

Recent progress in relativistic heavy-ion collisions

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Quantum Chromodynamics (QCD) is the study of the strong interaction between quarks, mediated by gluons. Understanding strong interactions in hot and/or dense matter is one of the most challenging, yet fascinating, problems in modern physics. Under these conditions, a new state of matter called quark-gluon plasma (QGP) can be formed. QGP could potentially restore several symmetries, such as chiral symmetry, which are broken in the vacuum. The relativistic heavy-ion collisions (RHICs) experiments conducted at the Relativistic Heavy-Ion Collider (RHIC) at Brookhaven National Laboratory and the Large Hadron Collider (LHC) at CERN provide the facilities to create and study this new matter. One of the most important and surprising findings about QGP is that it is strongly interacting, as evidenced by its exceptionally small shear viscosity to entropy density ratio. I would like to discuss recent progress in the field of RHICs, including studies of its phase diagram, CP violation, spin phenomena, etc.

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