

## 2018 The Mathematical Society of Japan

**ANNUAL MEETING**

Dates: March 18th (Sun)–21st (Wed), 2018

Venue: Graduate School of Mathematical Sciences,  
The University of Tokyo  
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The Mathematical Society of Japan

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	I Bldg. 11 Rm. 1101	II Bldg. 11 Rm. 1102	III Bldg. 11 Rm. 1106	IV Bldg. 11 Rm. 1108	V Bldg. 13 Rm. 1311	VI Bldg. 13 Rm. 1313	VII Bldg. 13 Rm. 1321	VIII Bldg. 13 Rm. 1322	IX Bldg. 13 Rm. 1331	
18th (Sun)	Geometry 9:15–11:35 14:15–16:35	Topology 9:40–12:00 15:30–18:00	Algebra 9:00–11:45 14:20–17:20	Functional Analysis 14:15–16:15	Found. of Math. and History of Math. 9:00–11:30 14:10–16:50	Applied Mathematics 9:30–11:45 14:20–16:30	Complex Analysis 9:45–11:45	Statistics and Probability 9:15–12:00 14:15–15:00	Functional Equations 9:15–12:00 14:15–16:15	
	Featured Invited Talks					13:00–14:00				
	Invited Talk 16:45–17:45	Invited Talk 14:15–15:15		Invited Talk 16:30–17:30	Invited Talk 17:00–18:00	Invited Talk 16:45–17:45	Invited Talk 14:15–15:15	Invited Talks 15:15–16:15 16:30–17:30	Invited Talk 16:30–17:30	
19th (Mon)	Geometry 9:00–11:45	Topology 9:30–10:30 13:00–14:20	Algebra 9:15–12:00	Functional Analysis 9:30–12:00	Found. of Math. and History of Math. 9:00–11:30	Applied Mathematics 9:30–11:45	Complex Analysis 10:00–11:40	Statistics and Probability 9:30–11:30	Functional Equations 9:15–12:00	
	Invited Talk 13:15–14:15	Invited Talk 10:45–11:45	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	
	MSJ Prizes Presentation (Lecture Theater) . . . . . (14:50–15:20)									
	Plenary Talks (Lecture Theater) Spring Prize Winner . . . . . (15:30–16:30) Takao Yamaguchi (Kyoto Univ.) . . . . . (16:45–17:45) Official Party (Komaba Faculty House) . . . . . (18:00–20:00)									
20th (Tue)	Geometry 9:15–11:45 14:15–16:30	Topology 9:20–12:00 15:35–17:45	Algebra 9:15–12:00	Functional Analysis 9:30–12:00 14:15–16:00	Infinite Analysis 10:00–11:30 14:00–15:30	Applied Mathematics 9:15–11:50 14:15–16:40	Real Analysis 9:00–12:00 14:15–16:15	Statistics and Probability 10:00–11:40 14:15–15:05	Functional Equations 9:15–12:00 14:15–16:15	
	Featured Invited Talks					13:00–14:00				
	Invited Talk 16:45–17:45	Invited Talk 14:20–15:20	Invited Talks 14:30–15:30 15:40–16:40 16:50–17:50	Invited Talk 16:15–17:15	Invited Talk 15:45–16:45	Invited Talk 16:50–17:50	Invited Talk 16:30–17:30	Invited Talks 15:20–16:20 16:40–17:40	Invited Talk 16:30–17:30	
21st (Wed)			Algebra 9:15–12:00 14:20–17:00		Infinite Analysis 9:30–10:30	Applied Mathematics 9:15–11:55 14:15–16:40	Real Analysis 9:15–12:00 14:15–16:00	Statistics and Probability 10:00–12:00	Functional Equations 9:15–12:00 14:15–16:15	
	Featured Invited Talks					13:00–14:00				
				Invited Talk 10:45–11:45	Invited Talk 16:50–17:50	Invited Talk 16:15–17:15			Invited Talk 16:30–17:30	

## Plenary Talks

March 19th (Mon) Rm. 900, Lecture Theater

Spring Prize Winner	.....	(15:30–16:30)
Takao Yamaguchi (Kyoto Univ.)	Collapsing Riemannian manifolds with boundary .....	(16:45–17:45)

## Featured Invited Talks

March 18th (Sun)

### Conference Room VI

Akihisa Tamura (Keio Univ.)	Discrete convex analysis and mathematical economic models .....	(13:00–14:00)
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### Conference Room IX

Mariko Yasugi	On “Takeuti’s Proof Theory” .....	(13:00–14:00)
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March 20th (Tue)

### Conference Room III

Junzo Watanabe (Tokai Univ.*)	The Lefschetz properties of graded Artinian Gorenstein algebras .....	(13:00–14:00)
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### Conference Room VI

Guest Talk from the Japan Society for Industrial and Applied Mathematics		
Satoru Iwata (Univ. of Tokyo)	Matroid parity .....	(13:00–14:00)

### Conference Room IX

Kazuo Habiro (Kyoto Univ.)	Category-theoretic structures in 3-dimensional topology ...	(13:00–14:00)
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March 21st (Wed)

### Conference Room VI

Toshiyuki Tanisaki (Osaka City Univ.)	Quantized flag manifolds and representations of quantum groups .....	(13:00–14:00)
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### Conference Room IX

Naoki Tanaka (Shizuoka Univ.)	Semigroups of operators and mutational equations in metric spaces .....	(13:00–14:00)
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## Talks Invited by Research Sections and Special Session

March 18th (Sun)

### Foundation of Mathematics and History of Mathematics (Conference Room V)

Sakaé Fuchino (Kobe Univ.) Set-theoretic reflection principles ..... (17:00–18:00)

### Geometry (Conference Room I)

Ryokichi Tanaka (Tohoku Univ.)<sup>b</sup> Potential theory on discrete groups and metric embedding  
..... (16:45–17:45)

### Complex Analysis (Conference Room VII)

Hiroki Sumi (Kyoto Univ.) Randomness-induced phenomena in random holomorphic dy-  
namical systems and their applications ..... (14:15–15:15)

### Functional Equations (Conference Room IX)

Award Lecture for the 2017 MSJ Analysis Prize

Yoshitsugu Takei (Doshisha Univ.) On the instanton-type expansions of elliptic functions and  
Painlevé transcendents —The final stage of the exact WKB  
analysis for Painlevé equations ..... (16:30–17:30)

### Functional Analysis (Conference Room IV)

Nobuaki Obata (Tohoku Univ.) Quantum probabilistic methods for spectral analysis of graphs  
..... (16:30–17:30)

### Statistics and Probability (Conference Room VIII)

Award Lecture for the 2017 MSJ Analysis Prize

Masayoshi Takeda (Tohoku Univ.) Properties of symmetric Markov processes with tightness  
property ..... (15:15–16:15)

Koichiro Takaoka (Hitotsubashi Univ.) The first fundamental theorem of asset pricing: stochastic  
integrals and martingale measures ..... (16:30–17:30)

### Applied Mathematics (Conference Room VI)

Masashi Shinohara (Shiga Univ.) Classification problems and extremal problems on distance  
sets ..... (16:45–17:45)

### Topology (Conference Room II)

Daisuke Kishimoto (Kyoto Univ.) Homotopy theory of polyhedral products ..... (14:15–15:15)

March 19th (Mon)

### Foundation of Mathematics and History of Mathematics (Conference Room V)

Takuya Matsuzaki (Nagoya Univ.) A computer program that solves pre-university mathematical  
problems ..... (13:15–14:15)

### Algebra (Conference Room III)

Kenichi Shimizu (Shibaura Inst. of Tech.) Recent developments of ‘non-semisimple’ modular tensor cat-  
egories ..... (13:15–14:15)

### Geometry (Conference Room I)

Hirofumi Sasahira (Kyushu Univ.)\* The Seiberg–Witten equations and applications ..... (13:15–14:15)

**Complex Analysis** (Conference Room VII)

- Takayuki Koike (Osaka City Univ.) Hermitian metrics on numerically effective line bundles and neighborhoods of complex submanifolds ..... (13:15–14:15)

**Functional Equations** (Conference Room IX)

Award Lecture for the 2017 MSJ Analysis Prize

- Tetsutaro Shibata (Hiroshima Univ.) Asymptotic analysis of eigenvalue problems for nonlinear elliptic equations and analysis of inverse bifurcation problems ..... (13:15–14:15)

**Functional Analysis** (Conference Room IV)

- Hideyuki Ishi (Nagoya Univ./JST PRESTO) Gamma-type integrals over convex cones ..... (13:15–14:15)

**Topology** (Conference Room II)

- Masayuki Asaoka (Kyoto Univ.) Growth rate of the number of periodic points for smooth dynamical systems ..... (10:45–11:45)

March 20th (Tue)

**Algebra** (Conference Room III)

Award Lecture for the 2018 MSJ Algebra Prize

- Kanetomo Sato (Chuo Univ.) A new cohomology theory for arithmetic schemes and its applications ..... (14:30–15:30)

Award Lecture for the 2018 MSJ Algebra Prize

- Satoshi Naito (Tokyo Tech) Representation theory of quantum affine algebras ..... (15:40–16:40)

Award Lecture for the 2018 MSJ Algebra Prize

- Takayuki Hibi (Osaka Univ.) Monomial ideals and binomial ideals ..... (16:50–17:50)

**Geometry** (Conference Room I)

- Hideki Miyachi (Osaka Univ.) Toward complex analysis on Teichmüller space ..... (16:45–17:45)

**Functional Equations** (Conference Room IX)

- Hirokazu Ninomiya (Meiji Univ.) Traveling wave solutions and entire solutions of reaction-diffusion equations ..... (16:30–17:30)

**Real Analysis** (Conference Room VII)

- Ryotaro Tanaka (Kyushu Univ.) Geometric techniques in Banach space theory: Challenges to Tingley's problem ..... (16:30–17:30)

**Functional Analysis** (Conference Room IV)

- Fumio Hiai (Tohoku Univ.) Multivariate matrix/operator means ..... (16:15–17:15)

**Statistics and Probability** (Conference Room VIII)

- Kazuki Matsubara (ChuoGakuin Univ.) Pairwise additivity of BIB designs and related combinatorial structures ..... (15:20–16:20)

- Koji Tsukuda (Univ. of Tokyo) Studies on the theory of weak convergences in Hilbert spaces and its applications ..... (16:40–17:40)

**Applied Mathematics** (Conference Room VI)

- Shuji Yoshikawa (Oita Univ.) Energy method for structure-preserving finite difference schemes ..... (16:50–17:50)

**Topology** (Conference Room II)

Takefumi Nosaka (Tokyo Tech) Nilpotent studies in 3-dimensional topology ..... (14:20–15:20)

**Infinite Analysis** (Conference Room V)

Taro Kimura (Keio Univ.) Quiver gauge theory and quiver W-algebra ..... (15:45–16:45)

March 21st (Wed)

**Functional Equations** (Conference Room IX)

Tsukasa Iwabuchi (Tohoku Univ.)<sup>b</sup> On the ill-posedness for the compressible Navier–Stokes equations ..... (16:30–17:30)

**Real Analysis** (Conference Room VII)

Shun Uchida (Waseda Univ.) Solvability of a system describing double-diffusive convection phenomena in some porous medium ..... (16:15–17:15)

**Applied Mathematics** (Conference Room VI)

Akitoshi Takayasu (Univ. of Tsukuba) Verified computations for solutions of evolution equations with semigroup theory ..... (16:50–17:50)

**Infinite Analysis** (Conference Room V)

Hiroshi Naruse (Univ. of Yamanashi) Generalization of Hall–Littlewood function from the view point of Schubert calculus, generating function and application ..... (10:45–11:45)

## Open Lectures for Citizens

Date: March 17th (Sat) 14:00–16:30

Venue: Rm. 900, Lecture Theater

Sponsored by: Mathematical Society of Japan

Co-sponsored by: Graduate School of Mathematical Sciences, The University of Tokyo

Program: Opening Speech ..... (14:00–14:10)  
Hideo Kozono (President of MSJ/Waseda Univ.)

Lecture 1: “Mathematics for exploring human visual perception and its applications  
—Harmonic analysis, visual illusions, image processing and art—”  
..... (14:10–15:10)  
Hitoshi Arai (Univ. of Tokyo)

Lecture 2: “Thurston’s 3-manifold theory” ..... (15:30–16:30)  
Sadayoshi Kojima (Tokyo Inst. of Tech.)

