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Drell Yan at FNAL with a Polarized Target

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One of the continuing puzzles in QCD is the origin of the nucleon spin. All of the existing experimental data suggest that the contributions from the quark and gluon spins account only for about 50% of the nucleon spin. In order to account for the remaining 50%, one has to include the orbital angular momentum of the quarks and gluons. One way to establish if quarks carry significant angular momentum, is to perform a measurement of the Sivers function, which describes the correlation of the spin direction of the nucleon with the transverse momentum of the quark. We will describe the E1039 experiment at Fermilab, which will measure the Sivers asymmetry of the sea quarks via the Drell Yan process, using a 120 GeV unpolarized proton beam on a transversely polarized NH_3 target.