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Studies of strong interactions with femtoscopy in Au+Au collisions at RHIC/STAR

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Two particle correlation analysis is often used to study the spatial and temporal extents of particle emitting source in high-energy nuclear collisions. By studying the quantum statistical effects (QS) and final state interactions (FSI) between two particles, one can extract emission source parameters used to describe the geometrical and dynamical properties of the homogeneity region. Traditional two-meson correlations can be sensitive to the early stage of the collision evolution and provide different information about particle-emitting sources. From hyperon-nucleon correlations, one can extract interactions between them. It is particularly interesting to study the dependence on the collision energy because freeze-out condition depends on the energy.

In this poster, femtoscopic results of the system of different particle species including kaons, protons, Λ , and Ξ in Au+Au collisions from STAR will be presented. The new results will be compared with model calculations.

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