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Jet quenching and acoplanarity via hadron+jet measurements in pp and Pb-Pb collisions at $\sqrt{s_{NN}} = 5.02$ TeV with ALICE

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We present measurements of 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 precise, data-driven suppression of the large uncorrelated background in such measurements. It uniquely enables the exploration of medium-induced modification of jet production and acoplanarity over wide phase space, including low p_T for large jet resolution parameter R . This talk will report measurements of medium-induced jet energy redistribution through the comparison of trigger-normalized recoil jet yields

in different centrality intervals and in pp reference collisions, and of jets with different R . Medium-induced jet deflection may also occur, with multiple soft scatterings broadening the overall azimuthal correlation, and possible Moliere scatterings off quasi-particles in the medium broadening the tail of the correlation with respect to pp collisions. A search for these phenomena in Run-1 data using hadron-jet acoplanarity showed no evidence of large-angle jet broadening with respect to 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. We present a new measurement of hadron-jet acoplanarity using high-statistics Run-2 data, with emphasis on the region of low recoil jet p_T .

To study the jet profile, jet-hadron correlations will also be discussed. Jet-hadron correlations are measured in Pb-Pb collisions at $\sqrt{s_{NN}} = 5.02$ TeV using ALICE data. The radial distribution of charged-hadrons is studied with respect to the jet axis. The associated charged hadron yields and peak widths are extracted from two-dimensional angular correlations as a function of associated hadron transverse momentum and event plane orientation and compared in different centrality intervals. The measurements are also compared to model predictions.

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