



# JSPS QUARTERLY

JAPAN SOCIETY FOR THE PROMOTION OF SCIENCE

FEATURE:

JSPS Nairobi Research Station Holds  
Official TICAD Symposium

No.57 2016 Autumn



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On 21 July, the JSPS Nairobi Research Station held a symposium as an official event of the Sixth Tokyo International Conference on African Development (TICAD 6), to which it invited representatives of Kyoto University, Nagasaki University, Hokkaido University, Japan-Africa Academic Network (JAAN), and various academic institutions from countries of Africa. Titled “Anniversary of 50 Years of African Studies and Japan-Africa Cooperation in the Future,” the symposium provided a bridge between the past and future half century in the continually unfolding Africa-Japan relationship.

The Tokyo International Conference on African Development (TICAD) is a summit held on African development, co-organized by stakeholders including the Government of Japan, United Nations, and World Bank. TICAD’s main objectives are to 1) promote high-level policy dialogue between African leaders and their international partners, and 2) mobilize support for African-owned development initiatives. Japan has co-hosted five of these conference rounds since TICAD was launched in 1993.

For more TICAD information, please visit:

<http://www.mofa.go.jp/region/africa/ticad/index.html>

As fortune would have it, 2016 marks the 50<sup>th</sup> year of the JSPS Nairobi Office’s operation, Kyoto University’s academic research in Africa, and Nagoya University’s scientific cooperation with Africa. Serendipitously, the first TICAD conference to be held in Africa converged with these landmark anniversaries. At this juncture, the JSPS Nairobi Research Station’s symposium revisited the half-century history of Africa academic and scientific cooperation with an eye to identifying ways of solving prevailing issues that will engender the blossoming of Africa’s own societal systems over future years.

At TICAD 5, held in 2013, various strategies were initiated, including the “African Business Education Initiative for the Youth: ABE Initiative,” a program to advance international joint research with African countries, and the Egypt-Japan University of Science and Technology (E-JUST) program. Then, TICAD 6, held in August, identified several pressing issues that need to be solved through international research collaboration but are being hindered by such stifling problems as the Ebola outbreak and the terrorist activities of Al Shabab and Boko Haram. It discussed various issues defined as critical in the African Union’s Agenda 2063, a strategic framework for socioeconomic transformation on the Continent over the next 50 years. These include natural resources and energy, an international health system, food security, human security (refugee, conflict and terrorism issues), and environmental conservation. In recent years, the need is recognized to push forward international joint research toward solving these issues—taking initiatives that will advance needed S&T innovations. This imperative notwithstanding, the 54 nations of Africa are suffering a dire shortage of R&D investment,

while the advanced countries’ joint research with Africa has fallen to subpar levels.

Against this backdrop, the Nairobi symposium brought together world-leading researchers from African countries, Japan and Europe, who specialize in a range of fields that include infectious disease and world health, tropical medicine, conflict resolution, material and energy resources, food security, environmental conservation, development, social anthropology, area studies, ecological anthropology, and primatology. They reflected on the effects spawned by Africa-Japan joint research and R&D activities over the 50 years since African nations achieved their independence. Looking ahead, they brainstormed strategies for realizing the creation of distinctively African societal systems on the Continent. Over the course of the event, discussions were advanced on the Africa-Japan partnership, including the promotion of S&T research, the mutual fostering of researchers, and the implementation of joint research initiatives. As an official TICAD event, the symposium provided an ideal opportunity for the academic community to offer new proposals on enhancing scientific cooperation with Africa.

JSPS president Dr. Yuichiro Anzai and Kyoto University president Dr. Juichi Yamagiwa participated in the symposium along with a distinguished cohort of top world researchers. Prof. Satoshi Ōmura, 2015 Nobel laureate in physiology or medicine, delivered a commemorative speech at the event, in which he spoke on the theme of the TICAD 6 Nairobi declaration and discussed the creation of an international health system to combat the problem of infectious diseases that plague Africa and require expeditious international assistance to mitigate.

