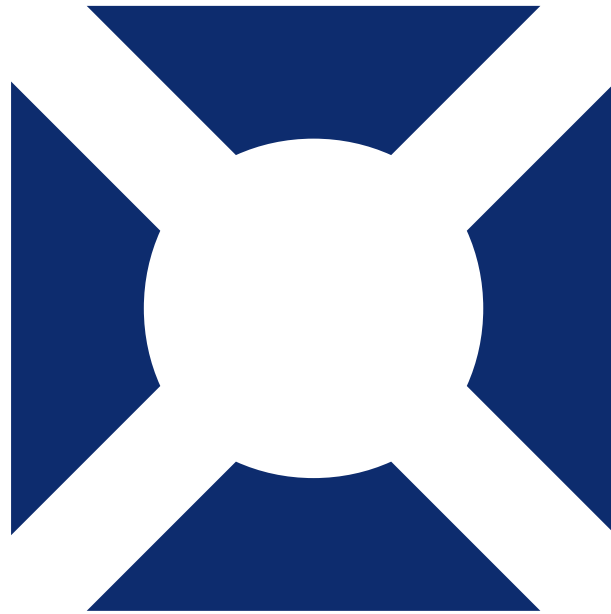




KUIAS

2017

Kyoto University Institute for Advanced Study



KUIAS

Wide-Open Window for Intellectual Exchange

- 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.

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<i>Center for Distinguished Professors</i>	6
<i>Research Center (Institute for Integrated Cell-Material Sciences)</i>	10
<i>Facilities</i>	15

Message from the President

As one of Japan's leading research and education institutions, Kyoto University is home to a large community of outstanding researchers, and research exchange with other leading institutions throughout the world is part of the university's daily operations. The Kyoto University Institute for Advanced Study (KUIAS) was established in April 2016 to further enhance those endeavors – to provide continuous support for the university's unique research, and serve as an international hub for advanced scholarship.



From FY2017, the Institute for Integrated Cell-Material Sciences (iCeMS) will be merged into KUIAS as one of its core research centers. KUIAS will continue to implement innovative research and administrative initiatives as a global center of knowledge and an institution at the vanguard of university-wide reform.

I look forward to watching the progress of KUIAS as it leverages the university's unique strengths to advance cutting-edge research endeavors. I anticipate that the institute will make a significant contribution to cultivating the next generation of researchers, and serve as a focal point for domestic and international research-based knowledge generation.

Juichi Yamagiwa
President, Kyoto University

Message from the Director-General

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



From April 2017, KUIAS includes the Institute for Integrated Cell-Material Sciences (iCeMS) as its major research center. iCeMS has 10 years of experience and achievements as a member of the World Premier International Research Center Initiative (WPI) program by the Ministry of Education, Culture, Sports, Science and Technology. With iCeMS and collaborative research centers established for the cooperation with other institutes in Japan and abroad, KUIAS will strive to further accelerate its activities.

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.

Shigefumi Mori
Director-General, KUIAS

Timeline

- 2016 April 1 ● KUIAS is established at Kyoto University
- 2017 April 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

Finance

(in JPY millions)

	FY2016
University Grants	48
Grant-in-Aid for Scientific Research	171

The FY2016 number does not include iCeMS' finance since it joined KUIAS from FY2017. See P.13 for the iCeMS' finances.

