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## **Optimal and Fast Detection of Spatial Clusters with Scan Statistics**

Scan statistics are a common tool to detect e.g. spatial disease clusters or to describe local differences between two distributions. Multivariate scan statistics pose both a statistical problem due to the multiple testing over many scan windows, as well as a computational problem because statistics have to be evaluated on many windows. I will describe methodology that leads to both statistically optimal inference and computationally efficient algorithms. If time permits, I will discuss average likelihood ratio statistics, which have recently been proposed as a competitor to scan statistics, with claims of superior performance.

**Friday, November 6, 2009 at  
11:30 am in B760 EH**

**Coffee and Cookies will be  
served at 11:15 am in the  
Statistics Lounge, 450 West Hall**