

## ADAS Subroutine r8necip

```
C
      FUNCTION R8NECIP( IZ , XI , ZETA , TE , ALFRED)
      IMPLICIT REAL*8 (A-H,O-Z)
C-----
C
C ***** FORTRAN77 REAL*8 FUNCTION: R8NECIP *****
C
C PURPOSE: EVALUATES A SHELL CONTRIBUTION TO THE IONISATION RATE
C           COEFFICIENT IN THE ECIP APPROXIMATION, AND RETURNS
C           THE THREE-BODY RECOMBINATION COEFFICIENT IN REDUCED
C           FORM IE. OMITTING THE WEIGHTING FACTOR W(I)/W+
C
C CF. SUMMERS (1974)APPLETON LABORATORY REPORT IM367
C
C BASED UPON ADASXX20 (R8NBCH) AND COPASE (RECIP2)
C
C CALLING PROGRAM: GENERAL USE
C
C FUNCTION:
C           (R*8)  R8NECIP = 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           (R*8)  ALFRED  = THREE-BODY COEFFICIENT*W+/W(I) (CM**6 S-1)
C
C
C ROUTINES:
C           ROUTINE      SOURCE      BRIEF DESCRIPTION
C           -----
C           R8YIP        ADAS        FUNCTION:
C
C AUTHOR:   W.J. DICKSON
C           K1/1/36
C           JET EXT. 5057
C
C DATE:    05/01/93
C
C *****
C UNIX-IDL PORT:
C
C AUTHOR:  DAVID H BROOKS, UNIVERSITY OF STRATHCLYDE
C
C DATE:   UNKNOWN
C
C *****
```

C PUT UNDER SCCS CONTROL:

C

C VERSION: 1.1 DATE: 10/05/96

C MODIFIED: WILLIAM OSBORN (TESSELLA SUPPORT SERVICES PLC)

C - FIRST PUT UNDER SCCS

C

C VERSION : 1.2

C DATE : 16-02-2006

C MODIFIED : Martin O'Mullane

C - Removed mainframe listing information beyond column 72.

C

C VERSION : 1.3

C DATE : 20-07-2007

C MODIFIED : Allan Whiteford

C - Small modification to comments to allow for automatic

C documentation preparation.

C-----

INTEGER

IZ

REAL\*8

ALFRED,

TE,

XI,

ZETA