

Net Charge Fluctuation and String Fragmentation

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Abstract: We present the simulation results of the net charge fluctuation in Au+Au collisions at $\sqrt{s_{nn}}=130$ GeV from a dynamic model, JPCIAE, and its revisions. The simulations are done for the quark-gluon matter, the directly produced pions, the pion matter, and the hadron matter. The simulated net charge fluctuation of the quark-gluon matter is close to the thermal model prediction for the quark-gluon gas. However, the discrepancy exists comparing the simulated net charge fluctuation for directly produced pions and the pion matter with the thermal model prediction for pion gas and the resonance pion gas, respectively. The net charge fluctuation of hadron matter from default JPCIAE simulations is nearly 3.5 times larger than quark-gluon matter. A discussion is given for the net charge fluctuation as an evidence of QGP phase transition.

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