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## Initial electromagnetic field dependence of photon-induced production in isobaric collisions at STAR

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Strong electromagnetic field arising from the Lorentz-contraction and a large number of charges ( $Z$ ) in the colliding nuclei at ultrarelativistic speeds can generate a large flux of quasi-real photons. Consequent photon-induced interactions could reasonably explain the observed enhancements of  $J/\psi$  and  $e^+e^-$  pair productions at very low transverse momenta ( $p_T$ ) in peripheral high-energy heavy-ion collisions, via photonuclear ( $\propto Z^2$ ) and photon-photon ( $\propto Z^4$ ) processes. STAR has collected a large sample of  $^{96}_{44}\text{Ru}+^{96}_{44}\text{Ru}$  and  $^{96}_{40}\text{Zr}+^{96}_{40}\text{Zr}$  collisions at  $\sqrt{s_{\text{NN}}} = 200$  GeV in 2018, around two billion good events for each collision system. The isobaric collisions, with different number of charges and same number of nucleons in the colliding nuclei, provide a unique opportunity to test the electromagnetic field dependence of photon-induced production.

In this presentation, we will present the first measurement of the electromagnetic field dependence of  $J/\psi$  and  $e^+e^-$  pair production at very low  $p_T$ , via comparisons between the new measurements in isobaric collisions as well as to the published results in Au+Au collisions at  $\sqrt{s_{\text{NN}}} = 200$  GeV. Physical implications of these results will be discussed.

**Primary author:** SHEN, Kaifeng

**Presenter:** SHEN, Kaifeng

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