

2020 The Mathematical Society of Japan

ANNUAL MEETING

Dates: March 16th (Mon)–19th (Thu), 2020

Venue: Surugadai Campus, Nihon University
1-8-14 Kandasurugadai, Chiyoda-ku
Tokyo 101-8308 JapanContact to: College of Science and Technology,
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The Mathematical Society of Japan
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	I La Schola S101	II La Schola S204	III La Schola S301	IV La Schola S302	V La Schola S401	VI La Schola S505	VII Bldg. No. 1 141	VIII Bldg. No. 1 144	IX Bldg. No. 1 142
16th (Mon)	Algebra 10:00–12:00 15:30–16:50	Geometry 9:40–11:40 14:20–15:45	Functional Equations 9:00–12:00 14:15–16:15	Topology 10:00–12:00	Applied Mathematics 10:00–11:40 14:20–16:05	Statistics and Probability 9:20–11:55 14:15–15:00	Functional Analysis 10:00–11:45	Complex Analysis 9:30–11:50 14:15–15:20	Found. of Math. & Hist. of Math. 9:30–12:00 14:15–15:00
	Featured Invited Talks					13:00–14:00			
	Invited Talk 14:15–15:15	Invited Talk 16:00–17:00	Invited Talk 16:30–17:30	Invited Talks 14:15–15:15 15:30–16:30	Invited Talk 16:20–17:20	Invited Talks 15:15–16:15 16:30–17:30	Invited Talks 14:15–15:15 15:30–16:30	Invited Talks 15:35–16:35 16:50–17:50	Invited Talk 15:15–16:15
17th (Tue)	Algebra 10:00–11:45 13:00–14:15	Geometry 9:40–11:50 Invited Talk 13:15–14:15	Functional Equations 9:00–12:00 Invited Talk 13:15–14:15	Topology 10:00–12:00 Invited Talk 13:15–14:15	Applied Mathematics 9:50–11:15	Statistics and Probability 9:10–11:25	Functional Analysis 10:30–11:45 Invited Talk 13:15–14:15	Complex Analysis 9:15–11:45 Invited Talk 13:15–14:15	Found. of Math. & Hist. of Math. 9:00–10:30 Invited Talk 10:45–11:45
	MSJ Prizes Presentation (Bldg. No. 1) (15:00–15:20)		Plenary Talks (Bldg. No. 1) Spring Prize Winner (15:30–16:30)		Shigeru Mukai (Kyoto Univ.) (16:45–17:45)		Official Party (Cafetera, 2F, Bldg. No. 1) (18:00–20:00)		
18th (Wed)	Algebra 9:30–12:00	Geometry 9:40–11:35 14:20–15:40	Functional Equations 9:00–12:00 14:15–16:15	Topology 10:00–12:00	Applied Mathematics 9:30–12:00 14:30–15:50	Statistics and Probability 9:00–12:00 14:15–15:05	Functional Analysis 9:45–12:00 14:15–15:10	Real Analysis 9:00–11:50 14:15–15:55	Infinite Analysis 14:15–16:15
	Featured Invited Talks					13:00–14:00			
	Invited Talks 14:40–15:40 15:50–16:50	Invited Talk 16:00–17:00	Invited Talk 16:30–17:30		Invited Talk 16:00–17:00	Invited Talks 15:20–16:20 16:35–17:35	Invited Talk 15:20–16:20	Invited Talk 16:15–17:15	Invited Talk 16:30–17:30
19th (Thu)	Algebra 9:20–12:00 15:25–16:50		Functional Equations 9:00–12:00 14:15–16:15		Applied Mathematics 9:15–10:50			Real Analysis 9:00–12:00 14:15–15:55	Infinite Analysis 9:45–11:30 14:15–16:00
	Featured Invited Talks					13:00–14:00			
	Invited Talk 14:15–15:15		Invited Talk 16:30–17:30		Invited Talk 11:00–12:00			Invited Talk 16:15–17:15	Invited Talk 16:15–17:15

Plenary Talks

March 17th (Tue) CST Hall, 6F, Bldg. No. 1

The 2020 MSJ Spring Prize Spring Prize Winner	(15:30–16:30)
Shigeru Mukai (Kyoto Univ.)	Algebraic varieties and their symmetry with emphasis on K3 surfaces and their companions	(16:45–17:45)

Featured Invited Talks

March 16th (Mon)

Conference Room V

Takashi Horiyama (Hokkaido Univ.)	Folding and unfolding of polyhedra	(13:00–14:00)
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Conference Room IX

Hiroshi Fujita (Ehime Univ.)	Transfinite ordinals and the continuum problem	(13:00–14:00)
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March 18th (Wed)

Conference Room I

Ryoko Oishi-Tomiyasu (Kyushu Univ.)	Lattice problems in mathematical crystallography	(13:00–14:00)
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Conference Room II

Katsuhiko Kuribayashi (Shinshu Univ.)	Derived string topology —Toward a two dimensional open-closed topological quantum field theory for classifying spaces—	(13:00–14:00)
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March 19th (Thu)

Conference Room III

Masatoshi Noumi (Kobe Univ.)	Expanse of hypergeometric functions	(13:00–14:00)
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Conference Room V

Guest Talk from the Japan Society for Industrial and Applied Mathematics Shigenori Uchiyama (Tokyo Metro. Univ.)	Recent topics in post-quantum cryptography	(13:00–14:00)
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Conference Room VIII

Kazuo Kobayasi (Waseda Univ.)	A kinetic approach to stochastic partial differential equations	(13:00–14:00)
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Talks Invited by Research Sections and Special Session

March 16th (Mon)

Foundation of Mathematics and History of Mathematics (Conference Room IX)

Masahito Takase Shaping the fountains in Modern Western Mathematics . . . (15:15–16:15)

Algebra (Conference Room I)

Kenichiro Tanabe (Hokkaido Univ.)^b Representations of some fixed point subalgebra of the vertex algebra associated to a non-degenerate even lattice (14:15–15:15)

Geometry (Conference Room II)

Hikaru Yamamoto (Tokyo Univ. of Sci.) Special Lagrangian submanifolds, mean curvature flows and their mirror (16:00–17:00)

Complex Analysis (Conference Room VIII)

Yohei Komori (Waseda Univ.) Growth of hyperbolic Coxeter groups (15:35–16:35)

Award Lecture for the 2019 MSJ Analysis Prize

Hiroki Sumi (Kyoto Univ.) Various randomness-induced phenomena and their mechanisms in random holomorphic dynamical systems (16:50–17:50)

Functional Equations (Conference Room III)

Award Lecture for the 2019 MSJ Analysis Prize

Hidetaka Sakai (Univ. of Tokyo) The world of the Painlevé equations (16:30–17:30)

Functional Analysis (Conference Room VII)

Award Lecture for the 2019 MSJ Analysis Prize

Fumio Hiroshima (Kyushu Univ.) Renormalization theory and non-perturbative analysis of ground states by functional integrations (14:15–15:15)

Fumihiko Nakano (Gakushuin Univ.) Scaling limit of the eigenvalues and eigenfunctions of 1-dimensional random Schrödinger operators (15:30–16:30)

Statistics and Probability (Conference Room VI)

Dai Taguchi (Okayama Univ.) Numerical analysis of stochastic differential equations (15:15–16:15)

Benoît Collins (Kyoto Univ.)^b On the operator norm of random matrices (16:30–17:30)

Applied Mathematics (Conference Room V)

Masanori Sawa (Kobe Univ.) On the rationality of classical orthogonal polynomials, quadrature formulas and geometric designs (16:20–17:20)

Topology (Conference Room IV)

Takayuki Morifuji (Keio Univ.) Twisted Alexander polynomials of hyperbolic knots and links (14:15–15:15)

Naoki Fujita (Univ. of Tokyo) Toric degenerations arising from Newton–Okounkov bodies and cluster structures (15:30–16:30)

March 17th (Tue)

Foundation of Mathematics and History of Mathematics (Conference Room IX)

Nobu-Yuki Suzuki (Shizuoka Univ.) Disjunction and existence properties in intermediate predicate logics (10:45–11:45)

Geometry (Conference Room II)

Ulrich Pinkall (TU Berlin) Discretizing fluids into filaments and sheets (13:15–14:15)

Complex Analysis (Conference Room VIII)

Shin-ichi Matsumura (Tohoku Univ.)^b On structure theorems for projective manifolds with certain non-negative curvature (13:15–14:15)

Functional Equations (Conference Room III)

Sohei Ashida (Gakushuin Univ.) Accurate lower bounds for eigenvalues of electronic Hamiltonians (13:15–14:15)

Functional Analysis (Conference Room VII)

Ryosuke Nakahama (Univ. of Tokyo) Construction of intertwining operators for restriction of holomorphic discrete series representations (13:15–14:15)

Topology (Conference Room IV)

Hokuto Konno (RIKEN) Gauge theory and diffeomorphism and homeomorphism groups (13:15–14:15)

March 18th (Wed)

Algebra (Conference Room I)

Award Lecture for the 2020 MSJ Algebra Prize

Ryo Takahashi (Nagoya Univ.) Generation in module categories and derived categories of commutative rings (14:40–15:40)

Award Lecture for the 2020 MSJ Algebra Prize

Takuzo Okada (Saga Univ.) Birational Mori fiber structures of Fano varieties and its application to rationality problems (15:50–16:50)

Geometry (Conference Room II)

Atsushi Kanazawa (Kyoto Univ.) Kähler moduli spaces and stability conditions of triangulated categories (16:00–17:00)

Functional Equations (Conference Room III)

Kousuke Kuto (Waseda Univ.) Cross-diffusion limit in the stationary SKT model (16:30–17:30)

Real Analysis (Conference Room VIII)

Gaku Sadasue (Osaka Kyoiku Univ.) Some martingale spaces and fractional integrals for martingale (16:15–17:15)

Functional Analysis (Conference Room VII)

Keiichi Watanabe (Niigata Univ.) On Möbius gyrovector spaces and a class of continuous mappings between them (15:20–16:20)

Statistics and Probability (Conference Room VI)

Rie Enomoto (Seikei Univ.) Consistency of some information criteria in high-dimensional growth curve models (15:20–16:20)

Kou Fujimori (Waseda Univ.) The Dantzig selector for statistical models of stochastic processes in high-dimensional and sparse settings (16:35–17:35)

Applied Mathematics (Conference Room V)

Sungrim Seirin Lee (Hiroshima Univ.) Reaction-diffusion equation, its infinite talent in pattern formation of life science (16:00–17:00)

Infinite Analysis (Conference Room IX)

Hideya Watanabe (Kyoto Univ.) \mathfrak{z} quantizations (16:30–17:30)

March 19th (Thu)

Algebra (Conference Room I)

Kenichi Namikawa (Kyushu Univ.) Explicit constructions of automorphic forms and its applications to Iwasawa theory (14:15–15:15)

Functional Equations (Conference Room III)

Jun-ichi Segata (Kyushu Univ.) Long time behavior of solution to the nonlinear Schrödinger equation with delta potential (16:30–17:30)

Real Analysis (Conference Room VIII)

Keisuke Takasao^b On the existence of the weak solution for the mean curvature flow with forcing term via the phase field method (16:15–17:15)
(Kyoto Univ./Kyoto Univ.)

Applied Mathematics (Conference Room V)

Katsuhisa Ozaki Error-free transformation for matrix multiplication: Basic, applications, and future (11:00–12:00)
(Shibaura Inst. of Tech.)

