

## 2013 Mathematical Society of Japan

**AUTUMN MEETING**

Dates: September 24th–27th, 2013

Venue: Ehime University, Johoku Campus

Bunkyo-cho 3, Matsuyama, Ehime 790-8577

Contact to: Department of Mathematics,

Faculty of Sciences, Ehime University

Bunkyo-cho 2–5, Matsuyama, Ehime 790-8577

E-mail [ehime13sept@mathsoc.jp](mailto:ehime13sept@mathsoc.jp)

During session: Phone +81 (0) 90 1791 3483

Mathematical Society of Japan

Phone +81 (0) 3 3835 3483

	I Green Hall	II General Edu. L.H. Rm 11	III General Edu. L.H. Rm 21	IV General Edu. L.H. Rm 24	V General Edu. L.H. Rm 35	VI General Edu. L.H. Rm 45	VII Law & Letters L.H. Rm 201	VIII Engineering Bldg.4 Rm E411	IX Engineering Bldg.4 Rm E421
24th (Tue)	Algebra 9:00–12:00 14:15–16:45	Functional Equations 9:20–12:00 14:15–16:30	Real Analysis 9:00–12:05 14:20–16:15	Functional Analysis 9:30–11:50	Topology 9:00–12:00 14:15–16:00	Geometry 9:15–12:00 14:15–16:00	Applied Mathematics 9:45–12:00 14:15–16:30	Statistics and Probability 9:30–12:00 14:15–14:45	Infinite Analysis 9:30–12:00 14:15–16:20
	Featured Invited Talks					13:00–14:00			
	Invited Talk 17:00–18:00	Invited Talk 16:45–17:45	Invited Talk 16:30–17:30	Invited Talk 14:15–15:15	Invited Talk 16:20–17:20	Invited Talk 16:15–17:15	Invited Talk 16:50–17:50	Invited Talks 15:00–16:00 16:15–17:15	Invited Talk 16:30–17:30
25th (Wed)	Algebra 9:00–12:00	Functional Equations 9:00–12:00	Real Analysis 9:00–11:55 13:00–13:15	Functional Analysis 9:30–11:50	Geometry / Topology (Edu. Bldg.2, Large Lect. Room)		Applied Mathematics 9:45–12:00	Statistics and Probability 9:15–11:50	Infinite Analysis 9:30–12:00
	Invited Talk 13:15–14:15	Invited Talk 13:15–14:15	Invited Talk 13:20–14:20		Invited Talks 10:50–11:50 13:15–14:15		Invited Talk 13:00–14:00		Invited Talk 13:00–14:00
	MSJ Prizes Presentation (Himegin Hall, Sub-hall) . . . . . (15:00–15:30) Plenary Talks (Himegin Hall, Sub-hall) MSJ Autumn Prize Winner . . . . . (15:45–16:45) Toshio Oshima (Univ. of Tokyo) . . . . . (17:00–18:00) Official Party (Alumni Association Hall Café Restaurant “Se·tolian”) . . . . . (18:20–20:20)								
26th (Thu)	Algebra 9:00–11:25 14:15–16:00	Functional Equations 9:00–12:00 14:15–16:30	Complex Analysis 10:00–12:00 14:15–15:00	Functional Analysis 9:30–12:00 14:15–15:45	Topology 9:00–12:00 14:15–16:00	Geometry 9:00–12:00 14:15–16:00	Applied Mathematics 9:30–10:20 14:15–17:45 Special Session 10:30–12:00	Statistics and Probability 9:00–12:00	Found. of Math. and History of Math. 9:30–10:55 15:25–16:50
	Featured Invited Talks					13:00–14:00			
	Invited Talk 16:15–17:15	Invited Talk 16:45–17:45	Invited Talk 15:10–16:10	Invited Talk 16:00–17:00	Invited Talk 16:20–17:20	Invited Talk 16:15–17:15		Invited Talks 14:30–15:30 15:45–16:45	Invited Talk 14:15–15:15
27th (Fri)	Algebra 9:30–12:00 14:15–15:30	Functional Equations 9:00–12:00 14:15–16:30	Complex Analysis 9:00–10:45	Functional Analysis 9:30–12:00			Applied Mathematics 9:00–12:00 14:15–16:45	Statistics and Probability 9:15–12:00	Found. of Math. and History of Math. 10:00–11:25
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	Invited Talk 15:45–16:45	Invited Talk 16:45–17:45	Invited Talk 11:00–12:00	Invited Talk 14:15–15:15			Invited Talk 17:00–18:00		Invited Talk 14:15–15:15

## Plenary Talks

September 25th (Wed) Himegin Hall, Sub-hall

MSJ Autumn Prize Winner	.....	(15:45–16:45)
Toshio Oshima (Josai Univ.)	Linear ordinary differential equations with polynomial coefficients .....	(17:00–18:00)

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## Featured Invited Talks

September 24th (Tue)

### Conference Room I

Toshiaki Shoji (Nagoya Univ./Dongji Univ.)	# Exotic symmetric spaces and Kostka polynomials .....	(13:00–14:00)
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### Conference Room II

Yoshikazu Kobayashi (Chuo Univ.)	# Nonlinear evolution operators and ordinary differential equations in Banach spaces .....	(13:00–14:00)
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September 26th (Thu)

### Conference Room I

Guest Talk from Korean Mathematical Society		
Seok-Jin Kang (Seoul Nat. Univ.)	Khovanov–Lauda–Rouquier algebras and 2-representation theory .....	(13:00–14:00)

### Conference Room VII

Hitoshi Matsubara (Future Univ.-Hakodate)	# Shogi programs have beat human professional players .....	(13:00–14:00)
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September 27th (Fri)

### Conference Room I

Tetsuji Miwa (Kyoto Univ.)	# Algebraic analysis and exactly solvable models .....	(13:00–14:00)
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### Conference Room II

Koji Fujiwara (Kyoto Univ.)	# Group actions on quasi-trees .....	(13:00–14:00)
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### Conference Room VIII

Ichiro Hasuo (Univ. of Tokyo)	# Verification of cyber-physical systems via nonstandard analysis: from discrete to continuous and hybrid .....	(13:00–14:00)
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## Talks invited by Research Sections and Special Session

September 24th (Tue)

### Algebra (Conference Room I)

Yuval Flicker<sup>#</sup> Counting local systems via automorphic forms . . . . . (17:00–18:00)  
(Ohio State Univ./Ariel Univ.)

### Geometry (Conference Room VI)

Hisashi Kasuya (Tokyo Tech)<sup>#</sup> Cohomologies and deformations of solvmanifolds . . . . . (16:15–17:15)

### Functional Equations (Conference Room II)

Hayato Chiba (Kyushu Univ.)<sup>#</sup> The Painlevé equations on weighted projective spaces . . . . . (16:45–17:45)

### Real Analysis (Conference Room III)

Shinya Moritoh (Nara Women's Univ.)<sup>\*</sup> Microlocal Besov spaces and dominating mixed smoothness  
. . . . . (16:30–17:30)

### Functional Analysis (Conference Room IV)

Chisato Iwasaki (Univ. of Hyogo)<sup>\*</sup> The symbol of the fundamental solution for the degenerate  
parabolic operators and its application . . . . . (14:15–15:15)

### Statistics and Probability (Conference Room VIII)

Makoto Nakashima (Univ. of Tsukuba)<sup>#</sup> Branching random walks in random environment . . . . . (15:00–16:00)

Katusi Fukuyama (Kobe Univ.)<sup>#</sup> Uniform distribution theory for geometric progressions . . . . . (16:15–17:15)

### Applied Mathematics (Conference Room VII)

Masaaki Harada (Yamagata Univ.)<sup>#</sup> Self-dual codes and related topics . . . . . (16:50–17:50)

### Topology (Conference Room V)

Tadayuki Watanabe (Shimane Univ.)<sup>#</sup> Morse theory and graph-valued 3-manifold invariant . . . . . (16:20–17:20)

### Infinite Analysis (Conference Room IX)

Katsuyuki Naoi (Univ. of Tokyo)<sup>#</sup> An approach to the  $X = M$  conjecture using modules over  
a current algebra . . . . . (16:30–17:30)

September 25th (Wed)

### Algebra (Conference Room I)

Shunsuke Takagi (Univ. of Tokyo)<sup>#</sup> F-singularities and singularities in the minimal model pro-  
gram . . . . . (13:15–14:15)

### Geometry and Topology (Edu. Bldg.2, Large Lect. Room)

Award Lecture for 2013 Geometry Prize

Katsutoshi Yamanoi (Tokyo Tech)<sup>#</sup> Value distribution of derivatives of meromorphic functions  
. . . . . (10:50–11:50)

Award Lecture for 2013 Geometry Prize

Toshitake Kohno (Univ. of Tokyo)<sup>#</sup> Braids, quantum symmetry and hypergeometric integrals . . . . . (13:15–14:15)

**Functional Equations** (Conference Room II)

- Naohito Tomita (Osaka Univ.)<sup>#</sup> On the boundedness of bilinear Fourier multiplier operators  
 ..... (13:15–14:15)

**Real Analysis** (Conference Room III)

- Risei Kano (Kochi Univ.)<sup>#</sup> The existence of solutions for the tumor invasion models .. (13:20–14:20)

**Applied Mathematics** (Conference Room VII)

- Kanako Suzuki (Ibaraki Univ.)<sup>#</sup> Dynamics of some reaction-diffusion-ODE systems ..... (13:00–14:00)

**Infinite Analysis** (Conference Room IX)

- Akihiro Tsuchiya (Univ. of Tokyo)\* Logarithmic conformal field theory and the representation  
 theory of extended W-algebras ..... (13:00–14:00)

## September 26th (Thu)

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

- Tatsuhiko Kobayashi<sup>#</sup> Takakazu Seki, Katahiro Takebe, and Genkei Nakane ..... (14:15–15:15)  
 (Maebashi Inst. of Tech.\*/Yokkaichi Univ.)

**Algebra** (Conference Room I)

- Masahiko Miyamoto<sup>#</sup> On orbifold conjecture about vertex operator algebras .... (16:15–17:15)  
 (Univ. of Tsukuba)

**Geometry** (Conference Room VI)

- Shoichi Fujimori (Okayama Univ.)<sup>#</sup> Zero mean curvature embeddings in the Lorentz–Minkowski  
 3-space ..... (16:15–17:15)

**Complex Analysis** (Conference Room III)

- David Drasin (Purdue Univ.)<sup>#</sup> Sharpness of Rickman’s Picard theorem ..... (15:10–16:10)

**Functional Equations** (Conference Room II)

- Shuji Machihara (Saitama Univ.)<sup>#</sup> On the Cauchy problems for the system of Dirac equations  
 with quadratic nonlinearities in 1d ..... (16:45–17:45)

**Functional Analysis** (Conference Room IV)

- Toshihiko Matsuki (Ryukoku Univ.)<sup>#</sup> Finite-type orbit decompositions of multiple flag varieties for  
 orthogonal groups ..... (16:00–17:00)

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

- Yoichi Nishiyama<sup>#</sup> A stochastic maximal inequality, weak convergence of infinite-  
 dimensional martingales, and semiparametric statistics .... (14:30–15:30)  
 (Inst. of Stat. Math./Grad. Univ. for Adv. Stud.)

- Kouji Yamamoto (Osaka Univ.)<sup>#</sup> Modelling for square contingency tables and its application  
 ..... (15:45–16:45)

**Topology** (Conference Room V)

- Tetsuya Itoh (Kyoto Univ.)<sup>#</sup> Open book foliation ..... (16:20–17:20)

September 27th (Fri)

**Foundation of Mathematics and History of Mathematics** (Conference Room IX)Koichiro Ikeda (Hosei Univ.)<sup>#</sup> On generic structures ..... (14:15–15:15)**Algebra** (Conference Room I)Yoshiaki Fukuma (Kochi Univ.)<sup>#</sup> A study on the dimension of global sections of adjoint bundles by invariants of quasi-polarized varieties ..... (15:45–16:45)**Complex Analysis** (Conference Room III)Tetsuo Ueda (Kyoto Univ.)<sup>#</sup> Semi-parabolic fixed points and their bifurcations in complex dimension 2 ..... (11:00–12:00)**Functional Equations** (Conference Room II)Goro Akagi (Kobe Univ.)<sup>#</sup> Asymptotic behavior of solutions for nonlinear diffusion equations ..... (16:45–17:45)**Functional Analysis** (Conference Room IV)Yuki Seo (Osaka Kyoiku Univ.)<sup>#</sup> Developments of operator geometric means from the viewpoint of Kantorovich inequality ..... (14:15–15:15)**Applied Mathematics** (Conference Room VII)Takaharu Yaguchi (Kobe Univ.)<sup>#</sup> Energy-preserving numerical methods based on the finite element exterior calculus for wave-type differential equations ..... (17:00–18:00)

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## Open Lectures for Citizens

Sponsored by: Mathematical Society of Japan

Date: September 23rd (Mon) 14:00–16:30

Venue: Nanka Kinen Hall, Ehime University

Program: Opening Speech:

Naohisa Funaki (President of MSJ / Univ. of Tokyo) ..... (14:00–14:10)

Lecture 1:

Koichi Hirata (Ehime Univ.)

Japanese Mathematics *Wasan* and Mathematical Tablet *Sangaku* in Ehime Prefecture ..... (14:10–15:10)

Lecture 2:

Kouki Taniyama (Waseda Univ.)

Topology of puzzle rings ..... (15:30–16:30)

Web Page: <http://mathsoc.jp/en/meeting/ehime13sept/>

# Foundation of Mathematics and History of Mathematics

September 26th (Thu) Conference Room IX

## 9:30–10:55

- 1 Shigeru Masuda (Kyoto Univ.)<sup>#</sup> The Kepler problems affected the Schrödinger equations ..... 20
- 2 Shigeru Masuda (Kyoto Univ.)<sup>#</sup> The Fourier's heat communication theory and Boltzmann's gas transport equations ..... 20
- 3 Shotaro Tanaka \* Representation of fractional functions using power series 3 ..... 20
- 4 Hideyuki Majima (Ochanomizu Univ.)<sup>#</sup> When did Takebe Katahiro verify the calculation of Pi by Seki Takakazu? ..... 20

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

### 14:15–15:15 Talk invited by Section on Foundation and History of Mathematics

Tatsuhiko Kobayashi<sup>#</sup> Takakazu Seki, Katahiro Takebe, and Genkei Nakane  
(Maebashi Inst. of Tech.\* / Yokkaichi Univ.)

## 15:25–16:50

- 5 Toshio Suzuki (Tokyo Metro. Univ.)<sup>#</sup> Street pattern complexity based on affine compressibility ..... 15  
Yuji Hatakeyama (GREE, Inc.)
- 6 Akitoshi Kawamura (Univ. of Tokyo)<sup>#</sup> Polynomial-time randomness and differentiability ..... 15  
Kenshi Miyabe (Univ. of Tokyo)
- 7 Toshihiko Kurata (Hosei Univ.)<sup>#</sup> Sheaf-theoretical representation of concrete domains ..... 15
- 8 Ryo Kashima (Tokyo Tech)<sup>#</sup> On axiomatizations of subsystems of the full computation tree logic  
Shu Iwanami (Tokyo Tech) CTL\* ..... 15
- 9 Nobu-Yuki Suzuki (Shizuoka Univ.)<sup>#</sup> The Prawitz–Doorman term existence property in intermediate predicate logics ..... 20

September 27th (Fri) Conference Room IX

## 10:00–11:25

- 10 Takashi Oyabu Fundamental thoughts ..... 5
- 11 Makoto Kikuchi (Kobe Univ.)<sup>#</sup> On proofs of the incompleteness theorem based on liar-type inconsistency  
Taishi Kurahashi (Kobe Univ.) ..... 10
- 12 Taishi Kurahashi (Kobe Univ.)<sup>#</sup> Formalizations of Yablo's paradox using Rosser's provability predicates ..... 15
- 13 Yoshihiro Horihata<sup>#</sup> Theories of concatenation and weak essentially undecidable theories  
(Yonago Nat. Coll. of Tech.) ..... 10  
Ko-jiro Higuchi (Chiba Univ.)
- 14 Yoshihiro Abe (Kanagawa Univ.)<sup>#</sup> Unbounded sets of  $\mathcal{P}_\kappa \lambda$  with cardinality  $< \lambda^{<\kappa}$  ..... 15
- 15 Teruyuki Yorioka (Shizuoka Univ.)<sup>#</sup> A comment on Asperó–Mota iteration ..... 15
- 16 Yu-ichi Tanaka (Univ. of Tsukuba)<sup>#</sup> A new method for constructing real closed fields ..... 10  
Akito Tsuboi (Univ. of Tsukuba)

