Abstract Submitted
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Fully Differential Study of Cusp Electron Production in p + He, H_2 Collisions[1] MADHAV DHITAL, SUJAN BASTOLA, AHMAD HASAN, Missouri Univ of Sci Tech, RAMAZ LOMSADZE, Tblisi State University, BASU LAMICHHANE, AARON SILVUS, BRENDAN BOGGS, DENI CIKOTA, MICHAEL SCHULZ, Missouri Univ of Sci Tech — We have performed a kinematically complete experiment on ionization of He and H_2 targets by 75 keV p impact. The momentum-analyzed scattered projectiles and recoiling target ions were measured in coincidence. The ejected electron momentum was deduced from momentum conservation. From the data we extracted fully differential cross sections (FDCS) for electrons ejected with a speed close to the projectile speed. Such electrons lead to a sharp structure in the energy spectrum known as the cusp. In terms of FDCS cusp electrons are still to a large extent unexplored. So far, only one data set on FDCS for ionization of H_2 in this regime was reported[1]. There, a very sharp and large structure in the angular distribution was predicted by theory in the initial projectile beam direction, but this structure was almost absent in the experimental data. New data for a He target and several ejected electron energies will be reported in order to analyze the discrepancies between theory and experiment. [1] A. Hasan et al., JPB 49, 04LT01 (2016).

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