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The ionization dynamics of electron impact H_2 and H_2O molecules[1] JUNFANG GAO, DON MADISON, JERRY PEACHER, Department of Physics, University of Missouri-Rolla, MARTYN HUSSEY, ANDREW MURRAY, Schuster Laboratory, University of Manchester, Manchester M13 9PL, UK — In the last couple of decades, (e,2e) spectroscopy has been used to investigate molecular structure. More recently, low to intermediate energy (e.g. below 500 eV) (e,2e) results have been reported for ionization of molecules. These low energy results are more sensitive to the collision dynamics of ionization, so accurate theories are in the needed to interpret the experimental data. The distorted wave impulse approximation (DWIA) and molecular three-body distorted wave (M3DW) approximation were recently introduced by our group. These approximations will be used to study the fully differential cross sections for low energy electron-impact ionization of the H_2 and H_2O molecules. The importance of the exchange distortion potential and exchange amplitude will be examined. Our theoretical results will be compared with recent experimental measurements.

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