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Measurement of Intermittency for Charged Particles in Au + Au Collisions at $\sqrt{s_{NN}} = 7.7-200$ GeV from STAR

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One of the main goals of RHIC beam energy scan (BES) program is to search for the signatures of the QCD critical point in heavy-ion collisions. Local density fluctuations near the QCD critical point exhibit strong intermittency which is revealed as the scale (power-law) dependence of scaled factorial moments on phase-space resolution. The scaling exponent is related to the critical component and can be extracted from the intermittency analysis of scaled factorial moments. The energy dependence of the scaling exponent could be used to search for the signature of the QCD critical point. Similar measurements have been carried out by the NA49 and the NA61 experiments in heavy-ion collisions with different system sizes.

In this talk, we will report the first measurement of intermittency for charged particles in Au + Au collisions from the STAR experiment in the first phase of RHIC BES. Scaled factorial moments (up to the sixth order) for charged particles at $\sqrt{s_{NN}} = 7.7-200$ GeV will be presented. Moreover, we will show the energy and centrality dependence of the scaling exponent. The physics implications of these results will be discussed.

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