Infinite Analysis (Conference Room IX)

Yoshihisa Saito (Rikkyo Univ.) On elliptic Artin groups (16:15–17:15)

Open Lectures for Citizens

Date: March 15th (Sun) 14:00–16:30

Venue: CST Hall, 6F, Bldg. No. 1

Sponsored by: The Mathematical Society of Japan

Supported by: Colloge of Science and Technology, Nihon University

Program: Opening Speech (14:00–14:10)
Tomohide Terasoma (President of MSJ/Hosei Univ.)

Lecture 1: “Combinatorics of linkages” (14:10–15:10)
Shin-ichi Tanigawa (Univ. of Tokyo)

Lecture 2: “AI × Singularity theory = ?” (15:30–16:30)
Miki Aoyagi (Nihon Univ.)

Web Page: <https://www.mathsoc.jp/en/meeting/nichidai20mar/>

Foundation of Mathematics and History of Mathematics

March 16th (Mon) Conference Room IX

9:30–12:00

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|---|--|---|
| 1 | <u>Teruyuki Yorioka</u> (Shizuoka Univ.)
Tadatoshi Miyamoto (Nanzan Univ.) | YPFA implies MRP 15 |
| 2 | Daisuke Ikegami
(Shibaura Inst. of Tech.) | Generic absoluteness in ZF 15 |
| 3 | Toshimichi Usuba (Waseda Univ.) | On generically extendible cardinals 15 |
| 4 | Diego A. Mejía (Shizuoka Univ.) | Lebesgue measure zero modulo ideals 15 |
| 5 | Kenetsu Fujita (Gunma Univ.) | George Boolos' "The Hardest Logic Puzzle Ever" revisited 15 |
| 6 | Takahiro Seki (Niigata Univ.) | A Gentzen-style formulation for involutive substructural logics with
contraposition 15 |
| 7 | Yoshihito Tanaka
(Kyushu Sangyo Univ.) | A representation of modal algebras preserving countably many infinitary
meets and joins 15 |
| 8 | <u>Yuya Okawa</u> (Chiba Univ.)
Taishi Kurahashi
(Nat. Inst. of Tech., Kisarazu Coll.) | Generalizations of Bennet's result on partially conservative sentences
..... 15 |

14:15–15:00

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| 9 | Shigeru Masuda
(Res. Workshop of Classical Fluid Dynamics) | Study of the Eulerian Integrals by Legendre 15 |
| 10 | Shigeru Masuda
(Res. Workshop of Classical Fluid Dynamics) | The complete functions by Legendre 15 |
| 11 | Hideyuki Majima (Ochanomizu Univ.*) | Towards the year 2022, the 314th memorial year of SEKI Takakazu
..... 15 |

15:15–16:15 Talk Invited by Section on Foundation and History of Mathematics

Masahito Takase Shaping the fountains in Modern Western Mathematics

March 17th (Tue) Conference Room IX

9:00–10:30

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|----|--|---|
| 12 | Kohtaro Tadaki (Chubu Univ.) | A refinement of quantum information theory by algorithmic randomness
III 15 |
| 13 | <u>Kenshi Miyabe</u> (Meiji Univ.)
Toru Takisaka
(Nat. Inst. of Information) | The speed of convergence of induction 15 |
| 14 | Hisashi Aratake (Kyoto Univ.) | Classifying toposes for existentially closed models and finite-generic
models 15 |
| 15 | Kazuyuki Tanaka (Tohoku Univ.) | On eigen-distributions for Boolean trees in the ID case 15 |

16	<u>Keita Yokoyama</u> (JAIST) Makoto Fujiwara (Meiji Univ.) Hajime Ishihara (JAIST) Takako Nemoto (JAIST) Nobu-Yuki Suzuki (Shizuoka Univ.)	Kripke models and separations of logical principles	15
17	Toshiyasu Arai (Univ. of Tokyo)	Some contributions to proof theory	15
10:45–11:45 Talk Invited by Section on Foundation and History of Mathematics			
	Nobu-Yuki Suzuki (Shizuoka Univ.)	Disjunction and existence properties in intermediate predicate logics	
11:45–12:00 Research Section Assembly			
12:00–12:15 Mathematics History Team Meeting			

Algebra

March 16th (Mon) Conference Room I

10:00–12:00

1	<u>Hiroyuki Nakasora</u> (Kobe Gakuin Univ.)	The extended doubling of the Golay code and the Moonshine code	10
2	Bernhard Mühlherr (Univ. Giessen) <u>Koji Nuida</u> (Univ. of Tokyo)	Locally finite continuations and Coxeter groups of infinite ranks	10
3	Naoki Chigira (Kumamoto Univ.)	Solutions of a certain equation on a group and group structure	10
4	<u>Fumihito Oda</u> (Kindai Univ.) Yugen Takegahara (Muroran Inst. of Tech.)	Crossed Burnside rings and Mackey 2-functors	10
5	Akihiko Hida (Saitama Univ.)	On the relation of the product of character degrees and the product of conjugacy class lengths of a finite group	10
6	Akihiko Hida (Saitama Univ.)	Lower defect groups and vertices of simple modules	10
7	<u>Shigeo Koshitani</u> (Chiba Univ./Chiba Univ.*) Ipek Tuvay (Mimar Sinan Fine Arts Univ.)	^b Brauer indecomposability of Scott modules for the quadratic group $Qd(p)$	10
8	<u>Shigeo Koshitani</u> (Chiba Univ./Chiba Univ.*) Caroline Lassueur (TU Kaiserslautern)	^b Splendid Morita equivalences for principal blocks with dihedral defect groups	10
9	<u>Shigeo Koshitani</u> (Chiba Univ./Chiba Univ.*) Caroline Lassueur (TU Kaiserslautern)	^b Splendid Morita equivalences for principal blocks with generalised quaternion defect groups	10
10	<u>Mawo Ito</u> (Kyoto Univ.) Shuhei Kamioka (Kyoto Univ.)	A product formula for plane partitions derived from a biorthogonal polynomial	10

14:15–15:15 Talk Invited by Algebra Section

Kenichiro Tanabe (Hokkaido Univ.)^b Representations of some fixed point subalgebra of the vertex algebra associated to a non-degenerate even lattice

15:30–16:50

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| 11 | Mamoru Ueda (Kyoto Univ.) | Affine super Yangian | 10 |
| 12 | Satoru Urano (Univ. of Tsukuba) | Modular moonshine | 10 |
| 13 | Scott Carnahan (Univ. of Tsukuba) | Monstrous moonshine over the integers | 10 |
| 14 | <u>Kazuya Kawasetsu</u> (Kumamoto Univ.)
David Ridout (Univ. of Melbourne) | Relaxed highest-weight modules over affine vertex operator algebras | 10 |
| 15 | Hiroki Shimakura (Tohoku Univ.) | On automorphism groups of the holomorphic VOAs associated with Niemeier lattices and the -1 -isometries | 10 |
| 16 | Ching Hung Lam (Academia Sinica)
<u>Hiroshi Yamauchi</u>
(Tokyo Woman's Christian Univ.) | On a $c=33$ extremal VOA | 10 |
| 17 | Sota Asai (Kyoto Univ.) | Wide intervals in lattices of torsion classes | 10 |

March 17th (Tue) Conference Room I

10:00–11:45

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| 18 | Masahisa Sato (Aichi Univ.) | Some examples of rings and modules relating to Ware's problem | 10 |
| 19 | <u>Yoshiharu Shibata</u> (Yamaguchi Univ.)
Isao Kikumasa (Yamaguchi Univ.)
Yosuke Kuratomi (Yamaguchi Univ.) | On dual square full modules | 10 |
| 20 | Ayako Itaba (Tokyo Univ. of Sci.) | On finite generations over centers of non-commutative projective schemes associated to 3-dimensional quadratic AS-regular algebras | 10 |
| 21 | Masaki Matsuno (Shizuoka Univ.) | The classification of 3-dimensional quadratic AS-regular algebras whose point schemes are elliptic curves | 10 |
| 22 | Ji-Wei He (Hangzhou Normal Univ.)
<u>Haigang Hu</u> (Shizuoka Univ.) | Hopf dense Galois extensions over a ring | 10 |
| 23 | Hiroki Matsui (Univ. of Tokyo) | Construction of spectra of triangulated categories and their applications to commutative algebra | 10 |
| 24 | Ayana Hirano (Kitami Inst. of Tech.)
<u>Kazunori Matsuda</u>
(Kitami Inst. of Tech.) | Matching numbers and dimension of edge ideals | 10 |
| 25 | <u>Mitsuhiro Miyazaki</u>
(Kyoto Univ. of Edu.)
Janet Page (Univ. of Michigan) | On the traces of the canonical modules of the Ehrhart rings of order and chain polytopes | 10 |
| 26 | <u>Akihiro Higashitani</u> (Osaka Univ.)
Hidefumi Ohsugi
(Kwansei Gakuin Univ.) | Toric ideals of generalized permutohedra | 10 |

13:00–14:15

27	<u>Hidefumi Ohsugi</u> (Kwansei Gakuin Univ.) <u>Akiyoshi Tsuchiya</u> (Univ. of Tokyo)	Nef-partitions arising from unimodular configurations	10
28	<u>Akiyoshi Tsuchiya</u> (Univ. of Tokyo) <u>Takayuki Hibi</u> (Osaka Univ.)	Initial ideals and their depth	10
29	<u>Chris McDaniel</u> (Endicott Coll.)	Equivariant coinvariant rings of finite groups	10
30	<u>Junzo Watanabe</u> (Tokai Univ.*) <u>Chris McDaniel</u> (Endicott Coll.)	A new definition of the principal radical system and an application to Specht ideals of type $(n - k, k)$	10
31	<u>Kohsuke Shibata</u> (Okayama Univ.) <u>Kohji Yanagawa</u> (Kansai Univ.)	Hilbert series of Cohen–Macaulay Specht ideals	10
32	<u>Shreedevi Masuti</u> (Chennai Math. Inst.) <u>Kazuho Ozeki</u> (Yamaguchi Univ.) <u>Maria Evelina Rossi</u> (Genova Univ.) <u>Hoang Le Truong</u> (Saarlandes Univ.)	On the structure of the Sally module and the second normal Hilbert coefficient	10

March 18th (Wed) Conference Room I

9:30–12:00

33	<u>Tomohiro Iwami</u> (Kyushu Inst. of Tech.) ^b	Semistable extremal neighborhoods rigged by framed-form fans of cusp- type singularities	10
34	<u>Koji Nuida</u> (Univ. of Tokyo)	An elementary linear-algebraic proof for group law on elliptic curves	10
35	<u>Makoto Sakurai</u> (Kaichi Gakuen)	Extension and applications of chiral algebra theory	10
36	<u>Yoshifumi Tsuchimoto</u> (Kochi Univ.)	On curves on the non-commutative complex Kähler plane	10
37	<u>Tetsuya Ando</u> (Chiba Univ.)	Theory of PSD cones on semialgebraic varieties	10
38	<u>Norihiko Minami</u> (Nagoya Inst. of Tech.)	On the applicability of the sufficient criterion for a stronger hierarchy of higher uniruledness = lower unirationality via Bott tower	10
39	<u>Yoshifumi Kato</u> (Meijo Univ.)	Curvature matrix of the universal bundle of the Grassmann variety	10
40	<u>Yoshifumi Kato</u> (Meijo Univ.)	An observation on Schubert polynomials	10
41	<u>Yuki Matsubara</u> (Kobe Univ.)	Tamely ramified geometric Langlands correspondence	10
42	<u>Taketo Shirane</u> (Tokushima Univ.) <u>Enrique Artal Bartolo</u> (Univ. Zaragoza) <u>Shinzo Bannai</u> (Ibaraki Nat. Coll. of Tech.) <u>Hiro-o Tokunaga</u> (Tokyo Metro. Univ.)	Torsion divisors of plane curves and Zariski pairs	10
43	<u>Kohei Sato</u> (Oyama Nat. Coll. of Tech.) <u>Yusuke Sato</u> (Univ. of Tokyo)	On Ashikaga’s continued fractions and crepant resolutions for 3-dimensional Abelian quotient singularities	10
44	<u>Takahiro Nagaoka</u> (Kyoto Univ.)	The universal covers of hypertoric varieties and Bogomolov’s decompo- sition	10
45	<u>Hiroto Akaike</u> (Osaka Univ.) ^b	Slope inequalities for irregular cyclic covering fibration	10