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

**14:15–15:15 Talk invited by Section on Foundation and History of Mathematics**

Koichiro Ikeda (Hosei Univ.)<sup>#</sup> On generic structures

## Algebra

September 24th (Tue) Conference Room I

**9:00–12:00**

- |    |  |   |   |    |
|----|--|---|---|----|
| 1  | Yasutoshi Nomura   | * | On divisibility of differences of binomial coefficients . . . . .   | 10 |
| 2  | Fuminori Kawamoto (Gakushuin Univ.) <sup>#</sup><br>Yasuhiro Kishi (Aichi Univ. of Edu.)<br>Hiroschi Suzuki (Nagoya Univ.)<br>Koshi Tomita (Meijo Univ.) |   | Continued fraction expansions with even period and primary symmetric parts with extremely large end . . . . .         | 15 |
| 3  | Fuminori Kawamoto (Gakushuin Univ.) <sup>#</sup><br>Yasuhiro Kishi (Aichi Univ. of Edu.)<br>Hiroschi Suzuki (Nagoya Univ.)<br>Koshi Tomita (Meijo Univ.) |   | Construction of primary symmetric parts of extremely large end . . . . .  | 15 |
| 4  | Soichi Ikeda (Nagoya Univ.) <sup>*</sup><br>Kaneaki Matsuoka (Nagoya Univ.)<br>Yoshikazu Nagata (Nagoya Univ.)   |   | Mean values of the double zeta function . . . . .   | 10 |
| 5  | Shin-ya Koyama (Toyo Univ.) <sup>#</sup><br>Fumika Suzuki<br>(Univ. of British Columbia)   |   | The deep Riemann hypothesis for Selberg zeta functions . . . . .  | 10 |
| 6  | Yoshikatsu Yashiro (Nagoya Univ.) <sup>#</sup>   |   | Mertens' theorem and prime number theorem for Selberg class . . . . .   | 10 |
| 7  | Takahiro Wakasa (Nagoya Univ.) <sup>*</sup>  |   | Explicit supremum of the function $S_1(t)$ in short intervals on the Riemann Hypothesis . . . . .                     | 10 |
| 8  | Tomokazu Onozuka (Nagoya Univ.) <sup>#</sup>   |   | The asymptotic behavior of multiple zeta-functions at non-positive integers . . . . .                                 | 10 |
| 9  | Takuya Okamoto (Ritsumeikan Univ.) <sup>#</sup><br>Tomokazu Onozuka (Nagoya Univ.)   |   | Mean value theorems for the Mordell–Tornheim double zeta-function . . . . .   | 15 |
| 10 | Ryo Tanaka (Nagoya Univ.) <sup>#</sup>   |   | Functional equations for general multiple zeta functions including Hurwitz–Lerch and Mordell–Tornheim types . . . . . | 15 |
| 11 | Daisuke Shiomi (Yamagata Univ.) <sup>*</sup>   |   | Non-ordinary cyclotomic function fields . . . . .   | 10 |
| 12 | Takeshi Kurosawa (Tokyo Univ. of Sci.) <sup>#</sup>  |   | Transcendence of infinite products with Fibonacci numbers . . . . .   | 10 |
| 13 | Yohei Tachiya (Hirosaki Univ.) <sup>#</sup>  |   | Irrationality of Lambert series associated with periodic sequence . . . . .   | 10 |

**14:15–16:45**

- 14 Hirofumi Nagoshi (Gunma Univ.) \* Independence of  $L$ -functions and the Nevanlinna characteristic . . . . . 10
- 15 Hidehiko Mishou (Tokyo Denki Univ.) \* Examples of any number of automorphic  $L$ -functions with joint universality property . . . . . 10  
Hirofumi Nagoshi (Gunma Univ.)
- 16 Takehito Yoshiki (Univ. of Tokyo) ‡ A general formula for the discriminant of polynomials over  $\mathbb{F}_2$  determining the parity of the number of prime factors . . . . . 10
- 17 Keisuke Arai (Tokyo Denki Univ.) \* Non-existence of elliptic points on Shimura curves of  $\Gamma_0(p)$ -type . . . . . 15
- 18 Kenichi Shimizu \* Imaginary quadratic fields whose exponents are equal to two . . . . . 10  
(Kenmei Girls' Junior and Senior High School)
- 19 Jerome T. Dimabayao (Kyushu Univ.) ‡ On the vanishing of cohomologies of  $p$ -adic Galois representations associated with elliptic curves . . . . . 15
- 20 Yuken Miyasaka (Tohoku Univ.) ‡ Honda theory for formal groups of abelian varieties over  $\mathbb{Q}$  of  $GL_2$ -type . . . . . 10
- 21 Hiroshi Sakata \* A remark on the trace formula for Jacobi forms of prime power level . . . . . 15  
(Waseda Univ. Senior High School)
- 22 Hirotaka Kodama (Kinki Univ.) ‡ A congruence property of a Siegel cusp form of odd weight . . . . . 10  
Shoyu Nagaoka (Kinki Univ.)
- 23 Takao Watanabe (Osaka Univ.) \* A construction of fundamental domains for arithmetic quotients of reductive algebraic groups . . . . . 10
- 24 Kohei Katata (Ehime Univ.) \* On Ramanujan circulant graphs . . . . . 15  
Miki Hirano (Ehime Univ.)  
Yoshinori Yamasaki (Ehime Univ.)

**17:00–18:00 Talk invited by Algebra Section**

- Yuval Flicker ‡ Counting local systems via automorphic forms  
(Ohio State Univ./Ariel Univ.)

September 25th (Wed) Conference Room I

**9:00–12:00**

- 25 Hidefumi Ohsugi (Rikkyo Univ.) ‡ Quadratic toric ideals and quadratic Gröbner bases of graphs . . . . . 15  
Akihiro Shikama (Osaka Univ.)  
Kenta Nishiyama (Univ. of Shizuoka)  
Takayuki Hibi (Osaka Univ.)
- 26 David A. Cox (Amherst Coll.) ‡ Some invariants on normality of dilated polytopes . . . . . 15  
Christian Haase  
(Goethe-Univ. Frankfurt)  
Takayuki Hibi  
(Osaka Univ./JST CREST)  
Akihiro Higashitani (Osaka Univ.)
- 27 Akihiro Higashitani (Osaka Univ.) ‡ Ehrhart polynomials of reflexive polytopes and orthogonal polynomial systems . . . . . 15
- 28 Hiroyasu Takeda (Hokkaido Univ.) ‡ For Hilbert basis of semi-group ring associated with the main diagonal sum model . . . . . 15

29	Masahide Konishi (Nagoya Univ.) <sup>#</sup>	A classification of cyclotomic KLR algebras of type $A_n^{(1)}$ . . . . .	15
30	Hirota Higashidaira (Meiji Univ.) <sup>#</sup>	Sequentially Cohen–Macaulay bipartite graphs and cycle graphs . . . . .	10
31	Kyouko Kimura (Shizuoka Univ.) <sup>*</sup> Naoki Terai (Saga Univ.)	Arithmetical rank of Gorenstein squarefree monomial ideals of height three . . . . .	15
32	Masataka Tomari (Nihon Univ.) <sup>*</sup>	On Demazure’s construction of finite Abelian coverings of normal graded rings . . . . .	15
33	Yusuke Nakajima (Nagoya Univ.) <sup>#</sup>	Dual $F$ -signature of Cohen–Macaulay modules over cyclic quotient surface singularities . . . . .	15
34	Manabu Matsuoka (Osaka Shoin Women’s Univ.) <sup>*</sup>	Rings with direct summand conditions and linear codes . . . . .	10
35	Noritsugu Kameyama (Shinshu Univ.) <sup>#</sup> Mitsuo Hoshino (Univ. of Tsukuba) Hirota Koga (Univ. of Tsukuba)	Constructions of Auslander–Gorenstein local rings . . . . .	10

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

Shunsuke Takagi (Univ. of Tokyo)<sup>#</sup>  $F$ -singularities and singularities in the minimal model program

September 26th (Thu) Conference Room I

**9:00–11:25**

36	Sho Matsuzawa (Shizuoka Univ.) <sup>#</sup> Gahee Kim (Shizuoka Univ.) Hidetaka Matsumoto (Shizuoka Univ.)	Classification of 3-dimensional quadratic AS-regular algebras . . . . .	10
37	Kenta Ueyama (Shizuoka Univ.) <sup>#</sup>	Finite Cohen–Macaulay representation type and noncommutative graded isolated singularities . . . . .	15
38	Takahiko Furuya (Meikai Univ.) <sup>#</sup> Takao Hayami (Hokkai-Gakuen Univ.)	Some self-injective algebras with finite Hochschild cohomology . . . . .	10
39	Hirota Koga (Univ. of Tsukuba) <sup>#</sup>	Finiteness of selfinjective dimension and associated invariants under derived equivalences . . . . .	15
40	Daiki Obara (Tokyo Univ. of Sci.) <sup>#</sup>	One point extension of a quiver algebra defined by two cycles and a quantum-like relation . . . . .	10
41	Yasuhiko Takehana (Hakodate Nat. Coll. of Tech.) <sup>#</sup>	A generalization of Goldie torsion theory . . . . .	10
42	Ryo Kanda (Nagoya Univ.)	Atom spectrum and classification of subcategories . . . . .	15
43	Kenichi Shimizu (Nagoya Univ.) <sup>#</sup>	Canonical pivotal objects in finite tensor categories . . . . .	15
44	Hiroaki Komatsu (Okayama Pref. Univ.) <sup>*</sup>	A characterization of coseparable corings by generalized coderivations . . . . .	10
45	Yuji Tsuno (Chiba Inst. of Tech.) <sup>*</sup>	Central cleft extensions for free Hopf algebras . . . . .	15

**11:30–12:00 Research Section Assembly****14:15–16:00**

- 46 Takashi Niwasaki (Ehime Univ.) \* A characterization of exceptional 2-groups by the numbers of the endomorphisms ..... 10  
Tsunenobu Asai (Kinki Univ.)
- 47 Akihiko Hida (Saitama Univ.) \* On the mod  $p$  cohomology of the extraspecial  $p$ -group and the action of the double Burnside algebra ..... 10
- 48 Shigeo Koshitani (Chiba Univ.) The Alperin weight conjecture and Broue conjecture in modular representation theory ..... 15  
Radha Kessar (City Univ. London)  
Markus Linckelmann  
(City Univ. London)
- 49 Shigeo Koshitani (Chiba Univ.) Broue's abelian defect group conjecture for finite sporadic simple groups ..... 15  
Jürgen Müller (RWTH Aachen Univ.)  
Felix Noeske (RWTH Aachen Univ.)
- 50 Takanori Sakamoto \* Some properties of factorized Lie algebras ..... 10  
(Fukuoka Univ. of Edu.)  
Masanobu Honda  
(Nigata Univ. of Pharm. & App. Life Sci.)
- 51 Masanari Okumura (Univ. of Tokyo) # Vertex algebras and the equivariant Lie algebroid cohomology ..... 15
- 52 Kazuya Kawasetsu (Univ. of Tokyo) \* The intermediate vertex subalgebras of the lattice vertex operator algebras ..... 15

**16:15–17:15 Talk invited by Algebra Section**

- Masahiko Miyamoto # On orbifold conjecture about vertex operator algebras  
(Univ. of Tsukuba)

September 27th (Fri) Conference Room I

**9:30–12:00**

- 53 Hiroko Yanaba (Hiroo Gakuen) # On pseudo primes ..... 10  
Inoru Shioya (Hiroo Gakuen)
- 54 Shigeru Iitaka (Gakushuin Univ.)\* # Hartshorne's identities and their applications 2 ..... 15
- 55 Kenta Watanabe (Osaka Univ.)\* On extensions of a double covering of plane curves and Weierstrass semigroups of the double covering type ..... 10
- 56 Masaaki Homma (Kanagawa Univ.) # Numbers of points of surfaces in the projective 3-space over finite fields ..... 15
- 57 Shinya Kitagawa \* On certain pencils of plane curves of degree thirteen with a quintuple point and nine quadruple points II ..... 15  
(Gifu Nat. Coll. of Tech.)
- 58 Shingo Taki (Tokyo Denki Univ.)\* On Oguiso's  $K3$  surface ..... 15
- 59 Humihiko Watanabe \* Twisted cohomology groups associated to configuration of two theta divisors on Jacobian variety of dimension 2 ..... 10  
(Kitami Inst. of Tech.)
- 60 Hiromu Tanaka (Kyoto Univ.) Cone theorem and minimal models for threefolds in positive characteristic ..... 15
- 61 Katsuhisa Furukawa (Waseda Univ.) # Cohomological characterization of hyperquadrics of odd dimensions in characteristic two ..... 15
- 62 Michio Amano # On the kernels of certain homomorphisms of the Witt vectors ..... 10

**14:15–15:30**

- 63 Aiichi Yamasaki (Kyoto Univ.)<sup>#</sup> Rationality of  $z^2 = P(x)y^2 + Q(x)$  ..... 10
- 64 Tatsuki Hayama<sup>#</sup> Boundary component structure of period domains ..... 15  
(National Tsing Hua Univ.)
- 65 Tomohiro Iwami<sup>\*</sup> A Variant of Iskovskikh's rationality criterion for conic bundles in the  
(Kyushu Sangyo Univ.) case of polarized (log) pairs ..... 10
- 66 Roberto Muñoz<sup>\*</sup> Rational curves, Dynkin diagrams and Fano manifolds with nef tangent  
(Univ. Rey Juan Carlos) bundle ..... 15  
Gianluca Occhetta (Univ. di Trento)  
Luis Eduardo Solá Conde  
(Univ. Rey Juan Carlos)  
Kiwamu Watanabe (Saitama Univ.)  
Jarek Wiśniewski (Warsaw Univ.)
- 67 Kazunori Yasutake (Meiji Univ.)<sup>\*</sup> On Fano  $n$ -folds with nef vector bundle  $\Lambda^3 T_X$  having a birational  
contraction ..... 10
- 68 Sinichi Matsumura (Kagoshima Univ.)<sup>#</sup> A Nadel vanishing theorem for metrics with minimal singularities on  
big line bundles ..... 10

**15:45–16:45 Talk invited by Algebra Section**

- Yoshiaki Fukuma (Kochi Univ.)<sup>#</sup> A study on the dimension of global sections of adjoint bundles by  
invariants of quasi-polarized varieties

**Geometry**

September 24th (Tue) Conference Room VI

**9:15–12:00**

- 1 Hiroaki Izumi (Elpida Memory, Inc.)<sup>#</sup> The elucidation of the business cycle as a phase transition II ..... 10
- 2 Tetsuya Nagano (Univ. of Nagasaki)<sup>#</sup> On the tangent vector of geodesics in Finsler space ..... 10
- 3 Tomonori Fukunaga (Hokkaido Univ.)<sup>\*</sup> Evolutes and involutes of fronts ..... 15  
Masatomo Takahashi  
(Muroran Inst. of Tech.)
- 4 Yoshinori Machida<sup>\*</sup> Geometry of conformal triality from the  $D_4$  diagram and singularities  
(Numazu Nat. Coll. of Tech.) ..... 15  
Goo Ishikawa (Hokkaido Univ.)  
Masatomo Takahashi  
(Muroran Inst. of Tech.)
- 5 Goo Ishikawa (Hokkaido Univ.)<sup>#</sup> Singular path duality for Cartan distributions from geometric control  
Yumiko Kitagawa theory ..... 15  
(Oita Nat. Coll. of Tech.)  
Wataru Yukuno (Hokkaido Univ.)

- 6 Sadahiro Maeda (Saga Univ.)<sup>#</sup> Sectional curvatures of ruled real hypersurfaces in a nonflat complex space form ..... 10  
Hiromasa Tanabe  
(Matsue Coll. of Tech.)
- 7 Sadahiro Maeda (Saga Univ.)<sup>#</sup> Normal real hypersurfaces in a nonflat complex space form ..... 15  
Hiromasa Tanabe  
(Matsue Coll. of Tech.)  
Byung Hak Kim (Kyung Hee Univ.)
- 8 Aya Ishizeki (Saitama Univ.)<sup>\*</sup> Decomposition of the Möbius energy and its Möbius invariance ..... 15  
Takeyuki Nagasawa (Saitama Univ.)
- 9 Ryosuke Mineyama (Osaka Univ.)<sup>#</sup> On Cannon–Thurston maps for Coxeter groups ..... 15
- 10 Akihiro Higashitani (Osaka Univ.)<sup>#</sup> Asymptotic behavior of roots of infinite Coxeter groups ..... 15  
Ryosuke Mineyama (Osaka Univ.)  
Norihiko Nakashima (Hokkaido Univ.)

