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Probing the Quark Gluon Plasma

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High energy collisions of heavy nuclei permit the study of nuclear matter at temperatures and energy densities so high the fundamental theory for strong interactions, QCD, predicts a phase transition to a plasma of quarks and gluons. This matter, called a Quark Gluon Plasma (QGP), has been studied experimentally for the last decade and has been observed to be a strongly interacting liquid with a low viscosity. High energy partons (quarks and gluons) created early in the collision interact with the QGP and provide unique probes of its properties. Studies of these partons through full jet reconstruction and through the studies of high-momentum particles have demonstrated that the QGP is a strongly interacting, dense medium.