

ADAS Subroutine r8fbch

FUNCTION R8FBCH(IZ , XI , ZETA , TE)

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C ***** FORTRAN77 REAL*8 FUNCTION: R8FBCH *****

C PURPOSE: EVALUATES A SHELL CONTRIBUTION TO THE IONISATION RATE COEFF-
C ICIENT IN THE BURGESS-CHIDICHIMO APPROXIMATION.

C REFERENCE: MNRAS.(1983)203,1269.

C CALLING PROGRAM: GENERAL USE

C FUNCTION:

C (R*8) R8FBCH = FUNCTION NAME
C (I*4) IZ = TARGET ION CHARGE NUMBER
C (RECOMBINED ION CHARGE).
C (R*8) XI = EFFECTIVE IONISATION POTENTIAL FOR SHELL
C (UNITS: RYDBERGS)
C (LEVEL ENERGY RELATIVE TO IONISATION POT.)
C (R*8) ZETA = EFFECTIVE NUMBER OF EQUIVALENT ELECTRONS
C IN SHELL
C (R*8) TE = ELECTRON TEMPERATURE (IN KELVIN)
C
C (R*8) C = PARAMETER = EQUATION CONSTANT = 2.3
C (R*8) DXIPOW = PARAMETER = EQUATION CONSTANT = 1.5
C (R*8) TK2ATE = PARAMETER = EQUATION CONSTANT = 1.5789D+05
C (R*8) R2GAM = PARAMETER = EQUATION CONSTANT = 2.17161D-08
C (R*8) D150 = PARAMETER = 150
C (R*8) CR2GAM = PARAMETER = EQUATION CONSTANT = 'C'*'R2GAM'
C
C (R*8) BETA = EQUATION CONSTANT (SEE NOTE BELOW)
C (R*8) Y =
C (R*8) T1 =
C (R*8) W =
C (R*8) P = TEMPORARY PARAMETER STORAGE

C ROUTINES:

ROUTINE	SOURCE	BRIEF DESCRIPTION
R8FEEI	ADAS	FUNCTION:

C NOTE:

$$\text{BETA} = \frac{\sqrt{\frac{(100 \cdot \text{IZ}) + 91}{(4 \cdot \text{IZ}) + 3}} - 5}{4}$$

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C K1/0/81
C JET EXT. 4569

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C - Removed mainframe listing information beyond column 72.
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INTEGER IZ
REAL*8 TE, XI, ZETA