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PHENIX results on Bose-Einstein correlation functions using a Lévy analysis in Au+Au collisions at RHIC

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The RHIC beam energy scan program allows for the investigation of the phase diagram of QCD matter by varying the beam energy in the region where the change from crossover to first order phase transition is expected to occur. The nature of the quark-hadron transition can be studied through analyzing the space-time structure of the hadron emission source. An excellent tool to gain information about the source is the measurement of Bose-Einstein or HBT correlations of identical bosons. In recent measurements, we utilized Lévy-type sources to describe the measured two-particle correlation functions. In this presentation we report on the detailed measurements of the Lévy source parameters as a function of transverse mass.

We discuss the collision energy and centrality dependence of the Lévy-exponent, which is related to the spatial correlation exponent. We also discuss the Lévy-scale, as well as that of the correlation strength and its relation to the η' mass.

Content type

Experiment

Collaboration

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Centralised submission by Collaboration

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