Web Page: <http://mathsoc.jp/en/meeting/tokyo18mar/>

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## Foundation of Mathematics and History of Mathematics

March 18th (Sun)      Conference Room V

### 9:00–11:30

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|---|--|---|----|
| 1 | Shotaro Tanaka   | * To express fractions into power series by Suida expansion . . . . .   | 15 |
| 2 | Shigeru Masuda (Kyoto Univ.)   | Mathematical principles treated in mechanics by Poisson . . . . .   | 15 |
| 3 | Shigeru Masuda (Kyoto Univ.)   | Proof of rise of capillary surface by Poisson . . . . .   | 15 |
| 4 | Michiyo Nakane   | An introduction of an idea of transformation to Hamilton–Jacobi theory<br>in the beginning of twentieth century . . . . . | 15 |
| 5 | Toshio Harikae (Osaka Sangyo Univ.)  | On ‘Toshoku’ problems in “Shu” . . . . .  | 15 |
| 6 | <u>Katsushi Waki</u> (Yamagata Univ.)<br>Takuma Tsutihashi (Meiji Univ.)<br>Kazushi Ahara (Meiji Univ.)  | The similarity evaluation of geometric problems in WASAN by NMF<br>. . . . .  | 10 |
| 7 | Mitsuo Morimoto<br>(Yokkaichi Univ./Sophia Univ.*)   | Daily Mathematics in the Taisei Sankei . . . . .  | 15 |
| 8 | Tsukane Ogawa (Yokkaichi Univ.)  | Mathematical philosophy of Aida Yasuaki, part 2 . . . . .   | 15 |
| 9 | <u>Takuma Tsuchihashi</u> (Meiji Univ.)<br>Katsushi Waki (Yamagata Univ.)<br>Kazushi Ahara (Meiji Univ.) | Automatic tagging to geometric problems in Japanese mathematics<br>(wasan) based on image recognition . . . . .           | 15 |

### 11:30–12:00 Mathematics History Team Meeting

### 14:10–16:50

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|----|--|---|----|
| 10 | Toshio Suzuki (Tokyo Metro. Univ.)   | Non-depth-first search of an AND-OR tree . . . . .  | 15 |
| 11 | <u>Kazuyuki Tanaka</u> (Tohoku Univ.)<br>Shohei Okisaka (Tohoku Univ.)     | On the uniqueness of the eigen-distribution for weighted AND-OR trees<br>. . . . .  | 15 |
| 12 | Yuki Mizusawa (Tokyo Metro. Univ.)   | Some results of pseudo Solovay reducibility . . . . .   | 15 |
| 13 | Keita Yokoyama (JAIST)   | Indicators, forcing and proof-transformation . . . . .  | 15 |
| 14 | Kohtaro Tadaki (Chubu Univ.)   | An event with probability one occurs certainly in quantum mechanics<br>. . . . .  | 15 |
| 15 | <u>Yukinobu Yajima</u> (Kanagawa Univ.)<br>Yasushi Hirata (Kanagawa Univ.) | Undecidability of the existence of $C^*$ -embedded but not $C$ -embedded<br>subsets in a product of natural numbers . . . . . | 15 |
| 16 | Toshimichi Usuba (Waseda Univ.)  | Products of Lindelöf spaces . . . . .   | 15 |
| 17 | Teruyuki Yorioka (Shizuoka Univ.)  | On two combinatorial properties which come from Aronszajn trees . . .   | 15 |
| 18 | Diego A. Mejía (Shizuoka Univ.)  | Forcing theory and combinatorics of the real line . . . . .   | 15 |
| 19 | Hiroshi Sakai (Kobe Univ.)   | Embeddability of uncountable LO into models generated by uncountable<br>indiscernible sequences . . . . .                     | 15 |

### 17:00–18:00 Talk Invited by Section on Foundation and History of Mathematics

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|----------------------------|-------------------------------------|
| Sakaé Fuchino (Kobe Univ.) | Set-theoretic reflection principles |
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## March 19th (Mon) Conference Room V

**9:00–11:30**

20	Takashi Oyabu	<sup>b</sup> Number; number system, and other 5 talks . . . . .	5
21	Yoshifumi Ito (Tokushima Univ.*)	Definition of the concept of sets and its existence theorem . . . . .	15
22	Yoshihito Tanaka (Kyushu Sangyo Univ.)	A predicate extension of the logic of provability . . . . .	15
23	Nobu-Yuki Suzuki (Shizuoka Univ.)	Constructing uncountably many intermediate predicate logics having disjunction property but lacking existence property . . . . .	15
24	Ken-etsu Fujita (Gunma Univ.)	The Church–Rosser Theorem and quantitative analysis of witnesses . .	15
25	Takahiro Seki (Niigata Univ.)	Some relevant modal logics characterized by reduced frames . . . . .	15
26	Taishi Kurahashi (Nat. Inst. of Tech., Kisarazu Coll.)	Provability logics and decompositions of theories . . . . .	15
27	Masanori Itai (Tokai Univ.)	A model theoretic Rieffel’s theorem of quantum 2-tori . . . . .	15
28	Shunsuke Okabe (Kobe Univ.)	On widths of automorphism groups on generic structures . . . . .	15
29	<u>Hiroataka Kikyo</u> (Kobe Univ.) Shunsuke Okabe (Kobe Univ.)	On Hrushovski’s ab initio amalgamation class . . . . .	15

**11:30–12:00 Research Section Assembly****13:15–14:15 Talk Invited by Section on Foundation and History of Mathematics**

	Takuya Matsuzaki (Nagoya Univ.)	A computer program that solves pre-university mathematical problems	
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**Algebra**

## March 18th (Sun) Conference Room III

**9:00–11:45**

1	Yasutoshi Nomura	* Quasi-linear congruences of Apery-like numbers . . . . .	10
2	Yuta Suzuki (Nagoya Univ.)	On relatively prime amicable pairs . . . . .	10
3	Shigeru Iitaka (Gakushuin Univ.*)	Ultimate perfect numbers and hyper perfect numbers . . . . .	10
4	<u>Hajime Kaneko</u> (Univ. of Tsukuba) <u>Makoto Kawashima</u> (Osaka Univ.)	On the number of digit exchanges in the beta expansion of real numbers . . . . .	10
5	Genki Shibukawa (Osaka Univ.)	Some arithmetic properties of the elliptic Dedekind sums . . . . .	10
6	Kurt Fischer (Tokuyama Coll. of Tech.)	The Zetafast algorithm to compute $L$ functions to arbitrary precision as fast as the Riemann–Siegel formula . . . . .	10
7	<u>Ade Irma Suriajaya</u> (RIKEN) <u>Jörn Steuding</u> (Univ. of Würzburg)	An approximate functional equation for the fourth moment of the Riemann zeta function on the critical line . . . . .	10



8	Shota Inoue (Nagoya Univ.)	Extreme values of Dirichlet $L$ -functions on horizontal line in critical strip . . . . .	10
9	Masahiro Mine (Tokyo Tech)	The distribution of zeros of the Hurwitz zeta-function on the right side of the critical line . . . . .	10
10	Tadaaki Igawa (Yamaguchi Univ.)* Makoto Minamide (Yamaguchi Univ.) Jun Furuya (Hamamatsu Univ. School of Medicine) Yoshio Tanigawa	On the number of $k$ -free integers $\leq x$ which are coprime to $m$ . . . . .	10
11	Debika Banerjee (IISER)* Makoto Minamide (Yamaguchi Univ.) Yoshio Tanigawa	Bounds of double zeta-function . . . . .	10
12	Masatoshi Suzuki (Tokyo Tech)	On the family of integral operators arising from zeta functions . . . . .	10
13	Shin-ya Koyama (Toyo Univ.) Ikuya Kaneko (Tsukuba Takezono Higashi Junior High School)	Convergence of Euler products of Selberg zeta functions . . . . .	10
<b>14:20–17:20</b>			
14	Ryoko Tomiyasu (Yamagata Univ.)	On the infinite families of ternary quadratic forms with the same representations over $\mathbb{Z}$ in Kaplansky conjecture . . . . .	10
15	Ryoko Tomiyasu (Yamagata Univ.) <sup>b</sup>	Problem on quadratic forms that is required to solve for determination of periodic point sets from their average theta series . . . . .	10
16	Masataka Ono (Keio Univ.)	Finite multiple zeta values associated with 2-colored rooted trees . . . . .	10
17	Masataka Ono (Keio Univ.)	Multiple zeta functions associated with 2-colored rooted trees . . . . .	10
18	Tomoya Machide (Nat. Inst. of Information/JST ERATO)	On an identity involving symmetric sums of regularized multiple zeta-star values . . . . .	10
19	Maki Nakasuji (Sophia Univ.) Daniel Bump (Stanford Univ.)	The transition matrix of Casselman basis . . . . .	10
20	Masao Oi (Univ. of Tokyo)	Simple supercuspidal $L$ -packets of quasi-split classical groups . . . . .	10
21	Kazuhito Kozuka (Miyakonojo Nat. Coll. of Tech.)	$p$ -adic Dedekind–Rademacher sums . . . . .	10
22	Kazuto Ota (Keio Univ.)	On the rank-part of the Mazur–Tate refined conjecture for modular forms . . . . .	10
23	Kazuki Yamada (Keio Univ.) Veronika Ertl (Regensburg Univ.)	Comparison of crystalline syntomic and rigid syntomic cohomology for strictly semistable log schemes . . . . .	10
24	Tetsuya Uematsu (Meijo Univ.)	3-torsion part of the Brauer group of Fermat curves of degree 3 . . . . .	10
25	Genki Koda (Tokyo Univ. of Sci.) Masanari Kida (Tokyo Univ. of Sci.)	Certain Galois extensions whose Galois groups are isoclinic to $D_8$ . . . . .	10
26	Akinari Hoshi (Niigata Univ.) Ming-chang Kang (Nat. Taiwan Univ.) Aiichi Yamasaki (Kyoto Univ.)	Degree three unramified cohomology groups and Noether’s problem for groups of order 243 . . . . .	10

27	Akinari Hoshi (Niigata Univ.) Ming-chang Kang (Nat. Taiwan Univ.) <u>Aiichi Yamasaki</u> (Kyoto Univ.)	Computation of degree three unramified cohomology groups using GAP .....	10
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March 19th (Mon)      Conference Room III

**9:15–12:00**

28	<u>Fumitsuna Maruyama</u> Masao Toyozumi (Toyo Univ.) Yozo Deguchi	<sup>b</sup> On a certain method for determining the non-singularity of an integral matrix .....	10
29	Yuki Irie (Chiba Univ.) <sup>b</sup>	$p$ -Saturations of Welter's game and the irreducible representations of symmetric groups .....	10
30	<u>Fumihito Oda</u> (Kindai Univ.) Yugen Takegahara (Muroran Inst. of Tech.) Tomoyuki Yoshida (Hokusei Gakuen Univ.)	Axiomatic theory of Burnside rings I .....	10
31	<u>Masahiro Wakatake</u> (Kindai Univ.) Fumihito Oda (Kindai Univ.)	The unit group of a partial Burnside ring of a reducible Coxeter group of type A .....	10
32	Kazuya Aokage (Ariake Nat. Coll. of Tech.)	Tensor product of the spin representations for the symmetric groups .....	10
33	Shuhei Kamioka (Kyoto Univ.)	A refinement of generating functions for symmetric plane partitions .....	10
34	Naoki Genra (Kyoto Univ.)	Coproducts for $\mathcal{W}$ -algebras .....	10
35	Ryo Fujita (Kyoto Univ.)	Tilting modules in affine highest weight categories and the Arakawa–Suzuki functor .....	10
36	Ryo Fujita (Kyoto Univ.)	Affine highest weight categories and quantum affine Schur–Weyl duality of Dynkin quiver types .....	10
37	<u>Taro Sakurai</u> (Chiba Univ.) Shigeo Koshitani (Chiba Univ./Chiba Univ.*)	On characterizations of small block algebras .....	10
38	Hiroki Sasaki (Shinshu Univ.) <sup>*</sup>	Cohomology rings of block ideals with extraspecial defect groups .....	10
39	<u>Shigeo Koshitani</u> (Chiba Univ./Chiba Univ.*) Radha Kessar (City, Univ. of London) Markus Linckelmann (City, Univ. of London)	<sup>b</sup> Brauer indecomposabilities of the Scott modules .....	10
40	<u>Shigeo Koshitani</u> (Chiba Univ./Chiba Univ.*) Jürgen Müller (Wuppertal Univ.)	<sup>b</sup> A remark on the projective cover of the trivial module .....	10
41	<u>Shigeo Koshitani</u> (Chiba Univ./Chiba Univ.*) Caroline Lassueur (Kaiserslautern Univ.)	<sup>b</sup> Locations of simple modules for finite group algebras in the Auslander–Reiten quivers .....	10

**13:15–14:15 Talk Invited by Algebra Section**

Kenichi Shimizu                      Recent developments of ‘non-semisimple’ modular tensor categories  
(Shibaura Inst. of Tech.)

March 20th (Tue)      Conference Room III

**9:15–12:00**

- 42 Takuo Matsuoka                      Filtration of a stable infinity 1-category ..... 10
- 43 Izuru Mori (Shizuoka Univ.)      A categorical characterization of noncommutative projective spaces ... 10  
Kenta Ueyama (Hirosaki Univ.)
- 44 Ayako Itaba (Tokyo Univ. of Sci.)      3-dimensional quadratic AS-regular algebras corresponding to elliptic  
Masaki Matsuno (Shizuoka Univ.)      curves ..... 10
- 45 Ayako Itaba (Tokyo Univ. of Sci.)      On some non-projective infinitely generated modules over path algebras  
Diego Alejandro Mejía                      ..... 10  
(Shizuoka Univ.)  
Teruyuki Yorioka (Shizuoka Univ.)
- 46 Hideyuki Koie (Tokyo Univ. of Sci.)      On presentations of Hochschild extension algebras for a class of self-  
Tomohiro Itagaki (Tokyo Univ. of Sci.)      injective Nakayama algebras ..... 10  
Katsunori Sanada (Tokyo Univ. of Sci.)
- 47 Tomohiro Itagaki (Tokyo Univ. of Sci.)      Batalin–Vilkovisky algebra structures on the Hochschild cohomology of  
self-injective Nakayama algebras ..... 10
- 48 Sota Asai (Nagoya Univ.)\*      Bricks over preprojective algebras ..... 10
- 49 Tsutomu Nakamura (Okayama Univ.)      Bousfield localization and cosupport in derived categories of commuta-  
tive Noetherian rings ..... 10
- 50 Hiroki Matsui (Nagoya Univ.)      Singular equivalences and reconstruction of singular loci ..... 10
- 51 Toshinori Kobayashi (Nagoya Univ.)      Syzygies of Cohen–Macaulay modules and endomorphism ring of the  
maximal ideal ..... 10
- 52 Futoshi Hayasaka (Okayama Univ.)\*      Complete reductions of multigraded modules and normality of mono-  
mial ideals ..... 10
- 53 Shinya Kumashiro (Chiba Univ.)      When is  $R \ltimes I$  an almost Gorenstein local ring? ..... 10  
Shiro Goto (Meiji Univ.\*)
- 54 Ryotaro Isobe (Chiba Univ.)      Characterization of generalized Gorenstein rings ..... 10  
Shiro Goto (Meiji Univ.\*)  
Naoki Taniguchi (Waseda Univ.)  
Shinya Kumashiro (Chiba Univ.)

