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 Japan

Contact to: College of Science and Technology,
Nihon University
1-8-14 Kandasurugadai, Chiyoda-ku
Tokyo 101-8308 Japan
E-mail nichidai20mar@mathsoc.jp
During session: Phone +81 (0) 90 1791 3483
The Mathematical Society of Japan
Phone +81 (0) 3 3835 3483

	I	II	III	IV	V	VI	VII	VIII	IX
	La Schola S101	La Schola S204	La Schola S301	La Schola S302	La Schola S401	La Schola S505	Bldg. No. 1 141	Bldg. No. 1 144	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	Functional Equations 9:00–12:00	Topology 10:00–12:00	Applied Mathematics 9:50–11:15	Statistics and Probability 9:10–11:25	Functional Analysis 10:30–11:45	Complex Analysis 9:15–11:45	Found. of Math. & Hist. of Math. 9:00–10:30
		Invited Talk 13:15–14:15	Invited Talk 13:15–14:15	Invited Talk 13:15–14:15			Invited Talk 13:15–14:15	Invited Talk 13:15–14:15	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)

	I	II	III	IV	V	VI	VII	VIII	IX
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 $\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots$ (15:30–16:30)

Shigeru Mukai   (Kyoto Univ.)   Algebraic varieties and their symmetry with emphasis on K3
surfaces and their companions $\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots$ (16:45–17:45)

Featured Invited Talks

March 16th (Mon)

Conference Room V

Takashi Horiyama (Hokkaido Univ.)   Folding and unfolding of polyhedra $\cdots\cdots\cdots\cdots\cdots\cdots$ (13:00–14:00)

Conference Room IX

Hiroshi Fujita   (Ehime Univ.)   Transfinite ordinals and the continuum problem $\cdots\cdots\cdots\cdots$ (13:00–14:00)

March 18th (Wed)

Conference Room I

Ryoko Oishi-Tomiyasu (Kyushu Univ.)   Lattice problems in mathematical crystallography $\cdots\cdots\cdots$ (13:00–14:00)

Conference Room II

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

March 19th (Thu)

Conference Room III

Masatoshi Noumi (Kobe Univ.)   Expanse of hypergeometric functions $\cdots\cdots\cdots\cdots\cdots\cdots$ (13:00–14:00)

Conference Room V

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

Conference Room VIII

Kazuo Kobayasi (Waseda Univ.)   A kinetic approach to stochastic partial differential equations
$\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots$ (13:00–14:00)

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 $\cdots$ (15:15–16:15)

Algebra (Conference Room I)

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

Geometry (Conference Room II)

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

Complex Analysis (Conference Room VIII)

Yohei Komori (Waseda Univ.)   Growth of hyperbolic Coxeter groups $\cdots\cdots\cdots\cdots\cdots$ (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 $\cdots\cdots\cdots$ (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 $\cdots\cdots\cdots\cdots\cdots$ (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 $\cdots\cdots\cdots\cdots\cdots\cdots$ (14:15–15:15)

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

Statistics and Probability (Conference Room VI)

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

Benoît Collins (Kyoto Univ.)$^\flat$ On the operator norm of random matrices $\cdots\cdots\cdots\cdots$ (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 $\cdots\cdots\cdots\cdots\cdots\cdots$ (16:20–17:20)

Topology (Conference Room IV)

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

Naoki Fujita (Univ. of Tokyo)   Toric degenerations arising from Newton–Okounkov bodies and cluster structures $\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots$ (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 $\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots$ (10:45–11:45)

3   Talks Invited by Research Sections and Special Session

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.)$^\flat$ 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.) $\imath$quantizations $\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots$ (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 $\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots$ (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 $\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots$ (16:30–17:30)

Real Analysis (Conference Room Ⅷ)

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

Applied Mathematics (Conference Room Ⅴ)

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

Infinite Analysis (Conference Room Ⅸ)

Yoshihisa Saito (Rikkyo Univ.)   On elliptic Artin groups $\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots$ (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 $\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots$ (14:00–14:10)

Tomohide Terasoma (President of MSJ / Hosei Univ.)

Lecture 1: "Combinatorics of linkages" $\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots$ (14:10–15:10)

Shin-ichi Tanigawa (Univ. of Tokyo)

Lecture 2: "AI $\times$ Singularity theory $=$?" $\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots$ (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

1   Teruyuki Yorioka (Shizuoka Univ.)   YPFA implies MRP $\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots$ 15
    Tadatoshi Miyamoto (Nanzan Univ.)

2   Daisuke Ikegami   Generic absoluteness in ZF $\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots$ 15
         (Shibaura Inst. of Tech.)

3   Toshimichi Usuba (Waseda Univ.)   On generically extendible cardinals $\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots$ 15

4   Diego A. Mejía (Shizuoka Univ.)   Lebesgue measure zero modulo ideals $\cdots\cdots\cdots\cdots\cdots\cdots\cdots$ 15

5   Kenetsu Fujita (Gunma Univ.)   George Boolos' "The Hardest Logic Puzzle Ever" revisited $\cdots\cdots\cdots$ 15

6   Takahiro Seki   (Niigata Univ.)   A Gentzen-style formulation for involutive substructural logics with
    contraposition $\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots$ 15

7   Yoshihito Tanaka   A representation of modal algebras preserving countably many infinitary
         (Kyushu Sangyo Univ.)   meets and joins $\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots$ 15

8   Yuya Okawa   (Chiba Univ.)   Generalizations of Bennet's result on partially conservative sentences
    Taishi Kurahashi $\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots$ 15
    (Nat. Inst. of Tech., Kisarazu Coll.)

14:15–15:00

9   Shigeru Masuda   Study of the Eulerian Integrals by Legendre $\cdots\cdots\cdots\cdots\cdots\cdots$ 15
    (Res. Workshop of Classical Fluid Dynamics)

10 Shigeru Masuda   The complete functions by Legendre $\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots$ 15
    (Res. Workshop of Classical Fluid Dynamics)

11 Hideyuki Majima (Ochanomizu Univ.[*])   Towards the year 2022, the 314th memorial year of SEKI Takakazu
    $\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots$ 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

12 Kohtaro Tadaki (Chubu Univ.)   A refinement of quantum information theory by algorithmic randomness
    III $\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots$ 15

13 Kenshi Miyabe   (Meiji Univ.)   The speed of convergence of induction $\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots$ 15
    Toru Takisaka
         (Nat. Inst. of Information)

14 Hisashi Aratake (Kyoto Univ.)   Classifying toposes for existentially closed models and finite-generic
    models $\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots$ 15

15 Kazuyuki Tanaka (Tohoku Univ.)   On eigen-distributions for Boolean trees in the ID case $\cdots\cdots\cdots\cdots$ 15

16   <u>Keita Yokoyama</u>   (JAIST)   Kripke models and separations of logical principles $\cdots\cdots\cdots\cdots\cdots$ 15
Makoto Fujiwara (Meiji Univ.)
Hajime Ishihara   (JAIST)
Takako Nemoto   (JAIST)
Nobu-Yuki Suzuki (Shizuoka Univ.)

17   Toshiyasu Arai (Univ. of Tokyo)   Some contributions to proof theory $\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots$ 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   Hiroyuki Nakasora   The extended doubling of the Golay code and the Moonshine code
              (Kobe Gakuin Univ.) $\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots$ 10

2   Bernhard Mühlherr (Univ. Giessen)   Locally finite continuations and Coxeter groups of infinite ranks $\cdots\cdots$ 10
    <u>Koji Nuida</u>   (Univ. of Tokyo)

3   Naoki Chigira (Kumamoto Univ.)   Solutions of a certain equation on a group and group structure $\cdots\cdots$ 10

4   <u>Fumihito Oda</u>   (Kindai Univ.)   Crossed Burnside rings and Mackey 2-functors $\cdots\cdots\cdots\cdots\cdots\cdots\cdots$ 10
    Yugen Takegahara
              (Muroran Inst. of Tech.)

