

S O K E N D A I

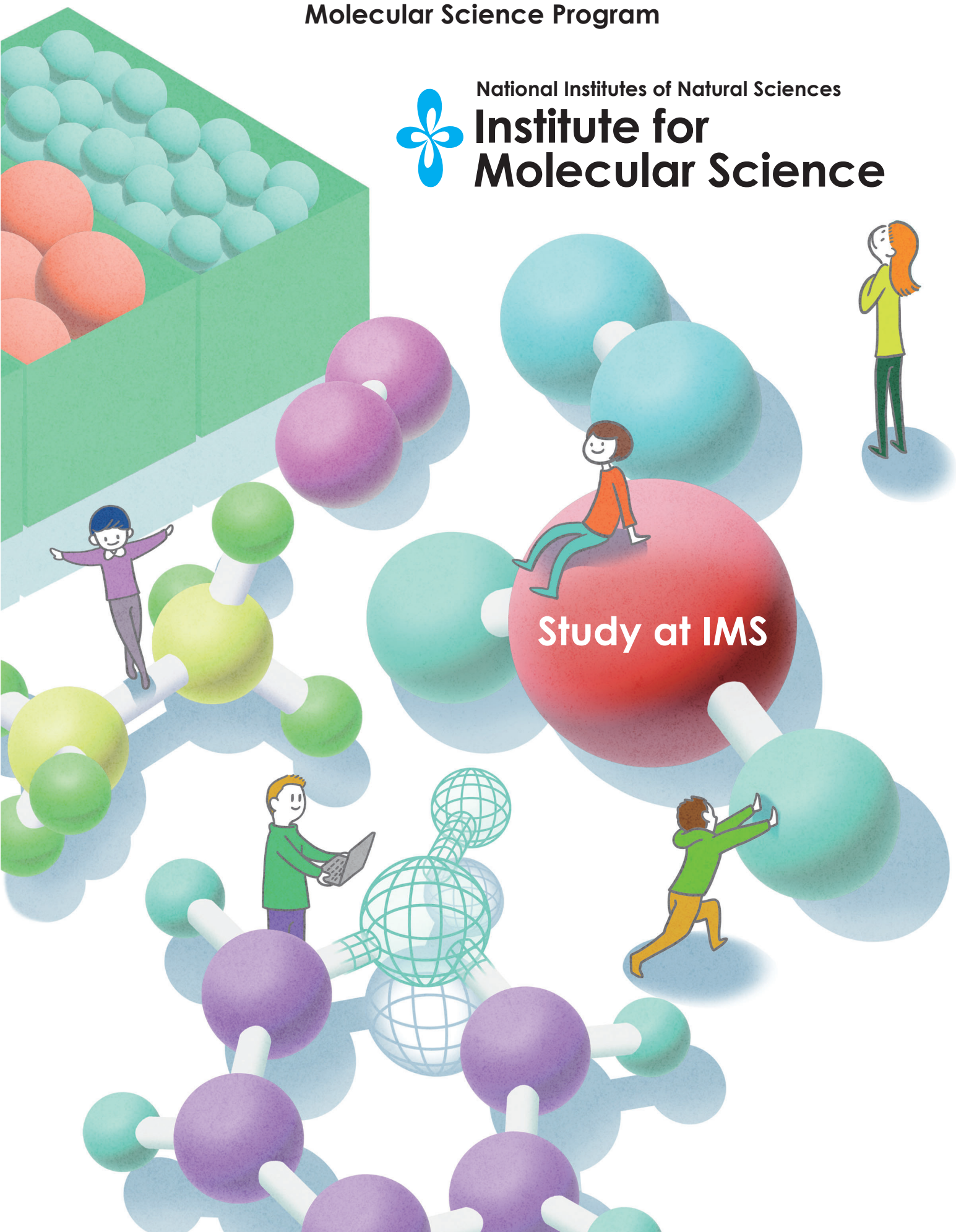
SOKENDAI

The Graduate University for Advanced Studies
Molecular Science Program

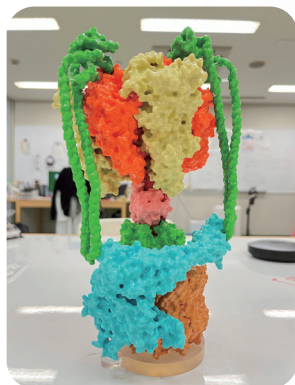
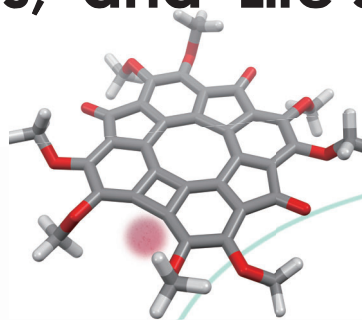
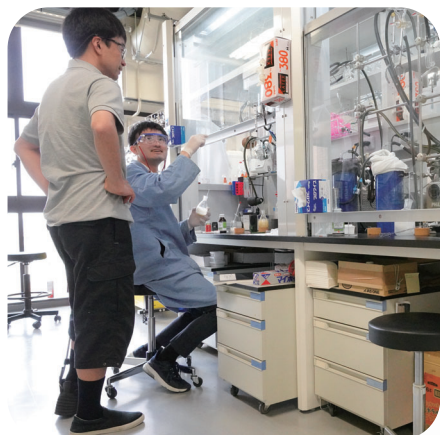


National Institutes of Natural Sciences

**Institute for
Molecular Science**



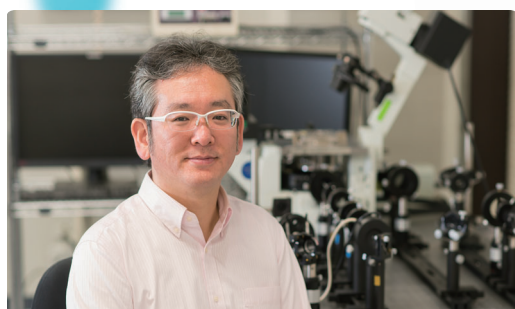
Molecular Science involves 'Chemistry,' 'Physics,' and 'Life science'.



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Molecular Science Program, SOKENDAI

Chair's Message

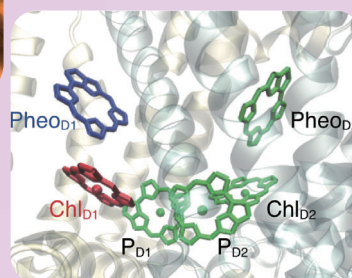
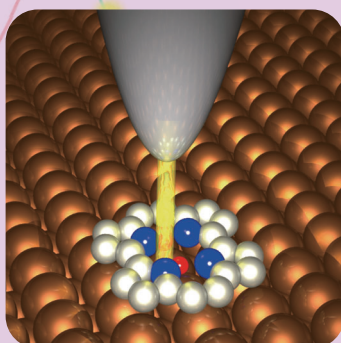
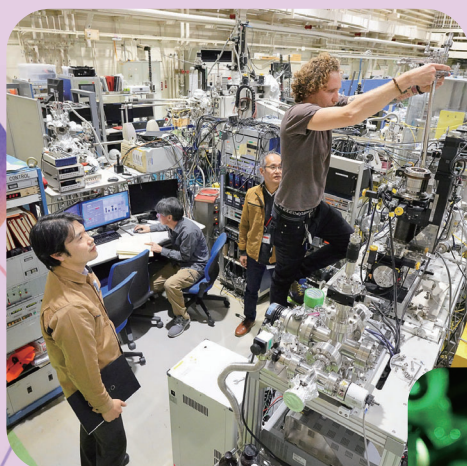


Graduated from the Faculty of Engineering, Kyoto University in 1995. Ph.D. from Nagoya University, Assistant Professor at Osaka University, Lecturer and Associate Professor at the University of Tokyo, and Professor at the Institute for Molecular Science and SOKENDAI since 2014, Program Chair since 2024. Specialty: Biophysical Chemistry.

Molecular Science broadly encompasses various fields of natural sciences, including chemistry, physics, and biology. At our institute, students can participate in groundbreaking research under the supervision by faculty members who are experts in their fields and pioneers in interdisciplinary studies. You also have invaluable opportunities to access state-of-the-art facilities and advanced equipment that are rarely available at conventional universities. Our research covers a wide array of cutting-edge topics, including photosynthesis, quantum computing, quantum measurement, synchrotron radiation science, ultrafast spectroscopy, nanospectroscopy, molecular imaging, superconductivity, chirality, spin, topology, heterogeneous catalysis, organic catalysis, molecular machines, proteins, and glycans. We are confident that you will find a research group perfectly aligned with your interests and aspirations in Molecular Science. We warmly invite you to join us and take the first step toward an exciting scientific journey.

IINO, Ryota

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SOKENDAI

Fostering Ph.D.s at World Class Research Institutes

The graduate students of SOKENDAI (The Graduate University for Advanced Studies) take classes and conduct research at IMS. SOKENDAI gives molecular science classes, including chemical science, physical science, materials science, and bioscience.



