Ergodicity and mixing for locally monotone stochastic evolution equations with Lévy noise

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Abstract

We establish general quantitative conditions for stochastic evolution equations with locally monotone drift and degenerate additive Lévy noise in variational formulation resulting in the existence of a unique invariant probability measure for the associated ergodic Markovian Feller semigroup. We prove improved moment estimates for the solutions and the e-property of the semigroup. Furthermore, we provide quantitative upper bounds for the Markovian ε-mixing times. Examples include the stochastic incompressible 2D Navier-Stokes equations, shear thickening stochastic power-law fluid equations, the stochastic heat equation, as well as, stochastic semilinear equations such as the 1D stochastic Burgers equation.

Joint work with Gerardo Barrera (IST Lisbon).

*Punctual, i.e. sine tempore!