**14:15–16:00**

- 11 Tomoaki Yatsui<sup>#</sup> On the prolongation of sub-conformal fundamental graded Lie algebras ..... 10
- 12 Yuto Imai (Waseda Univ.)<sup>#</sup> On the quarternification of the Lie algebra  $Map(S^3, \mathfrak{g})$  and its extensions ..... 10  
Tosiaki Kori (Waseda Univ.)
- 13 Takahiro Hashinaga (Hiroshima Univ.)<sup>#</sup> Homogeneous Ricci soliton hypersurfaces in complex hyperbolic spaces ..... 10  
Akira Kubo (Hiroshima Univ.)  
Hiroshi Tamaru (Hiroshima Univ.)
- 14 Hiroyuki Tasaki (Univ. of Tsukuba)<sup>\*</sup> Antipodal sets in oriented real Grassmann manifolds ..... 10
- 15 Jost-Hinrich Eschenburg<sup>\*</sup> Maximal tori of extrinsic symmetric spaces and meridians ..... 15  
(Univ. of Augsburg)  
Peter Quast (Univ. of Augsburg)  
Makiko Tanaka (Tokyo Univ. of Sci.)
- 16 Yuriko Umemoto (Osaka City Univ.)<sup>#</sup> Growth rates of cocompact hyperbolic Coxeter groups and 2-Salem numbers ..... 15
- 17 Yu Kitabepu (Tohoku Univ.)<sup>#</sup> Dirichlet problem on graphs with nonnegative Ricci curvature ..... 10
- 18 Hikaru Yamamoto (Univ. of Tokyo)<sup>#</sup> Type I singularities of mean curvature flows over cone manifolds ..... 10

**16:15–17:15 Talk invited by Geometry Section**

Hisashi Kasuya (Tokyo Tech)<sup>#</sup> Cohomologies and deformations of solvmanifolds

September 25th (Wed) Edu. Bldg.2, Large Lect. Room

**10:30–10:45 Presentation Ceremony for 2013 Geometry Prize****10:50–11:50 Award Lecture for 2013 Geometry Prize**

Katsutoshi Yamanoi (Tokyo Tech)<sup>#</sup> Value distribution of derivatives of meromorphic functions

**13:15–14:15 Award Lecture for 2013 Geometry Prize**

Toshitake Kohno (Univ. of Tokyo)<sup>#</sup> Braids, quantum symmetry and hypergeometric integrals

## September 26th (Thu) Conference Room VI

**9:00–12:00**

- 19 Kiyohisa Tokunaga (Fukuoka Inst. of Tech.)<sup>‡</sup> Triangular integrals for 2-, 3- and 4-variable functions ..... 15
- 20 Yoshio Agaoka (Hiroshima Univ.)\* Langr’s problem and the similarity invariants of quadrangles ..... 15
- 21 Jin-ichi Itoh (Kumamoto Univ.)\* Every graph is a cut locus ..... 15  
Costin Vilcu (IMAR, Bucharest)
- 22 Ayato Mitsuishi (Tohoku Univ.)\* A de Rham’s theorem of metric spaces ..... 15
- 23 Ayato Mitsuishi (Tohoku Univ.)\* Stability of strongly Lipschitz contractible balls in Alexandrov spaces  
Takao Yamaguchi (Univ. of Tsukuba) ..... 10
- 24 Tetsu Toyoda (Suzuka Nat. Coll. of Tech.)\* Optimal realizations with respect to nonlinear spectral gaps ..... 15  
Takefumi Kondo (Tohoku Univ.)
- 25 Takefumi Kondo (Tohoku Univ.)\*  $\text{Cycl}_k(0)$  space and  $\text{Wir}_k$  space ..... 10  
Tetsu Toyoda (Suzuka Nat. Coll. of Tech.)
- 26 Masato Mimura (Tohoku Univ.)\* Multi-way isoperimetries, expanders, and finite Cayley graphs ..... 15
- 27 Masato Mimura (Tohoku Univ.)\* Extrapolation of Banach spectral gaps of finite graphs ..... 15
- 28 Naotaka Kajino (Kobe Univ.)<sup>‡</sup> Geometry of the measurable Riemannian structure on the Sierpiński gasket: structure of geodesics and lower unbounded Ricci curvature ..... 15
- 29 Yushi Okitsu (Tokyo Tech)<sup>‡</sup> The construction of non-compact toric Kähler manifolds and its applications ..... 10
- 30 Hiroshi Iriyeh (Tokyo Denki Univ.)\* Homological rigidity of Lagrangian submanifolds of a complex projective space with an intermediate minimal Maslov number ..... 15

**14:15–16:00**

- 31 Mitsuhiro Itoh (Univ. of Tsukuba)<sup>‡</sup> Quaternionic mean curvature of horospheres in quaternionic Kähler  
Hiroyasu Satoh (Tokyo Denki Univ.) Hadamard manifolds ..... 15  
Young Jin Suh (Kyungpook Nat. Univ.)
- 32 Mitsuhiro Imada (Keio Univ.)<sup>‡</sup> Complex almost contact metric structures on  $S^{4p+3} \times S^{4q+3}$  ..... 15
- 33 Shin Kikuta (Sophia Univ.) The limits on boundary of orbifold Kähler–Ricci flows and Kähler–Einstein metrics over quasi-projective manifolds ..... 15
- 34 Yohsuke Imagi (Kyoto Univ.)\* A topological characterization of Lawlor necks ..... 15
- 35 Masashi Hamanaka (Nagoya Univ.)<sup>‡</sup> ADHM construction of noncommutative instantons ..... 15  
Toshio Nakatsu (Setsunan Univ.)
- 36 Kenta Hayano (Osaka Univ.)<sup>‡</sup> Logarithmic transformations and generalized complex structures of 4-  
Ryushi Goto (Osaka Univ.) manifolds ..... 15

**16:15–17:15 Talk invited by Geometry Section**

- Shoichi Fujimori (Okayama Univ.)<sup>‡</sup> Zero mean curvature embeddings in the Lorentz–Minkowski 3-space
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## Complex Analysis

September 26th (Thu)      Conference Room III

### 10:00–12:00

- |   |  |  |    |
|---|--|--|----|
| 1 | Kiyoki Tanaka (Osaka City Univ.) <sup>#</sup>  | Representations and interpolating sequence for harmonic Bergman functions . . . . .  | 10 |
| 2 | Tatsuhiko Honda<br>(Hiroshima Inst. of Tech.) <sup>#</sup><br>Hidetaka Hamada<br>(Kyushu Sangyo Univ.) <sup>#</sup><br>Kwang Ho Shon (Pusan Nat. Univ.) <sup>#</sup> | Starlike harmonic mappings on the unit disc . . . . .  | 15 |
| 3 | Hideki Miyachi (Osaka Univ.) <sup>#</sup>  | Unification of extremal length geometry of Teichmüller space via intersection number and its application . . . . .   | 15 |
| 4 | Yohei Komori (Waseda Univ.) <sup>*</sup>   | On degenerate families of Riemann surfaces over elliptic curves . . . . .  | 15 |
| 5 | Masahiro Yanagishita (Waseda Univ.) <sup>#</sup>   | Introduction of a complex structure on the $p$ -integrable Teichmüller space —application of a partition of the unit disk by fundamental regions . . . . . | 15 |
| 6 | Shunsuke Morosawa (Kochi Univ.) <sup>#</sup>   | Dynamical convergence of a certain polynomial family to $f_a(z) = z + e^z + a$ . . . . .   | 15 |

### 14:15–15:00

- |   |   |   |    |
|---|---|---|----|
| 7 | Yūsuke Okuyama (Kyoto Inst. Tech.) <sup>#</sup> | Equilibrium measures and ergodic properties for uniformly quasiregular dynamics . . . . .       | 10 |
| 8 | Yūsuke Okuyama (Kyoto Inst. Tech.) <sup>#</sup> | A rescaling principle for an isolated essential singularity of a quasiregular mapping . . . . . | 10 |
| 9 | Yūsuke Okuyama (Kyoto Inst. Tech.) <sup>#</sup> | Accumulation of periodic points in local uniformly quasiregular dynamics . . . . .              | 10 |

### 15:10–16:10    Talk invited by Complex Analysis Section

- |  |                                       |
|--|---------------------------------------|
| David Drasin (Purdue Univ.) <sup>#</sup> | Sharpness of Rickman’s Picard theorem |
|--|---------------------------------------|

September 27th (Fri)      Conference Room III

### 9:00–10:45

- |    |  |  |    |
|----|--|--|----|
| 10 | Katsusuke Nabeshima<br>(Univ. of Tokushima) <sup>#</sup><br>Shinichi Tajima (Univ. of Tsukuba) | On the computation of Tjurina stratification using local cohomology with parameters . . . . .  | 15 |
| 11 | Shinichi Tajima (Univ. of Tsukuba) <sup>*</sup>  | Newton filtration and local cohomology . . . . .   | 15 |
| 12 | Shizuo Nakane<br>(Tokyo Polytechnic Univ.) <sup>#</sup>  | Relations between saddle sets for Axiom A polynomial skew products on $\mathbb{C}^2$ . . . . . | 15 |
| 13 | Akio Kodama (Kanazawa Univ.) <sup>*</sup>  | On the holomorphic automorphism group of a generalized complex ellipsoid . . . . .             | 15 |
| 14 | Yoshikazu Nagata (Nagoya Univ.) <sup>#</sup>   | On Hölder type estimates for $\bar{\partial}$ on infinite type convex domains . . . . .        | 10 |
| 15 | Yukitaka Abe (Univ. of Toyama) <sup>*</sup><br>Atsuko Kogie (Univ. of Toyama)                  | A generalization of Weierstrass’ $\wp$ -function to quasi-abelian varieties . . . . .          | 15 |

**11:00–12:00 Talk invited by Complex Analysis Section**

- Tetsuo Ueda (Kyoto Univ.)<sup>#</sup> Semi-parabolic fixed points and their bifurcations in complex dimension 2

**Functional Equations**

September 24th (Tue) Conference Room II

**9:20–12:00**

- 1 Mika Tanda (Kinki Univ.)<sup>#</sup> Borel sums of the Voros coefficients of the Gauss hypergeometric differential equation in all Stokes regions ..... 15  
Takashi Aoki (Kinki Univ.)
- 2 Toshinori Takahashi (Kinki Univ.)<sup>#</sup> The Voros coefficients of the confluent hypergeometric differential equations ..... 15  
Mika Tanda (Kinki Univ.)  
Takashi Aoki (Kinki Univ.)
- 3 Kohei Iwaki (Kyoto Univ.)<sup>#</sup> Quasi-linear Stokes phenomenon for the second Painlevé transcendents and the exact WKB analysis ..... 15
- 4 Yoshikatsu Sasaki (Hiroshima Univ.)<sup>#</sup> Value distribution of the string equation of type (2,5) ..... 10
- 5 Kunihiko Taniguchi \* Permanence for a nonautonomous Lotka–Volterra competition system with finite delays ..... 10  
(Kokuranishi High School)
- 6 Ichiro Tsukamoto (Toyo Univ.) \* On asymptotic behaviour of positive solutions of  $x'' = -t^{-\alpha/2-2}x^{1+\alpha}$  ( $\alpha > 0$ ) ..... 15
- 7 Masakazu Onitsuka<sup>#</sup> Attractivity and stability for two-dimensional nonautonomous half-linear differential systems ..... 10  
(Okayama Univ. of Sci.)
- 8 Kodai Fujimoto (Osaka Pref. Univ.)<sup>#</sup> Global existence of solutions for second-order nonlinear differential equations ..... 15  
Naoto Yamaoka (Osaka Pref. Univ.)
- 9 Hideaki Matsunaga (Osaka Pref. Univ.)<sup>#</sup> Asymptotic behavior of solutions of integral equations with infinite delay ..... 15
- 10 Toshiki Naito<sup>#</sup> Periodic solutions and its successive approximations in nonlinear oscillations ..... 15  
(Univ. of Electro-Comm.)\*  
Rinko Miyazaki (Shizuoka Univ.)  
Jong Son Shin (Hosei Univ.)  
Dohan Kim (Seoul Nat. Univ.)

**14:15–16:30**

- 11 Satoshi Tanaka (Okayama Univ. of Sci.)<sup>#</sup> A note on the symmetry-breaking and Morse index for positive solutions of one-dimensional Hénon type equations ..... 15
- 12 Tomoyuki Tanigawa (Kumamoto Univ.)<sup>#</sup> On the existence of generalized regularly varying solutions of second order half-linear functional differential equations ..... 15
- 13 Jitsuro Sugie (Shimane Univ.)<sup>#</sup> Asymptotical stability of a simple pendulum affected by viscous pressure resistance ..... 15
- 14 Kazuyuki Yagasaki (Hiroshima Univ.)<sup>#</sup> Bifurcation diagram of interior single-peak solutions in the Neumann problem of  $u'' + \lambda(-u + u^p) = 0$  ( $p > 1$  is a real number) ..... 15

## 15 Functional Equations

- 15 Tetsutaro Shibata (Hiroshima Univ.)<sup>#</sup> Global and local behavior of bifurcation curve for semilinear eigenvalue problem ..... 15
- 16 Tatsuki Mori (Ryukoku Univ.)<sup>#</sup> Global bifurcation structure of stationary solutions for cubic nonlinear equations with nonlocal constraint ..... 15  
 Kousuke Kuto  
 (Univ. of Electro-Comm.)  
 Tohru Tsujikawa (Univ. of Miyazaki)  
 Shoji Yotsutani (Ryukoku Univ.)
- 17 Shingo Takeuchi<sup>#</sup> Basis problems of generalized Jacobian elliptic functions ..... 15  
 (Shibaura Inst. of Tech.)
- 18 Hiroyuki Usami (Gifu Univ.) Inverse blow-up time problem ..... 15  
 Yutaka Kamimura  
 (Tokyo Univ. of Marine Sci. and Tech.)

**16:45–17:45 Talk invited by Functional Equations Section**

- Hayato Chiba (Kyushu Univ.)<sup>#</sup> The Painlevé equations on weighted projective spaces

September 25th (Wed) Conference Room II

**9:00–12:00**

- 19 Fumio Hiroshima (Kyushu Univ.)<sup>#</sup> Lieb–Thirring bound for Schrödinger operator with a Bernstein function of Laplacian ..... 15
- 20 Yuya Dan (Matsuyama Univ.)<sup>#</sup> Lieb–Thirring inequalities for Schrödinger operators ..... 15
- 21 Hiroaki Niikuni (Doshisha Univ.)<sup>\*</sup> On the spectrum of periodic Schrödinger operators on a nanotube with  $\delta$ - $\delta$ - $\delta$  vertex conditions ..... 15
- 22 Takuya Watanabe (Ritsumeikan Univ.)<sup>#</sup> Characterization of PDE reducible to ODE under a certain homogeneity and applications to singular Cauchy problems ..... 15  
 Jiichiroh Urabe (Doshisha Univ.)
- 23 Aya Ishizeki (Saitama Univ.)<sup>\*</sup> Decomposition of the Möbius energy and its variational formula ..... 10  
 Takeyuki Nagasawa (Saitama Univ.)
- 24 Daisuke Naimen (Osaka City Univ.)<sup>#</sup> Positive solutions of Kirchhoff type elliptic equations involving a critical Sobolev exponent ..... 15
- 25 Daisuke Naimen (Osaka City Univ.)<sup>#</sup> Two sequences of solutions for indefinite superlinear-sublinear elliptic equations with nonlinear boundary conditions ..... 15  
 Ryuji Kajikiya (Saga Univ.)
- 26 Mieko Tanaka (Tokyo Univ. of Sci.)<sup>\*</sup> Generalized eigenvalue of nonhomogeneous elliptic operators ..... 15  
 Dumitru Motreanu  
 (Univ. de Perpignan)
- 27 Mieko Tanaka (Tokyo Univ. of Sci.)<sup>\*</sup> Existence of the generalized Fučík spectrum for nonhomogeneous elliptic operators ..... 15
- 28 Ryuji Kajikiya (Saga Univ.)<sup>#</sup> Partially symmetric solutions of the generalized Hénon equation ..... 15

**13:15–14:15 Talk invited by Functional Equations Section**

- Naohito Tomita (Osaka Univ.)<sup>#</sup> On the boundedness of bilinear Fourier multiplier operators

## September 26th (Thu) Conference Room II

**9:00–12:00**

- 29 Masataka Shibata (Tokyo Tech) # The existence of a positive solution to semilinear elliptic equations with  
Yohei Sato periodic potential ..... 15  
(Tokyo Tech/Osaka City Univ.)
- 30 Atsushi Kosaka (Osaka Pref. Univ.) # Bifurcation of solutions to semilinear elliptic problems on caps of  $\mathbf{S}^2$   
..... 15
- 31 Francesca Gladiali # Morse indices of multiple blow-up solutions to the Gel'fand problem  
(Univ. degli Studi di Sassari) ..... 15  
Massimo Grossi  
(Univ. di Roma, La Sapienza)  
Hiroshi Ohtsuka (Kanazawa Univ.)  
Takashi Suzuki (Osaka Univ.)
- 32 Kousuke Kuto # Coexistence steady-states of the Lotka–Volterra competition model with  
(Univ. of Electro-Comm.) diffusion and advection ..... 15  
Tohru Tsujikawa (Univ. of Miyazaki)
- 33 Yasuhito Miyamoto (Univ. of Tokyo) # Structure of the positive radial solutions for the supercritical Neumann  
problem  $\varepsilon^2 \Delta u - u + u^p = 0$  in a ball ..... 10
- 34 Futoshi Takahashi (Osaka City Univ.) # Asymptotic behavior of least energy solutions for a 2D nonlinear Neu-  
mann problem with large exponent ..... 12
- 35 Ryuji Kajikiya (Saga Univ.) # Stability of stationary solutions for a sublinear parabolic equation .... 15  
Goro Akagi (Kobe Univ.)
- 36 Takefumi Igarashi (Nihon Univ.) \* Life span of solutions for a quasilinear parabolic equation with initial  
data having positive limit inferior at infinity ..... 15
- 37 Jin Takahashi (Tokyo Tech) # Removability of time-dependent singularities in the heat equation .... 10  
Eiji Yanagida (Tokyo Tech)
- 38 Yoshihito Kohsaka # Traveling spots of singular limit problems of FitzHugh–Nagumo type  
(Muroran Inst. of Tech.) equations ..... 10  
Yan-Yu Chen (Tamkang Univ.)  
Hirokazu Ninomiya (Meiji Univ.)
- 39 Masaharu Taniguchi (Okayama Univ.) # An  $N$ -dimensional traveling front solution in the Allen–Cahn equation  
associated with an  $(N - 2)$ -dimensional surface ..... 15

