

Measurement of the Υ production in heavy-ion collisions at the top RHIC energy with the STAR detector

Wednesday, 26 April 2023 15:50 (25 minutes)

Measurements of heavy quarkonium in heavy-ion collisions provide a powerful tool to study the properties of the Quark-Gluon Plasma (QGP). Due to the color screening effect, the dissociation of heavy quarkonium was proposed as a direct signature of the QGP formation. Compared to charmonia, bottomonia are cleaner probes because of negligible regeneration contribution at the top RHIC energy. Moreover, different Υ states are expected to dissociate at different temperatures depending on their binding energies. Measurement of such sequential suppression of the Υ states can be used to study the QGP's thermodynamic properties. In this talk, we report the Υ measurements in Au+Au and isobar (Ru+Ru and Zr+Zr) collisions at $\sqrt{s_{NN}} = 200$ GeV by the STAR experiment. The yields and nuclear modification factors are presented as a function of centrality and transverse momentum. Moreover, the results are compared to those at the LHC as well as theoretical calculations.

Theory / experiment

Experiment

Group or collaboration name

STAR Collaboration

Primary author: YANG, Gaohan (South China Normal University)

Presenter: YANG, Gaohan (South China Normal University)

Session Classification: Parallel Session A

Track Classification: Heavy quarks and quarkonia