

Quarkonium Production at STAR

Tuesday, 4 December 2012 14:30 (30 minutes)

The production of quarkonium has been studied to provide information about the Quark Gluon Plasma (QGP) that is expected to be created in relativistic heavy ion collisions at RHIC. Lattice QCD predicts a suppression of quarkonium production in a hot and dense nuclear medium, due to the Debye screening of the potential between heavy quarks, relative to proton-proton collisions. The suppression pattern of the various quarkonium states may provide insight into the thermodynamic properties of the QGP. However, there are other effects which may contribute to the modification of heavy quarkonium production, such as formation-time effects, statistical coalescence of heavy quark-antiquark pairs, the modification of nuclear PDFs (shadowing), and nuclear absorption, which need to be taken into account in order to fully quantify a suppression in heavy ion collisions. This can be achieved by studying the production of various quarkonium states in p+p, d+A, and A+A collisions.

In this talk we will report the results on heavy quarkonium production in p+p, d+Au, and Au+Au collisions at midrapidity via the dielectron decay channel at $\sqrt{s_{NN}} = 200$ GeV from STAR. Results from J/psi production in p+p collisions will be presented to provide a baseline for production and understand the quarkonium production mechanism. The nuclear modification factor for J/psi in d+Au and Au+Au will also be reported, along with results from Upsilon production in p+p, d+Au, and Au+Au collisions.

Presentation Type

Presentation

Primary author: Mr POWELL, Christopher (Lawrence Berkeley National Laboratory / University of Cape Town)

Presenter: Mr POWELL, Christopher (Lawrence Berkeley National Laboratory / University of Cape Town)

Session Classification: Parallel Session V: Quarkonia