Workshop on p-adic Modular Forms and the Fontaine–Mazur Conjecture

July 10–11, 2026
Room 5107, Teaching Building 5, East Campus
University of Science and Technology of China, Hefei, Anhui, China

Friday, July 10, 2026

9:30–10:30 Talk 1 Tian Qiu

BICMR, Peking University

Translations on locally analytic completed cohomology of modular curves

We compute translation operators on locally analytic completed cohomology of modular curves of singular weights using two methods: first via geometric methods developed by Lue Pan, and second via local-global compatibility and p-adic local Langlands for $\mathrm{GL}_2(\mathbb{Q}_p)$. As an application, we give a new proof of the classicality result in the singular case under some mild hypotheses. This is joint work with Yiwen Ding and Zhixiang Wu.

10:30–11:00 *Tea break*

11:00–12:00 Talk 2 Yuanyang Jiang

Université Paris-Saclay

Locally analytic Jacquet–Langlands correspondence and its global application I

We will explain a generalization of a work of Lue Pan to the setting of Hilbert modular varieties. As a corollary, we can deduce new cases of the Langlands–Clozel–Fontaine–Mazur conjecture. As a key input, we established a locally analytic Jacquet–Langlands correspondence between different quaternionic Shimura varieties.

This work also gives some insights into the structure of the de Rham part of the completed cohomology of Hilbert modular varieties, which aligns with the conjectural p-adic local Langlands correspondence. As we will explain, the building blocks are locally analytic transfers of cohomology of lower dimensional Shimura varieties.

12:00–14:00 *Lunch break*

14:00–15:00 Talk 3 Pol van Hoften

Zhejiang University

Igusa stacks and the Jacquet–Langlands correspondence

Igusa stacks are p-adic analytic objects which give a bridge between the categorical local Langlands program of Fargues–Scholze and the cohomology of Shimura varieties. In this talk I will present joint work with Jack Sempliner, in which we study the Jacquet–Langlands correspondence via Igusa stacks. More precisely, we reinterpret the work of Xiao–Zhu on exotic Hecke correspondence from the perspective of Igusa stacks, and give cohomological applications.

15:00–15:30 *Tea break*

15:30–16:30 Talk 4 Ruishen Zhao

Yau Mathematical Sciences Center, Tsinghua University

p-adic family Eichler–Shimura map over the eigenvariety

In this talk I will construct p-adic family Eichler–Shimura maps relating overconvergent cohomology to overconvergent automorphic forms for certain compact unitary Shimura varieties. The first step is to establish a perfectoid construction of overconvergent automorphic forms. Then I deduce explicit comparison maps from overconvergent cohomology to overconvergent automorphic forms, which can be glued into a comparison between coherent sheaves over the associated eigenvariety. I will also discuss some further development and arithmetic applications to p-adic L-functions. The key ingredients are the geometry of perfectoid Shimura varieties and the Hodge–Tate period map π_{HT}.

Saturday, July 11, 2026

9:30–10:30 Talk 5 Xinyao Zhang

University of Tokyo

On the Fontaine–Mazur Conjecture for $\mathrm{GL}_{2/\mathbb{Q}}$

The Fontaine–Mazur conjecture predicts that two-dimensional geometric Galois representations of $G_{\mathbb{Q}}$ should arise from classical modular forms. In this talk, I will first recall the current state of the conjecture for $\mathrm{GL}_{2/\mathbb{Q}}$, and then discuss some of the main strategies developed after the work of Wiles and Taylor–Wiles. The focus will be on potential big $R = \mathbb{T}$ theorems in the residually reducible case, following the work of Skinner–Wiles, Pan and myself.

10:30–11:00 *Tea break*

11:00–12:00 Talk 6 Yongquan Hu

Morningside Center of Mathematics, Chinese Academy of Sciences

Recent progress in the mod p Langlands program for GL_2

I will review the mod p Langlands program and report some recent results in the case of GL_2 over a finite unramified extension of $\mathbb{Q}_p$. This talk is based on joint work with Breuil, Herzig, Morra and Schraen, and with Wang.

12:00–14:00 *Lunch break*

14:00–15:00 Talk 7 Yuanyang Jiang

Université Paris-Saclay

Locally analytic Jacquet–Langlands correspondence and its global application II

We will explain a generalization of a work of Lue Pan to the setting of Hilbert modular varieties. As a corollary, we can deduce new cases of the Langlands–Clozel–Fontaine–Mazur conjecture. As a key input, we established a locally analytic Jacquet–Langlands correspondence between different quaternionic Shimura varieties.

This work also gives some insights into the structure of the de Rham part of the completed cohomology of Hilbert modular varieties, which aligns with the conjectural p-adic local Langlands correspondence. As we will explain, the building blocks are locally analytic transfers of cohomology of lower dimensional Shimura varieties.

15:00–15:30 *Tea break*

15:30–16:30 Talk 8 Pol van Hoften

Zhejiang University

p-adic Maass–Shimura operators on μ-ordinary Igusa varieties

Nearly holomorphic modular forms and the Maass–Shimura operators acting on them are real analytic objects that play an important role in the arithmetic theory of modular forms. For applications, it is often important to understand the p-adic properties of these forms and operators. In this talk I will present joint work with Andrew Graham and Sean Howe in which we p-adically interpolate both nearly holomorphic modular forms and Maass–Shimura operators. A key role is played by the action of an explicit p-adic formal group on a μ-ordinary Mantovan Igusa variety, which we study using p-adic Fourier theory.

Organizer: Zhixiang Wu (USTC) *Contact:* zhixiang.wu@ustc.edu.cn