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 $\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots$ 10

6   Akihiko Hida   (Saitama Univ.)   Lower defect groups and vertices of simple modules $\cdots\cdots\cdots\cdots\cdots$ 10

7   <u>Shigeo Koshitani</u>   ♭   Brauer indecomposability of Scott modules for the quadratic group
       (Chiba Univ. / Chiba Univ.*) $\mathrm{Qd}(p)$ $\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots$ 10
    Ipek Tuvay
       (Mimar Sinan Fine Arts Univ.)

8   <u>Shigeo Koshitani</u>   ♭   Splendid Morita equivalences for principal blocks with dihedral defect
       (Chiba Univ. / Chiba Univ.*)   groups $\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots$ 10
    Caroline Lassueur (TU Kaiserslautern)

9   <u>Shigeo Koshitani</u>   ♭   Splendid Morita equivalences for principal blocks with generalised
       (Chiba Univ. / Chiba Univ.*)   quaternion defect groups $\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots$ 10
    Caroline Lassueur (TU Kaiserslautern)

10 <u>Mawo Ito</u>   (Kyoto Univ.)   A product formula for plane partitions derived from a biorthogonal
    Shuhei Kamioka (Kyoto Univ.)   polynomial $\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots$ 10

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

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

15:30–16:50

11 Mamoru Ueda   (Kyoto Univ.)   Affine super Yangian $\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots$ 10

12 Satoru Urano (Univ. of Tsukuba)   Modular moonshine $\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots$ 10

13 Scott Carnahan (Univ. of Tsukuba)   Monstrous moonshine over the integers $\cdots\cdots\cdots\cdots\cdots\cdots\cdots$ 10

14 Kazuya Kawasetsu (Kumamoto Univ.)   Relaxed highest-weight modules over affine vertex operator algebras
David Ridout (Univ. of Melbourne) $\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots$ 10

15 Hiroki Shimakura (Tohoku Univ.)   On automorphism groups of the holomorphic VOAs associated with Niemeier lattices and the -1-isometries $\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots$ 10

16 Ching Hung Lam (Academia Sinica)   On a c=33 extremal VOA $\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots$ 10
Hiroshi Yamauchi
(Tokyo Woman's Christian Univ.)

17 Sota Asai   (Kyoto Univ.)   Wide intervals in lattices of torsion classes $\cdots\cdots\cdots\cdots\cdots\cdots\cdots$ 10

March 17th (Tue)   Conference Room I

10:00–11:45

18 Masahisa Sato   (Aichi Univ.)   Some examples of rings and modules relating to Ware's problem $\cdots\cdots$ 10

19 Yoshiharu Shibata (Yamaguchi Univ.)   On dual square full modules $\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots$ 10
Isao Kikumasa (Yamaguchi Univ.)
Yosuke Kuratomi (Yamaguchi Univ.)

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 $\cdots\cdots\cdots\cdots$ 10

21 Masaki Matsuno (Shizuoka Univ.)   The classification of 3-dimensional quadratic AS-regular algebras whose point schemes are elliptic curves $\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots$ 10

22 Ji-Wei He (Hangzhou Normal Univ.)   Hopf dense Galois extensions over a ring $\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots$ 10
Haigang Hu   (Shizuoka Univ.)

23 Hiroki Matsui (Univ. of Tokyo)   Construction of spectra of triangulated categories and their applications to commutative algebra $\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots$ 10

24 Ayana Hirano (Kitami Inst. of Tech.)   Matching numbers and dimension of edge ideals $\cdots\cdots\cdots\cdots\cdots$ 10
Kazunori Matsuda
(Kitami Inst. of Tech.)

25 Mitsuhiro Miyazaki   On the traces of the canonical modules of the Ehrhart rings of order
(Kyoto Univ. of Edu.)   and chain polytopes $\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots$ 10
Janet Page (Univ. of Michigan)

26 Akihiro Higashitani (Osaka Univ.)   Toric ideals of generalized permutohedra $\cdots\cdots\cdots\cdots\cdots\cdots\cdots$ 10
Hidefumi Ohsugi
(Kwansei Gakuin Univ.)

9   Algebra

13:00–14:15

27   Hidefumi Ohsugi
          (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)
     Takayuki Hibi   (Osaka Univ.)   Initial ideals and their depth · 10

29   Chris McDaniel (Endicott Coll.)   Equivariant coinvariant rings of finite groups · 10

30   <u>Junzo Watanabe</u> (Tokai Univ.*)   A new definition of the principal radical system and an application to
     Chris McDaniel (Endicott Coll.)   Specht ideals of type $(n-k, k)$ · 10

31   <u>Kohsuke Shibata</u> (Okayama Univ.)   Hilbert series of Cohen–Macaulay Specht ideals · · · · · · · · · · · · · · · · · · · 10
     Kohji Yanagawa (Kansai Univ.)

32   Shreedevi Masuti (Chennai Math. Inst.)   On the structure of the Sally module and the second normal Hilbert
     <u>Kazuho Ozeki</u> (Yamaguchi Univ.)   coefficient · 10
     Maria Evelina Rossi (Genova Univ.)
     Hoang Le Truong (Saarlandes Univ.)

March 18th (Wed)   Conference Room I

9:30–12:00

33   Tomohiro Iwami (Kyushu Inst. of Tech.)$^\flat$ Semistable extremal neighborhoods rigged by framed-form fans of cusp-
                                        type singularities · 10

34   Koji Nuida   (Univ. of Tokyo)   An elementary linear-algebraic proof for group law on elliptic curves
                                        · 10

35   Makoto Sakurai (Kaichi Gakuen)   Extension and applications of chiral algebra theory · · · · · · · · · · · · · · · · 10

36   Yoshifumi Tsuchimoto (Kochi Univ.)   On curves on the non-commutative complex Kähler plane · · · · · · · · · · · 10

37   Tetsuya Ando   (Chiba Univ.)   Theory of PSD cones on semialgebraic varieties · · · · · · · · · · · · · · · · · · · 10

38   Norihiko Minami
          (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   Yoshifumi Kato   (Meijo Univ.)   Curvature matrix of the universal bundle of the Grassmann variety
                                      · 10

40   Yoshifumi Kato   (Meijo Univ.)   An observation on Schubert polynomials · 10

41   Yuki Matsubara   (Kobe Univ.)   Tamely ramified geometric Langlands correspondence · · · · · · · · · · · · · · 10

42   <u>Taketo Shirane</u> (Tokushima Univ.)   Torsion divisors of plane curves and Zariski pairs · · · · · · · · · · · · · · · · · 10
     Enrique Artal Bartolo (Univ. Zaragoza)
     Shinzo Bannai
          (Ibaraki Nat. Coll. of Tech.)
     Hiro-o Tokunaga (Tokyo Metro. Univ.)

