

Comparison of Forward π^0 Asymmetries in Polarized p+p and p+A Collisions at STAR.

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Abstract

In 2015 the first collisions between polarized protons and nuclei occurred at the Brookhaven Relativistic Heavy Ion Collider (RHIC). This talk will present preliminary measurements of the forward transverse single spin asymmetries A_N in p+p and p+A collisions with CM energy of $\sqrt{s_{NN}} = 200$ GeV. Photons from π^0 decays were measured with the STAR FMS electromagnetic calorimeter that had been upgraded for this run, resulting in significantly improved stability, resolution and photon/electron identification. The STAR FMS observed π^0 photons in the forward direction relative to the polarized proton beam, in the pseudo-rapidity range $2.6 < \eta < 4.0$, and in the transverse momentum range $1.5 < p_T < 7$ GeV/c. At this energy and within this kinematic range, STAR has previously reported an unexpected upward trend in the p_T dependence of the π^0 A_N asymmetry. We will discuss the impact of previous and current measurements of nuclear modification effects in this forward region, including unique information on the nuclear dependence of A_N , in comparison with models with saturation effects.