JEANNETTE JANSSEN, Dalhousie University
Uniform linear embeddings of random graphs

A symmetric, measurable function $w : [0,1]^2 \to [0,1]$ gives rise to a random graph G(n,w) as follows. Vertices $x_1, \ldots, x_n$ are chosen uniformly at random from $[0,1]$, and each pair of vertices x_i, x_j is joined by an edge with probability $w(x_i, x_j)$, independently. This random graph has a uniform linear embedding if there exist an embedding function π and a probability function f so that for all $x, y \in [0,1]$, $w(x,y) = f(|\pi(x) - \pi(y)|)$. In other words, the random graph can be modelled as a process of selecting vertices from $[0,1]$ according to a given distribution described by π, and adding edges according to a probability that is determined by the distance between the vertices. We explore the question of how to recognize whether a given random graph $G(n,w)$ has a uniform linear embedding. This is joint work with Huda Chuangpishit and Mahya Ghandehari.