ADAS Subroutine xxdata_03

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       SUBROUTINE xxdata_03( IUNIT,  IZDIMD, IGDIMD,
     &                        IZ0,    IZL,    IZU,
     &                        IZRA,   IZDA,   IZIA,    IZTA,    IZSA,
     &                        CRRCA,  NRRCA,  ISRRCA,
     &                        NZA,    KSIA,
     &                        N0RA,   V0RA,   PHFCRA,  EDSPRA,  SCLERA,
     &                        CDRCA,  NDRCA,  ISDRCA,
     &                        DEDA,   FDA,    GDA,     NNDA,    MSDA,
     &                        ITYPDA, N0DA,   NCUTA,   V0DA,    PHFCDA,
     &                        CRFCDA, EPSIJA, FIJA,    EDSPDA,  SCLEDA,
     &                        CCIOA,  NCIOSA, NCIORA,  ISCIOA,
     &                        PIOA,   AIOA,   BIOA,    CIOA,    NQIOA,
     &                        ZETAA,  EIONA,  CIA,
     &                        WGHTA,  ENERA,  CRA,
     &                        CPLTA,  NPLTA,  ISPLTA,
     &                        DEPTA,  FPTA,   GPTA,    NNPTA,   SPYLTA,
     &                        CPLSA,  NPLSA,  ISPLSA,  INFO,
     &                        DEPSA,  FPSA,   GPSA,    NNPSA,   SPYLSA,
     &                        LVALID
     &                      )

C-----------------------------------------------------------------------
C
C  ****************** FORTRAN77 SUBROUTINE: D8DATA *********************
C
C  PURPOSE:  TO FETCH DATA FROM INPUT ATOMPARS DATA SET OF TYPE ADF03.
C
C  CALLING PROGRAM: ADAS408
C
C
C
C  SUBROUTINE:
C
C  INPUT : (I*4)  IUNIT     = UNIT TO WHICH INPUT FILE IS ALLOCATED
C  INPUT : (I*4)  IZDIMD    = MAXIMUM NUMBER OF IONISATION STAGES
C  INPUT : (I*4)  IGDIMD    = MAXIMUM NUMBER OF GROUPS
C
C
C  THE OUTPUT ARRAYS ARE INDEXED
C            XXX()  = XXX(IZDIMD)         1ST DIMENSION ION STAGE
C
C            XXX(,) = XXX(IZDIMD,IGDIMD)  1ST DIMENSION ION STAGE
C                                         2ND DIMENSION GROUP
C
C
C
C  OUTPUT: (I*4)  IZ0       =  NUCLEAR CHARGE
C  OUTPUT: (I*4)  IZL       =  LOWEST INCLUDED ION
C  OUTPUT: (I*4)  IZU       =  HIGHEST INCLUDED ION
C
C  OUTPUT: (I*4)  IZRA()    =  RECOMBINING ION (RAD.  RECOM.)
C  OUTPUT: (I*4)  IZDA()    =  RECOMBINING ION (DIEL. RECOM.)
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C  OUTPUT: (I*4)  IZIA()     =  IONISING ION    (COLL. IONIS.)
C  OUTPUT: (I*4)  IZTA()     =  RADIATING ION   (TOTAL LINE POWER)
C  OUTPUT: (I*4)  IZSA()     =  RADIATING ION   (SPECIFIC LINE POWER)
C
C
C
C  OUTPUT: (C*5)  CRRCA()    =  RADIATIVE RECOM. CODE
C  OUTPUT: (I*4)  NRRCA()    =    - NOT USED -
C  OUTPUT: (I*4)  ISRRCA()   =    - NOT USED -
C
C  OUTPUT: (I*4)  NZA()      = LOWEST ACCESSIBLE SHELL FOR RAD. RECOM.
