Flocking in a New Developed Cucker-Smale Model

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Abstract

Flocking behavior is a common phenomenon among animals in nature. Various models have been proposed to explain it. In this talk, we will present a newly developed flocking model based on a modification of the classical Cucker-Smale model. In our model, the motion dynamics of the agents are described probabilistically. We will establish the necessary and sufficient conditions for unconditional flocking. In addition, some numerical simulations are provided to support our theoretical results. This is a collaborative work with Chih-Hung Chang, Jonq Juang, and Pei-Jhen Chen.