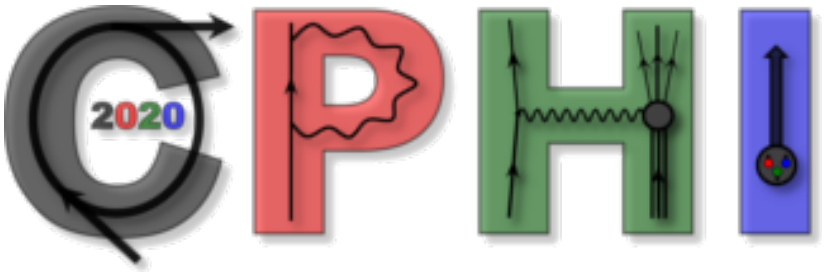

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Studies of Transversity GPDs

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A longstanding goal in nuclear and particle physics has been to describe the three-dimensional structure of the nucleon in terms of the quarks and gluon fields. In this regard, exclusive electron scattering experiments, in which all final state particles are measured, are important contributors. Examples are electron elastic scattering, deeply virtual Compton scattering (DVCS), and deeply virtual meson electroproduction (DVMP). The latter includes pseudoscalar mesons with intrinsic spin and parity $J^P = 0^-$, such as π^0, π^-, π^+ and η, and vector mesons, which have the same spin and parity as the photon, $J^P = 1^-$, such as ρ^-, ρ^+, ρ^-, ω and ϕ. Exclusive electron scattering reactions at high momentum transfers directly related to Generalized Parton Distributions (GPDs) of quarks and gluons. Most reactions studied, such as DVCS or vector meson electroproduction, are primarily sensitive to the chiral-even GPDs. Very little is known about the chiral-odd GPDs, which are difficult to access since hard subprocesses with the quark spin-flip are suppressed. It turns out that pseudoscalar meson electroproduction, and especially π^0 and η production, were identified as especially sensitive to the parton helicity-flip subprocesses.
Dedicated experiments to study Deeply Virtual Meson Production out of proton and neutron have been carried out at Jefferson Lab. The cross sections and asymmetries of the exclusive pseudoscalar meson electroproduction processes in a very wide kinematic range of Q^2, x_B and t have been measured with CLAS. The comparison of these data with the theoretical models will be presented. The extraction of the transversity GPDs parameters using global fit of the available data will be discussed in the report.

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