
Reviewer 1

This manuscript investigates the energy dependence of the linear and mode-coupled flow harmonics from the AMPT model in AuAu collisions using the multi-particle azimuthal cumulant method. The results shown in this work indicate that the linear and mode-coupled contributions to v_4 may have different energy dependence compared to the correlations between different order flow symmetry planes and the mode-coupled response coefficient. This information emphasizes that the systematic experimental measurements of higher order flow harmonics can be useful to constrain different theoretical models. I have some minor comments on the current version of the paper draft.

>>I thank the Referee for her/his detailed review of my manuscript. This critique has improved both the readability and substance of the manuscript. Below, I give responses to each of his/her concerns and point to modifications to the manuscript as appropriate.

I suggest the author include the version number of the AMPT model used for this study in the method part.

>>I followed the Referee's advice and included the version number of the AMPT model.

In Fig.3, the author observes an energy dependence of the three-particle correlators and claims that they can constrain the interplay between the final and initial state interactions in the AMPT model. The author may need to further expand this part by discussing the underlying mechanism in AMPT which leads to this energy dependence and connecting this feature to the initial and final state effects in the AMPT model.

>>I followed the Referee's advice and updated the text as:

“These dependencies indicate that $C_{\{4,22\}}$ and $C_{\{5,23\}}$ are susceptible to the change in viscous attenuation in AMPT (i.e., $\langle p_T \rangle$ and charged particle multiplicity) and the initial-state eccentricity.”

In the description of Fig.4, the centrality dependences of the linear v_4 and the mode-coupled v_4 are found to be different. It might be better to provide some discussions on why they have different centrality dependence.

>>I followed the Referee's advice and updated the text as:

“In addition, the difference between linear and mode-coupled v_4 in central collisions is derived from the difference in ϵ_4 and ϵ_2 , respectively.”

Based on the results shown in Fig.5, the author concludes that initial-state effects dominate the correlations of event plane and the non-linear response coefficients. It might be helpful to clarify what kind of initial-state effects implemented in AMPT dictates the behavior. Also, it could be interesting to discuss a bit whether this feature is also observed in other model calculations like the hydrodynamic models.

>>I pointed out that initial-state effects mean the initial-state eccentricity direction correlations. Such correlations are not expected to be different between AMPT and the hydrodynamic models.

Line 52, a space is needed between “crosssection”.

>>I followed the Referee's advice and updated the text to “cross section”

Line 55, σ_{pp} is not unitless, it should be “1.5 mb”.

>>I followed the Referee's advice and updated the text to “1.5 mb”

Line 63, “two-subevents” should be “two sub-events”, “ $\Delta\eta>0.7$ ” should be “ $|\Delta\eta|>0.7$ ”.

>>I followed the Referee's advice and updated the text to “two sub-events” and “ $|\Delta\eta|>0.7$ ”.