Study of Hyperon Interaction from Heavy-Ion Collisions using STAR detector at RHIC

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Hyperon interactions are of fundamental interest in nuclear physics and nuclear astrophysics. For example, the hyperon-nucleon and hyperon-hyperon (YY) interaction plays an important role in attempts to understand the structure of neutron stars. The YY interaction is also closely related to the possible existence of many exotic states that have been the subject of a large number of experimental searches in recent decades. Most of the informationon the YY interaction comes from experiments looking at the binding energies of hypernuclei or invariant mass distributions in strangeness exchange reactions. A direct YY scattering experiment is not feasible in a laboratory. An alternative possibility to access the information on YY interactions has been explored in relativistic heavy-ion collisions, where the hyperon-hyperon correlation function is used to study interaction potential between the hyperons in final-state interactions at the last stage of the evolution. We will discuss the recent studies on YY interactions from the STAR experiment, focusing on the first high statistics measurement of the $\Lambda\Lambda$ correlation function and the future of this program.