

Infinite-dimensional unbiased MCMC for exact inference in SDE driven models

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Resumo/Abstract:

Exact methodologies for analytically intractable infinite-dimensional problems have been an area of intensive investigation in the last few years. In particular, models including continuous time stochastic processes which are the solution of some given stochastic differential equation (SDE). The most promising solutions rely on novel simulation techniques, in special, retrospective Monte Carlo ones. In this talk, I describe a novel general methodology to deal with inference problems for SDE driven models in an exact setup. It consists of an infinite-dimensional unbiased MCMC with Barker's steps. Retrospective sampling and Bernoulli factories play an important role in this context. I will then discuss its implementation for two families of models: jump-diffusions and diffusion-driven Cox processes.