

Di-electron analysis in Au+Au collisions using the PHENIX Hadron Blind Detector

The di-electron spectrum is rich with physics signals that assist the characterisation of the medium created in A+A collisions. The measurement, especially at low mass, is however complex due to a very low signal to background ratio. PHENIX has shown in the past that despite this difficulty, it is possible to learn for example about open charm production [1] or direct photons [2].

The Hadron Blind Detector (HBD) was built, installed and operated by PHENIX with the objective of reducing the combinatorial background of the di-electron spectrum. This background comes mainly from conversions and Dalitz decay electrons, most significantly, when one leg of the pair was swept out of the acceptance by the magnetic field, and thus contributes only to the combinatorial background. Current status of the efforts in analyzing the data taken with this detector in Au+Au collisions at 200 GeV will be shown.

References

[1] Phys. Lett. B 670, 313 (2009)

[2] Phys. Rev. Lett. 104, 132301 (2010)

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