C  OUTPUT: (I*4)  KSIA()     = NUMBER OF ELECTRONS IN SHELL
C
C  OUTPUT: (I*4)  N0RA()     = LOWEST ACCESSIBLE PRINC. QUANTUM SHELL
C                              FOR RAD. RECOM.
C  OUTPUT: (I*4)  V0RA()     = EFFECTIVE PRINCIPAL QUANTUM NUMBER
C                              FOR SHELL
C  OUTPUT: (R*8)  PHFCRA()   = PHASE SPACE OCCUPANCY AVAILABILITY
C                              FOR SHELL
C  OUTPUT: (R*8)  EDSPRA()   = ENERGY ADJUSTMENT IN LOWEST SHELL
C                              RATE COEFFICIENT
C  OUTPUT: (R*8)  SCLERA()   = MULTIPLIER FOR LOWEST SHELL
C                              RATE COEFFICIENT
C
C
C
C  OUTPUT: (C*5)  CDRCA()    =  DIELECTRONIC RECOM. CODE
C  OUTPUT: (I*4)  NDRCA()    =  NUMBER OF TRANSITIONS FOLLOWING
C  OUTPUT: (I*4)  ISDRCA()   =    - NOT USED -
C
C  OUTPUT: (R*8)  DEDA(,)    = TRANSITION ENERGY (EV)
C  OUTPUT: (R*8)  FDA(,)     = OSCILLATOR STRENGTH
C  OUTPUT: (R*8)  GDA(,)     = GAUNT FACTOR
C  OUTPUT: (I*4)  NNDA(,)    = DELTA N FOR TRANSITION
C  OUTPUT: (I*4)  MSDA(,)    = MERTZ SWITCH (0=OFF, 1=ON)
C
C  OUTPUT: (I*4)  ITYPDA(,) = TYPE OF DIELECTRONIC TRANSITION
C  OUTPUT: (I*4)  N0DA(,)    = LOWEST ACCESSIBLE PRINC. QUANTUM SHELL
C                              FOR DIEL. RE
C  OUTPUT: (I*4)  NCUTA(,)   = CUT-OFF PRINC. QUANTUM SHELL IN
C                              GENERAL PROGRAM
C  OUTPUT: (I*4)  V0DA(,)    = EFFECTIVE PRINC. QUANTUM NUMBER
C                              FOR LOWEST ACCESS
C  OUTPUT: (R*8)  PHFCDA(,) = PHASE SPACE OCCUPANCY AVAILABILITY
C                              FOR LOWEST SHELL
C  OUTPUT: (R*8)  CRFCDA(,) = ADJUSTMENT FOR BETHE CORRECTIONS
C                              IN GENERAL PROGRAM
C  OUTPUT: (R*8)  EPSIJA(,) = Z-SCALED PARENT TRANSITION ENERGY (RYD)
C  OUTPUT: (R*8)  FIJA(,)    = OSCILLATOR STRENGTH FOR TRANSITION
C  OUTPUT: (R*8)  EDSPDA(,) = ENERGY ADJUSTMENT IN BURGESS GENERAL
C                              FORMULA (RYD)
C  OUTPUT: (R*8)  SCLEDA(,) = MULTIPLIER ON BURGESS GENERAL FORMULA
C
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C
C
C  OUTPUT: (C*5)  CCIOA()    =  COLLISIONAL IONIS. CODE
C  OUTPUT: (I*4)  NCIOSA()   =  NUMBER OF SHELL  VALUES FOLLOWING
C  OUTPUT: (I*4)  NCIORA()   =  NUMBER OF RESON. VALUES FOLLOWING
C  OUTPUT: (I*4)  ISCIOA()   =    - NOT USED -
C
C  OUTPUT: (R*8)  PIOA(,)    = SHELL IONISATION POTENTIAL (EV)
C  OUTPUT: (R*8)  AIOA(,)    = LOTZ PARAMETER
C  OUTPUT: (R*8)  BIOA(,)    = LOTZ PARAMETER
C  OUTPUT: (R*8)  CIOA(,)    = LOTZ PARAMETER
C  OUTPUT: (I*4)  NQIOA(,)   = EQUIVALENT ELECTRONS IN SHELL
