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*Active Fluids: Applying the tools of soft materials theory to biological systems*

Active fluids are made up of particle units that consume energy from internal or external sources and dissipate it by moving through the medium they inhabit. This paradigm unifies such varied systems as actin-motor mixtures, bacterial swarms and bird flocks. The key difference of these systems from conventional non equilibrium systems is that the energy input that drives the system out of equilibrium is at the level of each unit rather than through a global body force or a driving at the boundary of the system. In this talk, I will illustrate the consequences of this microscopic energy input to emergent behavior by considering three phenomena exhibited by these systems - rectification, enhanced ordering and exotic pattern formation.