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Unraveling the internal structure of the nucleon at Jefferson Lab and the future EIC

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Understanding Quantum Chromodynamics (QCD) at large distances remains one of the main outstanding problems of nuclear physics. Investigating the internal structure of hadrons probes QCD in the non-perturbative domain and can help unravel the spatial extensions of nature's building blocks. Deeply Virtual Compton Scattering (DVCS) is the easiest reaction that accesses the Generalized Parton Distributions (GPDs) of the nucleon. GPDs offer the exciting possibility of mapping the 3-D internal structure of protons and neutrons by providing a transverse image of the constituents as a function of their longitudinal momentum. A vigorous experimental program is currently pursued at Jefferson Lab (JLab) to study GPDs through DVCS. New results recently published will be shown and discussed. We will give with an outlook on the Upgrade of JLab to 12 GeV, which will allow the full exploration of the valence quark structure of nucleons and nuclei and promises the extraction of full tomographic images. We will conclude discussing the future Electron-Ion Collider (EIC), which will complete this program by studying the gluon content of nucleons and nuclei.

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