

Longitudinal Double-Spin Asymmetries for Dijet Production at Intermediate Pseudorapidity in Polarized Proton-Proton Collisions at $\sqrt{s} = 510$ GeV

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June 25, 2020

Abstract

The analysis of dijets produced in polarized pp collisions at the Relativistic Heavy Ion Collider (RHIC) provides information on the gluon helicity contribution to the spin of the proton. Because quark-gluon and gluon-gluon scattering processes dominate jet production in pp collisions at RHIC energies of $\sqrt{s} = 200$ GeV and $\sqrt{s} = 510$ GeV, the longitudinal double-spin asymmetry A_{LL} for dijet production is sensitive to the polarized gluon distribution function $\Delta g(x)$. Dijet measurements at larger pseudorapidity and higher center-of-mass energy probe lower values of partonic momentum fraction x , a region where $\Delta g(x)$ is still poorly constrained. Previous measurements of dijet A_{LL} at the Solenoidal Tracker at RHIC (STAR) have been carried out at either mid-rapidity or $\sqrt{s} = 200$ GeV, or both. We present the status of the first analysis of A_{LL} for dijets with at least one jet reconstructed at intermediate pseudorapidity ($0.8 < \eta < 2.0$) in polarized pp collisions at $\sqrt{s} = 510$ GeV, based on data taken during the 2012 and 2013 RHIC running periods.