

令和6年度 教員・数学研究所特任教員の業績
(論文と講演発表等)

(秋吉 宏尚)

・講演発表

[1] 秋吉宏尚, 二橋結び目、基本領域、その一般化, 研究集会「Hyperbolic Manifolds and Geometric Group Theory」, 大阪大学, 2024年12月8日.

・プレプリント等

[1] H. Akiyoshi, "Finiteness of Dirichlet domains of cusped hyperbolic manifolds", Topology and its Applications Volume 367 (掲載決定) .

(阿部 健)

・論文

[1] Ken Abe, Existence of homogeneous Euler flows of degree $-\alpha \in [-2, 0]$, OCAMI Reports (2024)

・講演発表

[1] K. Abe, Stationary self-similar profiles for the 2D inviscid Boussinesq equations, Vortex dynamics in incompressible fluids 2025 (organized by Y.P. Choi and I.J. Jeong), Yonsei U, Seoul, 2025, Jan 6-10

[2] K. Abe, Stationary self-similar profiles for the 2D inviscid Boussinesq equations, Singularities in Fluids and General Relativity (organized by X. An, M. Dafermos, J. Jang, and Y. Yao), National University of Singapore, 2024, Dec 16 - 20

[3] K. Abe, Stationary self-similar profiles for the 2D inviscid Boussinesq equations, Mixing, enhanced dissipation and stability effects in fluid dynamics, (organized by Z. Zhang, C. Xie, X. Xu, and Y. Feng), Kunming, 2024, Nov 24 - 30

[4] K. Abe, Stability of Chandrasekhar's nonlinear force-free fields, Patterns in solutions to the incompressible Euler equations (organized by B. Bieganowski, T. Cieslak, P. Kokocki, and W. Ozanski), Bedlewo, 2024, Aug 5 - 9

[5] K. Abe, Stability of Chandrasekhar's nonlinear force-free fields, Fluids and Maximal regularity (organized by K. Itakura, K. Uriya, S. Sakamoto, S. Yagi), Kyoto U., 2024, Sep 9 - 11

[6] K. Abe, Existence of homogeneous Euler flows, RIMS workshop: Mathematical analysis of fluid and gas (organized by M. Suzuki and M. Aiki), RIMS, 2024, June 26 - 28

・プレプリント等

[1] K. Abe, D. Ginsberg, I.-J. Jeong, Stationary self-similar profiles for the two-dimensional inviscid Boussinesq equations, arXiv:2410.21765, プレプリント

[2] K. Abe, I.-J. Jeong, F. Pasqualotto, N. Sato, MHS equilibria in the small non-resistive limit to the randomly forced resistive magnetic relaxation equations,

準備中

- [3] K. Abe, I.-J. Jeong, Y. Yao, Stability for multiple Lamb dipoles, 準備中
- [4] K. Abe, J. Gomez-Serrano, I.-J. Jeong, Homogeneous steady states for SQG, 準備中

(伊師 英之)

• 論文

- [1] Sho Sonoda; Hideyuki Ishii; Isao Ishikawa; Masahiro Ikeda, Joint Group Invariant Functions on Data-Parameter Domain Induce Universal Neural Networks, Proceedings of Machine Learning Research, April 2024, Vol. 228, 129-144, <https://proceedings.mlr.press/v228/sonoda24a.html>
- [2] Adam Chojecki, Hideyuki Ishii, Uncovering Data Symmetries: Estimating Covariance Matrix in High-Dimensional Setting With ‘gips’ R Package, OCAMI Reports (2024)

• 講演発表

- [1] 伊師英之, “Colored graphical models and gluing of prehomogeneous vector spaces”, 研究集会「調和解析と幾何学」, 城西大学, 2024 年 4 月 23 日
- [2] Hideyuki Ishi, “New examples of hyperbolic polynomials”, IMVAST-OCAMI Joint Conference on Selected Areas in Mathematics, 大阪公立大学, 2024 年 5 月 18 日
- [3] Hideyuki Ishi, “The Bochner coordinates associated to homogeneous Kahler metrics on a bounded domain”, Complex and Symplectic Geometry Workshop, Cagliari 大学, 2024 年 6 月 28 日
- [4] 伊師英之, “ヘッセ幾何とケーラー幾何”, 第 58 回函数論サマーセミナー, 龜の井ホテル 塩原, 2024 年 9 月 9 日
- [5] Hideyuki Ishi, “Normal distributions and highest weight unitary representations of the Jacobi group”Dayw”, 研究集会「Reims-Osaka Nagoya Days」, 大阪公立大学（オンライン）, 2024 年 12 月 18 日
- [6] 伊師英之 “実シンプレクティック群の最高ウェイトユニタリ表現とウィシャート分布”, 2024 年度表現論ワークショップ, とりぎん文化会館, 2025 年 1 月 11 日
- [7] Hideyuki Ishi, “The Tian-Yau-Zeldich expansions for homogeneous Kähler metrics on a bounded homogeneous domain”, The 8th Workshop “Complex Geometry and Lie Groups”, 大阪大学, 2025 年 3 月 10 日

(石田 裕昭)

• 講演発表

- [1] Hiroaki Ishida, Complex manifolds with maximal torus actions, IMVAST-OCAMI Joint Conference on Selected Areas in Mathematics, Osaka Metropolitan University, 2024 年 5 月 18 日.
- [2] 石田 裕昭, トーラス作用で不变な横断ケーラー構造, 葉層構造論シンポジウム (2024 年) : 特に複素解析的ベクトル場・葉層構造とその周辺について, 静岡県男女共同

参画センター「あざれあ」, 2024 年 10 月 18 日.

・プレプリント等

- [1] Hiroaki Ishida and Hisashi Kasuya, Double sided torus actions and complex geometry on $SU(3)$, arXiv:2110.08533, Journal of Symplectic Geometry, accepted.

(江尻 祥)

(尾角 正人)

・論文

- [1] Jae-Hoon Kwon; Sin-Myung Lee; Masato Okado, Oscillator representations of quantum affine orthosymplectic superalgebras, Communications in Mathematical Physics, April 2024, Vol. 405, 101,
<https://doi.org/10.1007/s00220-024-04961-4>

・講演発表

- [1] Masato Okado, Kirillov-Reshetikhin crystals and combinatorial K -matrices, Combinatorial Representation Theory and Geometry, 東京工業大学, 2024 年 6 月 26 日

- [2] Masato Okado, On the branching functions of affine Lie algebras with respect to the underlying simple Lie algebras, Reims-Osaka-Nagoya Days, hybrid, 2024 年 12 月 18 日

- [3] 尾角正人、アフィンリー環の分岐関数のある負号を含まない表示について、京都大学数学教室談話会、京都大学、2025 年 1 月 8 日

- [4] 尾角正人、アフィンリー環の分岐関数のフェルミ公式予想について、2025 年度日本数学会年会無限可積分系セッション特別講演、早稲田大学、2025 年 3 月 21 日

・プレプリント等

- [1] Atsuo Kuniba, Masato Okado, Travis Scrimshaw; A strange five vertex model and multispecies ASEP on a ring, arXiv:2408.12092

(嘉田 勝)

(數見 哲也)

・プレプリント等

- [1] Tetsuya Kazumi and Kentaro Matsuda, A freely falling slinky in random media (in preparation)

(加藤 希理子)

・講演発表

- [1] 加藤希理子, Revisiting stable module theory, 半田山可換環論セミナー, 岡山理科大学, 2024 年 5 月 26 日

[2] 加藤希理子, Stable module categories inside triangulated categories, Derived categories and cotilting theory, 東京学芸大学, 2024 年 9 月 19 日

(加藤 信)

• 講演発表

[1] 加藤 信, 向き付け不可能な極小曲面, 第 4 回 SAG セミナー, 佐賀大学, 2024 年 06 月 07 日 .

