

**Doctoral Dissertation Defense**

# **Zaochen Ye**

**Thursday, November 29<sup>th</sup>, 2018  
at 10:00am in SES 2214**

**Faculty Advisor: Zhenyu Ye**

**Committee Members: David J. Hofman, Olga Evdokimov,  
Ho-Ung Yee, Zhangbu Xu (Brookhaven National Laboratory)**

## **Measurements of Upsilon Production in p+p, p+Au and Au+Au Collisions at $\sqrt{s_{NN}}=200$ GeV with the STAR Experiment**

Measurements of quarkonium production are an important tool to study the properties of the Quark-Gluon Plasma (QGP) formed in relativistic heavy-ion collisions. Quarkonium suppression due to the color-screening effect was proposed as a direct evidence of the QGP formation. Moreover, different quarkonium states may dissociate at different temperatures depending on their binding energies. This so-called sequential melting phenomenon can help constrain the temperature of the QGP. However, other effects, such as cold nuclear matter effects and regeneration, add additional complications to the interpretation of the observed suppression. Compared to charmonia, bottomonia is much less affected by regeneration contribution at RHIC energies, making them a cleaner probe to the QGP. In this talk, I will present the latest measurements of bottomonium (Upsilon) production in p+p, p+Au and Au+Au collisions at  $\sqrt{s_{NN}} = 200$  GeV with the STAR experiment.