

Proceedings of the 36th Symposium
on Ring Theory and Representation Theory

October 11(Sat.) - 13(Mon.), 2003
Hirosaki University, Japan

Edited by
Masahisa Sato
Yamanashi University

January, 2004
Yamanashi, JAPAN

第 36 回 環論および表現論シンポジウム報告集

2003年10月11日(土) - 13日(月)
弘前大学理工学部

編集: 佐藤眞久(山梨大学)

2004年1月
山梨大学

Organizing Committee of The Symposium on
Ring Theory and Representation Theory

The Symposium on Ring Theory and Representation Theory has been held annually in Japan and the Proceedings have been published by the organizing committee. The first Symposium was organized in 1968 by H. Tominaga, H. Tachikawa, M. Harada and S. Endo. After their retirement, in 1997, a new committee was organized for managing the Symposium. The present members of the committee are Y. Hirano (Okayama Univ.), Y. Iwanaga (Shinshu Univ.), S. Koshitani (Chiba Univ.) and K. Nishida (Shinshu Univ.).

The Proceedings of each Symposium is edited by program organizer. Anyone who wants these Proceedings should ask to the program organizer of each Symposium or one of the committee members.

The Symposium in 2004 will be held at Shinshu University in Matsumoto for Sep. 3-5, and the program will be arranged by H. Asashiba (Osaka City Univ.).

Concerning several information on ring theory group in Japan containing schedules of meetings and symposiums as well as the addresses of members in the group, you should refer the following homepage, which is arranged by M. Sato (Yamanashi Univ.):

<http://fuji.cec.yamanashi.ac.jp/ring/> (Japanese)
civil2.cec.yamanashi.ac.jp/ring/japan/ (English)

Yasuo Iwanaga
Nagano, Japan
December, 2003

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Preface

The year of 2003 is the memorial year in the sense that George Frobenius (1849-1917) published his first paper about so called Frobenius Algebra. In the same year Wright Brother succeeded to fly their air plane Wright Flyer. Also It passed half a century since television programs has been broadcasted in Japan. Comparing the development of ring theory last one century with the development of technology, we must say our development is slower than them. We have great responsibility to develop ring theory in next 100 years faster than any others. We hope this Symposium will play a important roll for this development.

The 36th Symposium on Ring Theory and Representation Theory was held at Hirosaki University on October 11th - 13th, 2003. The symposium and this proceeding are financially supported by Kenji Nishida (Shinshu University) Grant-in-Aid for Scientific Research (B)(1), No.14340007, JSPS. Also Hirosaki University supported the symposium by the request from Professor Kaoru Motose.

We would like to thanks Professors Kenji Nishida, Yasuo Iwanaga, Yasuyuki Hirano and Shigeo Koshitani for their helpful suggestions concerning the symposium. Finally we would like to express our thanks to Professor Kaoru Motose and Katsushi Waki for their great effort and preparation to hold the symposium in Hirosaki University.

Masahisa Sato
Yamanashi
January, 2004

The picture of G. Frobenius



第 36 回 環論および表現論シンポジウム プログラム

10月11日(土):

8:50–9:50: 越谷重夫 (千葉大学理学部)

EXAMPLES OF BROUÉ'S ABELIAN DEFECT GROUP CONJECTURE IN REPRESENTATION THEORY OF FINITE GROUPS

10:00–11:00: C.M. Ringel (Bielefeld University)

Foundation of the representation theory of finite dimensional algebras I

11:10–12:10: 伊山 修 (姫路工業大学大学院)

Representation dimension and finitistic dimension conjecture I

13:30–14:15:

第 11 番教室: 吉野雄二 (岡山大学理学部)

A generalization of Zvara's theorem on degeneration of modules

第 12 番教室: 齋藤 睦・W.N. Traves (北海道大学大学院理学研究科・U.S. Naval Academy)

Finite Generations of Rings of Differential Operators of Semigroup Algebras

14:25–15:10:

