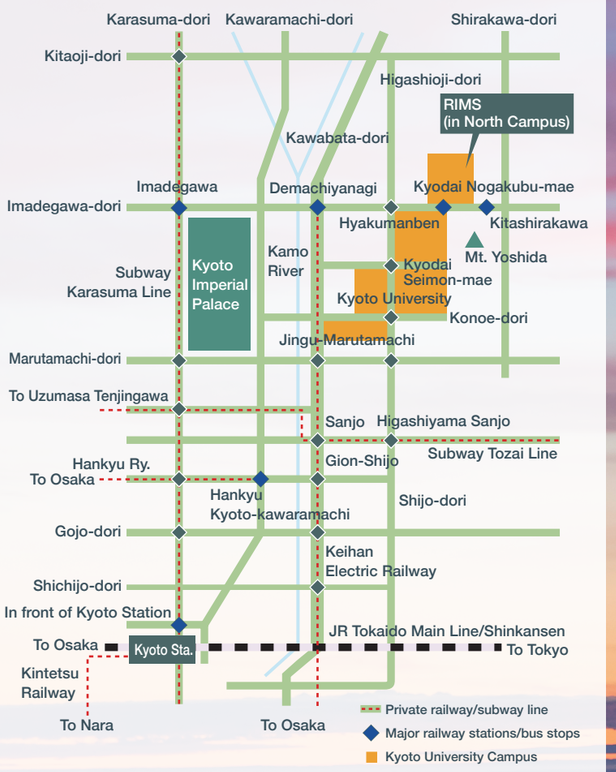


Access from Major Railway Stations and Bus Stops

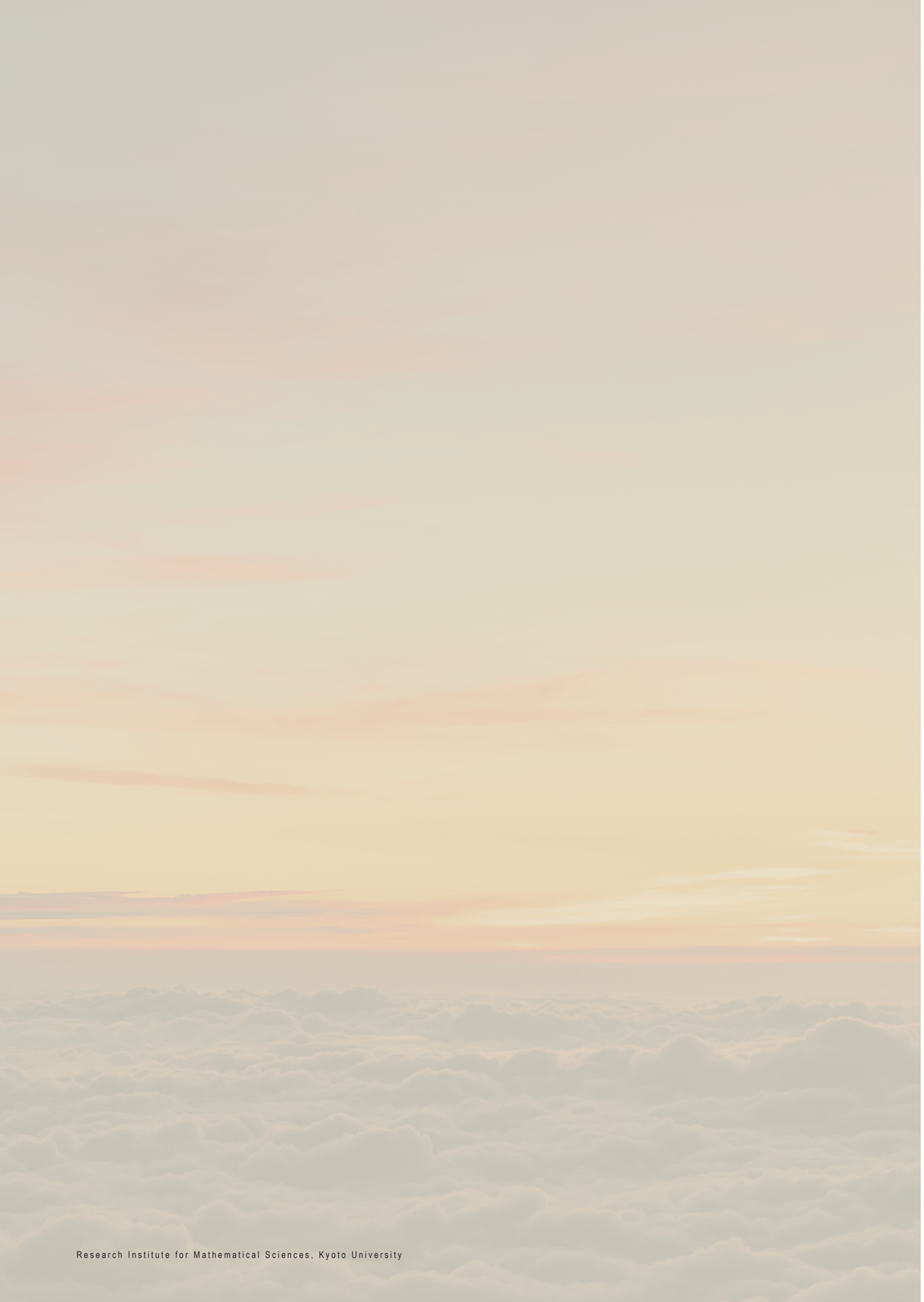
Major Railway Stations	Bus – Take:	Bus: Stop at:
Kyoto Station (JR) Kawaramachi Station (Hankyu)	Kyoto City Bus No. 17 (For Shijo-Kawaramachi/Ginkakuji)	
Karasuma Line (Subway) Imadegawa Station	Kyoto City Bus No. 203 (For Ginkakuji/Kinrin Shako)	"Kyodai Nogakubu-mae" or "Kitashirakawa"
Demachiyanagi Station (Keihan)	Kyoto City Bus No. 17 (For Ginkakuji/Kinrin Shako) Kyoto City Bus No. 203 (For Ginkakuji/Kinrin Shako)	

Kyoto University

Research Institute for Mathematical Sciences

2020-2021

Kyoto University
Research Institute for Mathematical Sciences
606-8502 Kitashirakawa Oiwake-cho, Sakyo-ku, Kyoto City
Telephone: 075-753-7202
URL http://www.kurims.kyoto-u.ac.jp



Research Institute for Mathematical Sciences, Kyoto University

Kyoto University

Research Institute for Mathematical Sciences

2020-2021

Contents

Message from the Director

RIMS Director
Takashi Kumagai

The Research Institute for Mathematical Sciences (RIMS) is an institute that conducts comprehensive research in mathematics and the mathematical sciences. Since being established in 1963, RIMS has been recognized as one of the world's leading research institutes in these fields. Mathematics is, of course, an important basic discipline located at the deepest part of human knowledge and forms the basis of science. It is a mystery of mathematics, and at the same time fundamentally accounts for its existence, that the structure of the real world can be captured profoundly and beautifully by pure mathematical thoughts.

