

Probing jet hadrochemistry and charged-particle jet radial profile modifications in pp and Pb–Pb collisions with ALICE

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Jet substructure measurements in heavy-ion collisions provide constraints on jet quenching and the medium response in the QGP. Though there has been remarkable progress in inclusive-charged-hadron jet substructure measurements, understanding the identified particle composition of jets and their modification in heavy-ion collisions remains elusive. Jet quenching models predict that the jet hadrochemical composition may be modified in heavy-ion collisions due to jet-medium interactions, as well as the medium response. Further, models including the jet wake from a hydrodynamic medium response predict an enhancement of soft particle productions at large angles from the jet axis. Measurements of identified particles in jets can help discriminate between various parton-QGP interactions. We present the first measurements of π , K, and p ratios within charged-particle-jets of various R and the underlying event as a function of particle transverse momentum and radial distance from the jet axis in pp and Pb–Pb collisions at $\sqrt{s_{NN}} = 5.02$ TeV. These measurements leverage the excellent PID capabilities of ALICE over a wide momentum range. Additionally, we present results of the particle density profile, ρ , for charged particles in jets. We compare the results with theoretical models to understand soft particle production mechanisms and distinguish modified jet fragmentation from bulk effects.

Category

Experiment

Collaboration

ALICE

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