

Research Institutes

INSTITUTE FOR CHEMICAL RESEARCH

This institute, launched in 1926 in order to investigate particular issues related to chemistry to disclose basic principles and to develop their applications, is the first research institute at Kyoto University, and has been conducting frontier and interdisciplinary research in chemistry-oriented fields of science under a spirit of “Freedom of Research”. Currently, the institute is an organization of five research divisions and three centers and includes 31 laboratories supervised by full-time professors and 5 by visiting professors. Each laboratory also acts as a cooperative institution for one of seven graduate schools: science (14), engineering (9), pharmaceutical science (3), agriculture (2), medicine (1), informatics (1), and human and environmental studies (1), with the number of laboratories in charge shown in parenthesis. The institute collaborates with domestic and overseas universities and research organizations (with 43 official international collaboration agreements) and will function as a joint usage research center as of 2010. The strong collaboration base constructed thus far ensures the institute will continue to serve as the central propeller of global research in chemistry-oriented fields.

www.kuicr.kyoto-u.ac.jp/index.html

INSTITUTE FOR RESEARCH IN HUMANITIES

The Institute is a research organization specializing in the humanities and social sciences. It was established in 1929 for sinological studies under the name of Kyoto Institute, the Academy of Oriental Culture (renamed the Institute of Oriental Studies in 1938), and was restructured in 1949 by incorporating the Institute of Humanistic Studies (founded in 1939) and the Institute of Occidental Studies (formerly Deutsches Forschungsinstitut founded in 1934, restructured under this name in 1946). The primary purpose of the Institute is to promote the systematic study of the world's cultures and societies. Today the Institute is composed of five Research Divisions:

- Cultural Research Methodologies –
 - History of life forms and human culture;
- Cultural Processes – Cultural transmission and media studies;
- Cultural Representation –
 - Oriental archaeology and sciences;
- Cultural Composition – Oriental history and philology;
- Cultural Interrelationships –
 - Cultural mobility and interaction studies

and three Research Centers:

- Center for Informatics in East Asian Studies
- International Center for Humanities Studies
- Research Center for Modern and Contemporary China.

The institute is also involved in graduate education programs at the Graduate School of Letters.

www.zinbun.kyoto-u.ac.jp/en

INSTITUTE FOR FRONTIER MEDICAL SCIENCES

This institute was founded in 1998 by the reorganization of the Chest Disease Research Institute and the Research Center for Biomedical Engineering. The aim of this new institute is to facilitate basic and clinical research in regenerative medicine. The research activity of the Institute encompasses the basic biology of stem cells, including embryonic stem (ES) and tissue-specific stem cells, the biology of tissue regeneration, transplantation immunology, tissue engineering, and the clinical application of basic findings from these research activities. The Institute was designated in 2008 by the government as a national center for collaborative research in regenerative medicine to promote nation-wide research collaboration activities in regenerative medicine. The institute is also responsible for nurturing the next generation of scientists in regenerative medicine by offering good educational programs and for serving as a key station for delivering information on regenerative medicine to the general public.

www.frontier.kyoto-u.ac.jp/eng

INSTITUTE OF ADVANCED ENERGY

The Institute of Advanced Energy conducts advanced research and development in the field of energy science and technology to find ways of solving the issues that arise from increasing demands on energy, the exhausting of energy resources, and the deteriorating environment on a global scale. The principal goals are to explore innovative energy systems, to develop new energy sources, and to formulate systems for the effective utilization of energy sources.

The institute consists of three divisions and one research center: the Advanced Energy Generation Division aims to develop fundamental energy systems with a high social acceptability and work continues on the practical implementation of a variety of new energy sources. The Advanced Energy Conversion Division studies the efficient conversion of energy functions, new energy functions, and functional energy materials; the Advanced Energy Utilization Division examines the chemical processing and application of functional nano- and bio-materials; the Laboratory for Complex Energy Processes promotes cooperative study in the multidisciplinary community of energy sciences. The professors of the institute have missions to educate the Graduate School of Energy Science students. Through these activities, the institute aims at contributing to the sustainable development of the human society.

www.iae.kyoto-u.ac.jp/english/e_index/e_index.html

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Top: Lobby, Funai Tetsuro Auditorium

Center Right: Institute for Research in Humanities.

Bottom Left: Nuclear Safety at the Research Reactor Institute of Advanced Energy.

Bottom Right: CiRA (Center for iPS Cell Research and

Application) Laboratory of the Institute for Frontier Medical Sciences.



