Deeply Virtual Compton Scattering off the Neutron with CLAS12 at Jefferson Lab

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A key step towards a better understanding of nucleon structure in terms of generalized parton distributions (GPDs) is the measurement of deeply virtual Compton scattering off the neutron (nDVCS; $ed \to e'n\gamma(p)$). This process emphasizes mainly, in the kinematic range covered at Jefferson Lab, the access to the GPD E of the neutron which is the least constraind GPD up till now. The measurement of E, together with H, provides information on the quark total angular momentum - via the Ji's sum rule - and conveys a more complete picture of nucleon structure. The GPD E is accessed in nDVCS through the Beam Spin Asymmetry (BSA). The measurement of the BSA of nDVCS, combined with observables from pDVCS measurements, will allow to perform the flavor separation of relevant quark GPDs via linear combinations of proton and neutron GPDs. This seminar will report on the experiment recently carried out at Jefferson Lab with the upgraded 11 GeV CEBAF polarized electron beam, the Hall-B CLAS12 detector, and a liquid deuterium target. Details on the data analysis with emphasis on the Machine-learning techniques used for selection optimisation will be discussed. Preliminary results on beam-spin asymmetries for nDVCS will be presented.