

# Seminar: Theory of Complex Systems (SoSem 2018)

topics for potential seminar presentations

## Thiele

- Perturbation theory for integrable systems -  
    stabilization of a pendulum through noise/oscillations
- Self-similarity in the hydrodynamics of thin films
- Reaction-diffusion system with mass conservation –  
    an alternative to the Turing mechanism?
- How to break the Galilean invariance – the Toner-Tu model for swarming particles

## Wittkowski

- Hydrodynamics of microswimmers
- Self-acoustophoretic microparticles
- Classical superfluids
- Landau theory of phase transitions

## Linz

- Synchronization of Huygens` clocks
- Beyond Navier-Stokes equations: the case of a dilute gas
- Hydrodynamic supercontinuum
- Physics of fracture, friction and earthquakes