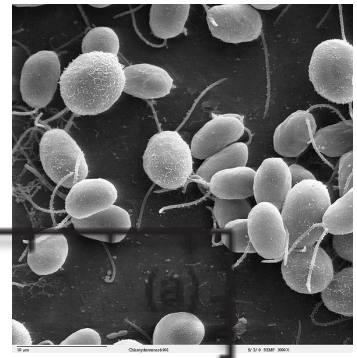
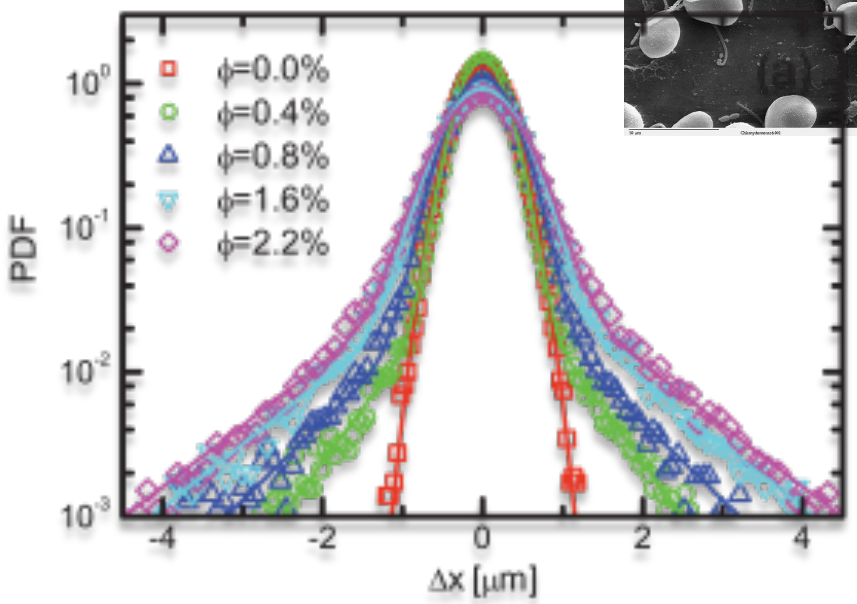
Low Reynolds number swimming and mixing



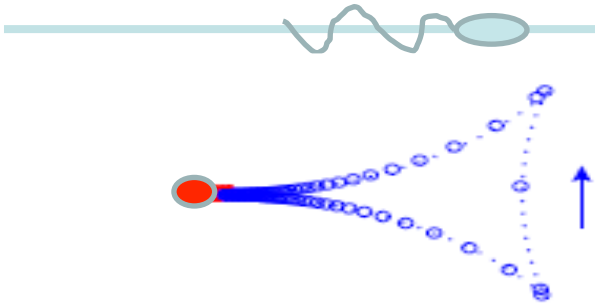
Mixing:

- Anomalous but Brownian diffusion
- Dimensionality effects
- Unknown mixing mechanisms
- Universality
- Boundary effects

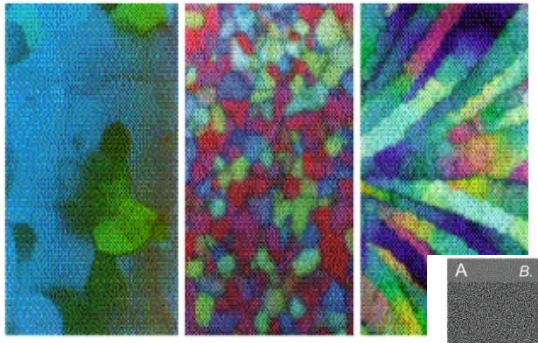


Swimming:

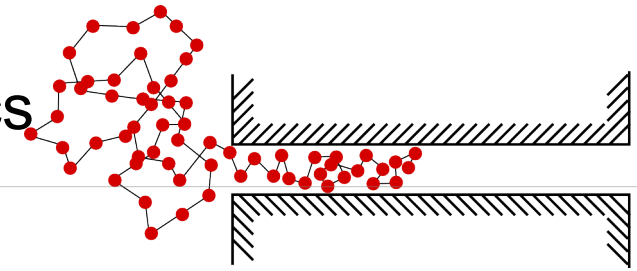
- Among polymers
- In confined and patterned environments