**14:15–16:30**

- 40 Keisuke Takasao (Hokkaido Univ.) \* Existence of mean curvature flow with external force term ..... 10
- 41 Hiroyoshi Mitake (Fukuoka Univ.) \* A dynamical approach to the large-time behavior of solutions to weakly  
Hung Vinh Tran (Univ. of Chicago) coupled systems of Hamilton–Jacobi equations ..... 10
- 42 Hiroyoshi Mitake (Fukuoka Univ.) \* The large-time asymptotic analysis by a nonlinear adjoint technique:  
Filippo Cagnetti (Univ. of Sussex) semilinear degenerate parabolic equations ..... 10  
Diogo Gomes  
(Univ. Tecnica de Lisboa/KAUST)  
Hung Vinh Tran (Univ. of Chicago)
- 43 Masakazu Yamamoto (Hiroaki Univ.) \* Space-time structure of solutions to the drift-diffusion equation with  
anomalous diffusion ..... 15

- 44 Tsukasa Iwabuchi (Chuo Univ.) \* Ill-posedness for the drift diffusion system of bipolar type ..... 15  
Takayoshi Ogawa (Tohoku Univ.)
- 45 Tetsuya Yamada \* Non-trivial  $\omega$ -limit sets and oscillating solutions in a chemotaxis model  
(Fukui Nat. Coll. of Tech.) in  $\mathbb{R}^2$  with critical mass ..... 15  
Julián López-Gómez  
(Univ. Complutense de Madrid)  
Toshitaka Nagai (Hiroshima Univ.)
- 46 Sachiko Ishida (Tokyo Univ. of Sci.) # Global-in-time bounded solutions to degenerate Keller–Segel systems  
Xinru Cao with chemotaxis sensitivity ..... 15  
(Univ. Paderborn/Dalian Univ. of Tech.)
- 47 Kentarou Fujie (Tokyo Univ. of Sci.) # Global existence and boundedness of solutions to Keller–Segel systems  
Michael Winkler (Univ. Paderborn) with signal-dependent sensitivity ..... 15  
Tomomi Yokota (Tokyo Univ. of Sci.)
- 48 Noriko Mizoguchi # Boundedness of global solutions in the two-dimensional parabolic Keller–  
(Tokyo Gakugei Univ.) Segel system ..... 15  
Michael Winkler (Univ. of Paderborn)

**16:45–17:45 Talk invited by Functional Equations Section**

- Shuji Machihara (Saitama Univ.) # On the Cauchy problems for the system of Dirac equations with quadratic nonlinearities in 1d

September 27th (Fri) Conference Room II

**9:00–12:00**

- 49 Yusuke Sugiyama (Tokyo Univ. of Sci.) # Remark on global solvability for some 1-D quasilinear wave equation  
..... 10
- 50 Yuta Wakasugi (Osaka Univ.) \* Blow-up of solutions to the semilinear wave equation with damping  
depending on time and space variables ..... 10
- 51 Mohammad Rammaha \* Blow-up of solutions to semilinear wave equations with non-zero initial  
(Univ. of Nebraska–Lincoln) data ..... 10  
Hiroyuki Takamura  
(Future Univ.-Hakodate)  
Hiroschi Uesaka (Nihon Univ.)  
Kyouhei Wakasa (Hokkaido Univ.)
- 52 Takamori Kato (Nagoya Univ.) # Unconditional well-posedness of the fourth order Schrödinger equation  
with periodic boundary condition ..... 10
- 53 Nobu Kishimoto (Kyoto Univ.) # Unconditional well-posedness for the periodic cubic nonlinear Schrödinger  
equation ..... 15
- 54 Satoshi Masaki (Hiroshima Univ.) # On minimal blow-up solution for  $L^2$  subcritical nonlinear Schrödinger  
equation ..... 15
- 55 Mamoru Okamoto (Kyoto Univ.) # Ill-posedness for the Chern–Simons–Dirac system in one dimension ... 10  
Shuji Machihara (Saitama Univ.)
- 56 Kazumasa Fujiwara (Waseda Univ.) # Well posedness of the Cauchy problem for a semirelativistic system with  
Shuji Machihara (Saitama Univ.) quadratic nonlinearity ..... 15  
Tohru Ozawa (Waseda Univ.)

- 57 Hiroyuki Hirayama (Nagoya Univ.)<sup>#</sup> Well-posedness for a system of quadratic derivative nonlinear Schrödinger equations at the scaling critical regularity ..... 15
- 58 Tomoya Kato (Nagoya Univ.)<sup>\*</sup> The global Cauchy problems for the nonlinear dispersive equations on modulation spaces ..... 10
- 59 Gaku Hoshino (Waseda Univ.)<sup>#</sup> Analytic smoothing effect for a system of nonlinear Schrödinger equations ..... 15  
Tohru Ozawa (Waseda Univ.)
- 60 Nakao Hayashi (Osaka Univ.)<sup>\*</sup> Scattering problem for the supercritical nonlinear Schrödinger equation in 1d ..... 10
- 14:15–16:30**
- 61 Masashi Ohnawa (Waseda Univ.)<sup>\*</sup> Asymptotic stability of shock waves in a radiating gas model for initial data with multiple discontinuities ..... 15
- 62 Yoshiyuki Kagei (Kyushu Univ.)<sup>#</sup> Existence and stability of time-periodic solution of the compressible Kazuyuki Tsuda (Kyushu Univ.) Navier–Stokes equation ..... 15
- 63 Yasunori Maekawa (Tohoku Univ.)<sup>#</sup> Remark on the Helmholtz decomposition in domains above Lipschitz Hideyuki Miura (Osaka Univ.) graphs ..... 15
- 64 Helmut Abels (Univ. of Regensburg)<sup>#</sup> Existence of weak solutions for a diffuse interface model of non- Lars Diening (LMU Munich) Newtonian two-phase flows ..... 15  
Yutaka Terasawa (Univ. of Tokyo)
- 65 Jan Prüss (Univ. Halle)<sup>\*</sup> Stability of equilibria for incompressible two-phase flows with phase Senjo Shimizu (Shizuoka Univ.) transitions —The case of variable surface tension— ..... 15  
Gieri Simonett (Univ. Vanderbilt)  
Mathias Wilke (Univ. Halle)
- 66 Hirokazu Saito (Waseda Univ.)<sup>#</sup> On the Stokes equations with surface tension in the half space ..... 10  
Yoshihiro Shibata (Waseda Univ.)
- 67 Miho Murata (Waseda Univ.)<sup>#</sup> On the sectorial  $\mathcal{R}$ -boundedness of the Stokes operator for the compressible Yoshihiro Shibata (Waseda Univ.) viscous fluid flow and its application ..... 10
- 68 Yoshihiro Shibata (Waseda Univ.)<sup>#</sup> On the  $\mathcal{R}$ -boundedness of the solution operators in the study of the Dario Goetz (atesio GmbH) compressible viscous fluid flow with free boundary conditions ..... 10
- 69 Yoshihiro Shibata (Waseda Univ.)<sup>#</sup> On the  $\mathcal{R}$ -boundedness of solution operators for the compressible- Takayuki Kubo (Univ. of Tsukuba) incompressible two phase problem ..... 10  
Kohei Soga (Waseda Univ.)

**16:45–17:45 Talk invited by Functional Equations Section**

- Goro Akagi (Kobe Univ.)<sup>#</sup> Asymptotic behavior of solutions for nonlinear diffusion equations

**Real Analysis**

September 24th (Tue) Conference Room III

**9:00–12:05**

- 1 Fumiaki Kohsaka (Oita Univ.)<sup>#</sup> Saddle points of two variable functions and fixed points of nonlinear mappings ..... 15

2	Ryotaro Tanaka (Niigata Univ.) <sup>#</sup> Kichi-Suke Saito (Niigata Univ.)	Orthonormal bases for finite dimensional normed linear spaces . . . . .	10
3	Ryotaro Tanaka (Niigata Univ.) <sup>#</sup> Kichi-Suke Saito (Niigata Univ.)	The norm structure of finite dimensional spaces . . . . .	15
4	Yasunori Kimura (Toho Univ.) <sup>#</sup>	Convergence of approximate sequences generated by the shrinking projection method with errors . . . . .	15
5	Sachiko Atsushiba (Univ. of Yamanashi) <sup>#</sup>	Attractive point and convergence theorems for families of nonlinear mappings . . . . .	15
6	Yasuji Takahashi (Okayama Pref. Univ.) <sup>*</sup> Mikio Kato (Shinshu Univ.)	On a new geometric constant of a Banach space . . . . .	15
7	Yasuyuki Oka (Kushiro Nat. Coll. of Tech.) <sup>#</sup>	The Schwartz kernel theorem for the tempered distributions on the Heisenberg group . . . . .	15
8	Machihara Shuji (Saitama Univ.) <sup>#</sup> Tohru Ozawa (Waseda Univ.) Hidemitsu Wadade (Gifu Univ.)	Logarithmic Hardy inequalities on Sobolev–Lorentz–Zygmund spaces in the limiting case . . . . .	20
9	Takanori Yamamoto (Hokkai-Gakuen Univ.) <sup>*</sup> Takahiko Nakazi (Hokusei Gakuen Univ.)	Normal singular integral operators with Cauchy kernel on $L^2$ . . . . .	15
10	Toshikazu Watanabe (Niigata Univ.) <sup>#</sup>	Note on the regularity of non-additive measure . . . . .	15
11	Jun Kawabe (Shinshu Univ.) <sup>#</sup>	The Choquet integral representation problem . . . . .	15
<b>14:20–16:15</b>			
12	Gaku Sadasue (Osaka Kyoiku Univ.) <sup>#</sup> Eiichi Nakai (Ibaraki Univ.)	Pointwise multipliers on martingale Campanato spaces . . . . .	15
13	Gaku Sadasue (Osaka Kyoiku Univ.) <sup>#</sup> Eiichi Nakai (Ibaraki Univ.)	Maximal function on generalized martingale Lebesgue spaces with variable exponent . . . . .	10
14	Aoi Honda (Kyushu Inst. of Tech.) <sup>#</sup> Yoshiaki Okazaki (Kyushu Inst. of Tech.) Hiroshi Sato (Kyushu Univ.) <sup>*</sup>	Doubling dimension and Linearity of the sequence space $\Lambda_2(f)$ . . . . .	15
15	Yoshihiro Sawano (Tokyo Metro. Univ.) <sup>#</sup> Tetsu Shimomura (Hiroshima Univ.)	A remark on Morrey spaces for metric measure spaces . . . . .	10
16	Katsuo Matsuoka (Nihon Univ.) <sup>#</sup>	On the boundedness for commutators in $B_\sigma$ -Morrey spaces . . . . .	15
17	Hiroki Saito (Tokyo Metro. Univ.) <sup>#</sup> Hitoshi Tanaka (Univ. of Tokyo)	Directional maximal operators and radial weights on the plane . . . . .	10
18	Hitoshi Tanaka (Univ. of Tokyo) <sup>#</sup>	A characterization of two-weight trace inequalities for positive dyadic operators in the upper triangle case . . . . .	15
19	Yuichi Kanjin (Kanazawa Univ.) <sup>#</sup>	On orthogonal polynomial expansions with nonnegative Fourier coefficients . . . . .	15

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

Shinya Moritoh (Nara Women's Univ.)<sup>\*</sup> Microlocal Besov spaces and dominating mixed smoothness

## September 25th (Wed) Conference Room III

**9:00–11:55**

- 20 Akio Ito (Kinki Univ.)<sup>#</sup> Large-time behavior of non-negative time-global solutions to ODE system describing cardiac hypertrophy ..... 15  
 Kazuhiko Yamamoto (Kinki Univ.)
- 21 Kota Kumazaki (Tomakomai Nat. Coll. of Tech.)<sup>#</sup> Large time behavior of a solution for carbon dioxide transport model in concrete carbonation process ..... 15
- 22 Takesi Fukao (Kyoto Univ. of Edu.)<sup>#</sup> Application to nonlinear PDE of the abstract theory of variational inequality ..... 15  
 Nobuyuki Kenmochi (Bukkyo Univ.)
- 23 Yutaka Tsuzuki (Tokyo Univ. of Sci.)<sup>#</sup> Solvability of  $p$ -Laplace heat equations with unbounded obstacles coupled with Navier–Stokes equations ..... 15
- 24 Shun Uchida (Waseda Univ.)<sup>#</sup> The solvability of double-diffusive convection system coupled with Brinkman–Forchheimer equations under the Neumann boundary condition ..... 15  
 Mitsuharu Ôtani (Waseda Univ.)
- 25 Ken Shirakawa (Chiba Univ.)<sup>#</sup> Smoothing effects and energy dissipations for parabolic systems associated with grain boundary motions ..... 15  
 Hiroshi Watanabe (Salesian Polytech.)  
 Jose Salvador Moll (Univ. Valencia)
- 26 Hiroshi Watanabe (Salesian Polytech.)<sup>#</sup> Qualitative properties for a one dimensional grain boundary motion model with degeneracy ..... 15  
 Ken Shirakawa (Chiba Univ.)
- 27 Noriaki Yamazaki (Kanagawa Univ.)<sup>#</sup> Control problems of phase field systems associated with total variation energy ..... 15  
 Ken Shirakawa (Chiba Univ.)
- 28 Makoto Nakamura (Yamagata Univ.)<sup>\*</sup> The Cauchy problem for nonlinear Klein–Gordon equations in de Sitter spacetime ..... 10
- 29 Makoto Nakamura (Yamagata Univ.)<sup>\*</sup> Remarks on a weighted energy estimate and its application to nonlinear wave equations in one space dimension ..... 10
- 30 Yoshifumi Ito (Univ. of Tokushima)<sup>\*</sup><sup>#</sup> Fourier transformation of  $L^2_{loc}$ -functions and its applications ..... 8
- 31 Yoshifumi Ito (Univ. of Tokushima)<sup>\*</sup><sup>#</sup> What is the impact force? ..... 7

**13:00–13:15**

- 32 Yoshifumi Ito (Univ. of Tokushima)<sup>\*</sup><sup>#</sup> The study on the phenomena of infinitely deep potential well in the view point of the natural statistical physics ..... 8
- 33 Yoshifumi Ito (Univ. of Tokushima)<sup>\*</sup> The study on the motion of the system of free particles in the view point of the natural statistical physics ..... 7

**13:20–14:20 Talk invited by Real Analysis Section**

- Risei Kano (Kochi Univ.)<sup>#</sup> The existence of solutions for the tumor invasion models
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## Functional Analysis

September 24th (Tue)      Conference Room IV

### 9:30–11:50

- |   |                                     |   |    |
|---|-------------------------------------|---|----|
| 1 | Hiroshi Ito      (Ehime Univ.) *    | Dirac operators with potentials with diverging at infinity . . . . .  | 15 |
| 2 | Akito Suzuki      (Shinshu Univ.) * | Spectral analysis of the Laplacian on a covering graph obtained from the one dimensional lattice by adding pendant vertices . . . . . | 15 |
| 3 | Akito Suzuki      (Shinshu Univ.)   | Supersymmetric aspects of the Laplacian on the graph obtained from the lattice by adding pendant vertices . . . . .                   | 15 |
| 4 | Itaru Sasaki      (Shinshu Univ.) # | Jacobi matrix and the multiplicity of eigenvalues of the non-commutative harmonic oscillator . . . . .                                | 10 |
| 5 | Itaru Sasaki      (Shinshu Univ.) # | On the binding condition of the semi-relativistic Pauli–Fierz model . . .   | 10 |
| 6 | Fumio Hiroshima (Kyushu Univ.) #    | Spin-boson model through a Poisson-driven stochastic process . . . . .  | 15 |
| 7 | Fumio Hiroshima (Kyushu Univ.) #    | Functional integral approach to semi-relativistic Pauli–Fierz models . .  | 10 |
| 8 | Fumio Hiroshima (Kyushu Univ.) #    | UV renormalization of the Nelson model by functional integrations . . .   | 10 |
| 9 | Koichi Kaizuka (Univ. of Tsukuba) # | A characterization of the $L^2$ -range of the Poisson transform on symmetric spaces of noncompact type . . . . .                      | 15 |

