

## 2012 Mathematical Society of Japan

**AUTUMN MEETING**

Dates: September 18th–21st, 2012

Venue: Ito Campus, Kyushu University

Contact to: Faculty of Mathematics, Kyushu University  
Motooka 744, Nishi-ku, Fukuoka

Phone +81 (0) 92 802 4402

Fax +81 (0) 92 802 4405

E-mail [kyushu12sept@mathsoc.jp](mailto:kyushu12sept@mathsoc.jp)

During session: Phone +81 (0) 80 4060 7734

Fax +81 (0) 92 802 4405

Mathematical Society of Japan

Phone +81 (0) 3 3835 3483

	I Room 2308	II Room 2307	III Room 2306	IV Room 2305	V Room 2304	VI Room 2407	VII Room 2406	VIII Room 2404	IX Room 2403
18th (Tue)	Algebra 9:00–12:00 14:15–16:15	Complex Analysis 10:00–12:00 14:30–16:15	Functional Equations 9:00–12:00 14:15–16:15		Statistics and Probability 9:15–12:00 14:15–14:45	Applied Mathematics 9:30–12:00 14:15–16:40	Infinite Analysis 9:30–11:45 14:15–14:45	Geometry 9:00–12:00 14:15–16:00	Topology 9:15–12:00 14:15–16:00
	Featured Invited Talks					13:00–14:00			
	Invited Talk 16:30–17:30	Invited Talk 16:30–17:30	Invited Talk 16:30–17:30		Invited Talks 15:00–16:00 16:15–17:15	Invited Talk 16:50–17:50	Invited Talk 15:00–16:00	Invited Talk 16:15–17:15	Invited Talk 16:20–17:20
19th (Wed)	Algebra 9:00–12:00	Complex Analysis 10:00–12:00 Invited Talk 13:15–14:15	Functional Equations 9:00–12:00 Invited Talk 13:15–14:15	Functional Analysis 9:45–11:50 Invited Talk 13:00–14:00	Statistics and Probability 9:15–12:00	Applied Mathematics 9:30–12:15	Infinite Analysis 10:30–11:50 Invited Talk 13:30–14:30	Geometry / Topology  Invited Talks 10:50–11:50 13:15–14:15	
	MSJ Prizes Presentation (VIII + IX) ..... (14:50–15:20)								
	Plenary Talks (VIII + IX) MSJ Autumn Prize Winner ..... (15:30–16:30)								
	Kengo Hirachi (Univ. of Tokyo) ..... (16:45–17:45)								
	Official Party (Inamori Center, Inamori Hall) ..... (18:00–20:00)								
20th (Thu)	Algebra 10:00–11:30 14:15–16:45	Real Analysis 10:00–11:45 14:15–15:40	Functional Equations 9:00–12:00 14:15–16:15	Functional Analysis 9:30–11:50 14:15–16:30	Statistics and Probability 9:15–12:00	Applied Mathematics 9:30–12:00 Special Session 14:15–16:40	Found. of Math. and History of Math. 9:00–11:20 14:15–17:05	Geometry 9:00–12:00 14:15–16:15	Topology 9:30–11:45 14:15–15:40
	Featured Invited Talks					13:00–14:00			
	Invited Talk 17:00–18:00	Invited Talk 15:50–16:50	Invited Talk 16:30–17:30	Invited Talk 16:30–17:30	Invited Talks 14:30–15:30 15:45–16:45	Invited Talk 16:50–17:50		Invited Talk 16:30–17:30	Invited Talk 16:00–17:00
21st (Fri)	Algebra 9:00–11:00 14:15–15:45	Real Analysis 9:40–12:00 14:15–16:00	Functional Equations 9:00–12:00 14:15–16:30	Functional Analysis 9:30–11:50		Applied Mathematics 9:00–12:00 14:15–16:30	Found. of Math. and History of Math. 9:00–11:40		Topology 9:15–12:00
	Featured Invited Talks					13:00–14:00			
	Invited Talks 11:00–12:00 15:45–16:45	Invited Talk 16:10–17:10	Invited Talk 16:45–17:45	Invited Talk 14:15–15:15		Invited Talk 16:45–17:45	Invited Talk 14:20–15:20		

MSJ–KMS Joint Meeting 2012 held on September 17th (Mon) is described at page 6.

All the Conference Rooms of the Autumn Meeting are located on the Ito Campus of Kyushu University, in Center Zone Building No. 2.

## Plenary Talks

September 19th (Wed) Conference Room VIII + IX

- MSJ Autumn Prize Winner ..... (15:30~16:30)
- Kengo Hirachi (Univ. of Tokyo)<sup>#</sup> Einstein equations and conformal invariants ..... (16:45~17:45)

## Featured Invited Talks

September 18th (Tue)

### Conference Room IX

Guest Talk from Taiwan Mathematical Society

- Chin-Lung Wang (Nat. Taiwan Univ.) Quantum Leray–Hirsch and analytic continuations ..... (13:00~14:00)

### Conference Room II

- Shinichi Kobayashi (Tohoku Univ.)<sup>#</sup>  $p$ -adic approaches to the Birch and Swinnerton–Dyer conjecture ..... (13:00~14:00)

September 20th (Thu)

### Conference Room IX

- Kaoru Ono (Kyoto Univ.)\* Spectral invariants for Hamiltonian diffeomorphisms and their applications ..... (13:00~14:00)

### Conference Room II

- Kenjiro Yanagi (Yamaguchi Univ.)<sup>#</sup> Progress of quantum information theory —From classical information to quantum information— ..... (13:00~14:00)

### Conference Room VI

- Hisashi Inaba (Univ. of Tokyo)<sup>#</sup> Mathematics of the basic reproduction number  $R_0$  —Chasing a key parameter of population dynamics— ..... (13:00~14:00)

September 21st (Fri)

### Conference Room VI

- Yuji Tachikawa (Univ. of Tokyo)<sup>#</sup> Mathematics and supersymmetric quantum field theory ... (13:00~14:00)

### Conference Room VII

- Yuichi Komori (Chiba Univ.)\* Small talks on mathematical logic for mathematician ..... (13:00~14:00)

## Talks invited by Research Sections and Special Session

September 18th (Tue)

### Algebra (Conference Room I)

Yoichi Mieda (Kyoto Univ.)<sup>#</sup> Toward generalization of the non-abelian Lubin–Tate theory  
 ..... (16:30~17:30)

### Geometry (Conference Room VIII)

Toshihiro Shoda (Saga Univ.)<sup>#</sup> On Morse index of minimal surfaces ..... (16:15~17:15)

### Complex Analysis (Conference Room II)

Toshiyuki Sugawa (Tohoku Univ.)<sup>#</sup> Generalization of the Schwarzian derivative —Towards more  
 invariance and higher orders— ..... (16:30~17:30)

### Functional Equations (Conference Room III)

Satoshi Tanaka (Okayama Univ. of Sci.)<sup>#</sup> Nonuniqueness of positive solutions of superlinear two-point  
 boundary value problems —Symmetry-breaking of even positive solutions— ..... (16:30~17:30)

### Statistics and Probability (Conference Room V)

Toshihiro Uemura (Kansai Univ.)<sup>#</sup> On jump-type Markov processes and the associated Dirichlet  
 forms ..... (15:00~16:00)

Kazumasa Kuwada (Ochanomizu Univ.)<sup>#</sup> Coupling methods for heat distributions and curvature-di-  
 mension conditions ..... (16:15~17:15)

### Applied Mathematics (Conference Room VI)

Yusuke Suzuki (Niigata Univ.)<sup>#</sup> 1-embedded graphs as seen from a viewpoint of re-embedding  
 structures ..... (16:50~17:50)

### Topology (Conference Room IX)

Toshio Sumi (Kyushu Univ.)<sup>\*</sup> The Smith equivalence problem and Smith sets of Oliver  
 groups ..... (16:20~17:20)

### Infinite Analysis (Conference Room VII)

Junichi Shiraishi (Univ. of Tokyo)<sup>#</sup> Vertex operators, Nekrasov partition functions and Macdonald  
 polynomials ..... (15:00~16:00)

September 19th (Wed)

### Geometry and Topology (Conference Room VIII + IX)

Award Lecture for 2012 Geometry Prize

Ken'ichi Ohshika (Osaka Univ.)<sup>#</sup> Topological structure of deformation spaces of Kleinian groups  
 ..... (10:50~11:50)

Award Lecture for 2012 Geometry Prize

Yukinobu Toda (Univ. of Tokyo)<sup>#</sup> Stability conditions and Donaldson–Thomas type invariants  
 on Calabi–Yau 3-folds ..... (13:15~14:15)

### Complex Analysis (Conference Room II)

Hiroshi Yamaguchi (Shiga Univ.)<sup>#</sup> Pseudoconvex domains in the Hopf surface ..... (13:15~14:15)

**Functional Equations** (Conference Room III)Naoto Kumano-go (Kogakuin Univ.)<sup>#</sup> Phase space path integrals as analysis on path space . . . . . (13:15~14:15)**Functional Analysis** (Conference Room IV)Kiyoomi Kataoka (Univ. of Tokyo)<sup>#</sup> A system of fifth-order partial differential equations describing a surface which contains several continuous families of circular arcs . . . . . (13:00~14:00)**Infinite Analysis** (Conference Room VII)Yoshiyuki Kimura (Osaka City Univ.)<sup>#</sup> Quiver varieties and quantum cluster algebras . . . . . (13:30~14:30)

## September 20th (Thu)

**Algebra** (Conference Room I)Hyohe Miyachi (Osaka City Univ.)<sup>#</sup> Comparison between module categories over modular quantum general linear groups . . . . . (17:00~18:00)**Geometry** (Conference Room VIII)Atsushi Kasue (Kanazawa Univ.)<sup>\*</sup> Embedding of graphs and Rayleigh monotonicity law . . . . . (16:30~17:30)**Functional Equations** (Conference Room III)Katsuyuki Ishii (Kobe Univ.)<sup>#</sup> Mathematical analysis of some algorithms for mean curvature flow . . . . . (16:30~17:30)**Real Analysis** (Conference Room II)Jürgen Appell (Univ. Würzburg)<sup>#</sup> Condensing operators and applications: old and new . . . . . (15:50~16:50)**Functional Analysis** (Conference Room IV)Shūichi Ohno (Nippon Inst. of Tech.)<sup>\*</sup> Topological structure of the space of weighted composition operators on  $H^\infty$  . . . . . (16:30~17:30)**Statistics and Probability** (Conference Room V)Shogo Kato (Inst. of Stat. Math.)<sup>#</sup> The Cauchy distribution on the circle and related statistical models . . . . . (14:30~15:30)Hidetoshi Murakami<sup>#</sup> Some saddlepoint approximations to the nonparametric tests  
(Nat. Defense Acad. of Japan) and biased for two-sided alternatives . . . . . (15:45~16:45)**Applied Mathematics** (Conference Room VI)Yuji Kodama (Ohio State Univ.)<sup>#</sup> KP solitons and Mach reflection in shallow water . . . . . (16:50~17:50)**Topology** (Conference Room IX)Koya Shimokawa (Saitama Univ.)<sup>#</sup> Tangle analysis of site-specific recombinations . . . . . (16:00~17:00)

## September 21st (Fri)

**Foundation of Mathematics and History of Mathematics** (Conference Room VII)Kenshi Miyabe (Kyoto Univ.)<sup>#</sup> Natural properties that a randomness notion should have . . . . . (14:20~15:20)

**Algebra** (Conference Room I)Yoshinori Gongyo (Univ. of Tokyo)<sup>#</sup> Log pluricanonical representations and abundance . . . . . (11:00~12:00)Shigeru Kuroda (Tokyo Metro. Univ.)<sup>#</sup> Wild automorphisms of a polynomial ring . . . . . (15:45~16:45)**Functional Equations** (Conference Room III)Hideyuki Miura (Osaka Univ.) On fundamental solutions for fractional diffusion equations  
with divergence free drift . . . . . (16:45~17:45)**Real Analysis** (Conference Room II)Okiihiro Sawada (Gifu Univ.)<sup>#</sup> The ill-posedness theory of the Navier–Stokes equations in  
the critical space . . . . . (16:10~17:10)**Functional Analysis** (Conference Room IV)Mutsumi Saito (Hokkaido Univ.)<sup>#</sup> Irreducible quotients of  $A$ -hypergeometric systems . . . . . (14:15~15:15)**Applied Mathematics** (Conference Room VI)Daisuke Tagami (Kyushu Univ.)<sup>#</sup> Numerical analysis of flow problems with finite element meth-  
ods —From error analysis to parallel computations— . . . . . (16:45~17:45)

## Open Lectures for Citizens

Sponsored by: Mathematical Society of Japan

Co-sponsored by: Faculty of Mathematics and Institute of Mathematics for Industry,  
Kyushu University

Date: September 22nd (Sat) 14:00–16:30

Venue: Faculty of Mathematics Bldg., Large Lecture Room No. 3

Program: Opening Speech:

Hideki Kosaki (Kyushu Univ.) . . . . . (14:00–14:10)

Lecture 1:

Kazushi Ahara (Meiji Univ.)

Survey of interactive geometry software . . . . . (14:10–15:10)

Lecture 2:

Masaaki Takase (Kyushu Univ.)

Sekiguchi, Hiraki and the mathematics in Kaga Province (Prefecture of  
Ishikawa) . . . . . (15:30–16:30)Web Page: <http://mathsoc.jp/en/meeting/kyushu12sept/>

## Workshop

—How can mathematics contribute to big data researches?—

Sponsored by: Unit for Mathematical Innovations, MEXT

Co-sponsored by: Mathematical Society of Japan

Date: September 19th (Wed) 9:30–12:10

Venue: Inamori Center, Inamori Hall

Program: MEXT

On “Strategy for Mathematical Innovations — Interim Report”

..... ( 9:30– 9:50)

Masayuki Takeda (Kyushu Univ.)

Foundational Technology for Next-Generation Information System

for Utilizing Big Data ..... (10:00–11:00)

Kiyoshi Asai (AIST)

TBA ..... (11:10–12:10)

## MSJ–KMS Joint Meeting 2012

Sponsored by: Mathematical Society of Japan, and  
The Korean Mathematical Society

Partially supported by:

Faculty of Mathematics and Institute of Mathematics for Industry,  
Kyushu University

Date: September 17th (Mon) 10:00–17:40

Venue: Centennial Hall, Kyushu University School of Medicine

<http://www.med.kyushu-u.ac.jp/100ko-do/english/>

1-1 Maidashi 3-chome Higashi-ku, Fukuoka 812-8582, JAPAN

Phone +81 (0)92 642 6257 / Fax +81 (0)92 642 6258

(See page 41)

### Program

#### Plenary Talks — Main Hall

10:00–11:00 Gen Nakamura (Hokkaido Univ.)  
Inversion schemes for diffusion equations

11:30–12:30 Jun-Muk Hwang (KIAS)  
Compactifications of  $\mathbb{C}^n$

#### Algebra Session — Main Hall

14:00–14:40 Yukinobu Toda (Univ. of Tokyo)  
Stability conditions and birational geometry

14:50–15:30 Changheon KIM (Hanyang Univ.)  
Arithmetic properties of weakly harmonic Maass forms

16:10–16:50 Shuji Saito (Tokyo Tech)  
Higher dimensional Hasse principle and resolution of quotient singularities

17:00–17:40 Yongnam Lee (KAIST)  
Q-Gorenstein deformation theory and its applications

#### Geometry and Topology Session — Hall 1

14:00–14:40 Shin-ichi Ohta (Kyoto Univ.)  
Ricci curvature in Finsler geometry and applications

14:50–15:30 Sang-hyun Kim (KAIST)  
Embeddability between right-angled Artin groups

16:10–16:50 Shigeyuki Morita (Univ. of Tokyo\*)  
Characteristic classes in low dimensional topology —Prospects and computations—

17:00–17:40 Jaigyoungh Choe (KIAS)  
Higher dimensional versions of the Enneper surface, catenoid and helicoid

## Analysis Session — Hall 2

- 14:00–14:40 Kenji Nakanishi (Kyoto Univ.)  
Global dynamics of nonlinear dispersive equations
- 14:50–15:30 Ki-Ahm Lee (SNU)  
Homogenization of the oscillating data on a lower dimensional surface
- 16:10–16:50 Yoshikazu Giga (Univ. of Tokyo)  
Blow-up arguments and the Navier-Stokes equations
- 17:00–17:40 Kang Tae Kim (POSTECH)  
On a generalization of Forelli's theorem

## Probability Theory and Applied Mathematics Session — Hall 3

- 14:00–14:40 Makiko Sasada (Keio Univ.)  
Microscopic dynamics for the porous medium equation and other degenerate parabolic equations
- 14:50–15:30 Jung Hee Cheon (SNU)  
Discrete logarithm with auxiliary inputs
- 16:10–16:50 Takashi Kumagai (Kyoto Univ.)  
Random walks on disordered media and their scaling limits
- 17:00–17:40 Hyeong In Choi (SNU)  
Commodity Futures model and applications

**Banquet**

Time: 18:30–20:30

Venue: Ozen-ya IORI (tavern)

<http://www.ozenya.com/iori.html> (only in Japanese)

Phone +81 (0) 92 281 1388

(A few minutes' walk from Subway Station "Nakasu-Kawabata" Exit No. 7)

Participants are asked to pay 3,000 JPY at the banquet.