第 11 番教室: 大貫洋介・佐藤眞久 (東京農工大学工学部・山梨大学工学部)

On degenerations of modules over general rings

第 12 番教室: 倉富要輔・張宰薫 (北九州工業高等専門学校・山口大学理工学研究科)

Lifting modules over right perfect rings

15:30–16:15:

第 11 番教室: Guangming Xie・丸林英俊・小林滋・小松弘明 (鳴門教育大学・岡山県立大学)

Non-Commutative Valuation Rings of $K(X, \sigma, \delta)$ over a Division Ring K

第 12 番教室: 横川賢二 (岡山理科大学)

Non-semisimple Hopf algebra of dimension p (using personal computer)

16:25–17:10:

第 11 番教室: 千葉克夫 (新居浜工業高等専門学校)

Valuations on coproducts of skew fields and free fields

第 12 番教室: 岡竜也 (筑波大学大学院数理物質科学研究科)

遺伝的ホップ代数の特徴づけとスーパーアフィン群への応用

(Characterization of hereditary Hopf algebra and its applications to super affine group)

17:20–18:05:

第 11 番教室: 柳川浩二 (大阪大学大学院理学研究科)

BGG correspondence and Aramova-Herzog's theory on exterior algebra

第 12 番教室: 森田純 (筑波大学数学系)

3次元リー代数の包絡環の分解について、およびその応用

(Factorizations of enveloping algebras of three dimensional Lie algebras and their applications)

10月12日(日):

8:50–9:50: 毛利 出 (University of Toledo)

Some applications of Koszul duality

10:00–11:00: C.M. Ringel (Bielefeld University)

Foundation of the representation theory of finite dimensional algebras II

11:10–12:10: 伊山 修 (姫路工業大学大学院)

Representation dimension and finitistic dimension conjecture II

13:30–14:15:

第11番教室: 山形邦夫 (東京農工大学工学部)

ガロア被覆を用いたフロベニウス多元環の構造と表現について

(On structures and representations of Frobenius algebras by using Galois coverings)

第12番教室: 高橋亮 (岡山大学大学院自然科学研究科)

On modules of G-dimension zero over non-Gorenstein local rings

14:25–15:10:

第11番教室: 星野光男・加藤義明 (筑波大学数学系・筑波大学数学研究科)

Tilting complexes associated with a sequence of idempotents

第12番教室: 本瀬香 (弘前大学理工学部)

Let's use cyclotomic polynomials in your lectures for your students

15:30–16:15:

第11番教室: 脇克志 (弘前大学理工学部)

On calculations of modular irreducible characters with the help of computers

第12番教室: 小池寿俊 (沖縄工業高等専門学校)

Self-duality of quasi-Harada rings and locally distributive rings

16:25–17:10:

第11番教室: 稗田吉成 (大阪府立工業高等専門学校)

On $S_R(H)$ -blocks II

第12番教室: Hisaya Tsutsui・平野康之 (Millersville University・岡山大学理学部)

A pair of rings with common ideals

17:20–17:50:

第11番教室: 新堂安孝 ()

Finitely Cogenerated Distributive Modules

第12番教室: 植松盛夫 (上武大学経営情報学部)

Global Dimension in Serial left Algebras

18:00–: 懇親会

10月13日(月):

8:50–9:50: Andrzej Nowicki (Nicholus Copernicus University)

Derivations of polynomial rings over a field of characteristic zero

10:00–11:00: C.M. Ringel (Bielefeld University)

Foundation of the representation theory of finite dimensional algebras III

11:10–12:10: 若松隆義 (埼玉大学教育学部)

フロベニウス多元環について

(On Frobenius algebras)

The 36th Symposium On Ring Theory and Representation Theory (2003)

Program

October 11, (Sat.):

8:50–9:50: Shigeo Koshitani (Chiba University)

EXAMPLES OF BROUÉ'S ABELIAN DEFECT GROUP CONJECTURE IN
REPRESENTATION THEORY OF FINITE GROUPS

10:00–11:00: C.M. Ringel (Bielefeld University)

