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Universal cumulants from fluctuating width of rapidity distributions

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In relativistic heavy-ion collisions, the longitudinal fluctuations of the fireball density caused, e.g., by baryon stopping fluctuations result in event-by-event modifications of the proton rapidity density distribution. I will present the multiparticle rapidity correlation functions due to the varying distribution width of the proton rapidity density in central Au+Au collisions at low energies. Then, I will discuss the cumulant ratios in the context of the recent STAR Collaboration results. It is found that the cumulant ratios for small width fluctuations are universal and are of the same order as those measured by the STAR Collaboration. This effect might be important in the search for the predicted QCD critical point.

Category

Theory

Collaboration (if applicable)

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