

SAITAMA UNIVERSITY
Graduate School of Science and Engineering

Saitama University-RIKEN International Joint Graduate School

1. General overview

Saitama University and RIKEN (<http://www.riken.jp/en/>), one of Japan's leading advanced research institutes, established the Saitama University-RIKEN International Joint Graduate School on October 1, 2008. This school offers students from overseas an opportunity to enroll in a doctoral program at Saitama University's Graduate School of Science and Engineering while conducting research at RIKEN under the supervision of faculty members with concurrent appointments at RIKEN and Saitama University. RIKEN will provide its research resources covering the fields of physics, chemistry, biology, medicine and engineering, and financial support for part of the student's living and accommodation costs. Enrollment is once a year in the autumn. The fifteenth year of this program will begin in October 2022.

2. Program

The Saitama University-RIKEN International Joint Graduate School is a part of RIKEN's Joint Graduate School Program. Graduate students from abroad participating in the Saitama University-RIKEN International Joint Graduate School are supervised by a faculty member in one of the six departments of Saitama University's Graduate School of Science and Engineering or in the Saitama University Brain Science Institute. The six departments are: Department of Bioscience; Department of Material Sciences; Department of Mathematics; Electronics and Informatics; Department of Human Support and Production Sciences; Department of Civil and Environmental Engineering; and the Department of Advanced Collaborative Research. The faculty members listed in the table at the end of this program description hold concurrent appointments with RIKEN and Saitama University and have their research laboratory at the RIKEN Wako campus. Successful candidates will pursue their PhD study at RIKEN as Saitama University students and will receive some financial support in the form of a living and accommodation allowance.

3. Eligibility

Non-Japanese students who satisfy the qualifications for the PhD courses of the six departments and one institute listed above are eligible to apply.

Applicants must also have the following qualifications:

- A master's degree or equivalent research experience
- A high TOEFL or IELTS score

Note: Students whose mother tongue is not English are required to submit a certificate of English proficiency.

- Good mental and physical health

If admitted, the applicant must report in person to Saitama University by October 1, 2022.

4. How to Apply

Applicants for this program should first contact by email a faculty member who they would like to have as the supervisor of their studies. Application must be made through one of the faculty listed in the table at the end of this program description.

- Evaluation of applications will be based on the candidate's scholastic ability and research potential assessed from previous credentials, recommendation letters, and essays on selected topics. An admissions committee will review all applications and the faculty member who has been contacted will inform the applicant of the screening results. Successful applicants must have an Internet or telephone interview with the admissions committee members according to a pre-determined time schedule. The details of this interview will be sent out to short-listed candidates. The final selection is based on the interview. The successful candidate must be accepted as a regular PhD course student at Saitama University. Applicants who fail to meet these criteria will not be accepted.

- Schedule for October 2022 admissions

April 4, 2022	Application deadline
April 4–May 6, 2022	Screening of applicants
June 17, 2022	Notification of results to applicants
September 23–October 1, 2022	Arrival date for international students enrolling in 2022

- Required documents (to be sent to contact faculty member)

- Application Form 1: PDF ([PDF](#)) ([Word](#))4 pages
(Concise resume and certificates of degrees (BSc & MSc) including official copies of academic records and grades obtained during previous undergraduate and graduate studies as well as list of publications and copies of refereed papers, if any.)
- Application Form 2: ([PDF](#)) ([Word](#))(1 page)
- Application Form 3: ([PDF](#)) ([Word](#))(2 pages or more)
(Including essays on field of study and study program in Japan)
- Two letters of recommendation from those who can access the applicant's academic ability, including one from the research mentor of the applicant's last university attended (submit in a sealed envelope)
- Certificate of English proficiency: Official score of TOEFL, IELTS or equivalent unless English is your mother tongue.
- Statement of source of funding
(If you have received a scholarship, please submit certificate as evidence.)

5. Financial Support

The successful applicant will hold the position of International Program Associate (IPA) at RIKEN. RIKEN shall provide the following financial support:

1. JPY 5,200 per day for living expenses
2. Accommodation costs: If RIKEN on-campus housing is unavailable, up to JPY 70,000 per month for off-campus housing (utilities and telephone not included)
If RIKEN on-campus housing is available, rent will be waived.
3. Discounted economy roundtrip airfare between home country and Japan

6. Application, Admission, and Tuition Fees

Applicants to Saitama University's PhD course are required to pay JPY 30,000 application fee by the end of April. An additional JPY 282,000 admission fee must be paid upon acceptance. One-half of the annual tuition (JPY 535,800 per year) for the PhD course must be paid prior to enrollment.

