

# Riemannian First-Passage Percolation.

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## **Abstract.**

Standard first-passage percolation (FPP) is a random model of discrete geometry, and a generalization of classical percolation. The model is simple: take the lattice  $\mathbb{Z}^2$  and associate to each bond (edge) a random number, called the passage time. This induces a metric, where the shortest distance between two points is the minimum of passage times over all paths which connect the two points. Imagine fluid flowing through a grid of pipes of different sizes.

I will present my dissertation research on Riemannian FPP, a continuum analogue of standard FPP. Instead of a random metric on the lattice, consider a random Riemannian metric on the plane. Both models have a global geometric structure; the advantage of the second is that it has a local structure as well. For this talk, I will present some of the interesting questions I am studying about this model.