
Joint Statistics Seminar

The Hong Kong University of Science and Technology

Particle Markov Chain Monte Carlo Methods

by

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Date: November 2, 2009 (Monday)

Time: 4:00 p.m. - 5:00 p.m.

Venue: Room 3401 (Lift 17/18)

Abstract

Markov chain Monte Carlo (MCMC) and sequential Monte Carlo (SMC) methods have emerged as the two main tools to sample from high-dimensional probability distributions. Although asymptotic convergence of MCMC algorithms is ensured under weak assumptions, the performance of these algorithms is unreliable when the proposal distributions used to explore the space are poorly chosen and/or if highly correlated variables are updated independently. We show here how it is possible to build efficient high-dimensional proposal distributions using SMC methods. This allows us not only to improve over standard MCMC schemes but also to make Bayesian inference feasible for a large class of statistical models where this was not previously the case. We demonstrate these algorithms on a non-linear state-space model and a Lévy-driven stochastic volatility model.

Reference: C. Andrieu, A. Doucet and R. Holenstein, Particle Markov chain Monte Carlo methods (with discussion), *Journal Royal Statistical Soc. B*, to appear.

❖ ***All interested are welcome!*** ❖

For details, please contact ISOM Department.