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A Message from the Dean



Takeshi SAITO Dean of the Graduate School of Mathematical Sciences The University of Tokyo

The Graduate School of Mathematical Sciences was established in 1992 in order to foster a culture of mathematics and mathematical sciences from an international standpoint, as well as to contribute to the overall development of society. It is a unified graduate school for mathematics and related areas and the Graduate School of Mathematical Sciences is in full charge of mathematics education at the University of Tokyo.

We accept each year 53 graduate students for the Master program and 32 for the Ph.D. program. The courses of the Graduate School cover all fields of mathematical sciences including algebra, geometry, analysis and applied mathematics. The courses and seminars are given in English when there are students who do not speak Japanese. Besides these courses, we invite many researchers from outside of the Graduate School of Mathematical Sciences to teach application-oriented subjects including economics, finance and information technology. We have courses to train students in actuarial and statistical sciences, which are directly connected to real world experience. Students conduct research in an independent and fulfilling environment, supported by their thesis advisors. They study as independent scholars with free and ample access to various facilities. For example, the library of the Graduate School of Mathematical Sciences is one of the best libraries in mathematics in the world. The graduates of the School work at universities and colleges, research institutes, government ministries, finance and insurance institutions, information technology companies, and so forth. They actually contribute to the development of society in various fields. The Graduate School grew out of two independent departments of mathematics that existed within the University of Tokyo: one in the Faculty of Science on the Hongo campus and the other in the College of Arts and Sciences on the Komaba Campus. All the faculty members of these two departments joined in the new graduated school in 1992. We have our building of the Graduate School of Mathematical Sciences at the southeast edge of the Komaba Campus since 1995.

Presently, the number of tenured professors and associate professors of the Graduate School of Mathematical Sciences is about 56. Besides tenured professors and associate professors, we have visiting professors and overseas visiting professors. Members of the Graduate School conduct leading-edge research in all fields of mathematical sciences, from algebra, geometry, and analysis to applied mathematics. The long tradition of advanced scholarly research since before the merger of the two departments of mathematics helps the Graduate School of Mathematical Sciences function as an international research center. We host over 150 researchers from around the world each year and there are many overseas exchange students. Thus the Graduate School of Mathematical Sciences plays a role of an international hub in mathematics. In 2005, we established the Tambara Institute of Mathematical Sciences in Gunma Prefecture, a mountain villa devoted to

seminars and summer schools with a full hostel service, as a venue for international researchers to meet and interact.

Even in these 20 years, we experienced a new stage in the evolution of mathematics. There has been tremendous progress in areas where mathematics and other branches of sciences collude, and mathematical knowledge has become the backbone of various sciences like physics, biology, chemistry, information theory, engineering, economics, etc. These developments show the importance of collaborations with other branches of sciences as well as with the society.

We are intimately collaborating with the Kavli Institute for the Physics and Mathematics of the Universe (Kavli IPMU) which is the first institute in Todai Institutes for Advanced Study (TODIAS). It was founded in 2007 by the World Premier International Research Center Initiative (WPI) of the Japanese government. It received a very high international evaluation and it became a member of the Kavli institutes in 2012. At present, 6 faculty members at Kavli IPMU have joint appointments with the Graduate School of Mathematical Sciences.

Within the University of Tokyo, the department of mathematics has a long history. It was founded in 1881 and it has always managed to keep its long tradition of sustaining a high academic level. It has maintained a rich library collection, a common research room, and has succeeded in sending graduates to fulfill a wide variety of roles in society. In keeping with these fine traditions, the Graduate School of Mathematical Sciences aims at fulfilling its social duty by offering excellent education and by producing outstanding research results. All members of the Graduate School of Mathematical Sciences will make every effort to meet these exciting challenges.





Brief History

April 1877

The University of Tokyo is established, and the Department of Mathematics, Physics and Astronomy is placed in the Faculty of Science.

September 1881

The Department of Mathematics, Physics and Astronomy is divided into three separate departments.

May 1949

The College of Arts and Sciences is added to the University of Tokyo, in which a separate Department of Mathematics is established.

March 1953

The present-day Graduate School is formed, in which the members of the Department of Mathematics in the Faculty of Science and the Department of Mathematics in the College of Arts and Sciences begin educating graduate students.

