



統計科學研究所  
INSTITUTE OF  
STATISTICAL SCIENCE



## Seminar

Title : Iterative Estimating Equations for Disease Mapping  
with Spatial Zero-inflated Poisson Data

Speaker : Dr. Pei-Sheng Lin ( 林培生 研究員 )  
(Institute of Population Health Sciences, National  
Health Research Institutes)

Time : 10:30 ~ 12:00, Monday, April 22, 2024

Place : Auditorium, B1F, Institute of Statistical Science

## Abstract

Spatial epidemiology often involves the analysis of spatial count data with an unusually high proportion of zero observations. While Bayesian hierarchical models perform very well for zero-inflated data in many situations, a smooth response surface is usually required for the Bayesian methods to converge. However, for infectious disease data with excessive zeros, a Wombling issue with large spatial variation could make the Bayesian methods infeasible. To address this issue, we develop estimating equations associated with disease mapping by including over-dispersion and spatial noises in a spatial zero-inflated Poisson model. Asymptotic properties are derived for the parameter estimates. Simulations and data analysis are used to assess and illustrate the proposed method.

※ Tea reception starts at 10 : 10.

※ Online live streaming through Cisco Webex will be available