

# Length Partition of Random Multi-geodesics on Large Genus Hyperbolic Surfaces

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On a hyperbolic surface, a closed geodesic is said to be simple if it has no self-intersection. A multi-geodesic is a multiset of disjoint simple closed geodesics. A multi-geodesic can be decomposed into connected components, and therefore induces a partition of its total length. In this talk, I will present an attempt to answer the following question: what is the shape of the length partition of a random multi-geodesic on a hyperbolic surface with large genus? In particular, I will explain why the average lengths of the three largest components of a random multi-geodesic on a large genus hyperbolic surface are approximately, 75.8%, 17.1%, and 4.9%, respectively, of the total length. And we shall see that intersection numbers on the moduli spaces of curves have a crucial role to play. This is based on joint work with Vincent Delecroix.

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