ADAS Subroutine bxmcrc

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      SUBROUTINE BXMCRC( NDTEM  , NDTRN  , NDLEV  ,
     &                   IT     , ICNT   , IL     ,
     &                   I1A    , I2A    ,
     &                   RATE   , DRATE  ,
     &                   CRC
     &                 )
C-----------------------------------------------------------------------
C
C  ****************** FORTRAN77 SUBROUTINE: BXMCRC *********************
C
C  PURPOSE: TO  CONSTRUCT  EXCITATION/DE-EXCIATATION   RATE  COEFFICIENT
C           MATRIX  'CRC' FOR TRANSITIONS BETWEEN ALL ENERGY LEVELS AT A
C           GIVEN TEMPERATURE 'IT' AND FOR A GIVEN TRANSITION TYPE
C
C  CALLING PROGRAM:  ADAS205/ADAS206
C
C  SUBROUTINE:
C
C  INPUT :  (I*4)  NDTEM   = MAXIMUM NUMBER OF TEMPERATURES ALLOWED
C  INPUT :  (I*4)  NDTRN   = MAXIMUM NUMBER OF RECOMBINATIONS ALLOWED
C  INPUT :  (I*4)  NDLEV   = MAXIMUM NUMBER OF ENERGY LEVELS ALLOWED
C
C  INPUT :  (I*4)  IT      = INDEX OF TEMPERATURE VALUE BEING ASSESSED
C  INPUT :  (I*4)  ICNT    = NUMBER OF SELECTED TRANSITIONS
C  INPUT :  (I*4)  IL      = NUMBER OF ENERGY LEVELS
C                                        (SEE: 'ITRN()')
C
C  INPUT :  (I*4)  I1A()   = SELECTED TRANSITION TYPE:
C                            LOWER ENERGY LEVEL INDEX.
C                            DIMENSION: TRANSITION INDEX
C  INPUT :  (I*4)  I2A()   = SELECTED TRANSITION TYPE:
C                            UPPER ENERGY LEVEL INDEX.
C                            DIMENSION: TRANSITION INDEX
C
C  INPUT :  (R*8)  RATE(,) = EXCITATION RATE COEFFS (cm**3/s)
C                            1st DIMENSION: TEMPERATURE INDEX
C                            2nd DIMENSION: TRANSITION INDEX
C  INPUT :  (R*8)  DRATE(,)= DE-EXCIT'N RATE COEFFS (cm**3/s)
C                            1st DIMENSION: TEMPERATURE INDEX
C                            2nd DIMENSION: TRANSITION INDEX
C
C  OUTPUT:  (R*8)  CRC(,)  = EXCIT'N/DE-EXCIT'N RATE COEFFT MATRIX
C                            COVERING ALL TRANSITIONS (cm**3/s).
C                            VALUES FOR GIVEN TEMPERATURE & TRANSITION
C                            TYPE.
C                            1st DIMENSION: ENERGY LEVEL INDEX
C                            2nd DIMENSION: ENERGY LEVEL INDEX
C                           (NOTE: DIAGONAL   ELEMENTS  REPRESENT   THE
C                                  NEGATIVE  SUM  OF  THEIR  RESPECTIVE
C                                  COLUMNS.)
C
C           (I*4)  IS1     = ENERGY LEVEL ARRAY INDEX
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C           (I*4)  IS2     = ENERGY LEVEL ARRAY INDEX
C           (I*4)  IC      = TRANSITION ARRAY INDEX
C
C
C ROUTINES: NONE
C
C
C AUTHOR:  PAUL E. BRIDEN (TESSELLA SUPPORT SERVICES PLC)
C          K1/0/81
C          JET EXT. 4569
C
C DATE:    09/10/90
C
C-----------------------------------------------------------------------
C
C-----------------------------------------------------------------------
      INTEGER             I1A(NDTRN),  I2A(NDTRN),  ICNT,         IL
      INTEGER             IT,          NDLEV,       NDTEM,        NDTRN
      REAL*8              CRC(NDLEV,NDLEV),         DRATE(NDTEM,NDTRN)
      REAL*8              RATE(NDTEM,NDTRN)
```