

Kyoto University

# Research Activities

Vol. 4 No. 4 March 2015

*Special Feature:*

Getting to Know the Many Facets of Japan

Kyoto University's Rich Tapestry of Research



京都大学

# Research Activities

Vol.4 No.4  
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Cover:



Center for Informatics in East Asian  
Studies, Institute for Research in  
Humanities, Kyoto University

➡ p.28

## MESSAGE FROM THE PRESIDENT

# Kyoto University: “A Jungle of Scholarship”

**I**N 1897, Kyoto University was established (in its former incarnation as Kyoto Imperial University) as a place in Kyoto, Japan’s traditional cultural heartland, where scholars could be free to engage in diverse and innovative research. The university’s fundamental principles remain unchanged to this day, as we continue to sustain and develop our historical commitment to academic freedom, and pursue harmonious coexistence within the human and ecological community on this planet. The university’s Mission Statement includes the following passage regarding research:

*As a university that comprehends many graduate schools, faculties, research institutes and centers, Kyoto University will strive for diverse development in pure and applied research in the humanities, sciences and technology, while seeking to integrate these various perspectives.*

If we actually take a look at the activities on our campuses, a wide variety of highly original and creative research is being carried out, reflecting the diverse personalities and characters that constitute our research faculty. As one of those researchers, I was absorbed for many years in research on gorillas in the tropical rainforests of Africa, searching for clues about the origin of human society from the perspective of primatology. Now, in my current position, I feel that Kyoto University has much in common with those jungles of Africa, where many different animals live amid lush and diverse vegetation.

To highlight one aspect of this rich and evolving landscape of research, we have chosen to base this issue of *Research Activities* on the keyword of “Japan.” We hope that our readers will enjoy this multi-faceted look at our country through

the eyes of researchers in such diverse fields as classic literature, history, law, and architecture, through to film, subculture, and gender studies. Although the range of projects that we could cover was limited by the number of pages in this small booklet, we hope that you will find some of the items to be of interest, and that it might even prompt you to venture even deeper into our “jungle of scholarship.”

One of the main features in this issue is an interview with Prof. Tasuku Honjo, a remarkable scholar whose breakthrough research has brought dramatic advancements to cancer treatment around the world. Despite the very practical contributions that Prof. Honjo’s work has made to the medical world, I can personally empathize with his assertions that research should be undertaken in a scholarly spirit of curiosity, rather than being preoccupied by whether or not it will prove to be useful in the immediate future. I believe that the provision of a place where such pure scholarship can flourish is a major role of universities, and I will be delighted if our readers can gain an appreciation of that philosophy through the pages of this publication.

March 2015

**Juichi Yamagiwa**  
President, Kyoto University





## SPECIAL INTERVIEW

# The Fruits of Curiosity and Courage in Research

An interview with Prof. Tasuku Honjo of the Department of Immunology and Genomic Medicine, Graduate School of Medicine.



Prof. Tasuku Honjo

*Nivolumab (product name: Opdivo), an antibody to block a protein called programmed cell death 1 (PD-1), was developed based on the research of Prof. Tasuku Honjo and his colleagues. Nivolumab became commercially available in Japan last September and in the US last December following approval by the relevant authorities. This new breakthrough drug, developed by Ono Pharmaceutical and Bristol-Myers Squibb (BMS), is highly anticipated to change cancer therapy dramatically, and is attracting attention worldwide. The discovery of PD-1 was nominated Breakthrough of the Year 2013 by Science, America's leading scientific journal. Prof. Honjo also shared the inaugural Tang Prize in Biopharmaceutical Science with Dr. James Allison of the University of Texas MD Anderson Cancer Center in 2014. The acclaim for Nivolumab lends credence to the notion that "the best products can only be derived from the best science." In this interview, we asked Prof. Honjo about his research philosophy and the journey that led to this outstanding achievement.*

## Twenty years of basic research bears fruit

**— When the PD-1 protein was discovered in 1992,<sup>1)</sup> were you already seeking to develop a drug for cancer treatment?**

**Honjo:** No, I wasn't. PD-1 was originally discovered by Dr. Yasumasa Ishida (currently an associate professor at the Nara Institute of Science and Technology), who was a graduate student at that time. He was searching for a

molecule that could induce T-cell death, which had been a major challenge for the immune system.<sup>2)</sup> I just regarded the discovery as a part of molecular immunology research, and didn't consider any relationship it may have with cancers.

However, since this discovery, high expression levels of programmed death-ligand 1 (PD-L1), a ligand of PD-1, have been demonstrated in many different cancer cells. In 2002, research led by

1) T. Okazaki et al., *Nat. Immunol.*, **14**, 1212-1218 (2013)

2) Y. Ishida et al, *ENBO J*, **11**, 3887-3895(1992)

3) Y. Iwai et al, *Proc Natl Acad Sci USA*, **99**, 12293-12297 (2002)



Dr. Yoshiko Iwai (currently a professor at the University of Occupational and Environmental Health, Japan) who was a graduate student at that time, found that the blockade of PD-1 signaling would restore a suppressed immune system and increase lymphocyte attack on cancer cells to suppress their proliferation.<sup>3)</sup>

**— In 2002, two years after the beginning of the research, a patent application on the treatment of tumors and infections with PD-1 inhibitor was filed. And then, Ono Pharmaceutical and BMS jointly began developing drugs for cancer treatment. In 2006, the first clinical trial of an anti-PD-1 antibody began in the US. An application for approval to market the anti-PD-1 antibody as a drug for melanoma treatment was submitted in December 2013, and was approved in July 2014. Then, the new drug was brought on the market in September 2014. The authorities approved it with unprecedented speed in Japan—approximately six months after the application was submitted—which shows the great expectations being held in the country for the new drug. Do you think the research on PD-1 has achieved its ultimate goal, to a certain extent, by enabling the introduction of this new drug onto the market?**

**Honjo:** No, I don't think so. We scientists believe that, as yet, only one aspect of PD-1 has been revealed. In fact, treatment with the anti-PD-1 antibody is only effective for approximately one third of all melanoma patients. Therefore, a great question still remains: why is it that the remaining two thirds cannot be treated? In the fundamental sciences, there are a lot of issues to be addressed by scientific institutes, such as whether there is a marker to identify who can be treated and who cannot be treated, or whether all the patients can be treated with a combination of different drugs. Currently, clinical trials using the anti-PD-1 antibody for treatment of different types of cancers are under way. As the antibody is anticipated to be effective for most types of cancers, ongoing these fundamental research efforts will make a significant contribution to society in the future.

In the medical sciences, I believe that fundamental research plays a vital role in enabling the field to make a great impact or contribution to society. Initially, when we first asked pharmaceutical companies in Japan and abroad to participate in the development of anti-PD-1 antibody drugs, they refused because they thought the risks were too high. However, now Nivolumab is on the market, and it is reshaping

THIS ARTICLE'S  
**KEY WORDS**

### Function of the molecule PD-1, and the anti-PD-1 antibody

Programmed cell death protein 1 (PD-1) is an immune-regulatory receptor, and is expressed on cell membranes when T-cells (or T lymphocytes) are activated by external stimuli such as the entry of pathogens. When T-cells are excessively activated, the expression of PD-1 causes T-cells to be down regulated. Programmed death-ligand 1 (PD-L1) is expressed in dendritic cells and binds to PD-1 to reduce the T-cell activation.

The human immune system has a function which finds and excludes cancer cells even after they are developed in the body. To escape this, cancer cells will express PD-L1 to suppress T-cell activation. The anti-PD-1 antibody is a drug which puts a “lid” on the PD-1 in T-cells, before the PD-L1 expressed on cancer cells binds to the PD-1 on T-cells. Without its activation being suppressed, the T-cells covered with the “lid” are able to actively attack the cancer cells.

### Impacts of anti-PD-1 antibodies on the medical world and society at large

- Effective on a wide range of cancers, unlike conventional treatments with medications that are only effective on specific cancers.
- The effect of drug lasts for a remarkably long time, unlike conventional cancer therapy products.
- A very high cure rate compared to conventional cancer therapies.
- Side effects are mild.

For the above reasons, anti-PD-1 antibodies are anticipated to drastically change the structure of current cancer therapies, including surgical operation, radiation therapy, and chemotherapy. The discovery of anti-PD-1 antibodies has prompted a reevaluation of immunotherapeutic approaches to cancer treatment that were previously regarded negatively.

our approach to drugs for cancer treatment, and having a huge impact on medical treatment and the medical sciences. I have a theory that the

genuine innovation that leads to such a paradigm shift can only be derived from fundamental research.

## Prof. Honjo's Research Philosophy and Style

— *When did you decide to pursue a career in academic research?*

**Honjo:** I had considered becoming a scientist in the field of basic medicine a potential career option since I was in high school, but it was when I was a second-year undergraduate student in Kyoto University's Faculty of Medicine that my encounter with molecular biology through the book *The Revolution in Biology*<sup>4)</sup> by Dr. Atsuhiko Shibatani<sup>5)</sup> greatly influenced my choice of career path. The book stated "the day will soon come when, just like a surgical procedure, DNA abnormalities can be corrected with a pair of tweezers." That statement, which implied that molecular biology might be closely linked with medical science, made me feel interested in engaging in such research. I went to visit Dr. Shibatani right away, and based on his recommendation, I entered the medical chemistry laboratory headed by Dr. Osamu Hayaishi<sup>6)</sup>.

— *At that time, the Hayaishi Laboratory was famous for its "lunchtime seminars."*

**Honjo:** Yes, it was. In those seminars, the

participants brought interesting academic articles from the latest journals for discussion. Many people participated in the seminars every day—even on Saturdays. Although biochemistry articles were the main topic of discussion, researchers from diverse fields, including pharmacy, science, and agriculture, and researchers from other countries, participated in heated discussions about whether the idea or approach of the article was creative, whether it was strictly verified, or whether it was being approached from an international perspective. In that environment, I naturally adopted Dr. Hayaishi's philosophy on research, which emphasizes creativity, strictness of verification, and an international perspective. I was also influenced by the great American scientists Dr. Donald Brown and Dr. Philip Leder. Dr. Brown is a distinguished scientist who has covered a wide scope of research, and who has proposed a variety of impressive academic hypotheses. From Dr. Leder, I acquired the basic stance that scientists must disseminate their achievements clearly and accurately. I also learned how to make presentations, how to write theses, and how to convince people in a logical way from Dr. Leder.

— *For you, what is the real joy of research?*

**Honjo:** It's like finding water from a spring that has been disregarded, and then expanding the stream of water to develop it into a creek, and then a large river. Or it's like going deep into a pathless forest and building a rustic bridge there for the first time. It's about creating something completely new, rather than modifying or enhancing something that already exists—that

### The Six Cs of creative research

According to Prof. Honjo, to achieve creative research researchers must have the following qualities: They must value their Curiosity and Challenge difficult issues with Courage. Concentrate solely on your research, and Continue to try without quitting. Then you will get Confidence. Prof. Honjo says that, above all, Curiosity is the single most important quality for creative research.

4) Atsuhiko Shibatani, *The Revolution in Biology* (Tokyo: Misuzu Shobo, 1960)

5) Atsuhiko Shibatani, MD, PhD (1920–2011): Dr. Atsuhiko Shibatani graduated from the College of Science of Kyoto Imperial University (Animal Science). He served as a professor at Yamaguchi Prefectural Medical University, professor at

Hiroshima University's Research Institute for Radiation Biology and Medicine, a principle investigator at the Commonwealth Scientific and Industrial Research Organization in Australia, professor at Kansai Medical University, a visiting researcher at the Free University of Berlin in Germany, and professor and president of Kyoto Seika University, where he was later

would be more like turning the rustic bridge to a ferroconcrete bridge.

Another type of joy can be compared to picking up a stone that everyone else has disregarded, considering it to be just an ordinary stone, but in polishing it for ten or twenty years, you find that it is a diamond. I have picked up many such stones. Whether it really is just a stone, or whether it turns out to be a diamond can be said to be a matter of luck, but I think that the researcher's keen sense of insight is also important.

— **How can we develop the sense needed to find such diamonds?**

**Honjo:** That's a difficult question, but I think it relies heavily on personal experience and intuition. We can develop our intuition by constantly thinking about which one of our stones has the highest probability of becoming a diamond. For example, life science research has produced various unexpected results, and every time an unexpected result is produced, we explore as many possibilities for it as we can identify. Then, we will verify them one by one, ranking them from the greatest potential to the lowest. We repeat this process to eliminate the impossible and come to definite conclusions.