April 1962

The Department of Pure and Applied Sciences is established in the College of Arts and Sciences.

April 1992

A new Division of Mathematical Sciences of the Graduate School is formed, consisting of a single Department of Mathematical Sciences combining all the mathematics faculty in the University.

August 1995

The first phase of the construction of a new building for the Department of Mathematical Sciences is completed.

March 1998

The second phase of the construction of the new Mathematical Sciences building is completed.

April 2004

All National Universities were transformed into National University Corporations, including The University of Tokyo.

April 2013

The "Interdisciplinary Center for Mathematical Sciences" was established at the Graduate School of Mathematical Sciences.







Professors			
Name	Field of Interest	Keywords	
AIDA, Shigeki	Probability Theory	stochastic analysis, Malliavin calculus, rough path	
ARAI, Toshiyasu	Mathematical Logic	proof theory, ordinal analysis	
FURUTA, Mikio	Low Dimensional Topology, Global Analysis	4-dimensional manifolds, gauge theory	
HIRACHI, Kengo	Differential Geometry, Several Complex Variables	parabolic geometries, CR geometry, conformal geometry, Bergman kernel, strictly pseudoconvex domains	
INABA, Hisashi	Mathematical Population Dynamics, Mathematical Biology, Mathematical Demography	structured population dynamics, mathematical models for demography and epidemiology	
ISHIGE, Kazuhiro	Partial Differential Equations	asymptotic analysis and geometric analysis for solutions to parabolic equations	
IYAMA, Osamu	Algebra, Ring Theory, Representation Theory	order, quiver, derived category, dg category, cluster algebra, Cohen-Macaulay representation, non-commutative resolution	
KAWAHIGASHI, Yasuyuki	Operator Algebras, Mathematical Physics	von Neumann algebras, subfactors, conformal field theory, tensor categories	
KAWAZUMI, Nariya	Topology, Riemann Surfaces	moduli spaces of Riemann surfaces, mapping class groups, Goldman-Turaev Lie bialgebras	
KIDA,Yoshikata	Discrete Groups, Ergodic Theory	orbit equivalence relations, measured groupoids, amenability, and rigidity	
KOBAYASHI, Toshiyuki	Lie Theory, Representation Theory, Geometric Analysis	unitary representations, discontinuous grou homogeneous spaces, visible actions on complex manifolds, minimal representation branching laws, semisimple Lie groups, algebraic analysis	
MASUDA, Hiroki	Theoretical Statistics, Probability Theory	asymptotic statistics, Lévy process, mixed- effects modeling	
MIYAMOTO, Yasuhito	Nonlinear Partial Differential Equations	nonlinear parabolic and elliptic partial differential equations, bifurcation analysis, qualitative studies of solutions	
OGATA, Yoshiko	Mathematical Physics	quantum statistical physics	
OGUISO, Keiji	Algebraic Geometry	Calabi-Yau manifolds in wider sense	
SAITO, Norikazu	Numerical Analysis, Applied Analysis	finite element method, finite difference method, nonlinear partial differential equations	
SAITO, Shuji	Arithmetic Geometry, Algebraic Geometry, Algebraic K-thoery	higher dimensional class field theory, algebraic cycles, motives, motivic cohomology	
SAITO, Takeshi	Arithmetic Geometry	étale cohomology, ramification, local fields	
SHIHO, Atsushi	Arithmetic Geometry	crystals, p-adic cohomology, rigid geometry	
TAKAGI, Shunsuke	Algebraic Geometry, Commutative Algebra	Frobenius splitting, F-singularities, singularities of the minimal model program, local cohomology	
TAKAYAMA, Shigeharu	Complex Geometry	adjoint bundles, singular Hermitian metric, multiplier ideal sheaves	
TSUJI, Takeshi	Number Theory, Arithmetic Geometry	p-adic Hodge theory, p-adic representations, log algebraic geometry	
WILLOX, Ralph	Mathematical Physics, Integrable Systems	integrable discrete systems, integrability detectors, soliton cellular automata, discretization techniques	