[2] 加藤 信, Simple ends of minimal surfaces in the simply isotropic 3-space, Workshop on Geometry in Numazu , 沼津高専サテライトオフィス N-Com, 2024 年 08 月 23 日.

[3] 加藤 信, 大きい end と小さい end, 名工大幾何学講演会 2025, 名古屋工業大学, 2025 年 03 月 04 日.

• プレプリント等

[1] Kohei HAMADA, Shin KATO: Nonorientable minimal surfaces with various types of ends, Modern Approaches to Differential Geometry and its Related Fields, 2025, World Scientific Publishing, 1-16.

(數見 哲也)

• 論文

[1] Tetsuya Kazumi; Shinsuke Nishikawa, Mathematical analysis of a freely falling slinky, Japan Journal of Industrial and Applied Mathematics, July 2024, Vol. 41, 1451-1476, <https://doi.org/10.1007/s13160-024-00662-6>

(壁谷 喜継)

• 講演発表

[1] 壁谷 喜継 "Structure of positive solutions to an elliptic system of the Choquard-type with a potential", IMVAST-OCAMI Joint Conference, 大阪公立大学杉本キャンパス、2024 年 5 月 17 日。招待講演

[2] 壁谷 喜継 「Hatree-Fock 型方程式の球対称解分岐解」、大阪電気通信大学における微分方程式セミナー、大阪電気通信大学寝屋川キャンパス、2024 年 9 月 12 日。口頭発表

• プレプリント等

[1] Y. Kabeya, S. Maeda, V. Moroz, "Nonradial bifurcating solutions to a Hatree-Fock type equation", 準備中

(川添 充)

• 論文

[1] Alexander Kudzin, Kentaroh Toyoda, Mitsuru Kawazoe, Satoshi Takayama, Atsushi Ishigame, Scaling Ethereum 2.0's Cross-Shard Transactions With Efficient Verification and Aggregation of KZG Commitments, IEEE Internet of

Things Journal, October 2024, Vol. 11, 31822-31835,

10.1109/JIOT.2024.3419932

• 講演発表

[1] Mitsuru Kawazoe and Koji Otaki, How do Q-A logs support inquiry-based teaching? A case of a mathematical modelling course, Fifth conference of the International Network for Didactic Research in University Mathematics (INDRUM2024), Barcelona, Spain, 2024年6月11日.

[2] Mitsuru Kawazoe, Mathematics Curriculum Reform and University Challenge in Japan, SEAMS Forum: Undergraduate Mathematics Curriculum Reform in the Era of Big Data and Artificial Intelligence, Vietnam Institute for Advanced Study in Mathematics (VIASM) (online), 2024年11月8日. 招待講演

[3] 岸本共生・川添充・吉富賢太郎, 双対格子への格子簡約適用による ENUM の計算量削減についての考察, リーガロイヤルホテル小倉, 2025年1月29日.

[4] 川添充, 大学初年次生向けの2つの数学的モデリング教育とその課題, 2025年度数学教育学会春季年会・シンポジウム「大学・高専における数学的モデリング教育」, 早稲田大学早稲田キャンパス, 2025年3月19日. 招待講演

(菅 徹)

• 論文

[1] Kota Ikeda; Toru Kan; Toshiyuki Ogawa, Existence of traveling wave solutions in continuous optimal velocity models, Physica D: Nonlinear Phenomena, November 2024, Vol. 471, 134430,
10.1016/j.physd.2024.134430

• 講演発表

[1] Toru Kan, On the asymptotic behavior of solutions of the Allen-Chan-Nagumo equation, NCTS Workshop on Bifurcation Phenomena and Evolutionary Equations, National Center for theoretical Sciences, Taipei, Taiwan, April 17, 2024

[2] 菅徹, 測度を初期値とする非線形熱方程式の初期値問題の可解性, 東北大学応用数理解析セミナー, 東北大学, 2024年5月16日

• プレプリント等

[1] Yohei Fujishima and Toru Kan, Uniform boundedness and blow-up rate of solutions in non-scale-invariant superlinear heat equations, arXiv:2412.20402, submitted

(神田 遼)

• 論文

[1] Alex Chirvasitu; Ryo Kanda; S. Paul Smith, Modular properties of elliptic algebras, Contemporary Mathematics, May 2024, Vol. 801, 73-94,
<http://dx.doi.org/10.1090/conm/801/16037>

[2] Alex Chirvasitu; Ryo Kanda; S. Paul Smith, The characteristic variety for Feigin and Odesskii's elliptic algebras, Mathematical Research Letters, October 2024, Vol. 31, 353-428, <http://dx.doi.org/10.4310/MRL.241024233221>

・講演発表

[1] Ryo Kanda, "Dualizable Grothendieck categories and idempotent rings", 第35回可換環論セミナー, 徳島大学, 日本, 2024年6月11日

[2] Ryo Kanda, "Roos categories", 第4回山口代数セミナー, 山口大学, 日本, 2024年6月15日

[3] Ryo Kanda, "Flat cotorsion modules and quasi-coherent sheaves", International Workshop on Homological Approximation Theory and its Applications, The Lucid Hangzhou Xixi Wetland Hotel, 中国, 2024年7月19日

[4] Ryo Kanda, "Dualizable Grothendieck categories and idempotent rings", International Conference on Representations of Algebras (ICRA 21, 2024), Shanghai Jiao Tong University, 中国, 2024年8月8日

[5] Ryo Kanda, "Roos categories", 第56回環論および表現論シンポジウム, 東京学芸大学, 日本, 2024年9月18日

[6] Ryo Kanda, "Symplectic leaves for the Feigin-Odesskii-Polishchuk Poisson bracket", Poisson Geometry and Artin-Schelter Regular Algebras, Zhejiang University, 中国, 2024年10月14日

・プレプリント等

[1] Alex Chirvasitu, Ryo Kanda, and S. Paul Smith, "The symplectic leaves for the elliptic Poisson bracket on projective space defined by Feigin-Odesskii and Polishchuk", arXiv:2210.13042, J. Symplectic Geom., accepted

[2] Ryo Kanda, "Module-theoretic approach to dualizable Grothendieck categories", arXiv:2405.16468, プレプリント

(小池 貴之)

・論文

[1] Yoshinori Hashimoto; Takayuki Koike; Shin-ichi Matsumura, Uniform L₂-estimates for flat nontrivial line bundles on compact complex manifolds, Complex Manifolds, March 2025, Vol. 12, 20240009, <https://doi.org/10.1515/coma-2024-0009>

・講演発表

(セミナー)

[1] T. Koike, Neighborhood of a compact curve whose intersection matrix has a positive eigenvalue, 複素解析幾何セミナー, 東京大学, 東京都目黒区, 2024年4月.

[2] T. Koike, Arnolds type theorems on a neighborhood of a curve and gluing construction of K3 surfaces, 立命館大学幾何学セミナー, 立命館大学, 滋賀県草津市, 2024年5月.

[3] T. Koike, Formal principle for line bundles on neighborhoods of an analytic subset of a compact Kahler manifold, 杉本代数セミナー,

大阪公立大学, 大阪府大阪市, 2024 年 11 月.

[4] T. Koike, Formal principle for holomorphic line bundles and its application, Seminar in Oka Mathematical Institute, 岡数学研究所, 奈良県奈良市, 2024 年 12 月.

(研究集会)

[5] T. Koike, Delbar cohomology of the complement of a semi-positive anticanonical divisor of a compact surface, Pacific Rim Complex and Symplectic Geometry Conference, IBS Center for Complex Geometry, 大田広域市, 韓国, 2024 年 7 月.

[6] T. Koike, Formal principle for line bundles on a neighborhood of an analytic subset of a compact Kahler manifold, 葉層構造論シンポジウム, 静岡県男女共同参画センター「あざれあ」, 静岡県静岡市, 2024 年 10 月.

