

Peer Review

Review of: "Active Matter Flocking via Predictive Alignment"

Daniel Escaff¹

1. Independent researcher

It is a good paper that addresses the problem of collective motion in the context of a Viscek-type of discrete dynamics. This is a valuable numerical study that examines the features of the flocking transition, the impact of fluctuations, the interaction range, and leadership.

I believe that it is a good paper that deserves publication. However, I would like to ask a few questions before making my final recommendation:

1. Why do the authors use discrete orientation angles? This looks a bit unphysical.
2. I do not think that the order parameters (Φ , its variance, and the agent-to-center-of-mass distance) should be in the Methods section. They should be presented early in the text.
3. How do they obtain the continuous-time model? In particular, equation (5) in the Methods. How do they get the Gaussian noise from the uniformly distributed one? Is the orientation angle now a continuous variable? What is the value of the diffusion coefficient in terms of the parameters of the discrete model? Same question for the angular velocity. And, what about all the strategies? Do they converge on a single prescription? Or is it still possible to differentiate between Viseck-type and predictive alignment?

Declarations

Potential competing interests: No potential competing interests to declare.