Abstract Submitted
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Electron Impact Ionization of Helium Atom HARI P. SAHA, University of Central Florida, Orlando — The recently extended MCHF method [1-2] of electron impact ionization of atoms will be applied to study the effects of electron correlation and polarization of the target in the initial state. The final state electron correlation between the two continuum electrons will be taken into account with the variationally determined screening potential [3-4]. The results of the triple differential cross section of helium atom will be presented for incident electron energies 26.6 and 28.6 eV . The screening potential approximation for the final state has been shown earlier [4] to agree very well with experiment and other accurate theory for the case when the two continuum electrons in the final state leave in the opposite direction. This indicates that effects of target correlation and polarization in the initial state are negligible. In the meeting we will present results of our calculation showing the effects of target correlation and polarization in the initial state on the triple differential cross section with and without the final state electron correlation for the case when $\theta_{12} = \pi$ as well as other angles. The results will be compared with experimental and other available theoretical results. [1] H.P. Saha , Phys. Rev. A **77**, 062705 (2008), [2] H.P. Saha, J. Phys. B **41**, 55201 (2008), [3] M.R.H . Rudge and Seaton, Proc. R. Soc, London, Ser. A **283**, 262 (1965), [4] Cheng Pan and Anthony F. Starace, Phys. Rev. Lett. **67**, 185 (1991); Phys. Rev. A **45**, 4588 (1992).

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