## Organizing Committee:

**MSJ**

Yoichi Miyaoka ( Univ. of Tokyo )  
Miyuki Koiso ( Kyushu Univ. )  
Takayoshi Ogawa ( Tohoku Univ. )  
Takashi Tsuboi ( Univ. of Tokyo )

**KMS**

JongHae Keum ( KIAS )  
Yongjin Song ( Inha Univ. )  
Dohan Kim ( SNU )  
Dongsu Kim ( KAIST )



## Executive Committee:

## [Local Organizing Committee]

Miyuki Koiso (Kyushu Univ.), Shin-ichiro Ei (Kyushu Univ.), Yukio Otsu (Kyushu Univ.), Osamu Saeki (Kyushu Univ.), Tomoyuki Shirai (Kyushu Univ.), Masanori Morishita (Kyushu Univ.)

## [Oversea Coordination]

Yoichi Miyaoka (Univ. of Tokyo), Takashi Tsuboi (Univ. of Tokyo), Nobuyuki Tose (Keio Univ.)

## [Network Service]

Nobuyuki Tose (Keio Univ.), Takashi Aoki (Kinki Univ.), Kazuhiko Aso (Univ. of Tokyo), Masashi Kubo (Nagoya Univ.), Hisashi Naito (Nagoya Univ.), Tatsuyoshi Hamada (Fukuoka Univ.), Shoichi Fujimori (Okayama Univ.), Yasushi Yamashita (Nara Women's Univ.)

---

## Foundation of Mathematics and History of Mathematics

September 20th (Thu)      Conference Room VII

### 9:00–11:20

- 1 Shigeru Masuda (Kyoto Univ.)<sup>#</sup> Traditional diversion of real to imaginary since Euler, and innovative strictness by Poisson's sense ..... 20
- 2 Shigeru Masuda (Kyoto Univ.)<sup>#</sup> Proofs and applications relating to describability of an arbitrary function by trigonometric series in the 19C ..... 20
- 3 Teruaki Asai (Nara Univ. of Edu.)<sup>\*</sup> On the  $2/n$  table of the Rhind Mathematical Papyrus ..... 10
- 4 Shunji Horiguchi                   <sup>#</sup> The surveyings of Gonemon Higuchi and his pupils ..... 15  
(Niigata Sangyo Univ.)
- 5 Shunji Horiguchi                   <sup>#</sup> The mariner's compass of Seizaemon Kanazawa and that of Yoemon  
(Niigata Sangyo Univ.) Shizuno ..... 15
- 6 Hideyuki Majima (Ochanomizu Univ.)<sup>#</sup> On the determinat by SEKI Takakazu in "Sangaku-genkun" ..... 30

### 11:25–12:25    Mathematics History Team Meeting

### 14:15–17:05

- 7 Tsukane Ogawa (Yokkaichi Univ.)<sup>#</sup> Geometry studied in the Shisei-Sanka School ..... 25
- 8 Shotaro Tanaka                   <sup>\*</sup> Representation of fractional function in power series —De Moivre,  
L. Euler, G. H. Hardy, Y. Wada, M. Fujiwara— ..... 20
- 9 Toshimichi Usuba (Nagoya Univ.)<sup>#</sup> Large cardinals and indestructibly Lindeöf spaces ..... 15
- 10 Takahiro Seki (Niigata Univ.)<sup>#</sup> On relations among double negation translations in substructural logics  
..... 15
- 11 Takayuki Kihara               (JAIST)<sup>#</sup> Strong measure zero sets in computability theory I —Lightface  $\Pi_1^0$  sets  
Kojiro Higuchi (Tohoku Univ.) and the perfect set property— ..... 15
- 12 Takayuki Kihara               (JAIST)<sup>#</sup> Strong measure zero sets in computability theory II —Kolmogorov  
Kenshi Miyabe (Kyoto Univ.) complexity and triviality— ..... 20
- 13 Toshio Suzuki (Tokyo Metro. Univ.)<sup>#</sup> The eigen distribution of an AND-OR tree under directional algorithms  
Ryota Nakamura (Tokyo Metro. Univ.) ..... 15
- 14 Toshio Suzuki (Tokyo Metro. Univ.)<sup>#</sup> Resource-bounded randomness and computable Dowd-type generic sets  
Masahiro Kumabe  
(Open Univ. of Japan) ..... 15

September 21st (Fri)      Conference Room VII

### 9:00–11:40

- 15 Yoshihiro Abe (Kanagawa Univ.)<sup>#</sup> Restricted structural properties of ideals on  $\mathcal{P}_\kappa\lambda$  and weak normality  
..... 15
- 16 Tatsuya Shimura (Nihon Univ.)<sup>#</sup> Admissible rules for one variable formulas and disjunction property .. 15
- 17 Katsumi Sasaki (Nanzan Univ.)<sup>#</sup> The exact model constructed from normal forms in normal modal logics  
containing **K4** ..... 10

- 18 Keita Yokoyama (Tokyo Tech)<sup>#</sup> Ramsey's theorem without  $\Sigma_1$ -induction ..... 10
- 19 Keita Yokoyama (Tokyo Tech)<sup>#</sup> Some versions of Friedman's self-embedding theorem ..... 10
- 20 Keita Yokoyama (Tokyo Tech)<sup>#</sup> A generalization of Schnorr's theorem ..... 10
- 21 Kenji Fukuzaki (Int. Univ. of Kagoshima)<sup>\*</sup> Definability of the ring of integers in some infinite algebraic extensions of the rationals ..... 15
- 22 Yoshihito Tanaka (Kyushu Sangyo Univ.)<sup>#</sup> Conservativity of Boolean algebras with operators over semilattices with operators ..... 15  
Agi Kurucz (King's Coll. London)  
Frank Wolter (Univ. of Liverpool)  
Michael Zakharyashev (Birkbeck Coll. London)
- 23 Hiroaki Minami (Kobe Univ.)<sup>#</sup> Mathias–Prikrý forcing and dominating reals ..... 15  
Michael Hrušák (Univ. Nacional Autónoma de México)
- 24 Hirotaka Kikyo (Kobe Univ.)<sup>#</sup> On small superstable generic structures ..... 15

**11:45–12:15 Research Section Assembly****14:20–15:20 Talk invited by Section on Foundation and History of Mathematics**

- Kenshi Miyabe (Kyoto Univ.)<sup>#</sup> Natural properties that a randomness notion should have

**Algebra**

September 18th (Tue) Conference Room I

**9:00–12:00**

- 1 Yukio Ohkubo (Int. Univ. of Kagoshima)<sup>#</sup> Distribution of the first digits of prime numbers ..... 10
- 2 Yoshifumi Tsuchimoto (Kochi Univ.)<sup>\*</sup> On splitting behaviors of polynomials at primes ..... 15  
Hajime Kuroiwa (Kochi Univ.)  
Tatsuya Itagaki (Kochi Univ.)  
Yuusuke Watou (Kochi Univ.)
- 3 Kenichi Shimizu<sup>\*</sup> Prime values of quadratic polynomials and imaginary quadratic fields ..... 10
- 4 Soichi Ikeda (Nagoya Univ.)<sup>\*</sup> On transcendental numbers generated by certain integer sequences ... 10  
Kaneaki Matsuoka (Nagoya Univ.)
- 5 Kazuhito Kozuka (Miyakonojo Nat. Coll. of Tech.)<sup>\*</sup> Knopp type identities for generalized multiple Dedekind type sums attached to matrices and Dirichlet characters ..... 10
- 6 Yoshinori Hamahata (Ritsumeikan Univ.)<sup>#</sup> Continued fractions and Dedekind sums for function fields ..... 10

- 7 Masanori Katsurada (Keio Univ.)<sup>#</sup> Shintani zeta-functions of several variables and Lauricella hypergeometric functions II ..... 10
- 8 Tomoya Machide (Kinki Univ.)<sup>#</sup> On a parameterized sum formula for triple zeta values ..... 10
- 9 Tomoya Machide (Kinki Univ.)<sup>#</sup> On a relation between multiple zeta values and the gamma function ..... 10
- 10 Yoshio Tanigawa (Nagoya Univ.)<sup>\*</sup> On relations among Dirichlet and multiple  $L$ -values mod 4 ..... 10  
 Jun Furuya  
 (Okinawa Nat. Coll. of Tech.)  
 Makoto Minamide  
 (Kyoto Sangyo Univ.)
- 11 Ick Sun Eum (KAIST)<sup>#</sup> Some applications of modular units ..... 15  
 Ja Kyung Koo (KAIST)  
 Dong Hwa Shin  
 (Hankuk Univ. of Foreign Studies)
- 12 Yuichi Sakai (Kyushu Univ.)<sup>\*</sup> The Ramanujan–Serre differential operators and certain elliptic curves ..... 10  
 Masanobu Kaneko (Kyushu Univ.)
- 13 Tomoyoshi Ibukiyama (Osaka Univ.)<sup>#</sup> A lift to vector valued Siegel modular forms of half integral weight and Shimura type conjecture revisited ..... 10
- 14 Toshiyuki Kikuta (Osaka Inst. of Tech.)<sup>\*</sup> On Ramanujan type congruences for modular forms with several variables ..... 10  
 Shoyu Nagaoka (Kinki Univ.)
- 15 Shoyu Nagaoka (Kinki Univ.)<sup>\*</sup> On  $p$ -adic properties of Siegel modular forms ..... 10  
 Siegfried Böcherer  
 (Univ. Mannheim/Univ. of Tokyo)
- 14:15–16:15**
- 16 Daisuke Shiomi (Tokyo Univ. of Sci.)<sup>\*</sup> On the Hasse–Witt invariants of the maximal real subfields of cyclotomic function fields ..... 10
- 17 Hizuru Yamagishi (Tokyo Denki Univ.)<sup>#</sup> On hyperelliptic curves of Chebyshev type ..... 15
- 18 Shinnya Okumura (Kyushu Univ.)<sup>#</sup> On the number of  $\mathbb{F}_p$ -valued points of elliptic curves ..... 15
- 19 Yuki Kato (Tohoku Gakuin Univ.)<sup>\*</sup> The isomorphism between motivic cohomology and  $K$ -groups for equi-characteristic regular local rings ..... 10
- 20 Yoshiyasu Ozeki (Kyoto Univ.)<sup>#</sup> Full faithfulness theorem for torsion crystalline representations ..... 10
- 21 Manabu Yoshida (Kyushu Univ.)<sup>#</sup> A refinement of the local class field theory of Serre and Hazewinkel ..... 10
- 22 Yuto Takahashi (Nagoya Univ.)<sup>#</sup> Infiniteness of class field towers degrees of extensions of which are restricted to products of 2 and 3 ..... 10
- 23 Mitsul Tohkailin (Kinki Univ.)<sup>#</sup> A characterization of some number fields of infinite degree using absolute Galois groups ..... 15  
 Manabu Ozaki (Waseda Univ.)
- 24 Teruhisa Kadokami<sup>#</sup> Iwasawa invariants of cyclic branched covers of links ..... 10  
 (East China Norm. Univ.)  
 Yasushi Mizusawa  
 (Nagoya Inst. of Tech.)

**16:30–17:30 Talk invited by Algebra Section**

- Yoichi Mieda (Kyoto Univ.)<sup>#</sup> Toward generalization of the non-abelian Lubin–Tate theory

## September 19th (Wed) Conference Room I

**9:00–12:00**

- 25 Akinari Hoshi (Rikkyo Univ.)<sup>#</sup> Noether's problem and unramified Brauer groups ..... 10  
 Ming-chang Kang (Nat. Taiwan Univ.)  
 Boris E. Kunyavskii (Bar-Ilan Univ.)
- 26 Aiichi Yamasaki (Kyoto Univ.)<sup>#</sup> Table of conjugacy classes of finite groups in  $GL(5, \mathbb{Z})$ ,  $GL(6, \mathbb{Z})$  and  
 some calculations on elliptic curves ..... 10
- 27 Akinari Hoshi (Rikkyo Univ.) Rationality problem for algebraic tori ..... 10  
 Aiichi Yamasaki (Kyoto Univ.)
- 28 Yasushi Gomi (Sophia Univ.)<sup>#</sup>  $q$ -analogue of Gauss sums on the symmetric groups ..... 10
- 29 Tomoyuki Arakawa (Kyoto Univ.)<sup>#</sup> Zhu's algebra and  $C_2$ -algebra of parafermion vertex operator algebras  
 Ching Hung Lam (Academia Sinica) ..... 15  
 Hiromichi Yamada (Hitotsubashi Univ.)
- 30 Kenichi Shimizu (Nagoya Univ.)<sup>#</sup> Real representations of Hopf  $*$ -algebras ..... 20
- 31 Masao Kiyota (Tokyo Med. Dent. Univ.)<sup>\*</sup> The heights of irreducible Brauer characters in 2-blocks of the symmetric  
 Tetsuro Okuyama groups ..... 15  
 (Hokkaido Univ. of Edu.)  
 Tomoyuki Wada  
 (Tokyo Univ. of Agri. and Tech.)
- 32 Seok-Jin Kang (Seoul Nat. Univ.)<sup>#</sup> Geometric realization of Khovanov–Lauda–Rouquier algebras associ-  
 ated with Borchers–Cartan data ..... 15  
 Masaki Kashiwara  
 (Kyoto Univ./Seoul Nat. Univ.)  
 Euiyong Park (Seoul Nat. Univ.)
- 33 Myungho Kim (KIAS)<sup>#</sup> Khovanov–Lauda–Rouquier algebras and R-matrices ..... 15  
 Seok-Jin Kang (Seoul Nat. Univ.)  
 Masaki Kashiwara  
 (Kyoto Univ./Seoul Nat. Univ.)
- 34 Masahide Konishi (Nagoya Univ.)<sup>#</sup> Level 1 cyclotomic KLR algebras of cyclic quivers ..... 10
- 35 Sei-Qwon Oh (Chungnam Nat. Univ.)<sup>#</sup> Poisson brackets and Poisson spectra in polynomial algebras ..... 15

## September 20th (Thu) Conference Room I

**10:00–11:30**

- 36 Manabu Matsuoka <sup>\*</sup> Polynomial realization of sequential codes ..... 10  
 (Kuwana-Kita High School)
- 37 Yasuyuki Hirano <sup>#</sup> On rings with primitive idempotents ..... 10  
 (Naruto Univ. of Edu.)
- 38 Satoshi Yamanaka (Okayama Univ.)<sup>#</sup> On Galois polynomials of degree  $p$  in skew polynomial rings of derivation  
 Shūichi Ikehata (Okayama Univ.) type ..... 10
- 39 Akira Ueda (Shimane Univ.)<sup>\*</sup> Skew Rees rings which are maximal orders ..... 10  
 Monika Rianti Helmi (Andalas Univ.)  
 Hidetoshi Marubayashi  
 (Tokushima Bunri Univ.)

- 40 Takao Sumiyama (Aichi Inst. of Tech.) On Szele matrices of finite rings ..... 10
- 41 Tsunekazu Nishinaka # On primitivity of group rings of one-relator groups ..... 10  
(Okayama Shoka Univ.)
- 42 Kazutoshi Koike # Morita duality and finite ring extensions ..... 10  
(Okinawa Nat. Coll. of Tech.)
- 43 Hiroaki Komatsu \* A characterization of separable algebras by generalized derivations ... 10  
(Okayama Pref. Univ.)

**11:30–12:00 Research Section Assembly****14:15–16:45**

- 44 Ryo Akiyama (Shizuoka Univ.) # 3-iterated quadratic Ore extensions ..... 10
- 45 Kenta Ueyama (Shizuoka Univ.) # Fixed subalgebras of AS-regular algebras under finite cyclic group actions ..... 15
- 46 Yasuhiko Takehana # A generalization of stable torsion theory ..... 10  
(Hakodate Nat. Coll. of Tech.)
- 47 Hideto Asashiba (Shizuoka Univ.) # Derived equivalence classification of generalized multifold extensions of  
Mayumi Kimura (Shizuoka Univ.) piecewise hereditary algebras of tree type ..... 10
- 48 Hideto Asashiba (Shizuoka Univ.) # Induced pseudofunctors and derived equivalences of oplax 2-representations of a category ..... 15
- 49 Hiroki Abe (Oyama Nat. Coll. of Tech.) # Tilting modules arising from two-term tilting complexes ..... 10
- 50 Masahide Konishi (Nagoya Univ.) # Selfinjectivity of algebras arising from tiling quivers and their potentials ..... 10
- 51 So Okada (Kyoto Univ.) # On Euler characteristics for large Kronecker quivers ..... 10
- 52 Takahiko Furuya (Tokyo Univ. of Sci.) \* Hochschild cohomology of cluster-tilted algebras of types  $A$  and  $D$  ... 15  
Takao Hayami (Hokkai-Gakuen Univ.)
- 53 Takuma Aihara (Chiba Univ.) Dimensions of triangulated categories with respect to subcategories .. 15  
Tokuji Araya (Tokuyama Coll. of Tech.)  
Osamu Iyama (Nagoya Univ.)  
Ryo Takahashi (Nagoya Univ./MSRI)  
Michio Yoshiwaki (Osaka City Univ.)

