# Proceedings of the 43rd Symposium on Ring Theory and Representation Theory

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岡山県立大学

## 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, a new committee was organized in 1997 for managing the Symposium. The present members of the committee are H. Asashiba (Shizuoka Univ.), S. Ikehata (Okayama Univ.), S. Kawata (Osaka City Univ.), M. Sato (Yamanashi Univ.) and K. Yamagata (Tokyo Univ. of Agriculture and Technology).

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 2011 will be held at Saitama University for Sep. 25 (Sun.)–27 (Tue.) and the program will be arranged by O. Iyama (Nagoya Univ.).

Concerning several information on ring theory and representation theory of group and algebras containing schedules of meetings and symposiums as well as ring mailing list service for registered members, you should refer to the following homepage, which is arranged by M. Sato (Yamanashi Univ.):

http://fuji.cec.yamanashi.ac.jp/~ring/ (in Japanese)
(Mirror site: www.cec.yamanashi.ac.jp/~ring/)

http://fuji.cec.yamanashi.ac.jp/~ring/japan/ (in English)

Masahisa Sato
Yamanashi, Japan
December, 2010

## The memory of Professor Goro Azumaya

Picture taken in 1995

Goro Azumaya (February 26, 1920 – July 8, 2010)
His advisor was Shokichi Iyanaga.
He was Professor at Indiana University after Hokkaido University
and introduced the notion of Azumaya algebra in 1951.
The Krull-Schmidt-Azumaya Theorem
is one of the most important theorem in Mathematics.
He got the second "Chunichi-Culture Award"
with Professor Tadasi Nakayama in 1949.

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# Preface

The 43rd Symposium on Ring Theory and Representation Theory was held at Naruto University of Education on September 10th – 12th, 2010. The symposium and this proceedings are financially supported by Kunio Yamagata (Tokyo University of Agriculture and Technology) JSPS Grant-in-Aid for 2010 Scientific Research (B), No. 21340003 and Jun-ichi Miyachi (Tokyo Gakugei University) JSPS Grant-in-Aid for 2010 Scientific Research (C), No. 22540042.

This volume consists of the articles presented at the symposium. We would like to thank all speakers and coauthors for their contributions.

We would also like to express our thanks to all the members of the organizing committee (Professors Hideto Asashiba, Shûichi Ikehata, Shigeto Koshitani, Masahisa Sato and Kunio Yamagata) for their helpful suggestions concerning the symposium. Finally we would like to express our gratitude to Professor Yasuyuki Hirano and students of Naruto University of Education who contributed in the organization of the symposium.

Hiroaki Komatsu
Soja
January, 2011

# 第 43 回環論および表現論シンポジウム

## プログラム

## 9月10日（金曜日)

**10:15 – 11:00**　小松 弘明（岡山県立大学）
High order centers and left differential operators

**11:15 – 12:00**　王 雲霞（河海大学），丸林 英俊（徳島文理大学）
Prime factor rings of Ore extensions over a commutative Dedekind domain

**13:30 – 14:15**　上山 健太（静岡大学）
Graded Morita equivalences for AS-regular algebras

**14:30 – 15:15**　大関 一秀（明治大学）
The first Hilbert coefficients of parameters

**15:30 – 16:15**　飯間 圭一郎（奈良高専），荒谷 督司（奈良教育大学），
高橋 亮（信州大学）
Modules left orthogonal to modules of finite projective dimension

**16:30 – 17:15**　吉澤 毅（岡山大学）
t-structures and local cohomology functors

## 9月11日（土曜日)

**10:15 – 11:00**　松岡 学（四日市高校）
$(\theta, \delta)$-codes with skew polynomial rings

**11:15 – 12:00**　長瀬 潤（東京学芸大学）
Hochschild cohomology and Gorenstein Nakayama algebras

**13:45 – 14:30**　吉脇 理雄（大阪市立大学）
On selfinjective algebras of stable dimension zero

**14:45 – 15:30**　阿部 弘樹（筑波大学）
Reflection for selfinjective algebras

**16:00 – 16:45**　古賀 寛尚（筑波大学），星野 光男（筑波大学）
Auslander-Gorenstein resolution

**17:00 – 17:45**　古谷 貴彦（東京理科大学）
Weakly sectional paths and the shapes of Auslander-Reiten quivers

**18:30 –**　懇親会

## 9月12日（日曜日）

**10:15 – 11:00**　竹花 靖彦（函館高専）
On a generalization of stable torsion theory

**11:15 – 12:00**　Surjeet Singh（King Saud University）
Rings with indecomposable right modules uniform

# Program of the 43rd Symposium on Ring Theory and Representation Theory

## September 10 (Friday)

**10:15 – 11:00** Hiroaki Komatsu (Okayama Prefectural University)
High order centers and left differential operators

**11:15 – 12:00** Yunxia Wang (Hohai University)
Hidetoshi Marubayashi (Tokushima Bunri University)
Prime factor rings of Ore extensions over a commutative Dedekind domain

**13:30 – 14:15** Kenta Ueyama (Shizuoka University)
Graded Morita equivalences for AS-regular algebras

**14:30 – 15:15** Kazuho Ozeki (Meiji University)
The first Hilbert coefficients of parameters

**15:30 – 16:15** Kei-ichiro Iima (Nara National College of Technology)
Tokuji Araya (Nara University of Education)
Ryo Takahashi (Sinshu University)
Modules left orthogonal to modules of finite projective dimension

**16:30 – 17:15** Takeshi Yoshizawa (Okayama University)
t-structures and local cohomology functors

## September 11 (Saturday)

**10:15 – 11:00** Manabu Matsuoka (Yokkaichi Highschool)
$(\theta, \delta)$-codes with skew polynomial rings

**11:15 – 12:00** Hiroshi Nagase (Tokyo Gakugei University)
Hochschild cohomology and Gorenstein Nakayama algebras

**13:45 – 14:30** Michio Yoshiwaki (Osaka City University)
On selfinjective algebras of stable dimension zero

**14:45 – 15:30** Hiroki Abe (University of Tsukuba)
Reflection for selfinjective algebras

**16:00 – 16:45** Hirotaka Koga (University of Tsukuba)
Mitsuo Hoshino (University of Tsukuba)
Auslander-Gorenstein resolution

**17:00 – 17:45** Takahiko Furuya (Tokyo University of Science)
Weakly sectional paths and the shapes of Auslander-Reiten quivers

**18:30 –** Banquet

## September 12 (Sunday)

**10:15 – 11:00** Yasuhiko Takehana (Hakodate National College of Technology)
On a generalization of stable torsion theory

**11:15 – 12:00** Surjeet Singh (King Saud University)
Rings with indecomposable right modules uniform