Probing Probability Measures in High Dimensions

Andrew Stuart a.m.stuart@warwick.ac.uk
Warwick

Abstract

A significant challenge arising in many application areas is to obtain information from probability measures in high dimensions. A large and interesting class of problems of this type arise from the approximation of measures in Hilbert space which have a density with respect to a Gaussian measure. I will describe a range of new Monte Carlo-Markov chain algorithms for probing such probability measures, and describe the techniques that have been developed in order to analyze them. These techniques exploit recent developments in the ergodic theory of stochastic PDEs and stochastic processes in Hilbert space.