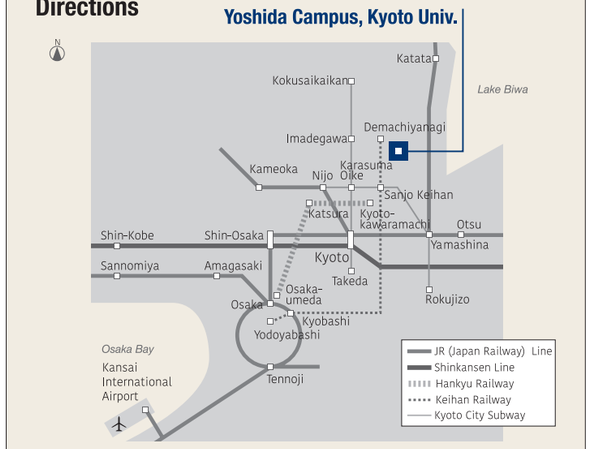
Directions



■ KUIAS Main Building
■ KUIAS West Building

Yoshida Ushinomiya-cho, Sakyo-ku, Kyoto
One-minute walk from "Kyodai Seimon-mae" Stop (Kyoto City Bus)

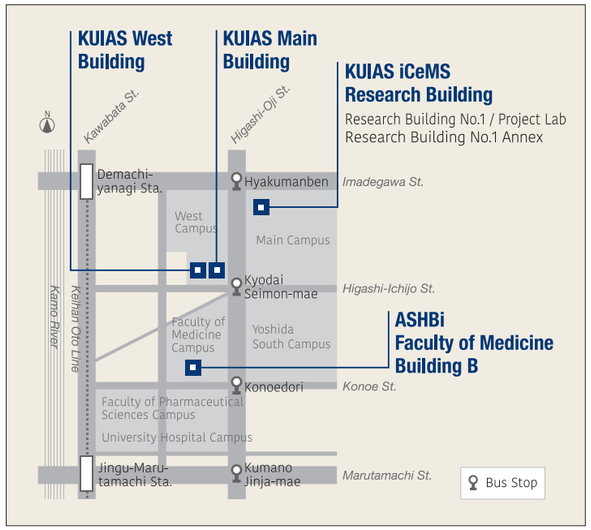
■ KUIAS iCeMS Research Building

- Research Building No.1 / Project Lab
- Research Building No.1 Annex

Yoshida Honmachi, Sakyo-ku, Kyoto
One-minute walk from "Hyakumanben" Stop (Kyoto City Bus)

■ Faculty of Medicine Building B
Institute for the Advanced Study of Human Biology (ASHBi)

Yoshida Konoe-cho, Sakyo-ku, Kyoto
Five-minute walk from "Konoedori" Stop (Kyoto City Bus)



Kyoto University Institute for Advanced Study (KUIAS)
Yoshida Ushinomiya-cho, Sakyo-ku, Kyoto 606-8501, Japan
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Latest info on KUIAS

kuias.kyoto-u.ac.jp/e

KUIAS Brochure Issued: May 2025

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KUIAS

2025

Kyoto University Institute for Advanced Study

KYOTO UNIVERSITY

Wide-Open Window for Intellectual Exchange

Kyoto University Institute for Advanced Study

Philosophy & purpose of KUIAS

In the spirit of Kyoto University's tradition of academic freedom, KUIAS conducts advanced research utilizing the strengths of the University. Preeminent researchers from Japan and overseas gather at its international research centers.

As a leading institute of Kyoto University, KUIAS has a system in which researchers with excellent achievements and next-generation researchers can practice high-level research activities, no matter what field they are from.

Through high-level research activities, KUIAS contributes to nurturing young researchers, returning research benefits to society, and promoting science internationally.

Kyoto University

Award-Winning Research

Fields Medal (1990)
Shigefumi Mori

Nobel Prize
in Physiology or Medicine (2018)
Tasuku Honjo

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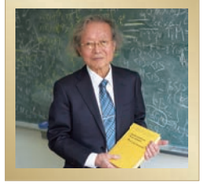
Abel Prize (2025)
Masaki Kashiwara



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Lasker Award (2014)
Kazutoshi Mori

Chern Medal (2018)
Masaki Kashiwara

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Kyoto Prize
2016 Tasuku Honjo
2016 Takeo Kanade
2018 Masaki Kashiwara

Order of Culture	Person of Cultural Merit
2013 Tasuku Honjo	1990 Shigefumi Mori
2021 Shigefumi Mori	2000 Tasuku Honjo
	2018 Kazutoshi Mori
	2019 Takeo Kanade

Member of the Japan Academy
1998 Shigefumi Mori
2005 Tasuku Honjo
2007 Masaki Kashiwara
2019 Susumu Kitagawa
2020 Takeo Kanade

Order of the Sacred Treasure, Gold and Silver Star
2020 Masaki Kashiwara

Medal with Purple Ribbon
2010 Kazutoshi Mori
2011 Susumu Kitagawa
2014 Susumu Noda

Message from the President

President, Kyoto University
Nagahiro Minato

Since its establishment in 1897, under its guiding principle of academic freedom, the university has sought to contribute to harmonious coexistence in the global community through the cultivation of unique new knowledge. In 2017, Kyoto University was assigned by the Japanese government as one of Japan's first Designated National Universities (DNU). In accordance with its fundamental mission, the university seeks to contribute to humanity and society, and meet the constantly changing demands and needs of our times.

The Kyoto University Institute for Advanced Study (KUIAS) was established in April 2016 as a hub for the world's most advanced research. It comprises world-class research groups that include a Nobel laureate and a Fields Medalist, and two research centers established under the Japanese government's World Premier International Research Center Initiative (WPI). It is a platform that gathers the skills and creativity of numerous talented researchers from within Japan and overseas. Recently, in collaboration with international partner institutions, the institute has been establishing "On-site Laboratories" at various locations around the world to further enhance its global research and education activities.

KUIAS aims gather the collected knowledge and wisdom of leading domestic and international scholars, cultivate the next generation of talented researchers, and, as an organization that drives university reform, promote innovative initiatives in both research and education, as well as university management and administration.

Kyoto University Institute for Advanced Study

INDEX

Message from the Director-General

Director-General, KUIAS
Shigefumi Mori

KUIAS is an institute that continuously conducts advanced research utilizing the strengths of Kyoto University. It features a team of excellent faculty members, including Distinguished Professors with internationally outstanding achievements in their respective fields, as well as various organizations engaged in world-leading research.

At present, KUIAS operates two World Premier International Research Center Initiative (WPI) centers : the Institute for Integrated Cell-Material Sciences (iCeMS) since 2017 and the newly established Institute for the Advanced Study of Human Biology (ASHBi) since 2018. In addition, two collaborative research centers established in partnership with RIKEN and with Toyota Physical and Chemical Research Institute are undertaking cutting-edge research in their particular disciplines and combining their respective strengths to help accelerate the activities of KUIAS.

With these researchers and research centers at its core, KUIAS will contribute to academic progress as a global, cutting-edge research hub that draws together the knowledge of domestic and overseas researchers, fosters future scientific leaders, and shares the fruits of Kyoto University's research with society.