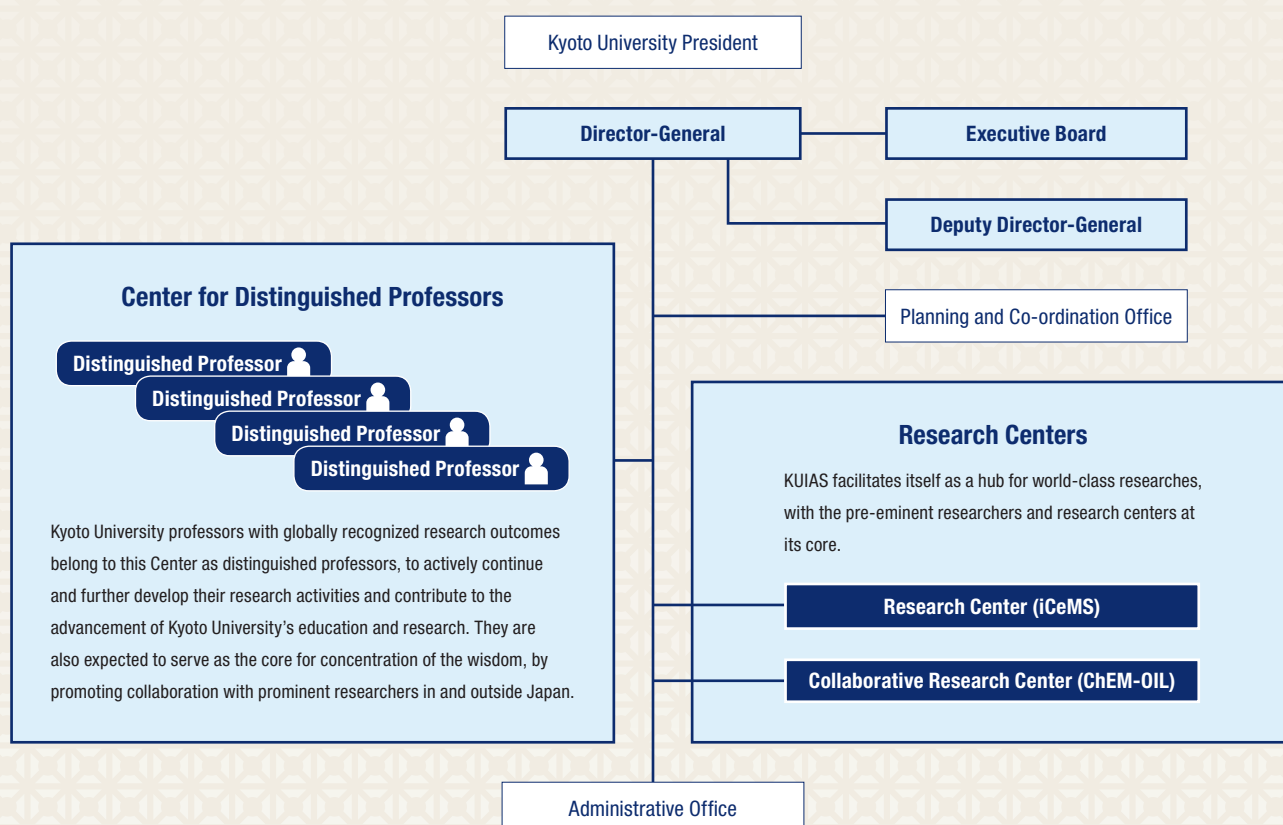
Features

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

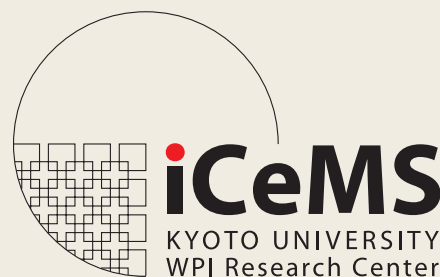
Organizational Structure

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



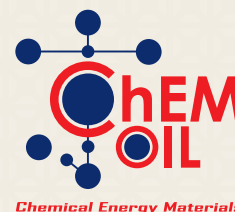
Research Center : iCeMS

The Institute for Integrated Cell-Material Sciences (iCeMS) is committed to integrating materials science and cell biology to establish novel academic disciplines. At iCeMS, researchers from different fields work together toward the common goals of unlocking the secrets of life by developing compounds to control cells and creating life-inspired, new materials for the practical benefit of society. iCeMS was established as a World Premier International Research Center Initiative (WPI) center supported by Japan's ministry of science in 2007, and has since fostered research excellence and promoted internationalization. In 2017, its level of research and management was recognized as the World Premier Status, and it was certified as a WPI Academy center.



Collaborative Research Center : ChEM-OIL

The AIST-Kyoto University Chemical Energy Materials Open Innovation Laboratory (ChEM-OIL) was co-founded by the National Institute of Advanced Industrial Science and Technology (AIST) and Kyoto University as a new research center of AIST, integrating their expertise related to device development/application and basic materials science. ChEM-OIL aims to create non-conventional technologies for energy conversion and storage by directly connecting Kyoto University's inventions in advanced materials—such as porous coordination polymers (MOFs/PCPs), electrolytes, and metal-catalyst nanoparticles—with AIST's expertise in functional interface construction and electrochemical device development. Emphasizing objective, basic research and serving as a bridge to promote private business participation in its industry-government-academia network, ChEM-OIL will also conduct basic and applied research on base technologies and materials, electrolyte materials, and technologies for the design and device development of catalyst materials and electrodes, which are necessary to achieve the practical application of innovative technologies for advanced chemical materials related to energy issues.



