

## Heavy quarkonium measurements from PHENIX

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Quarkonia suppression is one of the highly cited signature of quark gluon plasma (QGP) formed in relativistic heavy ion collisions. PHENIX observed a high suppression of  $J/\Psi$  production in Au+Au collisions at  $\sqrt{s} = 200$  GeV. However, theoretical predictions remain diverse due to lack of precise knowledge of heavy flavor meson production, suppression, regeneration in hot and dense medium and other cold nuclear effects. In order to separate these effects the PHENIX collaboration also measured  $J/\Psi$  production in d+Au collisions at  $\sqrt{s} = 200$  GeV for isolating cold nuclear effects and Au+Au collisions at low energies ( $\sqrt{s} = 62$  GeV and 39 GeV) to study the onset of nuclear phase transition to QGP. The idea being that the critical energy density for a crossover into the QGP phase may not be reached for certain combinations. The measurement of  $J/\Psi$  nuclear modification factors at different center of mass energies may elucidate this transition and supplement our understanding of the energy dependence of cold nuclear matter effects. \\\

In this talk, we will show the latest results of  $J/\Psi$  and Upsilon measurements from p+p, d+Au collisions at  $\sqrt{s} = 200$  GeV and several energy scans of Au+Au collisions.

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