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Di-hadron production at Jefferson Laboratory

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Semi-inclusive deep inelastic scattering (SIDIS) has been used extensively in recent years as an important testing ground for QCD. Studies so far have concentrated on better determination of parton distribution functions, distinguishing between the quark and antiquark contributions, and understanding the fragmentation of quarks into hadrons.

Pair of hadrons (di-hadron) SIDIS provides information on the nucleon structure and hadronization dynamics that complements single-hadron SIDIS. The study of di-hadrons allow us to study higher twist distribution functions and Dihadron Fragmentation Functions (DiFF). Together with the twist-2 PDFs (f_1 , g_1 , h_1), the Higher Twist (HT) e and h_L functions are very interesting because they offer insights into the physics of the largely unexplored quark-gluon correlations which provide direct and unique insights into the dynamics inside hadrons .

The CLAS spectrometer, installed in Hall-B at Jefferson Lab, has collected data using the CEBAF 6 GeV longitudinally polarized electron beam on longitudinally polarized solid NH₃ targets. Preliminary results on beam-, target- and double-spin asymmetries will be presented.

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