**14:15–14:30 Presentation Ceremony for the 2017 MSJ Algebra Prize****14:30–15:30 Award Lecture for the 2018 MSJ Algebra Prize**

Kanetomo Sato (Chuo Univ.)      A new cohomology theory for arithmetic schemes and its applications

**15:40–16:40 Award Lecture for the 2018 MSJ Algebra Prize**

Satoshi Naito (Tokyo Tech)      Representation theory of quantum affine algebras

**16:50–17:50 Award Lecture for the 2018 MSJ Algebra Prize**

Takayuki Hibi (Osaka Univ.) Monomial ideals and binomial ideals

March 21st (Wed) Conference Room III

**9:15–12:00**

- 55 Hirotaka Higashidaira (Meiji Univ.) On sequentially generalized Cohen–Macaulay bipartite graphs . . . . . 10
- 56 Akiyoshi Tsuchiya (Osaka Univ.) Gorenstein Fano polytopes arising from perfect graphs . . . . . 10  
Takayuki Hibi (Osaka Univ.)
- 57 Akiyoshi Tsuchiya (Osaka Univ.) Normality and levelness of Cayley sums of lattice polytopes . . . . . 10
- 58 Kazunori Matsuda (Osaka Univ.) Regularity and  $h$ -polynomials of monomial ideals . . . . . 10  
Takayuki Hibi (Osaka Univ.)
- 59 Akihiro Higashitani On generalized F-signatures of Segre product of polynomial rings . . . . . 10  
(Kyoto Sangyo Univ.)  
Yusuke Nakajima (Univ. of Tokyo)
- 60 Takayuki Hibi (Osaka Univ.) Existence of regular unimodular triangulations of dilated empty simplices . . . . . 10  
Akihiro Higashitani  
(Kyoto Sangyo Univ.)  
Koutarou Yoshida (Osaka Univ.)
- 61 Mitsuhiro Miyazaki On the anticanonical level property of a Hibi ring . . . . . 10  
(Kyoto Univ. of Edu.)
- 62 Koji Chinen (Kindai Univ.) Analogs of Mallows–Sloane bound for divisible formal weight enumerators . . . . . 10
- 63 Norihiro Nakashima Counter examples of Holm’s questions for high order free hyperplane arrangements . . . . . 10  
(Tokyo Denki Univ.)  
Takuro Abe (Kyushu Univ.)
- 64 Tatsuya Horiguchi (Osaka Univ.) Hessenberg varieties and hyperplane arrangements . . . . . 10  
Takuro Abe (Kyushu Univ.)  
Mikiya Masuda (Osaka City Univ.)  
Satoshi Murai (Osaka Univ.)  
Takashi Sato (Osaka City Univ.)
- 65 Ayako Kubota (Waseda Univ.) Invariant Hilbert scheme resolution of Popov’s  $SL(2)$ -varieties . . . . . 10
- 66 Jong Myeong Kim (Nagoya Univ.) A freeness criterion for spherical twists . . . . . 10
- 67 Yoshifumi Tsuchimoto (Kochi Univ.) Non-commutative Kähler projective space: from commutative viewpoint . . . . . 10
- 14:20–17:00**
- 68 Tetsuya Ando (Chiba Univ.) Semialgebraic variety . . . . . 10
- 69 Junjiro Noguchi (Univ. of Tokyo\*)<sup>b</sup> Big Picard Theorem and the Manin–Mumford Conjecture . . . . . 10
- 70 Momonari Kudo (Kyushu Univ.) Enumerating superspecial curves of genus 4 over prime fields . . . . . 10  
Shushi Harashita  
(Yokohama Nat. Univ.)

71	<u>Hayato Senda</u> (Yokohama Nat. Univ.) Momonari Kudo (Kyushu Univ.) Shushi Harashita (Yokohama Nat. Univ.)	Automorphism groups of superspecial curves of genus 4 over $\mathbb{F}_{11}$ . . . . .	10
72	Taketo Shirane (Ube Nat. Coll. of Tech.)	Splitting graph and the embedded topology of plane curves . . . . .	10
73	<u>Shinzo Bannai</u> (Ibaraki Nat. Coll. of Tech.) Hiro-o Tokunaga (Tokyo Metro. Univ.) Momoko Yamamoto (Tokyo Metro. Univ.)	Rational points of elliptic surfaces and the topology of cubic-line arrangements . . . . .	10
74	Katsuhiko Okumura (Waseda Univ.)	SNC log symplectic structures on Fano products . . . . .	10
75	Norihiko Minami (Nagoya Inst. of Tech.)	On covering by rational varieties . . . . .	10
76	Kohsuke Shibata (Univ. of Tokyo)	Bound of the multiplicity of complete intersection singularities . . . . .	10
77	Kenta Hashizume (Kyoto Univ.)	On the minimal model conjecture and the non-vanishing conjecture . . . . .	10
78	Yoshiaki Fukuma (Kochi Univ.)	On the dimension of global sections of adjoint bundles for polarized manifolds . . . . .	10
79	Kenta Watanabe (Nihon Univ.)*	On ACM line bundles on polarized K3 surfaces . . . . .	10
80	Tomohiro Iwami (Kyushu Inst. of Tech.)*	An analogue of Miyaoka–Yau type inequality for extremal contractions of type (IIA) with special regards to the associated third Chern classes . . . . .	10

## Geometry

March 18th (Sun)      Conference Room I

### 9:15–11:35

1	Tetsuya Nagano (Univ. of Nagasaki)	On the existence of the curve to give the inverse linear parallel displacement . . . . .	15
2	<u>Tsukasa Takeuchi</u> (Keio Univ.) Kiyonori Hosokawa (ORCA Management Organization Co., Ltd.)	Construction of symplectic-Haantjes manifold of certain Hamiltonian systems . . . . .	10
3	<u>Takayuki Moriyama</u> (Mie Univ.) Takashi Nitta (Mie Univ.)	Some examples of global Poisson structures on $S^4$ . . . . .	10
4	<u>Takayuki Moriyama</u> (Mie Univ.) Takashi Nitta (Mie Univ.)	Splitting theorem for sheaves of holomorphic $k$ -vectors on complex contact manifolds . . . . .	10
5	Hiroshi Sawai (Numazu Nat. Coll. of Tech.)	Examples of solvmanifolds without LCK structures . . . . .	15

6	Masayuki Igarashi (Tokyo Univ. of Sci.)*	On Hermite–Liouville structures constructed on the Hopf surface . . . . .	10
7	Satoshi Nakamura (Tohoku Univ.)	Hessian of the Ricci Calabi functional . . . . .	15
8	Satoshi Nakamura (Tohoku Univ.)	Remarks on modified Ding functional for toric Fano manifolds . . . . .	10
9	Tomoyuki Hisamoto (Nagoya Univ.)	Gradient flow of the Ding energy and optimal degeneration of a Fano manifold . . . . .	15
<b>14:15–16:35</b>			
10	Shin-ichi Oguni (Ehime Univ.)*	On a coarse Cartan–Hadamard theorem . . . . .	15
11	Tomohiro Fukaya (Tokyo Metro. Univ.)	New formulation of nonpositively curved spaces from the view point of coarse geometry and its boundary . . . . .	15
12	Tetsu Toyoda (Suzuka Nat. Coll. of Tech.)	A generalization of Gromov’s $\text{Cycl}_k(0)$ condition and an intrinsic characterization of five points in a $\text{CAT}(0)$ space . . . . .	15
13	Daisuke Kazukawa (Tohoku Univ.)	A new condition for convergence of energies and stability of Ricci curvature bounds . . . . .	15
14	Hiroki Nakajima (Tohoku Univ.) Takashi Shioya (Tohoku Univ.)	Isoperimetric rigidity and distributions of 1-Lipschitz functions . . . . .	15
15	Hiroki Nakajima (Tohoku Univ.)	Lipschitz order with an additive error and normal law à la Lévy on the Hamming cubes . . . . .	10
16	Taiki Yamada (Tohoku Univ.) Jürgen Jost (Max Planck Inst.)	The Ricci curvature and the Laplacian on edges of graphs . . . . .	10
17	Ayato Mitsuishi (Fukuoka Univ.) Takao Yamaguchi (Kyoto Univ.)	Obtuse constant and volume of Alexandrov spaces . . . . .	15

**16:45–17:45 Talk Invited by Geometry Section**

Ryokichi Tanaka (Tohoku Univ.)<sup>b</sup> Potential theory on discrete groups and metric embedding

March 19th (Mon) Conference Room I

**9:00–11:45**

18	Hiroataka Ebisui (Geomathes Res. Center)	Discovery of concurrent, collinear Theorems . . . . .	15
19	Jun O’Hara (Chiba Univ.)	Residues and intrinsic volumes of submanifolds of $\mathbb{R}^n$ . . . . .	15
20	Kaho Ohashi (Japan Women’s Univ.)	Construction of a metric on the moduli space of Delzant polytopes . . . . .	15
21	Kenzi Satô (Tamagawa Univ.)	The existence of orthocenters of simplices of hyperbolic spaces . . . . .	15
22	Yuichiro Taketomi (Hiroshima Univ.)	Singularities of the moduli space of left-invariant metrics and the properties of the corresponding metrics . . . . .	15
23	Naohiko Kasuya (Kyoto Sangyo Univ.) Masamichi Takase (Seikei Univ.)	Knots and links of complex tangents . . . . .	15
24	Nobuhiro Innami (Niigata Univ.)	The asymptotic behavior of geodesic circles in a 2-torus . . . . .	15
25	Kei Kondo (Yamaguchi Univ.)	From Hopf’s curvature pinching conjecture to a differentiable exotic sphere theorem . . . . .	15
26	Toshihiro Shoda (Saga Univ.) Shin Nayatani (Nagoya Univ.)	Metrics on a closed surface of genus two which maximize the first eigenvalue of the Laplacian . . . . .	15

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

Hirofumi Sasahira (Kyushu Univ.)\* The Seiberg–Witten equations and applications

March 20th (Tue) Conference Room I

**9:15–11:45**

- 27 Jong Taek Cho (Chonnam Nat. Univ.) Realizations of some contact metric manifolds as Ricci soliton real  
Takahiro Hashinaga hypersurfaces ..... 15  
(Kitakyushu Nat. Coll. of Tech.)  
Akira Kubo (Hiroshima Shudo Univ.)  
Yuichiro Taketomi (Hiroshima Univ.)  
Hiroshi Tamaru (Hiroshima Univ.)
- 28 Kazushi Kobayashi (Chiba Univ.) Some remarks on the homological mirror symmetry for tori ..... 15
- 29 Mitsuhiro Itoh (Univ. of Tsukuba) Harmonic manifolds of hypergeometric type and spherical Fourier trans-  
Hiroyasu Satoh (Nippon Inst. of Tech.) form ..... 10
- 30 Nobutaka Boumuki (Oita Univ.) Irreducible representations of real semisimple Lie groups related to  
homogeneous holomorphic line bundles over elliptic orbits ..... 10
- 31 Jun Watanabe (Univ. of Tokyo)<sup>b</sup> Fibered cusp  $b$ -pseudodifferential operators and its applications ..... 15
- 32 Norihito Koiso <sup>b</sup> A wave equation of motion of an elastic wire on a Riemannian manifold  
(Kyushu Univ./Osaka Univ.\*) ..... 15
- 33 Toru Kajigaya (MathAM-OIL) Hamiltonian stability for weighted measure and generalized Lagrangian  
Keita Kunikawa (Tohoku Univ.) mean curvature flow ..... 15
- 34 Miyuki Koiso (Kyushu Univ.) Non-uniqueness of closed non-smooth hypersurfaces with constant anisotropic  
mean curvature ..... 15
- 35 Miyuki Koiso (Kyushu Univ.) Uniqueness of stable closed non-smooth hypersurfaces with constant  
anisotropic mean curvature ..... 10

**14:15–16:30**

- 36 Makoto Sakaki (Hirosaki Univ.)\* Transforms for minimal surfaces in 5-dimensional space forms ..... 10
- 37 Makoto Sakaki (Hirosaki Univ.)\* Transforms and a representation formula for non-conformal harmonic  
surfaces in the Euclidean 3-space ..... 15
- 38 Kurando Baba (Tokyo Univ. of Sci.) Calibrated equalities and hyperpolar actions ..... 15  
Osamu Ikawa (Kyoto Inst. Tech.)  
Atsumu Sasaki (Tokai Univ.)
- 39 Kurando Baba (Tokyo Univ. of Sci.) Calibrated inequalities in pseudo-Riemannian geometry and a duality  
Osamu Ikawa (Kyoto Inst. Tech.) ..... 10  
Atsumu Sasaki (Tokai Univ.)
- 40 Atsufumi Honda <sup>\*</sup> Isometric deformations of mixed type surfaces ..... 10  
(Yokohama Nat. Univ.)
- 41 Taro Kimura Classification of Cartan embeddings which are austere submanifolds  
(Nat. Inst. of Tech., Tsuruoka Coll.) ..... 15  
Katsuya Mashimo (Hosei Univ.)