One of the appeals of medical life science is that from a hypothesis being developed, a clear path appears in the midst of complex phenomenon which previously seemed to be chaos. There is no better feeling of fulfillment than that which comes from proving such a hypothesis by repeating the challenge of testing its validity. This is the research style that I have adopted since I was a student. I think that the reason I was daring enough to take the discovery of PD-1 and apply it to the development of products for cancer treatment is because I am not a cancer researcher. If I were, I may not have touched immunotherapy. Like the proverb says: "fools rush in where angels fear to tread."

appointed professor emeritus.

6) Osamu Hayaishi, MD, PhD (1920–): Dr. Osamu Hayaishi graduated from the College of Medicine of Osaka Imperial University. He served as an assistant professor at Washington University's School of Medicine (Microbiology Laboratory), dean of the Division of Toxicology of the National Institutes



Prof. Honjo at the ceremony of the Tang Prize, 2014

— **Finally, could you share with us your vision for your research activities and initiatives in the future?**

**Honjo:** I am currently engaged in research on two themes, including the PD-1 research that we have already discussed. The other is research into the molecular mechanisms of antibody diversity control by activation induced cytidine deaminase (AID), which we discovered in 2000. We proposed the hypothesis that AID is an RNA editing enzyme. Although many people have been refuting this hypothesis, I am reaching the point where I can prove that it is correct. In four or five years, I hope to complete the verification of the hypothesis.

— **We are looking forward to seeing your continued success. Thank you very much.**

of Health in the US, professor of the Department of Medical Chemistry of Kyoto University's Faculty of Medicine, president of Osaka Medical College, and director of the Osaka Bioscience Institute. He is chairman of the Board of Trustees of the Osaka Bioscience Institute and a professor emeritus of Kyoto University.



## ENCOURAGE WOMEN TO RESEARCH

# The Tachibana Award

## For Most Outstanding Female Researchers



The Tachibana Award Ceremony was held on 3 March 2015\*. Each recipient received an award certificate and plaque from Juichi Yamagiwa, the president of Kyoto University, as well as an extra prize from Hironobu Yasuhara, the president of the Wacoal Corporation. Following the ceremony, the awardees, Dr. Yukiko Uchida and Ms. Megumi Shidatsu gave the presentations on their research.

\*The day of the Doll Festival, which is a traditional Japanese event to pray for young girls' growth and happiness.

The Tachibana Award for the Most Outstanding Female Researcher was established in 2008 to acknowledge the excellent research achievements of young female researchers at Kyoto University. By publicly honoring young female researchers for their outstanding work in the humanities, social sciences, and natural sciences, the Tachibana Award aims to further motivate not only the awardees themselves, but also other young female researchers following in their footsteps, thereby helping cultivate accomplished female researchers who will lead the future of academic research at Kyoto University and in Japan as a whole.

### 2015 TACHIBANA AWARD LAUREATE : STAFF »

## **CULT PSYCH** What is happiness in Japanese culture?

*The effects of interdependence and social capital on happiness.*

As a cultural psychologist, I have been engaged in cross-cultural investigations on happiness and social relationships. Specifically, I am interested in how people achieve subjective well-being and how cultural values affect this process. The evidence I have obtained so far suggests that in Japan, compared with North American or European cultures, the source of happiness is more likely to be connected with social relationships and social capital within a society. Based on these findings, I further investigate how social capital functions within communities. From large social

survey studies and fieldwork in agricultural and fishing communities in Japan, my colleagues and I are examining which environmental and cultural effects support happiness in communities at both the individual and the group level. From such investigations, I would like to propose an index of "collective well-being" which can be applied to assess the sustainability of happiness.

**Yukiko Uchida, PhD** Assistant Professor, KOKORO Research Center

[kokoro.kyoto-u.ac.jp/en/cultureko\\_net/](http://kokoro.kyoto-u.ac.jp/en/cultureko_net/) [kokoro.kyoto-u.ac.jp/en/staff-en/2011/02/yukiko\\_uchida.html](http://kokoro.kyoto-u.ac.jp/en/staff-en/2011/02/yukiko_uchida.html)



Dr. Uchida visiting a farm in Ehime prefecture

## 2015 TACHIBANA AWARD LAUREATE : STUDENT

**Black Holes: Monsters in the Universe***Understanding powerful activities in extremely strong gravitational fields.*

Black holes are exotic objects whose gravitational field is so strong that nothing, not even light, can escape from them. Surprisingly, black holes not only swallow matter, but also eject jets of highly energetic particles at nearly the speed of light. What drives such powerful jets? This has been one of the biggest mysteries in astronomy. Recent studies suggest that the black-hole jets have significant impact on galaxy formation and play a key role in the evolution of the universe. My collaborators and I have been observing the emissions from the gas falling onto and ejected from black holes, using X-ray satellites together with ground-based optical and infrared telescopes. Our main goals are to reveal the physical mechanism of the jets and to understand the cosmic history.

**Megumi Shidatsu**

PhD Candidate, Graduate School of Science / Research Fellow of the Japan Society for the Promotion of Science  
[www.kusastro.kyoto-u.ac.jp/~shidatsu/](http://www.kusastro.kyoto-u.ac.jp/~shidatsu/)



PHOTO: NASA  
 Highly collimated jets and a rotating disk of in-falling gas formed around a black hole

## 2015 HONORABLE MENTION AWARD: STAFF

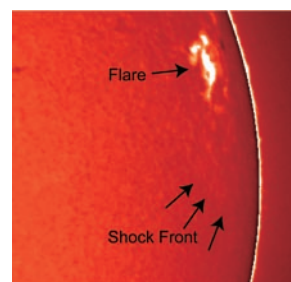
**Explosions on the Sun***Understanding Solar Flares and Flare-associated Ejections.*

Solar flares-explosions occurring on the solar corona emit intense radiation over a wide range of wavelengths, and often eject a tremendous amount of plasma into space. They sometimes produce serious effects on the environmental conditions of the Sun-Earth system, such as geomagnetic storms. Understanding their energy release mechanism is crucially important. I have advanced our understanding

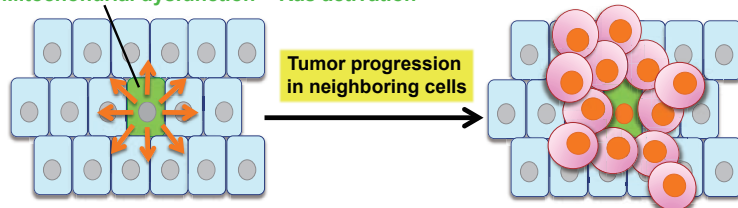
of the mechanism of energy release in solar flares and the traveling processes of flare-associated ejections in space by analyzing a number of observed data and successfully combining them. To achieve this, I analyzed the data without prejudice, and promoted constructive exchange with researchers in related fields.

**Ayumi Asai, PhD** Associate Professor, Unit of Synergetic Studies for Space

[www.usss.kyoto-u.ac.jp/e/index-e.html](http://www.usss.kyoto-u.ac.jp/e/index-e.html)



## 2015 HONORABLE MENTION AWARD: STAFF

**Tissue Growth Regulation through Cell-Cell Communications***Mitochondrial dysfunction drives tumor progression through cell-cell communications.***Mitochondrial dysfunction + Ras activation**

with mitochondrial dysfunction and Ras activation express secretory growth factors Upd (IL-6 homolog) and Wingless (Wnt homolog), which trigger tumor progression in neighboring benign tumors activating Ras. Interestingly, mitochondrial dysfunction is often observed in human cancers. I have therefore concluded that similar mechanisms could contribute to tumor progression in human cancers.

**Shizue Ohsawa, PhD** Lecturer, Graduate School of Biostudies

[www.lif.kyoto-u.ac.jp/e/?post\\_type=labos&p=192](http://www.lif.kyoto-u.ac.jp/e/?post_type=labos&p=192)



There is growing evidence to suggest that tumor progression may be caused by cell-cell communications. In developing *Drosophila* epithelium, I found that mitochondrial dysfunction cooperates with oncogenic Ras to drive tumor progression through cell-cell communications. Cells

## AWARDS & HONORS

# International Recognition of Kyoto University's Research

### TOPIC

## Dr. Kazuhiro Nakamura Awarded the Japan Academy Medal Prize

Dr. Kazuhiro Nakamura, associate professor in the Center for the Promotion of Interdisciplinary Education and Research (C-PiER), was awarded the Japan Academy Medal Prize on 24 February 2015. The Japan Academy Medal Prize is presented annually to a maximum of six promising young researchers in recognition of outstanding research achievements. Dr. Nakamura received the award for his research on the central nervous system that controls the homeostasis of body temperature, including thermoregulation. Dr. Nakamura's work seeking to elucidate the fundamental brain system in maintaining temperature homeostasis has been highly evaluated internationally. He was also awarded the American Physiological Society's highest accolade for young researchers in 2014. The Japan Academy Medal Prize was awarded to Dr. Nakamura in the anticipation that his research will make a major contribution to the progress of medicine to treat diseases such as obesity and psychogenic fever in the future.



Prof. Kazuhiro Nakamura

**WEB** [www.cp.kyoto-u.ac.jp/Nakamura/nakamura-e.html](http://www.cp.kyoto-u.ac.jp/Nakamura/nakamura-e.html) (Dr. Nakamura Lab)

### TOPIC

## Dr. Wako Asato Receives the Presidential Award in the Philippines



Dr. Wako Asato (right)

Project Based Associate Prof. Wako Asato from the Graduate School of Letters received the 2014 Presidential Award (Kaanib ng Bayan Award) for Filipino Individuals and Organizations Overseas. The award was conferred on Dr. Asato by President Benigno S. Aquino III at a ceremony in Manila on 5 December 2014. The Presidential Awards recognize individuals and organizations that have made exceptional or significant contributions to Philippine reconstruction, progress, or development, or that have significantly helped to advance the cause of overseas Filipinos.

Dr. Asato's activities include working with a non-governmental organization that provides scholarship grants to underprivileged students in rural areas. Also, as part of a program jointly organized by the Kyoto University Asian Studies Unit, he is working in partnership with the Commission on Filipinos Overseas (CFO), a Filipino governmental agency, to provide Japan-bound emigrants with orientation seminars that cover various aspects of living in Japan. One of Dr. Asato's collaborative research projects with the Philippine government, which helped to uncover human trafficking cases in Osaka Prefecture, has been widely reported in the media.

**WEB** [www.gcoe-intimacy.jp/staticpages/index.php/asato\\_en](http://www.gcoe-intimacy.jp/staticpages/index.php/asato_en) (Dr. Asato)



## TOPIC

## Five Kyoto University Researchers Selected for the 11<sup>th</sup> JSPS Prize

The Japan Society for the Promotion of Science (JSPS) selected five researchers from Kyoto University for the 11<sup>th</sup> JSPS Prize in 2014. The JSPS Prize is intended to acknowledge and support young researchers who are anticipated to become future academic research leaders and potential Nobel Prize candidates. The prize aims to give the young scholars opportunities to advance their research in the early stages of their career in order to promote breakthrough research in the future. The following researchers received the award:



### ◆ Awardees

**Prof. Sekiguchi Tadashi** *Institute of Economic Research*  
*“A Dynamic Game Theory and Its Application to Economics”*

**Prof. Igaki Tatsushi** *Graduate School of Biostudies*  
*“Genetic Study for Cell Competition that Regulates Tumorigenesis”*

**Associate Prof. Nakamura Kazuhiro** *Center for the Promotion of Interdisciplinary Education and Research*  
*“Study of the Neural Mechanism that Controls Thermal Homeostasis”*

**Associate Prof. Kabasima Kenji** *Graduate School of Medicine*  
*“Study toward the Control and Non-invasive Diagnosis of Atopic Dermatitis via Understanding of Its Mechanism”*

**Prof. Saito Hirohide** *Center for iPS Cell Research and Application*  
*“Synthetic RNA Design Technologies to Control Cell Fate”*

**WEB** [www.jsps.go.jp/english/e-jsp-s-prize/awards\\_11th\\_01.html](http://www.jsps.go.jp/english/e-jsp-s-prize/awards_11th_01.html) (11<sup>th</sup> (FY2014) JSPS PRIZE Awardees)

## TOPIC

## Profs. Yuji Matsuda and Tsuyoshi Nakaya Receive the Nishina Memorial Prize

Profs. Yuji Matsuda and Tsuyoshi Nakaya of the Graduate School of Science were awarded the 2014 Nishina Memorial Prize by the Nishina Memorial Foundation. Every year since 1955, the Nishina Memorial Prize has been awarded to young physicists for achievements in the field of atomic and sub-atomic physics. Prof. Nakaya shares the prize with Dr. Takashi Kobayashi of the High Energy Accelerator Research Organization (KEK). Prof. Matsuda received the prize for his study titled “The creation of novel electronic states via the two dimensional confinement of heavy fermions,” and the award winning study by Prof. Nakaya and Dr. Kobayashi was titled “Observation of electron neutrino appearance in a muon neutrino beam.”



