

# Recent Measurements of Heavy Quarkonium Production in p+Au and p+p Collisions at STAR

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## Abstract

Heavy quarkonia are useful probes of the quark-gluon plasma, where quarkonium dissociation is expected at high enough temperatures. Indeed, such a suppression is clearly present in the latest STAR measurements of  $J/\Psi$  production in Au+Au collisions. The suppression is observed to have little dependence on  $p_T$ , although cold nuclear matter effects, such as shadowing, anti-shadowing, nuclear or comover absorption, play a significant role at low  $p_T$ . Measurements of the  $J/\Psi$  production in p+A collisions can help us to disentangle the cold nuclear matter effects from the hot medium effects in A+A collisions. In this talk, we will present the measurement of  $J/\Psi$  production in p+Au collisions at  $\sqrt{s_{NN}} = 200$  GeV by the STAR experiment. The nuclear modification factor  $R_{pA}$  will be presented as a function of the event activity (i.e. “centrality”) and compared to theoretical models. In addition, we will present recent STAR measurements of  $J/\Psi$  and  $\Upsilon$  production in p+p collisions including their dependence on the charged-particle multiplicity at mid-rapidity. These measurements are important for understanding

the mechanism of the heavy quarkonium production in elementary nucleon-nucleon collisions and the interplay of soft and hard processes.