

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 seventeenth year of this program will begin in October 2024.

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 courses of Saitama University's Graduate School of Science and Engineering. The six courses are: Life Science Course; Material Science Course; Mathematics, Electronics and Informatics Course; Mechanical Science Course; Environmental Science and Civil Engineering Course; and the Collaborative Advanced Research Course. 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 studies at RIKEN as Saitama University students and will receive some financial support in the form of a living and accommodation allowance.

3. Application Eligibility

Non-Japanese applicants who satisfy the qualifications for the PhD courses of the six courses listed above are eligible to apply.

Applicants should meet any one of the following criteria:

- (1) Those who have earned a master's degree or professional degree or are expected to earn it by September 2024.
- (2) Those who have been granted any degree equivalent to a master's degree or professional degree in any foreign country or are expected to be granted it by September 2024.
- (3) Those who have completed correspondence courses provided by any foreign school in Japan and have been granted any degree equivalent to a master's degree or professional degree or

are expected to be granted it by September 2024.

- (4) Those who have been designated by the Minister of Education, Culture, Sports, Science and Technology.
- (5) Those who have been recognized by the Graduate School as having the scholastic ability of or higher than those who have earned a master's degree as a result of individual examination of application eligibility and have reached the age of 24 or will reach the age of 24 by September 30, 2024.

* For the application eligibility (4) and (5), please refer to "4. Assessment of Admission Eligibility". If you have any questions about the application eligibility, please contact the office of the Graduate School of Science and Engineering (Email: rikou@gr.saitama-u.ac.jp).

4. Assessment of Application Eligibility

For those who apply under the application eligibility (4) and (5), the Graduate School of Science and Engineering will conduct examination for certification of the application eligibility and refrain from receiving the application documents until the examination is finished. If you wish to apply under the eligibility criteria (4) or (5), please contact the office of the Graduate School of Science and Engineering. For the assessment, the required documents specified in "5. How to apply" must reach us on or prior to Monday, March 18, 2024. The result of assessment will be notified by Monday, March 25, 2024.

- (1) The scope of "Those who have been designated by the Minister of Education, Culture, Sports, Science and Technology" as stipulated in the Application Eligibility criteria (4) refers to those who satisfy the following requirements (i) and (ii):
 - (i) Those who have engaged in research at a university or research institute for two (2) years or longer after graduating from a university or completing the 16-year programs of school education in any foreign country; and
 - (ii) Those who have research results that are deemed equivalent to or higher than a master's degree thesis in terms of books, academic papers, academic presentations, academic reports, or patents.
- (2) The scope of "Those who have been recognized by the Graduate School as having the scholastic ability as or higher than those who have earned a master's degree as a result of individual examination of application eligibility and have reached the age of 24 or will reach the age of 24 by September 30, 2024" stipulated in the Application Eligibility criteria (5) refers to those who satisfy the following requirements (i) and (ii):
 - (i) Those who have graduated from a university, college, college of technology, specialized training college, or vocational school, or have completed any other educational facility, and have business experience at a university or other research institute, or in the science or technology-related field.

- (ii) Those who have research results that are deemed equivalent to or higher than a master's degree thesis in terms of books, academic papers, academic presentations, academic reports, or patents.

5. How to Apply

Applicants for this program should contact 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 application documents and the faculty member who has been contacted will inform the applicant of the document screening results. Successful applicants must have an onsite, 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. Finally, the selected candidate will be accepted as a regular PhD course student at Saitama University. If admitted, the applicant must report in person to Saitama University around September 27, 2024.

- Schedule for October 2024 admissions

March 18, 2024	Assessment of Application Eligibility deadline
April 1, 2024	Application deadline
April 1–May 7, 2024	Screening of applicants
June 14, 2024	Notification of results to applicants
September 20–26, 2024	Arrival of international students enrolling in 2024

- Required documents (Submit an electronic copy & original copy of the documents to the contacted faculty member)

(a) Application Form 1: [\(PDF\)](#)[\(WORD\)](#)(4 pages)

(Include the following documents: certificates of degrees (BSc & MSc), official copies of academic transcripts for undergraduate and graduate studies, list of publications and copies of refereed papers (if any).)

(b) Application Form 2: [\(PDF\)](#) [\(WORD\)](#) (1 page)

(c) Application Form 3: [\(PDF\)](#) [\(WORD\)](#)(maximum 4 pages)

(Including essays on the field of study and study program in Japan)

(d) Two letters of recommendation from those who can assess the applicant's academic ability, including one from the research mentor of the applicant's last university attended (submit in a sealed envelope)

(e) Certificate of English proficiency: Official score of TOEIC, TOEFL, IELTS or equivalent external examination score, unless English is your mother tongue.

Note: A high TOEIC, TOEFL or IELTS score is preferred.

