

Physics of Dynamical Biological Systems

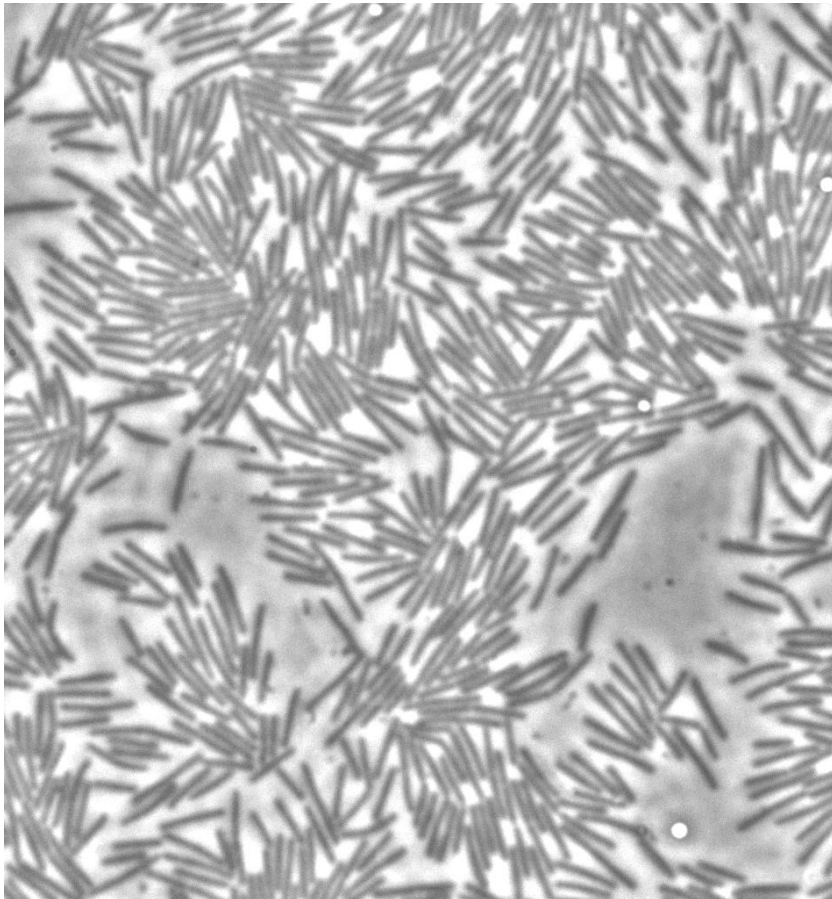
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Collective bacterial motion
Anomalous diffusion and Levy Walk
Hydrodynamics and steric effects
Phase transitions
Flow properties at low R numbers
Correlation lengths and times – directed motion
Velocity and vorticity distributions