In modern times, mathematics plays a central role in supporting science and technology. Especially since the beginning of the 21st century, vast changes to society and industry have led to mathematics gaining significant importance in creating new ideas, giving these foundations, and leading them to realization[1]. However, mathematics has not solely been developed to meet the demands of applied fields. Indeed, looking back in time, one can find many examples where the mathematics that is widely applied for practical purposes today was created purely from a mathematical perspective. For example, Galois theory, which was introduced about 200 years ago to address the solvability of equations, supports the codes and ciphers of modern network communications, and non-Euclidean geometry is applied to present-day GPS technology through the theory of general relativity. Moreover, as a newer example, the theory of stochastic analysis, which was founded by Dr. Kiyosi Itô, a director of RIMS in the mid-20th century, is widely used in mathematical finance. Through such integration with applications, the cultivation of a deep and broad generality of mathematics has a strong power to change the world we live in. On the other hand, applications of mathematics have played a role in evoking new possibilities inherent inside mathematics and motivating further progress in mathematics from diverse viewpoints. The pursuit of mathematics based purely on mathematical interests and its applications to science can thus be compared to the roots and branches of a tree. One cannot be established without the other, and the mutual support of the two leads to the global development of mathematics.

Since its inception, RIMS has had the mission to comprehensively promote fundamental research in mathematics and research on the applications of mathematics to science. To this end, there are three pillars to the activities of RIMS. The first is research by faculty members. Over the half-century of RIMS existence, this has led to many globally-recognized achievements. Currently, RIMS has around 38 faculty members and is organized into three major divisions (Fundamental Mathematics, Infinite Analysis, and Applied Mathematics), as well as a Computer Laboratory, making it a flexible organization. In addition, RIMS has established the “Center for Research in Next-Generation Geometry” to strengthen research in this area, the “Center for Research Interaction in Mathematical Sciences” to promote international research collaboration, and the “Liaison Center in Mathematics” to promote collaborative research with researchers from a wide range of scientific fields. It has always been a fundamental policy of RIMS to maintain an excellent research environment where members can concentrate on research, with space being given so that researchers may pursue their mathematical endeavors above all else, and the research time of younger members in particular being highly valued.

The second pillar is the implementation of joint usage projects aimed at contributing to the research of a wide range of mathematicians and mathematical scientists. Since its foundation, RIMS has served as a national joint research institute, and since 2010 it has been certified as a Joint Usage/Research Center (JU/RC). At present, RIMS hosts around 80 RIMS Workshops annually, with a combined total of more than 4000 participants (of which about 400 are from abroad). RIMS Kokyuroku, a collection of reports on these projects, has now exceeded 2000 volumes, and the number of accesses of these exceeds 1.6 million annually (a little less than 40% being from abroad). Since November 2018, RIMS has been certified as an “International Joint Usage/Research Center”, which has enabled it to expand its joint usage projects and make international open calls. In this direction, RIMS is promoting the internationalization of its core projects, setting up international collaborative research support mechanisms and starting large-scale international collaborative “RIMS Research Projects”. In particular, for RIMS Research Projects, we select specific research themes, offer positions of project fellows, and pursue research progress through collaborations with leading international researchers, who are invited to make mid- to long-term stays at RIMS. Moreover, by establishing new projects that support individual-scale international collaborations, recruiting projects all year round, and establishing a framework to support young researchers, RIMS will continue to play a role in supporting research in mathematics and the mathematical sciences both within Japan and beyond.

The third pillar is the education of graduate students[2]. So as to foster young researchers, RIMS has had a graduate school since 1970. Currently, it accepts 10 Master students and 10 PhD students every year. Under the guidance of outstanding faculty members, students can learn contemporary mathematics in an environment where leading researchers visit from all over the world and collaborate on a daily basis. In this way, RIMS has produced many excellent young researchers.

In the activities of RIMS, the three pillars described above are not separate, rather they are a trinity that strengthens each other, which is extremely important for the development of the institute. From a practical perspective, one of the current challenges of RIMS is to secure building space that fits the variety of its activities in a cohesive manner, and efforts to realize this will continue in the future. The role of the institute is to provide a high-level research environment where researchers can discuss with each other actively and think deeply about mathematics. Through its activities, RIMS is making efforts to contribute to further developments in mathematics and the mathematical sciences in the 21st century.

Footnotes

1. In the 5th Science and Technology Basic Plan (FY2016-2020), mathematical science is positioned as a "transverse science and technology that supports basic technology".
2. For graduate education, we are conducting the KTGU (Kyoto Top Global University) project in collaboration with the Department of Mathematics, Graduate School of Science.

Research Institute for Mathematical Sciences, Kyoto University

Organization

- **Director**
  - **Council**
    - Consists of the Director, professors, and a few professors of Kyoto University, and deliberates and decides matters important for the institute.
  - **Deputy Director**
  - **International Advisory Board**
    - Consists of international academic experts who have broad eyes and high insights in mathematics and mathematical sciences. Delegated by the Director and provide advice concerning the organization of RIMS.
  - **Advisory Board**
    - Consists of selected professors and researchers from inside and outside Kyoto University, and responds to the important questions on the operation of the RIMS posed by the Director.
  - **Technical Committee**
    - Consists of selected professors, associate professors, senior lecturers, and researchers from inside and outside Kyoto University, and deliberates the joint usage of the institute.
  - **Faculty Meeting**
    - Consists of the Director and professors, and deliberates and reviews important matters concerning the institute.
  - **Various Committees**
  - **Research Divisions**
    - Fundamental Mathematics Research Division
    - Infinite Analysis Research Division
    - Applied Mathematics Research Division
  - **Attached Institutes**
    - Computer Laboratory
    - Center for Research Interaction in Mathematical Sciences (internal process)
    - Liaison Center in Mathematics (internal process)
    - Center for Research in Next-Generation Geometry (internal process)
  - **Administrative Office**
    - General Affairs Section
    - Cooperative Research Service Section
    - Library
  - **Administrative Director**
    - Secretariat (including the International Research Support Office)

Category	Professor	Associate Professor	Senior Lecturer	Assistant Professor	Sub-Total	Program-Specific Researcher	Administrative Staff	Technical Staff	Total
Fundamental Mathematics Research Division	4	1	1	4	10				10
Infinite Analysis Research Division	[1]				[1]				[1]
	5	4		4(*1)	13(*1)				13(*1)
Applied Mathematics Research Division	3	4	2	3(*1)	12(*1)				12(*1)
Computation Mechanism Research Institute		1			1			2	3
Administrative Bureau							12		12
Others						2			2
Total	[1]				[1]				[1]
	12	10	3	11(*2)	36(*2)	2	12	2	52

As of April 1, 2020

(*1) indicates the number of Program-Specific Assistant Professors included in the number of Assistant Professors.
The numbers in [ ] are the numbers of domestic visiting professors and the numbers in ( ) are the number of overseas visiting professors, which are not included in the total.

