

Last update: 31 January, 2025

## Inter-universal Teichmüller Theory Summit 2025

Organizers: Benjamin Collas (RIMS, Kyoto University)  
Yuichiro Hoshi (RIMS, Kyoto University)  
Emmanuel Lepage (Institut de Mathématique de Jussieu)  
Shinichi Mochizuki (RIMS, Kyoto University)

Dates: March 17 – March 20, 2025

Place: RIMS, Kyoto University

	March 17 (Mon.)	March 18 (Tues.)	March 19 (Wed.)	March 20 (Thu.)
10:30 – 11:30		GT (Collas)	TBA (Lagarias)	TBA (Taguchi)
13:00 – 14:00	[Gateway] (Mochizuki)	[GSHP-I] (Hoshi)	[ArMCG] (Saïdi)	Galois Section (Porowski)
14:20 – 15:20	[OvEssLgcI] (Porowski)	[GSHP-II] (Hoshi)	[OvEssLgcIV] (Minamide)	Tilting (Kedlaya)
15:40 – 16:40	[OvEssLgcII] (Porowski)	[ArGT] (Tsujiimura)	[OvEssLgcV] (Minamide)	TS-IUT (Yamashita)
17:00 – 18:00	[OvEssLgcIII] (Porowski)	[ArGT] (Tsujiimura)	[OvEssLgcVI] (Minamide)	History of IUT (Boyd)
18:20 – 19:00	Q & A (Mochizuki)	Q & A (Mochizuki)	Q & A (Mochizuki)	TBA (Zhou)

## Program

March 17 (Monday)

13:00 – 14:00 Shinichi Mochizuki (RIMS, Kyoto University)

Inter-universal Teichmüller Theory as an Anabelian Gateway to Diophantine Geometry and Analytic Number Theory (IUT Summit 2025 Version)

14:20 – 15:20 Wojciech Porowski (RIMS, Kyoto University)

On the essential logical structure of inter-universal Teichmüller theory I

15:40 – 16:40 Wojciech Porowski (RIMS, Kyoto University)

On the essential logical structure of inter-universal Teichmüller theory II

17:00 – 18:00 Wojciech Porowski (RIMS, Kyoto University)

On the essential logical structure of inter-universal Teichmüller theory III

18:20 – 19:00 Shinichi Mochizuki (RIMS, Kyoto University)

Q & A

March 18 (Tuesday)

10:30 – 11:30 Benjamin Collas (RIMS, Kyoto University)

Grothendieck-Teichmüller theory: from Galois-Teichmüller theory to anabelian geometry

13:00 – 14:00 Yuichiro Hoshi (RIMS, Kyoto University)

On Galois Sections of Hyperbolic Polycurves over Arithmetic Fields I

14:20 – 15:20 Yuichiro Hoshi (RIMS, Kyoto University)

On Galois Sections of Hyperbolic Polycurves over Arithmetic Fields II

15:40 – 16:40 Shota Tsujimura (RIMS, Kyoto University)

On the arithmeticity of the Grothendieck-Teichmüller group I

17:00 – 18:00 Shota Tsujimura (RIMS, Kyoto University)

On the arithmeticity of the Grothendieck-Teichmüller group II

18:20 – 19:00 Shinichi Mochizuki (RIMS, Kyoto University)

Q & A

March 19 (Wednesday)

10:30 – 11:30 Jeffrey Lagarias (The University of Michigan)

TBA

13:00 – 14:00 Mohamed Saïdi (Exeter University)

On the arithmeticity of the mapping class group

14:20 – 15:20 Arata Minamide (RIMS, Kyoto University)

On the essential logical structure of inter-universal Teichmüller theory IV

15:40 – 16:40 Arata Minamide (RIMS, Kyoto University)

On the essential logical structure of inter-universal Teichmüller theory V

17:00 – 18:00 Arata Minamide (RIMS, Kyoto University)

On the essential logical structure of inter-universal Teichmüller theory VI

18:20 – 19:00 Shinichi Mochizuki (RIMS, Kyoto University)

