

Abstract Submitted
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A method to obtain static potential for electron-molecule scattering¹ RAJESH SRIVASTAVA, TAPASI DAS, Indian Institute of Technology Roorkee, Roorkee, India, ALLAN STAUFFER, York University, Toronto — Electron scattering from molecules is complicated by the fact that molecules are a multi-centered target with the nuclei of the constituent atoms being a center of charge. One of the most important parts of a scattering calculation is to obtain the static potential which represents the interaction of the incident electron with the unperturbed charge distribution of the molecule. A common way to represent the charge distribution of molecules is with Gaussian orbitals centered on the various nuclei. We have derived a way to calculate spherically-averaged molecular static potentials using this form of molecular wave function which is mostly analytic. This method has been applied to elastic electron scattering from water molecules and we obtained differential cross sections which are compared with previous experimental and theoretical results. The method can be extended to more complex molecules.

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