ADAS Subroutine nvgoel

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      SUBROUTINE NVGOEL(MAXT,TEA,GA,GA0,GAREST,Z1,N0,V0,PHFRAC,NCUT)
      IMPLICIT REAL*8(A-H,O-Z)
C----------------------------------------------------------------------
C  PURPOSE: EVALUATE TOTAL RADIATIVE RECOMBINATION RATE COEFFICIENTS
C  AT ZERO DENSITY USING THE VON GOELER TYPE FORMULA WITH MODIFIED
C  CAPTURE TO THE LOWEST ACCESSIBLE PRINCIPAL QUANTUM SHELL.
C
C  PHFRAC GIVES THE PROPORTION OF THE LOWEST LEVEL CAPTURE ALLOWED
C  BASED ON THE AVAILABLE PHASE SPACE OF OCCUPIED SHELLS ARGUMENTS.
C
C  MODIFICATION OF VGOEL TO EXTEND ARRAYS AND INCLUDE NCUT
C
C  ********** H.P. SUMMERS, JET          24 JUNE 1987  ***************
C  **********                      MOD.  24 AUG  1989  ***************
C  INPUT
C     MAXT=NUMBER OF TEMPERATURES
C     TEA(I)=ELECTRON TEMPERATURES (K)
C     Z1=RECOMBINING ION CHARGE
C     N0=LOWEST ACCESSIBLE N-SHELL BY RECOMBINATION
C     V0=EFFECTIVE PRINCIPAL QUANTUM NUMBER OF LOWEST ACCESSIBLE SHELL
C     PHFRAC=PHASE SPACE OCCUPATION FACTOR FOR LOWEST ACCESSIBLE SHELL
C     NCUT=CUT-OFF OF MAXIMUM NUMBER OF N-SHELLS
C  OUTPUT
C     GA(I)=TOTAL RADIATIVE RECOMBINATION COEFFICIENT (CM+3 SEC-1)
C     GA0(I)=GROUND SHELL  RECOMBINATION COEFFICIENT
C     GAREST(I)=RECOMBINATION COEFFICIENT TO ALL SHELLS EXCLUDING
C     THE GROUND SHELL.
C
C
C UNIX-IDL PORT:
C   WILLIAM OSBORN, TESSELLA SUPPORT SERVICES PLC.
C
C DATE:   26TH MARCH 1996
C
C VERSION: 1.1 DATE: 26-03-96
C MODIFIED: WILLIAM OSBORN
C     - FIRST VERSION. ERRSET COMMENTED OUT
C
C VERSION: 1.2 DATE: 16-05-07
C MODIFIED: Allan Whiteford
C     - Updated comments as part of subroutine documentation
C             procedure.
C----------------------------------------------------------------------
      INTEGER            MAXT,      N0,          NCUT
      REAL*8             GA(100),   GA0(100),    GAREST(100), PHFRAC
      REAL*8             TEA(100),  V0,          Z1
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