Q & A

March 20 (Thursday)

10:30 – 11:30 Yuichiro Taguchi (Institute of Science Tokyo)  
TBA

13:00 – 14:00 Wojciech Porowski (RIMS, Kyoto University)  
Locally conjugate Galois sections

14:20 – 15:20 Kiran Kedlaya (University of California San Diego)  
Tilting and Fargues-Fontaine curves

15:40 – 16:40 Go Yamashita (RIMS, Kyoto University)  
On tilts and inter-universal Teichmüller theory

17:00 – 18:00 James Douglas Boyd (SciSci)  
On the Historical Development of Inter-Universal Teichmüller Theory: A Science Journalist's Perspective, Based on Recent Interviews

18:20 – 19:00 Zhong-Peng Zhou (Institute for Theoretical Sciences, Westlake University)  
TBA

## Abstracts

Speaker: James Douglas Boyd

Title: On the Historical Development of Inter-Universal Teichmüller Theory: A Science Journalist's Perspective, Based on Recent Interviews

Abstract: TBA

Speaker: Benjamin Collas

Title: Grothendieck-Teichmüller theory: from Galois-Teichmüller theory to anabelian geometry

Abstract: TBA

Speaker: Yuichiro Hoshi

Title: On Galois Sections of Hyperbolic Polycurves over Arithmetic Fields

Abstract: TBA

Speaker: Kiran S. Kedlaya

Title: Tilting and Fargues-Fontaine curves

Abstract: An old construction of Fontaine, now commonly known as “tilting”, provides a canonical functor converting “sufficiently ramified” nonarchimedean fields in mixed characteristic into nonarchimedean fields in equal positive characteristic. This functor is not fully faithful; if one fixes a field in positive characteristic, then its inverse images under tilting are naturally parametrized by a geometric object (in a sense to be made precise) called a Fargues-Fontaine curve. While this construction plays a fundamental role in  $p$ -adic Hodge theory, we will talk only briefly about this role; instead, we focus on the basic geometry with an eye towards the comparison of the theory of Fargues-Fontaine curves with IUT (although we will make no attempt to discuss the details of such a comparison).

Speaker: Jeffrey Lagarias

Title: TBA

Abstract: TBA

Speaker: Arata Minamide

Title: On the essential logical structure of inter-universal Teichmüller theory

Abstract: TBA

Speaker: Shinichi Mochizuki

Title: Inter-universal Teichmüller Theory as an Anabelian Gateway to Diophantine Geometry and Analytic Number Theory (IUT Summit 2025 Version)

Abstract: TBA

Speaker: Wojciech Porowski

Title: On the essential logical structure of inter-universal Teichmüller theory

Abstract: TBA

Speaker: Wojciech Porowski

Title: Locally conjugate Galois sections

Abstract: TBA

Speaker: Mohamed Saïdi

Title: On the arithmeticity of the mapping class group

Abstract: TBA

Speaker: Yuichiro Taguchi

Title: TBA

Abstract: TBA

Speaker: Shota Tsujimura

Title: On the arithmeticity of the Grothendieck-Teichmüller group

Abstract: TBA

Speaker: Go Yamashita

Title: On tilts and inter-universal Teichmüller theory

Abstract: We will discuss similarities and differences between the theory of tilts of perfectoid fields and the theory surrounding the unit group portions of  $\mathcal{F}^{\text{tr}} \times \mu$ -prime-strips in the  $\Theta$ -link of inter-universal Teichmüller theory. These theories exhibit some superficial similarities, but also deep structural differences, and in conclusion, it does not appear possible to construct any sort of theory that is in some sense structurally analogous to inter-universal Teichmüller theory by using Galois actions on tilts of  $p$ -adic completions of algebraic closures of perfectoid fields. The essential contents of this talk are due to Example 3.5.3 of S. Mochizuki's paper "On the essential logical structure of inter-universal Teichmüller theory in terms of logical AND " $\wedge$ " / logical OR " $\vee$ " relations".

Speaker: Zhong-Peng Zhou

Title: TBA

Abstract: TBA