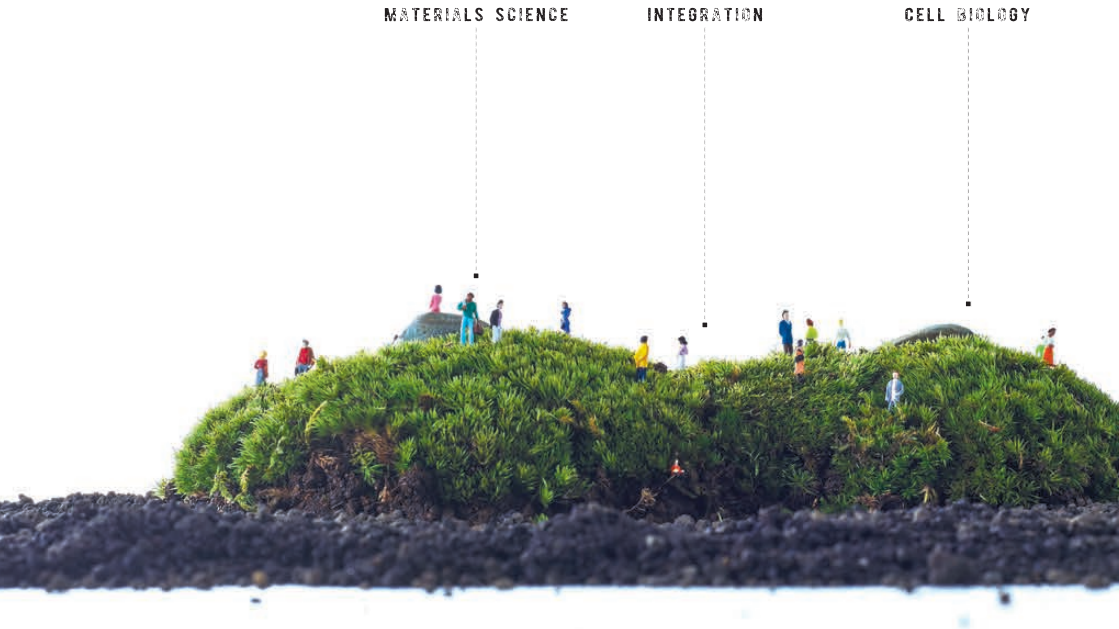
Inspiring Creativity

Institute for Integrated Cell-Material Sciences
Kyoto University



The Director's Vision:

Linking Cell Biology and Materials Science

Susumu Kitagawa Director

iCeMS fosters interdisciplinary research activities that encompass cell biology, chemistry, physics, mathematics, and other areas of excellence at Kyoto University. Exploring the relationship between matter and life opens up a new horizon of science, and technology.

Exploring New Frontiers

Some may argue that when researchers with different perspectives and expertise are brought together, they have difficulties sharing information and developing common goals. By accepting different views and opinions, iCeMS researchers not only overcome these difficulties but also turn them into opportunities for advancing the goals of the Institute. Therefore, we are confident that the iCeMS is home to innovative ideas and new approaches. The major research interests of the iCeMS include the following.

Major Pillars of Research

1 Understanding biochemical processes of the cell and creating functional molecules

Cells maintain their functionality by orchestrating the interactions between a plethora of molecules. Understanding cellular functionality requires us to create chemical substances and materials that are necessary for its analysis. Knowledge gained through this analysis provides a platform for creating new molecules that help control cells.

2 Creating substances inspired by cellular functions and mechanisms

Prof Richard Feynman's famous dictum, "What I cannot create, I do not understand," highlights the belief that deep scientific understanding comes from generating and testing new physical entities. If we cannot manufacture relevant products to test our working hypothesis, we have not yet come to grips with the subject of study. iCeMS advances the understanding of cellular processes and produces new substances inspired by cell biology.

