Berlin Leipzig Seminar
Analysis/probability theory
Second Meeting Winter Term 2006/07

Organized by the DFG Research Group *Analysis and Stochastics in Complex Physical Systems*

DATE:

Friday, 1 December 2006

VENUE:

Max Planck Institute for Mathematics in the Sciences, Inselstr. 22, 04103 Leipzig
Room A01

PROGRAM:

10:30 – 11:30: **Lorenzo Zambotti (Université Paris VI)**

Stochastic models for the evolution of a small droplet on a wall

Abstract: We present three stochastic models for the evolution of an interface near a wall in (1+1)-dimension. The interface can represent for instance the boundary of a droplet. The stationary measure involves random walks with constraints in a microscopic description and processes related to Brownian motion in an appropriate scale limit. The evolution is described by stochastic PDEs with an obstacle (the wall) and in some cases it is possible to study the (random) contact set in detail.

11:40–12:40: **Andrea Braides (Università Roma Tor Vergata)**

Variational problems with percolation

Abstract: I report on some recent results on the overall behaviour of energies defined on lattice systems with random interactions. We define a deterministic macroscopic continuum energy that can be thought as describing the asymptotic behaviour of variational problems defined on the rescaled lattices as the lattice parameter tends to 0. Percolation issues arise both in the determination of the limit energy densities and in proving coerciveness properties.

14:00–15:00: **Volker Bach (Universität Mainz)**

The renormalized electron mass and other topics in nonrelativistic quantum electrodynamics

Abstract: In this lecture I review recent progress in the mathematical analysis of the spectral theory for nonrelativistic matter interacting with the (UV-regularized) quantized radiation field. My main focus lies on results obtained in joint collaborations with T. Chen, J. Fröhlich, M. Könenberg, A. Pizzo, and I.M. Sigal.

Everybody is welcome to attend.   Wolfgang König, University of Leipzig