Prof. Yuji Matsuda



Prof. Tsuyoshi Nakaya

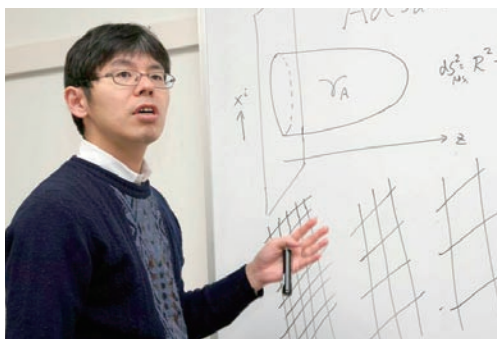
**WEB** [www.nishina-mf.or.jp/NishinaMemorialPrize-E.html](http://www.nishina-mf.or.jp/NishinaMemorialPrize-E.html) (Nishina Memorial Foundation)

**WEB** [kotai2.scphys.kyoto-u.ac.jp/member/matsuda/MatsudaCV.htm](http://kotai2.scphys.kyoto-u.ac.jp/member/matsuda/MatsudaCV.htm) (Prof. Matsuda)

**WEB** [kyouindb.iimc.kyoto-u.ac.jp/e/cI4gH](http://kyouindb.iimc.kyoto-u.ac.jp/e/cI4gH) (Prof. Nakaya)

## TOPIC

## Prof. Tadashi Takayanagi Receives the 2015 New Horizons in Physics Prize



Prof. Tadashi Takayanagi

Prof. Tadashi Takayanagi of the Yukawa Institute for Theoretical Physics was awarded the 2015 New Horizons in Physics Prize by the Breakthrough Prize Foundation for his study titled “Fundamental ideas about entropy in quantum field theory and quantum gravity.” The prize is awarded to promising junior researchers who have already produced important work. Prof. Takayanagi shares the prize with Horacio Casini and Marina Huerta, of CONICET and Instituto Balseiro, Universidad Nacional de Cuyo, Argentina, and Shinsei Ryu, of the University of Illinois at Urbana-Champaign.

**WEB** [www2.yukawa.kyoto-u.ac.jp/~tadashi.takayanagi/eindex.html](http://www2.yukawa.kyoto-u.ac.jp/~tadashi.takayanagi/eindex.html) (Prof. Takayanagi)

## TOPIC

## Prof. Naoko Tosa Awarded the 2014 Good Design Award

Prof. Naoko Tosa of the Academic Center for Computing and Media Studies was awarded the 2014 Good Design Award in the category of “media, application, or digital contents for the public.” Prof. Tosa received the award for her projection mapping installation titled “Sound of Ikebana.” The installation aimed to create a new form of art and design through a high-level integration of traditional Japanese artwork and cutting-edge technology. Shot at 2,000 frames per second using high-speed photography, “Sound of Ikebana” is a series of videos featuring striking images created from sound vibrations using various liquids, such as paints and oils. (For more information on her work, you will find on page 31 of this issue)



Prof. Naoko Tosa



Spring, Summer, Autumn, Winter



Projection mapping “Sound of Ikebana: Four Seasons”

**WEB** [www.g-mark.org/award/describe/41746?token=cMdCoS2zYp&locale=en](http://www.g-mark.org/award/describe/41746?token=cMdCoS2zYp&locale=en) (Good Design Award)

**WEB** [www.naokotosa.com](http://www.naokotosa.com) (Prof. Tosa)

## HONORS

## Award Winning Researchers in Kyoto University

The following is a list of just some of the Kyoto University researchers who have received international awards — a testimony to the university's intellectually fertile environment and culture of academic freedom.

**Nobel Prize** *in Physics*

**Hideki Yukawa** (1949), **Sin-Itiro Tomonaga** (1965),  
**Makoto Kobayashi** (2008), **Toshihide Maskawa** (2008),  
**Isamu Akasaki**\* (2014)

\*Photo provided by Meijo University

*in Chemistry*

**Kenichi Fukui** (1981), **Ryoji Noyori** (2001)

*in Physiology or Medicine*

**Susumu Tonegawa** (1987), **Shinya Yamanaka** (2012)

**Fields Medal** **Heisuke Hironaka** (1970), **Shigefumi Mori** (1990)

**Gauss Prize** **Kiyosi Itō** (2006)

**Lasker Award** **Susumu Tonegawa** (1987), **Yasutomi Nishizuka** (1989),  
**Yoshio Masui** (1998), **Shinya Yamanaka** (2009)  
**Kazutoshi Mori** (2014)

**Japan Prize** **Makoto Nagao**\* (2005), **Masatoshi Takeichi**\* (2005)

\*Photos provided by the Japan Prize Foundation

**Kyoto Prize** **Yasutomi Nishizuka** (1992), **Chushiro Hayashi**\* (1995),  
**Kiyosi Itō**\* (1998), **Alan Curtis Kay** (2004),  
**Isamu Akasaki** (2009), **Shinya Yamanaka**\* (2010),  
**Masatoshi Nei**\* (2013)

\*Photos provided by the Inamori Foundation

- Die Schaudinn-Hoffmann-Plakette** ◆ **Shin-ichi Matsumoto** (1965)
- Huxley Memorial Medal** ◆ **Junichiro Itani** (1984)
- Canada Gairdner International Award** ◆ **Susumu Tonegawa** (1983), **Yasutomi Nishizuka** (1988),  
**Shinya Yamanaka** (2009), **Kazutoshi Mori** (2009)
- Order of the White Elephant - 3<sup>rd</sup> Class** ◆ **Yoneo Ishii** (1987)
- Ross G. Harrison Prize** ◆ **Tokindo S. Okada** (1989)
- Salem Prize** ◆ **Mitsuhiro Shishikura** (1992)
- Robert Koch Prize** ◆ **Shigekazu Nagata** (1995), **Shinya Yamanaka** (2008),  
**Tasuku Honjo** (2012)
- The Keio Medical Science Prize** ◆ **Shigetada Nakanishi** (1996), **Masatoshi Takeichi** (2001),  
**Koichi Tanaka** (2002), **Yoshinori Fujiyoshi** (2005),  
**Shimon Sakaguchi** (2008), **Kenji Kangawa** (2009)
- Frank Nelson Cole Prize** ◆ **Hiraku Nakazima** (2003)
- John Dawson Prize** ◆ **Tetsuya Sato** (2005)
- Yuri Gagarin Medal** ◆ **Hiroshi Matsumoto** (2006)
- Booker Gold Medal** ◆ **Hiroshi Matsumoto** (2008)
- The Ulysses Medal** ◆ **Shuh Narumiya** (2008)
- L.S.B. Leakey Prize** ◆ **Toshisada Nishida** (2008)
- Prix du Rayonnement de la langue et de la littérature françaises** ◆ **Kazuyoshi Yoshikawa** (2010)
- de Gennes Prize** ◆ **Susumu Kitagawa** (2013)
- L'Oréal-UNESCO Awards For Women in Science** ◆ **Tomiko Yonezawa** (2005), **Kayo Inaba** (2014)





## FEATURE

# Getting to Know the Many Facets of Japan

## Kyoto University's Rich Tapestry of Research

If you want to get to know Japan from many different angles, Kyoto University is the place to visit. This issue of Research Activities introduces only a small part of the research projects under way at the university. We hope that you will find something here that grabs your interest, and stimulates your curiosity to find out about the many other research activities going on at Kyoto University.

### JAPAN MODERN HISTORY

## Where do our images of Kyoto and Japan come from?

*Collaborative Research on Kyoto, Japan's Ancient Capital, and other Historical Cities.*



The Hō-ō-do Hall of Byōdō-in Temple (Uji City), an established image of Kyoto in modern history

We are accustomed to seeing the city of Kyoto represented by graceful and elegant images, such as exquisitely crafted Japanese cuisine and confectionary, traditional craftwork such as *Nishijin* textiles and *Kiyomizuyaki* pottery, and the scenery of old temples and shrines or the Higashiyama mountains. You may be surprised to learn, however, that such images of Kyoto did not evolve naturally over time, but were contrived and created in modern times for political reasons.

In order to “catch up” with powerful Western nations and become one of the world’s “the first-rate countries,” the nation-state of Japan, which had been established during the Sino–Japanese and Russo–Japanese Wars, adopted a national

policy to employ *kokufu bunka* (Japan’s traditional national culture) as the image for Kyoto City and a symbol of national identity. *Kokufu bunka* refers to the Japanese historical culture that flourished in the late Heian period (10<sup>th</sup>–12<sup>th</sup> century), during which the Hō-ō-do Hall (Phoenix Hall) of Byōdō-in Temple was built in Uji city, and much of the nation’s classical literature, including *The Tale of Genji* was produced. During the period of the Japanese Empire, from the 1910s onward, when Japan occupied Korea, the nation harked back to its “Age of Discovery,” and Kyoto’s image and identity became associated with the culture of *Azuchi Momoyama*, which flourished in the late 16<sup>th</sup> century, and which is characterized by the introduction of Western culture and the lavish pictures on room partitions dating from time of the Toyotomi Hideyoshi Shogunate. In a similar way, the 20<sup>th</sup> century also saw old castle towns such as Kanazawa and Sendai begin to express local and national pride as the hometowns of the first feudal lords of the Sengoku (Warring States) period, such as Maeda Toshiie and Date Masamune.

Researchers at Kyoto University’s Institute for Research in Humanities are engaged in research into the way in which the histories of culturally important cities are developed in modern times. Their findings have been published in *Kindai Kyoto Kenkyū* (*Research into Modern Kyoto*) (Kyoto: Shibunkaku

Shuppan, 2008), jointly edited and published by Profs. Hiroshi Maruyama, Tsutomu Iyori and Hiroshi Takagi, and *Kindai Nihon no Rekishi Toshi: Koto to Jokamachi (Historic Cities of Modern Japan: Ancient Castle Towns)* (Kyoto: Shibunkaku Shuppan, 2013), written and edited by Prof. Hiroshi Takagi. A new English-language volume titled *Kyoto's Modern Revolution*, jointly edited by Profs. Maruyama, Takagi, and Prof. John Breen, is scheduled for publication in 2015.

Author: **Hiroshi Takagi, PhD** Professor, Institute for Research in Humanities

**WEB** [kyouindb.iimc.kyoto-u.ac.jp/e/T2oH](http://kyouindb.iimc.kyoto-u.ac.jp/e/T2oH)



## MUSEOLOGY

# A Treasury of Human and Natural History

*Japan's first university museum.*



*Chinretsukan*, shortly after its construction

Japan's first university museum was founded a hundred years ago when Kyoto Imperial University established a museum called *Chinretsukan* (Exhibition Hall) in the Liberal Arts College to store specimens and utilize them for research and education.

The Liberal Arts College collected and stored approximately 500,000 historical specimens in *Chinretsukan* for use in research on human history. Kyoto University was the first institution in Japan to offer archaeology courses, and accordingly, the museum boasted the nation's

largest collection of quality archeological materials. The university's large collection of ancient documents is also well known among scholars. The collection takes advantage of the university's location in Kyoto City, which was Japan's capital for over 1,000 years from 794 to 1868.



POINTS OF INTEREST

## The Building of the *Chinretsukan*

After three extensions to the original building, which was constructed in 1914, the *Chinretsukan* (Exhibition Hall) reached its final form as a square building surrounding a courtyard in 1929. The old brick building was partially reinforced with concrete during its final extension, but it remains a representative Kyoto University building of its time. The building was co-designed by Jihee Yamamoto, who designed many structures for higher education institutions and hospitals at the time, and Kyozeo Nagase. Yamamoto and Nagase later became the first and second directors of the Department of Engineering of Kyoto Imperial University. In addition to being a place for research and education, the *Chinretsukan* was an "open space" for the public exhibition of historical materials. Being equipped with a reception room, it also served as a place to receive guests until the Clock Tower was built in 1925.