Name	Field of Interest	Keywords	
YAMAMOTO, Masahiro	O, Masahiro Inverse Problems, Industrial Mathematics uniqueness and condition problems, regularization r approach, mathematical s in industry, collaboration		
YOSHIDA, Nakahiro	Theoretical Statistics, Probability Theory	limit theorems for semimartingales, asymptotic expansion, Malliavin calculus, statistics for stochastic differential equations asymptotic decision theory, higher-order asymptotic theory, nonsynchronous estimation, statistical computing	

Associate Professors

Name	Field of Interest	Keywords	
ABE, Noriyuki	Representation Theory	reductive groups, modular representations	
ASUKE, Taro	Differential Topology	foliations, geometric structures, characteristic classes	
GONGYO, Yoshinori	Algebraic Geometry, Complex Geometry	minimal model program, canonical bundles, birational maps, adjunction formulas	
HASEGAWA, Ryu	Theoretical Computer Science	lambda calculus, type theory, category theory, proof theory	
HAYASHI, Shuhei	Dynamical Systems	hyperbolicity, homoclinic bifurcations, ergodic theory	
IMAI, Naoki	Arithmetic Geometry	Galois representations, moduli spaces	
ITO, Kenichi	Partial Differential Equations	Schrödinger equations, scattering theory, spectral theory	
IWAKI, Kohei	Ordinary Differential Equations Special Functions, Mathematical Physics	exact WKB analysis, Painleve equations, topological recursion	
KASHIWABARA, Takahito	Partial Differential Equations, Numerical Analysis	Navier-Stokes equations, finite element method, non-standard boundary conditions	
KATO, Akishi	Mathematical Physics	conformal field theory, string theory, integrable systems	
KELLY, Shane	Algebraic Geometry	motivic homotopy theory, algebraic K-theory, representation theory, class field theory, birational geometry.	
KITAYAMA, Takahiro	Topology	3-dimensional manifolds, character varieties torsion invariants	
KOIKE, Yuta	Mathematical Statistics, Probability Theory	 asymptotic statistics, financial econometrics, high-dimensional statistics, high frequency data, statistics for stochastic processes 	
MATSUI, Chihiro	Mathematical Physics, Statistical Mechanics	quantum solvable models, solvable stochastic processes	
MATUMOTO, Hisayosi	Representation Theory	Whittaker vectors, generalized Verma modules, unitary degenerate series	
MATSUO, Atsushi	Groups, Lie Algebras and Integrable Systems	infinite-dimensional Lie algebras, vertex operators, monstrou moonshine, conformal field theories, quantum groups	
MIEDA, Yoichi	Number Theory	Shimura varieties, Langlands correspondence, rigid geometry	
MITAKE, Hiroyoshi	Partial Differential Equation	viscosity solution approach to asymptotic problems in front propagation, dynamical system and related topics	

Name	Field of Interest	Keywords		
OSHIMA, Yoshiki	Representation Theory	unitary representations, semisimple Lie groups branching law, harmonic analysis, coadjoint orbits		
SAKAI, Hidetaka	Special Functions, Integrable Systems, Ordinary Differential Equations	Painlevé equations, difference equations		
SAKASAI, Takuya	Тороlоду	mapping class groups, moduli spaces of Riemann surfaces, 3-dimensional manifolds		
SASADA, Makiko	Probability Theory	hydrodynamic limit, interacting particle systems		
SEKIGUCHI, Hideko	Non-Commutative Harmonic Analysis	semisimple Lie groups, unitary representations, Penrose transforms		
SHIMOMURA, Akihiro	Analysis	functional analysis, evolution equations, functional equations		
SHIRAISHI, Jun' ichi	Solvable Lattice Models	elliptic quantum groups		
TAKADA, Ryo	Partial Differential Equations	Euler equations, Navier-Stokes equations, geophysical flows		
TANAKA, Hiromu	Algebraic Geometry	minimal model program, positive characteristic		
TERADA, Itaru	Algebraic Combinatorics	Young diagrams, Robinson-Schensted correspondences, group representations		
UEDA, Kazushi	Geometry	mirror symmetry		
YOSHINO, Taro	Geometry of Lie Groups and Lie Algebras	Clifford-Klein forms, discontinuous groups proper action, topological blow-up		

