

Jet azimuthal anisotropy in ep collisions

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We study back-to-back lepton-jet production in lepton-proton collisions. This process defines two azimuthal angles, the transverse momentum imbalance q_T of the lepton and the jet, and the azimuthal angle of the jet transverse momentum itself. In this work, we study the azimuthal anisotropy for the azimuthal angle difference ϕ between these two angles. In particular, we provide the theoretical origins for these azimuthal dependence from a factorization formalism derived within the SCET framework. In addition, we find that the directed flow component related to $\cos(\phi)$ azimuthal asymmetry is dominant. We present the numerical results of such azimuthal anisotropy for both EIC and HERA kinematics with Pythia simulations, showing that these are promising observables for studying lepton-jet correlations in future experiments.

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No

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