Titles and abstracts

Yoshinori Mizuno (Tokushima University)

Title:

Kernel of twisted symmetric square of elliptic modular forms

Abstract:

We construct a holomorphic kernel of twisted symmetric square of elliptic modular forms, which is useful to evaluate special values numerically. Some variant will also be discussed.

Tomoyoshi Ibukiyama (Osaka University)

Title:

Vector valued Jacobi forms of degree two of index one

Abstract:

We consider the Taylor expansion and the theta expansion of vector valued Jacobi forms of degree two and index one. Then we apply this to give structures and dimension formulas for those forms, showing that the Taylor coefficients are essentially in a direct product of vector valued Siegel modular forms of various weights with some extra conditions. To show these connections, we use differential operators and the surjectivity of the Witt operator.

Shuichi Hayashida (Joetsu University of Education)

Title:

Relations among Fourier coefficients of holomorphic Siegel-Eisenstein series

Abstract:

T. Yamazaki obtained some generalizations of the Maass relation for Siegel-Eisenstein series of arbitral degrees. Namely, these are relations among Fourier coefficients of holomorphic Siegel-Eisenstein series. In this talk we consider other kinds of generalized Maass relations and applications for calculation of L-functions of certain Siegel cusp forms.

Haigang Zhou (Tongji University)

Title:

Siegel modular forms of weight two and Hurwitz quaternion

Abstract:

Let $\mathcal{H}$ denote the Hurwitz quaternion ring. The primary purpose of this talk is to compute the number of Hurwitz quaternion pairs with fixed norms and trace, that is, $\rho(n,m,r) := \sharp\{(\alpha,\beta) \in \mathcal{H}\times\mathcal{H} | N(\alpha) = n, N(\beta) = m, \mathrm{Tr}(\alpha\bar{\beta}) = r\}$. We will construct a holomorphic Siegel modular forms of weight two on a congruence subgroup, and show its Fourier coefficients are the numbers $\rho(n,m,r)$, which involve the Hurwitz class number. In fact, the construction of the holomorphic Siegel modular forms of weight two is of independent interest.

Nils Skoruppa (Siegen University)

Title:

How to construct explicitly vector valued modular forms and Jacobi forms

Abstract:

In various theories one needs to construct explicitly spaces of vector valued elliptic modular forms. Examples for such theories are algebraic quantum field theory (where vector valued modular forms occur as traces of representations of infinite dimensional Lie algebras) or the geometry of moduli spaces in algebraic geometry (where vector valued modular forms occur in the construction of functions with distinguished divisors using Borcherds products or Gritsenko lifts). A recent theorem shows that vector valued modular forms can always be realized as Jacobi forms. For the latter there are various efficient constructions available. In this talk we explain the mentioned theorem, various constructions for Jacobi forms, and we show how to assemble everything to obtain useful explicit formulas for the objects mentioned in the title.

Hiroki Aoki (Tokyo University of Science)

Title:

On Maass lift to Siegel paramodular forms

Abstract:

Maass lift or Saito-Kurokawa lift is a method to construct Siegel modular forms from Jacobi forms. Most well-known one is a lift from Jacobi forms of index 1 to Siegel modular forms with respect to SP(2,Z). To Siegel paramodular forms of level N, Gritsenko constructed a lift (so called Gritsenko lift) from Jacobi forms of index N. The case with characters, recently Ibukiyama constructed Maass lift from Jacobi forms of index 1 to Siegel modular forms with levels. Here we combine their results to construct a lift from Jacobi forms to Siegel paramodular forms with characters. This lift is useful to construct some generators of the ring of Siegel paramodular forms.

Hidetaka Kitayama (Wakayama University)

Title:

Some results and conjectures related to dimension formulas of paramodular cusp forms

Abstract:

We consider explicit dimension formulas for Siegel cusp forms of degree two. In the 1980s, Ibukiyama gave an explicit dimension formula for paramodular cusp forms. It was mainly motivated by studies of degree two version of Eichler's correspondence and old and new forms, but the formula was restricted to the case of prime level. In this talk, we discuss some generalizations of the dimension formula. We explain some recent progress, together with some applications and related topics.

Hatice Boylan (Max-Planck-Institute, Istanbul University)

Title:

Weil representations of Hilbert modular groups

Abstract:

We know that the well-known double cover Mp(2,Z) of SL(2,Z) acts on the group algebra C[M] of maps from M to the complex numbers C. Here M is the underlying group of a given finite quadratic Z-module (M,Q). We call the representation afforded by this action the 'Weil representation associated to (M,Q)'. It is remarkable to note that due to a recent result when we consider Weil representations of finite quadratic modules over number fields the double cover Mp(2,O) (O is the ring of integers of the number field in question), which is used in the theory of Hilbert modular forms of half integral weight, does not play the same role as in the case of the rational number field. We observe that there are more double covers available to satisfy this action in the general case. It actually depends on the splitting of the ideal generated by 2 in the number field. However, when we restrict ourselves to finite quadratic modules which are discriminant modules of lattices over O we see that the group Mp(2,O) acts on C[M]. For proving this we realize the Weil representations in question by theta functions.

Satoshi Wakatsuki (Kanazawa University)

Title:

A relation for dimensions of spaces of Siegel cusp forms of degree two

Abstract:

In this talk, we give a strange relation for dimensions of spaces of Siegel cusp forms of degree two. We also explain that the relation is involved with numbers of cuspidal automorphic representations of PGSp(2) with certain conditions under the assumption of Arthur's conjecture.

Hiroshi Sakata (Waseda University Senior high school)

Title:

A remark on the trace formula for Jacobi forms of prime power level

Abstract:

We describe the trace formula for Jacobi forms of prime power level, and consider about the level-index changing operator (the 'swapping' operator) on Jacobi forms in the case of prime odd power level.