

Abstract Submitted
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Elastic Differential Cross sections for Electron Scattering from Polyatomic Molecules – An Accurate, but Novel Application of the Relative Flow Technique, Using a Moveable Aperture Source of Gas Atoms¹ KYLE KEANE, SHAYNE CAIRNS, COLIN CAMPBELL, MURTADHA A. KHAKOO, California State University, Fullerton, CA 92834 — We have very recently developed a powerful and novel method to measure elastic differential scattering cross sections (DCS) from gaseous targets, without having to take into consideration the mean-free path condition which means that our method can be applied without knowledge of the molecular diameters of the gases used. This is possible by taking advantage of the cosine angular distribution of gas produced by a thin aperture source. Preliminary tests with N₂ and C₂H₄ have produced results in excellent agreement with past measurements of these gases, and over what seems to be a wide range of gas flow conditions. In addition, our results show no degradation of angular resolution in our DCS values even at very low incident energies (presently we have covered 5eV to 30eV). We hope to provide data for other polyatomics at the meeting.

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