[7] T. Koike, Formal principle for line bundles on neighborhoods of an analytic subset of a compact Kahler manifold, 第 2 回新潟代数シンポジウム, 新潟大学, 新潟, 2024 年 11 月.

[8] T. Koike, Formal principle for line bundles on neighborhoods of an analytic subset of a compact Kahler manifold, Workshop on pseudoconvexity of general order, 大阪公立大学, 大阪府大阪市, 2024 年 12 月.

[9] T. Koike, Formal principle for line bundles on neighborhoods of an analytic subset of a compact Kahler manifold, Several Complex Variables and Complex Geometry Conference dedicated to the mathematical work of Yum Tong Siu, Academia Sinica, 台北, 台湾, 2025 年 1 月.

[10] T. B. A., Algebraic Geometry, Topology, Combinatorics and Related Topics 2025, 德島大学, 德島県德島市, 2025 年 3 月.

• プレプリント等

[1] T. Koike, T. Uehara, Neighborhood of a rational curve with an ordinary cusp, arXiv:2407.01877.

[2] Y. Hashimoto, T. Koike, S. Matsumura, Uniform L^2 -estimates for flat nontrivial line bundles on compact complex manifolds, arXiv:2409.05300.

[3] T. Koike, Formal principle for line bundles on neighborhoods of an analytic subset of a compact Kähler manifold, arXiv:2409.20367.

[4] T. Koike, L. Stolovitch, On neighborhoods of projective space bundles over elliptic curves, arXiv:2501.11497.

(今野 良彦)

• プレプリント等

[1] Konno, Y.: An adaptive singular value shrinkage for estimation problem of low-rank matrix mean with unknown covariance matrix.

Japanese Journal of Statistics and Data Science vol. 7, 455-464, (2024).

[2] Taketomi, N., Chang, Y.-T., Konno, Y., Mori, M., and Emura, T.: Confidence interval for normal means in meta-analysis based on a pretest estimator.

Japanese Journal of Statistics and Data Science, vol. 7, 537-568, (2024).

[3] 武富 奈菜美, 渡辺(張) 元宗, 今野 良彦, 森 美穂子, 江村 剛志: メタ分析のためのデータを用いた個々の研究の正規母平均の Pretest 推定量. 日本統計学会誌, 54 卷 2 号, 73-108, (2025).

(佐野 昂迪)

• 論文

- [1] David Burns, Masato Kurihara, Takamichi Sano, On derivatives of Kato's Euler system for elliptic curves, Journal of Mathematical Society of Japan, May 2024, Vol. 76, <https://doi.org/10.2969/jmsj/90699069>
- [2] David Burns, Masato Kurihara, Takamichi Sano, On derivatives of Kato's Euler system and the Mazur-Tate Conjecture, International Mathematics Research Notices, February 2025, Vol. 2025, rnaf012 <https://doi.org/10.1093/imrn/rnaf012>

[3] Takenori Kataoka, Takamichi Sano, On Euler systems for motives and Heegner points, Journal of the Association for Mathematical Research, August 2024, Vol. 2, 154, <http://dx.doi.org/10.56994/JAMR.002.002.001>

• 講演発表

- [1] Takamichi Sano, On descent theory for Selmer complexes and applications to p -adic Birch and Swinnerton-Dyer conjectures, Recent Progress on Hilbert's 12th Problem, ICMS, Bayes Centre, Edinburgh, 2024 年 6 月 27 日.
- [2] Takamichi Sano, On derivatives of Euler systems for motives, Development of Iwasawa theory, Keio University, 2024 年 7 月 22 日.

• プレプリント等

- [1] T. Sano, O. Venjakob, On Lubin-Tate regulator maps and Kato's explicit reciprocity law, arXiv:2412.12429, preprint.
- [2] D. Burns, T. Sano, On non-commutative Euler systems, I: preliminaries on 'Det' and 'Fit', to appear in Kyoto Journal of Mathematics.

(城崎 学)

• 講演発表

[1] 城崎 学, 2 次元射影空間への正則曲線の退化定理, 等角写像論・値分布論合同研究集会, 山口大学工学部, 2025 年 2 月 15 日

• プレプリント等

[1] Manabu Shiroasaki, Some degeneracy theorems of holomorphic curves, 執筆中

(砂川 秀明)

• 講演発表

[1] Hideaki Sunagawa, Nonlinear Schrodinger equation with weakly dissipative structure, IMVAST-OCAMI Joint Conference on Selected Areas in Mathematics,

大阪公立大学, 2024 年 5 月 18 日.

[2] 砂川秀明,

Remarks on L^2 -decay of small solutions to derivative nonlinear Schrodinger equations with weakly dissipative structure, 第 8 回神楽坂非線形波動研究会, 東京理科大学, 2024 年 6 月 19 日.

[3] 砂川秀明,

Remarks on L^2 -decay of small solutions to derivative nonlinear Schrodinger equations with weakly dissipative structure,

北海道大学偏微分方程式セミナー, 北海道大学, 2024 年 10 月 11 日.

[4] 砂川秀明,

弱消散構造を伴う微分型非線形シュレディンガー方程式の解の L^2 減衰に関するいくつかの注意, One Day Workshop on PDE in Hirosaki, 弘前大学, 2024 年 11 月 16 日.

[5] Hideaki Sunagawa,

Nonlinear Schrodinger equation with weakly dissipative structure,

The Conference on Mathematical Modeling and Theoretical Analysis,

Yanbian University, 2025 年 3 月 12 日.

• プレプリント

[1] Chunhua Li, Yuji Sagawa, Hideaki Sunagawa and Sinpei Washio,

Remarks on L^2 -decay of small solutions to derivative nonlinear Schrodinger equations with weakly dissipative structure, 準備中.

(高橋 太)

• 論文

[1] Futoshi Takahashi, Notes on asymptotic behavior of radial solutions for some weighted elliptic equations on the annulus, Partial Differential Equations and Applications (Springer Nature PDEA), June 2024, Vol. 5, 28,
<https://doi.org/10.1007/s42985-024-00297-9>

[2] Futoshi Takahashi, Nondegeneracy of the entire solution for the Δ -Laplace Liouville equation, Funkcialaj Ekvacioj, 2024, Vol. 67, 217-227,
<https://doi.org/10.1619/fesi.67.217>

• 講演発表

[1] F. Takahashi, 「The Hardy inequality on bounded domains for mean zero functions」、Italian/Japanese Nonlinear Days、
(於 Universita degli Studi di Milano) (2024 年 5 月 8 日)

[2] F. Takahashi, 「Asymptotic behavior of radial solutions for some weighted elliptic equations on the annulus」、Workshop on Advances in Variational Methods、(雲南省昆明市天元数学研究中心) (2024 年 6 月 13 日)

[3] 高橋太、「円環領域上の重み付き楕円型方程式の球対称解の漸近挙動」、
北海道大学偏微分方程式セミナー (2024 年 6 月 21 日)

[4] 高橋太、「1 次元非局所項付き境界爆発問題」、
大阪電気通信大学における微分方程式セミナー (通算第 46 回) (2024 年 9 月 12 日)

- [5] F. Takahashi, 「The Hardy inequality on bounded domains for mean zero functions」、 Geometric PDE and applied analysis,
 (於沖繩科學技術大學院大学 (OIST)) (2024 年 9 月 26 日)
- [6] F. Takahashi, 「One-dimensional boundary blow up problem with a nonlocal term」 14th AIMS Conference in Abu Dhabi, December 16 - 20, 2024
 SS72 : Nonlinear elliptic PDEs (organizers: Rushun Tian, Florin Catrina, Zhi-Qiang Wang) (2025 年 12 月 18 日)
- プレプリント等
- [1] N. Hamamoto, and F. Takahashi, A curl-free improvement of the Rellich-Hardy inequality with weight, arXiv:2101.01878 (submitted)
- [2] Jaeyoung Byeon, Eunchan Jeon, and F. Takahashi, The Hardy inequality on bounded domains for mean zero functions, (submitted)
- [3] T. Inaba, and F. Takahashi, One-dimensional boundary blow up problem with a nonlocal term,
 arXiv:2405.18846 (submitted)
- [4] K. Sato, and F. Takahashi, Bifurcation analysis for nonlocal one-dimensional boundary blow up problems, arXiv:2411.10802 (submitted)
- [5] K. Sato, and F. Takahashi, A bifurcation analysis on a nonlocal overdetermined problem, arXiv:2412.09194 (submitted)

