



# JSPS QUARTERLY

JAPAN SOCIETY FOR THE PROMOTION OF SCIENCE

## FEATURE

Ceremony Held to Celebrate  
10<sup>th</sup> Anniversary of JSPS Beijing Office



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On 3 November, a ceremony was held to celebrate the 10-year mark of the JSPS Beijing Office's operation, which broke ribbon in 2007. Venued at the China Hall of Science and Technology, this landmark event was attended by the representatives of agencies and organizations involved in scientific exchange between China and Japan.

Participants on the Japanese side included Mr. Yutaka Yokoi, Ambassador Extraordinary and Plenipotentiary of Japan to China, and JSPS president Dr. Yuichiro Anzai. On the Chinese side, they included Mr. Weizhou Cao, vice-chairman of the Foreign



Mr. Yutaka Yokoi Dr. Yuichiro Anzai

Affairs Committee, National People's Congress; Dr. Xiaoping Jiang, director, Division of Asian and African Affairs, Ministry of Science and Technology; Dr. Congqiang Liu, vice president of National Natural Science Foundation of China; Dr. Yin Li, deputy director-general, Bureau of International Cooperation, Chinese Academy of Sciences; and Ms. Yingxiang Liu, director, Asian & African Division, Bureau of International Cooperation, Chinese Academy of Social Sciences. They were joined by some 350 university administrators and faculty along with members of the JSPS Fellow Alumni Association in China.



Dr. Congqiang Liu Dr. Yin Li

Moderated by JSPS Beijing Office deputy director Ms. Akiko Fujita, the ceremony began with remarks by Dr. Anzai, who revisited the history of bilateral cooperation between JSPS and China, while extending a message of appreciation to all those who

have advanced that exchange over the years. His remarks were followed by congratulatory messages from Ambassador Yokoi, Dr. Congqiang Liu, and Dr. Yin Li.

A keynote address was delivered by Prof. Tomiyoshi Haruyama, deputy director, Kavli Institute for the Physics and Mathematics of the Universe (Kavli IPMU) at the University of Tokyo, who talked to an attentive audience about the cutting-edge science being advanced at the institute under Japan's World Premier International Research Center Initiative (WPI Program). 2017 also being the

10-year anniversary of Kavli IPMU, Prof. Haruyama gave examples to describe the institute's milestone accomplishments to date, while looking ahead to new vistas of knowledge creation over a horizon of 20 even 100 years.



Prof. Tomiyoshi Haruyama

Changing venues, a banquet was held that evening. It began with a toast and remarks delivered by Prof. Qinglin Wang, deputy director-general, Department of International Affairs, China Association for Science and Technology (CAST). Then, Mr. Hideyuki Yamaguchi (head, JSPS Overseas Fellowship Division), who was JSPS's chief representative in the initial phase of the Beijing Office's operation, shared rekindled memories of the Office's early days, while extending his thanks to those at the banquet who were so helpful in getting the Office up and running. Next, Dr. Yucang Zhang, dean, College of Materials and Chemical Engineering, Hainan University, offered congratulatory remarks as a representative of the alumni association. The curtain was drawn on this hugely successful event with closing remarks by JSPS Beijing Office director Dr. Kaoru Hirota.



This ceremony was officially recognized by Japan's Ministry of Foreign Affairs as commemorating the 45<sup>th</sup> anniversary of the normalization of diplomatic relations between Japan and China and the 40<sup>th</sup> anniversary of the conclusion of the Treaty of Peace and Friendship between Japan and China.

Please visit the following website for more information about the JSPS Beijing Office (in Japanese and Chinese)  
<http://www.jsps.org.cn/jspsbj/site/indexjp.jsp>

JSPS Beijing Office

## Thoughts on 10<sup>th</sup> Anniversary of Beijing Office

Dr. Kaoru Hirota  
Director of JSPS Beijing Office



I assumed the directorship of the JSPS Beijing Office in April 2015. Right away I was faced with the big task of moving the office to a new location in the city's university district. Having opened the new office and gone through the rigmarole of registering it, our team of six (me, three Japanese and two local Chinese staffs) now has its operation running in high gear. On 3 November, the office held a ceremony to celebrate its 10<sup>th</sup> anniversary at the China Hall of Science and Technology. JSPS president Dr. Yuichiro Anzai attended this grand event along with about 350 distinguished guests and associates.

Today's China is brimming with the same kind of vitality that Japan had in the early 1980s, when Ezra Vogel's *Japan as Number One* was in vogue. Having experienced rapid economic growth, China now boasts a top level of global expertise across a wide spectrum of fields. In fact, one gets the feeling that when China sets its mind to doing something, it will persist until it's accomplished; snags along the way only mean making adjustments. Such results can be seen in the near completion of its high-speed rail network and freeway system, its use of renewable solar and wind energy, its leadership in the utilization of electric cars, its large investment in AI, robotics, and network infrastructure, and in its human-resource development efforts, featuring its "Thousand Talents Program" for fostering and securing innovative talents, entrepreneurs, young professionals, and overseas experts. It can be surprising to see how China is able to create businesses out of things that initially defy prediction, such as the boom spawned in bicycle sharing among so many other interesting innovations.

Beijing Institute of Technology is located near the JSPS office. I take part in its Thousand Talents Program for Foreign Experts, which gives me frequent opportunities to give lectures in various seminars on my research interests including AI and robotics. Through these experiences, I witness with my own eyes China's bustling vitality. Mindful of the sentiment "Persevere! Beautiful country, Japan," I dedicate myself to carrying out JSPS's programs of collegial friendship and exchange here in China.



Our team at the Beijing Office

## NSFC-CAS-JSPS Joint Symposium Held in Beijing



On 3 November, a symposium jointly organized by the National Natural Science Foundation of China (NSFC), Chinese Academy of Sciences (CAS), and JSPS was held on the title "International Workshop on Frontier of Science and Technology 2017" at the China Hall of Science and Technology. This was the fifth time for this trilateral symposium to be held since it was launched in 2013. Held in parallel with the "5<sup>th</sup> International Workshop on Advanced Computational Intelligence and Intelligent Informatics" (2-5 November), the joint symposium attracted the participation of about 180 researchers.

The opening ceremony began with a message by JSPS Beijing Office director Dr. Kaoru Hirota, followed by remarks from Prof. Teng Long, president assistant, School of Information and Electronics, Beijing Institute of Technology; Mr. Yongtao Zhang, director, NSFC Division of Asia, Africa & International Organization; and Mr. Shizhuan Zhang, director, CAS Division of Asian & African Affairs. Then, Dr. Yuichiro Anzai, president of JSPS, and Prof. Yaping Dai, vice councillor of Beijing Association of Automation, delivered messages in which they extended appreciation to all involved in organizing the symposium.



Dr. Osamu Hasegawa

A keynote lecture session was held on the theme "Advanced Computational Intelligence and Intelligent Informatics." In it, eleven lectures were given, five by Japanese and six by Chinese researchers. The contents of the Japanese researchers' lectures are noted below.

In the morning session, lectures were given by Dr. Osamu Hasegawa and Dr. Isao Ono, both associate professors at Tokyo Institute of Technology. Dr. Hasegawa spoke on the subject of software with AI functions, while Dr. Ono's lecture introduced an algorithm for quasi-optimal solution to complex optimization problems used in designing the cars of Japan's bullet train.