... nurturing the next generation of scientists



RESEARCH INSTITUTE FOR SUSTAINABLE HUMANOSPHERE

The Research Institute for Sustainable Humanosphere (RISH) was established in 2004. Defining the regions vital to human existence as the Humanosphere, the objective of the RISH is to promote academic study in the field of new interdisciplinary sciences through domestic and international collaborative research programs, which contribute to both academic and public societies. Studies aim to provide academic and technological solutions to critical issues threatening the viability of Homo sapiens and human civilization; such as energy, population, global climate change, and resource shortage problems. We pursue four missions to solve present and future problems concerning the humanosphere: (1) Assessment and Remediation for the Humanosphere, (2) Science and Technology towards Solar Energy Society through Bio-mass and Solar Power Satellite Research, (3) Space Environment and its Utilization, and (4) Development of Technology and Materials for Cyclical Utilization of Bio-based Resources.

The RISH contributes to higher education by joining with the graduate schools of engineering, agriculture, informatics, and science as cooperative members. In this way we foster researchers with broader insight and experiences, which we believe the world will need more than ever during this century.

www.rish.kyoto-u.ac.jp/English

DISASTER PREVENTION RESEARCH INSTITUTE

In 1951, the Disaster Prevention Research Institute (DPRI) was established for research on the mechanisms of natural hazards and mitigation of disasters. The mission of the DPRI is to pursue the principles of natural hazard reduction, establish integrated methodologies for disaster prevention based on the natural and social sciences, and also to educate students of related fields. The DPRI performs basic research on disaster-related themes at both the local and global scales, in the fields of natural sciences, engineering, and social sciences, as well as conducts practical projects that meet the needs of society, by organizing interdisciplinary groups.

Cooperation in international research has been strengthened through programs such as the IDNDR (International Decade for Natural Disaster Reduction). The DPRI holds academic exchange agreements with 24

universities and institutions, and hosts several hundred foreign researchers each year. The institute plays an important role in natural disaster reduction for both Japan and the world with the scientific achievements, knowledge, facilities, and data accumulated over almost 60 years. The DPRI currently serves as one of the core institutions of the Global Center of Excellence Programs in Japan.

www.dpri.kyoto-u.ac.jp/web_e/index_topics.html

YUKAWA INSTITUTE FOR THEORETICAL PHYSICS (YITP)

Yukawa Institute for Theoretical Physics is a nationally accessible collaborative research institution for all university level academics in the field of theoretical physics. As the first of its kind, the YITP has played a leading role in research activities since its foundation in 1953, in the name of Hideki Yukawa, the 1949 Nobel Prize laureate in physics.

Prof. Toshihide Maskawa, a former director of YITP, received the Nobel Prize in physics in 2008. This shows that this institute is and has to be a world-leading center for theoretical physics.

The activities of YITP cover a wide range of fields in contemporary theoretical physics: particle physics, field theory, nuclear physics, astrophysics, cosmology, statistical physics, condensed matter physics, and biophysics. Activities to create new interdisciplinary fields of research at the forefront of modern physics are also encouraged.

www.yukawa.kyoto-u.ac.jp/english/index.php

INSTITUTE FOR VIRUS RESEARCH

This institute was founded with the purpose of carrying out basic and applied research in virology from both the biological and medical science methodologies. We aim our research efforts at gaining a thorough elucidation of viral-host interactions at molecular, cellular, individual, and ecological levels. This is based on basic studies in such fields as molecular and cell biology, immunology, oncology, developmental biology and neurobiology. Discoveries that have been made at this institute include: human retroviruses and related diseases, Human T-cell leukemia virus type 1 (HTLV-1) and adult T-cell leukemia (ATL); a primate model for human immunodeficiency virus infection; an RNA phage, Q β ; the heat shock transcription factor $\sigma 32$, protein



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Left: Yukawa Institute of Theoretical Physics.
(opposite page)

Right: Main Gates and Clock Tower Centennial Hall
at Yoshida Campus.

translocating channel protein, SecY; a signal transducing protein kinase, MAPK; an oncogenesis-related transcription factor, PEBP2; a bHLH-type negative regulator for neuronal differentiation, Hes1; a redox-controlling protein, thioredoxin; cytokine receptors, IL-2 and IL-7 receptors; and apoptosis-inducing receptor, Fas. Each laboratory is affiliated with one of the following Graduate Schools of the University; the Graduate School of Medicine (10 Divisions), Science (3 Divisions), Human and Environmental Studies (1 Division), or Biostudies (2 Divisions).

www.virus.kyoto-u.ac.jp/e

INSTITUTE FOR ECONOMIC RESEARCH

Economic theory is an area of economic research in which Japan is particularly able to excel. Since its foundation in 1962, this institute has established itself as the only Japanese social science research institute focusing on economic theory. The high standards of our recent research into fields such as complex economics, economic strategy and systems, and econometrics has been widely recognized, both domestically and internationally. We were honored to be recognized by Lionel McKenzie, Professor Emeritus of the University of Rochester, as a worthy institution among many worldwide, to his store his library of books.

