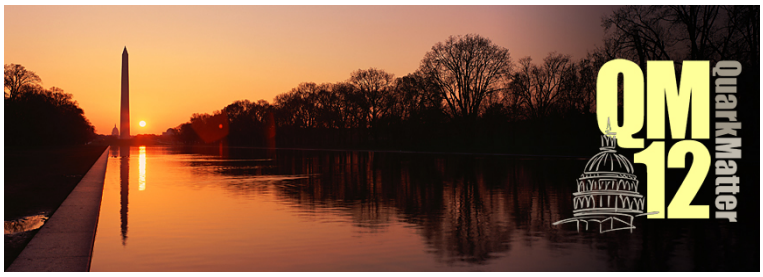

Contribution ID: **387** Type: **Poster**

Charge Asymmetry Dependency of π^+/π^- Azimuthal Anisotropy in Au + Au Collisions at STAR

Thursday, August 16, 2012 4:00 PM (2 hours)

A recent theoretical study indicates that a chiral magnetic wave at finite baryon density could induce an electric quadrupole moment in the quark-gluon plasma produced in heavy ion collisions. The quadrupole deformation will lead to a difference in azimuthal anisotropy v_2, between positive and negative pions, and the magnitude of this difference is predicted to be proportional to net charge asymmetry. The net charge asymmetry is defined as $(N_+ - N_-)/(N_+ + N_-)$, while $N_+(N_-)$ is the number of positive (negative) particles. STAR experiment has observed the different v_2 of particles and anti-particles at $\sqrt{s_{NN}}$ = 7.7, 11.5, 19.6, 27, 39 and 62.4 GeV. Study on the charge asymmetry dependency of π^+/π^- azimuthal anisotropy will shed light on the possible sources of the v_2 difference of particles and anti-particles.

We present STAR's measurement of azimuthal anisotropy difference between positive and negative pions at low transverse momentum for Au + Au collisions at $\sqrt{s_{NN}}$ = 7.7, 11.5, 19.6, 27, 39, 62.4 and 200 GeV. The azimuthal anisotropy difference between π^+ and π^- will be shown as a function of net charge asymmetry and centrality. In addition, these results will be compared with model calculations.

Author: KE, Hongwei (Central China Normal University)

Presenter: KE, Hongwei (Central China Normal University)

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