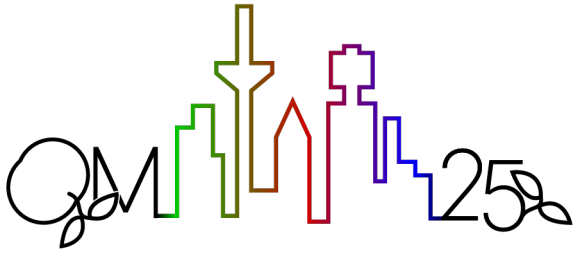

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Study of the spatial and temporal evolution of jets by measuring femtoscopic correlations within jets in pp collisions at 13 TeV

To quantify the properties of hadronic collisions at LHC energies, a precise understanding of the system's spatial and temporal evolution is essential. Femtoscopic correlations provide a powerful tool for measuring the size of the homogeneity region at kinetic freeze-out. In this analysis, we measure femtoscopic correlations within jets produced in proton-proton collisions at $\sqrt{s} = 13$ TeV, using the full LHC Run-2 dataset collected by the CMS experiment, corresponding to an integrated luminosity of 138 fb^{-1}. The correlation function, C_2, is evaluated as a function of relative momentum, q_{inv}, for different ranges of average transverse momentum and transverse mass of constituent pairs, categorized by the average number of charged particles within the jet. The analysis is performed in the "jet frame", where particle kinematics are defined relative to the jet axis. By modeling the source distribution with a Gaussian function, we aim to extract R_{inv} and λ, which characterize the particle-emitting source within jets. This approach is expected to offer deeper insights into jet substructure in high-multiplicity environments.

Category

Experiment

Collaboration (if applicable)

CMS

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