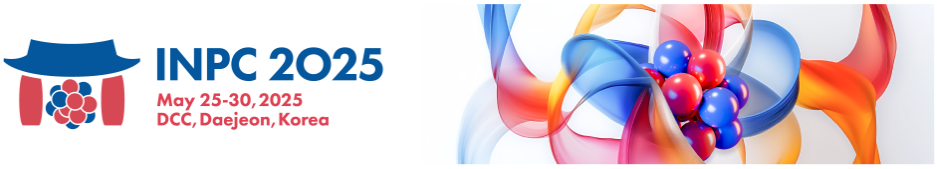

Contribution ID: **319** Type: **Plenary Talk (Invitation Only)**

Study the QCD Phase Structure in High-Energy Nuclear Collisions

Tuesday, 27 May 2025 16:30 (30 minutes)

The physics of strong interaction is described by the theory of Quantum Chromodynamics (QCD) which is part of the Standard Model. Since 2010, the STAR experiment at the Relativistic Heavy Ion Collider (RHIC) has carried out beam energy scan (BES) program from the center of mass energy from 3 to 200 GeV corresponding to the baryon chemical potential 760 > μB > 25 MeV. The BES program has provided the most precise data of heavy-ion collisions over the widest range of beam energy for studying the QCD phase structure.

In this talk, I will report recent progresses in the RHIC BES program: the status of thermalization and the search for the QCD critical point including the measurements of collectivity, high moments of net-protons, hyper-nuclei production and baryon correlations in high-energy nuclear collisions. Finally, physics potentials with future facilities will be addressed.

Primary author: Prof. XU, Nu (CCNU)

Presenter: Prof. XU, Nu (CCNU)

Session Classification: Plenary Session

Track Classification: Hot and Dense Nuclear Matter