(田中 潮)

- 論文
- [1] Tomonari Sei, Ushio Tanaka, Stein identity, Poincare inequality and exponential integrability on a metric measure space, OCAMI Reports (2024),
- 講演発表
- [1] U. Tanaka, T. Sei, Geometric analysis on a quantification, Statistical Models and Mathematical Optimization Based on Geometric Structures,
 2024 年 12 月 5 日
- プレプリント等
- [1] U. Tanaka, Upper bounds for Ledoux's expansion coefficient, the spectral gap and the diameter of low dimensional closed Riemannian manifolds with Ricci curvature bounded from below by a non-positive constant, in preparation for submission.
- [2] U. Tanaka, The maximum likelihood analysis for cluster point processes, in preparation for submission.
- [3] T. Sei, U. Tanaka, Stein identity and Poincaré inequality for a discrete metric measure space and their applications to geometric analysis, in preparation for submissiton.
- [4] U. Tanaka, An isoperimetric inequality on a metric measure space satisfying the curvaturedimension condition and the relation between Ledoux's expansion coefficient and Cheeger's isoperimetric constant, in preparation.

- [5] U. Tanaka, The maximum degree of a random graph and a lower bound in terms of the maximum degree for the specific Euler-Poincaré characteristic of a stationary random tessellation, in preparation.

(田中 秀和)

• プレプリント等

- [1] K. Kobayashi and H. Tanaka, Unified Relationship between Mean, Variance, and an Arbitrary Number of Quantiles, Metrika, accepted.
- [2] K. Ueda and H. Tanaka, Estimation of the Square of Distance Correlation Coefficient, プレプリント.

(谷川 智幸)

(田丸 博士)

• 論文

- [1] Ryoya Kai; Hiroshi Tamaru, A note on quandle Euler characteristics, Quandles and Symmetric Spaces 2023, OCAMI Reports (2024), April 2024, Vol. 1, 1-11
- [2] Konomi Furukii; Hiroshi Tamaru, Homogeneous quandles with abelian inner automorphism groups and vertex-transitive graphs, International Electronic Journal of Geometry, April 2024, Vol. 17, 184-198, 10.36890/iejg.1438745
- [3] Hiroshi Tamaru, Quandles from the viewpoint of symmetric spaces --- some open problems, 部分多様体幾何とリーベ群作用 2023 記録集, April 2024, 159-167

• 講演発表

- [1] Hiroshi Tamaru, On the Euler characteristics for quandles, Knot theory, Geometric Lie Group Action and Its Applications 2024 (Tokyo University of Science, Kagurazaka), 2025/03/25
- [2] Hiroshi Tamaru, Nilpotent Lie algebras obtained by quivers and Ricci solitons, The 8th workshop: Complex Geometry and Lie Groups (Osaka University Nakanoshima Center), 2025/03/13
- [3] Hiroshi Tamaru, Introduction to quandles and discrete symmetric spaces, Geometry Day (Universidade de Santiago de Compostela), 2025/02/18
- [4] Hiroshi Tamaru, カンドルのオイラー標数, 鶴岡微分幾何学研究集会 (庄内産業振興センター), 2024/10/26
- [5] Hiroshi Tamaru, Some properties of finite two-point homogeneous quandles, Knots and Related Topics (大阪公立大学), 2024/09/11
- [6] Hiroshi Tamaru, Some properties of finite two-point homogeneous quandles, 千歳幾何学研究集会 (公立千歳科学技術大学), 2024/08/06
- [7] Hiroshi Tamaru, 不变量の簡単な紹介【学生向け講演】，千歳幾何学研究集会 (公立千歳科学技術大学), 2024/08/05

• プレプリント等

- [1] Ryoya Kai, Hiroshi Tamaru; "On the Euler characteristics for quandles", preprint, arXiv: 2411.08319.
- [2] Hiroshi Tamaru; "Some properties of finite two-point homogeneous quandles", Proceedings of TJC7, to appear.
- [3] Fumika Mizoguchi, Hiroshi Tamaru; "Nilpotent Lie algebras obtained by quivers and Ricci solitons", preprint, arXiv: 2405.11184.
- [4] Hiroshi Tamaru; "離散的な対称空間と quandle", In: Sugaku (数学), to appear.

(田村 隆志)

(橋本 光靖)

• 論文

- [1] Mitsuyasu Hashimoto and Anurag Singh, Frobenius representation type for invariant rings of finite groups, Advances in Mathematics, December 2024, Vol. 458, No. 109978, <https://doi.org/10.1016/j.aim.2024.109978>
- [2] Mitsuyasu Hashimoto, Hochster-Eagon type theorem for Serre's (S_n) condition, Proceedings of the American Mathematical Society, January 2025, Vol. 153, 1041-1044, <https://doi.org/10.1090/proc/17118>

• 講演発表

- [1] Mitsuyasu Hashimoto, A generalization of Watanabe's theorem on Gorenstein property of invariant subrings, Group actions, geometry and cohomology (2024年7月10日--12日), University of Manchester, 2024年7月11日.
- [2] 橋本光靖, Almost principal bundles and invariant theory of group schemes, 第69回代数学シンポジウム (2024年8月26日--8月29日), 筑波大学, 2024年8月28日.
- [3] Mitsuyasu Hashimoto, Frobenius representation type for invariant rings of finite groups, Algebra-Number theory seminar, IMVAST, Hanoi, 2024年9月25日.
- [4] Mitsuyasu Hashimoto, Good filtrations, Steinberg modules, and \mathbb{F} -regularity, Group schemes and related topics (2024年9月23日--27日), IMVAST, Hanoi, 2024年9月26日.
- [5] Mitsuyasu Hashimoto, Almost principal bundles, Group schemes and related topics (2024年9月23日--27日), IMVAST, Hanoi, 2024年9月27日.
- [6] Mitsuyasu Hashimoto, Indecomposability of graded modules over a graded ring, RIMS 共同研究(公開型)『第45回可換環論シンポジウム』(2024年11月18日~11月22日), 京都大学数理解析研究所, 2024年11月19日.
- [7] Mitsuyasu Hashimoto, Quasi-Gorenstein property and \mathbb{S} -invariants of the ring of invariants, Commutative Algebra and Projective Algebraic Geometry in Kumamoto (2024年12月4日--7日), 熊本大学, 2024年12月5日.

