QUARK MATTER 2015
Sep. 27 – Oct. 3, 2015 Kobe, Japan

Contribution ID: **279** Type: **Poster**

Measurement of the Distance of Closest Approach of electrons from heavy flavor hadron decays at PHENIX

Tuesday 29 September 2015 16:30 (2 hours)

The production of heavy quarks (charm and bottom) is a good tool for investigating the hot and dense partonic medium created in RHIC. Due to their large masses, the production process of heavy quarks is essentially restricted to primordial nucleon-nucleon collisions. Thus, heavy quarks are clean probes to study the hot and dense matter because they carry information about the entire time-evolution of the medium.
The Silicon Vertex Tracker (VTX) was installed in the RHIC-PHENIX detector in year 2011.
The VTX was designed to give precise tracking reconstructions of the distance of closest approach (DCA) to the collision vertex in order to distinguish prompt particles from in-flight decays. In this way, we will be able to statistically separate electrons from semi-leptonic decay of heavy flavor hadrons. In order to extract the heavy flavor contributions from DCA distribution, understanding of background and its subtraction from the DCA distribution play crucial roles. This poster will present detailed analysis of background in the DCA distribution of electrons measured in Au+Au collision at $\sqrt{s_{NN}} = 200$ GeV.

On behalf of collaboration:

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Session Classification: Poster Session

Track Classification: Open Heavy Flavors and Strangeness