

ICR

Institute for Chemical Research,
Kyoto University

Division of Synthetic Chemistry

Division of Materials Chemistry

Division of Biochemistry

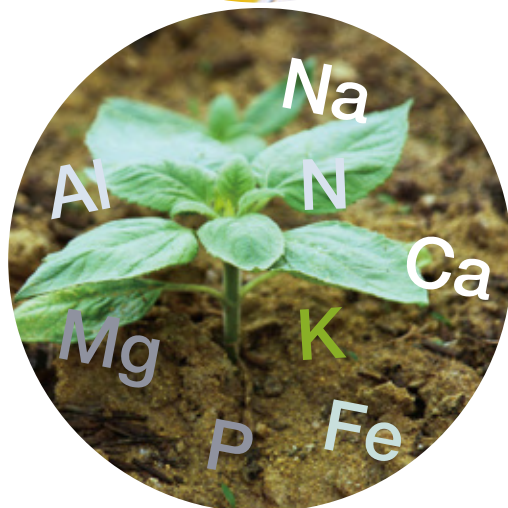
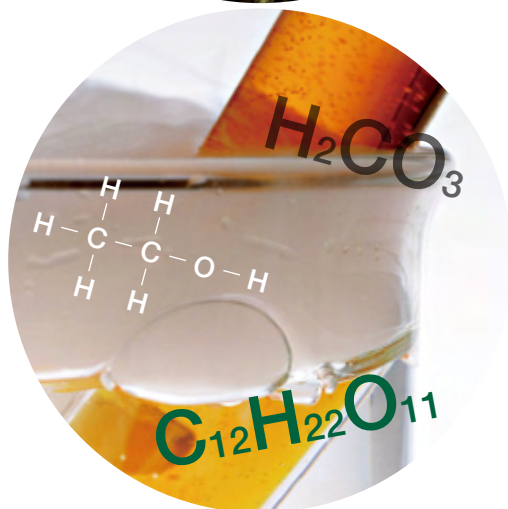
Division of Environmental Chemistry

Division of Multidisciplinary Chemistry

Advanced Research Center for Beam Science

International Research Center for Elements Science

Bioinformatics Center



Our Goal Is to Create Novel Fields of Research by Integrating the Wisdom in Our Various Research Fields. ICR at Kyoto University Continues Its Challenge to Reveal Novel Findings for the Human Society.

Preface



Director

TOKITOH, Norihiro

Institute for Chemical Research, launched in 1926 as the first research institute at Kyoto University, will celebrate its 82nd anniversary in 2008, but its true roots date back to 1915 (Special Institute of Chemical Research founded at Kyoto Imperial University College of Science for the study of special medicinal substances, "Salvarsans"). In 2004, we have reached the current large-scale organization of three centers and five research divisions. Currently, 104 faculty members and 240 graduate students are engaged in research activities in 31 laboratories supervised by full-time professors and five laboratories supervised by visiting professors.

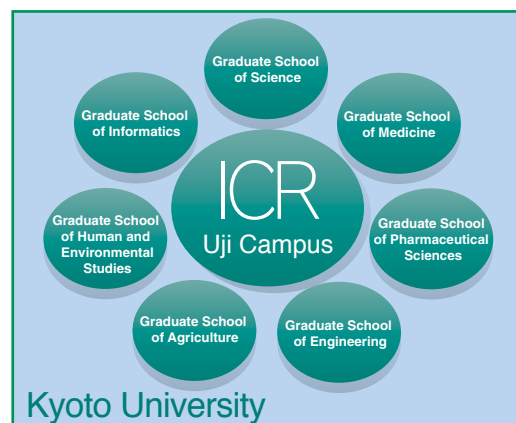
The research within the Institute encompasses the fields of chemistry, physics, biology, and informatics. The chemical studies core covers fields including physical chemistry, inorganic chemistry, organic chemistry, materials chemistry, and biochemistry. The graduate school to which our laboratories belong spans diverse fields of science, engineering, agriculture, pharmaceutical sciences, medicine, informatics, and human/environmental studies. The labs at the graduate school are spearheading leading-edge research, and yielding outstanding results in their own research areas.

Our founding vision is to "Excel in the investigation of basic principles of chemistry and chemical applications." This legacy continues to the present day and describes the essence of our research activities. With this vision in mind, we have entrusted our scientists to choose and pursue research topics at the forefront of advanced chemistry with bottom-up paradigms; this has resulted in substantial contributions to the development of scientific technology.

Such accomplishments are proof of our vision of freedom and a bottom-up approach in chemical research.

Whether or not the human race can generate sustainable growth is a key issue of the 21st century. In order to contribute to the future of our society, we encourage our scientists to be actively involved in research projects with bottom-up approach in mind, and to value the emergence of unique interdisciplinary research projects. To further reinforce the leadership of the Institute, we are pleased to announce the appointments of Prof. Naoki Sato and Prof. Hiroshi Watanabe as Vice Directors. Under this new administration, we shall strive to further encourage the research activities and install effective management at the Institute.

Finally, we appreciate your continued encouragement and support.



Education

Every laboratory in ICR is affiliated with one of the Graduate Schools and has contributions to education.

History

1915 Specialized Center for Chemical Research, a predecessor of Institute for Chemical Research was founded.

1926 Institute for Chemical Research (ICR) was chartered with the founding philosophy, to "Excel in the investigation of basic principles of chemistry and chemical applications."

