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The deconfinement phase transition in simulations of relativistic nuclear collisions

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We present fluid dynamical simulations of relativistic nuclear collisions,
augmented with a finite-range term, to study the effects of the phase structure
on the evolution of the baryon density.
For collision energies that bring the bulk of the system
into the mechanically unstable spinodal region of the phase diagram,
the density irregularities are being amplified significantly.
The resulting density clumping may be exploited as a signal
of the phase transition.
We also present a quantitative discussion on some specific observables (nuclear cluster creation and two particle angular correlations), which might be sensitive to the expected clustering of the net baryon density.
Our results are a first step towards identifying unambigous experimental signals for a first order
transition in dense nuclear matter.

On behalf of collaboration:

None

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