Imaging Hadrons and Nuclei through Generalized Parton Distributions

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Generalized parton distributions (GPDs) provide a relativistic description of the three-dimensional internal structure of hadrons at a fixed light front time. Through a Fourier transform, they entail a partially spatial description, giving distributions of quarks and gluons within the hadron over a longitudinal momentum fraction $x$ and the transverse spatial plane. $x$-weighted moments of the GPDs are related to electromagnetic and gravitational form factors through polynomiality relations, making GPDs the most promising empirical means of accessing the energy-momentum tensor (EMT) of hadron targets. I will discuss these properties of GPDs, several model calculations of them and of the EMT, and prospects for measuring GPDs through deeply virtual Compton scattering at JLab and the EIC.