TRANSVERSE MOMENTUM-DEPENDENT SPIN STRUCTURE OF NEUTRON

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Transversity is quark's transverse polarization in a transversely polarized nucleon. At a realistic 3-D point of view, transversity is the lease known one compared to the f_1 and g_1 distribution functions. At Jefferson Lab Hall A, we recently finished the first measurement of the target single spin asymmetry in the semi-inclusive deep inelastic scattering with a transversely polarized ^{3}He target. The goal is to extract neutron transversity which gives a unique azimuthal angular dependence in target single spin asymmetry when convoluted with Collins fragmentation function in SIDIS reactions. Other two leading twist transverse momentum distributions, Sivers function and pretzelosity will be extracted as well. The data from this experiment, when combined with world data collected on proton, deuteron SIDIS and e^+e^- annihilation, will provide constraints on the transversity, Sivers distributions and Collins fragmentation function on both u and d-quark in the valence region. Details of the experiment will be presented.