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Collectivity in small systems at RHIC (20+5)

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The quark-gluon plasma (QGP) produced in ultra-relativistic collisions between large nuclei, such as gold or lead has vanishingly small specific viscosity making it one of the most "perfect"liquids known. Experimentally, the near-perfect liquid manifests itself in a collective flow of the produced particles, and measurements of the collective flow patterns have been a key to extracting the QGP properties. However, collective effects are also observed in small collision systems, such as proton-nucleus or even proton-proton collisions, which were originally not expected to produce QGP. In the quest for understanding how the perfect liquid behavior emerges, the PHENIX and STAR collaborations at RHIC performed a series of measurements in several small systems. Gold nuclei were collided with protons, deuterons, and 3He nuclei at a nucleon-nucleon center-of-mass energy of 200 GeV, and a beam energy scan was performed with deuteron-gold collisions. This talk will review the RHIC results from the small-system geometry and beam-energy scans and discuss our current understanding of the various effects that contribute to the observed collectivity in small collision systems at RHIC.

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