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Investigating the pion source function in heavy-ion collisions with the EPOS model

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By measuring the momentum correlations of pions created in heavy-ion collisions we can gain information about the space-time geometry of the particle emitting source. Recent experimental results from multiple different collaborations demonstrated that to properly describe the shape of the measured correlation functions, one needs to go beyond the Gaussian approximation. Some studies suggest that the Levy distribution could provide a good description of the source. While there are already many experimental results, there is very little input from the phenomenology side in explanation of the observed non-Gaussian source shapes. The EPOS model is a sophisticated hybrid model where the evolution of the newly-created system is governed by Parton-Based Gribov-Regge theory. It has already proved to be successful in describing many different experimental observations for the systems characterized by baryon chemical potential close to zero, but so far the source shape has not been explored in detail. In my talk I will discuss studies of the pion emitting source based on the theoretical approach of the EPOS model.

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