14:15–14:30 Presentation Ceremony for the 2020 MSJ Algebra Prize**14:40–15:40 Award Lecture for the 2020 MSJ Algebra Prize**

Ryo Takahashi (Nagoya Univ.) Generation in module categories and derived categories of commutative rings

15:50–16:50 Award Lecture for the 2020 MSJ Algebra Prize

Takuzo Okada (Saga Univ.) Birational Mori fiber structures of Fano varieties and its application to rationality problems

March 19th (Thu) Conference Room I

9:20–12:00

- 46 Fumitsuna Maruyama Recent progress on Euler–Fermat type theorem on matrix ring 10
Masao Toyozumi (Toyo Univ.)
Yozo Deguchi
- 47 Kiyoto Yoshino (Tohoku Univ.) Non 2-integrable lattices of rank 12 10
Qianqian Yang
(Univ. of Sci. Tech. China)
- 48 Akinari Hoshi (Niigata Univ.) Norm one tori and Hasse norm principle 10
Kazuki Kanai (Niigata Univ.)
Aiichi Yamasaki (Kyoto Univ.)
- 49 Akinari Hoshi (Niigata Univ.) Norm one tori and Hasse norm principle, II 10
Kazuki Kanai (Niigata Univ.)
Aiichi Yamasaki (Kyoto Univ.)
- 50 Yoshiaki Okumura (Tokyo Tech) Non-existence of Drinfeld modules with constrained torsions 10
- 51 Iwao Kimura (Univ. of Toyama) On an estimate of the relative class number of cyclotomic function field
Daiki Aoyama (Univ. of Toyama) of prime conductor 10
- 52 Mikihiro Hirabayashi A generalization of Jakubec’s formula related to the multiplication
(Kanazawa Inst. of Tech.) theorem for Bernoulli polynomials 10
- 53 Yuki Kato (Ube Nat. Coll. of Tech.) Homotopy invariant K -theory of perfectoidification of regular local rings
. 10
- 54 Kazuto Ota (Keio Univ.) Big Heegner points and generalized Heegner cycles 10
- 55 Yuichi Sakai (Kyushu Univ.) Characterization of minimal models by modular linear differential equa-
Kiyokazu Nagatomo (Osaka Univ.) tions of order 4 and their modules 10
- 56 Wataru Takeda (Nagoya Univ.) Factorial functions represented as norm forms 10
- 57 Kazunari Sugiyama Prehomogeneous zeta functions and the Katok–Sarnak correspondence
(Chiba Inst. of Tech.) 10
- 58 Ryojun Ito (Chiba Univ.) On special values at integers of L -functions of Jacobi theta products of
weight 3 10
- 59 Masatoshi Suzuki (Tokyo Tech) On a family of integral operators arising from zeta functions. II. 10

14:15–15:15 Talk Invited by Algebra Section

Kenichi Namikawa (Kyushu Univ.) Explicit constructions of automorphic forms and its applications to Iwasawa theory

15:25–16:50

60	Masahiro Mine (Tokyo Tech)	Moments of L -functions associated with cubic fields	10
61	<u>Ade Irma Suriajaya</u> (Kyushu Univ./RIKEN) Shōta Inoue (Nagoya Univ.) Sumaia Saad Eddin (JKU Linz)	An upper bound for Stieltjes constants of L -functions in the extended Selberg class	10
62	Shota Inoue (Nagoya Univ.)	On the value distribution of the Riemann zeta-function on the critical line	10
63	<u>Saburoou Saitoh</u> (Gunma Univ.*/Inst. of Reproducing Kernels) Tsutomu Matsuura (Gunma Univ.) Hiroshi Okumura	Values of the Riemann zeta function at positive integers by means of the division by zero calculus	10
64	Hiroshi Ogawara (Kumamoto Univ.)	On algebraic independence of solutions for systems of algebraic Mahler functional equations	10
65	Debika Banerjee (IISER) <u>Makoto Minamide</u> (Yamaguchi Univ.) Yoshio Tanigawa	A divisor problem on square free integers	10
66	Shigeru Itaka (Gakushuin Univ.*)	(A,B,C) perfect numbers	10

Geometry

March 16th (Mon) Conference Room II

9:40–11:40

1	Takahiko Yoshida (Meiji Univ.)	Adiabatic limits, theta functions, and geometric quantization	15
2	<u>Ken Kuwata</u> (Hokkaido Univ.) Masao Jinzenji (Hokkaido Univ.)	Holomorphic vector field and topological sigma model on \mathbb{P}^1 world sheet	15
3	Natsuo Miyatake (Osaka Univ.) ^b	A direct proof of Hitchin–Kobayashi type correspondences for abelian vortex equations	15
4	<u>Yasufumi Nitta</u> (Tokyo Univ. of Sci.) Shunsuke Saito (RIKEN/Kyoto Univ.)	A uniform version of the Yau–Tian–Donaldson correspondence for polarized toric manifolds	15
5	<u>Kazuyuki Hasegawa</u> (Kanazawa Univ.) Vicente Cortés (University of Hamburg)	A construction of a hypercomplex manifold from a quaternionic manifold —the quaternionic/hypercomplex-correspondence—	15
6	<u>Yoshinori Hashimoto</u> (Tokyo Tech) Julien Keller (Aix-Marseille Univ.)	Kobayashi–Hitchin correspondence and the Quot-scheme limit of Fubini–Study metrics	15
7	Takahiro Aoi (Osaka Univ.)	Complete scalar-flat Kähler metrics on affine algebraic manifolds	15

14:20–15:45

- 8 Tomoya Nakamura (Waseda Univ.) Dirac pairs on Jacobi bialgebroids 15
- 9 Ryuma Orita (Tokyo Metro. Univ.) Rigid fibers of spinning tops 15
- 10 Yuuki Sasaki (Univ. of Tsukuba) Connectedness and homogeneity of antipodal sets 15
- 11 Mao Okada (Univ. of Tokyo) Local rigidity of certain actions of solvable groups on the boundaries of rank-one symmetric spaces 15
- 12 Takashi Sakai (Tokyo Metro. Univ.) Natural Γ -symmetric structures on R -spaces 15
Peter Quast (Univ. of Augsburg)

16:00–17:00 Talk Invited by Geometry Section

- Hikaru Yamamoto (Tokyo Univ. of Sci.) Special Lagrangian submanifolds, mean curvature flows and their mirror

March 17th (Tue) Conference Room II

9:40–11:50

- 13 Yufeng Lu (Osaka Univ.) Singularity theorems on Lorentz–Finsler manifolds 10
Ettore Minguzzi (Univ. Stud. Firenze)
Shin-ichi Ohta (Osaka Univ./RIKEN)
- 14 Atsufumi Honda Duality on generalized cuspidal edges preserving singular set images
(Yokohama Nat. Univ.) and first fundamental forms 15
Kosuke Naokawa
(Hiroshima Inst. of Tech.)
Kentaro Saji (Kobe Univ.)
Masaaki Umehara (Tokyo Tech)
Kotaro Yamada (Tokyo Tech)
- 15 Yoshito Ishiki (Univ. of Tsukuba) On the Assouad dimension and convergence of metric spaces 15
- 16 Yoshito Ishiki (Univ. of Tsukuba) A characterization of metric subspaces of full Assouad dimension 15
- 17 Nobuhiro Innami (Niigata Univ.) The azimuthal equidistant projection for a Finsler manifold 15
- 18 Takumi Gomyou (Nagoya Univ.) Optimal embedding and spectral gap of a finite graph 15
Toshimasa Kobayashi (Setsunan Univ.)
Takefumi Kondo (Kagoshima Univ.)
Shin Nayatani (Nagoya Univ.)
- 19 Naoto Satoh (Hokkaido Univ.) Statistical sectional curvature and warped product statistical manifold
Hitoshi Furuhata (Hokkaido Univ.) 15
Izumi Hasegawa
(Hokkaido Univ. of Edu.*)
- 20 Ryunosuke Ozawa (Tohoku Univ.) Geometric and analytic properties of directed graphs under lower Ricci
Yohei Sakurai (Tohoku Univ.) curvature bound 15
Taiki Yamada
(Res. Inst. for Humanity and Nature)

13:15–14:15 Talk Invited by Geometry Section

- Ulrich Pinkall (TU Berlin) Discretizing fluids into filaments and sheets

March 18th (Wed) Conference Room II

9:40–11:35

- 21 Ayato Mitsuishi (Fukuoka Univ.) Certain mini-max values of the p -energy and packing radii 15
- 22 Cong Hung Mai (Kyoto Univ.) Quantitative estimates for the Bakry–Ledoux isoperimetric inequality
Shin-ichi Ohta (Osaka Univ./RIKEN) 10
- 23 Shintaro Akamine (Nagoya Univ.) Bernstein-type theorem for zero mean curvature hypersurfaces admit-
Atsufumi Honda ting lightlike points 15
(Yokohama Nat. Univ.)
Masaaki Umehara (Tokyo Tech)
Kotaro Yamada (Tokyo Tech)
- 24 Doman Takata (Univ. of Tokyo) Towards an infinite-dimensional Atiyah–Singer index theorem 15
- 25 Jun O’Hara (Chiba Univ.) Generalization of Willmore energy as a residue 15
- 26 Asuka Takatsu (Tokyo Metro. Univ.)^b Elliptic and parabolic boundary value problems on rotationally sym-
Kazuhiro Ishige (Univ. of Tokyo) metric domains 15
Paolo Salani (Univ. Firenze)
- 27 Dounnu Sasaki (Waseda Univ.) Denseness property of geodesic currents on a cusped hyperbolic surface
..... 15

14:20–15:40

- 28 Atsushi Fujioka (Kansai Univ.) Centroaffine surfaces of cohomogeneity one 15
Hitoshi Furuhata (Hokkaido Univ.)
- 29 Masashi Yasumoto (Osaka City Univ.) Discrete Weierstrass-type representations 15
- 30 Masahiro Morimoto (Osaka City Univ.) Austere and arid properties for PF submanifolds in Hilbert spaces 15
- 31 Yuichiro Sato (Tokyo Metro. Univ.) Totally umbilical submanifolds in pseudo-Riemannian space form 15
- 32 Kazuhiro Okumura The curvature tensor of ruled real hypersurfaces in a nonflat complex
(Asahikawa Nat. Coll. of Tech.) space form 10

16:00–17:00 Talk Invited by Geometry Section

- Atsushi Kanazawa (Kyoto Univ.) Kähler moduli spaces and stability conditions of triangulated categories

Complex Analysis

March 16th (Mon) Conference Room VIII

9:30–11:50

- 1 Saburoou Saitoh Okumura’s disc series can beyond the crucial point of Däumler–Puha’s
(Gunma Univ.*/Inst. of Reproducing Kernels) horn torus models for the Riemann sphere 15
- 2 Toshiyuki Sugawa (Tohoku Univ.) Geometric properties of the nonlinear resolvent for a continuous semi-
Mark Elin (ORT Braude Coll.) group of holomorphic self-maps of the unit disk 15
David Shoikhet (Holon Inst. of Tech.)

