

Abstract Submitted
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Extension of the MCHF method to investigate electron Impact Ionization of Atoms near Threshold HARIPADA SAHA, University of Central Florida, Orlando — Recently we have extended the multi-configuration Hartree-Fock (MCHF) method for multi-open channel wave functions [1] to calculate near threshold electron impact ionization of atoms. We have evaluated the triply differential cross sections for electron impact ionization of H and He using both the Hartree-Fock (HF) and the MCHF approximation. In particular, we will present results of triply differential cross sections for H and He for final state electrons sharing ≤ 4 eV excess energy and leaving in opposite directions. In addition, we have also performed calculation with replacement of exact coulomb interaction between the two continuum electrons by a variationally determined screening potential [2-5]. We will compare our results calculated in the three approximations with the available experimental measurements. 1. H.P. Saha . D.J. Murray, J.Phys. B 38,3015 (2005). 2. M.R.H, Rudge and M.J. 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), pp. 128 and 129. 4. S. Jetzke, J. Zaremba, and F.H.M. Faisal, Z.Phys. D 11, 63 (1989). 5. Cheng Pan and Anthony F. Starace, Phys.Rev. Lett. 67,185 (1991); Phys. Rev. A 45, 4588(1992).

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