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A New Angle Into the Proton: Backward-Angle Meson Electroproduction

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Despite being a core component of visible matter, the structure of protons and neutrons is still incompletely understood. Due to the limitations of QCD in the non-perturbative regime, hadronic structure must be determined via experiment. The KaonLT experiment at Jefferson Lab Hall C measures Deep Exclusive Meson Production (DEMP) reactions in order to study the interior structure of the proton and the nature of the strong force. This work will analyze a unique reaction in the KaonLT data known as the u-channel, or backward-angle meson electroproduction. Backward-angle reactions offer unique information which is complementary to standard forward-angle DEMP, for example access to the $qqqq\bar{q}$ part of the proton wavefunction and Transition Distribution Amplitudes (TDAs). This talk will present an overview of the novel opportunities offered by u-channel physics, the current progress on a u-channel analysis of the KaonLT data, and the possibilities for future u-channel measurements at Jefferson Lab and the Electron-Ion Collider.

Keyword-1

QCD

Keyword-2

Hadrons

Keyword-3

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