Title:	Investigation of Velocity Field due to Spherical Inclusions in Active Liquids
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Abstract:	There has been a lot of work where the e□ect complex environements has been seen on the collective dynamics of bacteria. It has been show that in confinemnt bacteria tend to stabilize into vortices. Their motion as a whole is a□ected by the geometry of the environment. Recent years have seen colloidal models emerging as popular experimental systems to investigate active matter. It has been show that introducing passive colloids into an active bath introduces some interaction between them causing them to cluster. Also due to the broken symmetry in a chiral bacterial bath, they also tend show persistant rotations in a fixed direction. These interations rise due to the fields generated by swimming bacteria a□ecting the colloid. In this study, we try to quantify the fluctuations in the bacterial bath that come up on introducing a single colloid in the bacterial bath. We study both, the dynamics of the colloid and as well as that of the bacteria. The time and length scales of structure in the bacteria bath are extracted by studying the tracer dynamics. The fluctuations in the fields are studied by using velocity correlation functions.
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