

Abstract Submitted
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MCHF studies of electron impact ionization of helium atom HARI

P. SAHA, University of Central Florida, Orlando — Recently extended multi-configuration Hartree-Fock (MCHF) method [1] for electron impact ionization of atoms have been applied to calculate triple differential cross sections for electron impact ionization of helium at excess energies ≤ 4 eV for the coplanar geometry. The results are obtained for equal and unequal energy sharing of the two outgoing electrons in the Hartree-Fock (HF) and the MCHF approximations to determine the importance of electron correlation between the two outgoing continuum electrons. In addition, we have also performed calculation in the variationally determined screening potential approximation [2-4]. We will compare our results calculated in the three approximations with the available experimental measurements and other theoretical calculations. [1] H.P. Saha (unpublished) [2] M.R.H. Rudge and Seaton, Proc. R. Soc. London, Ser. A 283, 262(1965). [3] R.K. Peterkop, Theory of Ionization of atoms by electron impact (Colorado Associated University Press, Boulder, 1977), pp128 and 129. [4] Cheng Pan and Anthony F. Starace, Phys. Rev. Lett. 67, 185 (1991); Phys. Rev. A45, 4588 (1992).

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