MATHEMATIKKOLLOQUIUM

Das Institut für Mathematik lädt zu folgendem Vortrag ein:

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Controllability and qualitative properties of the solutions to SPDEs driven by boundary Lévy noise

Let u be the solution to the following stochastic evolution equation

$$(1) \quad \begin{cases} du(t,x) = Au(t,x)\,dt + F(u(t))\,dt + B\,\sigma(u(t,x))\,dL(t), & t > 0; \\ u(0,x) = x \end{cases}$$

taking values in an Hilbert space H, where L is a $\mathbb{R}$ valued Lévy process, $A : H \to H$ an infinitesimal generator of a strongly continuous semigroup, $\sigma : H \to \mathbb{R}$ bounded from below and Lipschitz continuous, and $B : \mathbb{R} \to H$ a possibly unbounded operator. A typical example of such an equation is a stochastic partial differential equation with boundary Lévy noise. Let $\mathcal{P} = (\mathcal{P}_t)_{t \geq 0}$ be the corresponding Markovian semigroup.

We show that, if the system

$$(2) \quad \begin{cases} du(t) = Au(t)\,dt + F(u(t)) + B\,v(t)\,dt, & t > 0; \\ u(0) = x \end{cases}$$

is approximate controllable in time $T > 0$ with control v, then under some additional conditions on B and A, for any $x \in H$ the probability measure $\mathcal{P}_T^\star \delta_x$ is positive on open sets of H. Secondly, we investigate under which condition on the Lévy process L and on the operators A and B the solution to Equation (1) is asymptotically strong Feller, respectively, has a unique invariant measure. We apply these results to the damped wave equation driven by Lévy boundary noise.

Zeit: **Mittwoch, den 19. Februar 2014 um 17.15 Uhr**

Ort: **Victor-Franz-Hess Haus, Technikerstraße 25, HS F**

Gäste sind herzlich willkommen!

Mechthild Thalhammer