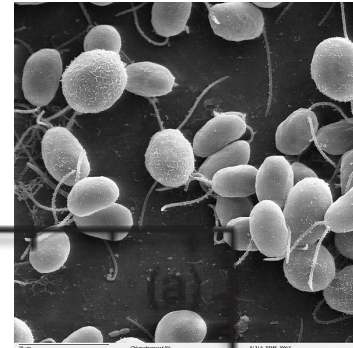
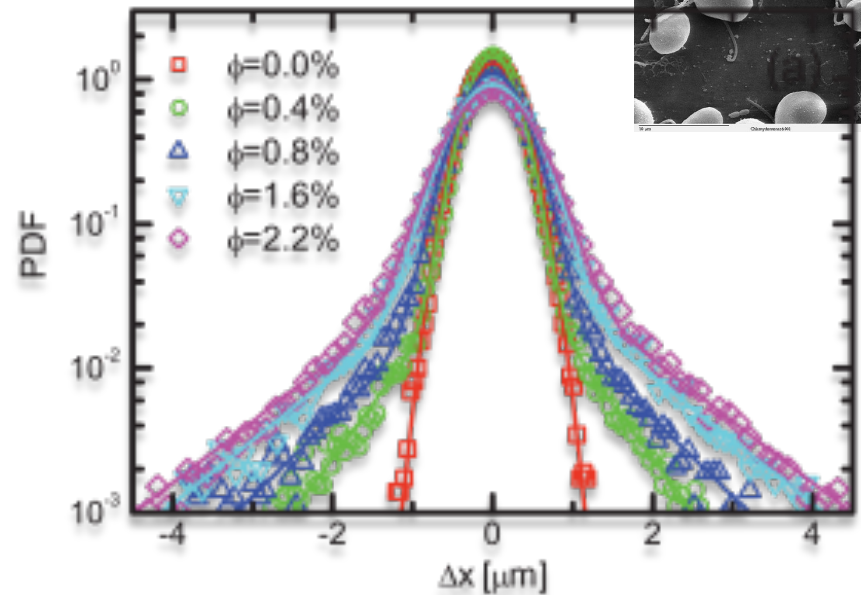


# Low Reynolds number swimming and mixing

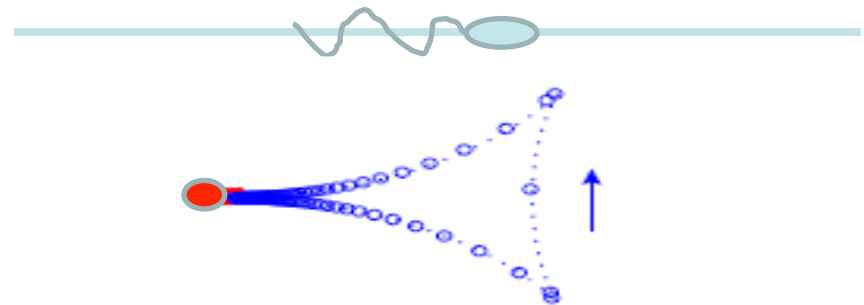
## Mixing:

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



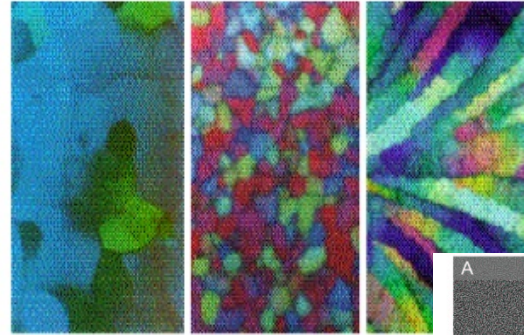
## Swimming:

- Among polymers
- In confined and patterned environments

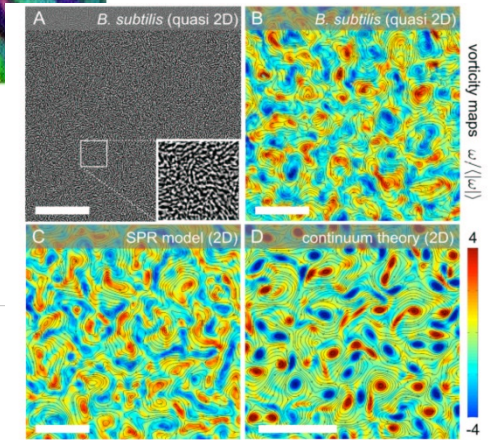
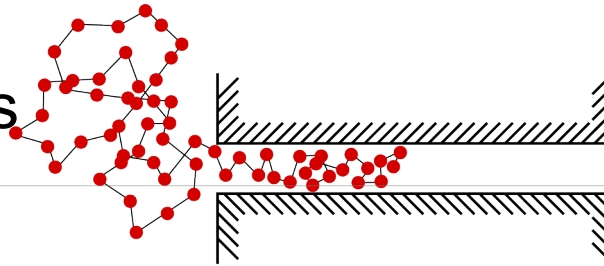


 The image cannot be displayed. Your computer may not have enough memory to open the image, or the image may have been corrupted. Restart your computer, and then open the file again. If the red x still appears, you may have to delete the image and then insert it again.

