

Measurement of K_S^0 - K_S^0 correlation function in Au+Au collisions at the high baryon density region

Two-particle correlation analyses are often used to study the spatial and temporal extension of particle-emitting source in high-energy nuclear collisions. Precise information on the final state interactions amongst the particles under study can also be extracted from the measurement. It is particularly interesting to study the energy dependence of the extracted source size at the moment of freeze-out. Two-kaon correlations are an important supplement to those of pions, as they are less affected by resonance decays and they have smaller hadronic cross-sections.

And neutral kaon can help one to understand the property of final state interaction.

In this talk, the measurements of K_S^0 - K_S^0 correlations in Au+Au collisions with the fixed-target mode at $\sqrt{s_{NN}} = 3.0, 3.2, 3.5, 3.9$ and 4.5 GeV, by the STAR experiment will be presented. This is the first measurements of K_S^0 - K_S^0 femtoscopic correlations at the high baryon density region. Energy dependences of particle-emitting source parameters and Kaon abundance asymmetry are extracted, and will be compared with transport model calculations.

Primary author: 张, 李昂 (华中师范大学)

Presenter: 张, 李昂 (华中师范大学)

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