### 14:15–15:15    Talk invited by Functional Analysis Section

- |  |                                    |   |  |
|--|------------------------------------|---|--|
|  | Chisato Iwasaki (Univ. of Hyogo) * | The symbol of the fundamental solution for the degenerate parabolic operators and its application |  |
|--|------------------------------------|---|--|

September 25th (Wed)      Conference Room IV

### 9:30–11:50

- |    |   |   |    |
|----|---|---|----|
| 10 | Takuya Hosokawa (Ibaraki Univ.) *<br>Shūichi Ohno (Nippon Inst. of Tech.) | Differences of weighted composition operators from $H^\infty$ to the Bloch space . . . . .              | 10 |
| 11 | Kouhei Izuchi (Yamaguchi Univ.) #   | Operator inner functions for Rudin type invariant subspaces over the bidisk . . . . .                   | 15 |
| 12 | Takeshi Miura      (Niigata Univ.) #                                      | On surjective isometries between function algebras . . . . .  | 15 |
| 13 | Koichi Shimada (Univ. of Tokyo)   | A classification of flows on AFD factors with faithful Connes–Takesaki modules . . . . .                | 15 |
| 14 | Yusuke Isono      (Univ. of Tokyo) #                                      | Strong solidity of $II_1$ factors of free quantum groups . . . . .                                      | 15 |
| 15 | Satoshi Goto      (Sophia Univ.) #  | On equivalence classes of irreducible generalized intermediate subfactors of $ADE$ subfactors . . . . . | 10 |
| 16 | Satoshi Goto      (Sophia Univ.) #  | On intermediate subfactors of Goodman–de la Harpe–Jones subfactors . . . . .                            | 10 |
| 17 | Toshihiko Masuda (Kyushu Univ.) #   | A sufficient condition for vanishing of an obstruction in orbifold construction . . . . .               | 15 |

## September 26th (Thu) Conference Room IV

**9:30–12:00**

- 18 Narutaka Ozawa (Kyoto Univ.)<sup>#</sup> Quantum correlations and Tsirelson's problem ..... 15
- 19 Takuya Takeishi (Univ. of Tokyo) On nuclearity of  $C^*$ -algebras of Fell bundles over étale groupoids ..... 15
- 20 Hiroyuki Osaka (Ritsumeikan Univ.)<sup>#</sup> LP property for  $C^*$ -algebras ..... 15  
Dinh Trung Hoa (Duy Tan Univ.)  
Ho Minh Toan  
(Vietnam Acad. Sci. Tech.)
- 21 Rui Okayasu (Osaka Kyoiku Univ.)<sup>#</sup> Some properties for free group  $C^*$ -algebras associated with  $\ell_p$  ..... 15
- 22 Norio Nawata (Chiba Univ.)<sup>#</sup> A Rohlin type theorem for trace scaling automorphisms of certain stably projectionless  $C^*$ -algebras ..... 15
- 23 Yasuhiko Sato (Kyoto Univ.)<sup>#</sup> Approximately unitarily equivalent automorphisms of UHF absorbing  $C^*$ -algebras ..... 15
- 24 Yuhei Suzuki (Univ. of Tokyo)<sup>#</sup> Haagerup property for  $C^*$ -algebras and rigidity of  $C^*$ -algebras with property (T) ..... 15
- 25 Kengo Matsumoto<sup>\*</sup> Topological full groups of  $C^*$ -algebras arising from  $\beta$ -expansions ..... 15  
(Joetsu Univ. of Edu.)  
Hiroki Matui (Chiba Univ.)

**14:15–15:45**

- 26 Tsuyoshi Kajiwara (Okayama Univ.)<sup>#</sup> Discrete traces on the cores of  $C^*$ -algebras associated with rational functions ..... 15  
Yasuo Watatani (Kyushu Univ.)
- 27 Yasuo Watatani (Kyushu Univ.)<sup>\*</sup> Transitive Hilbert representations of quivers ..... 15  
Masatoshi Enomoto (Koshien Univ.)
- 28 Reiji Tomatsu (Hokkaido Univ.)<sup>#</sup> Product type actions of a compact quantum group  $G_q$  ..... 15
- 29 Ryo Tabata (Hiroshima Univ.)<sup>#</sup> On possible values of generalized matrix functions on the determinant-permanent number line ..... 15
- 30 Katsuhiko Kikuchi (Kyoto Univ.)<sup>#</sup> Spherical representations for certain Gelfand pairs ..... 15

**16:00–17:00 Talk invited by Functional Analysis Section**

- Toshihiko Matsuki (Ryukoku Univ.)<sup>#</sup> Finite-type orbit decompositions of multiple flag varieties for orthogonal groups

## September 27th (Fri) Conference Room IV

**9:30–12:00**

- 31 Junichi Fujii (Osaka Kyoiku Univ.)<sup>#</sup> On hyperkähler structure for the 2 by 2 positive-definite matrices ..... 10
- 32 Noboru Nakamura<sup>#</sup> Proofs of operator monotonicity of some functions ..... 15  
(Toyama Nat. Coll. of Tech.)  
Saich Izumino
- 33 Kenjiro Yanagi (Yamaguchi Univ.)<sup>#</sup> Uncertainty relation of generalized skew information ..... 15  
Shigeru Furuichi (Nihon Univ.)  
Ken Kuriyama (Bukkyo Univ.)

- 34 Eizaburo Kamei \* An extension of Tsallis relative operator entropy ..... 15  
 Hiroshi Isa (Maebashi Inst. of Tech.)  
 Masatoshi Ito (Maebashi Inst. of Tech.)  
 Hiroaki Tohyama  
 (Maebashi Inst. of Tech.)  
 Msayuki Watanabe  
 (Maebashi Inst. of Tech.)
- 35 Masatoshi Ito (Maebashi Inst. of Tech.)# Generalizations of operator Shannon inequality based on Tsallis and  
 Hiroshi Isa (Maebashi Inst. of Tech.) Rényi relative entropies ..... 15  
 Eizaburo Kamei  
 Hiroaki Tohyama  
 (Maebashi Inst. of Tech.)  
 Masayuki Watanabe  
 (Maebashi Inst. of Tech.)
- 36 Masatoshi Ito (Maebashi Inst. of Tech.)# Matrix inequalities including grand Furuta inequality via Karcher mean  
 ..... 15
- 37 Mitsuru Uchiyama (Shimane Univ.)# A converse of Loewner–Heinz inequality ..... 15
- 38 Masaru Nagisa (Chiba Univ.)# The reverse order of operator mean ..... 15  
 Mitsuru Uchiyama (Shimane Univ.)
- 39 Takeaki Yamazaki (Toyo Univ.)# Operator inequality and operator mean ..... 10  
 Mitsuru Uchiyama (Shimane Univ.)

#### 14:15–15:15 Talk invited by Functional Analysis Section

- Yuki Seo (Osaka Kyoiku Univ.)# Developments of operator geometric means from the viewpoint of Kantorovich inequality

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## Statistics and Probability

September 24th (Tue) Conference Room VIII

#### 9:30–12:00

- 1 Kiyotaka Suzuki (Osaka Univ.)# Construction of leafwise non-degenerate diffusion processes on foliated  
 spaces via SDE approach and its application ..... 15
- 2 Takafumi Amaba (Ritsumeikan Univ.)# On the monotonicity of  $\mathcal{L}_0$ -cost along backward heat flow ..... 15  
 Kazumasa Kuwada (Ochanomizu Univ.)
- 3 Jirô Akahori (Ritsumeikan Univ.)# A discrete-time Clark–Ocone formula and its application to an error  
 Takafumi Amaba (Ritsumeikan Univ.) analysis ..... 15  
 Kaori Okuma (Ritsumeikan Univ.)
- 4 Masafumi Hayashi # Hölder continuity property of the densities of SDEs with singular drift  
 (Univ. of Ryukyus/JST CREST) coefficients ..... 10  
 Arturo Kohatsu Higa  
 (Ritsumeikan Univ./JST CREST)  
 Go Yuki  
 (Ritsumeikan Univ./JST CREST)

- 5 Hideki Tanemura (Chiba Univ.)<sup>#</sup> Complex Brownian motion representations of non-colliding diffusion  
Makoto Katori (Chuo Univ.) processes ..... 10
- 6 Hideki Tanemura (Chiba Univ.)<sup>#</sup> Strong Markov property of determinantal processes ..... 10
- 7 Nobuaki Naganuma (Tohoku Univ.)<sup>#</sup> Asymptotic error distributions of the Crank–Nicholson scheme for SDEs  
driven by fractional Brownian motion ..... 15
- 8 Shigeyoshi Ogawa (Ritsumeikan Univ.)<sup>\*</sup> Identification of a noncausal Itô process from the stochastic Fourier  
Hideaki Uemura (Aichi Univ. of Edu.) coefficients ..... 15
- 9 Naoyuki Ichihara (Hiroshima Univ.)<sup>\*</sup> The generalized principal eigenvalue for ergodic type HJB equations  
..... 15

**14:15–14:45**

- 10 Naoki Kubota (Nihon Univ.)<sup>#</sup> Rates of convergence in first passage percolation with a weaker condition  
than exponential tail assumptions ..... 15
- 11 Yuji Hibino (Saga Univ.)<sup>#</sup> Asymptotic spectral distributions of distance- $k$  graphs of direct product  
graphs ..... 15

**15:00–16:00 Talk invited by Statistics and Probability Section**

Makoto Nakashima (Univ. of Tsukuba)<sup>#</sup> Branching random walks in random environment

**16:15–17:15 Talk invited by Statistics and Probability Section**

Katusi Fukuyama (Kobe Univ.)<sup>#</sup> Uniform distribution theory for geometric progressions

September 25th (Wed) Conference Room VIII

**9:15–11:50**

- 12 Hiroki Takahashi (Keio Univ.)<sup>\*</sup> Prevalence of non-uniform hyperbolicity at the first bifurcation of the  
Hénon family ..... 20
- 13 Takuya Ikeda (Osaka Univ.)<sup>\*</sup> Central limit theorem for a class of nonsingular transformations with  
Takehiko Morita (Osaka Univ.) quasi-compact Perron–Frobenius operator ..... 15
- 14 Makoto Mori (Nihon Univ.)<sup>#</sup> On the essential spectrum of Perron–Frobenius operator ..... 20
- 15 Naotaka Kajino (Kobe Univ.)<sup>#</sup> (Non-)periodic asymptotic behavior of the heat kernel on Sierpiński  
carpets ..... 20
- 16 Yukio Kasahara (Hokkaido Univ.)<sup>#</sup> Matrix-valued rigid functions, kernels of Toeplitz operators and CND  
Akihiko Inoue (Hiroshima Univ.) processes ..... 15  
Mohsen Pourahmadi  
(Texas A&M Univ.)
- 17 Shunsuke Ihara (Nagoya Univ.)<sup>\*</sup><sup>#</sup> Asymptotic behavior of error probabilities in information transmission  
over white Gaussian channel with feedback ..... 15
- 18 Takaaki Shimura (Inst. of Stat. Math.)<sup>#</sup> A numerical characteristic of extreme values ..... 15
- 19 Satoshi Suzuki (Shimane Univ.)<sup>#</sup> Surrogate duality for quasiconvex programming with data uncertainty  
Daishi Kuroiwa (Shimane Univ.) ..... 15

**11:50–12:20 Research Section Assembly**

September 26th (Thu) Conference Room VIII

**9:00–12:00**

- 20 Takayuki Fujii (Shiga Univ.)<sup>#</sup> Nonparametric estimation for jump Markov processes ..... 15
- 21 Koji Tsukuda (Grad. Univ. for Adv. Stud.)<sup>#</sup> Z-process methods in  $\ell^\infty$ - and  $L_2$ -spaces for change point problems ..... 20  
Yoichi Nishiyama (Inst. of Stat. Math./Grad. Univ. for Adv. Stud.)
- 22 Teppei Ogihara (Osaka Univ.)<sup>#</sup> Local asymptotic mixed normality property for nonsynchronously observed diffusion processes ..... 20
- 23 Ayaka Yagi (Tokyo Univ. of Sci.)<sup>#</sup> Tests for mean vector and simultaneous confidence intervals with three-step monotone missing data ..... 15  
Takashi Seo (Tokyo Univ. of Sci.)
- 24 Masashi Hyodo (Tokyo Univ. of Sci.)<sup>#</sup> On the new test statistic based on linear combination of Dempster statistics and  $T^2$  statistics ..... 15  
Takahiro Nishiyama (Senshu Univ.)  
Takashi Seo (Tokyo Univ. of Sci.)
- 25 Hiroki Watanabe (Tokyo Univ. of Sci.)<sup>#</sup> A determination of cut-off point for Euclidean distance discriminant rule in high-dimensional data ..... 15  
Hyodo Masashi (Tokyo Univ. of Sci.)  
Seo Takashi (Tokyo Univ. of Sci.)
- 26 Aki Ishii (Univ. of Tsukuba)<sup>#</sup> On the distribution of the largest eigenvalue via geometric representation in high-dimension, low sample size context ..... 15  
Kazuyoshi Yata (Univ. of Tsukuba)  
Makoto Aoshima (Univ. of Tsukuba)
- 27 Kazuyoshi Yata (Univ. of Tsukuba)<sup>#</sup> Asymptotic normality for inference on high-dimensional mean vectors under mild conditions ..... 15  
Makoto Aoshima (Univ. of Tsukuba)
- 28 Fumiya Akashi (Waseda Univ.)<sup>#</sup> An empirical likelihood approach toward discriminant analysis for non-Gaussian vector stationary processes ..... 15
- 29 Yan Liu (Waseda Univ.)<sup>#</sup> A new way to estimate tail index ..... 15

**12:10–12:30 Presentation Ceremony for 2013 Analysis Prize****14:30–15:30 Talk invited by Statistics and Probability Section**

- Yoichi Nishiyama (Inst. of Stat. Math./Grad. Univ. for Adv. Stud.)<sup>#</sup> A stochastic maximal inequality, weak convergence of infinite-dimensional martingales, and semiparametric statistics

**15:45–16:45 Talk invited by Statistics and Probability Section**

- Kouji Yamamoto (Osaka Univ.)<sup>#</sup> Modelling for square contingency tables and its application

September 27th (Fri) Conference Room VIII

**9:15–12:00**

- 30 Kentaro Tanaka (Tokyo Tech)<sup>#</sup> Algebraic methods for conditional independence inference ..... 15
- 31 Yoshihide Kakizawa (Hokkaido Univ.)<sup>#</sup> Third-order average local powers of Bartlett-type adjusted tests: Ordinary versus adjusted profile likelihood ..... 15
- 32 Yoshihiko Maesono (Kyushu Univ.)<sup>#</sup> Smoothing of the Wilcoxon's signed rank test ..... 10

33	Yusuke Saigusa (Tokyo Univ. of Sci.) <sup>#</sup> Kouji Tahata (Tokyo Univ. of Sci.) Sadao Tomizawa (Tokyo Univ. of Sci.)	Decomposition of symmetry using extended palindromic symmetry models for square contingency tables . . . . .	10
34	Masanori Sawa (Nagoya Univ.) <sup>#</sup>	A lemma on the eigenvalues of Hermitian matrices and its application 2 —Proof of Fisher's inequality . . . . .	15
35	Masatake Hirao (Tokyo Woman's Christian Univ.) Masanori Sawa (Nagoya Univ.) Masakazu Jimbo (Nagoya Univ.)	Constructions of optimal rotatable designs on the $n$ -ball . . . . .	15
36	Sanpei Kageyama (Hiroshima Inst. of Tech.)	An affine $\alpha$ -resolvable symmetric triangular design does not exist for any $\alpha$ . . . . .	10
37	Sanpei Kageyama (Hiroshima Inst. of Tech.) Kazuki Matsubara (Hiroshima Univ.)	Some existence of additive cyclic BIB designs . . . . .	15
38	Takeshi Torii (Osaka Pref. Univ.) <sup>*</sup> Shinji Kuriki (Osaka Pref. Univ.)	A nested row-column design with split units constructed by a regular generalized Youden design . . . . .	10
39	Hiromu Yumiba (Int. Inst. for Nat. Sci.) <sup>#</sup> Yoshifumi Hyodo (Okayama Univ. of Sci./Int. Inst. for Nat. Sci.) Masahide Kuwada (Int. Inst. for Nat. Sci.)	Existence conditions for balanced fractional factorial designs of resolution V derived from three-symbol simple arrays (III) . . . . .	15
40	Yiling Lin (Nagoya Univ.) <sup>#</sup> Miwako Mishima (Gifu Univ.) Junya Satoh (Nagoya Univ.) Masakazu Jimbo (Nagoya Univ.)	Optimal equi-difference conflict-avoiding codes of odd length and weight three . . . . .	18

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## Applied Mathematics

September 24th (Tue)      Conference Room VII

### 9:45–12:00

1	Chihiro Matsuoka (Ehime Univ.) <sup>#</sup> Koichi Hiraide (Ehime Univ.)	Entropy estimation of the Hénon attractor . . . . .	15
2	Kenta Noguchi (Keio Univ.) <sup>#</sup>	Congruence classes of the monodromy of even triangulations on surfaces . . . . .	15
3	Valentin Borozan (Univ. Paris 11/Hungarian Acad. of Sci.) Shinya Fujita (Maebashi Inst. of Tech.) Michitaka Furuya (Tokyo Univ. of Sci.) Yannis Manoussakis (Univ. Paris 11) Narayanan N (Indian Inst. Tech.)	Partitioning a graph into highly connected subgraphs . . . . .	10

