

## ADAS Subroutine cdata

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      SUBROUTINE CDDATA( TERAY      ,      NERAY      ,      EBRAY      , IZ      ,  
&      INFILE      ,      INUNIT      ,      MAXNE      , MAXTE      ,  
&      MAXEB      ,      INCOUNT      ,      ITCOUNT      , IECOUNT      ,  
&      EBREF      ,      TEREf      ,      NEREf      , INA      ,  
&      IEA      ,      ITA      ,      GCRC1      , GCRC2      ,  
&      GCRC3      ,      GCRC4      ,      GCRC5      , GCRC6      ,  
&      GCRC7      ,      GCRC8      ,      GCRC9      , NPQN      ,  
&      LTPQN      ,      NSPIN      ,      BNL      , NNBNL      ,  
&      FI      ,      FII      ,      FIII      , CHOICE      )
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C-----  
C  
C ***** FORTRAN77 SUBROUTINE: CDDATA *****  
C  
C      PURPOSE: TO FETCH DATA FROM BUNDLE-NL POPULATION  
C      STRUCTURE FILES OF TYPE ADF26.  
C  
C      CALLING ROUTINE : ADAS312  
C  
C INPUT :  
C  
C (CHR) INFILE : FILENAME FOR WHICH DATA HAS  
C TO BE EXTRACTED FROM.  
C (I*4) INUNIT : FILENAME STREAM.  
C (I*4) MAXNE : MAXIMUM NUMBER OF DENSITIES  
C (I*4) MAXEB : MAXIMUM NUMBER OF BEAM  
C ENERGIES.  
C (I*4) MAXTE : MAXIMUM NUMBER OF TARGET  
C TEMPERATURES  
C (I*4) NPQN : PRINCIPAL QUANTUM NUMBER.  
C (I*4) LTPQN : TOTAL ANGULAR MOMENTUM  
C QUANTUM NUMBER.  
C (I*4) CHOICE : SWITCH TO SELECT COUPLING  
C OR EMISSION COEFFICIENTS.  
C CHOICE = 1 EXTRACT COUPLING  
C COEFFICIENTS.  
C CHOICE = 2 EXTRACT EMISSION  
C COEFFICIENTS.  
C  
C OUTPUT :  
C  
C (R*8) TERAY() : TARGET TEMPERATURES (eV).  
C (R*8) NERAY() : ELECTRON DENSITY ( cm-3).  
C (R*8) EBRAY() : NEUTRAL BEAM ENERGY (eV/amu).  
C (R*8) TEREf : REFERENCE TEMPERATURE ( eV ).  
C (R*8) NEREf : REFERENCE DENSITY ( cm-3).  
C (R*8) GCRC1() : CROSS COUPLING COEFF.(cm-3s-1)  
C (R*8) GCRC2() : CROSS COUPLING COEFF.(cm-3s-1)  
C (R*8) GCRC3() : CROSS COUPLING COEFF.(cm-3s-1)  
C (R*8) GCRC4() : CROSS COUPLING COEFF.(cm-3s-1)  
C (R*8) GCRC5() : CROSS COUPLING COEFF.(cm-3s-1)  
C (R*8) GCRC6() : CROSS COUPLING COEFF.(cm-3s-1)  
C (R*8) GCRC7() : CROSS COUPLING COEFF.(cm-3s-1)
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C (R*8) GCRC8() : CROSS COUPLING COEFF.(cm-3s-1)
C (R*8) GCRC9() : CROSS COUPLING COEFF.(cm-3s-1)
C (R*8) FI() : CONTRIBUTION TO POPULATING THE
C SINGLET RELATIVE TO THE
C GROUND STATE DUE TO EXCITATION
C (R*8) FII() : CONTRIBUTION TO POPULATING THE
C SINGLET RELATIVE TO THE 2(1)S
C METASTABLE.
C (R*8) FIII() : CONTRIBUTION TO POPULATING THE
C TRIPLET RELATIVE TO THE 2(3)S
C METASTABLE.
C (R*8) BNL() : SAHA-BOLTZMANN B-FACTOR
C (R*8) NBNL() : THE PRODUCT OF THE RELATIVE
C POPULATION OF A PARTICULAR
C LEVEL TO THE FIRST IONISATION
C STAGE AND THE RECIPROCAL OF
C THE SAHA-BOLTZMANN B-FACTOR.
C
C (I*4) INA() : REFERENCE ARRAY FOR DENSITY.
C (I*4) IEA() : REFERENCE ARRAY FOR ENERGY.
C (I*4) ITA() : REFERENCE ARRAY FOR TEMPERATURE.
C (I*4) NSPIN : NUMBER OF SPIN SYSTEMS.
C (I*4) INCOUNT : NUMBER OF TARGET DENSITIES.
C (I*4) IECOUNT : NUMBER OF BEAM ENERGIES.
C (I*4) ITCOUNT : NUMBER OF TEMPERATURES.
C (I*4) IZ : NUCLEAR CHARGE.
C
C
C ADDITIONAL ROUTINES:
C
C          ROUTINE          SOURCE          BRIEF DESCRIPTION
C          -----
C          CCFIND           ADAS312           ISOLATE DATA IN ADF26 TYPE FILE.
C
C
C CONTACT : HARVEY ANDERSON
C           UNIVERSITY OF STRATHCLYDE
C           ANDERSON@PHYS.STRATH.AC.UK
C
C DATE : 23/4/98 ( FIRST VERSION )
C
C
C VERSION: 1.1 DATE: 16-03-99
C MODIFIED: RICHARD MARTIN
C - PUT UNDER SCCS CONTROL.
C
C VERSION: 1.2 DATE: 13-10-99
C MODIFIED: Martin O'Mullane
C - With certain compilers array dimension variables
C           must be declared before they are used. Move the
C           integer declarations before the array definitions.
C

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C

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CHARACTER*80      INFILE  
INTEGER           CHOICE,      IEA (MAXNE) ,   IECOUNT  
INTEGER           INA (MAXNE) ,  INCOUNT,     INUNIT  
INTEGER           ITA (MAXTE) ,  ITCOUNT,     IZ,          LTPQN  
INTEGER           MAXEB,         MAXNE,         MAXTE,       NPQN  
INTEGER           NSPIN  
REAL*8           BNL (MAXEB, MAXNE, MAXTE, NSPIN+1)  
REAL*8           EBRA Y (MAXEB) ,          EBREF  
REAL*8           FI (MAXEB, MAXNE, MAXTE, NSPIN+1)  
REAL*8           FII (MAXEB, MAXNE, MAXTE, NSPIN+1)  
REAL*8           FIII (MAXEB, MAXNE, MAXTE, NSPIN+1)  
REAL*8           GCRC1 (MAXEB, MAXNE, MAXTE)  
REAL*8           GCRC2 (MAXEB, MAXNE, MAXTE)  
REAL*8           GCRC3 (MAXEB, MAXNE, MAXTE)  
REAL*8           GCRC4 (MAXEB, MAXNE, MAXTE)  
REAL*8           GCRC5 (MAXEB, MAXNE, MAXTE)  
REAL*8           GCRC6 (MAXEB, MAXNE, MAXTE)  
REAL*8           GCRC7 (MAXEB, MAXNE, MAXTE)  
REAL*8           GCRC8 (MAXEB, MAXNE, MAXTE)  
REAL*8           GCRC9 (MAXEB, MAXNE, MAXTE) ,  NERAY (MAXNE)  
REAL*8           NEREF,          NBNL (MAXEB, MAXNE, MAXTE, NSPIN+1)  
REAL*8           TERAY (MAXTE) ,          TERE F
```