

STAR recent results on heavy-ion collisions.

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Exploration of the hot and dense nuclear matter produced in collisions of heavy ions is one of the main goals of modern relativistic nuclear physics. The Relativistic Heavy Ion Collider (RHIC) provides a unique opportunity to map the QCD phase diagram colliding different nuclei species and varying the energy of collisions. RHIC has already begun the second phase of the Beam Energy Scan (BES) program, which will allow us to cover energy range for gold-gold collisions $\sqrt{s_{NN}} = 7.7 - 27$ GeV. The Fixed-target Program (FXT) will extend collision energy range available for the analysis down to $\sqrt{s_{NN}} = 3.0$ GeV. BES-II along with FXT will dramatically enhance our understanding of the QCD phase diagram in the broad range of baryon chemical potential, μ_B , up to 720 MeV.

Recent detector upgrades increase STAR's acceptance both in rapidity and low transverse momentum, and extend its particle identification capabilities. With new detectors STAR can explore phase diagram with even higher precision hopefully reaching both the onset of deconfinement as well as the onset of fireball.

In this talk, we will present the most recent results and future plans from the STAR experiment.