Principal Investigators (PIs)

Daishi Fujita
Associate Professor
Supramolecular Chemistry, Chemical Biology

Aiko Fukazawa
Professor
Physical Organic Chemistry, Organic Synthesis

Shuhei Furukawa
Professor
Chemistry of Molecular Assemblies

Satoshi Horike
Associate Professor
Materials Chemistry

Ken-ichiro Kamei
Associate Professor
Microengineering, Stem Cell Research

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

Susumu Kitagawa
Distinguished Professor / Director
Inorganic Chemistry; Chemistry of Coordination Space

Kazuki Nakanishi
Program-Specific Professor
Sol-Gel Science, Porous Materials

Ganesh Pandian Namasivayam
Junior Associate Professor
Bio-Inspired Therapeutics, Epigenetics

Daniel Packwood
Junior Associate Professor / PI Board Chair
Applied Mathematics and Theoretical Chemistry

Easan Sivaniah
Professor
Clean Technology

Kunihisa Sugimoto
Program-Specific Associate Professor
X-ray Crystallography, Synchrotron Science

Jun Suzuki
Professor / Deputy Director
Medical Biochemistry, Cell Membrane Biology

Fuyuhiko Tamanoi
Program-Specific Professor
Nanoparticles and Cancer Therapy

Yuichi Taniguchi
Professor
Biophysics, Systems Biology

Kazumitsu Ueda
Program-Specific Professor / Research Administrative Director
Agricultural Chemistry

Dan Ohtan Wang
Program-Specific Research Center Associate Professor
Neuroscience, Chemical Biology

☐Adjunct Principal Investigators

Ryu Abe
Artificial Photosynthesis, Solar Hydrogen Production, Photocatalysts

Peter Carlton
Meiosis, DNA Damage and Repair, Epigenetics, Superresolution Microscopy

Itaru Hamachi
Chemical Biology, Supramolecular Biomaterials

Hiroshi Imahori
Artificial Photosythesis, Organic Photovoltaics

Hiroshi Kageyama
Solid State Chemistry

Ryoichiro Kageyama
Developmental Biology, Stem Cell Biology

Hiroshi Kitagawa
Solid-state Chemistry: Electron-Proton Coupled System

Michiyuki Matsuda
Bio-Imaging, Visualization of Inter- and Intra-Cellular Signal Transduction

Yasuo Mori
Molecular Biology

Hiroshi Sugiyama
Chemical Biology, DNA-Based Smart Biomaterial Design

Koichiro Tanaka
Teraherz Optical Science

Motomu Tanaka
Medical Physics, Soft Matter Physics

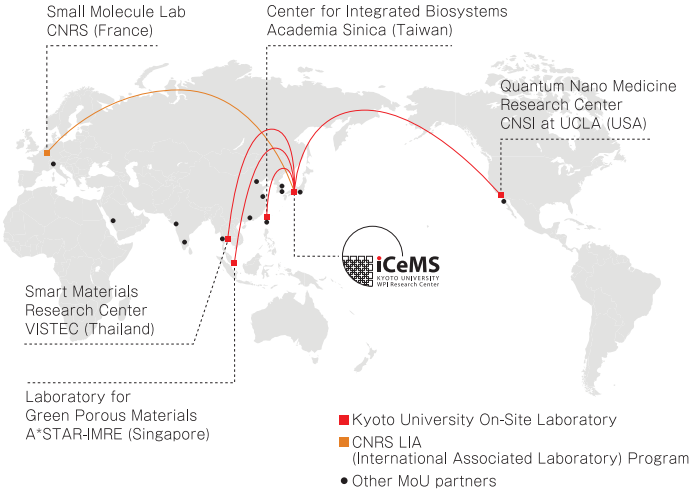
Motonari Uesugi
Chemical Biology

Features

Academic Cooperation & Exchange

International Partnership

iCeMS pursues world-leading research through active cooperation with many overseas universities and organizations. Under the Kyoto University On-Site Laboratory Initiative, iCeMS has established four locally managed centers in alliance with overseas research partners. Moreover, the iCeMS has launched the Small Molecule Lab in cooperation with the French National Center for Scientific Research (CNRS) and other collaborating partners. Furthermore, research partnership agreements have been made with 15 institutions across the globe.



