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Polarized Energy-Energy Correlators in Jet at STAR

The Energy-Energy Correlators (EEC), initially developed in e^+e^- collisions, provide a powerful method for probing the angular structure of energy flows within jets. In hadronic collisions with transverse polarization, the polarized EEC (pEEC) offers unique sensitivities to parton spin-orbit correlations and spin-dependent transverse-momentum-dependent (TMD) effects. In this presentation, we will present preliminary results of the first measurement of polarized EEC in jets at the STAR experiment, utilizing data from transversely polarized proton-proton ($p^\uparrow + p$) collisions at both $\sqrt{s} = 200$ and 510 GeV. This analysis includes both 1-point and 2-point EEC measurements for π^+ and π^- in jets, providing new insights into the spin-dependent dynamics of final state fragmentations.

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