The following organizations supported and/or participated in the Nairobi symposium, which was sponsored by JSPS and co-sponsored by Kyoto and Nagasaki Universities: Japan-Africa Academic Network (JAAN), Hokkaido University Lusaka Office, Hokkaido University Research Center for Zoonosis Control, Embassy of Japan in Kenya, Japan International Cooperation Agency (JICA), Japan Association for African Studies (JAAS), Ecole des Hautes Etudes en Sciences Sociales (EHSS), Centre national de la recherche scientifique (CNRS), French Institute for Research in Africa (IFRA-Nairobi), British Institute in Eastern Africa (BIEA), National Commission for Science, Technology and Innovation (NACOSTI) of Kenya, National Commission on Research Science and Technology (NCRST) of Namibia, Uganda National Council for Science and Technology (UNCST), Programme d’Appui Stratégique à la Recherche Scientifique (PASRES), National Research Fund (FNI) of Mozambique, National Commission for Science and Technology (NCST) Malawi, Centre for Scientific and Technical Research of Benin (CBRST), and the Ethiopian Academy of Sciences (EAS).

## JSPS Nairobi Research Station: A Glimpse at Its 50-year History

1960 was called the Year of Africa, as many African nations won their independence from European powers in that year. Three years later in 1963, Kenya also became an independent country. However, 50 years ago Kenya did not have research facilities, funding or materials, nor did the people enjoy the affluent lifestyle seen in Kenya today.

It was amidst this environment that Japan's Africa studies took off, driven by the University of Tokyo in the east of Japan and Kyoto University in the west. In 1964, Tokyo University of Foreign Studies established the Research Institute for Languages and Cultures of Asia and Africa (ILCAA) and the Japan Association for African Studies (JAAS) was launched. Owing greatly to the efforts of these and other organizations, in 1965 the JSPS Nairobi Research Station was established as a base for collecting and disseminating information on academic research conducted in Africa.

Witnessing the zeal exhibited by the many young Japanese researchers who come through the Nairobi Station, it's plain to see

that among them there has been no softening of the enthusiasm that drove the researchers who labored in Africa when the office was established 50 years ago.

Given the attendant risks of getting enmeshed in conflicts or wars and becoming the victim of tropical diseases or theft, the sustained continuation of studies and research within African society would seem to be difficult. However, with a force of passion and devotion that far outweighs the difficulties, Japanese researchers have over long years vigorously pursued their Africa studies.

Over the past half century, the JSPS Nairobi Research Station has supported researchers carrying out Africa studies from various perspectives of the natural sciences, social sciences and humanities while working to stimulate and resolve intellectual clashes among them. This has propelled substantive academic exchange on ever-deeper levels. Looking ahead to its 80<sup>th</sup> and 100<sup>th</sup> anniversaries, the Nairobi Station will continue striving to develop itself as an ideal center for fostering the world's finest Africa researchers.



### An Essay by Dr. Juichi Yamagiwa, President of Kyoto University *My Encounter with and Hopes for the JSPS Nairobi Research Station*



During the years between 1980-1982, I worked as a junior researcher in Africa. I have fond memories of working together with Drs. Yasutoshi Yukawa and Heinosuke Shiozaki, who were senior researchers at that time. Then, JSPS's Nairobi Research Station was located

on Riverside Drive, near University of Nairobi's Chiromo campus. The office was a single house with a big garden. It had two dogs. Whenever we'd go through the gate, they'd bark ferociously. The dogs could really scare our African visitors. I learned from firsthand experience differences between African and Japanese culture, at least when it came to keeping dogs.



JSPS Nairobi Research Center back in the 1980s

A great many people visited the center. As Nairobi is the gateway to Africa, Japanese researchers en route to doing studies in African countries would frequently drop by the center. Many researchers attending international conferences also dropped

in. What seemed like every night, we would have a drinking bout, to which we invited researchers from all over the world. Their conversations burgeoned with fascinating topics that crisscrossed and transcended fields of research. My job was to help accommodate the Japanese researchers. I assisted them in obtaining their research permits and provided them help in establishing cooperative relationships with African counterparts. The office also provided support to Japanese students who'd come to Africa to study. African students who had studied in Japanese universities would come by the office. When talking with them, I was often dazzled by their fluent Japanese.

