

Abstract Submitted
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Initial State Helicity Correlation in Wide Angle Compton Scattering DONAL DAY, DUSTIN KELLER, JIXIE ZHANG, Univ of Virginia — Wide-angle Compton scattering (WACS) belongs to the family of exclusive processes, with large values of s , $-t$, and $-u$, that can reveal nucleon structure. In the pQCD version of WACS, three active quarks and two hard gluons are required to share the momentum. pQCD predictions for the WACS disagree with the cross sections currently available. In contrast, handbag mechanism calculations involving a single quark coupled to the spectator through GPDs, are compatible with the cross sections. Measurements of the longitudinal polarization transfer parameter K_{LL} have been found to be inconsistent with the predictions of pQCD yet consistent with calculations within the handbag mechanism, at least at very large angles. There are handbag calculations, including quark and hadron helicity flip, which contradicts pQCD by finding that $K_{LL} \neq A_{LL}$. A measurement of A_{LL} has been approved to run at Jefferson Lab and which has the potential to clarify the nature of the reaction mechanism in WACS and illuminate the role of quark orbital angular momentum. It will utilize a pure untagged bremsstrahlung photon beam and a longitudinally polarized proton target. After an introduction, the experiment will be described and the expected results presented.

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