

Title:

Hybrid samplers for ill-posed inverse problems

Abstract:

In the Bayesian approach to ill-posed inverse problems, regularization is imposed by specifying a prior distribution on the parameters of interest and MCMC samplers are used to extract information about its posterior distribution.

In this talk we investigate the convergence properties of the random-scan random walk Metropolis (RSM) algorithm for posterior distributions in ill-posed inverse problems. We provide an accessible set of sufficient conditions, in terms of the observational model and the prior, to ensure geometric ergodicity of RSM samplers of the posterior distribution. We illustrate how these conditions can be checked when estimating the coefficients of a partial differential equation in a Bayesian framework.