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CENTER FOR THEORETICAL PHYSICS



## Sommerfeld Theory Colloquium

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CNRS-UNIVERSITÉ PARIS DIDEROT, FRANCE

THE PHYSICS OF ACTIVE MATTER

Over the past ten years, there has been a growing interest among physicists for ‘active matter’, a codename that encompasses systems in which energy is taken from the environment to generate self-propulsion at the single particle level. Active particles, such as run-and-tumble bacteria, self-diffusiophoretic colloids or actin filaments in motility assays, are strongly out-of-equilibrium and exhibit much richer behaviours than their passive counterpart.

In this talk I will review recent progresses regarding the physics of active particles. I will show how simple concepts like pressure, the force density exerted by assemblies of particles on their container, play a new role for active systems because of the lack of equation of state. I will also show how new collective phenomena emerge, from the transition to collective motion to the existence of cohesive matter without cohesive forces, that have no counterpart in thermal equilibrium.

Wednesday, 1 February 2017, 16:15h, Room A348, Theresienstr. 37/III

Prof. E. Frey