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Towards Unpolarized GPDs from Pseudo-Distributions

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Generalized Parton Distributions (GPDs) are related to one aspect of nucleon tomography, the 3D imagining the proton. In one limit, the GPD can describe both the longitudinal momentum and the transverse position of a parton. In other limits, the GPD can describe how each parton contributes to the total spin or mass of the nucleon. Nucleon tomography has sparked great interest as a goal of many experiments, including at JLab and the future EIC. In recent years, many groups have begun lattice QCD calculations of matrix elements related to GPDs. In this talk, I will present the recent calculations performed by the HadStruc collaboration to determine the pseudo-Generalized Ioffe Time Distribution and how GPDs can be extracted from them. The GPD, being a function of three momentum dependent variables, requires studying matrix elements with many combinations of initial and final momenta. This is naturally done within the distillation framework which we employed to obtain quality signal at the requisite large momenta.

Topical area

Structure of Hadrons and Nuclei

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