/SETS ADAS SOURCE DATA FILE NAME+

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C K1/1/47
C JET EXT. 4941

C DATE: 28/08/92

C UPDATE: 10/03/93 - PE BRIDEN: INTRODUCED CALL TO XXUID TO ESTABLISH
C IF USERID OF INPUT DATASET CHANGES
C BETWEEN CALLS.
C SAVE NAME OF LAST READ DATASET.
C (ADDED VARIABLES UIDIN,UIDLST,DSNREQ)

C UPDATE: 2/09/93 - HPS : INTRODUCED CALL TO XXSPZD TO ESTABLISH

C IF USRGRP, USRTYP AND USREXT OF INPUT
C DATASET CHANGES BETWEEN CALLS.
C SAVE NAME OF LAST READ DATASET.
C (ADDED VARIABLES GRPIN, GRPLST, TYPIN,
C TYPLST, EXTIN, EXTLST)
C

C UPDATE: 4/11/94 - L. JALOTA: MODIFIED TO RUN UNDER UNIX.
C CHANGED DIMENSIONS OF DSNAME, DSNREQ
C

C UPDATE: 26/03/95 - HPS : CORRECTED CIION and CITYP TO C*5
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C
C VERSION: 1.1 DATE: 25-05-95
C MODIFIED: UNKNOWN (SOMEONE FROM TESSELLA SUPPORT SERVICES PLC)
C - PUT UNDER SCCS CONTROL
C

C VERSION: 1.2 DATE: 20-07-07
C MODIFIED: Allan Whiteford
C - Small modification to comments to allow for automatic
C documentation preparation.
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C-----

CHARACTER*80	TITLX			
INTEGER	IBSEL,	IRCODE,	ITVAL,	IZ
INTEGER	IZ0IN,	IZ1		
LOGICAL	LTRNG(ITVAL)			
REAL*8	PZDA(ITVAL),	TVAL(ITVAL)		