

SEMINAR

April 3rd, 2014 at 3:30pm

Sidney Smith Hall, Room 1074

Refreshments will be served at 3:15pm

**Bayesian Inference and Data Augmentation Schemes for Spatial,
Spatiotemporal and Multivariate Log-Gaussian Cox Processes in R**
Ben Taylor, University of Lancaster

Log-Gaussian Cox processes are an important class of models for spatial and spatiotemporal point-pattern data. Delivering robust Bayesian inference for this class of models presents a substantial challenge, since Markov chain Monte Carlo (MCMC) algorithms require careful tuning in order to work well. To address this issue, we describe recent advances in MCMC methods for these models and their implementation in the R package `lgcp`. We also present methods for Bayesian inference in two further classes of model based on the log-Gaussian Cox process. The first of these concerns the case where we wish to fit a point process model to data consisting of event-counts aggregated to a set of spatial regions: we demonstrate how this can be achieved using data-augmentation. The second concerns Bayesian inference for a class of marked-point processes specified via a multivariate log-Gaussian Cox process model.