Abstract Submitted
for the APR21 Meeting of
The American Physical Society

Nucleon structure study using parity violation in deep inelastic scattering with SoLID[1] YUXIANG ZHAO[2], Institute of Modern Physics, Chinese Academy of Sciences, SOLID COLLABORATION — Measurements of parity-violating asymmetries in Deep Inelastic Scattering (PVDIS) was used as a powerful tool to establish the Electroweak standard model of particle physics in the 1970's. Recently, it has also been used to search for physics beyond the Standard Model. In this talk, I will present the potential of PVDIS for the nucleon spin structure study with SoLID. In particular, scattering of an unpolarized electron beam off a longitudinally polarized target is parity-violating and will provide us a new series of γZ interference structure functions. These new structure functions have different flavor compositions from the parity conserving spin structure functions. They can be used as a clean method to extract flavor-separated polarized PDFs.

[1]The material presented in the talk is based upon the work supported by the U.S. Department of Energy, Office of Nuclear Physics under contract DE-AC05-06OR23177. It is also supported in part by U.S. Department of Energy, Office of Science under contract DE-FG02-84ER40146. Acknowledgement: the entire SoLID collaboration, especially Jian-Ping Chen, Haiyan Gao, Krishna Kumar, Zein-Eddine Meziani, Paul Souder and Xiaochao Zheng.
[2]On behalf of the SoLID collaboration at JLab

Yuxiang Zhao
Institute of Modern Physics, Chinese Academy of Sciences

Date submitted: 07 Jan 2021 Electronic form version 1.4