Partner Institutions

KUIAS enriches its research through close contact with the following domestic and international partners.

<International Partners>

- UCLA California NanoSystems Institute (CNSI), USA*
- California Institute of Technology (Caltech), USA
- 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*
- Peking-Tsinghua Center for Life Sciences (CLS), China*
- Vidyasirimedhi Institute of Science and Technology (VISTEC), Thailand*
- Seoul National University, South Korea[†]
- Pohang University of Science and Technology (POSTECH), South Korea[†]
- Heidelberg University, Germany[†]
- Max Planck Institute for Evolutionary Anthropology, Germany
- University of St Andrews, UK
- University of Edinburgh, UK[†]
- University of Oxford, UK[†]
- National Center for Scientific Research (CNRS), France

<Partners in Japan>

- RIKEN[†]
- National Cancer Center
- Keio University
- Center for Highly Advanced Integration of Nano and Life Sciences, Gifu University (G-CHAIN)*
- Kindai University
- Foundation for Biomedical Research and Innovation
- Institute of Advanced Medical Sciences (IAMS), Tokushima University
- Kyushu University

*MoU (Memorandum of Understanding) partners

[†]University-level MoU partners



Shigefumi Mori

Director-General and
Distinguished Professor

*Algebraic Geometry,
Birational Geometry*

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 categorizing algebraic varieties. We know that most surfaces can be simplified by eliminating dents and hollows to produce a surface known as a minimal model. This operation is 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.

Biography

1973	B.Sc., Faculty of Science, Kyoto University
1975	M.Sc., Graduate School of Science, 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

Honors

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 Torino (2002), Fujihara Award (2004), University Professor of Nagoya University (2010), 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)

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).



Tetsuro Matsuzawa

Deputy Director-General and
Distinguished Professor

*Primatology,
Comparative Cognitive Science*

Research Overview

Matsuzawa has been studying chimpanzee both in the laboratory and in the wild. The laboratory work is known as "Ai-project" in the Primate Research Institute of Kyoto University since 1977: a female chimpanzee named Ai learned to use Arabic numerals to represent the number (Matsuzawa, 1985, *Nature*). The field work has been carried out in Bossou-Nimba, Guinea, since 1986, focusing on the tool use in the wild. Matsuzawa tries to synthesize the field and the lab work to understand the mind of chimpanzees to know the evolutionary origins of human mind. He published the books such as "Primate origins of human cognition and behavior", "Cognitive development in chimpanzees", "The chimpanzees of Bossou and Nimba".

Biography

1974	B.A., Kyoto University
1976	Psy.M., Kyoto University
1976	Ph. D degree in Science, Kyoto University
1976-1987	Assistant of Primate Research Institute, Kyoto University
1987-1993	Associate Professor of Primate Research Institute, Kyoto University
1993-2016	Professor of Primate Research Institute, Kyoto University
2006-2012	Director of Primate Research Institute, Kyoto University
2016-	Deputy Director-General and Distinguished Professor of KUIAS

Honors

Jane Goodall Award (2001), Medal with Purple Ribbon (2004), Person of Cultural Merit (2013), Awards for Distinguished Research/Services from the Japanese Psychological Association (2014)

Selected Papers

- [1] T. Matsuzawa, Use of numbers by a chimpanzee. *Nature* **315**, 57-59 (1985).
- [2] N. Kawai, T. Matsuzawa, Numerical memory span in a chimpanzee. *Nature* **403**, 39-40 (2000).
- [3] T. Matsuzawa, Primate Origins of Human Cognition and Behavior. *Springer-Verlag* (2001).
- [4] T. Matsuzawa, M. Tomonaga, M. Tanaka, Cognitive Development in Chimpanzees. *Springer* (2006).
- [5] T. Matsuzawa, T. Humle, Y. Sugiyama, The Chimpanzees of Bossou and Nimba. *Springer* (2011).