In the afternoon session, the lectures were given by Dr. Hisao Ishibuchi, chair professor, Southern University of Science and Technology, Dr. Kazuhiko Kawamoto, associate professor, Chiba University, and Dr. Isao Hayashi, professor, Kansai University. Dr. Ishibuchi spoke on the advent of evolutionary multiobjective optimization, Dr. Kawamoto on computer-aided analysis of camera images, and Dr. Hayashi on *shinayakana* (flexible) decision-making using computers.



Dr. Hisao Ishibuchi

As the curtain closed on the symposium it opened on the Beijing Office's 10<sup>th</sup> Anniversary Ceremony. Later, the symposium participants attended a reception, where they enjoyed exchanging views and strengthening collegial and friendship ties with each other.



# Commemorative Symposium for the International Prize for Biology

On 5-6 December, a symposium was held to commemorate the awarding of the 33<sup>rd</sup> International Prize for Biology. Cosponsored by JSPS and the University of Tsukuba, the symposium, themed “Marine Biology Opens a Frontier for the Future,” was venues at the Tsukuba International Congress Center in Ibaraki Prefecture. Each of the 20 researchers who spoke at the event rang an alarm bell with regard to the large impact that bacteria and plankton which inhabit the oceans have on ecosystems and the global environment. Their speeches contained compelling forecasts about future environmental conditions and societal ramifications.



Dr. Colwell

This annual symposium commemorates the contributions that the late Emperor Showa and present Emperor Akihito have over long years made to the advancement of biological sciences. Established in 1985, the International Prize for Biology features an award ceremony and parallel symposium in a selected field of biology. This year’s Prize was dedicated to “Marine Biology,” the recipient of which

was Dr. Rita Rossi Colwell, Distinguished University Professor, University of Maryland, College Park, in the United States.

The first day of the symposium was devoted to specialists in fields of marine biology. At it, eleven frontline researchers introduced their latest research results on themes of microorganisms, bacteria and ecosystems. One of them spoke about Coccolithophores, a group of phytoplankton, which has of late been greatly proliferating in the world’s oceans. Calling Coccolithophore the “world’s second lung,” the researcher talked about the haste being made to unlock its mystery-shrouded ecology. Another researcher who has studied areas of the ocean with high concentrations of carbon dioxide,



reported on the effects of ocean acidification on ecosystems. The researchers pointed out that strategies currently being carried out internationally to reduce global warming gases are insufficient to remedy this problem.

The day’s proceedings ended with a commemorative lecture by Dr. Colwell, who talked about a few of her seminal achievements, including her discovery of a marine bacterium that while remaining viable cannot be cultured. Telling about her field work in Bangladesh with the same tone of excitement as when she was actually doing it, Dr. Colwell captivated the audience. By filtering water through a sari (a garment draped over the shoulders), she found that the number of cholera bacteria in the water could be cut in half, greatly reducing cholera infection among the people. She concluded her talk with a quote from her much-admired naturalist John Muir: “When one tugs at a single thing in nature, he finds it hitched to the rest of the universe.”

Mixing with members of the general public on the second day, Dr. Colwell introduced them to her research accomplishments, describing from easy-to-understand vantage points marine microorganisms and ecosystems—engendering a spirited session of questions and answers. Over the two very fruitful days of this symposium, the audience of both specialists and laypersons were gripped by Dr. Colwell’s passion as she described the immense impact that organisms invisible to the naked eye have on we humans. They were touched by the warmth she exuded when describing the people who live in environments where researchers do their fieldwork.

For information about the International Prize for Biology, please see the following website:

<http://www.jspss.go.jp/english/e-biol/index.html>

International Policy Planning Division

## Profile of Dr. Colwell

Dr. Rita Rossi Colwell was born in 1934. Since 2004 she has served as Distinguished University Professor both at the University of Maryland, College Park and at Johns Hopkins Bloomberg School of Public Health. Dr. Colwell introduced new approaches for identifying and classifying marine bacteria and established the taxonomy of vibrios, which include *Vibrio cholerae*. Based on her ecological studies of marine bacteria, she proposed that as a key

survival strategy, vibrio cells can enter a state in which they remain viable but cannot be cultured. This concept has had a profound influence on microbiology and medicine. Noting that vibrios are expanding their habitat range due to global warming, she showed the connection of this phenomenon to the wider occurrence of cholera. She has won high acclaim also for her efforts toward cholera prevention in developing countries.

# JSPS-Net, Expanded Social Networking Service for Researchers



In January 2017, JSPS launched a social networking service for researchers, called “JSPS-Net,” to support the creation of a network of Japanese researchers working overseas and to facilitate new collaborations within a worldwide researcher community. It also provides a communication infrastructure that facilitates interaction with researchers around the world who have participated in JSPS programs, thus advancing international joint research and collaboration. As of the end of December 2017, more than 900 researchers from 65 countries had registered in JSPS-Net. Recently added to the network is a service for matching early-career researchers with host researchers, among other new offerings.

The following three are JSPS-Net’s main functions.

## Friend connection

Registered members can access other members using such criteria as research fields or geographical areas. “Friend requests” can be made and contacts established between members, allowing the easy creation of connections that may develop into fruitful collegial relationships and collaborations in the future.

## Create community

“Groups” can be formed that enable communication among registered members in, for example, the same research field or geographical area. Moreover, this function allows the creation of communities that overarch research fields among researchers of various countries who have worked in Japan. Likewise, it allows the forming of communities among Japanese researchers who are engaged in research work overseas.

## Event page

An “event page” can be created on JSPS-Net, which supports functions entailed in organizing and holding events, such as circulating notices, managing participant lists, and sending out emails.

Two new researcher-focused services were added in the latter half of 2017.

## My Research Life

A “My Research Life” page has been added to give researchers in various fields a platform for talking about their research work and life as a researcher. By enhancing the visibility of the members, this function spurs the pursuance of international exchange. If you would like to introduce yourself and your research over JSPS-Net, please contact us using the below email address.



## Seeking early-career researchers

The aforementioned researcher matching service provides up-to-date information on researchers willing to host early-career researchers. If you have information on researchers in Japan who are willing to host postdoc researchers from other countries or on overseas researchers who are willing to host young Japanese researchers, please contact us at the below email address. If you are a young Japanese or overseas researcher looking for a host in the counterpart country, you may also use this service.

Through JSPS-Net, JSPS will continue working to advance the establishment of communication networks and communities that support aspiring young researchers while cultivating researcher interaction in ways that ensure sustainable advancement of future research.

Contact JSPS-Net staff at [jspss-net@jspss.go.jp](mailto:jspss-net@jspss.go.jp)

Register for JSPS-Net membership at <https://www.jspss-net.jspss.go.jp/>  
JSPS Fellows Plaza

## “JARC-Net” and “Find Nearby Fellows”

In addition to JSPS-Net, JSPS provides two more online services: “JARC-NET” (Japan-Affiliated Research Community Network) and “Find Nearby Fellows”.

