

Abstract Submitted
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Indistinguishability in Excitation-Ionization¹ B. MILUM, A.L. HARRIS, Henderson State University, D.H. MADISON, Missouri University of Science and Technology — The study of electron impact excitation-ionization of helium is of continuing interest in order to better understand the dynamics of four-body processes. In the process of excitation-ionization, a projectile electron collides with a helium atom causing one atomic electron to be ionized and the other atomic electron to be left in an excited state of the He^+ ion. The participation of both atomic electrons in this process makes excitation-ionization a four-body problem. Current models for this particular four-body process assume that the projectile electron can be distinguished from the atomic electrons. However, nature and experiment cannot distinguish one electron from another. We will present theoretical fully differential cross section results using the 4-body Distorted Wave (4DW) model where the possibility of electron exchange is included. The results will be compared with experiment and the 4DW model where exchange is neglected.

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