A U S H A N G

FREIE UNIVERSITÄT BERLIN

Fachbereich Mathematik und Informatik

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D I S P U T A T I O N

Mittwoch, 6. Juli 2022, 08:15

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Disputation über die Doktorarbeit von

Frau Luzie Helfmann

Thema der Dissertation:
Non-stationary Transition Path Theory with applications to tipping and agent-based models

Thema der Disputation:
Large Deviation Results for Dynamics of Many Agent

Die Arbeit wurde unter der Betreuung von **Prof. Dr. C. Schütte** durchgeführt.

Abstract: Large Deviation Theory quantifies how the probabilities of rare events decrease in the limit of small noise. We will start with giving an intuition of the theory for the empirical average of N independent and identically distributed random variables and compare Large Deviation results in the limit of large N with the Law of Large Numbers and the Central Limit Theorem. We then discuss the results for certain scaled Markov jump processes, which can also be used as models for agent dynamics or chemical species. Here, the scaling parameter is given by the number of agents or particles, N. As is well known, when N becomes large, the dynamics converge to the solution of an ordinary differential equation (ODE). But Large Deviation Theory allows us to also quantify the probabilities for realizations deviating from that limiting ODE path.

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. C. Schütte