

Abstract Submitted
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Electron-Electron and Electron-Nuclear Interactions in Ionizing Atom-Atom Collisions J.M. SANDERS, Dept. of Physics, Univ. of South Alabama, R.D. DUBOIS, Dept. of Physics, Univ. of Missouri-Rolla, S.T. MANSON, Dept. of Physics Astronomy, Georgia State Univ., S. DATZ, Physics Div, Oak Ridge National Laboratory, E.F. DEVENEY, Dept. of Physics, Bridgewater State College, H.F. KRAUSE, Physics Div, Oak Ridge National Laboratory, J.L. SHINPAUGH, Dept. of Physics, East Carolina Univ., C.R. VANE, Physics Div, Oak Ridge National Laboratory — We report cross sections for ionization of He coincident with electron loss from He, Li, C, O, and Ne projectiles. For He, Li, C, and O projectiles, the cross sections were measured directly, while the Ne cross sections were obtained by transforming results for He projectiles colliding with Ne. We find that, at energies of about 100 keV/u, neutral projectiles can ionize a He target almost as effectively as a charged projectile. The contribution to ionization due to electron-electron interactions is found to scale with the number of available projectile electrons. Comparing ionization by the bound electrons on projectiles to ionization by free electrons, we find the cross sections for ionization by bound electrons are systematically smaller than those for free electrons.

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