

## ADAS Subroutine e9spln

```
C
      SUBROUTINE E9SPLN( NEDIM ,
&                      IEA    , IEVAL  ,
&                      TEEA   , EEVA   ,
&                      SCX    , SCXA   ,
&                      LERNG
&                      )
C-----
C
C ***** FORTRAN77 SUBROUTINE: E9SPLN *****
C
C PURPOSE:
C     PERFORMS CUBIC SPLINE ON LOG(ENERGY <EV/AMU> ) VERSUS
C     LOG(CX CROSS-SECTION <CM2>).
C     INPUT DATA FOR A GIVEN DONOR/RECEIVER COMBINATION DATA-BLOCK.
C
C     USING ONE-WAY SPLINES IT CALCULATES THE CROSS-SECTIONS
C     FOR 'IEVAL' COLLISION ENERGIES VALUES FROM
C     THE LIST OF COLLISION ENERGIES READ IN FROM THE INPUT FILE
C
C     IF A VALUE CANNOT BE INTERPOLATED USING SPLINES IT IS
C     EXTRAPOLATED VIA 'XXSPLE'. (SEE NOTES BELOW).
C
C CALLING PROGRAM: ADAS509/SSCX
C
C SUBROUTINE:
C
C INPUT : (I*4)  IEA      = INPUT DATA FILE: NUMBER OF COLLISION ENER-
C                   GIES READ FOR THE DATA-BLOCK BEING ASSESSED
C INPUT : (I*4)  IEVAL    = NUMBER OF ISPF ENTERED COLLISION ENERGIES
C                   VALUES FOR WHICH CX CROSS-SECTIONS
C                   ARE REQUIRED FOR TABULAR/GRAPHICAL OUTPUT.
C
C INPUT : (R*8)  TEEA()   = INPUT DATA FILE: COLLISION ENERGIES (EV/AMU)
C                   FOR THE DATA-BLOCK BEING ASSESSED.
C                   DIMENSION: COLLISION ENERGY INDEX
C INPUT : (R*8)  EEVA()   = USER ENTERED: COLLISION ENERGIES (EV/AMU)
C                   DIMENSION: COLLISION ENERGY INDEX
C
C INPUT : (R*8)  SCX()    =INPUT DATA FILE: FULL SET OF CX CROSS-
C                   SECTIONS FOR THE DATA-BLOCK BEING ANALYSED
C                   1ST DIMENSION: COLLISION ENERGY INDEX
C OUTPUT: (R*8)  SCXA()   = SPLINE INTERPOLATED OR EXTRAPOLATED
C                   CX CROSS-SECTIONS FOR
C                   THE USER ENTERED COLLISION ENERGIES.
C                   DIMENSION: COLLISION ENERGIES INDEX
C
C OUTPUT: (L*4)  LERNG() = .TRUE.  => OUTPUT 'SCXA()' VALUE WAS INTER-
C                   POLATED FOR THE USER ENTERED
C                   COLLISION ENERGY 'EEVA()'.
C                   .FALSE. => OUTPUT 'SCXA()' VALUE WAS EXTRA-
```



C ROUTINES:

C	ROUTINE	SOURCE	BRIEF DESCRIPTION
C	-----		
C	XXSPLE	ADAS	SPLINE SUBROUTINE (EXTENDED DIAGNOSTICS)
C	R8FUN1	ADAS	REAL*8 FUNCTION: ( X -> X )

C AUTHOR: H. P. SUMMERS, UNIVERSITY OF STRATHCLYDE

C JA8.08

C TEL. 0141-553-4196

C DATE: 16/11/95

C UNIX-IDL PORT: H.P.SUMMERS

C VERSION: 1.1 DATE: 30-04-96

C MODIFIED: WILLIAM OSBORN (TESSELLA SUPPORT SERVICES PLC)

C - PUT UNDER SCCS CONTROL

---

INTEGER	IEA,	IEVAL,	NEDIM
LOGICAL	LERNG (IEVAL)		
REAL*8	EEVA (IEVAL),	SCX (NEDIM),	SCXA (IEVAL)
REAL*8	TEEA (NEDIM)		