

11th International Conference on Hard and Electromagnetic Probes of High-Energy Nuclear Collisions



Beitrag ID: 210

Typ: Talk

Dead-cone searches in heavy-ion collisions using the jet tree

Mittwoch, 29. März 2023 11:30 (20 Minuten)

In this talk, we will discuss the possibility of using the dead cone of heavy quarks as a region of the Lund plane where medium-induced gluon radiation can be isolated and characterised. We propose to use jet grooming techniques to identify a particular splitting in the jet tree that is both perturbative and sensitive to the dead-cone effect. In particular, we introduce a new jet substructure groomer, dubbed Late- k_t , that selects the most collinear splitting in a QCD jet above a certain transverse momentum cutoff. Our observable is then defined as the angular distribution of the splitting tagged by Late- k_t . After discussing the logarithmic resummation structure of this new jet substructure observable, we demonstrate that medium-induced emissions lead to an enhancement of collinear emissions below the dead cone angle for b-initiated jets. Numerically, we demonstrate an excellent resilience of Late- k_t against uncorrelated thermal background, thus confirming this observable as a potential candidate to unveil medium dynamics around the dead cone regime.

Experiment/Theory

Theory/Phenomenology

Affiliation

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

Track Klassifizierung: Jets and their modification in QCD matter