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

- Hyohe Miyachi (Osaka City Univ.) # Comparison between module categories over modular quantum general linear groups

September 21st (Fri)      Conference Room I

**9:00–11:00**

- 54 Tomohiro Iwami \* Certain refinements of a projectivity criterion according to V. V. Shokurov  
(Kyushu Sangyo Univ.) and the log minimal model program for slc pairs ..... 10
- 55 Makoto Sakurai # Geometric quantization of Wess–Zumino–Witten model and virtual localization formula ..... 15
- 56 Shigeru Iitaka (Gakushuin Univ.) # sharp estimate of the birational invariant  $k$  in terms of  $(2,1)$  genera ..... 15

- 57 Takanori Ayano (Osaka Univ.)<sup>#</sup> On series expansion around the origin of sigma functions for telescopic curves ..... 10
- 58 Tohru Gotoh (Nat. Defense Acad. of Japan)<sup>\*</sup> A holomorphic section relating to 2-pointed Weierstrass gap set ..... 10
- 59 Kenta Watanabe (Osaka Univ.)<sup>\*</sup> On the Weierstrass semigroups for pointed curves on K3 surfaces with Picard number one ..... 10
- 60 Ryo Kawaguchi (Kyushu Sangyo Univ.)<sup>#</sup> Weierstrass gap sequences at total ramification points on curves on a toric surface ..... 15
- 61 Katsuhisa Furukawa (Waseda Univ.)<sup>#</sup> Duality with expanding maps and shrinking maps, and its applications to Gauss maps ..... 15

**11:00–12:00 Talk invited by Algebra Section**

- Yoshinori Gongyo (Univ. of Tokyo)<sup>#</sup> Log pluricanonical representations and abundance

**14:15–15:45**

- 62 Takayuki Hibi (Osaka Univ.)<sup>#</sup> Toric rings arising from cyclic polytopes ..... 15  
Akihiro Higashitani (Osaka Univ.)  
Lukas Katthän (Univ. Marburg)  
Ryota Okazaki (Osaka Univ.)
- 63 Kazunori Matsuda (Nagoya Univ.)<sup>\*</sup> Characterization of Gorenstein strongly Koszul Hibi rings by invariants of  $F$ -singularities ..... 15  
Takahiro Chiba (Nagoya Univ.)
- 64 Futoshi Hayasaka (Kagoshima Nat. Coll. of Tech.)<sup>\*</sup> Asymptotic periodicity of primes associated to multigraded modules ..... 10
- 65 Ryota Okazaki (Osaka Univ.)<sup>#</sup> On a minimal free resolution of a Borel fixed ideal and its supporting CW complex ..... 15  
Kohji Yanagawa (Kansai Univ.)
- 66 Yosuke Kuratomi (Kitakyushu Nat. Coll. of Tech.)<sup>\*</sup> On Goldie extending modules and extending modules ..... 10
- 67 Yousuke Kuratomi (Kitakyushu Nat. Coll. of Tech.)<sup>\*</sup> On semi-lifting modules ..... 10

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

- Shigeru Kuroda (Tokyo Metro. Univ.)<sup>#</sup> Wild automorphisms of a polynomial ring

**Geometry**

September 18th (Tue) Conference Room VIII

**9:00–12:00**

- 1 Sadahiro Maeda (Saga Univ.)<sup>\*</sup> Some characterizations of isoparametric hypersurfaces in a sphere ..... 15
- 2 Sadahiro Maeda (Saga Univ.)<sup>\*</sup> Congruence classes of minimal ruled real hypersurfaces in a nonflat complex space form ..... 15  
Toshiaki Adachi (Nagoya Inst. of Tech.)  
Tuya Bao (Inner Mongolia Univ. for Nat.)

## 15 Geometry

- 3 Kazuhiro Okumura <sup>#</sup>  $\eta$ -Einstein real hypersurfaces in a nonflat complex space form ..... 10  
(Asahikawa Nat. Coll. of Tech.)
- 4 Kazuyuki Enomoto <sup>#</sup> Total torsion of curves in  $E^3$  ..... 15  
(Tokyo Univ. of Sci.)  
Jin-ichi Itoh (Kumamoto Univ.)
- 5 Naoyuki Koike (Tokyo Univ. of Sci.) \* The classifications of certain kind of isoparametric submanifolds in non-compact symmetric spaces ..... 15
- 6 Makiko Tanaka (Tokyo Univ. of Sci.) \* The intersection of two real forms in Hermitian symmetric spaces of compact type II ..... 15  
Hiroyuki Tasaki (Univ. of Tsukuba)
- 7 Hiroshi Iriyeh (Tokyo Denki Univ.) \* On the structure of the intersection of real flag manifolds in a complex flag manifold ..... 10  
Takashi Sakai (Tokyo Metro. Univ.)  
Hiroyuki Tasaki (Univ. of Tsukuba)
- 8 Akira Kubo (Hiroshima Univ.) <sup>#</sup> Congruency of orbits of the solvable parts of parabolic subgroups .... 10  
Hiroshi Tamaru (Hiroshima Univ.)
- 9 Kastuei Kemnotsu (Tohoku Univ.) \* On the global existence of generalized rotational hypersurfaces with prescribed mean curvature in the Euclidean ..... 15  
Takeyuki Nagasawa (Saitama Univ.)
- 10 Sung-Hong Min (KIAS) <sup>#</sup> Optimal isoperimetric inequalities for complete proper minimal submanifolds in hyperbolic space ..... 15  
Keomkyo Seo  
(Sookmyung Women's Univ.)
- 11 Keomkyo Seo <sup>#</sup> Geometric inequalities for submanifolds with bounded mean curvature ..... 15  
(Sookmyung Women's Univ.)
- 14:15–16:00**
- 12 Hironori Kumura (Shizuoka Univ.) Exit radii of submanifolds from cylindrical domains in warped product manifolds ..... 15
- 13 Hiraku Nozawa (IHÉS) <sup>#</sup> On Haefliger cohomology of Riemannian foliations ..... 15  
José Ignacio Royo Prieto  
(Univ. Basque Country)
- 14 Oliver Goertsches (Univ. Hamburg) <sup>#</sup> On vanishing and rigidity of basic cohomology of Sasakian manifolds ..... 15  
Hiraku Nozawa (IHÉS)  
Dirk Töben (Univ. São Paulo)
- 15 Jesús Antonio Álvarez López <sup>#</sup> Characteristic classes of transversely homogeneous foliations ..... 15  
(Univ. Santiago de Compostela)  
Hiraku Nozawa (IHÉS)
- 16 Seoung Dal Jung (Jeju Nat. Univ.) <sup>#</sup> Transverse Killing forms on foliated Riemannian manifolds ..... 15
- 17 Hiraku Abe (Tokyo Metro. Univ.) <sup>#</sup> Schubert calculus for weighted Grassmannians ..... 15  
Tomoo Matsumura (KAIST)
- 16:15–17:15 Talk invited by Geometry Section**
- Toshihiro Shoda (Saga Univ.) <sup>#</sup> On Morse index of minimal surfaces



## September 19th (Wed) Conference Room VIII + IX

**10:30–10:45 Presentation Ceremony for 2012 Geometry Prize****10:50–11:50 Award Lecture for 2012 Geometry Prize**Ken'ichi Ohshika (Osaka Univ.)<sup>#</sup> Topological structure of deformation spaces of Kleinian groups**13:15–14:15 Award Lecture for 2012 Geometry Prize**Yukinobu Toda (Univ. of Tokyo)<sup>#</sup> Stability conditions and Donaldson–Thomas type invariants on Calabi–Yau 3-folds

## September 20th (Thu) Conference Room VIII

**9:00–12:00**

- 18 Hiroaki Izumi (Elpida Memory, Inc.)<sup>#</sup> The mathematical full solution of business cycle as a phase transition ..... 15
- 19 Tetsuya Nagano (Univ. of Nagasaki)<sup>#</sup> Linear parallel displacements along a infinitesimal parallelogram and “curvature” ..... 15
- 20 Tomoyo Kanazawa (Tokyo Univ. of Sci.)<sup>#</sup> Wigner function of the MIC-Kepler problem ..... 10  
Akira Yoshioka (Tokyo Univ. of Sci.)
- 21 Tsukasa Takeuchi (Tokyo Univ. of Sci.)<sup>#</sup> A recursion operator for the geodesic flow of Schwarzschild metric ..... 10  
Kiyonori Hosokawa (Tokyo Univ. of Sci.)  
Shinsuke Takatani (Tokyo Univ. of Sci.)
- 22 Yukiko Konishi (Kyoto Univ.)<sup>\*</sup> Mixed Frobenius structure and local A-model ..... 15  
Satoshi Minabe (Tokyo Denki Univ.)
- 23 Tomoaki Yatsui (Asahikawa Med. Univ.)<sup>#</sup> On the prolongations of free pseudo-product fundamental graded Lie algebras ..... 10
- 24 Yuichiro Tanaka (Univ. of Tokyo)<sup>\*</sup> Visible actions on flag varieties and a generalization of the Cartan decomposition ..... 15
- 25 Yoshihiko Matsumoto (Univ. of Tokyo)<sup>#</sup> The second variational formula of the total  $Q$ -curvature in conformal geometry ..... 15
- 26 Hiroaki Ishida (Osaka City Univ.)<sup>#</sup> Complex manifolds with maximal torus actions ..... 15
- 27 Sanae Kurosu (Tokyo Univ. of Sci.)<sup>\*</sup> A characterization of a pluriharmonic affine immersion of codimension two ..... 10
- 28 Hiroshi Matsuzoe (Nagoya Inst. of Tech.)<sup>\*</sup> Quasi-statistical manifolds and geometry of affine distributions ..... 10  
Takashi Kurose (Kwansei Gakuin Univ.)  
Masayuki Henmi (Inst. of Stat. Math.)
- 29 Hiroshi Matsuzoe (Nagoya Inst. of Tech.)<sup>\*</sup> Generalized conformal structures on statistical manifolds and geometry of  $q$ -exponential families ..... 10  
Atsumi Ohara (Univ. of Fukui)  
Shun-ichi Amari (RIKEN)

**14:15–16:15**

- 30 Shin Kikuta (Sophia Univ.) Numerical comparison between Carathéodory measure hyperbolicity and positivity of canonical bundle along subvarieties ..... 20
- 31 Mitsuhiro Imada (Keio Univ.)<sup>#</sup> Normality of complex contact manifolds ..... 15
- 32 Yohsuke Imagi (Kyoto Univ.)\* On the boundary of the Moduli space of special Lagrangian submanifolds ..... 15
- 33 Hisashi Kasuya (Univ. of Tokyo)\* Vaisman metrics on solvmanifolds and Oeljeklaus–Toma manifolds ... 15
- 34 Mitsuhiro Itoh (Univ. of Tsukuba)<sup>#</sup> Rigidity, volume entropy and Kähler, quaternionic Kähler Hadamard manifolds ..... 10  
 Hiroyasu Satoh (Tokyo Denki Univ.)  
 Young Jin Suh (Kyungpook Nat. Univ.)
- 35 Peng Fei Bai (Nagoya Inst. of Tech.)\* On volumes of trajectory-balls for Kaehler magnetic fields ..... 10  
 Toshiaki Adachi (Nagoya Inst. of Tech.)
- 36 Ayato Mitsuishi (Tohoku Univ.)\* Locally Lipschitz contractibility of Alexandrov spaces and its applications ..... 20  
 Takao Yamaguchi (Univ. of Tsukuba)

**16:30–17:30 Talk invited by Geometry Section**

- Atsushi Kasue (Kanazawa Univ.)\* Embedding of graphs and Rayleigh monotonicity law

**Complex Analysis**

September 18th (Tue) Conference Room II

**10:00–12:00**

- 1 Hitoshi Shiraishi (Kinki Univ.)<sup>#</sup> Extensions of Nunokawa lemma for argument properties ..... 15
- 2 Toshio Hayami (Kinki Univ.)<sup>#</sup> A sufficient condition for  $p$ -valently harmonic functions ..... 15
- 3 Tsubasa Itoh (Hokkaido Univ.)<sup>#</sup> Modulus of continuity of  $p$ -Dirichlet solutions in a metric measure space ..... 15
- 4 Rikio Yoneda (Otaru Univ. of Commerce)\* Toeplitz and Hankel operators on the Bergman spaces with closed range ..... 15
- 5 Fumi-Yuki Maeda (Hiroshima Univ.)\* Approximate identities and Young type inequalities in Musielak–Orlicz spaces ..... 15  
 Mizuta Yoshihiro (Hiroshima Inst. of Tech.)  
 Takao Ohno (Oita Univ.)  
 Tetsu Shimomura (Hiroshima Univ.)

**14:30–16:15**

- 6 Yoshihiko Shinomiya (Tokyo Tech)<sup>#</sup> Veech holomorphic families of Riemann surfaces and Diophantine problems ..... 15
- 7 Masahiro Yanagishita (Waseda Univ.)<sup>#</sup> Teichmüller distance and Kobayashi distance on subspaces of the universal Teichmüller space ..... 15
- 8 Hideki Miyachi (Osaka Univ.)<sup>#</sup> A Characterization of biholomorphic automorphisms of Teichmüller space ..... 15
- 9 Yohei Komori (Waseda Univ.)<sup>#</sup> On growth rates of 3-dimensional hyperbolic Coxeter prisms ..... 15
- 10 Katsuhiko Matsuzaki (Waseda Univ.)<sup>#</sup> Conjugation of a circle diffeomorphism group to a Moebius group ..... 15

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

- Toshiyuki Sugawa (Tohoku Univ.)<sup>#</sup> Generalization of the Schwarzian derivative —Towards more invariance and higher orders—

September 19th (Wed)      Conference Room II

**10:00–12:00**

- 11 Yan-Yan Wang (Nagoya Univ.)<sup>\*</sup> Variations of Bergman kernels for some explicitly given families of planar domains ..... 20
- 12 Shin Kikuta (Sophia Univ.) On restricted Carathéodory pseudo-volume forms (corrections) ..... 20
- 13 Sachiko Hamano (Fukushima Univ.)<sup>#</sup> Log-plurisubharmonicity of metric deformations induced by Schiffer and harmonic spans ..... 15
- 14 Peter Duren (Univ. of Michigan)<sup>#</sup> Two-point distortion theorems for harmonic and pluriharmonic mappings ..... 15  
Hidetaka Hamada  
(Kyushu Sangyo Univ.)  
Gabriela Kohr (Babeş-Bolyai Univ.)
- 15 Ian Graham (Univ. of Toronto)<sup>#</sup> Extension operators and subordination chains ..... 15  
Hidetaka Hamada  
(Kyushu Sangyo Univ.)  
Gabriela Kohr (Babeş-Bolyai Univ.)
- 16 Satoru Shimizu (Tohoku Univ.) Diffeomorphisms between Siegel domains of the first kind preserving the holomorphic automorphism groups and applications ..... 15  
Akio Kodama (Kanazawa Univ.)