Assistant Professors			
Name	Field of Interest	Keywords	
ASOU, Kazuhiko	Mathematics Education	e-Learning, video-on-demand, instructional design	
BAO, Yuanyuan	Low Dimensional Topology	knots, trivalent graphs, Heegaard Floer homology, gl(1 1)-quantum invariant	
GOCHO, Toru	Differential Geometry	topological field theory, symplectic manifolds	
KIYONO, Kazuhiko	Тороlоду	group actions, gauge theory, Atiyah-Singer index theorem	
KONNO, Hokuto	Geometry and Topology	4-dimensional manifolds, group of diffeomorphisms	
MASE, Takafumi	Integrable Systems, Discrete Dynamical Systems	discrete integrable systems, integrability criteria for nonlinear discrete dynamical systems	
NAKAMURA, Yusuke	Algebraic Geometry	birational geometry, minimal model theory, singularity theory, birational geometry in positive characteristic	
TANAKA, Yuichiro	Representation Theory	Lie groups, slice for group action, invariant functions	
Project Professor			
Name	Field of Interest	Keywords	
ISHII, Shihoko	Algebraic Geometry, Singularities	jet schemes, arc spaces, log canonical singularities, minimal log discrepancy	
KATSURA, Toshiyuki	Algebraic Geometry	algebraic varieties, positive characteristic, Abelian variety, Calabi-Yau manifolds, K3 surfaces, Enriques surface	

Name	Field of Interest	Keywords	
KOHNO, Toshitake	Topology, Mathematical Physics	braid groups, quantum groups, conformal field theory	
MURATA, Noboru	Machine Learning	signal processing, pattern recognition, statistical learning theory, information geometry	
OHTA, Yoshihiro	Applied Mathematics	mathematical biology, cellular automata	
TAKEUCHI, Masahiro	Biostatistics	mathematical biostatistics, enrichment analysis, translational statistics, longitudina analysis, Cox regression	
YANAGIDA, Eiji	Applied Analysis	reaction-dffusion systems, propagation phenomena, dynamic singularities	

Kavli Institute for the Physics and Mathematics of the Universe (KAVLI IPMU) Professors

Name	Field of Interest	Keywords	
ITO, Yukari	Algebraic Geometry	resolution of singularities and the McKay correspondence	
KAPRANOV, Mikhail	Algebra, Algebraic Geometry and Category Theory	operads, moduli spaces, secondary polytopes, algebro-geometric model spaces of paths and loops,Hall algebras, derived geometry	
MILANOV, Todor	Representation Theory, Algebraic Geometry	quantum cohomology, Gromov-Witten invariants, mirror symmetry, period integrals,Kac-Moody Lie algebras, vertex algebras, integrable systems	
NAKAJIMA, Hiraku	Geometry and Representation Theory	geometric representation theory, quiver varieties, gauge theory, moduli spaces	
TODA, Yukinobu	Algebraic Geometry	derived category of coherent sheaves, Bridgeland stability conditions, Donaldson- Thomas invariants	
YAMAZAKI, Masahito	High Energy Theory, Mathematical Physics, Integrable Models	string theory, quantum field theory, gauge theory, supersymmetry	

Associate Professors

Name	Field of Interest	Keywords
ABE, Tomoyuki	Arithmetic Geometry	p-adic cohomology, arithmetic D-modules, ramification theory

Social Cooperation Program Mathematical Science for Refrigerant Thermal Tluids Project Professor

Name	Field of Interest	Keywords	
GIGA, Yoshikazu	Nonlinear Analysis	Navier-Stokes equations, calculus of variation, viscosity solutions, level set method, nonlinear parabolic partial differntial equations, crystal growth	
Mathematical Innovation in Data Science			

Mathematical Innovation in Data Science Project Professor

Name	Field of Interest	Keywords
NAKAGAWA, Junichi	Industrial Mathematics	data science

Graduate School and students from abroad

Graduate School of Mathematical Sciences at The University of Tokyo has about 200 graduate students. The Graduate School of Mathematical Sciences accepts well-qualified students from around world. Approximately 12% of our graduate student body is international. Since the reorganization of our department in 1992, 116 foreign students have obtained Master's Degree, and 82 PhD degree so far, as in the table below.

The education of mathematicians for academia and society of the future is at the heart of our mission. Our wide range of courses at graduate level offers a rigorous training in mathematics. Traditionally our Graduate Program encourages students to start original research already from Master's Program.

