Abstract Submitted
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Study of Generalized Parton Distributions via Deeply Virtual Compton Scattering with the CLAS detector at Jefferson Lab LATIFA ELOUADRHIRI, Jefferson Lab — The Generalized Parton Distributions (GPDs) carry new information about the dynamical degrees of freedom of quarks inside the nucleon. The GPDs have been introduced in the recently developed formalism for description of the deeply exclusive leptoproduction reactions. The GPDs are two-parton correlation functions that encode both the transverse spatial dependence and the longitudinal momentum dependence. At the twist-2 level, for each quark species there are two spin-dependent GPDs, $\tilde{E}(x,\xi,t)$, $\tilde{H}(x,\xi,t)$, and two spin-independent GPDs, $E(x,\xi,t)$, and $H(x,\xi,t)$. The first moments of GPDs in x link them to the proton's form factors, while at t=0, the GPDs H and $\tilde{H}$ reduce to the quark longitudinal momentum $q(x)$ and the helicity distributions $\Delta q(x)$, respectively. Mapping out the GPDs will allow, for the first time, to construct "tomographic" images of the nucleon's charge and quark helicity distributions in transverse impact parameter space. I will discuss the experimental program to study the GPDs in the deeply exclusive processes with CEBAF Large Acceptance Spectrometer (CLAS). I will present first results from Deeply Virtual Compton Scattering (DVCS) from the experimental program at 6 GeV. I will also outline the future experimental program at the Jefferson Lab 12 GeV upgrade.

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