Berlin Leipzig Seminar
Analysis/probability theory
First Meeting Summer Term 2005

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

Date:

Friday, 15 April 2005

Venue:

Technical University Berlin, Institute for Mathematics, Str. des 17. Juni 136, 10623 Berlin
Room MA313/314

Program:

Reading seminars:

10:20–11:30: **Nicolas Dirr (Max Planck Institute Leipzig)**
Interfaces under the influence of random and periodic fields

12:50–14:00: **Jean-Dominique Deuschel (Technical University Berlin)**
Hydrodynamical limes for $\nabla\phi$ models

Invited lecture:

14:15–15:05: **Bob Pego (Carnegie Mellon University)**
Dynamic scaling, Smoluchowski's coagulation equation and Burgers turbulence

Abstract: We advocate an approach to dynamic scaling analysis in the language of dynamical systems but with roots in the classical limit theorems of probability. In this framework we study Smoluchowski's coagulation equation, a fundamental mean-field model for cluster coalescence, for 'solvable' rate kernels. We classify all scaling limits, and show that the "scaling attractor" is characterized by a Levy-Khintchine representation that linearizes the dynamics on the attractor. Our results apply in particular to a basic model for understanding the statistics of solutions of nonlinear PDEs. Via work of J. Bertoin, we obtain a complete classification of universality classes for scaling limits of shock size distributions for the inviscid Burgers equation with initial velocity random with stationary, independent increments and no positive jumps. This work is joint with Govind Menon (Brown).

Everybody is welcome to attend.

Wolfgang König, University of Leipzig