ADAS Subroutine d7wr11

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      SUBROUTINE D7WR11( IUNIT  ,
     &                   NDMET  , NDRHO   , NDTHET  , NDREP   , NDCONF ,
     &                   NDORB  , NDQDN   ,
     &                   IZ0    , IZ      ,
     &                   NPMET  , NRHO    , NTHETA  , INREP   ,
     &                   ISPRT  , ISPSYS  , ITYPEA  , IZETA4  ,
     &                   NCUT   , NSYS    , NTRANS  , N0A     , NREP   ,
     &                   NCTAA  , NZETA   , N1A     ,
     &                   Z1     , EDISGP  , SCALGP  , CI4     ,
     &                   ALFRA  , ADIELO  , EIONA   , SAO     ,
     &                   THETA  , RHO     , RHOP    ,
     &                   PARMR  , PARMD   ,
     &                   WNREP  ,
     &                   TRMPRT ,
     &                   NALCM  , ISALCM  , NALCP   , ISALCP  ,
     &                   QDN
     &                 )
C-----------------------------------------------------------------------
C
C  ******************** FORTRAN77 SUBROUTINE: D7WR11 ******************
C
C  PURPOSE:  TO OUTPUT DATA TO MAINBN PASSING FILE.
C            DATA  FOR INITIATING A MAINBNS BUNDLE-NS CALCULATION
C
C  CALLING PROGRAM: ADAS407
C
C
C  SUBROUTINE:
C
C  INPUT : (I*4)  IUNIT   = OUTPUT UNIT NUMBER FOR RESULTS
C  INPUT : (I*4)  IZ      = RECOMBINED ION CHARGE
C                               (1ST COPASE FILE)
C  INPUT : (I*4)  NDQDN   = MAX. NUMBER OF N-SHELLS FOR QUANTUM DEFECTS
C  INPUT : (I*4)  NALCM   = NUMBER OF SPIN DISTINGUISED
C                              METASTABLES
C  INPUT : (I*4)  ISALCM()= SPIN OF ENERGY ORDERED SPIN
C                           DISTINQUISHED METASTABLE
C                           1ST. DIM: DISTINGUISHED METASTABLE INDEX
C  INPUT : (I*4)  NALCP     NUMBER OF SPIN DISTINGUISHED
C                           PARENTS
C  INPUT : (I*4)  ISALCP()= SPIN OF ENERGY ORDERED SPIN
C                           DISTINGUISHED PARENT
C                           1ST. DIM: DISTINGUISHED PARENT INDEX
C  INPUT : (R*8)  QDN()   = QUANTUM DEFECT FOR N-SHELLS.  NON-ZERO ONLY
C                           FOR ADF04 FILES WITH ORBITAL ENERGY DATA
C                           1ST. DIM: N-SHELL (1<=N<=NDQDN)
C
C
C          (I*4) I         = GENERAL USE
C          (I*4) IFIRST    = GENERAL USE
C          (I*4) ILAST     = GENERAL USE
C
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C NOTE:
C          THIS OUTPUT DATA IS FOR SUBSEQUENT INPUT TO A BACKGROUND
C          EXECUTION OF THE POPULATION  PROGRAM 'MAINBNS'.
C
C ROUTINES:
C          ROUTINE    SOURCE    BRIEF DESCRIPTION
C          ------------------------------------------------------------
C          XFESYM     ADAS      OBTAIN ELEMENT SYMBOL FROM NUCL. CHARGE
c          XXSLEN     ADAS      FIRST AND LAST NON-BLANK CHRS. OF STRNG
C
C AUTHOR:  H. P. SUMMERS, JET
C          K1/1/57
C          JET EXT. 4941
C
C DATE:    01/07/94
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: 20-08-96
C MODIFIED: HUGH SUMMERS + WILLIAM OSBORN
C     - MADE THE REPRESENTATIVE LEVEL LIST
C             TO THE MAINBN FILE BEGIN AT 1.
C
C
C VERSION: 1.3 DATE: 14-08-97
C MODIFIED: HUGH SUMMERS
C     - ADDED SPIN DISTINQUISHED PARENT AND METASTABLE
C             IDENTIFICATION, COUNTERS AND POINTERS.  USING
C             IGRD TO MARK THE SPIN SYSTEM NOW.  PUT OUT
C             TRUE QUANTUM DEFECTS.  IZ INCLUDED IN CALL
C             VARAIBLES.
C
C VERSION: 1.4 DATE: 07-12-98
C MODIFIED: Martin O'Mullane
C     - Extended MAINBNS namelist to give the ionisation (adf07)
C             and DR cross reference file in the adf25 driver.
C
C-----------------------------------------------------------------------
      CHARACTER*2         TRMPRT(NDMET)
      INTEGER             INREP,       ISALCM(NDMET)
      INTEGER             ISALCP(NDMET),            ISPRT(NDMET)
      INTEGER             ISPSYS(NDMET,2),          ITYPEA(NDMET,NDCONF)
      INTEGER             IUNIT,       IZ,          IZ0
      INTEGER             IZETA4(NDMET,2,NDORB),    N0A(NDMET,2)
      INTEGER             N1A(NDMET,NDCONF),        NALCM,       NALCP
      INTEGER             NCTAA(NDMET,NDCONF),      NCUT(NDMET), NDCONF
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INTEGER             NDMET,       NDORB,       NDQDN,       NDREP
INTEGER             NDRHO,       NDTHET,      NPMET
INTEGER             NREP(NDREP), NRHO,        NSYS(NDMET), NTHETA
INTEGER             NTRANS(NDMET),            NZETA(NDMET,2)
REAL*8              ADIELO(NDMET,2,NDTHET)
REAL*8              ALFRA(NDMET,2,NDTHET),    CI4,         EDISGP
REAL*8              EIONA(NDMET,2,NDORB)
REAL*8              PARMD(NDMET,10,NDCONF),   PARMR(NDMET,2,4)
REAL*8              QDN(NDQDN),  RHO(NDRHO),  RHOP(NDRHO)
REAL*8              SAO(NDMET,2,NDTHET),      SCALGP
REAL*8              THETA(NDTHET),            WNREP(NDREP)
REAL*8              Z1
```