

Abstract Submitted
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From Hard Scattering to Classical Color Fields to Quark Gluon Plasma JOSEPH KAPUSTA, University of Minnesota, RAINER FRIES, YANG LI — We present a new approach to determine the energy-momentum tensor density between two colliding nuclei at very high energies shortly after the collision. Perturbative QCD is used to calculate the first hard scattering between partons in the colliding nuclei. The resulting fluctuation in the local color charge is used as a source for solving the classical equations of motion for the gluon field. This classical field decays into quark gluon plasma. Coherence arguments and energy-momentum conservation, including the decelerating nuclei, lead to constraints on the local energy density and pressure of the plasma phase. Our results can serve as initial conditions for a subsequent hydrodynamic evolution of the system.

Joseph Kapusta
University of Minnesota

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