Friday 26 May 2023 at 14:15
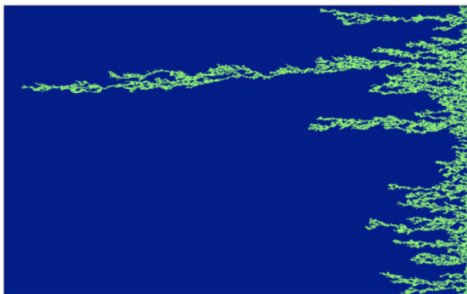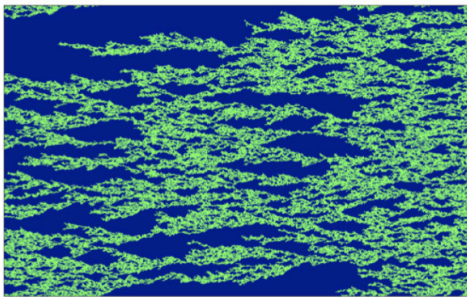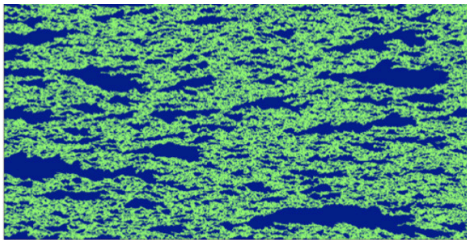
TU Berlin, Math Building, room MA 001   *Tea & Cookies starting at 13:00!*

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Anja Sturm
(U Göttingen)

Interacting particle systems and the contact process on random graphs

Stochastic interacting particle systems describe the time evolution of particle systems that are distributed on a discrete space (such as large finite or infinite graphs). Here, particles are understood in a loose sense so that a large variety of systems can be captured. The random changes to these systems are generally local, and one of the main points of interest is to understand the global and long-time behavior that arises from a particular set of local interaction rules.

In this talk, Sturm will focus on variants of the contact process, a classical interacting particle system that models the spread of an infection in space. Here, the particle at a particular site models the presence of an infection that can be passed on to its connected (uninfected) neighbours at a certain rate. The model also includes spontaneous recovery from the infection and can thus be viewed as an SIS (susceptible-infected-susceptible) epidemic model. Properties of interest for these models are for example the conditions needed for global (or local) long-term survival of the infection. While the classical contact process on lattices (such as $\mathbb{Z}^d$) has been well studied, Sturm will focus on the contact process on a larger variety of graphs (such as trees), random graphs and random graphs that change their connective properties dynamically and randomly over time.

Anja Sturm is professor for Stochastics and its applications at the University of Göttingen. She received her DPhil from Oxford University in 2002 and then covered postdoctoral positions at WIAS and the University of British Columbia, Vancouver. In 2003, she became the first female junior professor at TU Berlin. From 2004 to 2009, she was assistant professor at the University of Delaware, USA before moving to Göttingen.