$$S_t \circ c(h)(a_s)_{ti} c(s) + \mathfrak{S}_e m^i n(a_r)$$

Percolating paths through random points

David Aldous

University of California-Berkeley

Time and Place: Friday December 1, 2006; 2–3 p.m.; LCB 215

We prove consistency of four different approaches to formalizing the idea of minimum average edge-length in a path linking some infinite subset of points of a Poisson process. The approaches are (i) shortest path from origin through some m distinct points; (ii) shortest average edge-length in paths across the diagonal of a large cube; (iii) shortest path through some specified proportion δ of points in a large cube; (iv) translation-invariant measures on paths in $\mathbb{R}^d$ which contain a proportion δ of the Poisson points. We develop basic properties of a normalized average length function $c(\delta)$ and pose challenging open problem.

(Joint work with Maxim Kirkun)