

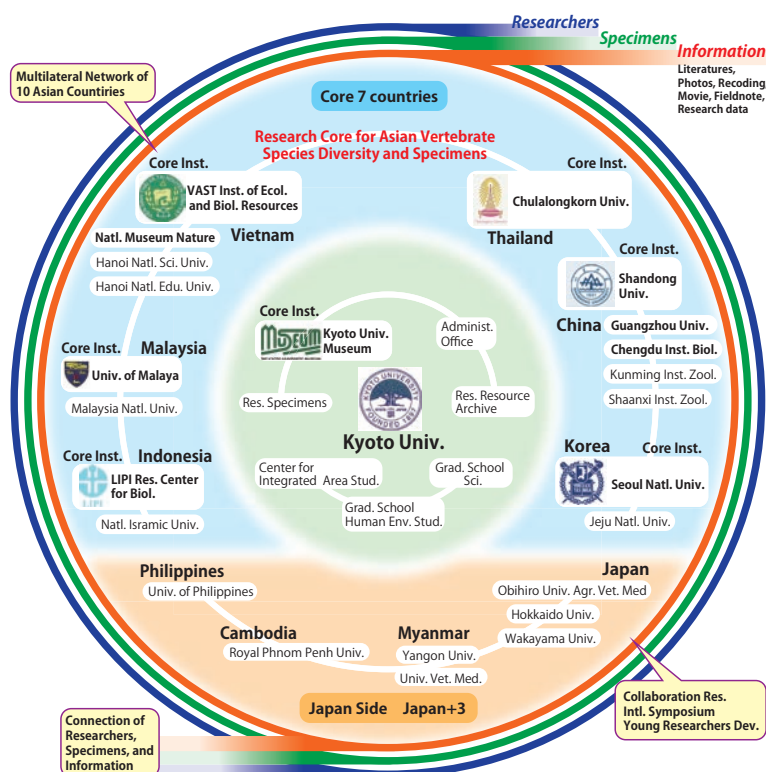
LARGE-SCALE PROJECTS

Contributing to the World and the Local Community

NAT HIS

Asian Vertebrate Species Diversity Network Platform

The Kyoto University Museum has launched a three-year initiative under the JSPS Core-to-Core Program titled “Asian Vertebrate Species Diversity Network Platform with Combining Researchers, Specimens and Information.” The project is categorized within the JSPS program, as a type B project to develop Asia–Africa science platforms in 2014–2016. In addition to Kyoto University, the project involves six academic institutions in Asia as core members: Shandong University (China), Seoul National University (Korea), the Institute of Ecology and Biological Resources of the Vietnam Academy of Science and Technology (VAST) (Vietnam), Chulalongkorn University (Thailand), the University of Malaya (Malaysia), and the Research Center for Biology of the Indonesian Institute of Science (LIPI) (Indonesia). Coordinated by Associate Prof. Masaharu Motokawa of the Kyoto University Museum, the project involves 129 researchers from the core member and other institutions from ten countries throughout Asia, including institutions in the Philippines, Cambodia, and Myanmar. The project builds on the achievements of the 2011–2013 JSPS



Asia–Africa Science Platform Program, “Research Platform for East Asian Vertebrate Species Diversity and Formation of Specimen Network.” The projects aim to form an Asian multilateral network platform, connecting researchers, specimens, and information, and facilitating a broad range of activities such as collaborative research, international symposia, and initiatives to foster young researchers. In December 2014, to mark the first year of the new project, the 4th International Symposium on Asian Vertebrate Species Diversity will be held at the University of Malaya. The symposium sees to promote academic exchange and discussion among experienced and young researchers on the effective operation of the network platform from Kyoto University towards the global scientific community.



Masaharu Motokawa, PhD Associate Professor, The Kyoto University Museum

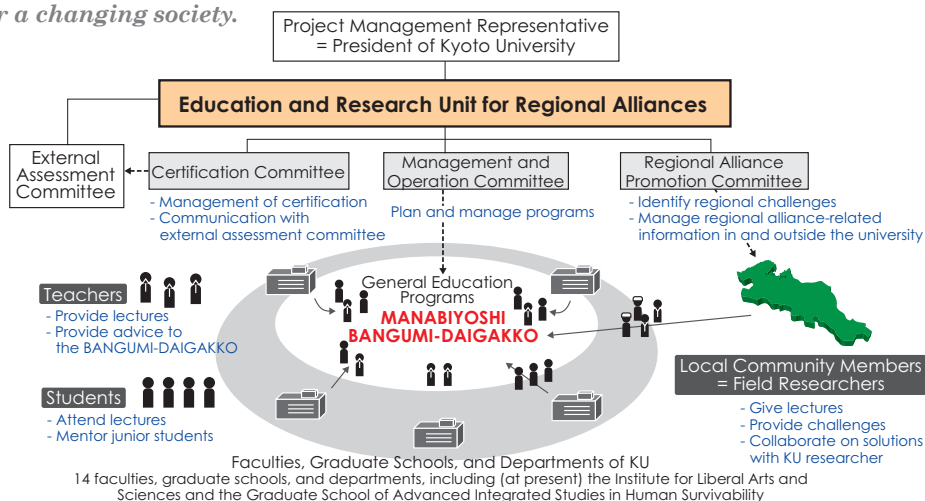
[WEB www.museum.kyoto-u.ac.jp/acore/](http://www.museum.kyoto-u.ac.jp/acore/)

Edu

Kyoto Future Creation Project for Establishing the Center of Community

Cultivating leaders for a changing society.

