

ADAS Subroutine ceparm

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      SUBROUTINE CEPARM ( NDENR ,
&                        LPARMS ,
&                        NENIN  , ENIN   , NENOUT , ENOUT  ,
&                        ALFIN  , XLCIN  , PL2IN  , PL3IN  , LFMIN  ,
&                        ALFOUT , XLCOUT , PL2OUT , PL3OUT , LFMOUT
&                        )
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C-----
C ***** FORTRAN77 SUBROUTINE: CEPARM *****
C VERSION: 1.0
C
C PURPOSE:  CONVERTS ALPHA, PL2, PL3 AND LFORM CHARGE EXCHANGE
C           PARAMETER VALUES AT INPUT ENERGIES TO VALUES AT OUTPUT
C           ENERGIES
C
C CALLING PROGRAM:  ADAS314
C SUBROUTINE:
C INPUT :  (I*4)  NDENR   = MAX. NUMBER OF ENERGIES
C           ALLOWED IN CROSS-SECTION FILE
C           OR TEMPERATURES IN THERMAL
C           AVERAGED RATE COEFFT. OUTPUT FILE.
C INPUT :  (I*4)  LPARMS  = .TRUE.  => INPUT DATA HAS L-FIT PARAMETERS
C           .FALSE. => INPUT DATA HAS L-FIT PARAMETERS
C INPUT :  (I*4)  NENIN   = NUMBER OF ENERGIES IN INPUT DATA SET
C INPUT :  (R*8)  ENIN()  = ENERGIES (EV/AMU) IN INPUT DATA SET
C INPUT :  (I*4)  NENOUT  = NUMBER OF ENERGIES FOR OUTPUT DATA SET
C INPUT :  (R*8)  ENOUT() = TEMPERATURES (EV/AMU) FOR OUTPUT DATA SET
C INPUT :  (R*8)  ALFIN() = ALPHA PARAMETER IN INPUT DATA SET
C           1ST.DIM: ENERGY INDEX
C INPUT :  (R*8)  XLCIN() = NON-INTEGGER L-CUT-OFF PARAMETER
C           1ST.DIM: ENERGY INDEX
C INPUT :  (R*8)  PL2IN(,) = P2 L-FIT PARAMETER IN INPUT DATA SET
C           1ST.DIM: ENERGY INDEX
C INPUT :  (R*8)  PL3IN(,) = P3 L-FIT PARAMETER IN INPUT DATA SET
C           1ST.DIM: ENERGY INDEX
C INPUT :  (I*4)  LFMIN(,) = L-FIT FORM TYPE INDEX IN INPUT DATA SET
C           1ST.DIM: ENERGY INDEX
C OUTPUT:  (R*8)  ALFOUT() = ALPHA PARAMETER IN INPUT DATA SET
C           1ST.DIM: ENERGY INDEX
C OUTPUT:  (R*8)  XLCOUT() = NON-INTEGGER L-CUT-OFF PARAMETER
C           1ST.DIM: ENERGY INDEX
C OUTPUT:  (R*8)  PL2OUT() = P2 L-FIT PARAMETER IN INPUT DATA SET
C           1ST.DIM: ENERGY INDEX
C OUTPUT:  (R*8)  PL3OUT() = P3 L-FIT PARAMETER IN INPUT DATA SET
C           1ST.DIM: ENERGY INDEX
C OUTPUT:  (I*4)  LFMOUT() = L-FIT FORM TYPE INDEX IN INPUT DATA SET
C           1ST.DIM: ENERGY INDEX
C           (L*4)  LSETX   = .TRUE.  => SPLINE PRESET FOR THESE KNOTS
C           .FLSE. => SPLINE NOT SET FOR THESE KNOTS
C           (L*4)  LPASS   = .TRUE.  => DO NOT CONVERT INTO LOG10 FOR
C           ENERGIES AND X-SECTS. FOR SPLINE
C           .FLSE. => CONVERT INTO LOG10 FOR
C           ENERGIES AND X-SECTS. FOR SPLINE
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C      (I*4)   IOPT      = SPLINE END POINT CURVATURE/GRADIENT OPTION
C
C      1 => DDY1 = 0, DDYN = 0
C      4 => DY1 = 0 , DDYN = 0
C      (R*8)   CMSAMU    = PARAMETER = CONVERSION FACTOR FOR ENERGY
C
C                      (AMU) TO VELOCITY (CM S-1)
C      (I*4)   I         = GENERAL INDEX
C      (I*4)   IT        = GENERAL INDEX
C      (R*8)   XIN()     = INTERNAL SPLINE INDEPENDENT VARIABLE
C      (R*8)   YIN()     = INTERNAL SPLINE DEPENDENT VARIABLE
C      (R*8)   VIN()     = INTERNAL VECTOR
C      (R*8)   DY()      = DERIVATIVES AT SPLINE KNOTS
C      (R*8)   XOUT()    = INTERNAL OUTPUT INDEPENDENT VARIABLE
C      (R*8)   YOUT()    = INTERNAL OUTPUT DEPENDENT VARIABLE
C      (L*4)   LINTRP()  = .TRUE. => POINT INTERPOLATED
C
C                      = .FALSE. => POINT EXTRAPOLATED

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ROUTINES:

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C      ROUTINE      SOURCE      BRIEF DESCRIPTION
C      -----
C      XXSPLE      ADAS        INTERPOLATES USING CUBIC SPLINES
C      R8FUN1      ADAS        EXTERNAL FUNCTION FOR XXSPLE
C  AUTHOR:  H. P. SUMMERS, UNIVERSITY OF STRATHCLYDE
C          JA8.08
C          TEL. 0141-553-4196
C  DATE:    13/11/95
C  UPDATE:  27/08/97  HP SUMMERS - CHANGED NAME FROM CCPARM TO CDPARM
C
C  VERSION: 1.1 DATE: 01-12-98
C  MODIFIED: RICHARD MARTIN
C - PUT UNDER SCCS CONTROL
C
C  VERSION:      1.2                      DATE: 17-05-07
C  MODIFIED: Allan Whiteford
C          - Updated comments as part of subroutine documentation
C          procedure.

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C-----
C-----
      INTEGER          LFMIN (NDENR) ,          LFMOUT (NDENR)
      INTEGER          NDENR,          NENIN,          NENOUT
      LOGICAL          LPARMS
      REAL*8           ALFIN (NDENR) ,          ALFOUT (NDENR)
      REAL*8           ENIN (NDENR) , ENOUT (NDENR)
      REAL*8           PL2IN (NDENR) ,          PL2OUT (NDENR)
      REAL*8           PL3IN (NDENR) ,          PL3OUT (NDENR)
      REAL*8           XLCIN (NDENR) ,          XLCOUT (NDENR)

```