

Abstract Submitted  
for the DNP10 Meeting of  
The American Physical Society

**Measurement of Single Target-Spin Asymmetry in Semi-Inclusive Pion Electroproduction on a Transversely Polarized  $^3\text{He}$  Target<sup>1</sup>** XIN QIAN, California Institute of Technology, JEFFERSON LAB HALL A AND E06010 COLLABORATION — Measuring parton distribution functions (PDF) which represent the flavor and spin structure of nucleon is important to reveal the information of quantum chromodynamics in the confinement region. In particular, in parton model, the cross-section in the semi-inclusive deep inelastic scattering (SIDIS), can be written as the product of PDF and fragmentation function which describe the parton hadronized process due to color force. The JLab experiment E06-010 is focusing on measuring the target single spin asymmetry in the semi-inclusive deep inelastic  $\vec{^3\text{He}}(e, e'\pi^{+,-})X$  reaction with a transversely polarized  $^3\text{He}$  target at JLab Hall A with a 5.89 GeV electron beam. The leading pions and scattered electrons were detected in coincidence by the left High-Resolution Spectrometers ( $HRS_L$ ) at  $16^\circ$  and BigBite spectrometer at  $30^\circ$ , respectively. Kinematic coverage was focused on the valence quark region,  $x \sim 0.1-0.4$ , at  $Q^2 \sim 1-3$  (GeV/c)<sup>2</sup>. The Collins and Sivers asymmetries of  $^3\text{He}$  and neutron were extracted. The overview of the experiment and the preliminary results will be presented.

<sup>1</sup>This work was supported in part by the U.S. Department of Energy under contract number DE-FG02-03ER41231.

Xin Qian  
California Institute of Technology

Date submitted: 28 Jun 2010

Electronic form version 1.4