Recently, we have been designated by the Japanese Ministry of Education, Culture, Sports, Science and Technology as an international collaborative research center of advanced economic theory. As a result, our institute is currently undergoing a transformation to become a leading hub for international joint research on theoretical economics, with emphasis on complex dynamics (including macroeconomic dynamics), spatial economics, game theory, and econometrics. Our institute also values the training and education of young researchers.

www.kier.kyoto-u.ac.jp/eng

RESEARCH INSTITUTE FOR MATHEMATICAL SCIENCES (RIMS)

The Research Institute for Mathematical Sciences (RIMS) has a dual character. It is a research institute with about 40 faculty members together with more than 20 post-doctoral fellows working in the field of mathematical sciences, including pure mathematics, applied mathematics,

mathematical physics, and computer science. At the same time it is a joint-use research center for the frontiers of mathematical sciences that offers several facilities for use by mathematicians in Japan and the world, hosting international research projects and about 70 conferences and workshops every year, mostly of an international character, and publishes their proceedings as the *RIMS Kôkyûroku* (ISSN 1880-2818) and *RIMS Kôkyûroku Bessatsu* (ISSN 1881-6193). In addition to these research activities, the RIMS has been accepting graduate students in the Mathematical Sciences Division, with four courses at the Graduate school of Science to be taken on by RIMS professors. The activities of RIMS members are highly acclaimed throughout the world, as endorsed by the awarding of two Fields medals, a Gauss medal, and two Wolf prizes to present and emeritus members of the RIMS.

www.kurims.kyoto-u.ac.jp

RESEARCH REACTOR INSTITUTE

The Research Reactor Institute was established in 1963 as an inter-university research institute. The main installation is the Kyoto University Reactor (KUR), a light-water-moderated tank-type nuclear research reactor. Besides the KUR, an electron linear accelerator, a gamma-ray irradiation facility, and a critical assembly have been in active use for research.

There are three research departments: Nuclear Science and Engineering, Material Science, and Radiation Life Science & Radiation Medical Science. There are also two affiliated centers; one is the Research Center for Safe Nuclear Systems, developing a future accelerator-driven reactor program at the institute and the other, the Particle Oncology Research Center to promote the neutron capture therapy. Most of the experimental facilities are open to cooperative and joint research projects by scientists mainly of other universities and public research institutions in various research fields. Many scientists and students visit the institute to further their studies.

The research laboratories provide research courses in the Kyoto University Graduate Schools of Science (5), Engineering (8), Energy Science (4), Medicine (1), and Agriculture (1) (the numbers in the parentheses are of laboratories in respective graduate schools).

www.rii.kyoto-u.ac.jp/en



PRIMATE RESEARCH INSTITUTE

The Primate Research Institute (PRI) has for the past four decades been conducting basic research on primates – including humans. Japan is a unique country in terms of the study of nonhuman primates. Unlike every other highly industrialized country, it is home to an indigenous species of primate, called the Japanese monkey or Snow monkey, and the birth of Primatology in Japan dates back to 1948. The PRI aims to understand primates from a multi-disciplinary approach through the study of ecology, sociology, behavior, cognition, brain sciences, physiology, genetics, genomics, biomedicine, morphology, paleontology, and other aspects of living and fossil species, to ultimately elucidate the origin and evolution of human nature. The PRI has been contributing to the education of graduate course students under the Biological Sciences in the Graduate School of Science. Students enrolled at PRI have the special opportunities of receiving financial support from the ITP-HOPE project that allows students to travel abroad for laboratory training and participate in fieldwork. In 2009, the PRI founded a new center, named CICASP to facilitate international collaboration and advanced studies in Primatology.

www.pri.kyoto-u.ac.jp

CENTER FOR SOUTHEAST ASIAN STUDIES (CSEAS)

The Center for Southeast Asian Studies (CSEAS) is the premier research institution on Southeast Asian studies in Japan, distinguished for its unique multi-disciplinary approach that combines the humanities and the social sciences with the natural sciences and area informatics. Established in 1963, CSEAS has become synonymous with field-based research and studies on contemporary issues that are historically grounded.

CSEAS publications include *Southeast Asian Studies*, a quarterly journal that is now in its 187th issue, the *Kyoto Area Studies on Asia*, a collaborative project with Kyoto University Press, and the *Kyoto Review of Southeast Asia*, an on-line multi-language journal. Its Library is the largest of its kind in Japan, with 200,000 volumes of books, journals and special collections.

The CSEAS continues to nurture collaboration with colleagues all over Asia through a wide range of research projects including the Global Center-of-Excellence (G-COE) program “Sustainable Humansphere in Asia and Africa”. CSEAS faculty are also involved in graduate education programs through the Division of Southeast Asian Area Studies (Environment, Society and Culture) and the Division of Global Area Studies (Sustainable Humansphere), at the Graduate School of Asian and African Area Studies.

www.cseas.kyoto-u.ac.jp/index_en.html

eager to contribute to the development
of human welfare and quality of life in the 21st century.

Institute for Research in Humanities, Center for Informatics in East Asian Studies at Kitashirakawa.

