



Wir laden Sie sehr herzlich ein zu einem Vortrag im Rahmen des
Oberseminars Stochastische Analysis:

Prof. Dr. Georg Menz
(UCLA)

“The Positive Rates Conjecture in Nearest-Neighbor Cellular Automata”

Dienstag, 9. Januar 2024

Beginn: **15.15 Uhr**

Raum: **F426**

Interessenten sind herzlich willkommen!

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Abstract: A cellular automaton describes a process in which cells evolve according to a set of rules. Which rule is applied to a specific cell only depends on the states of the neighboring and the cell itself. Considering a one-dimensional cellular automaton with finite range, the positive rates conjecture states that and under the presence of noise the associated stationary measure must be unique. We restrict ourselves to the case of nearest-neighbor interaction where simulations suggest that the positive rates conjecture is true. After discussing a simple criterion to deduce decay of correlations, we show that the positive rates conjecture is true for almost all nearest-neighbor cellular automata. The main tool is comparing a one-dimensional cellular automaton to a properly chosen two-dimensional Ising-model. We outline a pathway to resolve the remaining open cases and formulate a conjecture for general Ising models with odd interaction.

This presentation is based on collaborative work with Maciej Gluchowski from the University of Warsaw and Jacob Manaker from UCLA.