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Beitrag ID: 38

Typ: Talk

Measurement of the angle between jet axes and energy-energy correlators with ALICE

Dienstag, 28. März 2023 17:30 (20 Minuten)

Modifications of the internal structure of jets through interactions with the QGP produced in heavy-ion collisions, referred to as jet quenching, are used to study the properties of the QGP. In this talk, we present the first measurement of the angle between pairs of jet axes, ΔR_{axis} , in central Pb-Pb collisions at $\sqrt{s_{\text{NN}}} = 5.02$ TeV with ALICE. We compare this novel jet substructure measurement to a selection of jet quenching models. The data favor models implementing incoherent energy loss of jet constituents in the QGP, but also agree with models invoking an enhancement of quark-initiated jets. On the other hand, our measurement disfavors the intra-jet in-medium p_{T} broadening from the BDMPS formalism. Moreover, to comprehensively study the perturbative and non-perturbative aspects of jet structure, we measured the energy-energy correlators (EEC) that emphasize the angular structure of the energy flow within jets. Defined as the energy-weighted cross section of particle pairs inside jets, the scaling behavior of the EECs as a function of pair distance exposes a distinct separation of the perturbative from the non-perturbative regime, revealing parton-type dependent dynamics of jet formation and their confinement into hadrons. In this talk, we present a new measurement of EEC in pp collisions at the LHC and compare it with pQCD predictions. This measurement serves as a baseline for future measurements in heavy-ion collisions.

Experiment/Theory

ALICE

Affiliation

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Sitzung Einordnung: Parallel: Jets and their modification in QCD Matter

Track Klassifizierung: Jets and their modification in QCD matter