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# Emergent behaviors of Cucker-Smale flocking particles

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## Abstract

Collective behaviors of interacting particle systems are often observed in our nature, e.g., flocking of birds, swarming of fish and herding of sheeps etc. In previous literature, several phenomenological models were proposed and studied mostly using numerical simulations. Among others, the flocking model proposed by Cucker and Smale in 2007 has been extensively studied analytically. In this talk, we will review recent progress on the flocking dynamics of the Cucker-Smale type flocking models. In particular, we discuss sufficient conditions leading to mono-cluster and bi-cluster flockings.

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