JARC-Net is a database of registered researchers and experts who are interested in conducting collaborations between Japan and other countries. By registering, you will be able to browse other members’ profiles in search of partners.  
URL: <https://www.jspss.go.jp/english/e-affiliated/index.html>

“Find Nearby Fellows” is a website used by mostly JSPS international fellows to find other fellows who are doing research at nearby host institutions or who have similar research fields. Young researchers in other countries may also find this service useful in their search for a host, as it can connect them with researchers in Japan who have experience hosting JSPS fellows.  
URL: [http://www.jspss.go.jp/english/e-plaza/03\\_find\\_n\\_fellows.html](http://www.jspss.go.jp/english/e-plaza/03_find_n_fellows.html)



Webpage of “Find Nearby Fellows”

## Japanese-German Colloquium Held on Equal Participation and Diversity

On 30 November and 1 December, the 14<sup>th</sup> Japanese-German Colloquium was held in Berlin under the cosponsorship of the JSPS Bonn Office and the Japanese-German Center Berlin (JDZB) with the cooperation of Friedrich-Ebert-Stiftung (FES). This year, Korean experts were added to the discussion on gender policies and issues in each of the three countries.



Prof. Dr. Michiko Mae ©JDZB

An open symposium on the theme “Democracy without Equality?” was held on the first day. It began with remarks by JSPS Bonn Office director Prof. Dr. Keiichi Kodaira and representatives of Japanese and German sponsoring organizations coupled with an introduction by Prof. Dr. Michiko Mae, Heinrich Heine University Düsseldorf. They were followed by three sessions

on topics of 1) Gender policies in Japan, Germany and Korea; 2) Equal participation, diversity, and work in a global economy; and 3) Future vistas of equal participation and diversity. The event attracted an audience of more than 100 people.

On the second day, a closed colloquium was held on “Equal Participation and Diversity,” featuring a vigorous discussion on the theme among experts from the three countries. Three sessions were also held: “Innovative political approaches towards gender equality and diversity,” “Participation and new forms of securing work and family life,” and “Paths towards participatory societies.”



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The discussions advanced in them featured reports and concrete examples of the current situation of gender equality and diversity in each country.

The discussions in the colloquium were cross-disciplinary as they addressed matters of equal gender participation from various angles including women in executive and management positions, women’s work styles, work-life balance, men’s work styles, among other topics. It was confirmed through these discussions that issues of equal gender participation are still challenges to be overcome in Germany, Japan and Korea. It is expected that this colloquium, which assembled some 40 participants, will be a catalyst to further trilateral academic exchange on this theme of gender equality and diversity.

JSPS Bonn Office

## Joint UK-Japan Symposium on Medical Imaging and Artificial Intelligence



On 23 January, the Academy of Medical Sciences (AMS) and JSPS jointly organized a one-day symposium on medical imaging and artificial intelligence (AI). It brought together experts in areas of medical imaging and artificial intelligence in a discussion on merging

the two domains in new ways that can lead to groundbreaking advances in healthcare. The event provided a platform for spawning collaboration in this endeavor between the UK and Japan. It also provided a good opportunity to reflect on regulatory and ethical considerations involved in effectively moving forward research on such AI technologies.

Co-chairing the event were Prof. David Hawkes FMedSci, University College London, and Prof. Kensaku Mori, Nagoya University, who opened the symposium with messages of anticipation for a stimulating conversation on how AI-enhanced medical imaging can change the landscape of healthcare delivery—a conversation that they hoped would also strengthen collegial ties and working relationships between UK- and Japan-based scientists.

The meeting was attended by over 70 delegates, including academics, industry executives, and healthcare professionals. The speakers covered a range of topics, including the application of artificial intelligence to medical imaging, the use of machine learning in assisted medical procedures and in mental health prediction, and advances in quantitative neuroradiology. At the heart of all the talks

was a desire to improve patient care and treatment outcomes.

The symposium concluded with a vibrant panel discussion on thought-evoking topics, including how scientific results can be translated into clinical solutions, the roles of academia and industry in the development of related AI technologies, and the future of healthcare—how it will be delivered and the skills that future healthcare workers will need to be able to interact with AI systems.

The symposium was followed by a reception, graciously hosted by the Japanese Ambassador to the UK, who spoke expectantly about the high potential for collaboration between the UK and Japan in forging landmark transitions in healthcare science and treatment, saying that he looked forward to the reception being an incubator for such vigorous networking between the two countries.



For more information on the activities of the JSPS London Office, please see the following website: <http://www.jps.org/news/>

JSPS London Office

## JANET Forum Held in Freiburg, Germany



Prof. Dr. Hans-Jochen Schiewer

On 23 November, “JANET Forum 2017” was held by Nagoya University and University of Freiburg with support from JSPS’s four liaison offices in Europe. It was venues at the University of Freiburg.

Established in November 2015, JANET (Japan Academic Network in Europe) is a network headquartered in Europe which has as its objective the creation of linkage and collaboration among Japanese universities and research institutions conducting activities in European countries along with the advancement of information sharing and exchange among them. Ultimately, JANET seeks through this process to elevate the presence of its member institutions within Europe. This second JANET Forum was attended by representatives from 15 Japanese member institutions and seven European universities and scientific organizations. Altogether, more than 70 people participated in the event.

It started with messages from University of Freiburg rector Prof. Dr. Hans-Jochen Schiewer and Nagoya University president Prof. Dr. Seiichi Matsuo, followed by congratulatory remarks from the Forum’s honorary guest, Dr. Hans-Georg Wolf of the Ministry of Baden-Wuerttemberg for Sciences, Research and the Arts. Then, the participating universities



introduced examples to illustrate themes upon which panel discussions were held. These themes included student mobility, joint degrees, research collaboration, research and teaching cooperation in the Upper Rhine region, and research funding. The panel discussions sparked volleys of questions and a spirited give-and-take of views with members of the audience.

Having received an invitation from Dr. Marie-Pierre Favre, vice-president for International Affairs at the National Institute of Applied Sciences of Lyon (INSA-Lyon), the next JANET Forum is scheduled to be held in Lyon, France in November 2018. It will be co-organized with Tohoku University.

### JANET Workshop Held in Alsace, France

Following the Forum, representatives of JANET-member institutions relocated to the European Center for Japanese Studies in Alsace (CEEJA), where they participated in a 2-day workshop held to facilitate exchange among heads of the overseas centers of Japanese institutions, whose international development the event sought to advance. The workshop was planned and carried out collaboratively by JSPS’s liaison offices in Strasbourg and Bonn. Its 34 participants engaged in active discussions in two working sessions, one on the information-exchange activities of the



overseas centers and the other on the centers’ initiatives to promote international collaboration. The workshop acted to tighten a close relationship among the participants, which will pay dividends later in accelerating collaboration among the JANET institutions and their European centers.