Institute for Molecular Science



SOKENDAI

For more information on our research, please visit the Institute for Molecular Science website.



SOKENDAI nurtures researchers at research institutes



Graduated from the Faculty of Science, Tohoku University in 1976. D. in Chemistry at the University of Tsukuba, Kyoto University, and the Institute for Molecular Science before becoming a professor and vice president of Nagoya University. After serving as Director of the Graduate University for Advanced Studies, he was appointed to his current position in April 2022. Doctor of Science.

Specialty: Bioinorganic Chemistry

Institute for Molecular Science (IMS) has served as a central research hub pioneering new frontiers in materials science for nearly 50 years since its establishment. Our institute is dedicated to exploring the structures, properties, and reactions of matter at the atomic and molecular levels, while leveraging these insights to develop novel materials with unique functionalities. We also investigate complex systems, such as proteins, nucleic acids, and the biological systems they constitute. With a faculty comprising experts in diverse fields such as physical chemistry, organic/inorganic chemistry, theory, computational science, condensed matter physics, and life sciences, IMS operates as an Inter-University Research Institute throughout Japan. IMS manages state-of-the-art research infrastructure, such as supercomputers and the synchrotron radiation facility (UVSOR), enabling groundbreaking research initiatives. Our institute also plays a vital role in addressing national research priorities through special projects funded by the Ministry of Education, Culture, Sports, Science, and Technology (MEXT). In addition to advancing cutting-edge research, IMS is deeply committed to graduate education. In collaboration with the Graduate University for Advanced Studies, SOKENDAI, IMS offers the Molecular Science Program, dedicated to nurturing and equipping the next generation of researchers to lead the future of science and technology.

Director General, Institute for Molecular Science

渡辺芳人

WATANABE, Yoshihito

Pursue a doctoral degree by studying Molecular Science!

The Graduate University for Advanced Studies, SOKENDAI, is a unique university that exclusively offers graduate programs and does not have undergraduate departments. It features a five-year integrated doctoral program for students entering after completing a bachelor's degree, as well as a doctoral program for those entering after earning a master's degree. Within SOKENDAI's Advanced Academic Institute, there are 20 programs based in national research institutes, including Institute for Molecular Science.

Students enrolled in the Molecular Science program will conduct research at IMS while pursuing a doctoral degree (a master's degree can also be obtained as part of the program). The program currently hosts approximately 30 graduate students, including international students. A distinctive feature of this program is the exceptionally high faculty-to-student ratio compared to universities, enabling students to engage in cutting-edge research under thorough and personalized guidance.

The program also offers a comprehensive curriculum, covering a wide range of lectures in chemistry, physics, and life sciences related to Molecular Science, allowing students to acquire broad knowledge from fundamentals to advanced applications. Students may also take programs offered by any of the 20 programs at SOKENDAI, including intensive lectures and public seminars. Additionally, events such as student seminars and international symposia provide opportunities to interact with peers across all programs.

With a mission to cultivate highly motivated students into researchers who will lead the future of Molecular Science, the program is designed to provide a supportive and stimulating environment for academic growth and innovation.

Engaging and Vibrant Campus Life

If you aspire to become a globally active researcher

You can immerse yourself in cutting-edge research within a unique environment provided by a national research institute, where leading researchers in physics, chemistry, and life sciences come together in a single program. This exceptional curriculum allows you to work on the frontlines of science, guided closely by professional researchers and faculty.

Collaborating with highly motivated peers, you will learn, practice, and grow every day.

This program equips you to develop interdisciplinary and holistic perspectives, fostering strong problem-solving skills and the ability to take decisive action. It provides an ideal environment to propel you toward becoming a next-generation researcher or engineer capable of making significant contributions on a global scale.



Expanding Global Connections

Our institute actively engages in dynamic research and academic exchanges that extend far beyond Japan. Each year, numerous researchers from around the world visit us for collaborative projects and academic workshops. The institute also hosts many international researchers and students, providing abundant opportunities to interact with scientists from diverse countries and fostering a highly international environment.

IMS has established academic exchange agreements not only with universities and research institutions across Japan but also with renowned institutions overseas, facilitating student exchanges and collaborative opportunities on a global scale.