This project provides a forum for exchange between local communities and universities. It aims to take advantage of the advanced knowledge developed by universities to solve regional problems. It also aims to implement open-access education involving the local community in order to strengthen the hands-on problem solving skills of students.



Specifically, Kyoto University provides a classroom program for freshman and sophomore students called *Manabiyoshi*, which literally means “qualified learning.” The course focuses on the city of Kyoto, and is intended to foster attitudes that challenge the status quo, improve open-mindedness, and cultivate a sense of responsibility. Furthermore, in the sophomore to senior program, students engage in a field work program named *Bangumi Daigakko*, which comprises three courses that may be freely selected by the students. The aim of this program is to foster creativity, the ability to solve real-life problems, and the power to take advantage of knowledge. Together, the *Manabiyoshi* and *Bangumi Daigakko* programs are called The Education Program for Kyoto.

This five-year project was selected as a Project for Establishing the Center of Community 2013 supported by the Ministry of Education, Culture, Sports, Science and Technology (MEXT). The application for project was greatly assisted by the Kyoto University Research Administration Office (KURA). The project aims to realize the aims of Kyoto Vision 2040, an initiative which was proposed by the Social Gathering to Think about the Future of Kyoto, and whose organizers include leading politicians, businesspersons, and representatives from various sectors, including former Kyoto University president, Dr. Hiroshi Matsumoto.

Students who gain the program credits will be awarded a certificate of Global Top Leader Human Resource. Ultimately, Kyoto University seeks to instill a sense of Kyoto as a hometown for students, and produce human resources responsible for the sustainable development of Kyoto with the aim of contributing to harmony in the international community.

Shigeru Takami, PhD

Professor, Graduate School of Education / Unit Leader, Education and Research Unit for Regional Alliances

WEB www.coc.kyoto-u.ac.jp



INTERDISC RES

Healthy Japanese Cuisine for the World

Evaluation of the Japanese diet as a potential model for human health.

In June 2014, we applied for a competitive research funding ‘Integration research for agriculture and interdisciplinary fields’ of the Ministry of Agriculture, Forestry and Fisheries, and were selected as a core of excellence project for our evaluation of the Japanese diet. In August, our project started under



the title “A multifaceted investigation of possible contributions of Japanese diet to world health”.

Traditional Japanese cuisine, or *washoku*, was just added to the world’s intangible heritage list in December 2013. Now is a good time to promote a better international understanding of Japanese eating habits,

and reevaluate the strengths of these practices. Japanese food has long been considered to be healthy, but scientific evidence is surprisingly limited. The core characteristics of the Japanese diet are not really fully defined, both generally and in an academic context. Due to uncertainty surrounding its basic characteristics, scientific research has been slow to take off.

In this project we first try to specify the important characteristics of the Japanese diet by reviewing traditional dietary cultures of Japanese society, as well as common medical and nutritional thought. Here we also consider the state of Japanese cuisine abroad and the expectations of consumers internationally. Accordingly we proceed with a multifaceted investigation of the Japanese diet including contributions from clinical nutrition, medicine, epidemiology, food science, brain science, and the study of exercise. In September, six additional universities were selected to compliment our research. Together we aim to clarify various effects of the Japanese diet on physical and mental health and athletic ability, and also investigate culinary effects on the foods and the mechanism of the cuisine’s deliciousness.

The Japanese Culinary Academy, which consists of energetic chefs of Japanese restaurants, will cooperate with us in the form of offering advice from a perspective of culinary expertise. Additionally the city of Kyoto, which emphasizes food education in its elementary schools, will also assist in sharing the results of the research with the greater community.