JSPS Bonn Office and JSPS Strasbourg Office

JANET Member Institutions	Member Institutions with Offices/Bases in Europe	Country	City
Hokkaido University	•	Finland	Helsinki
		Russia	Moscow
Tohoku University	•	Russia	Novosibirsk
		France	Lyon
		Sweden	Stockholm
University of Tsukuba	•	Germany	Bonn
		France	Bordeaux
		Germany	Berlin
Chiba University	•	Russia	Moscow
		Finland	Seinäjoki
Tokyo University of Agriculture and Technology	•	Germany	Bonn
Tokyo Institute of Technology			
SOKENDAI (Graduate University for Advanced Studies)			
Niigata University			
Shinshu University	•	France	Villeneuve d’Ascq
Nagoya University	•	Germany	Freiburg
Nagoya Institute of Technology	•	Germany	Erlangen
Kyoto University	•	Germany	Heidelberg
Osaka University	•	Netherlands	Groningen
		Belgium	Brussel
Kobe University	•	Poland	Kraków
Nara Institute of Science and Technology	•	France	Toulouse

JANET Member Institutions	Member Institutions with Offices/Bases in Europe	Country	City
Okayama University		Germany	Saarbrücken
Hiroshima University	•	Russia	Tomsk
		Lithuania	Kaunas
Kyushu University	•	Germany	Munich
Kumamoto University			
Keio University	•	UK	London
Sophia University	•	Germany	Cologne
		Luxembourg	Esch-Belval
Tokai University	•	Denmark	Vedbaek
Waseda University	•	Belgium	Brussels
Ritsumeikan University	•	UK	London
National Institutes for the Humanities (NIHU)			
National Institutes of Natural Sciences (NINS)	•	Germany	Bonn
The Japan Cultural Institute in Cologne (The Japan Foundation)	•	Germany	Cologne
		Germany	Bonn
Japan Society for the Promotion of Science (JSPS)	•	UK	London
		Sweden	Solna
		France	Strasbourg

Total 28 Member Institutions

## Japan-US Science Forum Held in Boston

This Japan-US Science Forum was held on 18 November at Harvard University in Cambridge, Massachusetts. Co-sponsored with JSPS by the Consulate-General of Japan in Boston and supported by “United Japanese researchers Around the world” (UJA), the event attracted some 160 participants who included researchers from universities and research institutes in the US and Japan along with interested members of the public.

Themed “Food Science for the Future: Health, Supply and Culture,” the forum opened with welcoming remarks from Dr. Kohji Hirata, director, JSPS Washington Office, followed by Mr. Rokuichiro Michii, Consul General of Japan in Boston, Prof. Takao K. Hensch, Harvard University, and Prof. Mark C. Elliott, vice provost, Harvard University. They touched upon their relationships with Japan and the special importance of the theme of this year’s forum.



Dr. Kohji Hirata

Then, forum moderator Dr. Kenneth Oye, MIT professor of political science, opened a set of oral sessions by giving an overview of their topics. Keynote lectures were given from a variety of food-science perspectives, including agricultural technologies, chemical contamination, diet and obesity, and Japan’s unique culinary culture of *washoku*. Throughout the sessions, the speakers delivered talks that triggered probing questions and spawned lively discussions.

Next, a panel discussion was held on the theme “Policy Challenge in Food,” which delved into such pressing issues as sustainable food supply amidst a growing global population and food requirements for enhancing health and longevity in rapidly aging society. A poster session also on the theme of “Food” saw the best presentations win the “JSPS Washington Director Award” and “Consul General of Japan Award.”



Through activities like this forum, the JSPS Washington Office will continue to provide opportunities to forge researcher network and promote research collaboration between Japan and the United States.

Please see the Washington Office’s website for more information about its activities and initiatives:

<http://jpsusa.org/wp/activities-in-short/>

JSPS Washington Office

## Winter Researcher Gathering in the US



On 3 February, the JSPS San Francisco Office held its 2018 Winter Researcher Gathering at the David Brower Center in Berkeley. This biannual gathering provides an opportunity for Japanese researchers to expand their networks while sharing their research. Participants also swap views on differences between research in the US and Japan.

JSPS fellows, Japanese researchers (both residing in and visiting the US), and higher education administrators attended both the event and an evening networking session. In total, 66 individuals participated in the day’s activities. In addition, nine JSPS fellowship alumni working as principle investigators in projects here in the US came to the reception.

UC Berkeley Professor Hitoshi Murayama (Department of Physics and Center for Japanese Studies) delivered an engaging keynote presentation on the birth of the universe and how its evolution and future are being studied. He also introduced the Kavli Institute for the Physics and Mathematics of the Universe (of which he is the founding director) at the University of Tokyo, and the part that the Institute plays in the Japanese government’s World Premier International Research Center Initiative (WPI Program), which supports world-class research centers while raising the global visibility of research in Japan.

Prof. Murayama also brought the audience up to speed on the latest research being advanced on gravitational waves, astronomy and the nature of the universe. He expertly broke down these knotty topics into language easy-to-understand for people in



the audience who were not theoretical physicists. So informed, they eagerly participated in a lively question and answer session.

At the networking reception, which followed a keynote lecture, Japanese researchers and JSPS fellowship alumni mingled, talking with each other about their research and their life and activities in the international academic world. At the end of the day, the event had proven to be an ideal opportunity to reconnect with old friends and make new acquaintances.

JSPS Washington Office director Dr. Kohji Hirata and San Francisco Office director Dr. Toru Tamiya used this event as an opportunity to present Prof. Eishi Asano of Wayne State University School of Medicine (Departments of Pediatrics and Neurology) and Prof. Shoichiro Ono of Emory University (Department of Pathology and Laboratory Medicine) with the JSPS Bridge Award.

This Award, newly established by JSPS’s two offices in the US, recognizes researchers from Japan who are working at institutions in the US, actively promoting internationalization within the broader research community, and mentoring the next generation of Japanese researchers.

JSPS San Francisco will hold its next Researcher Gathering this summer in Berkeley.

For more information about the JSPS San Francisco Office, please visit the following website: <http://www.jpsusa-sf.org/>

JSPS San Francisco Office



## Cairo: A Joint Symposium with Alexander von Humboldt Foundation



The second day saw two sessions themed “Biotechnology” and “Climate Change.” The invitation of distinguished researchers from various countries to address the two themes bespoke the unique character of the symposium. A “junior scientist session” was also held, which featured presentations by young researchers who were selected through a rigorous vetting process. Those

The JSPS Cairo Research Station joined forces with the Alexander von Humboldt Foundation (AvH) to hold a 3-day joint symposium starting on 24 October. Themed “Science & Science Management for Sustainable Development,” it was venues at Egypt’s National Research Centre (NRC) in Cairo. It attracted more than 200 participants and featured presentations by not only researchers from Egypt, Germany and Japan but also from Italy, Jordan, Lebanon, Morocco and Tunisia. Coming from Japan to participate in this richly international symposium were three professors and two members of JSPS’s Tokyo headquarters, including International Program Department director Dr. Mariko Kobayashi.

In the opening session on the first day of the symposium, remarks were delivered by representatives of Egyptian research-funding agencies, Japanese and German embassies, and the National Research Centre, followed by AvH and JSPS representatives giving briefings on their organizations’ programs, research funding, and joint research activities. The proceedings were moderated by the chair of the JSPS Alumni Association in Egypt (JSPSAAE) and the Egypt representative of AvH. The holding of this symposium was made possible by Egyptian researchers who had received research funding from JSPS and AvH. They reported on the activities being advanced by the Egyptian alumni association.

young researchers who were excellent but regrettably not chosen to give presentations reported their research in a poster session, giving them a valuable opportunity to dialogue with researchers from other countries. The young researchers also enjoyed receiving briefings from the Egypt-Japan University of Science and Technology (E-JUST), which conducts cooperative activities with Japan, and from German University in Cairo on the first day on the event.

On the third day, a “Science Management and Networking Workshop” was held along with a panel discussion on “Impact of AvH and JSPS foundations on the Egyptian scientific landscape and prospects for trilateral scientific collaboration.” In carrying them out, a strong sense of allegiance was felt among AvH, JSPS and JSPSAAE as was a strong spirit of enthusiasm to carry forward networking by the young researchers. When it comes to “science management,” it was agreed that research will need to be pursued from the individual, organizational, international joint, and industry-academia-government research levels. That is, the discussion revealed that new avenues and modalities of research will need to be explored in this domain.