1929 The Main Building of ICR was constructed in Takatsuki, Osaka.

1949 ICR became the first affiliated institute of Kyoto University.

1962 ICR established graduate schools to offer the advanced education for graduate students.

1964 The Division System was introduced. ICR organization was divided into 19 research divisions and 1 satellite facility. Nuclear Science Research Facility was established in Awataguchi, Sakyo-ku, Kyoto.

1968 High-Voltage Electron Microscopy was located at Gokasho, Uji (Uji Campus). ICR was moved to Uji Campus.

1971 Low-Temperature Laboratory was established.

1983 Nucleic Acids Laboratory was built.

1985 Biotechnology Laboratory was established.



The first ICR building in Takatsuki



The main building of ICR in Uji

1987 The Division System was revised.

ICR organization became 19 research divisions and 2 satellite facilities.

1988 Nuclear Science Research Facility was moved to Gokasho, Uji. Accelerator Laboratory and Research Building were completed.

1989 High-Resolution Electron Spectromicroscope was established.

1992 ICR was reorganized into 9 research divisions and 2 satellite facilities. Supercomputer Laboratory was established.

1999 Joint Research Laboratory Building was constructed.

2000 Administration Departments of ICR and other institutes in Uji Campus were integrated.

2001 Bioinformatics Center was established.

2003 ICR was reorganized into 9 research divisions and 3 satellite facilities. International Research Center for Elements Science was established.

2004 ICR was reorganized into 5 research divisions and 3 centers. Advanced Research Center for Beam Science was established. Uji Research Building was constructed.

2005 Laser Science Laboratory was built.

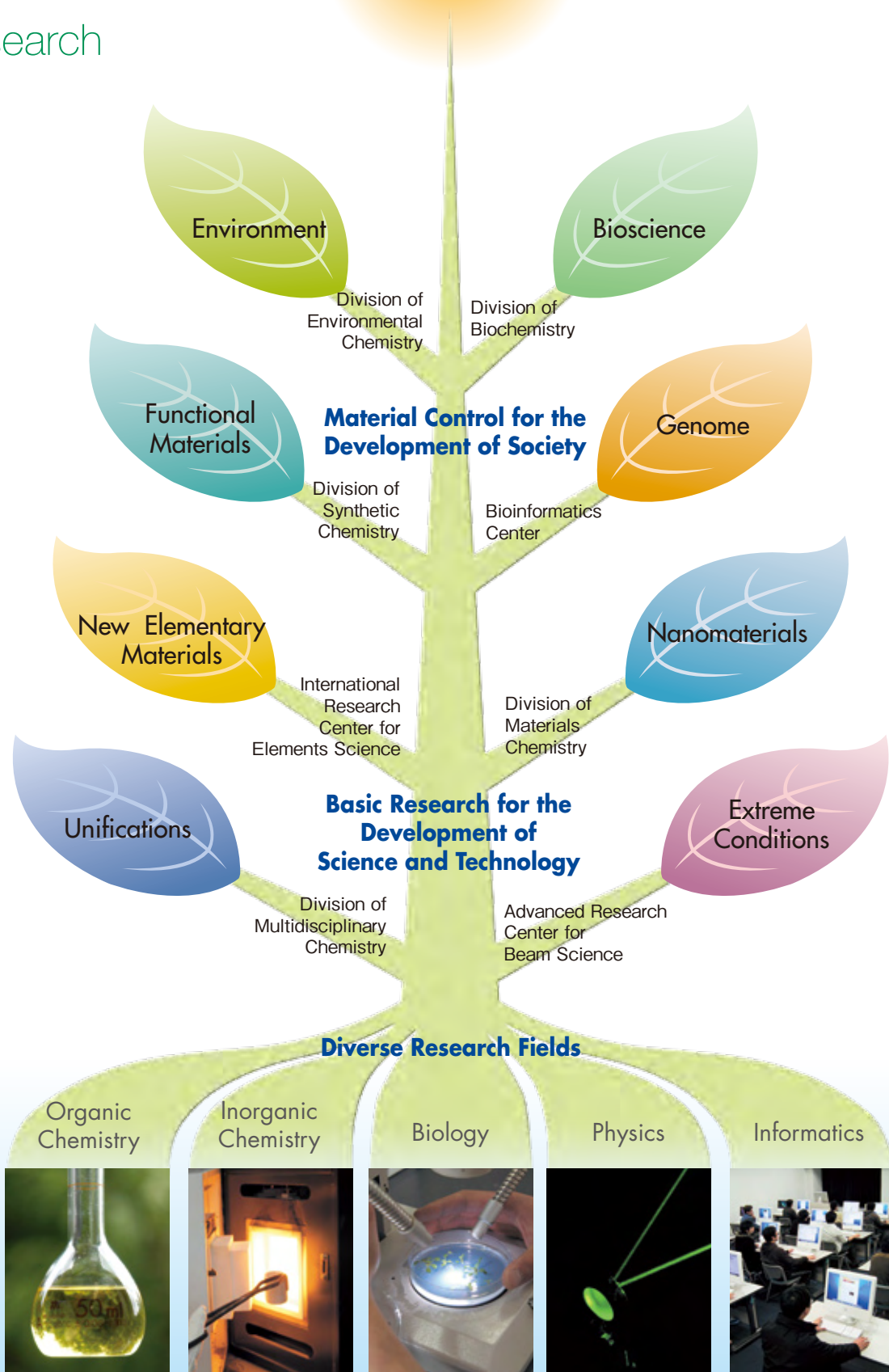
2007 The Alumni Association of ICR "Hekisuiikai" was inaugurated.



