

The 168th HENPIC seminar by Prof. Xiaozhi Bai, USTC, July 7th, Thursday, 10:30am (Beijing time)

Talk title: Recent quarkonium measurements with ALICE

Abstract:

Quarkonium production is one of the essential probes to the properties of the quark-gluon plasma (QGP) formed in relativistic heavy-ion collisions. The suppression of J/ψ due to color screening in the medium was initially proposed as a direct evidence of QGP formation. The final observed J/ψ are influenced by the (re-)generation of uncorrelated charm-anticharm pairs in the medium and the underlying cold nuclear matter effects. Measurement of J/ψ production in pp collisions can be used to test the J/ψ production in vacuum. Particularly, it can be used as a reference to study the nuclear modification factor R_{pA} in p-Pb and RAA in Pb-Pb collisions. The production in p-Pb collisions would help quantify the cold nuclear matter (CNM) effects. In the case of the heavier quarkonium state, the (re-)generation effect is expected to be significantly smaller since the density of uncorrelated beauty-antibeauty pairs in the medium is much smaller than the charm pairs.

In this talk, I will review the recent measurements of both J/ψ and Y production in 5.02 TeV, 8.16 TeV and 13 TeV with ALICE. The measured inclusive, non-prompt J/ψ production cross section, the nuclear modification factor R_{pA} , RAA, and the flow coefficient v_2 will be shown. In addition, both J/ψ and Y polarization measurements will be discussed in different collision systems. All the measured results will be compared with the model calculations.

About the speaker:

Xiaozhi Bai obtained his PhD from Central China Normal University in 2017, he worked as a visiting student from 2013 to 2017 at the University of Illinois at Chicago for STAR experiment, and then he moved to GSI Helmholtz Centre for Heavy Ion Research and worked as a postdoc from 2018 to 2021 for ALICE collaboration. He is an associate professor at the University of Science and Technology of China since the earlier of 2021. His research focuses on the open heavy flavor and quarkonium measurements in high-energy collisions.