Kaori Ikeda, MD, PhD (left) and Nobuya Inagaki, MD, PhD

Assistant Professor and Professor, Graduate school of Medicine

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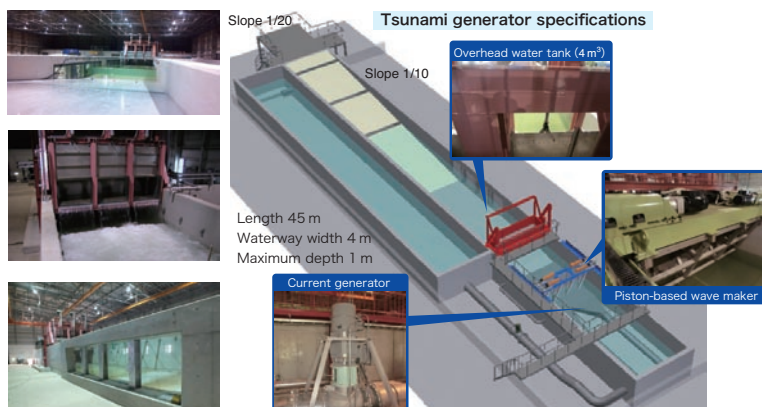


NAT DIS REDUCT

A New Generation for Tsunami Research

Implementing new experimental equipment to study the phenomena.

A new type of tsunami generator, forty-five meters long and four meters wide, has been developed in the University’s Ujikawa Open Laboratory of the Disaster Prevention Research Institute. The generator is composed of a piston-based wave maker with a long stroke, a current generator, and an overhead water tank. The combination of waves generated by this apparatus is capable of reproducing any type of tsunami



wave. The current generator, in particular, is needed to produce the long period tsunami profiles that follow initial bore-type waves. The water tank, meanwhile, can not only produce tsunami caused by volcanic eruptions, but also by a spike in the bore. This versatility makes this generator the only one of its kind in the world.

The apparatus is currently being used to investigate the effectiveness of removable breakwaters, and as its next project, tsunami pressure distribution around buildings located in high-impact zones. The experimental results will be applicable to studies of tsunami hazard characteristics, and in verification of numerical simulation models. The generator's contributions are eventually expected to reduce hazard levels and increase coastal front resilience.

Tetsuya Hiraishi, PhD

Professor, the Research Center for Fluvial and Coastal Disasters, Disaster Prevention Research Institute

WEB kyouindb.iimc.kyoto-u.ac.jp/e/vV9cN



QUANTUM BEAM TECH

Widely-Tunable Mid-Infrared Laser Developed

Give our high peak-power, short duration MIR-laser a try in your lab!

A high peak power (-MW), widely tunable (5–20 μm) Mid-Infrared Free Electron Laser (MIR-FEL) has been developed by our research group at the Institute of Advanced Energy on the Uji Campus. MIRs, which correspond to the absorption wavelengths of phonons, plasmons, and molecular vibrations, can be used for selective dissociation or excitation of chemical bonds. In addition, the pulse width of the MIR-FEL is sufficiently short (-600 fs) to observe ultrafast dynamics, such as energy redistribution of phonons, electron relaxation in quantum dots, non-linear optics, spin dynamics, impurity studies in semiconductors, and much more. As an example of MIR-FEL applications, mode-selective phonon excitation of a bulk material (single-crystal SiC) was demonstrated for the first time using anti-Stokes Raman scattering spectroscopy. This type of basic research is expected to contribute to the

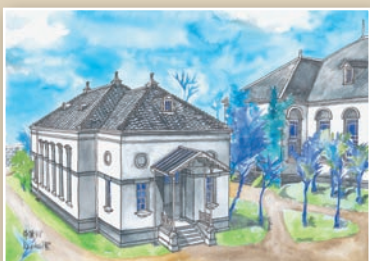
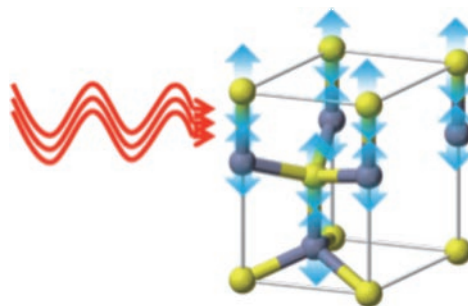
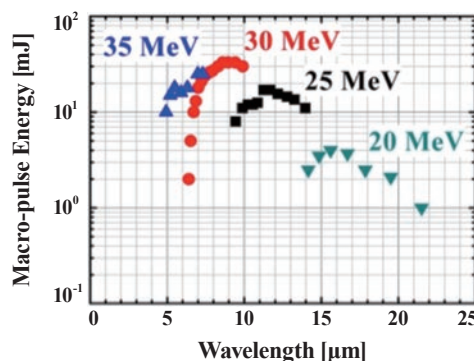
development of high efficiency functional materials for use in supporting a zero-emission energy future for society.



Hideaki Ohgaki, PhD

Professor, Institute of Advanced Energy

WEB www.iae.kyoto-u.ac.jp/quantum/index-e.html



Sonjo-do

The Sonjo-do was completed in 1903. It was originally built by the politician Yajiro Shinagawa, from Choshu Domain, as a facility to honor the spirit of loyal supporters of the Meiji Restoration and to display their mementos. The building was donated to Kyoto University after Shinagawa's death.

Painter: **Kiyoko Yamaguchi, PhD**

Alumnae of Kyoto University

WEB kiyoko-hk.blogspot.jp

