BIRD FLOCKS AS CONDENSED MATTER

Andrea Cavagna, Consiglio Nazionale delle Ricerche, Italy

Flocking is a paradigmatic case of self-organized collective behaviour in biology and a living example of active matter. Several models and theories have been developed in recent years to address these kinds of systems. However, unlike granular materials and biological systems at the micro-scale, experiments have been scarce until recently, preventing the necessary comparison between theory and data. In this talk, I will discuss a novel approach to flocking, in which experimental data are used as a starting point to empirically characterize flocking as a collective phenomenon—as the term is understood in statistical and condensed matter physics—and build models directly from the data.