

Preface

This volume is the proceedings of the conference “Algebraic Number Theory and Related Topics 2015” held at RIMS, Kyoto University from November 30 (Mon) through December 4 (Fri), 2015. 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, arithmetic topology, inter-universal Teichmüller theory, arithmetic geometry, algebraic cycles, anabelian geometry, Galois representations and automorphic representations.

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 following three categories: Research Articles (usual original research articles), Research Announcements (announcements on results whose details are/will be published elsewhere), and Survey Articles (surveys explaining recent results, backgrounds, ideas and outlines of proofs etc. on specific topics).

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.

August 2018

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Program

Algebraic Number Theory and Related Topics 2015

Date November 30 (Mon) - December 4 (Fri), 2015

Place Room 420, Research Institute for Mathematical Sciences, Kyoto University

November 30 (Mon)

- 9:45 – 10:00 Introduction
- 10:00 – 10:45 Minoru Hirose (Kyoto University)
Shintani zeta functions and Gross conjecture
- 10:55 – 11:40 Kazuto Ota (Keio University)
Kato's Euler system and the Mazur-Tate refined conjecture of BSD type
- 11:50 – 12:40 Florian Sprung (Princeton University/IAS)
Integral Euler systems and Iwasawa theory
- 14:10 – 14:55 Jun Ueki (Kyushu University/University of Tokyo)
Theory of genera and Iwasawa invariants for 3-manifolds
- 15:10 – 15:55 Kotaro Sugahara (Kyushu University)
Central extensions and reciprocity law for arithmetic surfaces
- 16:10 – 17:00 Takao Komatsu (Wuhan University)
Bernoulli-Carlitz numbers and Cauchy-Carlitz numbers

December 1 (Tue)

- 9:30 – 10:15 Keiji Adachi (Kyushu University)
Distance to cusps and stability
- 10:30 – 11:15 Megumi Takata (Kyushu University)
The infinite base change lifting associated to an APF extension of a mixed characteristic local field
- 11:30 – 12:30 Yuichiro Hoshi (RIMS, Kyoto University)
Introduction to inter-universal Teichmüller theory I (Survey)
- 14:05 – 14:50 Yoshinosuke Hirakawa (Keio University)
On the descent of certain modular Calabi-Yau varieties via the Cynk-Hulek construction

- 15:05 – 15:55 Hironori Shiga (Chiba University)
One visualization of Shimura’s complex multiplication theorem via hypergeometric modular functions (joint work with Atsuhira Nagano)
- 16:10 – 17:00 Keisuke Arai (Tokyo Denki University)
Points on Shimura curves rational over imaginary quadratic fields in the non-split case

December 2 (Wed)

- 9:00 – 9:45 Kento Yamamoto (Chuo University)
On generators of the Chow group of zero-cycles on diagonal cubic surfaces over 3-adic fields
- 10:00 – 10:45 Wataru Kai (University of Tokyo)
A moving lemma in the affine space with modulus
- 11:00 – 11:45 Hiroyasu Miyazaki (University of Tokyo)
On moving algebraic cycles with modulus of bounded degree
- 12:00 – 13:00 Yuichiro Hoshi (RIMS, Kyoto University)
Introduction to inter-universal Teichmüller theory II (Survey)

December 3 (Thu)

- 9:30 – 10:15 Arata Minamide (RIMS, Kyoto University)
Indecomposability of various profinite groups arising from hyperbolic curves
- 10:30 – 11:15 Yu Yang (RIMS, Kyoto University)
On the existence, geometry and p -ranks of vertical fibers of coverings of curves
- 11:30 – 12:30 Yuichiro Hoshi (RIMS, Kyoto University)
Introduction to inter-universal Teichmüller theory III (Survey)
- 14:00 – 14:45 Yasuhiro Wakabayashi (University of Tokyo)
Ordinariness and duality of dormant opers
- 15:00 – 15:45 Yu Iijima (RIMS, Kyoto University)
Difference between l -adic Galois representations and pro- l outer Galois representations associated to hyperbolic curves
- 16:00 – 17:00 Hidekazu Furusho (Nagoya University)
Galois action on knots (Invited)

