

Oberseminar Stochastik

Am **Dienstag, 7. Januar 2020**, wird

Herr **Matthias Hammer (TU Berlin)**

einen Vortrag halten mit dem Titel:

„The stochastic F-KPP equation with dormancy and on/off-branching-coalescing Brownian motion”

Abstract:

We introduce a class of stochastic partial differential equations with dormancy modeling the spread of two competing alleles in a spatial population where individuals may switch between active and dormant states. We discuss (weak) existence and uniqueness of solutions to the SPDEs and provide an equivalent delay representation of the system. It turns out that these SPDEs give rise to an interesting class of “on/off”-branching-coalescing moment duals. For example, in the special case of the F-KPP equation with dormancy (but no noise), the moment dual is given by a system of “on/off”-branching Brownian motions. This system differs from a classical branching Brownian motion in the way that independently for all individuals, motion and branching may be “switched off” for an exponential amount of time, until they get “switched on” again. As an application of the duality, we show that the spread of the beneficial allele is slowed down in the Fisher-KPP model with dormancy compared to the classical Fisher-KPP model. This shows that dormancy has the potential to slow down fitness waves, in line with intuitive reasoning from ecology.

Based on joint work with Jochen Blath and Florian Nie.

Zeit: Dienstag, 7. Januar 2020, 14 Uhr c.t.

Ort: Raum 05-136, Institut für Mathematik, Staudingerweg 9, 55128 Mainz

Alle Interessierten sind herzlich eingeladen!

gez. Matthias Birkner