*Chinretsukan's exhibition room*



Ancient Egyptian materials  
Limestone Stele of Nefer-hetep-seneb  
(12<sup>th</sup> Dyn., Abydos, Egypt)



Stibnite (Ehime, Japan)

A notable characteristic of the *Chinretsukan* was that it contained specimens and materials from a wide variety of areas around the world: from Korea and China to Southeast Asia, India, Afghanistan, Europe, and America. Among the items it formerly housed, the ancient Egyptian materials sent by Sir William Matthew Flinders Petrie, who is known as the father of Egyptian archeology, have been receiving attention from international researchers in recent years for their high academic value.

The *Chinretsukan's* collections were transferred to the Kyoto University Museum following its establishment in

1997. The museum was established to deepen our understanding of the world, including human history. With the addition of various specimens, including animals, plants, and minerals, there are over 2.6 million items in the museum's collection. Specimen-based research is continually being carried out in the museum, yielding many new discoveries. Along with its research activities, the museum holds exhibitions and other events to widely publicize its latest research results. One recent exhibition, "Masterpieces of the Kyoto University Mineral Collection," featured the first public display of world's largest collection of the beautiful mineral stibnite, attracting many visitors.

The specimens stored in the Kyoto University Museum are valuable academic materials that deepen our understanding of humanity and nature. The museum seeks to utilize these assets for the benefit of society, and pass them on to future generations.

Author: **Naoko Iwasaki, PhD**

Professor, Kyoto University Museum

**WEB** [www.museum.kyoto-u.ac.jp/index\\_e.htm](http://www.museum.kyoto-u.ac.jp/index_e.htm) (Kyoto University Museum)



## Special Exhibitions at the KU Museum

In addition its permanent exhibition, the Kyoto University Museum regularly hosts special exhibitions. The following are currently scheduled special exhibitions:

### ◆ The Will to Heal: *The Development of Medical Knowledge to Save Lives*

This special exhibition presents the achievements of the forerunners of modern medicine who devoted themselves to the development of medicine in and after the Edo period. Focusing primarily on the Kansai area, the exhibition gives an overview of the development of medicine, nursing, midwifery, drug discovery, and medical technology from the Meiji period up to the present day. The exhibition also takes a look at today's cutting-edge medicine.

**Exhibition period: February 11–April 12, 2015**





## BIODIVERSITY

## The 4<sup>th</sup> International Symposium on Asian Vertebrate Species Diversity

*Understanding of Japanese Biodiversity with Asian Network.*



Japanese endemic species: *Elaphe quadrivirgata*  
(Japanese four-lined snake)



Japanese endemic species: *Bufo japonicus formosus*  
(Eastern Japanese common toad)

Japan is one of the world's biodiversity hotspots, with a large number of diversified vertebrate species, including many endemic to Japan. This is mainly the result of alternating periods of geographical isolation and connection with the continent over millions of years. Comprehensive studies involving counterpart species in continental Asia are essential in elucidating the origin and evolution of species diversity in Japan. For these important and large scale endeavors, it is necessary to promote academic exchange and cooperation among Asian vertebrate researchers, and also to train young researchers through the Asian multilateral research framework. To pursue this challenging endeavor, the Kyoto University Museum is conducting the JSPS Core-to-Core Program B. Asia-Africa Science Platforms *Asian Vertebrate Species Diversity Network Platform with Combining Researchers, Specimens and Information*.

The 4<sup>th</sup> International Symposium on Asian Vertebrate Species Diversity under the framework of the JSPS program was held on 18–19 December 2014 at the University of Malaya, Kuala Lumpur. Former symposia in the series have been held annually by the Kyoto University Museum since 2011. The 4<sup>th</sup>

### ◆ Unearthing Cultural Treasures: *Clay Figures Excavated on the Kyoto University Campus*

Kyoto University's Center for Cultural Heritage Studies carries out comprehensive research on cultural artifacts unearthed on the university's campuses. Over a period of thirty-five years, the center has been engaged in the analysis and preservation of cultural property excavated from a combined area of 100,000 m<sup>2</sup>. This special exhibition presents a selection of artifacts from the Tumulus period which were excavated from Kyoto University's Yoshida Campus.

**Exhibition period: February 18–April 19, 2015**

**WEB** [www.museum.kyoto-u.ac.jp/index\\_e.htm](http://www.museum.kyoto-u.ac.jp/index_e.htm) (Kyoto University Museum)





The 4<sup>th</sup> International Symposium on Asian Vertebrate Species Diversity on 18–19 December 2014.

Symposium featured forty oral and poster presentations by over seventy researchers from eight Asian countries. Opening addresses were delivered by Dr. Terufumi Ohno, director of the Kyoto University Museum, and Dr. Mohd Amin Jalaludin, vice-chancellor of the University of Malaya. A guest speech emphasizing the importance of biodiversity research was delivered by HE Dr. Makio Miyagawa, ambassador of Japan to Malaysia, and special lectures on the most current developments in Asian vertebrate species diversity research were delivered by Prof. Masafumi Matsui of Kyoto University and Emeritus Prof. Hoi-Sen Yong of the University of Malaya. In accordance with the symposium's policy of providing young researchers with an opportunity to present their ideas and research results on an international platform, most of the symposium's oral presentations were made by younger researchers.

Discussion sessions focused on the importance of maintaining a specimen network and of incubating the next generation of specimens. After the symposium, a two-day field excursion to the University of Malaya's Ulu Gombak Forest Reserve was organized, providing the participants with an opportunity to exchange field survey techniques and research ideas. The symposium served to underline the importance of academic exchange and research collaboration in Asia in understanding vertebrate species diversity in Japan. The 5<sup>th</sup> symposium will be held in December 2015 at Chulalongkorn University in Thailand.



Japanese endemic species:  
*Chimarrogale platycephalus*  
(Japanese water shrew)

Author: **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/)



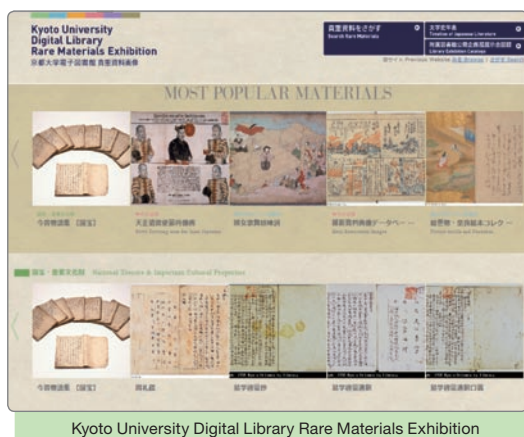
#### LIBRARY AND DIGITIZATION

## Kyoto University's Rare Materials

*One of the largest collections in Japan.*

### ◆ Restoration of rare materials

Kyoto University's library holdings include a large quantity of culturally and historically important rare books, Chinese and Japanese classics, and other materials. These include a designated national treasure and numerous other important cultural properties. Unfortunately, many of these documents are in poor condition due to age, poor handling, or damage by book lice. The Kyoto University Library Network has been restoring these documents to ensure that they can be accessed for research and education purposes, prioritizing those that are most urgently in need of repair.



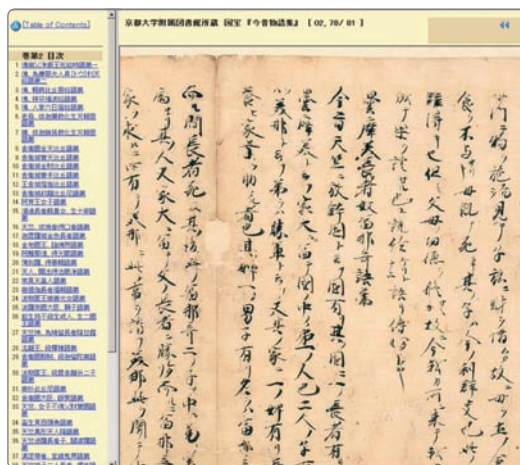
Kyoto University Digital Library Rare Materials Exhibition



## ◆ Digitizing rare materials and making them available online

The Kyoto University Library Network is engaged in digitizing its academic materials, including rare manuscripts and old books, and making them available online in order to preserve them and contribute to international scholarship and cultural development. The university now has one of the largest digital collections in the country, comprising over 4,000 items, including a manuscript of the *Konjaku Monogatari-Shu* (*Anthology of Tales from the Past*) that has been designated as a national treasure, as well as forty other designated important cultural properties.

**WEB** [edb.kulib.kyoto-u.ac.jp/exhibit/index.html](http://edb.kulib.kyoto-u.ac.jp/exhibit/index.html)



A digital image of the *Konjaku Monogatari-Shu* manuscript, available online together with data and an explanation of the text



Image of the colorful picture scroll *Sanjurokkasen-Zo*



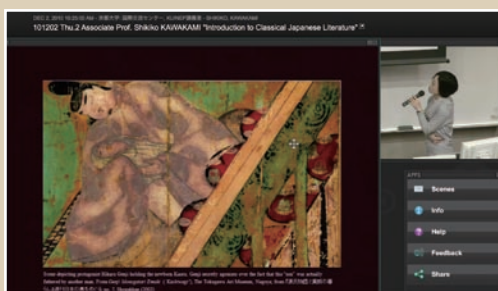
*Tsukumo-gami*



## KYOTO-U OpenCourseWare

Kyoto-U OpenCourseWare (OCW) is Kyoto University's initiative to make its course materials available online and provide members of the general public with the opportunity to access actual university lectures. The OCW, including many lectures on different aspects of Japanese culture, are available from the following website:

**WEB** [ocw.kyoto-u.ac.jp/en](http://ocw.kyoto-u.ac.jp/en)



## FOSTERING THE NEXT GENERATION

# 白眉 — The Hakubi Project

## A Unique Opportunity for Outstanding Young Talent

This Project was established by Kyoto University in 2009 to foster outstanding young researchers in any academic field. It gives them a valuable opportunity to devote themselves entirely to their research.

**WEB** [www.hakubi.kyoto-u.ac.jp/eng](http://www.hakubi.kyoto-u.ac.jp/eng)

### COMP-CUL Making Meaningful Cross-Cultural Contact

*Doing research on Japan in Kyoto University.*



Dr. Miller also published a book about his research in 2013

Have you ever visited a country and felt so foreign, yet at the same time so at home? My research on Japan, which began in 2002, is a long-term, ongoing exploration of this conundrum. Japan has always felt so different to me, yet also so *right*. I love the way Japanese society functions so efficiently, so peacefully, and so beautifully. In particular, I have been interested in Japanese culture, education, and sports, in part because my first experiences in Japan came as an Assistant Language Teacher on the JET Programme and I found it easier to teach my students through sports than through textbooks. As a member of the Hakubi Project, I am trying to understand the historical roots and educational perceptions that lay underneath sports both in Japan, and in my home country of the United States. Many sports were initially invented in the United Kingdom and in the United States, yet they have taken on new cultural meanings in Japan, which fascinates me. Kyoto University and the Hakubi Center for Advanced Research are the preeminent place to undertake such research. I will forever be grateful for this opportunity.

**Aaron L. Miller, PhD**

*Assistant Professor, The Hakubi Center for Advanced Research, Graduate School of Letters  
Visiting Scholar, Center on Adolescence, Stanford University  
[www.hakubi.kyoto-u.ac.jp/02\\_mem/h22/aaron.html](http://www.hakubi.kyoto-u.ac.jp/02_mem/h22/aaron.html)*



### JPN-CUL War Memory and the Japanese Cinema

*Understanding changing memories through popular culture.*

In our current political climate, it is more important than ever to understand how war is memorialized and remembered. As the Japanese government re-interprets the pacifist Article 9 of the Constitution, this project addresses the memorialization of WWII and the Asia Pacific war in popular culture, aiming to understand how national memory is affected by film trends. How to people remember war, and how do these memories change over time? Interviewing Japanese film fans who regularly attended cinema screenings between 1945-1979, my research aims to incorporate the voices of everyday viewers into a field of study dominated by critical and academic writing. Understanding viewership is key to understanding the political implications of popular culture.



**Jennifer Coates, PhD**

*Assistant Professor, The Hakubi Center for Advanced Research / Graduate School of Letters  
[www.hakubi.kyoto-u.ac.jp/eng/02\\_mem/h26/coates.html](http://www.hakubi.kyoto-u.ac.jp/eng/02_mem/h26/coates.html)*



*Eiga fan, Waga seishun ni kui nashi,*  
June 1946, 12.



## INTELLECT-HIST The Narcissism of Minor Differences

*Imagining "Man" through the Medium of Biography.*

How would you describe yourself in five words? While this question might be answered in an infinite number of ways, chances are you will focus on matters such as your appearance, race, nationality, religion, work, and personality. That is, when thinking about the characteristics that set ourselves apart from others, our imaginations are effectively restricted to but a few categories. Most of these categories, however, are not given *a priori* but are dependent on both cultural and historical factors. My research is an attempt to explain when and how these categories have changed in the case of Japan by analyzing the huge volume of biographies published during the period 1600-1912.