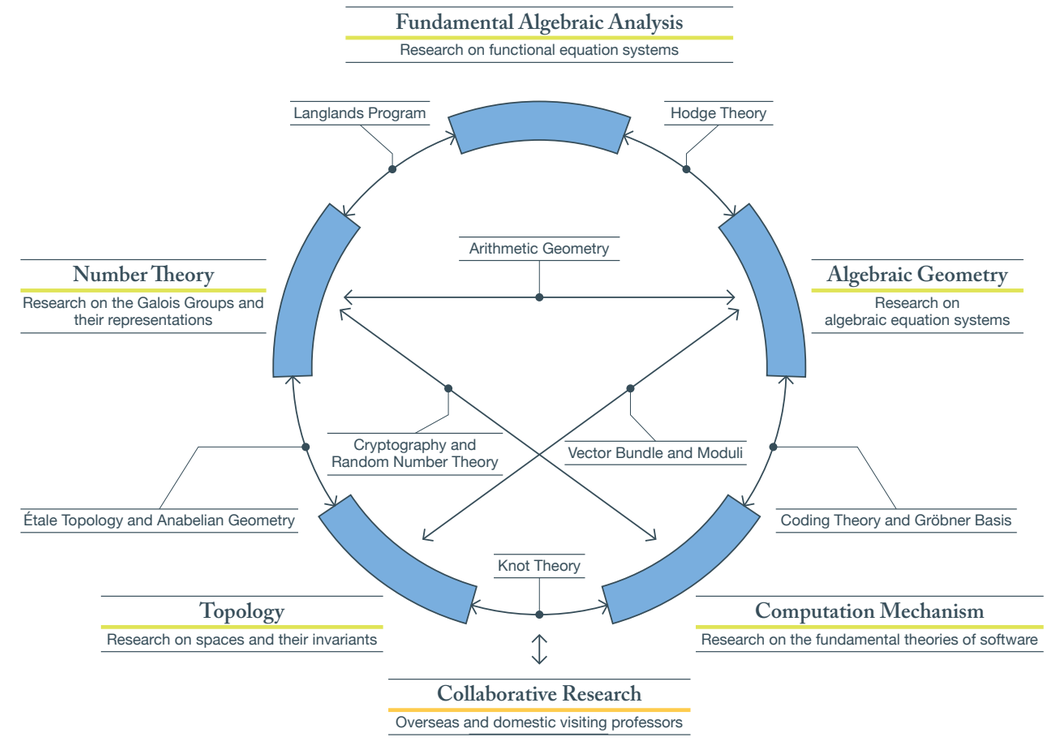
Fundamental Mathematics Research Division

Fields: Number theory, algebraic geometry, topology, algebraic analysis, computation mechanism theory, etc.

This division investigates the fundamentals of mathematics including the systems of numbers, structures of spaces and functions, and laws of computation and reasoning with the intention of promoting the development of mathematics and its applications in various ways and to provide them with solid research foundations.

Researchers

Professor	OHTSUKI, Tomotada (Topology)	
Professor	ONO, Kaoru (Geometry/topology and differential geometry)	
Professor	MOCHIZUKI, Takuro (Differential geometry and algebraic geometry)	
Professor	NAKANISHI, Kenji (Partial differential equations, functional analysis and harmonic analysis)	
Associate Professor	NAKAYAMA, Noboru (Algebraic geometry)	
Senior Lecturer	YAMASHITA, Go (Arithmetic geometry)	
Assistant Professor	ISHIKAWA, Katsumi (Topology)	
Assistant Professor	ISHIKAWA, Suguru (Differential geometry)	
Assistant Professor	YAMASHITA, Mayuko (Differential geometry and theory of operator algebras)	
Assistant Professor	TSUJIMURA, Shota (Arithmetic geometry)	



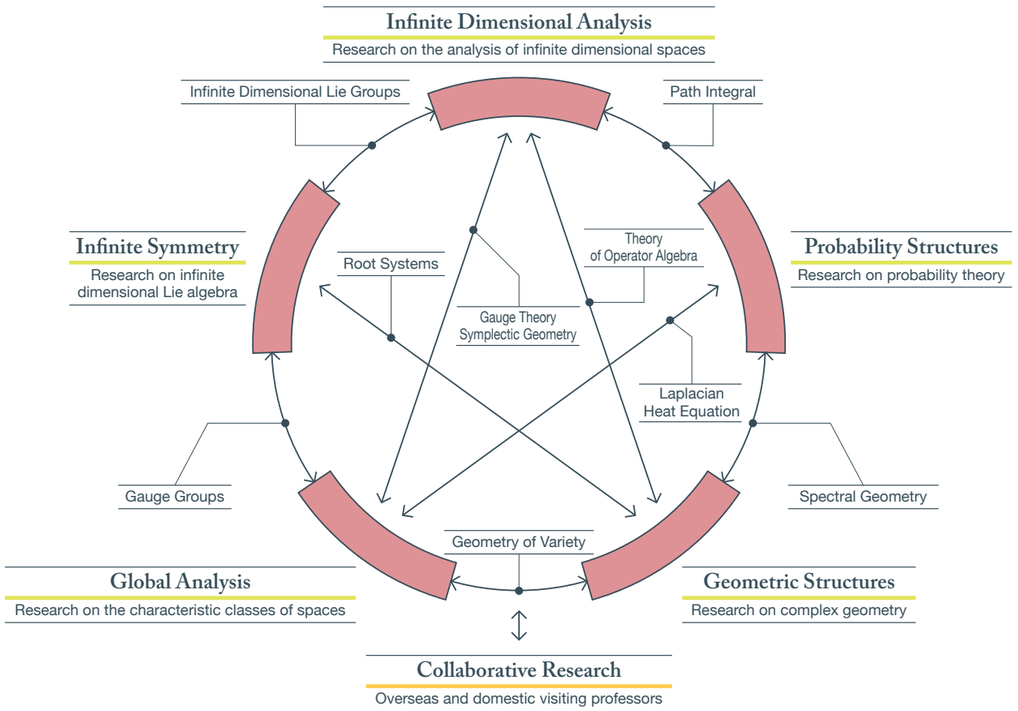
Infinite Analysis Research Division

Fields: Infinite dimensional analysis, infinite symmetry, global analysis, geometric structure, probability structure, etc.

With the objective of analyzing systems with an infinite degree of freedom, which is an important research issue of mathematical science, this division pursues introducing developments in quantum physics and statistical physics, and at the same time providing them with systematic and accurate mathematical foundations.

Researchers

Professor	TAMAGAWA, Akio	(Number theory and arithmetic geometry)
Professor	MOCHIZUKI, Shinichi	(Arithmetic geometry and anabelian geometry)
Professor	KUMAGAI, Takashi	(Probability theory)
Professor	ARAKAWA, Tomoyuki	(Representation theory and vertex operator algebras)
Professor	NAMIKAWA, Yoshinori	(Algebraic geometry)
Associate Professor	KAWAI, Toshiya	(Quantum field theory, string theory, and mathematical physics)
Associate Professor	TAKEHIRO, Shin-ichi	(Geophysical fluid dynamics)
Associate Professor	HOSHI, Yuichiro	(Arithmetic geometry)
Associate Professor	CROYDON, David	(Probability theory)
Assistant Professor	HELMKE, Stefan	(Algebraic geometry)
Assistant Professor	OOURA, Takuya	(Numerical analysis)
Assistant Professor	KOSHIKAWA, Teruhisa	(Number theory and arithmetic geometry)
Program-Specific Assistant Professor	YANG, Yu	(Arithmetic geometry)



