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Femtoscopy with unlike-sign kaons at STAR in 200 GeV Au+Au collisions

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Experiments with high-energy heavy-ion collisions study properties of nuclear matter and its transition from hadrons to a state of deconfined quarks and gluons, the Quark-Gluon Plasma (QGP).

Femtoscopic measurements of two-particle correlations at small relative momenta reveal the space-time characteristics of the system at the moment of particle emission.

It has been predicted that correlations due to the strong final-state interactions (FSI) in a system with a narrow near-threshold resonance will be sensitive to the source size in the region of the resonance. Such a measurement can provide complementary information to the measurements at very low relative momenta. Since phi-meson ($\phi(1020)$) is a narrow resonance, it is ideal for the femtoscopic analysis of unlike-sign kaon pairs.

In this talk, we will present a status report of a STAR analysis of unlike-sign kaon femtoscopic correlations in Au+Au collisions at $\sqrt{s_{NN}} = 200$ GeV. The experimental results will be compared to theoretical predictions that include the treatment of resonance formation due to final-state interactions.

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