Berlin Leipzig Seminar

Analysis/probability theory

Fourth Meeting Summer Term 2005

Jointly organized by the University of Leipzig, the Max Planck Institute Leipzig, and the Technical University Berlin

Date: Friday, 8 July 2005

Venue:

Max Planck Institute for Mathematics in the Sciences, Inselstr. 22, 04103 Leipzig, Room G10

Program:

Reading seminars:

10:30–11:30: **Roman Kotecký (Charles University Prague)**

TBA

11:45–12:45: **Stefan Müller (Max-Planck Institute, Leipzig)**

Sufficient conditions for the Cauchy-Born rule

Invited lecture:

14:00–14:50: **Peter Mörters (Bath University)**

The universality classes in the parabolic Anderson model

Abstract: We discuss the long time behaviour of the parabolic Anderson model, the Cauchy problem for the heat equation with random potential on $\mathbb{Z}^d$. We consider general i.i.d. potentials and show that exactly *four* qualitatively different types of intermittent behaviour can occur. These four universality classes depend on the upper tail of the potential distribution: (1) tails at ∞ that are thicker than the double-exponential tails, (2) double-exponential tails at ∞ studied by Gärtner and Molchanov, (3) a new class called *almost bounded potentials*, and (4) potentials bounded from above studied by Biskup and König. The new class (3), which contains both unbounded and bounded potentials, is studied in both the annealed and the quenched setting. We show that intermittency occurs on unboundedly increasing islands whose diameter is slowly varying in time. The characteristic variational formulas describing the optimal profiles of the potential and of the solution are solved explicitly by parabolas, respectively, Gaussian densities. The talk is based on joint work with Wolfgang König and Remco van der Hofstad.

Everybody is welcome to attend. Wolfgang König, Leipzig University