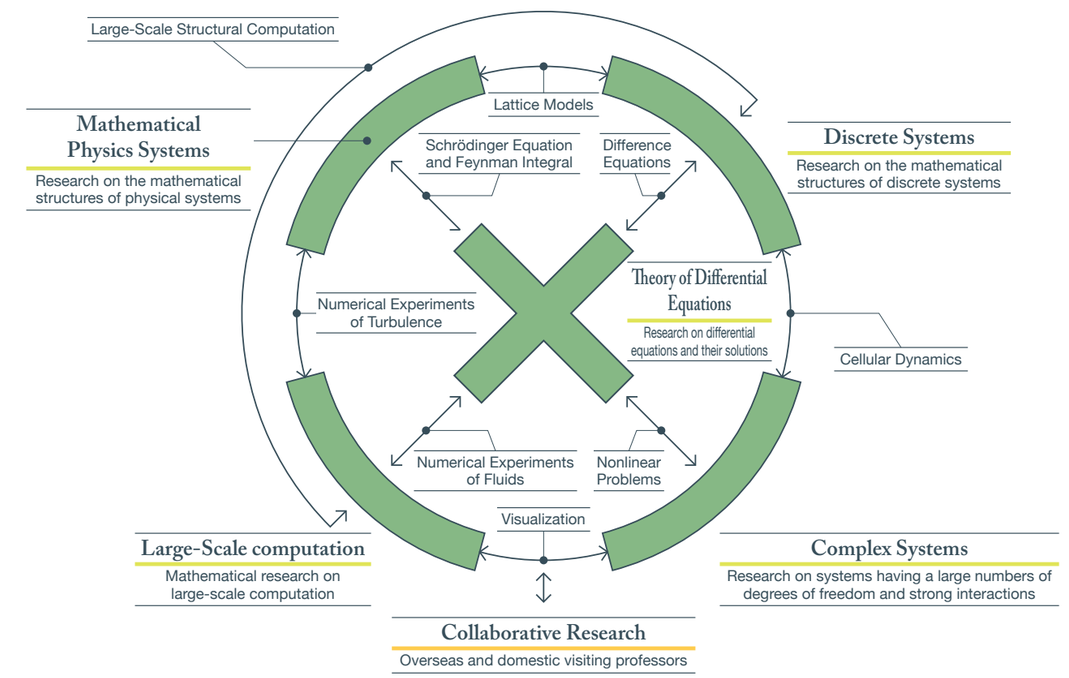
Applied Mathematics Research Division

Fields: Theory of differential equations, mathematical physics, discrete systems, large-scale calculation, complex systems, etc.

Through interaction with natural science, engineering, social science, and other scientific fields involving mathematics, this division aims to return the results of research back to these fields for their development by investigating the mathematical issues found in the fields.

Researchers

Professor	HASEGAWA, Masahito	(Theoretical computer science and software science)
Professor	OZAWA, Narutaka	(Theory of operator algebras and theory of discrete groups)
Professor	MAKINO, Kazuhisa	(Discrete mathematics, optimization, and theory of algorithms)
Associate Professor	KAWAKITA, Masayuki	(Algebraic geometry)
Associate Professor	KOBAYASHI, Yusuke	(Discrete mathematics, optimization, and theory of algorithms)
Associate Professor	ISHIMOTO, Kenta	(Fluid mechanics)
Associate Professor	KAWAMURA, Akitoshi	(Theory of computation)
Senior Lecturer	KISHIMOTO, Nobu	(Nonlinear partial differential equations)
Senior Lecturer	TAN, Fucheng	(Arithmetic geometry and Galois representations)
Assistant Professor	HIKITA, Tatsuyuki	(Geometric representation theory)
Assistant Professor	MUROYA, Koko	(Theoretical computer science)
Program-Specific Assistant Professor	ISONO, Yusuke	(Theory of operator algebras)



Computer Laboratory

This laboratory is conducting research and development of advanced software technology based on theoretical results.

Researchers

Director (joint appointment)	HASEGAWA, Masahito (Theoretical computer science and software science)
Associate Professor	TERUI, Kazushige (Mathematical logic and theoretical computer science)

The computer system of the institute, used not only by the members of the institute but also by many visitors and collaborators, is administered and maintained by dedicated technical staff, and is quite stable and reliable.
The high-speed computer for scientific calculation installed at this institute is a parallel computer with 18 nodes and 216 cores. It is used to solve problems in applied mathematics including fluid mechanics and has been producing new results one after another. (Figure 1 shows two-dimensional turbulence.) High-performance workstations are also used to conduct basic research in computer science, which has resulted in new theories on computation and leading-edge software based on those theories. (Figure 2 illustrates the implementation of a program using the geometry of interaction.)

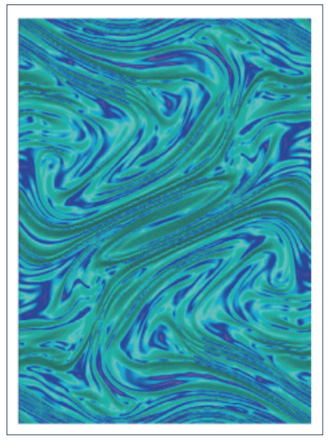


Figure 1

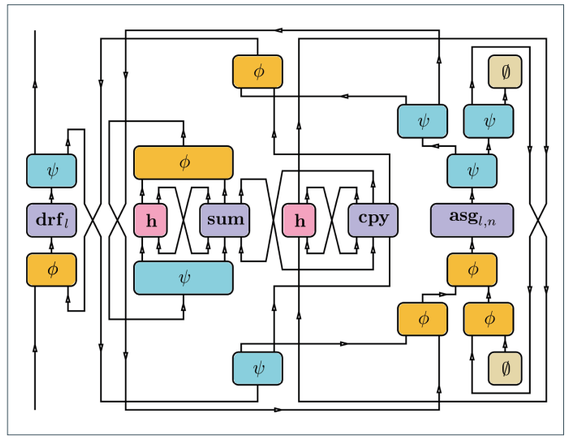


Figure 2

Center for Research Interaction in Mathematical Sciences

For the purpose of promoting research exchange between excellent researchers from inside and outside Japan by providing them with an environment for collaborative research, this faculty was established based on the former Center for Research in the Frontiers of Mathematical Science in April 2012. The project faculty members, both paid and unpaid, conduct research in cooperation with the members of RIMS during a term of 2 to 3 months to 5 years in a research environment similar to those of the members of RIMS.

Researchers

Project Professor	IWAMA, Kazuo
Project Professor	MUKAI, Shigeru
Project Professor	YAMADA, Michio
Project Professor	SAITO, Morihiko
Project Associate Professor	KAWANOUE, Hiraku
Professor (joint appointment)	MAKINO, Kazuhisa
Associate Professor (joint appointment)	KAWAKITA, Masayuki
Associate Professor (joint appointment)	TAKEHIRO, Shin-ichi
Professor (joint appointment)	MOCHIZUKI, Takuro
Professor (joint appointment)	MOCHIZUKI, Takuro

Liaison Center in Mathematics

For the purpose of conducting collaborative research with researchers from other academic fields and with companies, this center was founded in May 2013. Its mission is the application of mathematics.

Researchers

Director (joint appointment)	KUMAGAI, Takashi
Project Professor	KOKUBU, Hiroshi
Project Professor	SAKAJO, Takashi
Project Professor	HIRAOKA, Yasuaki
Project Professor	FUJISHIGE, Satoru
Project Professor	MATSUDA, Fumihiko
Project Professor	YAMADA, Ryo
Professor (joint appointment)	OHTSUKI, Tomotada
Professor (joint appointment)	KUMAGAI, Takashi
Professor (joint appointment)	HASEGAWA, Masahito
Professor (joint appointment)	MAKINO, Kazuhisa
Associate Professor (joint appointment)	KAWAMURA Akitoshi
Associate Professor (joint appointment)	KOBAYASHI, Yusuke

Center for Research in Next-Generation Geometry

The Center for Research in Next Generation Geometry was founded in April 2019 for the purpose of promoting research in a broad range of areas of next generation geometry, with a special emphasis on arithmetic geometry in general and inter-universal Teichmüller theory in particular.

