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Describing Ridge behavior via kinematics between jets and medium

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The Ridge behavior in high-multiplicity pp collisions has been discussed a lot since it was first reported in year. Because small systems cannot provide sufficient conditions to produce a medium called QGP, in which the ridge behavior is understood with hydrodynamics. In this work, we propose the pure kinematic mechanism between jets and medium partons as tools for describing the Ridge behavior.

In practical calculation, we choose parton distribution functions from the hard scattering model (phPDh) as initial medium parton's distribution. The phPDh is parameterized by a fallout parameter, a, a non-extensive parameter, q, and the temperature of the system, T. Compared to the PYTHIA simulation, we extract proper values of $a = 85$, $q = 1.15$, and $T = 145\,\mathrm{MeV}$. We calculate a two-particle angular correlation using phPDh with various energy losses and angles of jet particles after collisions.

Theory / experiment

Theory

Group or collaboration name

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