

Transverse spin phenomena in polarized p+p collisions at PHENIX

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With recent experimental measurements of various asymmetries at HERMES[1], Belle[2], STAR[3], and BRAHMS[4] there has been a growing interest in the understanding of the transversely polarized proton structure. Theoretical explanations include different mechanisms, such as effects from the Sivers function, the Collins effect, higher twist contributions, or combinations of all of the above. In order to quantify contributions from competing mechanisms, measurements over a wide range of p_T and x_F are needed.

PHENIX, one of the two large experiments the Relativistic Heavy Ion Collider (RHIC), has accumulated a substantial transversely polarized data set over the last few years. Measurements include inclusive single spin asymmetries at mid-rapidities at $\sqrt{s} = 200$ GeV [5]. In 2006, new data sets of 2.7 pb^{-1} at $\sqrt{s} = 200$ GeV and 20 nb^{-1} at $\sqrt{s} = 62.4$ GeV have been taken. A new calorimeter at large rapidity installed during the 2006 run allows PHENIX to measure an even broader spectrum of the probes proposed to help disentangle contributions from the various theoretical models.

We present the status of the PHENIX measurements and how they can help to lead to a deeper understanding of the transverse proton spin structure.

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Author: EYSER, K. Oleg (UC Riverside, DESY)

Presenter: EYSER, K. Oleg (UC Riverside, DESY)

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