Researchers

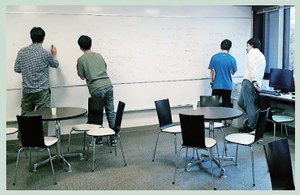
Director (joint appointment)	MOCHIZUKI, Shinichi
Professor (joint appointment)	TAMAGAWA, Akio
Professor (joint appointment)	MOCHIZUKI, Takuro
Project Professor	KASHIWARA, Masaki
Project Professor	MORI, Shigefumi
Project Professor	NAKAJIMA, Hiraku
Project Assistant Professor (joint appointment)	YANG, Yu

International Joint Usage / Research Center

International Center for Collaborative Study in Mathematical Sciences

Since its establishment, RIMS has served for the purpose of accelerating research in mathematical sciences. In 2010 RIMS was certified as a Joint Usage / Research Center by the Ministry of Education, Culture, Sports, Science and Technology (MEXT) , contributing to progress of the researches, providing researchers in the mathematical sciences with opportunities for various joint researches. In November, 2018, RIMS was certified as an International Joint Usage / Research Center by MEXT that functions as an international hub for other research institutes in and outside Japan, with the aim of leading international joint research activities and strengthening the research abilities of domestic researchers. RIMS implements five types of joint research activities as an International Joint Usage / Research Center (RIMS Workshops (Type A,B,C), RIMS Symposia, RIMS Satellite Seminars, RIMS Review Seminars, and RIMS Long-Term Researchers), and the RIMS Research Projects that are provided in combination with any of the above-mentioned programs. In the RIMS Research Projects, leading researchers from abroad stay at RIMS to conduct research activities for a medium to long-term. These programs aim to promote international collaborative research activities and development of young researchers. RIMS publicly solicits proposals for joint research activities from in and outside Japan once a year or throughout the year depending on the types of programs. Joint research activities proposed are examined and approved by the Technical Committee and the Advisory Board. RIMS may designate some urgent and important projects as special projects to expedite their efficient implementation.

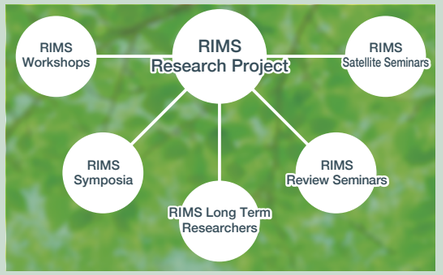


Outline of the Joint Research Activities

RIMS Research Project

An international joint research program implemented in combination with any of the several types of joint research activities described below. Leading researchers in their respective fields are invited and stay at RIMS for a medium to long-term, working on specific research subjects for a period of several months to one year. RIMS chooses and implements more than one project under this RIMS Research Project each academic year. Call for proposal is published in around June each academic year for projects to be implemented two years later. Each applicant should organize an organizing committee comprising several members to submit an application. Projects under this RIMS Research Project are implemented to develop researchers who will lead research projects in the fields of mathematics and mathematical sciences in the future. The applicant may recommend young researchers who participate, in cooperation with leading researchers, in planning, drawing and implementing international research projects as "RIMS Project Fellows."



Several Types of Joint Research Activities

RIMS Workshops (Type A,B,C)

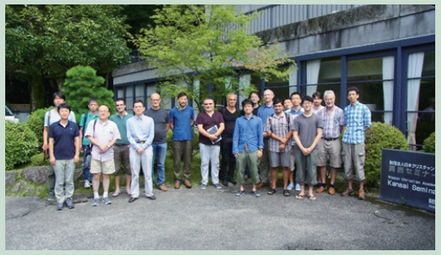
Open or closed workshop
A: A group consisting of at least two researchers shall be formed. The researchers conduct joint research at RIMS for a few days to two weeks. RIMS starts accepting applications around September each academic year.
B: A group comprising a few researchers, including at least one international researcher and domestic researcher, conducts joint research at RIMS for a few days to about one week. RIMS accepts proposals throughout the year.
C: A group comprising a few international researchers conducts a joint research at RIMS for a few days to about one week. RIMS starts accepting applications around April each academic year.

RIMS Symposia

Open symposia
These are an open symposia style joint research. The program of this joint research shall be notified to organizations/institutions in Japan. RIMS starts accepting applications around September each academic year.

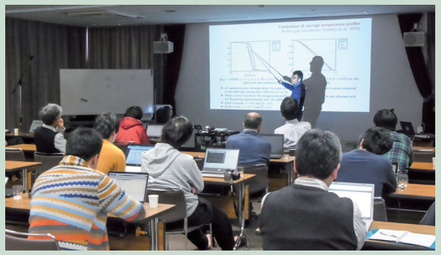
RIMS Satellite Seminars

Closed seminar
These are a closed seminar where researchers invited from both within and outside Japan stay at a venue outside RIMS and discuss research subjects in mathematical sciences. The purpose of these seminars is to promote rapid progress in target research areas and help fostering future leaders in those areas. RIMS starts accepting applications around April each academic year.



RIMS Review Seminars

Open or closed seminar
These are a tutorial seminar for researchers. Comprehensive lectures on respective fields are given by one or more tutors for the purpose of sharing new trends and problems among related researchers. RIMS starts accepting applications around April each academic year.



RIMS Long Term Researchers

These researchers conduct research as a joint usage researchers for two weeks or longer at RIMS. One of the important purposes is to make research exchanges with local researchers around RIMS. RIMS accepts domestic applications only, around September each academic year.

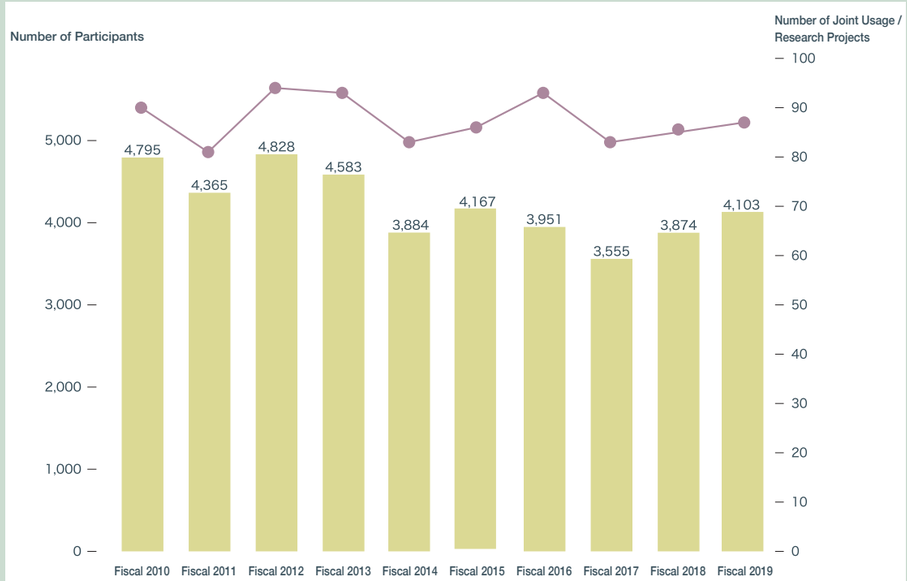
How to Apply

Application guides and application forms for these programs are available for download on the following page.
All applications are accepted through electronic submission.

-Call for Proposals
http://www.kurims.kyoto-u.ac.jp/kyoten/en/recruitment.html

-Formats
http://www.kurims.kyoto-u.ac.jp/kyoten/en/formats.html

Implementation of Joint Usage / Research



(Note: The total number of participants with consideration given to the number of days is approximately four times higher than shown in the chart.)

Results of Joint Usage / Research

Many of the results of joint usage / research will be assembled in papers and included in RIMS Kôkyûroku and RIMS Kôkyûroku Bessatu (see the section on publications) issued by RIMS, as well as published in domestic and overseas academic journals.

-List of RIMS Research Projects
http://www.kurims.kyoto-u.ac.jp/kyoten/en/index.html

-Past RIMS Research Projects
http://www.kurims.kyoto-u.ac.jp/kyoten/en/past.html

International Exchange

RIMS as an international joint research center

As the largest center of international joint research in the field of mathematical science in Japan, prominent researchers from overseas come and stay at this institute. It serves as a place for domestic and overseas researchers to conduct collaborative research. Its activities have earned international acclaim including a comment in the Notice of the AMS, 2004, "RIMS, an Institute for Japan and the World."