For information on the JSPS Cairo Research Station, please visit its website: <http://jspscairo.com/en/>

JSPS Cairo Research Station



## Chinese Alumni Association Holds General Assembly



On 11 November, the JSPS Fellow Alumni Association in China held its 2017 General Assembly and an attendant science symposium. They were venues at the Dacheng Jinshe Hotel in Guiyang city.

The General Assembly kicked off with remarks from Alumni Association deputy chair Prof. Zuobing Fan and JSPS Beijing Office director Dr. Kaoru Hirota. Then, research reports were given by alumni members selected to participate in JSPS’s BRIDGE Fellowship Program. Using slides, Prof. Biao Yang, chair of the alumni association’s Shanghai Branch, reported on his collaborative activities and research results while revisiting Japan under the BRIDGE program.

Held in the afternoon, the science symposium was moderated by the Association’s deputy chair Prof. Xiaopeng Wen. Lectures were delivered by one Japanese and one Chinese researcher. Then, Dr. Takashi Sakurai, director, Administration Office, Earth-Life Science Institute, Tokyo Institute of Technology, gave a lecture

on solar fluctuations and their effect on the Earth’s environment. He was followed by Prof. Qiang Zheng, vice president, Zhejiang University, who spoke about the present state of higher education in China and its future prospects, drawing upon his own wealth of experience in the education system. Attracting an audience of about 200 people, the symposium offered a fruitful experience for all.



Prof. Zuobing Fan

The General Assembly and symposium brought together alumni members from far and wide across China, hailing from a wide variety of institutions and research fields. It gave them both a rare and valuable opportunity to meet and exchange views with each other. Throughout these events, the alumni spent not only a purposeful but also a very exhilarating time together.

Established in November 2011 to contribute to the advancement of scientific exchange between China and Japan, the JSPS Fellow Alumni Association has a growing membership, currently standing at about 1,300 members. This makes it the largest scale JSPS alumni association in the world. The JSPS Beijing Office plans new initiatives to support the activities of the alumni association, to which it encourages the members to take full advantage.

Please visit the following website for more information about the JSPS Fellow Alumni Association in China (in Japanese and Chinese): <http://www.jspss.org.cn/jspssbj/site/txhjp/clzzjp.htm>

JSPS Beijing Office



## JSPS Korea Fellows Alumni Association Holds Science Workshop



On 18-19 November, the JSPS Korea Fellows Alumni Association (officially titled “Association of the Korea-Japan Researcher Network”) held its third workshop on the specialized campus of Chonbuk National University.

The Association of the Korea-Japan Researcher Network was established by former JSPS Korean fellows in 2008. Currently, the association has a membership of over 500. Since its establishment, the alumni association has held annual meetings, symposiums and other activities. In recent years, the association began holding annual workshops to invigorate research exchange and advance international joint research between Korea and Japan. The theme of this third workshop was “From Well-being to Well-aging,” held to proffer proposals on achieving a “healthy and beautiful middle-aged and senior life.” Lectures were given in related fields from both Korean and Japanese researchers.

The first day of the workshop kicked off with remarks from alumni association chair Dr. Byung Eun Park, professor, University of Seoul, followed by a video message from Dr. Lee Nam-ho, president, Chonbuk National University, and remarks from Mr. Yoichi Abe, first secretary for science and technology, Embassy of Japan. Then, lectures were delivered by three Korean researchers. On the Japanese



Dr. Byung Eun Park

side, Dr. Keiko Katagiri, associate professor, Graduate School of Human Development and Environment, Kobe University, spoke on “Challenges for Japanese seniors in the third age,” while Dr. Fumiharu Togo, associate professor, Graduate School of Education, the University of Tokyo, addressed the subject “Mental and physical health in older adults: sleep and physical activity habits.” Both had been selected to participate in a JSPS-NRF (National Research Foundation of Korea) bilateral joint research project. Dr. Gyoung Hae Han, professor, Seoul National University, and Dr. Hyuntae Park, associate professor, Dong-A University, who are participating in the joint project on the Korean side, commented on the two Japanese lectures. In such ways, the workshop provided a model for advancing international joint research. Later, a briefing was given on JSPS’s program offerings, attended by young researchers, including undergraduate and graduate students. Two alumni members who had revisited Japan under the BRIDGE Fellowship reported on their experiences. This interaction served to promote future research exchange.



Dr. Keiko Katagiri

The theme of the second day’s discussion was “Establishing a Policy for Advancing Research and Exchange between Korea and Japan.” Revisiting their experiences during overseas research visits and drawing upon their international joint research backgrounds, Dr. Katagiri and alumni association vice chair Dr. Nam Myoung Soo, professor, Chungnam National University, gave presentations on future vistas for Japan-Korean research collaboration. After which, an animated exchange of views among the participants drew the curtain on a very fruitful alumni event. With 2018 being the 10-year juncture since the establishment of the Association of the Korea-Japan Researcher Network, a commemorative symposium is scheduled to be held at the University of Seoul in May.

JSPS Fellows Plaza

## New Edition of *Life in Japan* Published



In December, JSPS published a new edition of *Life in Japan*, subtitled “For Foreign Researchers 2018-2019.” It covers a wide range of basic information to help make living in Japan a pleasant and convenient experience for overseas researchers. For that purpose, this handbook provides information on visa and residency procedures, on living accommodations, daily life, and on academic information in Japan, all of which are supplemented by useful references including websites.

The information in *Life in Japan* is reviewed and renewed every two years so as to keep it updated. This handbook is distributed to overseas researchers who come to Japan under JSPS’s Postdoctoral and Invitational Fellowship Programs and its Summer Program. It is

normally sent to newly selected JSPS fellows along with their award letter.

The book comprises six chapters.

- Chapter 1: Procedures for Entry and Residence in Japan
- Chapter 2: Living Accommodations in Japan
- Chapter 3: Daily Life in Japan
- Chapter 4: Other Useful Information
- Chapter 5: Academic Information
- Chapter 6: Japan Society for the Promotion of Science

This 203-page volume can also be accessed on JSPS’s website at the following URL:  
[https://www.jsps.go.jp/english/e-plaza/51\\_lifeInJapan.html](https://www.jsps.go.jp/english/e-plaza/51_lifeInJapan.html)

JSPS Fellows Plaza



## Science Dialogue

### Applying Research in Micronutrients to Global Food Supply

Dr. Munkhtsetseg Tsednee



On 16 January, JSPS postdoctoral fellow Dr. Tsednee gave a Science Dialogue lecture to 22 students at Kumagaya Girls' Upper Secondary School. Dr. Tsednee is currently carrying out her research in the Graduate School of Agricultural and Life Sciences at the University of Tokyo. Themed "Analysis of ribosome mediated regulation of gene expression in response to boron nutritional conditions," Dr. Tsednee's lecture shared her work and dreams as a scientist with a group of zestful female students.

#### Follow your dreams!

Using a series of colorful visuals, Dr. Tsednee started her lecture talking about the exotic Nomadic life in her birth country of Mongolia, where half the population still roams on horseback across vast expanses of meadows. She grew up in an environment blessed with fertile soil at the foot of Altai Mountains. She became intrigued with science when her brother gave a book on Madame Curie for her 17<sup>th</sup> birthday. She told the students that the book continues to serve as a reminder of how she got motivated to become a scientist.

