

ADAS Subroutine lstsq9

SUBROUTINE LSTSQ9 (IT, B, C, EIJ, GF, N, T, U, P, RMS)

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C ***** FORTRAN77 SUBROUTINE: LSTSQ9 *****
C
C PURPOSE: TO PERFORM NINE POINT SPLINE FIT TO REDUCED OMEGAS
C
C INPUT:
C      (R*8)  EIJ    = TRANSITION ENERGY (RYD)
C      (R*8)  GF     = GF-VALUE
C      (I*4)  IT     = TRANSITION TYPE
C      (R*8)  T( )   = ENERGIES (RYD) OF DATA POINTS
C      (R*8)  U( )   = OMEGAS OF DATA POINTS
C      (I*4)  N     = NUMBER OF DATA POINTS
C      (R*8)  B     = BURGESS SCALING PARAMETER - B
C      (R*8)  C     = BURGESS SCALING PARAMETER - C
C
C OUTPUT:
C      (R*8)  P( )   = SPLINE VALUES AT BURGESS/SUMMERS KNOTS
C
C LOCAL VARIABLES/CONSTANTS:
C
C      (R*8)  A( , ) = NORMAL EQUATION COEFFICIENT MATRIX
C      (R*8)  V     = GENERAL VARIABLE
C      (R*8)  W     = REAL CONSTANT (=3)
C      (R*8)  Y( )  = TEMPORARY KNOTS
C      (R*8)  XX    = GENERAL VARIABLE
C      (R*8)  YY    = GENERAL VARIABLE
C
C ROUTINES:
C      SPLS9    - CALCULATE CUBIC SPLINE FIT COEFFICIENTS
C      ETRED9   - CALCULATE REDUCED ENERGIES
C      OURED9   - CALCULATE REDUCED OMEGAS
C      MATIN1   - INVERT MATRIX TO GET KNOT POINTS
C      ONE9     - GET KNOT POINTS IF ONLY ONE DATA POINT
C      TWO9     - GET KNOT POINTS IF ONLY TWO DATA POINTS
C      THREE9   - GET KNOT POINTS IF ONLY THREE DATA POINTS
C      FOUR9    - GET KNOT POINTS IF ONLY FOUR DATA POINTS
C      FIVE9    - GET KNOT POINTS IF ONLY FIVE DATA POINT
C      SIX9     - GET KNOT POINTS IF ONLY SIX DATA POINTS
C      SEVEN9   - GET KNOT POINTS IF ONLY SEVEN DATA POINTS
C      EIGHT9   - GET KNOT POINTS IF ONLY EIGHT DATA POINTS
C
C DATE:      25-05-99 VERSION 1.1
C AUTHOR:    HUGH SUMMERS, UNIVERSITY OF STRATHCLYDE
C           FIRST RELEASE
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INTEGER          IT,          N
REAL*8           B,          C,          EIJ,          GF
REAL*8           P(9),       RMS,       T(N),       U(N)
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