



THE UNIVERSITY OF
CHICAGO

Department of Statistics

STATISTICS COLLOQUIUM

PETER ORBANZ

Department of Statistics
Columbia University

Random Walk Models of Graphs and the Open Problem of
Invariance in Networks

MONDAY, November 24, 2014, at 4:00 PM

Eckhart 133, 5734 S. University Avenue

Refreshments following the seminar in Eckhart 110

ABSTRACT

The best-understood statistical models of graphs and networks are models based on exchangeable graphs. These are tractable by the standards of random graph models, but inherently (and provably) misspecified for sparse network data -- a graph generated from such a model would bear no resemblance to most networks arising in applications. Developing non-exchangeable models is much more difficult, both mathematically and in terms of inference. I will review the exchangeable case, present a particular type of non-exchangeable model that is statistically tractable, and discuss the more general problem of invariance in networks -- roughly, what is the sparse counterpart to an exchangeable graph -- which remains unsolved.