KMPB Workshop: Holomorphic Differentials & RTG 2965 "From geometry to numbers" : Scientific opening

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Lengths of saddle connections for large genus

For a holomorphic differential on a given surface, we can consider saddle connections, that is, geodesic segments between the zeros of the differential, and we can measure their lengths. We consider the number of saddle connections in a given length range as a random variable on a stratum and show that for genus going to infinity, this converges in distribution to a Poisson distributed random variable. In the talk, I will introduce the geometric aspects of the topic and connect it to Siegel-Veech constants. This is based on joint work with Howard Masur and Kasra Rafi.