- 3 Hideaki Izumi (Chiba Inst. of Tech.) Dimensioned number solutions to iterative functional equations 15
- 4 Akira Ushijima (Kanazawa Univ.) Existence of exceptional points for cofinite Fuchsian groups 15
Toshihiro Nakanishi (Shimane Univ.)
- 5 Takayuki Watanabe (Kyoto Univ.) Dichotomy of Markov random dynamical systems of rational maps . . . 15
Hiroki Sumi (Kyoto Univ.)
- 6 Masashi Kisaka (Kyoto Univ.) Fatou–Shishikura inequality for transcendental entire functions in class \mathcal{S} 15
- 7 Joe Kamimoto (Kyushu Univ.) On the maximal region to which local zeta functions can be meromorphically extended 15
Toshihiro Nose (Fukuoka Inst. of Tech.)
- 8 Toshihiro Nose (Fukuoka Inst. of Tech.) On non-polar singularities of local zeta functions 15
Joe Kamimoto (Kyushu Univ.)

14:15–15:20

- 9 Takanori Ayano (Osaka City Univ.) Series expansion of two-dimensional sigma function based on the heat equations 15
Victor M. Buchstaber
(Steklov Inst. of Math.)
- 10 Atsushi Hayashimoto Automorphism group and isometry group of Hua domains 15
(Nagano Nat. Coll. of Tech.)
- 11 Hidetaka Hamada Distortion theorems, Lipschitz continuity and their applications for Bloch type mappings on bounded symmetric domains in \mathbb{C}^n 15
(Kyushu Sangyo Univ.)
- 12 Ian Graham (Univ. of Toronto) Loewner chains, Bloch mappings and Pfaltzgraff–Suffridge extension operators on bounded symmetric domains 15
Hidetaka Hamada
(Kyushu Sangyo Univ.)
Gabriela Kohr (Babeş-Bolyai Univ.)

15:35–16:35 Talk Invited by Complex Analysis Section

- Yohei Komori (Waseda Univ.) Growth of hyperbolic Coxeter groups

16:50–17:50 Award Lecture for the 2019 MSJ Analysis Prize

- Hiroki Sumi (Kyoto Univ.) Various randomness-induced phenomena and their mechanisms in random holomorphic dynamical systems

March 17th (Tue) Conference Room VIII

9:15–11:45

- 13 Shinichi Tajima (Niigata Univ.*) A computation method of logarithmic vector fields associated to isolated complete intersection singularities 15
Takafumi Shibuta
(Kyushu Sangyo Univ.)
Katsusuke Nabeshima
(Tokushima Univ.)
- 14 Tomoko Shinohara Local stable set of an indeterminate point of rational mappings of two complex variables 15
(Tokyo Metro. Coll. of Ind. Tech.)
- 15 Yunitaka Abe (Univ. of Toyama) Isogenies between commutative complex Lie groups 10
- 16 Yunitaka Abe (Univ. of Toyama) Meromorphic function fields closed by partial derivatives 15

15 Complex Analysis / Functional Equations

- 17 Takayuki Koike (Osaka City Univ.) Hermitian metrics on the anti-canonical bundle of the blow-up of the projective plane at nine points 15
- 18 Masanori Adachi (Shizuoka Univ.) The Diederich–Fornæss and Steinness indices in complex manifolds ... 15
 Jihun Yum (Pusan Nat. Univ.)
- 19 Takahiro Inayama (Univ. of Tokyo) Pseudonorms on direct images of pluricanonical bundles 15
- 20 Genki Hosono (Tohoku Univ.) A simplified proof of the optimal L^2 extension theorem and its application 15
- 21 Takeo Ohsawa (Nagoya Univ.)^b Application of the L^2 method to the Levi problem on complex manifolds 15

13:15–14:15 Talk Invited by Complex Analysis Section

- Shin-ichi Matsumura (Tohoku Univ.)^b On structure theorems for projective manifolds with certain non-negative curvature

Functional Equations

March 16th (Mon) Conference Room III

9:00–12:00

- 1 Hiroto Inoue (Kyushu Univ.) The exponential matrix solution and power series solution of the matrix-valued Bratu equation 10
- 2 Daichi Komori (Hokkaido Univ.) The construction of the morphism of sheaves from pseudodifferential operators to their symbols via Čech–Dolbeault cohomology 10
- 3 Masatoshi Suzuki (Tokyo Tech) On a system of partial differential equations and entire functions of Hermite–Biehler class 10
- 4 Hidetoshi Tahara (Sophia Univ.) Uniqueness of the solution of nonlinear singular first order partial differential equations 10
- 5 Yukihide Tadano (Univ. of Tokyo) On a continuum limit of discrete Schrödinger operators on square lattices 10
 Shu Nakamura (Gakushuin Univ.)
- 6 Kenichi Ito (Univ. of Tokyo) Hypergeometric expression for resolvent of the discrete Laplacian in low dimension 10
 Arne Jensen (Aalborg Univ.)
- 7 Kanam Park (Kobe Univ.) A certain generalization of q -Painlevé VI system and its symmetry ... 10
- 8 Toshinori Takahashi (Kindai Univ.) On the WKB theoretic transformation to the boosted Airy equation 10
- 9 Takashi Aoki (Kindai Univ.) Voros coefficients at the origin and at the infinity of the generalized hypergeometric differential equation with a large parameter 10
 Shofu Uchida (Kindai Univ.)
- 10 Hideshi Yamane Analytic global-in-time solutions to the Cauchy problem for the μ -Camassa–Holm equation 10
 (Kwansei Gakuin Univ.)

- 11 Kazuki Ishibashi (Hiroshima Nat. Coll. of Maritime Tech.)
Fentao Wu (Northeast Normal Univ.)
Lin She
Moore-type nonoscillation theorems for half-linear difference equations 10
- 12 Tomoyuki Tanigawa (Osaka Pref. Univ.)
A study of nonoscillatory solutions of half-linear differential equations by Riccati equations 10
- 13 Tetsutaro Shibata (Hiroshima Univ.)
Keiichi Kato (Tokyo Univ. of Sci.)
Simple proof of stationary phase method and application to oscillatory bifurcation problems 10
- 14 Yutaka Kamimura (Tokyo Univ. of Marine Sci. and Tech.)
Energy dependent reflectionless inverse theory and method 10
- 14:15–16:15**
- 15 Shingo Takeuchi (Shibaura Inst. of Tech.)
Kohtaro Watanabe (Nat. Defense Acad. of Japan)
Lyapunov-type inequalities for a Sturm–Liouville problem of the one-dimensional p -Laplacian 10
- 16 Tatsuki Mori (Musashino Univ.)
Kousuke Kuto (Waseda Univ.)
Yasuhito Miyamoto (Univ. of Tokyo)
Tohru tsujikawa (Univ. of Miyazaki)
Shoji Yotsutani (Ryukoku Univ.*)
Parametric representation of a sheet constructed by all solution to a nonlocal Allen–Cahn equation 10
- 17 Kenichiro Umezu (Ibaraki Univ.)
Uriel Kaufmann (Univ. Nacional de Córdoba)
Humberto Ramos Quoirin (Univ. de Santiago de Chile)
Global exact multiplicity of positive solutions for an indefinite sublinear Robin problem 10
- 18 Yohei Sato (Saitama Univ.)
Xiaojun Chang (Northeast Normal Univ.)
Localized solutions of nonlinear Schrödinger systems with critical frequency for infinite attractive case 10
- 19 Lorenzo Cavallina (Tohoku Univ.)
Antoine Henrot (Inst. Elie Cartan de Lorraine/Univ. de Lorraine)
Shigeru Sakaguchi (Tohoku Univ.)
On the two-phase isoperimetric problem 10
- 20 Shigeru Sakaguchi (Tohoku Univ.)
Lorenzo Cavallina (Tohoku Univ.)
Seiichi Udagawa (Nihon Univ.)
A characterization of the interface with constant temperature in two-phase heat conductors 10
- 21 Yuki Tsukamoto (Tokyo Tech)
Existence of a prescribed anisotropic mean curvature problem 10
- 22 Kensuke Yoshizawa (Tohoku Univ.)^b
Existence and non-existence of elastic graphs with the symmetric cone obstacle 10
- 16:30–17:30 Award Lecture for the 2019 MSJ Analysis Prize**
Hidetaka Sakai (Univ. of Tokyo) The world of the Painlevé equations

March 17th (Tue) Conference Room III

9:00–12:00

- 23 Naoki Hamamoto (Osaka City Univ.) Sharp Rellich inequality for vector-valued functions under the solenoidal condition 10
- 24 Megumi Sano (Hiroshima Univ.) Minimization problem associated with an improved Hardy–Sobolev type inequality 10
- 25 Takeshi Suguro (Tohoku Univ.)^b Shannon’s inequality for a generalized entropy and an application to the uncertainty principle 10
- 26 Shoya Kawakami (Saitama Univ.) Estimates on variational formulae of O’Hara’s energies 10
Takeyuki Nagasawa (Saitama Univ.)
- 27 Aya Ishizeki (Chiba Univ.) Upper and lower bounds and modulus of continuity of decomposed
Takeyuki Nagasawa (Saitama Univ.) Möbius energies 10
- 28 Takeyuki Nagasawa (Saitama Univ.) Asymptotic analysis for non-local curvature flows for plane curves with
Kohei Nakamura (Saitama Univ.) general rotation number 10
- 29 Ken Furukawa (Univ. of Tokyo) On the solvability of higher-order elliptic equations 10
Naoto Kajiwara (Tokyo Univ. of Sci.)
- 30 Hirotada Honda (Toyo Univ.) Mathematical analysis on a target detection model 10
- 31 Jumpei Inoue (Univ. of Electro-Comm.) On the optimal distribution and the existence of an L^1 -unbounded
Kousuke Kuto (Waseda Univ.) sequence of steady states for the diffusive logistic equation 10
- 32 Masahiko Shimojyou Spreading speed of a singular prey-predator type reaction-diffusion
(Okayama Univ. of Sci.) system 10
Jong-Shenq Guo (Tamkang Univ.)
Yu-Shuo Chen (Tamkang Univ.)
- 33 Masahiko Shimojyou Traveling wave solution to a singular prey-predator reaction diffusion
(Okayama Univ. of Sci.) system 10
Jong-Shenq Guo (Tamkang Univ.)
Yu-Shuo Chen (Tamkang Univ.)
- 34 Tomoyuki Oka (Tohoku Univ.) Space-time homogenization for the fast diffusion equation 10
Goro Akagi (Tohoku Univ.)
- 35 Kenta Nakamura (Tohoku Univ.) Global existence for the p -Sobolev flow 10
Masashi Misawa (Kumamoto Univ.)
Tuomo Kuusi (Univ. of Helsinki)
- 36 Mario Fuest (Paderborn Univ.) Asymptotic behavior in a chemotaxis-consumption model with realistic
Johannes Lankeit (Paderborn Univ.) boundary conditions for the oxygen 10
Masaaki Mizukami
(Tokyo Univ. of Sci.)
- 37 Takashi Suzuki (Osaka Univ.) A parabolic concavity maximum principle 5

13:15–14:15 Talk Invited by Functional Equations Section

- Sohei Ashida (Gakushuin Univ.) Accurate lower bounds for eigenvalues of electronic Hamiltonians