As a researcher in the field of micronutrients, Dr. Tsednee's goal is to improve the global food supply, which needs to increase by 70% to adequately feed an anticipated world population of 9.2 billion by the year 2050. She said that the growth of plants depends mainly on nutrients in soils and that in most soils nutrient levels are inadequate. This has caused plants to develop by way of evolution

a wide range of mechanisms to adapt to low nutrient conditions. Her research is dedicated to boron, which is among the essential micronutrients of a balanced soil needed for healthy plant growth. She is studying the mechanisms of boron uptake in plants and how gene expression regulates them.

In the Q&A session, a student asked Dr. Tsednee what her toughest experience was en route to becoming a professional scientist. She answered that she had shifted her bachelor's and master's major in chemistry to biology when she entered the doctoral course at Academia Sinica in Taiwan, which made catching up quickly to a PhD level in biology her most challenging task.



Dr. Tsednee has been pursuing her dreams as a researcher for some 20 years since Madame Curie introduced her the world of science. Her final message to the students was for them to follow their own dreams. "Your dreams are bound to lead you along paths that give rich expression to each of your unique talents. But, to make dreams come true, you will need to set and pursue goals."

Overseas Fellowship Division

The following fellows participated in JSPS's Science Dialogue Program during the period from October through December 2017. For details about the program, please see its website: [www.jspss.go.jp/english/e-plaza/e-sdialogue](http://www.jspss.go.jp/english/e-plaza/e-sdialogue)

Venue	Lecturer	Nationality	Venue	Lecturer	Nationality
Hokkaido Kushiro Koryo Senior High School (Hokkaido)	Dr. ADJOU MOUMOUNI, P. F.	Benin	Suwa Seiryō High School (Nagano)	Dr. DE CORTE, D.	Italy
Iwate Prefectural Kamaishi High School	Dr. FEITEN, F. E.	Germany	Gifu Prefectural Kamo Senior High School	Dr. HOSSAIN, M.	Bangladesh
	Dr. ORDINARIO, D. D.	USA	Shizuoka Kita Junior and Senior High School (Shizuoka)	Dr. ABUILLAN, W.	Germany
	Dr. WINDLEY, H. R.	Australia	Shizuoka Prefectural Nirayama High School	Dr. ISLAM, M. N.	Bangladesh
Iwate Prefectural Mizusawa High School	Dr. BAINSLA, L.	India	Tokai University Shizuoka Shoyo Junior & Senior High School (Shizuoka)	Dr. AWASTHI, S.	India
	Dr. PATI, S. P.	India		Dr. DESCHOENMAEKER, F. R.	Belgium
	Dr. VO, C. H.	Vietnam		Dr. GALLO, P.	Italy
Akita Prefectural Yokote High School	Dr. ALAM, M.	Bangladesh	Aichi Prefectural Okazaki High School	Dr. LANDEIRA SANCHEZ, J. M.	Spain
Ibaraki Prefectural Takezono High School	Dr. COELHO QUINTINO, M.	Brazil	Aichi Prefectural Zuiryo High School	Dr. MOSTOFA, M. G.	Bangladesh
	Dr. KIM, J.	Korea		Dr. GALLE HETTI ARACHCHIGE, J. J.	Sri Lanka
	Dr. DASGUPTA, R.	India	Nagoya City Koyo Senior High School (Aichi)	Dr. VODICKA, P.	Czech
Seishin Gakuen High School (Ibaraki)	Dr. PANCHA, I.	India		Dr. UDMALE, P. D.	India
	Dr. PIAO, J.	China	Shiga Prefectural Hikone Higashi High School	Dr. AGUIRRE MARTINEZ, C.	Mexico
	Dr. BASU, M.	India	Osaka Prefectural Hirakata High School		
Tochigi Prefectural Utsunomiya Girls' High School	Dr. CONWAY, C. E.	New Zealand		Dr. KAMRANZAD, B.	Iran
	Dr. COSSU, D.	Italy	Hyogo Prefectural Akashi Kita Senior High School	Dr. CRAIG, G. A.	UK
Chiba Municipal Chiba High School (Chiba)	Dr. WIEDMANN, M. M.	Germany	Hyogo Prefectural Kobe High School		
Chiba Prefectural Sakura High School	Dr. BALOIS, M. C.	Philippines	Nara Prefectural Seisho Junior & Senior High School	Dr. GILMORE, J. L.	USA
Ichikawa Gakuen Ichikawa Junior & Senior High School (Chiba)	Dr. SCIAZKO, A.	Poland		Dr. HE, K.	China
Soka Senior High School (Tokyo)	Dr. ZHANG, G.	China	Tezukayama Junior & Senior High School (Nara)	Dr. MURPHY, M. S.	Ireland
Tokyo Metropolitan High School of Science and Technology	Dr. THANGAVEL, S.	India		Dr. PINCELLA, F.	Italy
Tokyo Metropolitan Tama High School of Science and Technology	Dr. GU, Y.	China	Kagawa Prefectural Takamatsu Sakurai High School	Dr. ASADUZZAMAN, M.	Bangladesh
Fukui Prefectural Fujishima Senior High School	Dr. GOMEZ-CASTRO, D.	Spain	Fukuoka Prefectural Kasumigaoka High School	Dr. MIA, M.	Bangladesh
Fukui Prefectural Takefu High School	Dr. KUMAR, P.	India		Dr. KARIMI, A.	Iran
Yamanashi Prefectural Hikawa High School	Dr. KHAN, S.	UK	Saga Prefectural Tosu Senior High School	Dr. MODIC, D.	Slovenia
Yamanashi Prefectural Kofu Minami High School	Dr. YADAV, I. C.	Nepal		Dr. YOUSUF, B.	India
Yamanashi Prefectural Nirasaki High School	Dr. SAITO, V. M.	Brazil	Miyazaki Prefectural Nobeoka High School	Dr. BERENGER, F. C.	France
Yamanashi Prefectural Tsuru High School	Dr. HUSSAIN, N.	Pakistan			



# Top Global University Project

## Introducing the Participating Schools



## WASEDA University

### Waseda Goes Global: A Plan to Build a Worldwide Academic Network that is Open, Dynamic and Diverse

Since its founding, Waseda University has produced talented individuals to become global leaders in society. Currently, the university is carrying out major reforms across campus under Waseda Vision 150, the strategic plan implemented to celebrate the university's 150<sup>th</sup> anniversary in 2032. The Top Global University (TGU) Project by the Ministry of Education, Culture, Sports, Science and Technology (MEXT) is further accelerating those efforts. The TGU Project's Waseda Goes Global Plan has two pivotal objectives to reach within 10 years: (1) to produce 100,000 global leaders; and (2) to rank among the world's top 100 universities in 18 academic fields.

#### Model units to lead reforms

Seven internationally competitive model units are spearheading the advancement of the university's reforms. These units utilize its networks with top overseas universities, and by establishing international joint supervision programs and recruiting joint appointment faculty members from abroad, Waseda University is able to offer an educational environment at the global standard and provide education and research of the highest excellence with international cohesion.

The seven model units are as follows: (1) Global Japanese Studies; (2) Positive/Empirical Analysis of Political Economy; (3) Health Promotion: The Joy of Sports and Exercise; (4) Frontier of Embodiment Informatics: ICT and Robotics; (5) Energy and Nanomaterials; (6) Multiscale Analysis, Modelling and Simulation; and (7) Global Asia Studies.

