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Initial-state fluctuations and factorization breaking in pPb and PbPb collisions at LHC energies

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The single-particle anisotropy coefficients measured in PbPb collisions at $\sqrt{s_{NN}}$=2.76˜TeV and high-multiplicity pPb collisions at $\sqrt{s_{NN}}$=5.02˜TeV by the CMS collaboration are presented. These coefficients are obtained from two-particle $\Delta\phi$-$\Delta\eta$ correlations. The observed correlations in ultra-central PbPb events are expected to be particularly sensitive to initial-state fluctuations. The breakdown of factorization of two-particle correlations into single-particle azimuthal anisotropies is observed in both colliding systems. This effect, recently predicted by hydrodynamics, is induced due to initial-state fluctuations which could produce a transverse momentum dependence of event-plane angle even if hydrodynamic flow is the only source of correlations.

Primary author: MILOSEVIC, Jovan (University of Belgrade (RS))

Presenter: MILOSEVIC, Jovan (University of Belgrade (RS))