43   <u>Kohei Sato</u> (Oyama Nat. Coll. of Tech.)   On Ashikaga's continued fractions and crepant resolutions for 3-dimensional
     Yusuke Sato   (Univ. of Tokyo)   Abelian quotient singularities · 10

44   Takahiro Nagaoka (Kyoto Univ.)   The universal covers of hypertoric varieties and Bogomolov's decompo-
                                      sition · 10

45   Hiroto Akaike   (Osaka Univ.)$^\flat$ 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

<div align="center">

March 19th (Thu)   Conference Room I

</div>

9:20–12:00

46   Fumitsuna Maruyama
     Masao Toyoizumi (Toyo Univ.)
     Yozo Deguchi   Recent progress on Euler–Fermat type theorem on matrix ring · · · · · · · 10

47   Kiyoto Yoshino (Tohoku Univ.)
     Qianqian Yang
          (Univ. of Sci. Tech. China)   Non 2-integrable lattices of rank 12 · 10

48   Akinari Hoshi   (Niigata Univ.)
     Kazuki Kanai   (Niigata Univ.)
     Aiichi Yamasaki (Kyoto Univ.)   Norm one tori and Hasse norm principle · 10

49   Akinari Hoshi   (Niigata Univ.)
     Kazuki Kanai   (Niigata Univ.)
     Aiichi Yamasaki (Kyoto Univ.)   Norm one tori and Hasse norm principle, II · 10

50   Yoshiaki Okumura (Tokyo Tech)   Non-existence of Drinfeld modules with constrained torsions · · · · · · · · · 10

51   Iwao Kimura (Univ. of Toyama)
     Daiki Aoyama (Univ. of Toyama)   On an estimate of the relative class number of cyclotomic function field of prime conductor · 10

52   Mikihito Hirabayashi
          (Kanazawa Inst. of Tech.)   A generalization of Jakubec's formula related to the multiplication 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.)
     Kiyokazu Nagatomo (Osaka Univ.)   Characterization of minimal models by modular linear differential equations of order 4 and their modules · 10

56   Wataru Takeda (Nagoya Univ.)   Factorial functions represented as norm forms · 10

57   Kazunari Sugiyama
          (Chiba Inst. of Tech.)   Prehomogeneous zeta functions and the Katok–Sarnak correspondence
     · 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 $\cdots\cdots\cdots\cdots$ 10

61   <u>Ade Irma Suriajaya</u>   An upper bound for Stieltjes constants of L-functions in the extended
        (Kyushu Univ. / RIKEN)   Selberg class $\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots$ 10
    Shōta Inoue   (Nagoya Univ.)
    Sumaia Saad Eddin (JKU Linz)

62   Shota Inoue   (Nagoya Univ.)   On the value distribution of the Riemann zeta-function on the critical
                                    line $\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots$ 10

63   <u>Saburou Saitoh</u>   Values of the Riemann zeta function at positive integers by means of
    (Gunma Univ.⋆/Inst. of Reproducing Kernels)   the division by zero calculus $\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots$ 10
    Tsutomu Matsuura (Gunma Univ.)
    Hiroshi Okumura

64   Hiroshi Ogawara (Kumamoto Univ.)   On algebraic independence of solutions for systems of algebraic Mahler
                                        functional equations $\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots$ 10

65   Debika Banerjee   (IISER)   A divisor problem on square free integers $\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots$ 10
    <u>Makoto Minamide</u> (Yamaguchi Univ.)
    Yoshio Tanigawa

66   Shigeru Iitaka (Gakushuin Univ.⋆)   (A,B,C) perfect numbers $\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots$ 10

Geometry

March 16th (Mon)   Conference Room II

9:40–11:40

1   Takahiko Yoshida (Meiji Univ.)   Adiabatic limits, theta functions, and geometric quantization $\cdots\cdots\cdots$ 15

2   <u>Ken Kuwata</u> (Hokkaido Univ.)   Holomorphic vector field and topological sigma model on $\mathbb{P}^1$ world sheet
    Masao Jinzenji (Hokkaido Univ.) $\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots$ 15

3   Natsuo Miyatake (Osaka Univ.)♭   A direct proof of Hitchin–Kobayashi type correspondences for abelian
                                    vortex equations $\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots$ 15

4   <u>Yasufumi Nitta</u> (Tokyo Univ. of Sci.)   A uniform version of the Yau–Tian–Donaldson correspondence for po-
    Shunsuke Saito (RIKEN / Kyoto Univ.)   larized toric manifolds $\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots$ 15

5   <u>Kazuyuki Hasegawa</u> (Kanazawa Univ.)   A construction of a hypercomplex manifold from a quaternionnic man-
    Vicente Cortés (University of Hamburg)   ifold —the quaternionic/hypercomplex-correspondence— $\cdots\cdots\cdots\cdots\cdots$ 15

6   <u>Yoshinori Hashimoto</u> (Tokyo Tech)   Kobayashi–Hitchin correspondence and the Quot-scheme limit of Fubini–
    Julien Keller (Aix-Marseille Univ.)   Study metrics $\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots$ 15

7   Takahiro Aoi   (Osaka Univ.)   Complete scalar-flat Kähler metrics on affine algebraic manifolds $\cdots\cdots$ 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   Shin Nayatani   (Nagoya Univ.)   Optimal embedding and spectral gap of a finite graph ·············· 15
      Takumi Gomyou (Nagoya Univ.)
      Toshimasa Kobayashi (Setsunan Univ.)
      Takefumi Kondo (Kagoshima 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

<div align="center">

March 18th (Wed)   Conference Room II

</div>

9:40–11:35

21 Ayato Mitsuishi (Fukuoka Univ.)   Certain mini-max values of the p-energy and packing radii $\cdots\cdots\cdots$ 15

22 <u>Cong Hung Mai</u> (Kyoto Univ.)   Quantitative estimates for the Bakry–Ledoux isoperimetric inequality
Shin-ichi Ohta (Osaka Univ./RIKEN) $\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots$ 10

23 <u>Shintaro Akamine</u> (Nagoya Univ.)   Bernstein-type theorem for zero mean curvature hypersurfaces admit-
Atsufumi Honda   ting lightlike points $\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots$ 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 $\cdots\cdots$ 15

25 Jun O'Hara   (Chiba Univ.)   Generalization of Willmore energy as a residue $\cdots\cdots\cdots\cdots\cdots\cdots$ 15

26 <u>Asuka Takatsu</u> (Tokyo Metro. Univ.)[b]   Elliptic and parabolic boundary value problems on rotationally sym-
Kazuhiro Ishige (Univ. of Tokyo)   metric domains $\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots$ 15
Paolo Salani   (Univ. Firenze)

27 Dounnu Sasaki (Waseda Univ.)   Denseness property of geodesic currents on a cusped hyperbolic surface
   $\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots$ 15

14:20–15:40

28 <u>Atsushi Fujioka</u> (Kansai Univ.)   Centroaffine surfaces of cohomogeneity one $\cdots\cdots\cdots\cdots\cdots\cdots\cdots$ 15
Hitoshi Furuhata (Hokkaido Univ.)

29 Masashi Yasumoto (Osaka City Univ.)   Discrete Weierstrass-type representations $\cdots\cdots\cdots\cdots\cdots\cdots\cdots$ 15

30 Masahiro Morimoto (Osaka City Univ.)   Austere and arid properties for PF submanifolds in Hilbert spaces $\cdots$ 15

31 Yuichiro Sato (Tokyo Metro. Univ.)   Totally umbilical submanifolds in pseudo-Riemannian space form $\cdots$ 15

32 Kazuhiro Okumura   The curvature tensor of ruled real hypersurfaces in a nonflat complex
   (Asahikawa Nat. Coll. of Tech.)   space form $\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots$ 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

<div align="center">

March 16th (Mon)   Conference Room VIII

</div>

9:30–11:50

1 Saburou 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 $\cdots\cdots\cdots\cdots\cdots\cdots\cdots$ 15

2 <u>Toshiyuki Sugawa</u> (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 $\cdots\cdots\cdots\cdots\cdots\cdots$ 15
David Shoikhet (Holon Inst. of Tech.)