March 18th (Wed) Conference Room III

9:00–12:00

- 38 Toshikazu Kuniya (Kobe Univ.) Threshold theorem for an SIR epidemic model with diffusion under the different boundary conditions 10
- 39 Daesu Jeong (Nagoya Univ.) The role of forward self-similar solutions in the Cauchy problem for semi-linear heat equations with exponential nonlinearity 10
- 40 Kotaro Hisa (Tohoku Univ.) Existence of solutions for an inhomogeneous fractional semilinear heat equation 10
Kazuhiro Ishige (Univ. of Tokyo)
Jin Takahashi (Tokyo Tech)
- 41 Md Rabiul Haque (Tohoku Univ.)^b Critical existence to a convection-diffusion equation in a uniformly local lebesgue space 10
Norisuke Ioku (Tohoku Univ.)
Takayoshi Ogawa (Tohoku Univ.)
Ryuichi Sato (Tohoku Univ.)
- 42 Sachiko Ishida (Chiba Univ.) Weak stabilization in Keller–Segel systems with degenerate diffusion 10
Tomomi Yokota (Tokyo Univ. of Sci.)
- 43 Mikihiro Fujii (Kyushu Univ.) Global solutions to the dissipative quasi-geostrophic equation with dispersive forcing 10
- 44 Masaki Kurokiba (Muroran Inst. of Tech.)^b Singular limit problem for the Keller–Segel system and drift-diffusion system 10
Takayoshi Ogawa (Tohoku Univ./Tohoku Univ.)
- 45 Shuji Yoshikawa (Oita Univ.) Error estimates of structure-preserving discrete approximations for the Cahn–Hilliard equation in two space dimension 10
- 46 Takashi Furuya (Nagoya Univ.) Direct and inverse scattering problems for the local perturbation of an open periodic waveguide in the half plane 10
- 47 Kunio Hidano (Mie Univ.) Global existence for null-form wave equations with data in a Sobolev space of lower regularity and weight 10
Kazuyoshi Yokoyama (Hokkaido Univ. of Sci.)
- 48 Tadahiro Oh (Univ. of Edinburgh) On the well-posedness for the quadratic stochastic nonlinear wave equation with a rough noise in two dimensions 10
Mamoru Okamoto (Shinshu Univ.)
- 49 Haruya Mizutani (Osaka Univ.) Resolvent and Strichartz estimates for fractional Schrödinger operators with Hardy potentials 10
Xiaohua Yao (Central China Normal Univ.)
- 50 Tomoyuki Tanaka (Nagoya Univ./Chuo Univ./RIKEN/Keio Univ.)^b Global well-posedness for the wave equation with a time-dependent scale invariant damping and a cubic convolution 10
Masahiro Ikeda (RIKEN/Keio Univ.)
Kyouhei Wakasa (Kushiro Nat. Coll. of Tech.)
- 51 Yoshiyuki Kagei (Tokyo Tech) Large time behavior of global solutions to nonlinear elastic wave equations with strong damping term 10
Hiroshi Takeda (Fukuoka Inst. of Tech.)

14:15–16:15

- 52 Isao Kato (Kyoto Univ.) On the 3D Zakharov system with radial initial data 10
Shinya Kinoshita (Univ. Bielefeld)
- 53 Ikkei Shimizu (Kyoto Univ.) Local well-posedness for Schrödinger maps with helicity terms 10
- 54 Chunhua Li (Yanbian Univ.) Large time asymptotics for a cubic nonlinear Schrödinger system in one
Yoshinori Nishii (Osaka Univ.) space dimension 10
Yuji Sagawa
Hideaki Sunagawa (Osaka Univ.)
- 55 Koichi Komada Existence of blow-up solutions to nonlinear Schrödinger equations with
(Tohoku Univ./Kyushu Univ.) anisotropic fourth-order dispersion 10
- 56 Takuya Sato (Tohoku Univ.)^b L^2 -decay for the one dimensional dissipative nonlinear Schrödinger
Takayoshi Ogawa (Tohoku Univ.) equation in a critical exponent 10
- 57 Toshiyuki Suzuki (Kanagawa Univ.) Nonlinear Schrödinger equations with an inverse-square potential and
a repulsive harmonic oscillator 10
- 58 Masaru Hamano (Saitama Univ.) For a stationary problem of the nonlinear Schrödinger equation with a
Masahiro Ikeda (RIKEN/Keio Univ.) potential term 10
- 59 Noriyoshi Fukaya (Tokyo Univ. of Sci.) Instability of algebraic standing waves for nonlinear Schrödinger equa-
Masayuki Hayashi (Kyoto Univ.) tions with double power nonlinearities 10

16:30–17:30 Talk Invited by Functional Equations Section

- Kousuke Kuto (Waseda Univ.) Cross-diffusion limit in the stationary SKT model

March 19th (Thu) Conference Room III

9:00–12:00

- 60 Shota Sakamoto (Tohoku Univ.) Solutions to initial and initial-boundary value problems of the non-cutoff
Renjun Duan Boltzmann equation near an equilibrium 10
(Chinese Univ. of Hong Kong)
Shuangqian Liu
(Central China Normal Univ./Jinan Univ.)
Robert M. Strain (Univ. Pennsylvania)
- 61 Hirokazu Saito (Tokyo Univ. of Sci.) On elliptic problems associated with two-phase incompressible flows in
Xin Zhang (Waseda Univ.) unbounded domains 10
- 62 Zhongyang Gu (Univ. of Tokyo) Continuous alignment of vorticity direction prevents the blow-up of the
Yoshikazu Giga (Univ. of Tokyo) Navier–Stokes flow under the no-slip boundary condition 10
Pen-Yuan Hsu (Univ. of Tokyo)
- 63 Kenji Nakamura (Tsukuba Univ.) Linearized problem of the hyperbolic type Navier–Stokes equations in
Takayuki Kobayashi (Osaka Univ.) the three dimensional half-spaces 10
Takayuki Kubo (Ochanomizu Univ.)
- 64 Tomoki Takahashi (Nagoya Univ.) Attainability of a stationary Navier–Stokes flow around a rigid body
rotating from rest 10
- 65 Akira Okada (Kyoto Univ.) Necessary and sufficient condition for the local existence of solution in
the Serrin class of the Navier–Stokes equations 10

- 66 Takahiro Okabe (Osaka Univ.) Lorenzo Brandolese (Univ. Lyon 1) Annihilation of slow-decay factors of the Navier–Stokes flow by the external force 10
- 67 Hiroyuki Tsurumi (Waseda Univ.) The two-dimensional stationary Navier–Stokes equations in toroidal Besov spaces 10
- 68 Kazuyuki Tsuda (Osaka Univ.) Reinhard Farwig (TU Darmstadt) Hideo Kozono (Waseda Univ.) David Wegmann (TU Darmstadt) The time periodic problem of the Navier–Stokes equations in a bounded domain with moving boundary 10
- 69 Yoshihiro Shibata (Waseda Univ.) On the second Helmholtz decomposition in an exterior domain 10
- 70 Yoshihiro Shibata (Waseda Univ.) On the isothermal compressible multi-component mixture flow: the local existence and maximal L_p - L_q regularity of solutions 10
- 71 Yoshihiro Shibata (Waseda Univ.) On the maximal L_p - L_q regularity of solutions to a general linear parabolic system 10
- 72 Yoshihiro Shibata (Waseda Univ.) On the \mathcal{R} -solver and periodic solutions 10
- 73 Yoshihiro Shibata (Waseda Univ.) On the periodic solutions for free boundary problem of the Navier–Stokes equations 10
- 14:15–16:15**
- 74 Senjo Shimizu (Kyoto Univ.) Takayoshi Ogawa (Tohoku Univ.) Maximal L^1 -regularity for the parabolic initial-boundary value problem in the half-space 10
- 75 Tsukasa Iwabuchi (Tohoku Univ.) Pierre Germain (New York Univ.) Forward self-similar solutions for compressible Navier–Stokes equations 10
- 76 Ryosuke Nakasato (Tohoku Univ.) Shuichi Kawashima (Waseda Univ.) Takayoshi Ogawa (Tohoku Univ.) Global well-posedness and time-decay estimates for the compressible Hall-magnetohydrodynamic system 10
- 77 Kai Koike (Keio Univ./RIKEN) Long-time behavior of a pendulum in a 1D viscous compressible fluid 10
- 78 Keiichi Watanabe (Waseda Univ.) Global solvability of the Navier–Stokes–Korteweg equations with a non-decreasing pressure in L^p -framework 10
- 79 Masahiro Suzuki (Nagoya Inst. of Tech.) Atusi Tani (Keio Univ.*) The Morrow model of gas discharge I: Stability analysis 10
- 80 Masahiro Suzuki (Nagoya Inst. of Tech.) Walter Strauss (Brown Univ.) The Morrow model of gas discharge II: Global bifurcation 10
- 81 Masahiro Suzuki (Nagoya Inst. of Tech.) Emmanuel Grenier (ENS de Lyon) Yan Guo (Brown Univ.) Benoit Pausader (Brown Univ.) Justification of the Boltzmann relation 10
- 16:30–17:30 Talk Invited by Functional Equations Section**
- Jun-ichi Segata (Kyushu Univ.) Long time behavior of solution to the nonlinear Schrödinger equation with delta potential
-

Real Analysis

March 18th (Wed) Conference Room VIII

9:00–11:50

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|----|---|--|----|
| 1 | Toshiharu Kawasaki (Nihon Univ.)
<u>Hiroko Manaka</u> (Nihon Univ.) | The split feasibility problem with some projections in Banach spaces
..... | 15 |
| 2 | Yukino Tomizawa
(Niigata Inst. of Tech.) | Uniform convexity in distance spaces | 15 |
| 3 | Hiroyasu Mizuguchi (Kansai Univ.) | A certain geometric constant and von Neumann–Jordan constant in Radon planes | 15 |
| 4 | <u>Kichi-Suke Saito</u> (Niigata Univ.)
Naoto Komuro
(Hokkaido Univ. of Edu.)
Ryotaro Tanaka (Tokyo Univ. of Sci.) | A note on the structure of Radon spaces | 15 |
| 5 | Toshiharu Kawasaki
(Nihon Univ./Tamagawa Univ.) | Integrable functions for extended integration | 15 |
| 6 | <u>Ryoji Fukuda</u> (Oita Univ.)
Aoi Honda (Kyushu Inst. of Tech.)
Yoshiaki Okazaki
(Fuzzy Logic Systems Inst.) | Two non-discretizations for k -additivity of a monotone measure | 15 |
| 7 | <u>Shohei Nakamura</u> (Tokyo Metro. Univ.)
Jonathan Bennett
(Univ. of Birmingham) | The tomography approach to the Fourier restriction theory | 15 |
| 8 | Takeshi Iida
(Fukushima Nat. Coll. of Tech.) | Weighted norm inequalities on Morrey spaces for the Orlicz-fractional maximal operators | 15 |
| 9 | <u>Ryota Kawasumi</u>
Eiichi Nakai (Ibaraki Univ.) | Generalized fractional integral operators on weak Orlicz spaces | 15 |
| 10 | <u>Minglei Shi</u> (Ibaraki Univ.)
Ryutaro Arai (Ibaraki Univ.)
Eiichi Nakai (Ibaraki Univ.) | Commutators of Calderón–Zygmund and generalized fractional integral operators with functions in generalized Campanato spaces on Orlicz–Morrey spaces | 15 |

14:15–15:55

- | | | | |
|----|--|---|----|
| 11 | Tsukasa Iwabuchi (Tohoku Univ.) | Bilinear estimates in Sobolev spaces associated with Dirichlet and Neumann Laplacian | 15 |
| 12 | Ryoichi Kunisada (Waseda Univ.) | On a continuous version of Banach limits | 15 |
| 13 | <u>Toru Nogayama</u> (Tokyo Metro. Univ.)
Yoshihiro Sawano (Tokyo Metro. Univ.) | Local Muckenhoupt class for variable exponents | 15 |
| 14 | Yoshihiro Sawano (Tokyo Metro. Univ.) ^b | Cantor functions associated with generalized expansions | 15 |
| 15 | Yoshihiro Sawano (Tokyo Metro. Univ.) ^b | Sparse non-smooth atomic decomposition of Morrey spaces | 15 |
| 16 | <u>Yoshihiro Sawano</u> (Tokyo Metro. Univ.) ^b
Tetsu Shimomura (Hiroshima Univ.) | Modified Hardy–Littlewood maximal operator and modified fractional integral operator on metric measure spaces | 15 |

