

Abstract Submitted
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New Measurements of the Target-normal Single-spin Asymmetry A_y for ${}^3\text{He}^\uparrow(e, e')$ in Quasi-elastic and Deep-inelastic Scattering¹ TODD AVERETT, William & Mary Coll, JEFFERSON LAB HALL A AND POLARIZED 3HE COLLABORATION — Results from recent measurements of the target single spin asymmetry (SSA) in ${}^3\text{He}^\uparrow(e, e')$ from ${}^3\text{He}$ nuclei polarized normal to the lepton scattering plane. For both elastic scattering and deep-inelastic scattering, this asymmetry, A_y , is exactly zero for one-photon exchange. However, it can be non-zero when two-photon exchange is included. For elastic scattering, a large, negative asymmetry with statistical precision $8-10\sigma$ was recently measured for the first time at Jefferson Lab using an SEOP polarized ${}^3\text{He}$ target. At $Q^2 \sim 1 \text{ GeV}^2$ the asymmetry can be related to moments of the GPDs. Our result is in agreement with a prediction based on a GPD-model and thus provides new, independent constraints on these distributions. In deep-inelastic scattering, a large, positive (neutron) asymmetry was also observed and agreed well with model predictions using the “Sivers” distribution obtained from SIDIS transversely measurements. Finally, results will be presented for ${}^3\text{He}^\uparrow(e, e'n)$ which at low Q^2 is highly dependent on the wave function of the polarized ${}^3\text{He}$ nucleus.

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