



› Allgemeines Physikalisches Kolloquium

› Donnerstag, 04.05.2017 um 16 Uhr c.t.

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Pattern formation in active matter – From mechano-chemical waves to mesoscale turbulence

Active matter is constituted by a large number of active “agents” which consume energy in order to move or exert mechanical forces. Examples include self-organising biopolymers like actin in cells, bacterial swarms and aggregates as well as artificial self-propelled colloids and suspensions of microswimmers. The talk surveys a variety of surprising examples for spatiotemporal self-organisation of active matter like mechano-chemical waves in giant amoeba cells and clustering of self-propelled rod-shaped bacteria. Active fluids such as dense suspensions of swimming bacteria have been found to exhibit a new kind of “mesoscale” turbulence at low Reynolds numbers. With the help of agent-based and continuum models, we show that this new form of turbulence is caused by the interplay of active motion, local alignment of swimmers and longer-range hydrodynamic interactions.



