

ADAS Subroutine d7bndl

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      SUBROUTINE D7BNDL (NDLEV , NDTRN , NDMET , NDOSC ,
+                       IL      , WA      , XJA      , NV      , TSCEF ,
+                       ICNTE , IETRN  , IE1A   , IE2A   , AA      , SCOM  ,
+                       NMET  , IMETR  , PTOT   , FMIN   , Z1      ,
+                       ICTM  , IUMA   , CSTGMA ,
+                       FFMA  , WVMA   , GBMA   , PYMA
+                       )
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C ***** FORTRAN77 SUBROUTINE: D7BNDL *****
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C PURPOSE:  SUBROUTINE TO DISCARD TRANSITIONS WITH AN OSCILLATOR
C           STRENGTH BELOW A CERTAIN INPUT VALUE. GETS SOME VALUES
C           VIA A PIPE FROM IDL AND THEN RETURNS SOME VALUES TO IDL
C           FOR DISPLAY USE IN CW_ADAS407_PROC
C
C CALLING PROGRAM: D7ISPF
C
C SUBROUTINE:
C
C INPUT : (I*4)  NDLEV      = MAXIMUM NUMBER OF LEVELS THAT CAN BE READ
C INPUT : (I*4)  NDTRN      = MAXIMUM NUMBER OF TRANSITIONS
C INPUT : (I*4)  NDLEV      = MAXIMUM NUMBER OF LEVELS THAT CAN BE READ
C INPUT : (I*4)  NDTRN      = MAXIMUM NUMBER OF TRANSITIONS
C INPUT : (I*4)  NDMET      = MAXIMUM NUMBER OF METASTABLES
C INPUT : (I*4)  NDOSC      = MAXIMUM NUMBER OF RADIATIVE TRANSITIONS
C                               ALLOWED FOR ASSEMBLING POWER FOR EACH
C                               METASTABLE
C
C INPUT : (I*4)  IL         = NUMBER OF ENERGY LEVELS
C INPUT : (R*8)  WA ( )     = ENERGY RELATIVE TO LEVEL 1 (CM-1)
C                               1ST DIM: LEVEL INDEX
C INPUT : (R*8)  XJA ( )    = QUANTUM NUMBER (J-VALUE) FOR LEVEL 'IA()'
C                               (NOTE: (2*XJA)+1 = STATISTICAL WEIGHT)
C                               1ST DIM: LEVEL INDEX
C INPUT : (I*4)  NV         = INPUT DATA FILE: NUMBER OF TEMPERATURES
C INPUT : (R*8)  TSCEF ( , ) = INPUT DATA FILE: ELECTRON TEMPERATURES
C                               2ND DIMENSION: 1 => KELVIN (IFOUT=1)
C                                               2 => EV (IFOUT=2)
C                                               3 => REDUCED (IFOUT=3)
C INPUT : (I*4)  ICNTE      = NUMBER OF ELECTRON COLL. TRANSITIONS
C INPUT : (I*4)  IETRN ( )  = ELECTRON IMPACT TRANSITION:
C                               INDEX VALUES IN MAIN TRANS. ARRAYS WHICH
C                               REPRESENT ELECTRON IMPACT TRANSITIONS.
C INPUT : (I*4)  IE1A ( )   = TRANSITION: LOWER ENERGY LEVEL INDEX
C                               1ST DIM: ELECTRON COLL. TRANSITION INDEX
C INPUT : (I*4)  IE2A ( )   = TRANSITION: UPPER ENERGY LEVEL INDEX
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C 1ST DIM: ELECTRON COLL. TRANSITION INDEX
 C INPUT : (R*8) AA() = TRANSITION: A-VALUE (SEC-1)
 C 1ST DIM: ELECTRON COLL. TRANSITION INDEX
 C INPUT : (R*8) SCOM(,) = TRANSITION:
 C GAMMA VALUES (CASE ' ' & 'P')
 C RATE COEFFT. (CM3 SEC-1) (CASE 'H' & 'R')
 C 1ST DIMENSION - TEMPERATURE 'SCEF()'
 C 2ND DIMENSION - TRANSITION NUMBER
 C
 C INPUT : (I*4) NMET = NUMBER OF METASTABLES SELECTED
 C INPUT : (I*4) IMETR() = INDEX OF METASTABLES IN LEVELE LIST
 C 1ST DIM: METASTABLE INDEX
 C OUTPUT: (R*8) PTOT(,) = TOTAL ZERO-DENS. RAD. POWER FOR EACH META.
 C 1ST DIM: SPECIFIC ION FILE TEMP. INDEX
 C 2ND DIM: METASTABLE INDEX
 C INPUT : (R*8) FMIN = MINIMIUM PERMITTED OSCILLATOR STRENGTH
 C INPUT : (R*8) Z1 = RECOMBINING ION CHARGE
 C
 C
 C OUTPUT: (I*4) ICTM() = NUMBER OF INCLUDED TRANSITIONS FOR EACH
 C METASTABLE
 C 1ST DIM: METASTABLE INDEX
 C OUTPUT: (I*4) IUMA(,) = INDEX OF METASTABLE ASSIGNED TRANSITION
 C IN FULL ELECTRON COLL. TRANSITION LIST.
 C 1ST DIM: METASTABLE TRANSITION SET INDEX
 C 2ND DIM: METASTABLE INDEX
 C OUTPUT: (C*22) CSTGMA(,) = STRING IDENTIFIER FOR INCLUDED TRANSITION
 C CONTAINING J, I, FIJ, WVLN
 C 1ST DIM: METASTABLE TRANSITION SET INDEX
 C 2ND DIM: METASTABLE INDEX
 C OUTPUT: (I*4) FFMA(,) = OSCILLATOR STRENGTH OF INCLUDED TRANSITION
 C 1ST DIM: METASTABLE TRANSITION SET INDEX
 C 2ND DIM: METASTABLE INDEX
 C OUTPUT: (I*4) WVMA(,) = WAVELENGTH (A) OF INCLUDED TRANSITION
 C 1ST DIM: METASTABLE TRANSITION SET INDEX
 C 2ND DIM: METASTABLE INDEX
 C OUTPUT: (R*8) GBMA(,,) = GBAR FOR ALLOWED TRANSITIONS
 C 1ST DIM: SPECIFIC ION FILE TEMP. INDEX
 C 2ND DIM: INCLUDED ALLOWED TRANS. INDEX
 C 3RD DIM: METASTABLE INDEX
 C OUTPUT: (R*8) PYMA(,,) = VAN REGEMORTER P FOR ALLOWED TRANSITIONS
 C 1ST DIM: SPECIFIC ION FILE TEMP. INDEX
 C 2ND DIM: INCLUDED ALLOWED TRANS. INDEX
 C 3RD DIM: METASTABLE INDEX