**Niels van Steenpaal, PhD**

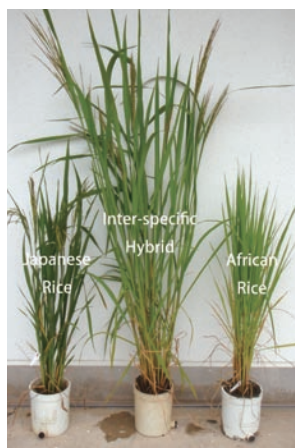
Assistant Professor, Hakubi Center for Advanced Research  
[www.hakubi.kyoto-u.ac.jp/eng/02\\_mem/h26/steenpaal.html](http://www.hakubi.kyoto-u.ac.jp/eng/02_mem/h26/steenpaal.html)



Entry on Alexis de Tocqueville in  
*Wayō Kijinden* (1872)

## PLANT BREED Using Japanese Rice to Improve Rice in Africa

*Molecular genetics of sterility in hybrids of Japanese and African rice species.*



Rice is a staple food in Japan, and the scenery of rice fields is a traditional image of the Japanese countryside. It is not surprising then, that the country's researchers have made great efforts towards rice research and that the Japanese people are proud of the high quality rice grown in the country. I am seeking to improve rice in Africa by using the knowledge obtained from Japanese rice research. I found that hybrids of African and Japanese rice grow vigorously. However, these inter-specific hybrids do not produce seeds because of a harmful interaction between genes of the two species. I am investigating the molecular mechanisms of seed sterility in inter-specific rice hybrids in order to overcome that problem.

**Yohei Koide, PhD**

Assistant Professor, the Hakubi Center for Advanced Research /  
 Graduate school of Agriculture  
[sites.google.com/site/yoheikoidehp/home/english](http://sites.google.com/site/yoheikoidehp/home/english)



## JPN-HIST How Wars End

*Understanding the conditions of war and peace.*

My work concerns the relationship between war and peace. The question of how to end war is both old and new but has grown in importance as the number of civil wars continues to increase around the world. Shedding light on the process of war termination, my research focuses on Japan's diplomatic strategies at the end of World War II, especially how Japan's foreign policies were influenced by issues of diplomatic trust. My findings suggest that political leaders decide whether to end wars based on anticipated results, as well as by the extent to which they believe the enemy can be trusted.

**Tamon Suzuki, PhD**

Associate Professor, The Hakubi Center for Advanced Research / Graduate School of Law  
[www.hakubi.kyoto-u.ac.jp/eng/02\\_mem/h26/suzukit.html](http://www.hakubi.kyoto-u.ac.jp/eng/02_mem/h26/suzukit.html)



Tamon Suzuki, Japan's long road to surrender: a political history, 1943-1945 (Tokyo: University of Tokyo Press, 2011)

# Cutting-Edge Research at Kyoto University

A small selection of research activities deals with Japan.

## **HIST ARCH** Manifold Narratives for Kyoto Studies

*In search of the real story of Kyoto's development.*

The modern autonomous area of Kyoto City was developed from a small area of 30km<sup>2</sup> in the 1880s to its current size of over 800km<sup>2</sup>. The urban structure, however, expanded at each step in the history beyond the autonomic administrative territory of Kyoto Township, and physically spread to the suburban towns and villages. The whole area was long under the control of the prefectural and national governments, until prefectural power over urban management was decentralized to the municipal government in 1956.

In modern history, however, Kyoto City has often been represented in publications issued by the municipality as a unique town which developed autonomically, as if without any national intervention.

As faculty members of Kyoto's outstanding university, my colleagues and I strive to ensure that our research into the city's development is free from historical revisionism and distortion. Through our work, we seek to create a platform for a discussion that includes diverse, and even conflicting, interpretations of the city's urban development.



**Tsutomu Iyori, CEAA, ENSA-Paris-Villemin (France)**

*Professor, Graduate School of Human and Environmental Studies*

[www.h.kyoto-u.ac.jp/staff/233\\_iyori\\_t\\_0\\_e.html](http://www.h.kyoto-u.ac.jp/staff/233_iyori_t_0_e.html)

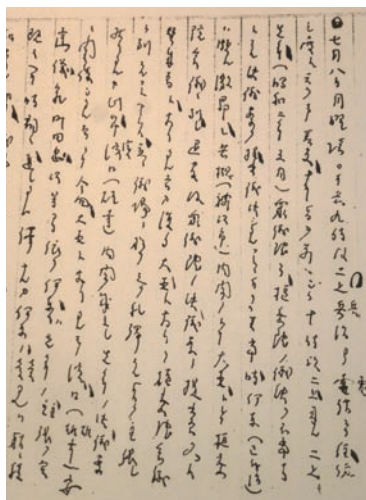


The outer urbanized area of Kyoto in 1927 under the control of the Home Ministry. The city developed physically beyond its inner autonomic municipal area.

(*Toshikeikaku Yokan*, edited by the Urban Planning Section of the Japanese government's Home Ministry in 1927)

## **HIST** Japanese Modernization and International Cooperation

*Accepting international law, order, and constitutional monarchy.*



*Kuratomi Yuzaburo's Diary* (National Diet Library)

I have written biographies of modern Japanese politicians, including Ito Hirobumi, Hara Takashi, and the Emperor Showa. Through my studies, I have revealed how modern Japan have accepted international law and order, and how it has approached subjects concerning national security, the ruling of colonies, and the development of a constitutional monarchy.

For example, many researchers claim that the Emperor Showa was responsible for starting the Pacific War, as he had the constitutional power to stop it. However, using newly released materials, I have shown that the Emperor did not have sufficient power to prevent the war, and he was perpetually agonized over the extent to which he should intervene in political affairs in order to maintain peace. I have therefore concluded that the Emperor Showa had no responsibility for the War. This research has been commonly accepted in the field of Japanese history.

**From the Editor** Dr. Ito's book on the subject, *Showa Tenno Den (Biography of the Emperor Showa)* (Tokyo: Bungei Shunju, 2011), was awarded the 15<sup>th</sup> Shiba Ryotaro prize.

**Yukio Ito, PhD** *Professor, Graduate School of Law*

[kyouindb.iimc.kyoto-u.ac.jp/e/yA2qM](mailto:kyouindb.iimc.kyoto-u.ac.jp/e/yA2qM)



HIST

## The History of the Japanese language

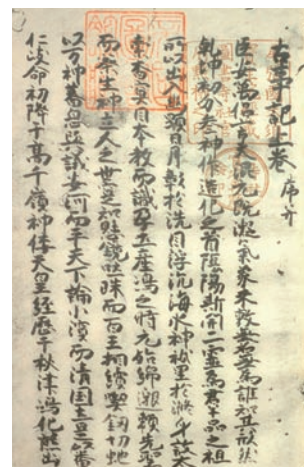
*Exploring ancient Japanese language in the period before recorded history.*

I am engaged in a study of historical changes in the phonemes and grammar of the Japanese language from the Nara period (8<sup>th</sup> century) to the present day. My recent research focuses on elucidating ancient Japanese language in the period before recorded history by analyzing 8<sup>th</sup> century Japanese literature. I have already succeeded in partially identifying a system of verb conjugation which existed circa 1BC/1AD. My theory that there were only two types of verb conjugation at that time, called the *kami-ichidan katsuyo* (upper single grade) and *shimo-ichidan katsuyo* (lower single grade) is contrary to the commonly-held view, which is based on a form of conjugation called the *yodan katsuyo* (quadrigrade). The theory has not yet been widely recognized by conservative academic circles.



Prof. Kida in the costume of a Heian-period aristocrat

**Akiyoshi Kida, MA** Professor, Graduate School of Letters  
[kyouindb.iime.kyoto-u.ac.jp/e/ssS7rE](http://kyouindb.iime.kyoto-u.ac.jp/e/ssS7rE)



Kojiki (National Diet Library)

JPN EDU

## Concepts Beyond Words

*How do Temporal Adverbs reflect the speaker's view of event actualization?*



The Japanese language has a rich variety of temporal adverbs which provide us with many clues as to how the speaker conceptualizes event actualization. One such clue is the reference point which is an essential tool for grasping the actualization time or the length of time for which the event endures. Another clue is the objective or the first person oriented manner of description of events. Both *Sugu* and *Mamonaku* may denote an actualization as one immediately following the reference point. However, unlike *Sugu*, *Mamonaku* cannot modify first person volitional actions since it is restricted to objective description. Indefiniteness is another property

that reflects the speaker's view of event actualization. *Sonouchi* denotes such indefiniteness, thereby expressing the speaker's uncertainty about the realization, making it possible for him to express vague promises that might never realize. Temporal adverbs could also denote aspectual properties of the event such as the gradual or the rapid manner in which it unfolds in time, allowing us to pursue the detailed mechanism of event actualization as reflected in language. Furthermore, they depict the speaker's anticipations or apprehensions about the realization, indicating the cognitive procedure underlying each expression.

**Ruchira Palihawadana, PhD** Professor, The International Center  
[www.ryugaku.kyoto-u.ac.jp/en/](http://www.ryugaku.kyoto-u.ac.jp/en/)



PSYCHOANAL

## Can You See Me?

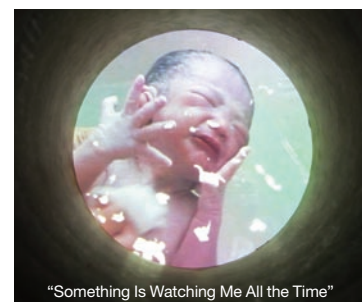
*The unconscious origin of the self.*

Can you see me? When I was born I was not afraid of being seen, but how about now? I get embarrassed and anxious when I am seen. Certain people may even feel a false sense of fear that they are being watched by an evil organization. At one extreme it could be said that the subjectivity of the act of seeing is analogous to the power of the modern political establishment, and must be overcome. Where can we find, then, that simple sense of being seen that must have once been ours? An enormous unconscious mechanism seems to be at

work behind the loss of this sense. I am engaged in research to clarify these matters from a psychoanalytic perspective. One student in my laboratory has chosen to present their results as a piece of artwork on it. At the time of birth, humans have a desire to verify their "self." This desire may emerge as the cry: "Can you see me?"



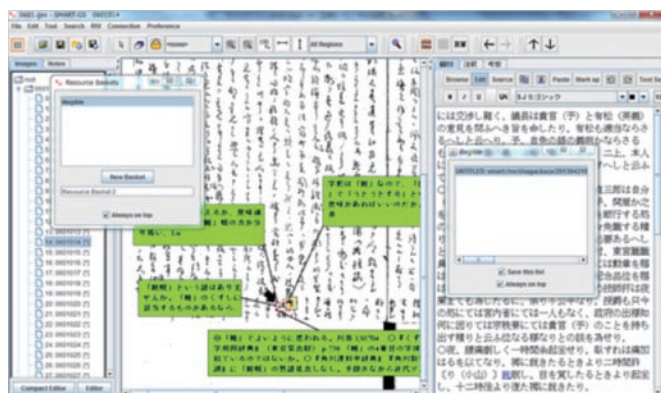
**Kazushige Shingu, MD** Professor, Graduate School of Human and Environmental Studies  
[www.h.kyoto-u.ac.jp/staff/111\\_shingu\\_k\\_0\\_e.html](http://www.h.kyoto-u.ac.jp/staff/111_shingu_k_0_e.html)





## Reading and Publishing One of the Longest Diaries in the World

### Deciphering the Diaries of Yuzaburo Kuratomi using SMART-GS.



A web page of SMART-GS

Yuzaburo Kuratomi (1853-1948) was a bureaucrat-politician during the Meiji, Taisho, and early Showa eras. He began his career at the Ministry of Justice in 1879. After his service in Korea in 1907-1913, he became the comptroller general of the Imperial Household in 1916. He was nominated as Chairman of the Privy Council in 1926, and held that office until 1934. Like the English politician Samuel Pepys, Kuratomi is famous for the detailed diaries he kept from 1919-1947. The diaries have become a valuable historical resource documenting the political and social life of the Imperial Household of Japan at that time, and reveals many inside stories about both the Imperial Household and the Privy

Council. However, due to his illegible handwriting and the enormous volume of his writing, it has been difficult for even professional researchers to read the diaries. To facilitate this task, my colleagues and I are transcribing the diaries. Sections of the diaries spanning 1919-1924 have already been published in three volumes, and further portion, spanning 1919-1934, will soon be published by Kokusho Kankokai Inc.

