

1 Measurement of longitudinal spin transfer of the
2 $\Lambda(\bar{\Lambda})$ hyperon in longitudinally polarized p+p
3 collisions at $\sqrt{s} = 200$ GeV at RHIC-STAR

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5 Since the first surprising results on the spin structure of the proton by the EMC ex-
6 periment in the late 1980s, much progress has been made in understanding the origin of
7 the proton spin. However, the sea quark contribution to the proton spin, for example,
8 the helicity distributions of the strange quark(anti-quark), $s(\bar{s})$, are still not well con-
9 strained by experimental data. Since the $s(\bar{s})$ is expected to carry a substantial fraction
10 of the spin of the $\Lambda(\bar{\Lambda})$ hyperon, measurements of the longitudinal spin transfer, D_{LL} ,
11 of the $\Lambda(\bar{\Lambda})$ hyperon can thus shed light on the helicity distribution function of the $s(\bar{s})$
12 and the longitudinally polarized fragmentation functions. In this talk, we will present
13 the status of the $\Lambda(\bar{\Lambda})$ D_{LL} analysis using data collected at RHIC-STAR in 2015, for the
14 $\Lambda(\bar{\Lambda})$ hyperon of pseudo-rapidity $|\eta| < 1.2$ and transverse momenta up to 8.0 GeV/c.
15 This dataset is about twice as large as that used for the previously published D_{LL} re-
16 sults. In addition, the longitudinal double spin asymmetries, A_{LL} , of the $\Lambda(\bar{\Lambda})$ hyperon
17 and the K_S^0 meson are investigated, which are also expected to be sensitive to the $s(\bar{s})$
18 helicity distributions.