Our department has a long and rich history in The University of Tokyo. Department of Mathematics has become an independent department since 1881. The present organization is Graduate School of Mathematical Sciences, which was reorganized in 1992 as an expanded integration of mathematics departments.

Some of pioneering mathematicians from our department include T. Takagi (one of the five committee members of the first Fields Medals, 1936), K. Kodaira (the fifth recipient of the Fields Medal, 1954) and K. Ito (the first recipient of the Gauss prize, 2006). Our graduate school appoints about 55 faculty advancing mathematical knowledge by novel and insightful research that is world-leading.

Nationality / Dogion	Enrollment (as	of May 1, 2022)	Degrees Conferred	d (1994.3~2022.3)
Nationality / Region	Master's Course	Ph.D. Course	Master's Degree	Ph.D.
Australia	0	0	1	1
Bangladesh	0	0	1	1
Brazil	0	1	2	1
Cambodia	0	0	1	0
Chile	0	0	1	0
China	8	11	77	55
Denmark	0	0	0	2
France	0	0	1	1
Germany	0	0	3	0
Greece	0	0	0	1
Israel	0	0	1	0
Mongolia	0	0	5	4
Philippines	0	0	0	1
Poland	0	0	1	0
Republic of Korea	0	2	7	4
Russia	0	0	0	1
Spain	0	1	2	1
Taiwan	0	0	3	3
Thailand	0	0	3	1
Turkey	0	0	1	1
Ukraine	0	0	1	1
United Kingdo	0	0	1	1
USA	0	0	2	0
Uzbekistan	0	0	1	0
Vietnam	0	0	1	2
Morocco	1	0	0	0
Total	9	15	116	82

Number of Students from abroad

Interdisciplinary Center for Mathematical Sciences (ICMS)

The Interdisciplinary Center for Mathematical Sciences (ICMS) was established in April 2013 with the aim of activating and promoting interdisciplinary mathematics research and education in collaboration with all industries and other scientific fields. It was officially recognized as an affiliated institute of the Graduate School of Mathematical Sciences in April 2015. ICMS has been established for the steady development of partnerships between Mathematical Sciences and the various fields of science studies and industries and for the promotion of interdisciplinary studies, as well as to foster human resources that can carry out interdisciplinary research using mathematics.

In addition to managing its Scientific Cooperation Section and the Industrial Cooperation Section, ICMS holds social partnership chairs sponsored by Nippon Steel Corporation and Daikin Industries, Ltd. These chairs are operated and managed by two project professors, one project associate professor, one project assistant professor, and two professors and one associate professor who work concurrently for the Graduate School of Mathematical Sciences.

With the aim of mathematically solving industry issues and expanding mathematics-based collaborative research or cooperation with industries, ICMS cooperates in implementing the "Study Group Workshop for Solving Industrial Problems" and "Practical Research in Mathematical Sciences and Society." Through these activities, graduate students and young postdoctoral researchers get involved in industrial and interdisciplinary collaboration, thereby training them. Through its workshops, ICMS seeks new issues that should be addressed by the field of Mathematical Sciences in industries and various sciences. It posts its search process on its website for the sharing of information. In addition, ICMS currently supports integrated master's and doctoral graduate programs, the World-leading Innovative Graduate Study for Frontiers of Mathematical Sciences and Physics (WINGS-FMSP), and the Forefront Physics and Mathematics Program (FoPM). In the past, the Center has provided support for the Leading Graduate Course for Frontiers of Mathematical Sciences of Biology and Mathematics of Dynamical Cell Processes, the Kavli Institute for Biology and Mathematics of Dynamical Cell Processes, the Kavli Institute for the Physics and Mathematics Platform (AIMaP) and other research programs and institutes, and many international scientific meetings.

With its members, who belong to the Department of Basic Mathematical Education of the Mathematics and Informatics Center (MI-Center) at the University of Tokyo, ICMS also contributes to general education through the systematization of undergraduate graduation.

