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Probing the QCD Critical Point by Higher Moments of Net--Charge Distribution

Content :

To locate the phase boundary and exciting possibilities for the evidence of QCD Critical Point (CP), the Beam Energy Scan (BES) program has been started at Relativistic Heavy-Ion Collider at BNL, scanning a large range in baryonic chemical potential (μB). The presence of a CP is expected to lead to a non-monotonic dependence of higher moments as a function of beam energy [1]. In this presentation, we report on STAR results of higher moments of net-charge distribution and their products for Au+Au collisions at sqrt(SNN) = 39 GeV/c for $|\eta| < 0.5$ region. Results from various event generators such as HIJING, UrQMD and AMPT have been compared with the STAR data. To understand the detector effects, calculations have been done with results from HIJING+GEANT. The centrality dependence of the higher moments and their products will be presented.

References:

[1] M.A. Stephanov, Phys. Rev. Lett. 102, 032301 (2009);

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