

UNIVERSITÄT BONN
Institut für Angewandte Mathematik
Prof. Dr. Karl-Theodor Sturm
Prof. Dr. Adam Timar
Dr. Robert Philipowski

Seminar in summer term 2009

Path Properties of Diffusions and Random Walks

The seminar will deal with the following topics:

- Brownian excursions and Itô measure
- Path properties of Brownian motion: double and multiple points, Hausdorff dimension
- Random walks, diffusions and heat kernels on Cayley graphs
- Intersections of random walks
- Stochastic Loewner evolution

We are going to use the following books and lecture notes:

- G. F. Lawler: Conformally Invariant Processes in the Plane
- G. F. Lawler: Intersections of Random Walks
- G. F. Lawler: Schramm-Loewner Evolution
- G. F. Lawler, V. Limic: Symmetric Random Walk
- Y. Peres: An Invitation to Sample Paths of Brownian Motion
- C. Pittet, L. Saloff-Coste: A Survey on the Relationships between Volume Growth, Isoperimetry, and the Behavior of Simple Random Walk on Cayley Graphs, with Examples
- D. Revuz, M. Yor: Continuous Martingales and Brownian Motion
- W. Werner: Random Planar Curves and Schramm-Loewner Evolutions

Necessary prerequisites: Stochastic calculus I

If you are interested in participating in the seminar you are invited to contact Prof. Dr. Adam Timar (phone: 0228 / 73 62 237, e-mail: adam.timar@hcm.uni-bonn.de) or Dr. Robert Philipowski (phone: 0228 / 73 34 20, e-mail: philipowski@wiener.iam.uni-bonn.de).