

Higher moments of e-by-e proton-multiplicity fluctuations in Au+Au collisions at 1.23A GeV

Wednesday, February 8, 2017 5:10 PM (20 minutes)

The strong rise towards lower collision energies of the fourth moment of the e-by-e net-baryon multiplicity distribution observed by the STAR collaboration has recently triggered high attention. In view of theoretical studies of critical phenomena in the QCD matter phase diagram, this could signal the existence of a critical point. To provide further experimental insight, an extension of the respective excitation function to even lower collision energies is of high importance. We have investigated higher moments of e-by-e proton distributions using data from our high-statistics measurement of Au+Au collisions. Systematic effects have been studied making use of our GEANT-based detector response simulation which includes sophisticated digitizers for all detector systems in use. The data is corrected for detector effects like finite acceptance and multiplicity-dependent reconstruction efficiency using different approaches proposed by Koch and co-workers (arXiv-1206-4286, arXiv-1603-09057, arXiv-1607-07375).

Preferred Track

Baryon-Rich QCD Matter and Astrophysics

Collaboration

Other

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Session Classification: Parallel Session 8.1: Baryon-Rich QCD Matter and Astrophysics (III)

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