

数理解析研究所講究録 1267

**Communications in  
Arithmetic Fundamental Groups**

京都大学数理解析研究所

2002年6月

# Preface

Under the title

“Communications in Arithmetic Fundamental Groups”,  
two workshops were held at RIMS, Kyoto University during  
February 8-10 of 1999 and October 29-31 of 2001.

Through these meetings, I intended to supply a few modest  
chances to promote communications of researchers related to  
this growing area. Thanks to intimate cooperation by the  
participants and the speakers, we could share many  
mathematical topics and problems together, some of which  
are collected in this volume.

For the 2001 workshop, we owe the success deeply to  
Professor Michael Fried at UC Irvine who motivated the  
meeting as one of the new stage interactions between the  
Pacific Rim researchers on Galois groups and Fundamental  
groups. Thanks to his great supports, the workshop obtained  
real international phases accompanied by big name speakers  
and active graduate students over the sea.

I hope that each reader find here useful informations, ne connections and further directions of his / her futu researches.

Hiroaki Nakamura

\* 海外からの研究者招聘に関して、

科学研究費補助金平成10年度基盤研究C

「基本群における外ガロア表現とそこに生ずる数論的現象」

(研究代表者：中村博昭)

科学研究費補助金平成13年度奨励研究A

「楕円曲線のホッジ・アラケロフ理論」

(研究代表者：望月新一)

による補助が役立ったことを記します。

# 数理解析研究所・短期共同集会

## Communications in arithmetic fundamental groups

1999年2月8日(月)~10日(水) at 115号室

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### プログラム

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2月8日

10:00-10:30 (Introduction)

10:45-11:45

Y.Ihara: 伊原 康隆(京大数理研)

Arithmetic studies of the derivation algebra and the kernel of the pro- $p$  representation associated to the projective line minus three points

1:40-2:40

J.Noguchi: 野口 潤次郎(東大数理)

Geometric Diophantine Problems -- 有理点分布と値分布

3:00-4:00

M.Oka: 岡 睦男(都立大理)

Geometry of plane curves via dual curves

4:20-5:20

S.Takayama: 高山 茂晴(阪大理)

A survey on varieties with large fundamental groups

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2月9日

9:40-10:40

A.Shiho: 志甫 淳(東北大理)

Rational Homotopy Theory and  $p$ -adic Hodge Theory

10:50-12:00

M.Miyashita: 宮下 昌明(阪大・理)

Topic on Grothendieck dessin (1)

T.Komatsu: 小松 亨(都立大・理)

Topic on Grothendieck dessin (2)

1:40-2:40

T.Ichikawa: 市川 尚志(佐賀大理工)

Mumford's uniformization and fusing moves

3:00-4:00

L.Schneps (CNRS, France)

Automorphism group of the Teichmuller tower in all genera

4:20-5:20

H.Tsunogai: 角皆 宏(上智大理工)

Harmonic equations in Grothendieck-Teichmuller group

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2月10日

9:40-10:50

H.Moon: 文 賢淑(都立大・理)

Topic on Galois representations

Y.Kawahara: 川原 行人(都立大・理)

Topic on Mixed Hodge fundamental groups

11:00-12:00

S.Mochizuki: 望月 新一(京大数理研)

The Hodge-Arakelov theory of elliptic curves

1:30-2:30

T.Terasoma: 寺杣 友秀(東大数理)

A remark on de Jong's conjecture and Galois rigidity

2:50-3:50

A.Tamagawa: 玉川 安騎男(京大数理研)

On the tame fundamental groups of algebraic curves in positive characteristic

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御協力ありがとうございました。

研究代表者: 中村博昭(都立大・理)

# Communications in Arithmetic Fundamental Groups

京都大学数理解析研究所の共同研究事業の1つとして、下記のように研究集会を催しますのでご案内申し上げます。

研究代表者: 中村博昭 (都立大・理)

## 記

日時: 2001年10月29日(月) 10:00 ~  
- 10月31日(水) 5:00  
場所: 京都大学数理解析研究所1階115号室  
京都市左京区北白川追分町  
市バス 農学部前 または 北白川 下車

## プログラム

10月29日(月)

10:00 - 10:10 Opening Words

10:30 - 11:20 Michael Fried (University of California, Irvine)  
 $p$ -perfect finite groups and their associated modular curve-like towers

11:40 - 12:30 Shinichi Mochizuki (RIMS, Kyoto University)  
Anabelian Geometry in the Hodge-Arakelov Theory of Elliptic Curves I

15:00 - 15:50 Helmut Völklein (University of Florida)  
Covers to  $\mathbf{P}^1$  of the general curve of genus  $g$

16:10 - 17:00 Akio Tamagawa (RIMS, Kyoto University)  
Fundamental groups of curves in positive characteristic

10月30日(火)

- 10:00 – 10:50 Michael Fried (University of California, Irvine)  
Tangential base-points and the cusps associated to Modular tower components
- 11:10 – 12:00 Shinichi Mochizuki (RIMS, Kyoto University)  
Anabelian Geometry in the Hodge-Arakelov Theory of Elliptic Curves II
- 15:00 – 15:50 Shinichi Mochizuki (RIMS, Kyoto University)  
Anabelian Geometry in the Hodge-Arakelov Theory of Elliptic Curves III
- 16:10 – 17:00 Ludmil Katzarkov (University of California, Irvine)  
Schematization of homotopy types

10月31日(水)

- 10:00 – 10:50 Fedor Bogomolov (Courant Inst. of Math. Sci.)  
On Galois groups of the function fields
- 11:10 – 12:00 Makoto Matsumoto (IHS, Kyoto University)  
Weighted completion of Galois and mapping class groups
- 14:00 – 14:50 Michael Fried (University of California, Irvine)  
Generalizing Serre's open image theorem to modular towers
- 15:10 – 15:40 Toru Komatsu (Tokyo Metropolitan University)  
On flower-tree dessins and their Belyi functions
- 15:50 – 16:20 Darren Semmen (University of California, Irvine)  
Application of Jennings's Theorem on modular representations to reduced Hurwitz spaces
- 16:30 – 17:00 Vilislav Boutchaktchiev (University of California, Irvine)  
Brill Noether stacks over a curve

Communications in Arithmetic Fundamental Groups

研究集会報告集

1999年2月8日～2月10日

2001年10月29日～10月31日

研究代表者 中村 博昭(Hiroaki Nakamura)

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