

Exploring Transverse Spin Structure of the Proton via Di-hadron Channel in pp Collisions at RHIC

Babu Pokhrel for the STAR Collaboration
Temple University, Philadelphia, PA, USA

Abstract

Measurements of the transversely polarized proton-proton ($p^\uparrow p$) data from the Relativistic Heavy Ion Collider (RHIC) have been crucial for exploring the proton's transverse spin structure. The collinear transverse structure of the proton at the leading twist is described by the transversity parton distribution function, which remains the least constrained by experimental data. At RHIC, $p^\uparrow p$ datasets collected with the STAR detector have made a significant impact on the global transversity extraction through single and di-hadron measurements. The di-hadron channel provides an effective approach to exploring transversity within a collinear framework. This talk will present the status, progress, and plans for the di-hadron measurements in polarized pp collisions at center-of-mass energies of 200 and 500/510 GeV at STAR. These datasets probe transversity in the valence quark region ($0.05 < x < 0.3$).