14:15–15:20

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 ran-
   dom holomorphic dynamical systems

<div align="center">

March 17th (Tue)   Conference Room VIII

</div>

9:15–11:45

17   Takayuki Koike (Osaka City Univ.)   Hermitian metrics on the anti-canonical bundle of the blow-up of the projective plane at nine points $\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots$ 15

18   Masanori Adachi (Shizuoka Univ.)   The Diederich–Fornæss and Steinness indices in complex manifolds $\cdots$ 15
       Jihun Yum (Pusan Nat. Univ.)

19   Takahiro Inayama (Univ. of Tokyo)   Pseudonorms on direct images of pluricanonical bundles $\cdots\cdots\cdots\cdots$ 15

20   Genki Hosono   (Tohoku Univ.)   A simplified proof of the optimal L^2 extension theorem and its application $\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots$ 15

21   Takeo Ohsawa (Nagoya Univ.)[♭]   Application of the L^2 method to the Levi problem on complex manifolds $\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots$ 15

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

Shin-ichi Matsumura (Tohoku Univ.)[♭]   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 $\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots$ 10

2   Daichi Komori (Hokkaido Univ.)   The construction of the morphism of sheaves from pseudodifferential operators to their symbols via Čech–Dolbeault cohomology $\cdots\cdots\cdots\cdots$ 10

3   Masatoshi Suzuki (Tokyo Tech)   On a system of partial differential equations and entire functions of Hermite–Biehler class $\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots$ 10

4   Hidetoshi Tahara (Sophia Univ.)   Uniqueness of the solution of nonlinear singular first order partial differential equations $\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots$ 10

5   Yukihide Tadano (Univ. of Tokyo)   On a continuum limit of discrete Schrödinger operators on square lattices $\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots$ 10
       Shu Nakamura (Gakushuin Univ.)

6   Kenichi Ito   (Univ. of Tokyo)   Hypergeometric expression for resolvent of the discrete Laplacian in low dimension $\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots$ 10
       Arne Jensen   (Aalborg Univ.)

7   Kanam Park   (Kobe Univ.)   A certain generalization of q-Painlevé VI system and its symmetry $\cdots$ 10

8   Toshinori Takahashi (Kindai Univ.)   On the WKB theoretic transformation to the boosted Airy equation $\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots$ 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 $\cdots\cdots\cdots$ 10
       Shofu Uchida   (Kindai Univ.)

10   Hideshi Yamane   Analytic global-in-time solutions to the Cauchy problem for the μ-Camassa–Holm equation $\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots$ 10
       (Kwansei Gakuin Univ.)

11 <u>Kazuki Ishibashi</u>
(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 <u>Tetsutaro Shibata</u> (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 <u>Shingo Takeuchi</u>
(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 <u>Tatsuki Mori</u> (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 <u>Kenichiro Umezu</u> (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 <u>Yohei Sato</u>   (Saitama Univ.)
Xiaojun Chang
(Northeast Normal Univ.)

Localized solutions of nonlinear Schrödinger systems with critical fre-
quency for infinite attractive case · 10

19 <u>Lorenzo Cavallina</u> (Tohoku Univ.)
Antoine Henrot
(Inst. Elie Cartan de Lorraine / Univ. de Lorraine)
Shigeru Sakaguchi (Tohoku Univ.)

On the two-phase isoperimetric problem · 10

20 <u>Shigeru Sakaguchi</u> (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.) ♭

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 $\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots$ 10

24   Megumi Sano (Hiroshima Univ.)   Minimization problem associated with an improved Hardy–Sobolev type inequality $\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots$ 10

25   Takeshi Suguro (Tohoku Univ.)[♭]   Shannon's inequality for a generalized entropy and an application to the uncertainty principle $\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots$ 10

26   Shoya Kawakami (Saitama Univ.)   Estimates on variational formulae of O'Hara's energies $\cdots\cdots\cdots\cdots$ 10
     Takeyuki Nagasawa (Saitama Univ.)

27   Aya Ishizeki   (Chiba Univ.)   Upper and lower bounds and modulus of continuity of decomposed Möbius energies $\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots$ 10
     Takeyuki Nagasawa (Saitama Univ.)

28   Takeyuki Nagasawa (Saitama Univ.)   Asymptotic analysis for non-local curvature flows for plane curves with general rotation number $\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots$ 10
     Kohei Nakamura (Saitama Univ.)

29   Ken Furukawa (Univ. of Tokyo)   On the solvability of higher-order elliptic equations $\cdots\cdots\cdots\cdots\cdots$ 10
     Naoto Kajiwara (Tokyo Univ. of Sci.)

30   Hirotada Honda   (Toyo Univ.)   Mathematical analysis on a target detection model $\cdots\cdots\cdots\cdots\cdots$ 10

31   Jumpei Inoue (Univ. of Electro-Comm.)   On the optimal distribution and the existence of an L^1-unbounded sequence of steady states for the diffusive logistic equation $\cdots\cdots\cdots\cdots$ 10
     Kousuke Kuto (Waseda Univ.)

32   Masahiko Shimojyou   Spreading speed of a singular prey-predator type reaction-diffusion system $\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots$ 10
          (Okayama Univ. of Sci.)
     Jong-Shenq Guo (Tamkang Univ.)
     Yu-Shuo Chen (Tamkang Univ.)

33   Masahiko Shimojyou   Traveling wave solution to a singular prey-predator reaction diffusion system $\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots$ 10
          (Okayama Univ. of Sci.)
     Jong-Shenq Guo (Tamkang Univ.)
     Yu-Shuo Chen (Tamkang Univ.)

34   Tomoyuki Oka (Tohoku Univ.)   Space-time homogenization for the fast diffusion equation $\cdots\cdots\cdots$ 10
     Goro Akagi   (Tohoku Univ.)

35   Kenta Nakamura (Tohoku Univ.)   Global existence for the p-Sobolev flow $\cdots\cdots\cdots\cdots\cdots\cdots\cdots$ 10
     Masashi Misawa (Kumamoto Univ.)
     Tuomo Kuusi (Univ. of Helsinki)

36   Mario Fuest (Paderborn Univ.)   Asymptotic behavior in a chemotaxis-consumption model with realistic boundary conditions for the oxygen $\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots$ 10
     Johannes Lankeit (Paderborn Univ.)
     Masaaki Mizukami
          (Tokyo Univ. of Sci.)

