

THE HOROCYCLE FLOW ON EIGENFORM LOCI

JOHN SMILLIE (WARWICK)

Abstract: According to Ratner, Margulis, Dani and others unipotent flows on homogeneous spaces have remarkable dynamical properties. A fundamental question in Teichmuller dynamics is the extent to which the horocycle flow on strata behaves like a unipotent flow on a homogeneous space. In joint work with Matt Bainbridge and Barak Weiss we investigate this question in the restricted setting of eigenform loci in genus 2. In particular we reprove and improve the result of Calta and Wortman on invariant measures and we describe orbit closures and equidistribution properties of orbits. We also describe equidistribution properties of natural sequences of measures. We will see that ideas that are important in Ratner theory are also important in this setting but that they develop interesting new wrinkles in the case of strata.