

ADAS Subroutine eqip

SUBROUTINE EQIP(EI,EIJ,EM,Z,PHI,SC,WI,WJ,R,EIQ,FLAG)

C

IMPLICIT REAL*8 (A-H,O-Z)

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C

C ***** FORTRAN77 SUBROUTINE: EQIP *****

C

C PURPOSE UNKNOWN

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C NOTES: THIS ROUTINE IS NOT YET PROPERLY ANNOTATED

C

C UNIX-IDL PORT:

C

C VERSION: 1.1 DATE: 16-1-96

C MODIFIED: TIM HAMMOND (TESSELLA SUPPORT SERVICES PLC)

C

- FIRST VERSION

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C

FLAG=1.0

EF=EI-EIJ

T=EF/EI

C=1.0

IF(T-0.2)1,4,4

1 IF(Z-0.01)2,3,3

2 C=DSQRT(4.0*EF/EIJ)

GO TO 21

3 IF(EM-1.5)21,21,20

20 C=DABS(EIJ)/(EI*DSQRT(EF)+EF*DSQRT(EI))

C=Z*DSQRT(EM)*(1.1056/DSQRT(EIJ)-C)

C=DEXP(3.142*C)

21 EI=1.25*EIJ

EF=0.25*EIJ

GO TO 8

4 IF(T-5.0)8,8,5

5 IF(Z-0.01)6,6,7

6 C=DSQRT(-4.0*EI/EIJ)

GO TO 23

7 IF(EM-1.5)23,23,22

22 C=DABS(EIJ)/(EI*DSQRT(EF)+EF*DSQRT(EI))

C=Z*DSQRT(EM)*(1.1056/DSQRT(-EIJ)-C)

C=DEXP(3.142*C)

23 EI=-0.25*EIJ

EF=-1.25*EIJ

8 TI=DSQRT(EI)

TF=DSQRT(EF)

TIF=DABS(EIJ)/(TI+TF)

XI=Z*TIF/(TI*TF)

D=TIF*R

E=TI*TF

IF(EM-1.5)25,24,24

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24  EM2=DSQRT (EM)
      TIF=EM2*TIF
      XI=-EM2*XI
      D=EM2*D
25  CONTINUE
      T=Z+E*R
      T1=XIP (XI, D) / (T*T)
      T2=4.0*PHI*E*SC*EM
      IF (WI-WJ) 10, 10, 9
  9   T2=T2*WI/WJ
10   P=T2*T1
      EIQW=8.0*C*PHI*YIP (XI, D) *EM
      IF (P-0.5) 15, 15, 11
11   R1=R
12   A=R1
      FLAG=0.0
      VA=0.5-P
      R1=R1+R1
      T=Z+E*R1
      D=TIF*R1
      P=T2*XIP (XI, D) / (T*T)
      IF (P-0.5) 13, 14, 12
13   B=R1
      VB=0.5-P
      CALL ZERO1 (A, B, VA, VB, 0.01D0, R1, XI, Z, E, TIF, T2)
14   T=Z+E*R1
      D=TIF*R1
      T1=XIP (XI, D) / (T*T)
15   EIQ=8.0*C*PHI* (YIP (XI, D) +0.5* (T*T-Z*Z) *T1) *EM
      EIQ=DMIN1 (EIQ, EIQW)
      RETURN
      END
REAL*8          EI,          EIJ,          EIQ,          EM
REAL*8          FLAG,        PHI,          R,          SC
REAL*8          WI,          WJ,          Z

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