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Higher harmonic anisotropic flow of identified particles in Pb-Pb collisions with the ALICE detector

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Anisotropic flow plays a critical role in establishing the equation of state for the Quark Gluon Plasma. The results at the LHC have demonstrated that the matter created in heavy-ion collisions behaves as a nearly perfect fluid reflected in the low value of the shear viscosity over entropy density ratio (η/s). The higher flow harmonics are particularly sensitive to the value of η/s in hydrodynamic calculations. In this talk, we present the first ALICE results on p_{T} differential v_2, v_3, v_4 and v_5 for $\pi^{\pm}$, $\mathrm{K}^{\pm}$, p($\overline{\mathrm{p}}$) from the high statistics 2011 heavy-ion run. We investigate how all v_n coefficients evolve with particle mass and centrality for 0-1%, 20-30% and 40-50% centrality percentiles. These new measurements aim at differentiating between models that use different initial conditions, constraining further the value of η/s and allowing to decouple the influence of the late hadronic stage from the hydrodynamic evolution of the system.

On behalf of collaboration:

ALICE

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