

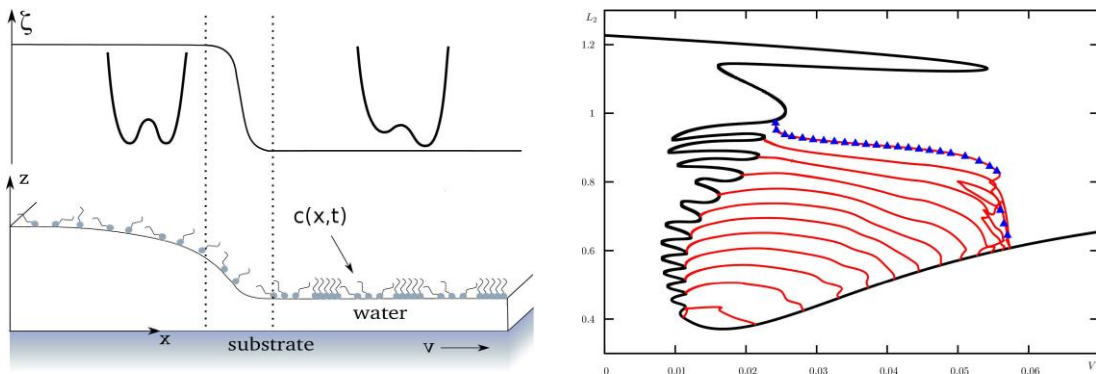
The Physics of Soft and Biological Matter

Unveiling the bifurcation diagram of pattern formation in surfactant monolayer transfer

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Spontaneous pattern formation in deposition processes at receding contact lines has become a versatile tool to coat substrates with well controlled micro- and nanostructures. As a paradigmatic example, the coating of substrates with periodically structured monolayers has in recent years been investigated by theoreticians [1,2] and experimentalists [3,4] alike. Here, we present recent progress [5], allowing for the first time to understand the intricate bifurcation diagram of the system that exhibits a snaking branch of stationary solutions. Each nose of the snake is connected to a branch of time periodic solutions. Using numerical continuation, we detect various local and global bifurcations and investigate how the solution structure depends on the system size. These results are of wide interest for the theoretical description of pattern formation in systems with nontrivial boundary conditions.



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- [2] Köpf, Gurevich, Friedrich, Chi, *Langmuir* 26 (2010) 10444-10447
- [3] Li, Köpf, Gurevich, Friedrich, Chi *Small* 8 (2012) 488-503
- [4] Köpf, Harder, Reiche, Santer, *Langmuir* 27 (2011) 12354-12360
- [5] Köpf, Thiele (in preparation)