7. Contacts

For university matters (e.g. graduate school information, admission and tuition) ;

Saitama University Graduate School of Science and Engineering

255 Shimo-okubo, Sakura-ku, Saitama, 338-8570 Japan

URL <http://www.saitama-u.ac.jp/rikogaku/en/2022-Oct.pdf>

EMAIL rikou@gr.saitama-u.ac.jp

TEL +8148-858-3951 +8148-858-3430

FAX +8148-858-3698

For general inquiry (incl. IPA financial support or questions about IPA Program) ;

RIKEN Human Resources Division Research Personnel Affairs Section

EMAIL ipa-info@riken.jp

URL <http://www.riken.jp/en/careers/programs/ipa/>

Graduate School of Science and Engineering departments and faculty members with concurrent appointments for Saitama University-RIKEN International Joint Graduate School
(as of January 2022)

Department	Type of Degree	Department Outline
Bioscience	Doctor of Philosophy or Doctor of Science	Chemical biology, recombinant DNA in eukaryotes, molecular cell biology relating to nucleocytoplasmic exchange, the growth and differentiation of insects, the physiology of the cell cycle and posttranslational modification http://www.saitama-u.ac.jp/rikogaku/english/education/doctor/life.html
Faculty	Email	Key words & comments
Shunji Takahashi	shunjitaka(at)riken.jp	Research Subjects: (1) Elucidation of biosynthetic mechanism of microbial secondary metabolite; (2) Production of natural products by gene activation; (3) Construction of biosynthetic platform and creation of valuable compounds. http://www.csrs.riken.jp/en/labs/npbu/index.html
Naoko Imamoto	nimamoto(at)riken.jp	In eukaryotic cells, most of genomic information is stored in the cell nucleus. The main subject of our laboratory is to understand the nucleocytoplasmic transport and organization of cell nucleus to uncover new aspects and principles on regulation and maintenance of nuclear function. Our current effort has been focused on dissecting the dynamic behavior of nucleocytoplasmic transport machinery, transport pathways, and functional relation between nuclear envelope and chromatin structure in the context of live cells and cell-free reconstituted systems. We are taking cell biological, molecular biological, and biochemical approaches coupled with newly developed imaging techniques. http://www.riken.jp/engn/r-world/research/lab/wako/cell-dyna/index.html
Tadashi Suzuki	tsuzuki_gm(at)riken.jp	Research Subjects: (1) studies on mechanism of novel catabolic pathway for glycans; (2) functional role and evolutionary diversion of the cytoplasmic PNGase. Research Background Desired: Biochemistry; Cell Biology; Genetics; Mammalian Genomics.
Naoshi Dohmae	dohmae(at)riken.jp	Biomolecular characterization. We develop high quality structural characterization methods to the biological science, aiming to further understand the mechanism and action of biological molecules. http://www.riken.jp/BiomolChar/index_en.html
Minoru Yoshida	yoshidam(at)riken.jp	Chemical genomics is a new approach to drug and drug target discovery in the post-genomic era. In our laboratory, biological functions of a number of proteins targeted by small molecules are studied by chemical genomics. In particular, we focus on

		protein modifications that regulate fundamental biological processes such as energy metabolism, nutrient and environmental response, and aging. http://www.csrs.riken.jp/en/labs/cgrg/index.html
Yoichi Shinkai	yshinkai(at)riken.jp	This laboratory's principal objective is to understand the molecular mechanism of epigenetic gene regulation and roles of epigenetics in health and disease. To address above questions, we take multidisciplinary approaches toward this goal, including molecular biology, biochemistry, cell biology, structural biology and mouse molecular genetics. http://www.riken.jp/en/research/labs/chief/cell_memo/
Hideyuki Miyatake	miyatake(at)riken.jp	The aim of our laboratory is to create new functional materials by a new method which will be developed from a combination of chemical and biotechnological methodologies. The research is conducted mainly in RIKEN Wako campus. http://www.riken.jp/nano-med.eng.lab/index.html

