

Abstract Submitted
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Probing Gluon Polarization in the Proton with Jets at STAR¹

CARL GAGLIARDI, Texas A&M University, STAR COLLABORATION — The STAR Collaboration at RHIC is exploring the gluon polarization in the proton with a broad range of inclusive jet and dijet measurements in polarized pp collisions. STAR measurements of the longitudinal double-spin asymmetry, A_{LL} , for inclusive jet production in pp collisions at 200 GeV provided the first clear evidence that the gluons in the proton with momentum fraction $x > 0.05$ are polarized. Recently, STAR completed the analysis of A_{LL} for inclusive jets and dijets in 510 GeV pp collisions, based on data that were recorded during 2012. The high statistical precision of the 2012 data required the development of new analysis procedures to minimize systematic uncertainties. Together, the measurements provide important new constraints on both the magnitude and x dependence of the gluon polarization. The results are consistent with the previous measurements at 200 GeV in the overlapping kinematic region, $x > 0.05$, and extend the sensitivity down to $x \approx 0.015$. The final 2012 inclusive jet and dijet A_{LL} analysis and results will be discussed, as well as the first ever measurement of A_{LL} for the underlying event. A status report will also be given regarding other recent STAR gluon polarization measurements.

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Carl Gagliardi
Texas A&M University

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