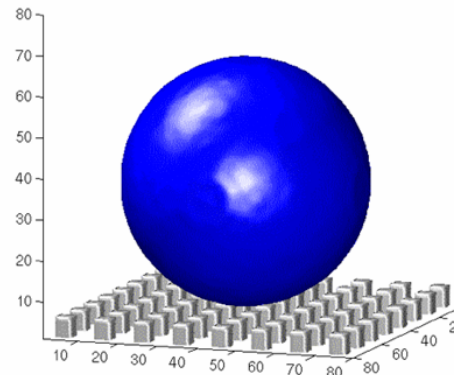
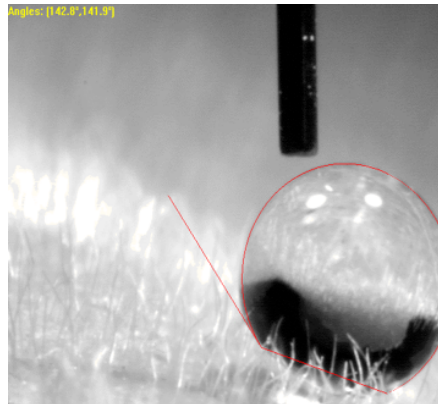
- Active and passive liquid crystals



- Polymer dynamics

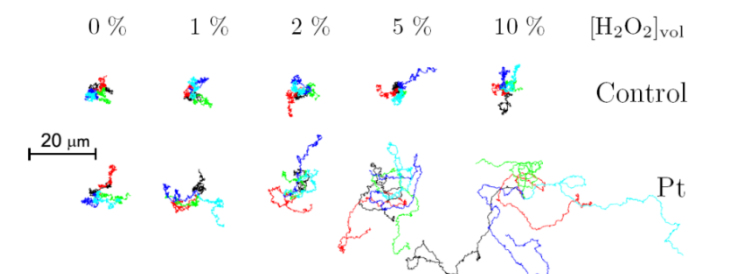
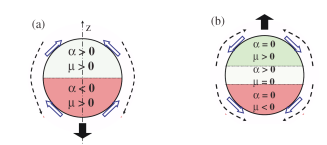
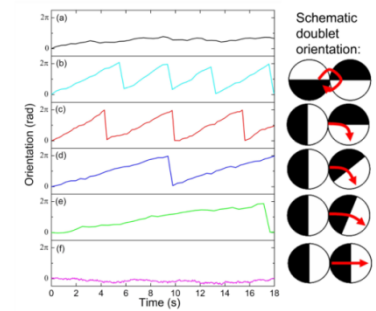
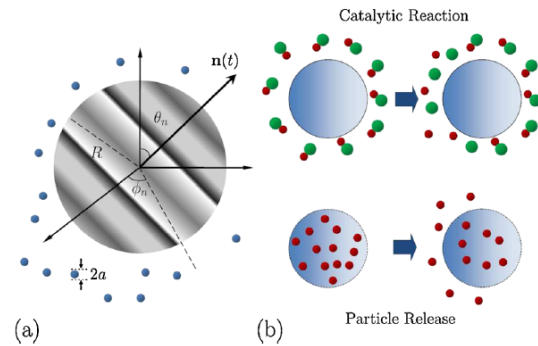
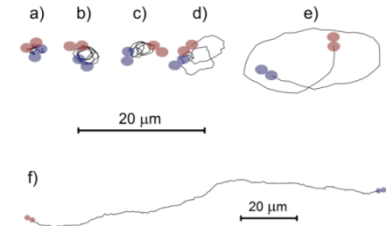
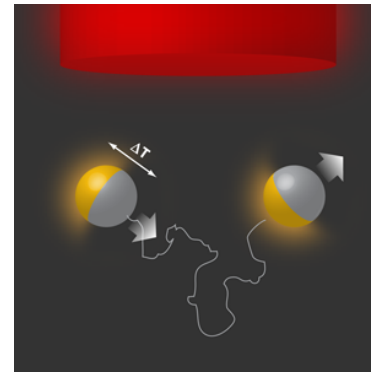
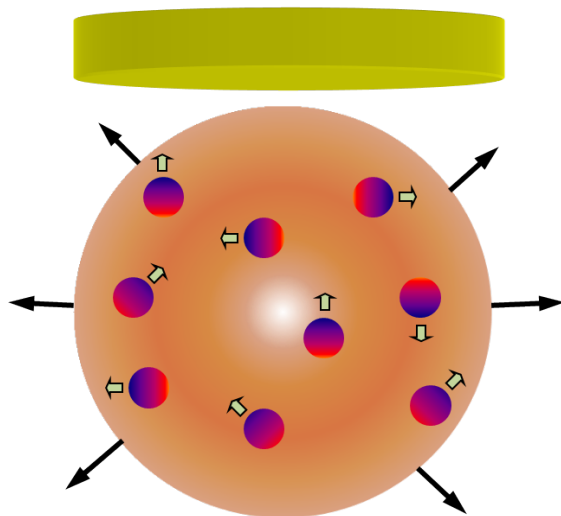


- Drops on micropatterned surfaces



# 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

