

The 231st HENPIC seminar by Prof. Weijie Fu (付伟杰), DUT (大连理工), July 24, 2025, Monday, 10:30am (Beijing time)

Title:

QCD phase diagram at high baryon densities

Abstract:

In recent years, there has been significant progress in the study of the QCD phase diagram, driven by both theoretical and experimental advances, in particular those in high-density experiments, e.g., the STAR BES II and fixed-target experiments, the upcoming CBM and CEE, etc. Understanding the experimental data and their relation to, e.g., the possible QCD critical end point (CEP) in the QCD phase diagram, are highly required. In this talk, I try to do it based on the studies of QCD phase transitions within the functional renormalization group (fRG). Furthermore, I also would like to discuss recent progress in fRG studies of QCD phase transitions at finite temperature and densities, including the recent estimate of the location of CEP, baryon number fluctuations, temperature fluctuations, spin fluctuations and correlations, the real-time dynamics of phase transitions.

Brief introduction about the speaker:

Wei-jie Fu is a faculty member of physics at Dalian University of Technology in China. He obtained Ph.D. in 2009 from Peking University. He held postdoctoral positions at Institute of Theoretical Physics, Chinese Academy of Sciences, Brandon

University in Canada, and Institute for Theoretical Physics, University Heidelberg in Germany, before joining the Physics School of Dalian University of Technology as a faculty in 2016. His recent research interest focuses on the functional renormalization group approach and its application in the studies of QCD phase structure, QCD critical end point, heavy ion collisions, etc.

Summary

Presenter: Prof. FU, Weijie (DUT)