- 42 Osamu Ikawa (Kyoto Inst. Tech.) Lagrangian Floer homology of two real forms in a complex flag manifold  
 Hiroshi Iriyeh (Ibaraki Univ.) ..... 15  
 Takayuki Okuda (Hiroshima Univ.)  
 Takashi Sakai (Tokyo Metro. Univ.)  
 Hiroyuki Tasaki (Univ. of Tsukuba)
- 43 Yohei Komori (Waseda Univ.) Construction of pseudo-Anosov automorphisms whose dilatations are  
 2-Salem numbers ..... 15
- 16:45–17:45 Talk Invited by Geometry Section**  
 Hideki Miyachi (Osaka Univ.) Toward complex analysis on Teichmüller space

## Complex Analysis

March 18th (Sun) Conference Room VII

### 9:45–11:45

- 1 Shigeyoshi Owa (Yamato Univ.)\* On univalences for Alexander type integrals ..... 15  
 Hitoshi Saitoh  
 (Gunma Nat. Coll. of Tech.)  
 Janusz Sokol (Univ. of Rzeszow)  
 Mamoru Nunokawa (Gunma Univ.\*)
- 2 Kiyoki Tanaka (Daido Univ.)<sup>b</sup> Toeplitz operators on the polyharmonic Bergman space ..... 15
- 3 Ryosuke Yamazaki The realization problem for Jørgensen numbers ..... 15  
 (Gakushuin Boys' Senior High School)  
 Yasushi Yamashita  
 (Nara Women's Univ.)
- 4 Naotaka Kajino (Kobe Univ.) Weyl's eigenvalue asymptotics for the Laplacian on circle packing limit  
 sets of certain Kleinian groups ..... 15
- 5 Tomoshige Yukita (Waseda Univ.) Construction of infinite series of ideal hyperbolic Coxeter 4-polytopes  
 whose growth rates are Perron numbers. .... 15
- 6 Masahiro Yanagishita Construction of  $p$ -Weil–Peterson metric on  $p$ -integrable Teichmüller  
 space ..... 15  
 (Yamaguchi Univ.)
- 7 Dounnu Sasaki (Waseda Univ.) The denseness problem of geodesic currents and subset currents ..... 15

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

- Hiroki Sumi (Kyoto Univ.) Randomness-induced phenomena in random holomorphic dynamical  
 systems and their applications



## March 19th (Mon) Conference Room VII

## 10:00–11:40

- 8 Takahiro Inayama (Univ. of Tokyo)  $L^2$  estimates and vanishing theorems for holomorphic vector bundles equipped with singular Hermitian metrics ..... 15
- 9 Genki Hosono (Univ. of Tokyo) On recent topics on  $L^2$  extension theorems ..... 15
- 10 Sachiko Hamano (Osaka City Univ.) Variation of the  $\mathbf{a}$ -span of an open Riemann surface and pseudoconvexity  
Masakazu Shiba (Hiroshima Univ.\*) ..... 15  
Hiroshi Yamaguchi (Shiga Univ.\*)
- 11 Akio Kodama (Kanazawa Univ.\*)<sup>b</sup> A localization principle for biholomorphic mappings between the Fock–Bargmann–Hartogs domains ..... 15
- 12 Masataka Tomari (Nihon Univ.)\* maximal ideal cycle and fundamental cycle of normal two dimensional  
Tadashi Tomaru (Gunma Univ.\*) double points ..... 15
- 13 Katsusuke Nabeshima An algorithm for computing integral numbers in a ring of convergent  
(Tokushima Univ.) power series II ..... 10  
Shinichi Tajima (Univ. of Tsukuba)

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

- Takayuki Koike (Osaka City Univ.) Hermitian metrics on numerically effective line bundles and neighborhoods of complex submanifolds

## Functional Equations

## March 18th (Sun) Conference Room IX

## 9:15–12:00

- 1 Mostafa Adimy (Univ. of Lyon) Analysis of a mathematical model for hematopoietic stem cells with a  
Abdenasser Checkroun nonlocal term and time delay ..... 10  
(Univ. of Tlemcen)  
Toshikazu Kuniya (Kobe Univ.)
- 2 Hideaki Izumi (Chiba Inst. of Tech.) Solving functional equations by using dimensioned numbers ..... 10
- 3 Hideaki Matsunaga (Osaka Pref. Univ.) Oscillation criteria for a nonlinear delay difference equation by phase  
Doi Pati plane analysis ..... 10  
Sugie Jitsuro (Shimane Univ.)
- 4 Yasuhiro Fujita (Univ. of Toyama) On a Hamilton–Jacobi flow starting from a pathological function ..... 10  
Nao Hamamuki (Hokkaido Univ.)  
Antonio Siconolfi  
(Sapienza Univ. of Rome)  
Norikazu Yamaguchi (Univ. of Toyama)
- 5 Shingo Takeuchi Applications of generalized trigonometric functions to a nonlocal bound-  
(Shibaura Inst. of Tech.) ary value problem ..... 10

- 6 Kodai Fujimoto (Osaka Pref. Univ.)    Oscillation constants for second-order nonlinear differential equations  
Naoto Yamaoka (Osaka Pref. Univ.)    with  $p(t)$ -Laplacian ..... 10
- 7 Ryuji Kajikiya (Saga Univ.)    A complete classification of bifurcation diagrams for a class of  $(p, q)$ -  
Inbo Sim (Univ. of Ulsan)    Laplace equations ..... 10  
Satoshi Tanaka (Okayama Univ. of Sci.)
- 8 Masakazu Onitsuka    Box dimension of solution curves for a class of two-dimensional linear  
(Okayama Univ. of Sci.)    differential systems ..... 10  
Tanaka Satoshi (Okayama Univ. of Sci.)
- 9 Satoshi Tanaka (Okayama Univ. of Sci.)    Characteristic equation for autonomous planar half-linear differential  
Masakazu Onitsuka    systems ..... 10  
(Okayama Univ. of Sci.)
- 10 Junya Nishiguchi (Tohoku Univ.)    On global attractors for dynamical systems without natural metrics  
..... 10
- 11 Yumiko Takei (Kobe Univ.)    On the expression of Voros coefficients for hypergeometric differential  
equations with two variables in terms of the topological recursion and  
its applications ..... 10
- 12 Saburoou Saitoh    \* Incompleteness of the theory of differential equations and open problems  
(Gunma Univ.\*/Inst. of Reproducing Kernels)    ..... 10  
Haydar Akca (Abu Dhabi Uni.)  
Sandra Pinelas  
(Military Acad. Portugal)
- 13 Saburoou Saitoh    \* Division by zero calculus and singular integrals ..... 10  
(Gunma Univ.\*/Inst. of Reproducing Kernels)  
Tsutomu Matsuura (Gunma Univ.)
- 14:15–16:15**
- 14 Takanobu Hara    A Carleson-type estimate for  $p$ -superharmonic functions ..... 10  
(Hokkaido Univ./Tokyo Metro. Univ.)
- 15 Xiaojing Liu (Ibaraki Univ.)    The equivalences among  $p$ -capacity,  $p$ -Laplace-capacities and Hausdorff  
Toshio Horiuchi (Ibaraki Univ.)    measure ..... 10
- 16 Albert Rodríguez Mulet    Eigenfrequencies of a thin straight elastic body ..... 10  
(Hokkaido Univ.)
- 17 Takashi Furuya (Nagoya Univ.)    An application of the factorization method for some inverse acoustic  
scattering problems ..... 10
- 18 Kimie Nakashima    Multiple existence of indefinite nonlinear diffusion problem in popula-  
(Tokyo Univ. of Marine Sci. and Tech.)    tion genetics ..... 10
- 19 Kazuhiro Oeda (Waseda Univ.)    Classification of steady states to a prey-predator model with population  
Kousuke Kuto    flux by attractive transition ..... 10  
(Univ. of Electro-Comm.)
- 20 Yasuhito Miyamoto (Univ. of Tokyo)    A limit equation and bifurcation diagrams of semilinear elliptic equa-  
tions with general supercritical growth ..... 10
- 21 Yasuhito Miyamoto (Univ. of Tokyo)    Exact eigenvalues and eigenfunctions for a one-dimensional Gel'fand  
Tohru Wakasa (Kyushu Inst. of Tech.)    problem ..... 10

- 22 Kenichiro Umezū (Ibaraki Univ.) Loop components of nontrivial nonnegative solutions for indefinite  
Uriel Kaufmann concave-convex problems ..... 10  
(Univ. Nacional de Córdoba)  
Humberto Ramos Quoirin  
(Univ. de Santiago de Chile)

**16:30–17:30 Award Lecture for the 2017 MSJ Analysis Prize**

- Yoshitsugu Takei (Doshisha Univ.) On the instanton-type expansions of elliptic functions and Painlevé  
transcendents —The final stage of the exact WKB analysis for Painlevé  
equations

March 19th (Mon) Conference Room IX

**9:15–12:00**

- 23 Yohei Toyota (Osaka Univ.) The behavior of blow-up solutions for mean field equation with multi-  
Takashi Suzuki (Osaka Univ.) intensities ..... 10
- 24 Daisuke Naimen Blow-up analysis for sign-changing radial solutions in Trudinger–Moser  
(Muroran Inst. of Tech.) critical equations in  $\mathbb{R}^2$  ..... 10  
Massimo Grossi  
(Sapienza Univ. of Roma)
- 25 Aya Ishizeki (Chiba Univ.) Decomposition of generalized O’Hara’s energies ..... 10  
Takeyuki Nagasawa (Saitama Univ.)
- 26 Yohei Sato (Saitama Univ.) Infinitely many solutions for a nonlinear Schrödinger equation with  
Shibata Masataka (Tokyo Tech) general nonlinearity ..... 10
- 27 Shota Tateyama (Tohoku Univ.) Fully nonlinear parabolic equations with unbounded ingredients ..... 10  
Shigeaki Koike (Tohoku Univ.)  
Andrzej Świąch (Georgia Tech)
- 28 Shota Tateyama (Tohoku Univ.) The Phragmén–Lindelöf theorem for fully nonlinear parabolic equations  
with unbounded ingredients ..... 10
- 29 Naoto Kajiwara (Univ. of Tokyo) Time periodic solutions on real interpolation spaces and its applications  
Matthias Hieber (TU Darmstadt) to some electrophysiological models ..... 10  
Klaus Kress (TU Darmstadt)  
Patrick Tolksdorf (TU Darmstadt)
- 30 Naoto Kajiwara (Univ. of Tokyo) Time periodic solutions to the bidomain equations subject to arbitrary  
Yoshikazu Giga (Univ. of Tokyo) large force ..... 10  
Klaus Kress (TU Darmstadt)
- 31 Masaaki Mizukami The parabolic-elliptic Keller–Segel case as a limit of the fully parabolic  
(Tokyo Univ. of Sci.) Keller–Segel system ..... 10
- 32 Xinru Cao (Paderborn Univ.) Global existence and stabilization in a 3D two-species Keller–Segel–  
Shunsuke Kurima (Tokyo Univ. of Sci.) Stokes system with competitive kinetics ..... 10  
Masaaki Mizukami  
(Tokyo Univ. of Sci.)
- 33 Sachiko Ishida (Chiba Univ.) Finite-time blow-up in a fully parabolic Keller–Segel system with de-  
Tomomi Yokota (Tokyo Univ. of Sci.) generate diffusion ..... 10  
Takahiro Hashira (Tokyo Univ. of Sci.)

- 34 Takayoshi Ogawa (Tohoku Univ.) Unboundedness of solutions to a degenerate drift-diffusion equation  
 Hiroshi Wakui (Tohoku Univ.) equation with the mass critical exponent and estimates of the concentration quantity of radially symmetric solutions . . . . . 10

**13:15–14:15 Award Lecture for the 2017 MSJ Analysis Prize**

- Tetsutaro Shibata (Hiroshima Univ.) Asymptotic analysis of eigenvalue problems for nonlinear elliptic equations and analysis of inverse bifurcation problems

March 20th (Tue) Conference Room IX

**9:15–12:00**

- 35 Kenta Nakamura (Kyushu Univ.) The existence and properties of a solution to the  $p$ -Sobolev flow . . . . . 10  
 Masashi Misawa (Kumamoto Univ.)
- 36 Lorenzo Cavallina (Tohoku Univ.) On the shape of a two-phase heat conductor with a surface of the  
 Rolando Magnanini (Univ. of Florence) constant flow property . . . . . 10  
 Shigeru Sakaguchi (Tohoku Univ.)
- 37 Takashi Kagaya (Kyushu Univ.) A singular limit problem of Allen–Cahn equation with Neumann boundary  
 condition on non-convex domains . . . . . 10
- 38 Nao Hamamuki (Hokkaido Univ.) On a dynamic boundary condition for singular degenerate parabolic  
 Yoshikazu Giga (Univ. of Tokyo) equations in a half space . . . . . 10
- 39 Yukihiro Seki (Kyushu Univ.) On blow-up of solutions for harmonic map heat flow with values in a  
 Paweł Biernat (Bonn Univ.) sphere . . . . . 10
- 40 Hiroshi Matsuzawa A free boundary problem for the Fisher-KPP equation with a moving  
 (Numazu Nat. Coll. of Tech.) boundary . . . . . 10
- 41 Yūki Naito (Ehime Univ.) Asymptotic behavior of global solutions for semilinear heat equations  
 with slowly decaying initial data . . . . . 10
- 42 Kyohei Itakura (Kobe Univ.) Spectral theory for repulsive Hamiltonians . . . . . 10
- 43 Wataru Ichinose (Shinshu Univ.) The Feynman path integrals of continuous quantum measurements and  
 the non-self-adjoint Schrödinger equations . . . . . 10
- 44 Hironori Michihisa (Hiroshima Univ.) Diffusive structures and wave effects of damped wave equations . . . . . 10
- 45 Naofumi Mori (Fukuoka Inst. of Tech.) The  $S$  &  $K$  mixed condition for symmetric hyperbolic systems with  
 non-symmetric relaxations . . . . . 10
- 46 Kenta Nakamura (Kyushu Univ.) Asymptotic stability of rarefaction waves for a model system of hyper-  
 Tohru Nakamura (Kumamoto Univ.) bolic balance laws . . . . . 10  
 Shuichi Kawashima (Kyushu Univ.)
- 47 Motohiro Sobajima Life-span of blowup solutions to semilinear wave equation with space-  
 (Tokyo Univ. of Sci.) dependent critical damping . . . . . 10  
 Masahiro Ikeda (RIKEN/Keio Univ.)

