Data Science Seminar

Hosted by Department of Mathematical Sciences

- Date: Tuesday, May 1, 2018
- Time: 12:05pm – 1:35pm
- Room: WH-329
- Speaker: Chen Liang (Binghamton University)
- Title: Goodness of fit tests for clustered spatial point processes

Abstract

We developed a series of goodness-of-fit tests for popular parametric and semi-parametric models for clustered spatial point processes. Although there have been extensive studies on efficient estimations of model-based first and second order intensity functions, much less has been done for testing validity of these models. Moreover, most existing tests for spatial point processes rely on MCMC simulations that are not well-justified and therefore do not achieve nominal sizes. On the contrary, the proposed test statistics all have closed form asymptotic distributions and can be computed efficiently without any MCMC simulation. Size and power of each test were justified both theoretically and empirically. Our simulation studies demonstrate that not only all proposed tests achieve nominal Type I error rates but also have greater power than existing methods under local alternatives.