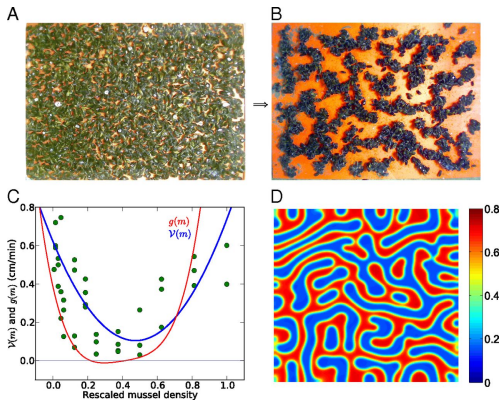


Nonequilibrium Physics

Matthias.Fuchs@uni-konstanz.de; Raum: P907; Tel: 4678



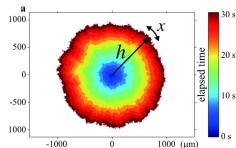
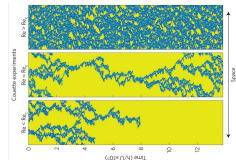
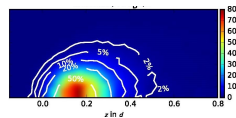
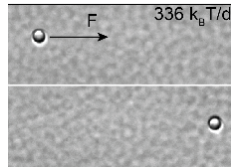
Topics: Advanced Statistical Mechanics concepts for many particle systems in evolution

Contents:

- ▶ Time-dependent response theory
- ▶ Stochastic processes
- ▶ Functional integrals
- ▶ Entropy variational principles
- ▶ Large deviation formalism

Applications:

- ▶ phase transformation kinetics
- ▶ pattern formation
- ▶ examples from biophysics
- ▶ examples from information processing



N. Senbil, A. Puestas, et al
driven colloids (2019)

B. Hof, (2016) turbulence
via directed percolation

Takeuchi, et al. (2011),
Kardar Parisi Zhang eqn.

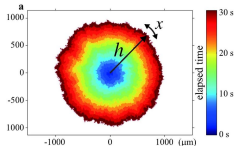
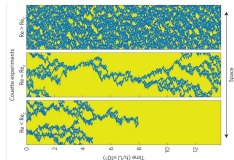
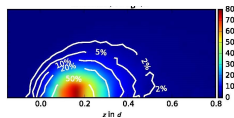
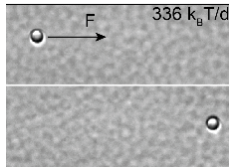
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Literature:

- ▶ R. Livi & P. Politi , *Nonequilibrium Statistical Physics* (CUP, 2017)
- ▶ A. Kamenev, *Field Theory of Non-Equilibrium Systems* (CUP, 2011)
- ▶ D. Evans & G. Morriss, *Nonequilibrium Liquids* (Cambridge UP, 2008)



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Prerequisites: IK & Statistical Physics

Times: Lecture: Mo 13:30—15:00 & Do. 13:30—15:00, zoom
Tutorials: Do. 15:15—16:45, start: 12.04.2021, zoom
exercises & journal presentations
registration: Ilias (until 09.04.2021)

Examination:

MS Phys (10 Cr; 4+2 SWS): admission: [tutorials](#); mark: [oral exam](#)

Language:

choice: German or English

Materials:

<https://ilias.uni-konstanz.de/ilias> to be done