The task of deciphering Kuratomi's handwriting has been made a great deal easier by SMART-GS, a new ICT tool developed by Prof. Susumu Hayashi of the Department of Humanistic Informatics of Kyoto University's Graduate School of Letters. SMART-GS is a tool designed to support philological and historical research, which has proven indispensable in converting historical documents to digital images. SMART-GS has three distinctive features.

1) It binds digitized documents with relevant translations, annotations, bibliographical information, explanatory notes, and other forms of text data. 2) It marks up selected areas of both digital images and attached text, and establishes links between the marked-up elements. 3) It offers management functions for mark-ups and links, and displays the relation between linked elements in the form of diagram.

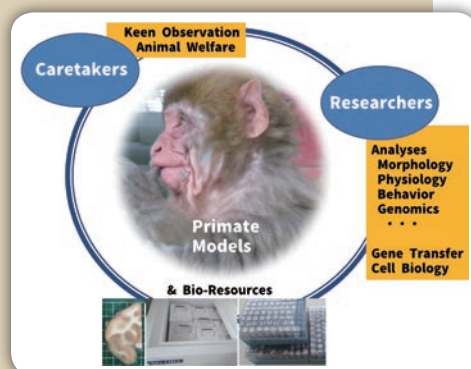
**From the Editor** SMART-GS can be downloaded from <http://sourceforge.jp/projects/smart-gs/releases/>. The English manual is also available on <http://smart-gs.sourceforge.jp/manual/en/index.html> (SMART-GS 0.8, 0.9 Manual)

**Kazu Nagai, PhD** Professor, Graduate School of Letters  
[kyouindb.iimc.kyoto-u.ac.jp/e/bZ5sG](mailto:kyouindb.iimc.kyoto-u.ac.jp/e/bZ5sG)



## Research into Japanese Monkeys at the Primate Research Institute

Monkeys are common animals in Japan, often appearing in popular folk-tales. In the 1950s, Dr. Kinji Imanishi and his colleagues at Kyoto University began modern biological studies on the Japanese monkey (*Macaca fuscata*). Kyoto University's Primate Research Institute keeps over 700 Japanese monkeys. The monkeys are kept in open enclosures, retaining their original regional groups and genetic diversity, as well as in group and individual cages. The Japanese monkey continues to be an important subject in various fields of research, such as neuroscience, cognitive science, morphology, genetics, ecology, and conservation science. We are cooperating with other researchers and caretakers at the institute to develop primate models and bio-resources (skeletal and tissue specimens, cells, and DNA).



**Author: Takao Oishi, PhD** Associate Professor, Primate Research Institute **WEB** [www.pri.kyoto-u.ac.jp](http://www.pri.kyoto-u.ac.jp)



## INT'L MKTG The Competitive Advantage of *Omotenashi* in the Global Market

*How Japanese firms attain market leadership overseas by leveraging their uniqueness.*

*Omotenashi* is a defining characteristic of many Japanese firms. Although it is difficult to translate the word into English, it can be roughly defined as “the spirit of selfless hospitality.” Japan’s service culture of *omotenashi* is internationally praised for its thoughtfulness, dedication to the needs of customers, and meticulous attention to detail. However, since *omotenashi* is deeply rooted in traditional Japanese values and ways of thinking, it has been very difficult to replicate outside Japan. My research explores how companies can leverage *omotenashi* in the global market to attain market leadership. I am examining the issue both from the perspective of the provider (i.e., successful Japanese firms leveraging *omotenashi* overseas) and the market (i.e. the attitude of local people toward *omotenashi*). The objective of this research is to construct a new model for company globalization.



**Satoko Suzuki, DBA** Senior Lecturer, Graduate School of Management  
kyouindb.iime.kyoto-u.ac.jp/e/dS5fT



PHOTO: Shiseido Co., Ltd.

## ART HIST The Sculptors of Buddha

*Fresh insight into the sculptors of Buddha Statues.*

For approximately thirty years, I have been studying the sculptors of Buddha statues (called *Busshi* in Japanese). In Japan, Buddhist sculpture began in the late 7<sup>th</sup> century, and produced such acclaimed sculptors such as Jōchō (-1057) and Unkei (-1223). My research seeks to elucidate the achievements and contemporary social position of the sculptors.



**From the Editor** For his book based on this research, Dr. Nedachi was awarded the Kokka Prize from Asahi Shimbun.

**Kensuke Nedachi, PhD** Professor, Graduate School of Letters  
www.bun.kyoto-u.ac.jp/ (Japanese only)



A statue of Amitabha Tathagata (*Amida Nyorai*). This sculpture was originally used as a teaching resource.

## JPN-HIST Should *Tsurezuregusa* be Classified as Edo Literature?

*New insight into Japanese cultural history.*



*Tsurezuregusa* (Copyright 1998, Kyoto University Library)

In Japanese cultural history, it is generally considered that the literary classic *Genji Monogatari* (*The Tale of Genji*) was written in the Heian period (11<sup>th</sup> century), and that the essay *Tsurezuregusa* (*Essays in Idleness*) dates from the Kamakura period (14<sup>th</sup> century). Until the Edo period (17<sup>th</sup> century), however, their readership was largely limited to a small number of aristocrats and clergy, and they were not widely read or well known by the general public. As the lives of ordinary people in villages and towns stabilized, and the works became more widely read, rather than focus on the book’s passages about the impermanence of life, the readers of *Tsurezuregusa* tended to quote the monk Kenko’s admonitions to refrain from heavy drinking, choose the right friends, and disregard superstitions when lecturing their children. This is an example of the way in which readers interpret the contents of books

from the perspective of their times, regardless of the intentions of the authors.

By utilizing books found in old storehouses in villages and towns, and investigating references to books in readers’ diaries, I am trying to reconstruct Japanese cultural history from the perspective of ordinary people, rather than the perspective of great authors and thinkers.



**Fuyuhiko Yokota, PhD** Professor, Graduate School of Letters  
kyouindb.iime.kyoto-u.ac.jp/e/nB2zO

## JPN-ARCHEOL **Mysterious Inventory, *Shizai-cho* !**

*Archaeological research on documents of history and property concerning ancient Buddhist temples.*

Do you keep the packing material for your furniture once you have moved into a new house? Your answer to this question is most likely “no”, but some ancient Buddhist temples would answer in the affirmative. Certain temple inventories reveal that the packing materials for Buddhist statues were stored even after the statues had been moved. Archaeological research has provided a key to solving this mystery: the temples were obliged to move to new sites in Nara several times; therefore, the packing materials had to be retained. I have analyzed the *Shizai-cho*, the documents of history and property in ancient Buddhist temples, from an archaeological perspective. My studies encompass everything owned by the ancient temples – including their facilities, property, and equipment – and clarify the effectiveness with which they utilized those resources, both financially and religiously. The re-use of packing materials is only one detail of the vivid lives led in ancient Buddhist temples, as discovered by me in the pages of the *Shizai-cho*.



Mahito Uehara, *Kodaijin no shisan to keiei* (Tokyo: Suiren sha, Co., Ltd., 2014)

**Mahito Uehara, MA**

Professor, Graduate School of Letters  
kyouindb.iimc.kyoto-u.ac.jp/e/uI5yM



## JPN-LIT **Elucidation of the Source and Work Process of Literature**

*Research on the source and work process of modern Japanese literature: Kyoka Izumi, Ryunosuke Akutagawa, Hisao Jyuran, and Rohan Koda.*

I am engaged in research tracing the work process of literature, identifying the sources used by authors in their writing. One particular area of focus is the relationship between Japanese and Chinese classical literature and modern Japanese literature. I am interested in the themes of fantasy literature and first-person stories. I have also written an annotation for Kanagaki Robun's "*Takahashi oden yasha monogatari*."



**Chisato Suda, MA** Professor, Graduate School of Human and Environmental Studies

[www.h.kyoto-u.ac.jp/staff/242\\_suda\\_c\\_0\\_j.html](http://www.h.kyoto-u.ac.jp/staff/242_suda_c_0_j.html)



A page of Kyoka Izumi's *Kyoka Senshu*, designed by Settai Komura (1915)



A page of Kyoka Izumi's *Syakuyaku no uta*, designed by Settai Komura (1919)

## HIST OF ARCH **Anti-Global Investigation of Historic Heritages**

*Dig up local historic buildings, and elucidate their historical and social significance.*



A unique Shinto shrine building in Hyogo prefecture.

In Japan, over 4000 historic buildings are designated as Important Cultural Properties (ICP). Such designated buildings are generally regarded as important resources in the study of Japanese culture; however, they only tell part of the story when it comes to Japan's religious and regional history. Many historic buildings with the potential to be important historical materials still remain uninvestigated, and for this reason I have been investigating non-designated historic buildings in the Hyogo and Shiga prefectures. In the course of my work I have encountered a large number of Buddhist temples and Shinto shrines with previously unknown regional characteristics. Through their studies, my colleagues and I have clarified the process of change in religious power from the medieval period to early modern times, revealed that certain buildings were utilized by multiple religions, and made other important discoveries.

Through our work, rather than seeking to expand Japan's roster of World Heritage Sites, we are seeking to elucidate diverse regional histories.

**Tsuneto Yamagishi, PhD** Professor, Graduate School of Engineering

[www.art.kyoto-u.ac.jp/en/information/laboratory/history?set\\_language=en](http://www.art.kyoto-u.ac.jp/en/information/laboratory/history?set_language=en)



## MANAGEMENT Reactions for Innovation

### *Creating Legitimacy for Resource Mobilization.*

How is innovation realized? To address this question, I have carried out a five-year joint research project with my former colleagues at the Institute of Innovation Research, Hitotsubashi University. Innovation requires resources to transform new ideas into commercial goods, which can then be marketed and diffused throughout society. Yet the process of innovation always contains an element of uncertainty, and there is no *ex-ante* objective consensus that a new idea will ultimately succeed. How, then, can innovators mobilize the necessary resources? My research examined the process of innovation in Japanese firms, drawing on twenty-three case studies of Okochi Memorial Prize winners. The study empirically and theoretically identified three possible routes that innovators could explore to create legitimacy for resource mobilization without objective prospects.

Three Routes for Creative Legitimization						
Routes for creative legitimization		Increase the number of supporters				Increase the amount of resources mobilized per supporter
		Given reason		Work on reason		
		Increase # of potential supporters reached	Increase probability of supporters emerging	Increase probability of supporters emerging	Decrease uniqueness of reasons	
Route One	Wider exploration	●				
	Selective exploration		●			
Route Two	Combine reasons			●		
	Change the reason				●	
Route Three	Seek for influencers					●



**From the Editor** The book based on this research, *Reasons for Innovation: Creating Legitimacy for Resource Mobilization* by A. Takeishi, Y. Aoshima, and M. Karube (Tokyo: Yuhikaku Publishing Co., Ltd., 2012), won the 2012 Nikkei Prize for Excellent Books in Economic Science.

**Akira Takeishi, PhD** Professor, Graduate School of Economics

[www.econ.kyoto-u.ac.jp/~takeishi/](http://www.econ.kyoto-u.ac.jp/~takeishi/)

## PHILOSOPHY Philosophizing with the Kyoto School

### *Facing the facts about the “theory of the body.”*

According to Prof. Mayuko Uehara, editor in chief of the *Journal of Japanese Philosophy* (SUNY Press), studies of Japanese philosophy have become progressively globalized in recent years. Prof. Uehara has been receiving many reports about international research activities to revitalize Japanese philosophy. Among those research activities, the philosophy of the Kyoto School seems to be the most influential for non-Japanese scholars. Against this background of interest in the Kyoto School, Prof. Uehara's primary interest is delving into the philosophical problems that the Kyoto School did not thoroughly develop.

One of such problems currently being tackled by Prof. Uehara is that of facial expressions, which have never been an object of philosophy. Nishida Kitarō, founder of the Kyoto school, formed an original “theory of the body.” Prof. Uehara has been taking a great deal of interest in the “face,” which is at the core of human existence—in other words, the most sophisticated expressive agency of human existence. Based on the Nishida's theory of body, Prof. Uehara aims to examine facial “expressions”—how they appear—to make it clear that this theory does not thoroughly explain the human body or facial expressions, and seek a more complete “theory of body” by considering in detail the complex relationship of individual existence, emotions, and sensibilities.



