



The University of Chicago  
Department of Statistics

STATISTICS COLLOQUIUM SERIES

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**PATRICK J. WOLFE**

Department of Statistics  
Harvard University

## Modeling Network Data

**MONDAY, October 10, 2011, at 4:00 PM**

133 Eckhart Hall, 5734 S. University Avenue.

*Refreshments following the seminar in Eckhart 110.*

## ABSTRACT

Networks are fast becoming a primary object of interest in statistical data analysis, with important applications spanning the social, biological, and information sciences. A common aim across these fields is to test for and explain the presence of structure in network data. In this talk we show how characterizing the structural features of a network corresponds to estimating the parameters of various random network models, allowing us to obtain new results for likelihood-based inference and uncertainty quantification in this context. We discuss asymptotics for stochastic blockmodels with growing numbers of classes, the determination of confidence sets for network structure, and a more general point process modeling for network data taking the form of repeated interactions between senders and receivers, where we show consistency and asymptotic normality of partial-likelihood-based estimators related to the Cox proportional hazards model (*arXiv:1011.1703*, 1011.4644).

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