

***p*-adic methods in arithmetic geometry at Sendai, 2016**

2016 October 31–November 2

Tohoku University, Katahira campus, Tokyo Electron House of creativity
Lecture Room in 3rd Floor

Program

October 31, Monday

10:00–12:00	Free discussion	
		Lunch Break
14:00–15:00	Shin HATTORI	(Kyushu Univ.)
	On a properness of the Hilbert eigenvariety at integral weights	
		Coffee Break
15:45–16:45	Seidai YASUDA	(Osaka Univ.)
	Belyi's theorem in characteristic two	

November 1, Tuesday

11:00–12:00	Masataka CHIDA	(Tohoku Univ.)
	Comparison of periods and $R = T$ theorems	
		Lunch Break
13:30–14:30	Yoichi MIEDA	(Univ. of Tokyo)
	Cohomology of affinoid perfectoid spaces and their reductions	
14:45–15:45	Kanetomo SATO	(Chuo Univ.)
	Cycle complex and motivic cohomology extended by zero	
		Coffee Break
16:30–17:30	Abdellah MOKRANE	(Université Paris 8)
	A rigid version of the Nagata-Zariski purity theorem	
		Conference Dinner

November 2, Wednesday

10:00–11:00	Tomomi OZAWA	(Tohoku Univ.)
	Classical weight one Hilbert cusp forms in a Hida family	
		Coffee Break
11:15–12:15	Shinichi KOBAYASHI	(Kyushu Univ.)
	Iwasawa theory on generalized Heegner cycles at non-ordinary primes	
		Lunch Break
14:00–17:30	Free discussion	

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Organizers: Nobuo Tsuzuki, Tomoyuki Abe

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Abstracts

Masataka CHIDA: Comparison of periods and $R = T$ theorems

The comparison of several periods of automorphic forms is important in Iwasawa theory. In this talk, we will explain a result on the comparison between Hida's canonical period of elliptic modular forms and the period of quaternionic automorphic forms in the low weight crystalline case using $R = T$ theorem. This is based on a joint work with Ming-Lun Hsieh.

Shin HATTORI: On a properness of the Hilbert eigenvariety at integral weights

Let p be a rational prime and G a reductive algebraic group over \mathbb{Q} . The eigenvariety for G is a rigid analytic variety which p -adically interpolates Hecke eigensystems of finite slopes appearing in the space of automorphic forms of a fixed tame level on G . Though it plays an important role in number theory, its geometry is not well-understood yet. In this talk, I will explain how to show a properness of Andreatta-Iovita-Pilloni's eigenvariety of Hilbert cuspidal eigenforms at integral weights for some cases, using the theory of canonical subgroups of abelian varieties.

Shinichi KOBAYASHI: Iwasawa theory on generalized Heegner cycles at non-ordinary primes

We explain the Iwasawa theory on generalized Heegner cycles comparing to the classical cyclotomic theory via cyclotomic units. For ordinary primes, such an approach was known (cf. Castella-Hsieh). In this talk, we give a unified treatment including the non-ordinary case.

Yoichi MIEDA: Cohomology of affinoid perfectoid spaces and their reductions

Under some conditions, I will compare the ℓ -adic cohomology of an affinoid perfectoid space and that of the reduction of its formal model. I will also give some applications to the local Langlands correspondence.

Abdellah MOKRANE: A rigid version of the Nagata-Zariski purity theorem

After recalling the classical Nagata-Zariski purity theorem and the outline of the proof following SGA 2, we give a rigid version of this theorem. We extend this version to some cases where the codimension condition is not satisfied. Finally we explain how to apply this results to the p -adic monodromy of the moduli space of ordinary abelian varieties.

Tomomi OZAWA: Classical weight one Hilbert cusp forms in a Hida family

Let F be a totally real field and p an odd prime. We consider a primitive p -ordinary Hida family \mathcal{F} of parallel weight Hilbert cusp forms defined over F . It is known that a specialization of \mathcal{F} at any arithmetic points of weight at least two is a classical Hilbert cusp form. However, this is not always the case for weight one specializations. Balasubramanyam, Ghate and Vatsal proved that such a Hida family admits infinitely many classical weight one specializations if and only if it is of CM type. In this talk, for a non-CM primitive p -ordinary Hida family \mathcal{F} , we give an explicit estimate on the number of classical weight one specializations of \mathcal{F} .

Kanetomo SATO: Cycle complex and motivic cohomology extended by zero

Motivic cohomology with compact support for varieties over a field is defined by Friedlander-Voevodsky about 20 years ago. In this talk, we give an alternative approach to define motivic cohomology of smooth varieties using cycle complexes extended by zero. We will also give a comparison result between our construction and the construction of Friedlander-Voevodsky in some special case.

Seidai YASUDA: Belyi's theorem in characteristic two

Belyi's theorem states that, for a smooth projective curve X over the field \mathbb{C} of complex numbers, X is defined over a number field if and only if there exists a finite morphism from X to the projective line over \mathbb{C} which is unramified outside $\{0, 1, \infty\}$. An analogue of this statement over an algebraically closed field of characteristic $p > 0$ was proposed by Mohamed Saïdi and was proved by him when p is odd. In this talk, a proof in the remaining case is discussed. This talk is based on my joint work with Yusuke Sugiyama.