Abstract Submitted
for the DAMOP12 Meeting of
The American Physical Society

Eletron-helium laser-assisted free-free scattering with variable laser polarization[1] B.A. DEHARAK, Illinois Wesleyan University, BENJAMIN NOSARZEWSKI, Cornell University, MAHSA SIAVASHPOURI, N.L.S. MARTIN, University of Kentucky — We report a series of experiments that examine electron-helium scattering in the presence of an Nd:YAG laser field of 1.17 eV photons. In previous experiments[2] we examined the range of incident electron energies from 50 eV to 350 eV, and found the results to be in good agreement with the Kroll-Watson approximation (KWA).[3] In these experiments the laser polarization was fixed relative to the scattering plane. Experiments are now being carried out where, at each electron energy, the direction of the polarization is varied within a plane perpendicular to the scattering plane. Of particular interest is the case where the polarization is perpendicular to the scattering plane for which the KWA predicts vanishing cross section. Other workers have found that the KWA tends to be inaccurate for those cases when it predicts small cross sections.[4]

[1]Work supported by NSF Grant PHY-0855040 (NLSM).
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Date submitted: 30 Jan 2012 Electronic form version 1.4