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Typ: Talk

Jet quenching studies with new jet substructure and suppression measurements in ATLAS

Dienstag, 28. März 2023 11:50 (20 Minuten)

Measuring the jet substructure in heavy-ion collisions provides exciting new opportunities to study detailed aspects of the dynamics of jet quenching in the hot and dense QCD medium created in these collisions. In this talk, we present new ATLAS measurements of jet substructure performed using various jet (de)clustering and grooming techniques. Measurements of inclusive jet suppression (R_{AA}) in heavy-ion collisions are presented as a function of the jet substructure using both small-radius ($R = 0.4$) and large-radius ($R = 1.0$) jets in Pb+Pb and pp collisions at $\sqrt{s_{NN}} = 5.02$ TeV. The jet substructure is characterized using the Soft-Drop grooming procedure in order to identify subjets corresponding to the hardest parton splitting in the jet. The measurements are performed using different jet constituents such as charged tracks, smaller R calorimeter jets, and novel objects reconstructed using tracker and calorimeter information. The dynamics of jet quenching is measured and presented as a function of the transverse momentum scale ($\sqrt{d_{12}}$) and the angle of the hardest splitting in the jet. These new measurements test the sensitivity of jet suppression in the QCD medium to its substructure and the emergence of a critical angle for the onset of color decoherence.

Experiment/Theory

ATLAS

Affiliation

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

Track Klassifizierung: Jets and their modification in QCD matter