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Measurements of direct photons and dileptons at PHENIX

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Photons, both real and virtual, are one of the cleanest probes of high-density partonic matter produced in relativistic heavy-ion collisions as they carry unmodified information about the evolution of the system.

Leveraging the versatility of RHIC, PHENIX has measured low momentum direct photons across different collision systems ranging from $p+p$ to Au+Au. An excess of direct photons, above those from hard scattering processes and consistent with thermal emission, has been observed in large collision systems. Additionally, measurements of azimuthal anisotropy of these photons help gain insight into the origins of these radiation and better constrain model calculations, thereby, elucidating the direct photon puzzle.

In addition to the direct photon measurements, in this talk, PHENIX presents the first measurement for disentangling the lepton pairs into heavy flavor decays, prompt pairs and background pairs based on the distance of closest approach to the interaction point in the intermediate mass range ($m_\phi < m_{ee} < m_{J/\psi}$) using $p+p$ data at 200 GeV taken in 2015.

Category

Experiment

Collaboration

PHENIX

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