Foundation of the representation theory of finite dimensional algebras I

11:10–12:10: Osamu Iyama (Himeji Institute of Technology)

Representation dimension and finitistic dimension conjecture I

13:30–14:15:

Room 11: Yuji Yoshino (Okayama University)

A generalization of Zvara's theorem on degeneration of modules

Room 12: Mutsumi Saito, W.N. Traves (Hokkaido University, U.S. Naval Academy)

Finite Generations of Rings of Differential Operators of Semigroup Algebras

14:25–15:10:

Room 11: Yousuke Onuki, Masahisa Sato (Tokyo University of Agriculture and Technology, University of Yamanashi)

On degenerations of modules over general rings

Room 12: Yousuke Kutratomi, Chang Chae Hoon (Kita Kyushu National College of Technology, Yamaguchi University)

Lifting modules over right perfect rings

15:30–16:15:

Room 11: Guangming Xie, Hidetoshi Marubayashi, Shigeru Kobayashi, Hiroaki Komatsu (Naruto Kyouiku University, Okayama Prefectural University)

Non-Commutative Valuation Rings of $K(X, \sigma, \delta)$ over a Division Ring K

Room 12: Kenji Yokogawa (Okayama Science University)

Non-semisimple Hopf algebra of dimension p (using personal computer)

16:25–17:10:

Room 11: Katsuo Chiba (Niihama National College of Technology)

Valuations on coproducts of skew fields and free fields

Room 12: Tatsuya Oka (Tsukuba University)

Characterization of hereditary Hopf algebra and its applications to super affine group

17:20–18:05:

Room 11: Koji Yanagawa (Osaka University)

BGG correspondence and Aramova-Herzog's theory on exterior algebra

Room 12: Jun Morita (Tsukuba University)

Factorizations of enveloping algebras of three dimensional Lie algebras and their applications

October 12, (San.):

8:50–9:50: Izuru Mori (University of Toledo)

Some applications of Koszul duality

10:00–11:10: C.M. Ringel (Bielefeld University)

Foundation of the representation theory of finite dimensional algebras II

11:10–12:10: Osamu Iyama (Himeji Institute of Technology)

Representation dimension and finitistic dimension conjecture II

13:30–14:15:

Room 11: Kunio Yamagata (Tokyo Univeristy of Agriculture and Techonology)

On structures and representations of Frobenius algebras by using Galois coverings

Room 12: Ryou Takahashi (Okayama University)

On modules of G-dimension zero over non-Gorenstein local rings

14:25–15:10:

Room 11: Mitsuo Hoshino, Yoshiaki Kato (Tsukuba University)

Tilting complexes associated with a sequence of idempotents

Room 12: Kaoru Motose (Hirosaki University)

Let's use cyclotomic polynomials in your lectures for your students

15:30–16:15:

Room 11: Katsushi Waki (Hirosaki University)

On calculations of modular irreducible characters with the help of computers

Room 12: Kazutoshi Koike (Okinawa National College of Technology)

Self-duality of quasi-Harada rings and locally distributive rings

16:25–17:10:

Room 11: Yoshinari Hieda (Osaka prefectural National College of Technology)

On $S_R(H)$ -blocks II

Room 12: Hisaya Tsutsui, Yasuyuki Hirano (Millersville University, Okayama University)

A pair of rings with common ideals

17:20–17:50:

Room 11: Yasutaka Shindo ()

Finitely Cogenerated Distributive Modules

Room 12: Morio Uematsu (Joubu University)

Global Dimension in Serial left Algebras

18:00–: Banque

October 13, (Mon.):

8:50–9:50: Andrzej Nowicki (Nicholus Copernicus University)

Derivations of polynomial rings over a field of characteristic zero

10:00–11:00: C.M. Ringel (Bielefeld University)

Foundation of the representation theory of finite dimensional algebras III

11:10–12:10: Takayoshi Wakamatsu (Saitama University)

On Frobenius algebras