Susumu Kitagawa

Deputy Director-General and
Distinguished Professor

*Inorganic Chemistry,
Chemistry of Coordination Space*

Research Overview

Kitagawa's main research field is coordination 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 4,000 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.

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, Kinki University
1992-1998	Professor of Department of Chemistry, Tokyo Metropolitan University
1998-2017	Professor of Department of Synthetic Chemistry and Biological Chemistry, 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-	Deputy Director-General of KUIAS
2017-	Distinguished Professor of KUIAS
2017-	Director of Institute for Integrated Cell-Material Sciences, KUIAS

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)

Selected Papers

- [1] J. Reboul, S. Furukawa, N. Horike, M. Tsotsalas, K. Hirai, H. Uehara, M. Kondo, N. Louvain, O. Sakata, S. Kitagawa, Mesoscopic architectures of porous coordination polymers fabricated by pseudomorphic replication. *Nat. Mater.* **11**, 717-723 (2012).
- [2] Y. Sakata, S. Furukawa, M. Kondo, K. Hirai, N. Horike, Y. Takashima, H. Uehara, N. Louvain, M. Meilikhov, T. Tsuruoka, S. Isoda, W. Kosaka, O. Sakata, S. Kitagawa, Shape-memory nanopores induced in coordination frameworks by crystal downsizing. *Science* **339**, 193-196 (2013).
- [3] S. Diring, D. O. Wang, C. Kim, M. Kondo, Y. Chen, S. Kitagawa, K. Kamei, S. Furukawa, Localized cell stimulation by nitric oxide using a photoactive porous coordination polymer platform. *Nat. Commun.* **4**, 2684 (2013).
- [4] S. Furukawa, J. Reboul, S. Diring, K. Sumida, S. Kitagawa, Structuring of metal-organic frameworks at the mesoscopic/macroscale. *Chem. Soc. Rev.* **43**, 5700-5734 (2014).
- [5] 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).



Tasuku Honjo

Distinguished Professor

Molecular Immunology

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 revolutionized the cancer therapy and is considered to be equivalent to penicillin in infectious diseases.

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-	President of Foundation for Biomedical Research and Innovation
2017-	Distinguished Professor of KUIAS

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), Robert Koch Prize (2012), Order of Culture, Japan (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), Warren Alpert Foundation Prize (2017)

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).



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
1980-1985	Senior Research Scientist, The Robotics Institute and Computer Science Department, Carnegie Mellon University (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-	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-	Senior advisor, Center for Advanced Integrated Intelligence Research, RIKEN
2017-	Invited Distinguished Professor, KUIAS

Honors

Joseph F. Engelberger Award (1995), Foreign Member of US National Academy of Engineering (1997), C&C Prize (2000), Funai Achievement Award (2004), Azriel Rosenfeld Lifetime Achievement Award, IEEE Computer Society (2007), RAS Pioneer Award, IEEE Robotics and Automation Society (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)



Shinya Yamamoto

Associate Professor

*Primatology,
Comparative Cognitive Science*

Yamamoto is studying the evolution of sociality and its related intelligence in humans and non-human animals,

developing a two-by-two research paradigm: experiments and fieldwork with chimpanzees and bonobos. Recently he has been expanding this to our socially closest animals, dogs and horses, both in captivity and in natural environments. His ultimate theme is to explore what humanity is. Where did it come from and how can it change in the future? He is especially interested in the evolution of social living characterized by empathy, cooperation, and culture. His previous work has revealed that chimpanzees help others upon request, but not proactively, even when they understand others' goals. This suggests that proactive helping is one of unique characteristics of humans. His main research sites are the Kumamoto Sanctuary (chimpanzees and bonobos), Wamba and Mbali/Malebo in DR Congo (wild bonobos), Bossou in Guinea (wild chimpanzees), horse-riding clubs and dog nurseries in Japan, Serra d'Arga in Portugal (feral horses), and Taiwan (free-ranging dogs).



Monamie Ringhofer

Program-Specific Assistant Professor

Ethology, Comparative Cognitive Science

Ringhofer studies horses, which have had a close relationship with humans since being domesticated approximately 6,000 years ago. Her research is on the question of why horses came to have such close relationships with humans. Combining experiments on domestic horses and field observations of feral horses, She studies the social interaction between horses and between humans and horses. Her main research topic is behavioral coordination between individuals and understanding of others.

