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## Latest results on azimuthal anisotropy at RHIC-PHENIX

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Relativistic heavy ion collisions are a unique way to form the quark gluon plasma (QGP). Measurements of the azimuthal anisotropy of particle production in relativistic heavy ion collisions have been used to study the initial condition and the relativistic hydrodynamic response of the hot and dense matter. The hydrodynamical response of the QGP to a given initial condition can be studied by selecting different collision systems. For this purpose, symmetric Au+Au/Cu+Cu and asymmetric Cu+Au collisions have been operated at RHIC, and the azimuthal anisotropy strength  $v_n$  have been measured in these collision systems.

In addition, RHIC has operated small collision systems, p/d/ $^3\text{He}$ +Au collisions which have been considered too small to form the QGP. Although a finite  $v_n$  has been considered to arise from the strong hydrodynamical expansion, recent measurements of  $v_n$  in the small collision systems at RHIC show similar strengths as seen in heavy ion collisions. Measurements of  $v_n$  in small collision systems could provide a better understanding of the hydrodynamical limit and other mechanisms which cause the large anisotropy in small collision systems.

In this poster, we will present the latest results on azimuthal anisotropies in symmetric and asymmetric heavy ion collisions as well as small colliding systems at PHENIX.

### Topic:

Topic: Heavy Ion Collisions and Critical Phenomena

### Summary

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