

Abstract Submitted
for the DNP13 Meeting of
The American Physical Society

Polarized SIDIS Experiments with SoLID Spectrometer at 12 GeV Jefferson Lab KALYAN ALLADA, Thomas Jefferson National Accelerator Facility, HALL-A SOLID COLLABORATION — The Jefferson Lab 12 GeV upgrade will provide unique opportunity to perform polarized semi-inclusive deep inelastic scattering (SIDIS) experiments with very high precision. The measured single and double spin asymmetries (SSA/DSA) in these reactions will provide an access to various transverse momentum dependent parton distribution functions (TMDs). In particular, the experimentally measured SSA on proton and neutron targets can help us in extracting the transversity and Sivers distribution functions of u and d-quarks. Similarly, the measured DSA are sensitive to the quark spin-orbit correlations, and provide access to the worm-gear function (g_{1T}). In this talk, we will present our plans for performing these precision measurements in Hall-A using a large acceptance SoLID spectrometer and polarized proton and ^3He targets with 11 GeV beam. The high luminosities from these targets and the large acceptance of the SoLID spectrometer will allow for a precise 4-dimensional (x, Q^2, z, P_T) mapping of SSA and DSA. The data will provide comprehensive information on the correlation between quark angular momentum and the nucleon's spin.

Kalyan Allada
Thomas Jefferson National Accelerator Facility

Date submitted: 01 Jul 2013

Electronic form version 1.4