

9th Kyoto conference on automorphic forms Program and abstracts

Date: June. 24 – June. 26, 2022

Location: Bld. 3, Room 110

This conference is partially supported by the grant: Grant-in-Aid (C) (20K03512).

June 24, 13:00–14:30 Suzuki Miyu (Kanazawa University)

Title: Linear periods on representations of $GL(n)$ and its inner forms

Abstract: Let G be an inner form of $GL(n)$ over a local field F and H be its symmetric subgroup which is an inner form of $GL(m)$ over a quadratic extension of F . An H -invariant linear form on a representation of G is called a linear period. When F is a non-archimedean local field of characteristic 0, Prasad and Takloo-Bighash predicted an "epsilon dichotomy" for linear periods. That means, they formulated a conjectural necessary condition for a representation to have non-zero linear periods in terms of local root numbers. In this talk, I will introduce some recent progress made on this conjecture and related problems. A part of this talk is based on my joint work with Hang Xue and Hiroyoshi Tamori.

14:45–15:45 Sugiyama Shingo (Nihon University)

Title: The one-level density for Dirichlet L-functions weighted by L-values

Abstract: Katz-Sarnak suggested that low-lying zeros of L-functions in a family are distributed like eigenvalues of random matrices in a compact matrix group. Inspired by Kowalski-Saha-Tsimerman, the density of low-lying zeros of L-functions in a family weighted by central L-values has been studied by Knightly-Reno, the speaker, and Fazzari. In this talk, the speaker suggests a conjecture on the density of low-lying zeros of L-functions weighted by general L-values, and gives a result for a family of Dirichlet L-functions. This is a joint work with Ade Irma Suriajaya (Kyushu University).

16:00–17:00 Katsurada, Hidenori (Hokkaido University)

Title: Estimates for Fourier coefficients of the Duke-Imamoglu-Ikeda lift

Abstract: For a Hecke eigenform h in the Kohnen plus subspace of weight $k - n/2 + 1/2$ for $\Gamma_0(4)$, let $I_n(h)$ be the Duke-Imamoglu-Ikeda lift of h to $S_k(Sp_n(\mathbb{Z}))$. We give an estimate for the Fourier coefficient $c_{I_n(h)}(B)$ of $I_n(h)$ at a positive definite half-integral matrix B , which is better than the usual Hecke's bound. We also estimate the $c_{I_n(h)}(B)$ in terms of the minors of B . This is a joint work with T. Ikeda.

June 25, 9:30-10:30 Morimoto Kazuki (Kobe University)

Title : On Ichino-Ikeda type formula of Whittaker periods for even unitary groups

Abstract : Lapid and Mao formulated a conjecture on Ichino-Ikeda type formula of Whittaker periods for quasi-split reductive groups. In the unitary group case,

they showed that their conjecture is reduced to certain local identities. In my previous work, I showed this local identity for even unitary groups at non-split non-archimedean places. In this talk, I will give a proof of this local identity in the split case at both non-archimedean and archimedean places. As a consequence, we obtain the formula for irreducible cuspidal generic automorphic representations for even unitary groups when its local components at real places are discrete series. If time permits, I will explain an application of this formula to Ichino-Ikeda type formula of Bessel periods for $(U(2n), U(1))$.

10:45-11:45 Yasuda, Seidai (Hokkaido University)

Title: Local new forms for the general linear groups from topos theoretic viewpoint.

Abstract : In a joint work with Hiraku Atobe and Satoshi Kondo, the speaker constructed a theory of local new forms for irreducible smooth representations of the general linear group over nonarchimedean local fields of characteristic zero which are not necessarily generic. In this talk, the speaker will talk about a topos theoretic background of the theory, explain how the relevant compact open subgroups naturally arise from the background, and give another proof of a kind of Mackey decomposition that plays a crucial role in the theory. Moreover, the speaker will explain an explicit construction, given in terms of the sheaf corresponding to the representation, of local newforms for the ladder representations with nontrivial L-factors, and by using this, gives a description of local L and epsilon factors in terms of Hecke operators. Almost all part of the talk is based on the speaker's joint work with Satoshi Kondo, and some part of the talk is based on the speaker's joint work with Hiraku Atobe and Satoshi Kondo.

June 26, 9:30–10:30 Ohara Kazuma (University of Tokyo)

Ttitle: On the formal degree conjecture for non-singular supercuspidal representations

Abstract: We prove the formal degree conjecture for non-singular supercuspidal representations based on Schwein's work proving the formal degree conjecture for regular supercuspidal representations. The main difference between our work and Schwein's work is that in non-singular case, the Deligne–Lusztig representations can be reducible, and the S -groups are not necessarily abelian. Therefore, we have to compare the dimensions of irreducible constituents of the Deligne–Lusztig representations and the dimensions of irreducible representations of S -groups.

10:45–11:45 Noguchi Hiroshi (Kyoto University)

Title: Genuine characters of local metaplectic groups and Hilbert modular forms of half-integral weight

Abstract: We consider the Hilbert modular analogy of the Dedekind eta function. Let F be a totally real number field and \mathfrak{o} the ring of integers of F . We study theta functions which are Hilbert modular forms of half-integral weight for $SL_2(\mathfrak{o})$.

First, we study genuine characters of the metaplectic groups of symplectic groups G . We have determined somewhat when genuine characters exist. In particular, if

$G = Sp_n(O)$, where O is the ring of integers of a 2-adic field and $n \geq 2$, then genuine characters do not exist. Second, we define a multiplier system of half-integral weight and determine when it exists. Then we determine the condition of F that there exists a theta function which is a Hilbert modular form of half-integral weight for $SL_2(\mathfrak{o})$.