**14:15–16:15**

- 48 Takayuki Niimura (Hokkaido Univ.) Attractors and their stability with respect to rotational inertia for a  
 nonlocal extensible beam equation . . . . . 10

- 49 Masahiro Ikeda (RIKEN/Keio Univ.) Time decay estimates for the linear damped wave equation and the critical exponent for the semilinear problem with slowly decaying data  
Yuta Wakasugi (Ehime Univ.)  
Inui Takahisa (Tokyo Univ. of Sci.)  
Mamoru Okamoto (Shinshu Univ.) ..... 10
- 50 Masahiro Ikeda (RIKEN/Keio Univ.) Life-span of solutions to semilinear wave equation with time-dependent critical damping ..... 10  
Motohiro Sobajima  
(Tokyo Univ. of Sci.)
- 51 Natsumi Yoshida (Ritsumeikan Univ.) Large time behavior of solutions toward a multiwave pattern to the Cauchy problem for the dissipative wave equation with partially linearly degenerate flux ..... 10
- 52 Natsumi Yoshida (Ritsumeikan Univ.) Global asymptotic stability of the rarefaction waves for a scalar conservation law with nonlinear viscosity ..... 10  
Akitaka Matsumura (Osaka Univ.\*)
- 53 Yuichiro Kawahara Scattering problem for the fourth order nonlinear Schrödinger equation ..... 10  
(Doshisha Junior and Senior High School)  
Nakao Hayashi (Osaka Univ.)  
Pavel I. Naumkin (UNAM)
- 54 Satoshi Masaki (Osaka Univ.) Long range scattering for nonlinear Schrödinger equation with repulsive delta potential ..... 10  
Jason Murphy  
(Missouri Univ. of Sci. and Tech.)  
Jun-ichi Segata (Tohoku Univ.)
- 55 Hayato Miyazaki Nonexistence of scattering and modified scattering states for nonlinear Schrödinger equations with critical homogeneous nonlinearity ..... 10  
(Tsuyama Nat. Coll. of Tech.)  
Satoshi Masaki (Osaka Univ.)
- 56 Sojiro Murai \* Strichartz and scattering for magnetic Schrödinger equations in exterior domain ..... 10  
(Tokyo Metropolitan Coll. of Indus. Tech.)

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

- Hirokazu Ninomiya (Meiji Univ.) Traveling wave solutions and entire solutions of reaction-diffusion equations

March 21st (Wed) Conference Room IX

**9:15–12:00**

- 57 Ikkei Shimizu (Kyoto Univ.) Remarks on local well-posedness of Schrödinger map equation ..... 10
- 58 Mamoru Okamoto (Shinshu Univ.) Ill-posedness of the Cauchy problem for the fractional Schrödinger equation ..... 10
- 59 Daisuke Sakoda (Osaka Univ.) Small data global existence for a quadratic derivative nonlinear Schrödinger system in two space dimensions ..... 10  
Hideaki Sunagawa (Osaka Univ.)
- 60 Hiroyuki Hirayama (Univ. of Miyazaki) Well-posedness for the Zakharov–Kuznetsov–Burgers equation in two space dimensions ..... 10
- 61 Ikki Fukuda (Hokkaido Univ.) Second asymptotic profile for the generalized KdV–Burgers equation ..... 10
- 62 Shota Sakamoto (Kyoto Univ.) Solution to the Boltzmann equation in velocity-weighted Chemin–Lerner type spaces ..... 10  
Duan Renjun  
(Chinese Univ. of Hong Kong)

- 63 Tetu Makino (Yamaguchi Univ.\*)\* On axisymmetric solutions of the Einstein–Euler equations ..... 10
- 64 Itsuko Hashimoto (Kansai Univ./Osaka City Univ.) Asymototic behavior toward nonlinear waves for radially symmetric solutions of multi-dimensional Burgers equation ..... 10  
Akitaka Matsumura (Osaka Univ.\*)
- 65 Yusuke Ishigaki (Kyushu Univ.) Global existence of solutions of the compressible viscoelastic fluid around parallel flow ..... 10
- 66 Keiichi Watanabe (Waseda Univ.) Maximal regularity of compressible-incompressible two-phase flows with phase transitions ..... 10
- 67 Yoshihiro Shibata (Waseda Univ.) Free boundary problem with surface tension ..... 10
- 68 Yoshihiro Shibata (Waseda Univ.) Global well-posedness for a  $\mathbb{Q}$  tensor model of Incompressible Nematic Liquid Crystals in  $\mathbb{R}^N$  ..... 10
- 69 Kazuyuki Tsuda (Osaka Univ.) Time decay estimate with diffusive property and smoothing effect for Takayuki Kobayashi (Osaka Univ.) solution to the compressible Navier–Stokes–Korteweg system ..... 10
- 14:15–16:15**
- 70 Nobu Kishimoto (Kyoto Univ.) Global mild solution to Navier–Stokes equations with partial hyperviscosity ..... 10  
Yoshitaka Saiki (Hitotsubashi Univ.)  
Kengo Nakai (Univ. of Tokyo)  
Yoneda Tsuyoshi (Univ. of Tokyo)
- 71 Tatsu-Hiko Miura (Univ. of Tokyo) On singular limit equations for the Navier–Stokes equations in moving thin domains ..... 10
- 72 Yasunori Maekawa (Kyoto Univ.) On stability of physically reasonable solutions to the two-dimensional Navier–Stokes equations ..... 10
- 73 Kohei Nakao (Shinshu Univ.) Beale–Kato–Majda type extension criterion of smooth solutions to the Yasushi Taniuchi (Shinshu Univ.) Navier–Stokes equations in three dimensional domains ..... 10
- 74 Hideo Kozono (Waseda Univ.)\* A remark on Liouville-type theorem for the nonstationary Navier–Stokes equations in two dimensional domains ..... 10  
Yutaka Terasawa (Nagoya Univ.)  
Yuta Wakasugi (Ehime Univ.)
- 75 Akira Okada (Kyoto Univ.) Spatial analyticity of solutions to the Navier–Stokes equations with Hideo Kozono (Waseda Univ.) initial data in homogeneous Besov spaces ..... 10  
Senjo Shimizu (Kyoto Univ.)
- 76 Takahiro Okabe (Hirosaki Univ.) Remark on the strong solvability of the Navier–Stokes equations in the Youhei Tsutsui (Shinshu Univ.) weak  $L^n$  space ..... 10
- 77 Hiroyuki Tsurumi (Waseda Univ.) Solutions of the stationary Navier–Stokes equations in homogeneous Triebel–Lizorkin spaces ..... 10
- 78 Hiroyuki Tsurumi (Waseda Univ.) Ill-posedness of the stationary Navier–Stokes equations in homogeneous Besov spaces ..... 10
- 16:30–17:30 Talk Invited by Functional Equations Section**
- Tsukasa Iwabuchi (Tohoku Univ.)<sup>b</sup> On the ill-posedness for the compressible Navier–Stokes equations

# Real Analysis

March 20th (Tue) Conference Room VII

## 9:00–12:00

- 1 Toshiharu Kawasaki (Nihon Univ./Tamagawa Univ.) On the principal value of Henstock–Kurzweil integral ..... 15
- 2 Aoi Honda (Kyushu Inst. of Tech.) Weak  $L_p$  space  $L^{p,\infty}$  for quasi-subadditive monotone measure ..... 15  
Yoshiaki Okazaki (Fuzzy Logic Systems Inst.)
- 3 Toshiaki Murofushi (Tokyo Tech) Conditions for the strong form of the Egorov theorem in non-additive  
Naoki Enomoto (Tokyo Tech) measure theory ..... 15
- 4 Fumiaki Kohsaka (Tokai Univ.) The proximal point algorithm for convex functions in complete CAT(1)  
spaces ..... 15
- 5 Shin-ya Matsushita (Akita Pref. Univ.) On the convergence of an operator splitting method ..... 15
- 6 Koji Aoyama (Chiba Univ.) Strongly quasi-nonexpansive mappings, II ..... 15
- 7 Sachiko Atsushiba (Univ. of Yamanashi) Weak and strong convergence theorems for a sequence of nonlinear  
operators ..... 15
- 8 Tomonari Suzuki (Kyushu Inst. of Tech.) Two topologies on  $\nu$ -generalized metric spaces ..... 15
- 9 Yukino Tomizawa (Niigata Inst. of Tech.) Geometric constants of  $\pi/2$ -rotation invariant norms ..... 15
- 10 Ryoichi Kunisada (Waseda Univ.)<sup>b</sup> Summability methods and Fourier analysis on  $\mathbb{R}^\times$  ..... 15
- 11 Takeshi Iida (Fukushima Nat. Coll. of Tech.) The dual inequality of the boundedness for the Hardy–Littlewood max-  
imal operator and the fractional integrals ..... 15

## 14:15–16:15

- 12 Ryutaro Arai (Ibaraki Univ.) Compact commutators of Calderón–Zygmund and generalized fractional  
Eiichi Nakai (Ibaraki Univ.) integral operators with a function in Campanato spaces on generalized  
Morrey spaces ..... 15
- 13 Minglei Shi (Ibaraki Univ.) Commutators of generalized fractional integral operators on Orlicz  
Eiichi Nakai (Ibaraki Univ.) spaces ..... 15
- 14 Gaku Sadasue (Osaka Kyoiku Univ.) Commutators of fractional integrals on martingale Morrey spaces ..... 15  
Eiichi Nakai (Ibaraki Univ.)
- 15 Tsukasa Iwabuchi (Tohoku Univ.)\* Besov spaces generated by the Dirichlet Laplacian ..... 15  
Koichi Taniguchi (Chuo Univ.)  
Tokio Matsuyama (Chuo Univ.)
- 16 Koichi Taniguchi (Chuo Univ.) Bilinear estimates in Besov spaces on domains ..... 15  
Tsukasa Iwabuchi (Tohoku Univ.)  
Tokio Matsuyama (Chuo Univ.)

- 17 Koichi Taniguchi (Chuo Univ.) Besov spaces generated by Schrödinger operators ..... 15  
 Tsukasa Iwabuchi (Tohoku Univ.)  
 Tokio Matsuyama (Chuo Univ.)
- 18 Tomoya Kato (Osaka Univ.) A remark on the Schrödinger operator on Wiener amalgam spaces ... 15  
 Naohito Tomita (Osaka Univ.)

**16:30–17:30 Talk Invited by Real Analysis Section**

- Ryotaro Tanaka (Kyushu Univ.) Geometric techniques in Banach space theory: Challenges to Tingley’s problem

March 21st (Wed) Conference Room VII

**9:15–12:00**

- 19 Masaaki Mizukami (Tokyo Univ. of Sci.) The parabolic-elliptic chemotaxis case as a limit of the fully parabolic chemotaxis system with signal-dependent sensitivity ..... 15
- 20 Shunsuke Kurima (Tokyo Univ. of Sci.) Vanishing viscosity for a Cahn–Hilliard type system on unbounded domains ..... 15
- 21 Kosuke Kita (Waseda Univ.) Some threshold property for a reaction diffusion system arising from a nuclear reactor model ..... 15  
 Mitsuharu Ôtani (Waseda Univ.)  
 Hiroki Sakamoto (Hitachi-GE Nuclear Energy, Ltd.)
- 22 Yutaka Tsuzuki (Hiroshima Shudo Univ.) Existence for Vlasov–Poisson equations with angle error in magnetic field in a half-space ..... 15
- 23 Taishi Motoda (Kyoto Univ. of Edu.) Time periodic solutions of Cahn–Hilliard system with dynamic boundary conditions ..... 15
- 24 Ryota Nakayashiki (Chiba Univ.) Kobayashi–Warren–Carter system subject to quasi-linear diffusions and dynamic boundary conditions ..... 15
- 25 Hiroshi Watanabe (Oita Univ.) Solvability of degenerate parabolic-parabolic systems ..... 15
- 26 Makoto Nakamura (Yamagata Univ.) On the Cauchy problem of a semilinear diffusion equation in an expanding space ..... 10  
 Yuya Sato (Yamagata Univ.)
- 27 Makoto Nakamura (Yamagata Univ.) Remarks on the derivation of Navier–Stokes equations and elastic wave equations in uniform and isotropic spacetimes ..... 10
- 28 Yoshikazu Giga (Univ. of Tokyo) Analyticity of the Stokes semigroup in BMO ..... 10  
 Martin Bolkart (TU Darmstadt)  
 Takuya Suzuki (Adv. Simulation Tech. of Mechanics R&D, Co., Ltd.)

**14:15–16:00**

- 29 Takeshi Fukao (Kyoto Univ. of Edu.) A strict separation property from pure phases for GMS model with logarithmic potential ..... 15
- 30 Noriaki Yamazaki (Kanagawa Univ.) Quasi-variational evolution equations governed by double time-dependent subdifferentials ..... 15  
 Nobuyuki Kenmochi (Univ. of Warsaw)  
 Ken Shirakawa (Chiba Univ.)
- 31 Akio Ito <sup>b</sup> Evolution inclusion on a real Hilbert space with quasi-variational structure for inner product —Time-dependent convex functions— ..... 15



- 32 Ken Shirakawa (Chiba Univ.) A gradient system based on an anisotropic image processing ..... 15
- 33 Kota Kumazaki (Tomakomai Nat. Coll. of Tech.) Solvability of a free boundary problem describing moisture swelling process in porous materials ..... 15
- 34 Toyohiko Aiki (Japan Women's Univ.) Existence of a weak solution to a free boundary problem describing adsorption process ..... 15
- 16:15–17:15 Talk Invited by Real Analysis Section**
- Shun Uchida (Waseda Univ.) Solvability of a system describing double-diffusive convection phenomena in some porous medium

## Functional Analysis

March 18th (Sun) Conference Room IV

### 14:15–16:15

- 1 Saburoou Saitoh \* What are reproducing kernels? ..... 15  
(Gunma Univ.\* / Inst. of Reproducing Kernels)  
Tsutomu Matsuura (Gunma Univ.)  
Yoshihiro Sawano (Tokyo Metro. Univ.)
- 2 Saburoou Saitoh \* General integral transforms by the concept of generalized reproducing kernels ..... 15  
(Gunma Univ.\* / Inst. of Reproducing Kernels)  
Tsutomu Matsuura (Gunma Univ.)  
Yoshihiro Sawano (Tokyo Metro. Univ.)
- 3 Takashi Aoki (Kindai Univ.) Linear continuous operators acting on the space of entire functions of a given order ..... 15  
Ryuichi Ishimura (Chiba Univ.)  
Daniele C. Struppa (Chapman Univ.)  
Shofu Uchida (Kindai Univ.)
- 4 Yoritaka Iwata (Tokyo Tech) Module over the Banach algebra defined by the logarithmic representation of infinitesimal generators ..... 15
- 5 Fumio Hiroshima (Kyushu Univ.) Mass renormalization in the Nelson model ..... 12  
Susumu Osawa (Kyushu Univ.)
- 6 Fumio Hiroshima (Kyushu Univ.) Renormalized Gibbs measures associated with the Nelson model ..... 15
- 7 Kiyoomi Kataoka (Univ. of Tokyo) On generalized eigenvalues of an operator related to Kuramoto conjecture ..... 15  
Yu Mada (Univ. of Tokyo)

