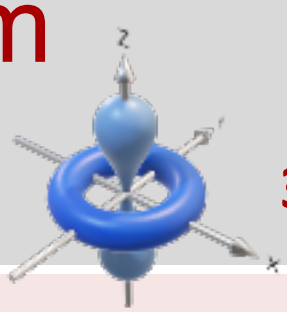
Department of Physics Colloquium

January 29, 2024 **3:00 PM**



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.

This colloquium will be held in-person, in SERC 116