Department	Type of Degree	Department Outline
Material Sciences	Doctor of Philosophy or Doctor of Science or Doctor of Engineering	http://www.saitama-u.ac.jp/rikogaku/english/education/doctor/material.html
Faculty	Email	Key words & comments
Zhaomin Hou	Houz(at)riken.jp	Organometallic Chemistry, Molecular Catalysis, Polymer Chemistry. Our research interest includes development of more efficient, selective catalysts for olefin polymerization and organic synthesis, organometallic complexes having novel structures or properties, and organic functional materials. http://www2.riken.jp/lab/organometallic/HP2015e/index.html
Ilies Laurean	laurean.ilies(at)riken.jp	Synthetic organic chemistry. We are developing metal catalysis using newly designed ligands for direct and selective functionalization of organic molecules. We are also interested in catalysis with Earth-abundant metal catalysis, and organosodium compounds as a sustainable alternative to lithium. http://iliesteam.riken.jp/home.html
Satoshi Kamiguchi	Kamigu(at)riken.jp	Inorganic chemistry and catalytic chemistry. Our research interest is synthesis of multi-nuclear transition metal cluster complexes and their application to functional materials. Recent study is especially focused on utilization of sulfide cluster complexes as catalysts.

Masaki Kawamoto	mkawamot(at)riken.jp	Material Chemistry and Polymer Chemistry. Our research interests focus on development of functional polymers for photochemical and electrochemical sensing and memory applications. Solution-processed and self-assembled carbon nanomaterials are also investigated for energy conversion devices using environmentally friendly fabrication methodology.
Tahei Tahara	tahei(at)riken.jp	Ultrafast Spectroscopy, Nonlinear Spectroscopy, and Single Molecule & Correlation Spectroscopy. We study 'complicated systems' in the condensed phase using advanced molecular spectroscopy. Especially, we now focus on (1) elucidation and control of ultrafast phenomena using advanced time-resolved spectroscopy, (2) study of soft interfaces using new nonlinear spectroscopy, and (3) study of the dynamics of complex systems in the femtosecond - millisecond time region. In the course of these researches, we develop new methods in molecular spectroscopy. http://www.riken.jp/lab-www/spectroscopy/index-e.html
Mikiko Sodeoka	sodeoka(at)riken.jp	Synthetic Organic Chemistry and Chemical Biology. Our research interests cover from transition metal-catalyzed reactions to design and synthesis of bioactive molecules and chemical probe for the cell biology research. Not hosting IPA students for FY 2022 http://soc.riken.jp/index.html
Yousoo Kim	ykim(at)riken.jp	Our research focuses on describing details of the energy transport and conversion at the solid surfaces and interfaces in the nanoscale regime. In order to understand their basic mechanism at a single molecule/atom level, we carry out combined study of scanning probe microscopy/spectroscopy and density functional theory calculation on the well-defined surfaces under ultra-high vacuum condition. http://www.riken.jp/Kimlab/
Yoichi M. A. Yamada	ymayamada(at)riken.jp	We are developing self-organized catalysts of polymer ligands and metal species, spatial catalysts where micro/nano space materials and catalytic molecules/clusters are merged, and electromagnetic waves-activated catalysts. http://greennano.riken.jp/index.html
Atsuya Muranaka	atsuya-muranaka(at)riken.jp	Physical organic chemistry. We focus on the design, synthesis, and characterization of functional π -conjugated molecules. Both experimental and computational studies are conducted to better understand their structure-property relationships. Our interests include near-infrared dyes, porphyrinoids, and aromaticity.
Takuo Tanaka	t-tanaka(at)riken.jp	In this research laboratory, we are intensively investigating breakthrough science and techniques that can artificially control the electro-magnetic / optical properties of materials by using metal nano-

		<p>structures. We collectively call these artificial materials "metamaterials." Metamaterial technology can control the permittivity and permeability of the materials and can create unprecedented optical materials such that its refractive index can be zero, negative or gargantuan. We also intensively extend the application of metamaterials to develop novel and functional photonic devices. In addition, other active studies for the development of peta-byte optical data storage or the development of laser nano 3D fabrication technology are also running.</p> <p>http://metamaterials.riken.jp/</p>
Katsunori Tanaka	kotzenori(at)riken.jp	<p>Synthetic organic chemistry and reaction-based chemical biology. Our research focuses on exploring the new reactivity of biologically relevant compounds and transition metal-catalyzed reaction, and their utilization in discovering the new biological phenomena, establishing the innovative PET imaging, and synthesizing the bioactive compounds in highly developed organisms.</p> <p>http://www2.riken.jp/nori-tanaka-lab/</p>

