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Jet quenching and acoplanarity via hadron+jet measurements in pp and Pb-Pb collisions at 5.02 TeV with ALICE

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We present the semi-inclusive distribution of charged jets recoiling from a trigger hadron in pp and Pb-Pb collisions at $\sqrt{s_{NN}} = 5.02$ TeV. This technique provides a precise data-driven subtraction of the large uncorrelated background contaminating the measurement. It uniquely enables the exploration of medium-induced modification of jet production and acoplanarity over a wide phase space, including the low jet p_T region for large jet resolution parameter R . Medium-induced jet deflection may occur via multiple soft scatterings resulting in a broadening of the overall azimuthal correlation between the trigger hadron and the recoiling jet. In addition, the tail of this azimuthal correlation is sensitive to Molière scatterings off quasi-particles in the medium. A search for these phenomena in Run 1 data using hadron-jet acoplanarity showed no evidence of large-angle jet broadening with respect to the vacuum expectation within experimental uncertainties. However, recent theoretical work has highlighted that low hadron trigger p_T and low recoiling jet p_T configurations show more sensitivity to in-medium modifications to the acoplanarity.

This talk will report measurements of medium-induced jet energy redistribution through the comparison of trigger-normalized recoil jet yields in different centrality intervals for Pb-Pb collisions and in minimum-bias pp collisions, and of jets with different R . We also present a new measurement of hadron-jet acoplanarity in pp and Pb-Pb collisions using high-statistics Run 2 data, with emphasis on the region of low recoil jet p_T .

Collaboration (if applicable)

ALICE

Track

Jets and High Momentum Hadrons

Contribution type

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