Azimuthally-sensitive pion femtoscopy in Au+Au collisions at $\sqrt{s_{NN}}$=200 GeV in the STAR experiment

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One of the problems of modern high-energy physics is the study of the shape and orientation of the particle emission source formed in nucleus-nucleus collisions. To solve problems of this kind, a method is needed that makes it possible to investigate spatial and temporal extension of the particle emission source. Due to the existence of quantum-statistical correlations between identical particles, such a method exists and called correlation femtoscopy [1]. It is based on the measurements of momentum correlations between identical particles. The study of the dependence of spatial geometry on transverse momentum of particle pairs provides information on dynamics of the system [2]. In turn, femtoscopic analysis performed with respect to the reaction plane makes it possible to extract information about the shape and orientation of the source [3].

This work is devoted to studying the orientation of the particle emission source formed in collisions of gold nuclei in the STAR experiment at the RHIC at $\sqrt{s_{NN}} = 200$ GeV.

References:

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