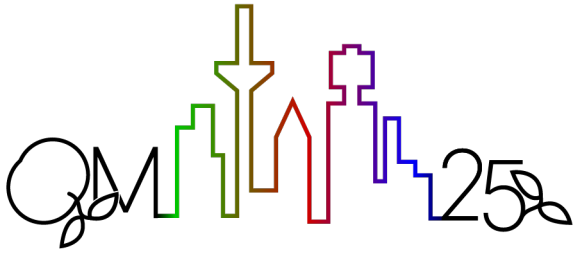

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Measuring flow harmonics up to order 12 and multiparticle correlations in PbPb collisions with the CMS experiment

This talk presents a measurement of higher order flow harmonics with order number up to 12 in lead-lead (PbPb) collisions at $\sqrt{s_{\mathrm{NN}}} = 5.02$ TeV, using data collected by the CMS experiment. Higher order flow harmonics probe the initial geometry of heavy ion collisions as well as the viscous damping of flow coefficients during the evolution of the quark-gluon plasma (QGP). By extending the study of flow harmonics to higher orders, we can access information about the QGP's transport properties that is complementary to existing measurements. In this talk, we will present the centrality dependence of flow harmonics up to order 12 and compare them to theory calculations and previous measurements at lower orders. Additionally, we will report the charged hadron collectivity using multiparticle correlation methods up to 10 particle correlations in PbPb collisions. All the results presented here provide new precision in probing the sensitivity of initial-state fluctuations and viscosity of the QGP, and deepen our understanding of the collective behavior of the strongly interacting matter.

Category

Experiment

Collaboration (if applicable)

CMS

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