RIMS Kôkyûroku Bessatsu B4 Proceedings of the Symposium on Algebraic Number theory and Related Topics

December, 2007 Research Institute for Mathematical Sciences Kyoto University RIMS Kôkyûroku Bessatsu B4

Proceedings of the Symposium on Algebraic Number theory and Related Topics

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Research Institute for Mathematical Sciences Kyoto University, Kyoto, Japan

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PREFACE

This volume is the proceedings of a Symposium on "Algebraic Number theory and Related Topics", held at RIMS from December 11, 2006 to December 15, 2006.

The program, printed in the next pages, centered around the recent results on algebraic number theory and related topics, as was the case for many symposia held at RIMS in past years under the same title. Besides, it was organized having in mind the requirements to include

- some survey lectures on recent remarkable developments
- talks of young people, as well as seniors, on their own results
- some lectures by foreign participants, in order to have the international communication.

We could say that these requirements were fulfilled in our Symposium, which counted the number 179 of participants, including eight oversea participants.

Although a symposium on algebraic number theory has been held every year at RIMS, there were some new features in the present one. Firstly, it was organized, in addition to the chief organizer, by Yukiyoshi NAKAJIMA, and Hiroshi TSUNOGAI, who worked also as members of editors of this volume. Secondly, the proceedings was chosen to be published in this new series, so that all papers in the present volume were refereed and are in final form. As a result, we have here a volume filled of excellent papers, while we miss some interesting topics presented in the symposium, of which the papers were submitted elswhere.

Finally, the organizers would like to express their thanks to RIMS, the speakers of the symposium, and the referees of the manuscripts submitted to this volume.

Kiichiro HASHIMOTO,

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the chief editor of the present volume

RIMS Symposium on Algebraic Number theory and Related Topics December 11(Mon) – 15(Fri), 2006

(chief organizer) Kiichiro HASHIMOTO (Waseda Univ.) Yoshiyuki NAKAJIMA (Tokyo Denki Univ.) Hiroshi TSUNOGAI (Sophia Univ.)

Program

December 11 (Monday)

- 10:00–10:50 Iwao Kimura (Toyama Univ.) Indivisibility of special values of zeta functions associated to quadratic fields
- 11:10–12:00 Mikihito Hirabayashi (Kanazawa Inst. of Technology) Determinant formula for the quotient of the relative class numbers of imaginary abelian number fields
- 14:00–14:50 Yifang Yang (Chiao-Tung Univ.) Defining equations of modular curves
- 15:10–16:00 Shinya Harada (Kyusyu Univ.) Rationality of a zeta function determined by representations of a group
- 16:20–17:20 Yasutaka Ihara (Chuo Univ.) Construction of "M-functions" closely related to the density measure of L'/L-values

December 12 (Tuesday)

- 9:45–10:25 Syuji Yamamoto (Univ. of Tokyo) On Kronecker limit formulas for real quadratic fields
- 10:40–11:20 Manabu Murata (Ritsumeikan Univ.) Shimura's mass formulas over real quadratic fields
- 11:35–12:25 Shinichi Kobayashi (Nagoya Univ.) Algebraic theta functions and Eisenstein-Kronecker numbers

14:00-14:50	Yoshiyuki Kitaoka (Meijo Univ.)	
	The distribution of units modulo prime numbers	
15:10-16:00	Tetsuya Asai	
	Elliptic Gauss sums and Hecke's L-values at $s=1$	
16:20-17:20	Tomio Kubota	
	On several multiple zeta function	
December 13	(Wednesday)	
9:30-10:15	Tetsushi Itoh (Kyoto Univ.)	
	Automorphic Galois representations and the Sato-Tate conjecture I (after R. Taylor)	
10:30-11:15	Tetsushi Itoh (Kyoto Univ.)	
	Automorphic Galois representations and the Sato-Tate conjecture II (after R. Taylor)	
11:30-12:20	Teruyoshi Yoshida (Harvard Univ.)	
	Weight spectral sequence and Hecke correspondence on Shimura varieties	
December 14	(Thursday)	
9:45-10:25	Kazuma Morita (Kyoto Univ.)	
	On Galois representations of local fields with imperfect residue fields	
10:40-11:20	Gombodorj Bayarmagnai (Univ. of Tokyo)	
	Essential dimension of the Galois cohomology group with coefficients in the twist C of $\mathbf{Z}/n\mathbf{Z}(1)$	
11:35-12:25	Shin Hattori (Univ. of Tokyo)	
	Tame characters and ramification of finite flat group schemes	
14:00-14:50	Keisuke Arai (Univ. of Tokyo)	
	On the Galois images associated to QM-abelian surfaces	

	15:10-16:00	Christian Wuthrich (Ecole Polytechnique federale de Lausanne/ Keio Univ.) Self-points on elliptic curves
	16:20–17:20	Eric Friedlander (Northwestern Univ.) Cycles modulo algebraic equivalence
	December 15	(Friday)
	10:00–10:50	Masataka Chida (Tohoku Univ.) On the equivariant Tamagawa number conjecture for Hecke characters over imaginary quadratic fields
	11:10–12:00	Yasushi Mizusawa (Sophia Univ.) On the maximal unramied pro-2-extension over the cyclotomic \mathbf{Z}_{2} - extension of an imaginary quadratic field
	14:00-14:50	Kenichi Sygiyama (Chiba Univ.) A geometric analog of the Iwasawa conjecture for a hyperbolic threefold
	15:10-16:00	Fabrice Orgogozo (Ecole Polytechnique(Paris)/Univ. of Tokyo) p-dimension of henselian fields: an application of Ofer Gabber's algebraization technique
	16:20-17:20	Thomas Geisser (Univ. of Southern California/Univ. of Tokyo) An integral version of a conjecture of Kato
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