

Estimation of pion emission source characteristics in Au+Au collisions at $\sqrt{s_{NN}} = 3$ GeV in the STAR experiment

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The method of correlation femtoscopy makes it possible to estimate the spatial and temporal characteristics of particle emission source formed during heavy-ion collisions. The low energy results help to investigate the structure of the particle emission region where deconfinement is not expected [1].

The present work is devoted to studying the momentum correlations of identical pions produced in Au+Au collisions at $\sqrt{s_{NN}} = 3$ GeV using the data from the STAR experiment. The extracted parameters of the emission region (radius, R , and correlation strength, λ) will be presented as a function of the transverse momentum of particle pairs, k_T , and centrality of the collision. The experimental results will be compared with the theoretical calculations obtained using the UrQMD (Ultrarelativistic Quantum Molecular Dynamics) model [2, 3].

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[2] S. Bass et al., Prog. Part. Nucl. Phys. 41, 225 (1998).

[3] M. Bleicher et al., J. Phys. G: Nucl. Part. Phys. 25, 1859 (1999).