Importance of projectile-target interactions in the triple differential cross sections for Low energy \((e,2e)\) ionization of aligned \(H_2\) ESAM ALI, DON MADISON, Missouri Univ of Sci & Tech, X. REN, A. DORN, Max-Plank-Institute for Nuclear Physics, CHUANGANG NING, Tsinghua University, Beijing, China — Experimental and theoretical Triple Differential Cross Sections (TDCS) are presented for electron impact ionization-excitation of the \(2s\sigma_g^2\) state of \(H_2\) in the perpendicular plane. The excited \(2s\sigma_g^2\) state immediately dissociates and the alignment of the molecule is determined by detecting one of the fragments. Results are presented for three different alignments in the \(xy\) plane (scattering plane is \(xz\)) - alignment along \(y\)-axis, \(x\)-axis, and \(45^\circ\) between the \(x\)- and \(y\)-axes for incident electron energies of 4, 10, and 25 eV and different scattered electron angles of \(20^\circ\) and \(30^\circ\) in the perpendicular plane. Theoretical M4DW (molecular 4-body distorted wave) results are compared to experimental data, and overall we found reasonably good agreement between experiment and theory. The Results show that \((e,2e)\) cross sections for excitation-ionization depend strongly on the orientation of the \(H_2\) molecule.

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