

Observation of medium-induced acoplanarity
using γ and π^0 -triggered semi-inclusive recoil jet
distributions in central Au+Au and $p + p$
collisions at $\sqrt{s_{\text{NN}}} = 200$ GeV by STAR

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We present measurements of azimuthal acoplanarity based on direct photon (γ) and π^0 -triggered semi-inclusive recoil jet distributions in central Au+Au and $p + p$ collisions at $\sqrt{s_{\text{NN}}} = 200$ GeV, using datasets with integrated luminosity of 3.9 nb^{-1} and 23 pb^{-1} , respectively. This observable may probe jet wake effects and Moliere scattering off of quasi-particles in the QGP. Jets are reconstructed from charged particles using anti- k_T with $R=0.2$ and 0.5 , with uncorrelated background corrected using event mixing. The γ and π^0 triggers have transverse energy in the interval $[11,15]$ GeV, and recoil jets are reported in the p_T interval $[10,20]$ GeV/c. Marked medium-induced acoplanarity is observed with both triggers for recoil jets with $R=0.5$ but not $R=0.2$, similar to a recent measurement at the LHC. We discuss the insight that these observations provide into the nature of the jet-medium interaction and the response of the QGP to excitation. The measurements will also be compared to theoretical calculations.