Report of the manuscript titled

"Hydrodynamics without Averaging - a Hard Rods Study'

Instead of starting from a statistical state (ensemble), the article demonstrates how one can get hydrodynamic evolution in 1d hard-rod gas starting from a single microscopic configuration. The author does so by explicitly performing coarse graning of the particle phase space density and rigorously estimates the error in the 'hydrodynamic approximation'. The main finding of the paper is that there are not diffusive correction to the HD approximation and the Euler HD equation is valid even in the diffusive-space time scale. However, the there is a diffusive correlation when one starts from an ensemble of states and looks at the evolution of the average phase space density. The results are interesting and novel. I feel these results meet the criterion of the journal and I would like to recommend publication of the paper. However, I feel the presentation of manuscript can be improved and I request for a minor revision. Please find my comments below:

- (i) The presentation of the derivation in sections 3 and 4 can be improved. If possible, it would be useful to clearly mention the motivation, goal and the plan of the derivation at the beginning of each section+ subsection. Currently the conclusion of the sections are also not very clearly stated.

- (ii) In BMFT it is typically assumed that the for coarse-gaining scale $\ell_{cg} \sim \ell_{variation}$ and in such scale also the evolution of the initial fluctuations are described by Euler equations. For coarse graining size $\mu = 1/2$ *or*$' > 1/2$, it seems there will be significant noise. Does it imply one needs to look at such noise to understand (corrections to) correlation at diffusive space-time scale?

- (iii) The proof of Eq. (137) is not given in Appendix A

- (iv) It would be good to write the representation of the operator $\hat{D}$ in Eq. (156).

- (v) Eq.(A1) and (A2) are same and (A2) has a typo.

- (vi) Eq. (A12): beginning of the second last line: $+2a \ \rightarrow \ 2a^3$

- (vii) Eq. (A27): $A(x,p)$ in the second term on the right.

- (viii) First line of sec. (A.2): the correlation should be $C_{\rm LR}$ according to the notation in Eq. (131).