**13:15–14:15 Talk invited by Complex Analysis Section**

- Hiroshi Yamaguchi (Shiga Univ.)<sup>#</sup> Pseudoconvex domains in the Hopf surface
-

# Functional Equations

September 18th (Tue) Conference Room III

## 9:00–12:00

- |    |   |  |    |
|----|---|--|----|
| 1  | Takashi Oyabu   | 10 talks including “Evolution equations of parabolic type”   | 5  |
| 2  | Hidetoshi Tahara (Sophia Univ.) *<br>Hiroshi Yamazawa<br>(Shibaura Inst. of Tech.)  | Summability of formal solutions of some linear partial differential equations                              | 10 |
| 3  | Masashi Yamaguchi (Univ. of Tokyo) #<br>Sakai Hidetaka (Univ. of Tokyo)   | Rigidity index and $q$ -middle convolution of linear $q$ -difference equations                             | 10 |
| 4  | Yoko Umeta (Hokkaido Univ.) *   | Construction of general formal solutions for equations of the second Painlevé hierarchy                    | 10 |
| 5  | Tomonari Sei (Keio Univ.) #<br>Akimichi Takemura (Univ. of Tokyo)<br>Katsuyoshi Ohara (Kanazawa Univ.)<br>Nobuki Takayama (Kobe Univ.)  | Holonomic gradient descent for Fisher distribution on the rotation group $SO(3)$                           | 10 |
| 6  | Tamio Koyama (Kobe Univ./JST CREST)<br>Hiromasa Nakayama<br>(Kobe Univ./JST CREST)<br>Kenta Nishiyama<br>(Osaka Univ./JST CREST)<br>Nobuki Takayama<br>(Kobe Univ./JST CREST) | The holonomic rank of the Fisher–Bingham system of differential equations                                  | 10 |
| 7  | Mika Tanda (Kinki Univ.) #<br>Takashi Aoki (Kinki Univ.)  | Borel sums of Voros coefficients and parametric Stokes phenomena for hypergeometric differential equations | 10 |
| 8  | Kana Ando (Chiba Univ.) *   | Numerical computation of Stokes multipliers  | 10 |
| 9  | Shinji Sasaki (Kyoto Univ.) #   | On the Borel summability of WKB-theoretic transformation series concerning fixed singularities             | 10 |
| 10 | Masafumi Yoshino (Hiroshima Univ.) #  | On connection problem of some Hamiltonian system   | 10 |
| 11 | Hisashi Morioka (Univ. of Tsukuba) #<br>Hiroshi Isozaki (Univ. of Tsukuba)  | A Rellich type theorem for discrete Schrödinger operators  | 10 |
| 12 | Hironori Kumura (Shizuoka Univ.) *  | Limiting absorption principle on manifolds having ends with various measure growth rate limits             | 10 |
| 13 | Haruya Mizutani (Kyoto Univ.) #   | On Strichartz estimates for Schrödinger equations with unbounded electromagnetic potentials                | 10 |
| 14 | Haruya Mizutani (Kyoto Univ.) #   | Remarks on Strichartz estimates for Schrödinger equations on manifolds with ends                           | 10 |

**14:15–16:15**

- 15 Takehiro Nagaoka (Kyoto Univ.)<sup>#</sup> Asymptotic behavior of solutions of linear differential systems . . . . . 10  
Yorimasa Oshime (Doshisha Univ.)
- 16 Hideaki Matsunaga (Osaka Pref. Univ.)<sup>#</sup> Formal adjoint operators and asymptotic formula for solutions of inte-  
Satoru Murakami gral equations . . . . . 10  
(Okayama Univ. of Sci.)  
Yutaka Nagabuchi  
(Okayama Univ. of Sci.)
- 17 Jitsuro Sugie (Shimane Univ.)<sup>#</sup> Criteria for global asymptotic stability of damped superlinear oscillators  
Tsunehiko Shimadu (Shimane Univ.) . . . . . 10  
Takashi Yamasaki (Shimane Univ.)
- 18 Kunihiko Taniguchi \* Extinction in a two-species nonautonomous Lotka–Volterra competition  
(Mojigakuen Senior High School) system . . . . . 10  
Hiroyuki Usami (Gifu Univ.)
- 19 Shinji Adachi (Shizuoka Univ.) \* Uniqueness and non-degeneracy of positive solutions for a class of  
Masataka Shibata (Tokyo Tech) quasilinear elliptic equations with general nonlinearities . . . . . 10  
Tatsuya Watanabe  
(Kyoto Sangyo Univ.)
- 20 Naoki Sioji (Yokohama Nat. Univ.) \* Radial symmetry of  $n$ -mode positive solutions for semilinear elliptic  
Kohtaro Watanabe equations in a disc and its applications to the Hénon equation . . . . . 10  
(Nat. Defense Acad. of Japan)
- 21 Ryuji Kajikiya (Saga Univ.) \* Multiple bifurcations of solutions for one-dimensional  $p$ -Laplace equa-  
tion . . . . . 10
- 22 Ryuji Kajikiya (Saga Univ.) \* Least energy solutions of the Hénon equation in point symmetric or  
reflectionally symmetric domains . . . . . 10
- 23 Ryuji Kajikiya (Saga Univ.) \* Asymmetry of solutions for the Hénon equation in general symmetric  
domains . . . . . 10

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

- Satoshi Tanaka (Okayama Univ. of Sci.)<sup>#</sup> Nonuniqueness of positive solutions of superlinear two-point boundary  
value problems —Symmetry-breaking of even positive solutions—

September 19th (Wed) Conference Room III

**9:00–12:00**

- 24 Toru Kan (Tohoku Univ.) \* On non-radially symmetric solutions of the Liouville–Gel’fand equation  
on a two-dimensional annular domain . . . . . 10
- 25 Mieko Tanaka (Tokyo Univ. of Sci.) \* The antimaximum principle and the existence of a solution for the  
generalized  $p$ -Laplace equations with indefinite weight . . . . . 10
- 26 Mieko Tanaka (Tokyo Univ. of Sci.) \* Multiple existence results of solutions for quasilinear elliptic equations  
Dumitru Motreanu with a nonlinearity depending on a parameter . . . . . 10  
(Univ. de Perpignan)
- 27 Tetsutaro Shibata (Hiroshima Univ.) \* Critical exponents of the asymptotic formulas for two-parameter varia-  
tional eigencurves . . . . . 10
- 28 Futoshi Takahashi (Osaka City Univ.)<sup>#</sup> On the number of maximum points of least energy solution to a two-  
dimensional Hénon equation with large exponent . . . . . 10

- 29 Shuichi Jimbo (Hokkaido Univ.)<sup>#</sup> Regular domain variation and electromagnetic frequencies . . . . . 10
- 30 Yasuhito Miyamoto (Keio Univ.)<sup>#</sup> Global branches of sign-changing solutions to a semilinear Dirichlet problem in a disk . . . . . 10
- 31 Yasuhito Miyamoto (Keio Univ.)<sup>#</sup> A planar convex domain with many isolated hot spots on the boundary . . . . . 10
- 32 Goro Akagi (Kobe Univ.)<sup>#</sup> Symmetry and stability of asymptotic profiles for fast diffusion equations  
Ryuji Kajikiya (Saga Univ.) . . . . . 10
- 33 Goro Akagi (Kobe Univ.)<sup>#</sup> Symmetry breaking of least energy solutions of Emden–Fowler equations  
Ryuji Kajikiya (Saga Univ.) . . . . . 10
- 34 Yuki Kaneko (Waseda Univ.)<sup>#</sup> A free boundary problem related to an ecological model in multi-dimensional annulus . . . . . 10  
Yoshio Yamada (Waseda Univ.)
- 35 Kazuhiro Oeda (Waseda Univ.)<sup>\*</sup> Stationary solutions for a prey-predator model with nonlinear diffusion and a protection zone . . . . . 10
- 36 Yan-Yu Chen (Meiji Univ.)<sup>#</sup> Existence and uniqueness of rigidly rotating spiral waves by a wave front interaction model . . . . . 10  
Jong-Shenq Guo (Tamkang Univ.)  
Hirokazu Ninomiya (Meiji Univ.)
- 37 Keisuke Takasao (Hokkaido Univ.)<sup>\*</sup> The existence of the weak solution for mean curvature flow with transport term . . . . . 10  
Yoshihiro Tonegawa (Hokkaido Univ.)
- 38 Masashi Mizuno (Nihon Univ.)<sup>\*</sup> Boundary monotonicity formula for the Allen–Cahn equation with Neumann boundary condition . . . . . 10  
Yoshihiro Tonegawa (Hokkaido Univ.)

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

- Naoto Kumano-go (Kogakuin Univ.)<sup>#</sup> Phase space path integrals as analysis on path space

## September 20th (Thu) Conference Room III

**9:00–12:00**

- 39 Michiaki Onodera (Tohoku Univ.)<sup>#</sup> A variational problem and a related geometric evolution equation . . . . . 10
- 40 Aya Ishizeki (Saitama Univ.)<sup>\*</sup> The removability of singularity of density and the absolute integrability of variational formulae for Möbius energy . . . . . 10  
Takeyuki Nagasawa (Saitama Univ.)
- 41 Sachiko Ishida (Tokyo Univ. of Sci.)<sup>#</sup> Possibility of the blow-up in quasilinear degenerate Keller–Segel systems  
Takashi Ono . . . . . 10  
(Tokyo Jitsugyo High School)  
Tomomi Yokota (Tokyo Univ. of Sci.)
- 42 Takashi Suzuki (Osaka Univ.)<sup>#</sup> Exclusion of boundary blowup for 2D chemotaxis system provided with Dirichlet boundary condition for the Poisson part . . . . . 10
- 43 Masahiko Shimojo (Hokkaido Univ.)<sup>#</sup> Control of blow-up set by spatial inhomogeneous coefficient for a semi-linear parabolic equation . . . . . 10  
Jong-Shenq Guo (Tamkang Univ.)  
Yung-Jen Lin Guo  
(Nat. Taiwan Normal Univ.)  
Chang-Shou Lin (Nat. Taiwan Univ.)
- 44 Kazushige Nakagawa (Tohoku Univ.)<sup>\*</sup> The Phragmén–Lindelöf theorem of fully nonlinear systems for  $L^p$ -viscosity solutions with unbounded ingredients . . . . . 10

- 45 Hiroyoshi Mitake (Fukuoka Univ.) \* On the large time behavior of solutions of Hamilton–Jacobi equations associated with nonlinear boundary conditions ..... 10  
 Hitoshi Ishii (Waseda Univ.)  
 Guy Barles (Univ. de Tours)
- 46 Hiroyoshi Mitake (Fukuoka Univ.) \* Remarks on the large time behavior of viscosity solutions of quasi-monotone weakly coupled systems of Hamilton–Jacobi equations ..... 10  
 Hung Vinh Tran (UC, Berkeley)
- 47 Atsushi Nakayasu (Univ. of Tokyo) \* Eikonal equations in metric spaces ..... 10  
 Yoshikazu Giga (Univ. of Tokyo)  
 Nao Hamamuki (Univ. of Tokyo)
- 48 Gen Nakamura (Hokkaido Univ.) # Linear sampling method for identifying cavities in a heat conductor ..... 10  
 Haibing Wang (Hokkaido Univ.)
- 49 Junichi Harada (Waseda Univ.) \* Some blow-up solutions of the heat equation with nonlinear boundary conditions ..... 10
- 50 Yusuke Yamauchi (Waseda Univ.) \* Life span of positive solutions for the Cauchy problem for the parabolic equations ..... 10
- 51 Masakazu Yamamoto (Hiroasaki Univ.) \* Asymptotic behavior of solutions to the dissipative equation with anomalous diffusion ..... 10
- 52 Michiyuki Watanabe (Niigata Univ.) \* Inverse scattering at fixed amplitude for nonlinear Schrödinger equations ..... 10
- 53 Tomoyuki Niizato (Osaka Univ.) \* The decay rates of solutions to the non-linear dissipative-dispersive wave equations ..... 10

### 12:10–12:30 Presentation Ceremony for 2012 Analysis Prize

#### 14:15–16:15

- 54 Yoshihisa Nakamura \* Large time behavior of small solutions to multi-component nonlinear Schrödinger equations ..... 10  
 (Kumamoto Univ.)  
 Naoyasu Kita (Univ. of Miyazaki)
- 55 Kota Uriya (Tohoku Univ.) \* Asymptotic behavior of a solution to a nonlinear Schrödinger system ..... 10  
 Takayoshi Ogawa (Tohoku Univ.)
- 56 Hironobu Sasaki (Chiba Univ.) \* Scattering problems for the one-dimensional nonlinear Dirac equation with power nonlinearity ..... 10
- 57 Toshiyuki Suzuki (Tokyo Univ. of Sci.) # Energy methods for Hartree type equations with inverse-square potentials ..... 10
- 58 Masahiro Ikeda (Osaka Univ.) # Remark on nonrelativistic limit for nonlinear Klein–Gordon system with mass resonance ..... 10  
 Yuta Wakasugi (Osaka Univ.)
- 59 Nakao Hayashi (Osaka Univ.) \* Asymptotic behavior of solutions to nonlinear Klein–Gordon equations in 1d ..... 10
- 60 Norihisa Ikoma (Tohoku Univ.) \* On compactness of minimizing sequences for some nonlinear Schrödinger system ..... 10
- 61 Yohei Yamazaki (Kyoto Univ.) # Transverse instability for a system of nonlinear Schrödinger equations ..... 10
- 62 Satoshi Masaki (Gakushuin Univ.) # On minimal non-scattering solution for  $L^2$  subcritical nonlinear Schrödinger equation. .... 10
- 63 Shingo Ito (Tokyo Univ. of Sci.) \* Estimates on modulation spaces for Schroedinger evolution operators with a potential ..... 10  
 Keiichi Kato (Tokyo Univ. of Sci.)  
 Masaharu Kobayashi (Yamagata Univ.)

**16:30–17:30 Talk invited by Functional Equations Section**Katsuyuki Ishii (Kobe Univ.)<sup>#</sup> Mathematical analysis of some algorithms for mean curvature flow

September 21st (Fri) Conference Room III

**9:00–12:00**

- 64 Ryosuke Hyakuna (Waseda Univ.)<sup>\*</sup> On global solutions to the nonlinear Schrödinger equation with  $L^p$ -initial data ..... 10
- 65 Tsukasa Iwabuchi (Chuo Univ.)<sup>\*</sup> Ill-posedness for the nonlinear Schrödinger equations in one and two  
Takayoshi Ogawa (Tohoku Univ.) space dimensions ..... 10
- 66 Mamoru Okamoto (Kyoto Univ.)<sup>#</sup> Well-posedness of the Cauchy problem for the Chern–Simons–Dirac system ..... 10
- 67 Shuji Machihara (Saitama Univ.)<sup>#</sup> Time global solutions in  $L^p$  for Chern–Simons–Dirac equation in  $1 + 1$   
Takayoshi Ogawa (Tohoku Univ.) dimension ..... 10
- 68 Takamori Kato (Kyoto Univ.)<sup>#</sup> Unconditional well-posedness of the fifth order modified KdV equation  
Kotaro Tsugawa (Nagoya Univ.) with periodic boundary condition ..... 10
- 69 Eiji Onodera (Kochi Univ.)<sup>\*</sup> A fourth-order dispersive flow into Kähler manifolds ..... 10  
Hiroyuki Chihara (Kagoshima Univ.)
- 70 Eiji Onodera (Kochi Univ.)<sup>\*</sup> A fourth-order dispersive flow for closed curves on compact Riemann surfaces ..... 10
- 71 Jun-ichi Segata (Tohoku Univ.)<sup>\*</sup> Well-posedness for the fourth order nonlinear Schrödinger type equation on torus ..... 10
- 72 Yusuke Sugiyama (Tokyo Univ. of Sci.)<sup>#</sup> Global solvability for some quasilinear wave equation in one space dimension ..... 10
- 73 Hideo Kubo (Tohoku Univ.)<sup>#</sup> Existence and blow-up of solutions to nonlinear wave equations in one  
Ayako Osaka (Tohoku Univ.) space dimension ..... 10  
Muhammet Yazici (Tohoku Univ.)
- 74 Hiroyuki Takamura<sup>\*</sup> The lifespan of solutions of a nonlinear wave equations with a quadratic  
(Future Univ.-Hakodate) term of non-single and indefinite sign in four space dimensions ..... 10  
Kyouhei Wakasa  
(Future Univ.-Hakodate)
- 75 Erika Ushikoshi (Tohoku Univ.)<sup>\*</sup> Hadamard variational formula for the Green function for the velocity and pressure of the Stokes equations with the Dirichlet boundary condition ..... 10
- 76 Ken Abe (Univ. of Tokyo)<sup>\*</sup> The  $L^\infty$ -Stokes semigroup in exterior domains ..... 10  
Yoshikazu Giga (Univ. of Tokyo)
- 77 Hirokazu Saito (Waseda Univ.)<sup>#</sup> On the  $L_p$ - $L_q$  maximal regularity of the Neumann–Dirichlet problem for the Stokes equations in an infinite layer ..... 10
- 78 Miho Murata (Waseda Univ.)<sup>#</sup> On the sectorial  $\mathcal{R}$ -boundedness of the Stokes operator for the compressible viscous fluid flow ..... 10  
Yoshihiro Shibata (Waseda Univ.)



