

Collision energy dependent Levy analysis of Bose-Einstein correlation functions in Au+Au collisions at PHENIX

The RHIC beam energy scan program allows us to investigate the phase-diagram of QCD matter. The nature of the quark-hadron transition can be studied through analyzing the space-time structure of the hadron emission source. One of the best tools to gain information about the source is the measurement of Bose-Einstein or HBT correlations of identical bosons. In our latest measurements, we utilize Levy-type sources to describe the measured correlation functions. One of the source parameters, the index of stability α is related to one of the critical exponents (the so-called correlation exponent η), so it may yield information on the nature of the quark-hadron phase transition, particularly it may shed light on the location of the critical endpoint on the phase-diagram. In this poster we report the current status of the analysis of the Levy source parameters (the intercept parameter λ , the index of stability α , and the scale parameter R) as a function of transverse momentum and beam energy in Au+Au collisions at $\sqrt{s_{NN}} = 15, 19, 27, 39, 62$ and 200 GeV.

Preferred Track

Correlations and Fluctuations

Collaboration

PHENIX

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