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The Study of Muon Production in Ultra-Peripheral Collisions in Au+Au and U+U in the PHENIX Experiment at RHIC

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High energy photon-nucleon (nucleus) collisions provide a unique opportunity to probe the gluon distribution of nuclei in ultra-peripheral ions collisions (UPC). This study provides the initial state constraints for probing the properties of quark-gluon plasma created in relativistic heavy ion collisions. The viability of this physics analysis has been demonstrated both at the RHIC and LHC experiments by triggering on electromagnetic processes produced in ultra-peripheral A+A collisions. In this poster, we will present 1) the data analysis status of muon production (mainly from ϕ and J/ψ) in the forward rapidity range of $1.2 < |\eta| < 2.4$ both for the RHIC Run12 U+U collisions at $\sqrt{s_{NN}} = 193$ GeV and the Run14 Au+Au collisions at $\sqrt{s_{NN}} = 200$ GeV, respectively, and 2) Monte Carlo simulations based on STARlight for these collisions.

Content type

Experiment

Collaboration

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