

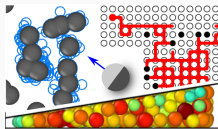
Theoretische Bio- und Nanophysik

Prof. Thomas Franosch, Michele Caraglio, Gerhard Jung

24. Jänner, 2020

Vorstellung Arbeitsgruppen

Institut für Theoretische Physik
Universität Innsbruck (UIBK)

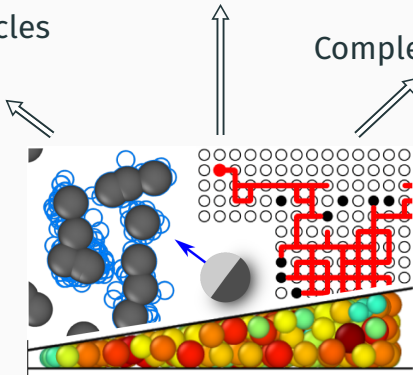


Soft matter

Active particles

Proposal 2

Complex transport

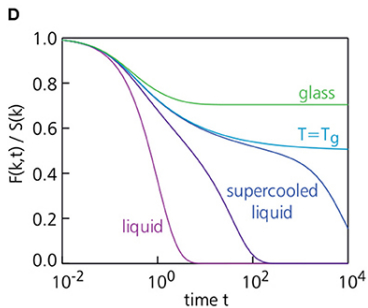
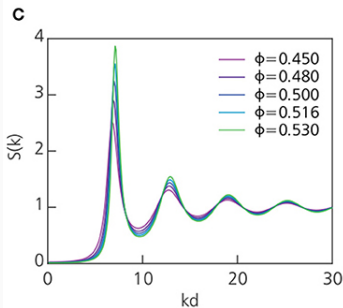
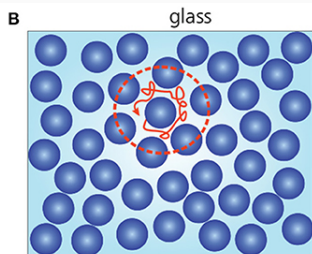
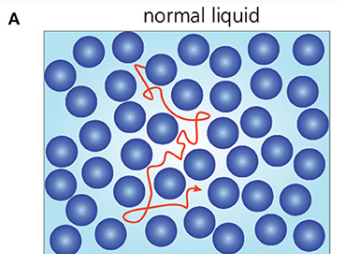


Polymer/colloid physics

Glass transition

Proposal 1

Glass Transition



Glass Transition: Bachelor Proposal 1

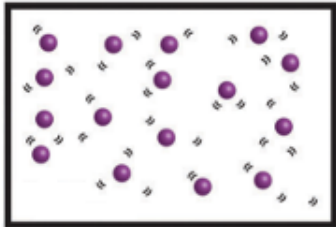
Goal: Investigate the complex dynamics of particles at the glass transition.

Learning objectives:

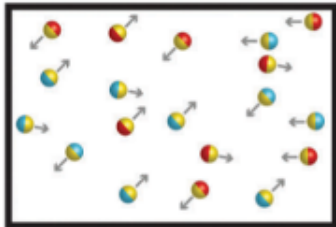
- Perform computer simulations to determine trajectories of particles in supercooled liquids.
- Evaluate trajectories to determine their dynamical properties.
- Analyze and interpret results for better understanding of the glass transition.

Active particles

"normal" brownian particles



active brownian particles



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E. Coli



many E. Coli



Flock of birds



school of fishes



Active particles: Bachelor Proposal 2 (assigned)

Goal: Investigate the steady-state probability distribution of active brownian particles (ABPs).

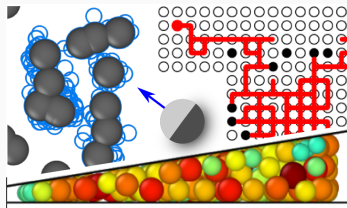
Learning objectives:

- Perform computer simulations of an ABP moving in a given energy landscape.
- Analyze ABP's behavior through the basic concepts of stochastic processes and probability theory.
- Interpret the results and compare them to those obtained for a passive brownian particle.

Potential Master theses available in various topics:

- Glass transition
- Active particles
- Complex transport

**If you are interested, please come
and talk to us.**



Thank you for your attention!