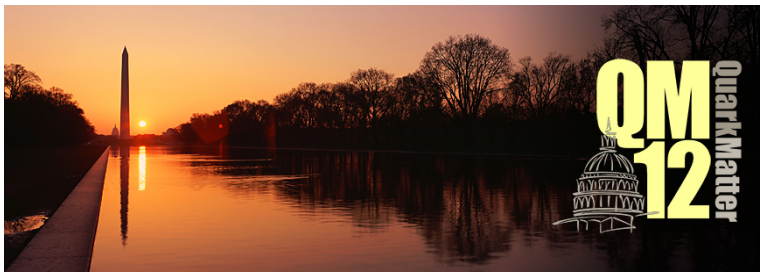

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Higher moments of Net Kaon multiplicity distributions at RHIC energies for the search of QCD Critical Point

Thursday 16 August 2012 16:00 (2 hours)

The Relativistic Heavy-Ion Collider (RHIC) , at BNL, has started its beam energy scan program by colliding high energy heavy-ions corresponding to baryonic chemical potentials within the range of 20 - 550 MeV. One of the main goals of this beam energy scan program is to locate the critical point which is postulated to lie at the end of the phase transition boundary between partonic and hadronic matter. Calculations on the lattice predict that the higher moments (such as standard deviation (σ), skewness (S) and kurtosis (k)) of the multiplicity distribution of the conserved quantities like the net-charge, net-baryon, net-strangeness are related to the corresponding susceptibi-lities and the correlation length of the system, presence of a Critical Point might result in divergences of the thermodynamic susceptibilities and correlation lengths.

Here we report the measurements of the various moments (standard deviation (σ), skewness (S) and kurtosis (k)) and their products (kσ2, Sσ) of the net kaon multiplicity measured by the STAR detector at mid-rapidity for Au+Au collisions at 7.7-200 GeV center of mass energies. The energy and centrality dependence of higher moments and their products (such as Sσ and Kσ2) will be presented. Theoretical calculation, containing the non-CP physics from the HIJING models will be compared to the data.

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