Starting Ceremony of "Hekisuiikai"

Challenge and Innovation

Research



ICR = Spring of Wisdom

To Excel in the Investigation of Basic Principles of Chemistry and Chemical Applications (since 1926)

Functional Materials

Research is conducted for the creation of "Novel Materials" from viewpoints irrespective of disciplines of organic and inorganic chemistry and for clarification of their structures, functions, and properties.

Original research is conducted in individual laboratories across scientific disciplines toward the creation of novel materials beyond common concepts. Clarification of structures and intrinsic properties of the novel materials are expected to provide impact in the scientific fields including material science, synthetic organic and inorganic chemistry.

Organoelement Chemistry

S Prof
TOKITOH, Norihiro (D Sc)



Assoc Prof
NAKAMURA, Kaoru (D Sc)
Assist Prof
SASAMORI, Takahiro (D Sc)
MIZUHATA, Yoshiyuki (D Sc)
Technician
HIRANO, Toshiko

Structural Organic Chemistry

E

Assoc Prof
MURATA, Yasujiro (D Eng)
Assist Prof
MURATA, Michihisa (D Eng)

Synthetic Organic Chemistry

P Prof
KAWABATA, Takeo (D Pharm Sc)



Assoc Prof
FURUTA, Takumi (D Pharm Sc)
Assist Prof
YOSHIMURA, Tomoyuki (D Pharm Sc)
Technician
TERADA, Tomoko

Advanced Inorganic Synthesis

S Prof
SHIMAKAWA, Yuichi (D Sc)



Assoc Prof
AZUMA, Masaki (D Sc)
Program-Specific Assist Prof
ICHIKAWA, Noriya (D Eng)

Nanomaterials

Creation of new functional materials for next generation by hybridization, conjugation, and integration of different materials and by nano-miniaturization.

The aim of this research area is to develop a controlled synthetic method for nano-sized macromolecules and its applications to novel precision fabrication of polymeric materials. This area also emphasizes creation and development of new functional materials by controlling electronic, photonic, and spin states through hybridization of organic-inorganic materials, creation of novel surfaces with high-density polymer brushes, development of nano-fabrication of artificial multi-layers, and utilization of size- and quantum effects.

Chemistry of Polymer Materials

E Prof
TSUJII, Yoshinobu (D Eng)



Assist Prof
OHNO, Kohji (D Eng)
GOTO, Atsushi (D Eng)

Polymer Controlled Synthesis

E Prof
YAMAGO, Shigeru (D Sc)



Assoc Prof
TSUJI, Masaki (D Eng)
Assist Prof
TOSAKA, Masatoshi (D Eng)
NAKAMURA, Yasuyuki

Inorganic Photonics Materials

E Prof
YOKO, Toshinobu (D Eng)



Assoc Prof
TAKAHASHI, Masahide (D Sc)
Assist Prof
TOKUDA, Yomei (D Eng)

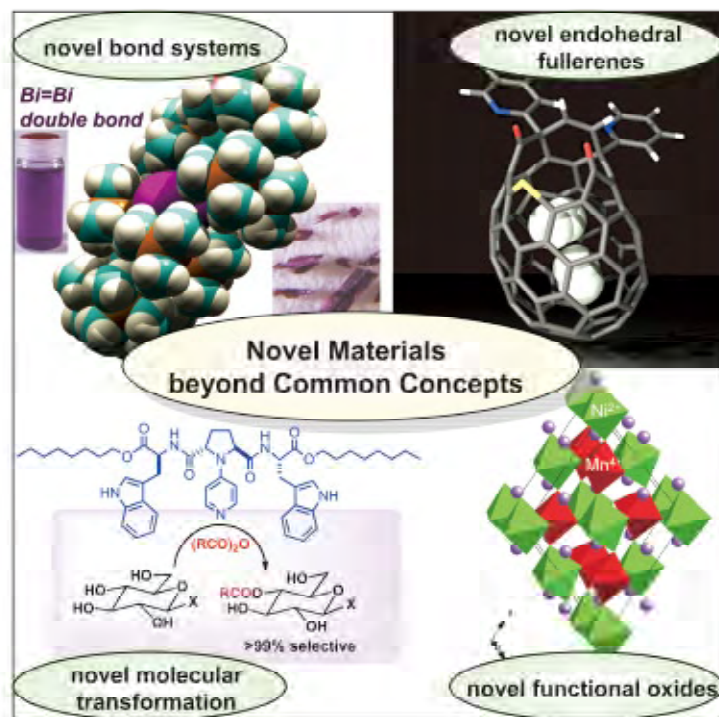
Nanospintronics

S Prof
ONO, Teruo (D Sc)

