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Out-of-plane $(e, 2e)$ experiments on an autoionizing resonance using 488 eV incident energy electrons.[1] B.A. DEHARAK, N.L.S. MARTIN, University of Kentucky — Over the past several years there have been a variety of kinematically complete experiments with both coplanar and out-of- plane geometry involving charged particle impact ionization of a variety of atomic targets. Examples where data were obtained using COLTRIMS spectrometers include single ionization of helium by ions and electrons. An example where data were obtained using a more traditional spectrometer involved single ionization of magnesium by electron impact. Each of these studies has shown that while theoretical descriptions of coplanar experiments tend to be very good, there are large discrepancies in the description of out-of-plane experiments, providing ample motivation for further experimental studies. We have begun to perform kinematically complete out-of-plane experiments on helium using a traditional $(e, 2e)$ spectrometer modified for out-of-plane operation. These experiments cover all 2π radians of a plane that includes the momentum transfer direction and is perpendicular to the scattering plane. An overview of the apparatus will be presented as will preliminary results showing the angular distributions for direct ionization and autoionization via He $2s2p\ ^1P$.

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