About KUIAS

■ Timeline

2016 Apr. 1	Kyoto University Institute for Advanced Study (KUIAS) is established Center for Advanced Study is established within KUIAS
2017 Apr. 1	Institute for Integrated Cell-Material Sciences (iCeMS) becomes a research center of KUIAS AIST-Kyoto University Chemical Energy Materials Open Innovation Laboratory (ChEM-OIL) joins KUIAS as a collaborative research center
2018 Jan. 1	Center for Integrative Medicine and Physics (iCeMS-CiMPhy) joins KUIAS as an endowed research section
2018 Mar. 1	RIKEN-Kyoto University Science, Technology and Innovation Hub (RIKEN-Kyoto U Hub) joins KUIAS as a collaborative research center
2018 Oct. 30	Institute for the Advanced Study of Human Biology (ASHBi) joins KUIAS as a research center
2022 Apr. 1	Toyota Riken-Kyoto University Research Center (TRiKUC) joins KUIAS as a collaborative research center
2025 Apr. 1	RIKEN-Kyoto University Science, Technology and Innovation Hub (RIKEN-Kyoto U Hub) is renamed RIKEN-Kyoto University Advanced Research Platform

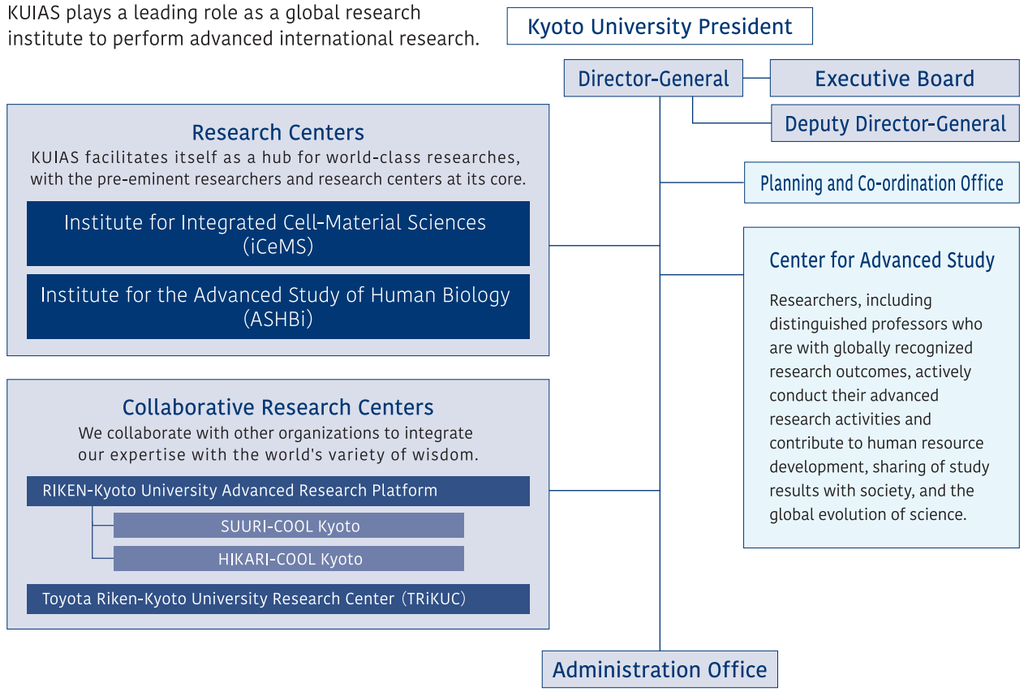
■ Features

KUIAS has the following features as an institute to grow into a leading center based on a new paradigm:

- Management with superb mobility under the strong leadership of the President
- Application of a pioneering organization system designed for a "special zone" within the university System to allow world-leading excellent researchers to continue their research regardless of the conventional mandatory retirement age

■ Organizational Structure

KUIAS plays a leading role as a global research institute to perform advanced international research.



Partner Institutions

International Partners

MoU Partners

- Tata Institute of Fundamental Research National Centre for Biological Sciences (NCBS), India
- The Institute for Stem Cell Biology and Regenerative Medicine (inStem), India
- Jawaharlal Nehru Centre for Advanced Scientific Research (JNCASR), India
- Vidyasirimedhi Institute of Science and Technology (VISTEC), Thailand
- Research and Development Center for Membrane Technology (CMT), Chung Yuan Christian University (CYCU), Taiwan
- AO Research Institute Davos (ARI), AO Foundation, Switzerland
- School of Environmental and Chemical Engineering (ECE), Shanghai University (SHU), China
- King Abdullah University of Science and Technology (KAUST), Saudi Arabia
- Department of Chemistry, Ulsan National Institute of Science and Technology (UNIST), South Korea
- The Institute of Materials Research and Engineering (IMRE), A*STAR Research Entities, Singapore
- UNEP-Tongji Institute of Environment for Sustainable Development (IESD), China
- MacDiarmid Institute for Advanced Materials and Nanotechnology, New Zealand
- China Medical University Hospital (CMUH), Taiwan
- College of Engineering, Southern University of Science and Technology (SUSTech), China
- Max Delbrück Center for Molecular Medicine (MDC), Germany
- Indian Institute of Technology Roorkee (IIT Roorkee), India
- Research Institute of Basic Sciences (RIBS), Seoul National University (SNU), South Korea

Overseas Office (iCeMS)

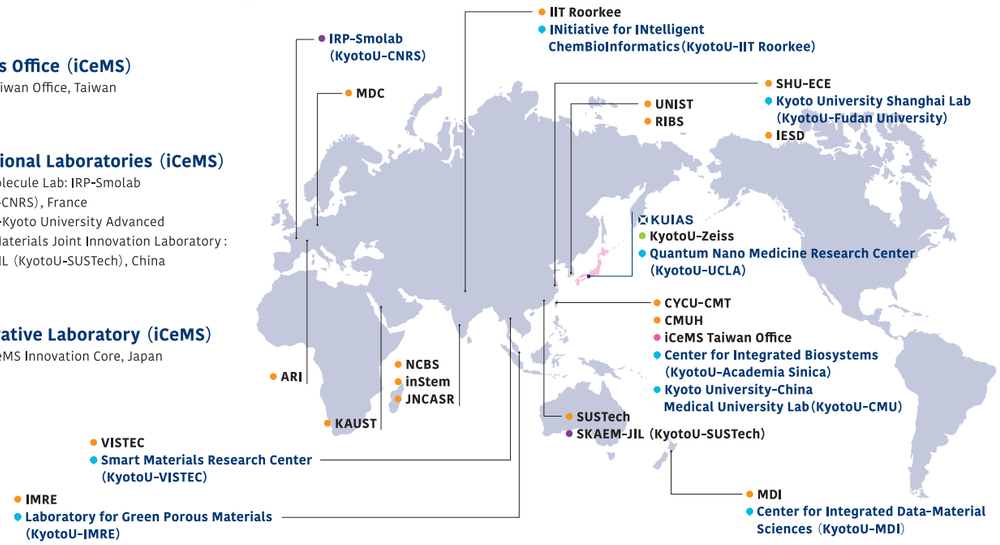
- iCeMS Taiwan Office, Taiwan

International Laboratories (iCeMS)

- Small Molecule Lab: IRP-Smolab (KyotoU-CNRS), France
- SUSTech-Kyoto University Advanced Energy Materials Joint Innovation Laboratory: SKAEM-JIL (KyotoU-SUSTech), China

Collaborative Laboratory (iCeMS)

- ZEISS-iCeMS Innovation Core, Japan



KyotoU On-site Laboratories

Kyoto University launched an 'on-site laboratory' initiative in 2018 as part of a strategy implemented under the education ministry's Designated National University (DNU) program. The initiative involves KyotoU departments/centers and their overseas partners collaboratively establishing laboratories.
These centers are tasked with conducting world-leading advanced research, developing quality human capital, recruiting talented international students, and expanding collaboration with industrial partners.

