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

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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 ( $\phi_s \sim 0$ ) to out-of-plane direction ( $\phi_s \sim 90$  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  $v_2$ ,  $v_3$ , and  $v_4$  harmonic flows. The  $v_n$  harmonic flows are obtained from two- and four-particle cumulant method and compared to the true average  $\langle v_n \rangle$  calculated using the initial geometry harmonic planes in AMPT. We assess the non-flow contributions in  $v_n$  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  $v_n$  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 Collaboration), arXiv:1010.0690 [nucl-ex].

[2] Z.-W. Lin and C.M. Ko, Phys. Rev. C 65, 034904 (2002).

[3] L. Xu, L. Yi, D. Kikola, J. Konzer, F. Wang, and W. Xie, arXiv:1204.2815 [nucl-ex].

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