

1 **Measurements of two-pion femtoscopy in Au+Au Collisions**
2 **at $\sqrt{s_{\text{NN}}} = 3.0, 3.2, 3.5, \text{ and } 3.9 \text{ GeV}$ from RHIC-STAR**

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7 for the STAR Collaboration.

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9 Femtosopic measurements are sensitive to the spatial and temporal charac-
10 teristics of the particle emitting-source, allowing us to probe the properties of
11 the matter created in heavy-ion collisions. If QCD transition takes place, the
12 time scale for pion emission is expected to increase significantly. Therefore, it
13 will help us understand the properties of the QGP and the nature of the QCD
14 phase transition.

15 In this poster, we report the results on two-pion femtoscopy measurements
16 in Au+Au collisions at $\sqrt{s_{\text{NN}}} = 3.0, 3.2, 3.5, \text{ and } 3.9 \text{ GeV}$ measured by the
17 STAR experiment. The extracted correlation strength (λ) and HBT radii
18 ($R_{\text{out}}, R_{\text{side}}, R_{\text{long}}$) from the 3D correlation functions will be presented as a
19 function of collision energy, centrality, rapidity, and pair transverse mass. We
20 will compare the measurements with the results from transport model calcu-
21 lations. Finally, the implications on the properties of QCD matter at high
22 baryon density will be discussed.