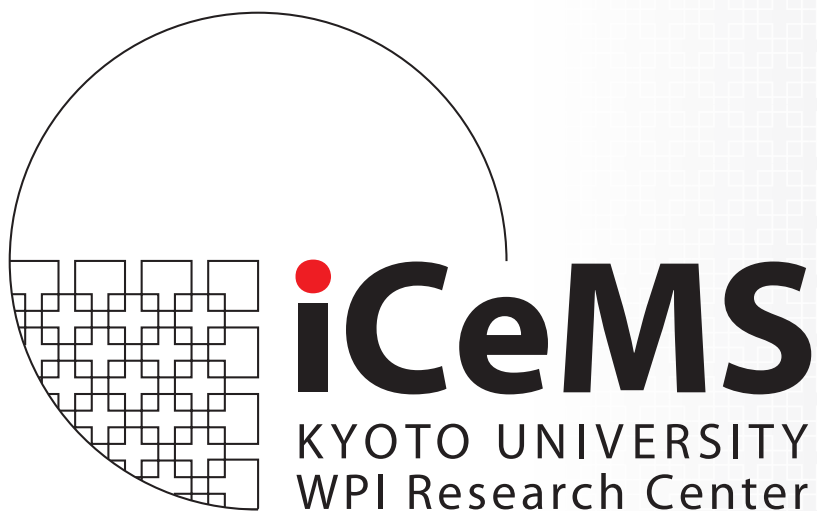


Fumito Kawakami

Program-Specific Assistant Professor

*Developmental Psychology,
Comparative Cognitive Science*

Why are human smiles unique? Neonates show spontaneous smiling (smiling during irregular sleep without external stimuli), and the frequency of social smiling increases at around two months in both humans and chimpanzees. Two-year-old human children show smiling in a range of different situations, even unpleasant ones. Do other species show "unpleasant smiling" in their lives? Kawakami mainly observes chimpanzees and humans to understand smiling behavior.



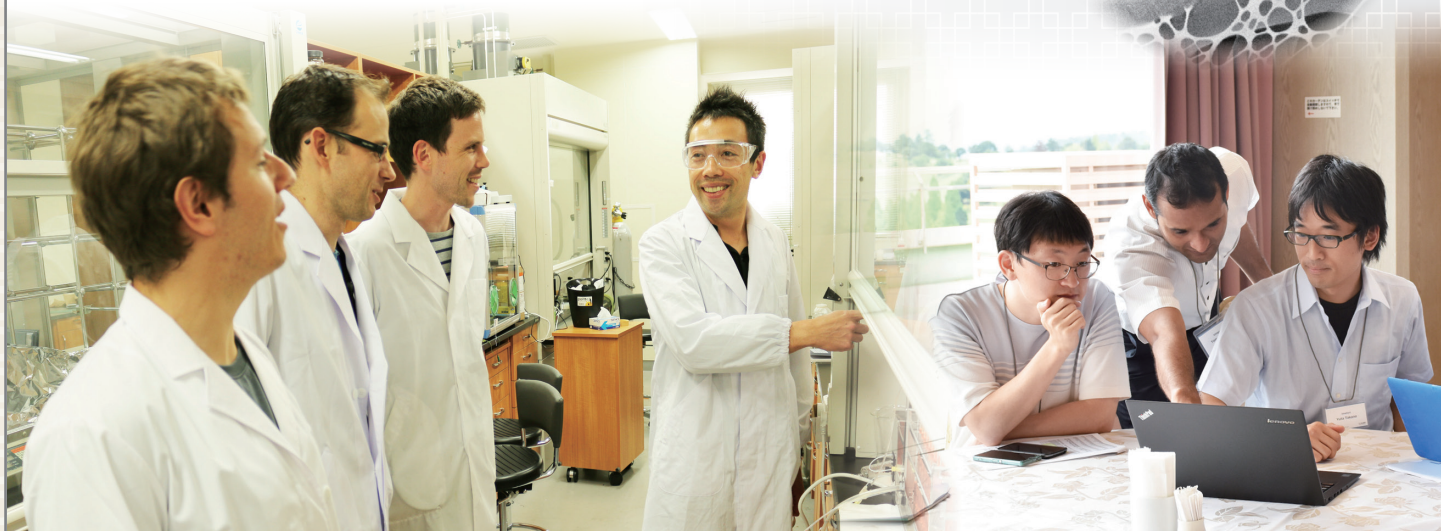
Institute for Integrated Cell-Material Sciences

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 that confront the myriad problems that afflict modern society.