Ensuring a Top-Notch Research Environment

Research Promotion System

At the iCeMS, expert teams provide support to accelerate “brain circulation” among domestic and international research institutions, expand and consolidate international networks of scientists in relevant fields, and return the research results to the society. We aim to create and spread a world-class research environment by expanding our experience within Kyoto University and to other universities and research institutes nationwide, with the strong cooperation with other WPI institutes.

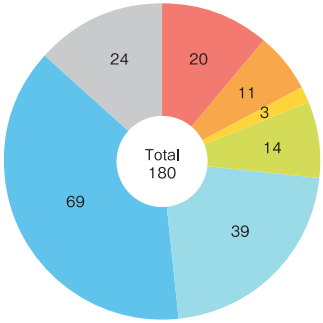
Innovation Unit	●Coordinating international research agreements ●Managing intellectual property rights, patents, and industrial applications ●Developing strategies to gain research grants ●Fundraising
Public Engagement Unit	●International public relations and communications ●Organizing scientific outreach events ●Online and offline communication of scientific topics ●Activating international exchange of researchers
Analysis Center	●Maintaining and operating shared equipment and facilities ●Providing advice and guidance for experimental design ●Hosting hand-on training sessions and seminars ●Ensuring a safe experimental environment

Fact and Figures

All Staff

Professor	20
Associate Professor	11
Senior Lecturer	3
Assistant Professor	14
Research Associate	39
Research Support Staff	69
Administrative Staff	24

As of March 2020

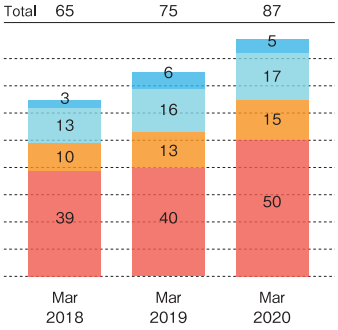


Researchers

- Overseas Female
- Overseas Male
- Japanese Female
- Japanese Male

Researchers from Overseas

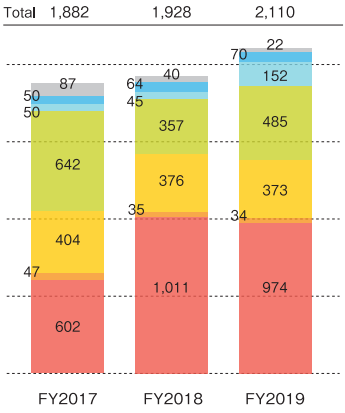
China	Spain
France	Syria
India	UK
Iran	USA
New Zealand	Vietnam
South Korea	



Finance

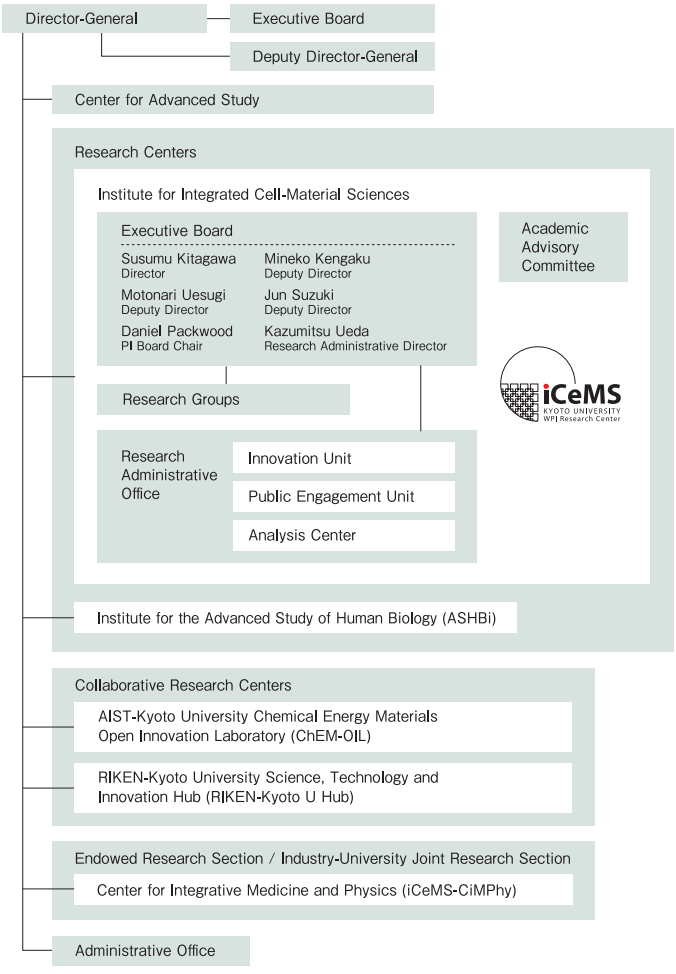
- Others
- Donations
- Subsidies
- Commissioned research funds, etc.
- Grant-in-Aid for Scientific Research
- WPI Academy Fund
- Basic Operating Funds

