

1 Measurements of quarkonium suppression in Au+Au
2 collisions at $\sqrt{s_{\text{NN}}} = 200$ GeV with the STAR
3 experiment

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6 The quark-gluon plasma (QGP) is believed to have existed in the early universe, and can
7 be created in laboratory through ultra-relativistic heavy-ion collisions. Quarkonia are ex-
8 pected to dissociate in the QGP due to the color screening of the quark-antiquark potential
9 by the surrounding partons. Such a dissociation occurs when the quarkonium size exceeds
10 the medium Debye radius, which is inversely proportional to the medium temperature. Con-
11 sequently, quarkonium suppression in heavy-ion collisions was proposed as a strong evidence
12 of the QGP formation. Furthermore, the three bottomonium states of different binding en-
13 ergies are expected to dissociate at different temperatures, which can be used to constrain
14 the temperature of the QGP.

15 In this talk, we will report the latest measurements of J/ψ and Υ suppression in Au+Au
16 collisions at $\sqrt{s_{\text{NN}}} = 200$ GeV by the STAR experiment at RHIC. A strong suppression of
17 high- p_{T} J/ψ is observed in head-on Au+Au collisions. Furthermore, a sequential suppression
18 pattern is observed for the Υ mesons, with the excited states more suppressed than the
19 ground state. These measurements will be compared with model calculations and the physics
20 implications will be discussed.