- Smart Materials Research Center (KyotoU-VISTEC), Thailand
- Kyoto University Shanghai Lab (KyotoU-Fudan University), China
- Center for Integrated Biosystems (KyotoU-Academia Sinica), Taiwan
- Quantum Nano Medicine Research Center (KyotoU-UCLA), Japan
- Laboratory for Green Porous Materials (KyotoU-IMRE), Singapore
- Center for Integrated Data-Material Sciences (KyotoU-MDI), New Zealand
- INitiative for INtelligent ChemBioInformatics (KyotoU-IIT Roorkee), India
- Kyoto University-China Medical University Lab (KyotoU-CMU), Taiwan

Domestic Partners

University-level MoU Partner

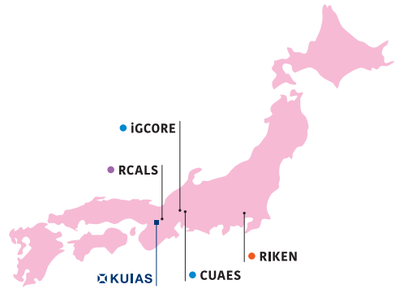
- RIKEN, Japan

MoU Partners

- Academy of Emerging Sciences, Chubu University (CUAES)
- Institute for Glyco-core Research (iGCORE), Tokai National Higher Education and Research System

Satellite (ASHBi)

- Research Center for Animal Life Science, Shiga University of Medical Science (RCALS)



Executive Vice-President
Distinguished Professor

Susumu Kitagawa

Inorganic and Material Chemistry
Chemistry of Coordination Space

■ Biography

1974	B.Sc., Kyoto University
1976	M.Sc., Kyoto University
1979	Ph.D., Kyoto University
1979-1983	Assistant, Department of Chemistry, Kindai University
1983-1988	Lecturer, Department of Chemistry, Kindai University
1988-1992	Associate Professor of Department of Chemistry, Kindai University
1992-1998	Professor of Department of Chemistry, Tokyo Metropolitan University
1998-2017	Professor of Department of Synthetic Chemistry and Biological Chemistry, Graduate School of Engineering, Kyoto University
2007-2012	Deputy Director and Professor of Institute for Integrated Cell-Material Sciences, Kyoto University
2013-2017	Director and Professor of Institute for Integrated Cell-Material Sciences, Kyoto University
2016-2018	Deputy Director-General of KUIAS
2017-2023	Director of Institute for Integrated Cell-Material Sciences, KUIAS
2020-2024	Deputy Director-General of KUIAS
2017-	Distinguished Professor of KUIAS
2024-	Kyoto University's Executive Vice-President for Research Promotion

| Research Overview |

Kitagawa's main research field is inorganic and material chemistry, in particular, chemistry of coordination space, and his current research interests are centered on synthesis and properties of porous coordination polymers/metal-organic frameworks.

He was the first to discover and to demonstrate "porosity" for metal complexes with gas sorption experiments (1997), whose materials are called porous coordination polymers (PCPs) or metal-organic frameworks (MOFs). To date, MOFs are classified as a new category of porous materials, as opposed to the conventional classifications of inorganic and carbon materials. Kitagawa pioneered the functional chemistry of MOFs, and discovered flexible MOFs, dissimilar to those of conventional porous materials. Today several hundred different MOFs are known, and over 7,000 articles on this class of materials have been published annually worldwide. The research developments built on his discoveries are anticipated to lead to radical innovations in materials science, with wide-ranging implications for both academia and industry. Chemical industry firms are producing MOF materials for use in purification, storage, and transportation of gases, among other applications. Kitagawa's achievement has blazed a trail to a new era for porous materials, vital to addressing energy and environmental issues and contributing to human welfare.

■ Honors

The Chemical Society of Japan Award (2009), Thomson Reuters Citation Laureate (Chemistry) (2010), Medal with Purple Ribbon (2011), Kyoto University Shi-Shi Award (2013), The fellow of the UK Royal Society of Chemistry (2013), Leo Esaki Prize (2013), Japan Academy Prize (2016), Fred Basolo Medal (2016), Fujihara Award (2017), Chemistry for the Future Solvay Prize (2017), Honorary Member of the Chemical Society of Japan (2017), Grand Prix de la Fondation de la Maison de la Chimie (2018), Emanuel Merck Lectureship Award (2019), Member of the Japan Academy (2019), Honorary Member of Japan Society of Coordination Chemistry (2021), Foreign Member of the Royal Society (2023), Kyoto Prefecture Culture Prize for Outstanding Contribution (2025)

■ Selected Papers

[1] R. Matsuda, R. Kitaura, S. Kitagawa, Y. Kubota, R. V. Belosludov, T. C. Kobayashi, H. Sakamoto, T. Chiba, M. Takata, Y. Kawazoe, Y. Mita, Highly controlled acetylene accommodation in a metal–organic microporous material. *Nature* **436**, 238–241 (2005).

[2] S.Horike, S.Shimomura, S.Kitagawa “Soft Porous Crystals” *Nat. Chem.* **1**, 695–704 (2009).

[3] H. Sato, W. Kosaka, R. Matsuda, A. Hori, Y. Hijikata, R. V. Belosludov, S. Sakaki, M. Takata, S. Kitagawa, Self-Accelerating CO Sorption in a Soft Nanoporous Crystal. *Science* **343**, 167–170 (2014).

[4] N. Hosono, A. Terashima, S. Kusaka, R. Matsuda, S. Kitagawa, Highly responsive nature of porous coordination polymer surfaces imaged by in situ atomic force microscopy. *Nature Chemistry* **11**, 109–116 (2018).

[5] Y. Su, K Otake, J.J. Zheng, S. Horike, S. Kitagawa, C. Gu Separating water isotopologues using diffusion-regulatory porous materials *Nature* **611**, 289-294 (2022).

KUIAS

Director-General
Distinguished Professor

Shigefumi Mori

Algebraic Geometry
Birational Geometry

■ Biography

1973	B.Sc., Kyoto University
1975	M.Sc., Kyoto University
1978	Ph.D., Kyoto University
1975-1980	Assistant of Faculty of Science, Kyoto University
1980-1982	Lecturer of Faculty of Science, Nagoya University
1982-1987	Associate Professor of Faculty of Science, Nagoya University
1988-1990	Professor of Faculty of Science, Nagoya University
1990-2016	Professor of Research Institute for Mathematical Sciences, Kyoto University
2011-2014	Director of Research Institute for Mathematical Sciences, Kyoto University
2016-	Director-General and Distinguished Professor of KUIAS

| Research Overview |

Mori studies three-dimensional (3D) classification problems in a subfield known as birational classification theory of algebraic geometry. Algebraic geometry is a field in science that deals with shapes known as "algebraic varieties." Such an algebraic variety can appear in many slightly different forms if it is of dimension 2 (2D) or higher. The differences between these forms may be understood as partial dents or sharp points similar to those that appear in a physical object when it is struck by another. "Birational classification" refers to an approach where we ignore these minor differences when classifying algebraic varieties. It was known that one could make surfaces into minimal ones and minimize these differences by collapsing certain curves to points. This operation was known as the minimal model program (MMP).

For a long period of time, the generalization of the MMP to dimension three or higher was considered to be difficult; however, the introduction of extremal ray theory and application of general perspectives in [2] was a major trigger for the development of 3D MMP. Following this, MMP was developed, and it was discovered that in a broad sense, 3D birational classification theory is linked to the conjectural existence of an operation known as "flip." Furthermore, in [3], by proving the existence of 3D flips, the problem of 3D MMP was resolved. Hence, the 3D birational classification theory was completed in a rough sense. Subsequently, with the contribution of many researchers, MMPs of dimension four or higher have been established in a practical form.

■ Honors

Iyanaga Prize of Mathematical Society of Japan (1983), Autumn Prize of Mathematical Society of Japan (1988), Inoue Prize for Science (1989), Frank Nelson Cole Prize (1990), Japan Academy Prize (1990), Fields Medal (1990), Person of Cultural Merit (1990), Foreign Honorary Member of the American Academy of Arts and Sciences (1992), Member of the Japan Academy (1998), Honorary Doctorate of University of Turin (2002), Fujihara Award (2004), University Professor of Nagoya University (2010), President of the International Mathematical Union (2015-2018), Foreign Member of the Russian Academy of Sciences (2016), Foreign Associate of US National Academy of Sciences (2017), Honorary Doctorate of University of Warwick (2017), Kodaira Kunihiko Prize (2019), Kyoto Prefecture Culture Prize for Outstanding Contribution (2020), Order of Culture (2021), Foreign Member of the Academy of Sciences of Turin (2023), Honorary Member of the London Mathematical Society (2024)

■ Selected Papers

[1] S. Mori, Projective manifolds with ample tangent bundles, *Ann. Math.* **110**, 593–606 (1979).

