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Fully differential single ionization cross sections in 75 keV p + He collisions near the velocity matching.[1] MADHAV DHITAL, SUJAN BASTOLA, AARON SILVUS, Missouri University of Science and Technology, AHMAD HASAN, United Arab Emirates University, BASU LAMICHHANE, ESAM ALI, Missouri University of Science and Technology, MARCELO CIAPPINA, ELI Prague, RAMAZ LOMSADZE, Tblisi State University, DON MADISON, Missouri University of Science and Technology — We have performed a kinematically complete experiment on ionization of He by 75 keV proton impact. The momentum-analyzed scattered projectiles and recoil ions were measured in coincidence and the ejected electron momentum determined from the conservation laws. The experiment was performed for various fixed energy losses near the projectile-electron matching velocity. Fully differential cross sections (FDCS) were analyzed as a function of a) the electron emission angle and b) the ejected electron energy. Pronounced post-collision effects were found in terms of a strong peak structure in the electron angular dependence at 0^o and in terms of a cusp-shaped peak in the energy-dependence of the FDCS. Additional structures were found in the FDCS which were not observed in previous FDCS measurements for energy losses well below the velocity matching region. Such structures are also found in theoretical calculations, however, there are significant quantitative discrepancies to the experimental data.

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