Non-varying sum of Lyapunov exponents for the Teichmuller geodesic flow

Martin Möller

Goethe-Universität Frankfurt

Abstract. Lyapunov exponents measure the growth rate of cohomology classes under parallel transport along the Teichmuller geodesic flow. Given an invariant measure, they are the same for almost every Riemann surface. Very few is known on how to calculate individual Lyapunov exponents and even the sum usually heavily varies with the measure.

In numerical experiments Kontsevich and Zorich observed that for small genera in several strata the sum is, on the contrary, non-varying. We prove this conjecture by relating the sum of Lyapunov exponents to the slope of various geometrically defined divisors on the moduli space of curves (joint work with Dawei Chen).