

Non-equilibrium & Active Systems

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1st class on **September 14th**

All info on

<http://www.msc.univ-paris-diderot.fr/~jtailleu/>

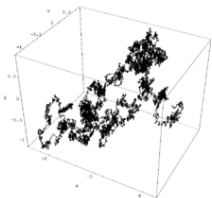
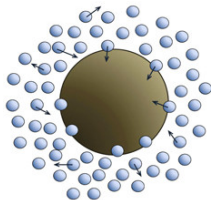
Goals

- Introduce non-equilibrium statistical physics and its recent applications to Active Matter.
- Give you the tools you will need to model and study non-equilibrium systems
- Introduce important examples and hot topics

Organization of lectures

Part I: Relaxations towards equilibrium (Lectures 1-5)

- Dynamics of a **colloid in a bath**
(Construction of **Langevin equation**)
- **Stochastic Itô calculus** (Derivation of the Fokker-Planck equation)
- Currents and **time-reversal symmetry**



Part II: Non-equilibrium & active dynamics (Lectures 6-13)

- **Ratchets**: from Feynman to molecular motors
- **Active particles**: bacteria and self-propelled colloids
- **Collective behaviours in active systems**: phase separation and collective motion