In December 2014, the Career Support Office was created. Because various fields including industries are emphasizing methods based on the abstractness or generality of mathematics, students learning mathematics have more chances to work actively in the world of academia and other fields. Given that background, ICMS is promoting support for career building in a wide range of fields. In fact, ICMS concrete actions include job counseling and internships of various types, arrangements for joint studies with companies, the holding of scientific meetings for building career paths, and visits to research institutes. In collaboration with other sections for campus career support, the Center is promoting these actions. In particular, from 2019 to 2021, ICMS served as a venue for the "Interdisciplinary and Interindustry Research Exchange Meeting for Young Researchers in Mathematical Sciences", which is held jointly by the Mathematical Society of Japan, the Japan Society for Industrial and Applied Mathematics, and the Japanese Federation of Statistical Science Associations.



Analysis of video data of physical movements such as dance and establishment of a quantitative evaluation method for the artistry of performance based on such data



Panel discussions in ICMS workshops are recorded in graphics and are posted on its website.



Vascular network organization using an ellipsoid endothelial cell model describing angiogenesis

World-leading INnovative Graduate Study Program Frontiers of Mathematical Sciences and Physics

Program for Leading Graduate Schools

1. About WINGS-FMSP

WINGS

The University of Tokyo conducts the World-leading INnovative Graduate Study Program (WINGS) that is Doctoral Programs cooperated by several graduate schools and institutes in order to foster doctoral personnel who contribute to human society with high research power and expertise. The Graduate School of Mathematical Sciences conducts the Frontiers of Mathematical Sciences and Physics (WINGS-FMSP).

The key to innovation in sciences and society is the construction and renewal of the underlying mathematical theory. We aim to foster the next generation of mathematical science leaders who can create research areas that are centered on mathematics and spread in various sciences and deepen and create novel mathematical theories.

To join the WINGS-FMSP program, one must be a student at the University of Tokyo enrolled in the Master Course of one of the following eight Graduate Schools: Mathematical Sciences, Science, Economics, Frontier Sciences, Engineering, Information Science and Technology, Medicine, and Arts and Sciences.

2. Features of the WINGS-FMSP program

World-leading Innovative

Graduate Study for Frontiers of Mathematical Sciences and Physics

(1) The plural supervision system

Each student in this program is assigned a secondary supervisor, in addition to their main supervisor. Thanks to this system WINGS-FMSP students are able to get advice about their research from wider viewpoints.

(2) Financial support

Master's course: WINGS-FMSP course students may be appointed as TAKUETSU (Excellence) Research Assistants (TRAs) and be paid 120,000/150,000 yen per month as a salary in their master's program. The amount of a TRA salary for the first year is 120,000 yen per month and we decide by review in March whether the amount is increased to 150,000 yen per month from April.

Doctor's course: WINGS-FMSP course students may receive a monthly grant of 200,000 yen as a scholarship in their doctor's program. When a WINGS-FMSP student is accepted as a JSPS Research Fellow for Young Scientists, you are required to stay in WINGS-FMSP, while not receiving this scholarship.

(3) Qualifying Examination

A Qualifying Examination (QE) will be conducted intended for current WINGS-FMSP M2 students to select those permitted to remain in the program as Doctoral students. M2 students will submit their master thesis in January in the second year of the Master course. Further, a part of QE, we will work on a poster-presentation according to the following guidelines.

- Poster-presentation and the Q&A session are all done online.
- M2 students will be asked to submit 4 pages slides (the poster). We request that the contribution to the field (for specialists) and the research's motivation (for non-specialists) should be explained.
- WINGS-FMSP instructors, faculty members, and all course students can read posters and ask questions within the period. Specifically, we will have the Q&A session using a chat app. M2 students must answer all questions.
- At the end of the period, the course students will revise the poster and submit the final version based on the Q&A session results.
- The record of discussions and the final version of the poster will be evaluated.
- The final version of the poster will be published in the WINGS-FMSP annual report.

(4) Required activities for the Doctoral years

To complete the WINGS-FMSP course, students must take part in one of the two activities listed below:

- Research at institutions abroad or a corporate internship
- Frontiers of Mathematical Sciences and Society III (coursework)

3. Coursework and activities beyond the boundaries of research areas

For acquiring depth and width in the synergy between mathematics and various sciences, we need to have a global viewpoint, beyond the boundaries of research areas. From this point of view, in the WINGS-FMSP program we organize course works "Frontiers of Mathematical Sciences and Physics" and "Frontiers of Mathematical Sciences and Society". We also organize seminars and tutorial workshops, removing traditional boundaries between disciplines. We set up various occasions such as "study groups (SG)", where students learn about problems in industry and work together on these problems



The 9th East Asian School of Knots and Related Topics, Jan. 14 - Jan. 17, 2013



Tokyo-Berkeley Summer School "Geometry and Mathematical Physics", July 21-July 31, 2015



Discussions with visitors stimulate young researchers.

