

Colloquia

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FALL 2014

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Düsseldorf University, Düsseldorf, Germany

Physics of Active Matter

day

NOVEMBER 19, 2014 WEDNESDAY

location

EE01

time

15:40

ABSTRACT

Ordinary materials are "passive" in the sense that their constituents are typically made by inert particles which are subjected to thermal fluctuations, internal interactions and external fields but do not move on their own. Living systems, like schools of fish, swarms of birds, pedestrians and swimming microbes are called "active matter" since they are composed of self-propelled constituents. Active matter is intrinsically in nonequilibrium and exhibits a plethora of novel phenomena as revealed by a recent combined effort of statistical theory, hydrodynamics and real-space experiments. The colloquium talk provides an introduction into the physics of active matter focussing on biological and artificial microswimmers as key examples of active soft matter. A number of single-particle and collective phenomena in active matter will be addressed ranging from the most disordered state of matter (turbulence) to the most ordered state of matter (crystal).

The Physics Colloquia are designed to address a non-specialist, broad audience and introduce topics of contemporary research through lectures by leading experts. We warmly invite all members of the student body, including undergraduates enrolled in any programme.

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