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Experimental and Theoretical Studies of Low Energy Electron Impact Ionization for Molecular Hydrogen OLA AL-HAGAN, DON MADISON, Missouri University of Science and Technology, JAMES COLGAN, Los Alamos National Laboratory , CHRISTIAN KAISER, ANDREW MURRAY, University of Manchester (UK), MITCH PINDZOLA, Auburn University — Experimental and theoretical fully differential cross sections will be presented for 35.5 eV electron-impact ionization of molecular hydrogen. Experimental measurement performed for several different planes ranging from the scattering plane to a plane perpendicular to the beam direction will be compared with both non-perturbative close-coupling and perturbative three-body distorted wave (3DW) theoretical calculations. Surprisingly, the largest experimental cross sections are found not in the scattering plane but rather in a plane tilted at 45 degrees to the beam direction. Perturbative calculations suggest that this is due to polarization of the molecule. Both the close-coupling and the 3DW results are in better agreement with experiment in the perpendicular plane than they are in the scattering plane.

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