

Intermittency analysis as a measure of multiplicity fluctuations in Pb-Pb collisions at LHC Energies

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Fluctuations in multiplicity of charged hadrons produced in relativistic nuclear collisions are regarded as one of the vital signal of quark-gluon plasma formation and also have a long history back with early cosmic ray observations. The controversial issue of QCD critical point existence may be expected to be solved in current LHC experiments. The presence of local multiplicity fluctuations are considered to shed light on this phenomenon.

Recent theoretical investigation also propose the presence of critical fluctuations exhibited by chiral condensation in the vicinity of the critical point. These fluctuations are thought to be present in pseudorapidity and transverse momentum distribution of the produced hadrons. In the present study, an attempt has been made to carry out intermittency analysis for the AMPT simulated Pb-Pb collisions at $\sqrt{s_{NN}} = 2.76$ and 5.02 TeV by calculating scaled factorial moment (SFM) in pseudorapidity and transverse momentum space. We observe evidence for a power law dependence of SFM. Similar Study for the ALICE experimental data is also under progress. Further, results obtained by applying the proposed method of improved intermittency analysis will also be presented.

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