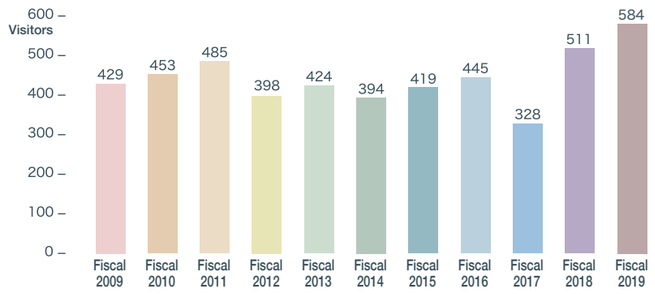
Specific activities include receiving researchers of mathematical science from overseas universities and research institutions as visiting professors or guest scholars invited to Kyoto University, guest research associates, or short-stay visiting research scholars. These guest scholars stay for around a week to half year and are received in various forms. Three hundred or more researchers are received every year including the overseas researchers coming to conduct joint usage research. The institute also actively accepts international students.

Inviting overseas researchers, on which the institute concentrates its efforts, is expected to promote interactions with domestic researchers through international joint research by systematic coordination with joint usage research such as international symposiums (held around 10 times every year as part of a joint usage research project) in which many overseas researchers participate. RIMS aims at promoting RIMS Research Project for international joint research and encouraging international applications for joint research activities. Furthermore, RIMS commits to support young researchers in pursuing international joint research.

Number of Visitors from Overseas

Country	Fiscal 2014	Fiscal 2015	Fiscal 2016	Fiscal 2017	Fiscal 2018	Fiscal 2019
United States	70	87	98	53	90	111
United Kingdom	35	27	34	28	25	43
Italy	10	7	10	7	15	16
India	6	9	3	2	2	4
Australia	6	5	14	7	17	17
Canada	8	4	12	8	17	23
South Korea	31	42	34	33	49	68
Sweden	0	0	3	8	2	2
China	23	53	44	36	42	56
Denmark	1	0	2	3	2	3
Germany	31	34	37	24	57	31
France	46	47	40	36	54	57
Russia	26	9	8	4	16	8
Others	101	95	106	79	123	145
Total	394	419	445	328	511	584

Changes in Overseas Visitors



Visiting Professors

Due to the major divisional change in April 1999, the position of overseas visiting professor was provided in each of the three major research divisions. Researchers from each field of mathematical science invited from overseas stay for a long time through the year and conduct joint research with domestic researchers.

Name (University)	Tenure
LECLERC, Bernard Didier（University of Caen）	2019. 4. 1 – 2019. 6.30
GEKHTMAN, Michael（University of Notre Dame）	2019. 5.13 – 2019. 8.12
SAIDI, Mohamed（University of Exeter）	2019. 6.13 – 2019. 9.12
CADORET, Anna（UPMC）	2019. 7. 1 – 2019. 10. 1
JORDAN, Tibor（Eötvös Loránd University）	2019. 8. 1 – 2019.10.31
GURVICH, Vladimir（National Research University Higher School of Economics）	2019.10. 1 – 2019.12.31
POWER, Anthony John（University of Bath）	2019.11.17 – 2020. 2.28
BÉRCZI, Kristóf（Eötvös Loránd University）	2019.12. 1 – 2020. 2.29

* Only those in place in fiscal 2019

Distinguished Visiting Professors

As part of the efforts for assisting the Top Global University Project at Kyoto University, professors with high international reputations including Fields Medal winners are received as distinguished visiting professors. They conduct research and teach students with the staff of Kyoto University, as well as participate in a wide range of education including special lectures.

Name (University)	Tenure
CHEN, Zhenqing（University of Washington）	2019. 3.20 – 2019. 4.19
POPA, Sorin（University of California, Los Angels）	2019. 3.27 – 2019. 4.25
MATSUKI, Kenji（Purdue University）	2019. 4.19 – 2019. 5.10
FEIGIN, Boris（Landau Institute of Theoretical Physics）	2019. 6. 2 – 2019. 8.30

* Only those invited in fiscal 2019

Academic Exchange Agreements

As part of the activities of the center of international research, the following academic exchange agreements have been concluded for the purpose of promoting and developing research collaborations in the fields of mathematical science.

Target Organization	Country	Date of Conclusion
International Institute for Advanced Studies	Japan	April 1, 1997
Korea Institute for Advanced Study（KIAS）	South Korea	March 10, 2000
Department of Mathematical Sciences, Seoul National University（SNU）	South Korea	June 23, 2006
Osaka City University Advanced Mathematical Institute	Japan	March 5, 2007
Pacific Institute for the Mathematical Sciences（PIMS）	Canada	March 30, 2009
National Institute for Mathematical Sciences（NIMS）	South Korea	June 24, 2010
Hausdorff Center for Mathematics, University of Bonn（HCM）	Germany	February 14, 2011
Tohoku University Advanced Institute for Materials Research	Japan	November 1, 2012
The CAU Nonlinear PDE Center, Chung-Ang University	South Korea	June 4, 2013
National Center for Theoretical Sciences（NCTS）	Taiwan	July 25, 2014
College of Science, University of Utah	United States	October 13, 2016
Higher School of Economics, National Research University	Russian Federation	June 2, 2017
Global Math Network (Hausdorff Center for Mathematics, University of Bonn/ Département Mathématiques et Applications, École Normale Spérieure/Courant Institute of Mathematical Sciences/New York University/Beijing International Center for Mathematical Research, Peking University)		July 1, 2017
The Center for Geometry and Physics, Institute for Basic Science（IBS-CGP）	South Korea	August 1, 2017

Graduate Education and Conferment of Degrees

RIMS aims to develop unique young researchers who belong to the Department of Mathematical Sciences of the Division of Mathematics and Mathematical Sciences in the Graduate School of Science, Kyoto University. In connection with this, the institute implemented the 21th Century COE Program, Formation of an International Center of Excellence in the Frontiers of Mathematics and Fostering of Researchers in Future Generations and the Global COE Program, Fostering Top Leaders in Mathematics–Broadening the Core and Exploring New Ground in the past. Currently, as the Mathematics Unit of the Kyoto University Top Global University Project "Japan Gateway Program", it provides the graduate students with an international research environment including teaching by top-class overseas researchers. These projects are jointly run by the Division of Mathematics and Mathematical Sciences in the Graduate School of Science and RIMS.

Number of Students

The numbers of students on the Department of Mathematical Sciences are as listed below.

Fiscal Year	Master's Program	Doctoral Program
Fiscal 2016	19	21
Fiscal 2017	20	23
Fiscal 2018	21	25
Fiscal 2019	21	20
Fiscal 2020	21	24

As of April 1 for all fiscal years

Conferment of Degrees

The number of students in the Department of Mathematical Sciences who received a Ph.D. (in science) from Kyoto University (since 1994) is listed below.

Doctoral Course	Doctoral Dissertation	Total
130	51	181

As of April 1, 2020

Awards Received by Graduate Students

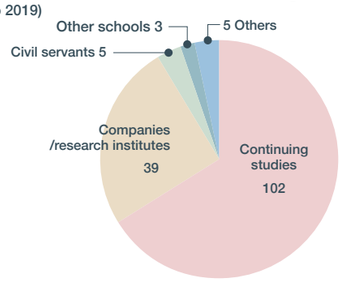
Recently, graduate students in the Department of Mathematical Sciences have received the following prizes.