- 4 Iwao Sato (Oyama Nat. Coll. of Tech.)<sup>#</sup> The vertex weighted complexity of a graph ..... 15  
 Hongfeng Wu (Peking Univ.)  
 Rongquan Feng (Peking Univ.)
- 5 Yutaka Sueyoshi (Nagasaki Univ.)<sup>#</sup> On the maximal value of break intervals of equitable round-robin tour-  
 Ryuichi Harasawa (Nagasaki Univ.) naments with home-away assignments (II) ..... 15  
 Aichi Kudo (Nagasaki Univ.\*)
- 6 Akane Kawaharada (Hiroshima Univ.)<sup>#</sup> Inverse ultradiscretization of a two-dimensional nonlinear cellular au-  
 tomaton ..... 15
- 7 Kousuke Suzuki (Univ. of Tokyo)<sup>#</sup> An explicit construction of point sets with large minimum Dick weight  
 ..... 15
- 8 Kenta Ozeki <sup>#</sup> Condition on the core to be Class 1 ..... 10  
 (Nat. Inst. of Information/JST ERATO)

**14:15–16:30**

- 9 Michitaka Furuya (Tokyo Univ. of Sci.)<sup>#</sup> On monochromatic homeomorphically irreducible trees in 2-edge-colored  
 Shoichi Tsuchiya (Tokyo Univ. of Sci.) complete graphs ..... 15
- 10 Shin Harase (Tokyo Tech)<sup>#</sup> A construction of low-WAFOM point sets based on the digital construc-  
 Ryuichi Ohori (Univ. of Tokyo) tion scheme ..... 15
- 11 Masataka Nakamura (Univ. of Tokyo)<sup>#</sup> Supersolvable antimatroid lattices and rooted circuit graphs ..... 15  
 Kenji Kashiwabara (Univ. of Tokyo)
- 12 Masataka Nakamura (Univ. of Tokyo)<sup>#</sup> The idempotence, the exchange property, and the anti-exchange prop-  
 Kenji Kashiwabara (Univ. of Tokyo) erty of monotone extensive operators ..... 15
- 13 Yasuko Matsui (Tokai Univ.)<sup>#</sup> An enumeration algorithm for the optimal cost vertex colorings for trees  
 Kento Kizaka (Tokai Univ.) ..... 15
- 14 Kazuhiko Ushio (Kinki Univ.)<sup>#</sup> Balanced  $(C_9, C_{14})$ -foil designs and related designs ..... 15
- 15 Masanori Sawa (Nagoya Univ.)<sup>#</sup> A lemma on the eigenvalues of Hermitian matrices and its application  
 1 —Eigenvalues of adjacency matrices and graph decomposition ..... 15
- 16 Mariko Hagita (Ochanomizu Univ.)<sup>#</sup> Dispersive coloring polynomials of some graphs ..... 15

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

- Masaaki Harada (Yamagata Univ.)<sup>#</sup> Self-dual codes and related topics

September 25th (Wed) Conference Room VII

**9:45–12:00**

- 17 Masahiro Hachimori <sup>#</sup> Simplicial complexes whose restrictions are all shellable, and extend-  
 (Univ. of Tsukuba) ability of shellings ..... 15  
 Kenji Kashiwabara (Univ. of Tokyo)
- 18 Kiyoshi Ando (Univ. of Electro-Comm.)<sup>#</sup> Contractible subgraphs in 5-connected graphs ..... 15
- 19 Atsuhiko Nakamoto <sup>#</sup> Balanced partitions on permutations and their application to a geomet-  
 (Yokohama Nat. Univ.) ric problem ..... 15  
 Yoshiaki Oda (Keio Univ.)  
 Tomoki Yamashita (Kinki Univ.)  
 Mamoru Watanabe  
 (Kurashiki Univ. of Sci. and Arts)

- 20 Minoru Fujimoto (Seika Science Lab.)<sup>#</sup> An algorithm for the pair of primes of difference  $2d$  and Hardy–  
Kunihiko Uehara (Tezukayama Univ.) Littlewood conjecture ..... 15
- 21 Minoru Fujimoto (Seika Science Lab.)<sup>#</sup> An algorithm for the Sophie Germain primes and the twin primes .... 15  
Kunihiko Uehara (Tezukayama Univ.)
- 22 Naoki Matsumoto (Yokohama Nat. Univ.)<sup>#</sup> The order of snarks can be embedded in surfaces ..... 15  
Michal Kotrbčik (Comenius Univ.)
- 23 Ronald J. Gould (Emory Univ.)<sup>#</sup> Vertex-disjoint doubly chorded cycles in a graph ..... 10  
Paul Horn (Harvard Univ.)  
Kazuhide Hirohata (Ibaraki Nat. Coll. of Tech.)
- 24 Atsuhiro Nakamoto (Yokohama Nat. Univ.) Grünbaum coloring of Eulerian triangulations on surfaces ..... 15

**13:00–14:00 Talk invited by Applied Mathematics Section**

- Kanako Suzuki (Ibaraki Univ.)<sup>#</sup> Dynamics of some reaction-diffusion-ODE systems

September 26th (Thu) Conference Room VII

**9:30–10:20**

- 25 Kazuki Sano (Nihon Univ.)<sup>#</sup> Precoloring extension involving pairs of vertices of small distance .... 15  
Chihoko Ojima (Nihon Univ.)  
Akira Saito (Nihon Univ.)
- 26 Katsuhiro Ota (Keio Univ.)<sup>#</sup> Vertex-disjoint chorded cycles of the same length ..... 15  
Guantao Chen (Georgia State Univ.)  
Ronald J. Gould (Emory Univ.)  
Kazuhide Hirohata (Ibaraki Nat. Coll. of Tech.)  
Songling Shan (Georgia State Univ.)
- 27 Shunzi Horiguchi (Niigata Sangyo Univ.)<sup>#</sup> Continued fraction presentations of the powers of square root and  
cubic root by the Tsuchikura–Horiguchi’s method (the first extension  
recurrence formula of Murase Yoshimasu–Newton’s type) ..... 15

**10:30–12:00 Special Session “Japanese chess and puzzle”**

- Masato Shinoda (Nara Women’s Univ.)<sup>#</sup> How to design strong computer Shogi programs ..... 40
- Hideki Tsuiki (Kyoto Univ.)<sup>#</sup> Imaginary cube puzzles ..... 40

**14:15–17:45**

- 28 Takashi Okuda Sakamoto (Meiji Univ.)<sup>#</sup> Bogdanov–Takens bifurcation in a three component reaction-diffusion  
Toshiyuki Ogawa (Meiji Univ.) system in the presence of 0:1:2 resonance ..... 15
- 29 Hirofumi Izuhara (Meiji Univ.)<sup>#</sup> Spatio-temporal oscillation in the Keller–Segel system with growth .... 15  
Shin-Ichiro Ei (Kyushu Univ.)  
Masayasu Mimura (Meiji Univ.)
- 30 Shingo Iwami (Kyushu Univ.)<sup>#</sup> An existence of conserved quantity in virus infection experiment ..... 15  
Yusuke Kakizoe (Kyushu Univ.)  
Satoru Morita (Shizuoka Univ.)

- 31 Hiromi Seno (Tohoku Univ.)# A simple mathematical model for the annual variation of epidemic outbreak with prevention level affected by past incidence sizes ..... 15  
Ayaka Terada (Hiroshima Univ.)  
Mika Inoue (Hiroshima Univ.)
- 32 Tetsuya Ishiwata (Shibaura Inst. of Tech.)# Spiral-shaped solutions to crystalline curvature flow with a moving tip ..... 15
- 33 Takeshi Ohtsuka (Gunma Univ.)# Crystal growth by a co-rotating pair of screw dislocations ..... 15  
Yoshikazu Giga (Univ. of Tokyo)  
Yen-Hsi Richard Tsai (Univ. of Texas at Austin)
- 34 Takaaki Aoki (Kyoto Univ.)# Some mathematical properties of the dynamically inconsistent Bellman equation: A note on the two-sided altruism dynamics ..... 15
- 35 Naoto Nakano (Tohoku Univ.)# Statistical coefficients formulae and orbit predictability in a data analysis method in the framework of stochastic differential equations ..... 15  
Yoshitaka Saiki (Hitotsubashi Univ.)  
Masaru Inatsu (Hokkaido Univ.)  
Seiichiro Kusuoka (Tohoku Univ.)
- 36 Masaji Watanabe (Okayama Univ.)# Modeling and simulation for microbial depolymerization processes of xenobiotic polymers with time factor of degradation rate ..... 15  
Fusako Kawai (Kyoto Inst. Tech.)
- 37 Kei Nishi (Hokkaido Univ.)# Behavior of a front-back pulse arising in a bistable reaction-diffusion system with jump-type heterogeneity ..... 15  
Yasumasa Nishiura (Tohoku Univ.)  
Takashi Teramoto (Asahikawa Medical Univ.)
- 38 Nobuyuki Higashimori (Hitotsubashi Univ.)# An inverse problem of determining coefficients in a one-dimensional radiative transport equation ..... 15
- 39 Masato Kimura (Kanazawa Univ.)# A discrete phase field model of fracture on a spring-block system ..... 15  
Hirofumi Notsu (Waseda Univ.)

## September 27th (Fri) Conference Room VII

**9:00–12:00**

- 40 Yusuke Imoto (Kyushu Univ.)# Truncation error analysis of approximated operators on SPH and MPS method ..... 15  
Daisuke Tagami (Kyushu Univ.)
- 41 Hirofumi Notsu (Waseda Univ.)# Error estimates and computation of a pressure-stabilized characteristics finite element scheme for the Navier–Stokes equations ..... 15  
Masahisa Tabata (Waseda Univ.)
- 42 Yoshihiro Saito (Gifu Shotoku Gakuen Univ.)# Numerical asymptotic stability of the simplified order 2.0 weak Taylor scheme ..... 15
- 43 George Miyake (Ube Nat. Coll. of Tech.)# An analysis of nonlinear symmetrical differential equations with dihedral group and odd function ..... 15  
Yuji Katsuta (Ube Nat. Coll. of Tech.)
- 44 Naoharu Ito (Nara Univ. of Edu.)# Boundedness of the solutions of higher order systems of linear difference equations ..... 15
- 45 Shuichi Jimbo (Hokkaido Univ.)\* Eigenvalues of Laplacian in a domain with a thin tubular hole ..... 15
- 46 Harunori Monobe (Meiji Univ.)# Multiple existence of traveling waves of a free boundary problem ..... 15  
Hirokazu Ninomiya (Meiji Univ.)

- 47 Mi-Ho Giga (Univ. of Tokyo)<sup>#</sup> On behavior of signs for the heat equation and a diffusion method for  
Yoshikazu Giga (Univ. of Tokyo) data separation ..... 15  
Takeshi Ohtsuka (Gunma Univ.)  
Noriaki Umeda (Meiji Univ.)
- 48 Hideki Murakawa (Kyushu Univ.)<sup>#</sup> Error estimates for discrete-time approximations of nonlinear cross-  
diffusion systems ..... 15
- 49 Kousuke Abe (Nihon Univ.)<sup>\*</sup> A remark on the Courant–Friedrichs–Lewy condition in finite difference  
Nobuyuki Higashimori approach ..... 15  
(Hitotsubashi Univ.)  
Masayoshi Kubo (Kyoto Univ.)  
Hiroschi Fujiwara (Kyoto Univ.)  
Yuusuke Iso (Kyoto Univ.)
- 50 Masataka Kuwamura (Kobe Univ.)<sup>#</sup> Turing patterns in prey-predator systems with dormancy of predators  
..... 15
- 14:15–16:45**
- 51 Koya Sakakibara (Meiji Univ.)<sup>#</sup> An extension of Amano’s method for numerical conformal mappings to  
Masashi Katsurada (Meiji Univ.) non-starlike domains and the method based on the dipole simulation  
method ..... 15
- 52 Takahito Kashiwabara (Univ. of Tokyo)<sup>#</sup> On the convergence of Robin boundary condition to Dirichlet or Neu-  
mann ones ..... 15
- 53 Takuya Tsuchiya (Waseda Univ.)<sup>#</sup> A new numerical scheme for Einstein equations with discrete variational  
derivative method ..... 15
- 54 Akitoshi Takayasu (Waseda Univ.)<sup>#</sup> The constructive implicit function theorem and its applications to con-  
Shin’ichi Oishi tinuation method ..... 15  
(Waseda Univ./JST CREST)
- 55 Yoshitaka Watanabe (Kyushu Univ.)<sup>#</sup> A numerical verification method for nonlinear functional equations  
Mitsuhiro T. Nakao based on infinite-dimensional Newton-like iteration ..... 15  
(Sasebo Nat. Coll. of Tech.)
- 56 Guanyu Zhou (Univ. of Tokyo)<sup>#</sup> Fictitious domain method with the  $L^2$ -penalty and application to the  
Norikazu Saito (Univ. of Tokyo) finite element and finite volume methods ..... 15
- 57 Takiko Sasaki (Univ. of Tokyo)<sup>#</sup> A second-order scheme for a system of nonlinear Schrödinger equations  
..... 15
- 58 Issei Oikawa (Waseda Univ.)<sup>#</sup> Hybridized discontinuous Galerkin method with the  $P_1 - P_0$  ..... 15
- 59 Daisuke Koyama<sup>#</sup> Korn’s inequality for a hybridized discontinuous Galerkin FEM with  
(Univ. of Electro-Comm.) lifting operator ..... 15  
Fumio Kikuchi (Hitotsubashi Univ.)

**17:00–18:00 Talk invited by Applied Mathematics Section**

- Takaharu Yaguchi (Kobe Univ.)<sup>#</sup> Energy-preserving numerical methods based on the finite element exterior  
calculus for wave-type differential equations
-

# Topology

September 24th (Tue) Conference Room V

## 9:00–12:00

- |    |   |  |
|----|---|--|
| 1  | Jun Yagi (Kochi Univ.) <sup>#</sup>   | The classification of configuration spaces of 5-membered ringed chains<br>..... 15                                     |
| 2  | Hirotaka Akiyoshi (Osaka City Univ.) <sup>#</sup>   | Cone hyperbolic structures on the torus with a single cone point ..... 10  |
| 3  | Akiko Shima (Tokai Univ.) <sup>#</sup><br>Teruo Nagase (Tokai Univ.*)   | 4-charts with four crossings ..... 15  |
| 4  | Tetsuya Ito (Kyoto Univ.) <sup>#</sup><br>Inasa Nakamura (Gakushuin Univ.)  | On surface links whose link groups are abelian ..... 10  |
| 5  | Inasa Nakamura (Gakushuin Univ.) <sup>#</sup>   | Satellites of an oriented surface link and their local moves ..... 10  |
| 6  | Reiko Shinjo (Kokushikan Univ.) <sup>#</sup>  | Universal sequences of spatial graphs ..... 10   |
| 7  | Ayaka Shimizu (Gunma Nat. Coll. of Tech.) <sup>#</sup><br>Kenta Hayano (Osaka Univ.)<br>Reiko Shinjo (Kokushikan Univ.) | Region crossing change on spatial graphs ..... 10  |
| 8  | Megumi Hashizume (Nara Women's Univ.) <sup>#</sup>  | Coset decomposition by images of homomorphisms induced by region crossing change on 3-component link diagrams ..... 15 |
| 9  | Yusuke Takimura (Waseda Univ.) <sup>#</sup>   | Regular projections of $6_2$ knot ..... 15   |
| 10 | Taizo Kanenobu (Osaka City Univ.) <sup>#</sup><br>Hiromasa Moriuchi (Osaka City Univ.)                                  | Coherent band-Gordian distances between knots with up to seven crossings ..... 10                                      |
| 11 | Keiji Tagami (Tokyo Tech) <sup>#</sup>  | Rasmussen invariants of almost positive knots ..... 10   |
| 12 | Masakazu Teragaito (Hiroshima Univ.) <sup>#</sup>   | Cyclic branched covers of 2-bridge knots and $L$ -spaces ..... 10  |
| 13 | Motoo Tange (Univ. of Tsukuba)*<br>Tetsuya Abe (Tokyo Tech)   | A graph made from a slice disk and its deformation ..... 15  |

