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Investigation of the beam energy dependence of particle production in gold collisions at MPD energy region.

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We present the analysis of the identified charged particles (π±, K±, p, p-bar) formation at mid-rapidity (|η|< 0.5) in collisions of Au-Au ions with energies √SNN = 4, 7, 9, 11 GeV. Particle momentum spectra for charged hadrons (kaons, pions, protons) are measured using data from statistical Monte-Carlo generator of Ultrarelativistic Quantum Molecular Dynamics (UrQMD) for a Multi-Purpose Detector (MPD) made with the Geant 3 model. Particle identification efficiency and various track level cuts for lowering uncertainties are discussed. We analyze particle multiplicity dependence on the collision energy. Centrality dependence of the spectra was calculated for all particle species. In the end, we analyze the particle ratios dependence on the collision energy. Our goal is to study possible signatures of the phase transition between the hadron state of matter and the quark-gluon plasma (QGP) state.

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