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## (I) Deep Exclusive $\pi^-$ Production using a Transversely Polarized $^3\text{He}$ Target and the Solenoidal Large Intensity Device (SoLID)

Thursday 9 June 2022 08:45 (30 minutes)

The Solenoidal Large Intensity Device (SoLID) is a proposed next-generation detector to be installed at Jefferson Lab, to study hadronic structure at high luminosity ( $> 10^{37}/\text{s}/\text{cm}^2$ ) over the broad kinematic range enabled by the 12 GeV electron beam of the Continuous Electron Beam Accelerator. SoLID's symmetric azimuthal acceptance will enable Generalized Parton Distributions (GPDs) to be probed via the single-spin asymmetry in exclusive  $\pi^-$  electroproduction from a transversely polarized neutron ( $^3\text{He}$ ) target. The  $\sin(\phi - \phi_S)$  Fourier amplitude ( $\phi$ : scattering plane-reaction plane azimuthal angle,  $\phi_S$ : scattering plane-target polarization azimuthal angle) is particularly sensitive to the spin-flip GPD  $\tilde{E}$ , which is at present nearly unknown. The  $\sin(\phi_S)$  amplitude is also extremely important, as it provides powerful constraints on the higher-twist transversity GPDs. I will give an update on the SoLID status, and present projections indicating a significant advance over the only measurement to date (HERMES 2010), with broader kinematic coverage and greatly reduced uncertainties.

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