

Proceedings of the 57th Symposium on Ring Theory and Representation Theory

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第57回 環論および表現論シンポジウム報告集

2025年9月8日(月) - 12日(金)
岡山理科大学

編集: 荒谷督司 (岡山理科大学), 小野舞子 (岡山大学)

2026年2月
岡山理科大学

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 has been formed in 1997 to manage the Symposium, and its committee members are listed in the web page

<http://www.ring-theory-japan.com/ring/h-of-ringsymp.html>.

The present members of the committee are I. Mori (Shizuoka Univ.), O. Iyama (The Univ. of Tokyo), T. Aihara (Tokyo Gakugei Univ.), K. Yamaura (Univ. of Yamanashi) and R. Kanda (Osaka Metropolitan Univ.).

For information on ring theory and representation theory of groups and algebras (including schedules of meetings and symposiums), as well as ring mailing list service for registered members, please refer to the following websites:

<http://www.ring-theory-japan.com/ring/> (in Japanese)

<http://www.ring-theory-japan.com/ring/japan/> (in English)

The Symposium 2026 will be held at Osaka Metropolitan University in September. The organizers are R. Kanda (Osaka Metropolitan Univ.), H. Minamoto (Osaka Metropolitan Univ.), Y. Mizuno (Osaka Metropolitan Univ.) and K. Yamaura (Univ. of Yamanashi).

Izuru Mori
Shizuoka, Japan
February, 2026

Contents

Preface	vi
Program (Japanese)	vii
Program (English)	x
Tilting modules for algebraic groups Noriyuki Abe	1
Examples of tilting-discrete symmetric algebras Takuma Aihara	19
An extension theorem of semibricks Sota Asai	22
Semibricks in super category \mathcal{O} Shunsuke Hirota	25
Symmetric cohomology of triangular bialgebras Shota Inoue and Ayako Itaba	31
The Lie structure on the first Hochschild cohomology groups of Beilinson algebras of graded down-up algebras with weights (n, m) Ayako Itaba and Shu Minaki	39
Cohomology annihilators and strong generation of syzygy subcategories Kaito Kimura	47
On relative projective covers for the principal blocks of finite groups with metacyclic Sylow subgroups Naoko Kunugi and Hiroaki Taguchi	51
On the Rouquier dimensions of singularity categories and their annihilators Yuki Mifune	55
Point modules of a family consisting of the enveloping algebras of color Lie algebras Shu Minaki	60
On the Auslander–Reiten theory for extended hearts of proper connective DG-algebras Nao Mochizuki and Marvin Plogmann	65

Noncommutative Hirzebruch surfaces Izuru Mori	72
Thick representations of the symmetric group Kazunori Nakamoto, Shingo Okuyama and Yasuhiro Omoda	80
Explicit constructions of simple comodule algebras over a pointed Hopf algebra Daisuke Nakamura	88
Classifying KE-closed subcategories over a commutative noetherian ring Shunya Saito and Toshinori Kobayashi	96
On the ubiquity of dominant local rings Ryo Takahashi	103
Higher representation infinite algebras arising from geometry Ryu Tomonaga	108
Affine Yangians and W -algebras of type A Mamoru Ueda	112
On R -matrices constructed from certain finite-dimensional Yetter-Drinfeld modules Ryota Wakao	119
Minimal projective resolution and magnitude homology of geodetic metric spaces Shun Wakatsuki, Yasuhiko Asao and Aaron Chan	125

Preface

The 57th Symposium on Ring Theory and Representation Theory was held at Okayama University of Science on September 8th – 12th, 2025. The symposium and this proceedings are financially supported by

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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 for their helpful suggestions concerning the symposium. Finally we would like to express our gratitude to the local organizers, Professor Ryoichi Kase and Professor Taiki Shibata of Okayama University of Science, Assistant Program organizer, Professor Maiko Ono, formerly of Okayama University of Science at the conference and now of Okayama University, and the students of Okayama University of Science who contributed in the organization of the symposium.

Tokuji Araya
Okayama, Japan
February, 2026

第57回環論および表現論シンポジウム (2025年)

プログラム

9月8日 (月)

12:55–13:00 あいさつと諸注意

13:00–13:45 浅井 聡太 (東京大学)

An extension theorem of semibricks

14:00–14:45 望月 直央 (名古屋大学), Marvin Plogmann (University of Cologne)

On the Auslander–Reiten theory for extended hearts of proper connective DG-algebras

15:00–15:45 若月 駿 (名古屋大学), 浅尾 泰彦 (福岡大学), Aaron Chan (名古屋大学)

Minimal projective resolution and magnitude homology of geodetic metric spaces

16:00–17:00 阿部 紀行 (東京大学)

代数群の傾加群について I

9月9日 (火)

10:00–10:45 上田 衛 (東京大学)

Affine Yangians and W -algebras of type A

11:00–11:45 中本 和典 (山梨大学), 奥山 真吾 (香川高専), 面田 康裕 (明石高専)

Thick representations of the symmetric group

13:00–13:45 廣田 竣介 (京都大学)

super category \mathcal{O} における semibrick

14:00–14:45 中村 大祐 (岡山理科大学)

Explicit constructions of simple comodule algebras over a pointed Hopf algebra

15:00–15:45 若尾 亮太 (岡山理科大学)

On R -matrices constructed from certain finite-dimensional Yetter-Drinfeld Modules

16:00–17:00 阿部 紀行 (東京大学)

代数群の傾加群について II

9月10日 (水)

10:00–10:45 高橋 亮 (名古屋大学)

On the ubiquity of dominant local rings

11:00–11:45 伊山 修 (東京大学)

Silting correspondences and Calabi-Yau dg algebras

13:00–13:45 齋藤 峻也 (東京大学), 小林 稔周 (明治大学)

Classifying KE-closed subcategories over a commutative noetherian ring

14:00–14:45 飯間 圭一郎 (奈良工業高等専門学校)

On the extension-closed subcategories of the Cohen-Macaulay module category over a hypersurface of finite or countable representation type.

