

ADAS Subroutine b8stkd

C

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      SUBROUTINE B8STKD( NDTEM , NDLEV , NDMET ,
&                      IT      , NORD  , NMET  ,
&                      IORDR  , IMETR  ,
&                      CC     , STV   ,
&                      VEC    , IP    ,
&                      VRED
&                      )
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C ***** FORTRAN77 SUBROUTINE: B8STKD *****

C

C PURPOSE: TO STACK UP IN 'VRED' THE RECOMBINATION RATE CONTRIBUTIONS
C FOR EACH METASTABLE LEVEL FOR A GIVEN TEMPERATURE AND
C DENSITY.

C

C CALLING PROGRAM: ADAS205/ADAS206

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C SUBROUTINE:

C

C INPUT : (I*4) NDTEM = MAXIMUM NUMBER OF TEMPERATURES ALLOWED
C INPUT : (I*4) NDLEV = MAXIMUM NUMBER OF ENERGY LEVELS ALLOWED
C INPUT : (I*4) NDMET = MAXIMUM NUMBER OF METASTABLE LEVELS ALLOWED

C

C INPUT : (I*4) IT = INDEX DENOTING THE TEMPERATURE
C INPUT : (I*4) IP = PARENT INDEX
C INPUT : (I*4) NORD = NUMBER OF ORDINARY EXCITED LEVELS
C INPUT : (I*4) NMET = NUMBER OF METASTABLE LEVELS

C

C INPUT : (I*4) IMETR() = INDEX OF METASTABLE IN COMPLETE LEVEL LIST
C (ARRAY SIZE = 'NDMET')
C INPUT : (I*4) IORDR() = INDEX OF ORDINARY EXCITED LEVELS IN COMPLETE
C LEVEL LIST.
C (ARRAY SIZE = 'NDLEV')

C

C INPUT : (R*8) CC(,) = RATE MATRIX COVERING ALL TRANSITIONS
C (UNITS: SEC-1)
C VALUES FOR GIVEN TEMPERATURE AND DENSITY.
C 1st DIMENSION: ENERGY LEVEL INDEX
C 2nd DIMENSION: ENERGY LEVEL INDEX

C INPUT : (R*4) STV() = RECOMBINATION CONTRIBUTION FOR EACH
C NON-METASTABLE/ORDINARY EXCITED LEVELS.
C (UNITS: CM**3)
C VALUES FOR GIVEN TEMPERATURE AND DENSITY.

C DIMENSION: ORDINARY EXCITED LEVEL INDEX
C INPUT : (R*8) VEC(,,) = RECOMBINATION RATE COEFFT. VALUES.
C (UNITS: CM**3/SEC-1)
C VALUES FOR GIVEN TEMPERATURE AND DENSITY.
C 1st DIMENSION: TEMPERATURE INDEX ('IT')
C 2nd DIMENSION: CAPTURING LEVEL INDEX
C 3ND DIMENSION: PARENT INDEX

C

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C OUTPUT: (R*8) VRED(,) = VECTOR OF RECOMBINATION RATE CONTRIBUTIONS
C FOR EACH METASTABLE LEVEL.
C (UNITS: SEC-1)
C VALUES FOR GIVEN TEMPERATURE AND DENSITY.
C 1ST DIMENSION: METASTABLE LEVEL INDEX
C 2ND DIMENSION: PARENT INDEX
C
C (I*4) IM = METASTABLE LEVEL ARRAY INDEX
C (I*4) IS = ORDINARY EXCITED LEVEL INDEX
C
C ROUTINES: NONE
C
C NOTE:
C VRED(IM,IP) = ( THE RECOMBINATION RATE FOR IM )
C +
C SUM( (the transition rate from ordinary
C level IS to IM) x (the recombin-
C ation contribution for ordinary
C level IS) )
C
C ABOVE SUM IS OVER ALL ORDINARY LEVELS.
C
C
C AUTHOR: HP SUMMERS (UPGRADE OF BXSTKD BY PE BRIDEN)
C K1/1/57
C JET EXT. 4941
C
C DATE: 11/06/92
C
C UPDATE: 12/07/93 HPS - CHANGE STV DIMENSION TO R*4
C*****
C UNIX-IDL PORT:
C
C AUTHOR: DAVID H BROOKS, UNIVERSITY OF STRATHCLYDE
C
C DATE: UNKNOWN
C
C*****
C PUT UNDER SCCS CONTROL:
C
C VERSION: 1.1 DATE: 10/05/96
C MODIFIED: WILLIAM OSBORN (TESSELLA SUPPORT SERVICES PLC)
C - FIRST PUT UNDER SCCS
C
C-----
C-----
C
C INTEGER IMETR (NDMET) , IORDR (NDLEV)
C INTEGER IP, IT, NDLEV, NDMET
C INTEGER NDTEM, NMET, NORD
C REAL*8 CC (NDLEV, NDLEV)
C REAL STV (NDLEV)

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REAL*8

VEC (NDTEM, NDLEV, NDMET) , VRED (NDMET, NDMET)