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Deeply Virtual Compton Scattering at CLAS12 with Multi-Energy Polarized Electron Beams. JOSHUA ARTEM TAN, Kyungpook National University and Jefferson Lab, LATIFA ELOUADRHIRI, Jefferson Lab, FRANCOIS-XAVIER GIROD, University of Connecticut — Deeply Virtual Compton Scattering (DVCS) provides the cleanest access to the 3D imaging of nucleon structure encoded in the Generalized Parton Distributions. In the DVCS process, the interaction of a quark inside the nucleon with the virtual photon from the scattered electron results in the nucleons emission of a high-energy real photon. DVCS naturally occurs with Bethe-Heitler (BH) process where a photon is instead emitted by the scattered electron, resulting in the same final-stated particles. The DVCS amplitude can be separated from DVCS-BH interference amplitude by performing experiments at different beam energies, allowing the extraction of the gravitational D(t) form factor, which may shed light on nucleons confinement mechanism. High luminosity and high polarization of Jefferson Labs electron beam together with the large-acceptance of the CLAS12 detector system in Hall B provide the ideal environment for multi-energy experiments requiring efficient particle detection in broad kinematic ranges. DVCS data were collected with CLAS12 in 2018 at 6.5 GeV, 7.5 GeV and at 10.6 GeV electron beam energies, on hydrogen target. We will present preliminary results of experiments at different energies, focusing on the Beam-Spin Asymmetry which is particularly sensitive to D(t).

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