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, localization)

- 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 (memory formation, 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)

– Bachelor projects, Sollich research group –