

ADAS Subroutine qbchid

```
FUNCTION QBCHID(Z,XI,ZETA,ENER)
IMPLICIT REAL*8 (A-H,O-Z)
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C-----
C
C ***** FORTRAN77 SUBROUTINE QBCHID *****
C
C PURPOSE:
C   EVALUATES A SHELL CONTRIBUTION TO THE IONISATION RATE COEFFICIENT
C   IN THE BURGESS-CHIDICHIMO APPROXIMATION MNRAS(1983)203,1269.
C   EXCLUDING THE THRESHOLD CORRECTION FACTOR
C
C CALLING PROGRAM:
C   SPFMAN11.FOR
C
C INPUT:
C   Z=TARGET ION CHARGE NUMBER
C   XI=EFFECTIVE IONISATION POTENTIAL FOR SHELL (RYD)
C   ZETA=EFFECTIVE NUMBER OF EQUIVALENT ELECTRONS IN SHELL
C   ENER=ELECTRON ENERGY (RYD)
C
C OUTPUT:
C   QBCHID=IONISATION CROSS-SECTION (PI*A0**2)
C
C AUTHOR:
C   H.P SUMMERS, JET          1 JULY 1987
C
C UNIX-IDL CONVERSION:
C
C   VERSION 1.1                      DATE: 29-08-96
C   MODIFIED: WILLIAM OSBORN, TESSELLA SUPPORT SERVICES PLC.
C - NO FUNCTIONAL CHANGES TO IBM VERSION.
C-----
      QBCHID=0.0D0
      IF (ENER.LE.XI) RETURN
      C=2.3D0
      BETA=0.25D0*(DSQRT((100.0D0*Z+91.0)/(4.0D0*Z+3.0D0))-5.0D0)
      T1=ZETA*DLOG(ENER/XI)/(XI*ENER)
      W=(DLOG(ENER/XI)**(BETA*XI/ENER))
C   OMIT THE W THRESHOLD ADJUSTMENT
C   QBCHID=C*T1*W
      QBCHID=C*T1
10  RETURN
      END
      REAL*8          ENER,          XI,          Z,          ZETA
```