
Joint Statistics Seminar

The Hong Kong University of Science and Technology

Spatial Epidemics and Critical Branching Random Walks

by

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Date: February 3, 2009 (Tuesday)

Time: 4:30 p.m. - 5:30 p.m.

Venue: Room 4379 (Conference Room, Lift 17/18)

Abstract

Spatial epidemic models such as susceptible-infected-recovered (SIR) can be used to model the spreading of disease/information/investor behavior etc. In this talk, we show how one can use knowledge about branching random walks (BRWs) to study the spatial distribution of SIR epidemics, and discuss the relevant asymptotic properties of BRWs. In particular, we study the asymptotic behavior of: (1) the number of particles on a "typical" occupied site, (2) the number of occupied sites and (3) the maximal number of particles on a single site. I will also talk about (4) the limiting behavior of the distribution of all particles ever born during the whole process when the dimension is 2 or 3, which has to do with the local time density of super-Brownian motion.

Based on joint work with Steven Lalley.

Biography

Xinghua Zheng is a postdoctoral fellow in the Department of Mathematics at the University of British Columbia. He earned his Ph.D. in Statistics from the University of Chicago, M.S. degree in Mathematics from Peking University and B.S. degree in Mathematics from Beijing Normal University. His research interests lie in probability theory and statistical inference for financial models.

❖ *All interested are welcome!* ❖

For details, please contact ISOM Department.