

## ADAS Subroutine a8data

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      SUBROUTINE A8DATA( DSFULL , INDXREF , TITLE , CAMETH , Z0 ,
&                        Z      , ZEFF  , INDL  , INDU  , EI   ,
&                        EJ      , WI    , WJ    , ACOEFF , S    ,
&                        FIJ     , EIJ   , IXTYP ,
&                        BXC     , BPXC  , FXC1  ,
&                        FXC2   , FXC3  , XKC   ,
&                        IXOPS   , IBPTS  , IFPTS  , IDIFF  , ICT   ,
&                        ITOUT   , XA   , YA   , APOMA  , DIFOMA , TOA   ,
&                        GOA     , APGOA , EXCRA  , DEXCRA , GBARFA,
&                        ISTDIM  , IREAD  , IZ    , IZ0   , GF    ,
&                        BVAL    , BCVAL
&                                )
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C
C ***** FORTRAN77 SUBROUTINE A8DATA *****
C
C PURPOSE: TO REFRESH A DATA INDEX FROM AN ADAS108 ARCHIVE. READS
C           IN THE INDEX CODE A-ADAS, B-BURGESS/SUMMERS AND THE THE REST
C           OF THE DATA AS APPROPRIATE. 9-KNOT BURGESS SPLINE VERSION
C
C CALLING PROGRAM:
C           ADAS108.FOR
C
C INPUT:
C           (C*80) DSFULL  - THE USERS' CHOSEN ARCHIVE FILE NAME.
C           (I*4)  INDXREF - THE INDEX NUMBER TO REFRESH FROM.
C           (C*40) TITLE   - THE INFORMATION LINE IN THE ARCHIVE
C                           FILE.
C           (C*4)  CAMETH  - THE TAG TO DISTINGUISH BETWEEN THE
C                           TWO TYPES OF ANALYSIS.
C                           A - ADAS, B- BURGESS
C           (R*8)  GF      - THE WEIGHTED OSCILLATOR STRENGTH
C           (R*8)  BVAL    - THE BURGESS SCALABLE PARAMETER B.
C           (R*8)  BCVAL   - THE BURGESS SCALABLE PARAMETER C.
C           (I*4)  ISTDIM  = THE MAXIMUM ARRAY DIMENSION
C           (I*4)  IREAD   = THE INPUT UNIT
C
C OUTPUTS:
C           (R*8)  Z0      = NUCLEAR CHARGE OF ION
C           (R*8)  Z       = ION CHARGE
C           (R*8)  ZEFF    = ION CHARGE + 1
C           (I*4)  INDL    = LOWER LEVEL INDEX (USER CHOICE)
C           (I*4)  INDU    = UPPER LEVEL INDEX (USER CHOICE)
C           (R*8)  WI      = LOWER LEVEL STATISTICAL WEIGHT
C           (R*8)  WJ      = UPPER LEVEL STATISTICAL WEIGHT
C           (R*8)  EI      = LOWER LEVEL ENERGY (IN SELECTED UNITS)
C           (R*8)  EJ      = UPPER LEVEL ENERGY
C           (R*8)  ACOEFF  = TRANSITION PROBABILITY (IN ABOVE FORM,
C                           DIPOLE CASE ONLY)
C           (I*4)  IXTYP  = 1  DIPOLE TRANSITION
C                           = 2  NON-DIPOLE TRANSITION
C                           = 3  SPIN CHANGE TRANSITION
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C = 4 OTHER  
 C (I\*4) IBPTS = 0 BAD POINT OPTION OFF  
 C = 1 BAD POINT OPTION ON  
 C (I\*4) IFPTS = 1 SELECT ONE POINT OPTIMISING  
 C = 2 SELECT TWO POINT OPTIMISING  
 C (I\*4) IXOPS = 0 OPTIMISING OFF  
 C = 1 OPTIMISING ON (IF ALLOWED)  
 C (I\*4) IDIFF = 0 RATIO FITTING FOR DIPOLE X-SECT (ONLY  
 C WITH OPTIMISING)  
 C = 1 DIFFERENCE FITTING FOR DIPOLE X-SECT  
 C (R\*8) S = LINE STRENGTH  
 C (R\*8) FIJ = OSCILLATOR STRENGTH  
 C (R\*8) EIJ = TRANSITION ENERGY  
 C (R\*8) BXC = APPROX. FORM PARAMETER - LOW ENERGY  
 C (R\*8) BPXC = MATCHING PARAMETER  
 C (R\*8) FXC1 = APPROX. FORM PARAMETER - LOW ENERGY  
 C (R\*8) FXC2 = APPROX. FORM PARAMETER - HIGH ENERGY  
 C (R\*8) FXC3 = APPROX. FORM PARAMETER - HIGH ENERGY  
 C (R\*8) XKC = SWITCHING X-VALUE BETWEEN LOW AND HIGH ENERGY.  
 C (I\*4) ICT = NUMBER OF X-SECTIONS  
 C (I\*4) ITOUT = NUMBER OF TEMPERATURES  
 C (R\*8) XA = ENERGY (PARAMETER X)  
 C (R\*8) YA = OMEGA (COLLISION STRENGTH)  
 C (R\*8) APOMA = APPROXIMATE OMEGA  
 C (R\*8) DIFOMA = DIFFERENCE BETWEEN YA & APOMA  
 C (R\*8) TOA = TEMPERATURE SET  
 C (R\*8) GOA = GAMMA (EFFECTIVE COLLISION STRENGTHS)  
 C (R\*8) APGOA = APPROXIMATE GAMMA  
 C (R\*8) EXCRA = EXCITATION RATE COEFFICIENT  
 C (R\*8) DEXCRA = DEEXCITATION RATE COEFFICIENT  
 C (R\*8) GBARFA = G BAR FUNCTION  
 C (I\*4) ISTDIM = THE MAXIMUM ARRAY DIMENSION  
 C (I\*4) IREAD = THE INPUT UNIT  
 C (I\*4) IZ = ION CHARGE (INTEGRAL)  
 C (I\*4) IZ0 = NUCLEAR CHARGE (INTEGRAL)  
 C (R\*8) GF = GF-VALUE  
 C (R\*8) BBVAL = BURGESS B-VALUE  
 C (R\*8) BCVAL = BURGESS C-VALUE

C ROUTINES: NONE

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C MODIFIED: HUGH SUMMERS

C - FIRST RELEASE

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CHARACTER*4	CAMETH			
CHARACTER*80	DSFULL			
CHARACTER*40	TITLE			
INTEGER	IBPTS,	ICT,	IDIFF,	IFPTS
INTEGER	INDL,	INDU,	INDXREF,	IREAD

INTEGER	ISTDIM,	ITOUT,	IXOPS,	IXTYP
INTEGER	IZ,	IZO		
REAL*8	ACOEFF,	APGOA (ISTDIM)		
REAL*8	APOMA (ISTDIM) ,		BBVAL,	BCVAL
REAL*8	BPXC,	BXC,	DEXCRA (ISTDIM)	
REAL*8	DIFOMA (ISTDIM) ,		EI,	EIJ
REAL*8	EJ,	EXCRA (ISTDIM) ,		FIJ
REAL*8	FXC1,	FXC2,	FXC3	
REAL*8	GBARFA (ISTDIM) ,		GF	
REAL*8	GOA (ISTDIM) , S,		TOA (ISTDIM) ,	WI
REAL*8	WJ,	XA (ISTDIM) ,	XKC	
REAL*8	YA (ISTDIM) ,	Z,	ZO,	ZEFF