Department	Type of Degree	Department Outline
Mathematics, Electronics and Informatics	Doctor of Philosophy or Doctor of Engineering	<p>This course takes the harmony of humanity, science, and technology as its theme and deals comprehensively with education and research on underlying theoretical concepts, hardware and software.</p> <p>http://www.saitama-u.ac.jp/rikogaku/english/education/doctor/mathematic.html</p>
Faculty	Email	Key words & comments
Hideki Hirayama	hirayama(at)riken.jp	<p>We are studying on terahertz (THz) quantum devices and deep-UV emitting devices. Especially, we recently aim to develop 1-10 THz-band quantum cascade laser (QCL) and THz photo detector using semiconductor superlattices (SLs) and also 230-350nm-band deep-ultraviolet (UV) light-emitting diodes (LEDs) and laser diodes (LDs) using group III nitride semiconductors.</p> <p>http://www.riken.jp/en/research/labs/chief/qtm_optodevice/</p>
Tetsuya Aoyama	taoyama(at)riken.jp	<p>Organic semiconductor devices such as transistors, photovoltaic devices and light-emitting diodes. The influences of the molecular packing on device performances are investigated.</p>
Keiji Ono	k-ono(at)riken.jp	<p>Low temperature electron transport experiments on semiconductor nanostructures, especially quantum dots. Recently, we focus on electron-spin and nuclear-spin related effects in quantum dots.</p>

Tomohiro Yamaguchi	tyamag(at)riken.jp	Physics and engineering of quantum nanoscale devices. Our main interest involves a search for novel phenomena in nanoscale devices based on carbon nanotubes, semiconductor nanowires or superconducting materials and its application to quantum functional devices.
Kenjiro Fukuda	kenjiro.fukuda(at)riken.jp	We make full use of the novel soft electronic materials such as novel organic semiconductors in order to fabricate emergent thin-film devices. The new soft systems have excellent features such as lightweight and large area, which are complimentary to inorganic semiconductors, are expected to open up new eco-friendly applications. One of the current specific topics is flexible organic solar cells. http://rikensomeya.riken.jp/index_en.html

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Human Support and Production Sciences	Doctor of Philosophy or Doctor of Engineering	This course is divided into the two areas of manufacturing science and human support engineering. The area of manufacturing science deals mostly with materials science, manufacturing science, and thermal-fluid science, and the area of human support engineering deals with robotics and mechatronics, and mechanics and design. http://www.saitama-u.ac.jp/rikogaku/english/education/doctor/mechanical.html
Faculty	Email	Key words & comments
Hitoshi Ohmori	Tuelid(at)mvd.biglobe.ne.jp	Micro-mechanical fabrication, micro-mechanics, IT assisted fabrication http://www.riken.jp/en/research/labs/chief/mater_fab/

Department	Type of Degree	Department Outline
Advanced Collaborative Research	Doctor of Philosophy or Doctor of Engineering	http://www.saitama-u.ac.jp/rikogaku/content/dept_002_07_coll.html
Faculty	Email	Key words & comments
Particle Physics		
Tomohiro Uesaka	uesaka(at)ribf.riken.jp	Experimental nuclear physics at RI-beam factory, RIKEN: Weak responses of unstable nuclei, Shell structure, Nuclear matter properties, and Spin-related phenomena
Yuko Motizuki	motizuki(at)riken.jp	Theoretical nuclear astrophysics; computer simulations of element synthesis and supernova explosions.

Makiko Nio	nio(at)riken.jp	(We are not recruiting this year) Theoretical particle physics, particularly Quantum Electrodynamics. My research is precision calculation of very simple systems such as a single electron or hydrogen-like atoms. Our theoretical predictions are compared with the measurements from the state-of-the-art experiments and help deepen our understanding what quantum physics is. Basic knowledge on quantum field theory is prerequisite.
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Department	Type of Degree	Department Outline
Collaborative Advanced Research Course	Doctor of Philosophy or Doctor of Science	http://www.saitama-u.ac.jp/rikogaku/en/dept/course/doctor/collaboration.html
Faculty	E-mail	Key Words & Comments
Tomomi Shimogori	tshimogori(at)brain.riken.jp	Neural Circuit Development, Thalamus-Cortex connectivity, Evolution. http://www.riken.jp/en/research/labs/bsi/mol_mech_thal_dev/
Motomasa Tanaka	motomasa.tanaka(at)riken.jp	Understanding molecular basis of neurodegenerative and psychiatric diseases through multidisciplinary approaches including neurobiology, biophysics and proteomics/genomics. We are seeking for highly motivated graduate students who are interested in our research projects: http://motomasalab.riken.jp/index_eng.html
Masanori Murayama	masa_murayama(at)brain.riken.jp	(We are not recruiting this year) We focus on circuit and cellular mechanisms of somatosensory perception and memory consolidation. http://www.brain.riken.jp/en/faculty/details/32

*Replace (at) with @