
JULIAN RANSFORD, University of Cambridge

ℓ^2 distortion of random planar maps

How well can a planar graph be embedded in a Hilbert space? A theorem of Rao states that every planar graph with n vertices can be embedded in ℓ^2 in such a way that distances do not get distorted by more than a factor of $C\sqrt{\log n}$, where C is some universal constant. Rao's bound is known to be sharp, however the graphs that achieve it are pathological and fractal-like, and so it is natural to ask what happens for a typical planar graph. I will discuss an ongoing project in which we show that random triangulations have ℓ^2 distortion of at least $C\sqrt[4]{\log n}$ with high probability. This is joint work with Jason Miller.