Beam-energy dependent pion interferometry with Lévy-stable sources at STAR (CPOD 2024 abstract)

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Two-particle interferometry techniques offer insights into the space-time characteristics of the particle-emitting source created in heavy-ion collisions. Recent experimental and phenomenological investigations indicate, that the pion pair-source exhibits power-law features, and Lévy-stable distributions can provide an adequate description of the measurements. In this study, the Lévy source parameters were extracted from one-dimensional two-pion correlation functions in Au+Au collisions recorded by STAR during the second phase of the RHIC Beam Energy Scan. The three main parameters investigated are the correlation strength λ , the Lévy exponent α (which describes the power-law behavior of the source) and the Lévy scale R. We report the current status of the analysis and present the dependence of the source parameters on average transverse mass, centrality, and center-of-mass collision energy.