37   Takashi Suzuki   (Osaka Univ.)   A parabolic concavity maximum principle $\cdots\cdots\cdots\cdots\cdots\cdots\cdots$ 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 $\cdots$ 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 $\cdots$ 10

40   Kotaro Hisa   (Tohoku Univ.)
Kazuhiro Ishige (Univ. of Tokyo)
Jin Takahashi   (Tokyo Tech)   Existence of solutions for an inhomogeneous fractional semilinear heat equation $\cdots$ 10

41   Md Rabiul Haque (Tohoku Univ.)♭
Norisuke Ioku (Tohoku Univ.)
Takayoshi Ogawa (Tohoku Univ.)
Ryuichi Sato   (Tohoku Univ.)   Critical existence to a convection-diffusion equation in a uniformly local lebesgue space $\cdots$ 10

42   Sachiko Ishida   (Chiba Univ.)
Tomomi Yokota (Tokyo Univ. of Sci.)   Weak stabilization in Keller–Segel systems with degenerate diffusion $\cdots$ 10

43   Mikihiro Fujii (Kyushu Univ.)   Global solutions to the dissipative quasi-geostrophic equation with dispersive forcing $\cdots$ 10

44   Masaki Kurokiba♭
        (Muroran Inst. of Tech.)
Takayoshi Ogawa
        (Tohoku Univ./Tohoku Univ.)   Singular limit problem for the Keller–Segel system and drift-diffusion system $\cdots$ 10

45   Shuji Yoshikawa   (Oita Univ.)   Error estimates of structure-preserving discrete approximations for the Cahn–Hillliard equation in two space dimension $\cdots$ 10

46   Takashi Furuya (Nagoya Univ.)   Direct and inverse scattering problems for the local perturbation of an open periodic waveguide in the half plane $\cdots$ 10

47   Kunio Hidano   (Mie Univ.)
Kazuyoshi Yokoyama
        (Hokkaido Univ. of Sci.)   Global existence for null-form wave equations with data in a Sobolev space of lower regularity and weight $\cdots$ 10

48   Tadahiro Oh (Univ. of Edinburgh)
Mamoru Okamoto (Shinshu Univ.)   On the well-posedness for the quadratic stochastic nonlinear wave equation with a rough noise in two dimensions $\cdots$ 10

49   Haruya Mizutani (Osaka Univ.)
Xiaohua Yao
        (Central China Normal Univ.)   Resolvent and Strichartz estimates for fractional Schrödinger operators with Hardy potentials $\cdots$ 10

50   Tomoyuki Tanaka♭
    (Nagoya Univ./Chuo Univ./RIKEN/Keio Univ.)
Masahiro Ikeda (RIKEN/Keio Univ.)
Kyouhei Wakasa
        (Kushiro Nat. Coll. of Tech.)   Global well-posedness for the wave equation with a time-dependent scale invariant damping and a cubic convolution $\cdots$ 10

51   Yoshiyuki Kagei (Tokyo Tech)
Hiroshi Takeda (Fukuoka Inst. of Tech.)   Large time behavior of global solutions to nonlinear elastic wave equations with strong damping term $\cdots$ 10

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

<h2 style="text-align:center">March 19th (Thu)   Conference Room Ⅲ</h2>

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.)   Annihilation of slow-decay factors of the Navier–Stokes flow by the
    Lorenzo Brandolese (Univ. Lyon 1)   external force $\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots$ 10

67 Hiroyuki Tsurumi (Waseda Univ.)   The two-dimensional stationary Navier–Stokes equations in toroidal
    Besov spaces $\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots$ 10

68 Kazuyuki Tsuda (Osaka Univ.)   The time periodic problem of the Navier–Stokes equations in a bounded
    Reinhard Farwig (TU Darmstadt)   domain with moving boundary $\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots$ 10
    Hideo Kozono (Waseda Univ.)
    David Wegmann (TU Darmstadt)

69 Yoshihiro Shibata (Waseda Univ.)   On the second Helmholtz decomposition in an exterior domain $\cdots\cdots$ 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 $\cdots\cdots\cdots\cdots$ 10

71 Yoshihiro Shibata (Waseda Univ.)   On the maximal L_p-L_q regularity of solutions to a general linear
    parabolic system $\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots$ 10

72 Yoshihiro Shibata (Waseda Univ.)   On the $\mathcal{R}$-solver and periodic solutions $\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots$ 10

73 Yoshihiro Shibata (Waseda Univ.)   On the periodic solutions for free boundary problem of the Navier–
    Stokes equations $\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots$ 10

14:15–16:15

74 Senjo Shimizu   (Kyoto Univ.)   Maximal L^1-regularity for the parabolic initial-boundary value problem
    Takayoshi Ogawa (Tohoku Univ.)   in the half-space $\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots$ 10

75 Tsukasa Iwabuchi (Tohoku Univ.)   Forward self-similar solutions for compressible Navier–Stokes equations
    Pierre Germain (New York Univ.) $\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots$ 10

76 Ryosuke Nakasato (Tohoku Univ.)   Global well-posedness and time-decay estimates for the compressible
    Shuichi Kawashima (Waseda Univ.)   Hall-magnetohydrodynamic system $\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots$ 10
    Takayoshi Ogawa (Tohoku Univ.)

77 Kai Koike (Keio Univ./RIKEN)   Long-time behavior of a pendulum in a 1D viscous compressible fluid
    $\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots$ 10

78 Keiichi Watanabe (Waseda Univ.)   Global solvability of the Navier–Stokes–Korteweg equations with a non-
    decreasing pressure in L^p-framework $\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots$ 10

79 Masahiro Suzuki (Nagoya Inst. of Tech.)   The Morrow model of gas discharge I: Stability analysis $\cdots\cdots\cdots\cdots$ 10
    Atusi Tani   (Keio Univ.*)

80 Masahiro Suzuki (Nagoya Inst. of Tech.)   The Morrow model of gas discharge II: Global bifurcation $\cdots\cdots\cdots$ 10
    Walter Strauss   (Brown Univ.)

81 Masahiro Suzuki (Nagoya Inst. of Tech.)   Justification of the Boltzmann relation $\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots$ 10
    Emmanuel Grenier (ENS de Lyon)
    Yan Guo   (Brown Univ.)
    Benoit Pausader (Brown Univ.)

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

1   Toshiharu Kawasaki (Nihon Univ.)
    Hiroko Manaka   (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   Kichi-Suke Saito (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   Ryoji Fukuda   (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   Shohei Nakamura (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   Ryota Kawasumi
    Eiichi Nakai   (Ibaraki Univ.)
    Generalized fractional integral operators on weak Orlicz spaces · · · · · · 15

10 Minglei Shi   (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 Toru Nogayama (Tokyo Metro. Univ.)
    Yoshihiro Sawano (Tokyo Metro. Univ.)
    Local Muckenhoupt class for variable exponents · · · · · · · · · · · · · · · · · · 15

14 Yoshihiro Sawano (Tokyo Metro. Univ.) ♭
    Cantor functions associated with generalized expansions · · · · · · · · · · · · 15

15 Yoshihiro Sawano (Tokyo Metro. Univ.) ♭
    Sparse non-smooth atomic decomposition of Morrey spaces · · · · · · · · · · 15

16 Yoshihiro Sawano (Tokyo Metro. Univ.) ♭
    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 $\cdots\cdots\cdots$ 15

18   Pierluigi Colli (Univ. of Pavia)
Shunsuke Kurima (Tokyo Univ. of Sci.)

Existence for a phase separation system deduced from the entropy balance $\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots$ 15

19   Shunsuke Kurima (Tokyo Univ. of Sci.)

A Cahn–Hilliard approach to a nonlinear diffusion chemotaxis system

$\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots$ 15

20   Keiichiro Kagawa (Waseda Univ.)
Mitsuharu Ôtani (Waseda Univ.)

Asymptotic limits of the time-periodic problem for the viscous Cahn–Hilliard equation $\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots$ 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 $\cdots\cdots\cdots\cdots\cdots\cdots\cdots$ 15

22   Takahiro Kishida (Meijo Univ.)
Yusuke Murase   (Meijo Univ.)

FEM analysis for mathematical model of adsorption phenomena in 1D domain $\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots$ 15

23   Kazuki Shimura   (Oita Univ.)
Shuji Yosikawa   (Oita Univ.)

Structure-preserving finite difference schemes for a Cahn–Hilliard system coupled with elasticity $\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots$ 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

$\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots$ 15

25   Yoshimasa Sasaki (Niigata Univ.)
Ohwa Hiroki   (Niigata Univ.)

Existence and uniqueness of solutions to conservation laws with spatially discontinuous flux $\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots$ 15