Our approach is radical and new. At iCeMS we are not simply rewriting the rule-book, we are throwing it out of the window. Global warming. Pollution. Disease. Aging. These major concerns can no longer be countered by traditional single discipline-based research. Innovative solutions to the most pressing scientific and societal challenges of our time demand we adopt a multi-disciplinary, syncretic approach. Thus at iCeMS cell biologists, biophysicists, chemists, material scientists, physicists, and bioengineers share ideas and work together to devise new ways to integrate cells and materials, all for the greater good. Inspiration through collaboration.

Cell Biology

Biophysics



Timeline



- | | |
|----------------|--|
| 2007 Sep 12 | ● iCeMS is selected for the World Premier International Research Center (WPI) Initiative by the Ministry of Education, Culture, Sports, Science and Technology (MEXT). |
| Oct 1 | ● iCeMS is established at Kyoto University with Prof. Norio Nakatsuji as founding director. |
| <hr/> | |
| 2008 Jan 22 | ● The Center for iPS Cell Research and Application (CiRA) is established under the auspices of iCeMS with Prof. Shinya Yamanaka as founding director. |
| Apr 28 | ● New iCeMS laboratory opened on the Katsura Campus of Kyoto University. |
| <hr/> | |
| 2009 Mar 3 | ● The Center for Meso-Bio Single-Molecule Imaging (CeMI) is established within iCeMS with Prof. Akihiro Kusumi as founding director. |
| Jun 26 | ● iCeMS Gifu University Satellite opening ceremony held. |
| Nov 1 | ● Chemical Screening Center opened in the Main Building. |
| <hr/> | |
| 2010 Apr 1 | ● 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. |
| Dec 17 | ● India's Tata Institute for Fundamental Research's National Centre for Biological Sciences (NCBS) and the Institute for Stem Cell Biology and Regenerative Medicine (inStem) Satellite Laboratory opening ceremony held at the iCeMS. |
| <hr/> | |
| 2011 Jul 21-23 | ● Heidelberg University Collaborative Research Center SFB 873-Kyoto University iCeMS joint symposium held in Heidelberg. |
| <hr/> | |
| 2012 Apr 20-22 | ● Peking University and Tsinghua University Center for Life Sciences (CLS)-Kyoto University iCeMS joint symposium held in Beijing. |
| Oct 8 | ● Prof. Shinya Yamanaka wins the Nobel Prize in Physiology or Medicine. |
| Dec 3-5 | ● iCeMS co-organizes the World Stem Cell Summit in Florida with the Karolinska Institutet and other leading institutions. |
| <hr/> | |
| 2013 Jan | ● The first issue of Biomaterials Science, a joint venture between the Royal Society of Chemistry (RSC) and iCeMS, published. |
| Jan 1 | ● Prof. Susumu Kitagawa succeeds Prof. Nakatsuji as director. |
| Jun 6-9 | ● WPI institutes co-host Japan-France workshop on materials science at iCeMS. |
| Oct | ● iCeMS Rakunan Shinto Laboratory opened. |
| <hr/> | |
| 2016 Feb 29 | ● iCeMS ties MoU with Vidyasirimedhi Institute of Science and Technology (VISTEC) of Thailand |
| <hr/> | |
| 2017 Feb 2-4 | ● iCeMS organizes Kyoto University International Symposium in Rayong and Bangkok, Thailand. |
| Apr 1 | ● iCeMS becomes a research center of Kyoto University Institute for Advanced Study. |
| May 24 | ● iCeMS was certified as a WPI Academy center by MEXT. |

Materials
Science

Chemical
Biology

Tissue
Engineering



Principal Investigators (PIs)



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

Cell Biology



Jun Suzuki



Ryoichiro Kageyama



Peter Carlton



Mineko Kengaku



Michiyuki Matsuda



Eisuke Nishida



Kazumitsu Ueda



Mitinori Saitou



Dan Ohtan Wang



Motonari Uesugi



Itaru Hamachi



Kouichi Hasegawa



Ken-ichiro Kamei

Chemical Biology



Fuyuhiko Tamanoi



Hiroshi Sugiyama



Shuhei Furukawa



Hiroshi Imahori



Yasuo Mori



Kaoru Sugimura

Materials Science



Easan Sivaniah



Satoshi Horike



Ryu Abe



Daniel Packwood



Susumu Kitagawa



Hiroshi Kageyama



Hiroshi Kitagawa



Koichiro Tanaka

Tissue Engineering

Biophysics

The red frames are PIs and the others are Adjunct PIs.



