Deeply Virtual Compton scattering with CLAS12 at Jefferson Laboratory

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While it has been known since the 60s that nucleons are composed of quarks and gluons, very little is understood about the mechanisms responsible for the emergence of nucleons from these partons. Defined in the 90s, Generalized Parton Distributions (GPDs) provide the opportunity to obtain a 3-dimensional, tomographic picture of a nucleon. Moreover, GPDs are related, via QCD-based sum rules, to total angular momentum, mass and pressure distributions inside the nucleon. GPDs are experimentally accessible via the deeply virtual Compton scattering (DVCS), i.e. the absorption of a highly virtual photon by the proton and the subsequent emission of a high-energy photon.

At Jefferson Lab, the brand new CLAS12 spectrometer has been commissioned and has collected its first DVCS data with a 10.6 GeV continuous electron beam in winter 2017 - spring 2018. Its central part, containing the cylindrical silicon and micromegas trackers within a 5T-solenoidal field surrounding the liquid hydrogen target, is ideal to detect the recoil proton of a DVCS event. The forward detectors, placed in a toroidal magnetic field, detect the associated scattered electron and high energy photon. We will present a first look at the DVCS data collected so far with CLAS12, and will show projections for the full run.