

[P2] Nonequilibrium phase transition in a globally coupled Brownian particle systems

Hyun-Myung Chun, University of Seoul

We consider the Langevin dynamics of a globally coupled Brownian particles system. Brownian particles are affected by the Langevin noise and the velocity-aligning interaction. As one varies the relative strength of the interaction, the system undergoes an order-disorder phase transition. We derive the self-consistent equation for the order parameter and obtain the exact critical point. We also discuss non-equilibrium features of the model such as the entropy production and the failure of the fluctuation-dissipation relation.