



Contribution ID: 446

Type: Oral

Study of jet energy redistribution and broadening using acoplanarity and planar flow measurements in pp and Pb–Pb collisions with ALICE

Wednesday 6 September 2023 09:50 (20 minutes)

The measurement of jets recoiling from a trigger hadron (hadron+jet) provides unique probes of medium-induced modification of jet production. Jet deflection via multiple soft scatterings with the medium constituents may broaden the azimuthal correlation between the trigger hadron and the recoiling jet. In addition, the tail of this azimuthal correlation may be sensitive to single-hard Molière scatterings off quasi-particles in the medium. The R-dependence of recoil jet yield probes jet energy loss and intra-jet broadening. In inclusive jet populations, the principle axis of energy flow in the plane transverse to the jet axis examines the correlation of particles outside the jet cone with the energy of the jet. This and the hadron+jet results may be sensitive to wake effects due to jet-medium energy transfer at low p_T .

This talk presents measurements of the semi-inclusive distribution of charged-particle jets recoiling from a trigger hadron in pp and Pb–Pb collisions. We observe that the jet yield at low p_T and at large azimuthal angle between the trigger hadron and jet is significantly enhanced in Pb–Pb collisions with respect to pp collisions, which we interpret through comparisons to model calculations. In addition, the first correlations of tracks with the principle direction of energy flow in the plane transverse to the jet will be presented.

Category

Experiment

Collaboration (if applicable)

ALICE

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Session Classification: Jets

Track Classification: Jets