C
C  OUTPUT: (R*8)  ZETAA(,)   = NUMBER OF EQUIVALENT ELECTRONS FOR SHELL
C  OUTPUT: (R*8)  EIONA(,)   = IONISATION ENERGY FOR SHELL (RYD)
C  OUTPUT: (R*8)  CIA(,)     = MULTIPLIER FOR BURGESS-CHIDICHIMO RATE
C                              FOR SHELL
C  OUTPUT: (R*8)  WGHTA(,)   = WEIGHTING FACTOR FOR EXCITATION TO
C                              RESONANCE
C  OUTPUT: (R*8)  ENERA(,)   = EXCITATION ENERGY FOR TRANSITION
C                              TO RESONANCE (RYD)
C  OUTPUT: (R*8)  CRA(,)     = MULTIPLIER ON EXCITATION RATE EXPRESSSION
C
C
C
C  OUTPUT: (C*5)  CPLTA()    =  TOTAL LINE POWER CODE
C  OUTPUT: (I*4)  NPLTA()    =  NUMBER OF TRANSITIONS FOLLOWING
C  OUTPUT: (I*4)  ISPLTA()   =    - NOT USED -
C
C  OUTPUT: (R*8)  DEPTA(,)   = TRANSITION ENERGY (EV)
C  OUTPUT: (R*8)  FPTA(,)    = OSCILLATOR STRENGTH
C  OUTPUT: (R*8)  GPTA(,)    = GAUNT FACTOR
C  OUTPUT: (I*4)  NNPTA(,)   = DELTA N FOR TRANSITION
C
C  OUTPUT: (R*8)  SPYLTA(,)  = MULTIPLIER OF VAN REGEMORTER P
C                              FACTOR IN TOTAL POWER
C
C
C
C  OUTPUT: (C*5)  CPLSA()    = SPECIFIC LINE POWER CODE
C  OUTPUT: (I*4)  NPLSA()    =   - NOT USED -
C  OUTPUT: (I*4)  ISPLSA()   =   - NOT USED -
C  OUTPUT: (C*8)  INFO()     = WAVELENGTH OF SPECIFIC LINE FOR
C                              NAMING PURPOSES
C
C  OUTPUT: (R*8)  DEPSA(,)   = TRANSITION ENERGY (EV)
C  OUTPUT: (R*8)  FPSA(,)    = OSCILLATOR STRENGTH
C  OUTPUT: (R*8)  GPSA(,)    = GAUNT FACTOR
C  OUTPUT: (I*4)  NNPSA(,)   = DELTA N FOR TRANSITION
C
C  OUTPUT: (R*8)  SPYLSA(,)  = MULTIPLIER OF VAN REGEMORTER P FACTOR
C                              IN SPECIFIC LINE POWER
C
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C
C
C  OUTPUT: (L*4)  LVALID  = .TRUE. DATA SET READ AND APPEARS VALID
C                         = .FALSE. ERROR DETECTED IN READING DATA SET
C
C
C
C  PROGRAM:
C          (C*50) ERRMSG()= ERROR MESSAGE STRING
C          (I*4)  IDUM    = PROGRAM USE
C
C
C  ROUTINES:
C          ROUTINE   SOURCE   DESCRIPTION
C          ------------------------------------------------------
C          I4UNIT    ADAS     FETCH UNIT NUMBER FOR MESSAGE OUTPUT
C
C
C  AUTHOR:  H. P. SUMMERS, JET
C          K1/1/57
C          JET EXT. 4941
C
C  DATE:    10/05/94
C
C
C NOTES: Copied from d8data.for
C
C
C VERSION  : 1.1
C DATE     : 19-07-2003
C MODIFIED : Martin O'Mullane
C               - First version
C
C VERSION  : 1.2
C DATE     : 16-01-2004
C MODIFIED : Martin O'Mullane
C               - V0 in type B radiative recombination is real, not
C                 an integer.
