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Glimpses of gluons in spatial imaging through DVCS¹

JULIE ROCHE, Ohio University

Generalized Parton Distribution (GPDs) functions describe the correlation between the spatial distribution of the quarks and its longitudinal momentum fraction. Their definition in the mid 1990's has revolutionized our approach to the description of the internal structure of the nucleon. The study of the GPDs together with the study of similar quantities are at the forefront of today hadronic physics enterprise. Deeply Virtual Compton Scattering (DVCS) off the nucleon ($\gamma^*N \rightarrow \gamma N$) is the simplest process which is sensitive to the GPDs. It has been the subject of intense focus at Hermes and JLab (Hall A and B). A suite of approved DVCS experiments is currently in preparation in Hall A and Hall C at Jefferson Lab. These experiments are the third phase of a successful approach to precise (about 5%) measurement of absolute cross-section. The first generation of experiment showed the importance of precise measurement of absolute cross-section. In this talk, I will review the recently published results of the second generation of experiment. these accurate accurate measurements show an intriguing sensitivity to gluons, the carriers of the strong interaction.

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