16:15–17:15 Talk Invited by Real Analysis Section

Gaku Sadasue (Osaka Kyoiku Univ.) Some martingale spaces and fractional integrals for martingale

March 19th (Thu) Conference Room VIII

9:00–12:00

- 17 Masaaki Mizukami (Tokyo Univ. of Sci.) Uniform-in-time convergence of solutions for a chemotaxis-competition model to those for the Lotka–Volterra competition model 15
- 18 Pierluigi Colli (Univ. of Pavia) Shunsuke Kurima (Tokyo Univ. of Sci.) Existence for a phase separation system deduced from the entropy balance 15
- 19 Shunsuke Kurima (Tokyo Univ. of Sci.) A Cahn–Hilliard approach to a nonlinear diffusion chemotaxis system 15
- 20 Keiichiro Kagawa (Waseda Univ.) Mitsuharu Ôtani (Waseda Univ.) Asymptotic limits of the time-periodic problem for the viscous Cahn–Hilliard equation 10
- 21 Chiharu Kosugi (Japan Women’s Univ.) Toyohiko Aiki (Japan Women’s Univ.) Existence of weak solutions to initial boundary value problems describing shrinking motion of elastic materials 15
- 22 Takahiro Kishida (Meijo Univ.) Yusuke Murase (Meijo Univ.) FEM analysis for mathematical model of adsorption phenomena in 1D domain 15
- 23 Kazuki Shimura (Oita Univ.) Shuji Yosikawa (Oita Univ.) Structure-preserving finite difference schemes for a Cahn–Hilliard system coupled with elasticity 15
- 24 Makoto Okumura (Osaka Univ.) A structure-preserving scheme for the Cahn–Hilliard equation with dynamic boundary conditions which has the total mass conservation 15
- 25 Yoshimasa Sasaki (Niigata Univ.) Ohwa Hiroki (Niigata Univ.) Existence and uniqueness of solutions to conservation laws with spatially discontinuous flux 15
- 26 Hiroshi Watanabe (Oita Univ.) Construction of traveling waves and asymptotic behavior of entropy solutions to scalar parabolic-hyperbolic conservation laws 15
- 27 Yutaka Tsuzuki (Hiroshima Shudo Univ.) Existence for Initial-boundary value problems for Vlasov–Poisson equations with angle error in magnetic field 15

14:15–15:55

- 28 Noriaki Yamazaki (Kanagawa Univ.) Nobuyuki Kenmochi (Chiba Univ.*) Ken Shirakawa (Chiba Univ.) Control of parameter-dependent evolution equations governed by time-dependent subdifferentials 15
- 29 Shodai Kubota (Chiba Univ.) Ken Shirakawa (Chiba Univ.) Optimal control problem for multidimensional semi-discrete system of Kobayashi–Warren–Carter type 15
- 30 Ken Shirakawa (Chiba Univ.) Hiroshi Watanabe (Oita Univ.) Sufficient condition for the existence of one-dimensional crystalline solution of the Kobayashi–Warren–Carter type system 15
- 31 Kota Kumazaki (Nagasaki Univ.) A one-dimensional free boundary problem related to ice lenses formation 15
- 32 Takeshi Fukao (Kyoto Univ. of Edu.) Pierluigi Colli (Pavia Univ.) Vanishing diffusion in a dynamic boundary condition for the Cahn–Hilliard equation 15
- 33 Akio Ito Approach from the quasi-variational structure to tumor invasion with non-smooth degenerate diffusion 15

16:15–17:15 Talk Invited by Real Analysis Section

- Keisuke Takasao^b (Kyoto Univ./Kyoto Univ.) On the existence of the weak solution for the mean curvature flow with forcing term via the phase field method

Functional Analysis

March 16th (Mon) Conference Room VII

10:00–11:45

- 1 Amane Kiyose (Kobe Univ.) On the Mourre estimates for Floquet Hamiltonians 15
Tadayoshi Adachi (Kyoto Univ.)
- 2 Daisuke Kawagoe (Kyoto Univ.) Surface Riesz transforms and spectral property of the elastic Neumann–
Hyeonbae Kang (Inha Univ.) Poincaré operator on less smooth domains in three dimensions 15
- 3 Daisuke Kawagoe (Kyoto Univ.) The essential spectrum of the elastic Neumann–Poincaré operator on a
Eric Bonnetier (Univ. Grenoble-Alpes) planar domain with a corner 15
Charles Dapogny
(Univ. Grenoble-Alpes)
Hyeonbae Kang (Inha Univ.)
- 4 Hiroshi Inoue (Daiichi Univ. of Pharm.) Quantum dynamics based on non-self-adjoint hamiltonians 15
- 5 Yoritaka Iwata (Kansai Univ.) Abstract Miura transform based on the logarithmic representation of
operators 15
- 6 Shuji Watanabe (Gunma Univ.) An operator-theoretical treatment of the specific heat of a supercon-
ductor in the BCS-Bogoliubov model of superconductivity 15

14:15–15:15 Award Lecture for the 2019 MSJ Analysis Prize

- Fumio Hiroshima (Kyushu Univ.) Renormalization theory and non-perturbative analysis of ground states
by functional integrations

15:30–16:30 Talk Invited by Functional Analysis Section

- Fumihiko Nakano (Gakushuin Univ.) Scaling limit of the eigenvalues and eigenfunctions of 1-dimensional
random Schrödinger operators

March 17th (Tue) Conference Room VII

10:30–11:45

- 7 Koei Kawamura (Kyoto Univ.)^b Decomposition of spherical representations and an addition theorem for
multivariate hypergeometric polynomials 15
- 8 Koichi Arashi (Nagoya Univ.) Holomorphic multiplier representations for bounded homogeneous do-
mains 15
- 9 Taito Tauchi (Univ. of Tokyo) A generalization of the uniformly bounded multiplicity theorem 15
- 10 Toshihisa Kubo (Ryukoku Univ.) The K -type formulas for Kable's differential operators of type A_3 and
Bent Ørsted (Aarhus Univ.) Heun polynomials 15

13:15–14:15 Talk Invited by Functional Analysis Section

Ryosuke Nakahama (Univ. of Tokyo) Construction of intertwining operators for restriction of holomorphic discrete series representations

March 18th (Wed) Conference Room VII

9:45–12:00

- 11 Hiroshi Isa (Maebashi Inst. of Tech.) The n -th Petz–Bregman divergence and the n -th residual relative operator entropy 15
 Eizaburo Kamei
 Hiroaki Tohyama
 (Maebashi Inst. of Tech.)
 Masayuki Watanabe
 (Maebashi Inst. of Tech.)
- 12 Masatoshi Ito (Maebashi Inst. of Tech.) Furuta type inequalities related to Ando–Hiai inequality with negative powers 10
 Eizaburo Kamei
- 13 Reo Tojo (Osaka Kyoiku Univ.) Matrix Hölder–McCarthy inequality via matrix geometric means 10
 Yuki Seo (Osaka Kyoiku Univ.)
 Ryosuke Nakayama
 (Osaka Kyoiku Univ.)
- 14 Ryosuke Nakayama Reverse matrix quasi-arithmetic power means via matrix geometric means 10
 (Osaka Kyoiku Univ.)
 Yuki Seo (Osaka Kyoiku Univ.)
 Reo Tojo (Osaka Kyoiku Univ.)
- 15 Yuki Seo (Osaka Kyoiku Univ.) Norm inequalities for deformed operator means 10
- 16 Junichi Fujii (Osaka Kyoiku Univ.) Matrix means for a fixed rank positive semi-definite matrices 15
- 17 Mitsuru Uchiyama Operator functions and operator means 15
 (Shimane Univ.* / Ritsumeikan Univ.)
- 18 Takeaki Yamazaki (Toyo Univ.) A generalization of the Aluthge transformation in the viewpoint of operator means 15

14:15–15:10

- 19 Chris Bruce (Univ. of Victoria) Partition functions as C^* -dynamical invariants and actions of congruence monoids 15
 Marcelo Laca (Univ. of Victoria)
 Takuya Takeishi (Kyoto Inst. Tech.)
- 20 Tsuyoshi Kajiwara (Okayama Univ.) Dimension group of the C^* -algebras associated with self-similar maps with higher dimensional branched points set 15
 Yasuo Watatani (Kyushu Univ.*)
- 21 Hiroyasu Hamada C^* -algebras generated by multiplication operators and composition operators by functions with self-similar branches 15
 (Sasebo Nat. Coll. of Tech.)

15:20–16:20 Talk Invited by Functional Analysis Section

Keiichi Watanabe (Niigata Univ.) On Möbius gyrovector spaces and a class of continuous mappings between them

Statistics and Probability

March 16th (Mon) Conference Room VI

9:20–11:55

- | | | | |
|---|--|--|----|
| 1 | Kiyoi Hoshino (Osaka Pref. Univ.) | On a Riemann approximation of the stochastic integral | 15 |
| 2 | Shigeyoshi Ogawa (Ritsumeikan Univ.) | A noncausal counterpart of Girsanov's theorem | 10 |
| 3 | Yuki Ueda (Hokkaido Univ.) | Free max-probability theory | 15 |
| 4 | Shoto Osaka (Yokohama Nat. Univ.)
Masato Takeji (Yokohama Nat. Univ.) | On the rate of convergence for Takagi class functions | 15 |
| 5 | Yuto Nakajima (Kyoto Univ.) | Connectedness of connectedness locus for fractal n -gons and the remarkable subset | 15 |
| 6 | Yu Ito (Kyoto Sangyo Univ.) | Integration with respect to Hölder rough paths of order greater than $1/4$: an approach via fractional calculus | 15 |
| 7 | Yosuke Kawamoto
(Fukuoka Dental Coll.) | Transitions of generalised Bessel kernels related to biorthogonal ensembles | 15 |
| 8 | Shota Osada (Kyushu Univ.) | Isomorphism between determinantal point processes and Poisson point processes | 15 |
| 9 | Yuta Arai (Chiba Univ.) | The KPZ fixed point for discrete time TASEP | 15 |

14:15–15:00

- | | | | |
|----|--|--|----|
| 10 | Kouhei Matsuura (Kyoto Univ.) | Hölder continuity of Neumann heat kernels on a class of planar domains | 15 |
| 11 | Toshihiro Uemura (Kansai Univ.)
Haruna Okamura (Kansai Univ.) | Global path properties of symmetric stable processes with singular/degenerate coefficients | 15 |
| 12 | Atsushi Takeuchi
(Tokyo Woman's Christian Univ.) | Gradient formula for jump processes on manifolds | 15 |

15:15–16:15 Talk Invited by Statistics and Probability Section

Dai Taguchi (Okayama Univ.) Numerical analysis of stochastic differential equations

16:30–17:30 Talk Invited by Statistics and Probability Section

Benoît Collins (Kyoto Univ.)^b On the operator norm of random matrices

March 17th (Tue) Conference Room VI

9:10–11:25

- | | | | |
|----|---|--|----|
| 13 | Hayato Takahashi (Random Data Lab.) | Martin-Löf random sets and consistent theorem of posterior distributions | 15 |
| 14 | Naoyuki Ichihara
(Aoyama Gakuin Univ.) | Convergence of value functions for finite horizon Markov decision processes with boundary conditions | 15 |
| 15 | Masaaki Tsuchiya (Kanazawa Univ.*) ^b | Markov processes controlled by clocks with variable motion on a Euclidean space | 15 |

