RIMS Kôkyûroku Bessatsu B86

Algebraic Number Theory and Related Topics 2018

November 26～30, 2018

edited by Takao Yamazaki and Shuji Yamamoto

July, 2021

Research Institute for Mathematical Sciences

Kyoto University, Kyoto, Japan

The papers presented in this volume of RIMS Kôkyûroku Bessatsu are in final form and refereed.
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Preface

This volume is the proceedings of the conference "Algebraic Number Theory and Related Topics 2018" held at RIMS, Kyoto University from November 26th (Mon) through 30th (Fri), 2018. The conference was held as one of the workshops supported by the joint research program of RIMS, and was intended to cover a wide range of topics in number theory such as algebraic number theory, Iwasawa theory, zeta and L-functions, automorphic representations, arithmetic dynamics, arithmetic geometry, anabelian geometry and p-adic geometry.

Articles in this volume were all written by speakers of the conference and their collaborators, and reviewed by anonymous referees. The articles are classified in the two categories: Survey Articles (surveys explaining recent results, backgrounds, ideas and outlines of proofs etc. on specific topics), and Research Articles (usual original research articles).

We would like to thank all who kindly helped us to organize the conference and to edit these proceedings. In particular, we are grateful to anonymous referees for their kind cooperation, without which the proceedings would have never been completed, the graduate students who helped us during the conference, and all the staff of the joint research office at RIMS for their constant support. Finally we would like to express our sincere gratitude to all who recommended speakers, and to all the speakers of the conference for giving interesting talks and writing articles for this volume. We hope that the articles in this volume will lead to further developments in number theory and related subjects.

May 2021

Takao Yamazaki
Shuji Yamamoto

Program

Algebraic Number Theory and Related Topics 2018

Date November 26 (Mon) – November 30 (Fri), 2018
Place Room 420, Research Institute for Mathematical Sciences, Kyoto University

November 26 (Mon)

10:15 – 10:25 Introduction

10:25 – 11:15 Eknath Ghate (TIFR)
Reductions of Galois representations of exceptional weights

11:30 – 12:30 Takeshi Tsuji (University of Tokyo)
The p-adic Simpson correspondence

14:00 – 14:50 Ildar Gaisin (University of Tokyo)
Arithmetic families of $(\varphi;\Gamma)$-modules and locally analytic representations of $\mathrm{GL}_2(\mathbb{Q}_p)$

15:05 – 15:55 Nakamura Kentaro (Saga University)
Construction of zeta element for rank two universal deformation

16:10 – 17:00 Jean-Stefan Koskivirta (University of Tokyo)
Group-theoretical mod p automorphic forms

November 27 (Tue)

9:20 – 10:10 Chan-Ho Kim (KIAS)
Refined applications of Euler systems in Iwasawa theory for modular forms

10:25 – 11:15 Mahiro Atsuta (Keio University)
Iwasawa theory for $p = 2$

11:30 – 12:30 Yasushi Mizusawa (Nagoya Institute of Technology)
On various pro-p-extensions of number fields with restricted ramification

14:00 – 14:50 Koichiro Sawada (RIMS)
Finiteness of isomorphism classes of hyperbolic polycurves with prescribed fundamental groups

15:05 – 15:55 Ippei Nagamachi (University of Tokyo)
Criteria for good reduction of hyperbolic polycurves

16:10 – 17:00 Daiki Hayashida (Kyoto University)
The characteristic polynomials of abelian varieties over finite fields

November 28 (Wed)

9:20 –10:10 Hiroshi Tsunogai (Sophia University)
A construction of an infinite family of dihedral quintic fields with unramified biquadratic extensions

10:25 – 11:15 Tuan Ngo Dac (CNRS/Caen)
On special values of t-modules

11:30 – 12:20 Nobushige Kurokawa (Tokyo Institute of Technology)
Multiple sine functions and absolute zeta functions

November 29 (Thu)

9:20 – 10:10 Hideaki Ikoma (Kyoto University)
On the differentiability of arithmetic volume function

10:25 – 11:15 Yûsuke Okuyama (Kyoto Institute of Technology)
Geometric formulas on Rumely's order function, weight function, and crucial measure in non-archimedean dynamics

11:30 – 12:30 Yu Yasufuku (Nihon University)
Heights and arithmetic dynamics

14:00 – 14:50 Teppei Takamatsu (University of Tokyo)
On a cohomological generalization of the Shafarevich conjecture for $K3$ surfaces

15:05 – 15:55 Hiroki Kato (University of Tokyo)
On the ℓ-independence of trace of monodromy action

16:10 – 17:00 Bo-Hae Im (KAIST)
The growth of rank of Jacobians over certain finite Galois extensions

November 30 (Fri)

9:20 – 10:10 Takeuchi Daichi (University of Tokyo)
Blow-ups and the class field theory for curves

10:25 – 11:15 Takahiro Murotani (RIMS)
A p-adic analytic approach to the absolute Grothendieck conjecture

11:30 – 12:30 Masanori Asakura (Hokkaido University)
Recent progress on hypergeometric functions and L-functions

14:00 – 14:50 Takashi Suzuki (Chuo University)
Duality for cohomology of local fields and curves with coefficients in abelian varieties

15:05 – 15:55 Noriyuki Suwa (Chuo University)
How would Grothendieck have treated the Fibonacci sequence?

15:55 – 16:05 Closing

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RIMS Kôkyûroku Bessatsu

Ｂ７１ The study of the history of mathematics 2017

Ｂ７２ Algebraic Number Theory and Related Topics 2015

Ｂ７３ The study of the history of mathematics 2018

Ｂ７４ Harmonic Analysis and Nonlinear Partial Differential Equations

Ｂ７５ New development of microlocal analysis and singular perturbation theory

Ｂ７６ On the examination and further development of inter-universal Teichmüller theory

Ｂ７７ Algebraic Number Theory and Related Topics 2016

Ｂ７８ Mathematical structures of integrable systems and their applications

Ｂ７９ Stochastic Analysis on Large Scale Interacting Systems

Ｂ８０ Regularity, singularity and long time behavior for partial differential equations with conservation law

Ｂ８１ Study of the History of Mathematics 2019

Ｂ８２ Regularity and Asymptotic Analysis for Critical Cases of Partial Differential Equations

Ｂ８３ Algebraic Number Theory and Related Topics 2017

Ｂ８４ Inter-universal Teichmüller Theory Summit 2016

Ｂ８５ Study of the History of Mathematics 2020

RIMS Kôkyûroku Bessatsu
Vol. B86

２０２１年7月発行

発行所　京都大学数理解析研究所
印刷所　明文舎印刷株式会社