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Typ: Talk

Measurement of the R dependence of jet quenching in pp and Pb-Pb collisions with ALICE

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Jets are excellent probes for studying the deconfined matter formed in heavy ion collisions. Measurements of jet yield and substructure as a function of jet resolution parameter R over a wide range in jet p_T probe the mechanisms underlying the interaction between jets and the QGP, notably the role of opening angle of the hardest jet shower components, and of the angular distribution of medium-induced radiation. In this talk, we will present two measurements of the nuclear modification factor R_{AA} in central Pb-Pb collisions at $\sqrt{s} = 5.02$ TeV with ALICE, addressing the influence of the large uncorrelated background with novel techniques in machine learning and mixed event subtraction. The mixed-event technique, newly introduced in ALICE, enables inclusive jet measurements at low p_T with minimal bias, in a previously unexplored energy regime at the LHC. In addition, the machine learning method enables the measurement of the R -dependence of jet suppression for $R = 0.6$ down to 40 GeV/c. Finally, we introduce a new infrared and collinear safe measurement of the jet energy flow within jets reconstructed with different resolution parameters R . Investigating how the energy is distributed for the same jet with different R allows energy loss to be explored on a jet-by-jet basis instead of between different populations of jets as in inclusive measurements. These results are compared to jet quenching models.

Experiment/Theory

ALICE

Affiliation

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Track Klassifizierung: Jets and their modification in QCD matter