### 16:30–17:30 Talk Invited by Functional Analysis Section

- Nobuaki Obata (Tohoku Univ.) Quantum probabilistic methods for spectral analysis of graphs

## March 19th (Mon) Conference Room IV

**9:30–12:00**

- 8 Junsei Watanabe (Tokyo Gakugei Univ.) \* Functional analytic viewpoints in computational linguistics of translated literary works ..... 15
- 9 Shizuo Miyajima (Tokyo Univ. of Sci.) Characterization of closed balls via metric projections ..... 10  
Isao Saito (Tokyo Univ. of Sci.)
- 10 Sin-Ei Takahasi (Yamagata Univ.)\* Semigroup operations distributed by the ordinary multiplication or  
Hiroyuki Takagi (Shinshu Univ.) addition on the real numbers ..... 15  
Takeshi Miura (Niigata Univ.)  
Hirokazu Oka (Ibaraki Univ.)
- 11 Osamu Hatori (Niigata Univ.) Surjective isometries on Banach algebras of Lipschitz maps ..... 15
- 12 Nobukazu Shimeno (Kwansei Gakuin Univ.) The hypergeometric function of type  $A$  and the Lauricella hypergeo-  
Yuichi Tamaoka metric series ..... 15  
(Kwansei Gakuin Univ.)
- 13 Hiroshi Oda (Takushoku Univ.) Spherical functions for fine  $K$ -types ..... 15  
Nobukazu Shimeno  
(Kwansei Gakuin Univ.)
- 14 Atsumu Sasaki (Tokai Univ.) A Cartan decomposition for spherical homogeneous spaces of reductive  
type ..... 15
- 15 Taito Tauchi (Univ. of Tokyo)<sup>b</sup> Multiplicity of a degenerate principal series for homogeneous spaces  
with infinite orbits ..... 15
- 16 Minoru Itoh (Kagoshima Univ.) A description of an invariant theory using the notion of wreath algebra  
with trace ..... 15

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

- Hideyuki Ishi Gamma-type integrals over convex cones  
(Nagoya Univ./JST PRESTO)

## March 20th (Tue) Conference Room IV

**9:30–12:00**

- 17 Yasuo Watatani (Kyushu Univ.)\* A computation of the dimension group for the self-similar map given  
Tsuyoshi Kajiwara (Okayama Univ.) by the tent map ..... 15
- 18 Kengo Matsumoto (Joetsu Univ. of Edu.) \* Ruelle  $C^*$ -algebras associated with Smale spaces and bilateral Cuntz–  
Krieger algebras ..... 15
- 19 Hiroyuki Osaka (Ritsumeikan Univ.) Stable rank for crossed products by actions of finite groups on  $C^*$ -  
algebras ..... 15
- 20 Kei Hasegawa (Kyushu Univ.) Boundary rigidity for free product  $C^*$ -algebras ..... 15
- 21 Yusuke Sawada (Nagoya Univ.) The affine property of quasi-free states on self-dual CAR algebras ..... 15
- 22 Takuya Takeishi (Kyoto Univ.) Reconstructing the Bost–Connes semigroup actions from  $K$ -theory ..... 15
- 23 Toshihiko Masuda (Kyushu Univ.) Tannaka–Kreĭn–Woronowicz duality from the viewpoint of  $Q$ -systems  
..... 15

24	Yusuke Isono (Kyoto Univ.)	Unique prime factorization for infinite tensor product factors . . . . .	15
25	Narutaka Ozawa (Kyoto Univ.)	Finite-dimensional representations constructed from random walks . . .	15
<b>14:15–16:00</b>			
26	Masaru Nagisa (Chiba Univ.)	Some operator norm inequalities . . . . .	15
27	Junichi Fujii (Osaka Kyoiku Univ.)	Graphical approach to Hopf algebras . . . . .	15
28	<u>Masayuki Fujimoto</u> (Osaka Kyoiku Univ.) Yuki Seo (Osaka Kyoiku Univ.)	Mixed Schwarz inequalities via the matrix geometric mean . . . . .	10
29	<u>Yuki Seo</u> (Osaka Kyoiku Univ.) Masayuki Fujimoto (Osaka Kyoiku Univ.)	A weighted mixed Schwarz operator inequality via the geometric operator mean . . . . .	10
30	Takeaki Yamazaki (Toyo Univ.)	The Karcher equation, relative operator entropy and the Ando–Hiai inequality . . . . .	15
31	Shuhei Wada (Nat. Inst. of Tech., Kisarazu Coll.)	When does Ando–Hiai inequality hold? . . . . .	10
32	<u>Hiroaki Tohyama</u> (Maebashi Inst. of Tech.) Hiroshi Isa (Maebashi Inst. of Tech.) Eizaburou Kamei Masayuki Watanabe (Maebashi Inst. of Tech.)	Some relations among the $n$ -th relative operator entropies and the $n$ -th operator divergences . . . . .	15
<b>16:15–17:15 Talk Invited by Functional Analysis Section</b>			
	Fumio Hiai (Tohoku Univ.)	Multivariate matrix/operator means	

## Statistics and Probability

March 18th (Sun) Conference Room VIII

### 9:15–12:00

1	<u>Kazutoshi Yamazaki</u> (Kansai Univ.) Irmína Czarna (Univ. of Wrocław) Jose-Luis Perez (Centro de Investigación en Matemáticas) Tomasz Rolski (Univ. of Wrocław)	Fluctuation theory for level-dependent Lévy processes . . . . .	15
2	<u>Kei Noba</u> (Kyoto Univ.) José-Luis Pérez (CIMAT) Kazutoshi Yamazaki (Kansai Univ.) Kouji Yano (Kyoto Univ.)	On optimal periodic dividend strategies for Lévy risk processes . . . . .	15

3	<u>Yuichi Shiozawa</u> (Osaka Univ.) <u>Jian Wang</u> (Fujian Normal Univ.)	Upper rate functions of Brownian motion type for symmetric jump processes . . . . .	15
4	<u>Takahiro Hasebe</u> (Hokkaido Univ.) <u>Noriyoshi Sakuma</u> (Aichi Univ. of Edu.) <u>Steen Thorbjørnsen</u> (Aarhus Univ.)	Freely selfdecomposability of the normal distributions . . . . .	10
5	<u>Toshio Nakata</u> (Fukuoka Univ. of Edu.)	The maxima for the generalized St. Petersburg game . . . . .	10
6	<u>Yong Moo Chung</u> (Hiroshima Univ.) <u>Hiroki Takahasi</u> (Keio Univ.)	Large deviation principle for unimodal maps with flat critical point . . . . .	15
7	<u>Jin Hatamoto</u> (Tokyo Nat. Coll. of Tech.)	Relation between mixing properties and chaos in the sense of Devaney . . . . .	10
8	<u>Hisatoshi Yuasa</u> (Osaka Kyoiku Univ.)*	A relative, strictly ergodic model theorem for infinite measure-preserving systems . . . . .	15
9	<u>Haruyoshi Tanaka</u> (Wakayama Med. Univ.)	On convergence of the Gibbs measures of perturbed graph iterated function systems with degeneration . . . . .	15
10	<u>Masatake Hirao</u> (Aichi Pref. Univ.)	On $p$ -frame potential of random point configurations on the sphere . . . . .	15
<b>14:15–15:00</b>			
11	<u>Nariyuki Minami</u> (Keio Univ.)	One-dimensional Schrödinger operator with decaying white noise potential . . . . .	15
12	<u>Yuki Suzuki</u> (Keio Univ.)	Diffusion processes with random potentials consisting of specially contracted self-similar processes . . . . .	15
13	<u>Kiyoyuki Hoshino</u> (Osaka Pref. Univ.)	On the reconstruction formulas in the wide sense of Wiener functionals from the SFCs . . . . .	10
<b>15:15–16:15 Award Lecture for the 2017 MSJ Analysis Prize</b>			
	<u>Masayoshi Takeda</u> (Tohoku Univ.)	Properties of symmetric Markov processes with tightness property	
<b>16:30–17:30 Talk Invited by Statistics and Probability Section</b>			
	<u>Koichiro Takaoka</u> (Hitotsubashi Univ.)	The first fundamental theorem of asset pricing: stochastic integrals and martingale measures	

March 19th (Mon) Conference Room VIII

**9:30–11:30**

14	<u>Satoshi Suzuki</u> (Shimane Univ.)	Quasiconvex programming with a reverse quasiconvex constraint . . . . .	15
15	<u>Masayuki Horiguchi</u> (Kanagawa Univ.)	Adaptive approach in a multivariate Bayesian control chart . . . . .	15
16	<u>Toshiharu Fujita</u> (Kyushu Inst. of Tech.)	Decision process with converging branch system —Three types of recursive equations— . . . . .	15
17	<u>Shuhei Mano</u> (Inst. of Stat. Math.)	A direct sampler for A-hypergeometric distributions and its application to random Young tableaux . . . . .	15
18	<u>Hideyasu Yamashita</u> (Aichi Gakuin Univ.)	Probabilistic loop path integral for spins . . . . .	15

- 19 Shigeyoshi Ogawa (Ritsumeikan Univ.) On the regularity of Gaussian processes indexed by Dirichlet spaces  
Gerard Kerkycharian ..... 10  
 (LPMA, Univ. Paris-Diderot)  
Pencho Petrushev  
 (Univ. South Carolina)  
Dominique Picard (Univ. Paris-Diderot)
- 20 Tomoko Takemura Convergence of diffusion processes in a tube ..... 15  
 (Nara Women's Univ.)

**11:30–12:00 Research Section Assembly**

March 20th (Tue) Conference Room VIII

**10:00–11:40**

- 21 Hiromu Yumiba (Int. Inst. for Nat. Sci.) GA\*-optimal balanced third-order designs of resolution  $R^*({10,01})$   
Yoshifumi Hyodo with  $N < \nu(m)$  for  $3^m$  factorials ..... 15  
 (Okayama Univ. of Sci./Int. Inst. for Nat. Sci.)  
Masahide Kuwada  
 (Int. Inst. for Nat. Sci.)
- 22 Mitsuhiro Takami (Tokyo Univ. of Sci.) Measure of departure from local symmetry for square contingency tables  
Yusuke Saigusa (Yokohama City Univ.) ..... 10  
Aki Ishii (Tokyo Univ. of Sci.)  
Sadao Tomizawa (Tokyo Univ. of Sci.)
- 23 Nobuhiro Taneichi Improvement of test of complete independence in multi-dimensional  
 (Hokkaido Univ. of Edu.) contingency tables. .... 15  
Yuri Sekiya (Hokkaido Univ. of Edu.)  
Jun Toyama  
 (Inst. for the Practical Application of Math.)
- 24 Tomoya Ikezawa (Tokyo Univ. of Sci.) Measure of departure from point-symmetry for the collapsed square  
Kiyotaka Iki (Tokyo Univ. of Sci.) contingency tables ..... 10  
Kouji Yamamoto (Osaka City Univ.)  
Sadao Tomizawa (Tokyo Univ. of Sci.)
- 25 Takuya Yoshimoto Covariance symmetry model and decomposition of symmetry model for  
 (Tokyo Univ. of Sci./Chugai Pharmaceutical Co., Ltd.) square contingency table ..... 15  
Kouji Tahata (Tokyo Univ. of Sci.)  
Kiyotaka Iki (Tokyo Univ. of Sci.)  
Sadao Tomizawa (Tokyo Univ. of Sci.)
- 26 Jo Suzuki (Osaka Univ.) Estimation of conditional mutual information for discrete and continu-  
 ous variables ..... 15
- 14:15–15:05**
- 27 Kazuyoshi Yata (Univ. of Tsukuba) Bias-corrected estimation of eigenvalues in high-dimensional settings  
Makoto Aoshima (Univ. of Tsukuba) ..... 15
- 28 Aki Ishii (Tokyo Univ. of Sci.) Equality tests of high-dimensional covariance matrices by using the  
Kazuyoshi Yata (Univ. of Tsukuba) noise-reduction methodology ..... 15  
Makoto Aoshima (Univ. of Tsukuba)
- 29 Yoshihiko Maesono (Kyushu Univ.) Smoothed two-sample nonparametric tests and their asymptotic prop-  
Taku Moriyama (Kyushu Univ.) erties ..... 10

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

Kazuki Matsubara (ChuoGakuin Univ.) Pairwise additivity of BIB designs and related combinatorial structures

**16:40–17:40 Talk Invited by Statistics and Probability Section**

Koji Tsukuda (Univ. of Tokyo) Studies on the theory of weak convergences in Hilbert spaces and its applications

March 21st (Wed) Conference Room VIII

**10:00–12:00**

- |    |   |  |    |
|----|---|--|----|
| 30 | Nakahiro Yoshida (Univ. of Tokyo)   | Martingale expansion and power variation . . . . .   | 15 |
| 31 | Nakahiro Yoshida (Univ. of Tokyo)   | Asymptotic expansion of Skorohod integrals . . . . .   | 15 |
| 32 | <u>Yoshiyuki Tanida</u> (Waseda Univ.)<br>Fumiya Akashi (Waseda Univ.)<br>Masanobu Taniguchi (Waseda Univ.) | Asymptotic theory and numerical studies of Whittle estimation for high-dimensional time series . . . . . | 10 |
| 33 | <u>Yujie Xue</u> (Waseda Univ.)<br>Masanobu Taniguchi (Waseda Univ.)  | LASSO estimators for high-dimensional time series with long-memory disturbances . . . . .                | 10 |
| 34 | Kou Fujimori (Waseda Univ.)   | Cox's proportional hazards model with a high-dimensional and sparse regression parameter . . . . .       | 15 |
| 35 | Fumiya Akashi (Waseda Univ.)  | Local asymptotic power of self-weighted GEL method and choice of weighting function . . . . .            | 15 |
| 36 | <u>Hikaru Fukuda</u> (Osaka Univ.)<br>Masaaki Fukasawa (Osaka Univ.)  | Local asymptotic normality property for stable processes under high-frequency observations . . . . .     | 15 |

