

Excess of J/ψ yield at very low p_T in Au+Au collisions at $\sqrt{s_{NN}} = 200$ GeV and U+U collisions at $\sqrt{s_{NN}} = 193$ GeV measured with STAR experiment

Suppression of J/ψ production in heavy-ion collisions due to color screening of quark and antiquark potential in the deconfined medium has been proposed as a signature of the QGP formation. Other mechanisms, such as the cold nuclear matter effects and charm quark recombination, can contribute to the observed modification of J/ψ production in heavy-ion collisions. Recently, a significant excess of J/ψ yield at very low p_T (< 0.3 GeV/c) was observed by the ALICE collaboration in peripheral Pb+Pb collisions at $\sqrt{s_{NN}} = 2.76$ TeV at forward-rapidity, which can not be explained by the above-mentioned effects. It has been hypothesized that such J/ψ 's are produced from the coherent photoproduction in Pb+Pb collisions at impact parameters smaller than twice the nuclear radius, which would be very challenging for the existing models developed to describe coherent photoproduction in ultra-peripheral collisions. Measurements of J/ψ production at very low p_T in different collision energies, collision systems, and collision geometries can shed new light on the origin of the excess.

In this presentation we report the STAR measurements of J/ψ production at very low p_T in Au+Au collisions at $\sqrt{s_{NN}} = 200$ GeV and U+U collisions at $\sqrt{s_{NN}} = 193$ GeV at mid-rapidity. Centrality dependence of J/ψ production cross section and nuclear modification factors at very low p_T will be presented.

Preferred Track

Quarkonia

Collaboration

STAR

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