

Abstract Submitted
for the GEC13 Meeting of
The American Physical Society

Comprehensive Study of 3-Body and 4-Body Models of Single Ionization of Helium¹ ALLISON HARRIS, Illinois State University, KAYLA MORRISON, University of Arkansas — For decades the frozen core approximation has been successfully used to model 4-Body collisions as 3-Body processes. In recent years, full 4-Body models have been used to calculate fully differential cross sections (FDCS) for single ionization of helium, and these 4-Body models show discrepancies with the 3-Body models. We have identified four possible sources of the discrepancies, which are: the initial state helium wave function, the final state He^+ wave function, the final state potential for the outgoing electrons, and the perturbation. To identify which of these four sources causes in the differences in FDCS, we have performed a comprehensive study of 3-body and 4-body models for a wide range of incident projectile energies, ionized electron energies, and scattering angles.

¹Work supported by XSEDE and the Arkansas Space Grant Consortium.

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Date submitted: 30 May 2013

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