

ADAS Subroutine d4ibal

```
      SUBROUTINE D4IBAL ( MAXT , IZ1 , IZ2 ,  
&                      NDZ , NDTIN ,  
&                      ACDL , SCDL  
&                      )
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C-----  
C  
C ***** FORTRAN77 SUBROUTINE: D4IBAL *****  
C  
C PURPOSE: TO CALCULATE IONISATION BALANCES AT FIXED DENSITY  
C  
C CALLING PROGRAM: ADAS404  
C  
C SUBROUTINE:  
C  
C INPUT : (I*4) MAXT   = NUMBER OF USER ENTERED TEMPERATURES <= NDTIN  
C INPUT : (I*4) IZ1    = MINIMUM ALLOWED IONIC CHARGE + 1  
C                               (ACCORDING TO AVAILABLE 'NSET')  
C INPUT : (I*4) IZ2    = MAXIMUM ALLOWED IONIC CHARGE + 1  
C  
C INPUT : (I*4) NDZ     = NUMBER OF CHARGE STATES  
C INPUT : (I*4) NDTIN  = MAXIMUM NUMBER OF INPUT TEMPERATURES  
C  
C I/O   : (R*8) ACDL(,) = INPUT : LOG10(RECOMB. COLL-DIEL COEFF)  
C                               OUTPUT: LOG10(IONISATION-BALANCE)  
C                               NOTE:  THESE VALUES ARE FOR A FIXED DENSITY  
C                               1ST ARRAY DIMENSION = ION CHARGE/STAGE  
C                               2ND ARRAY DIMENSION = TEMPERATURE  
C I/O   : (R*8) SCDL(,) = INPUT : LOG10(IONIS. COLL-DIEL COEFF)  
C                               OUTPUT: IONISATION-BALANCE  
C                               NOTE:  THESE VALUES ARE FOR A FIXED DENSITY  
C                               1ST ARRAY DIMENSION = ION CHARGE/STAGE  
C                               2ND ARRAY DIMENSION = TEMPERATURE  
C  
C           (I*4) MAX    = MAXIMUM NUMBER OF CHARGES FOR COLL-DIEL COEF  
C           (I*4) MAX1   = MAXIMUM NUMBER OF CHARGES FOR ION.-BALANCE  
C                               ('MAX' + 1)  
C           (I*4) IZ     = ARRAY SUBSCRIPT USED FOR ION CHARGE VALUES  
C           (I*4) IT     = ARRAY SUBSCRIPT USED FOR TEMPERATURE VALUES  
C           (I*4) IREF   = REFERENCE POINT IN COLL-DIEL COEFF ARRAY,  
C                               REPRESENTING THE CHARGE BELOW WHICH THE ION.  
C                               COLL-DIEL COEFF IS GREATER THAN RECOMB COLL-  
C                               DIEL. COEFF..  
C  
C           (R*8) S      = USED FOR SUMMING COEFFICIENTS  
C           (R*8) SLOG   = LOG10( 'S' )  
C  
C ROUTINES: NONE  
C  
C AUTHOR:   PAUL E. BRIDEN (TESSELLA SUPPORT SERVICES PLC)  
C           K1/0/81  
C           JET EXT. 4569
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C
C DATE:      08/10/90
C
C UNIX-IDL PORT:
C
C VERSION: 1.1 DATE: 11-11-96
C MODIFIED: WILLIAM OSBORN (TESSELLA SUPPORT SERVICES PLC)
C - FIRST CONVERTED
C
C-----
C-----
      INTEGER          IZ1,          IZ2,          MAXT,          NDTIN
      INTEGER          NDZ
      REAL*8           ACDL (NDZ, NDTIN) ,          SCDL (NDZ, NDTIN)
```