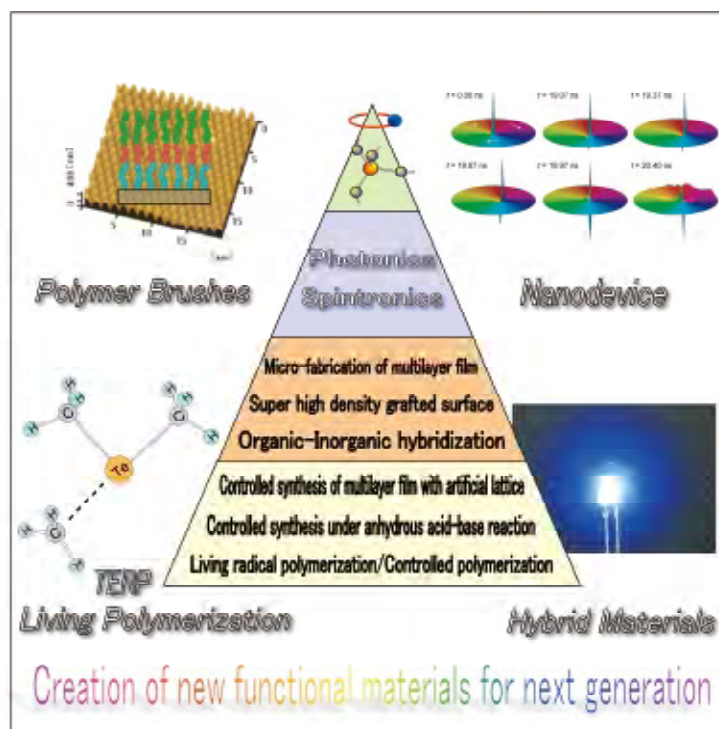


Assoc Prof
KOBAYASHI, Kensuke (D Sc)
Assist Prof
KASAI, Shinya (D Sc)
Technician
KUSUDA, Toshiyuki

Division of Synthetic Chemistry



Division of Materials Chemistry



Bioscience

Biology meets Chemistry; this division elucidates the mechanisms behind intra/inter-cellular recognition, stimuli response, and biomolecular synthesis in living organisms, leading to the development of pioneering novel materials.



Division of Biochemistry

This division sets its goal on (i) Design and creation of bioactive peptides/proteins controlling cellular and gene functions, (ii) Chemical understanding of the reaction mechanisms and physiological significance of biocatalysts, (iii) Unveiling the framework of regulatory network between genetic programs and environmental stimulus responses in higher plants, and (iv) Discovery of bioactive small organic molecules and their use in biomedical research.

Biofunctional Design-Chemistry

Prof FUTAKI, Shiroh (D Pharm Sc)



Assist Prof IMANISHI, Miki (D Pharm Sc)
NAKASE, Ikuhiko (D Pharm Sc)

Chemistry of Molecular Biocatalysts

A

Assoc Prof HIRATAKE, Jun (D Agr)
Assist Prof MIZUTANI, Masaharu (D Agr)
SHIMIZU, Bun-ichi (D Agr)

Molecular Biology

S

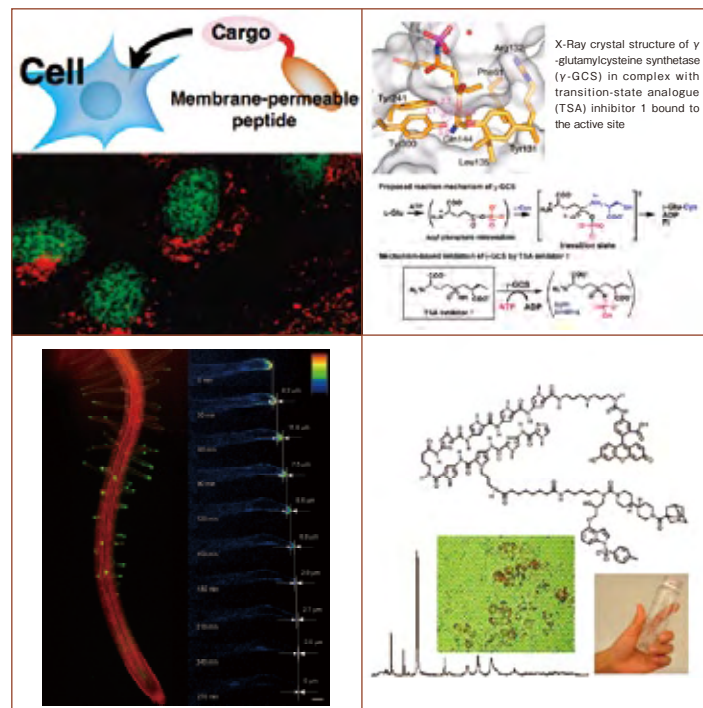
Assoc Prof AOYAMA, Takashi (D Sc)
SUGISAKI, Hiroyuki (D Sc)
Assist Prof TSUGE, Tomohiko (D Sc)
Technician YASUDA, Keiko

Chemical Biology

Prof UESUGI, Motonari (D Pharm Sc)



Assist Prof KAWAZOE, Yoshinori (D Med Sc)
SHIMOGAWA, Hiroki (D Sc)



Environment

This research group aims to contribute to the development of a sustainable society through fundamental studies such as structural characterization and dynamics of solutions and polymers, in particular under extreme conditions, biogeochemistry in the hydrosphere, and biotechnology with useful enzymes and microorganisms.



Division of Environmental Chemistry

Main research subjects are as follows: (1) Structure and functionality for well-organized polymer materials, organic EL devices, and native-cellulose nanomaterials. (2) Biogeochemistry of trace elements in the hydrosphere, Ion recognition. (3) Properties and reactions of ionic liquids and supercritical water and drug binding into membrane. (4) Physiology of extremophilic microorganisms and their applications to substance production and bioremediations. Biochemistry of trace elements.

