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Non-Gaussian fluctuations and the search for the QCD critical point MIKHAIL STEPHANOV, University of Illinois at Chicago — We study the effect of the QCD critical point on non-Gaussianity of the fluctuations of experimental observables in heavy-ion collisions. We find that non-Gaussian moments are very sensitive to the proximity of the critical point, as measured by the magnitude of the correlation length ξ . For example, the cubic central moment of multiplicity grows as $\xi^{4.5}$ and the quartic cumulant – as ξ^7 . We estimate the magnitude of the critical point effects and conclude that non-monotonic variation of non-Gaussian moments with the collision energy can serve as a very sensitive signature of the QCD critical point.

> Mikhail Stephanov U. of Illinois at Chicago

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