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Abstracts

Zdzislaw Brzezniak (York)
On magnetisation reversal for a ferromagnetic wire

We prove the existence and the uniqueness of a strong solution to one space-dimensional stochastic Landau-Lifshitz Gilbert Equations and establish the Large Deviation Principle for the laws of the solutions on finite time intervals. We apply these results to the study of magnetisation reversal with nontrivial anisotopy energy. This is based on joint research with B Goldys and T Jegaraj.

Nicolas Burq (Paris)
Stabilisation of wave equations with rough damping

For the damped wave equation on a compact manifold with *continuous* dampings, the geometric control condition is necessary and sufficient for uniform stabilization. However, for bounded (L^∞) damping, almost nothing is known and the question of determining geometric conditions remains essentially open. In this article, on the two dimensional torus, in the special case where $a(x) = \sum_{j=1}^{N} a_j 1_{x\in R_j}$ (R_j are rectangles), we give a very simple necessary and sufficient geometric condition for uniform stabilisation.

Nicolai Krylov (Minnesota)
On the existence of W^2_p solutions for fully nonlinear elliptic equations under either relaxed or no convexity assumptions

We establish the existence of solutions of fully nonlinear elliptic second-order equations like $H(v, Dv, D^2v, x) = 0$ in smooth domains without requiring H to be convex or concave with respect to the second-order derivatives. Apart from ellipticity nothing is required of H at points at which $|D^2v| \leq K$, where K is any given constant. For large $|D^2v|$ some kind of relaxed convexity assumption with respect to D^2v mixed with a VMO condition with respect to x are still imposed. The solutions are sought in Sobolev classes. We also establish the solvability without almost any conditions on H, apart from ellipticity, but of a "cut-off" version of the equation $H(v, Dv, D^2v, x) = 0$.