• プレプリント等

- [1] M. Hashimoto, 概主束と群スキームの不变式論,
第 69 回 代数学シンポジウム報告集,
https://www.mathsoc.jp/section/algebra/algsymp_past/algsymp24_files/procalgsymp2024.pdf
- [2] M. Hashimoto and X. Tang, Acyclicity test of complexes modulo Serre subcategories using the residue fields, arXiv:2503.06354

(橋本 義規)

• 論文

- [1] Yoshinori Hashimoto; Takayuki Koike; Shin-ichi Matsumura, Uniform L₂-estimates for flat nontrivial line bundles on compact complex manifolds, Complex Manifolds, March 2025, Vol. 12, 20240009,
<https://doi.org/10.1515/coma-2024-0009>

• 講演発表

- [1] 橋本義規, Calabi's extremal metrics - relative K-stability, Workshop on Fano spherical varieties - 2025, Yonsei University, Seoul, Korea, 2025 年 2 月 7 日
- [2] 橋本義規, Calabi's extremal metrics - review of basics, Workshop on Fano spherical varieties - 2025, Yonsei University, Seoul, Korea, 2025 年 2 月 6 日
- [3] 橋本義規, Coupled Kähler-Einstein metrics and stability, Non-archimedean and tropical geometry from complex and algebraic geometry and dynamics, 大阪公立大学, 2025 年 1 月 21 日
- [4] 橋本義規, Calabi の extremal 計量の存在と non-Archimedean ポテンシャル, Symplectic and complex geometry days in Osaka, 大阪公立大学, 2025 年 1 月 16 日
- [5] 橋本義規, Kempf--Ness theorem and a Hilbert--Mumford criterion for nilsolitons, Magnitude 2024, 九州大学西新プラザ, 2025 年 1 月 8 日
- [6] 橋本義規, Berman-Boucksom の平衡エネルギーと有限次元近似, 専門家向け勉強会「ケーラー多様体上の標準計量とその周辺 5」, 東京工業大学, 2024 年 8 月 27 日
- [7] 橋本義規, Non-Archimedean aspects of the modified Mabuchi energy, Current Trends in Kähler Metrics with Special Curvature Properties, Montréal, Canada, 2024 年 6 月 20 日.
- [8] 橋本義規, Kempf--Ness theorem and a Hilbert--Mumford criterion for nilsolitons, IMVAST-OCAMI Joint Conference, 大阪公立大学, 2024 年 5 月 17 日

• プレプリント等

- [1] Yoshinori Hashimoto, Quantitative injectivity of the Fubini--Study map, arXiv:2502.08038, プレプリント
- [2] Kento Fujita and Yoshinori Hashimoto, On the coupled Ding stability and the Yau--Tian--Donaldson correspondence for Fano manifolds arXiv:2412.04028, プレプリント
- [3] Yoshinori Hashimoto, Erratum to the paper "Mapping properties of the Hilbert and Fubini--Study maps in Kähler geometry",

to appear in Ann. Fac. Sci. Toulouse Math.

- [4] Takahiro Aoi, Yoshinori Hashimoto, and Kai Zheng, On uniform log K-stability for constant scalar curvature Kähler cone metrics, to appear in Comm. Anal. Geom.

(蓮井 翔)

• 講演発表

- [1] Sho Hasui, Homotopy commutativity in quasitoric manifolds, IMVAST-OCAMI Joint Conference on Selected Areas in Mathematics, 大阪公立大学, 2024 年 5 月 17 日
- [2] 蓮井翔, Homotopy commutativity in quasitoric manifolds, 変換群論とその進展, 京都大学, 2024 年 5 月 22 日
- [3] 蓮井翔, Homotopy commutativity in quasitoric manifolds, ホモトピー論シンポジウム 2024, 沖縄県立博物館・美術館 美術館講座室, 2024 年 6 月 30 日
- [4] 蓮井翔, Homotopy commutativity in quasitoric manifolds, 変換群論シンポジウム, 大阪公立大学, 2024 年 11 月 23 日

• プレプリント等

- [1] Sho Hasui, Daisuke Kishimoto, Yichen Tong, Mitsunobu Tsutaya, Homotopy commutativity in quasitoric manifolds, arXiv:2404.01510 [math.AT], プレプリント

(松澤 陽介)

• 論文

- [1] Yohsuke Matsuzawa; Long Wang, Arithmetic degrees and Zariski dense orbits of cohomologically hyperbolic maps, TRANSACTIONS OF THE AMERICAN MATHEMATICAL SOCIETY, September 2024, Vol. 377, 6311-6340, <https://doi.org/10.1090/tran/9211>

• 講演発表

- [1] Yohsuke Matsuzawa, Dynamical Lang-Siegel problem, IMVAST-OCAMI joint conference, Osaka Metropolitan University, May 2024.
- [2] Yohsuke Matsuzawa, Growth of local height functions along orbits, Algebraic, Complex, and Arithmetic Dynamics (2024), Simons symposium, Schloss Elmau, June 2024.
- [3] Yohsuke Matsuzawa, 算術次数の収束と Dynamical Lang-Siegel 問題について (Convergence of arithmetic degrees and dynamical Lang-Siegel problem), Niigata algebra seminar, Niigata university, July 2024.
- [4] Yohsuke Matsuzawa, Height growth along orbits and Zariski dense orbit conjecture, Selected topics in Arithmetic Algebraic Geometry, IMVAST, Hanoi, November 2024.
- [5] Yohsuke Matsuzawa, Height growth along orbits and Zariski dense orbit conjecture, Niigata algebra symposium, Niigata University, Niigata,

November 2024.

[6] Yohsuke Matsuzawa, Dynamical Lang-Siegel type theorem for rational maps on projective varieties, From complex and algebraic geometry and dynamics to non-archimedean and tropical geometry, Osaka Metropolitan University, Osaka, January 2025.

[7] Yohsuke Matsuzawa, Height growth along orbits and Zariski dense orbit conjecture, Algebraic Geometry in Bandai-Atami, Bandai Atami, Fukushima, January 2025.

[8] Yohsuke Matsuzawa, Simplicial methods, condensed cohomologies, Workshop on condensed mathematics, Osaka Metropolitan University, Osaka, February 2025.

• プレプリント等

[1] Y. Matsuzawa,
Vojta's conjecture, heights associated with subschemes, and primitive prime divisors in arithmetic dynamics, arXiv:2012.04693, preprint.

(松永 秀章)

• 論文

[1] Mingzhu Qu; Hideaki Matsunaga, Exact stability criteria for linear differential equations with discrete and distributed delays, Journal of Mathematical Analysis and Applications, November 2024, Vol. 539-(2), No. 128663, 15P
<https://doi.org/10.1016/j.jmaa.2024.128663>

• 講演発表

[1] H. Matsunaga, Effect of delays on the asymptotic stability of linear differential systems, The Equadiff Conference 2024, Karlstad, Sweden, 2024.6.12

[2] H. Matsunaga, Asymptotic constancy and asymptotic solutions of difference equations in a Banach space, ICDEA2024: The 29th International Conference on Difference Equations and Applications, Paris, France, 2024.6.25

[3] 曲明珠, 松永秀章(発表者), 2種類の遅延項をもつ線形微分方程式の漸近安定性, 日本数学会 2024 年度秋季総合分科会函数方程式論分科会, 大阪大学, 2024 年 9 月 3 日

[4] 松永秀章(発表者), 曲明珠, 2種類の遅延項をもつ線形微分方程式の漸近安定性, 日本応用数理学会 2024 年度年会, 京都大学, 2024 年 9 月 14 日

[5] 松永秀章, Effect of delays on the asymptotic stability of linear differential equations (招待講演), 函数方程式論分科会研究集会「微分方程式の総合的研究」, 名古屋大学, 2024 年 12 月 21 日

(丸田 辰哉)

• 論文

[1] E.J. Cheon, S.J. Kim, W. Kuranaka, T. Maruta, On the minimum length of linear codes of dimension 5, Discrete Mathematics, March 2025,

・講演発表

- [1] Keita Yasufuku, Tatsuya Maruta, On the minimum length of linear codes, The 46th Australasian Combinatorics Conference (46ACC), Brisbane, Australia, 2024 年 12 月 3 日

(水野 有哉)

・講演発表

- [1] Yuya Mizuno, Shard theory for g-fans, Spring Workshop on the Representation Theory of Algebras and related areas, 沖縄科学技術大学院大学, 2024 年 4 月 23 日, 招待講演.
- [2] Yuya Mizuno, Silting theory and related topics, Perspectives in Tilting Theory and Related Topics, 京都大学数理解析研究所, 2025 年 2 月 17 日, 招待講演.