[2] S. Mori, Threefolds whose canonical bundles are not numerically effective, *Ann. Math.* **116**, 133–176 (1982).

[3] S. Mori, Flip theorem and the existence of minimal models for 3-folds, *J. Amer. Math. Soc.* **1**, 117–253 (1988).

[4] J. Kollar, S. Mori, Classification of three dimensional flips, *J. Amer. Math. Soc.* **5**, 533–703 (1992); *Erratum* **20**, 269–271 (2007).

[5] S. Mori, Y. Prokhorov, On Q-conic bundles, *Publ. Res. Inst. Math. Sci.* **44**, 315–369 (2008).

Deputy Director-General
Distinguished Professor

Susumu Noda

Quantum Optoelectronics

■ Biography

1982	B.S., Kyoto University
1984	M.S., Kyoto University
1991	Ph.D., Kyoto University
1984-1988	Researcher, Central Research Laboratory, Mitsubishi Electric Corporation
1988-1992	Assistant Professor, Faculty of Engineering, Kyoto University
1992-2000	Associate Professor, Faculty of Engineering, Kyoto University
2000-2025	Professor, Graduate School of Engineering, Kyoto University
2009-2025	Director, Photonics and Electronics Science and Engineering Center, Kyoto University
2024-	Representative Director, General Incorporated Association "Kyoto University PCSEL Research Center" (Concurrent appointment)
2025-	Distinguished Professor of KUIAS
2025-	Deputy Director-General of KUIAS

| Research Overview |

Noda's main research field is quantum nanophotonics with a focus on "photonic crystals," which are optical nanostructures with a periodic refractive index distribution comparable to the wavelength of light. Noda was the first in the world to realize a completely three-dimensional photonic crystal that can inhibit the propagation of light in all directions, and he even created a new concept of light control in two-dimensional crystals, enabling these crystals to surpass their three-dimensional cousins in spite of being periodic in one fewer dimension. This concept of light control with two-dimensional crystals is currently employed in basic optical sciences such as cavity electrodynamics, quantum science, and topological photonics, as well as in applied optical technologies such as nanolasers and quantum optical chips. In addition, Noda has invented a completely new semiconductor laser called a "photonic-crystal surface-emitting laser" (PCSEL), which can control light over extremely large areas. This new type of laser is expected to facilitate innovations in smart manufacturing and smart mobility, which will support the smart society of the coming future, as well as in mobile technologies, extreme ultraviolet lithography, and even aerospace, such as for space sail propulsion.

■ Honors

Japan IBM Science Award (2000), IEICE Electronics Society Award (2004), Osaka Science Prize (2004), the Japan Society of Applied Physics Achievement Award on Quantum Electronics (2005), Honorary Degree, Gent University, Blgium (2006), Optical Society of America (Optica) Joseph Fraunhofer Award/Robert M. Burley Prize (2006), IEEE Fellow 2008 (2008), the Commendation for Science and Technology by the Minister of Education, Culture, Sports, Science and Technology (2009), IEEE Nanotechnology Pioneer Award (2009), the Leo Esaki Prize (2009), Medal with Purple Ribbon (2014), the Japan Society of Applied Physics Outstanding Achievement Award (2015) , Taizan Award - Laser Research Development Award (2018), the Japan Academy Prize (2022)

■ Selected Papers

[1] M. Imada, S. Noda, A. Chutinan, T. Tokuda, M. Murata, and G. Sasaki, Coherent Two-Dimensional Lasing Action in Surface-Emitting Laser with Triangular-Lattice Photonic Crystal Structure, *Appl. Phys. Lett*, **75**, 316-318, (1999).

[2] S. Noda, K. Tomoda, N. Yamamoto, and A. Chutinan, Full three-dimensional photonic bandgap crystals at near-infrared wavelengths, *Science*, **289**, 604-606 (2000).

[3] S. Noda, A. Chutinan, and M. Imada, Trapping and emission of photons by a single defect in a photonic bandgap structure, *Nature*, **407**, 608-610 (2000).

[4] Y. Akahane, T. Asano, B. S. Song, and S. Noda, High-Q photonic nanocavity in a two-dimensional photonic crystal, *Nature*, **425**, 944-947 (2003).

[5] M. Yoshida, S. Katsuno, T. Inoue, J. Gelleta, K. Izumi, M. De Zoysa, K. Ishizaki, and S. Noda, High-brightness scalable continuous-wave single-mode photonic-crystal laser, *Nature*, **618**, 727-731 (2023).

[6] S. Noda, T. Inoue, M. Yoshida, J. Gelleta, M. De Zoysa, and K. Ishizaki, High-power and high-beam-quality photonic-crystal surface-emitting lasers: a tutorial, *Advances in Optics and Photonics*, **15**, 977-1032 (2023).

[7] S. Noda, M. Yoshida, T. Inoue, R. Sakata, M. De Zoysa, and K. Ishizaki, Photonic-Crystal Surface-Emitting Lasers, *Nature Reviews Electrical Engineering*, **1**, 802–814 (2024).

KUIAS

Distinguished Professor

Tasuku Honjo

Molecular Immunology

■ Biography

1966	M.D., Kyoto University
1975	Ph.D., Kyoto University
1971-1973	Fellow of Carnegie Institution of Washington, Department of Embryology
1973-1974	Visiting Fellow and Associate of National Institute of Child Health and Human Development, NIH
1974-1979	Assistant Professor of Faculty of Medicine, The University of Tokyo
1979-1984	Professor of School of Medicine, Osaka University
1984-2005	Professor of Faculty of Medicine, Kyoto University
1996-2000	Director of Faculty of Medicine/Graduate School of Medicine, Kyoto University
2002-2004	Director of Faculty of Medicine/Graduate School of Medicine, Kyoto University
2005-	Specially-Appointed Professor of Graduate School of Medicine, Kyoto University
2006-2017	Visiting Professor of Kyoto University
2006-2012	Executive Member of the Council for Science and Technology Policy, Cabinet Office
2012-2017	Chairman, Board of Directors, Shizuoka Prefectural University Corporation
2015-2024	President of Foundation for Biomedical Research and Innovation (2018- Foundation for Biomedical Research and Innovation at Kobe)
2017-	Distinguished Professor of KUIAS
2018-2025	Deputy Director-General of KUIAS
2020-	Director of Center for Cancer Immunotherapy and Immunobiology (CCII), Graduate School of Medicine, Kyoto University
2024-	Honorary President of Foundation for Biomedical Research and Innovation at Kobe

| Research Overview |

Honjo is well known for his discovery of activation-induced cytidine deaminase (AID) that is essential for class switch recombination and somatic hypermutation. He has established the basic conceptual framework of class switch recombination starting from discovery of DNA deletion (1978). Dr. Honjo identified a series of key molecules involved in immune regulation, including IL-4, IL-5, SDF-1, and IL-2R α chain. Also appreciated is his seminal contribution to developmental biology by identification of RBP-J as the Notch signaling target. In addition, he discovered PD-1 (program cell death 1), a negative coreceptor at the effector phase of immune response and demonstrated that PD-1 inhibition contributes to cancer treatments. Anti-PD-1 cancer immunotherapy has been approved in US, EU, and Japan. This treatment revolutionalized the cancer therapy and is considered to be equivalent to penicillin in infectious diseases.

■ Honors

Noguchi Hideyo-Memorial Award for Medicine (1981), Asahi Prize (1982), The Imperial Prize and the Japan Academy Prize (1996), Person of Cultural Merit (2000), Foreign Associate of U.S. National Academy of Sciences (2001), Thomson Leading Japanese Scientists in Emerging Research Fronts (2004), Member of the Japan Academy (2005), Robert Koch Prize (2012), Order of Culture (2013), Tang Prize, Biopharmaceutical Science Award (2014), William B. Coley Award (2014), JCA-CHAAO Award (2014), Richard V. Smalley, MD Memorial Award (2015), Kyoto Prize (2016), The Keio Medical Science Prize (2016), Fudan-Zhongzhi Science Award in Biomedicine (2016), The Pharmaceutical Society of Japan Award (2016), Warren Alpert Foundation Prize (2017), Nobel Prize in Physiology or Medicine (2018)

■ Selected Papers

[1] T. Honjo, T. Kataoka, Organization of immunoglobulin heavy chain genes and allelic deletion model. *Proc. Natl. Acad. Sci. USA* **75**, 2140–2144 (1978).

