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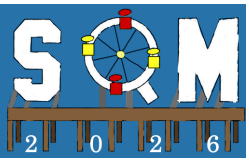

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Third-body-corrected Two-Pion Femtoscopic Correlations in Au+Au Collisions at high baryon density

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Measurements of identical pion femtoscopy offer insights into collision dynamics, such as collective expansion, geometry of the collision zone at freeze-out, final state interactions, etc. In addition to the quantum interference and Coulomb interactions among the pion pairs, Coulomb interactions between the pair and the net positive charge in the emitting source affect the final correlation measurements as well. Furthermore, due to the imbalance of protons and neutrons inside the colliding nuclei, initial isospin, which could play an important role in determining the Equation of State (EoS) of the produced medium, also can affect the correlation functions at high baryon density.

In this talk, we present the results of the identical charged pion correlations from $\sqrt{s_{\rm NN}}$ = 3.0, 3.2, 3.5, 3.9, 4.5, 7.7 GeV Au+Au collisions collected by the STAR experiment. A new procedure has been developed to remove the residual effect from the 3rd-body Coulomb force. The correlation strength (λ) and HBT radii ($R_{\rm out}, R_{\rm side}, R_{\rm long}, R^2_{\rm out-long}$) extracted from the positive and negative charged pion correlation functions, before and after removing the 3rd-body Coulomb effect, will be presented as a function of collision energy, centrality, pair transverse momentum($k_{\rm T}$) and pair rapidity ($y^{\pi\pi}_{\rm c.m.}$). Transport model UrQMD calculations with realistic experimental cuts will be used to aid the discussions.

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