

Substructures of heavy flavor jets in pp and Pb+Pb collisions at $\sqrt{s} = 5.02$ TeV

Monday 24 April 2023 17:05 (25 minutes)

Groomed jet substructure measurements, the momentum splitting fraction z_g and the groomed jet radius R_g , for inclusive, D^0 -tagged and B^0 -tagged jets in pp and central Pb+Pb collisions at $\sqrt{s} = 5.02$ TeV are investigated. Theoretical results for light-quark initiated and gluon initiated jets are provided as references. Charged jets are constrained in a relative low transverse momentum interval $15 \leq p_T^{\text{jet ch}} < 30$ GeV/ c where the QCD emissions are sensitive to mass effects. The mass hierarchy manifests in z_g distributions in both parton showering and jet quenching indicating steeper splitting functions of heavier partons. The competition between flavor effects and mass effects to emission-angle distributions is directly observed for the first time. In both pp and Pb+Pb collisions, the mass hierarchy in R_g of inclusive, D^0 -tagged and B^0 -tagged jets is broken due to contributions from gluon-initiated jets.

Theory / experiment

Theory

Group or collaboration name

Primary author: ZHANG, Qing (CCNU)

Co-authors: Prof. DAI, Wei (China University of Geosciences); ZHANG, Ben-Wei (Central China Normal University); Prof. WANG, Enke (South China Normal University)

Presenter: ZHANG, Qing (CCNU)

Session Classification: Parallel Session C

Track Classification: Jets and medium response