February 2012	SUZUKI, Sakie	4th Kyoto University Tachibana Award for Outstanding Woman Researchers
March 2013	ISHIMOTO, Kenta	FY 2013 Kyoto University President's Award
September 2014	ISHIMOTO, Kenta	Fiscal 2013 Award for Outstanding Paper in Fluid Mechanics (jointly with Professor Yamada while undertaking a doctoral course)
December 2015	ISHIDA, Yawara	CANDAR 2015 Graph Golf Competition "Deepest Improvement Award"
September 2018	NAKAJIMA, Shuta	FY 2018 MSJ Takebe Katahiro Prize for Encouragement of Young Researchers

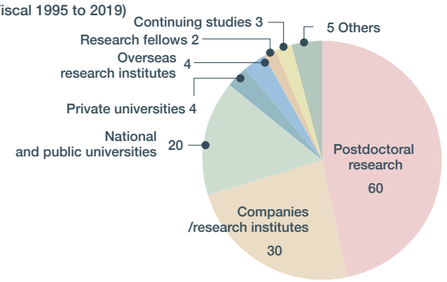
Career after Completing Graduate School Program

Most students work as researchers at universities and companies.

Career after Graduate School Master's Program
(Fiscal 1995 to 2019)



Career after Graduate School Doctoral Program
(Fiscal 1995 to 2019)



Library

As a special library, the institute library collects literature and materials in the fields of mathematics, applied mathematics, computer science, and theoretical physics, and provides services not only to the staff and researchers of Kyoto University, but also to researchers of mathematical science all over Japan. Especially, the library serves as the center of joint usage/joint research, and is actively used by the participants of center activities. It is also endeavoring to enrich its stock of electronic books and journals.
The collected materials are in the reading room on the 3rd floor and the storeroom in the basement. They can be searched using KULINE (Kyoto University Library Online Catalogue). On a terminal in the reading room on the 3rd floor, domestic and overseas academic articles can be retrieved and used by accessing the database and electronic journals.

Library Web Site
http://www.kurims.kyoto-u.ac.jp/~library/Home.html

Number of Books

Foreign books	97,930
Japanese books	8,098
	Total: 106,028

Foreign journals	1,462
Japanese journals	134
	Total: 1,596

As of April 1, 2020

Publications

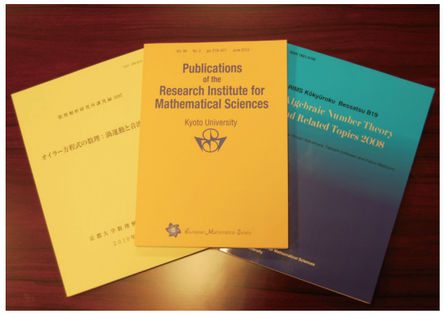
Publications of RIMS, which has been issued every year since 1965, is a journal for publishing important results in mathematical sciences, including those of the researchers of RIMS, in English. Papers that were published five years or more ago are freely available on the Web site of the European Mathematical Society. Some of those papers are also available on J-STAGE of the Japan Science and Technology Agency and the Web site of RIMS. RIMS Preprint, which releases the results of research by the full-time researchers before printing and publishing, are made available on the Web site of RIMS. About 30 issues are released every year.
In addition, as the records for lectures concerning joint usage research, around 50 to 60 issues of RIMS Kôkyûroku are released every year. For the records of the workshops specially selected by the Advisory Board, RIMS Kôkyûroku Bessatsu is issued. Papers having no copyright problems are publicized on the Web site of RIMS and the research information repository of Kyoto University.

- European Mathematical Society
  http://www.ems-ph.org/journals/journal.php?jrn=prims
- Electronic archive site of the Japan Science and Technology Agency
  https://www.jstage.jst.go.jp/browse/kyotoms1969
- National Institute of Informatics
  http://www.nii.ac.jp/sparc/partners/#7
- RIMS
  http://www.kurims.kyoto-u.ac.jp/~prims/index.html
  http://www.kurims.kyoto-u.ac.jp/preprint/index.html
  http://www.kurims.kyoto-u.ac.jp/~kyodo/kokyuroku/kokyuroku.html
- Kyoto University Research Information Repository
  http://hdl.handle.net/2433/24849

Publications

Publications of RIMS(Quarterly)	The latest issue is vol. 56, No. 1.
RIMS Kôkyûroku Bessatsu	The latest issue is No. 76.
RIMS Kôkyûroku	The latest issue is No. 2149.
RIMS Preprint	The latest issue is No. 1912. (Only electronic version has been issued since August 2013.)

As of April 1, 2020



Introductory Public Lecture

Introductory Public Lecture has been held almost every summer since 1976, featuring around three topics based on the results of mathematical science research selected from various aspects.

Fiscal Year	Count	Topic	Number of Students
Fiscal 2013	35th	(1) Untyped lambda calculus and models (2) Mathematics of crushed ice (3) Morse theory and Floer theory	85
Fiscal 2014	36th	(1) Reconstruction of the additive structure with multiplicative information (2) Billiards to symplectic topology (3) How to calculate more easily? – Design and analysis of algorithms	108
Fiscal 2015	37th	(1) Poincaré conjecture and rich flow (2) Mathematics of the planetary dynamo theory – Why stars and planets have their magnetic fields? (3) Banach-Tarski paradox	114
Fiscal 2016	38th	(1) Mathematics of knots (2) Semantics of programming languages and category theory (3) Solving differential equations	121
Fiscal 2017	39th	(1) Prime number theorem and Riemann zeta function (2) Introduction to nonstandard analysis – Mathematics of hyperreal numbers and infinity (3) ADE generalization of quintuple product formulas – From the viewpoint of field theory	110
Fiscal 2018	40th	(1) Algebraic geometry - an introduction with search of its origin (2) Introduction to symplectic duality (3) Universal Algebra as an Introduction to Undergraduate Algebra	108
Fiscal 2019	41st	(1) Unsolved problems in fluid dynamics (2) Duality in combinatorial optimization (3) Functional inequalities and energy concentration	116

The lecture was cancelled due to COVID-19 in fiscal 2020.

Expenses of the Institute

Unit: 1 thousand yen

Item	Fiscal 2014	Fiscal 2015	Fiscal 2016	Fiscal 2017	Fiscal 2018	Fiscal 2019
Management Expenses Grants	730,971	721,779	695,477	671,194	716,594	703,302
Breakdown: Labor costs	443,792	435,362	419,552	399,307	412,545	407,115
Article costs	287,179	286,417	275,925	271,887	304,049	296,187
Grants-in-Aid for Scientific Research	121,468	131,842	142,138	115,602	108,934	110,433
Commissioned research/ commissioned projects	789	1,586	8,190	9,515	10,176	21,779
Collaborative research	12,482	3,936	2,032	2,648	3,846	3,862
Contributions	3,472	3,974	1,000	553	27,913	857
Total	869,182	863,117	848,837	799,512	867,463	840,233

