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Measurement of thermal radiations in Au+Au collisions at 200 GeV by PHENIX

Dileptons, being electromagnetically decoupled from the strongly interacting medium, are key probes of the thermal and chemical evolution of the Quark-Gluon Plasma (QGP) and the hadronic matter. In the intermediate mass range ($m_\phi < m_{ee} < m_{J/\psi}$), they primarily originate from the thermal radiation of the QGP and semi-leptonic decays of heavy flavor mesons. Disentangling these sources in the dilepton mass spectrum is essential for understanding the dynamics of thermal radiation and constraining theoretical models of the QCD matter. In this talk, using the Silicon Vertex Detector and high-statistics Au+Au data at 200 GeV from 2014, PHENIX presents the first measurements of the dielectron mass spectrum at mid-rapidity and an empirical approach to separate the thermal and the heavy-flavor components via the distance-of-closest-approach.

Category

Experiment

Collaboration (if applicable)

PHENIX

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