

High Energy Physics Seminar

Department of Physics

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Quark-Gluon Plasma Easier to Make than Previously Thought?

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Abstract: The quark-gluon plasma (QGP) produced in ultra-relativistic collisions between large nuclei, such as Au+Au or Pb+Pb, is a state of nuclear matter with extremely high temperature and energy density. The particles produced in these collisions exhibit collective behavior that indicate that QGP is a liquid with extremely low specific viscosity, which makes it the most perfect liquid in nature. In the quest of understanding how the perfect fluid emerges, experiments at the Large Hadron Collider (CERN, Switzerland) and the Relativistic Heavy Ion Collider (BNL) studied collisions between protons or other small nuclei with large nuclei, which were not expected to produce QGP. To our surprise, we found that collective behavior is also present in a fraction of these collisions, i.e. – the most violent ones that produce a large number of particles. How small and how short-lived can a system be and still behave as a liquid? This talk will focus on the world's tiniest fleeting perfect-liquid droplets.

The seminar will be held at 11:00 am in 2214 SES.