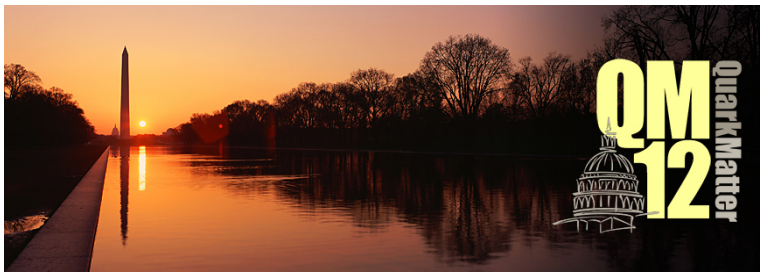

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Higher harmonics flow measurement of charged hadrons and electrons in wide kinematic range with PHENIX VTX tracker

Wednesday 15 August 2012 09:10 (20 minutes)

Collective flow is one of the key measurements to study the hot and
dense matter created in heavy ion collisions, because it relates closely to early evolution of the matter. In particular, higher harmonic flow measurements plays an important role in constraining theoretical model calculations describing properties of the matter.

The silicon vertex tracker (VTX) was installed into the PHENIX experiment in 2010 and it successfully collected approximately 5 billion events of Au+Au collisions at 200 GeV in 2011 RHIC run. The VTX is a four-layer silicon tracker and it can reconstruct charged particle tracks in a wide range of pseudo-rapidity (|eta|< 1.2) and almost 2 pi in phi. With this capability, it can measure elliptic flow v2 and higher harmonics flow (v3, v4, ...) of charged hadrons in a wide eta range.

The main function of the VTX is separation of heavy flavor hadrons,
charm and bottom. By identifying electrons with PHENIX central detectors, higher harmonic flow of electrons from heavy flavor decay can be determined over a broad pT range.

In this talk, we will present measurement results on v2 and higher
harmonic flow of charged hadrons and heavy flavor electrons, as well
as comparison with theoretical models.

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