Abstract Submitted for the GEC06 Meeting of The American Physical Society

Elastic Scattering of Electrons by Small and Large Molecules.¹ D.W. SPIEKER, JUNFANG GAO, J.L. PEACHER, D.H. MADISON, University of Missouri-Rolla — Theoretical calculations for elastic electron-molecule collisions will be presented for incident electron energies in the intermediate to low energy range. There exists a fair amount of experimental data for which there are no theoretical calculations for comparison in the 10-500 eV energy range. We will present differential cross section results for molecular hydrogen (H₂), molecular nitrogen (N₂), and trifluoromethane (CHF₃). We have used the program called General Atomic and Molecular Structure System, or GAMESS, to generate molecular orbitals. We use these to determine a potential interaction energy for the electron-molecule system. The distorted wave Born approximation (DWBA) was used to calculate the differential cross sections. The theoretical differential cross section results will be compared with experimental results.

¹Work Supported by NSF PHY-0456528

Don Madison University of Missouri-Rolla

Date submitted: 16 Jun 2006

Electronic form version 1.4