

C OUTPUT: (R*8) WPA() = ENERGY RELATIVE TO PARENT LEVEL 1 (CM-1)
C FOR PARENT LEVEL 'IPA()'
C
C OUTPUT: (I*4) IL = NUMBER OF ENERGY LEVELS (TERMS) OF
C RECOMBINED ION
C OUTPUT: (R*8) BWNR = IONISATION POTENTIAL (CM-1) OF LOWEST LEVEL
C OF RECOMBINED ION
C OUTPUT: (I*4) IA() = RECOMBINED ION ENERGY LEVEL INDEX NUMBER
C OUTPUT: (C*18) CSTRGA() = NOMENCL./CONFIG. FOR RECOMBINED ION LEVEL
C 'IA()'
C OUTPUT: (I*4) ISA() = MULTIPLICITY FOR RECOMBINED LEVEL 'IA()'
C NOTE: (ISA-1)/2 = QUANTUM NUMBER (S)
C OUTPUT: (I*4) ILA() = QUANTUM NUMBER (L) FOR RECOMBINED LEVEL
C 'IA()'
C OUTPUT: (R*8) XJA() = QUANTUM NUMBER (J) FOR RECOMBINED LEVEL
C 'IA()'
C NOTE: (2*XJA)+1 = STATISTICAL WEIGHT
C OUTPUT: (R*8) WA() = ENERGY RELATIVE TO RECOMBINED LEVEL 1 (CM-1)
C FOR RECOMBINED LEVEL 'IA()'
C OUTPUT: (I*4) NREP = NUMBER OF REPRESENTATIVE N-SHELLS
C OUTPUT: (I*4) IREPA() = REPRESENTATIVE N-SHELL INDEX NUMBER
C OUTPUT: (I*4) NREPA() = REPRESENTATIVE N-SHELLS
C OUTPUT: (I*4) IAPRS = NUMBER OF AUGER RATE INITIAL AND FINAL
C PARENT PAIRS
C OUTPUT: (C*10) CAPRS() = AUGER RATE PARENT PAIR STRING
C 1ST.DIM: PARENT PAIR INDEX
C OUTPUT: (I*40) IPAUG(,) = INITIAL AND FINAL PARENTS FOR AUGER BREAKUPS
C 1ST.DIM: PARENT PAIR INDEX
C 2ND.DIM: INITIAL AND FINAL PARENT INDICES
C OUTPUT: (R*8) AUGA(,) = AUGER RATES (SEC-1)
C 1ST.DIM: REPRESENTATIVE N-SHELL INDEX
C 2ND.DIM: PARENT PAIR INDEX
C OUTPUT: (L*4) LAUGA(,) = .TRUE. => AUGER RATE PRESENT FOR N-SHELL
C .FALSE.=> AUGER RATE NOT PRESENT
C 1ST.DIM: REPRESENTATIVE N-SHELL INDEX
C 2ND.DIM: PARENT PAIR INDEX
C OUTPUT: (I*4) IPRTI() = INITIAL PARENT BLOCK INDEX
C OUTPUT: (C*5) TPRTI() = INITIAL PARENT BLOCK TERM
C OUTPUT: (I*4) ISPRTI() = INITIAL PARENT BLOCK SPIN MULTIPLICITY
C OUTPUT: (R*8) TEA() = ELECTRON TEMPERATURES (K)
C OUTPUT: (R*8) DIELR(,,) = TERM SELECTIVE DIELEC. COEFFTS.(CM3 S-1)
C 1ST.DIM: LEVEL INDEX
C 2ND.DIM: INITIAL PARENT INDEX
C 3RD.DIM: TEMPERATURE INDEX
C OUTPUT: (L*4) LDIELR(,) = .TRUE. => DIEL. PRESENT FOR LEVEL INDEX
C .FALSE.=> DIEL. NOT PRESENT FOR LEVEL INDEX
C 1ST.DIM: LEVEL INDEX
C 2ND.DIM: INITIAL PARENT INDEX
C OUTPUT: (I*4) IPRTF(,) = FINAL PARENT BLOCK INDEX
C OUTPUT: (C*5) TPRTF(,) = FINAL PARENT BLOCK TERM
C OUTPUT: (I*4) ISPRTF(,) = FINAL PARENT BLOCK SPIN MULTIPLICITY
C OUTPUT: (I*4) NSYSF(,) = NO, . OF SPIN SYSTEMS BUILT ON FINAL PARENT
C OUTPUT: (I*4) ISYS(,,) = N-SHELL SPIN SYSTEM INDEX FOR FINAL PARENT