[2] Y. Yaoita, T. Honjo, Deletion of immunoglobulin heavy chain genes from expressed allelic chromosome. *Nature* **286**, 850–853 (1980).

[3] Y. Ishida, Y. Agata, K. Shibahara, T. Honjo, Induced expression of PD-1, a novel member of the immunoglobulin gene superfamily, upon programmed cell death. *EMBO J.* **11**, 3887–3895 (1992).

[4] M. Muramatsu, K. Kinoshita, S. Fagarasan, S. Yamada,Y. Shinkai, T. Honjo, Class switch recombination and hypermutation require activation- induced cytidine deaminase (AID), a potential RNA editing enzyme. *Cell* **102**, 553–563 (2000).

[5] Y. Iwai, M. Ishida, Y. Tanaka, T. Okazaki, T. Honjo, N. Minato, Involvement of PD-L1 on tumor cells in the escape from host immune system and tumor immunotherapy by PD-L1 blockade. *Proc. Natl. Acad. Sci. USA* **99**, 12293–12297 (2002).

[6] M. Al-Habsi, K. Chamoto, K.Matsumoto, N. Nomura, B. Zhang, Y. Sugiura, K. Sonomura, A. Maharani, Y. Nakajima, Y. Wu, Y. Nomura, R. Menzies, M. Tajima, K. Kitaoka, Y. Haku, S. Delghandi, K. Yurimoto, F. Matsuda, S. Iwata, T. Ogura, S. Fagarasan, T. Honjo, Spermidine activation of the mitochondrial trifunctional protein complex improves anti-tumor immunity in mice *Science* **378** (6618) (2022)

Distinguished Professor

Kazutoshi Mori

Molecular Biology
Cell Biology

■ Biography

1981	B.Sc., Kyoto University
1983	M.Sc., Kyoto University
1987	Ph.D., Kyoto University
1985-1989	Assistant Professor, Gifu Pharmaceutical University
1989-1993	Postdoctoral Fellow, University of Texas Southwestern Medical Center at Dallas
1993-1996	Deputy Research Manager, HSP Research Institute
1996-1999	Research Manager, HSP Research Institute
1999-2003	Associate Professor, Graduate School of Biostudies, Kyoto University
2003-2022	Professor, Graduate School of Science, Kyoto University
2022-2024	Professor, Institute for Liberal Arts and Sciences, Kyoto University (Concurrent Peofessor of Graduate School of Science)
2024-	Distinguished Professor of KUIAS
2024-2025	Deputy Director-General of KUIAS

| Research Overview |

Receptor-type transmembrane proteins at the plasma membrane and their ligand-type secretory proteins play critical roles in intercellular communication. These proteins gain their own three-dimensional structure to exert their function with assistance from molecular chaperones and folding enzyme present in the endoplasmic reticulum (ER), the first organelle they encounter after synthesis on ribosomes. Under a variety of physiological and pathological conditions, however, this protein quality control system is compromised, resulting in the occurrence of ER stress characterized by the accumulation of unfolded proteins in the ER. Essentially all eukaryotic cells are equipped with a way to cope with this abnormal situation promptly and adequately, which is termed the unfolded protein response (UPR). This fact tells us the critical importance of protein folding in our cell and body. Dr. Mori has unraveled the mechanism of yeast and mammalian UPR and is analyzing physiological significance of the UPR and its involvement in development and progression of various diseases.

■ Honors

The Wiley Prize in Biomedical Sciences (2005), Osaka Science Prize (2008), Canada Gairdner International Award (2009), Medal with Purple Ribbon (2010), Uehara Prize (2012), Asahi Prize (2014), Albert Lasker Basic Medical Research Award (2014),Shaw Prize in Life Science and Medicine (2014), Thomson Reuters Citation Laureate (2015), Kyoto University Shi-Shi Award (2015), Imperial Prize and Japan Academy Prize (2016), Breakthrough Prize in Life Sciences (2017), Person of Cultural Merit (2018), Momofuku Ando Grand Prize (2018), Keio Medical Science Prize (2023), BBVA Foundation Frontiers of Knowledge Award (2024)

■ Selected Papers

[1] A transmembrane protein with a cdc2+/CDC28-related kinase activity is required for signaling from the ER to the nucleus. K. Mori, W. Ma, M.-J. Gething, and J. Sambrook, *Cell*, **74**, 743-756, 1993.

[2] Mammalian transcription factor ATF6 is synthesized as a transmembrane protein and activated by proteolysis in response to endoplasmic reticulum stress. K. Haze, H. Yoshida, H. Yanagi, T. Yura, and K. Mori, *Mol. Biol. Cell*, **10**, 3787-3799, 1999.

[3] XBP1 mRNA is induced by ATF6 and spliced by IRE1 in response to ER stress to produce a highly active transcription factor. H. Yoshida, T. Matsui, A. Yamamoto, T. Okada, and K. Mori, *Cell*, **107**, 881-891, 2001.

[4] Transcriptional induction of mammalian ER quality control proteins is mediated by single or combined action of ATF6α and XBP1. K. Yamamoto, T. Sato, T. Matsui, M. Sato, T. Okada, H. Yoshida, A. Harada and K. Mori, *Dev. Cell*, **13**, 365-376, 2007.

[5] UPR Transducer BBF2H7 Allows Export of Type II Collagen in a Cargo- and Developmental Stage-Specific Manner. T. Ishikawa, T. Toyama, Y. Nakamura, K. Tamada, H. Shimizu, S. Ninagawa, T. Okada, Y. Kamei, T. Ishikawa-Fujiwara, T. Todo, E. Aoyama, M. Takigawa, A. Harada and K. Mori, *J. Cell Biol.*, **216**, 1761-1774, 2017.

KUIAS

iCeMS Director / Professor

Motonari Uesugi

Chemical Biology

■ Biography

1990	B.S., Kyoto University
1995	Ph.D., Kyoto University
1995-1998	Postdoctoral training, Department of Chemistry and Chemical Biology, Harvard University
1998-2005	Assistant Professor, Department of Biochemistry, Baylor College of Medicine
2005-2009	Associate Professor, Department of Biochemistry, Baylor College of Medicine
2005-	Professor, Institute for Chemical Research, Kyoto University
2007-2017	Professor, Institute for Integrated Cell-Material Sciences, Kyoto University
2013-2017	Deputy Director, Institute for Integrated Cell-Material Sciences, Kyoto University
2017-2023	Deputy Director, Institute for Integrated Cell-Material Sciences, KUIAS
2023-	Director, Institute for Integrated Cell-Material Sciences, KUIAS

■ Honors

Gold Medal Award - Tokyo Techno Forum 21 (2006), Pharmaceutical Society of Japan Award for Divisional Scientific Promotions (2011), German Innovation Award (2011), Ichimura Prize in Science (2017)

Uesugi has been making ground-breaking discoveries in the field of chemical biology. As biological processes all stem from chemical events, it should be possible to understand or manipulate biological events by using chemistry. Uesugi and his co-workers have been discovering or designing unique organic molecules that modulate or interrogate fundamental processes in human cells. Such synthetic organic molecules often serve as tools for basic cell biology and for dissecting diseases. In particular, he has a special interest in combining chemical biology and material science concepts to open new avenues in cell biology and medical applications.

