

Abstract Submitted
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STUDENT AWARD FINALIST: Fully differential cross section for four-body charge transfer process¹ UTTAM CHOWDHURY, Missouri S and T, ALLISON HARRIS, Henderson State University, JERRY PEACHER, DON MADISON, Missouri S and T — Recently experimental fully differential cross sections (FDCS) have been reported for double capture, single capture and transfer excitation in proton helium collisions. In case of double capture, the proton captures both of the electrons from helium and leaves the collision as a H⁻ ion. For single capture, the proton captures one electron from helium and leaves the other electron in the ground state. For the transfer excitation, it is similar to single capture except the target is excited to arbitrary excited states. Recently experiments were performed for proton energies ranging from 25keV to 300keV. We introduce here a theoretical model for charge transfer processes which is fully quantum mechanical and takes all post collision interactions (PCI) between the particles into account exactly. Numerically, this requires a full nine-dimensional integral which is computationally expensive. The theoretical results will be compared with absolute experimental measurements.

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