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Measurements of di-electron production in Au+Au collisions at $\sqrt{s_{NN}}$ = 200 GeV by RHIC-PHENIX using Hadron Blind Detector

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— Di-electron measurement is a powerful tool to diagnose the strongly interacting matter created in high-energy heavy ion collisions. Since electrons are not subject to final state interactions, they carry the information at the time of their production. In particular, low mass di-electron measurement allows us to study chiral symmetry restoration and possible medium modifications of the low mass vector mesons, such as ρ, ω and ϕ. In an earlier di-electron measurement by PHENIX, a large enhancement of a factor of $\sim$5 with respect to expected hadronic sources was observed in the low mass region 0.15-0.75 GeV/c^2 for minimum bias events. However, the previous measurement suffer from a large number of background electrons originating from π^0 Dalitz decays and γ conversions. A new detector, Hadron Blind Detector (HBD), is developed to reject those background electrons by exploiting the fact that the opening angle of such pairs is very small compared to the opening angle of other sources like the light vector mesons. In 2009 and 2010, the HBD was successfully operated and a data sample of p+p collisions and Au+Au collisions were collected. The current status of the di-electron analysis at RHIC-PHENIX is presented.

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