Measurement of longitudinal spin transfer of the $\Lambda(\bar{\Lambda})$ hyperon in polarized p+p collisions at $\sqrt{s} = 200$ GeV at RHIC-STAR

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Understanding the origin of the proton spin is one of the most fundamental and challenging questions in QCD. Much progress has been made since the first surprising results by the EMC experiment in the late 1980s. However, for the helicity distributions of the proton, contributions from sea quarks, especially from the strange quark (anti-quark), $s(\bar{s})$, are still not well constrained by experimental data. Since the spin of the $\Lambda(\bar{\Lambda})$ hyperon is expected to be carried mostly by its constituent $s(\bar{s})$ quark, measurements of the longitudinal spin transfer, D_{LL}, of the $\Lambda(\bar{\Lambda})$ hyperon can thus shed light on the helicity distribution of the $s(\bar{s})$ quark in the proton and the longitudinally polarized fragmentation functions. In particular, measuring D_{LL} as a function of the jet momentum fraction carried by the $\Lambda(\bar{\Lambda})$ hyperon can directly probe the polarized jet fragmentation functions. In this talk, we will present the status of the D_{LL} analysis using data collected at RHIC-STAR in 2015, for the hyperon pseudo-rapidity $|\eta| < 1.2$ and transverse momenta up to 8.0 GeV/c. This data set corresponds to an integrated luminosity of 52 pb^{-1} and is about twice as large as the 2009 data used for the previously published D_{LL} results.