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Membership of academic societies:
MSJ (The Mathematical Society of Japan)

Research Interest:

- Algebraic number theory
- Ideal class group
- Capitulation problem

Research Summary:

An algebraic integer is a complex number which is a root of a monic polynomial

$$X^n + a_1X^{n-1} + \cdots + a_{n-1}X + a_n \qquad (a_1, \ldots, a_n \in \mathbb{Z},\ n \geqq 1)$$

with rational integer coefficients. An algebraic number field K is an extension of the rational number field $\mathbb{Q}$ of finite degree. We call the ring O_K consisting of the algebraic integers contained in K the ring of integers of K. Furtwängler showed the Principal Ideal Theorem which states that every ideal of O_K becomes principal in the ring of integers of the Hilbert class field $H(K)$ (namely the maximal unramified abelian extension) of K. In capitulation problem, we study ideals which become principal in the ring of integers of an extension. In [1], we obtained that for any intermediate field L of $H(K)/K$, the number of ideal classes of K which become principal in L is divisible by the degree $[L : K]$ of the extension L/K. The paper [2] is a generalization which contains Tannaka–Terada's Principal Ideal Theorem.

In recent years, I am interested in real quadratic fields of class number 1.

Major Publications:

[1] H. Suzuki, A generalization of Hilbert's theorem 94, Nagoya Math. J., **121** (1991), 161 – 169.

[2] H. Suzuki, On the Capitulation Problem, Advanced Stud. in Pure Math., Class Field Theory – Its Centenary and Prospect, **30** (2001), 483 – 507.

[3] Y. Odai and H. Suzuki, The rank of the group of relative units of a Galois extension II, Tohoku Math. J. **56** (2004), 367 – 370.

Education and Appointments:

1991 Lecturer, Nagoya University

2007 Associate Professor, Nagoya University

Message to Prospective Students:

In algebraic number theory, calculations of examples by hand often need enormous time and efforts, so I suggest in my small class using software packages KASH, PARI etc.