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Nuclear collisions at the Relativistic Heavy Ion Collider - exploring the phase diagram of QCD

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By colliding nuclei at extreme energies, the relativistic heavy ion collider (RHIC) hopes to briefly recreate in the laboratory a deconfined plasma of quarks and gluons, similar to the conditions in the early universe shortly after the Big Bang. Careful scrutiny of the data collected from the first four years of running show that a dense state of matter inconsistent with ordinary color neutral hadrons is formed in central Au+Au collisions. I will review some of the major pieces of evidence from the four RHIC experiments which support this conclusion and discuss some of the open questions remaining to be answered with current and future runs.