

# *Joint Seminar*

UNIVERSITY OF GEORGIA  
DEPARTMENT OF STATISTICS  
DEPARTMENT OF EPIDEMIOLOGY AND BIostatISTICS

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## **“Optimal estimation of the intensity function of a spatial point process”**

Although optimal from a theoretical point of view, maximum likelihood estimation for Cox and cluster point processes can be cumbersome in practice due to the complicated nature of the likelihood function and the associated score function. It is therefore of interest to consider alternative more easily computable estimating functions. We derive the optimal estimating function in a class of first-order estimating functions. The optimal estimating function depends on the solution of a certain Fredholm integral equation and reduces to the likelihood score in case of a Poisson process. We discuss the numerical solution of the Fredholm integral equation and note that a special case of the approximated solution is equivalent to a quasi-likelihood for binary spatial data. The practical performance of the optimal estimating function is evaluated in a simulation study and a data example.

**Thursday, April 5th, 2012**

3:30 PM at 306 Statistics Building

Refreshments will be immediately after the talk in The Cohen Room, room 230, Statistics Building