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Study of quenching of b-jets with the CMS experiment

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Jet quenching is used to explore the detailed dynamics of QCD at high densities and temperature. In order to study the parton energy loss dependence on the flavor, we measure the b-jet nuclear modification factor with the latest recorded data-sets of pp and PbPb collisions at 5.02 TeV with CMS detector in 2017 and 2018. The higher center-of-mass energy, compared to the previous study at 2.76 TeV, allows us to access a larger range of b-jet transverse momentum. The use of the latest multi-variate b-tagging algorithms, as well as in-situ method to determine the b-jet efficiency and mistagging rate, dramatically reduce the uncertainties on the measurement. The result is unfolded to the particle level in order to facilitate the comparison to theoretical developments and other experiments. In addition to the nuclear modification to the b-jet spectra, the jet internal structure is studied via the jet shapes. We present the differential jet shape of b jets in pp collisions, as measured by the jet-track correlation method, and compare it to inclusive jet shapes and theoretical predictions.

Collaboration (if applicable)

CMS

Track

Jets and High Momentum Hadrons

Contribution type

Contributed Talk

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