

Simion Filip
University of Chicago
4th year graduate student

My interests are in dynamics on Teichmüller space, i.e. the action of $SL_2 \mathbb{R}$ on it and the Teichmüller geodesic flow. The questions I am considering are about the properties of the invariant measures. It is known by recent work of Eskin and Mirzakhani that these have a good local structure (in particular, are Lebesgue and supported on manifolds) but many interesting arithmetic and geometric questions remain. Much information is gained by considering the underlying variation of Hodge structure, which controls the geometry and the dynamics. The questions I am currently working on have to do with this variation of Hodge structure and the possibility to control its behavior.