**14:15–16:30**

- 79 Tomoyuki Nakatsuka (Nagoya Univ.) \* Uniqueness of steady Navier–Stokes flows in exterior domains . . . . . 10
- 80 Hajime Koba (Univ. of Tokyo) \* Nonlinear stability of Ekman boundary layers in rotating stratified fluids  
. . . . . 10
- 81 Tsukasa Iwabuchi (Chuo Univ.) \* Time periodic solutions to the Navier–Stokes equations in the rotational  
Ryo Takada (Kyoto Univ.) framework . . . . . 10
- 82 Tsukasa Iwabuchi (Chuo Univ.) \* Global solutions for the Navier–Stokes equations in the rotational frame-  
Ryo Takada (Kyoto Univ.) work . . . . . 10
- 83 Tsuyoshi Yoneda (Hokkaido Univ.) A mathematical clue to the separation phenomena on the two-dimen-  
sional Navier–Stokes equation . . . . . 10
- 84 Kei Matsuura (Waseda Univ.) \* Initial-boundary value problem for micropolar fluid equations with spin-  
Mitsuharu Ôtani (Waseda Univ.) vorticity interaction boundary condition . . . . . 10
- 85 Noboru Chikami (Tohoku Univ.) \* The local existence and blow-up criterion of the compressible Navier–  
Stokes system with a Yukawa-potential . . . . . 10
- 86 Jan Brezina (Kyushu Univ.) ‡ Asymptotic behavior of solutions to the compressible Navier–Stokes  
Yoshiyuki Kagei (Kyushu Univ.) equation around a time-periodic parallel flow . . . . . 10
- 87 Masashi Ohnawa \* On the convergence rates towards traveling waves for a model system  
(Waseda Univ./Tokyo Tech) of radiating gas . . . . . 10  
Shinya Nishibata (Tokyo Tech)
- 88 Masashi Ohnawa \* Asymptotic stability of a stationary solution to the Euler–Poisson equa-  
(Waseda Univ./Tokyo Tech) tions including fluid-boundary interaction . . . . . 10  
Shinya Nishibata (Tokyo Tech)
- 89 Masahiro Suzuki (Tokyo Tech) \* Asymptotic behavior of solutions to a shallow water equation . . . . . 10  
Masahiro Takayama (Keio Univ.)  
Bongsuk Kwon  
(Ulsan Nat. Inst. of Sci. and Tech.)
- 90 Tetu Makino (Yamaguchi Univ.) \* Application of Nash–Moser theory to gasdynamics . . . . . 10

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

- Hideyuki Miura (Osaka Univ.) On fundamental solutions for fractional diffusion equations with diver-  
gence free drift

**Real Analysis**

September 20th (Thu) Conference Room II

**10:00–11:45**

- 1 Yuichi Kanjin (Kanazawa Univ.) ‡ Hardy-type inequalities for the generalized Mehler transform . . . . . 15  
Kunio Sato (Yamagata Univ.)
- 2 Yutaka Terasawa (Univ. of Tokyo) ‡ Positive operators and maximal operators in a filtered measure space  
Hitoshi Tanaka (Univ. of Tokyo) . . . . . 15

- 3 Yoshihiro Mizuta (Hiroshima Inst. of Tech.)<sup>#</sup> Gagliardo–Nirenberg inequality for generalized Riesz potentials of functions in Musielak–Orlicz spaces ..... 15  
 Eiichi Nakai (Ibaraki Univ.)  
 Yoshihiro Sawano (Tokyo Metro. Univ.)  
 Tetsu Shimomura (Hiroshima Univ.)
- 4 Yohei Tsutsui (Waseda Univ.) Weighted inequalities for convolution operators with smooth functions on Hardy spaces and an application to decay property of solutions to Navier–Stokes equations ..... 15
- 5 Takanori Yamamoto (Hokkai-Gakuen Univ.)<sup>\*</sup> An argument of a function in  $H^{1/2}$  ..... 15  
 Takahiko Nakazi (Hokusei Gakuen Univ.)
- 6 Shinya Moritoh (Nara Women’s Univ.)<sup>\*</sup> Mulholland’s inequality revisited ..... 10

**14:15–15:40**

- 7 Aoi Honda (Kyushu Inst. of Tech.)<sup>#</sup> On the linearity and metrics of a new sequence space  $\Lambda_2(f)$  ..... 15  
 Yoshiaki Okazaki (Kyushu Inst. of Tech.)  
 Hiroshi Sato (Kyushu Univ.)
- 8 Mikio Kato (Shinshu Univ.)<sup>\*</sup> Weak nearly uniform smoothness of direct sums of Banach spaces ..... 15  
 Takayuki Tamura (Chiba Univ.)
- 9 Mikio Kato (Shinshu Univ.)<sup>\*</sup> On relations between  $C_{NJ}(X)$  and  $J(X)$  and a new geometric constant  $A(X)$  ..... 15  
 Yasuji Takahashi (Okayama Pref. Univ.)
- 10 Koji Aoyama (Chiba Univ.)<sup>#</sup> Strong convergence of an iterative sequence for maximal monotone operators in a Hilbert space ..... 15
- 11 Sachiko Atsushiba (Univ. of Yamanashi)<sup>#</sup> Nonlinear mean convergence theorems for nonlinear mappings ..... 15

**15:50–16:50 Talk invited by Real Analysis Section**

- Jürgen Appell (Univ. Würzburg)<sup>#</sup> Condensing operators and applications: old and new

September 21st (Fri) Conference Room II

**9:40–12:00**

- 12 Toshikazu Watanabe (Niigata Univ.)<sup>#</sup> On non-additive measures which take values in an ordered topological vector space ..... 15
- 13 Yasunori Kimura (Toho Univ.)<sup>#</sup> Convergence of subsets of a complete geodesic space with curvature bounded above and its applications ..... 15  
 Kenzi Satō (Tamagawa Univ.)
- 14 Yoichi Miyazaki (Nihon Univ.)<sup>\*</sup> A Method to evaluate resolvent kernels of elliptic operators ..... 12
- 15 Noriaki Yamazaki (Kanagawa Univ.)<sup>#</sup> Optimal control of positive solutions to second order impulsive differential equations ..... 15  
 Lingling Zhang (Taiyuan Univ. of Tech.)  
 Chengbo Zhai (Shanxi Univ.)
- 16 Makoto Nakamura (Tohoku Univ.)<sup>\*</sup> Remarks on global solutions for nonlinear wave equations under the standard null conditions ..... 10

- 17 Makoto Nakamura (Tohoku Univ.)\* The Cauchy problem for dissipative wave equations with weighted non-linear terms ..... 10  
Hidemitsu Wadade (Gifu Univ.)
- 18 Yukino Tomizawa (Chuo Univ.)# Unique solutions to nonautonomous differential equations in Banach spaces ..... 20  
Yoshikazu Kobayashi (Chuo Univ.)  
Naoki Tanaka (Shizuoka Univ.)
- 19 Motohiro Sobajima # Generalized Hardy–Rellich inequalities in  $\mathbb{R}^N$  for operators with singular first order terms ..... 15  
(Tokyo Univ. of Sci.)
- 20 Risei Kano (Kochi Univ.)# Asymptotic behavior of solutions for the tumor invasion models ..... 15  
Akio Ito (Kinki Univ.)

**14:15–16:00**

- 21 Hiroshi Watanabe (Salasian Polytecnic)# Entropy solutions to initial value problems for strongly degenerate parabolic equations with discontinuous coefficients ..... 15
- 22 Naoki Sato # On a one dimensional free boundary problem for adsorption phenomena ..... 20  
(Nagaoka Nat. Coll. of Tech.)  
Toyohiko Aiki (Japan Women's Univ.)  
Yusuke Murase (Meijo Univ.)
- 23 Yusuke Murase (Meijo Univ.)# Existence results for a mathematical modeling for brewing process of Japanese Sake ..... 15  
Akio Ito (Kinki Univ.)
- 24 Shun Uchida (Waseda Univ.)\* The solvability of double-diffusive convection system with Soret's coefficient depending on the concentration of solute ..... 15  
Mitsuharu Ôtani (Waseda Univ.)
- 25 Goro Akagi (Kobe Univ.)# Doubly nonlinear parabolic equations involving variable exponents ... 15
- 26 Kota Kumazaki # On a mathematical model of moisture transport with a time-dependent porosity in concrete carbonation process ..... 15  
(Tomakomai Nat. Coll. of Tech.)

**16:10–17:10 Talk invited by Real Analysis Section**

- Okiihiro Sawada (Gifu Univ.)# The ill-posedness theory of the Navier–Stokes equations in the critical space

**Functional Analysis**

September 19th (Wed) Conference Room IV

**9:45–11:50**

- 1 Kazunori Ando (Univ. of Tsukuba)# Inverse scattering theory for discrete Schrödinger operators on the hexagonal lattice ..... 15
- 2 Hisashi Morioka (Univ. of Tsukuba)# Inverse scattering at a fixed energy for discrete Schrödinger operators on the square lattice ..... 15  
Hiroshi Isozaki (Univ. of Tsukuba)
- 3 Yuji Nomura (Ehime Univ.)# Landau levels of Schrödinger operators with periodic Aharonov–Bohm magnetic fields on the hyperbolic plane ..... 15  
Takuya Mine (Kyoto Inst. Tech.)
- 4 Toshihisa Kubo (Univ. of Tokyo)# Conformally invariant systems of second-order differential operators .. 20

- 5 Yoshinori Kametaka (Osaka Univ.)<sup>#</sup> The best constant of discrete Sobolev inequality on a small Fullerene and Carbon nano tube ..... 15
- 6 Jun Hong Ha (Korea Tech.)<sup>#</sup> Unique identification for linearized sine-Gordon equation ..... 15  
Semion Gutman (Univ. of Oklahoma)
- 7 Shin-ichi Nakagiri (Kobe Univ.)<sup>#</sup> Identifiability of advection-diffusion equations ..... 15

**13:00–14:00 Talk invited by Functional Analysis Section**

- Kiyoomi Kataoka (Univ. of Tokyo)<sup>#</sup> A system of fifth-order partial differential equations describing a surface which contains several continuous families of circular arcs

September 20th (Thu) Conference Room IV

**9:30–11:50**

- 8 Kengo Matsumoto (Joetsu Univ. of Edu.)<sup>\*</sup> Full groups of one-sided topological Markov shifts and classification of Cuntz–Krieger algebras ..... 15
- 9 Takahiro Sudo (Univ. of Ryukyus)<sup>#</sup> Corona rank for Banach or  $C^*$ -algebras ..... 15
- 10 Rui Okayasu (Osaka Kyoiku Univ.)<sup>#</sup> Free group  $C^*$ -algebras associated with  $\ell_p$  ..... 15
- 11 Yusuke Isono (Univ. of Tokyo)<sup>#</sup> Weak exactness for  $C^*$ -algebras and application to condition (AO) ... 15
- 12 Norio Nawata (Chiba Univ.)<sup>#</sup> Fundamental group of uniquely ergodic Cantor minimal systems ..... 15
- 13 Tsuyoshi Kajiwara (Okayama Univ.)<sup>#</sup> Ideals of the core of  $C^*$ -algebras associated with self-similar maps ..... 15  
Yasuo Watatani (Kyushu Univ.)
- 14 Hiroki Sako (Kyoto Univ.)<sup>\*</sup> Property A and the operator norm localization property for discrete metric spaces ..... 15
- 15 Takahiro Hasebe (Kyoto Univ.)<sup>#</sup> Cumulants for spreadability system ..... 15  
Franz Lehner (Graz Univ. of Tech.)

**14:15–16:30**

- 16 Masaru Nagisa (Chiba Univ.)<sup>\*</sup> Characterization of the diagonality for operators ..... 10  
Takashi Itoh (Gunma Univ.)
- 17 Masaru Nagisa (Chiba Univ.)<sup>#</sup> Some operator monotone functions ..... 10  
Masato Kawasaki (Chiba Univ.)
- 18 Takeaki Yamazaki (Toyo Univ.)<sup>#</sup> On some matrix inequalities for the matrix power and Karcher means  
Yongdo Lim (Kyungpook Nat. Univ.) ..... 10
- 19 Yuki Seo (Osaka Kyoiku Univ.)<sup>#</sup> The Jensen inequality in an external formula ..... 10
- 20 Mitsuru Uchiyama (Shimane Univ.)<sup>#</sup> The principal inverse of the gamma function ..... 15
- 21 Keiichi Watanabe (Niigata Univ.)<sup>\*</sup> An inequality between products of  $x^p - 1$  ..... 15
- 22 Kei Ji Izuchi (Niigata Univ.)<sup>\*</sup> Sums of weighted composition operators on  $H^\infty$  ..... 10  
Shūichi Ohno (Nippon Inst. of Tech.)
- 23 Takuya Hosokawa (Ibaraki Univ.)<sup>\*</sup> Differences of weighted composition operators from the Bloch space to  $H^\infty$  ..... 15  
Shūichi Ohno (Nippon Inst. of Tech.)

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

Shûichi Ohno (Nippon Inst. of Tech.)\* Topological structure of the space of weighted composition operators on  $H^\infty$

September 21st (Fri) Conference Room IV

**9:30–11:50**

- 24 Masatoshi Enooto (Koshien Univ.)\* Brick Hilbert representaions of the Kronecker quiver by perturbation of Yasuo Watatani (Kyushu Univ.) a finite rank operator ..... 15
- 25 Reiji Tomatsu (Hokkaido Univ.)# On a classification of Rohlin flows on von Neumann algebras ..... 15
- 26 Satoshi Goto (Sophia Univ.)# On a mixed quantum double construction of subfactors ..... 10
- 27 Satoshi Goto (Sophia Univ.)# On a generalization of quantum multiple construction of subfactors ... 10
- 28 Yoshikata Kida (Kyoto Univ.)\* Orbit equivalence invariants for actions of Baumslag–Solitar groups .. 15
- 29 Yoshikata Kida (Kyoto Univ.)\* Stability in orbit equivalence for Baumslag–Solitar groups and Vaes groups ..... 15
- 30 Masafumi Sakao (Chiba Univ.)# The extension problem of discrete Abelian groups by hypergroups of order two ..... 15  
Tatsuya Tsurii (Osaka Pref. Univ.)  
Satoe Yamanaka (Osaka Pref. Univ.)  
Satoshi Kawakami (Nara Univ. of Edu.)
- 31 Akihito Wachi (Hokkaido Univ. of Edu.)\* Capelli identities of odd type ..... 15
- 32 Hiroshi Yamashita (Hokkaido Univ.)# Quantization of singular quaternionic nilpotent  $K$ -orbits ..... 15  
Fuhai Zhu (Nankai Univ.)

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

Mutsumi Saito (Hokkaido Univ.)# Irreducible quotients of  $A$ -hypergeometric systems

**Statistics and Probability**

September 18th (Tue) Conference Room V

**9:15–12:00**

- 1 Tomoko Takemura (Nara Women's Univ.)\* Lévy measure density corresponding to inverse local time ..... 15  
Matsuyo Tomisaki (Nara Women's Univ.)
- 2 Yuji Hamana (Kumamoto Univ.)\* On the distributions of the first hitting times of Bessel processes ..... 15  
Hiroyuki Matsumoto (Aoyama Gakuin Univ.)

- 3 Yuji Hamana (Kumamoto Univ.)\* On the expected volume of the Wiener sausage in even dimensions  
Hiroyuki Matsumoto ..... 15  
(Aoyama Gakuin Univ.)
- 4 Katsusi Fukuyama (Kobe Univ.)\* Metric discrepancy results for Erdős–Fortet sequence ..... 5  
Sho Miyamoto
- 5 Satoshi Ishiwata (Yamagata Univ.)\* An effect of fragile non-symmetry to the transition probability of ran-  
Hiroshi Kawabi (Okayama Univ.) dom walks on the triangular lattice ..... 15  
Tsubasa Teruya (Okinawa Kaiho Bank)
- 6 Naoki Kubota (Nihon Univ.)# Large deviations for simple random walk on supercritical percolation  
clusters ..... 15
- 7 Daisuke Shiraiishi (Kyoto Univ.)# Cut points for simple random walks ..... 15
- 8 Sergio Albeverio (Univ. Bonn)# Probabilistic conclusion of constructive Euclidean  $(\Phi_4)^4$  quantum field  
Minoru W Yoshida (Tokyo City Univ.) theory I ..... 15
- 9 Itaru Mitoma (Saga Univ.)# Asymptotic expansion for oscillatory integrals of Wiener functionals  
..... 25
- 14:15–14:45**
- 10 Naoyuki Ichihara (Hiroshima Univ.)\* Criticality of Hamilton–Jacobi–Bellman equations and stochastic er-  
godic control ..... 15
- 11 Masaaki Tsuchiya (Kanazawa Univ.)\* Probabilistic representation of weak solutions to a parabolic equation  
with a mixed boundary condition ..... 15
- 15:00–16:00 Talk invited by Statistics and Probability Section**  
Toshihiro Uemura (Kansai Univ.)# On jump-type Markov processes and the associated Dirichlet forms
- 16:15–17:15 Talk invited by Statistics and Probability Section**  
Kazumasa Kuwada (Ochanomizu Univ.)# Coupling methods for heat distributions and curvature-dimension con-  
ditions

September 19th (Wed) Conference Room V

**9:15–12:00**

- 12 Takahiro Hasebe (Kyoto Univ.)# Examples of infinitely divisible distributions in free probability ..... 15  
Noriyoshi Sakuma  
(Aichi Univ. of Edu.)  
Octavio Arizmendi  
(Univ. des Saarlandes)
- 13 Sho Matsumoto (Nagoya Univ.)# Correlation functions for real zeros of a Gaussian power series and  
Tomoyuki Shirai (Kyushu Univ.) Pfaffians ..... 15
- 14 Akihiko Inoue (Hiroshima Univ.)# Multivariate completely nondeterministic stationary processes ..... 15  
Yukio Kasahara (Hokkaido Univ.)  
Mohsen Pourahmadi  
(Texas A&M Univ.)
- 15 Hiroki Hashiguchi (Saitama Univ.)# Holonomic gradient method for the distribution function of the largest  
Yasuhide Numata root of a Wishart matrix ..... 15  
(Univ. of Tokyo/JST CREST)  
Nobuki Takayama (Kobe Univ.)  
Akimichi Takemura (Univ. of Tokyo)

16	Tamio Koyama (Kobe Univ.) <sup>#</sup> Akimichi Takemura (Univ. of Tokyo)	Calculation of the orthant probability by the holonomic gradient method .....	15
17	Hajime Yamato (Kagoshima Univ.) <sup>#</sup>	Asymptotic distribution of number of distinct observations among a sample from mixture of Dirichlet processes .....	10
18	Yoichi Nishiyama (Inst. of Stat. Math.) <sup>#</sup>	Moment convergence of $Z$ -estimators .....	15
19	Yoichi Nishiyama (Inst. of Stat. Math.) <sup>#</sup>	$Z$ -process method for change point problems .....	15
20	Akio Tanikawa (Osaka Inst. of Tech.) <sup>#</sup> Hiro Mukai (Washington Univ.) Min Xu (Washington Univ.)	On the rate of convergence of the sequential quadratic method for differential games .....	10
21	Satoshi Suzuki (Shimane Univ.) <sup>#</sup> Daishi Kuroiwa (Shimane Univ.)	On surrogate duality for quasiconvex programming .....	20

