



The University of Chicago  
Department of Statistics

Seminars for Fourth Year Ph.D. Students

---

**XINGHUA ZHENG**

Department of Statistics  
The University of Chicago

**Critical Branching Random Walks and Spatial Epidemics**

**THURSDAY, November 1, 2007 at 3:30 PM**  
**110 Eckhart Hall, 5734 S. University Avenue**

**ABSTRACT**

The first part of this talk is about critical nearest neighbor branching random walk on  $\mathbb{Z}^d (d \geq 2)$ . We will discuss some results about the maximal number of particles at a single site, the number of particles on a ‘typical’ occupied site and the number of occupied sites, all at time  $m \in \mathbb{N}$  conditional on survival to then. This part is based on the paper available at <http://www.arxiv.org/abs/0707.3829v1>.

The second part is about spatial epidemics, more specifically, the SIS and SIR model. We will talk about their survival probabilities, ranges etc. This part is based on ongoing projects.