Stanford University
Departments of Mathematics and Statistics

Probability Seminar

4pm, Monday, April 23, 2018
Sequoia Hall Room 200

Refreshments served at 3:30pm in the Lounge.

Speaker: David Aldous, *UC Berkeley*

Title: Limits for processes over general networks

Abstract:

A typical non-elementary epidemic model consists of a model (with several parameters) for the contact network, and also a model (with several more parameters) for how infection spreads through the given network. Then assume a population size n and k_n initial infectives, where $k_n = \Omega(1)$ but $o(n)$. Intuitively there will be a phase transition: for some regions of parameter space there is a pandemic ($\Omega(n)$ eventually infected, with probability $\to 1$ as $n \to \infty$), and in other regions no pandemic (only $o(n)$ eventually infected, with probability $\to 1$ as $n \to \infty$), with a co-dimension 1 "critical boundary" between these regions. This is true in analytically tractable models, but can one prove it for essentially arbitrary networks? We describe a very modest start to this kind of question.