

Moduli spaces of curves and Teichmueller dynamics

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An Abelian differential defines a flat structure on the underlying Riemann surface. Varying the flat structure induces a $GL(2, \mathbb{R})$ -action on the moduli space of Abelian differentials, called Teichmueller dynamics. In this talk I will give an elementary introduction to Teichmueller dynamics and survey some recent breakthrough, with a focus on a beautiful interplay between algebraic geometry, flat surface geometry, combinatorics, dynamics, and number theory.