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PHENIX results on collective effects in small systems

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Extensive measurements of azimuthal anisotropy in heavy-ion collisions, have provided invaluable insights on the expansion dynamics and the transport properties of the strongly interacting matter produced in collisions at RHIC and the LHC. However, recently a number of measurements from high-multiplicity collisions in small systems at RHIC and LHC, such as p+p, p+A, or d+Au, have found strong presence of flow-like collective effects.

A crucial open question is whether a fundamental change occurs in the reaction dynamics and the particle production mechanism, when the collision system-size is reduced from the values produced in central and mid-central heavy-ion collisions, to those obtained in small systems.

In recent experiments, the PHENIX Collaboration has made detailed differential measurements of anisotropic flow coefficients v_n of charged hadrons emerged from p+Au, d+Au and 3He+Au collisions at 200 GeV.

The results from these measurements will be presented and discussed.

Detailed comparisons to different model predictions and LHC data will be shown as appropriate.

Primary author: TARANENKO, Arkadiy (National Research Nuclear University MEPHI (RU))

Presenter: TARANENKO, Arkadiy (National Research Nuclear University MEPHI (RU))

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