16	Yuji Hibino (Saga Univ.)	Construction of the canonical representation from a noncanonical representation	10
17	Yushi Hamaguchi (Kyoto Univ.)	Time-inconsistent consumption-investment problems under general discount functions	15
18	Noriyoshi Sakuma (Aichi Univ. of Edu.) <u>Ryoichi Suzuki</u> (Keio Univ.)	A Clark–Ocone–Haussmann type formula under change of measure for L^1 -canonical additive processes and its applications	10
19	<u>Toru Sera</u> (Kyoto Univ.) Kouji Yano (Kyoto Univ.) Yu Ito (Kyoto Sangyo Univ.)	Resolution of sigma-fields for multiparticle finite-state action evolutions with infinite past	15
20	Tomoki Inoue (Ehime Univ.)	Invariant measures of random dynamical systems with indifferent fixed points	15

11:30–12:00 Research Section Assembly

March 18th (Wed) Conference Room VI

9:00–12:00

21	Yuichi Goto (Waseda Univ.)	Estimation of trigonometric moments for circular distribution of MA(p) type by using binary series	10
22	Akitoshi Kimura (Waseda Univ.)	The asymptotic variance estimators of the correlation estimator between latent processes and their asymptotic properties	15
23	<u>Fumiya Akashi</u> (Univ. of Tokyo) Holger Dette (Ruhr-Univ. Bochum)	Robust regression on hyper-spheres with unspecified heteroscedastic errors	15
24	<u>Fumiya Akashi</u> (Univ. of Tokyo) Junichi Hirukawa (Niigata Univ.) Konstantinos Fokianos (Lancaster Univ.)	Inference for heavy-tailed time varying processes by self-weighting	15
25	<u>Yan Liu</u> (Waseda Univ.) Akitosho Kimura (Waseda Univ.) Masanobu Taniguchi (Waseda Univ.) Hernando Ombao (King Abdullah Univ. of Sci. Tech.)	Persistence diagram for Granger causality	15
26	Ken-ichi Koike (Univ. of Tsukuba)	Attainment conditions for Bayesian information inequalities	10
27	Koji Tsukuda (Univ. of Tokyo)	A note on the weak convergence of the posterior process when the Pitman–Yor process prior is placed	15
28	Yoshihide Kakizawa (Hokkaido Univ.)	Density ratio/conditional density estimation for nonnegative data	15
29	<u>Nobuhiro Taneichi</u> (Hokkaido Univ. of Edu.) Yuri Sekiya (Hokkaido Univ. of Edu.) Jun Toyama (Inst. for Practical Appl. of Math.)	Approximations of the distributions of test statistics for independence among groups of factors in a multi-way contingency table based on asymptotic expansion	15
30	Kiyotaka Iki (Nihon Univ.)	Parsimonious bivariate t-distribution type symmetry models for square contingency tables	15

- 31 Hiromu Yumiba (Int. Center for Academic Exchange) E^* -optimal balanced third-order designs of resolution $R^*({10, 01})$ with $N < \nu(m)$ for 3^m factorials 15
 Yoshifumi Hyodo (Okayama Univ. of Sci.)

14:15–15:05

- 32 Yoshihiko Konno (Japan Women's Univ.) Shrinkage estimation of mean for complex multivariate normal distribution with unknown covariance when $p > n$ 15
 Satomi Seita (Japan Women's Univ.)
- 33 Kazuyoshi Yata (Univ. of Tsukuba) Singular value estimation for high-dimensional cross-covariance matrix 15
 Makoto Aoshima (Univ. of Tsukuba)
- 34 Aki Ishii (Tokyo Univ. of Sci.) A test procedure for high-dimensional eigenvectors 15
 Kazuyoshi Yata (Univ. of Tsukuba)
 Makoto Aoshima (Univ. of Tsukuba)

15:20–16:20 Talk Invited by Statistics and Probability Section

- Rie Enomoto (Seikei Univ.) Consistency of some information criteria in high-dimensional growth curve models

16:35–17:35 Talk Invited by Statistics and Probability Section

- Kou Fujimori (Waseda Univ.) The Dantzig selector for statistical models of stochastic processes in high-dimensional and sparse settings

Applied Mathematics

March 16th (Mon) Conference Room V

10:00–11:40

- 1 Masato Kobayashi (Kanagawa Univ.) Answer Henegphan–Petersen's question on alternating permutations and Euler numbers 15
- 2 Yukie Inaba (Japan Women's Univ.) Counting rooted spanning forests and Chebyshev polynomials 15
 Hajime Fujita (Japan Women's Univ.)
 Takefumi Kondo (Kagoshima Univ.)
- 3 Iwao Sato (Oyama Nat. Coll. of Tech.) The partial differential coefficients for the second Bartholdi zeta function of a graph 15
 Shigeki Matsutani (Kanazawa Univ.)
 Hideo Mitsuhashi (Hosei Univ.)
 Hideaki Morita (Muroran Inst. of Tech.)
- 4 Ayaka Ishikawa (Yokohama Nat. Univ.) The Ihara expressions of the quaternionic Mizuno–Sato zeta functions for digraphs 15
- 5 Osamu Kada (Hosei Univ.) Characteristic polynomials and zeta functions of equitably partitioned graphs 15
- 6 Hideaki Morita (Muroran Inst. of Tech.) On the determinant expression for graph zeta functions 15

14:20–16:05

- 7 Shinya Fujita (Yokohama City Univ.) Recent topics on rainbow connectivity in edge-colored graphs 10
- 8 Michitaka Furuya (Kitasato Univ.) Bounds on self domination number and an edge-deletion operation in trees 15
- 9 Kiyoshi Ando (Nat. Inst. of Information/JST ERATO) Contractible edges and contractible triangles in a 3-connected graph 15
Yoshimi Egawa (Tokyo Univ. of Sci.)
- 10 Chie Nara (Meiji Univ.) Continuous flattening of the 2-skeletons of triangular faces in higher dimensional cross-polytopes 15
Jin-ichi Itoh (Sugiyama Jogakuen Univ.)
- 11 Yasuhide Numata (Shinshu Univ.) The eigenvalues of a matrix defined by the complete graph with selfloops 15
Akiko Yazawa (Shinshu Univ.)
- 12 Sho Suda (Nat. Defense Acad. of Japan) On the multiplicities of digraph eigenvalues 10
Alexander Gavriluk (Pusan Nat. Univ.)
- 13 Ryoya Fukasaku (Kyushu Univ.) Chromatic numbers of tensor products of graphs and Gröbner basis 15
Michitaka Furuya (Kitasato Univ.)
Akihiro Higashitani (Osaka Univ.)

16:20–17:20 Talk Invited by Applied Mathematics Section

- Masanori Sawa (Kobe Univ.) On the rationality of classical orthogonal polynomials, quadrature formulas and geometric designs

March 17th (Tue) Conference Room V

9:50–11:15

- 14 Ryota Hanaoka (Yokohama Nat. Univ.) A time-series analysis based on two-state quantum walk in one dimension 10
Norio Konno (Yokohama Nat. Univ.)
Shohei Koyama (Yokohama Nat. Univ.)
- 15 Masahiro Asano (Yokohama Nat. Univ.) Long-time behavior of the Grover walk on the two-dimensional lattice 15
Norio Konno (Yokohama Nat. Univ.)
Akihiro Narimatsu (Yokohama Nat. Univ.)
- 16 Takuto Naito (Yokohama Nat. Univ.) Recommendation models based on walks (Part 1) 10
Chusei Kiumi (Yokohama Nat. Univ.)
Norio Konno (Yokohama Nat. Univ.)
Sarato Takahashi (Yokohama Nat. Univ.)
- 17 Chusei Kiumi (Yokohama Nat. Univ.) Recommendation models based on walks (Part 2) 10
Norio Konno (Yokohama Nat. Univ.)
Takuto Naito (Yokohama Nat. Univ.)
Sarato Takahashi (Yokohama Nat. Univ.)
- 18 Takashi Komatsu (Univ. of Tokyo) An explicit expression of scattering matrix of a two state quantum walk on one-dimensional lattice by path counting 15
Norio Konno (Yokohama Nat. Univ.)
Hisashi Morioka (Ehime Univ.)
Etsuo Segawa (Yokohama Nat. Univ.)

- 19 Yusuke Ide (Kanazawa Inst. of Tech.) Relationships between orthonormal polynomial related to the limit
 Norio Konno (Yokohama Nat. Univ.) distribution of quantum walk and corresponding random walk 15

11:30–11:50 Presentation Ceremony for the 2019 MSJ Prize for Excellent Young Applied Mathematicians

March 18th (Wed) Conference Room V

9:30–12:00

- 20 Ken Nakashima (Shizuoka Univ.) On approximation of 2D persistence modules by interval-decomposables
 Hideto Asashiba (Shizuoka Univ.) 15
 Emerson Gaw Escolar
 (RIKEN/Kyoto Univ.)
 Michio Yoshiwaki
 (RIKEN/Kyoto Univ./Osaka City Univ.)
- 21 Emerson Gaw Escolar Every pair of Λ -interleavings is $\tilde{\Lambda}$ -interleaved 15
 (RIKEN/Kyoto Univ.)
 Killian F. Meehan (Kyoto Univ.)
Michio Yoshiwaki
 (RIKEN/Osaka City Univ./Kyoto Univ.)
- 22 Ipei Obayashi (RIKEN/Tohoku Univ.) Field choice problem on persistent homology 15
 Michio Yoshiwaki
 (RIKEN/Osaka City Univ./Kyoto Univ.)
- 23 Tatsuya Mikami (Kyoto Univ.) First passage percolation on a crystal lattice 15
- 24 Tatsuki Shimizu (Kyoto Univ.) Limit theorems in the decomposition theory of multi-parameter persistent
 Yasuaki Hiraoka (Kyoto Univ.) homology 15
- 25 Emerson Gaw Escolar Mapping firms' locations in technological space: A topological analysis
 (RIKEN/Kyoto Univ.) of patent statistics 15
 Yasuaki Hiraoka (Kyoto Univ.)
 Mitsuru Igami (Yale Univ.)
 Yasin Ozcan (MIT Sloan)
- 26 Yusuke Imoto (Kyoto Univ.) Estimate of gene regulatory network based on dynamical system and
 Yasuaki Hiraoka statistical causal discovery 15
 (Kyoto Univ./Kyoto Univ./RIKEN)
 Shohei Shimizu (Shiga Univ./RIKEN)
 Takashi Nicholas Maeda (RIKEN)
 Yoji Kojima (Kyoto Univ.)
 Mitinori Saitou
 (Kyoto Univ./Kyoto Univ./Kyoto Univ.)

14:30–15:50

- 27 Takeshi Gotoda (Nagoya Univ.) Numerical study of initial configurations leading to collapse in the
 point-vortex system 15
- 28 Taito Tauchi (Univ. of Tokyo) Existence of a conjugate point in the incompressible Euler flow on an
 Tsuyoshi Yoneda (Univ. of Tokyo) ellipsoid 15
- 29 Takashi Teramoto Pinned pulse solutions inside a bump type heterogeneity 10
 (Asahikawa Medical Univ.)
 Peter van Heijster
 (Queensland Univ. of Tech.)

- 30 Takayuki Kubo (Ochanomizu Univ.) On global in time solution to Burgers equation with a time delay 15
 Yoshihiro Ueda (Kobe Univ.)
- 31 Itsuki Watanabe (Waseda Univ.) Central limit theorem for data-diffusion with linear reactions 15
 Hiroshi Toyozumi (Waseda Univ.)

