UTRIP 2027 Host Laboratory Information

Department	Name and Title of Hosting Faculty Member	Laboratory Website	Research Topic & Research Description
Chemistry	Shin-ichi OHKOSHI (Professor)	https://www.chem.s.u-tokyo.ac.jp/~ssphys/english/	The Ohkoshi Laboratory develops new inorganic materials whose properties change in response to light, heat, pressure, or electromagnetic waves. One major focus is Prussian blue analogues: metal complexes in which metal ions are linked by cyanide bridges. By choosing different metals, the lab creates compounds that become magnetic under light, respond to humidity, conduct ions, or capture cesium. The second focus is metal oxides made from abundant elements. Epsilon iron oxide (ε-Fe2O3) is a hard magnet (difficult to change the direction of magnetisation) and absorbs high-frequency mm-waves, making it useful for magnetic tape data storage and mm-wave absorbing materials. Lambda titanium oxide (λ-Ti3O5) switches between two polymorphs with light/heat and can store heat for long periods, releasing it under pressure. The lab combines chemical synthesis, magnetic and optical measurements, and computer calculations, and suits students interested in inorganic chemistry, materials science, or magnetism.
			Special Academic Conditions Required for Research
			1) Prerequisite knowledge and/or specific skills, and required level of proficiency Basics of inorganic chemistry and physical chemistry
			2) Required major field(s) of study Chemistry / Physics
			3) Academic background or research project experience to be considered during selection Basic laboratory experience is necessary
			4) Selection and evaluation criteria (if any) Applicants will be evaluated on GPA, evidence of past study on related topics
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Chemitsry	Takeaki OZAWA (Professor)	https://analyt.chem.s.u-tokyo.ac.jp/en/	Fluorescence Imaging and/or Optogenetic technologies The research focuses on developing novel analytical methods and applying them to singel-cell level analysis. This is achieved by artificially modifying natural proteins to create 'next-generation biosensors' with new functions. Analytical chemistry laboratory offers you the opportunity to study either the visualization of live biomolecules using fluorescence imaging or the spatiotemporal manipulation of biomolecules to analyze their functions in living cells using optogenetics.
			Special Academic Conditions Required for Research
			1) Prerequisite knowledge and/or specific skills, and required level of proficiency Certification of the English ability to communicate on chemistry/biology research.
			2) Required major field(s) of study Analytical chemistry, molecular biology, cell biology
			3) Academic background or research project experience to be considered during selection It is better for the student to have a basic knowledge of molecular biology and cell biology.
			4) Selection and evaluation criteria (if any) None

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Chemistry	Keisuke GODA (Professor)	https://goda.chem.s.u-tokyo.ac.jp/index.html	At Goda Lab, our primary mission is "Serendipity Engineering" - creating technologies that enable unexpected discoveries, inspired by Louis Pasteur's insight that "chance favors the prepared mind." We develop innovative molecular tools by integrating photonics, nanotechnology, microfluidics, and data science. These tools allow us to discover unknown phenomena, elucidate mechanisms, and explore new applications in science, industry, and medicine. We employ theoretical, experimental, and computational techniques to tackle critical problems. Additionally, we are committed to cultivating the next generation of global leaders who will shape the world in the 21st century. We foster an international and interdisciplinary research environment that values flat human relationships, and we actively seek out talented individuals from any university or company, regardless of their field of study.
			Special Academic Conditions Required for Research
			1) Prerequisite knowledge and/or specific skills, and required level of proficiency 1. Applicants must possess foundational knowledge in molecular imaging, spectroscopy, photonics, nanotechnology, microfluidics, and/or data science, as our lab extensively works on integrating these domains to develop innovative tools. 2. Demonstrated skills in theoretical, experimental, and computational techniques are highly beneficial. 3. Ability to work in an international and interdisciplinary research environment with a cooperative mindset is crucial. 4. Applicants should be ready to engage actively in discovering unknown phenomena, elucidating mechanisms, and exploring new applications in science, industry, and medicine.
			2) Required major field(s) of study 1. We encourage applications from candidates majoring in fields related to, but not limited to, physics, chemistry, biology, data science, materials science, electrical engineering, mechanical engineering, chemical engineering, bioengineering, or a closely related field. 2. Given the interdisciplinary nature of our work, individuals from various scientific and engineering disciplines who possess a strong interest and background in the areas we focus on are welcome to apply.
			3) Academic background or research project experience to be considered during selection 1. Applicants should have a strong academic record with coursework or research experience that aligns with the areas of molecular imaging, spectroscopy, photonics, nanotechnology, microfluidics, and data science. 2. Experience in working on projects or research that involves theoretical, experimental, and computational techniques to solve critical problems is highly desirable. 3. Participation in projects that demonstrate the ability to discover, elucidate, and explore in science, industry, and medicine is an added advantage.
			4) Selection and evaluation criteria (if any) 1. Academic Excellence: Strong GPA and coursework in relevant fields. 2. Research Experience: Prior involvement in projects or research in areas like molecular imaging, spectroscopy, photonics, nanotechnology, microfluidics, and data science. 3. Technical Skills: Proficiency in theoretical, experimental, and computational techniques related to our lab's focus. 4. Interpersonal Skills: Ability to thrive in an international, interdisciplinary research environment with strong communication and collaboration skills. 5. Alignment with Lab's Mission: Demonstrated interest and commitment to developing technologies that enable discovery and exploration in science, industry, and medicine. 6. Leadership Potential: Evidence of potential to become a future global leader in academia, industry, or entrepreneurship.

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Chemistry	Hiroki OGURI (Professor)	https://natural.chem.s.u-tokyo.ac.jp/	Our aim is to develop concise and flexible synthetic methods for creating functional molecules inspired by the structures, biosynthesis, and biological roles of natural products—viewed as evolutionary outcomes of life. In the UTRIP program, students will work on synthesizing natural product derivatives expected to be effective against infectious diseases and tumors.
			Special Academic Conditions Required for Research
			1) Prerequisite knowledge and/or specific skills, and required level of proficiency Basic knowledge of organic chemistry, and synthetic chemistry, and basic experimental technique of organic chemistry.
			2) Required major field(s) of study Organic chemistry, Synthetic chemistry, Chemical biology
			3) Academic background or research project experience to be considered during selection Students should have a basic knowledge of organic chemistry, synthetic chemistry and chemical biology.
			4) Selection and evaluation criteria (if any) None
Department	**Name and Title of Hosting Faculty Member**	**Laboratory Website**	**Research Topic & Research Description**
Chemistry	Taro HITOSUGI (Professor)	https://solid-state-chemistry.jp/english/index.html	Studies on inorganic and organic solid materials. We are interested in both synthesis and functions.
			Special Academic Conditions Required for Research
			1) Prerequisite knowledge and/or specific skills, and required level of proficiency Basic understanding of physics and/or chemistry is required.
			2) Required major field(s) of study One of the following fields: physics, chemistry, computer science, mechanical engineering, electrical engineering, chemical engineering, mathematical science etc.
			3) Academic background or research project experience to be considered during selection Basic understanding of physics and/or chemistry is required.
			4) Selection and evaluation criteria (if any) None