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Measurement of transverse polarization of $\Lambda/\bar{\Lambda}$ inside jets in pp collisions at $\sqrt{s} = 200$ GeV

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The fragmentation process has been proposed as a possible origin of the transverse Λ polarization, described by polarizing fragmentation functions (pFFs). In pp collisions, this mechanism can be studied by measuring the Λ polarization within jets. We present the first measurement of the transverse polarization of $\Lambda/\overline{\Lambda}$ hyperons relative to the jet axis in unpolarized pp collisions at $\sqrt{s} = 200$ GeV, using high-statistics data from the STAR experiment. The dependence of the Λ polarization on the jet transverse momentum (p_T^{jet}) is observed. The polarization is also studied as a function of the jet momentum fraction (z) carried by the $\Lambda/\overline{\Lambda}$, and the $\Lambda/\overline{\Lambda}$ momentum transverse to the jet axis (j_T). These results will provide the first constraints on the gluon pFFs. These results also provide an opportunity to test the transverse momentum-dependent (TMD) evolution effect and its universality for pFFs.

Primary author: 高, 涛亚 (Shandong University)

Presenter: 高, 涛亚 (Shandong University)

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