

Forward photons in d+Au collisions at 200 GeV in the PHENIX Experiment

A strong suppression of hadron yields in d+Au collision has been seen at forward rapidities at RHIC, which would be a sign for the onset of gluon saturation in the heavy Au nucleus.

Direct photons provide complementary insight towards the physical nature of the suppression of hadron yields since they are directly sensitive to the gluon density at forward rapidities (through gluon Compton scattering) and are not affected by final state effects.

Experimentally the ability to isolate direct photons from the background of photons from hadron decays can be achieved with a high spatial resolution preshower detector coupled with an electromagnetic calorimeter. Such detector, the Muon Piston Calorimeter Extension (MPC-EX), has been installed in PHENIX at RHIC and successfully took data for d+Au collisions at 200 GeV during 2016, providing a high statistics dataset for the analysis of prompt photon production.

The detector system consists of a highly segmented silicon-tungsten preshower detector coupled to a PbWO₄ electromagnetic calorimeter located at $3.1 < \eta < 3.8$.

The methodology for photon reconstruction and the status of the photon analysis will be presented here.

Preferred Track

Electromagnetic Probes

Collaboration

PHENIX

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