

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

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Abstract

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

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