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Jet acoplanarity through hadron+jet measurements in Pb-Pb collisions with ALICE

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The energy loss of jets (jet quenching) is one of the most important signatures of the deconfined state of quarks and gluons (quark-gluon plasma) created in Pb-Pb collisions at the LHC. The measurement of jets recoiling from a trigger hadron uniquely enables the exploration of medium-induced modification of jet production. Jet deflection via multiple soft scatterings with the medium constituents may result 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 single-hard Molière scatterings off quasi-particles in the medium. The overall yield and R-dependence of the recoil jets also offers important information about jet energy loss and intra-jet broadening.

This contribution presents a measurement of charged-particle jets recoiling from a trigger hadron in pp and Pb-Pb collisions at $\sqrt{s_{\rm NN}}$ = 5.02 TeV. Techniques are employed which allow for a precise data-driven subtraction of the large uncorrelated background contaminating the measurement in Pb-Pb collisions, enabling the exploration of medium-induced modification of jet production and acoplanarity over a wide phase space, including the low jet $p_{\rm T}$ region for large jet resolution parameter R.

In-person participation

Yes

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