

# 2013年度 第9回の整数論セミナー

日時：2013年6月14日(金)

第一講演 15:00 ~ 15:50, 第二講演 16:00 ~ 16:50, 第三講演 17:00 ~ 18:00

場所：〒169-8555 東京都新宿区大久保3-4-1

早稲田大学西早稲田キャンパス (旧・大久保キャンパス)

61号館4階413室 (61-413)

講演者1：Dr. Haigang Zhou (Department of Mathematics, Tongji University)

タイトル1：Siegel modular forms of weight two and Hurwitz quaternion

アブストラクト1：

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,

$$\rho(n, m, r) := \#\{(\alpha, \beta) \in \mathcal{H} \times \mathcal{H} \mid N(\alpha) = n, N(\beta) = m, \text{Tr}(\alpha\bar{\beta}) = r\}.$$

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 particular, the construction of the holomorphic Siegel modular forms of weight two is of independent interest.

講演者2：Hatice Boylan (Max Planck Institute for Mathematics  
and Istanbul University)

タイトル2：“Linear characters of Hilbert Modular Groups and associated  
Automorphic forms”

アブストラクト2：

According to a general philosophy to a linear character of an arithmetic group there should be associated an interesting automorphic form transforming under the given group with this character.

The most prominent example for this is the group  $SL(2, \mathbb{Z})$  (or rather its double cover

$M_p(2, \mathbb{Z})$ ) and the Dedekind eta function.

A natural question is for the situation for the Hilbert modular groups.

Surprisingly, the linear characters of the Hilbert modular groups were not known until recently.

In this talk, we shall report about recent joint work with Nils Skoruppa, where we determined all linear characters of the Hilbert modular groups.

Furthermore, I shall explain that to these characters correspond indeed automorphic forms (which I found in my thesis).

These automorphic forms can be regarded as analogues of the famous Jacobi theta function which occurs in the Jacobi triple product identity.

The first Taylor coefficients of these new functions are candidates for generalizing the Dedekind eta function to number fields.

**講演者 3 :** Dr. Nils Skoruppa (Max-Planck Institute for Mathematics and University of Siegen)

**タイトル 3 :** Theta blocks

**アブストラクト 3 :**

As it turned out a while ago there is an easy yet extremely interesting construction of Jacobi forms.

Despite its simpleness this construction is related to various interesting problems concerning trigonometric polynomials or the arithmetic theory of lattices.

We shall report about this construction and recent results.

The talk is partly based on joint work with Valery Gritsenko and Don Zagier.