

# Kaon femtoscopy in Au+Au collisions at $\sqrt{s_{NN}} = 200$ GeV at the STAR experiment

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In contrast to the traditional femtosopic analysis of identical pions, measurements with kaons can serve as a cleaner probe as they are less affected by resonance decays. Kaons contain strange quarks and have smaller cross section with hadronic matter than pions, so they may be sensitive to different effects and/or earlier collision stages.

Moreover, non-identical kaon femtoscopy can provide complementary information to the measurements at very low relative momenta. It has been predicted that correlations due to the strong final-state interaction in a system with a narrow resonance will be sensitive to the source size in the resonance region. The unlike-sign kaon pairs are particularly suitable for such measurements because of the narrow  $\phi(1020)$  resonance.

In this talk, I will present the STAR preliminary results on femtosopic measurement of kaon correlations from the high-statistics dataset of Au+Au collisions at  $\sqrt{s_{NN}} = 200$  GeV. The kaon source is measured as a function of the centrality and the transverse pair mass  $m_T$ . The high-statistics measurement enables the extraction of freeze-out parameters using Blast-Wave parameterization.

The sensitivity of the unlike-sign kaon correlation function in the resonance region is systematically studied as a function of the centrality and transverse pair momenta  $k_T$ . Experimental results are compared with Lednický's model including the final-state interaction as well as the resonance within the femtosopic framework.

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Femtoscopy at RHIC and LHC: links to QGP physics

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