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Longitudinal dynamics in heavy ion collisions

Summary

The measurement of the decorrelation of flow harmonics, and event plane angles in the longitudinal direction explores the non-boost-invariant nature of the initial collision geometry and final state collective dynamics. In this presentation, we will report the decorrelation measurements in Au+Au collisions at 200 GeV. The results are obtained for v_2 and v_3 as a function of transverse momentum and centrality for the collision energy. They are compared with results from the LHC and calculations from different models. The decorrelations do not scale trivially with the beam rapidity. Hydrodynamic models tuned to the Pb+Pb data at 2760 GeV fail to describe the strength of the decorrelation at 200 GeV. These results will help to constrain the initial condition along longitudinal direction and help to understand the longitudinal evolution of the fireball.

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