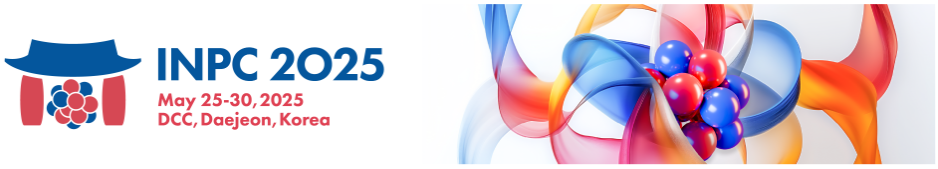

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Femtoscopy of Strange Baryons in Heavy-ion Collisions at RHIC-STAR

Monday, 26 May 2025 17:10 (15 minutes)

Femtoscopy is a powerful technique to study the information about the space-time evolution of the emitting source and final state interactions in heavy-ion collisions. Femtoscopy analysis of strange baryons, which contain strange quarks, offer an important role of studying the hyperon-nucleon (Y-N) and hyperon-hyperon (Y-Y) interactions. In addition, it can also be used to search for the bound state of strange dibaryons, which have long been a subject of interest in understanding the strong interaction beyond conventional hadrons.

In this talk, we will present the femtoscopy analysis of strange baryons, including Λ-Λ, p-Ξ^-, p-Ω^- pairs in Isobar collisions (Ru+Ru, Zr+Zr) at $\sqrt{s_{\rm NN}}$ = 200 GeV and p-Λ in Au+Au collisions at $\sqrt{s_{\rm NN}}$ = 3 GeV. The correlation functions are analyzed within the Lednicky-Lyuboshitz formalism. The extracted scattering length and effective range will be compared with recent Lattice QCD and effective theory model calculations. The physics implications for the formation of strange dibaryon bound state will also be discussed.

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