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Cumulants of Net-Proton Multiplicity Distributions in Cu+Cu Collisions at $\sqrt{s_{NN}}$ = 22.4, 62.4 and 200 GeV from STAR

Tuesday 15 May 2018 19:10 (30 minutes)

Fluctuations of conserved charges (B, Q, S) are sensitive observables to explore the QCD phase structures in high-energy nuclear collisions. The STAR experiment has reported the energy dependence of the cumulants of net-proton, net-charge and net-kaon distributions in Au+Au collisions at RHIC. Non-monotonic energy dependence has been observed in the net-proton fluctuations in the most central (0-5%) Au+Au collisions for the energies in the RHIC beam energy scan.

In this poster, we will report the collision energy and centrality dependence of net-proton higher moments for Cu+Cu collisions at $\sqrt{s_{NN}}$ = 22.4, 62.4 and 200 GeV in STAR. In a smaller colliding system, the final freeze-out of the hot QCD matter is closer to the phase boundary so more genuine information on the phase structure, including QCD critical point, is retained compare to much larger systems. We will compare the results from Cu+Cu collision to that of Au+Au collisions as a function of both initial system size (N_{part}) and the final size (N_{mult}) at these collision energies.

Content type

Experiment

Collaboration

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