

FB Mathematik

FB Physik, Mathematik und Informatik
Institut für 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, 17 April 2026

3:15 pm: [Júlia Komjáthi, TU Delft](#)

“Schramm’s locality conjecture for long-range percolation”

Abstract: Schramm’s locality conjecture says the following: consider a sequence $G(n)$ of infinite, vertex transitive graphs that converge locally to a limiting graph G . For instance, a $(\mathbb{Z}/n\mathbb{Z})^3 * \mathbb{Z}^2$ converges to \mathbb{Z}^5 as n tends to infinity. In Bernoulli nearest neighbor percolation, we keep each edge with probability p , and $p_c(G)$ is then critical edge-retention probability for seeing an infinite component in the kept graph. Then, the locality conjecture says that $p_c(G(n))$ converges to $p_c(G)$. Recently this conjecture has been solved by a sequence of papers. In this talk we prove part of the locality conjecture for long-range percolation. Long-range percolation is a model where each pair of vertices in $G(n)$ may form an edge, but the probability of the edge decreases with the graph distance between the two vertices. Assuming that $G(n)$ is a graph of polynomial ball-growth with at least quadratic asymptotic growth for all sufficiently large n , we show that the critical parameter of long-range percolation converges to that of the critical parameter on G . The proof contains some basic structure theory of vertex transitive graphs, renormalisation techniques, and making use of the long-edges.

Joint work with Yago Moreno Alonso.

4:15 pm: Coffee break

4:45 pm: [Anja Sturm, Georg-August Universität Göttingen](#)

“On min-max games on trees and beyond”

Abstract: We study a random game in which two players in turn play a fixed number of moves. For each move, there are two possible choices. To each possible outcome of the game we assign a winner in an i.i.d. fashion with a fixed parameter p . In the case where all different game histories lead to different outcomes, a classical result due to Pearl (1980) says that in the limit when the number of moves is large, there is a sharp threshold in the parameter p that separates the regimes in which either player has with high probability a winning strategy.

We are interested in a modification of this game where the outcome is determined by the exact sequence of moves played by the first player (as in a game tree) and by the number of times the second player has played each of the two possible moves. We show that also in this case, there is a sharp threshold in the parameter p that separates the regimes in which either player has with high probability a winning strategy. Since in the modified game, different game histories can lead to the same outcome, the graph associated with the game is no longer a tree which means independence is lost. As a result, the analysis becomes more complicated and open problems remain.

This is joint work with Jan Swart (UTIA Prague) and Natalia Cardona Tobon (Universidad Nacional de Colombia).

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

Venue:

Johann Wolfgang Goethe Universität Frankfurt
Room 711, 7th floor
Robert-Mayer-Straße 10
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All interested parties are welcome

Dr. Marco Seiler