

Geometry of Stochastic Delay Differential Equations

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Abstract

Stochastic delay differential equations (SDDE) on a manifold M depend intrinsically on a connection ∇ in this space. The main geometric result in this notes concerns the horizontal lift of solutions of SDDE on a manifold M to an SDDE in the frame bundle BM , hence the lifted equation should come together with the prolonged horizontal connection ∇^H on BM . We show that every horizontal semimartingale can be represented as a solution of an SDDE.

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