Poster Abstract

Measurements of proton-Λ and proton-Ξ^- correlation functions in Au+Au collisions at $\sqrt{s_{\rm NN}} = 19.6$ GeV from RHIC-STAR

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The study of baryon-baryon interactions is important to understand the existence of strangelets and various exotic hadrons, and for modeling astronomical objects such as neutron stars. However, the lack of scattering data for hyperon-nucleon (YN) systems makes it difficult to construct YN potentials. In heavy-ion collisions, measurements of two-particle correlations allow us to study the final state interactions between nucleon and multi-strange baryon such as Λ and Ξ^-.

In this poster, the first measurements of proton-Λ and proton-Ξ^- correlation functions in Au+Au collisions at $\sqrt{s_{\rm NN}} = 19.6$ GeV recorded at RHIC BES Phase-II by the STAR experiment will be presented. The experimental results will be fitted by model to extract source size (r_0), scarttering length (f_0), and effective range (d_0). The measurements will be compared with the results at higher collision energies.