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THE EFFECTS OF NOISE ON MULTI-AGENT SYSTEMS

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Swarm behavior consisting of a large number of individuals often surprises us. They move coherently matching their velocity without collision and maintaining a constant scale of school, even though they have only moderate ability of information processing and of execution of programming.

Several mathematical models for swarming are presented on the basis of experimental results concerning interactions between nearby mates which are rather simple. In this talk, we will introduce our recent work on multi-agent systems including

(a) Mathematical models of stochastic differential equations using local rules of individuals in swarm (e.g., repulsion, attraction, alignment, and reaction to the environment)

(b) The effects of noise on the models

(b) Numerical simulations

References

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