26   Hiroshi Watanabe (Oita Univ.)

Construction of traveling waves and asymptotic behavior of entropy solutions to scalar parabolic-hyperbolic conservation laws $\cdots\cdots\cdots$ 15

27   Yutaka Tsuzuki
          (Hiroshima Shudo Univ.)

Existence for Initial-boundary value problems for Vlasov–Poisson equations with angle error in magnetic field $\cdots\cdots\cdots\cdots\cdots\cdots\cdots$ 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 $\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots$ 15

29   Shodai Kubota   (Chiba Univ.)
Ken Shirakawa   (Chiba Univ.)

Optimal control problem for multidimensional semi-discrete system of Kobayashi–Warren–Carter type $\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots$ 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 $\cdots\cdots\cdots\cdots\cdots$ 15

31   Kota Kumazaki (Nagasaki Univ.)

A one-dimensional free boundary problem related to ice lenses formation

$\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots$ 15

32   Takeshi Fukao (Kyoto Univ. of Edu.)
Pierluigi Colli   (Pavia Univ.)

Vanishing diffusion in a dynamic boundary condition for the Cahn–Hilliard equation $\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots$ 15

33   Akio Ito

Approach from the quasi-variational structure to tumor invasion with non-smooth degenerate diffusion $\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots$ 15

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

Keisuke Takasao ♭   On the existence of the weak solution for the mean curvature flow with
(Kyoto Univ. / Kyoto Univ.)   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.) ♭   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 $\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots$ 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 $\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots$ 10
Eizaburo Kamei

13   Reo Tojo (Osaka Kyoiku Univ.)   Matrix Hölder–McCarthy inequality via matrix geometric means $\cdots\cdots$ 10
Yuki Seo (Osaka Kyoiku Univ.)
Ryosuke Nakayama
        (Osaka Kyoiku Univ.)

14   Ryosuke Nakayama   Reverse matrix quasi-arithmetic power means via matrix geometric
        (Osaka Kyoiku Univ.)   means $\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots$ 10
Yuki Seo (Osaka Kyoiku Univ.)
Reo Tojo (Osaka Kyoiku Univ.)

15   Yuki Seo (Osaka Kyoiku Univ.)   Norm inequalities for deformed operator means $\cdots\cdots\cdots\cdots\cdots\cdots$ 10

16   Junichi Fujii (Osaka Kyoiku Univ.)   Matrix means for a fixed rank positive semi-definite matrices $\cdots\cdots\cdots$ 15

17   Mitsuru Uchiyama   Operator functions and operator means $\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots$ 15
(Shimane Univ.★/Ritsumeikan Univ.)

18   Takeaki Yamazaki (Toyo Univ.)   A generalization of the Aluthge transformation in the viewpoint of operator means $\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots$ 15

14:15–15:10

19   Chris Bruce (Univ. of Victoria)   Partition functions as C*-dynamical invariants and actions of congruence monoids $\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots$ 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
Yasuo Watatani (Kyushu Univ.★)   with higher dimensional branched points set $\cdots\cdots\cdots\cdots\cdots\cdots\cdots$ 15

21   Hiroyasu Hamada   C*-algebras generated by multiplication operators and composition operators by functions with self-similar branches $\cdots\cdots\cdots\cdots\cdots\cdots$ 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	Kiyoiki Hoshino (Osaka Pref. Univ.)	On a Riemann approximation of the stochastic integral $\cdots\cdots\cdots\cdots$	15
2	Shigeyoshi Ogawa (Ritsumeikan Univ.)	A noncausal counterpart of Girsanov's theorem $\cdots\cdots\cdots\cdots\cdots$	10
3	Yuki Ueda (Hokkaido Univ.)	Free max-probability theory $\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots$	15

4   Shoto Osaka (Yokohama Nat. Univ.)   On the rate of convergence for Takagi class functions $\cdots\cdots\cdots$ 15
     <u>Masato Takei</u> (Yokohama Nat. Univ.)

5   Yuto Nakajima   (Kyoto Univ.)   Connectedness of connectedness locus for fractal n-gons and the remarkable subset $\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots$ 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 $\cdots\cdots\cdots\cdots\cdots\cdots$ 15

7   Yosuke Kawamoto   Transitions of generalised Bessel kernels related to biorthogonal ensembles $\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots$ 15
           (Fukuoka Dental Coll.)

8   Shota Osada   (Kyushu Univ.)   Isomorphism between determinantal point processes and Poisson point processes $\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots$ 15

9   Yuta Arai   (Chiba Univ.)   The KPZ fixed point for discrete time TASEP $\cdots\cdots\cdots\cdots\cdots$ 15

14:15–15:00

10   Kouhei Matsuura (Kyoto Univ.)   Hölder continuity of Neumann heat kernels on a class of planar domains $\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots$ 15

11   <u>Toshihiro Uemura</u> (Kansai Univ.)   Global path properties of symmetric stable processes with singular/degenerate coefficients $\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots$ 15
      Haruna Okamura (Kansai Univ.)

12   Atsushi Takeuchi   Gradient formula for jump processes on manifolds $\cdots\cdots\cdots\cdots$ 15
      (Tokyo Woman's Christian Univ.)

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.)[♭]   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 $\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots$ 15

14   Naoyuki Ichihara   Convergence of value functions for finite horizon Markov decision processes with boundary conditions $\cdots\cdots\cdots\cdots\cdots\cdots$ 15
           (Aoyama Gakuin Univ.)

15   Masaaki Tsuchiya (Kanazawa Univ.[*])[♭]   Markov processes controlled by clocks with variable motion on a Euclidean space $\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots$ 15

16 Yuji Hibino   (Saga Univ.) Construction of the canonical representation from a noncanonical representation $\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots$ 10

17 Yushi Hamaguchi (Kyoto Univ.) Time-inconsistent consumption-investment problems under general discount functions $\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots$ 15

18 Noriyoshi Sakuma (Aichi Univ. of Edu.)
    Ryoichi Suzuki   (Keio Univ.) A Clark–Ocone–Haussmann type formula under change of measure for L^1-canonical additive processes and its applications $\cdots\cdots\cdots\cdots\cdots$ 10

19 Toru Sera   (Kyoto Univ.)
    Kouji Yano   (Kyoto Univ.)
    Yu Ito   (Kyoto Sangyo Univ.) Resolution of sigma-fields for multiparticle finite-state action evolutions with infinite past $\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots$ 15

20 Tomoki Inoue   (Ehime Univ.) Invariant measures of random dynamical systems with indifferent fixed points $\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots$ 15

11:30–12:00   Research Section Assembly

<div align="center">

March 18th (Wed)   Conference Room VI

</div>

9:00–12:00

21 Yuichi Goto   (Waseda Univ.) Estimation of trigonometric moments for circular distribution of MA(p) type by using binary series $\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots$ 10

22 Akitoshi Kimura (Waseda Univ.) The asymptotic variance estimators of the correlation estimator between latent processes and their asymptotic properties $\cdots\cdots\cdots\cdots\cdots\cdots\cdots$ 15

23 Fumiya Akashi (Univ. of Tokyo)
    Holger Dette (Ruhr-Univ. Bochum) Robust regression on hyper-spheres with unspecified heteroscedastic errors $\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots$ 15

24 Fumiya Akashi (Univ. of Tokyo)
    Junichi Hirukawa (Niigata Univ.)
    Konstantinos Fokianos
          (Lancaster Univ.) Inference for heavy-tailed time varying processes by self-weighting $\cdots\cdot$ 15