**Mayuko Uehara, PhD** Professor, Department of Japanese Philosophy, Graduate School of Letters

[kyouindb.iimc.kyoto-u.ac.jp/e/cR8bI](mailto:kyouindb.iimc.kyoto-u.ac.jp/e/cR8bI)



Kitarō Nishida with staffs and students around 1913 [K. Nishida, *Nishida Kitarō Zenshu*, Vol.14, (Tokyo: Iwanami Syoten, 1951)]

**The Kyoto School** (Kyōto-gakuha) is the name given to the Japanese philosophical movement centered at Kyoto University that assimilated western philosophy and religious ideas and used them to reformulate religious and moral insights unique to the East Asian cultural tradition. **WEB** [www.kyoto-gakuha.info](http://www.kyoto-gakuha.info) (The Kyoto School Archive)

**Nishida Kitarō** was the most significant and influential Japanese philosopher of the twentieth-century. (from the WEB site “stanford encyclopedia of philosophy,” <http://plato.stanford.edu/entries/nishida-kitaro/>)



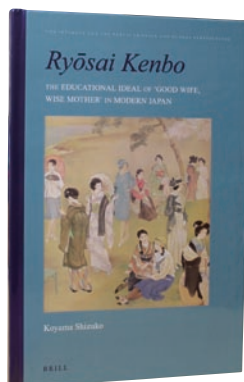
Kitarō Nishida (1870-1945)

THIS ARTICLE'S  
KEY WORDS



## EDU-HIST Exploring Japanese Education History from the Perspective of Gender

*How coeducation in secondary schools was implemented.*



Are coeducational schools or single-sex schools preferable for secondary education? This is a theme that continues to be fervently discussed. After World War II, many Japanese secondary schools shifted from single-sex education to coeducation, which resulted in three types of secondary schools: boy's schools, girl's schools, and coeducational schools. Through exploring Japanese education history, the issues discussed at that time, and the ways in which coeducation was implemented, I am undertaking a study into the nature of gender equality in education.

**From the Editor** Dr. Koyama's book *Ryōsai Kenbo : The Educational Ideal of 'Good Wife, Wise Mother' in Modern Japan* (Leiden: Brill, 2012) was awarded the 2013 Choice Outstanding Academic Title Award by American Library Association.

**Shizuko Koyama, PhD**

*Professor, Institute for Liberal Arts and Sciences*  
[www.pedagogy.jinkan.kyoto-u.ac.jp/](http://www.pedagogy.jinkan.kyoto-u.ac.jp/) (Japanese only)



## EVOL-BIOL Common in Japan, Special to the World

*The uniqueness and diversity of a Japanese frog.*

One of the characteristics of Japan's natural environment is the abundance of water springs. Various animals have evolved to adapt to this aquatic environment, resulting in unique species found only in Japan. One example is Tago's brown frog, which is being studied by Dr. Koshiro Eto. Generally called "common frogs," brown frogs are the most well-known frog group and are found widely in the northern hemisphere. Most of them live in still water, such as ponds. However, Tago's brown frog differs from others of the same genus as it breeds in the unique water spring environment.

According to my research, it is only in Japan that this unique ecological character has evolved from the ordinary still water species. Tago's brown frog is a common species, abundant in Japanese mountains, but it is actually quite a remarkable expression of Japan's unique natural environment.

**Koshiro Eto, PhD** *Researcher, The Kyoto University Museum*

[zoo.zool.kyoto-u.ac.jp/herp/MATSUI\\_LAB/Eto/EtoHP\\_Eng.html](http://zoo.zool.kyoto-u.ac.jp/herp/MATSUI_LAB/Eto/EtoHP_Eng.html)



Tago's brown frog bred in a water spring, with a tadpole on the lower right.



## CONTEMP-CULT Harmful Rumors in the Area of the Fukushima Nuclear Accident

*Discrimination caused by the public's lack of understanding regarding radiation risks.*



A poster for the movie *Godzilla* (Toho Co., Ltd., 1954)

The monster Godzilla was born as a consequence of hydrogen bomb testing at Bikini Atoll. The film is an example of what Prof. Sugimoto calls "radiation-induced transformation tales."



Having witnessed the nuclear disaster at Tokyo Electric Power Co's Fukushima nuclear power plant in 2011, I produced a paper titled *The Desire for Radiation-Induced Transformation Tales*. The paper asserts that the Japanese public's fears concerning radiation (radiophobia) date back to national memories of the atomic bombings in Hiroshima and Nagasaki, and have been fueled by movies and TV dramas enjoyed as entertainment. It also describes how the resulting superficial knowledge of radiation concerns has led to discrimination against Fukushima and the other affected areas.

**Yoshihiko Sugimoto, MA**

*Professor, Graduate School of Letters*  
[kyouindb.iimc.kyoto-u.ac.jp/e/nA9eJ](http://kyouindb.iimc.kyoto-u.ac.jp/e/nA9eJ)



**From the Editor** Dr. Sugimoto's study, *The Desire for Radiation-Induced Transformation Tales*, is scheduled for publication in English.



## PRIMATOLOGY Too Old for Her Age

*Premature aging in a Japanese monkey.*

Progeroid syndromes are a series of syndromes in humans, which cause the extraordinary early onset and rapid progress of aging-like bodily changes. In Kyoto University's Primate Research Institute, my colleagues and I suspected that an infant female Japanese monkey, nicknamed *Shiwako* (meaning "the girl with wrinkles") was suffering from this syndrome due to her unusual appearance. Upon examining *Shiwako*, we found several symptoms which are common to progeroid patients, such as certain physical characteristics (e.g. bilateral cataracts), metabolic disorders (e.g. an elevated level of hemoglobin A1c



*Shiwako* and a MRI image of her head

[HbA1c]), and cellular features (e.g. deoxyribonucleic acid [DNA] repair deficiency). However, a genetic analysis found no notable mutation in the known progeroid-related genes. We are engaged in further analyses to elucidate the cause of her phenotype. It is anticipated that these studies will shed light on both the mechanism of normal aging and on that of progeroid syndromes.



**Takao Oishi, PhD** Associate Professor, Primate Research Institute  
kyouindb.iimc.kyoto-u.ac.jp/e/gI9wX

## POMOLOGY The Sexuality of Persimmon Trees

*Fruitful discoveries in the orchard.*

Although most plants have both male and female sex organs in the same individual, approximately 5 percent of plant species have separate sexes. This characteristic is called dioecy. The sex determination systems of most dioecious plants resemble the mammalian XY system, but the gene responsible for determining the sex of plants has been a long-standing mystery. We found an unusual gene called OGI (meaning "male tree" in Japanese) in male persimmon trees (*Diospyros*). Unlike most genes, OGI encodes a very small piece of RNA (ribonucleic acid) that acts as "molecular scissors," cutting down the expression of another gene called MeGI (meaning "female tree" in Japanese). Discovery of the OGI–MeGI system for sex determination in persimmons is anticipated to contribute not only to our understanding of the evolution of the plant dioecious system, but also to the development of practical orchard applications.



Different types of persimmons being grown in the orchard (See the column)



**From the Editor** Dr. Tao had been elected as the board of the International Society for Horticultural Science (ISHS) on 16 August 2014. He is the first board member from Japan since the organization's establishment.

**Ryutaro Tao, PhD (left) and Takashi Akagi, PhD**

Associate Professor and Assistant Professor, Laboratory of Pomology, Graduate School of Agriculture  
www.pomology.kais.kyoto-u.ac.jp



## The Kyoto Farmstead of the Experimental Farm

The Kyoto Farmstead of the Experimental Farm, a Kyoto University facility located in Kitashirakawa, Kyoto, was established in 1924, around the same time as the university's Faculty of Agriculture. The Kyoto Farmstead is used exclusively for research, in contrast to the university's other experimental farm, located in Takatsuki, Osaka, which is used also for student education in farm practice. Orchards at the Kyoto Farmstead are managed by the Laboratory of Pomology, and comprise a variety of fruit and nut trees, including persimmon (*Diospyros kaki*), Japanese apricot (*Prunus mume*), and peach (*P. persica*). Notably, a collection of over 170 persimmon accessions and cultivars has brought the Kyoto Farmstead reputé as one of the most valuable persimmon germplasm stations in the world.



**Author: Hisayo Yamane, PhD**

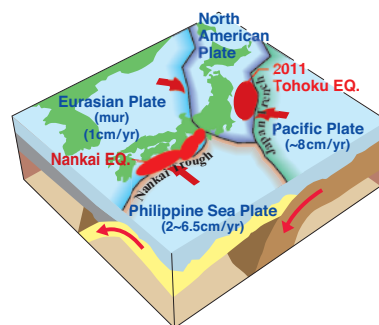
Senior Lecturer, Laboratory of Pomology, Graduate School of Agriculture

**WEB** [www.pomology.kais.kyoto-u.ac.jp](http://www.pomology.kais.kyoto-u.ac.jp) (Japanese only)

## SEISMOLOGY Earthquake Cycle Simulation

*Computer simulation of past and future earthquakes.*

Two oceanic plates are subducting at a rate of several centimeters per year beneath northeast and southwest Japan (see illustration). Due to friction, some parts of these plate interfaces can stick together for a hundred years or more. When such plates suddenly slip, it can produce earthquakes of magnitude eight or more, causing severely destructive ground shaking and tsunamis, such as the 2011 Tohoku earthquake and tsunami disaster. Such iterative stick-slip processes are called “earthquake cycles.” I am engaged in studies using a supercomputer-constructed model of the Japanese islands



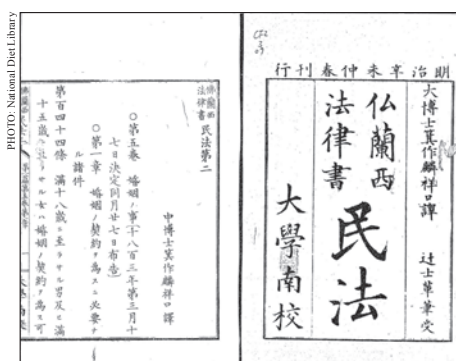
which simulates such earthquake cycles based on a laboratory-derived friction law to reproduce the occurrence of historical severe earthquakes in order to predict the occurrence of earthquakes in the future. My work is particularly concerned with the impending Nankai earthquake in southwest Japan, which is anticipated to occur in the first half of this century.



**Kazuro Hirahara, PhD** *Professor, Graduate School of Science*  
[www-seis.kugi.kyoto-u.ac.jp/~hirahara/](http://www-seis.kugi.kyoto-u.ac.jp/~hirahara/) (Japanese only)

## HIS LAW Law as a Basis of Modernization in Japan

*The History of Japanese Law directly reflects the transformation of Modern Japan.*



The translation of French civil codes by Mitsukuri Rinsyo in 1874 was an important beginning to the reformation of modern Japanese law.

In the latter half of the 19<sup>th</sup> century, Japan experienced a fundamental change, which is generally equated with modernization. The Meiji government sought to catch up with Western powers as quickly as possible, and various changes occurred at a breathtaking pace. Japanese laws also underwent a tremendous transformation. By introducing Western legal systems and concepts, and adjusting them to the indigenous legal order, Japanese law was totally reorganized by the end of the 19<sup>th</sup> century and served as a key basis for modernization. However, once established, the legal order was not immune to further change. Industrialization, globalization, and cultural development all urged legal responses. My research investigates the development of Japanese law, which directly reflects the history of modern Japan.

**Takao Ito, LL.D.**

*Professor, Graduate School of Law / Director of the Kyoto University Archives*  
[kyouindb.iimc.kyoto-u.ac.jp/e/IK8uE#](http://kyouindb.iimc.kyoto-u.ac.jp/e/IK8uE#)

## Center for Informatics in East Asian Studies, Institute for Research in Humanities, Kyoto University



Situated amid a quiet residential area the Institute is praised both within and outside Japan for its elegant, tasteful marble white building as a symbolic seat for Sinological studies. The building was complete in November 1930 as a research facility of the Kyoto Institute, the Academy of Oriental Culture (the antecedent of the present-day Department of Oriental Studies). Its construction was commissioned to Goichi Takeda, professor of architecture, Kyoto University, who was also in the position of the manager of the Construction and Maintenance Section of the

## SOCIAL Studies of Popular Culture

*Reading Japanese society from changes in popular culture.*

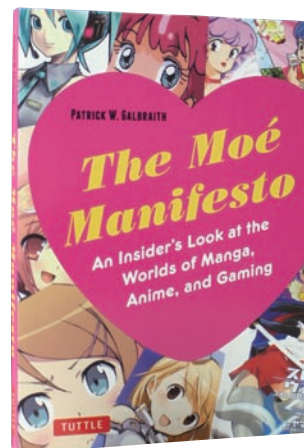
I am studying pre- and postwar gender structure, sexuality, media, and politics in Japan by analyzing popular culture from the perspective of cultural sociology and gender research. The number of young scholars who have developed an interest in studying Japanese culture due to an encounter with the country's popular culture is currently increasing. I hope that popular culture will provide a starting point for more

people to further their interest and understanding of Japanese traditional culture, history, thought, and social issues.