**12:05–12:35 Research Section Assembly**

September 20th (Thu) Conference Room V

**9:15–12:00**

22	Yoshifumi Hyodo (Okayama Univ. of Sci./Int. Inst. for Nat. Sci.) Hiromu Yumiba (Int. Inst. for Nat. Sci.) Masahide Kuwada (Int. Inst. for Nat. Sci.)	<sup>#</sup> Existence conditions for balanced fractional $2^m$ factorial designs of resolution $2\ell + 1$ derived from simple arrays .....	15
23	Sanpei Kageyama (Hiroshima Inst. of Tech.) Kazuki Matsubara (Hiroshima Univ.)	<sup>#</sup> The existence of 2 pairwise additive BIB designs .....	15
24	Ryota Shinjo (Tokyo Univ. of Sci.) <sup>#</sup> Kouji Yamamoto (Osaka Univ.) Sadao Tomizawa (Tokyo Univ. of Sci.)	Improved measure on extended marginal homogeneity for square con- tingency tables with ordered categories .....	10
25	Kouji Yamamoto (Osaka Univ.) <sup>#</sup> Kouji Tahata (Tokyo Univ. of Sci.) Sadao Tomizawa (Tokyo Univ. of Sci.)	Generalized asymmetry model for cumulative probabilities and its de- composition for square tables .....	10
26	Kouji Tahata (Tokyo Univ. of Sci.) <sup>#</sup> Kouji Yamamoto (Osaka Univ.) Sadao Tomizawa (Tokyo Univ. of Sci.)	Decomposition of symmetry using palindromic symmetry model for square contingency tables .....	10
27	Nobuhiro Taneichi (Kagoshima Univ.) <sup>#</sup> Yuri Sekiya (Hokkaido Univ. of Edu.)	On asymptotic expansions of the null distributions of $\phi$ -divergence statistics for testing a logistic regression model .....	15
28	Kazuyoshi Yata (Univ. of Tsukuba) <sup>#</sup> Makoto Aoshima (Univ. of Tsukuba)	PCA consistency for high-dimensional data under generalized models .....	15
29	Kenta Hamada (Waseda Univ.) <sup>#</sup> Masanobu Taniguchi (Waseda Univ.)	Shrinkage estimation and prediction for time series .....	15
30	Yoshihide Kakizawa (Hokkaido Univ.) <sup>#</sup>	Generalized Cordeiro–Ferrari Bartlett-type adjustment .....	10
31	Yoshihide Kakizawa (Hokkaido Univ.) <sup>#</sup>	Third-order local powers of several Bartlett-type adjusted tests .....	15
32	Hiroki Masuda (Kyushu Univ.) <sup>#</sup>	On self-normalized residuals of SDE .....	10

**14:30–15:30 Talk invited by Statistics and Probability Section**

Shogo Kato (Inst. of Stat. Math.)<sup>#</sup> The Cauchy distribution on the circle and related statistical models

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

Hidetoshi Murakami (Nat. Defense Acad. of Japan)<sup>#</sup> Some saddlepoint approximations to the nonparametric tests and biased for two-sided alternatives

**Applied Mathematics**

September 18th (Tue) Conference Room VI

**9:30–12:00**

- 1 Takamichi Sushida (Ryukoku Univ.)<sup>#</sup> Triangular spiral tilings ..... 20  
Akio Hizume (Ryukoku Univ.)  
Yoshikazu Yamagishi (Ryukoku Univ.)
- 2 Midori Kobayashi (Univ. of Shizuoka)<sup>#</sup> Dudeney's round table problem and neighbour-balanced Hamilton de-  
Nobuaki Mutoh (Univ. of Shizuoka) compositions ..... 10  
Gisaku Nakamura (Univ. of Shizuoka)
- 3 Tomoki Nakamigawa (Shonan Inst. of Technology)<sup>#</sup> A Ramsey type problem for multiple disjoint copies of induced sub-  
graphs ..... 10
- 4 Shuya Chiba (Tokyo Univ. of Sci.)<sup>#</sup> Tutte cycles and Hamiltonicity of 4-connected claw-free graphs ..... 20  
Roman Čada (Univ. of West Bohemian)  
Kenta Ozeki (Nat. Inst. of Information)  
Petr Vrána (Univ. of West Bohemian)  
Kiyoshi Yoshimoto (Nihon Univ.)
- 5 Norio Konno (Yokohama Nat. Univ.)<sup>#</sup> The graph isomorphism problem and quantum walk ..... 15  
Iwao Sato (Oyama Nat. Coll. of Tech.)
- 6 Iwao Sato (Oyama Nat. Coll. of Tech.)<sup>#</sup> Weighted zeta functions for quotients of regular coverings of graphs  
Seiya Negami (Yokohama Nat. Univ.) ..... 15
- 7 Hye Jin Jang (POSTECH)<sup>#</sup> On fat Hoffman graphs with smallest eigenvalue at least  $-3$  ..... 10  
Jack Koolen (POSTECH)  
Akihiro Munemasa (Tohoku Univ.)  
Tetsuji Taniguchi  
(Matsue Coll. of Tech.)
- 8 Chie Nara (Tokai Univ.)<sup>#</sup> Refold rigidity of convex polyhedra ..... 15  
Jin-ichi Itoh (Kumamoto Univ.)  
Erik D. Demaine (MIT)  
Martin L. Demaine (MIT)  
Anna Lubiw (Univ. Waterloo)  
Joseph O'Rourke (Smith Coll.)
- 9 Kazuhiko Ushio (Kinki Univ.)<sup>#</sup> Balanced  $(C_7, C_{12})$ -foil designs and related designs ..... 15



**14:15–16:40**

- 10 Yutaka Sueyoshi (Nagasaki Univ.)<sup>#</sup> On a construction of equitable round-robin tournaments with home-  
Ryuichi Harasawa (Nagasaki Univ.) away assignments ..... 20  
Aichi Kudo (Nagasaki Univ.)
- 11 Yasuo Katsumata (Asia Univ.)<sup>\*</sup> Analysis of a fuzzy Shapley value and its application ..... 10  
Sakae Tsuda (Kokugaiin High School)  
Kenichi Nagashima (Waseda Univ.)  
Hajime Yamashita (Waseda Univ.)
- 12 Hiromasa Nakayama<sup>#</sup> Holonomic gradient descent method for the Fisher–Bingham distribu-  
(Kobe Univ./JST CREST) tion on the  $n$ -dimensional sphere ..... 15  
Tamio Koyama (Kobe Univ.)  
Kenta Nishiyama  
(Osaka Univ./JST CREST)  
Nobuki Takayama (Kobe Univ.)
- 13 Myoungnyoun Kim (NIMS)<sup>#</sup> Improving reconstruction image using weighted voxel specific signal-to-  
Tae Young Ha (NIMS) noise ratios in MREIT ..... 15  
Eung Je Woo (Kyung-Hee Univ.)  
Oh In Kwon (Konkuk Univ.)
- 14 Hidehiro Shinohara (Tohoku Univ.)<sup>#</sup> Square Lehman matrices which are not cores of minimally non-ideal  
clutters ..... 15
- 15 Akira Saito (Nihon Univ.)<sup>#</sup> Star-factors with large components ..... 15  
Mikio Kano (Ibaraki Univ.)
- 16 Kenta Noguchi (Keio Univ.)<sup>#</sup> Relations between current graphs, voltage graphs and cycle parities  
..... 15
- 17 Kenta Ozeki (Nat. Inst. of Information)<sup>#</sup> Hamiltonicity of  $k$ -prism, a  $k$ -tree, a  $k$ -walk and a  $k$ -cycle cover of  
graphs ..... 15

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

- Yusuke Suzuki (Niigata Univ.)<sup>#</sup> 1-embedded graphs as seen from a viewpoint of re-embedding structures

September 19th (Wed) Conference Room VI

**9:30–12:15**

- 18 Shunji Horiguchi<sup>#</sup> Convergence comparison in the conditional expressions II of Tsuchikura–  
(Niigata Sangyo Univ.) Horiguchi’s method (Yoshimasu Murase–Newton type’s first enhancing  
recurrence formula) ..... 15
- 19 Shunji Horiguchi<sup>#</sup> Nnumerical computations concerning elementary functions of a general  
(Niigata Sangyo Univ.) convergence comparison in the conditional expression II of Tsuchikura–  
Horiguchi’s method ..... 15
- 20 Yuji Katsuta (Ube Nat. Coll. of Tech.)<sup>#</sup> An analysis of a eight-order nonlinear symmetrical differential equation  
George Miyake with dihedral group  $D_4$  and odd function ..... 20  
(Ube Nat. Coll. of Tech.)
- 21 Hirotake Yaguchi (Mie Univ.)<sup>\*</sup> Construction and security of hash functions based on  $\beta$ -transformations  
on  $[1,2)$  ..... 15

22	Shy-Der Lin (Chung Yuan Christian Univ.)	*	Particular solutions of associated Cauchy–Euler fractional partial differential equation . . . . .	15
	Chia-Hung Lu (Chung Yuan Christian Univ.)			
23	Noppharat Chaifong (Chuo Univ.)	#	A dynamical model of human immune response to two type influenza virus infections . . . . .	15
24	Eunok Jung (Konkuk Univ.) Wanho Lee (Konkuk Univ.) Yongsam Kim (Chung-Ang Univ.)	#	Mathematical models of circulatory systems . . . . .	15
25	Jeongwhan Choi (Korea Univ.) Shu-Ming Sun (Virginia PolyTech) Sungim Whang (Ajou Univ.)	#	Supercritical surface waves generated by a negative or oscillatory forcing . . . . .	15
26	Prashant Kumar (POSTECH) Kim Kwang Ik (POSTECH)	#	Mathematical modelling of the ship hydrodynamics in Pohang New Harbor . . . . .	15

## September 20th (Thu) Conference Room VI

**9:30–12:00**

27	Kiyohisa Tokunaga (Fukuoka Inst. of Tech.)	#	The curl theorem of a triangular integral . . . . .	15
28	Yoshihiro Saito (Gifu Shotoku Gakuen Univ.)	#	Numerical asymptotic stability of the $\theta$ -Maruyama simplified scheme . . . . .	15
29	Shingo Saito (Kyushu Univ.)	*	Relation between the premium principle based on Wang’s transform and the Hermite polynomials . . . . .	10
30	Koya Sakakibara (Meiji Univ.)	#	A new method approximating holomorphic functions by linear combinations of $1/(z - \zeta)$ I —Analysis in an elliptic domain— . . . . .	15
31	Koya Sakakibara (Meiji Univ.)	#	A new method approximating holomorphic functions by linear combinations of $1/(z - \zeta)$ II —Analysis in an annular domain— . . . . .	15
32	Shingo Iwami (Kyushu Univ.)	#	Modeling acute phase of viral infection . . . . .	20
33	Michiel Bertsch (Univ. Rome Tor Vergata) Danielle Hilhorst (Univ. de Paris-Sud) Hirofumi Izuhara (Meiji Univ.) Masayasu Mimura (Meiji Univ.) Tohru Wakasa (Kyushu Inst. of Tech.)	#	Traveling wave solutions arising in a tumour growth model with contact inhibition . . . . .	15
34	Tatsuki Mori (Ryukoku Univ.) Shoji Yotsutani (Ryukoku Univ.)	#	Numerical study on stationary solutions and the stability of a 2d SKT cross-diffusion equation . . . . .	15

**14:15–16:40 Special Session —Medicine and Mathematics—**

	Yasushi Okada (RIKEN)	#	Understanding the functions of biological molecular motors through modeling . . . . .	45
	Motohisa Osaka (Nippon Veterinary and Life Sci. Univ.)	#	Applied mathematics on sudden cardiac death and rhythm . . . . .	45
	Jun-ichi Okada (Univ. of Tokyo)	#	Multiscale multiphysics heart simulator based on finite element method . . . . .	45

**16:50–17:50 Talk invited by Applied Mathematics Section**Yuji Kodama (Ohio State Univ.)<sup>#</sup> KP solitons and Mach reflection in shallow water

September 21st (Fri) Conference Room VI

**9:00–12:00**

- 35 Junichi Nakagawa (Nippon Steel Corp.)<sup>#</sup> Evolution of local maximums of non-symmetric solutions to some reaction-diffusion systems . . . . . 10  
Gen Nakamura (Hokkaido Univ.)  
Satoshi Sasayama (Hokkaido Univ.)  
Haibing Wang (Hokkaido Univ.)
- 36 Kazumi Tanuma (Gunma Univ.)<sup>\*</sup> Perturbation of phase velocity of Rayleigh waves and Stoneley waves in anisotropic elastic media with orthorhombic principal part . . . . . 15  
Chi-Sing Man (Univ. of Kentucky)  
Wenwen Du (Univ. of Kentucky)
- 37 Nobuyuki Higashimori<sup>#</sup> A direct numerical method for solving the initial boundary value problem of the three dimensional radiative transport equation . . . . . 15  
(Hitotsubashi Univ.)  
Hiroshi Fujiwara (Kyoto Univ.)
- 38 Xiao-Yu Zhang<sup>#</sup> Effective condition numbers of finite difference methods for elliptic equations with singularities . . . . . 15  
(Beijing Forestry Univ./Yamagata Univ.)  
Qing Fang (Yamagata Univ.)
- 39 Masashi Katsurada (Meiji Univ.)<sup>#</sup> Eigenvalue problems of the biharmonic operator in a square region —Finite difference analysis of chladni figures— . . . . . 15  
Yuki Hirano (Anjo Higashi High School)
- 40 Kaname Matsue (Tohoku Univ.)<sup>#</sup> Rigorous numerical verification of saddle-saddle connections . . . . . 20  
Nobito Yamamoto  
(Univ. of Electro-Comm.)
- 41 Tomohiro Hiwaki<sup>#</sup> Numerical verification of a domain included by the basin of a limit cycle . . . . . 20  
(Univ. of Electro-Comm.)  
Nobito Yamamoto  
(Univ. of Electro-Comm.)
- 42 Takehiko Kinoshita (Kyoto Univ.)<sup>#</sup> A numerical verification method for solutions of IVP for ODEs using a linearized inverse operator . . . . . 15  
Takuma Kimura (Waseda Univ.)  
Mitsuhiro T. Nakao  
(Sasebo Nat. Coll. of Tech.)

**14:15–16:30**

- 43 Yoshitaka Watanabe (Kyushu Univ.)<sup>#</sup> A numerical verification of the invertibility of linear operators with inverse norm estimations . . . . . 15  
Mitsuhiro T. Nakao  
(Sasebo Nat. Coll. of Tech.)
- 44 Kenta Kobayashi (Hitotsubashi Univ.)<sup>#</sup> The circumradius condition on triangular elements and its applications . . . . . 20  
Takuya Tsuchiya (Ehime Univ.)
- 45 Fumio Kikuchi<sup>#</sup> Strong  $L^p$  convergence associated with Rellich-type discrete compactness for discontinuous Galerkin FEM . . . . . 20  
(Hitotsubashi Univ./Univ. of Tokyo)  
Daisuke Koyama  
(Univ. of Electro-Comm.)
- 46 Daisuke Koyama<sup>#</sup> An optimized Schwarz method for acoustic radiation problems . . . . . 20  
(Univ. of Electro-Comm.)

- 47 Hirofumi Notsu (Waseda Univ.)<sup>#</sup> Error estimates of a pressure-stabilized characteristics finite element  
Masahisa Tabata (Waseda Univ.) scheme for the Oseen equations ..... 20
- 48 Hiroshi Kanayama (Kyushu Univ.)<sup>#</sup> Domain decomposition computation of thermal convection problems  
based on the characteristic curve method ..... 20

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

- Daisuke Tagami (Kyushu Univ.)<sup>#</sup> Numerical analysis of flow problems with finite element methods—From  
error analysis to parallel computations—

## Topology

September 18th (Tue) Conference Room IX

**9:15–12:00**

- 1 Masayuki Kawashima<sup>#</sup> On torus decompositions and line degenerated torus curves ..... 10  
(Tokyo Univ. of Sci.)
- 2 Misako Yokoyama (Shizuoka Univ.)<sup>#</sup> Finding a system of essential 2-suborbifolds ..... 15  
Yoshihiro Takeuchi  
(Aichi Univ. of Edu.)
- 3 Selman Akbulut (Michigan State Univ.)<sup>\*</sup> Gluck twisting 4-manifolds with odd intersection form ..... 10  
Kouichi Yasui (Hiroshima Univ.)
- 4 Takuya Sakasai (Univ. of Tokyo)<sup>#</sup> The abelianization of the symplectic derivation Lie algebra of the free  
Masaaki Suzuki (Akita Univ.) associative algebra ..... 15  
Shigeyuki Morita (Univ. of Tokyo)
- 5 Kazuki Toda (Univ. of Tokyo)<sup>\*</sup> The second cohomology of the homological Goldman Lie algebra ..... 10
- 6 Nariya Kawazumi (Univ. of Tokyo)<sup>#</sup> On the Turaev cobracket and the Morita traces ..... 20  
Yusuke Kuno (Tsuda Coll.)
- 7 Jong Bum Lee (Sogang Univ.)<sup>#</sup> The geometry of  $\text{Sol}^3$  ..... 15
- 8 Suyoung Choi (Ajou Univ.)<sup>#</sup> Rational homology of real toric variety over graph associahedra ..... 15  
Hanchul Park (Ajou Univ.)
- 9 Junhui Kim (Wonkwang Univ.)<sup>#</sup> A non-2-starcompact Tychonoff space whose hyperspace is 2-starcom-  
pact ..... 15

**14:15–16:00**

- 10 Kenshi Ishiguro (Fukuoka Univ.)<sup>#</sup> Pairings and monomorphisms of classifying spaces ..... 10  
Shotaro Kudo (Fukuoka Univ.)  
Tomohiro Nakano  
(Wajiro Junior High School)
- 11 Tomohisa Inoue (Shinshu Univ.)<sup>#</sup> The 31-stem homotopy groups of 9 and 10-dimensional spheres ..... 10  
Juno Mukai (Matsumoto Univ.)

