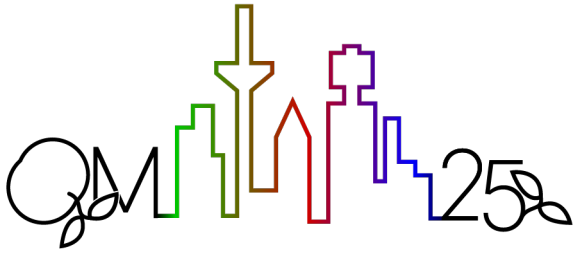

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First measurement of jet axis decorrelation for detecting in-medium momentum broadening in photon-tagged jets PbPb at 5.02 TeV with CMS

Wednesday 9 April 2025 10:20 (20 minutes)

A search for medium-induced jet transverse momentum broadening is performed with isolated photon-tagged jet events in pp and PbPbcollisions at n5.02 TeV. The difference between jet axes as determined via energy-weight and winner-take-all clustering schemes, also known as the decorrelation of jet axes and denoted Δj, is measured for the first time in photon-tagged jet events. This observable is sensitive to both multiple scattering and large-angle scattering effects in the QGP. The pp and PbPb data samples were recorded with the CMS detector at the LHC and correspond to integrated luminosities of 1.69 nb−1 and 302 pb−1 respectively. Events are required to have a leading isolated photon with 6060 GeV in central PbPb show signs of narrowing relative to pp. The results are compared to the Hybrid, Jewel and Pyquen theoretical models, which include different mechanisms of energy loss.

Category

Experiment

Collaboration (if applicable)

CMS

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