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## Collective Phenomena in the Quark-Gluon Plasma produced at RHIC

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Recently, the experimental collaborations based on the Relativistic Heavy Ion Collider (RHIC) at Brookhaven National Laboratory announced the discovery of an extraordinarily dense and hot state of matter which exhibits properties of a near perfect fluid. While it was expected that at RHIC energies the head-on collisions of gold ions will lead to deconfinement of the quarks and gluons inside them, the quark-gluon plasma (QGP) showed surprising collective properties contrary to the expectations for a gas of free quarks and gluons. The matter "flows," i.e. - responds collectively to variations of pressure across the volume formed by the colliding nuclei, with very small viscosity. Recent measurements on 2-particle and multi-particle correlations reveal that the matter also responds collectively to a fast particle propagating through it. Is it a sound wave, Cherenkov radiation of gluons or some other excitation moving through the QGP? This talk will review the experimental results and the proposed theoretical explanations for the observed collective phenomena.