

ADAS Subroutine r8econ

FUNCTION R8ECON(INTYP, OUTTYP, EIN)

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C
C ***** FORTRAN77 SUBROUTINE: R8ECON *****
C
C PURPOSE: TO CONVERT A VELOCITY/ENERGY INTO A SPECIFIED FORM
C
C           (DOUBLE PRECISION FUNCTION VERSION OF 'XXECON')
C
C CALLING PROGRAM: GENERAL USE
C
C FUNCTION:
C
C           (R*8) R8ECON = FUNCTION NAME -
C                       OUTPUT VELOCITY/ENERGY (STATED UNITS)
C           (I*4) INTYP  = 1 => 'EIN' UNITS: AT. UNITS (VEL.)
C                       = 2 => 'EIN' UNITS: CM/SEC (VEL.)
C                       = 3 => 'EIN' UNITS: EV/AMU (ENERGY)
C           (I*4) OUTTYP = 1 => 'R8ECON' UNITS: AT.UNITS (VEL.)
C                       = 2 => 'R8ECON' UNITS: CM/SEC (VEL.)
C                       = 3 => 'R8ECON' UNITS: EV/AMU (ENERGY)
C           (R*8) EIN    = INPUT VELOCITY/ENERGY (STATED UNITS)
C
C           (R*8) AMU2KG = PARAMETER: AMU TO KG CONVERSION FACTOR
C           (R*8) EV2J    = PARAMETER: EV TO JOULES CONVERSION FACTOR
C           (R*8) M2CM    = PARAMETER: METRES TO CM CONVERSION FACTOR
C           (R*8) VELE0H  = PARAMETER: ORBITAL VELOCITY (CM/SEC) OF
C                       AN ELECTRON IN THE SMALLEST ORBIT OF A
C                       HYDROGEN ATOM (BOHR) = 2.1877D+8 CM/SEC
C           (R*8) AT2VEL  = AT.UNITS (VEL) TO CM/SEC (VEL) CONVERSION
C           (R*8) VEL2AT  = CM/SEC (VEL) TO AT.UNITS (VEL) CONVERSION
C           (R*8) VEL2EN  = CM/SEC (VEL) TO EV/AMU (ENGY.) CONVERSION
C           (R*8) EN2VEL  = EV/AMU (ENGY.) TO CM/SEC (VEL) CONVERSION
C           (R*8) AT2EN   = AT.UNITS (VEL) TO EV/AMU (ENG) CONVERSION
C           (R*8) EN2AT   = EV/AMU (ENG) TO AT.UNITS (VEL) CONVERSION
C
C           (R*8) ECONV() = ENERGY/VELOCITY CONVERSION PARAMETERS
C
C ROUTINES: NONE
C
C NOTE:
C           ENERGY/VELOCITY CONVERSION PARAMETERS:
C
C           INTYP = 1 ; ECONV(1) => VELOCITY: AT.UNITS -> OUTPUT FORM
C           INTYP = 2 ; ECONV(2) => VELOCITY: CM/SEC -> OUTPUT FORM
C           INTYP = 3 ; ECONV(3) => ENERGY : EV/AMU -> OUTPUT FORM
C
C AUTHOR: PAUL E. BRIDEN (TESSELLA SUPPORT SERVICES PLC)
C         K1/0/81
C         JET EXT. 4569
C
C DATE: 05/02/91
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C
C VERSION: 1.2 DATE: 01-05-96
C MODIFIED: WILLIIAM OSBORN (TESSELLA SUPPORT SERVICES PLC)
C - CORRECTED AT2EN. WAS AT2VEL*VEL2EN

C
C VERSION: 1.2 DATE: 10-04-2007
C MODIFIED : Allan Whiteford
C - Modified documentation as part of automated
C subroutine documentation preparation.

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INTEGER	INTYP,	OUTTYP
REAL*8	EIN	