Lectures and Seminars

Lectures

Algebra	Introduction to Algebra, Algebraic Geometry, Number Theory, Automorphic Functions, Analytic Number Theory, Applied Algebra
Global Geometry	Introduction to Global Geometry, Differential Geometry, Topology, Global Analysis, Complex Manifolds, Dynamical Systems
Basic Analysis	Introduction to Basic Analysis, Linear Differential Equations, Spectral Theory, Algebraic Analysis, Stochastic Analysis, Functional Analysis
Mathematical Structures	Introduction to Mathematical Structures, Algebraic Structures, Group Structures, Lie Algebras, Infinite Dimensional Structures, Representation Theory
Mathematical Analysis	Introduction to Mathematical Analysis, Nonlinear Analysis, Stochastic Processes, Numerical Analysis, Mathematical Statistics, Mathematical Control Theory
Discrete Mathematics	Introduction to Discrete Mathematics, Mathematical Logic, Foundations of Mathematics, Information Theory, Computational Mathematics, Combinatorics
Others	Special Lectures on Mathematical Sciences

Seminars

Master's Program:

Interdisciplinary Seminar, Basic Seminar, Advanced Seminar, Multi-Disciplinary Seminar

Ph.D. Program:

Ph.D. Seminar on Mathematical Sciences, Special Advanced Seminar

Degrees

Master of Mathematical Sciences

Ph.D. (Mathematical Sciences)



Facilities !

Library

 The present collection includes: about 160,000 volumes and 1,700 periodicals.
 The library is used by a large number mathematicians from all over the world.

International Exchange

Foreign visitors between April 2017-March 2020
 Long-term (more than one month) 16 visitors
 Short-term (less than one month) 314 visitors

Number of Students (per year)

- Undergraduate students : 45
- Master's program : 53 (with at least 6 foreign students)
- Ph.D. program : 32 (with at least 3 foreign students)

Publications

- Journal of Mathematical Sciences
- Preprint series
- Lecture Notes in Mathematical Sciences
- Annual Report







Seminars for Researchers

The Departmental Colloquium is held once every month. It had a long history as the "Friday Colloquium" before the formation of the new department. Speakers include distinguished experts in various areas of mathematical sciences as well as members of the department. The talks are expected to be accessible to non-specialists in the field and students are encouraged to attend to broaden their mathematical background.

In addition, the following research seminars are organized by the staff of the department according to their specialties. Most of them are held on a weekly basis and last for an hour or two. They provide opportunities for mathematicians in the Tokyo area to meet and talk face to face. Currently these include the seminars listed below.

- Algebraic Analysis
- Algebraic Geometry
- Analysis
- Applied Analysis
- Applied Mathematics
- Arithmetic of Automorphic Forms
- Classical Analysis
- Demography and Mathematical Biology
- Discrete mathematical modelling seminar
- Functional Analysis
- Geometric Complex Analysis
- Geometry
- Harmonic Analysis
- Integrable Systems
- •Kavil IPMU Komaba Seminar
- •Lie Groups and Representation Theory
- Mathematical Finance
- Mathematical Past of Asia
- Mathematical sciences and society
- Mathematics for Various Disciplines
- •Number Theory
- Numerical Analysis
- Operator Algebra
- PDE Real Analysis
- Probability
- Probability and Statistics
- Real and Harmonic Analysis

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FMSP Lectures



Colloguium



Seminar on Geometric Complex Analysis



Common Room

Access

Komaba Campus

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(from overseas: +81-3-5465-7001)Fax:03-5465-7011
(from overseas: +81-3-5465-7011)Location:Mathematical Sciences Building
2 min. walk from Komaba-todaimae Station

(Keio Inokashira Line)









Graduate School of Mathematical Sciences The University of Tokyo

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