・プレプリント等

- [1] Yuya Mizuno, Shard Theory for g-Fans, International Mathematics Research Notices 2024(19) 13106-13126.
- [2] Toshitaka Aoki, Yuya Mizuno, Dimensions of τ -tilting modules over path algebras and preprojective algebras of Dynkin type, Journal of Algebra 667 (2025) 365-411.

(源 泰幸)

・講演発表

- [1] 源泰幸、Hirzebruch-Riemann-Roch formula for dg-algebras and universal Auslander-Reiten triangles Invited Domestic conference, 第5回山口代数セミナー, 2025 年 3 月 5 日
- [2] 源泰幸、A relative version of Smith theorem, Calabi-Yau completion and a generalization of derived quiver Heisenberg algebras Invited Domestic conference、第5回山口代数セミナー, 2025 年 3 月 5 日
- [3] Hiroyuki Minamoto, A relative version of Smith theorem, Calabi-Yau completion and a generalization of derived quiver Heisenberg algebras Invited International conference, MFO-RIMS Tandem Workshop: Algebraic Geometry and Noncommutative Projective Varieties, 2024 年 9 月 24 日
- [4] 源泰幸, Derived quiver Heisenberg algebras and Auslander-Reiten theory of the derived category of modules of a path algebra Invited Domestic conference, Derived categories and cotilting theory: conference honoring Jun-ichi Miyachi on the occasion of his 65th birthday, 2024 年 9 月 19 日
- [5] 源泰幸、Quiver Heisenberg Algebras: cubic analogue of preprojective algebras Invited Domestic conference, 京都表現論セミナー, 2024 年 6 月 20 日
- [6] Hiroyuki Minamoto, Auslander-Reiten theory, preprojective algebras and

quiver Heisenberg algebras Invited International conference, IMVAST-OCAMI
Joint Conference on Selected Areas in Mathematics, 2024 年 5 月 16 日

• プレプリント等

- [1] Yuta Kimura, Hiroyuki Minamoto, Kota Yamaura, Tilting theory for finite dimensional 1-Iwanaga-Gorenstein algebras,
Journal of Algebra 663 259 -288
- [2] Yuta Kimura, Ryotaro Koshio, Yuta Kozakai, Hiroyuki Minamoto, Yuya Mizuno, τ -tilting theory and silting theory of skew group algebra extensions, arXiv :2407.06711

(宮地 兵衛)

• 講演発表

- [1] Hyohe Miyachi(invited speaker), A survey on the derived categories of module categories over Schur algebras, Derived categories and cotilting theory: conference honoring Jun-ichi Miyachi on the occasion of his 65th birthday, Gakugei University, 2024-9-20

(物部 治徳)

• 講演発表

- [1] Harunori Monobe, Singular limit of mathematical models related to controlling invasive alien species, The 14th AIMS Conference, Abu Dhabi, UAE, 2024 年 12 月 16 日~20 日.
- [2] Harunori Monobe, Compact traveling waves to a mean-curvature flow with driving force, The 14th AIMS Conference, Abu Dhabi, UAE, 2024 年 12 月 16 日~20 日.
- [3] Harunori Monobe, Compact traveling waves to a mean-curvature flow with driving force, ReaDiNet 2024 Recent Progresses in the theory of reaction and diffusion equations, Jeju, Korea, 2024 年 10 月 20 日~25 日, 2024.
- [4] Harunori Monobe, Singular limit of mathematical models related to controlling invasive alien species, A ReaDiNet workshop on reaction-diffusion systems and population dynamics, Clermont-Ferrand, France, 2024 年 6 月 10 日~13 日.
- [5] 物部治徳, 反応拡散系の特異極限と Fisher-Stefan モデル, 神楽坂「感染症にまつわる数理」勉強会, 東京理科大学, 2024 年 8 月 26 日.

• プレプリント等

- [1] T. Ishiwata and H. Monobe, Behaviour of solutions to an exponential curvature equation and its traveling wave, submitted.
- [2] H. Monobe and Y. Morita, Construction of stable non-constant solutions to the bistable reaction-diffusion equation on metric graphs, submitted.
- [3] H. Izuhara, H. Monobe and C.-H. Wu, Semi-waves for delayed Fisher-KPP equations without quasimonotonicity, submitted.

[4] 物部治徳, 「自然や生き物が作り出す形と数学」, 数学通信 第 29 卷 2 号, 2024 年 8 月.

(山岡 直人)

・論文

[1] Yūki Saito; Naoto Yamaoka, Asymptotic Behavior of Solutions of Two-Region Dynamic Dixit-Stiglitz-Krugman Model with Discrete-Time Variable, New Developments in Discrete Dynamical Systems, Difference Equations, and Applications, Springer Proceedings in Mathematics & Statistics, March 2025, Vol. 485, 65-87,

https://doi.org/10.1007/978-3-031-82003-8_4

・プレプリント等

[1] N. Yamaoka and K. Shimizu, The existence of limit cycles for Liénard equation and its application to Turchin's cliodynamics model. (執筆中)

[2] Y. Kambara and N. Yamaoka, Asymptotic behavior of solutions of the dynamic Dixit-Stiglitz-Krugman model, Funkcial. Ekvac. (印刷中)

(山口 瞳)

・講演発表

[1] 山口 瞳, A theory of plots, Seminar on diffeology and related topics, <https://diffeology.net/index.php/seminar/> (オンライン), 2024 年 6 月 14 日

[2] 山口 瞳, A theory of plots, ホモトピー論シンポジウム 2024, 沖縄県立美術館・博物館, 2024 年 6 月 29 日

[3] 山口 瞳, The Steenrod algebra and its representations Part 1,2, 空間の代数的・幾何的モデルとその周辺, 信州大学理学部, 2024 年 8 月 26, 27 日

[4] 山口 瞳, The Steenrod algebra and its unstable representations , 関西代数トポロジーセミナー, 東京科学大学理学部, 2024 年 11 月 9 日

・プレプリント等

[1] Atsushi Yamaguchi, Representations of the Steenrod Group, 執筆中

[2] Atsushi Yamaguchi, Notes on representation theory of internal categories, 執筆中

[3] Atsushi Yamaguchi, A theory of plots, 執筆中

(山名 俊介)

・論文

[1] Ming-Lun Hsieh; Shunsuke Yamana, Bessel periods and anticyclotomic p -adic spinor L-functions, Transactions of the American Mathematical Society, May 2024, Vol. 377, 5617-5672, <https://doi.org/10.1090/tran/9143>

・講演発表

[1] 山名俊介, Fourier coefficients of modular forms,

IMVAST-OCAMI Joint Conference, 大阪公立大学, 2024 年 5 月 16 日

[2] 山名俊介, p -adic L-functions for $U(2,1) \times U(1,1)$, School and Workshop "Selected Topics in Arithmetic Algebraic Geometry" 2024, IMVAST, 2024年11月7日

[3] 山名俊介, $U(2,1) \times U(1,1)$ の p 進 L 関数, 早稲田整数論セミナー, 早稲田大学, 2024年12月20日

• プレプリント等

[1] Ming-Lun Hsieh and Shunsuke Yamana, Five-variable p -adic L-functions for $U(3) \times U(2)$, プレプリント(投稿中).

[2] Ming-Lun Hsieh and Shunsuke Yamana, Five-variable p -adic L-functions for $U(2,1) \times U(1,1)$, プレプリント(執筆中).

(吉富 賢太郎)

• 講演発表

[1] K. Yoshitomi, Development and Utilization of Cheating Resistant Questions Using STACK in Linear Algebra Courses, ICME15, Sydney, 2024.7.12

[2] 吉富 賢太郎, 線形代数授業におけるSTACK利用演習問題活用と運用方法について,, JSiSE 第2回研究会, 2024.7.21

• プレプリント等

[1] 吉富 賢太郎, 線形代数授業におけるSTACK利用演習問題活用と運用方法について,, JSiSE Research report 2024, Vol2, pp9-14.