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C OUTPUT: (I*4) ISPSYS(,,)=N-SHELL SPIN SYSTEM FOR FINAL PARENT
C OUTPUT: (R*8) DIELN(,,,,) =N-SHELL DIELEC. COEFFTS.(CM3 S-1)
C           1ST.DIM: REPR. N-SHELL INDEX
C           2ND.DIM: INITIAL PARENT INDEX
C           3RD.DIM: FINAL PARENT INDEX
C           4TH.DIM: SPIN SYSTEM INDEX
C           5TH.DIM: TEMPERATURE INDEX
C OUTPUT: (R*8) LDIELN(,)= .TRUE. => DIEL. PRESENT FOR REPR. N-SHELL
C           .FALSE.=> DIEL. NOT PRESENT FOR N-SHELL
C           1ST.DIM: REPR. N-SHELL INDEX
C           2ND.DIM: INITIAL PARENT INDEX
C           3RD.DIM: FINAL PARENT INDEX
C           4TH.DIM: SPIN SYSTEM INDEX
C OUTPUT: (R*8) DIELT(,,,,) =N-SHELL DIELEC. COEFFTS.(CM3 S-1)
C           1ST.DIM: INITIAL PARENT INDEX
C           2ND.DIM: FINAL PARENT INDEX
C           3RD.DIM: SPIN SYSTEM INDEX
C           4TH.DIM: TEMPERATURE INDEX
C
C           (I*4)  INDX      = GENERAL INDEX
C           (I*4)  INDX1    = GENERAL INDEX
C           (I*4)  II       = GENERAL INDEX
C           (I*4)  I        = GENERAL INDEX
C           (I*4)  IPI      = GENERAL INDEX
C           (I*4)  IPF      = GENERAL INDEX
C           (I*4)  IPFS     = GENERAL INDEX
C           (I*4)  J        = GENERAL INDEX
C           (I*4)  K        = GENERAL INDEX
C
C           (L)    LDATA    = GENERAL READ/DO NOT READ FLAG
C           (L)    LNOPI    = FLAG TO DETERMINE WHETHER HAVE PASSED
C           INTO A NEW INITIAL PARENT BLOCK
C
C           (C*20) C20      = GENERAL CHARACTER STRING
C
C ROUTINES:
C           ROUTINE      SOURCE      BRIEF DESCRIPTION
C           -----
C           I4UNIT       ADAS        FETCH UNIT NUMBER FOR OUTPUT OF MESSAGES
C           I4EIZ0       ADAS        RETURNS NUCL. CHARGE FROM ELEMENT SYMBOL
C           R8FCTN       ADAS        CONVERTS FROM CHARACTER TO REAL VARIABLE
C           XXWORD       ADAS        EXTRACT POSITION OF NUMBER IN BUFFER
C
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C           JA8.08
C           TEL. 0141-553-4196
C
C DATE:    05/08/97
C
C UPDATE:  Modified final parent reading block to account for missing
C           final parents. (do-while to 130 statements).
C           Also added END=999 to read statement to avoid EOF error
C           when there is no data in SYS/SPNSYS block.

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C Martin O'Mullane, 3-10-97

C

C VERSION: 1.1

C

C VERSION: 1.2 DATE: 20-02-98

C MODIFIED: MARTIN O'MULLANE

C - ERROR IN ASSIGNING NUMBER OF PARENTS IF >= NDPRT.

C - ADDED TOTAL DR RATE FOR EACH (INITIAL PARENT, FINAL PARENT,
C SPIN SYSTEM) BLOCK BY SUMMING UP AND INTERPOLATING THE
C REPRESENTATIVE LEVEL SET.

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CHARACTER*10	CAPRS (NDAUG)		
CHARACTER*(*)	CSTRGA (NDLEV) ,	CSTRPA (NDPRT)	
CHARACTER*2	SEQSYM		
CHARACTER*5	TPRTF (NDPRT, NDPRT) ,	TPRTI (NDPRT)	
INTEGER	IA (NDLEV) , IAPRS,	IL	
INTEGER	ILA (NDLEV) , ILPA (NDPRT) ,	IPA (NDPRT)	
INTEGER	IPAUG (NDAUG, 2) ,	IPRTF (NDPRT, NDPRT)	
INTEGER	IPRTI (NDPRT) ,	IREPA (NDREP)	
INTEGER	ISA (NDLEV) , ISPA (NDPRT) ,	ISPRTF (NDPRT, NDPRT)	
INTEGER	ISPRTI (NDPRT)		
INTEGER	ISPSYS (NDPRT, NDPRT, 2) ,	ISYS (NDPRT, NDPRT, 2)	
INTEGER	IUNIT, IZ,	IZ0, IZ1	
INTEGER	NDAUG, NDLEV,	NDPRT, NDREP	
INTEGER	NDT, NPRNT,	NPRNTE, NPRNTI	
INTEGER	NREP, NREPA (NDREP)		
INTEGER	NSYSF (NDPRT, NDPRT) ,	NTE	
LOGICAL	LAUGA (NDREP, NDAUG)		
LOGICAL	LDIELN (NDREP, NDPRT, NDPRT, 2)		
LOGICAL	LDIELR (NDLEV, NDPRT)		
REAL*8	AUGA (NDREP, NDAUG) ,	BWNP, BWR	
REAL*8	DIELN (NDREP, NDPRT, NDPRT, 2, NDT)		
REAL*8	DIELR (NDLEV, NDPRT, NDT)		
REAL*8	DIELT (NDPRT, NDPRT, 2, NDT) ,	TEA (NDT)	
REAL*8	WA (NDLEV) , WPA (NDPRT) ,	XJA (NDLEV)	
REAL*8	XJPA (NDPRT)		