## **EPS-HEP2023** conference



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

Tuesday 22 August 2023 17:50 (20 minutes)

Jets are excellent probes for studying the deconfined matter formed in heavy ion collisions. This talk presents the new observables to study how jets interact with the QGP. First, we introduce a new infrared and collinear safe measurement of the jet energy flow within jets reconstructed with different resolution parameters R. Changing the jet R varies the relative contribution of competing energy-loss effects. Second, 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. Finally, 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. All three results may be sensitive to wake effects due to jet-medium energy transfer at low  $p_{\rm T}$ .

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 energy flow between jets of different radii and correlations of tracks with the principle direction of energy flow in the plane transverse to the jet will be presented.

## **Collaboration / Activity**

ALICE

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