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Constraining the medium properties with the anisotropic flow and its correlations in Pb–Pb collisions at the highest energy with ALICE

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Characterization of the quark–gluon plasma (QGP) created in ultrarelativistic heavy-ion collisions requires identifying observables sensitive to the different phases of the collision. Previous studies have shown that measurements of the azimuthal anisotropic flow and the complex interplay between its harmonics can provide valuable information on the QGP transport properties.

In this talk, we present the latest flow measurements done by ALICE in Pb–Pb collisions. We show the first results of the anisotropic flow coefficients of inclusive charged particles obtained at $\sqrt{s_{NN}} = 5.36$ TeV, which is the highest centre-of-mass energy reached in the laboratory for heavy-ion collisions. Furthermore, the first measurements of the newly developed asymmetric cumulants at $\sqrt{s_{NN}} = 5.02$ TeV indicate the existence of complex correlations between the different orders of the flow amplitudes. Finally, we highlight the first experimental results of the recent Gaussian Estimator, designed to measure correlations between symmetry planes more precisely. These results are compared with state-of-the-art hydrodynamic calculations.

Category

Experiment

Collaboration (if applicable)

ALICE

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