

ADAS Subroutine cdintp

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SUBROUTINE CDINTP (CHOICE      , OPTION      , IECOUNT  , INCOUNT  ,
&   MAXNE      , MAXTE      , MAXEB      , ZDATA      ,
&   GCRC1      , GCRC2      , GCRC3      , GCRC4      ,
&   GCRC5      , GCRC6      , GCRC7      , GCRC8      ,
&   GCRC9      , IEREF      , INREF      , ITREF      ,
&   TVAL      , RELMET      , FI , INA      ,
&   IEA      , FII      , FIII      , NSPIN      ,
&   NBNBL      , AVALUE      , NERAY      , ITA      ,
&   EBRA      , XDATA      , YDATA      , MULTI      )
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C ***** FORTRAN77 ROUTINE: CDINTP *****

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C PURPOSE: INTERPOLATE BETWEEN THE EFFECTIVE CLOSE COUPLING
C COEFFICIENTS OF EFFECTIVE EMISSION COEFFICIENTS.

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C CALLING PROGRAM : ADAS313

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C INPUT :

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C (R*8) FI () : THE CONTRIBUTION FROM

C EXCITATION TO POPULATE A

C LEVEL RELATIVE TO THE

C GROUND STATE METASTABLE

C (R*8) FII () : THE CONTRIBUTION FROM

C EXCITATION TO POPULATE A

C LEVEL RELATIVE TO THE

C 2(1)S METASTABLE.

C (R*8) FIII () : THE CONTRIBUTION FROM

C EXCITATION TO POPULATE A

C LEVEL RELATIVE TO THE

C 2(3)S METASTABLE.

C (R*8) GCRC1 : C-R COUPLING COEFFICIENT.

C (R*8) GCRC2 : C-R COUPLING COEFFICIENT.

C (R*8) GCRC3 : C-R COUPLING COEFFICIENT.

C (R*8) GCRC4 : C-R COUPLING COEFFICIENT.

C (R*8) GCRC5 : C-R COUPLING COEFFICIENT.

C (R*8) GCRC6 : C-R COUPLING COEFFICIENT.

C (R*8) GCRC7 : C-R COUPLING COEFFICIENT.

C (R*8) GCRC8 : C-R COUPLING COEFFICIENT.

C (R*8) GCRC9 : C-R COUPLING COEFFICIENT.

C (R*8) NBNBL () : THE PRODUCT OF THE RELATIVE

C POPULATION OF A PARTICULAR

C LEVEL TO THE FIRST IONISATION

C STAGE AND THE RECIPROCAL OF

C THE SAHA-BOLTZMANN B-FACTOR.

C (R*8) AVALUE : TRANSITION PROBABILITY.

C (R*8) NERAY () : ARRAY CONTAINING THE

C ELECTRON DENSITY (CM-3).

C (R*8) EBRA () : ARRAY CONTAINING THE BEAM

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C          ENERGIES (eV/amu)
C (I*4) CHOICE : SWITCH USED TO INDICATE IF
C   COUPLING COEFFICIENTS OR
C   EMISSION DATA IS BEING
C   HANDLED. CHOICE EQ 1 THEN
C   COUPLING DATA. CHOICE EQ 2
C   THEN EMISSION DATA.
C (I*4) OPTION : SWITCH USED TO SELECT THE
C   ACTUAL CROSS COUPLING
C   COEFFICIENT.
C (I*4) IECOUNT : NUMBER OF BEAM ENERGIES.
C (I*4) INCOUNT : NUMBER OF TARGET DENSITIES.
C (I*4) MAXNE : THE MAXIMUM NUMBER OF
C   TARGET DENSITIES
C (I*4) MAXTE : MAXIMUM NUMBER OF
C   TEMPERATURES.
C (I*4) MAXEB : THE MAXIMUM NUMBER OF
C   BEAM ENERGIES
C (I*4) IREF : INDEX TO THE REFERENCE
C   BEAM ENERGY.
C (I*4) INREF : INDEX TO THE REFERENCE
C   TARGET DENSITY
C (I*4) ITREF : INDEX TO THE REFERENCE
C   TEMPERATURE.
C (I*4) TVAL : ARRAY INDEX OF TEMPERATURE
C   AT WHICH DATA HAS TO BE
C   GENERATED.
C (I*4)  RELMET : SPECIFIES THE RELATIVE METASTABLE.
C   RELMET.EQ.1 1S2(1)S METASTABLE
C   RELMET.EQ.2 1S2S(1)S METASTABLE
C   RELMET.EQ.3 1S2S(3)S METASTABLE
C (I*4) INA() : ARRAY CONTAINING THE INDEXES
C   FOR THE DENSITY ARRAY.
C (I*4) IEA() : ARRAY CONTAINING THE INDEXES
C   FOR THE BEAM ENERGY ARRAY.
C (I*4) ITA() : ARRAY CONTAINING THE INDEXES
C   FOR THE TEMPERATURE ARRAY.
C (I*4)  NSPIN : NUMBER OF SPIN SYSTEMS.
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C OUTPUT :
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C (R*8) ZDATA() : ARRAY CONTAINING THE DERIVED
C   DATA AS A FUNCTION OF BEAM
C   ENERGY AND TARGET DENSITY
C   FOR A SELECTED TEMPERATURE.
C (R*8) YDATA() : ARRAY CONTAINING THE
C   ELECTRON DENSITY (CM-3).
C (R*8) XDATA() : ARRAY CONTAINING THE BEAM
C   ENERGIES (eV/amu)
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C
 C DATE : 07/5/98
 C (FIRST VERSION)
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 C VERSION: 1.1 DATE: 16-03-99
 C MODIFIED: RICHARD MARTIN
 C - PUT UNDER SCCS CONTROL.
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INTEGER	CHOICE,	IEA (MAXEB),	IECOUNT,	IEREF
INTEGER	INA (MAXNE),	INCOUNT,	INREF	
INTEGER	ITA (MAXTE),	ITREF,	MAXEB,	MAXNE
INTEGER	MAXTE,	MULTI,	NSPIN,	OPTION
INTEGER	RELMET,	TVAL		
REAL*8	AVALUE,	EBRAY (MAXEB)		
REAL*8	FI (MAXEB, MAXNE, MAXTE, NSPIN+1)			
REAL*8	FII (MAXEB, MAXNE, MAXTE, NSPIN+1)			
REAL*8	FIII (MAXEB, MAXNE, MAXTE, NSPIN+1)			
REAL*8	GCRC1 (MAXEB, MAXNE, MAXTE)			
REAL*8	GCRC2 (MAXEB, MAXNE, MAXTE)			
REAL*8	GCRC3 (MAXEB, MAXNE, MAXTE)			
REAL*8	GCRC4 (MAXEB, MAXNE, MAXTE)			
REAL*8	GCRC5 (MAXEB, MAXNE, MAXTE)			
REAL*8	GCRC6 (MAXEB, MAXNE, MAXTE)			
REAL*8	GCRC7 (MAXEB, MAXNE, MAXTE)			
REAL*8	GCRC8 (MAXEB, MAXNE, MAXTE)			
REAL*8	GCRC9 (MAXEB, MAXNE, MAXTE),	NERAY (MAXNE)		
REAL*8	NNBNL (MAXEB, MAXNE, MAXTE, NSPIN+1)			
REAL*8	XDATA (MAXEB),	YDATA (MAXNE)		
REAL*8	ZDATA (MAXEB, MAXNE)			