

Low p_T dielectron production in Au+Au collisions at $\sqrt{s_{NN}} = 200$ GeV and U+ U collisions at $\sqrt{s_{NN}} = 193$ GeV at STAR

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Recently, a significant excess of J/ψ yield at very low transverse momenta ($p_T < 0.3$ GeV/c) was reported by the ALICE collaboration in peripheral Pb+Pb collisions at $\sqrt{s_{NN}} = 2.76$ TeV [1]. STAR collaboration also observed the similar behavior of J/ψ production in peripheral Au+Au collisions at $\sqrt{s_{NN}} = 200$ GeV and U+U collisions at $\sqrt{s_{NN}} = 193$ GeV. These observations may point to possibility of an additional process with the coherent photoproduction mechanism. It is also interesting to investigate the $e+e-$ pair production in a wider invariant mass region ($M_{ee} < 4$ GeV/c²) at very low p_T in heavy-ion collisions for different centrality bins in order to study the production mechanism.

In this talk, we will present the centrality dependence of $e+e-$ pair invariant mass spectra at very low p_T ($p_T < 0.15$ GeV/c) in Au+Au collisions at $\sqrt{s_{NN}} = 200$ GeV and U+U collisions at $\sqrt{s_{NN}} = 193$ GeV. The p_T differentials and t ($-t \approx p_T$) distributions of two mass regions (0.4-0.76 and 1.2-2.6 GeV/c²) in most peripheral aforementioned heavy-ion collisions will be shown and compared with the same distributions in ultra-peripheral collisions. Physics implications will be discussed.

[1] J. Adam et al. (ALICE Collaboration), Phys. Rev. Lett. 116, 222301 (2016).

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