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## Rough path analysis and $G$-Brownian motion on manifolds

**Abstract**

This talk is based on a joint work with Xi Geng and Danyu Yang. A $G$-Brownian motion is a stochastic process associated with a fully nonlinear elliptic operator as that of Brownian motion with the heat operator, but the probability measure is substituted by a capacity. Rough path analysis is a natural tool in dealing with the stochastic calculus under capacity, and thus generalize the Malliavin–Ells–Elworthy's construction to $G$-Brownian motion on manifolds. As a consequence we are able to give a probability representation of a class of fully nonlinear equations on manifold.