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

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The transverse spin transfer, D_{TT} , of Λ and $\bar{\Lambda}$ hyperons in $p+p$ collisions is expected to be sensitive to the s and \bar{s} quark transversity distributions in the proton and to the transversely polarized fragmentation functions. The STAR experiment has published the first measurement of the transverse spin transfer of Λ and $\bar{\Lambda}$ hyperons in transversely polarized $p+p$ collisions at $\sqrt{s} = 200$ GeV within pseudo-rapidity $|\eta| < 1.2$ and for the transverse momenta up to 8 GeV/ c based on the data taken in 2012. In 2015, a data sample of $p+p$ collisions at $\sqrt{s} = 200$ GeV, about two times larger than the 2012 data, was collected. The preliminary result of the transverse spin transfer, D_{TT} , of Λ and $\bar{\Lambda}$ hyperon versus transverse momentum, based on 2015 data, will be presented. The status of investigating D_{TT} versus fractional momentum of the hyperon within a jet will also be reported.

Primary author: XU, Yike

Presenter: XU, Yike

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