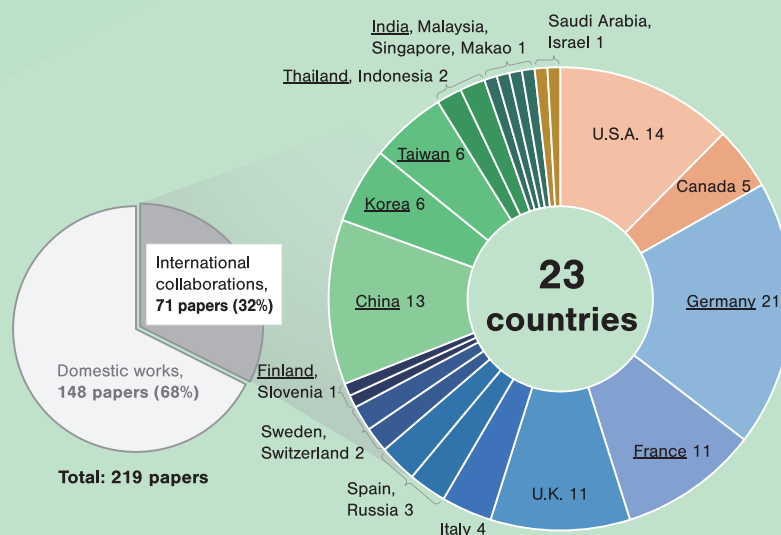
A Well-Rounded Experience Beyond Research

In addition to cutting-edge research, we offer a comprehensive range of foundational courses and English language education to support your academic and professional development. Students can also enjoy a fulfilling campus life through various extracurricular activities, including soccer, badminton, tennis, and other club activities, as well as institute-wide events. These opportunities ensure a balanced and enriching student experience.



Active international collaborations

international collaboration (2022)



Underlined: Countries that include institutions with academic exchange agreements (from Annual Review 2023)

Financial Support

Support System

Research Assistant System (RA)

This is a system established by the Ministry of Education, Culture, Sports, Science and Technology (MEXT), where graduate students are employed as research assistants to support faculty research and receive a salary. In the Molecular Science Program, graduate students of all years are employed as RAs.

IMS SRA Support System (SRA Support)

SRAs with outstanding research skills and a desire to become researchers in the future will be hired as SRAs and paid a special hourly rate.

Other Support Systems

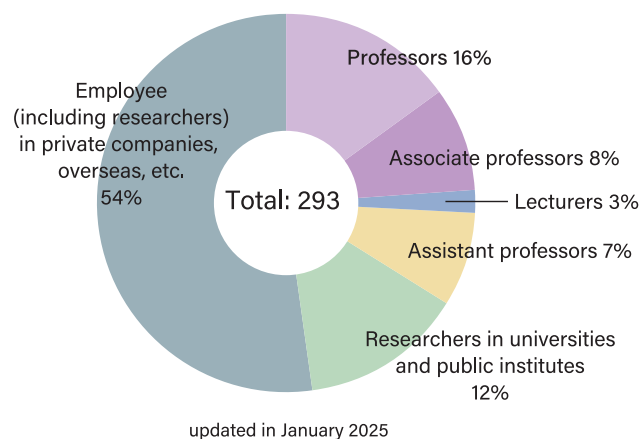
SOKENDAI Special Researcher

Tuition Fee Exemption System

<https://www.soken.ac.jp/en/campuslife/tuition/>



Career After Graduation



Example of Career Paths

Academic Post

Hokkaido University, Tohoku University, University of Tokyo, Nagoya University, Kyoto University, Osaka University, Kyushu University, University of Illinois, Peking University, Nankai University School of Pharmacy, Michigan State University, National Yang-Ming Chiao Tung University (Taiwan), University of Minnesota, etc.

Major private sector employers

NEC, Toshiba, Sharp, Sony, Hitachi, Fujitsu, Konica Minolta, Coherent Japan, Sumika Analysis Center, Sumitomo Chemical, Sumitomo Heavy Industries, Toyota Central R&D Labs, Denso, Shionogi, Banyu Pharmaceutical, Mitsubishi Chemical, Nippon Steel Chemical, Teijin Chemical, Teijin, Toray, Nippon Paint, Nippon Soda, Harima Kasei, Sekisui Nano Coat Technology, Hitachi Kasei Dupont Microsystems, etc.

Admissions

5-year doctoral program: Late September (summer entrance examination), Late January (winter entrance examination)

Doctoral course: Late August (summer entrance examination), Late January (winter entrance examination)

Please check the following URL for accurate information.

<https://www.ims.ac.jp/en/education/>

Contact Information

Please be sure to check the "Application Guidebook" for detailed information including application documents and schedule. If you have any questions, please contact the following

Student Affairs Section, Division of Academic and Student Affairs SOKENDAI

The Graduate University for Advanced Studies

E-mail: gakusei@ml.soken.ac.jp <https://www.soken.ac.jp/admission/>

Voices of Current Students



Year of Admission 2020
LIN, Zhongqiu (China)

Department of Materials Molecular Science

Research Topic

Critical impacts of interfacial hydrogen bonds on photocatalytic hydrogen evolution.

