Abstract Submitted
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An out-of-plane $(e, 2e)$ study of He autoionization from 80 to 488 eV incident energies[1] B.A. DEHARAK, Illinois Wesleyan University, B.N. KIM, C.M. WEAVER, University of Kentucky, K. BARTSCHAT, Drake University, N.L.S. MARTIN, University of Kentucky — We report out-of-scattering-plane $(e, 2e)$ measurements on helium $2\ell 2\ell'$ autoionizing levels for 80, 120, 150, and 488eV incident electron energies, and scattering angles 60°, 45°, 39.2°, and 20.5°, respectively. The kinematics are the same in all cases: ejected electrons are detected in a plane that contains the momentum transfer direction and is perpendicular to the scattering plane, and the momentum transfer is 2.1 a.u.. The 80eV results complete our sets of measurements at low, intermediate,[2] and high,[3] incident energies. The results are presented as $(e, 2e)$ angular distributions energy-integrated over each level, and are compared with our theory calculated for 488eV incident electron energy. The 120eV, 150eV and 488eV experiments are characterized by recoil peaks appropriate to each autoionizing level. However, for the 80eV angular distributions, these recoil peaks are largely absent for all levels, including the ^3P level observed at this energy.

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[2]http://meetings.aps.org/link/BAPS.2015.DAMOP.Q1.123
[3]B.A. deHarak, K. Bartschat, and N.L.S. Martin, Phys. Rev. Lett. **100**, 063201 (2008)

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