25 Yan Liu   (Waseda Univ.)
    Akitosho Kimura (Waseda Univ.)
    Masanobu Taniguchi (Waseda Univ.)
    Hernando Ombao
    (King Abdullah Univ. of Sci. Tech.) Persistence diagram for Granger causality $\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots$ 15

26 Ken-ichi Koike (Univ. of Tsukuba) Attainment conditions for Bayesian information inequalities $\cdots\cdots\cdots\cdots$ 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 $\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots$ 15

28 Yoshihide Kakizawa (Hokkaido Univ.) Density ratio/conditional density estimation for nonnegative data $\cdots\cdot$ 15

29 Nobuhiro Taneichi
        (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 $\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots$ 15

30 Kiyotaka Iki   (Nihon Univ.) Parsimonious bivariate t-distribution type symmetry models for square contingency tables $\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots$ 15

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

14:15–15:05

32 Yoshihiko Konno   Shrinkage estimation of mean for complex multivariate normal distri-
        (Japan Women's Univ.)   bution with unknown covariance when $p > n$ $\cdots\cdots\cdots\cdots\cdots$ 15
    Satomi Seita (Japan Women's Univ.)

33 Kazuyoshi Yata (Univ. of Tsukuba)   Singular value estimation for high-dimensional cross-covariance matrix
    Makoto Aoshima (Univ. of Tsukuba) $\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots$ 15

34 Aki Ishii   (Tokyo Univ. of Sci.)   A test procedure for high-dimensional eigenvectors $\cdots\cdots\cdots\cdots$ 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 $\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots$ 15

2 Yukie Inaba (Japan Women's Univ.)   Counting rooted spanning forests and Chebyshev polynomials $\cdots\cdots$ 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
   Shigeki Matsutani (Kanazawa Univ.)   of a graph $\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots$ 15
   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 $\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots$ 15

5 Osamu Kada   (Hosei Univ.)   Characteristic polynomials and zeta functions of equitably partitioned
                                    graphs $\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots$ 15

6 Hideaki Morita (Muroran Inst. of Tech.)   On the determinant expression for graph zeta functions $\cdots\cdots\cdots$ 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
Akiko Yazawa   (Shinshu Univ.)   · 15

12   Sho Suda (Nat. Defense Acad. of Japan)   On the multiplicities of digraph eigenvalues · 10
Alexander Gavrilyuk
(Pusan Nat. Univ.)

13   Ryoya Fukasaku (Kyushu Univ.)   Chromatic numbers of tensor products of graphs and Gröbner basis
Michitaka Furuya (Kitasato Univ.)   · 15
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
Norio Konno (Yokohama Nat. Univ.)   · 15
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
Norio Konno (Yokohama Nat. Univ.)   on one-dimensional lattice by path counting · 15
Hisashi Morioka (Ehime Univ.)
Etsuo Segawa (Yokohama Nat. Univ.)

29   Applied Mathematics

19   <u>Yusuke Ide</u> (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 $\cdots\cdots$ 15

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

<div align="center">

March 18th (Wed)   Conference Room V

</div>

9:30–12:00

20   <u>Ken Nakashima</u> (Shizuoka Univ.)   On approximation of 2D persistence modules by interval-decomposables
     Hideto Asashiba (Shizuoka Univ.) $\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots$ 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 $\widetilde{\Lambda}$-interleaved $\cdots\cdots\cdots\cdots\cdots\cdots$ 15
             (RIKEN / Kyoto Univ.)
     Killian F. Meehan (Kyoto Univ.)
     <u>Michio Yoshiwaki</u>
     (RIKEN / Osaka City Univ. / Kyoto Univ.)

22   <u>Ippei Obayashi</u> (RIKEN / Tohoku Univ.)   Field choice problem on persistent homology $\cdots\cdots\cdots\cdots\cdots\cdots$ 15
     Michio Yoshiwaki
     (RIKEN / Osaka City Univ. / Kyoto Univ.)

23   Tatsuya Mikami (Kyoto Univ.)   First passage percolation on a crystal lattice $\cdots\cdots\cdots\cdots\cdots\cdots$ 15

24   <u>Tatsuki Shimizu</u> (Kyoto Univ.)   Limit theorems in the decomposition theory of multi-parameter persis-
     Yasuaki Hiraoka (Kyoto Univ.)   tent homology $\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots$ 15

25   <u>Emerson Gaw Escolar</u>   Mapping firms' locations in technological space: A topological analysis
             (RIKEN / Kyoto Univ.)   of patent statistics $\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots$ 15
     Yasuaki Hiraoka (Kyoto Univ.)
     Mitsuru Igami   (Yale Univ.)
     Yasin Ozcan   (MIT Sloan)

26   <u>Yusuke Imoto</u>   (Kyoto Univ.)   Data-noise reduction method based on high-dimensional statistics and
     Yasuaki Hiraoka   its application to genetic data $\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots$ 15
     (Kyoto Univ. / Kyoto Univ. / RIKEN)
     Michio Yoshiwaki   (RIKEN)
     Emerson G. Escolar   (RIKEN)
     Tomonori Nakamura (Kyoto Univ.)
     Takuya Yamamoto (Kyoto Univ.)
     Mitinori Saitou
     (Kyoto Univ. / Kyoto Univ. / Kyoto Univ.)

27   <u>Yusuke Imoto</u>   (Kyoto Univ.)   Estimate of gene regulatory network based on dynamical system and
     Yasuaki Hiraoka   statistical causal discovery $\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots$ 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

28 Takeshi Gotoda (Nagoya Univ.)   Numerical study of initial configurations leading to collapse in the point-vortex system $\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots$ 15

29 Taito Tauchi (Univ. of Tokyo)   Existence of a conjugate point in the incompressible Euler flow on an
    Tsuyoshi Yoneda (Univ. of Tokyo)   ellipsoid $\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots$ 15

30 Takashi Teramoto   Pinned pulse solutions inside a bump type heterogeneity $\cdots\cdots\cdots$ 10
        (Asahikawa Medical Univ.)
    Peter van Heijster
        (Queensland Univ. of Tech.)

31 Takayuki Kubo (Ochanomizu Univ.)   On global in time solution to Burgers equation with a time delay $\cdots$ 15
    Yoshihiro Ueda   (Kobe Univ.)

32 Itsuki Watanabe (Waseda Univ.)   Central limit theorem for data-diffusion with linear reactions $\cdots\cdots$ 15
    Hiroshi Toyoizumi (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

33 Shunji Horiguchi   Binomial expansions of Newton's method and comparison of convergence $\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots$ 10

34 Shunji Horiguchi   Examples of numerical calculations of the binomial expansions of Newton's method $\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots$ 10

35 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 $\cdots\cdots\cdots$ 15

36 Koichi Anada   A remark on asymptotic behavior of blow-up solutions to a quasi-linear
    (Waseda Univ. Senior High School) parabolic equation for a curve shortening problem $\cdots\cdots\cdots\cdots\cdots$ 15
    Tetsuya Ishiwata
        (Shibaura Inst. of Tech.)
    Takeo Ushijima (Tokyo Univ. of Sci.)

37 Takehiko Kinoshita (Kyushu Univ.)   On the strong convergence of some approximate operators for resolvents
    Watanabe Yoshitaka (Kyushu Univ.)   of bounded operators $\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots$ 15
    Mitsuhiro T. Nakao (Waseda Univ.)