(f) Statement of source of funding

(If you have received a scholarship for your studies in Japan, please submit certificate as evidence.)

6. Preliminary consultation for applicants with disabilities

If you wish to apply and have a physical disability and need special consideration for entrance exams or study, please consult with us before applying.

7. 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.

8. 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.

9. Announcement of Successful Applicants

You will be notified of the pass/fail results through the faculty you chose as a supervisor by email by June 14, 2024.

10. Admission Procedure

(1) Admission Procedure Dates:

Admissions for the semester starting in October 2024: Friday, September 20 to Monday, September 30, 2024 between 9:00 and 17:00.

(2) Documents to Be Submitted:

Documents to be designated by the University (to be notified to successful applicants).

(3) Payments: Admission fee and tuition fee (see 8. Application, Admission, and Tuition Fees)

For the purpose of admission procedure, successful applicants should bring the documents

designated by the University directly to the office of the University.

*1. You can pay the tuition fee for the second semester, if you wish, when you pay the tuition fee for the first semester.

If any person whose withdrawal of admission is approved after the completion of the admission procedure requests on or prior to 17:00 on Monday, September 30, 2024 that the tuition fee once paid be refunded, we will refund the amount equivalent to such tuition fee.

*2. Upon admission, you will need to pay some minor charges such as the premium for Personal Accident Insurance for Student Pursuing Education and Research, in addition to the entrance fee mentioned above.

*3. If the amount of the tuition fee is revised while you are enrolled, the new tuition fee will be applicable at the time of revision.

*4. There is a system in which we may permit any students who find it difficult to pay the entrance fee and tuition fee for economic or other reasons to be exempted from or defer payment through the selection process. Details will be notified to successful applicants. (If you wish to withdraw admission after you submit an application for exemption from or deferral of payment, you will need to pay the entrance fee.)

*5. If you fail to complete the admission procedure within the designated period, you will be treated as if you have withdrawn admission.

11. Matters That Require Attention

(1) Please be fully aware that when you apply for admission, we may not accept your application unless you have prepared all the required documents.

(2) We will not return the documents submitted once we accept the application documents.

(3) If you wish to request a refund of the application fee that you have already paid, please contact Saitama University.

(4) You will not be allowed to change any descriptions in the application documents for any reason after we accept those documents. If, however, there are changes to your address and telephone number, please contact the office of Graduate School Affairs Section, Graduate School of Science and Engineering.

(5) If any of the descriptions in the documents submitted are found untrue, we may rescind the admission even after you have been admitted.

12. Security export control

Saitama University has established the “Saitama University Security Export Control Regulations” in accordance with Japan’s “Foreign Exchange and Foreign Trade Act”, and rigorously screens potential international students based on these regulations.

Please be aware that international applicants who fall under any of the conditions set out in said regulations may not receive permission to enroll at the university or may have their research

activities restricted.

Details can be obtained from the following website: Saitama University Security Export Control Regulations: <http://www.saitama-u.ac.jp/houki/houki-n/reg-n/2-3-16.pdf> (Japanese only)

13. 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. application procedures, IPA financial support or questions about IPA Program) ;

RIKEN Human Resources Division Research Personnel Affairs Section

EMAIL ipa-info@ml.riken.jp

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

Graduate School of Science and Engineering courses and faculty members with concurrent appointments for Saitama University-RIKEN International Joint Graduate School.

(as of April 2024)

Field of study	Type of Degree	Course Outline
Life Science	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/en/dept/course/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
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
Motoaki Seki	motoaki.seki(at)riken.jp	We are analyzing plant genomic networks for environmental stress adaptation and improved productivity. Especially, we now focus on (1) Analysis of chemical, epigenetic and RNA regulation mechanisms in environmental stress adaptation, (2) Analysis of regulatory networks of tuberous root formation in cassava, and (3) Development of technologies to produce useful plant resources, such as enhanced stress tolerance and increased plant productivity. http://www.csrs.riken.jp/en/labs/pgnrt/index.html
Rikiya Watanabe	rikiya.watanabe(at)riken.jp	Single molecule biophysics, bioMEMS, Liquid biopsy. Our study aims to understand cellular functions using a bottom-up approach from single molecule level. To achieve this, we are attempting to elucidate the mechanism by which individual biomolecules or their networks function in a precise manner by developing novel single-molecule techniques. In addition, we are developing a methodology to investigate correlations between genetic mutations, dysfunctions, and diseases with single molecule sensitivity, which would provide new insights for biomedical studies.

		https://nanobio.riken.jp/index_e.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_meme/
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. Not recruiting IPA students for FY 2024

