A U S H A N G

FREIE UNIVERSITÄT BERLIN

Fachbereich Mathematik und Informatik

Promotionsbüro, Arnimallee 14, 14195 Berlin

D I S P U T A T I O N

Dienstag, 12.09.2023, 10:00 Uhr

Ort: Seminarraum 031

(Fachbereich Mathematik und Informatik, Arnimallee 7, 14195 Berlin)

Disputation über die Doktorarbeit von

Herrn Toyomu Matsuda

Thema der Dissertation:

Fractional Stochastic Calculus via Stochastic Sewing

Thema der Disputation:

On random interlacements

Die Arbeit wurde unter der Betreuung von **Prof. Dr. N. Perkowski** durchgeführt.

Abstract: In the seminal work (Ann. of Math, 2010), Sznitman introduced a model of random interlacements that consists of doubly infinite trajectories on $\mathbb{Z}^d$ ($d ≥ 3$), where trajectories are essentially sampled from those of two-sided simple random walk. Random interlacements arise as the limiting distribution of the trace of simple random walk on the torus of size N run by time $u \times N^d$, with some positive parameter u. Alternatively, they can be defined through certain Poisson point process on the space of trajectories on $\mathbb{Z}^d$, with the parameter u measuring how many trajectories come into the picture.
In the first part of the talk, a pedagogical overview of random interlacements will be provided. Especially, we discuss the phase transition of the model with respect to the parameter u; that is, for small u the complement of random interlacements possesses a unique unbounded component, while all components are finite for large u. In the second part of the talk, we briefly review another innovative work (Invent. Math, 2023) by Sznitman on the asymptotic probability regarding regions disconnected by random interlacements.

Die Disputation besteht aus dem o. g. Vortrag, danach der Vorstellung der Dissertation einschließlich jeweils anschließenden Aussprachen.

Interessierte werden hiermit herzlich eingeladen

Der Vorsitzende der Promotionskommission
Prof. Dr. N. Perkowski