

The SoLID-SIDIS Program at 22GeV

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The Solenoidal Large Intensity Device (SoLID) is a forward-scattering spectrometer situated in Hall-A at Jefferson Lab. With its large acceptance and full azimuthal angular coverage, SoLID can effectively manage high luminosities ranging from 10^{37} to 10^{39} /cm²/s utilizing both polarized and unpolarized targets. The detector leverages the full capabilities of the JLab 12 GeV upgrade and is designed to support a variety of research programs, including studies of 3D nucleon imaging through semi-inclusive deep inelastic scattering (SIDIS). Several high-rated SIDIS experiments have been approved with the goal of extracting transverse momentum dependent parton distribution functions (TMDs) with unprecedented precision. The proposed 22 GeV upgrade will enable SoLID's unique high intensity and wide acceptance to extend the study of high-precision TMDs from valence quarks to sea quarks across a significantly broader kinematic range. In this presentation, we will introduce the SoLID detector, discuss its current status, and provide updated projections for the SIDIS program using both 11 GeV and 22 GeV beams.

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