Field of study	Type of Degree	Course Outline
Material Science	Doctor of Philosophy or Doctor of Science or Doctor of Engineering	http://www.saitama-u.ac.jp/rikogaku/en/dept/course/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
Laurean Ilies	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
Takehiko Saito	takehiko.saito(at)riken.jp	Nuclear physics, hyperons and mesons in nuclei, development of machine learning models for nuclear physics experiments, neutron applications. We are working on the following subjects: (1) studies of hypernuclei with high energy heavy ion beams (using accelerators in Germany and China), (2) precise studies of light single- and double-strangeness hypernuclei with nuclear emulsions and machine learning, (3) studies of mesic-atoms and $\bar{\nu}$ -nuclei, and (4) applications of neutrons for

		<p>very precise neutron imaging and for studying semiconductor devices.</p> <p>https://www.riken.jp/en/research/labs/chief/high_e_ner_nucl_phys/</p>
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.
Masuki Kawamoto	mkawamot(at)riken.jp	Material Chemistry and Polymer Chemistry. Our research interests focus on development of functional materials that exhibit energy storage and conversion. Self-assembled nanomaterials are also investigated for applications in energy devices that contribute to a decarbonized society.
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.
		<p>https://spectroscopy.riken.jp/?lang=en</p>
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.
		<p>http://www.riken.jp/Kimlab/</p>
Yoichi M. A. Yamada	ymayamada(at)riken.jp	We are developing self-organized catalysts of polymer ligands and metal species, spatial catalysts for organic transformation reactions, where micro/nano space materials and catalytic molecules/clusters are merged, and electromagnetic waves-activated catalysts.
		<p>http://greennano.riken.jp/index.html</p>
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.

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://www.noritanaka-cap.mac.titech.ac.jp/</p>

Field of study	Type of Degree	Course 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/en/dept/course/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>
Eiji Takahashi	ejtak(at)riken.jp	<p>Femtosecond laser technology, ultrafast laser science, attosecond science, and strong-field physics. Our study is to realize novel extreme light sources by developing new femtosecond laser technologies and utilizing them for ultrafast science such as attoscience. Through the development of novel laser technologies, we'd like to explore the frontier of ultrafast laser science.</p> <p>https://rap.riken.jp/en/labs/eprg/ucsx/</p> <p>https://www.riken.jp/en/research/labs/chief/els/index.html</p>
Takuo Tanaka	t-tanaka(at)riken.jp	<p>In this research laboratory, we are intensively investigating the breakthrough science and technologies that can artificially control the optical properties of the materials by using metal nano-structures. This technology can create unprecedented optical materials such that it can interact directly with the magnetic components of the light, in which the refractive index can be zero, negative or tremendously giant values. We</p>

		collectively call these kinds of artificial materials - "metamaterials". We will also extend the application of metamaterials to develop novel and functional optical devices that will open a door for new photonic technologies. http://metamaterials.riken.jp/
Tetsuya Aoyama	taoyama(at)riken.jp	Organic semiconductor devices such as transistors, photovoltaic devices and light-emitting diodes. The influences of the molecular packing on device performances are investigated.
Keiji Ono	k-ono(at)riken.jp	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.
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

Field of study	Type of Degree	Course Outline
Mechanical Science	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/en/dept/course/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/

Field of study	Type of Degree	Course Outline
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Collaborative Advanced Research (Particle Physics)	Doctor of Philosophy or Doctor of Engineering	http://www.saitama-u.ac.jp/rikogaku/en/dept/course/doctor/collaboration.html
Faculty	Email	Key words & comments
Tomohiro Uesaka	uesaka(at).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.
Tetsuya Ohnishi	oonishi(at)riken.jp	Experimental nuclear physics at RI-beam factory, RIKEN:electron scattering with RI, mass measurement, instrumentation development (RI beam production, ion source, ion trap, electron and RI storage ring, and related detectors).
Makiko Nio	nio(at)riken.jp	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. Not recruiting IPA students for FY 2024

Field of study	Type of Degree	Course Outline
Collaborative Advanced Research (Brain Science)	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	tomomi.shimogori(at)riken.jp	We are focusing on mouse thalamus-cortex connections to dissect how neuronal circuits are refined by neuronal activity and reveal the molecular mechanisms which underlie it. Moreover, we are trying to understand how the young brain can rewire its circuits to develop cross-modality, and thus compensate for lost connections. https://www.riken.jp/en/research/labs/cbs/mol_mech_brain_dev/index.html
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	masanori.murayama(at)riken.jp	We focus on circuit and cellular mechanisms of somatosensory perception and memory consolidation. https://cbs.riken.jp/en/faculty/m.murayama/
Aya Ito-Ishida	aya.ishida(at)riken.jp	Our lab aims to understand the fundamental mechanisms of postnatal brain development and to clarify the origin of developmental disorders such as autism. We use multi-disciplinary approaches such as transcriptomics, imaging, and operant conditioning to characterize higher cognitive function in mice. https://cbs.riken.jp/en/faculty/a.ishida/

*Replace (at) with @