FRIEDRICH-SCHILLER-
UNIVERSITÄT
JENA Fakultät für Mathematik und Informatik

Institut für Mathematik

Seminar zur Stochastik

Dienstag, 26. November 2024
14 Uhr s.t.
SR 121, Carl-Zeiß-Str. 3

Prof. Dr. Andriy Pylypenko
(Institute of Mathematics, Ukrainian National Academy of Sciences, Kyjiw)

"The skew Brownian motion and invariance principle for perturbed random walks"

Abstract: We study the Donsker scaling limit of integer-valued random walks perturbed on a finite subset of Z called a membrane. Under very mild assumptions about the law of the random walk's increments inside and outside of the membrane we show weak convergence of the scaled processes to a skew Brownian motion and give an explicit formula for
its permeability parameter in terms of stationary distributions of certain embedded Markov chains. The proof is based on a representation of the original random walk as a function of a multidimensional coordinate process that converges to a Walsh Brownian motion.

The talk is based on the paper
I. Pavlyukevich, A. Pilipenko "Walsh's Brownian Motion and Donsker Scaling Limits of Perturbed Random Walks", (2024), ALEA, Lat. Am. J. Probab. Math. Stat. 21, 1669–1707

Alle Interessierte sind herzlich eingeladen!

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