

Abstract for an Invited Paper
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Deep Virtual Compton Scattering Results from Hall A at JLab¹

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At JLab Hall A, we have measured the $\bar{e}p \rightarrow ep\gamma$ reaction at $Q^2 = 1.5, 1.9, \text{ and } 2.3 \text{ GeV}^2$. The amplitude for this reaction is the coherent superposition of the Compton (radiation from the target) and Bethe-Heitler (radiation from the electron) amplitudes. In the deep virtual Compton scattering (DVCS) limit of large Q^2 and small invariant momentum transfer t to the target, the Compton amplitude factorizes into the convolution of a perturbative hard scattering kernel with matrix elements of quark and gluon operators, known as generalized parton distributions (GPDs). Measurements of the GPDs can determine the transverse spatial profile of quarks and gluons, as a function of their lightcone momentum fractions x . We measured the $H(\vec{e}, e\gamma)p$ cross sections for positive and negative beam helicity with good control of exclusivity and full acceptance in the azimuth of the final photon around the electron scattering momentum transfer direction \mathbf{q} . I will present our evidence for factorization, and our results for the Real and Imaginary parts of the BH·DVCS interference.

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