Institut für Stochastik der HUB | Arbeitsgruppe Wahrscheinlichkeitstheorie der U Potsdam

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INTERNATIONAL RESEARCH TRAINING GROUP

Stochastic Models of Complex Processes

Wednesday, February 9, 2011 – 17:15

Speaker

Tanja Kramm (TU Berlin)

Title

Small deviations for Lévy processes

Abstract: We study the small deviation problem $\log \mathbb{P}(||\mathbb{X}|| \leq \varepsilon)$, as $\varepsilon \to 0$, for d-dimensional Lévy processes X under the supremum norm and for real valued Lévy processes X under the L_p-norm.

For a certain class of d-dimensional Lévy processes we determine the asymptotic rate under the supremum norm. Furthermore, we discuss why the techniques of the proof do not work for genaral d dimensional Lévy processes.

With respect to the L_p-norm we specify a necessary and sufficient condition for which $\mathbb{P}(||\mathbb{X}|| \leq \varepsilon) > 0$ for all $\varepsilon > 0$. Particularly, we show that a Lévy process with nonvanishing Gaussian component has the same (strong) asymptotic small deviation rate under the L_p-norm as under the supremum norm.

Location: MA 041, Straße des 17. Juni 136, TU Berlin

http://www2.math.tu-berlin.de/smcp/