3rd Sendai spring conference on automorphic forms Program and abstracts

Date: June. 19 – June. 21, 2026

The map: https://www.tohoku.ac.jp/map/en/ (magnify)
Location: Science complex C 2nd floor, Science Hall C (H04 of the map)

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June 19

13:00–14:00 Yanagihara, Ryosuke (Tohoku University)

Title: On the root numbers of ℓ^N-th twisted Fermat quotient curves
Abstract: The root numbers of ℓ-th Fermat quotient curves, where ℓ is an odd prime, were first computed by Gross–Rohrlich in 1978. While subsequent work extended this result to twists by a nonzero integer δ, the corresponding extension to the ℓ^N-th case has remained open.

In this talk, we provide an explicit formula for the root numbers of ℓ^N-th twisted Fermat quotient curves under mild conditions on certain parameters, including δ. We also discuss recent progress toward relaxing these conditions.

Furthermore, we introduce combinatorial objects called Fleck numbers and explain their role in the computation. Finally, we formulate a conjecture on Fleck numbers and discuss possible future directions.

14:10–15:10 Tanabe, Naomi (Bowdoin College)

Title: Moments of Rankin–Selberg and Symmetric Square L-functions
Abstract: Evaluating moments of L-functions is a key approach to understanding the distribution of their values on the critical line. These averages reveal the typical and extreme sizes of L-values in a way that individual estimates often cannot. In this talk, we examine the standard analytic techniques for computing such averages and provide a survey of key developments in the subject. We then present our recent work establishing asymptotic formulas for moments of Rankin-Selberg L-functions, as well as those involving the symmetric square family.

15:20–16:20 Suzuki, Miyu (Kyoto University)

Title: Indefinite theta functions arising from affine Lie superalgebras and sums of triangular numbers
Abstract: The denominator identity is a combinatorial identity of power series attached to the root system of an infinite dimensional Lie algebra. Macdonald identities, which include many famous q-series identities such as Jacobi triple product identity, are known to be derived from the denominator identities for affine Lie algebras. In 1994, Kac and Wakimoto formulated the denominator identity for affine Lie superalgebras and predicted that one could derive some q-series identities related to triangular numbers from it. In this talk, we give two independent proofs to this conjecture. One is an analytic proof based on the recently developed technique of indefinite theta functions. The other is an algebraic one based on the strategy of Kac and Wakimoto. This is joint work with Toshiki Matsusaka (Kyushu University).

16:30–17:30 Mizuno, Yoshinori (Nagoya Institute of Technology)

Title: An explicit formula of genus character L-functions in function fields
Abstract: We give an explicit formula of genus character L-functions in the function field setting. As an application, a formula involving continued fractions and class numbers of imaginary quadratic function fields is presented. These results provide a function field analogue of the formula due to Hirzebruch-Zagier and Kaneko-Mizuno, and give a generalization of previous studies by Hayes, Gonzalez, Richter in the function field case. This is a joint work with Jigu Kim.

June 20

9:20–10:20 Nakata, Yuki (Kyoto University)

Title: Global S-group for a covering group of a torus
Abstract: A global packet may simultaneously contain an automorphic representation and a non-automorphic representation. The global S-group is expected, and known in some cases, to specify the automorphic representations in each global packet. For a covering group of an algebraic torus, it is not obvious from the definition whether the analogue of a global S-group has finite order. In this talk, we present our recent result that verifies this finiteness.

10:30–11:30 Horinaga, Shuji (NTT)

Title: On the Kodaira Dimension of Unitary Shimura Varieties
Abstract: Unitary Shimura varieties are important objects; for example, they arise as moduli spaces of polarized abelian varieties over an imaginary quadratic field E. In joint work with Maeda and Yamauchi, we proved that, when the associated unitary group has signature (1,n), such Shimura varieties are of general type under certain conditions on the dimension and on the discriminant of E. In this talk, I will report on analogous results obtained for general signatures. In particular, I would like to discuss how the situation differs between the case of signature (1,n) and the remaining cases, and to explain where each of the assumptions enters the argument.

Afternoon is for free discussion.

June 21

9:20–10:20 Tajima, Kazuaki (National Institute of Technology (KOSEN), Fukushima College)

Title: On the GIT stratification of prehomogeneous vector spaces
Abstract: We determined the GIT stratification of the prehomogeneous vector space $G = \mathrm{GL}_1(k) \times \mathrm{GL}_8(k), V = \wedge^3 k^8$. The GIT stratification makes it possible to determine all orbits combinatorially. The parameter set of the GIT stratification has been determined in a previous work. It remained to determine which strata are non-empty. We carried out this process and determined all orbits in this case over an arbitrary perfect field whose characteristic is not two. In this talk, we will explain how to verify whether strata is empty or not by using typical examples. This is a joint work with Akihiko Yukie.

10:30–11:30 Fujii, Amoru (University of Tokyo)

Title: The local Langlands correspondence of essentially unipotent supercuspidal representations for disconnected reductive groups
Abstract: Even though the local Langlands correspondence is staeted for connected reductive groups, we often need "disconnected" analogues from the view of Langlands functoriality. In this talk, we give such a correspondence of essentially unipotent supercuspidal representations, which is a generalization of Kaletha's result for disconnected tori. We also see its application to the ordinary local Langlands correspondence.