

**Teichmüller Theory****Seminar and Lecture Series****Week 3: February 25 - March 1, 2013****Organized by: Louis Funar, Yuri Neretin, Athanase Papadopoulos and Bob Penner****• Monday, February 25****10:00 – 11:00** Sumio Yamada*On variational formulations of the Funk and Barbilian metrics*

Abstract: The two well-known models for the hyperbolic space are the Poincaré disc, and the Klein-Bletrami disc. In each model, there is an associated weak asymmetric metrics, called respectively Funk and Barbilian (or Apollonian weak) metrics. We will discuss variational formulations of these two weak metrics, which can be defined on any convex bodies in Euclidean spaces.

**11:00 – 12:00** François Guéritaud*Contracting deformations of hyperbolic surfaces*

Abstract: Given a hyperbolic surface with boundary, any infinitesimal deformation of the metric that shrinks all distances gives rise to a properly discontinuous, affine action of a free group on Minkowski space (such surprising actions were first found by Margulis). I will explain this fact, and prove a classification result for these actions in terms of the arc complex of the surface. This is joint work with J. Danciger and F. Kassel.

**12:00 – 13:00** Athanase Papadopoulos*On Hilbert Problem IV*

Abstract: I will give an overview of Hilbert Problem IV and its various generalizations, with examples from Riemannian geometry, Finsler geometry, Euclidean geometry, hyperbolic geometry and Teichmüller spaces.

**• Tuesday, February 26****10:00 – 11:00** Hiroshige Shiga*Holomorphic families of Riemann surfaces and monodromy, I*

Abstract: Holomorphic families of Riemann surfaces appear in various fields in mathematics and the monodromy of a holomorphic family plays an important role. In this lecture, we will give a comprehensive view of holomorphic families of Riemann surfaces and the monodromy.

**11:00 – 12:00** Hiroshige Shiga*Holomorphic families of Riemann surfaces and monodromy, II*

Abstract: see above

**• Thursday (!) , February 28****11:00 – 12:00** Hiroshige Shiga*Holomorphic families of Riemann surfaces and monodromy, III*

Abstract: see above

- **Friday, March 1**

**10:00 – 11:00** Lizen Ji

*A tale of two groups: arithmetic groups and mapping class groups, I*

Abstract: In geometric group theory, several special classes of groups have been extensively and intensively studied. They are interesting both for their own interests and beauty, and also for motivations and guides which they provide for more general groups. In this series of three lectures, I will discuss some properties of arithmetic groups and mapping class groups, and explain how analogies between them suggest problems and also motivate results for other groups such as the outer automorphism groups of free groups.

**11:00 – 12:00** Lizen Ji

*A tale of two groups: arithmetic groups and mapping class groups, II*

Abstract: see above

**All lectures take place at the ESI Boltzmann Lecture Hall**