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Thermodynamics of partonic matter in relativistic heavy-ion collisions from a multiphase transport model

Using the string melting version of a multiphase transport (AMPT) model, we focus on the evolution of thermodynamic properties of the central cell of parton matter produced in Au+Au collisions ranging from 200 GeV down to 2.7 GeV. The temperature and baryon chemical potential are calculated for Au+Au collisions at different energies to locate their evolution trajectories in the QCD phase diagram. The evolution of pressure anisotropy indicates that only partial thermalization can be achieved, especially at lower energies. Through event-by-event temperature fluctuations, we present the specific heat of the partonic matter as a function of temperature and baryon chemical potential that is related to the partonic matter's approach to equilibrium.

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