C ROUTINES:

ROUTINE	SOURCE	BRIEF DESCRIPTION
D7PYVR	ADAS	EVALUATES VAN REGEMORTER P FACTOR

C AUTHOR: M O'MULLANE, UCC

C
 C DATE: 18/05/94
 C
 C UPDATE:
 C
 C UNIX-IDL PORT:
 C WILLIAM OSBORN, TESSELLA SUPPORT SERVICES PLC.
 C
 C DATE: 22ND APRIL 1996
 C
 C VERSION: 1.1 DATE: 22-04-96
 C MODIFIED: WILLIAM OSBORN
 C - FIRST VERSION.
 C
 C VERSION: 1.2 DATE: 22-04-96
 C MODIFIED: WILLIAM OSBORN
 C REPLACED NDMET BY NMET IN LOOP TO READ IMETR

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CHARACTER*22	CSTGMA (NDOSC, NDMET)
INTEGER	ICNTE, ICTM (NDMET), IE1A (NDTRN)
INTEGER	IE2A (NDTRN), IETR (NDTRN), IL
INTEGER	IMETR (NDMET), IUMA (NDOSC, NDMET)
INTEGER	NDLEV, NDMET, NDOSC, NDTRN
INTEGER	NMET, NV
REAL*8	AA (NDTRN), FFMA (NDOSC, NDMET), FMIN
REAL*8	GBMA (14, NDOSC, NDMET), PTOT (14, NDMET)
REAL*8	PYMA (14, NDOSC, NDMET), SCOM (14, NDTRN)
REAL*8	TSCEF (14, 3), WA (NDLEV), WVMA (NDOSC, NDMET)
REAL*8	XJA (NDLEV), Z1