

Counting geodesics on random hyperbolic surfaces

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There are several natural models of random hyperbolic surfaces: random covers of a fixed surface, random gluings of ideal triangles, and Weil-Petersson measure. The study of these is often motivated by a fruitful analogy with random regular graphs, which becomes stronger as the genus/number of vertices goes to infinity. I will discuss the problem of counting closed geodesics on these objects, and in particular the "birthday paradox", which concerns the length scale at which closed geodesics become very likely to self-intersect. A key tool is effective mixing of the geodesic flow and its relation to spectral gap of the Laplace operator. Based on joint work with Jenya Sapir.

In Special Session 34 on Randomness in Low-Dimensional Geometry at the Mathematical Congress of the Americas 2025.