

SoLID: Nucleon 3D Structure at the Luminosity Frontier

Tuesday, 17 October 2023 11:50 (20 minutes)

Solenoidal Large Intensity Detector (SoLID) is a large acceptance, high luminosity device proposed for exploiting the full potential of the Jefferson Lab (JLab) 12 GeV energy upgrade. The scientific program of SoLID includes six approved experiments: three Semi-Inclusive Deep Inelastic Scattering (SIDIS), two Parity-Violating Deep Inelastic Scattering (PVDIS), and one J/ψ production. As a large acceptance detector capable of operating in an extremely high luminosity environment ($10^{37-39}/\text{cm}^2/\text{s}$), SoLID provides a unique opportunity to achieve various scientific goals, including but not limited to the precision 4D mapping of the nucleon structure, probing physics beyond the Standard Model, and investigating the gluonic structure of the proton. After years of work by the SoLID collaboration, a robust, low risk and flexible design concept, which is capable of accomplishing this broad and vibrant physics program, was determined. Many key components of the detector were also demonstrated functional in the extremely high luminosity environment through the DOE-funded and JLab-supported pre-R&D activities. This talk will give an overview of SoLID and its scientific program.

Parallel Session

Nucleon Structure in DIS

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Session Classification: Nucleon Structure in DIS