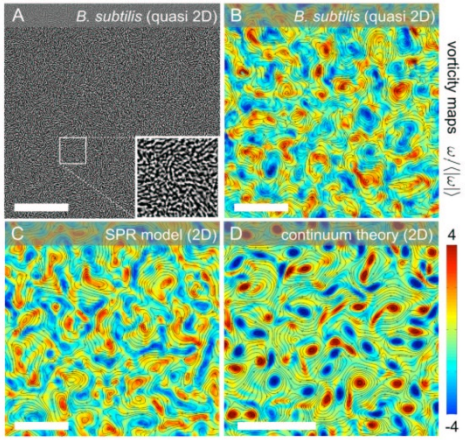


- Active and passive liquid crystals

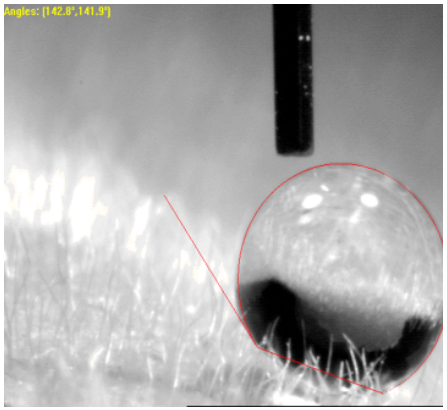


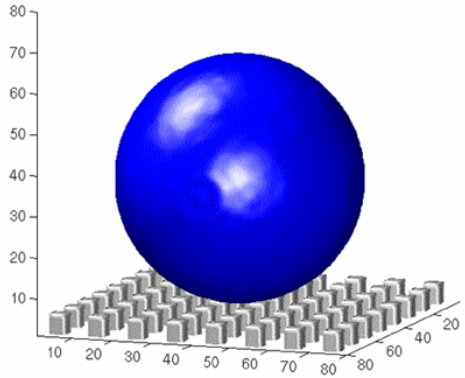
- Polymer dynamics





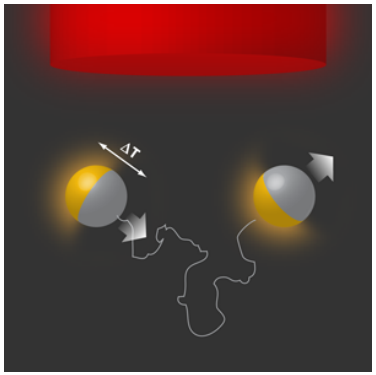
- Drops on micropatterned surfaces

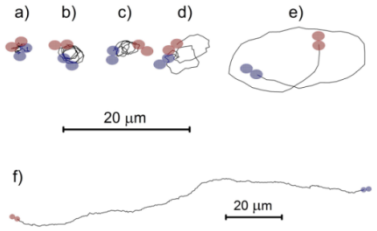


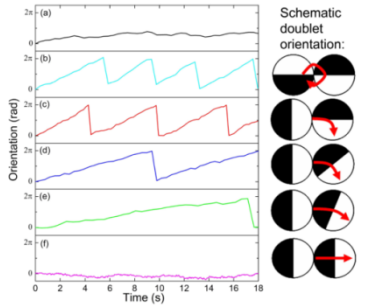


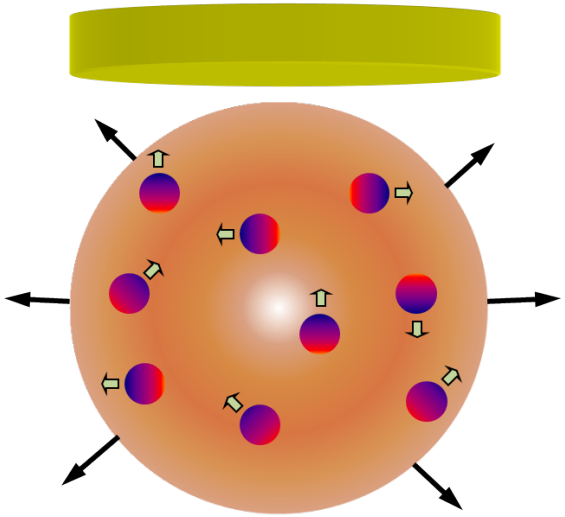
Phoretic Micro-swimmers (since 2004)

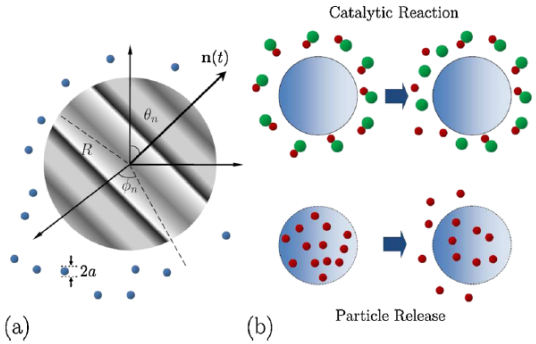
- Self-(Chemo- and Thermo)-Phoretic Colloids, and their
- Anomalous Diffusion
- Long-range (1/r) interaction
- Chemotaxis and Thermotaxis
- Collective Behaviour
- Instabilities (Colloidal Supernova)
- Swarming

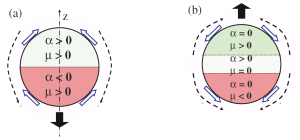


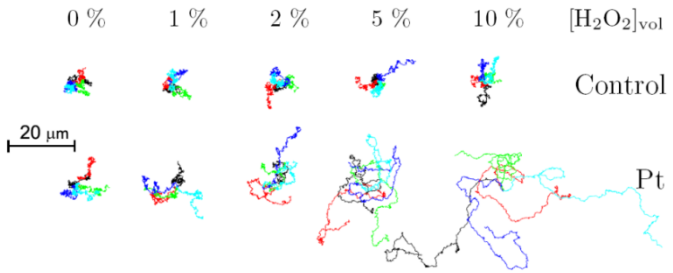












Hydrodynamic Coordination (since 2006)

- Hydrodynamic Synchronization at Low Re
- Generic Conditions, Stability
- Metachronal Waves
- Point Defects and Spiral Defects
- Synchronized Swimming of Chlamydomonas
- Run-and-Tumble Behaviour and Hydrodynamics
- Coordination and Interaction of Sync-Swimmers