

Abstract Submitted
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First Observation of Collins Asymmetries for Charged Pions in Jets in $p^\uparrow p$ Collisions at STAR KEVIN ADKINS, Univ of Kentucky, STAR COLLABORATION — The transversity distribution ($h_1(x)$), which describes the transverse polarization of quarks in transversely polarized protons, is only accessible through channels that couple $h_1(x)$ to another chiral odd distribution, such as the Collins fragmentation function ($\Delta^N D(z, k_T)$). Significant Collins asymmetries of charged pions have been observed in semi-inclusive deep inelastic scattering (SIDIS) data. These SIDIS asymmetries combined with e^+e^- process asymmetries from Belle and BaBar have allowed for the extraction of $h_1(x)$ and $\Delta^N D(z, k_T)$. Uncertainties on $h_1(x)$ remain large due to the limited statistics and kinematic reach of the available data. In transversely polarized hadronic collisions, Collins asymmetries may be isolated and extracted by measuring the spin dependent azimuthal distributions of charged pions in jets. This presentation will show the first observation of midrapidity ($|\eta| < 1$) Collins asymmetries measured in $\sqrt{s} = 200$ and 500 GeV $p^\uparrow p$ collisions. These results access higher momentum scales than the existing SIDIS data and will allow for a comprehensive study of evolution and factorization of the Collins channel.

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