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Constructing probability density function of net-proton multiplicity distributions using Pearson curve method

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One of the main goals of Beam Energy Scan program of Relativistic Heavy-ion collision experiment is to map the QCD phase diagram. Measurement of higher order cumulants of net-proton and net-charge distributions are regarded as one of the potential tools to locate the QCD critical point in the phase diagram. Knowing the probability distributions of net-proton are useful for quark-meson (QM) model within the functional renormalization group approach to study the $O(4)$ criticality. However, there are a lot of challenges to eliminate the detector effect from the experimentally measured distributions. In this poster, we will discuss the Pearson curve method to construct the efficiency corrected probability distribution of net-proton from the experimental results of STAR experiment. Furthermore, the beam energy dependence of sixth and eighth order cumulants estimated from the constructed distributions will be discussed. The predicted cumulants ratio results will be compared with various statistical models.

Content type

Theory

Collaboration

Centralised submission by Collaboration

Presenter name already specified

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