

The 241th HENPIC seminar by Maowu Nie, Shandong University, 10:30am, January 22, 2026 (Beijing time)

Title:

Jet Quenching in Varying System Sizes at RHIC: Experimental Search for the Critical Scale

Abstract:

Jet quenching, a hallmark signature of quark-gluon plasma (QGP) formation, has been well-established in large systems (e.g., Au+Au, Pb+Pb collisions) but remains elusive in small systems (e.g., p+Au, p+Pb). This contrast makes the search for the critical system size for its onset a critical question in the field. The system sizes of isobar and oxygen-oxygen collisions bridge the gap between large and small systems, offering a golden opportunity to directly probe this critical turning point. In this talk, I will present the latest experimental results on nuclear modification factors for single hadrons and semi-inclusive yield of charged jets in these collision systems. These new results provide novel and significant constraints on the system-size dependence of jet quenching phenomena, and new insight into the limits of QGP formation in small collision systems.

Brief introduction about the speaker:

Maowu Nie is an Associate Professor at Shandong University (SDU), specializing in high-energy nuclear physics. He earned his B.Sc. from Hunan University and his Ph.D. from Shanghai Institute of Applied Physics (SINAP), Chinese Academy of Sciences. After completing a postdoctoral fellowship at SDU, he joined as a faculty of SDU in 2020. He is currently an active member of the STAR collaboration at the Relativistic Heavy Ion Collider (RHIC). At STAR, he pioneered the use of longitudinal decorrelation of collective flow observables to probe three-dimensional initial-state fluctuations and dynamical evolution in heavy-ion collisions. His current research focuses on exploiting medium-sized collision systems at STAR to search for evidence of jet quenching and its system-size dependence.

Summary