

Abstract Submitted
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Target Single Spin Asymmetry in DIS $\vec{N}(e, e')$ using Transversely Polarized Proton and Neutron (^3He) Targets¹ TODD AVERETT, William & Mary, ON BEHALF OF THE JEFFERSON LAB SOLID COLLABORATION — We present an experiment to measure the transversely polarized target Single Spin Asymmetry (SSA) from inclusive DIS $\vec{N}(e, e')$ using transversely polarized NH_3 and ^3He targets. This experiment will be carried out in Hall A using the large acceptance solenoid spectrometer (SoLID). The SSA, A_{UT} , is expected to have a $\sin(\phi_S)$ -dependence, where ϕ_S is the azimuthal angle of the target polarization relative to the electron plane and perpendicular to the virtual photon direction. At Born level, the asymmetry is identically zero due to time-reversal invariance and parity conservation. However, it can be non-zero when two-photon exchange is included and therefore provides fertile ground for studying this processes in the absence of a large Born contribution. Parton-model predictions for the intermediate state of the nucleon during two-photon exchange predict asymmetries from $\pm(10^{-4} - 10^{-2})$ depending on model input and target nucleon. This experiment is expected to reach a statistical uncertainty of $\sim 10^{-4}$ at $Q^2 = 1.5 \text{ GeV}^2$ up to $\sim 10^{-3}$ at $Q^2 = 7.5 \text{ GeV}^2$ with $W > 2 \text{ GeV}$ and $0.05 < x < 0.65$.

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Todd Averett
William
Mary

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