

Longitudinal and Transverse Spin Transfer of Λ and $\bar{\Lambda}$ Hyperons in Polarized $p+p$ Collisions at $\sqrt{s} = 200$ GeV at STAR

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The longitudinal and transverse spin transfer to Λ and $\bar{\Lambda}$ hyperons in polarized proton-proton collisions is expected to be sensitive to the helicity and transversity distributions of strange and anti-strange quarks of the proton, as well as the corresponding polarized fragmentation functions. In this talk, we will present the improved measurements of longitudinal spin transfer to Λ and $\bar{\Lambda}$, D_{LL} , and transverse spin transfer to Λ and $\bar{\Lambda}$, D_{TT} , in polarized proton-proton collisions at $\sqrt{s} = 200$ GeV with the STAR experiment at RHIC. The data set includes longitudinally and transversely polarized proton-proton collision samples with an integrated luminosity of 52 pb^{-1} in each cases. Both data sets have about two times larger figure of merit than prior results and cover a kinematic range of $|\eta| < 1.2$ and transverse momentum p_T up to 8 GeV/ c . We also report first measurements of the hyperon spin transfer D_{LL} and D_{TT} versus fractional momentum z of the hyperon within a jet, which can provide more direct constraints on the polarized fragmentation functions.