Measurements of $J/\psi$ photoproduction in ultra-peripheral collisions at RHIC

Jaroslav Adam for the STAR Collaboration

BNL

Ultra-peripheral nucleus-nucleus and proton-nucleus collisions (UPC) are mediated by strong electromagnetic fields, offering the opportunity to study photon-nucleus and photon-proton processes at RHIC. In particular, coherent $J/\psi$ photoproduction in photon-nucleus interactions is sensitive to nuclear effects on the gluon density, and exclusive $J/\psi$ photoproduction in photon-proton collisions can probe the Generalized Parton Distributions in the case of polarized protons. The $J/\psi$ is an ideal probe of the above phenomena thanks to its large mass, which allows the use of perturbative Quantum Chromodynamics.

In this talk we present a brief overview of the topic and results on vector meson photoproduction in Au+Au collisions at 200 GeV and results on $J/\psi$ photoproduction in p+Au collisions at 200 GeV with a polarized proton beam.