

Abstract Submitted
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Initial State Helicity Correlation in Wide Angle Compton Scattering DONAL DAY, DUSTIN KELLER, JIXIE ZHANG, University of Virginia — Whether pQCD can describe exclusive reactions at medium energies remains an area of active study. Real Compton scattering (RCS) has the potential to provide insight to this unsettled issue. A pQCD description of RCS requires the participation of three quarks and two hard gluons. However its predictions for the RCS cross sections disagree with data while calculations based on the handbag mechanism, involving a single quark coupled to the spectator through generalized parton distributions (GPDs), match the data well. The measured longitudinal polarization transfer parameter K_{LL} is inconsistent with predictions of pQCD yet consistent with calculations of the handbag mechanism. Furthermore, Miller’s approach, which includes quark and hadron helicity flip, contradicts pQCD where $K_{LL} = A_{LL}$, the initial state helicity correlation asymmetry, by finding that $K_{LL} \neq A_{LL}$. The first ever measurement of A_{LL} (E12-14-006) has been approved to run in Jefferson Lab’s Hall C and will be able to discriminate between the various models. E12-14-006 will utilize an untagged bremsstrahlung photon beam and the longitudinally polarized UVA/JLAB proton target. After a brief introduction to the physics, the experiment will be described and the expected results presented.

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