はじめに

この講究録は2025年1月20日(月)から1月24日(金)の日程で, 京都大学数理解析研究所において開催された研究集会「保型形式·保型表現の数論的側面」(RIMS共同利用 (公開型)) の報告集です. 本研究集会においてご講演頂き, 報告集へ寄稿して下さった研究者の方々, ご参加頂いた方々, さらに準備段階から開催に向けて尽力下さいました方々に, 心から御礼申し上げます.

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副代表者: 軍司 圭一 (千葉工業大学)

This volume is the proceedings of the RIMS workshop: "Arithmetic aspects of automorphic forms and automorphic representations", January 20-24, 2025. We are sincerely grateful to the speakers of the workshop for their excellent lectures and their contributions for these proceedings. We thank all of the participants of the workshop. We also thank our colleagues for their elaborations during the preparation.

The organizers: Kenichi Namikawa (Tokyo Denki University)
Keiichi Gunji (Chiba Institute of Technology)

RIMS conference
"Arithmetic aspects of automorphic forms and automorphic representations"

Organizers: Kenichi Namikawa (Tokyo Denki University)
Keiichi Gunji (Chiba Institute of Technology)

Date: January 20th (Mon.) – January 24th (Fri.) A.M. 2025

Venue: Room 420, Research Institute for Mathematical Sciences (RIMS), Kyoto University, Kyoto 606-8502, Japan

Jan. 20 (Mon.)

9:30 – 10:30 **Seiji Kuga**（Sophia University）

An asymptotic formula of spectral average of central L-values on GSp_2 for square-free levels

10:45 – 11:45 **Yao Cheng**（Tamkang University）

Archimedean Whittaker functions of GL_n via theta lifting

13:15 – 14:15 **Bin Xu**（Sichuan University）

Concrete Constructions of Automorphic Representations and Central Values of L-Functions

14:30 – 15:30 **Cris Poor**（Fordham University）

Formal series of Jacobi forms

15:45 – 16:45 **Siegfried Böcherer**（University of Mannheim）

On mod p^m singular vector-valued modular forms (joint work with T.Kikuta)

Jan. 21 (Tue.)

9:30 – 10:30 **Ryota Tajima**（Kyushu University）

The p-adic constant for mock modular forms associated to CM forms

10:45 – 11:45 **Shih-Yu Chen**（National Tsing Hua University）

On critical values of tensor product L-functions for $\mathrm{GSp}_4 \times \mathrm{GSp}_4$

13:15 – 14:15 **Robin Zhang**（MIT）

p-adic Shimura classes and Stark units

14:30 – 15:30 **Yukako Kezuka**（Kanazawa University）

Non-commutative Iwasawa theory over global function fields

15:45 – 16:45 **Ming-Lun Hsieh**（National Taiwan University）

Hida families of Yoshida lifts and the Rankin-Selberg convolution

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This conference is supported by RIMS and the grants from JSPS KAKENHI as follows: 21K03207, 23K03031.

Jan. 22 (Wed.)

9:30 – 10:30 (PDT 16:30 – 17:30, Jan. 21 (Tue.)) (talk given by online via zoom)

Zheng Liu（University of California, Santa Barbara）

p-adic L-functions for $\mathrm{GSp}(4) \times \mathrm{GL}(2)$

10:45 – 11:45 **Chris Williams**（University of Nottingham）

Non-vanishing of p-refined Friedberg–Jacquet integrals

13:15 – 14:15 **Zhiyu Zhang**（Stanford University）

Asai L-functions and twisted arithmetic fundamental lemma

14:30 – 15:30 **Yu-Sheng Lee**（University of Michigan）

Congruences of automorphic forms and Euler systems

15:45 – 16:45 **Hiraku Atobe**（Kyoto University）

Local Intertwining Relations

Jan. 23 (Thu.)

9:30 – 10:30 (PDT 16:30 – 17:30, Jan. 22 (Wed.)) (talk given by online via zoom)

Francesc Castella（University of California, Santa Barbara）

Congruences with Eisenstein series and Iwasawa main conjectures

10:45 – 11:45 **Shilin Lai**（University of Texas at Austin）

Non-vanishing of Eisenstein series on U(2,1)

14:00 – 15:00 **Hiro-aki Narita**（Waseda University）

Köcher principle for quaternionic discrete series

15:15 – 16:15 **Tomoyoshi Ibukiyama**（Osaka University）

Solutions of certain holonomic system of rank 8 arising from differential operators on Siegel modular forms

16:15 – 16:30 **On the RIMS workshop next academic year**

18:00 – **Conference Dinner**

Jan. 24 (Fri.)

9:30 – 10:30 **Masahiro Watanabe**（Kyoto University）

Ramified Siegel Series: Difference Equations and Hypergeometric Identities

10:45 – 11:45 **Keiichi Gunji**（Chiba Institute of Technology）

On the Fourier coefficients of Siegel Eisenstein series of an odd prime level

保型形式・保型表現の数論的側面

Arithmetic aspects of automorphic forms and automorphic representations

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