(吉田 雅通)

• 講演発表

[1] 吉田雅通「3次 Pisot 単数に基づく符号つき展開」筑波大・代数セミナー 筑波大学 2024年4月5日

[2] 吉田雅通「3次 Pisot 単数にもとづく整数の展開」Workshop「数論とエルゴード理論」金沢・しいのき迎賓館 2025年2月10日

(綿森 葉子)

(会沢 成彦)

• 論文

[1] N. Aizawa, Ren Ito and Toshiya Tanaka, \mathbb{Z}_2^2 -graded supersymmetry via superfield on minimal \mathbb{Z}_2^2 -superspace, Journal of Physics A: Mathematical and Theoretical, October 2024, Vol. 57, 435201, 10.1088/1751-8121/ad811a

[2] N. Aizawa, Ren Ito, Z. Kuznetsova, Toshiya Tanaka and F. Toppan, Integrable \mathbb{Z}_2^2 -graded extensions of the Liouville and Sinh-Gordon theories, Journal of Physics A: Mathematical and Theoretical, January 2025, Vol. 58, 055201, 10.1088/1751-8121/adaab3

[3] N. Aizawa, Towards a superfield formulation of \mathbb{Z}_2^2 -supersymmetry, Springer Proceedings in Mathematics & Statistics, February 2025, Vol. 473, 227-237, 10.1007/978-981-97-6453-2_17

・講演発表

[1] N. Aizawa and J. Segar, Affine extensions of \mathbb{Z}_2^2 -osp(1|2) and Virasoro algebra, XXXIII/XXXV International Colloquium on Group

Theoretical Methods in Physics, Cotonou, Benin, 2024 年 7 月

[2] N. Aizawa, R. Ito and T. Tanaka, $N = 2 \mathbb{Z}_2^2$ supersymmetry and quantum mechanics,

XXXIII/XXXV International Colloquium on Group-Theoretical Methods in Physics, Cotonou, Benin, 2024 年 7 月

[3] 会沢成彦, 伊藤蓮, Z. Kuznetsova, 田中寿弥, F. Toppan, \mathbb{Z}_2^2 -extension of Liouville and sinh-Gordon equations by zero-curvature formulation, 日本物理学会年次大会, 北海道大学, 2024 年 9 月

・プレプリント等

[1] N. Aizawa and J. Segar, Affine extensions of \mathbb{Z}_2^2 -osp(1|2) and Virasoro algebra, arXiv:2409.07938 [math-ph]

[2] N. Aizawa and D. Kimura, Universal weight systems from a minimal \mathbb{Z}_2^2 -graded Lie algebra, arXiv:2410.05845 [math.GT]

(石原 秀樹)

・論文

[1] Tatsuya Ogawa; Hideki Ishihara, Gravastars as nontopological solitons, Phys. Rev. D, December 2024, Vol. 110, 124003

[2] Hiroshi Kozaki; Hideki Ishihara; Tatsuhiko Koike; Yoshiyuki Morisawa, Spacetime constructed from a contact manifold with a degenerate metric, Physical Review D, December 2024, Vol. 110, 104023, <https://doi.org/10.1103/physrevd.110.104023>

[3] Chihiro Matsuoka; Hideki Ishihara, The vacuum-core vortex in relativistic perfect fluids, Phys. Fluids, August 2024, Vol. 36, 087141

[4] Kenta Asakawa, Hideki Ishihara, Makoto Tsubota, Collective Excitations of Self-Gravitating Bose-Einstein Condensates: Breathing Mode and Appearance of Anisotropy under Self-Gravity, Prog. Theor. Exp. Phys., May 2024, Vol. 6, 063J01

・講演発表

[1] 石原秀樹

“一様宇宙解と接触空間を用いた非一様化”（招待講演）

第 79 回「ENCOUNTER with MATHEMATICS アインシュタイン方程式 -幾何学と物理学の邂逅-」中央大学理工学部 2025 年 3 月 13 日, 14 日.

[2] 石原秀樹

“Kerr ブラックホールの周りの Killing ポテンシャル流”

ブラックホール磁気圏研究会 2025年3月26–28日。

・プレプリント等

- [1] Yota Endo, Hideki Ishihara, Masaaki Takahashi,
"Vacuum Magnetospheres around Kerr Black Holes with a Thin Disk".
e-Print: 2501.00474 [gr-qc].
- [2] Ken-ichi Nakao, Kenta Matsuo, Hirotaka Yoshino, Hideki Ishihara,
"Electrification of a non-rotating black hole".
e-Print: 2409.17639 [gr-qc].

(糸山 浩)

・論文

- [1] H. Itoyama a b , R. Yoshioka a b, Phases and triple (multiple) point: Critical phenomena around the AD singularity, Nuclear Physics B, January 2025, Vol. 1010, 10.1093/ptep/ptae034

・講演発表

- [1] H. Itoyama, Critical phenomena around AD singularity, East Asia Joint Workshop of Strings and Fields, 2024年11月20日
- [2] Reiji Yoshioka and H. Itoyama Critical phenomena around AD singularity 日本物理学会 2024年秋季大会 2024年9月
- [3] Reiji Yoshioka and H. Itoyama Critical phenomena around AD singularity II 日本物理学会 2024年度春季大会 年会 (ONLINE) 2025年3月
- [4] H. Itoyama Critical phenomena around AD singularity II National Taiwan University seminar, 2025年3月18日

・プレプリント等

- [1] Phases and triple (multiple) point: Critical phenomena around the AD singularity II, 準備中

(蔡 凱)

(坪田 誠)

・論文

- [1] Kenta Asakawa, Hideki Ishihara, Makoto Tsubota, Collective Excitations of Self-Gravitating Bose-Einstein Condensates: Breathing Mode and Appearance of Anisotropy under Self-Gravity, Prog. Theor. Exp. Phys., May 2024, Vol. 6, 063J01

・講演発表

- [1] Makoto Tsubota
(Invited) Numerical Studies of Quantum Turbulence
QFS2024: International Symposium on Quantum Fluids and Solids, University of Florida, Florida, USA, from July 24–30, 2024.
- [2] 坪田誠 (Invited)

量子乱流研究の最前線、日本物理学会、2024年年次大会、2024.9.16

・プレプリント等

- [1] Hua-Bi Zeng, Chuan-Yin Xia, Wei-Can Yang, Yu Tian and Makoto Tsubota, Dissipation and Decay of Three Dimensional Holographic Quantum Turbulence Phys. Rev. Lett. 134, 091603 (2025)
- [2] Wei-Can Yang, Makoto Tsubota, Muneto Nitta, Hua-Bi Zeng
Macroscopic Borromean and anti-Borromean states of quantized vortices
Phys. Rev. A.111.023319 (2025)
- [3] Yosuke Minowa, Yuki Yasui, Tomo Nakagawa, Sosuke Inui, Makoto Tsubota, Masaaki Ashida
Direct excitation of Kelvin waves on quantized vortices
Nature Physics 21, 233-238 (2025)
- [4] Issei Doki and Makoto Tsubota
Universal Turbulent States of Miscible Two-Component Bose-Einstein Condensates
J. Phys. Soc. Jpn. 94, 033601 (2025)
- [5] Kenta Asakawa and Makoto Tsubota
Corotation of two quantized vortices coupled with collective modes in self-gravitating Bose-Einstein condensates
Phys. Rev. A 110, 053310 (2024)
- [6] Hiromichi Kobayashi, Satoshi Yui and Makoto Tsubota
Influence of different mutual friction models on two-way coupled quantized vortices and normal fluid in superfluid 4He
Phys. Rev. Fluids 9, 104605 (2024)
- [7] Wei-Can Yang, Chuan-Yin, Yu Tian, Makoto Tsubota, and Hua-Bi Zeng
Mechanism for cluster formation in a strongly interacting superfluid from gauge/gravity duality
Phys. Rev. B.110.134510 (2024)
- [8] Kenta Asakawa, Hideki Ishihara, and Makoto Tsubota
Collective Excitations of Self-Gravitating Bose-Einstein Condensates: Breathing Mode and Appearance of Anisotropy under Self-Gravity
Prog. Theor. Exp. Phys. 063J01 (2024)