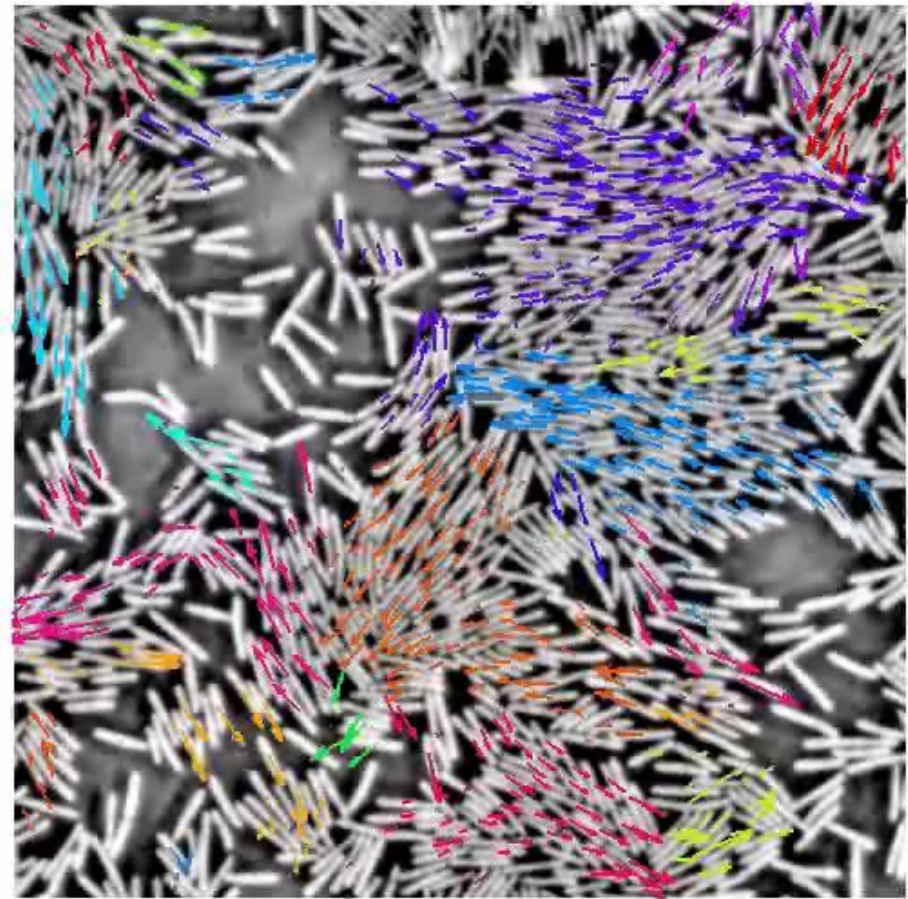
Monolayer Swarming (clustering)

Low packing fraction

Raw movie



Processed movie

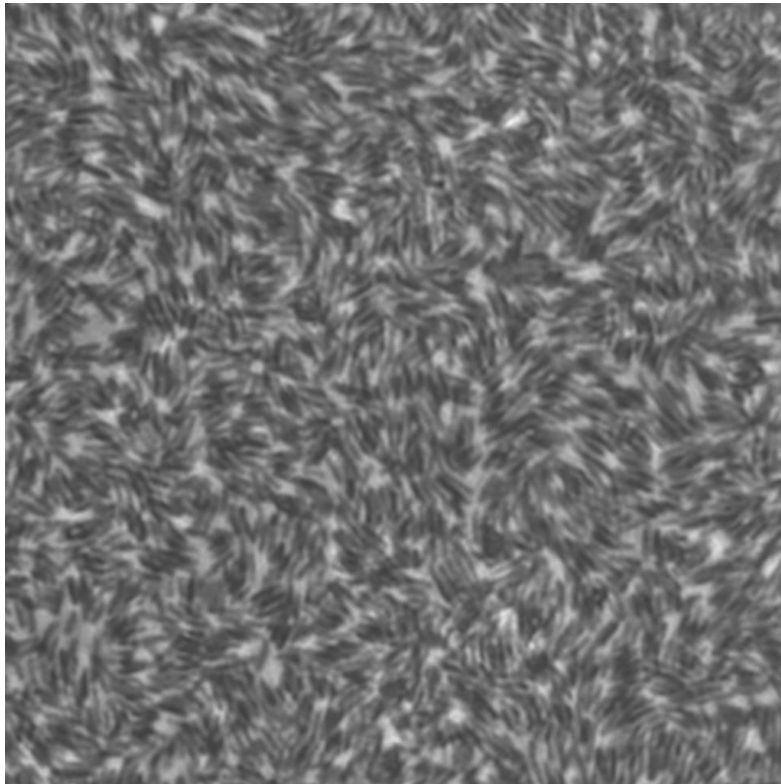


Bacillus subtilis

10 μm

Multilayer Swarming (turbulence)

B. Subtilis 3D swarming



10 μm

Optical Flow – velocity and vorticity