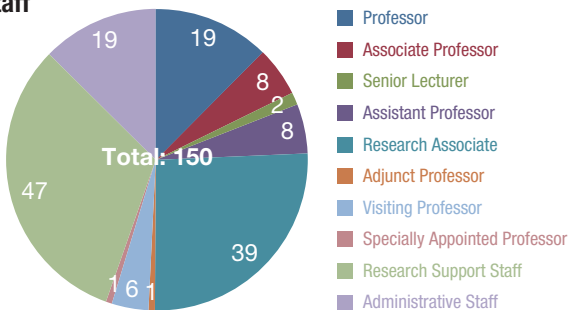
Management

- English used as the official Language, and strong support for non-Japanese researchers provided to meet the international standards
- Open offices and common labs designed to encourage interaction
- Hosting international symposia (approx. 2 annually) and iCeMS Seminars regularly conducted by noted international researchers (approx. 10 seminars annually)
- Strengthening the network with industry and partnership with overseas institutions
- Building closer ties with the Kyoto University URA office (KURA)
- Communicating to the public (Providing Internet videos of research presentations for non-scientists, and holding events for high school students)

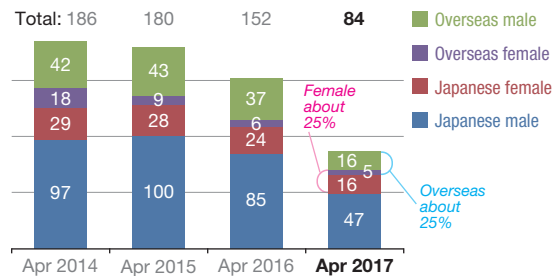


Facts and Figures

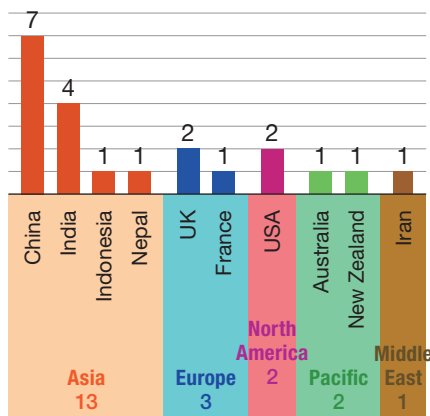
All Staff



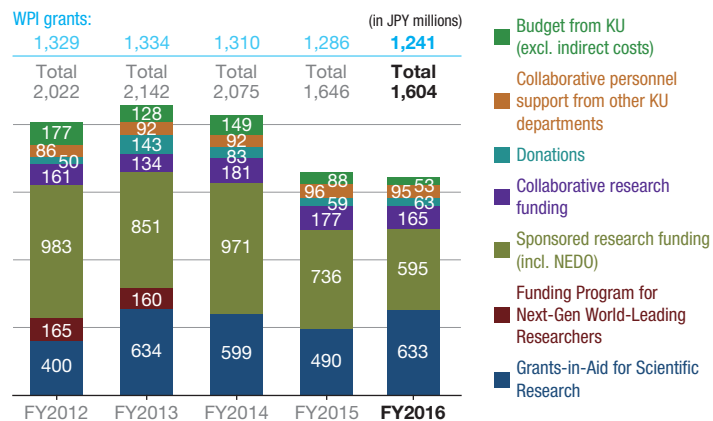
Researchers



Researchers from Overseas



Finance



(As of April 2017)