#### Propelling international mobility of students and faculty

Waseda is open to receiving students and faculty from other countries and employs measures to attract excellent students on an international level, such as offering degree courses in English, conducting an extensive summer program (currently

Waseda strives to enhance activities in seven research areas, collaborating with high-level universities around the world



covering 13 research fields in seven of the university's departments), and instituting a quarterly semester system. In terms of both the number of students received from overseas and dispatched abroad, Waseda is the number one university in Japan. (Throughout the 2016 academic year, the university received more than 7,000 international students and more than 4,000 students studied abroad.) Furthermore, Waseda has cooperative agreements with 795 institutions in 91 countries and territories, expanding its networks with leading universities to create environments in which Japanese and international students study together.

#### Waseda's standing within world university rankings

Recently, the number of Waseda's subjects within the top 100 of QS World University Rankings has leaped from three to nine: (1) Linguistics; (2) Modern Languages; (3) Mechanical, Aeronautical & Manufacturing Engineering; (4) Mineral & Mining Engineering; (5) Geography; (6) Business & Management Studies; (7) Politics & International Studies; (8) Sociology; and (9) Sports-related subjects.

Overall, Waseda ranks 26<sup>th</sup> internationally and as a private university, ranks 1<sup>st</sup> domestically in the QS Graduate Employability Rankings, highlighting the university's success in educating global leaders.

For more information about Waseda's Top Global University Project, visit the Waseda Goes Global website at <https://www.waseda.jp/inst/sgu/en/>



Dr. Yasuyuki Todo

Professor, Department of Global Political Economy  
Positive/Empirical Analysis of Political Economy Unit

#### Impact of solid networks on economic performance and resilience

It is Waseda University's mission to foster talented people who will contribute to society and excellent researchers who possess the ability to compete within the international arena. As a component of this mission, the Top Global University Project plays an instrumental role in enhancing the university's international competitiveness.

Economic damage caused by natural disasters can propagate to regions not directly affected via global value chains or international production networks, because of a disruption of supplies from directly damaged companies. My research team has examined mechanisms of this propagation and policies to prevent it.

Recently, indirect economic damage can affect even small and micro enterprises in developing countries, many of which are already integrated into global value chains. Indirect damage from foreign disasters imposes a heavier burden on the poor who already suffer from domestic calamities such as droughts and floods. To tackle this problem, my team has initiated collaboration with the Global Facility for Disaster Reduction and Recovery at the World Bank. Our first step was to hold a one-day workshop at the Bank, funded by the Top Global University Project. We are looking forward to this initiative strengthening the poor's resilience to natural disasters in the future.

The aim of the Top Global University Project is to enhance the international compatibility and competitiveness of higher education in Japan. It provides prioritized support for top world-class and highly innovative universities that can lead the internationalization of Japanese universities.

Top Global University Project website: <http://www.jspss.go.jp/english/e-tgu/index.html>



## Nara Institute of Science and Technology (NAIST)

### NAIST Global<sup>3</sup>

NAIST Global<sup>3</sup> is our motto for the Top Global University Project, which we use to (1) establish an international degree program for global leaders, (2) develop a graduate educational model based on a global standard of advanced research, and (3) promote interdisciplinary education on a global campus with culturally diverse students, faculty and staff.

#### Towards the next decade

NAIST is striving to achieve a level of global excellence that advances graduate education in science and technology. Our three graduate schools in areas of information, biological and materials sciences will be merged into an integrated framework in April. Our faculty and staff are working to strengthen NAIST's capacity to advance global activities through international faculty development (FD) and staff development (SD) programs respectively. Our Center for International Students and Scholars (CISS) works to create a global campus for diverse students, faculty and staff.

#### Key achievements

##### • Overseas offices

Two overseas offices (one in Bogor, Indonesia, and the other in Bangkok, Thailand) have been established as a component of our Top Global University Project. Combined with our two satellite laboratories (one in the University of California, Davis, and the other in Université Toulouse III-Paul Sabatier), NAIST boasts a worldwide network to support its international collaboration with partner universities in higher education and research.

##### • One integrated framework

In April, NAIST will establish a new Graduate School of Science and Technology through the merging of its three graduate schools: Graduate School of Information Science, of Biological Sciences, and of Materials Science. This



organizational integration is aimed at creating an education and research structure that is highly responsive to challenges in new and interdisciplinary fields in ways that meet present and future societal demands.

##### • University Education Administrators (UEAs)

UEAs are professional members of NAIST's Institute for Educational Initiatives. They support the systematic development of curriculum, conduct educational coordination with our international partner universities, and provide career support for both international and Japanese students.

##### • English use on campus

Students are able to fulfill all of our degree requirements in either Japanese or English. Furthermore, all documents, from university's standards and regulations to its cafeteria menus, are now available in English.

Please see NAIST's Top Global University official site:

[http://www.naist.jp/sgu/index\\_en.html](http://www.naist.jp/sgu/index_en.html)



Mr. Tsutomu Hashida

Director, Division for Global Education  
Institute for Educational Initiatives (IEI)

NAIST was established in 1991 on the basis of a new concept for graduate education in science and technology, one that works to create an advanced industrial society in Japan. The Institute has a distinct configuration in that it is made up of exclusively graduate schools. It is indeed the youngest and most compact among the national universities selected for the Top Global University Project.

Such features put NAIST in a unique position that enhances its governance and facilitates its internationalization in pragmatic ways. NAIST's institutional architecture creates a complementary balance between our Institute for Educational Initiatives (IEI) and our Institute for Research Initiatives (IRI), the latter having been established under the Program for Promoting the Enhancement of Research Universities funded by the Ministry of Education, Culture,

Sports, Science and Technology. Operated under the leadership of NAIST's president, our Center for Strategy and Planning acts as a nerve center for advancing the internationalization of the Institute's education and research initiatives.

As part of the Top Global University Project, our three graduate schools will be merged into an integrated framework in April so as to advance interdisciplinary education and research that responds effectively to the needs of the times. A new 5-year doctoral degree program is scheduled to be launched for matriculation by both international and Japanese students. Our Center for International Students and Scholars was established in April 2016 to assist international students and researchers in living both productively and comfortably on NAIST's global campus.

## Research and Life in Japan By a JSPS Fellow No. 45

### Dr. Nicola Margaret Gerrett

*“Creating Strategies to Enhance Sweating in Ways that Improve Health”*

JSPS Postdoctoral Fellow, Kobe University, 2016-2018  
Lecturer, University of Worcester, UK, 2012-2016  
Ph.D. (Physiology), Loughborough University, UK, 2012



Dr. Gerrett at her laboratory

*Coming to Japan from the UK, Dr. Nicola Margaret Gerrett is conducting research with her host Dr. Narihiko Kondo at Kobe University under a JSPS Postdoctoral Fellowship. We asked Dr. Gerrett about her research activities and life in Japan.*

**Q: What are you currently researching under your JSPS fellowship?**

My research area is body temperature regulation, focusing specifically on sweat gland function. I have recently been investigating how the sweat glands regulate the amount of ions, such as sodium chloride, lost through sweating. When the sweat glands are stimulated they fill with both water and ions. As the sweat travels through the sweat glands towards the skin surface the water remains inside the gland whilst the ions are reabsorbed back into the neighboring cells. This is called ‘sweat gland ion reabsorption’ and it prevents an excess loss of ions through sweating. Without this mechanism we would lose a substantial amount of salt when we sweat, which could eventually dehydrate the body, strain the cardiovascular system and increase the risk of hyperthermia. This is a relatively neglected area in thermoregulatory research despite the fact that sweating, a unique human physiological function, is essential for keeping body temperature within a safe range.

