

Abstract Submitted
for the DAMOP13 Meeting of
The American Physical Society

Body vs. 4-Body Treatment of Single Ionization of Helium A.L. HARRIS, K. MORRISON, Henderson State University — In the process of single ionization of helium, a projectile collides with a helium atom and one of the atomic electrons is ionized. After the collision, the residual He^+ ion is left in the ground state. Single ionization of helium is a 4-body process because there are 4 particles involved in the collision. However, this collision is often approximated as a 3-body process, where the non-ionized helium electron is considered inactive. Essentially, this second electron is neglected in the calculations. Recently, calculations have been performed using a full 4-body model, and some discrepancies are observed between the 3-body and 4-body models. To understand the causes of these discrepancies, we have undertaken a comprehensive study of 3-body and 4-body models for single ionization of helium. Results are presented for a wide range of incident projectile energies, ionized electron energies, and scattering angles.

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Date submitted: 29 Jan 2013

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