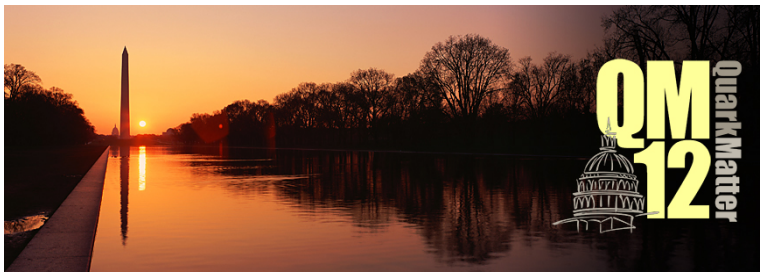

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Is the event plane dependent modification to jet-like correlations due to analysis biases or jet-medium interactions?

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

The STAR results [1] from dihadron correlations as a function of the high-pt trigger azimuth relative to the event plane (phi_s) show a significant change from in-plane (phi_s~0) to out-of-plane direction (phi_s~90 degree). The near-side correlation is composed of two components: the jet-like correlation and the ridge; The former is found to be invariant over phi_s while the ridge is primarily observed in-plane. On the other hand, the away-side "double hump" is present only out-of-plane. It has been found that the recently characterized triangular flow does not change the qualitative conclusions [1]. However, the question remains, whether the observed phi_s dependent modification is due to analysis biases in flow background subtraction or jet-medium interactions.

In this talk we analyze high-pt triggered dihadron correlations relative to the event plane in the AMPT (A Multi-Phase Transport) parton cascade model. The AMPT model, with its string melting, has been previously shown to reproduce some of the global phenomena seen in heavy-ion collisions, specifically flow [2]. We first obtain the near-side jet-like correlations from the difference of large and small delta-eta azimuthal correlations and find AMPT does not reproduce the STAR data. We then analyze the large delta-eta azimuthal correlation by subtraction of v2, v3, and v4 harmonic flows. The vn harmonic flows are obtained from two- and four-particle cumulant method and compared to the true average<vn> calculated using the initial geometry harmonic planes in AMPT. We assess the non-flow contributions in vn by the newly developed decomposition method [3], and address possible biases in our AMPT correlation analysis. We discuss their implications to the STAR data by comparing the vn subtracted event plane dependent dihadron correlations in AMPT to the STAR results. We discuss the remaining effects of jet-medium interactions in AMPT.

[1] H. Agakishiev et al. (STAR Colloaboration), arXiv:1010.0690 [nucl-ex].
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[3] L. Xu, L. Yi, D. Kikola, J. Konzer, F. Wang, and W. Xie, arXiv:1204.2815 [nucl-ex].

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