38 Akitoshi Takayasu (Univ. of Tsukuba)   Rigorous numerics for nonlinear heat equations in the complex plane of
    Jean-Philippe Lessard (McGill Univ.)   time $\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots$ 15
    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,
    (Shibaura Inst. of Tech.)   and future

Topology

March 16th (Mon)   Conference Room IV

10:00–12:00

1   Ryo Horiuchi   (Nagoya Univ.)[♭]   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)[♭]   On Fatou sets of foliations ································· 15

4   Atsuhide Mori (Osaka Dental Univ.)   Geometry of Bayesian estimation ···························· 15

5   Teruaki Kitano   (Soka Univ.)   Twisted Alexander polynomials of torus links ·················· 10
Takayuki Morifuji (Keio Univ.)
Anh T. Tran (Univ. Texas at Dallas)

6   Yuta Nozaki   (Meiji Univ.)   Abelian quotients of the Y-filtration on the homology cylinders via the
Masatoshi Sato (Tokyo Denki Univ.)   LMO functor ··· 15
Masaaki Suzuki   (Meiji Univ.)

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)   A multiple group rack and oriented spatial surfaces ·············· 10
Shosaku Matsuzaki (Takushoku Univ.)
Tomo Murao (Univ. of Tsukuba)

10   Atsushi Ishii (Univ. of Tsukuba)   The fundamental multiple conjugation quandle of a handlebody-knot
·· 10

11   Ryoma Kobayashi   Infinite presentations for the mapping class group and its twist subgroup
   (Ishikawa Nat. Coll. of Tech.)   of a compact non-orientable surface ························· 15
Genki Omori (Tokyo Univ. of Sci.)

12   Genki Omori (Tokyo Univ. of Sci.)   Dehn twist-crosscap slide presentations for involutions on non-orientable
Naoki Sakata   (Saitama Univ.)   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 $\cdots\cdots$ 10
   Kazuhiro Ichihara (Nihon Univ.)
   <u>Eri Matsudo</u>   (Nihon Univ.)

18 <u>Natsumi Oyamaguchi</u> (Shumei Univ.)   Pallets of Dehn p-coloring for spatial graphs $\cdots\cdots\cdots\cdots\cdots$ 10
   Kanako Oshiro (Sophia Univ.)

19 Mario Eudave-Muñoz   ♭   The maximum and minimum genus of a multibranched surface $\cdots\cdots$ 15
   (Univ. Nacional Autónoma de México)
   <u>Makoto Ozawa</u> (Komazawa Univ.)

20 Noboru Ito   (Univ. of Tokyo)   The tabulation of prime knot projections with their mirror images up
   <u>Yusuke Takimura</u>   to eight double points $\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots$ 10
   (Gakushuin Boys' Junior High School)

21 Kazuhiro Ichihara (Nihon Univ.)   Two-bridge knots admit no purely cosmetic surgeries $\cdots\cdots\cdots\cdots$ 15
   Toshio Saito (Joetsu Univ. of Edu.)
   <u>In Dae Jong</u>   (Kindai Univ.)
   Thomas W. Mattman
      (California State Univ., Chico)

22 <u>Yasuharu Nakae</u> (Akita Univ.)   Dehn surgeries along genus one fibered knots and left-orderability of
   Kazuhiro Ichihara (Nihon Univ.)   fundamental groups $\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots$ 15

23 Toshifumi Tanaka (Gifu Univ.)   On satellite knots with symmetric union presentations $\cdots\cdots\cdots\cdots$ 10

24 <u>Tetsuya Abe</u> (Ritsumeikan Univ.)   Table of annulus presentations of knots $\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots$ 10
   Keiji Tagami (Nat. Fisheries Univ.)

25 Tetsuya Itoh   (Kyoto Univ.)   Infiniteness of closed braid representatives $\cdots\cdots\cdots\cdots\cdots\cdots\cdots$ 10

Infinite Analysis

March 18th (Wed)   Conference Room IX

14:15–16:15

1 <u>Koichi Hiraide</u>   (Ehime Univ.)   Stokes-like phenomena which appear in dynamics of complex Henon
   Chihiro Matsuoka (Osaka City Univ.)   maps $\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots$ 15

2 Nozomu Matsuura   Explicit formula for planar discrete elasticae $\cdots\cdots\cdots\cdots\cdots\cdots$ 15
      (Kurume Inst. of Tech.)

  3   <u>Yuuki Tadokoro</u>
      (Nat. Inst. of Tech., Kisarazu Coll.)
      Masayoshi Sekiguchi
      (Nat. Inst. of Tech., Kisarazu Coll.)
      Masaru Kamata
      (Nat. Inst. of Tech., Kisarazu Coll.*)   Nonlinear $O(3)$ sigma model in discrete complex analysis $\cdots\cdots\cdots\cdots$ 15

  4   Yas-Hiro Quano
          (Suzuka Univ. of Med. Sci.)   Runge–Lenz like vectors for central force fields $\cdots\cdots\cdots\cdots\cdots\cdots\cdots$ 15

  5   Junichi Shiraishi (Univ. of Tokyo)   Non-stationary Ruijsenaars function $\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots$ 15

  6   Junichi Shiraishi (Univ. of Tokyo)   Non-stationary and stationary Ruijsenaars functions and eigenvalue
                                              problem associated with Ruijsenaars operator $\cdots\cdots\cdots\cdots\cdots\cdots\cdots$ 15

  7   <u>Yusuke Ohkubo</u> (Univ. of Tokyo)   Non-stationary Ruijsenaars functions and intertwining operators of the
      Jun'ichi Shiraishi (Univ. of Tokyo)   Ding–Iohara–Miki algebra $\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots$ 15
      Masayuki Fukuda (Univ. of Tokyo)

16:30–17:30   Talk Invited by Infinite Analysis Special Session

  Hideya Watanabe (Kyoto Univ.) $\imath$quantizations

March 19th (Thu)   Conference Room IX

9:45–11:30

  8   Sanefumi Moriyama (Osaka City Univ.)   Quantum curves and Weyl groups $\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots$ 15

  9   Kanehisa Takasaki (Kindai Univ.)   Equivariant Gromov–Witten theory of CP^1 and equivariant Toda hier-
                                            archy $\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots$ 15

 10   Hiroyuki Yamane (Univ. of Toyama)   On typical irreducible characters of generalized quantum groups $\cdots\cdots$ 15

 11   Ryo Fujita   (Kyoto Univ.)   Singularities of normalized R-matrices between fundamental modules
                                            over the affine quantum groups of type ADE $\cdots\cdots\cdots\cdots\cdots\cdots\cdots$ 15

 12   Yasuaki Gyoda (Nagoya Univ.)   Relation between f-vectors and d-vectors in cluster algebras of finite
                                        type or rank 2 $\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots$ 15

 13   <u>Naoto Okubo</u> (Aoyama Gakuin Univ.)   Cluster algebras and higher order q-Painlevé systems of type $A_7^{(1)}$ $\cdots$ 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
                                        $\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots$ 15

 15   Ryuya Matsunawa (Chuo Univ.)   Variants of confluent q-hypergeometric equations $\cdots\cdots\cdots\cdots\cdots\cdots$ 15
      Tomoki Sato   (Chuo Univ.)
      <u>Kouichi Takemura</u> (Ochanomizu Univ.)

 16   Hiroshi Kawakami
          (Aoyama Gakuin Univ.)   On four-dimensional Painlevé-type difference equations $\cdots\cdots\cdots\cdots$ 15

 17   Hiroshi Kawakami
          (Aoyama Gakuin Univ.)   A q-analogue of the matrix sixth Painlevé system $\cdots\cdots\cdots\cdots\cdots$ 15

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

Yoshihisa Saito（Rikkyo Univ.）   On elliptic Artin groups