SPiELE

Stochastic Processes in EvoLution and Ecology

Bath - Berlin - Frankfurt - Mainz - Warwick

Thomas Hughes, University of Bath

„ Interface evolution in bistable spatial population models: a global approach "

In 2-type spatial stochastic population models exhibiting bistability, interfaces tend to form between regions consisting predominantly of one of the two types. To understand how the population evolves, we may study the dynamics of these interfaces in time. For several bistable systems, it is known from recent work that the limiting interface, under certain rescalings, evolves by a geometric evolution called mean curvature flow. This interface evolution is known to develop singularities in finite time, which imposes a short-time constraint on the convergence results.

In this talk, I will first discuss some models exhibiting this phenomenon, including a variant of the Spatial Lambda Fleming Viot model, and results concerning their interfaces. I will then discuss an ongoing work which uses tools from analysis, in particular level-set methods and the theory of viscosity solutions, to prove that interfaces in a broad class of bistable population models converge *globally in time* to a generalized mean curvature flow. This is joint work with Jessica Lin (McGill).

Time: Monday, 4.12.2023 – 4 P.M. CET

The lecture will be held online. Interested? Link available from Jochen Blath
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