



Ask us about these new projects!



- Non-reciprocal field theories for active matter
Explore the effect of non-reciprocal interfacial forces, analyse phase separation dynamics & travelling patterns (continuum/lattice simulation, spinodal theory)
- Formation of competing phases
What happens in complex mixtures if multiple new phases compete for the same resources? Does crowding matter? (Lifshitz-Slyozov-Wagner theory, continuum simulation)
- Pushing amorphous materials too far
If we deform a non-crystalline material, when and how does it start to flow? Explore effects of disorder & activity (stochastic simulations, mean field theory, crossover scaling, avalanches)
- Barrier crossing problems in active matter
How do active particles use self-propulsion optimally to get across barriers between energy minima? (path integral formalism, large deviations)
- Mechanical response of the cytoskeleton
How is elasticity in heterogeneous materials like the cell affected by active processes? (data analysis from optical tweezer experiments and simulations, tracer motion vs macroscopic behaviour, theories for heterogeneous elasticity)