ASHBi Director / Professor

Mitinori Saitou

Developmental Biology
Cell Biology

■ Biography

1995	M.D., Kyoto University
1999	Ph.D., Kyoto University
1999-2003	Travelling Research Fellow/Senior Research Associate, Wellcome Trust/Cancer Research UK Gurdon Institute for Developmental Biology and Cancer
2003-2009	Team leader, RIKEN Center for Developmental Biology
2009-2018	Professor, Graduate School of Medicine and Faculty of Medicine, Kyoto University
2011-2018	Director, JST Strategic Basic Research Programs ERATO
2013-2018	Adjunct Principal Investigator, Institute for Integrated Cell-Material Sciences, Kyoto University
2018-	Guest Principal Investigator, Center for iPS Cell Research and Application, Kyoto University
2018-	Professor of KUIAS Director of Institute for the Advanced Study of Human Biology, KUIAS

■ Honors

Osaka Science Prize (2013), Japan Academy Medal and JSPS Prize (2014), Takeda Medical Prize (2016), Academic Award of the Mochida Memorial Foundation (2018), Asahi Prize, Uehara Prize (2019), Imperial Prize and Japan Academy Prize, ISSCR Momentum Award, EMBO Associate Member (2020), Keio Medical Science Prize (2024)

Saitou has been promoting studies on the developmental mechanisms of germ cells, the origin of all life. He clarified the formation mechanisms of mouse germ cells and successfully generated primordial germ cell-like cells (PGCLCs) in vitro from mouse ESCs and iPSCs to produce sperm, oocytes and healthy offspring. He used this experimental system as a model to investigate the molecular mechanisms of key phenomena in germ cell development, including epigenomic reprogramming, oocyte differentiation, and meiosis induction mechanisms. Saitou's analysis of the developmental mechanisms of cynomolgus monkeys has allowed us to identify the characteristics of pluripotent cell lineages in mice, monkeys and humans, the formation mechanisms of germ cells in primates and X chromosome dynamics in primates. He has also generated PGCLCs, mitotic pro-spermatogonia and oogonia from human iPSCs and pioneered research on in vitro reconstitution in the process of human germ cell development.

Saitou aims to promote advanced human biology that develops these studies, to identify the characteristics and evolutionary mechanisms of humans and primates, and to lay out new possibilities in medical science.

Takeo Kanade

Invited Distinguished Professor

Computer Vision, Robotics,
Artificial Intelligence, Multimedia

Since early 70's, Kanade has performed a series of pioneering research in computer vision. The feature of his accomplishments is that they are fundamental in nature and have practical impacts. To illustrate a few, his neural network-based face detection technique raised the detection rate to an unprecedented level and thus led to today's common use of face detection in smart phone cameras; his optical-flow algorithm for estimating the direction and speed of moving patterns is now the basis of almost all the video processing including motion video coding; and his factorization algorithm for the so-called structure-from-motion problem was one of the earliest algorithms that demonstrated a successful reconstruction of three-dimensional shape from image sequence, which now is a powerful and common procedure for scene modeling by video. Kanade launched an autonomous vehicle project in 1985, and formed the early foundation for the recent emergence of autonomous driving technologies. The team developed one of the first artificial intelligence systems capable of sensing freeway lanes, executing accurate lane changes, recognizing and avoiding obstacles, and detecting other vehicles in real time based on data from vehicle-mounted range sensors and cameras. In 1995, he carried out a demonstration called No Hands Across America, in which the NAVLAB 5 vehicle drove from coast to coast, 98.2% under auto driving.

Biography

1974	Ph.D., Kyoto University
1974-1976	Research Assistant, Faculty of Engineering, Kyoto University
1976-1980	Associate Professor, Faculty of Engineering, Kyoto University
1980-1982	Senior Research Scientist, The Robotics Institute and Computer Science Department, Carnegie Mellon University (CMU)
1982-1985	Associate Professor, The Robotics Institute and Computer Science Department, CMU
1985-1994	Professor, The Robotics Institute and Computer Science Department, CMU
1992-2001	Director, The Robotics Institute, CMU
1993-1998	U.A. and Helen Whitaker Chaired Professor, CMU
1998-2023	U.A. and Helen Whitaker University Professor, CMU
2004-2010	Director, Digital Human Research Center, National Institute of Advanced Industrial Science and Technology (AIST), Japan
2006-2012	Director, Quality of Life Technology Engineering Research Center, CMU
2015-	Honorary AIST Fellow
2016-2021	Senior advisor, Center for Advanced Integrated Intelligence Research, RIKEN
2017-	Invited Distinguished Professor, Kyoto University Institute for Advanced Study (KUIAS)
2023-	Founders University Professor of Computer Science and Robotics, CMU

Honors

Joseph F. Engelberger Award (1995), Foreign Member of US National Academy of Engineering (1997), C&C Prize (2000), Member of the American Academy of Arts and Sciences (2004), Azriel Rosenfeld Lifetime Achievement Award, IEEE Computer Society (2007), Robot & Automation Pioneer Award, IEEE (2007), Okawa Prize (2007), Bower Award and Prize for Achievement in Science, The Franklin Institute (2008), ACM-AAAI Allen Newell Award (2010), Tateishi Prize, Grand Award (2010), Kyoto Prize (2016), IEEE Founders Medal (2017), Person of Cultural Merit (2019), Global IT Award, State Award of Armenia (2019), Member of the Japan Academy (2020), Kyoto Prefecture Culture Prize for Outstanding Contribution (2022), BBVA Foundation Frontiers of Knowledge Award (2024), John Scott Award (2024)

Masaki Kashiwara

Program-Specific Professor

Mathematics, Algebraic Analysis,
Representation Theory

Dr. Kashiwara's work in Mathematics extends from microlocal analysis, representation theory and combinatorics to homological algebra, symplectic geometry and integrable systems. Most well-known works of him are his contributions to the theory of D-modules and his creation of crystal basis theory. Introduced by Sato around 1960, algebraic analysis is a framework in which systems of linear differential equations are formulated as modules over the ring D of differential operators and are investigated with algebraic means such as rings, modules, sheaves and categories. Sato's idea of D-modules was greatly developed by Kashiwara, and has become a fundamental tool in many branches of mathematics. In the 1980s with Schapira he further introduced and developed microlocal sheaf theory. One of his early major results was his 1980 construction of the Riemann-Hilbert correspondence, a generalization of Hilbert's 21st problem about the existence of a linear differential equation on the projective line with prescribed monodromy. The Riemann-Hilbert correspondence, found a remarkable application to a problem in representation theory, called the Kazhdan-Lusztig conjecture.

Biography

1971	M.Sci., Graduate School of Science, The University of Tokyo
1971-1974	Assistant, Research Institute for Mathematical Sciences, Kyoto University
1974-1977	Associate Professor, Nagoya University
1974	Ph.D., Kyoto University
1977-1978	Associate researcher, Massachusetts Institute of Technology
1978-1984	Associate Professor, Research Institute for Mathematical Sciences, Kyoto University
1984-2010	Professor, Research Institute for Mathematical Sciences, Kyoto University
2001-2003	Director of Research Institute for Mathematical Sciences, Kyoto University
2007-2009	Director of Research Institute for Mathematical Sciences, Kyoto University
2010-	Project Professor, Research Institute for Mathematical Sciences, Kyoto University
2019-	Program-Specific Professor, Kyoto University Institute for Advanced Study (KUIAS)

Honors

Iyanaga Prize of Mathematical Society of Japan (1981), Asahi Prize (1988), Japan Academy Prize (1988), Member of the Japan Academy (2007), Fujihara Award (2008), Chern Medal (2018), Kyoto Prize (2018), The Order of the Sacred Treasure, Gold and Silver Star (2020), Frontiers of Science Award (2023), Kyoto Prefecture Culture Prize for Outstanding Contribution (2024), Frontiers of Science Award (2024), Abel Prize (2025)

Yasuaki Hiraoka

**Director of Center for Advanced Study /
Deputy Director of ASHBi / Professor**

Topological Data Analysis,
Applied Mathematics

Hiraoka is a world leading mathematician in the area of topological data analysis (TDA). He studies mathematical theory and algorithms of TDA, and also works on applying them into scientific and engineering problems. His primary interest is to develop descriptors for characterizing shape of complex and big data. By combining various mathematical theories such as topology, representation, probability, he succeeded in making TDA powerful and general for practical problems. In applications, he has organized the materials TDA team, and his group achieved several pioneering results on structural analysis in materials science based on TDA. In particular, a series of methods developed by his group using persistent homology, machine learning, and inverse analysis are expected to be a key technology for materials informatics in future. In addition to materials science, he has recently launched TDA projects for other application areas such as life science.