## 14:15–16:00

- |    |   |   |
|----|---|---|
| 14 | Toshio Saito (Joetsu Univ. of Edu.) <sup>#</sup>                                    | Meridional destabilizing number of knots ..... 10   |
| 15 | Kazuhiro Ichihara (Nihon Univ.) <sup>#</sup><br>Toshio Saito (Joetsu Univ. of Edu.) | Knots with arbitrarily high distance bridge decompositions ..... 10                                     |
| 16 | Shinya Okazaki (Osaka City Univ.) <sup>#</sup>                                      | Bridge genus and braid genus of lens space ..... 10   |
| 17 | Kenta Okazaki (Kyoto Univ.) <sup>#</sup>  | On the $E_6$ state sum invariant of lens spaces ..... 10  |
| 18 | Yoshikazu Yamaguchi (Akita Univ.) <sup>#</sup>                                      | The asymptotic behavior of the higher dimensional Reidemeister torsion for Seifert manifolds ..... 15   |
| 19 | Tatsuro Shimizu (Univ. of Tokyo) <sup>#</sup>                                       | Morse homotopy invariant and the Kontsevich–Kuperberg–Thurston invariant of homology 3-spheres ..... 10 |
| 20 | Motoo Tange (Univ. of Tsukuba)*   | Homology spheres bounded by 4-manifolds with intersection form $-E_8$<br>..... 10                       |
| 21 | Yoshifumi Matsuda (Kyoto Univ.)*  | Rotation number and actions of the modular group on the circle ..... 15                                 |

**16:20–17:20 Talk invited by Topology Section**Tadayuki Watanabe (Shimane Univ.)<sup>#</sup> Morse theory and graph-valued 3-manifold invariant

September 25th (Wed) Edu. Bldg.2, Large Lect. Room

**10:30–10:45 Presentation Ceremony for 2013 Geometry Prize****10:50–11:50 Award Lecture for 2013 Geometry Prize**Katsutoshi Yamanoi (Tokyo Tech)<sup>#</sup> Value distribution of derivatives of meromorphic functions**13:15–14:15 Award Lecture for 2013 Geometry Prize**Toshitake Kohno (Univ. of Tokyo)<sup>#</sup> Braids, quantum symmetry and hypergeometric integrals

September 26th (Thu) Conference Room V

**9:00–12:00**

- 22 Katsuhisa Koshino (Univ. of Tsukuba)<sup>\*</sup> Topological types of pairs of convex sets in Fréchet spaces ..... 15
- 23 Takashi Shimomura <sup>#</sup> Approximation by conjugacies and graph coverings ..... 15  
(Nagoya Univ. of Econ.)
- 24 Yusuke Tokunaga (Osaka Univ.)<sup>#</sup> Measures with maximum total exponent of  $C^1$  diffeomorphisms with  
basic sets ..... 15
- 25 Tatsuhiko Yagasaki (Kyoto Inst. Tech.)<sup>#</sup> Groups of uniform homeomorphisms with the uniform topology ..... 15
- 26 Noriyuki Hamada (Kyushu Univ.)<sup>#</sup> Non-holomorphic Lefschetz fibrations with  $(-1)$ -section ..... 15
- 27 Noriyuki Hamada (Kyushu Univ.)<sup>#</sup> Decompositions of positive relations in the mapping class group ..... 15
- 28 Ryoma Kobayashi (Tokyo Univ. of Sci.)<sup>#</sup> On the genus of a Lefschetz fibration and a finitely presented group  
..... 10
- 29 Takuya Sakasai (Univ. of Tokyo)<sup>#</sup> Johnson homomorphisms up to degree 6 ..... 15  
Masaaki Suzuki (Meiji Univ.)  
Shigeyuki Morita  
(Univ. of Tokyo<sup>\*</sup>/Tokyo Tech<sup>\*</sup>)
- 30 Yusuke Kuno (Tsuda Coll.)<sup>#</sup> An infinitesimal Dehn–Nielsen theorem and an embedding of the largest  
Nariya Kawazumi (Univ. of Tokyo) Torelli group ..... 15
- 31 Ryo Kato (Nagoya Univ.)<sup>#</sup> The non-existence of a special  $E(n)$ -invertible spectra ..... 10  
Yuna Kawamoto (Kochi Univ.)  
Katsumi Shimomura (Kochi Univ.)
- 32 Tomoki Kashiwagi (Kochi Univ.)<sup>#</sup> The 2-primary chromatic  $H^1M_{n-1}^1$  ..... 10  
Ryo Kato (Nagoya Univ.)  
Katsumi Shimomura (Kochi Univ.)

**14:15–16:00**

- 33 Ryo Kato (Nagoya Univ.)<sup>#</sup> Generalized Bousfield lattices and generalized retract conjecture ..... 10  
 Katsumi Shimomura (Kochi Univ.)  
 Yutaro Tatehara (Kochi Univ.)
- 34 Ryo Kato (Nagoya Univ.)<sup>#</sup> On the products of  $\beta$ -elements ..... 10  
 Katsumi Shimomura (Kochi Univ.)
- 35 Ryo Kato (Nagoya Univ.)<sup>#</sup> The stable homotopy groups of the classifying space of a finite cyclic group and its applications to algebraic  $K$ -theory ..... 10
- 36 Shumi Kinjo (Shinshu Univ.)<sup>#</sup> A construction of immersions of 3-sphere into 4-space associated with Dynkin diagrams and the Smale invariant ..... 15
- 37 Takahito Naito (Shinshu Univ.)<sup>#</sup> String topology and a Frobenius algebra structure of the Yoneda algebra ..... 10
- 38 Kentaro Matsuo (Shinshu Univ.)<sup>#</sup> The equivariant rational cohomology of the loop spaces ..... 10
- 39 Tatsuya Horiguchi (Osaka City Univ.)<sup>#</sup> The equivariant cohomology ring of  $(n - k, k)$  Springer variety ..... 10  
 Yukiko Fukukawa (Osaka City Univ.)
- 40 Miho Hatanaka (Osaka City Univ.)<sup>#</sup> Cohomological rigidity problem for real toric manifolds ..... 10
- 41 Kenshi Ishiguro (Fukuoka Univ.)<sup>#</sup> Pairings for the classifying spaces of compact Lie groups ..... 10  
 Fumihisa Yayama (Fukuoka Univ.)

**16:20–17:20 Talk invited by Topology Section**

- Tetsuya Itoh (Kyoto Univ.)<sup>#</sup> Open book foliation

**Infinite Analysis**

September 24th (Tue) Conference Room IX

**9:30–12:00**

- 1 Masataka Kanki (Univ. of Tokyo)<sup>#</sup> Constructing the integrable systems over finite fields using the field of  
 Tetsuji Tokihiro (Univ. of Tokyo)  $p$ -adic numbers ..... 15  
 Jun Mada (Nihon Univ.)
- 2 Shuhei Kamioka (Kyoto Univ.)<sup>#</sup> A combinatorial expression of the solution to an initial value problem  
 of the Toda molecule ..... 15
- 3 Atsushi Nobe (Chiba Univ.)<sup>#</sup> A geometric realization of the periodic box-ball system ..... 15
- 4 Mami Okiyoshi (Hiroshima Univ.)<sup>#</sup> Generating functions of box and ball system ..... 15
- 5 Kouichi Takemura (Chuo Univ.)<sup>#</sup> Ultradiscrete Painlevé VI with parity variables ..... 15  
 Terumitsu Tsutsui
- 6 Takao Suzuki (Kinki Univ.)<sup>#</sup> A particular solution of the Schlesinger system  $\mathcal{H}_{3,2}$  in terms of a rigid  
 system ..... 15
- 7 Yousuke Ohyama (Osaka Univ.)<sup>#</sup> A connection problem for linear  $q$ -difference equations related to the  
 $q$ -Painlevé equation ..... 15
- 8 Kazuo Kaneko (Yokkaichi Univ.)<sup>\*</sup> Symmetric solutions to the degenerate four dimensional Painlevé type  
 equations  $NY^{A_4}$ ,  $IV^{Mat}$  and  $II^{Mat}$  ..... 20

**14:15–16:20**

- 9 Koji Hasegawa (Tohoku Univ.)<sup>#</sup> Lax formalism for quantum discrete Garnier system ..... 15  
 Yousuke Semba (Asakura Publ.)
- 10 Yas-Hiro Quano <sup>#</sup> Spontaneous polarization of spin-1 analogue of the eight-vertex model ..... 20  
 (Suzuka Univ. of Med. Sci.)
- 11 Tomoki Nakanishi (Nagoya Univ.)<sup>#</sup> Diagrammatic description of  $c$ -vectors and  $d$ -vectors of cluster algebras ..... 15  
 Salvatore Stella (Northeastern Univ.) of finite type
- 12 Tomoki Nakanishi (Nagoya Univ.)<sup>#</sup> Wonder of sine-Gordon  $Y$ -systems ..... 15  
 Salvatore Stella (Northeastern Univ.)
- 13 Masato Okado (Osaka City Univ.)<sup>#</sup> PBW bases of  $U_q^+$  and quantized algebra of functions ..... 20  
 Atsuo Kuniba (Univ. of Tokyo)  
 Yasuhiko Yamada (Kobe Univ.)
- 14 Motohiro Ishii (Univ. of Tsukuba)<sup>#</sup> Path model for crystal bases of level-zero extremal weight modules over ..... 15  
 Satoshi Naito (Tokyo Tech) quantum affine algebras  
 Daisuke Sagaki (Univ. of Tsukuba)

**16:30–17:30 Talk invited by Infinite Analysis Special Session**

- Katsuyuki Naoi (Univ. of Tokyo)<sup>#</sup> An approach to the  $X = M$  conjecture using modules over a current algebra

September 25th (Wed) Conference Room IX

**9:30–12:00**

- 15 Takeshi Morita (Osaka Univ.)<sup>#</sup> A connection formula of a divergent bilateral basic hypergeometric function ..... 15
- 16 Masahiko Ito (Tokyo Denki Univ.)<sup>#</sup> The  $q$ -Dixon–Anderson integral —a multi-dimensional Ramanujan  ${}_1\psi_1$  sum— ..... 20
- 17 Masahiko Ito (Tokyo Denki Univ.)<sup>#</sup> A bilateral extension of the  $q$ -Selberg integral and its product expression — $q$ -difference equation, shifted symmetric polynomials, connection formula— ..... 20
- 18 Hiroshi Naruse (Okayama Univ.)<sup>#</sup> Dual Grothendieck polynomials and finite sum Cauchy formula ..... 15  
 Alain Lascoux  
 (Univ. de Marne-la-Vallée)
- 19 Hiroshi Naruse (Okayama Univ.)<sup>#</sup> Factorial Schur functions and vexillary permutations of types  $B, C$  and  $D$  ..... 15
- 20 Hiroshi Mizukawa <sup>#</sup> Schur function identities and the basic representation of  $A_2^{(2)}$  ..... 15  
 (Nat. Defense Acad. of Japan)  
 Tatsuhiro Nakajima (Meikai Univ.)  
 Hiro-Fumi Yamada (Okayama Univ.)
- 21 Yosuke Saito (Tohoku Univ.)<sup>#</sup> Commutative families arising from the elliptic Ding–Iohara algebra and the elliptic Feigin–Odesskii algebra ..... 20

**13:00–14:00 Talk invited by Infinite Analysis Special Session**

- Akihiro Tsuchiya (Univ. of Tokyo)\* Logarithmic conformal field theory and the representation theory of extended  $W$ -algebras
-

### 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. The talks with \* mark are presented through document camera, while ‡ marks denote PC presentations. 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 [program@mathsoc.jp](mailto:program@mathsoc.jp).

Each conference room is equipped with a black board, a document camera, and a projector for PC presentation. You are asked to use your own PC 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 printed sheets for the document camera in case your PC does not fit to the projector.

### Information for Participants

Johoku Campus is generally non-smoking area. Smokers are kindly asked to smoke only in designated areas.

There is no parking area for visitors in Johoku Campus.

You can get Wi-Fi connection to the Internet in almost all area of Johoku Campus with the aid of *eduroam* service. You are asked to refer to the official webpage of the meeting

<http://mathsoc.jp/en/meeting/ehime13sept/>

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### Official Party

Time: September 25th (Wed), 18:20–20:20

Venue: Alumni Association Hall Café Restaurant “Se·tolian”

Participants are asked to pay 5,000 JPY at the party.

## Directions

### 2013 MSJ AUTUMN MEETING

Dates : September 24th (Tue)–27th (Fri), 2013

Venue : Ehime University, Johoku Campus  
Bunkyo-cho 3, Matsuyama, Ehime 790-8577

Contact to : Department of Mathematics, Faculty of Sciences, Ehime Univeristy  
Bunkyo-cho 2–5, Matsuyama, Ehime 790-8577  
E-mail [kyoto13mar@mathsoc.jp](mailto:kyoto13mar@mathsoc.jp)  
Phone +81 (0)90 1791 3483 (During session)

Web Site : <http://mathsoc.jp/en/meeting/ehime13sept/>

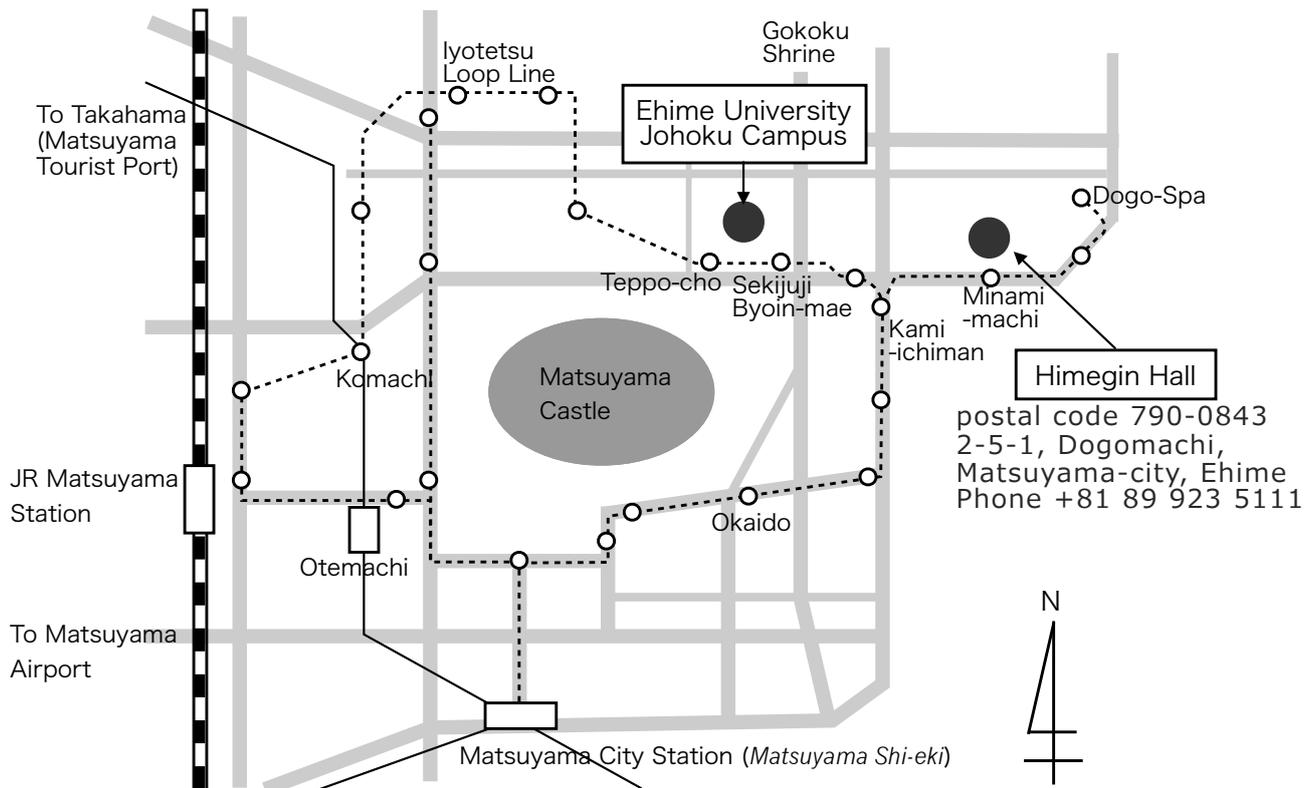
## Conference Rooms

	Place	Research Sections
Conference Room I	Green Hall	Algebra, Featured Invited Talk
Conference Room II	General Education Lecture Hall, Room 11	Functional Equations, Featured Invited Talk
Conference Room III	General Education Lecture Hall, Room 21	Real Analysis, Complex Analysis
Conference Room IV	General Education Lecture Hall, Room 24	Functional Analysis
Conference Room V	General Education Lecture Hall, Room 35	Topology
Conference Room VI	General Education Lecture Hall, Room 45	Geometry
Conference Room VII	Law & Letters Lecture Hall, Room 201	Applied Mathematics, Featured Invited Talk
Conference Room VIII	Engineering Bldg. No. 4, Room E411	Statistics and Probability, Featured Invited Talk
Conference Room IX	Engineering Bldg. No. 4, Room E421	Infinite Analysis, Foundation of Mathematics and History of Mathematics
Others	Education Bldg. No. 2, Large Lecture Room	Award Lecture for Geometry Prize (Geometry and Topology)
Plenary Talks	Himegin Hall, Sub-hall (outside the Campus)	
Open Lectures for Citizens	Nanka Kinen Hall	

## Other Rooms

Extended Abstracts and Membership	Enginnering Lecture Hall, Room EL13
Discussion Rooms	General Education Lecture Hall, Room 12/13
Book Display and Sale	Enginnering Lecture Hall, Room EL11/EL12/EL15
Executive Committee, MSJ President	Enginnering Lecture Hall, Room EL31
Official Party	Alumni Association Hall Café Restaurant “Se · tolian”

## Directions



- From Matsuyama Airport or Matsuyama Tourist Port  
to JR Matsuyama Station and Matsuyama City Station (*Matsuyama Shi-eki*)  
To JR Matsuyama Station : Limousine Bus, get off at JR Matsuyama Station  
To Matsuyama City Station : Limousine Bus, get off at Matsuyama City Station
- From JR Matsuyama Station to Johoku Campus by lyotetsu streetcar  
Loop Line (For Komachi) : Get off at Sekijuji Byoin-mae or Teppo-cho  
and walk north for 3 minutes.
- From Matsuyama City Station (*Matsuyama Shi-eki*) to Johoku Campus by lyotetsu streetcar  
Loop Line (For Okaido) : Get off at Sekijuji Byoin-mae or Teppo-cho  
and walk north for 3 minutes.

