ADAS Subroutine a8slvf

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      subroutine a8slvf(itype,xk,sigk,xn,sign,s,f2,f3,ifail)
c-----------------------------------------------------------------------
c
c  ******************** fortran77 subroutine a8slvf ******************
c
c  purpose: to find the approximate form parameters f2 and f3 for
c           neutrals
c
c  calling program:  adas108.for
c
c  input:
c           (i*4)  itype   = type of transition (1=dipole,2=non-dipole
c                            non-spin change, 3=spin change, 4=null)
c           (r*8)  xk      = x-parameter at matching point k
c           (r*8)  sigk    = collisions strength at matching point k
c           (r*8)  xn      = x-parameter at last energy point n
c           (r*8)  sign    = collisions strength at last energy pt. n
c           (r*8)  s       = line strength for type 1 case
c           (i*4)  ifail   = failure code  on entry (ifail=0 two point
c                            fit, ifail=-1 one point fit)
c  output:
c           (r*8)  f2      = asymptotic form parameter
c           (r*8)  f3      = asymptotic form parameter
c           (i*4)  ifail   = failure code  on exit
c                             (ifail=0 successful two point fit
c                              ifail=1 converted to one point fit)
c
c
c  routines: none
c
c  author:  Hugh Summers, University of Strathclyde ext.4196
c
c
c  version 1.1                            date:    15/06/99
c  modified: Hugh Summers
c  - first release
c
c-----------------------------------------------------------------------
      INTEGER          IFAIL,      ITYPE
      REAL*8           F2,         F3,         S,           SIGK
      REAL*8           SIGN,       XK,         XN
```