21st Autumn Workshop on Number Theory

Date: September 15th - September 19th in 2018.
Venue: Hotel Abest Happo Aldea

Program

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15:30 - 16:30   Tamotsu Ikeda (Kyoto university)

Hilbert-Siegel modular forms on adele groups *

16:45 - 17:45   Ren-He Su (Sichuan normal university)

The Kohnen plus space for Hilbert-Siegel modular forms

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09:00 - 10:30   Shunsuke Yamana (Kyoto university)

Ikeda lifting from classical to modern

10:45 - 11:45   Shunsuke Yamana (Kyoto university)

Anticyclotomic p-adic spinor L-functions for PGSp(4)

15:30 - 16:30   Winfried Kohnen (Heidelberg)

Bounds for Fourier-Jacobi coefficients of Siegel modular forms of degree two

17:00 -18:00   Sungmun Cho (POSTECH)

TBA

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09:00 - 10:30   Hiraku Atobe (Tokyo University)

Arthur's multiplicity formula and its application *

10:45 - 11:45   Tamotsu Ikeda (Kyoto university)

Algebraic automorphic forms and Hilbert-Siegel modular forms *

Afternoon: Excursion

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09:30 - 10:30   Satoshi Wakatsuki (Kanazawa university)

Dimension formula and Shintani zeta functions (1)

10:45 - 11:45   Hiraku Atobe (Tokyo University)

On the Miyawaki liftings

15:30 - 16:30   Tomokazu Kashio (Tokyo University of Science)

On Yoshida's conjecture concerning CM-periods and multiple gamma functions

16:45 - 17:45   Siegfrid Boecherer (Mannheim university)

A degree n version of Saha's nonvanishing result

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09:30 - 10:30   Shuji Horinaga (Kyoto university)

Adelization of Pitale-Saha-Schmidt's theorem and constructions of nearly holomorphic modular forms

10:45 - 11:45   Satoshi Wakatsuki (Kanazawa university)

Dimension formula and Shintani zeta functions (2)

Organizers

Tamotsu Ikeda (Kyoto University), Tomokazu Kashio (Tokyo University of Science)

Abstract

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15:30 - 16:30   Tamotsu Ikeda (Kyoto university)
Title: Hilbert-Siegel modular forms and automorphic forms on adele groups *

Abstract: In this talk, I will talk on some basic facts on Hilbert-Siegel modular forms. I will focus on how a Hilbert-Siegel modular form can be considered as an automorphic form on the adele group.

16:45 - 17:45   Ren-He Su (Sichuan normal university)
Title: The Kohnen plus space for Hilbert-Siegel modular forms

Abstract: The Kohnen plus space consists of modular forms of half integral weight k+1/2 with some condition on whose Fourier coefficients. It is known that this space is isomorphic to the space of modular forms of weight 2k via Shimura correspondence. Also, it can be shown that Kohnen plus space is isomorphic to the space of Jacobi forms of weight k+1 when k is odd. In this talk, we will review the definition and properties of the Kohnen plus space for Hilbert-Siegel modular forms and its isomorphism with Jacobi forms in a representation-theoretical way.

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09:00 - 10:30   Shunsuke Yamana (Kyoto university)
Ikeda lifting from classical to modern

10:45 - 11:45   Shunsuke Yamana (Kyoto university)
Title: Anticyclotomic p-adic spinor L-functions for PGSp(4)

Abstract: The Boecherer conjecture is a generalization of the Waldspurger formula and relates squares of Bessel periods of genus two Siegel cusp forms to the central L-values. This conjecture was currently proved by Furusawa and Morimoto for the special Bessel period, and the general case is a work-in-progress. In this talk I will construct a square root of an anticyclotomic p-adic L-function with explicit interpolation formulas for Siegel cusp forms of genus 2 and scalar weight greater than 1 with respect to paramodular groups of square-free level, assuming the Boecherer conjecture for the L-values with anticyclotomic twist. This is a joint work with Ming-Lun Hsieh.

15:30 - 16:30   Winfried Kohnen (Heidelberg)
Title: Bounds for Fourier-Jacobi coefficients of Siegel modular forms of degree two

17:00 -18:00   Sungmun Cho (POSTECH)
TBA

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09:00 - 10:30   Hiraku Atobe (Tokyo University)
Title: Arthur's multiplicity formula and its application.