In Nairobi City, there was a school called the Japan Africa Culture Interchange Institute (Hoshino Gakko in Japanese) which taught the Swahili language and African history. All of its students lived in the school's dormitory. They often paid our office a playful visit. The first-year students were given visas, with which they travelled around to various areas of Africa seeking out the latest information in each place. Young Japanese in Africa as Japan Overseas Cooperation Volunteers (JOCVs) would drive up to the office on their motorcycles. We would lodge them for a night and feed them a meal while enjoying listening to them talk about their experiences and activities at their various destinations. The center was truly a gathering place that buzzed with bold and ambitious people.

Having now moved to the outskirts of the city, the center I hear is busier than ever with researchers coming in and out. With the use of computers, there appears to be a dramatic increase in the work that the office must respond to quickly. Even so, I hope to see it create opportunities for as many researchers as possible to engage in face-to-face exchanges of views and information. Unlike Japan, Africa provides ample possibility for encounters with unexpected people. I believe that this kind of serendipity can be the impetus for spawning new and innovative research adventures.



At the camp in Karisoke in 1982



# Upcoming Reform of JSPS's Grants-in-Aid Screening System

## 1. About Grants-in-Aid for Scientific Research

The Grants-in-Aid for Scientific Research program (KAKENHI) disburses research grants that contribute to scientific promotion in Japan. Covering all fields of the humanities, social sciences and natural sciences, these grants take the form of competitive funding aimed at markedly advancing scientific research based on researchers' own free ideas. Taking an overview of the KAKENHI program, in FY 2015 about 107,000 new grant proposals were received, from among which about 30,000 were selected.

## 2. FY2018 Reform of the KAKENHI Screening System

Under the current screening system, scientific research grant categories are screened through the same two-tier process: A document review is carried out on applications in each field, followed by a panel review conducted by reviewers different from those who performed the first review. This system receives high marks for its ability to quickly and fairly screen a huge volume of grant proposals. However, it is pointed out that the system has difficulty in keeping abreast of rapidly changing scientific trends due to its minute partitioning of screening divisions, pigeonholed into categories, areas, disciplines and research fields. Amidst a climate of reductions in the basic budget of universities and research institutions allocated to scientific research, application-oriented research that produces quick results is increasing at the sacrifice of researchers who want to pursue original and creative work.

Given this situation, JSPS and its Research Center for Science Systems deliberated ways to improve the system; and in March established a new grant category framework. It better enables the selection of excellent research proposals that are highly viable within a competitive funding environment—selections predicated on the highest level of respect for researchers' own free ideas, which is the wellspring of scientific advancement.

### ■ Small Grant Category

Under the new screening system, grants are divided by funding size

into three categories: small, medium and large. Under the small grant category, each grant proposal is given two document reviews by the same group of reviewers, who conduct their reviews using the JSPS electronic application and screening system. The purpose of doing this double review is to allow each reviewer in the group to see and reference the other reviewers' evaluations in the second round, thus giving them an opportunity to reconsider their initial review results from a wider, more diverse perspective. Using the electronic system makes the review process more efficient by eliminating the need for the group members to meet in person.

