



FB Mathematik

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Schwerpunkt Stochastik

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Rhein-Main-Kolloquium Stochastik

TU Darmstadt, Goethe-Universität Frankfurt und Gutenberg-Universität Mainz

Friday, 18 July, 2025

3:15 pm: [Ralph Neininger \(GU Frankfurt/Main\)](#) - CLT-Analogs in Random Combinatorial Structures

Abstract: In this talk a couple of parameters of random combinatorial structures related to discrete algorithms are discussed which exhibit almost sure convergence after normalization towards a random limit. The subject of the talk are the fluctuations within such a convergence. Three instances are discussed, firstly a univariate case related to search trees, secondly a periodic case related to urn models where there is only an almost sure approximation by a random periodic object and thirdly a functional case related to a selection algorithm where the fluctuations can be described by a Gaussian process.

4:15 pm: Coffee break

4:45 pm: [Cécile Mailler \(University of Bath\)](#) - A localisation phase transition for the catalytic branching random walk

Abstract: In this joint work with Bruno Schapira, we show the existence of a phase transition between a localisation and a non-localisation regime for a branching random walk with a catalyst at the origin. More precisely, we consider a continuous-time branching random walk that jumps at rate one, with simple random walk jumps on $\mathbb{Z}^d$, and that branches (with binary branching) at rate $\lambda > 0$ everywhere, except at the origin, where it branches at rate $\lambda_0 > \lambda$. We show that, if λ_0 is large enough, then the occupation measure of the branching random walk localises (i.e. converges almost surely without spatial renormalisation), whereas, if λ_0 is close enough to λ , then localisation cannot occur, at least not in a strong sense.

<https://www.stochastik.mathematik.uni-mainz.de/rhein-main-kolloquium-stochastik/>

Venue:

Johannes Gutenberg-Universität Mainz
Building 2413, 5th floor | Room 05-432 (Hilbertraum)
Staudingerweg 9, 55128 Mainz

Any interested parties are welcome.

Yours, Lisa Hartung