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Triple differential cross sections for the electron-impact ionization of He and H₂ JAMES COLGAN, Theoretical Division, Los Alamos National Laboratory, Los Alamos, NM 87545, MICHAEL PINDZOLA, Dept. of Physics, Auburn University, Auburn, AL 36849 — We present calculations of the triple differential cross sections arising from the electron-impact ionization of He and H₂. The time-dependent close-coupling approach is used to calculate the cross sections for the single ionization process, resulting in various geometric and kinematic final states. In particular, we examine the triple differential cross sections for He at an incident electron energy of 71 eV, for equal ($E_1 = E_2 = 23$ eV) and unequal ($E_2 = 3, 10$ eV) energy sharing. We discuss the convergence properties of these cross sections and compare our results to available measurements. For the electron-impact ionization of H₂, we present triple differential cross sections for ionization of molecules at specific orientations (with respect to the incoming electron beam). We study the cross section as a function of energy sharing between the outgoing electrons, as well as for two different internuclear separations of the H₂ molecule. Orientation effects, as well as differences between the angular distributions from He and from H₂, will be explored. The Los Alamos National Laboratory is operated by Los Alamos National Security, LLC for the National Nuclear Security Administration of the U.S. Department of Energy under Contract No. DE-AC5206NA25396.

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