

1 Measurement of transverse polarization of Λ and
2 $\bar{\Lambda}$ inside jets in $p + p$ and $p + Au$ collisions at
3 RHIC

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6 Transverse Λ polarization in hadron-hadron and hadron-nucleus collision
7 has been observed for over fifty years, yet its origin remains poorly understood.
8 The fragmentation process, characterized by polarizing fragmentation functions
9 (pFFs), has been proposed as a potential origin of this phenomenon. This
10 mechanism can be probed via measurements of the Λ polarization within jets.
11 We report the measurements of the transverse polarization of Λ and $\bar{\Lambda}$ hyperons
12 relative to the jet axis in $p + p$ collisions at $\sqrt{s} = 200$ GeV and 510 GeV, as
13 well as in $p + Au$ collisions at $\sqrt{s_{NN}} = 200$ GeV. Our results indicate that the
14 transverse polarization of Λ hyperons can provide a probe of the jet energy scale
15 dependence. Furthermore, comparisons between $p + p$ and $p + Au$ collisions can
16 provide sensitivity to possible nuclear medium effects. These findings provide a
17 critical test of the universality of pFFs and new insights into the mechanisms
18 responsible for transverse Λ polarization.