

Dense Disordered Active Matter

Rituparno Mandal¹

¹Raman Research Institute, Bengaluru, India., Bengaluru, India

Dense and disordered active matter brings together two fundamental aspects of non-equilibrium physics: (i) a rugged energy landscape leads to glassy/slow relaxation in dense and disordered systems, and (ii) injecting energy at the scale of each constituent can drive a system away from equilibrium. I will discuss two canonical examples of such dense and disordered active matter. In the first example, which is a dense amorphous assembly of soft self-propelled particles, at the large persistence time limit we observe exciting non-equilibrium signatures such as intermittency, active turbulence, and jamming–yielding. In the second example, I will describe an odd solid composed of spinning particles and show that pairwise transverse interactions can lead to distinct phenomenology, ranging from self-healing dynamics of grain boundaries and chiral plastic vortices to force-chain deflection in odd amorphous packing.