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Title: Higher Moments of Multiplicity Distribution in Heavy Ion Collision

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Keywords: Physics  
Quantum Chromo Dynamics  
Quark Gluon Plasma

Issue Date: 12-Jul-2017

Publisher: IISER-M

Abstract: According to Big-Bang theory, at the earliest of its expansion, universe existed as QGP. As it cools down, the deconfined-confined phase transition occurred and hadrons were formed. Study about these kind of a stage can lead us to understand the early stages of universe formation. The transformation of matter at higher enough energies, from nucleons to constituent quarks and gluons had been very interesting and equally very challenging. Even though the energy scale is quite challenging, in heavy ion collisions we were trying to create a similar system and studying various properties. Since the multiplicity of produced particles is an important quantity to characterize the evolving system and its event to event fluctuation may provide a distinct signal of the phase transition from hadron gas to QGP. Higher moments of a distribution can give important information about the asymmetry of the system. Considering the distributions of conserved quantities in this system, higher moment analysis provide a scope to understand some existing problems. In this work we are looking at the higher moments of such multiplicity distributions.

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