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Measurement of Few Body Interactions in Tri-Atomic Molecular Dissociation into Three Charged Particles DENNIS MUELLER, University of North Texas, BRANDON JORDON-THADEN, LISA WEISE, DUANE JAECKS — Threshold ionization of atoms by electron impact remains an area of interest. Near threshold, where the total energy of the system is approximately zero, the motion of charged particles is highly correlated. Similarly, near threshold dissociation into three or more charges particles is involve highly correlated motion as the particles slowly move apart under the influence of the long-range Coulomb interaction. We will present a novel approach to gain insight into these interactions, where no simplifying approximations such as placing one of the particles near the center-of-mass, is theoretically viable. In these triple coincidence experiments, the final state momenta of all particles are measured with sub-meV resolution sufficient to resolve rovibrational levels. This allows us to determine the initial state of the tri-atomic molecular ion.

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