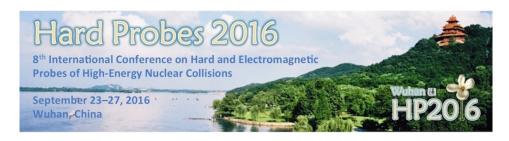
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Jet mass measurements in Pb-Pb and pPb collisions with ALICE at the LHC

Saturday, 24 September 2016 10:40 (20 minutes)

The properties of the quark-gluon plasma (QGP) produced in high-energy heavy-ion collisions can be studied using high-momentum partons originating from the early stage of the collision. Their interaction with the medium provides information on the QGP properties.

High-momentum partons shower and hadronise into jets and the energy and mass of the jets are correlated to the energy and off-shellness (virtuality) of the original partons. The jet measurements hence allow us direct access to the virtuality evolution of the parton as a function of the jet energy. While propagating through the medium, the leading parton looses energy, leading to a suppression to the jet- p_T spectrum, and virtuality.

The first measurements of the jet mass in Pb—Pb collisions at $\sqrt{s}_{NN}=2.76$ TeV and pPb collisions at $\sqrt{s}=5.02$ TeV at the LHC, performed with the ALICE experiment, are reported in the $p_{T,jet}$ region from 60 to 120 GeV/c. Jets were reconstructed using charged tracks with $p_T>0.150$ GeV/c, clustered with the anti- k_T algorithm, and fully corrected for background and detector effects. The Pb-Pb measurement is compared with the results from p-Pb collisions, with PYTHIA, and with models that implement different types of interactions with the medium that produce either a depletion or an increase of the jet mass.

These jet mass measurements add a new dimension to jet quenching studies, by constraining both of the relevant quantities, energy and virtuality, and will further provide non-trivial tests for models of in-medium shower evolution.

Summary

Presentation type

Oral

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