

Very low- p_T J/ψ production in Au+Au collision at $\sqrt{s_{\text{NN}}} = 200$ GeV at STAR

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Abstract

1 The strong electromagnetic field generated by the colliding nuclei in heavy-
2 ion collisions can be represented by a spectrum of equivalent photons, leading to
3 photon-induced interactions. Significant enhancements of the J/ψ production via
4 e^+e^- decay channel at very low transverse momentum (p_T) have been observed by
5 the STAR and ALICE collaborations in peripheral heavy-ion collisions. The excess
6 yields exhibit a much weaker centrality dependence compared to the expectation for
7 hadronic production, and are consistent with coherent photon-nucleus interactions.
8 Measurement of J/ψ production via $\mu^+\mu^-$ decay channel can provide additional
9 inputs to investigate these phenomena.

10 In 2014 and 2016, the STAR experiment recorded large samples of Au+Au
11 collisions at $\sqrt{s_{\text{NN}}} = 200$ GeV with the di-muon trigger enabled by the Muon
12 Telescope Detector. In this presentation, we will show the measurement of invariant
13 yield and nuclear modification factor of J/ψ at $p_T < 0.15$ GeV/c via $\mu^+\mu^-$ decay
14 channel. Physics implications will also be discussed.