Molecular Materials Chemistry

E

Assoc Prof KAJI, Hironori (D Eng)
Assist Prof HIRAI, Asako (D Eng)
Technician OHMINE, Kyoko

Hydrospheric Environment Analytical Chemistry

Prof SOHRIN, Yoshiki (D Sc)



Assoc Prof UMETANI, Shigeo (D Sc)
Assist Prof NORISUYE, Kazuhiro (D Sc)
FIRDAUS, Mochamad Lutfi (D Sc)
Technician MINAMI, Tomoharu (D Eng)

Solution and Interface Chemistry

Prof NAKAHARA, Masaru (D Sc)



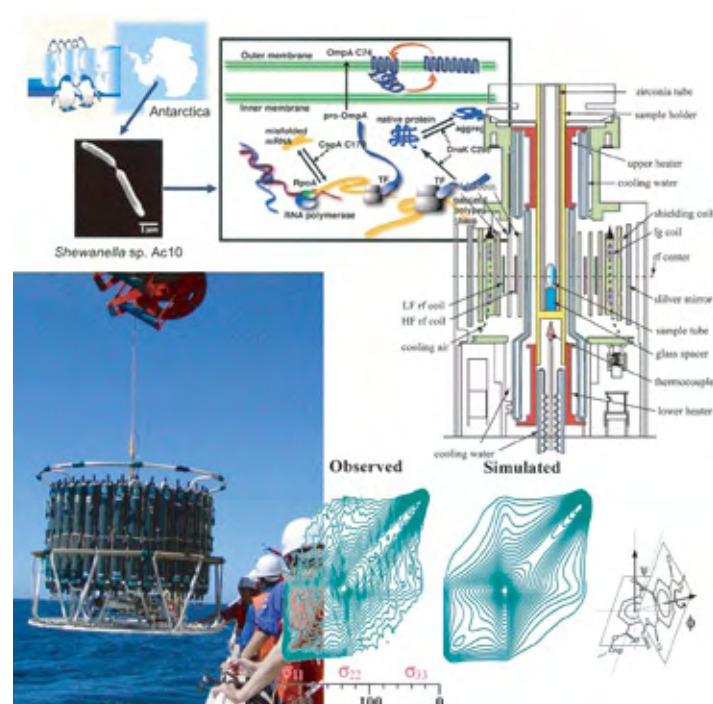
Assoc Prof MATUBAYASI, Nobuyuki (Ph D)
Assist Prof WAKAI, Chihiro (D Sc)

Molecular Microbial Science

Prof ESAKI, Nobuyoshi (D Agr)



Assoc Prof KURIHARA, Tatsuo (D Eng)
Assist Prof MIHARA, Hisaaki (D Agr)



Unifications

By exploring viewpoints aiming at merging science with engineering, we are going to upgrade the paradigm of our research in the boundary region among chemistry, physics and biology. In cooperation with other divisions and centers in our institute, we will develop exploratory basic researches for founding advanced materials science.

Division of Multidisciplinary Chemistry

This division makes basic researches that aim to achieve molecular understanding of various phenomena of natural/artificial materials, develop an interdisciplinary view of natural science based on chemistry, and establish a new aspect of material science. The researches are being conducted with a multidisciplinary methodology through collaboration within this division as well as with the other divisions/centers in ICR.

Polymer Materials Science

E Prof
KANAYA, Toshiji (D Eng)



Assoc Prof
NISHIDA, Koji (D Eng)
Assist Prof
MATSUBA, Go (D Eng)

Molecular Rheology

E Prof
WATANABE, Hiroshi (D Sc)



Assoc Prof
MASUBUCHI, Yuichi (D Eng)
Assist Prof
MATSUMIYA, Yumi (D Eng)
Program-Specific Assist Prof
UNEYAMA, Takashi (D Eng)
Technician
OKADA, Shinichi

Molecular Aggregation Analysis

S Prof
SATO, Naoki (D Sc)



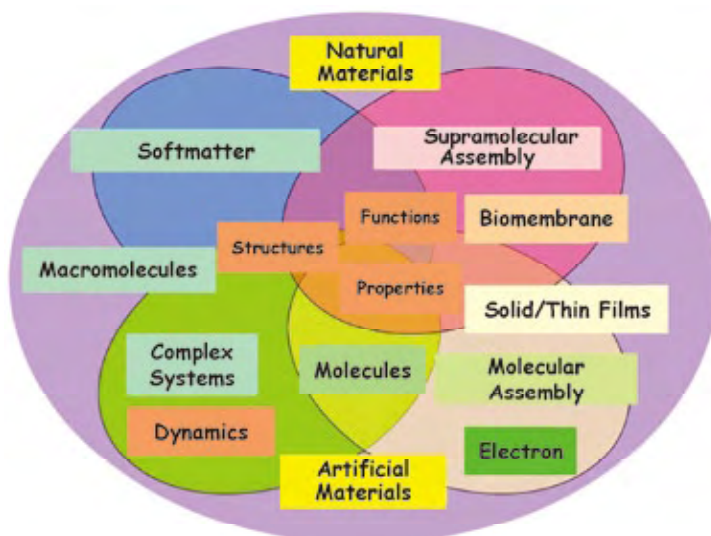
Assoc Prof
ASAMI, Koji (D Sc)
Assist Prof
YOSHIDA, Hiroyuki (D Sc)

Supramolecular Biology

S Prof
UMEDA, Masato (D Pharm Sc)



Assoc Prof
IKENOUCHI, Junichi (D Med Sc)
Assist Prof
KATO, Utako (D Sc)



Extreme Conditions

Development of new capabilities with combination of various beams, Development of new methods for space-time analysis with extreme resolution, Multidimensional analysis of functional chemical materials oriented for application, and Preparation for collaborative research scheme.

