Abstract Submitted
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Exploring Nucleon Spin Structure and Hadronization through Measuring Hadrons in Jets at STAR[1] JAMES DRACHENBERG, Abilene Christian University, STAR COLLABORATION — The Solenoidal Tracker at RHIC (STAR) investigates nucleon spin structure through collisions of spin-polarized beams of protons. Asymmetries in the distributions of hadrons within jets produced in collisions of transversely polarized protons provide access to the transversity distribution function at a range of x complementary to semi-inclusive deep inelastic scattering (SIDIS) experiments but at much higher Q^2. Asymmetries seen in STAR data collected in 2011 at $\sqrt{s} = 500$ GeV and in 2012 at 200 GeV have given the first experimental hints that the universality of this "Collins mechanism" may extend to proton-proton collisions, as it does in SIDIS and e^+e^-. These data also provide unique insight to the transverse momentum dependence of the Collins asymmetry in jets, crucial for a deeper understanding of the Collins fragmentation function. The spin-averaged distributions of hadrons within jets may also provide a means to improve constraints on gluon fragmentation functions. The final 2011 and preliminary 2012 STAR hadron-in-jet asymmetries will be presented in context of global transversity analyses and model calculations. The status of the unpolarized hadron-in-jet analysis will be presented.

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