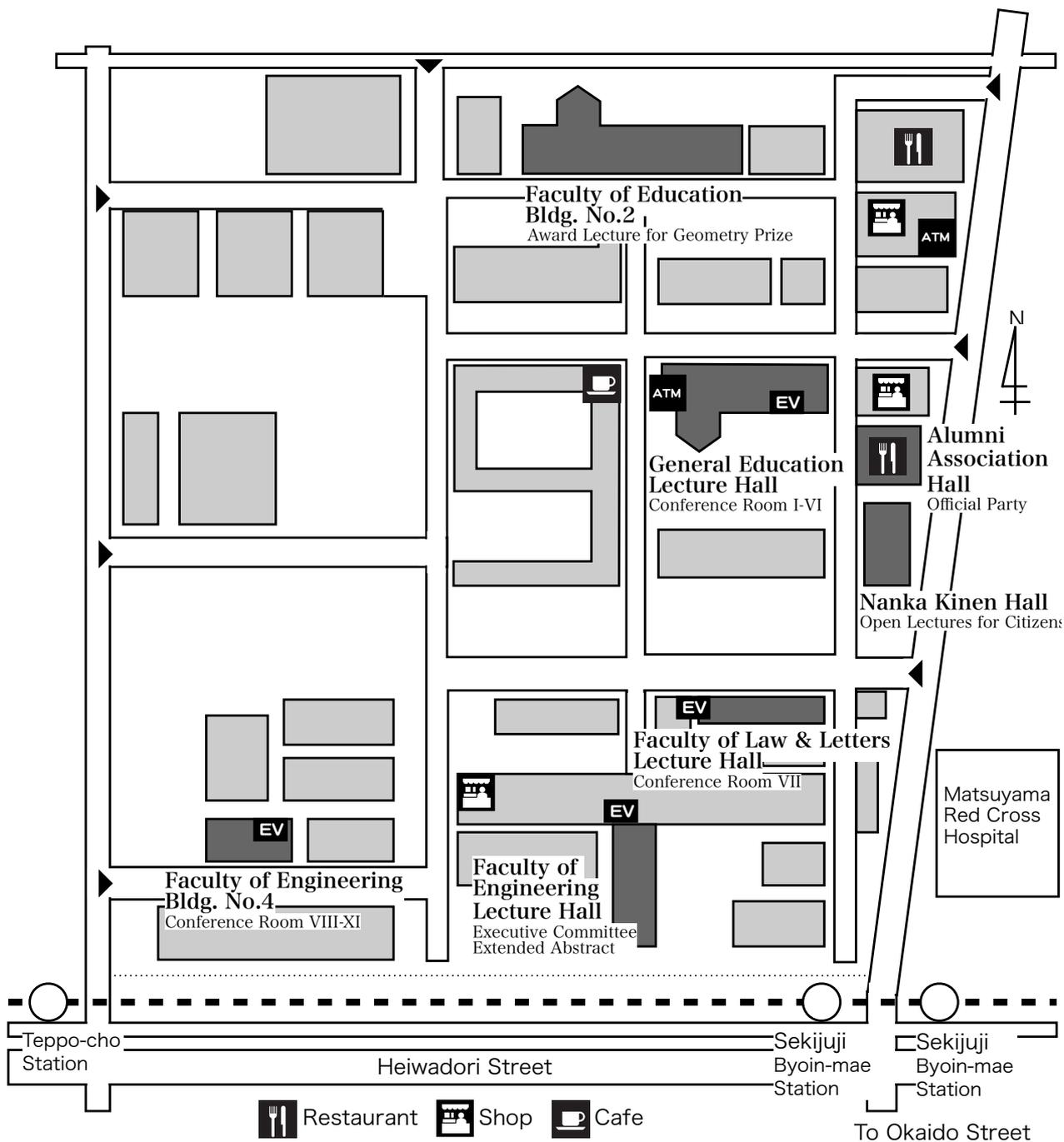
For more information, please refer to the following website

<http://www.ehime-u.ac.jp/english/access/johoku/index.html> (in English)

<http://www.ehime-u.ac.jp/chinese/access/johoku/index.html> (in Chinese)

<http://www.ehime-u.ac.jp/korean/access/johoku/index.html> (in Korean)

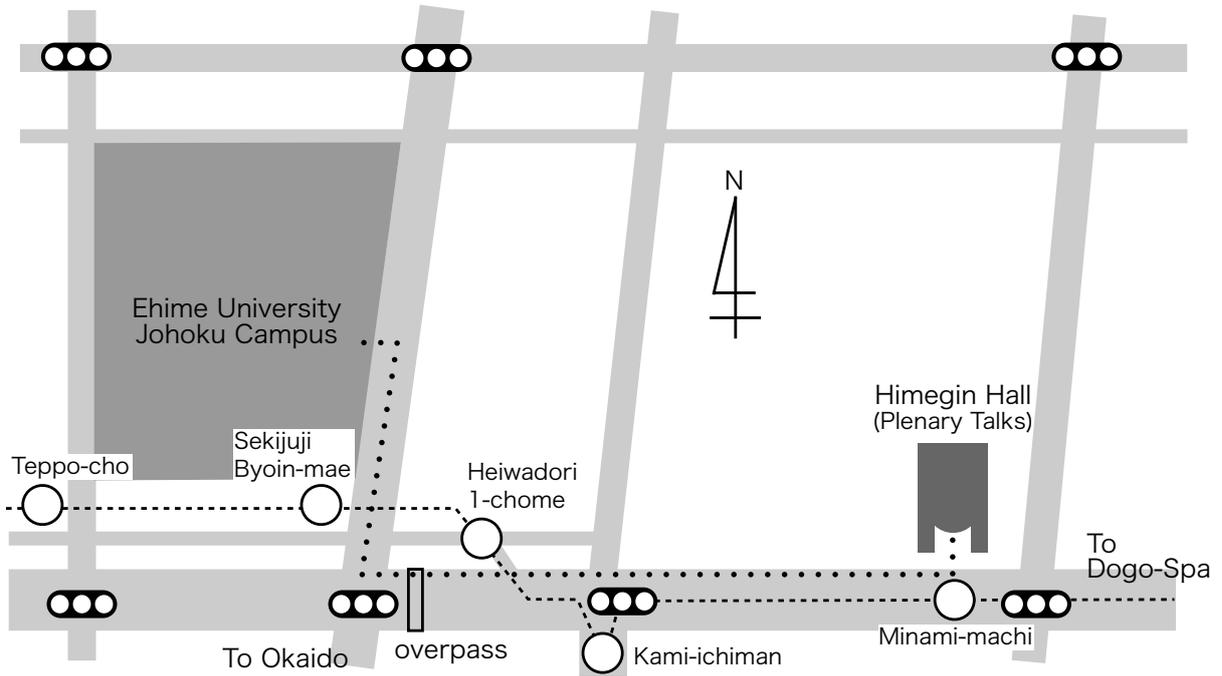
## Ehime University, Johoku Campus



### Opening Hours of MSJ Booth for Membership Fee and Extended Abstracts

September 24th (Tue)	8:30–15:00	September 25th (Wed)	8:30–16:00
September 26th (Thu)	8:30–16:00	September 27th (Fri)	8:30–13:00

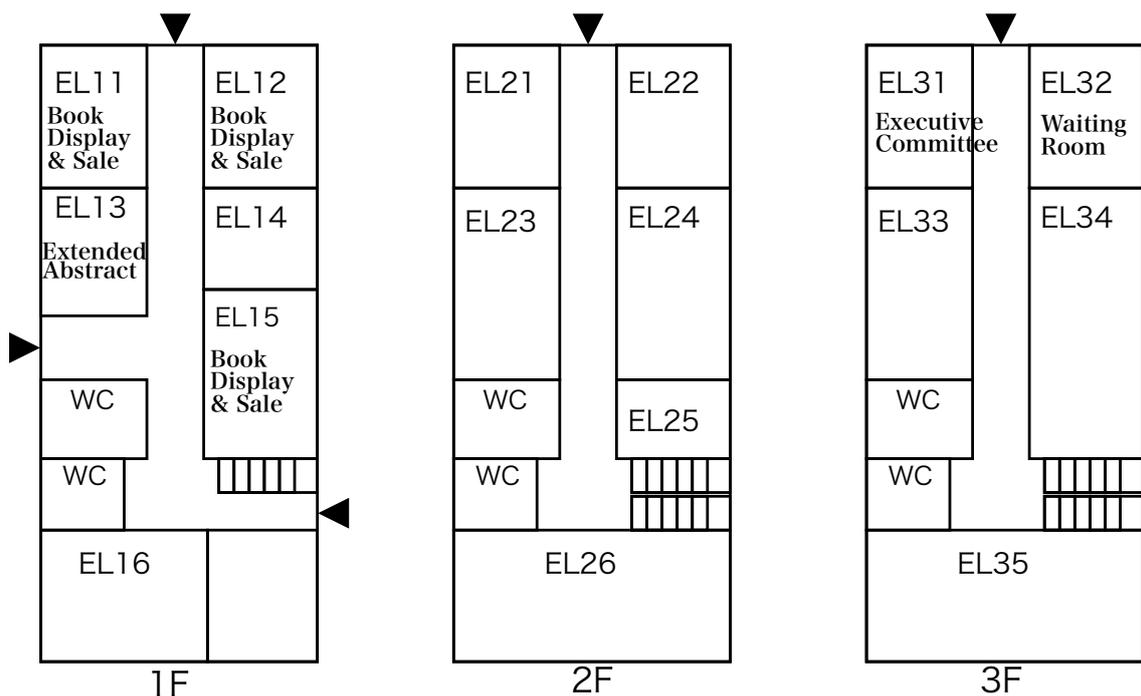
## Access to Himegin Hall (Plenary Talks)



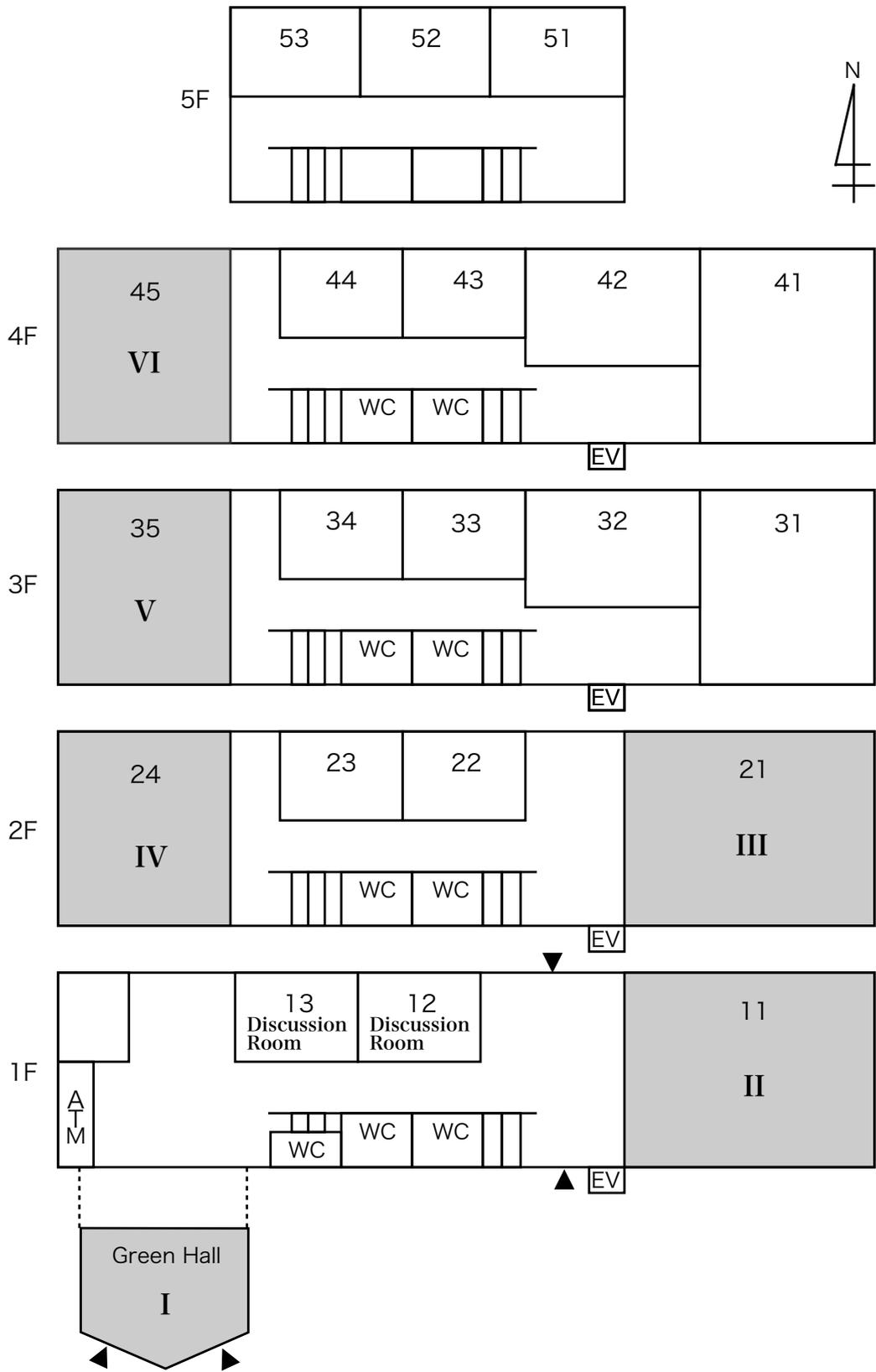
- ◆ Access from Johoku Campus to Himegin Hall  
13 minutes walk from Johoku Campus  
(There is no direct streetcar service from Sekijui Byoin-mae or Teppo-cho to Minami-machi.)

## Floor Maps

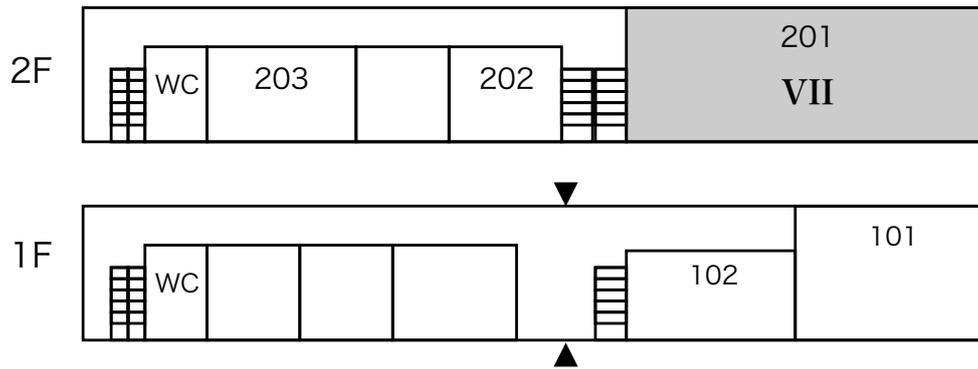
### Faculty of Engineering, Lecture Hall



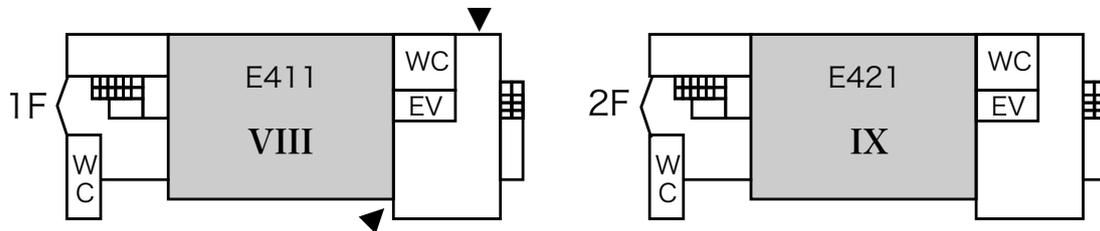
### General Education, Lecture Hall



### Faculty of Law & Letters, Lecture Hall



### Faculty of Engineering, Building No.4



### Faculty of Education, Building No.2