**Q: Your research subject sounds very interesting. How did you come about choosing it?**



At Loughborough University, UK

I studied Sport and Exercise Science as an undergraduate and master’s student focusing specifically on exercise physiology at Sheffield Hallam University in the UK. I found the topic of temperature regulation a fascinating one as it highlights the limits of human performance, not just in a sporting sense but also in terms of physiological capacity.

I started studying sport science as an undergraduate due to my keen interest in enhancing sports performance but as I continued into my research career I have found that my research interests have changed. I still have some small sideline projects in sports performance but I am particularly keen on aging and helping those with impaired physiological function.

I really enjoy the diversity of my research, as I have been able to conduct research with a diverse population. People seem to really enjoy telling me how much they sweat when they exercise or during the summer!

**Q: Could you elaborate a little more on the work you’re doing?**

I started my current research project focusing on the basics; investigating factors that regulate the sweat glands’ ion reabsorption capacity, such as sex, age, fitness status, skin temperature and different heating protocols (exercise vs. sitting in a hot room). These studies have helped build a bigger picture of sweat glands’ ion reabsorption and have consolidated our measurement techniques. I have since focused my attention to the issue of aging, which causes many physiological functions to deteriorate and sweat gland function is no exception. Japan and many other countries have an aging population, and with the global warming the risk of heat related disorders is likely to increase. However, despite the age-related decline in sweat gland function, there are methods to

attenuate this response. In the final year of my fellowship I am investigating methods to enhance elderly peoples’ ability to sweat and at the same time reduce the ions they lose with exercise training and repeated heat exposure. The technique is known as heat acclimation. I am hoping this strategy will reduce the risk of heat related disorders in elderly individuals.

We have worked with some older individuals. Japan’s older population are amazingly active people, so it has not been difficult to recruit participants. I have one, aged 70, who runs marathons annually and quite often runs from Kobe to Osaka as part of her training. She is inspiring!

**Q: You’re at the mid-point of your JSPS fellowship. What’s been most challenging in your research so far?**

My pilot testing has been the most challenging as I was planning to implement a heat acclimation protocol for elderly individuals. Heat acclimation is a process of exposing individuals to a repeated heat stimulus (1-2 hours per day) for approximately 10 days. Typically you increase one’s core temperature about 1.0°C above their baseline value (usually 37°C) by making them exercise in a hot room (>30°C). Working with such individuals I have to be particularly careful of their safety



and wellbeing. I will always do some self-testing and will experience every aspect of my experiments to ensure I understand how it feels to exercise or sit in hot conditions for extended periods of time. In such situations I try to imagine whether I would allow my parents or grandparents to do such tests! Getting this test started has taken longer than I expected but it is integral part of the scientific process.

**Q: What's your impression of Japan's research environment compared to that of the UK?**

Actually I think it is not that different. Admittedly, Japan's culture is very rich and you can witness its historical tradition in today's modern society even if you never leave the lab! But the research environment is essentially the same and good science is (or at least should be) the same wherever you go; meticulous attention to detail, a keen eye for ensuring accurate and reliable data, and thorough analysis of the data.

Having said that, one of the biggest differences I have found in Japan is the sparsity of female researchers. Whenever we attend conferences, laboratory exchanges or social gatherings I find that I am often the only female. This is challenging but I like to think of my fellowship as both a research and cultural exchange. I see this as an opportunity to show others that females too are capable of a career in science.

**Q: Please give some advice to young researchers who may be thinking about doing research in Japan.**

If you are seeking a challenge then this is it. Japan has this amazing ability to push you out of your comfort zone, broaden your mind and develop your skills in so many ways. Undoubtedly you will have a fantastic opportunity to work with intelligent hard working scientists and have access to modern technology, but it's the personal development that may be something you won't get to experience anywhere else.

In terms of scientific advice, I would recommend developing a good relationship with your potential supervisor before applying or coming to Japan. Email and Skype are useful for this purpose. Also, seek out international conferences that you both might attend. I would recommend thoroughly

discussing your research ideas and ensure that you both agree on the topics you plan to study. Japanese culture can prevent even the hardest of professors from saying what they really feel in order to 'save face.'

*Dr. Gerrett greeted us warmly despite her busy involvement in an international conference she was attending. In our interview with her, we were impressed by the care with which she treats the elderly Japanese people who assist her as subjects in her "heat acclimation" experiment, which exposes them to various heated conditions. That she meticulously self-tests everything in advance bespeaks how she thinks of them as her own parents or grandparents. We join Japan's elderly in wishing her the utmost success in her important work to improve sweat gland function and related health in the aging.*



Dr. Gerrett's host Dr. Kondo at a conference

## Kobe: Sandwiched between mountains, land, and sea

Kobe is a beautiful vibrant place: It combines a modern, cosmopolitan city with the beautiful mountain ranges of Rokko and Osaka Bay. One of the things I enjoy most about living in Kobe is how quickly I can access the mountains from my apartment. There are so many great hiking routes and some spectacular views of Kobe and Osaka. If it's a clear day, you can also see all the way to Wakayama and Awaji Island.

Mount Maya is the second highest peak (698m) of the Rokko mountain ranges and whilst you



Hiking in the Rokko Mountains

can take a cable car to the top I much prefer the challenge of hiking up, enjoying lunch and then taking the cable car back down. Mount Maya is known for offering one of the best night views in Japan. Unfortunately, I have attempted to see this twice but struck out with the weather. I hope that before I leave I will get the opportunity to see it, minus the clouds!

The highest peak is Rokkosan-Saikoho, at 931m. There too is the option of a cable car to take you to the top but you will miss the opportunity of seeing some spectacular waterfalls on the way up and a large dam. After hiking up, more fantastic views await, which can be enjoyed from the botanical garden or a number of cafes and restaurants. If you are feeling energetic you can continue hiking to Arima Onsen to soak your tired legs. It is also possible to hike to Arima Onsen via Ashiya Rock Garden, a little further east of Kobe city centre. I really enjoy hiking here, as you need to scramble and climb over many rocks and boulders which jut out from the trees. On the



weekends, you can see many people enjoying the views and taking a well-earned rest on these protruding rocks.



Night view from Mount Maya



#### The Earth

Floating through the expanses of space, this island Earth hosts a vast ecosystem of living organisms which not only populate its surface but live as deep as 10 km below and as high as 100 km above it.

Source: NASA

## About JSPS

The Japan Society for the Promotion of Science (JSPS) operates as an independent administrative institution to perform the following main functions: fund scientific research, foster researchers, promote international scientific exchange, and advance university reform.

## Crowing Rooster



From days of old in Japan, it has been the belief that the vigorous cry of the rooster in the gray of the morning augurs the coming of a new and bright day. As the crowing rooster can therefore be thought of as a harbinger of the kind of new knowledge that promises a brilliant future for humankind, it was chosen as the emblem of the Japan Society for the Promotion of Science. This emblem was designed in 1938 by Professor Sanzo Wada of Tokyo Fine Arts School to depict the rooster that symbolizes the breaking dawn in a verse composed by Emperor Showa.

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