

## ADAS Subroutine b8stkb

```
C
      SUBROUTINE B8STKB( NDTEM , NDLEV , NDMET ,
&                      IT      , NORD   ,
&                      IORDR  ,
&                      CMAT   , VEC    ,
&                      IP     ,
&                      STV    ,
&                      )
C-----
C
C ***** FORTRAN77 SUBROUTINE: B8STKB *****
C
C PURPOSE: TO STACK UP IN 'STV' THE RECOMBINATION CONTRIBUTION FOR
C          EACH NON-METASTABLE/ORDINARY EXCITED LEVEL FOR A GIVEN
C          TEMPERATURE AND DENSITY.
C
C CALLING PROGRAM:  ADAS205/ADAS206
C
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 METASTABLES ALLOWED
C
C INPUT :  (I*4)  IT     = INDEX DENOTING THE TEMPERATURE
C INPUT :  (I*4)  NORD   = NUMBER OF ORDINARY EXCITED LEVELS
C
C INPUT :  (I*4)  IORDR() =INDEX OF ORDINARY EXCITED LEVELS IN COMPLETE
C                      LEVEL LIST.
C                      (ARRAY SIZE = 'NDLEV' )
C
C INPUT :  (R*8)  CMAT(,) = INVERTED RATE MATRIX COVERING ALL
C                      NON-METASTABLE/ORDINARY EXCITED LEVELS
C                      TRANSITIONS.
C                      (UNITS: SEC)
C                      VALUES FOR GIVEN TEMPERATURE AND DENSITY.
C                      1st DIMENSION: ORDINARY EXCITED LEVEL INDEX
C                      2nd DIMENSION: ORDINARY EXCITED LEVEL INDEX
C INPUT :  (I*4)  IP     = PARENT INDEX
C
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                      3rd DIMENSION: PARENT INDEX
C
C OUTPUT:  (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
C      (I*4)  IS1      = ORDINARY EXCITED LEVEL INDEX
C      (I*4)  IS2      = ORDINARY EXCITED LEVEL INDEX
C
C      (R*8)  COEF      = VARIABLE USED TO SUM COEFFICIENT VALUES
C
C
C ROUTINES: NONE
C
C NOTE:
C      IF:      n = number of ordinary/non-metastable levels
C              R(nxn) = Rate matrix (SEC-1) covering transistions between
C                      all possible pairs of ordinary levels.
C                      row   : final   level
C                      column: initial level
C                      (Inverse R-1(nxn) = 'CMAT(,)' )
C              V(n)  = Recombination rate vector (CM**3 SEC-1) covering
C                      all ordinary levels.
C                      ( = 'VEC()' - ordinary level part ).
C              S(n)  = Recombination contribution vector (CM**3) covering
C                      all ordinary levels ( = 'STV()' ).
C
C      Therefore:  R(nxn).S(n) = V(n)
C
C      =>          S(n)  = R-1(nxn).V(n)
C
C
C
C
C
C AUTHOR:  HP SUMMERS  (UPGRADE OF BXSTKB BT PE BRIDEN)
C          K1/1/57
C          JET EXT. 4941
C
C DATE:    11/06/92
C
C UPDATE:  12/07/93  HPS - CHASNGE 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
C          INTEGER          IORDR (NDLEV) ,          IP,          IT

```

INTEGER	NDLEV,	NDMET,	NDTEM,	NORD
REAL*8	CMAT (NDLEV, NDLEV)			
REAL	STV (NDLEV)			
REAL*8	VEC (NDTEM, NDLEV, NDMET)			