**From the Editor** Dr. Ito was interviewed in the book *The Moé Manifesto* by P. W. Garbraith (2014) as one of the founders of "men's study" in Japan.

**Prof. Kimio Ito** *Professor, Graduate School of Letters*

[www.gcoe-intimacy.jp/staticpages/index.php/ito\\_en](http://www.gcoe-intimacy.jp/staticpages/index.php/ito_en)



## JPN-LIT The Charm of Japanese Studies

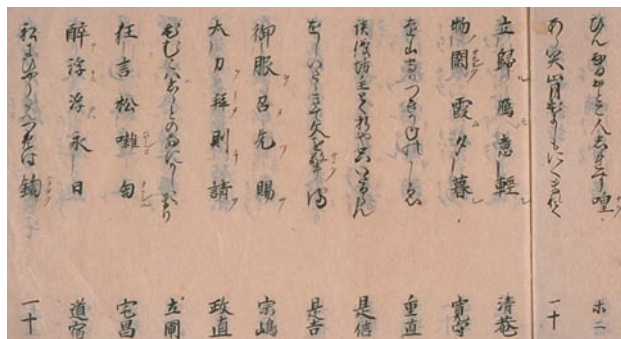
*Haiku research from a global perspective.*

My field of study is early modern Japanese literature with a focus on the haiku genre of poetry. The study of haiku is based on the accumulation of past research. For example, the discovery of new documents leads to additional bibliographic research that deepens our knowledge. Past research also includes the study of haiku theory. As a field of Japanese studies, haiku research is undertaken by scholars of diverse nationalities. By comparing haiku to other short forms of poetry around the world, researchers can gain an understanding of haiku from the wider perspective of global literature. Such research could lead to a new, previously

overlooked perspective on haiku. This unconventional approach to the study of Japanese literature provides a meaningful new angle. Although haiku is a well-known subject of study within Japanese literature, it is granted an additional meaning when viewed from a global perspective. I believe that this is where the true charm of Japanese studies can be found.

**Mariko Mori, MA** *Professor, The International Center*

[www.ryugaku.kyoto-u.ac.jp/en](http://www.ryugaku.kyoto-u.ac.jp/en)



*Kanna renku* (Copyright 2002, Kyoto University Library)

university. Then Kenzo Tohata, one of graduate school students under the professor, designed the building. The exterior is in the Romanesque style, which was suggested by Kosaku Hamada, then professor at the Faculty of Literature (later the President of Kyoto University). The architectural style is the one called the Spanish mission style, which models Spanish cloisters and is highly reputed as one of the prominent works that commemorates the closing of Japanese modern architecture. The tower structure contains archives on its second to fourth floors of three-layer steel-frame construction. The tower itself is a stairwell and designed to be bright with the outside light allowed in through glass panes fitted into the ceiling and floor boards. The adjacent research buildings are arranged to surround the courtyard like a gallery. The whole facility was designated one of the registered tangible cultural properties of the Agency for Cultural Affairs in 2000.

**WEB** [www.zinbun.kyoto-u.ac.jp/e/institute/access-institute/access\\_e.htm#b](http://www.zinbun.kyoto-u.ac.jp/e/institute/access-institute/access_e.htm#b)

**Painter: Kiyoko Yamaguchi, PhD** *Alumnae of Kyoto University*

[kiyoko-yamaguchi.com/](http://kiyoko-yamaguchi.com/)





## ARCHAEO What is the Agricultural Society?

*Analyzing the transition of pottery styles in the Japanese islands.*

Today, people can't live without domestic foods. Domestic foods represent the characteristics of contemporary agricultural society. Since the beginning of agriculture up until the present day, humans have been developing food-producing economies. I am interested in how such economies began. In the Japanese islands, pottery was first produced approximately 12,000 years ago by foragers in the Jomon period. After the introduction of rice paddy cultivation from the Korean peninsula approximately 3,000 years ago, pottery styles dramatically changed as farmers in the Yayoi period made new forms of pottery, such as rice cookers, storage pots, etc. I am studying the formation process of the agricultural society by analyzing the transition of pottery styles. I hope that my studies will clarify the first step in the establishment of the nation.



**Yusuke Senoo** *Researcher, The Kyoto University Museum*

[www.museum.kyoto-u.ac.jp/index\\_e.htm](http://www.museum.kyoto-u.ac.jp/index_e.htm) (The Kyoto University Museum)

**Forager's pottery style**  
: for boiling meat, fish, and nuts



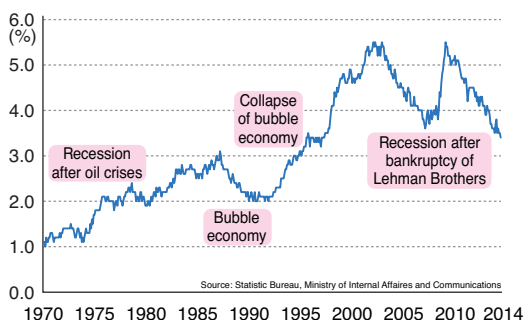
**Big Change!**

**Farmer's pottery style**  
: for rice cooking



## JPN ECON HIST Improving the Employment Situation in Japan

*Pursuing the ideal of fulfilling employment for all.*



Historical data: Japan's unemployment rate  
(Seasonally adjusted series)

My research focuses on a historically-based analysis of the responses of economic agents such as the government, firms, and workers to ever-changing economic factors, such as fluctuations in growth, the decline of industries, and the turbulent international situation. I am particularly interested in the employment adjustment processes of postwar Japan, which were conducted both inside and outside the labor market. Until the 1980s, Japan had been largely successful in controlling its unemployment problem. Since the 1990s, however, as Japan faces such difficulties as an aging population combined with a low birth rate and global competition, unemployment levels have increased and working conditions have deteriorated. This is reflected in the casualization of employment and the lowering of

wages. Through my research I have sought to highlight these issues and illustrate possible ways for Japan to achieve a more harmonious balance between different domestic labor groups, and also in the international community.

**Junko Watanabe, PhD** *Professor, Graduate School of Economics* [www.econ.kyoto-u.ac.jp/economic\\_history/staff.html](http://www.econ.kyoto-u.ac.jp/economic_history/staff.html)

## JPN HIST Why Were Samurai Governments Established?

*Exploring their history from the late Heian period to the early Kamakura period (11–13<sup>th</sup> century).*

Why were samurai (warrior) governments established in Japan? This is the question that I have been exploring in my research. Through this research, I seek to reveal certain historical characteristics of Japan, the only East Asian country in which samurai governments were formed. From the perspective of historical science, I have been elucidating the question by studying the cloister government, the Taira clan government, the Genpei War (a conflict between the Taira and Minamoto clans), the establishment of the Kamakura shogunate, and the literary *Tale of Heike*.

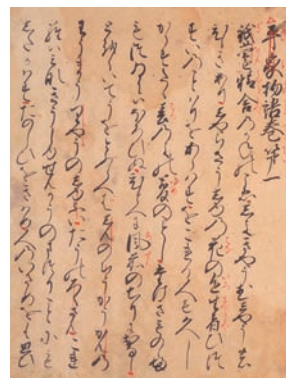


**From the Editor** In 2003, Dr. Motoki and his coauthors were awarded the 57<sup>th</sup> Mainichi Publishing Culture Award (Social Sciences and Humanities Division) by Mainichi Newspapers Co., Ltd. for their work based this research.

**Yasuo Motoki, PhD**

*Professor, Graduate School of Human and Environmental Studies*

[www.h.kyoto-u.ac.jp/staff/241\\_motoki\\_y\\_0\\_e.html](http://www.h.kyoto-u.ac.jp/staff/241_motoki_y_0_e.html)



*Tale of Heike* (Copyright 1998, Kyoto University Library)



## HIST Exploring Ancient Temples

*Significant changes in Japanese society after the arrival of Buddhism.*



Bunhwangsa, a Buddhist temple in Korea. Buddhism was introduced to Japan from Korea.

I am engaged in research on ancient Japanese history, with ancient temples being a particular recent interest. In the two to three-hundred years after the arrival of Buddhism in Japan, society in archipelago underwent an enormous change: Buddhist temples were constructed, religious associations were established in villages, and imperial authority became more reliant on Buddhism. I am engaged in tracing the history of such changes through examining historical documents, cultural property, and archeological remains. I feel that my work is indispensable in understanding fundamental aspects of Japanese culture.

**Shinji Yoshikawa, PhD**

*Professor, Graduate school of letters  
kyouindb.iimc.kyoto-u.ac.jp/e/sQ1uV*



## ART TOSA RIMPA

*Creating a new form of artwork combining Japanese culture and information technology.*

It has been said that the 21<sup>st</sup> century will be an era that goes beyond logic. I am engaged in research to create a new form of artwork combining Japanese culture and information technology. Endeavoring to add a modern dimension to the four-hundred-year-old tradition of the Rimpa school (one of the major historical schools of Japanese painting), I have developed a new *tarashikomi* (marbling) technique by applying sound vibrations to liquid to produce unique naturally-formed patterns. I have successfully applied this technique to create distinctive new artworks using advanced technology.



**From the Editor** TOSA RIMPA, Dr. Tosa's art book (featuring text in English), will be published in April 2015 by Tankosha Publishing Co., Ltd., Kyoto.

**Naoko Tosa, PhD** *Professor, Academic Center for Computing and Media Studies* [www.naokotosa.com](http://www.naokotosa.com)



## RIMPA Meets Projection Mapping



The Rimpa School is characterized by colorful designs using gold or silver, which showcase Japanese life and culture. It is found in different formats, such as paintings and folding screens, and is acknowledged as an important school of painting in the history of Japanese art. The year 2015 marks the school's 400<sup>th</sup> anniversary, and various commemorative events are scheduled to be held around Kyoto throughout the year. As one commemorative event, the Kyoto National Museum held an art projection mapping event titled "The Legendary Fujin and Raijin in the 21<sup>st</sup> Century" on March 12–15, 2015 (Fujin and Raijin are the Japanese gods of Wind and Thunder). The event was produced by Prof. Naoko Tosa and her colleagues from Kyoto University's Academic Center for Computing and Media Studies. Prof. Tosa created a projection mapping installation for the event by combining the Japanese traditional arts of *ikebana* (flower arrangement) and *kyogen* (a form of theatrical performance) using her techniques of visual art and technology. Under the theme of "tradition and innovation," the installation sought to provide a glimpse into the future of the Rimpa School. The installation was created in collaboration with Mr. Ryuho Sasaoka, headmaster of the *Misho-ryu Sasaoka* School of *ikebana* and Mr. Ippei Shigeyama, a *kyogen* performer, both of whom share Prof. Tosa's keen appreciation of Japanese cultural beauty.



**WEB** [www.kyohaku.go.jp/jp/oshirase/post\\_35.html](http://www.kyohaku.go.jp/jp/oshirase/post_35.html)

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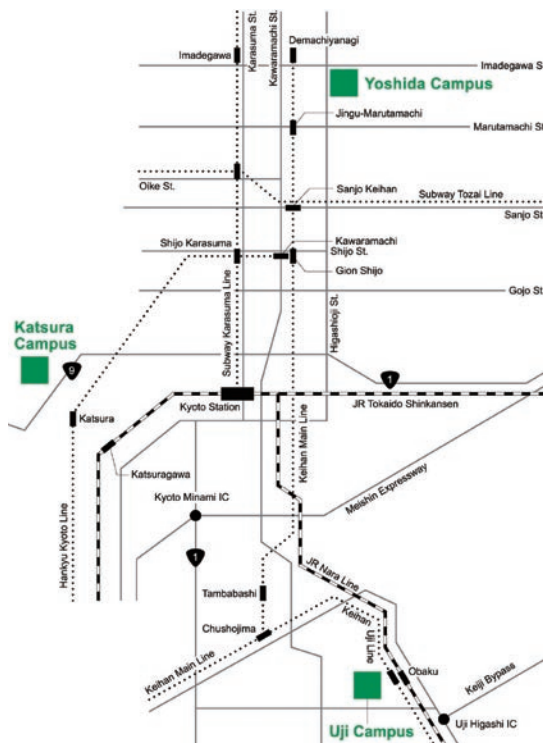
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