### ■ Medium and Large Grant Category

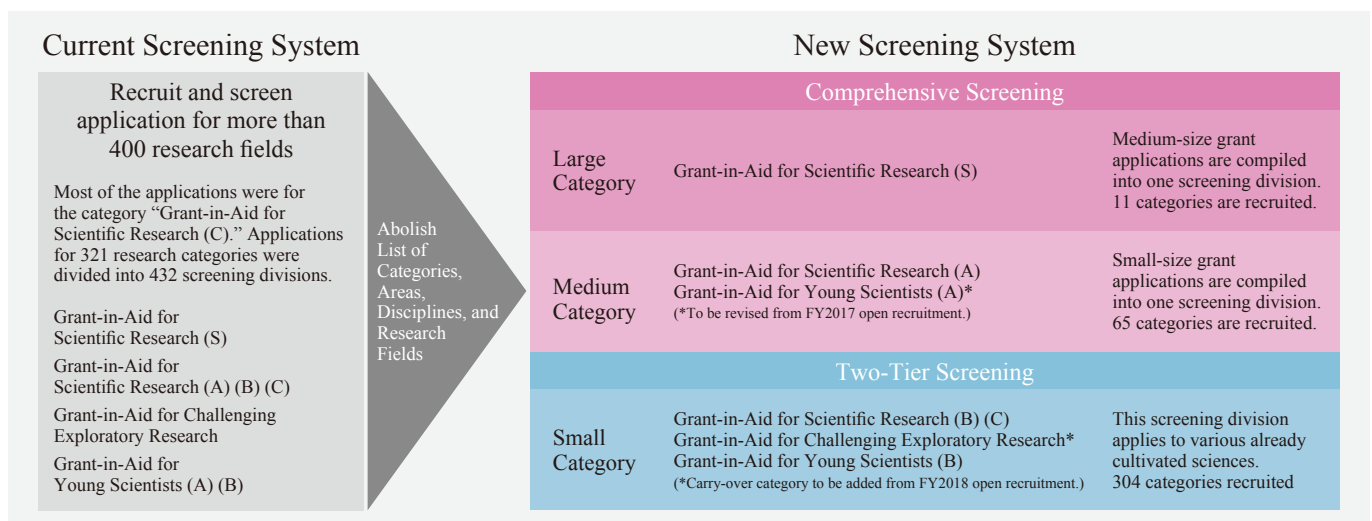
Under the medium and large grant categories, outstanding proposals for bigger research pursuits will be given a "comprehensive screening." As with the small grant category, the same group of reviewers performs the review, which in this case is carried out in two tiers: a document review and a panel review. The group is not limited to researchers in the applicant's specific field, but also comprises researchers in various other related fields. This allows the content of the grant proposal to be probed and evaluated from a wide, multifaceted perspective, resulting in the selection of research projects with high potential for new scientific advances, even breakthroughs. Another major innovation made in this category is the feeding back of comments from the reviewers to the applicants on parts of their proposals that need improvement. This support is meant to give the applicants a context in which to consider ways to enhance their research plans.

Besides intensifying research in existing scientific fields, as these screening system reforms will make it possible to more flexibly develop and expand novel and innovative fields of research, they are expected to add new dimensions to scientific research promotion in Japan.

For further reference about KAKENHI, please see the following MEXT website:

<http://www.jps.go.jp/english/e-grants/index.html>

Research Aid Planning Division



Grant-in-Aid for Specially Promoted Research (scheduled for revision from FY2018 recruitment), Grant-in-Aid for Scientific Research on Innovative Areas (state of grant considered separately)



# Dr. Hubbell: 2016 Recipient of International Prize for Biology

Dr. Stephen Philip Hubbell  
Distinguished Professor, UCLA



On 3 August, the Committee on the International Prize for Biology (chaired by Dr. Takashi Sugimura, President, the Japan Academy) decided to award the 32<sup>nd</sup> (2016) International Prize for Biology to Dr. Stephen P. Hubbell, Distinguished Professor, UCLA.

The field of specialization for this year's Prize is "Biology of Biodiversity." Dr. Hubbell has contributed greatly to biodiversity research by proposing the unified neutral theory of biodiversity and biogeography, which he then evaluated using data from large permanent forest census plots that he pioneered and he and his colleagues established in tropical and temperate forests around the world.

Tropical forests often have extraordinarily high tree diversity: some of the plots contain more than 1300 species. A fundamental scientific challenge in ecology is to explain how so many species can coexist in a single community. The mechanisms that allow organisms that use the same resources (as do trees, for example) to coexist in the same community has traditionally been explained in terms of niche differences among the constituent species in a community. That is, coexistence was thought to be possible because the species that make up a community have different species traits and the community spans microenvironments in which a particular set of traits is advantageous and others in which these traits are disadvantageous, favoring other species with different traits. In contrast, Dr. Hubbell's neutral theory postulates that community biodiversity can be adequately explained without invoking species traits and niche differences. Hubbell's theory builds on the theory of island biogeography proposed a half century ago by MacArthur and Wilson, which postulates that the species richness on islands is a dynamic equilibrium between the rate of immigration of species to the island from a mainland species pool, and the subsequent extinction of species after they establish on the island. MacArthur and Wilson argued that the biodiversity of an island could be explained by species-independent factors such as the island's size and distance from the mainland. However, the theory of island biogeography only explained species richness, not species abundance—the commonness and rarity of species. By adding a process of speciation to the theory of island biogeography and recasting the neutrality assumption at the individual, not the species level, Dr. Hubbell showed that a stochastic drift process could explain patterns of commonness and rarity in addition to species richness remarkably well.