Reason for Pursuing a Doctorate

I wanted to learn more about science, develop advanced skills, and earn a Ph.D.

First Impressions of IMS

IMS impressed me with its advanced facilities, friendly atmosphere, and strong support for researchers.

Life at IMS

Life at IMS is fulfilling; the advanced facilities and supportive environment help me grow as a researcher.

About Okazaki

Okazaki is a convenient place to live, with easy access to daily needs. It's just 30 minutes from Nagoya by train and is centrally located between Kansai and Kanto, making travel around Japan very easy.

Recent Interests (Research-Related)

I am interested in how the structure of water molecules creates unique and surprising chemical properties.

Recent Hobbies (Outside of Research)

I enjoy cooking and traveling, which help me relax and experience Japanese culture.



Year of Admission 2024
DENECKER, Tom (French)

Department of Photo-Molecular Science

Research Topic

Cold atoms in optical tweezers

Reason for Pursuing a Doctorate

I find physics fascinating and I enjoy a lot the research process. I would like to continue in the academic field as a researcher in the future.

First Impressions of IMS

I first felt that the IMS is quiet and nice looking. I was pleased by the atmosphere of Okazaki and the cute Nature surrounding the buildings. I was also a little bit confused in terms of orientation inside the IMS but I could figure it out in a few days.

Life at IMS

In my group, which is quite international, I am very well taken care of. Communication with my supervisors and professor is easy and they make sure to be available as much as possible to answer any question students could have.



Year of Admission 2020
MAURICIO, Jorge (Peruvian)

Department of Photo-Molecular Science

Research Topic

Development of Atom Trapping Module using Optical Tweezers for quantum computation.

Reason for Pursuing a Doctorate

Desire to acquire technical skills to help humanity climb the Kardashev scale.

First Impressions of IMS

A place for focus. With the beautiful Otogawa river by the side, seasonal festivals, and a chain of Japanese bars down the street to meet for special events!

Life at IMS

Life doing research is always hard on the technical side. However, IMS' Ohmori group really shines at reduced-entropy management and engaging technical discussions every week. At work, this helps a lot! Plus, synergy here is high, and that is a bonus.

About Okazaki

A place where nature and city combines in harmony. Not as crowded as main Japanese cities, so you can enjoy this peace all year!

Recent Interests (Research-Related)

I like finding out how things work by hand. I risk breaking them down, or making mistakes, but I can move on very fast that way!

Recent Hobbies (Outside of Research)

I like reading about technology and/or history. Plus, I have recently started going to the gym to see my new doctor: Mr. Barbell.

People in the group are always in a good mood and we often organize little events to have fun together. The office rooms as well as the laboratory rooms we have are really comfortable. I was glad too see more space than any of the previous laboratory I visited before.

About Okazaki

Okazaki is a cute little city. I like that the place is far from the fast pace and stress of the big cities like Paris (where I am from) or Tokyo. I have spent about 2 years in Okazaki and I now know some of the best restaurants and cafes around the IMS. I am also happily surprised to be able to find multiple bakeries nearby to satisfy my cravings for bread!

Within Japan, the position of Okazaki is convenient as it is in the middle of Tokyo and Kyoto/Osaka. It is rather easy to travel a bit everywhere in Japan from this area.

Recent Interests (Research-Related)

Throwing single atoms at one another.

Recent Hobbies (Outside of Research)

Bouldering, hunting for the best mazesoba, playing taiko.

Access

IMS is located in Okazaki, Aichi prefecture, that lies near Nagoya (between the Tokyo and Kyoto/Osaka line in Japan). Okazaki is a historically and industrially significant city that harmoniously blends history, modern industry, and nature.



Myodaiji Campus



Yamate Campus

Institute for Molecular Science (IMS)



Okazaki City



Okazaki Castle



Otogawa River

Address

Myodaiji Campus: 38 NishigoNaka, Myodaiji, Okazaki 444-8585, Japan
Yamate Campus: 5-1 Higashiyama, Myodaiji, Okazaki 444-8787

Institute for Molecular Science International Internship Program in Asia (IMS-IIPA)

Institute for Molecular Science International Internship Program in Asia (IMS-IIPA) provides an opportunity for graduate students and young researchers of our MOU partners in Asia to stay in the IMS laboratories related to the basic research up to 6 months. Through the experience, we encourage them to continue the basic research in their own countries as well as to build up the future collaboration.

<https://www.ims.ac.jp/iipa2024/>



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