Recreating the Primordial Quark-Gluon Soup

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Ultra-relativistic collisions of heavy ions at the Relativistic Heavy Ion Collider (RHIC) and at the Large Hadron Collider (LHC) create an extremely hot system at temperatures (T) expected only within the first microseconds after the Big Bang. At these temperatures ($T \sim 2 \times 10^{12}$ K), several hundred thousand times hotter than the sun's core, normal hadrons cannot exist and nuclear matter "melts" to form a "soup" of quarks and gluons. At RHIC the soup flows easily, with extremely low viscosity, suggesting a hot nearly-perfect liquid of quarks and gluons. Furthermore, the liquid is opaque to very energetic quark and gluon probes, providing evidence that it is dense and highly interacting. I will present a motivation for physics in the field, an overview of the RHIC results and highlights of initial results from heavy ions at the LHC. I will also discuss and present theoretical interpretations of all results.