- 12 Ipei Ichigi (Kochi Nat. Coll. of Tech.) The homotopy groups of a type two spectrum grading over the Picard  
 Katsumi Shimomura (Kochi Univ.) group of  $\mathcal{L}_2$  ..... 15  
 Yutaro Terahara (Kochi Univ.)
- 13 Takahito Naito (Shinshu Univ.)<sup>#</sup> String topology on rational Gorenstein spaces ..... 15
- 14 Ryo Kato (Nagoya Univ.)<sup>#</sup> On the generalized retract conjecture ..... 10  
 Katsumi Shimomura (Kochi Univ.)  
 Yutaro Tatehara (Kochi Univ.)
- 15 Tadayuki Haraguchi (Okayama Univ.)<sup>\*</sup> Model structure of numerically generated spaces ..... 15

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

- Toshio Sumi (Kyushu Univ.)<sup>\*</sup> The Smith equivalence problem and Smith sets of Oliver groups

September 19th (Wed) Conference Room VIII + IX

**10:30–10:45 Presentation Ceremony for 2012 Geometry Prize****10:50–11:50 Award Lecture for 2012 Geometry Prize**

- Ken'ichi Ohshika (Osaka Univ.)<sup>#</sup> Topological structure of deformation spaces of Kleinian groups

**13:15–14:15 Award Lecture for 2012 Geometry Prize**

- Yukinobu Toda (Univ. of Tokyo)<sup>#</sup> Stability conditions and Donaldson–Thomas type invariants on Calabi–  
 Yau 3-folds

September 20th (Thu) Conference Room IX

**9:30–11:45**

- 16 Takuji Nakamura<sup>\*</sup> The state numbers of plane curves and knots ..... 10  
 (Osaka Electro-Comm. Univ.)  
 Yasutaka Nakanishi (Kobe Univ.)  
 Shin Satoh (Kobe Univ.)  
 Yumi Toyama (Kobe Univ.)
- 17 Reiko Shinjo (Waseda Univ.)<sup>#</sup> On the inclusive relation of three properties of knot diagrams ..... 10  
 Kokoro Tanaka (Tokyo Gakugei Univ.)
- 18 Kokoro Tanaka (Tokyo Gakugei Univ.)<sup>#</sup> Interpretation of rack coloring knot invariants in terms of quandles  
 Yuma Taniguchi (Tokyo Gakugei Univ.) ..... 15
- 19 Masao Hara (Tokai Univ.)<sup>#</sup> On Jones polynomials of alternating pretzel knots ..... 10  
 Makoto Yamamoto (Chuo Univ.)
- 20 Atsuhiko Mizusawa (Waseda Univ.)<sup>#</sup> Yokota type invariants for oriented spatial graphs derived from Costantino–  
 Murakami's invariants ..... 15
- 21 Kenta Okazaki (Kyoto Univ.)<sup>#</sup> On the Turaev–Viro–Ocneanu invariants of 3-manifolds associated with  
 the  $E_6$  and  $E_8$  subfactor planar algebras ..... 10
- 22 Inasa Nakamura (Gakushuin Univ.)<sup>#</sup> Unknotting numbers and triple point cancelling numbers of torus-cov-  
 ering knots ..... 10
- 23 Yeonhee Jang (Nara Women's Univ.)<sup>#</sup> Distance of bridge presentations of links and essential surfaces in the  
 link exteriors ..... 15

**14:15–15:40**

- 24 Kengo Kishimoto (Osaka Inst. of Tech.)<sup>#</sup> Simple ribbon fusions for links II ..... 10  
 Tetsuo Shibuya (Osaka Inst. of Tech.)  
 Tatsuya Tsukamoto  
 (Osaka Inst. of Tech.)
- 25 Tetsuya Abe (Kyoto Univ.)<sup>#</sup> Annulus twists and diffeomorphic 4-manifolds ..... 15  
 In Dae Jong (Osaka Pref. Univ.)
- 26 Tetsuya Abe (Kyoto Univ.)<sup>#</sup> Omae’s knot and  $12_{a990}$  are ribbon ..... 15  
 Motoo Tange (Univ. of Tsukuba)
- 27 Yuichi Yamada (Univ. of Electro-Comm.)<sup>#</sup> Divide knot presentations of sporadic knots of Berge’s lens space surgery ..... 10
- 28 Motoo Tange (Univ. of Tsukuba)<sup>#</sup> Primitive/Seifert knots in the Poincaré homology sphere ..... 15

**16:00–17:00 Talk invited by Topology Section**

- Koya Shimokawa (Saitama Univ.)<sup>#</sup> Tangle analysis of site-specific recombinations

September 21st (Fri) Conference Room IX

**9:15–12:00**

- 29 Yusuke Mizota (Kyushu Univ.)<sup>#</sup> Explicit construction of generators for the module of liftable vector fields ..... 15
- 30 Masaru Kada (Osaka Pref. Univ.)<sup>#</sup> Galois–Tukey connection involving order structures of metrics ..... 20  
 Yasuo Yoshinobu (Nagoya Univ.)
- 31 Hanbiao Yang (Univ. of Tsukuba)<sup>\*</sup> Metrization of function spaces with the Fell topology ..... 10
- 32 Katsuhisa Koshino (Univ. of Tsukuba)<sup>\*</sup> Characterizing infinite-dimensional manifolds and its applications ..... 15
- 33 Jun Yagi (Kochi Univ.)<sup>#</sup> The topology of a model for ringed hydrocarbon molecules ..... 15  
 Satoru Goto (Tokyo Univ. of Sci.)  
 Yutaka Hemmi (Kochi Univ.)  
 Kazushi Komatsu (Kochi Univ.)
- 34 Akihiro Higashitani (Osaka Univ.)<sup>#</sup> Lattice multi-polygons ..... 15  
 Mikiya Masuda (Osaka City Univ.)
- 35 Takami Sato (Hokkaido Univ.)<sup>#</sup> Curves on a spacelike surface in three dimensional Lorentz–Minkowski space ..... 10
- 36 Shin Kiriki (Kyoto Univ. of Edu.)<sup>#</sup> Existence of generic cubic homoclinic tangencies for Hénon maps ..... 15  
 Teruhiko Soma (Tokyo Metro. Univ.)
- 37 Toshikazu Ito (Ryukoku Univ.)<sup>\*</sup> Degeneracy locus of critical points of the distance function on a holomorphic foliation ..... 10  
 Bruno Scárdua  
 (Univ. Fed. Rio de Janeiro)  
 Yoshikazu Yamagishi (Ryukoku Univ.)

## Infinite Analysis

September 18th (Tue)      Conference Room VII

### 9:30–11:45

- 1 Kazuo Kaneko (Yokkaichi Univ.)\* Special solutions to the four dimensional Painlevé type equations 21, 21, 111, 111 and 31, 22, 22, 1111 ..... 15
- 2 Seiji Nishioka (Yamagata Univ.)# Approximation of Poincaré's new functions by rational functions ..... 15
- 3 Yoshikatsu Sasaki (Hiroshima Univ.)# Third-degree superintegrable system solved by the sixth Painlevé transcendents ..... 15
- 4 Hajime Nagoya (Kobe Univ.)# Realizations of affine Weyl group symmetries on the quantum Painlevé equations by fractional calculus ..... 15
- 5 Hajime Nagoya (Kobe Univ.)# Symmetries of quantum Lax equations for the Painlevé equations ..... 15  
Yasuhiko Yamada (Kobe Univ.)
- 6 Koji Hasegawa (Tohoku Univ.)# Lax form for quantum discrete Painlevé VI equation ..... 20
- 7 Gen Kuroki (Tohoku Univ.)# Sato–Wilson formalisms for quantum birational Weyl group actions of type A ..... 30

### 14:15–14:45

- 8 Edwin Langmann (Roy. Inst. of Tech. Sweden)# Source identity and kernel functions for Inozemtsev-type systems ..... 15  
Kouichi Takemura (Chuo Univ.)
- 9 Masatoshi Noumi (Kobe Univ.)# Bispectral problem for the Ruijsenaars–Macdonald  $q$ -difference operators ..... 15  
Jun'ichi Shiraishi (Univ. of Tokyo)

### 15:00–16:00 Talk invited by Infinite Analysis Special Session

- Junichi Shiraishi (Univ. of Tokyo)# Vertex operators, Nekrasov partition functions and Macdonald polynomials

September 19th (Wed)      Conference Room VII

### 10:30–11:50

- 10 Taichiro Takagi (Nat. Defense Acad. of Japan)# Commuting time evolutions in the tropical periodic Toda lattice ..... 15
- 11 Atsuo Kuniba (Univ. of Tokyo)# Tetrahedron equation and quantum R matrices for spin representations ..... 10  
Sergey Sergeev (Univ. of Canberra)
- 12 Ryosuke Kodera (Kyoto Univ.)\* Self-extensions and prime factorizations for simple  $U_q(L\mathfrak{sl}_2)$ -modules ..... 15
- 13 Jun Murakami (Waseda Univ.)# Quantum  $6j$ -symbols for non-integral highest weight representations of  $\mathcal{U}_q(\mathfrak{sl}_2)$  at root of unity ..... 15
- 14 Motohiro Ishii (Univ. of Tsukuba)# Path model for representations of generalized Kac–Moody algebras ..... 15

### 13:30–14:30 Talk invited by Infinite Analysis Special Session

- Yoshiyuki Kimura (Osaka City Univ.)# Quiver varieties and quantum cluster 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`.

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

Smoking is not allowed in any building on the Ito Campus. You may, however, find outdoor smoking spaces.

You can take lunch in Student Cafeteria in the building of Conference Rooms, a restaurant named BIG ORRANGE, and in a Chinese restaurant TEN-TEN in Inamori Memorial Hall.

The Mathematical Society of Japan has set up a webpage

<http://mathsoc.jp/i/>

which can be accessed by cell phones during the meeting. The Organizing Committee may announce there urgent notices such as traffic information on a typhoon storm day.

### Official Party

Time: September 19th (Wed), 18:00–20:00

Venue: Inamori Center, Inamori Hall

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



## Directions

### 2012 MSJ AUTUMN MEETING

Dates : September 18th (Tue)–21st (Fri), 2012  
 Venue : Ito Campus, Kyushu University  
 Address : Motooka 744, Nishi-ku, Fukuoka  
 Contact to : Faculty of Mathematics, Kyushu Univeristy  
 Motooka 744, Nishi-ku, Fukuoka  
 Phone +81 (0) 92 802 4402  
 Fax +81 (0) 92 802 4405  
 E-mail [kyushu12sept@mathsoc.jp](mailto:kyushu12sept@mathsoc.jp)  
 During session : Phone +81 (0) 80 4060 7734  
 Fax +81 (0) 92 802 4405  
 Web Site : <http://mathsoc.jp/en/meeting/kyushu12sept/>

## Conference Rooms

	Room Number	Research Sections
Conference Room I	Center Zone Bldg. No. 2, Room 2308	Algebra
Conference Room II	Center Zone Bldg. No. 2, Room 2307	Complex Analysis, Real Analysis, Featured Invited Talks
Conference Room III	Center Zone Bldg. No. 2, Room 2306	Functional Equations
Conference Room IV	Center Zone Bldg. No. 2, Room 2305	Functional Analysis
Conference Room V	Center Zone Bldg. No. 2, Room 2304	Statistics and Probability
Conference Room VI	Center Zone Bldg. No. 2, Room 2407	Applied Mathematics, Featured Invited Talks
Conference Room VII	Center Zone Bldg. No. 2, Room 2406	Infinite Analysis, Foundation of Mathematics and His- tory of Mathematics, Featured Invited Talk
Conference Room VIII	Center Zone Bldg. No. 2, Room 2404	Geometry
Conference Room IX	Center Zone Bldg. No. 2, Room 2403	Topology, Featured Invited Talks
Plenary Talks	Center Zone Bldg. No. 2, Room 2403 + 2403	
Open Lectures for Citizens	Faculty of Mathematics Bldg., Large Lecture Room No. 3	

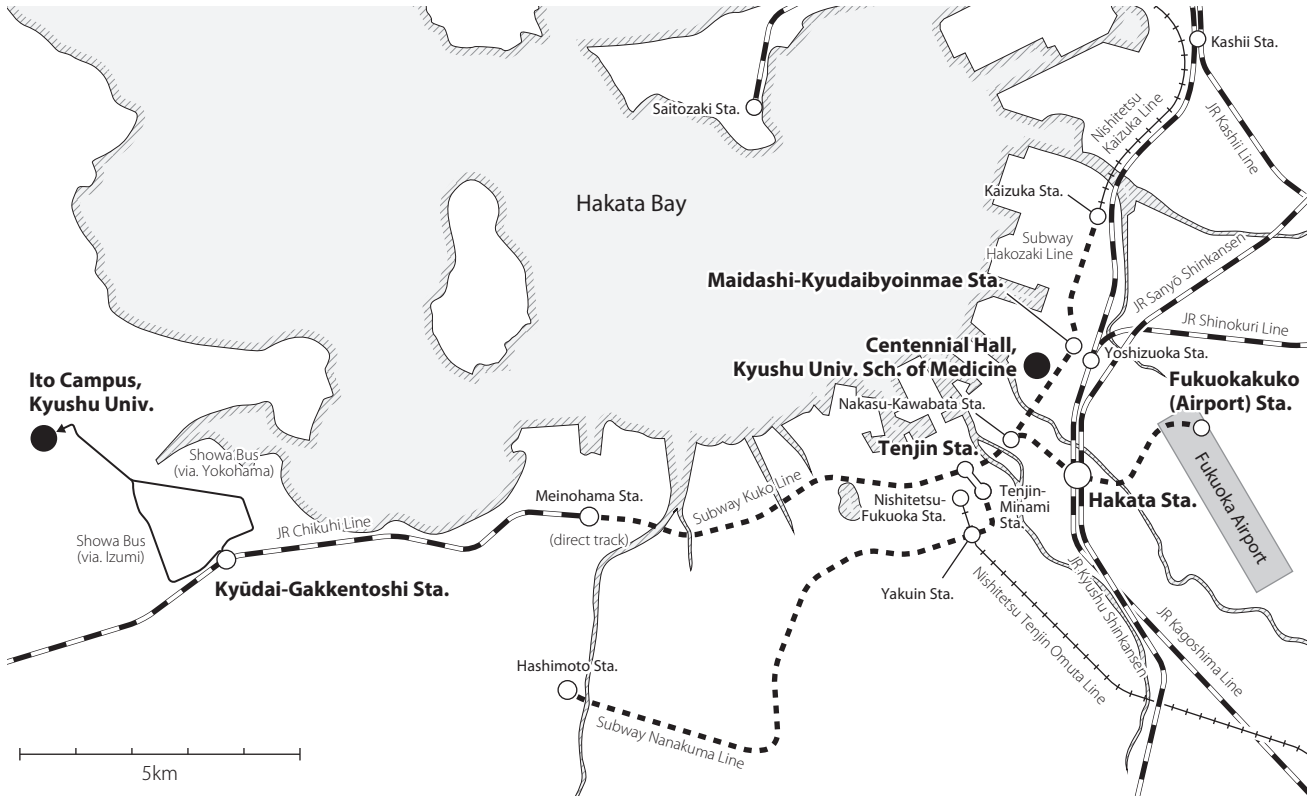
All the conference rooms are in the Center Zone Building No. 2 on the 3rd and 4th floors. Moreover below is the list of rooms with important function:

## Other Rooms

Extended Abstracts and Membership	Center Zone Bldg. No. 2, Room 2211
Discussion Rooms	Center Zone Bldg. No. 2, Room 2212, 2310, 2409
Book Display and Sale	Center Zone Bldg. No. 2, Room 2215, 2216
Executive Committee, MSJ President	Center Zone Bldg. No. 2, Room 2214
Official Party	Inamori Center, Inamori Hall

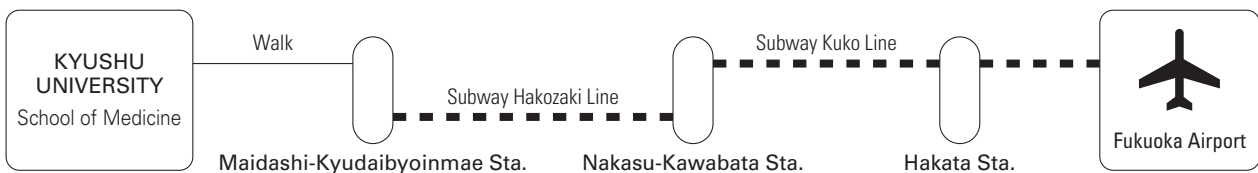
## Access Maps

### Hakata Area Map



### Transport to the Venues

Access to Centennial Hall, School of Medicine (MSJ-KMS Joint Meeting)



From Fukuoka Airport

- Take Subway Kuko Line at Fukuoka Airport (K13) and get off Nakasu-Kawabata (K09) to transfer to Subway Hakozaeki Line. Take a train bound for Kaizuka at Nakasu-Kawabata (H01) of Hakozaeki Line and get off at Maidashi-Kyudaibyoimae Station (H04). The Centennial Hall is around 8 minutes on foot from Maidashi-Kyudaibyoimae Station.