Biography

2005	Doctor of Science, Graduate School of Engineering Science, Osaka University
2005-2006	JSPS PD, Research Institute for Electronic Science, Hokkaido University
2006-2009	Assistant Professor, Graduate School of Science, Hiroshima University
2009-2011	Associate Professor, Graduate School of Science, Hiroshima University
2009-2010	Visiting researcher, Department of Mathematics, University of Pennsylvania
2011-2015	Associate Professor, Institute of Mathematics for Industry (IMI), Kyushu University
2015-2016	Associate Professor, Advanced Institute for Materials Research (AIMR), Tohoku University
2016-2018	Professor, Advanced Institute for Materials Research (AIMR), Tohoku University
2017-	Team Leader, Center for Advanced Intelligence Project, RIKEN
2018-	Director of Center for Advanced Study and Professor, Kyoto University Institute for Advanced Study (KUIAS)
2018-	Deputy Director of Institute for the Advanced Study of Human Biology, Kyoto University Institute for Advanced Study (KUIAS)

Honors

JSIAM Best Paper Award (2004), The 1st Hiroshi Fujiwara Mathematical Science Award (2012), NISTEP Award (2016), JCS-Japan Award of the Outstanding Papers (2019), MIMS Mimura Award (2023)

Yasuhiro Murakawa

Professor

Human Genomics, Medicine,
Life Science

More than 15 years have passed since the DNA sequence of the human genome, the general blueprint of the human being, was determined by an international research effort. However, “what is written in our human genome” is still largely unknown. Dr. Murakawa's team aims to understand the operating principles of our human genome that give rise to the dynamics of life, by combining classical biochemistry, cutting-edge high-throughput sequencing technology, and bioinformatics approach. We integrate multi-scale human data from the molecular level to the social level, and understand the fundamental mechanisms of our life, aging and death. We are also engaged in research with the aim of elucidating how diseases are caused and creating new future therapies. To this end, we hope to stay eccentric.

Biography

2008	M.D., Kyoto University
2008-2010	Resident, Kyoto University Hospital
2010-2015	DAAD fellow, Max-Delbrueck-Center for Molecular Medicine
2014	Ph.D., Free University of Berlin
2015-2018	Manager, RIKEN Preventive Medicine & Diagnosis (PMI)
2016-2018	Unit Leader, RIKEN Innovation Center (RInC)
2018-	Team Leader, RIKEN Center for Integrative Medical Sciences (IMS)
2018-	Group Leader, The FIRC Institute Molecular Oncology (IFOM)
2020-	Professor, Kyoto University Institute for Advanced Study (KUIAS)

Honors

Kyoto University President’s Award (2008)

Institute for Integrated Cell-Material Sciences (iCeMS)

iCeMS is committed to integrating materials science and cell biology to establish novel academic disciplines. Our mission is to explore the secrets of life by creating compounds to control cells, and further down the road to create life-inspired super materials.

Our approach is radical and new. At iCeMS we are not simply rewriting the rule-book, we are throwing it out the window. Traditional single discipline-based research is not enough for nurturing flexible and innovative ideas. Thus at iCeMS, biologists, chemists, engineers, physicists, and mathematicians share ideas and work together to devise new ways to integrate cells and materials, to keep creating new science.

iCeMS was established in 2007 as a center of the World Premier International Research Center Initiative (WPI Program) supported by Japan's Ministry of Science and has since fostered research excellence and promoted internationalization. In 2017, the institute was certified as a WPI Academy center for its level of research and management was recognized as having achieved "world premier status."

Motonari Uesugi
Director

Timeline

2007	Sep.	iCeMS is selected for the World Premier International Research Center Initiative (WPI Program) by the Ministry of Education, Culture, Sports, Science and Technology (MEXT).
	Oct.	iCeMS is established at Kyoto University with Prof. Norio Nakatsuji as founding director.
2008	Jan.	The Center for iPS Cell Research and Application (CiRA) is established under the auspices of iCeMS with Prof. Shinya Yamanaka as founding director.
2010	Apr.	The Center for iPS Cell Research and Application (CiRA) is re-established as a sister institute to iCeMS with Prof. Shinya Yamanaka as founding director.
2012	Oct.	Prof. Shinya Yamanaka wins the Nobel Prize in Physiology or Medicine.
2013	Jan.	Prof. Susumu Kitagawa succeeds Prof. Nakatsuji as director.
2017	Apr.	iCeMS becomes a research center of KUIAS.
	May.	iCeMS is certified as a WPI Academy center by MEXT.
2023	Apr.	Prof. Motonari Uesugi succeeds Prof. Kitagawa as director.

icems.kyoto-u.ac.jp/en/

Principal Investigators (PIs) and Fellows

At iCeMS, researchers from different fields work together to devise groundbreaking ideas.

Principal Investigators (PIs)

Daishi Fujita
Supramolecular Chemistry, Chemical Biology

Aiko Fukazawa
Physical Organic Chemistry, Organic Synthesis

Shuhei Furukawa
Deputy Director / Deputy Director of iCeMS Analysis Center
Chemistry of Molecular Assemblies

Mineko Kengaku
Deputy Director / iCeMS Analysis Center Director
Developmental Biology of Nervous System

Susumu Kitagawa
Distinguished Professor
Inorganic Chemistry , Chemistry of Coordination Space

Kazuki Nakanishi
Sol-Gel Science, Porous Materials

Ganesh Pandian Namasivayam
PI Board Chair
Bio-inspired Therapeutics, Epigenetics

Daniel Packwood
Applied Mathematics and Theoretical Chemistry

Easan Sivaniah
Clean Technology

Jun Suzuki
Medical Biochemistry, Cell Membrane Biology

Fuyuhiko Tamanoi
Nanoparticles and Cancer Therapy

Yuichi Taniguchi
Biophysics, Systems Biology

Kazumitsu Ueda
Research Administrative Director
Agricultural Chemistry

Motonari Uesugi
Director
Chemical Biology

The Hakubi Project

Tomoko Inose
Photochemistry, Surface Chemistry

iCeMS Kyoto Junior Fellow

Sooyeon Kim
Photochemistry and Bioanalysis

Sayuri Motani
Molecular Biology, Germ Cell biology

Adjunct Principal Investigators

Ryu Abe	Asli M. Colpan	Itaru Hamachi	Satoshi Horike	Hiroshi Imahori
Hiroshi Kageyama	Akira Kakugo	Hiroshi Kitagawa	Erina Kuranaga	Takeshi Noda
Keiko Nonomura	Tomoki Ogoshi	Kei Saito	Shunsuke Shimobayashi	Kazunori Sugiyasu
Koichiro Tanaka	Atsushi Wakamiya	Hiroko Yamada	Shigehiro Yoshimura	

Institute for the Advanced Study of Human Biology (ASHBi)

ASHBi aims to establish an advanced study of human biology that sheds light on the origin and unique characterics of human beings, by elucidating the design principles of human beings and disease states and by synthesizing this knowledge, using an interdisciplinary methodology that integrates multiple fields of study (life sciences, mathematics, humanities).

ASHBi was established in 2018 within the Kyoto University Institute for Advanced Study (KUIAS) as a new research center for the World Premier International Research Center Initiative (WPI) program of the Ministry of Education, Culture, Sports, Science and Technology (MEXT). ASHBi creates a highly open and flexible international research environment, and along with iCeMS, will be a world-leading international research center.