C
C-----------------------------------------------------------------------
C     GENERAL VARIABLES

      CHARACTER*5         CCIOA(IZDIMD),           CDRCA(IZDIMD)
      CHARACTER*5         CPLSA(IZDIMD),           CPLTA(IZDIMD)
      CHARACTER*5         CRRCA(IZDIMD)
      CHARACTER*8         INFO(IZDIMD)
      INTEGER             IGDIMD,      ISCIOA(IZDIMD)
      INTEGER             ISDRCA(IZDIMD),          ISPLSA(IZDIMD)
      INTEGER             ISPLTA(IZDIMD),          ISRRCA(IZDIMD)
      INTEGER             ITYPDA(IZDIMD,IGDIMD),   IUNIT,       IZ0
      INTEGER             IZDA(IZDIMD),            IZDIMD
      INTEGER             IZIA(IZDIMD),            IZL
      INTEGER             IZRA(IZDIMD),            IZSA(IZDIMD)
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INTEGER            IZTA(IZDIMD),             IZU
INTEGER            KSIA(IZDIMD),             MSDA(IZDIMD,IGDIMD)
INTEGER            N0DA(IZDIMD,IGDIMD),      N0RA(IZDIMD)
INTEGER            NCIORA(IZDIMD),           NCIOSA(IZDIMD)
INTEGER            NCUTA(IZDIMD,IGDIMD),     NDRCA(IZDIMD)
INTEGER            NNDA(IZDIMD,IGDIMD),      NNPSA(IZDIMD,IGDIMD)
INTEGER            NNPTA(IZDIMD,IGDIMD),     NPLSA(IZDIMD)
INTEGER            NPLTA(IZDIMD),            NQIOA(IZDIMD,IGDIMD)
INTEGER            NRRCA(IZDIMD),            NZA(IZDIMD)
LOGICAL            LVALID
REAL*8             AIOA(IZDIMD,IGDIMD),      BIOA(IZDIMD,IGDIMD)
REAL*8             CIA(IZDIMD,IGDIMD),       CIOA(IZDIMD,IGDIMD)
REAL*8             CRA(IZDIMD,IGDIMD)
REAL*8             CRFCDA(IZDIMD,IGDIMD),    DEDA(IZDIMD,IGDIMD)
REAL*8             DEPSA(IZDIMD,IGDIMD),     DEPTA(IZDIMD,IGDIMD)
REAL*8             EDSPDA(IZDIMD,IGDIMD),    EDSPRA(IZDIMD)
REAL*8             EIONA(IZDIMD,IGDIMD),     ENERA(IZDIMD,IGDIMD)
REAL*8             EPSIJA(IZDIMD,IGDIMD),    FDA(IZDIMD,IGDIMD)
REAL*8             FIJA(IZDIMD,IGDIMD),      FPSA(IZDIMD,IGDIMD)
REAL*8             FPTA(IZDIMD,IGDIMD),      GDA(IZDIMD,IGDIMD)
REAL*8             GPSA(IZDIMD,IGDIMD),      GPTA(IZDIMD,IGDIMD)
REAL*8             PHFCDA(IZDIMD,IGDIMD),    PHFCRA(IZDIMD)
REAL*8             PIOA(IZDIMD,IGDIMD)
REAL*8             SCLEDA(IZDIMD,IGDIMD),    SCLERA(IZDIMD)
REAL*8             SPYLSA(IZDIMD,IGDIMD)
REAL*8             SPYLTA(IZDIMD,IGDIMD),    V0DA(IZDIMD,IGDIMD)
REAL*8             V0RA(IZDIMD),             WGHTA(IZDIMD,IGDIMD)
REAL*8             ZETAA(IZDIMD,IGDIMD)
```