**Applied Mathematics**

March 18th (Sun) Conference Room VI

**9:30–11:45**

- |   |   |  |    |
|---|---|--|----|
| 1 | Tomoko Adachi (Toho Univ.)  | A labeling of a cyclic bipartite graph and its application to RAID . . . . .                             | 10 |
| 2 | Mickaël Buchet<br>(Tohoku Univ./TU Graz)<br><u>Emerson Gaw Escobar</u> (Tohoku Univ.) | Vietoris–Rips realization of indecomposable persistence modules of arbitrarily large dimension . . . . . | 15 |
| 3 | <u>Michio Seto</u><br>(Nat. Defense Acad. of Japan)<br>Sho Suda (Aichi Univ. of Edu.) | Application of the theory of quasi-orthogonal integrals to graph theory . . . . .                        | 10 |
| 4 | Shohei Satake (Kobe Univ.)  | Remark on two typical properties of random graphs . . . . .  | 15 |
| 5 | <u>Shu Kanazawa</u> (Tohoku Univ.)<br>Masanori Hino (Kyoto Univ.)                     | Asymptotic behavior of lifetime sums for random simplicial complex processes . . . . .                   | 15 |

- 6 Kosuke Suzuki (Hiroshima Univ.) Enumeration of the Chebyshev–Frolov lattice points in axis-parallel  
Takehito Yoshiki (Kyoto Univ.) boxes ..... 15
- 7 Naoto Agawa (Kyushu Univ.) A relational T-algebra isomorphic to the category of the topological  
Yoshihiro Mizoguchi (Kyushu Univ.) spaces ..... 15
- 8 Sho Suda (Aichi Univ. of Edu.) The Smith normal form of skew-symmetric D-optimal designs of order  
Gary Greaves (Nanyang Tech. Univ.)  $n \equiv 2 \pmod{4}$  ..... 10
- 9 Hiroshi Nozaki (Aichi Univ. of Edu.) Maximizing the order of a bipartite regular graph for given valency and  
second eigenvalue ..... 15
- 14:20–16:30**
- 10 Yandong Bai Kernels by properly colored paths in arc-colored digraphs ..... 10  
(Northwestern Polytechnical Univ.)  
Shinya Fujita (Yokohama City Univ.)  
Shenggui Zhang  
(Northwestern Polytechnical Univ.)
- 11 Jun Fujisawa (Keio Univ.) Distance matching extension in cubic bipartite graphs ..... 15  
R. E. L. Aldred (Univ. of Otago)  
Akira Saito (Nihon Univ.)
- 12 Yumiko Ohno (Yokohama Nat. Univ.)  $n$ -Triad colorings of triangulations on the torus ..... 15
- 13 Yoshihiro Asayama 3-dynamic coloring for triangulations on surfaces ..... 15  
(Yokohama Nat. Univ.)  
Yuki Kawasaki (Yokohama Nat. Univ.)  
Seog-Jin Kim (Konkuk Univ.)  
Atsuhiko Nakamoto  
(Yokohama Nat. Univ.)  
Kenta Ozeki (Yokohama Nat. Univ.)
- 14 Kengo Enami (Yokohama Nat. Univ.) 3-connected 3-regular planar graphs embedded on non-spherical surfaces  
..... 15
- 15 Kenta Ozeki (Yokohama Nat. Univ.) The signature of edge colorings on the projective plane ..... 15  
Toshiki Abe (Yokohama Nat. Univ.)
- 16 Kenta Noguchi (Tokyo Denki Univ.) Spanning bipartite subgraphs having large size of even triangulations  
..... 15
- 17 Yusuke Suzuki (Niigata Univ.) Exceptional balanced triangulations on closed surfaces ..... 15  
Satoshi Murai (Osaka Univ.)

**16:45–17:45 Talk Invited by Applied Mathematics Section**

- Masashi Shinohara (Shiga Univ.) Classification problems and extremal problems on distance sets

March 19th (Mon) Conference Room VI

**9:30–11:45**

- 18 Iwao Sato (Oyama Nat. Coll. of Tech.) A weighted generalized Bartholdi zeta function of a digraph ..... 15  
Hideo Mitsunashi (Hosei Univ.)  
Hideaki Morita (Muroan Inst. of Tech.)

- 19 Yusuke Ide (Kanagawa Univ.) Two-state space-inhomogeneous coined quantum walk ..... 10  
Norio Konno (Yokohama Nat. Univ.)  
Daichi Nakayama  
(Yokohama Nat. Univ.)
- 20 Takashi Komatsu The Quantum walk on the 2-dimensional torus ..... 10  
(Yokohama Nat. Univ.)  
Norio Konno (Yokohama Nat. Univ.)  
Akihiro Narimatsu  
(Yokohama Nat. Univ.)
- 21 Daiju Funakawa (Hokkaido Univ.) Eigenvalue analysis of a 2-dimensional quantum walk ..... 15  
Toru Fuda (Hokkaido Univ.)  
Satoshi Sasayama (Hokkaido Univ.)  
Akito Suzuki (Shinshu Univ.)
- 22 Tomoyuki Terada Study on the one-dimensional lazy Fourier walk ..... 10  
(Kanazawa Inst. of Tech.)  
Takashi Komatsu  
(Yokohama Nat. Univ.)  
Norio Konno (Yokohama Nat. Univ.)  
Kei Saito (Yokohama Nat. Univ.)
- 23 Hironichi Ohno (Shinshu Univ.) Unitary equivalence classes of one-dimensional quantum walks ..... 15
- 24 Takashi Komatsu Stationary measures of quantum walks on the higher-dimensional integer lattice ..... 15  
(Yokohama Nat. Univ.)  
Norio Konno (Yokohama Nat. Univ.)
- 25 Takashi Komatsu Stationary measures of space-inhomogeneous quantum walks ..... 10  
(Yokohama Nat. Univ.)  
Hikari Kawai (Yokohama Nat. Univ.)  
Norio Konno (Yokohama Nat. Univ.)
- 26 Yusuke Yoshie (Tohoku Univ.) Periodicity of the Grover walk on joint of graphs ..... 15

**14:00–14:20 Presentation Ceremony for the 2017 MSJ Prize for Excellent Young Applied Mathematicians**

March 20th (Tue) Conference Room VI

**9:15–11:50**

- 27 Genki Kusano (Tohoku Univ.) The bootstrap method by the Persistence weighted Gaussian kernel ..... 15
- 28 Hiroshi Takeuchi (Tohoku Univ.) The persistent homology of a correspondence: A viewpoint from quiver representations ..... 15  
Yasuaki Hiraoka (Tohoku Univ.)
- 29 Ippei Obayashi (Tohoku Univ.) Volume optimal cycles for persistent homology ..... 15
- 30 Takashi Teramoto The case studies of using computational homology in medical science ..... 10  
(Asahikawa Medical Univ.)  
Akihiro Takiyama  
(Hokkaido Bunkyo Univ.)
- 31 Hiroe Oka (Ryukoku Univ.) The Conley index over base ..... 15  
Sota Koyama (Ryukoku Univ.)



- 32 Shunji Horiguchi On convergences and distributions of roots of extended complex Newton's method ..... 15
- 33 Fuminori Sakaguchi (Univ. of Fukui) 'Decipherment' of integer sequences corresponding to extra solutions in an integer-type algorithm for ODEs ..... 15
- 34 Tomooki Yuasa (Ritsumeikan Univ.) Second order unbiased simulation method for reflected stochastic differential equations ..... 15  
Tatsuki Akiyama (Ritsumeikan Univ.)  
Arturo Kohatsu-Higa  
(Ritsumeikan Univ.)
- 35 Takehiko Kinoshita An invertibility verifications for linear elliptic operators mapping to dual space ..... 15  
Yoshitaka Watanabe (Kyushu Univ.)  
Mitsuhiro T. Nakao (Waseda Univ.)
- 36 Tomoyuki Miyaji (Meiji Univ.) Computer-assisted proof of the existence of a unimodal solution to the Proudman–Johnson equation ..... 15  
Hisahi Okamoto (Gakushuin Univ.)
- 14:15–16:40**
- 37 Yuuki Ueda (Univ. of Tokyo) The inf-sup condition and error estimate of the Nitsche's method for the parabolic problems ..... 15  
Norikazu Saito (Univ. of Tokyo)
- 38 Daisuke Koyama <sup>b</sup> An application of the interior penalty method to a mixed nonconforming finite element method for biharmonic problems ..... 15  
(Univ. of Electro-Comm.)
- 39 Xuefeng Liu (Niigata Univ.) A priori error estimation for the finite element solution to Stokes equation in 3D domain ..... 15  
Mitsuhiro Nakao  
(Waseda Univ./Kyushu Univ.\*)  
Chun'guang You  
(China Acad. of Eng. Phys.)  
Shin'ichi Oishi (Waseda Univ.)
- 40 Norikazu Saito (Univ. of Tokyo) Variational analysis of the discontinuous Galerkin time-stepping method ..... 15
- 41 Tomoya Kemmochi (Univ. of Tokyo) An analytic semigroup approach for the DG time-stepping method ... 15
- 42 Nobuyuki Higashimori (Kyoto Univ.) Numerical examples of unstable finite difference schemes for the initial value problem of the heat equation including sideways case ..... 15
- 43 Takuya Tsuchiya (Waseda Univ.) On the numerical stability of semi-linear Klein–Gordon equations in de Sitter spacetime ..... 15  
Makoto Nakamura (Yamagata Univ.)
- 44 Ai Ishikawa (Kobe Univ.) The extension of the energy-preserving method based on the variational principle to the Lie group ..... 15  
Takaharu Yaguchi (Kobe Univ.)
- 45 Makoto Okumura (Osaka Univ.) Nonlinear and linear DVDM scheme for the conservative non-local Allen–Cahn equation ..... 15

**16:50–17:50 Talk Invited by Applied Mathematics Section**

- Shuji Yoshikawa (Oita Univ.) Energy method for structure-preserving finite difference schemes

March 21st (Wed) Conference Room VI

**9:15–11:55**

- 46 Masaji Watanabe (Okayama Univ.) Inverse analysis for microbial population in biodegradation process of xenobiotic polymer ..... 15  
Fusako Kawai (Kyoto Inst. Tech.)

- 47 Yoichi Enatsu (Tokyo Univ. of Sci.) On an SIR model with free boundary ..... 15  
 Emiko Ishiwata (Tokyo Univ. of Sci.)  
 Takeo Ushijima (Tokyo Univ. of Sci.)
- 48 Mamoru Okamoto (Hokkaido Univ.) Mathematical model including fluid's effect of camphor disk's self-  
 Masaharu Nagayama (Hokkaido Univ.) motion ..... 15
- 49 Takeshi Gotoda (Hokkaido Univ.) Mathematical modeling for stable formation of the granular layer and  
 Masaaki Uesaka (Hokkaido Univ.) tight junctions in the epidermis ..... 15  
 Yusuke Yasugahira (Hokkaido Univ.)  
 Yasuaki Kobayashi (Ochanomizu Univ.)  
 Hiroyuki Kitahata (Chiba Univ.)  
 Mitsuhiro Denda  
 (Shiseido Company, Ltd.)  
 Masaharu Nagayama (Hokkaido Univ.)
- 50 Takamichi Sushida (Hokkaido Univ.) A mathematical model for representing collective rotational migrations  
 Hitomi Mori (Hokkaido Univ.) of cell groups covered by basement membrane ..... 15  
 Sumire Ishida (Hokkaido Univ.)  
 Kazuya Furusawa (Hokkaido Univ.)  
 Hisashi Haga (Hokkaido Univ.)  
 Masakazu Akiyama (Hokkaido Univ.)
- 51 Shun Sato (Univ. of Tokyo) Reformulation of evolutionary differential equations with a mixed deriva-  
 tive ..... 15
- 52 Yuuki Shimizu (Kyoto Univ.) Green's function on surfaces with symmetry ..... 15
- 53 Takashi Sakajo (Kyoto Univ.) One dimensional hydrodynamic PDE generating turbulent cascade of  
 Takeshi Matsumoto (Kyoto Univ.) inviscid invariant ..... 15
- 54 Takashi Sakajo (Kyoto Univ.) Linear feedback control stabilizing point vortex equilibria near a Kasper  
 Rhodri Nelson (Imperial Coll. London) Wing ..... 15  
 Bartosz Protas (McMaster Univ.)
- 55 Kohji Ohtsuka Shape sensitivity analysis of eigenvalue by generalized J-integral in  
 (Hiroshima Kokusai Gakuin Univ.) boundary value problems ..... 15
- 14:15–16:40**
- 56 Keiichi Ueda (Univ. of Toyama) Synchronization of two interacting populations of oscillators by au-  
 tonomous parameter control ..... 15
- 57 Takeshi Watanabe (Univ. of Tokyo) Global bifurcation structure governing interaction between bump het-  
 Zhijun Gao (Tohoku Univ.) erogeneity and pulse with oscillatory tail ..... 15  
 Yasumasa Nishiura (Tohoku Univ.)
- 58 Kei Nishi (Kyoto Sangyo Univ.) Bifurcation analysis of the motion of two self-propelled camphor disks  
 Masaharu Nagayama (Hokkaido Univ.) on an annular field ..... 15  
 Satoshi Nakata (Hiroshima Univ.)
- 59 Shogo Yamanaka (Kyoto Univ.) Existence of transverse heteroclinic orbits and nonintegrability in two-  
 Kazuyuki Yagasaki (Kyoto Univ.) degree-of-freedom Hamiltonian systems with saddle-centers ..... 15
- 60 Naoto Nakano Characteristics of derivative embedded surfaces and predictability of  
 (Kyoto Univ./JST PRESTO) timeseries ..... 15

