

Abstract Submitted
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Triple Differential Cross Sections for single ionization of the Ethane molecule¹ ESAM ALI, Missouri Univ of Sci & Tech, KATE NIXON, Universidade Federal de Juiz de Fora, CHUANGANG NING, Tsinghua University, Beijing, China, ANDREW MURRAY, The University of Manchester, DON MADISON, Missouri Univ of Sci & Tech — We report experimental and theoretical results for electron-impact (e,2e) ionization of the Ethane molecule (C₂H₆) in the coplanar scattering geometry for four different ejected electron energies $E_a=5,10,15$, and 20 eV respectively, and for each ejected electron energy, the projectile scattering angle is fixed at 10°. We will show that the TDCS is very sensitive for the case of two heavy nuclei surrounded by lighter H nuclei. On the theoretical side, we have used the M3DW coupled with the Orientation Averaged Molecular Orbital (OAMO) approximation and proper average (PA) over all orientations. These approximations show good agreement with experimental data for the binary peaks. However, for the recoil peak region, experiment finds a noticeable peak while theory predicts no peak. No recoil peak suggests no (or very weak) nuclear scattering, so we have investigated the importance of nuclear scattering by moving the nuclei closer to the center of mass.

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