(中尾 憲一)

(西中 崇博)

・論文

- [1] R. Hamachika, T. Nakanishi, T. Nishinaka and S. Tanigawa, Liouville irregular states of half-integer ranks, Journal of High Energy Physics, June 2024, Vol. 6, 112, 10.1007/JHEP06(2024)112
- ・プレプリント等

[1] T. Nakanishi and T. Nishinaka, "S^1 reduction of 4D N=4 Schur index and 3D N=8 mass-deformed partition function," 2412.20452 [hep-th], 投稿準備中

(橋本 文彦)

(松岡 千博)

• 論文

[1] Chihiro Matsuoka; Hideki Ishihara, The vacuum-core vortex in relativistic perfect fluids, Phys. Fluids, August 2024, Vol. 36, 087141

• 講演発表

[1] 松岡千博「プラズマ、流体中に生じる密度成層を伴った渦層の非線形発展に関する研究」、「光・量子ビーム科学合同シンポジウム 2024」大阪大学レーザー科学研究所・関西光量子科学研究所主催（場所：関西光量子科学研究所） 2024. 6. 5

[2] 松岡千博、石原秀樹「相対論的流体における真空核渦解」日本物理学会第79回年次大会 2024（北海道大学 札幌キャンパス）2024. 9. 18

[3] 松岡千博、石原秀樹「相対論的流体における渦解と流れ場の諸量」日本流体力学会年会 2024（フォレスト仙台）9. 26

[4] Chiro Matsuoka and Hideki Ishihara, "A vacuum-core vortex and rotation-free torus in relativistic perfect fluids", Joint Mathematics Meetings (JMM 2025), Seattle Convention Center and the Sheraton Grand Seattle, Seattle, WA, USA, January 8, 2025 (招待講演).

[5] 松岡千博「「点」渦の世界」研究集会「流体力学の現在知、そして水平線の向こうに」（九州大学主催 JR 博多シティ）2025. 3. 6

[6] 松岡千博「重力不安定性をもった多層界面の安定化 – Mode killing multi-layer Rayleigh-Taylor instability –」土木学会海岸工学委員会波動モデル研究会「海洋・海岸等における波動モデルの研究」九州大学応用力学研究所 2025 3. 15

• プレプリント等

[1] C. Matsuoka and H. Ishihara

The vacuum-core vortex in relativistic perfect fluids,

Phys. Fluids, Vol. 36, 087141_1-10 (2024). doi.org/10.1063/5.0219465

(森山 翔文)

(吉野 裕高)

.

(綾野 孝則)

• 講演発表

[1] 綾野孝則, 種数 2 の Abel 関数の楕円関数による表示, 代数曲線のテータ関数とその周辺, 津田塾大学, 2024 年 7 月 27 日, 招待講演.

[2] 綾野孝則, 種数 $2g$ の超楕円関数の種数 g の超楕円関数による表示, 2024 年度日本数学会秋季総合分科会, 函数論, 大阪大学, 2024 年 9 月 4 日.

- [3] 綾野孝則, V. M. Buchstaber, 実超楕円曲線に付随する Abel 関数による KP 方程式の解, 2025 年度日本数学会年会, 函数論, 早稲田大学, 2025 年 3 月 18 日.
[4] 綾野孝則, 代数曲線に付随するシグマ関数のべき級数展開, 2024 年度大阪公立大学数学研究会論文賞及び特別賞授賞式・受賞講演会, 大阪公立大学, 2025 年 3 月 27 日, 招待講演.

• プレプリント等

- [1] Takanori Ayano, Hurwitz integrality of the power series expansion of the sigma function for a telescopic curve, arXiv:2208.10079, Journal of the Mathematical Society of Japan, accepted.
[2] Takanori Ayano, Reduction of bielliptic hyperelliptic functions of genus 3, arXiv:2501.03774, プレプリント.
[3] Takanori Ayano, Victor M. Buchstaber, Hyperelliptic sigma functions and the Kadomtsev-Petviashvili equation, arXiv:2502.19972, プレプリント.

(佐川 侑司)

• 論文

- [1] Yoshinori Nishii , Yuji Sagawa , Takuya Sato, Upper and lower bounds for energy of small solutions to semilinear wave equations with weakly dissipative structure, Methods and Applications of Analysis, March 2025, Vol. 31(3), 79-94, 10.4310/maa.250305001634

(佐藤 敬志)

• 講演発表

- [1] 佐藤 敬志, Automorphism groups of almost complex GKM manifolds, 変換群論とその進展, 京都大学(RIMS), 2024 年 5 月 23 日
[2] 佐藤 敬志, Modular law through GKM theory, Workshop on Toric Topology 2024 in Shanghai, 上海(online), 2024 年 8 月 13 日

• プレプリント等

- [1] T. Horiguchi, M. Masuda, T. Sato, J. Shareshian, and J. Song, Gamma vectors of partitioned permutohedra, arXiv:2405.09242, プレプリント

(濱本 直樹)

• 論文

- [1] Naoki Hamamoto, Solenoidal improvement of Rellich-Hardy inequalities with power weights, Calculus of Variations and Partial Differential Equations, April 2024, Vol. 63, 84, 10.1007/s00526-024-02701-z
[2] Naoki Hamamoto, Sharp Hardy-Leray inequality for solenoidal fields, Journal of Functional Analysis 287(2) 110461, April 2024, Vol. 287(2), 110461, 10.1016/j.jfa.2024.110461

[3] Naoki Hamamoto, A note on the 1-D minimization problem related to solenoidal improvement of the uncertainty principle inequality, Archiv der Mathematik, August 2024, Vol. 123, 653-662,
10.1007/s00013-024-02042-5

(金信 泰造)

• 論文

[1] Taizo Kanenobu, H(2)-moves on torus links of type (2,2n), J. Knot Theory Ramifications, November 2024, Vol. 33, 2450045,
10.1142/S0218216524500457

• 講演発表

[1] 金信泰造, H(2)-moves on links, 金沢トポロジーセミナー, オンライン, 2024年7月10日.

[2] 金信泰造, H(2)-moves on links, The 15th KOOK-TAPU Joint Seminar on Knots and Related Topics, 大阪公立大学杉本キャンパス, 2024年8月1日.

• プレプリント等

[1] Taizo Kanenobu, Some examples of the Jones and HOMFLYPT polynomials for 2-bridge knots and links, arXiv なし, Journal of Knot Theory and its Ramifications, accepted.

[2] Taizo Kanenobu and Toshio Sumi, Meridional epimorphisms between ribbon 2-knot groups, arXiv なし, Topology and its Applications, in press.

(古澤 昌秋)

• 論文

[1] Masaaki Furusawa; Kazuki Morimoto, On the Gross-Prasad conjecture with its refinement for $(SO(5), SO(2))$ and the generalized Böcherer conjecture, Compositio Mathematica, September 2024, Vol. 160, 2115-2202, <https://doi.org/10.1112/S0010437X24007267>

[2] Masaaki Furusawa; Kazuki Morimoto, On the Gan-Gross-Prasad conjecture and its refinement for $(U(2n), U(1))$, Mathematische Annalen, October 2024, Vol. 391, 3799-3862, <https://doi.org/10.1007/s00208-024-03004-6>

[3] Masaaki Furusawa; Tomo Narahara, On a certain identity for the cotangent finite Dirichlet series and its application to the Berndt-Arakawa formula, Research in Number Theory, December 2024, Vol. 11, 1-10, <https://doi.org/10.1007/s40993-024-00608-4>