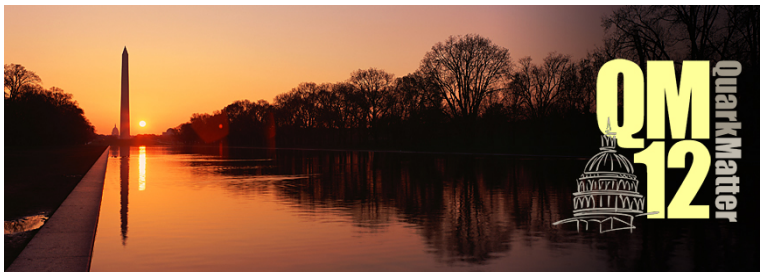

Contribution ID: **215** Type: **Poster**

Dynamical higher cumulant ratios of net and total protons at STAR

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

Higher cumulants of baryon number are suggested to be good probe of Critical Point of QCD phase transition in relativistic heavy ion collisions [1]. However, since the number of produced protons is still small at RHIC, it is pointed out [2] that the statistical fluctuation is not negligible, and should be subtracted from directly measured cumulants. So the dynamical cumulant ratios are suggested. Moreover, it is addressed that the sign of the dynamical net proton kurtosis will change to be negative when the critical point is approached from the crossover side of the phase transition [3].

In this poster, we present the energy and centrality dependence of dynamical net and total proton kurtosis for Au + Au collisions at $\sqrt{s_{NN}}$ = 7.7, 11.5, 19.6, 27, 39, 62.4 and 200 GeV at RHIC. The sign of dynamical kurtosis of net proton is discussed and compared to those of total proton. The results are also compared with AMPT model calculations.

References
[1] M. A. Stephanov, Phys. Rev. Lett. 102, 032301 (2009); R. V. Gavai and S. Gupta, Phys. Lett. B 696 (2011) 459; C. Athanasiou, et al., Phys. Rev. D 82, 074008 (2010).
[2] Lizhu Chen, et al., J. Phys. G: Nucl. Part. Phys. 38, 115004 (2011).
[3] M. Stephanov, Phys. Rev. Lett. 107, 052301 (2011).

Primary author: Mr LI, Zhiming (Institute of Particle Physics, CCNU, Wuhan, China)

Co-author: Prof. WU, Yuanfang (Institute of Particle Physics, CCNU, Wuhan, China)

Presenter: Mr LI, Zhiming (Institute of Particle Physics, CCNU, Wuhan, China)

Session Classification: Poster Session Reception

Track Classification: Exploring the QCD phase diagram