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Title:

Kinetic and fluid models for flocking phenomena

Abstract:

Collective self-driven synchronized motion of self-propelled particles such as flocking of birds, schooling of fish, and swarming of bacteria, appear in many contexts in biological organisms, mobile networks, human networks etc. In this talk, I will present kinetic and fluid models derivable from Cucker-Smale's flocking model, and also discuss mathematical structures and possible applications to the phototaxis arising from biology.