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Out-of-Plane Cross Sections for Electron Impact Ionization of He and H_2[1] OLA AL-HAGAN, DON MADISON, University of Missouri-Rolla, CHRISTIAN KAISER, ANDREW MURRAY, University of Manchester — We have seen in recent years a sharp disagreement between the theory and experiment for heavy particle ionization of He for electrons ejected out of the scattering plan while good agreement was found in the scattering plane. The lack of agreement between experiment and theory for out-of-plane has been attributed to a double scattering mechanism where the projectile first 'hits' the electron and then scatters off the nucleus. If these effects are important for a He nucleus, they should be even more important for a H_2 ion. We will report theoretical and experimental cross sections for in and out of the scattering plane for electron impact ionization for both He and H_2. We will show that the orientation of the molecular axis can produce very different results outside the scattering plane for molecules as compared to atoms.

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