

Abstract Submitted
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Theoretical Fully Differential Cross Sections for Transfer-Ionization A.L. HARRIS, D.H. MADISON, J.L. PEACHER, Missouri University of Science and Technology — Recent experimental measurements of four body collision processes present a stringent test of theory. To date, experimental results have been presented for ionization plus excitation, charge transfer plus excitation, and charge transfer plus ionization. Most of the experimental and theoretical effort so far has concentrated on ionization plus excitation. Theoretical fully differential cross sections (FDCS) will be compared with experimental results for the transfer-ionization process for proton-helium collisions. In the experiment, the incident proton captures one electron from a helium atom, and the remaining electron is ejected into the continuum as a free particle. The theoretical approach we use is a fully quantum-mechanical four-body approach, taking each particle into account. This approach has complete flexibility in the choice of wavefunctions, allowing for the role different interactions to be explored.

Allison Harris
Missouri University of Science and Technology

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