Dr. Hubbell and his coworkers made a detailed analysis of the tree community on Barro Colorado Island in Panama by laying out a survey plot covering 50 hectares, a far larger area than had been customary in previous forest surveys, and tagging, mapping, measuring and identifying every woody plant with a stem diameter of

1 cm or larger. The tree species abundance distribution obtained by this study could be explained by a mathematical theory that assumed random, species-independent processes of drift, dispersal, and speciation. These results attracted a great deal of attention because they suggested the possibility of explaining diversity by a neutral theory with very few assumptions, at least to a first approximation. The published findings provoked intense debate worldwide and the hypothesis was tested in a variety of ways. While cases that cannot be explained by neutral theory alone have since been noted, Dr. Hubbell is credited with the pioneering early advocacy of the importance, in the mechanism by which biodiversity is maintained, of stochastic processes and the movement of organisms on various spatial scales. Neutral theory now provides a widely accepted fundamental baseline for explaining biodiversity, to which more complexity can be added when needed.

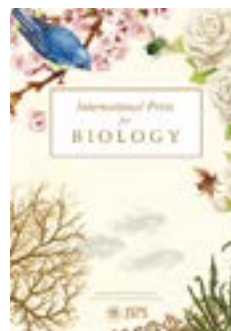
After Dr. Hubbell and his colleagues published their work, large survey plots like that of Barro Colorado Island were established in tropical forests around the world and verification studies of tropical forest tree diversity were carried out. Survey plots of this kind have now been expanded to temperate forests as well as part of an international network coordinated by the Smithsonian Tropical Research Institution. Further, the advances made in this research have many implications for areas of application such as biodiversity-conscious ecosystem management, the conservation of rare species, and the impact of global climate change on forests.

In these ways, Dr. Hubbell's research has not only made a major theoretical contribution regarding the mechanisms by which diversity is generated and maintained in biotic communities, but it has also opened up a new phase in practical field research. These distinguished achievements in advancing the biology of biodiversity make Dr. Hubbell a worthy recipient of the International Prize for Biology.

For more information about the 32<sup>nd</sup> (2016) International Prize for Biology, please visit the website:

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

International Policy Planning Division



## Presentation Ceremony

The presentation ceremony and a subsequent reception in honor of the Prize recipient are held in November or December at the Japan Academy in the presence of Their Majesties the Emperor and Empress every year. This year's date will be announced in due course.

## Commemorative Symposium

To commemorate the award to Dr. Hubbell, a Commemorative Symposium for the 32<sup>nd</sup> International Prize for Biology will be held on 22–23 November in Tokyo, co-organized by the University of Tokyo and the Japan Society for the Promotion of Science.

## JSPS Summer Program



Summer Program 2016 Poster

Attended by 115 young pre- and postdoctoral researchers from the US, UK, France, Germany, Canada and Sweden, the JSPS Summer Program, cosponsored by SOKENDAI (The Graduate University for Advanced Studies), was held over a two-month period from 14 June to 24 August.

Featuring a research internship for the participants at host institutions, the program began with a one-week orientation held in the seaside town of Hayama. At it, the fellows received special lectures, gave poster presentations, attended classes in Japanese language learning, participated in a group discussion, engaged in Japanese culture activities, and experienced Japanese living through homestay with a Japanese family. After the orientation, the young researchers went their separate ways to their respective host institutions. Their summer internships afforded them an experience upon which to consider coming back to Japan to do research at future junctures in their careers. On the day before the Program ended, the participants reassembled to present reports on their summer research activities.

