

Special day for Teichmueller theory

October 3 (Tue), 2017

Room 126, the Mathematical Science Building,
University of Tokyo
3-8-1 Komaba Meguro-ku, Tokyo 153-8914, Japan

Schedule

10:00–11:00, at Room 126,

Hideki Ishihara (University of Tokyo)

Weil-Petersson isometries of the developed Teichmüller space

11:20–12:20, at Room 126,

Shogo Matsuba (University of Tokyo)

Thompson groups corresponding to dynamical systems

14:10–15:10, at Room 126,

Tsukasa Ishibashi (University of Tokyo)

On a Nielsen-Thurston classification theory on cluster modular groups

15:30–16:30, at Room 126,

Hidetoshi Masai (Tohoku University)

Symmetry of mapping classes and outer automorphisms

16:30–17:00, at Common Room on the 2nd floor,

Tea for Tuesday Seminar on Topology

17:00–18:00, Tuesday Seminar on Topology at Room 056,

Athanase Papadopoulos (IRMA, University of Strasbourg/CNRS)

Transitional geometry

Organizers: Nariya Kawazumi (U. Tokyo), Yusuke Kuno (Tsuda U.) and Takuya Sakasai (U. Tokyo).

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Abstracts

Tsukasa Ishibashi (University of Tokyo)

On a Nielsen-Thurston classification theory on cluster modular groups

It is known that each element of the mapping class group of a orientable surface is classified into three types. These types are characterized by fixed point properties of a natural action on a closed disk, which is the Thurston compactification of the Teichmüller space. These are the Nielsen-Thurston classification theory. On the other hand, by Fock-Goncharov, the mapping class group and the Teichmüller space are generalized to cluster modular groups and cluster ensembles respectively. For particular choices of the input data, these concepts can describe higher Teichmüller spaces and the mapping class group action on them in a combinatorial language. In this talk, I will give a classification of elements of the cluster modular group, which is an analogue of the Nielsen-Thurston classification. Then they are related with fixed point properties of the action on the tropical compactification of the cluster ensemble.

Hidenori Ishihara (University of Tokyo)

Weil-Petersson isometries of the developed Teichmüller space

Sumio Yamada constructed the development of Teichmüller space by using the Coxeter group and named the space Teichmüller Coxeter complex. The development is the Weil-Petersson geodesic completion of Teichmüller space and a CAT(0) space. On the other hand, Koji Fujiwara and Jason Fox Manning gave an example of isometries of Teichmüller Coxeter complex which differs from the natural isometric action of the development. I will talk about the above and the main theorem on the expression of the isometry group of Teichmüller Coxeter complex based on the idea of Koji Fujiwara and Jason Fox Manning.

Hidetoshi Masai (Tohoku University)

Symmetry of mapping classes and outer automorphisms

We consider notion called fibered commensurability, which allows us to study symmetry of maps. Fibered commensurability is first defined by Calegari-Sun-Wang on mapping classes group. We first recall known facts of fibered commensurability of mapping classes. Then we discuss analogy for outer automorphism groups of free groups. A part of this talk is based on the joint work with Ryosuke Mineyama.

Shogo Matsuba (University of Tokyo)

Thompson groups corresponding to dynamical systems

We will introduce Thompson groups that come from dynamical systems. Belk and Forrest defined the basilica Thompson group T_B , where the basilica is the Julia set of the dynamical system $f(z) = z^2 - 1$. T_B is naturally embedded into Thompson group T and has finite generators but is not finitely presentable. As they said, we can also construct Thompson groups for other dynamical systems. In this talk we will see the concrete generators of the Thompson group for the Julia set called "rabbit" and some properties parallel to or different from T_B .

Athanase Papadopoulos (IRMA, University of Strasbourg/CNRS)

Transitional geometry

I will describe transitions, that is, paths between hyperbolic and spherical geometry, passing through the Euclidean. This is based on joint work with Norbert A'Campo and recent joint work with A'Campo and Yi Huang.