Abstract: Arthur's multiplicity formula gives a decomposition of the discrete spectrum of automorphic representations of classical groups. In this talk, we give a survey of Arthur's multiplicity formula for symplectic groups. This formula together with several supplementary results gives two applications of Siegel modular forms. The one is a lifting theorem, and the other is the strong multiplicity one theorem for the level one Siegel modular forms.

10:45 - 11:45   Tamotsu Ikeda (Kyoto University)
Title: Algebraic automorphic forms and Hilbert-Siegel modular forms *

Abstract: An algebraic automorphic form is an automorphic form on a reductive group whose archimedean part is compact. For example, an orthogonal group of totally positive definite quadratic form over a totally real field has a compact archimedean part. An algrbraic automorphic form on such orthogonal group is related to Hilbert-Siegel modular forms by mean of theta correspondence. I will discuss some numerical examples of Algebraic automorphic forms on the orthogonal groups of tatally positive definite quadratic forms.

Afternoon: Excursion

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09:30 - 10:30   Satoshi Wakatsuki (Kanazawa university)
Title: Dimension formula and Shintani zeta functions (1)

Abstract: In this talk, we give a dimension formula for spaces of Hilbert-Siegel cusp forms with respect to neat arithmetic congruence subgroups. The dimensions are expressed by special values of Shintani zeta functions for spaces of symmetric matrices at non-positive integers. We also prove that their special values are given by special values of the Dedekind zeta functions and the Hecke L-functions with quadratic characters. This fact is showed by using Shintani's double zeta function and a work of Hiroshi Saito.

10:45 - 11:45   Hiraku Atobe (Tokyo University)
Title: On the Miyawaki liftings.

Abstract: Arthur's multiplicity formula tells us a lifting theorem of Siegel modular forms. However, this is an existence theorem, so that it is not known how to construct the liftings. Miyawaki liftings, which are defined by Ikeda, are the construction of such liftings. In this talk, we generalize Miyawaki liftings to Hilbert-Siegel modular forms, and give their several properties. We also discuss the non-vanishing of Miyawaki liftings using the Gan-Gross-Prasad conjecture.

15:30 - 16:30   Tomokazu Kashio (Tokyo University of Science)
Title: On Yoshida's conjecture concerning CM-periods and multiple gamma functions.

Abstract: Yoshida formulated a conjecture which expresses Shimura's period symbol in terms of Barnes' multiple gamma functions, up to algebraic numbers, in around 2000 In this talk, we introduce its refinement and some partial results. We describe a common refinement of Yoshida's conjecture, Stark's conjecture, and its p-analogue by Gross.

16:45 - 17:45   Siegfrid Boecherer (Mannheim university)
Title: A degree n version of Saha's nonvanishing result

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09:30 - 10:30   Shuji Horinaga (Kyoto university)
Title: Adelization of Pitale-Saha-Schmidt's theorem and constructions of nearly holomorphic modular forms

Abstract: In 80's, Shimura developed the theory of nearly holomorphic modular forms. By one of his theorem, every nearly holomorphic elliptic modular forms can be expressed by differential operators, holomorphic elliptic modular forms and weight 2 Eisenstein series. In 2014, Pitale-Saha-Schmidt classified $(\mathfrak{g}, K)$-modules which occur in the space of nearly holomorphic Siegel modular forms of degree 1 and 2. This theorem gives generalizations of the Shimura's theorem. In this talk, I will discuss refinements of Pitale-Saha-Schmidt's theorem. First, I will talk about the adelizations of the theorem in the case of elliptic modular forms. Next, I will talk about two ways to construct nearly holomorphic modular forms. The one way is Rankin-Cohen bracket and the other way is Klingen Eisenstein series. Still if we would have some more minutes, I wish to speak about generalizations of these constructions.

10:45 - 11:45   Satoshi Wakatsuki (Kanazawa university)
Title: Dimension formula and Shintani zeta functions (2)

Abstract: In this talk, we give a dimension formula for spaces of Hilbert-Siegel cusp forms with respect to neat arithmetic congruence subgroups. The dimensions are expressed by special values of Shintani zeta functions for spaces of symmetric matrices at non-positive integers. We also prove that their special values are given by special values of the Dedekind zeta functions and the Hecke L-functions with quadratic characters. This fact is showed by using Shintani's double zeta function and a work of Hiroshi Saito.