From JR Hakata Station

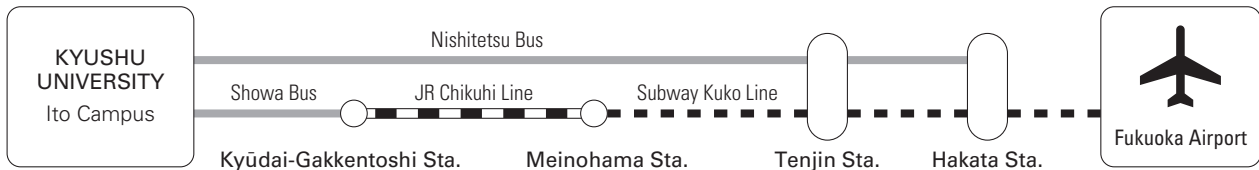
- Take Subway Kuko Line at Hakata Station (K11) and get off Nakasu-Kawabata (K09) to transfer to Subway Hakozaeki Line. Take a train bound for Kaizuka at Nakasu-Kawabata (H01) of Hakozaeki Line and get off at Maidashi-Kyudaibyoimae Station (H04). The Centennial Hall is around 8 minutes on foot from Maidashi-Kyudaibyoimae Station.

### From Tenjin Area

- Take a train bound for Kaizuka at Tenjin Station (K08) of Subway Kuko Line and get off at Maidashi-Kyudaibyoinmae Station (H04). The Centennial Hall is around 8 minutes on foot from Maidashi-Kyudaibyoinmae Station.

Refer to the page <http://www.med.kyushu-u.ac.jp/100ko-do/english/directions/index.html> for more detailed information.

### Access to Ito Campus of Kyushu University (MSJ Autumn Meeting 2012)



### From Fukuoka Airport

- Take Subway Kuko Line at Fukuoka Airport (K13). The trains are bound for Meinohama Station or Karatsu. If the train you take is for Meinohama, transfer to JR Chikuhui Line at Meinohama and get off at Kyudaigakkentoshi Station. If it is for Karatsu, go over to Kyudaigakkentoshi Station. At Kyudaigakkentoshi Station, take a Showa Bus bound for Ito Campus. The nearest stop to the conference rooms is BIG ORANGE.

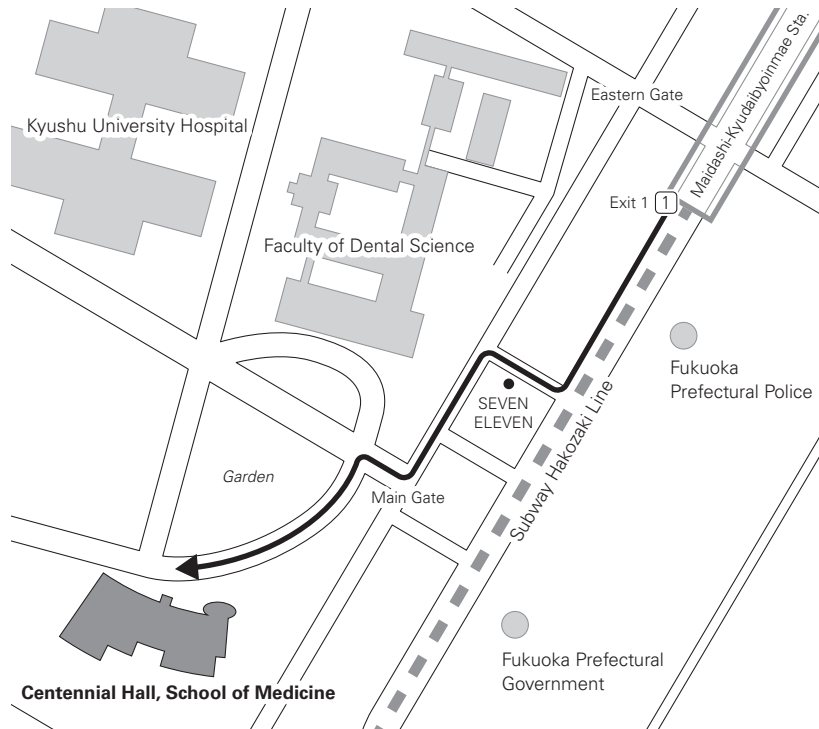
### From JR Hakata Station

- Take Subway Kuko Line at City Subway Station “Hakata” (K11) as you start from the Airport.
- Take a Nishitetsu Bus bound for Ito Campus at Bus Terminal A.

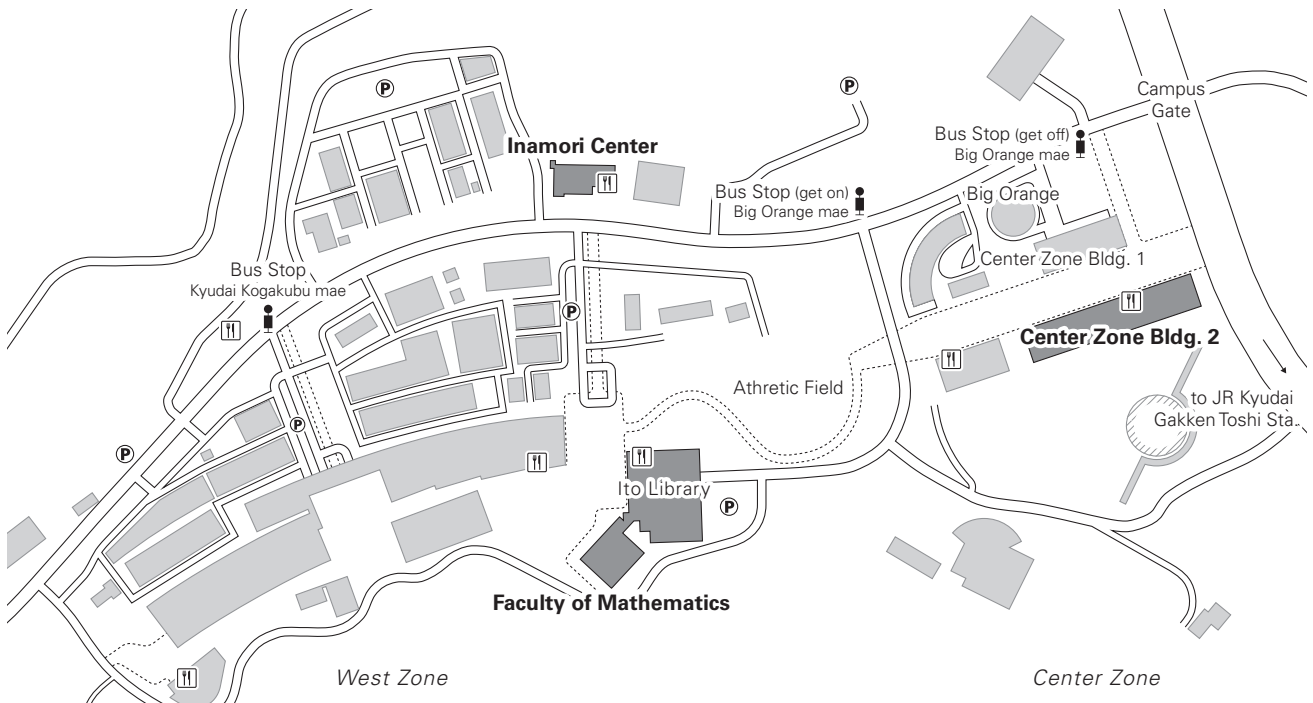
### From Tenjin Area

- Take Subway Kuko Line at City Subway Station “Tenjin” (K08) as you start from the Airport.
- Take a Nishitetsu Bus bound for Ito Campus at Bus Terminals Tenjin(2B) or Tenjin-Kita(3).

### Map around Centennial Hall, School of Medicine

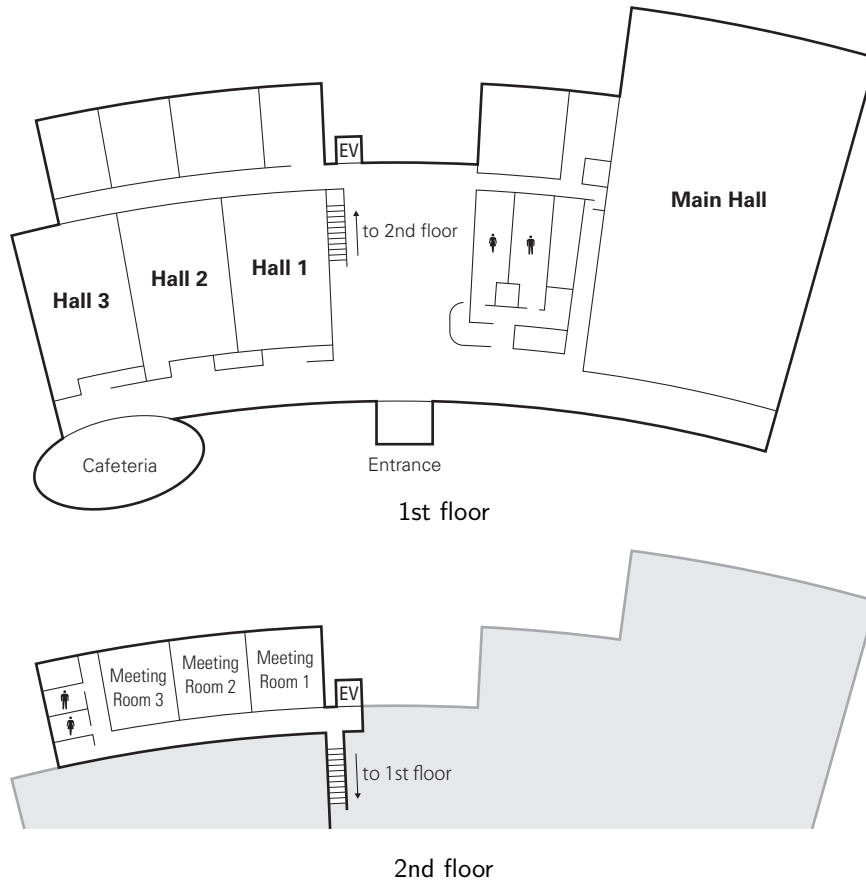


### Map of Ito Campus

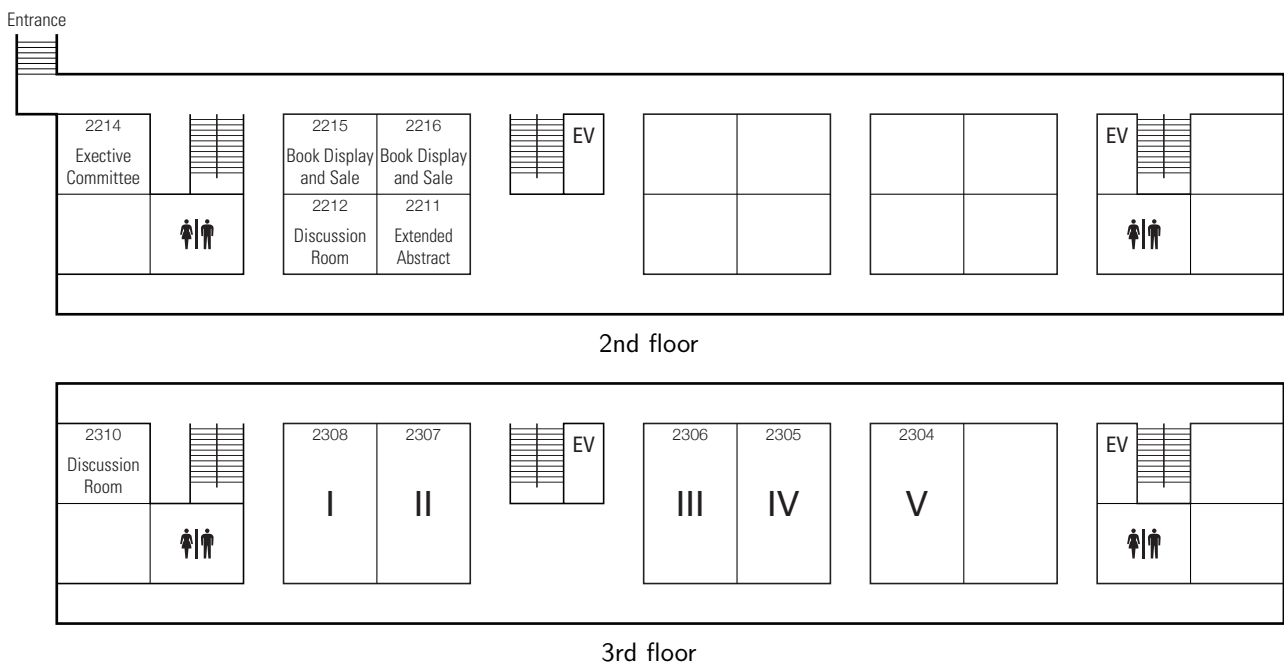


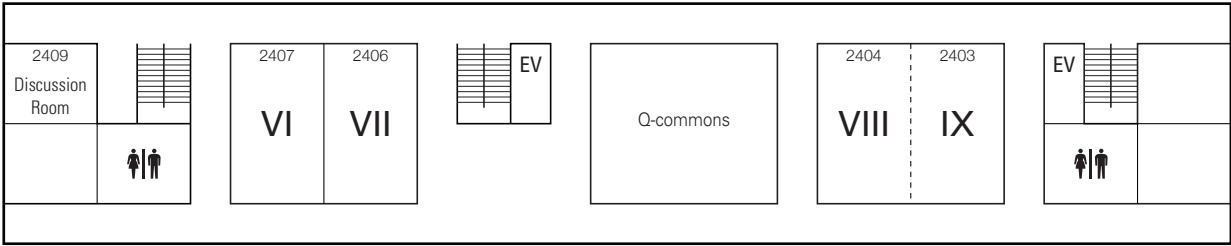
## Floor Maps

### Centennial Hall, School of Medicine (MSJ-KMS Joint Meeting)



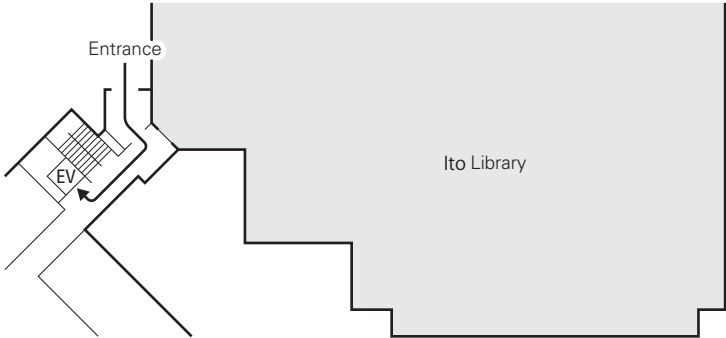
### Ito Campus, Center No. 2 Building (MSJ Autumn Meeting)



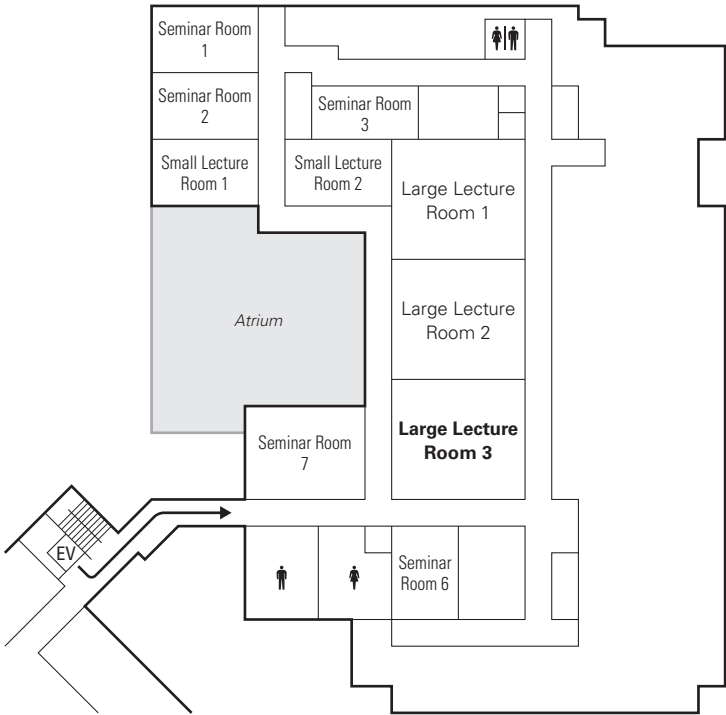


4th floor

Ito Campus, Faculty of Mathematics Building (Open Lectures for Citizens)



1st floor



3rd floor