

# XXVIII International Workshop on Deep Inelastic Scattering and Related Subjects



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## SoLID PVDIS at JLab 12 GeV

In this talk, an overview of parity violation deep inelastic scattering (PVDIS) future experiment by using a Solenoidal Large Intensity Device (SoLID) at Jefferson Lab (JLab) Hall A with the 12 GeV upgrade, along with a brief description of the proposed SoLID spectrometer is discussed. We will obtain data with high statistic and large kinematic coverage for Bjorken  $0.3 < x < 0.7$  and in the momentum transfer  $2 < Q^2 < 10 \text{ (GeV/c)}^2$  range by a polarized electron beam scattering on unpolarized deuteron and proton targets. A measurement of PVDIS in deuteron aims to extract fundamental coupling constants  $C_{2q}$  as well as the weak mixing angle  $\sin^2\theta_w$  with a high precision. This measurement can also access QCD physics of searching for charge symmetry violation (CSV) in PDF's and higher-twist effects with quark-quark correlations. In addition, the proton target experiment can be a powerful probe of the  $d/u$  ratio at high  $x$  without any nuclear correction. The designed SoLID spectrometer with its unique feature of high luminosity and large acceptance provides an opportunity to probe physics beyond the Standard Model.

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