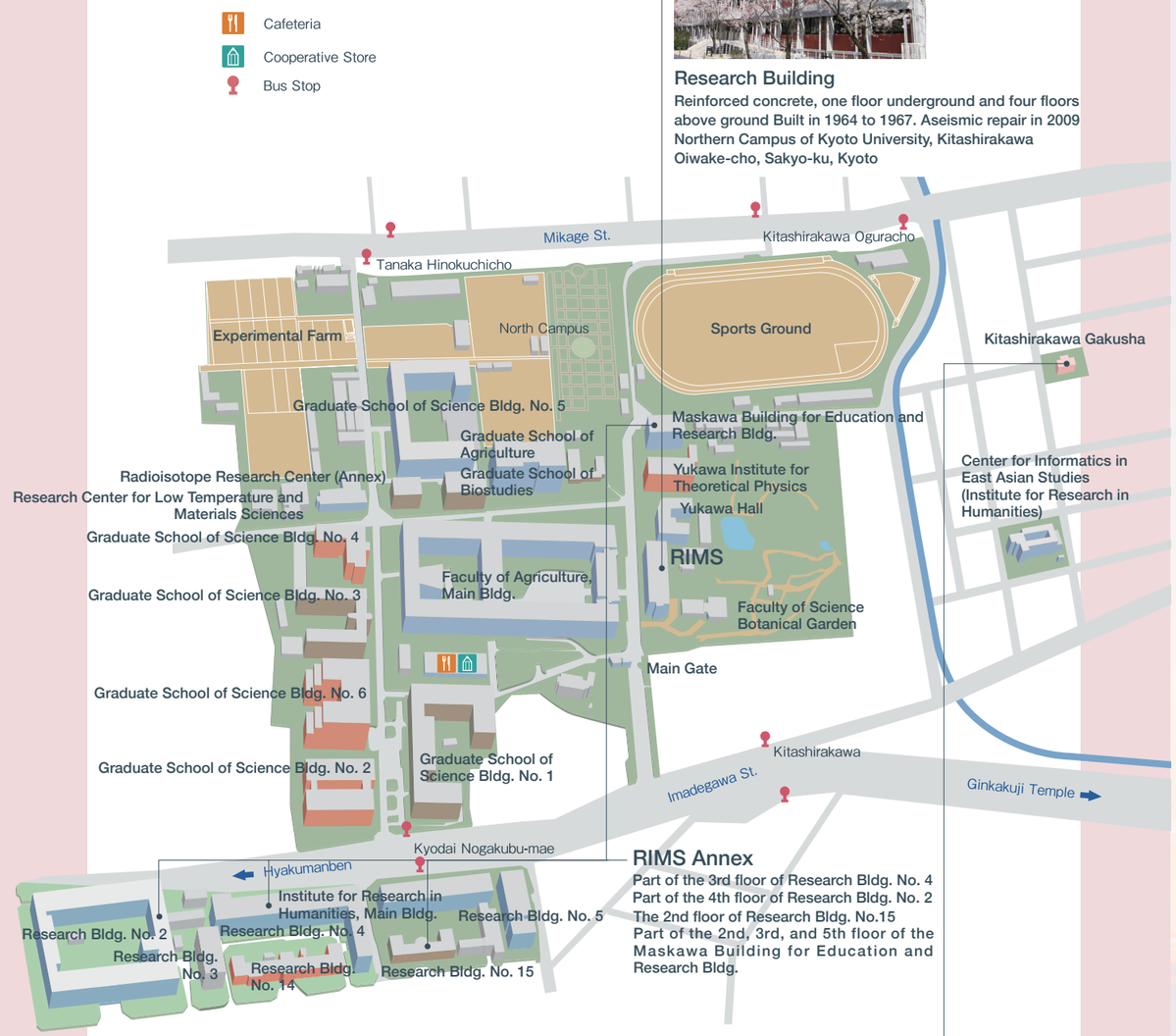
* The external funds include the indirect expenses.
The Grants-in-Aid for Scientific Research and contributions are the amount received.

RIMS History

April	1958	The 26th General Assembly Meeting of the Science Council of Japan (SCJ) approved the founding of RIMS.
April	1963	RIMS was founded as a joint usage research institute attached to Kyoto University for the purpose of conducting general research in mathematical science. In the initial year, two research divisions (Fundamental Mathematics Research Division One and Operator Theory Research Division) were established.
April	1964	Two research divisions (Fundamental Mathematics Research Division Two and Applied Analysis Research Division One) were established.
April	1965	Two research divisions (Non-Linear Problem Research Division and Applied Analysis Research Division Two) were established.
April	1966	Two research divisions (Approximation Theory Research Division and Numerical Analysis Division) were established.
April	1967	One research division (Computer Research Division) was established. A total of nine research divisions were completed.
April	1971	The Applied Mathematical Programming Institute attached to RIMS was established.
April	1975	The Division of Mathematical Sciences was established in the Kyoto University Graduate School of Science.
April	1978	The Global Analysis Research Division was established.
April	1980	The Mathematical Science Research Division (with a visiting professor from overseas) was established.
April	1984	The Algebraic Analysis Research Division (with a 10-year limit) was established.
May	1989	The Mathematical Physics Research Division (with a 10-year limit) was established.
April	1992	The Algebraic Variety Research Division (with a 10-year limit) was established.
April	1994	Due to the reorganization of the Graduate School of Science, the Division of Mathematics and Mathematical Sciences was established. The Division of Mathematical Sciences is subsumed by the Department of Mathematical Sciences in this new division.
June	1994	The Field of Algebraic Analysis Research Division (with a 10-year limit) was established (in the place of the Algebraic Analysis Research Division, which was abolished).
April	1995	The Applied Mathematics Research Division (with a visiting professor from overseas) (with a 10-year limit) was established.
April	1999	Due to reorganization, RIMS consists of three major research divisions (Fundamental Mathematics Research Division, Infinite Analysis Research Division, and Applied Mathematics Research Division) and one attached institute (Applied Mathematical Programming Institute attached to RIMS).
April	2004	The Applied Mathematical Programming Institute attached to RIMS was re-established as the Computer Laboratory.
April	2006	The Center for Research in the Frontiers of Mathematical Science was established (internal process).
October	2007	The Mathematical Science Joint Research Division (with the Nomura Group) was established (for 3 years) commemorating the awarding of the Carl Friedrich Gauss Prize to Dr. Kiyoshi Ito.
April	2010	RIMS was certified as an advanced Joint Usage / Research Center of Mathematics and Mathematical Science (for 6 years).
April	2012	The Research Center for Quantum Geometry was established (internal process). The Center for Research in the Frontiers of Mathematical Science changed its name to the Center for Research Interaction in Mathematical Sciences.
May	2013	The Liaison Center in Mathematics was established (internal process).
April	2016	The certification of the advanced Joint Usage / Research Center of Mathematics and Mathematical Science was renewed (for 6 years).
December	2017	The Preparatory Center for Research in Next-Generation Geometry was established (internal process).
November	2018	RIMS was certified as an International Joint Usage/Research Center (International Center for Collaborative Study in Mathematical Sciences, for 3 years).
April	2019	The Center for Research in Next-Generation Geometry was established (internal process / in the place of The Preparatory Center for Research in Next-Generation Geometry, which is abolished).
April	2020	The Research Center for Quantum Geometry is abolished.

Map of North Campus

Research Building
Reinforced concrete, one floor underground and four floors above ground Built in 1964 to 1967. Aseismic repair in 2009
Northern Campus of Kyoto University, Kitashirakawa Oiwake-cho, Sakyo-ku, Kyoto



RIMS Annex
Part of the 3rd floor of Research Bldg. No. 4
Part of the 4th floor of Research Bldg. No. 2
The 2nd floor of Research Bldg. No.15
Part of the 2nd, 3rd, and 5th floor of the Maskawa Building for Education and Research Bldg.

Guesthouse for Joint Use Researchers
(Kitashirakawa Gakusha)

Guesthouse for the researchers visiting this institute
Commonly called “Kitashirakawa Gakusha,” it is jointly managed and operated by RIMS and Yukawa Institute for Theoretical Physics.

Building Area: 137m²; Total Floor Space: 453 m²;
4 stories above the ground; Capacity: 14 persons

Address: 50-227 Kitashirakawa Ogura-cho, Sakyo-ku, Kyoto City
Telephone: 075-701-8862
For inquiries, contact Cooperative Research Service Section (kyodo@kurims.kyoto-u.ac.jp).