(in JPY millions)



Organization Chart

Kyoto University Institute for Advanced Study



Timeline

2007	Sep	iCeMS is selected for the World Premier International Research Center (WPI) Initiative by Japan's 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 Kyoto University Institute for Advanced Study.
	May	iCeMS gets certified as a WPI Academy center by Japan's Ministry of Education, Culture, Sports, Science and Technology (MEXT).

More about iCeMS

Information on the iCeMS is always available on its website and daily updated social media such as Twitter, Instagram, Facebook, and YouTube. please check them out for the news, interviews, and seminar information, as well as the details of iCeMS' research, researchers, and activities.

www.icems.kyoto-u.ac.jp

@Kyoto.Univ.iCeMS
@iCeMS_KU
@iCeMS_KU
@iCeMSpr

☐iCeMS Leader Interview Video Series

An interview video series where the iCeMS researchers share their passion about research and their unique perspectives.

☐Research News (Press Release)

Research results at iCeMS are presented in an understandable way with attractive illustrations.

☐Newsletter iCeMS Our World, Your Future

Learn more about the iCeMS research through interviews of researchers and research support staff.

·iCeMS Research Scope
·iCeMS Frontrunners
·First Author Interview
·The Other Half of iCeMS

☐Seminar and Symposium Information

Information about international symposia and iCeMS seminars are available on the iCeMS website.

A Call for Support

iCeMS Fund

The iCeMS has made creative and outstanding achievements at the boundary between cell biology and materials science. Your encouragement and support are an important resource to ensure the Institute can continue this work. iCeMS is seeking donors who support it in its challenges of navigating the uncharted waters of science. Anyone can donate to the iCeMS Fund, including individuals, and corporate and non-corporate entities. Why don't you join us on the journey to a new horizon?

Donations to the iCeMS Fund can be made from here (QR code).
https://www.icems.kyoto-u.ac.jp/en/support/

□Your donations are used for the following purposes:

(1) Facility Administration
- ●Employment of researchers and staff
- ●Operation and management of the facility

(2) Human Resource Development
- ●Overseas exchange and training of junior scientists

(3) Research Funding
- ●Financial support for transdisciplinary projects

(4) Public Relations
- ●Open seminars and lectures
- ●Online and print publications of research findings

The terms and conditions for the use of donations were revised in March 2021 to include facility management costs.

□Advantages of Donation

[Tax Deduction]

Donations to the Kyoto University, including the iCeMS, are tax deductible.

[Expression of Gratitude and Appreciation]

The iCeMS shows donor appreciation in multiple ways, including:

- ●A thank-you letter from the Director
- ●Recognition on the list of supporters (donors can remain anonymous if they prefer)
- ●Invitations to the iCeMS thank-you reception and open laboratory tours.

To read more about how you benefit from donating to the Kyoto University, please visit the Kyoto University Fund at: https://www.kikin.kyoto-u.ac.jp/en/.