Advanced Research Center for Beam Science

The Advanced Research Center aims at creation of advanced material science in nano space/time scale by combining various beams (particle, laser, electron and X-ray beams) to understand and control nano-space/time phenomena from physical, chemical and biological aspects. The present subjects are researches on dynamics of particle beams and improvement of their characteristics, physics of intense short pulse laser-matter interactions and its applications, high-resolution dynamical structure visualization of nano-materials, analysis of chemical reaction pathways, and dynamical analysis of vital phenomena based on molecular structures.

Particle Beam Science

S Prof
NODA, Akira (D Sc)



Assoc Prof
IWASHITA, Yoshihisa (D Sc)
Assist Prof
SOUDA, Hikaru
Technician
TONGU, Hiromu

Laser Matter Interaction Science

S Prof
SAKABE, Shuji (D Eng)



Assoc Prof
HASHIDA, Masaki (D Eng)
Assist Prof
TOKITA, Shigeki (D Eng)

Electron Microscopy and Crystal Chemistry

S Prof
ISODA, Seiji (D Sc)



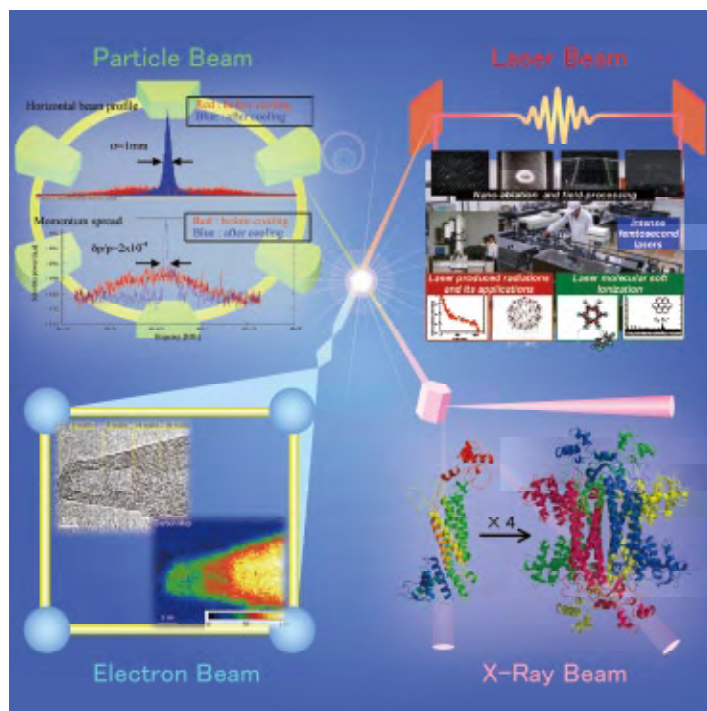
Assoc Prof
KURATA, Hiroki (D Sc)
Assist Prof
OGAWA, Tetsuya (D Sc)
NEMOTO, Takashi (D Sc)
Res Associate
MORIGUCHI, Sakumi (D Sc)

Structural Molecular Biology

H Prof
HATA, Yasuo (D Sc)



Assoc Prof
ITO, Yoshiaki (D Sc)
Assist Prof
FUJII, Tomomi (D Sc)



New Elementary Materials

Proposal of a guideline for the creation of novel elementary materials through uncovering the role of key elements which determine the functions of materials.

International Research Center for Elements Science

Our research interests are centered on the development of Elements Science for creation of new functional materials and innovative chemical transformations. We are trying to design and synthesize new inorganic and organic compounds and to seek for their new functionalities from the viewpoints of fundamental science and industrial applications.

Organic Main Group Chemistry

E Prof
NAKAMURA, Masaharu (D Sc)



Assoc Prof
TAKAYA, Hikaru (D Eng)
Assist Prof
HATAKEYAMA, Takuji (D Sc)

Advanced Solid State Chemistry

S

Assist Prof
SAITO, Takashi (D Sc)

Organotransition Metal Chemistry

E Prof
OZAWA, Fumiyuki (D Eng)



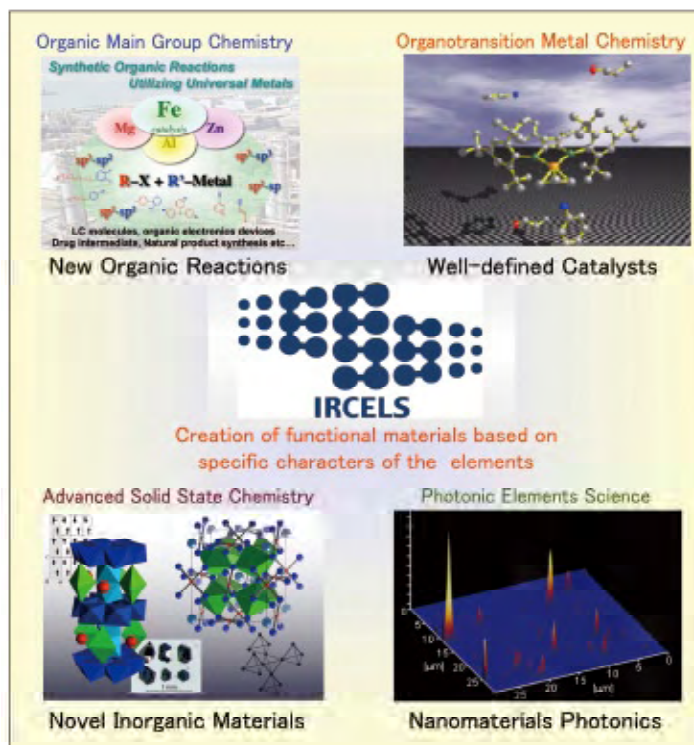
Assoc Prof
OKAZAKI, Masaaki (D Sc)
Assist Prof
TAKITA, Ryo (D Pharm Sc)
Program-Specific Assist Prof
NAKAJIMA, Yumiko (D Sc)

Photonic Elements Science

S Prof
KANEMITSU, Yoshihiko (D Eng)



Assoc Prof
MATSUDA, Kazunari (D Eng)
Assist Prof
TAYAGAKI, Takeshi (D Sc)



Genome

Our laboratories promote research in Bioinformatics and the development of the foundation for an integrated and extensive resource for the Bioscience.

