Conference Pathwise Stochastic Analysis and Applications

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Rough stochastic differential equations

Rough SDE are hybrid differential equations that (simultaneously) generalize classical rough and stochastic Ito differential equations. Generic solutions are not semimartingales, but constitute natural examples of rough semimartingales, recently introduced by P. Zorin-Kranich and the writer of these lines. Existence and uniqueness of rough SDEs rely on the notion of stochastic controlled rough path and ideas from stochastic sewing. The resulting theory has applications in robust filtering, pathwise stochastic control theory, McKean-Vlasov equations with common noise and the corresponding rough (linear / HJB-type / non-local) PDE theories.

From a joint work with A. Hocquet et K. Lê.