Mitinori Saitou
Director

■ Key Features of the Institute

- Research collaboration between biology and mathematics, and between biology and the humanities
- Core facilities with leading-edge technologies: Single-Cell Genome Information Analysis Core (SignAC), Primate Genome Engineering Core (PRiME) and Non-human Primate Phenotyope Analysis Facility (NPAF)
- Prioritized support for overseas PIs and links with key international institutions (including EMBL, University of Cambridge, Karolinska Institutet)
- Strong links with the Kyoto University Hospital
- Prioritized support for early-career PIs linking with the University's researcher fostering projects.

■ Timeline

2018 Oct. ASHBi is selected by the Ministry of Education, Culture, Sports, Science and Technology (MEXT) as a part of the World Premier International Research Center Initiative (WPI).
ASHBi is established within KUIAS.
ASHBi Satellite is established at the Shiga University of Medical Science.
2019 Mar. ASHBi Kick-off Symposium is held.
2023 Feb. ASHBi received "A" as the Interim Evaluation Score for the WPI Program.

ashbi.kyoto-u.ac.jp/

■ Key Members

At ASHBi, researchers in life sciences, mathematics and humanities pursue to create new ideas beyond their respective fields.

Cantas Alev
[PI]
Professor, KUIAS
Developmental Biology

Ken-ichi Amemori
[PI]
Associate Professor, KUIAS
Neuroscience, Cognitive Neurophysiology

Guillaume Bourque
[PI]
Professor, McGill University
Bioinformatics, Genomics, Epigenomics

Masatsugu Ema
[PI]
Professor, Shiga University of Medical Science
Developmental Biology, Developmental Engineering

Misao Fujita ●
[Vice Director, PI]
Professor, Center for iPS Cell Research and Application (CiRA)
Bioethics

Takashi Hiiragi
[PI]
Professor, Graduate School of Medicine
Group Leader, Hubrecht Institute
Developmental Biology

Yasuaki Hiraoka ●
[Vice Director, PI]
Professor, KUIAS
Applied Mathematics

Fumitaka Inoue
[Co-PI (Bourque G)]
Associate Professor, KUIAS
Genomics, Molecular Developmental Biology

Tadashi Isa
[Core Head (NPAF), PI]
Professor, Graduate School of Medicine
Neuroscience

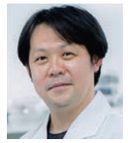
Yasuhiro Murakawa
[PI]
Professor, KUIAS
Human Genomics, Medical Science, Systems Biology

Seishi Ogawa
[PI]
Professor, Graduate School of Medicine
Molecular Oncology

Tadashi Ogawa ●
[Administrative Director]
Professor, KUIAS
Cognitive Neuroscience, Experimental Psychology

Mitinori Saitou ●
[Director, PI]
Professor, KUIAS
Developmental Biology

Sungrim Seirin-Lee
[PI]
Professor, KUIAS
Mathematical Biology and Medicine, Mathematical modeling, Applied Mathematics



Taro Tsujimura
[Core Manager (SignAC)]
Junior Associate Professor, KUIAS
Genomics and Gene Regulation

Tomoyuki Tsukiyama
[Core Head (PRiME)]
Associate Professor, Shiga University of Medical Science
Developmental Engineering, Reproductive and Stem Cell Biology

Hideki Ueno ●
[Vice Director, PI]
Professor, Graduate School of Medicine
Human Immunology

Ryo Yamamoto
[PI]
Associate Professor, KUIAS
Stem Cell Biology, Hematology

Takuya Yamamoto ●
[Core Head (SignAC), PI]
Professor, Center for iPS Cell Research and Application (CiRA)
Molecular Biology, Bioinformatics

Motoko Yanagita ●
[Vice Director, PI]
Professor, Graduate School of Medicine
Nephrology

● ASHBi Executive Board members

Collaborative Research Centers

RIKEN-Kyoto University Advanced Research Platform

Through collaboration between Kyoto University and RIKEN, this Platform aims to conduct joint research by using their respective potencies, extending the borders of their research organizational frameworks and study areas. It further strives to promote the world's most advanced research, leading to the development of new research horizons, and motivate next-generation researchers to advance its endeavors.

SUURI-COOL Kyoto

The first collaborative center with RIKEN was established within KUIAS in 2017. Its ultimate goal is to unravel the mysteries of the universe, matter and life, as well as address various key issues of modern society through its unique interdisciplinary approaches focusing on mathematics. We conduct researcher exchanges, joint research, and training of young researchers in various forms with the Graduate School of Science (human resource development in the mathematical sciences), the Graduate School of Advanced Integrated Studies in Human Survivability (social sciences), the Research Institute for Mathematical Sciences (mathematics) and Yukawa Institute for Theoretical Physics, Kyoto University (theoretical physics).

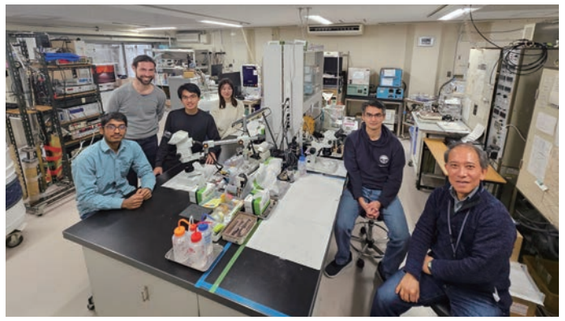
HIKARI-COOL Kyoto

HIKARI-COOL Kyoto was established in 2025 within the RIKEN-Kyoto University Advanced Research Platform, a collaborative initiative between RIKEN and Kyoto University. The primary objective is to address various challenges in fundamental physics and generate novel advancements in the field of photonic quantum science. This center is developing quantum electronic technologies, such as ultra-precise and quantum light sources. It is also pioneering advanced observation methods, including quantum sensing and high-sensitivity imaging. Furthermore, the center is exploring the optical properties of next-generation semiconductors, such as wide-bandgap semiconductors. Through these activities, HIKARI-COOL Kyoto aims to promote the development of next-generation research personnel.

Toyota Riken-Kyoto University Research Center (TRiKUC)

TRiKUC was established on the Kyoto University main campus in April 2022 as a research center of collaboration between Kyoto University and Toyota Physical and Chemical Research Institute. TRiKUC conducts research on quantum materials, especially on superconductors, for the purpose of contributing to the progress of basic science, fostering the next generation of researchers, and disseminating research outcomes among the public. Our research aims are (1) elucidation of unconventional superconducting states in the ruthenium oxide superconductor, (2) development of superconductors related to topological materials, and (3) exploration of novel properties emerging in quantum materials under uniaxial pressure. We tackle these topics through synthesis of new materials, growth of ultra-pure single crystals, and measurements of their physical properties to temperatures down to 0.3 kelvin.

Toyota Riken Kyoto University Research Center TRiKUC



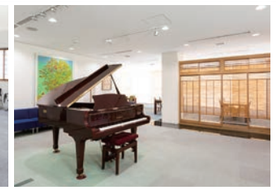
TRiKUC laboratory facility and members. We have equipment for crystal growth, sample characterization, and low-temperature measurements down to 0.3 kelvin.

Facilities

KUIAS Main Building

[Approx. 4,000㎡]

The Main Building bears the headquarter functions of KUIAS. In addition to laboratories and collaborative research spaces, the building has a seminar hall, a lounge for informal gatherings of researchers, and an exhibition room which can also be used for meetings.



KUIAS West Building

[Approx. 550㎡]

The West Building mainly serves as the laboratory and office of faculty members and researchers of the Center for Advanced Study.
To facilitate exchanges among researchers, the building is also equipped with shared spaces.

KUIAS iCeMS Research Building

Research Building No.1 / Project Lab

Research Building No.1 Annex

[Approx. 6,000㎡]

In addition to laboratories for PIs, the building is equipped with the analysis center and common laboratories, as well as open office spaces and community spaces to advance cross-disciplinary research.

Faculty of Medicine Building B Institute for the Advanced Study of Human Biology

[Approx. 1,900㎡]

In addition to laboratories for PIs, the building is equipped with the single-cell genome information analysis core and common laboratories, as well as open office spaces and community spaces to advance cross-disciplinary research.