Bioinformatics Center

In order to understand and utilize the information encoded in the genome, a blueprint of life, it is necessary to develop both state-of-the-art informatics technologies and excellent human resources. The Bioinformatics Center is involved in basic research on the analysis of genomic and molecular information towards understanding design principles of the biological systems, applications of bioinformatics methods to pharmaceutical and medical sciences, development of the KEGG database for deciphering the genome, and bioinformatics education and training of young scientists.

Bioknowledge Systems

S Prof
KANEHISA, Minoru (D Sc)



Assoc Prof
GOTO, Susumu (D Eng)
Assist Prof
HATTORI, Masahiro (D Sc)
Program-Specific Assist Prof
TOKIMATSU, Toshiaki (D Agr)
KOTERA, Masaaki (D Sc)

Biological Information Networks

I Prof
AKUTSU, Tatsuya (D Eng)



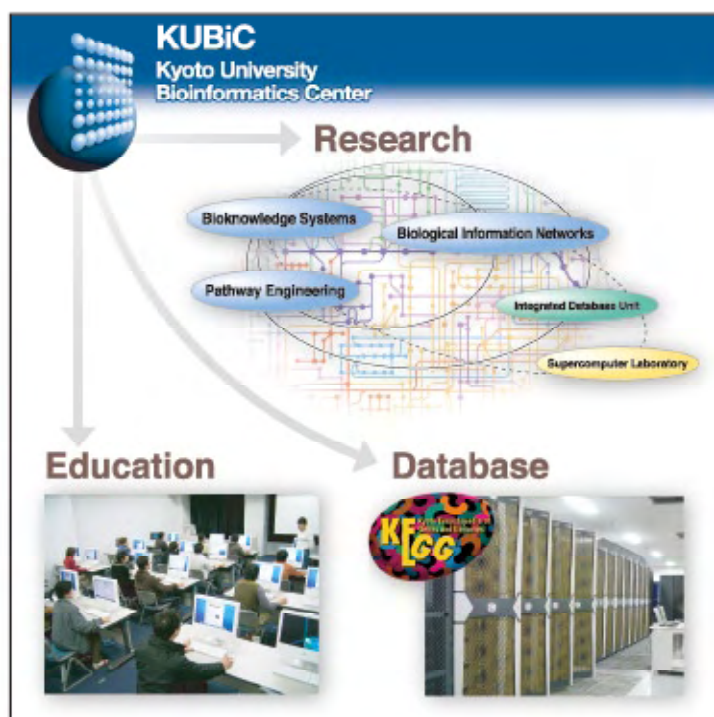
Assist Prof
HAYASHIDA, Morihiro (D Inf)
TAMURA, Takeyuki (D Inf)

Pathway Engineering

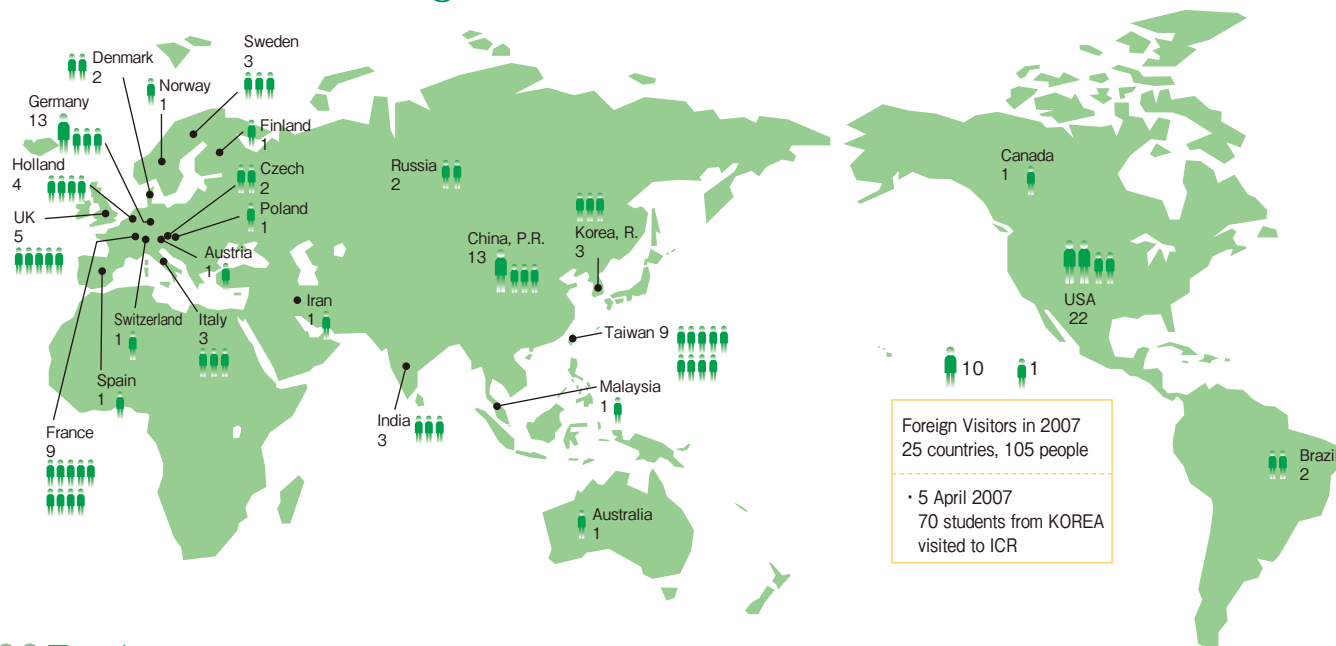
P Prof
MAMITSUKA, Hiroshi (D Sc)



