

Spatial phase transition in collective dynamics

Sara Merino-Aceituno

The emergence of bands in simulations of the Vicsek model is still a poorly understood phenomenon in collective dynamics. The model is rather simple, yet this pattern is surprisingly difficult to explain and characterise mathematically. These spatial phase transitions can be at least partially explained when deriving continuum equations from the corresponding discrete dynamics. In this talk, I will report on recent progress on simulating and characterizing this phenomenon at the continuum level.

This is a collaboration with Pierre Degond (University of Toulouse, CNRS) and Léo Meyer (University of Vienna).