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Resolving medium properties using high- p_T jets with jet and in-jet correlations in PbPb collisions at 5.02 TeV with the CMS detector

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Even though the quark-gluon plasma produced in high-energy heavy ion collisions has been studied in detail for years, there are still properties that are not known to a good precision. One example of such property is the medium resolution length, which is related to the smallest angle of emission where the medium can still resolve the daughter particles as individual particles. This can be probed for example through the energy-energy correlator. The medium resolution length has implications to parton energy loss, since two particles will emit energy more vigorously compared to one. Also other details of the parton energy loss, like the path-length dependency, could use precision measurements to provide better discriminating power between available theoretical models. Jets are a good observable to experimentally tackle these questions. In this talk, we present recent, high-precision CMS jet measurements in lead-lead collisions at $\sqrt{s_{NN}} = 5.02$ TeV aimed to explore the properties of the quark-gluon plasma.

Category

Experiment

Collaboration (if applicable)

CMS

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