Front Range Algebra, Geometry and Number Theory Seminar

Geometry of Teichmueller curves

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Teichmueller curves are geodesics in the moduli space of curves with respect to the Kobayashi metric. Equivalently, they are closed $SL(2,\mathbb{R})$-orbits in the moduli space of Abelian differentials. A class of special Teichmueller curves arise from a branched cover construction. Using them as example, I will introduce an algebro-geometric technique to study dynamical properties of Teichmueller curves. As an application in dynamics, we prove Kontsevich-Zorich's conjecture about the non-varying property of Siegel-Veech constants for Abelian differentials in low genus. As an application in geometry, we come up with a novel approach to the Schottky problem of describing the locus of Jacobians among Abelian varieties. This talk will be accessible to a general audience.

Thursday February 24th 2011
3:00-5:00 p.m.
MATH 350