61	<u>Takiko Sasaki</u> (Meiji Univ.) Tetsuya Ishiwata (Shibaura Inst. of Tech.)	Numerical and mathematical analysis for the blow-up curve of solutions to 1-dimensional nonlinear wave equations . . . . .	15
62	<u>Koichi Anada</u> (Waseda Univ. Senior High School) Tetsuya Ishiwata (Shibaura Inst. of Tech.) Takeo Ushijima (Tokyo Univ. of Sci.)	A study for backward self similar solutions of a quasi-linear parabolic equation . . . . .	15
63	Kaname Matsue (Kyushu Univ./Kyushu Univ.)	Blow-up rates of blow-up solutions determined by dynamics at infinity . . . . .	15
64	Kaname Matsue (Kyushu Univ./Kyushu Univ.)	Oscillatory blow-up solutions with fast blow-up rates and oscillatory grow-up solutions . . . . .	15
<b>16:50–17:50 Talk Invited by Applied Mathematics Section</b>			
	Akitoshi Takayasu (Univ. of Tsukuba)	Verified computations for solutions of evolution equations with semi-group theory	

## Topology

March 18th (Sun) Conference Room II

### 9:40–12:00

1	Eiko Iwayama	The simplex of $n$ -dim. and New Euler–Poincaré Expanded characteristic and the relation of combination numbers . . . . .	5
2	Eiko Iwayama	The triangle of the cuboids of $n$ -dimension and New Euler–Poincaré Expanded characteristic . . . . .	5
3	Yoshihito Ogasawara (Waseda Univ.)	On an applicability of topology . . . . .	10
4	Hironobu Naoe (Tohoku Univ.)	Infinitely many corks having large shadow-complexities . . . . .	15
5	Akira Miyamura (Tokyo Tech)	A note on signature of Lefschetz fibrations with planar fiber . . . . .	10
6	Yusuke Inagaki (Osaka Univ.)	On Fuchsian loci of Hitchin components of a pair of pants . . . . .	15
7	Yuuki Tadokoro (Nat. Inst. of Tech., Kisarazu Coll.)	Pointed harmonic volume and its relation to extended Johnson homomorphism . . . . .	15
8	Takahiro Yamamoto (Tokyo Gakugei Univ.)	Cobordism groups of Morse functions on manifolds with boundary . . .	15
9	<u>Asahi Tsuchida</u> (Hokkaido Univ.) Kentarō Saji (Kobe Univ.)	Singularities of bundle homomorphism between a distribution and a vector bundle . . . . .	15
10	Kentarō Saji (Kobe Univ.)	$SO(3)$ -normal form of swallowtail and geometric patterns . . . . .	10

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

Daisuke Kishimoto (Kyoto Univ.) Homotopy theory of polyhedral products

**15:30–18:00**

- 11 Masayuki Yamasaki (Okayama Univ. of Sci.) On rotation numbers of regular closed curves on aspherical surfaces ..... 15
- 12 Katsuhiko Kuribayashi (Shinshu Univ.) On the category of stratifolds and the Serre–Swan theorem ..... 15  
Toshiki Aoki
- 13 Takuo Matsuoka Higher theories of algebraic structures ..... 15
- 14 Shin Hayashi (MathAM-OIL) Bulk-edge correspondence and the cobordism invariance of the index ..... 15
- 15 Shin Hayashi (MathAM-OIL) Bulk-edge and corner correspondence ..... 15
- 16 Syunji Moriya (Osaka Pref. Univ.) The space of knots in a manifold and the right operadic module of configuration spaces ..... 15
- 17 Syunji Moriya (Osaka Pref. Univ.) Non-formality of the odd dimensional framed little disks operads ..... 15
- 18 Hideya Kuwata (Kindai Univ. Tech. Coll.) Classification of toric manifolds over an  $n$ -cube with one vertex cut ..... 15  
Sho Hasui (Osaka Pref. Univ.)  
Mikiya Masuda (Osaka City Univ.)  
Seonjeong Park (Osaka City Univ.)
- 19 Hiraku Abe (Osaka City Univ.) On the cohomology rings of regular semisimple Hessenberg varieties ..... 10  
Tatsuya Horiguchi (Osaka Univ./Osaka City Univ.)  
Mikiya Masuda (Osaka City Univ.)

## March 19th (Mon) Conference Room II

**9:30–10:30**

- 20 Atsuhide Mori (Osaka Dental Univ.) Symplectic/contact geometry of  $t$ -distributions ..... 15
- 21 Takuya Katayama (Hiroshima Univ.) Embeddability of the right-angled Artin groups on the complement graphs of linear forests ..... 15
- 22 Motoko Kato (Univ. of Tokyo) On the isomorphism problem of signed Thompson groups ..... 10
- 23 Narutaka Ozawa (Kyoto Univ.) Kazhdan’s property (T) and semidefinite programming ..... 15

**10:45–11:45 Talk Invited by Topology Section**

- Masayuki Asaoka (Kyoto Univ.) Growth rate of the number of periodic points for smooth dynamical systems

**13:00–14:20**

- 24 Noriaki Kawaguchi (Univ. of Tokyo)<sup>b</sup> On the shadowing and limit shadowing properties ..... 15
- 25 Shinobu Hashimoto (Tokyo Metro. Univ.) Moduli of two-dimensional diffeomorphisms with cubic tangencies ..... 15
- 26 Koichi Hiraide (Ehime Univ.)<sup>b</sup> Relationship between topological entropy and Lyapunov exponents ... 15  
Chihiro Matsuoka (Osaka City Univ.)
- 27 Kaori Yamazaki (Takasaki City Univ. of Econ.) Questions on monotone operators for vector-valued maps ..... 15
- 28 Yukinobu Yajima (Kanagawa Univ.) Three embeddings and their implications in products of generalized metric spaces ..... 15  
Yasushi Hirata (Kanagawa Univ.)

## March 20th (Tue) Conference Room II

**9:20–12:00**

- 29 In Dae Jong (Kindai Univ.) Achiral 1-cusped hyperbolic 3-manifolds not coming from amphicheiral  
Kazuhiro Ichihara (Nihon Univ.) null-homologous knot complements ..... 15  
Kouki Taniyama (Waseda Univ.)
- 30 Kazuhiro Ichihara (Nihon Univ.) Chirally cosmetic surgeries and Casson invariants ..... 15  
Tetsuya Itoh (Osaka Univ.)  
Toshio Saito (Joetsu Univ. of Edu.)
- 31 Naoki Sakata (Hiroshima Univ.) Veering structures of the canonical decompositions of hyperbolic fibered  
two-bridge link complements ..... 10
- 32 Ken'ichi Yoshida (Kyoto Univ.) Hyperbolicity on tangle gluings ..... 15
- 33 Ryan Blair (California State Univ.) Height, trunk and representativity of knots ..... 15  
Makoto Ozawa (Komazawa Univ.)
- 34 Ryan Blair (California State Univ.) The incompatibility of crossing number and bridge number for knot  
Alexandra A. Kjachukova diagrams ..... 15  
(Univ. of Pennsylvania)  
Makoto Ozawa (Komazawa Univ.)
- 35 Jie Chen (Tohoku Univ.) A pair of Seifert matrices that cannot have algebraic Gordian distance  
one ..... 15
- 36 Teruaki Kitano (Soka Univ.) Reidemeister torsion of a Brieskorn homology 3-sphere for  $SL(2; \mathbb{C})$ -  
irreducible representations ..... 10
- 37 Shunsuke Sakai (Hiroshima Univ.) A characterization of alternating link exteriors in terms of cubed com-  
plexes ..... 15
- 38 Yoshifumi Matsuda On the sepaktakraw link ..... 15  
(Aoyama Gakuin Univ.)

**14:20–15:20 Talk Invited by Topology Section**

Takefumi Nosaka (Tokyo Tech) Nilpotent studies in 3-dimensional topology

**15:35–17:45**

- 39 Noboru Ito (Univ. of Tokyo) On equivalence classes of spherical curves by deformations of types RI  
Megumi Hashizume (Meiji Univ.) and RIII ..... 15
- 40 Noboru Ito (Univ. of Tokyo) Finite type invariants and n-similarity of virtual knots by forbidden  
Migiwa Sakurai moves ..... 10  
(Ibaraki Nat. Coll. of Tech.)
- 41 Yuka Kotorii (RIKEN)  $C_n$ -move on long virtual knot and Goussarov–Polyak–Viro's finite type  
invariant ..... 10
- 42 Atsuhiko Mizusawa On HL-homotopy classes for 3-component handlebody-links ..... 15
- 43 Naoki Kimura (Waseda Univ.) Dijkgraaf–Witten invariants of cusped hyperbolic 3-manifolds ..... 10
- 44 Wataru Yuasa (Tokyo Tech) A  $q$ -series identity via the  $\mathfrak{sl}_3$  colored Jones polynomials for the  $(2, 2m)$ -  
torus link ..... 10
- 45 Wataru Yuasa (Tokyo Tech) The  $\mathfrak{sl}_3$  colored Jones polynomials for 2-bridge links ..... 10

46	Tomo Murao (Univ. of Tsukuba)	A relationship between MCQ coloring numbers and MCB coloring numbers . . . . .	10
47	Eri Matsudo (Nihon Univ.)	Minimal coloring number of $\mathbb{Z}$ -colorable links . . . . .	10
48	Airi Aso (Tokyo Metro. Univ.)	Twisted Alexander polynomials of $(-2, 3, 2n + 1)$ -pretzel knots . . . . .	15

## Infinite Analysis

March 20th (Tue) Conference Room V

### 10:00–11:30

1	Kentaro Kojima (Chuo Univ.) Tsukasa Sato (Chuo Univ.) Kouichi Takemura (Chuo Univ.)	Polynomial solutions of $q$ -Heun equation . . . . .	15
2	Zhijie Chen (Yau Math. Sci. Center) Ting-Jung Kuo (Nat. Taiwan Normal Univ.) Chang-Shou Lin (Nat. Taiwan Univ.) Kouichi Takemura (Chuo Univ.)	Real-root property of the spectral polynomial of the Treibich–Verdier potential and related problems . . . . .	15
3	Ayumu Hoshino (Hiroshima Inst. of Tech.) Jun'ichi Shiraishi (Univ. of Tokyo)	Explicit formulas for one-column Macdonald polynomials of types $C_n$ and $D_n$ . . . . .	15
4	Masahiko Ito (Univ. of Ryukyus) Aiko Miyanaga (Kobe Univ.) Masatoshi Noumi (Kobe Univ.)	Determinant formulas for the $q$ -hypergeometric integrals associated with the root system of type $G_2$ . . . . .	15
5	Kôki Itô (Toyohashi Univ. of Tech.)	Homology of $q$ -cycles . . . . .	15
6	Kanam Park (Kobe Univ.)	An extension of $q$ -hypergeometric series and a monodromy preserving deformation . . . . .	15

### 14:00–15:30

7	Yousuke Ohyama (Tokushima Univ.)	A connection problem for basic hypergeometric series ${}_r\phi_{r-1}(\mathbf{0}; \mathbf{b}; q, x)$ . . . . .	15
8	Yousuke Ohyama (Tokushima Univ.)	$q$ -Stokes coefficients of a difference equation satisfied by basic Hypergeometric Series ${}_3\phi_2(a_1, a_2, a_3; b_1, 0; q, x)$ . . . . .	15
9	Hokuto Kanbara Yuto Takeda Kimio Ueno (Waseda Univ.)	Expansion of solutions for KZ-theoretical monodromy preserving deformation in terms of multiple polylogarithms . . . . .	15
10	Kimio Ueno (Waseda Univ.)	KZ-theoretical approach to monodromy preserving deformation and its relation to Schlesinger equations . . . . .	10
11	Masato Okado (Osaka City Univ.) Anne Schilling (UC Davis) Travis Scrimshaw (Univ. of Queensland)	Bijection between paths and rigged configurations of nonexceptional affine types . . . . .	15
12	Kanehisa Takasaki (Kindai Univ.)	Topological vertex and integrable hierarchies of Volterra type . . . . .	15

**15:45–16:45 Talk Invited by Infinite Analysis Special Session**

Taro Kimura (Keio Univ.) Quiver gauge theory and quiver W-algebra

March 21st (Wed) Conference Room V

**9:30–10:30**

- 13 Kohei Motegi <sup>b</sup> Elliptic Felderhof model and elliptic Schur functions ..... 15  
(Tokyo Univ. of Marine Sci. and Tech.)
- 14 Hiroyuki Yamane (Univ. of Toyama) Bruhat order of Weyl groupoids ..... 15  
Iván Angiono (Nat. Univ. of Córdoba)
- 15 Yoshitake Hashimoto Screening operators and  $\mathfrak{sl}_2$  action on the lattice vertex operator algebras of type  $A_1$  ..... 15  
(Tokyo City Univ.)  
Takuya Matsumoto (Nagoya Univ.)  
Akihiro Tsuchiya (Kavli IPMU)
- 16 Ryo Sato (Univ. of Tokyo) Modular transformation properties and the Verlinde formula ..... 15

**10:45–11:45 Talk Invited by Infinite Analysis Special Session**

Hiroshi Naruse (Univ. of Yamanashi) Generalization of Hall–Littlewood function from the view point of Schubert calculus, generating function and application

## Information for Speakers

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

Collaborative works are presented by the underlined authors. The talks with **b** marks denote presentations on blackboard. The speakers with **★** marks are professors emeriti. If you find anything wrong in the program, do not hesitate to inform the Chair of Organizing Committee by sending e-mail to the address [tokyo18mar@mathsoc.jp](mailto:tokyo18mar@mathsoc.jp).

Each conference room is equipped with a blackboard, a document camera, and a projector with VGA interface for PC presentation. You are asked to use your own PC and necessary accessory (for example, HDMI-VGA adapter) for a PC presentation. The time for connecting your PC to the projector is included in the assigned duration of your talk. You are recommended to check beforehand if your PC can be connected to the projector in the conference room. We strongly advise you to prepare an alternative method to present your talk such as a copy of the PDF file of your sheets on a USB flash drive or printed sheets for the document camera in case your PC does not fit to the projector.

## Information for Participants

Smoking is prohibited on campus and there is no parking area for visitors.

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## Official Party

Date: March 19th (Mon) 18:00–20:00

Venue: Seminar Room, 1F, Komaba Faculty House

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