Séminaire de Théorie des Nombres "Paris–Londres"

Séance XXXII: Théorie de Coleman supérieure et applications

Institut de Mathématiques de Jussieu–Paris Rive Gauche

Site de Paris-Rive-Gauche

salle 1016, Bâtiment Sophie Germain

Lundi 28 Novembre

13:30–14:00: Welcome! The coffee is served!

14:00–15:00 : George Boxer (Imperial College London)

Higher Hida theory for Siegel modular varieties

The goal of higher Hida theory is to study the ordinary part of coherent cohomology of Shimura varieties integrally. In the Siegel case we introduce a higher coherent cohomological analog of Hida's space of ordinary p-adic modular forms, which is defined as the ordinary part of the coherent cohomology with "partial compact support" of the ordinary Igusa variety, and give an analog of Hida's classicality theorem and interpolation results in this setting. This is joint work with Vincent Pilloni.

15:15–16:15 : Vincent Pilloni (CNRS, Université de Paris Saclay)

Higher Hida Theory and a geometric Jacquet-Langlands correspondence for Hilbert modular forms

We study the ordinary part of the cohomology of Hilbert modular varieties and prove that the cohomology localizes at certain Igusa varieties. This permits to describe the cohomology and prove a Jacquet-Langlands correspondence. Based on joint work with G.Boxer.

16:15–16:45: Coffee!

16:45–17:45 : Juan–Esteban Camargo (Max Planck Bonn)

Locally analytic vectors and local Shimura varieties

(Joint work with Gabriel Dospinescu). In this talk we report some progress in the study of the locally analytic vectors of proétale period sheaves appearing in (rational) p-adic Hodge theory. The most important example for us will be local Shimura varieties, in particular those arising from a local Shimura datum (G, b, μ) with b basic. We focus attention to the Lubin–Tate and Drinfeld situation, obtaining as a consequence that the Jacquet–Langlands functor of Scholze is compatible with the passage to locally analytic vectors.

Mardi 29 Novembre

8:45–9:15 : Caffè !

9:15–10:15 : Giada Grossi (CNRS, Université Sorbonne Paris Nord)

p-adic L-functions for Hilbert modular forms via higher Hida theory

After recalling the main ideas of Boxer and Pilloni's higher Hida theory in the setting of Hilbert modular surfaces (split case), I will talk about work in progress on the construction of a p-adic L function for the Asai motive of ordinary quadratic Hilbert eigenforms. The core of the strategy is

to pushforward the p-adic Eisenstein measure to some well defined ordinary part of the coherent cohomology of the Hilbert modular surface, to which we can apply the classicality results of higher Hida theory.

10:30–11:30 : Sarah Zerbes (ETH Zurich)

p-adic regulators for Hilbert modular surfaces

In earlier work with Lei and Loeffler, we constructed an Euler system for the Asai representation of quadratic Hilbert modular forms. In this talk, I will outline work in progress with Loeffler, describing how to evaluate the bottom class of the Euler system under the syntomic regulator, and how to relate it to values of a p-adic L-function constructed by Grossi. This is the first step towards proving an explicit reciprocity law for the Euler system, leading to the proof of new cases of the Bloch—Kato conjecture

11:45–12:45 : David Loeffler (Warrick University)

Plectic cohomology and higher Coleman theory

This talk is dedicated to the memory of Jan Nekovar. The plectic conjectures of Nekovar and Scholl predict the existence of extra structures on the cohomology of Hilbert modular varieties, reflecting the decomposition of their Betti cohomology as a tensor product over the real places of the field. One concrete, testable consequence of these conjectures is a compatibility between partial Frobenius maps and filtrations on p-adic rigid cohomology, for primes p that split completely in the field; and I will show how this compatibility can be proved in some cases using the methods of higher Coleman theory.

Le séminaire de Théorie de Nombres Paris–Londres est organisé par Kevin Buzzard, Ana Caraiani, Fred Diamond, Vladimir Dokchitser, Steve Lester, Yiannis Petridis, Marc Hindry, Stefano Morra, Matthew Morrow, et soutenu par l'Institut de Mathématiques de Jussieu–Paris Rive Gauche, le département de Mathématiques d'Orsay, le Laboratoire Analyse Géométrie Applications, l'ANR COLOSS, l'Heilbronn Institute for Mathematical Research