Honors & Awards



2017 Jun	● Fujihara Award	Susumu Kitagawa
Apr	● Ichimura Academic Award	Motonari Uesugi
Apr	● Commendation for Science and Technology Prize (Young Scientists' Prize category)	Shuhei Furukawa
2016 Oct	● Basolo Medal	Susumu Kitagawa
Sep	● Takeda Prize for Medical Science	Mitinori Saitou
Jun	● Japan Academy Prize	Susumu Kitagawa
Apr	● Commendation for Science and Technology Prize (Young Scientists' Prize category)	Hideki Hirori, Akitsu Hotta
2015 Apr	● Commendation for Science and Technology Prize (Young Scientists' Prize category)	Ryotaro Matsuda
Apr	● Marco Polo della Scienza Italiana	Susumu Kitagawa
2014 Jun	● German Innovation Award Gottfried Wagener Prize (3rd Prize)	Hideki Hirori
May	● E.B. Wilson Medal of the American Society for Cell Biology	John Heuser
Mar	● Commendation for Science and Technology Prizes	Norio Nakatsuji, Kei Kano, Eri Mizumachi, Koichiro Tanaka
Feb	● Philipp Franz von Siebold Award	Motomu Tanaka
Jan	● Japan Academy Medal	Mitinori Saitou
2013 Sep	● Leo Esaki Award	Susumu Kitagawa
May	● RSC de Gennes Prize	Susumu Kitagawa
2012 Nov	● Order of Culture	Shinya Yamanaka
Nov	● Life-time Achievement Award (Journal of Drug Targeting)	Mitsuru Hashida
Oct	● Nobel Prize in Physiology or Medicine	Shinya Yamanaka
2011 Nov	● AAAS Days of Molecular Medicine Young Investigator Award	Ganesh Pandian Namasivayam
Jun	● Medal of Honor with Purple Ribbon 2011	Susumu Kitagawa
May	● Member of National Academy of Sciences	John Heuser, Shinya Yamanaka
Mar	● German Innovation Award Gottfried Wagener Prize (1st Prize)	Motonari Uesugi
Feb	● Wolf Foundation Prize in Medicine	Shinya Yamanaka
2010 Sep	● 2010 Thomson Reuters Citation Laureates	Susumu Kitagawa, Shinya Yamanaka
Mar	● Imperial and Japan Academy Prizes	Shinya Yamanaka
Mar	● Japan Bioscience, Biotechnology and Agrochemistry Society Award	Kazumitsu Ueda
2009 Sep	● Albert Lasker Basic Medical Research Award	Shinya Yamanaka
Jan	● The Chemical Society of Japan Award	Susumu Kitagawa
2008 Apr	● Humboldt Research Award	Susumu Kitagawa
2007 Dec	● 2007 NISTEP Prize (by the National Institute of Science and Technology Policy of the Japanese Ministry of Education, Culture, Sports, Science and Technology)	Hiroshi Imahori
Nov	● American Association of Pharmaceutical Scientists, Research Achievement Award in Pharmaceuticals and Drug Delivery	Mitsuru Hashida

(Affiliations as of the time of the award)

Yoshida Campus, Kyoto University

- **KUIAS Main Building**

- **KUIAS West Building**

Approx. 5,000 m² of floor space

The Main Building serves as the KUIAS' headquarters. In addition to ample shared laboratory space, it includes a seminar hall, a lounge for informal researcher get-togethers, and an exhibition room that doubles as a meeting space.



- **KUIAS iCeMS Research Building**

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

- **Research Building No.1 Annex**

Approx. 6,000 m² of floor space

Researchers from different groups collaborate with each other in extensive shared laboratory and office spaces to advance cross-disciplinary research.



- **AIST-Kyoto University Chemical Energy Materials Open Innovation Laboratory (ChEM-OIL)**

(in International Science Innovation Building)

Approx. 165 m² of floor space

ChEM-OIL is a collaborative research center of Kyoto University and the National Institute of Advanced Industrial Science and Technology (AIST). Focusing on pioneering energy conversion/storage techniques based on novel materials and concepts, ChEM-OIL acts as a bridge between industry and academia to accelerate commercialization of next-generation chemical materials and technologies for energy issues.



Katsura Campus, Kyoto University

- **KUIAS iCeMS Katsura Laboratory**
(in Funai Center)

Approx. 220 m² of floor space

A shared-use laboratory on Kyoto University's Katsura campus. Research includes work on synthesis of functional polymeric materials and porous coordination polymers (PCPs). Such materials can be combined together, for example, to enhance their functionality and compatibility with living cells.





- Five-minute walk from “Kyodai Seimon-mae” Stop
(Kyoto City Bus)



- Three-minute walk from “Kyodai Katsura Campus-mae” Stop
(Kyoto City Bus / Keihan Kyoto Kotsu Bus)