December 4 (Fri)

- 9:30 – 10:15 Ippei Nagamachi (University of Tokyo)
On a good reduction criterion for proper polycurves with sections
- 10:30 – 11:20 Yuji Odaka (Kyoto University)
Canonical Kähler metrics and arithmetics - Generalising Faltings height
- 11:35 – 12:25 Chris Hall (University of Wyoming)
Specialization and big monodromy
- 13:50 – 14:40 Haoyu Hu (University of Tokyo)
Semi-continuity of total dimension divisors for l -adic sheaves
- 14:50 – 15:35 Kazuki Tokimoto (University of Tokyo)
Affinoids in the Lubin-Tate perfectoid space and some cases of the local Langlands correspondence
- 15:45 – 16:40 Yoichi Mieda (University of Tokyo)
Non-abelian Lubin-Tate theory and Kloosterman sheaves

Contents

Preface	i
Program	ii
Contents	v
Research Articles	1
飯島優 (Yu IJIMA)	3
On the indecomposability of the image of the universal pro- $\{l\}$ outer monodromy representation of the moduli stack of once-punctured elliptic curves	
金子元 (Hajime KANEKO), 小松尚夫 (Takao KOMATSU)	23
Bernoulli-Carlitz and Cauchy-Carlitz numbers with Stirling-Carlitz numbers	
高田芽味 (Megumi TAKATA)	37
The infinite base change lifting associated to an APF extension of a p -adic field	
Research Announcements	65
平川義之輔 (Yoshinosuke HIRAKAWA)	67
Cynk-Hulek 構成による保型的な Calabi-Yau 多様体の降下について (On the descent of certain modular Calabi-Yau varieties via the Cynk-Hulek construction)(announcement)	
広瀬稔 (Minoru HIROSE)	73
Gross の先頭項予想の精密化について (On the refinement of Gross's Leading Term Conjecture)	
胡昊宇 (Haoyu HU)	85
Semi-continuity of total dimension divisors for ℓ -adic sheaves (research announcement)	
南出新 (Arata MINAMIDE)	91
双曲的曲線に関連した副有限群の非分解性について (On the indecomposability of profinite groups related to hyperbolic curves)	
宮崎弘安 (Hiroyasu MIYAZAKI)	101
モデュラス対の一般化と応用について (On a generalization of modulus pairs and its applications)	

太田和惟 (Kazuto OTA)	119
Mazur-Tate の BSD 型精密化予想について (On the Mazur-Tate refined conjecture of BSD type)	
Florian E. Ito SPRUNG	135
Integral Euler systems and Main Conjectures	
時本一樹 (Kazuki TOKIMOTO)	147
Affinoids in the Lubin-Tate perfectoid space and special cases of the local Langlands correspondence in positive characteristic (announcement)	
若林泰央 (Yasuhiro WAKABAYASHI)	161
休眠 GL_n 冚の通常性について：研究報告 (On the ordinariness of dormant GL_n -opers: a research announcement)	
山本健人 (Kento YAMAMOTO)	181
対角的 3 次曲面の Chow 群の明示的生成元の構成について (On construction of explicit generators of the Chow group of diagonal cubic surfaces)	
陽煜 (Yu YANG)	187
On the Existence, Geometry and p -Ranks of Vertical Fibers of Coverings of Curves	
Survey Articles	195
新井啓介 (Keisuke ARAI)	197
A survey of rational points on Shimura curves	
星裕一郎 (Yuichiro HOSHI)	209
続・宇宙際 Teichmüller 理論入門 (Introduction to Inter-universal Teichmüller Theory, Continued)	
志賀弘典 (Hironori SHIGA), 永野中行 (Atsuhira NAGANO)	309
One visualization of Shimura's complex multiplication theorem via hypergeometric modular functions	
植木潤 (Jun UEKI)	331
分岐 \mathbb{Z}_p 被覆の岩澤不変量 (概説) (On the Iwasawa invariants of branched \mathbb{Z}_p -covers, a survey)	