15:00–15:45 三船 裕輝 (名古屋大学)

特異圏の Rouquier 次元と零化イデアルについて

16:00–16:45 木村 海渡 (名古屋大学)

Cohomology annihilators and strong generation of syzygy subcategories

9月11日 (木)

10:00–10:45 田口 宏明 (東京理科大学), 功刀 直子 (東京理科大学)

On relative projective covers for the principal blocks of finite groups with metacyclic Sylow subgroups

11:00–11:45 朝永 龍 (東京大学)

Higher representation infinite algebras arising from geometry

13:00–13:45 井上 翔太 (東京理科大学), 板場 綾子 (東京理科大学)

Symmetric cohomology of triangular bialgebras

14:00–14:45 南木 秋 (東京理科大学)

Point modules of a family consisting of the enveloping algebras of color Lie algebras

15:00–15:45 板場 綾子 (東京理科大学), 南木 秋 (東京理科大学)

The Lie structure on the first Hochschild cohomology groups of Beilinson algebras of graded down-up algebras with weights (n, m)

16:00–16:45 毛利 出 (静岡大学)

Noncommutative Hirzebruch surfaces

17:30– 懇親会

9月12日（金）

10:00–10:45 相原 琢磨 (東京学芸大学)

Examples of tilting-discrete symmetric algebras

11:00–12:00 阿部 紀行 (東京大学)

代数群の傾加群について III

The 57th Symposium on Ring Theory and Representation Theory

Program

September 8 (Monday)

12:55–13:00 Opening remarks

13:00–13:45 Sota Asai (The University of Tokyo)

An extension theorem of semibricks

14:00–14:45 Nao Mochizuki (Nagoya University), Marvin Plogmann (University of Cologne)

On the Auslander–Reiten theory for extended hearts of proper connective DG-algebras

15:00–15:45 Shun Wakatsuki (Nagoya University), Yasuhiko Asao (Fukuoka University), Aaron Chan (Nagoya University)

Minimal projective resolution and magnitude homology of geodetic metric spaces

16:00–17:00 Noriyuki Abe (The University of Tokyo)

Tilting modules for algebraic groups I

September 9 (Tuesday)

10:00–10:45 Mamoru Ueda (The University of Tokyo)

Affine Yangians and W -algebras of type A

11:00–11:45 Kazunori Nakamoto (University of Yamanashi), Shingo Okuyama (Kagawa College), Yasuhiro Omoda (Akashi College)

Thick representations of the symmetric group

13:00–13:45 Shunsuke Hirota (Kyoto University)

Semibricks in super category \mathcal{O}

14:00–14:45 Daisuke Nakamura (Okayama University of Science)

Explicit constructions of simple comodule algebras over a pointed Hopf algebra

15:00–15:45 Ryota Wakao (Okayama University of Science)

On R -matrices constructed from certain finite-dimensional Yetter-Drinfeld modules

16:00–17:00 Noriyuki Abe (The University of Tokyo)

Tilting modules for algebraic groups II

September 10 (Wednesday)

- 10:00–10:45** Ryo Takahashi (Nagoya University)
On the ubiquity of dominant local rings
- 11:00–11:45** Osamu Iyama (The University of Tokyo)
Sifting correspondences and Calabi-Yau dg algebras
- 13:00–13:45** Shunya Saito (The University of Tokyo), Toshinori Kobayashi (Meiji University)
Classifying KE-closed subcategories over a commutative noetherian ring
- 14:00–14:45** Kei-ichiro Iima (Nara College)
On the extension-closed subcategories of the Cohen-Macaulay module category over a hypersurface of finite or countable representation type.
- 15:00–15:45** Yuki Mifune (Nagoya University)
On the Rouquier dimensions of singularity categories and their annihilators
- 16:00–16:45** Kaito Kimura (Nagoya University)
Cohomology annihilators and strong generation of syzygy subcategories

September 11 (Thursday)

- 10:00–10:45** Hiroaki Taguchi (Tokyo University of Science), Naoko Kunugi (Tokyo University of Science)
On relative projective covers for the principal blocks of finite groups with metacyclic Sylow subgroups
- 11:00–11:45** Ryu Tomonaga (The University of Tokyo)
Higher representation infinite algebras arising from geometry
- 13:00–13:45** Shota Inoue (Tokyo University of Science), Ayako Itaba (Tokyo University of Science)
Symmetric cohomology of triangular bialgebras
- 14:00–14:45** Shu Minaki (Tokyo University of Science)
Point modules of a family consisting of the enveloping algebras of color Lie algebras
- 15:00–15:45** Ayako Itaba (Tokyo University of Science), Shu Minaki (Tokyo University of Science)
The Lie structure on the first Hochschild cohomology groups of Beilinson algebras of graded down-up algebras with weights (n, m)
- 16:00–16:45** Izuru Mori (Shizuoka University)
Noncommutative Hirzebruch surfaces

17:30– Conference dinner

September 12 (Friday)

10:00–10:45 Takuma Aihara (Tokyo Gakugei University)
Examples of tilting-discrete symmetric algebras

11:00–12:00 Noriyuki Abe (The University of Tokyo)
Tilting modules for algebraic groups III