16:00–17:00 Talk Invited by Applied Mathematics Section

- Sungrim Seirin Lee (Hiroshima Univ.) Reaction-diffusion equation, its infinite talent in pattern formation of life science

March 19th (Thu) Conference Room V

9:15–10:50

- 32 Shunji Horiguchi Binomial expansions of Newton's method and comparison of convergence 10
- 33 Shunji Horiguchi Examples of numerical calculations of the binomial expansions of Newton's method 10
- 34 Fuminori Sakaguchi (Univ. of Fukui) A possibility of wider application of an algorithm for solving ODEs by means only of four arithmetical operations among integers 15
- 35 Koichi Anada A remark on asymptotic behavior of blow-up solutions to a quasi-linear parabolic equation for a curve shortening problem 15
 (Waseda Univ. Senior High School)
 Tetsuya Ishiwata
 (Shibaura Inst. of Tech.)
 Takeo Ushijima (Tokyo Univ. of Sci.)
- 36 Takehiko Kinoshita (Kyushu Univ.) On the strong convergence of some approximate operators for resolvents of bounded operators 15
 Watanabe Yoshitaka (Kyushu Univ.)
 Mitsuhiro T. Nakao (Waseda Univ.)
- 37 Akitoshi Takayasu (Univ. of Tsukuba) Rigorous numerics for nonlinear heat equations in the complex plane of time 15
 Jean-Philippe Lessard (McGill Univ.)
 Jonathan Jaquette (Brandeis Univ.)
 Hisashi Okamoto (Gakushuin Univ.)

11:00–12:00 Talk Invited by Applied Mathematics Section

- Katsuhisa Ozaki Error-free transformation for matrix multiplication: Basic, applications, and future
 (Shibaura Inst. of Tech.)

Topology

March 16th (Mon) Conference Room IV

10:00–12:00

- 1 Ryo Horiuchi (Nagoya Univ.)^b Verschiebung maps among K-groups of truncated polynomial algebras 10
- 2 Shunsuke Kano (Tokyo Tech) Algebraic entropy of sign-stable mutation loops 15
 Tsukasa Ishibashi (Univ. of Tokyo)

3	Taro Asuke (Univ. of Tokyo) ^b	On Fatou sets of foliations	15
4	Atsuhide Mori (Osaka Dental Univ.)	Geometry of Bayesian estimation	15
5	<u>Teruaki Kitano</u> (Soka Univ.) Takayuki Morifuji (Keio Univ.) Anh T. Tran (Univ. Texas at Dallas)	Twisted Alexander polynomials of torus links	10
6	<u>Yuta Nozaki</u> (Meiji Univ.) Masatoshi Sato (Tokyo Denki Univ.) Masaaki Suzuki (Meiji Univ.)	Abelian quotients of the Y -filtration on the homology cylinders via the LMO functor	15
7	Ryoto Tange (Tokyo Denki Univ.)	Twisted Alexander polynomials of hyperbolic twist knots and von Dyck groups	10
8	Takefumi Nosaka (Tokyo Tech)	K_1 -Alexander twisted polynomials of knots	15

14:15–15:15 Talk Invited by Topology Section

Takayuki Morifuji (Keio Univ.) Twisted Alexander polynomials of hyperbolic knots and links

15:30–16:30 Talk Invited by Topology Section

Naoki Fujita (Univ. of Tokyo) Toric degenerations arising from Newton–Okounkov bodies and cluster structures

March 17th (Tue) Conference Room IV

10:00–12:00

9	Atsushi Ishii (Univ. of Tsukuba) Shosaku Matsuzaki (Takushoku Univ.) <u>Tomo Murao</u> (Univ. of Tsukuba)	A multiple group rack and oriented spatial surfaces	10
10	Atsushi Ishii (Univ. of Tsukuba)	The fundamental multiple conjugation quandle of a handlebody-knot	10
11	<u>Ryoma Kobayashi</u> (Ishikawa Nat. Coll. of Tech.) Genki Omori (Tokyo Univ. of Sci.)	Infinite presentations for the mapping class group and its twist subgroup of a compact non-orientable surface	15
12	<u>Genki Omori</u> (Tokyo Univ. of Sci.) Naoki Sakata (Saitama Univ.)	Dehn twist-crosscap slide presentations for involutions on non-orientable surfaces of genus 4 and 5	15
13	Takuya Ukida (Tokyo Tech)	Genus zero PALF structures on the Akbulut–Yasui plugs	10
14	Nobutaka Asano (Tohoku Univ.)	Vertical 3-manifolds in simplified genus 2 trisections of 4-manifolds . . .	15
15	Masaki Taniguchi (Univ. of Tokyo)	Seifert hypersurfaces of 2-knots and Chern–Simons functional	15
16	Jun O’Hara (Chiba Univ.)	Regularization of self-inductance	15

13:15–14:15 Talk Invited by Topology Section

Hokuto Konno (RIKEN) Gauge theory and diffeomorphism and homeomorphism groups

March 18th (Wed) Conference Room IV

10:00–12:00

- 17 Katsumi Ishikawa (Kyoto Univ.) Minimal coloring numbers on minimal diagrams of torus links 10
Kazuhiro Ichihara (Nihon Univ.)
Eri Matsudo (Nihon Univ.)
- 18 Natsumi Oyamaguchi (Shumei Univ.) Pallets of Dehn p -coloring for spatial graphs 10
Kanako Oshiro (Sophia Univ.)
- 19 Mario Eudave-Muñoz ^b The maximum and minimum genus of a multibranching surface 15
(Univ. Nacional Autónoma de México)
Makoto Ozawa (Komazawa Univ.)
- 20 Noboru Ito (Univ. of Tokyo) The tabulation of prime knot projections with their mirror images up
to eight double points 10
Yusuke Takimura
(Gakushuin Boys' Junior High School)
- 21 Kazuhiro Ichihara (Nihon Univ.) Two-bridge knots admit no purely cosmetic surgeries 15
Toshio Saito (Joetsu Univ. of Edu.)
In Dae Jong (Kindai Univ.)
Thomas W. Mattman
(California State Univ., Chico)
- 22 Yasuharu Nakae (Akita Univ.) Dehn surgeries along genus one fibered knots and left-orderability of
fundamental groups 15
Kazuhiro Ichihara (Nihon Univ.)
- 23 Toshifumi Tanaka (Gifu Univ.) On satellite knots with symmetric union presentations 10
- 24 Tetsuya Abe (Ritsumeikan Univ.) Table of annulus presentations of knots 10
Keiji Tagami (Nat. Fisheries Univ.)
- 25 Tetsuya Itoh (Kyoto Univ.) Infiniteness of closed braid representatives 10

Infinite Analysis

March 18th (Wed) Conference Room IX

14:15–16:15

- 1 Koichi Hiraide (Ehime Univ.) Stokes-like phenomena which appear in dynamics of complex Henon
maps 15
Chihiro Matsuoka (Osaka City Univ.)
- 2 Nozomu Matsuura Explicit formula for planar discrete elasticae 15
(Kurume Inst. of Tech.)
- 3 Yuuki Tadokoro Nonlinear $O(3)$ sigma model in discrete complex analysis 15
(Nat. Inst. of Tech., Kisarazu Coll.)
Masayoshi Sekiguchi
(Nat. Inst. of Tech., Kisarazu Coll.)
Masaru Kamata
(Nat. Inst. of Tech., Kisarazu Coll.*)

- 4 Yas-Hiro Quano (Suzuka Univ. of Med. Sci.) Runge–Lenz like vectors for central force fields 15
- 5 Junichi Shiraishi (Univ. of Tokyo) Non-stationary Ruijsenaars function 15
- 6 Junichi Shiraishi (Univ. of Tokyo) Non-stationary and stationary Ruijsenaars functions and eigenvalue problem associated with Ruijsenaars operator 15
- 7 Yusuke Ohkubo (Univ. of Tokyo) Non-stationary Ruijsenaars functions and intertwining operators of the
Jun’ichi Shiraishi (Univ. of Tokyo) Ding–Iohara–Miki algebra 15
Masayuki Fukuda (Univ. of Tokyo)

16:30–17:30 Talk Invited by Infinite Analysis Special SessionHideya Watanabe (Kyoto Univ.) q quantizations

March 19th (Thu) Conference Room IX

9:45–11:30

- 8 Sanefumi Moriyama (Osaka City Univ.) Quantum curves and Weyl groups 15
- 9 Kanehisa Takasaki (Kindai Univ.) Equivariant Gromov–Witten theory of CP^1 and equivariant Toda hierarchy 15
- 10 Hiroyuki Yamane (Univ. of Toyama) On typical irreducible characters of generalized quantum groups 15
- 11 Ryo Fujita (Kyoto Univ.) Singularities of normalized R -matrices between fundamental modules over the affine quantum groups of type ADE 15
- 12 Yasuaki Gyoda (Nagoya Univ.) Relation between f -vectors and d -vectors in cluster algebras of finite type or rank 2 15
- 13 Naoto Okubo (Aoyama Gakuin Univ.) Cluster algebras and higher order q -Painlevé systems of type $A_7^{(1)}$ 15
Tetsu Masuda (Aoyama Gakuin Univ.)
Teruhisa Tsuda (Hitotsubashi Univ.)

14:15–16:00

- 14 Genki Shibukawa (Kobe Univ.) Another proof of difference equations for interpolation Jack polynomials 15
- 15 Ryuya Matsunawa (Chuo Univ.) Variants of confluent q -hypergeometric equations 15
Tomoki Sato (Chuo Univ.)
Kouichi Takemura (Ochanomizu Univ.)
- 16 Hiroshi Kawakami (Aoyama Gakuin Univ.) On four-dimensional Painlevé-type difference equations 15
- 17 Hiroshi Kawakami (Aoyama Gakuin Univ.) A q -analogue of the matrix sixth Painlevé system 15
- 18 Masahiko Ito (Univ. of Ryukyus) q -Difference system for the elliptic hypergeometric integral of type G_2 with six parameters 15
Masatoshi Noumi (Kobe Univ.)
- 19 Hidehito Nagao (Akashi Coll. of Tech.) Padé method and q -quadratic Garnier systems 15
Yasuhiko Yamada (Kobe Univ.)

16:15–17:15 Talk Invited by Infinite Analysis Special Session

Yoshihisa Saito (Rikkyo Univ.) On elliptic Artin groups

Information for Speakers

The Organizing Committee apologizes that it had to cut the duration of contributed talks because of technical reasons. Since the schedule is very tight, we ask the speakers to strictly keep time. A bell will be rung when $2/3$ of the assigned time has passed. A second bell will be rung as soon as the time is up, and the speaker has to leave the stage.

Collaborative works are presented by the underlined authors. The talks with b marks denote presentations on blackboard. The speakers with \star marks are professors emeriti. If you find anything wrong in the program, do not hesitate to inform the Chair of Organizing Committee by sending e-mail to the address program20mar@mathsoc.jp.

Each conference room is equipped with a blackboard and a projector with HDMI and VGA interface for PC presentation. You are asked to use your own PC and to bring suitable accessories (for example, USB type C-HDMI adapter) for your presentation. The time for connecting your PC to the projector is a part of the assigned duration of your talk. You are strongly recommended to check beforehand if your slides can be properly displayed in the conference room. We also advise you to bring the PDF file of your presentation on a USB flash drive, just in case the PC connection does not work.

Information for Participants

Smoking is prohibited on campus except designated smoking areas.

There is no parking area for participants. Please use the public transportation.

The web page below (for PC and mobile phone) is available in an emergency:

<https://www.mathsoc.jp/i/>

Official Party

Date: March 17th (Tue) 18:00–20:00

Venue: Cafeteria, 2F, Bldg. No. 1

Participants are asked to pay 6,000 JPY at the party.