

5th Kyoto conference on automorphic forms Program and abstracts

Date: June 29 – July 1, 2018

Location: Kyoto University, Graduate School of Science Bldg No.3 Rm 110 (See <http://www.kyoto-u.ac.jp/en/access/campus/north.htm>)

June 29, 13:00 – 14:00 Kakuhama, Hirotaka

Title: On the γ -factors of irreducible representations of Quaternionic unitary groups

Abstract: Lapid and Rallis gave a precise definition of the γ -factor of an irreducible representation of general linear group, orthogonal group, symplectic group, and quadratic unitary group over a local field by elaborating the doubling method. In this talk, I will discuss an extension of this result for a “quaternionic unitary group” which is a unitary group of hermitian or skew-hermitian space over a quaternion algebra.

14:10 – 15:10 Moriyama, Tomonori (Osaka University)

Title : Theta series constructed from invariant harmonic polynomials

Abstract : Let $Q \in M(m, \mathbb{Z})$ be a positive definite symmetric matrix. Starting from a Q -harmonic homogeneous polynomial P , we can construct an elliptic modular form $\theta_Q(z, P)$ of weight $k = \deg(P) + m/2$. It is readily seen that we do not lose any modular forms if we assume that the polynomial P is invariant under the finite group $O(Q, \mathbb{Z})$. In this talk, we consider the case of $Q = E_8$ and report that the linear map $P \mapsto \theta_Q(z, P)$ restricted to the invariant polynomials is injective for $k \leq 24$. This talk is based on Y. Funada’s master thesis (2016, March) supervised by the speaker. If time permits, we will discuss some related topics.

15:20 – 16:20 Atobe, Hiraku (Tokyo University)

Title: On the global Miyawaki liftings

Abstract: In 2006, Ikeda constructed a lifting of modular forms to approach Miyawaki’s conjecture. This is called the Miyawaki lifting. However, because the non-vanishing of this lifting is unknown, it did not lead to prove Miyawaki’s conjecture. In this talk, we reconstruct Miyawaki liftings using representation theory, and discuss the non-vanishing problem using the global Gan-Gross-Prasad conjecture.

16:30 – 17:30

Ooi, Masao (Tokyo University)

Title: Depth preserving property of the local Langlands correspondence for quasi-split classical groups in a large residual characteristic

Abstract: Let G be a classical group over a p -adic field F . Then the local Langlands correspondence for G , which is established by Harris-Taylor and Arthur, gives a natural correspondence between the irreducible smooth representations of $G(F)$ and L -parameters of G (which are variants of Galois representations of F). It is

believed that the local Langlands correspondence satisfies various properties beyond its characterization. One of such phenomena is the depth preserving property. We can define the notion of depth, which is a numerical invariant, for both of irreducible representations and L -parameters. Then it is expected that the local Langlands correspondence for classical groups preserves these invariants at least in a large residual characteristic. In this talk, I will give a partial answer to this problem, and also give a complete answer in the case of unitary groups.

June 30, 9:30 – 10:30 Gon, Yasuro (Kyushu University)

Title: A prime geodesic theorem for $SL(3, \mathbb{Z})$

Abstract: We show a prime geodesic theorem for the group $SL(3, \mathbb{Z})$, counting those geodesics whose lifts lie in the split Cartan subgroup. This is the first arithmetic prime geodesic theorem of higher rank for a non-cocompact group. This is a joint work with A. Deitmar and P. Spilioti.

10:40 – 11:40 Nakagawa, Jin (Joetsu University of Education)

Title: A conjecture on the zeta functions of pairs of ternary quadratic forms

Abstract. We consider the prehomogeneous vector space of pairs of ternary quadratic forms. For the lattice of pairs of integral ternary quadratic forms and its dual lattice, there are six zeta functions associated with the the prehomogeneous vector space. We present a conjecture which states that there are simple relations among the six zeta functions.

July 1, 9:30 – 10:30 Chen, Shih-Yu (Taiwan National University/Kyoto University)

Title: Central values of twisted triple product L -functions

Abstract. The analytic theory of the twisted triple product L -functions had been studied by P. Garrett, T. Ikeda, I. Piatetski-Shapiro, and S. Rallis. In this talk, we would like to present some progress on the study of the algebraicity of the central values of twisted triple product L -functions associated with motivic Hilbert cusp forms. We generalizes the works of M. Harris and S. Kudla to semisimple cubic algebras over \mathbb{Q} . The main ingredients in the proof are A. Ichino's formula for twisted triple product L -functions and the theory of coherent cohomology for Hilbert modular Shimura varieties.

10:40 – 11:40 Hironaka Yumiko (Waseda University)

Title: Spherical functions on the space of p -adic quaternion hermitian forms

Abstract: We analyze the space of p -adic quaternion hermitian forms by spherical functions. We also would like to compare our result with results for other similar spaces.