

Precision Measurement of Neutron Asymmetry A_1^N in the Valence Quark Region

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We have measured the neutron virtual photon asymmetry A_1^N over the kinematic range $0.33 \leq x \leq 0.8$ and $2.8 \leq Q^2 \leq 4.8$ (GeV/c)² ^a. To extract A_1^N , longitudinal and transverse spin asymmetries have been measured for inclusive ${}^3\vec{H}e(\vec{e}, e')$ scattering, using a 5.7 GeV longitudinally polarized electron beam at Jefferson Lab and high-density polarized ${}^3\text{He}$ target in Hall A. Preliminary results at A_1^N are presented and compared to existing data and various models, including the predictions of Su(6) constituent quark models, perturbative QCD based models, statistical model, local duality model and chiral-soliton model.

^a Jlab E99-117, J.P. Chen, Z.-E. Meziani, P. Souder et al.,
<http://hallaweb.jlab.org/physics/experiments/he3/a1n>