

# Quark Matter 2019 - the XXVIIIth International Conference on Ultra-relativistic Nucleus-Nucleus Collisions



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## Non-Gaussian sources and the shape of the correlation function

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Correlation femtoscopy is a standard technique for the experimental analysis of ultrarelativistic nuclear collisions. The measured two-particle correlation function is clearly non-Gaussian, and so it is often better reproduced by Levy stable distribution than a Gaussian one. It has been suggested that a particular shape of a Levy-stable distribution may help to identify the QCD critical endpoint. In order to set up a baseline for this statement, we show that there are non-critical effects that may influence its shape as well. By making use of two independent models (hydrodynamical simulation and a blast wave parametrisation) we estimate how much the individual effects modify the shape. We show that the Levy index may deviate considerably from 2 due to effects such as non-spherical shape, resonance decays, event-by-event fluctuations and functional dependence on  $q_{inv}$  and/or  $q_{cm.s}$ .

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