Assist Prof
TAKIGAWA, Ichigaku (D Eng)
SHIGA, Motoki (D Eng)



Visitors from Foreign Countries



Projects

Ministry of Education, Culture, Sports, Science and Technology (MEXT), Center of Excellence
Global COE Programs

International Center for Integrated Research and Advanced Education in Materials Science

Joint Program with Graduate School of Science and School of Engineering

Representative from ICR : TOKITOH, Norihiro Term : 2007~2011

Based on the recognition that traditionally trained narrow experts can no longer cope with such complex and multifaceted problems as global sustainability and environment, this COE Program sets the following principal objectives: a new paradigm in research and a new breed of scientists via education.

Laboratory, participate from ICR

Organoelement Chemistry, Nanospintronics, Biofunctional Design-Chemistry, Chemical Biology, Organotransition Metal Chemistry, et al.

Center of Excellence for Education and Research on Photonics and Electronics Science and Engineering

Joint Program with Graduate School of Engineering, School of Informatics and KU-IIC

Representative from ICR : KANEMITSU, Yoshihiko Term : 2007~2011

In this program, we aim at establishing the COE for "photonics and electronics science and engineering", to investigate and develop innovative technologies, by which an arbitrary manipulation of photons (light) and an ultimate control of electrons will be achieved, as we hold the motto of "challenge the limitations of current technology and create new functionalities".

Laboratory, participate from ICR

Photonic Elements Science

Faculty Members and Researchers

University Staff

The number in () represents Visiting Professors.

Professor	Associate Professor	Assistant Professor	PS Assistant Professor	Research Associate	Technician	IS Researcher	Sub-total	Researcher	Other Staff	Sub-total	Total
26	26	40	4	1	8	7	112	27	31	58	170
(5)	(4)						(9)				(9)

(As of July 1, 2008)

Research Students, Fellows and Associates

Research Student	Research Fellow	Sub-total	Postdoctoral Fellow of JSPS	Research Associate	Sub-total	Total
2	1	3	2	1	3	6

(As of May 1, 2008)

Graduate Students

The number in () represents Students from Foreign Countries.

	Science	Engineering	Agriculture	Pharmaceutical Sc.	Medicine	Informatics	Human & Environment Studies	Total
Master's Course	53 (0)	47 (3)	16 (1)	20 (1)	1 (0)	1 (0)	1 (0)	139 (5)
Doctoral Course	44 (1)	15 (2)	6 (2)	13 (0)	4 (1)	3 (2)	0 (0)	85 (8)
Total	97 (1)	62 (5)	22 (3)	33 (1)	5 (1)	4 (2)	1 (0)	224 (13)

(As of April 11, 2008)

Researchers and Students from Foreign Countries, and their Origins, 2008

Researchers (PD)

Canada	1
China, P. R.	4
Egypt	1
India	1
Korea	1
Australia	1
Russia	1
Spain	1
Thailand	1
USA	1
Total	13

Students

China, P. R.	4
Egypt	1
Indonesia	1
Korea, R	1
Nepal	1
Philippines	1
Taiwan	1
Thailand	1
Turkey	1
USA	1
Total	13



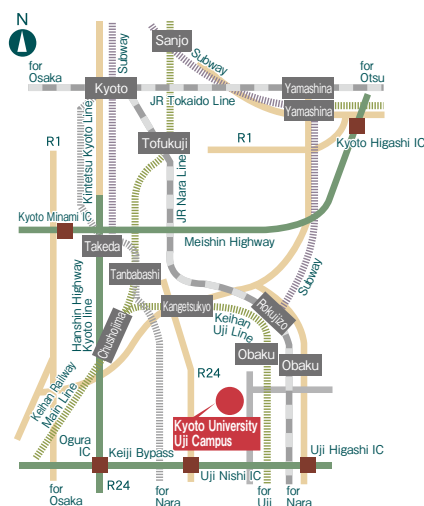
Institute for Chemical Research Kyoto University

Gokasho, Uji, Kyoto, Japan 611-0011

Tel. +81-774-38-3344 Fax. +81-774-38-3014

URL <http://www.kuicr.kyoto-u.ac.jp/index.html>

E-mail koho@scl.kyoto-u.ac.jp



Access

From Obaku Station on the Keihan Uji Line: 10 min by walk
 (from Keihan-Sanjo Station to Obaku Station: 35 min)
 From Obaku Station on the JR Nara Line: 7 min by walk
 (from Kyoto Station to Obaku Station: 25 min)
 From Kyoto-Minami IC: 20 min by car From Uji-Higashi IC: 10 min by car
 From Uji-Nishi IC: 10 min by car