

Abstract Submitted
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Theoretical Differential Cross Sections for Transfer-Excitation in Proton-Helium Collisions¹ A.L. HARRIS, J.L. PEACHER, D.H. MADISON, University of Missouri-Rolla — Theoretical differential cross sections will be compared with experimental results for transfer-excitation occurring in proton-helium collisions. In the experiment, the incident proton captures one electron from a helium atom, and the remaining electron is left in an excited bound state of the helium ion. These experiments have been performed in Rolla, MO. The theoretical approach we use is a full four-body approach, taking each particle into account. This results in a nine dimensional integral to evaluate the T-matrix. A fully correlated Hylleraas wavefunction is used for the initial state helium atom, and hydrogenic wavefunctions are used for the projectile hydrogen atom and the residual helium ion in the final state.

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