

The exponential Lie series and a Chen-Strichartz formula for Lévy stochastic differential equations

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For deterministic differential equations and continuous stochastic differential equations, Chen-Strichartz solution expansions are well-known to play a key role in the development of numerical integration schemes that preserve qualitative properties of the solution to the equation. In this talk, we will derive a Chen-Strichartz series representation for the solution of Lévy-driven stochastic differential equations, that is a series expansion of the logarithm of the flow map in terms of commutators of vector fields. We will provide an explicit expression for the components in this series, generalising previous results for deterministic and continuous stochastic differential equations.