Overseas Fellowship Division



The centerpiece of the JSPS Summer Program is the fellows' internship at a host research institution, where they take part in research activities with frontline Japanese researchers in their respective fields. The following are comments offered by two of the fellows on their research and culture experiences.

### Ms. Kellie Jayne Binder

(PhD student, University of Cambridge, UK) at Nagoya University  
Her host: Prof. Ryoji Noyori

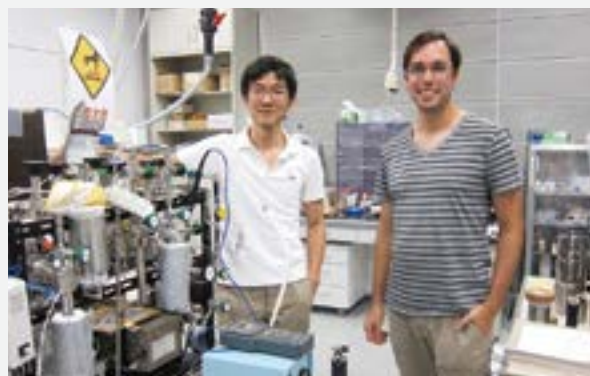


Ms. Binder at Fuji Antarctic Museum, Nagoya

Japanese culture has simply blown me away, words cannot describe this beautiful country so you must come and see it for yourself. The JSPS Summer Program is the perfect opportunity to try research in Japan, and I will definitely be applying for a postdoc opportunity offered by the JSPS in the future. Working closely with world-renowned professors and their friendly research group has helped to broaden my practical knowledge of chemistry and to apply my own research in nanotechnology to green catalyses. JSPS provided the perfect introduction to my adventure; I loved the language courses and my host family were the kindest people I have ever met.

### Mr. Peter Crockford

(PhD student, McGill University, Canada) at Tokyo Institute of Technology  
His host: Dr. Yuichiro Ueno



Mr. Crockford (right) with Dr. Ueno at the university's laboratory

Having just passed the halfway point in the Summer Program, I can safely say this experience will be one of the highlights of my PhD. Life in Japan has been wonderful with amazing food, generous and welcoming people, and a fantastic research environment at the Tokyo Institute of Technology. Now with one month to go, I and Ueno-sensei are working hard to measure microbial signatures from 3.5 billion year-old rocks. While developing new methods to make such small analytical measurements has been a challenge, the process has taught me new skills that will be invaluable in my future research pursuits.

## First JANET Joint Forum Held in Berlin

Cosponsored by the JSPS Bonn Office and the Freie Universität Berlin (FUB), JANET FORUM 2016 was held on 30 June by JANET, a network of Japanese universities and research institutions with offices or bases in Europe. Planned by the University of Tsukuba and venues at FUB, this the network's first joint forum assembled 57 Japanese representatives of JANET-member institutions and including booth visitors, about 70 German participants.

The Forum kicked off with greetings from FUB president Prof. Peter-André Alt, University of Tsukuba president Prof. Kyosuke Nagata, and Mr. Takeshi Yagi, Ambassador of Japan to Germany. They extended messages of congratulation on the convening of the first JANET FORUM and of expectation for JANET's future flourishing. Then, three FUB professors delivered lectures on research in the humanities, social sciences and natural sciences being advanced in Germany, after which representatives of the German Rectors' Conference (HRK), German Research Foundation (DFG), Alexander von Humboldt Foundation (AvH), and German Academic Exchange Service (DAAD) introduced their various programs and initiatives. After a lunch break, two Japanese researchers spoke from personal experience on the subject of Japanese-German collaboration. Then,



some 13 Japanese universities and research institutions introduced examples of their frontier research activities, capturing the rapt attention of the participants, most especially the German students and young researchers.

Concomitantly, about 20 outreach booths were set up by Japanese and German institutions in the hallway outside the conference room. During the coffee breaks, dozens of German researchers and students were seen going from booth to booth, engaging in spirited exchanges of information with each other and with the booth operators.

For the agenda of this event, a list of the speakers, and related documents, please go to the Bonn Office's website at:

<http://www.jspss-bonn.de/ja/janet/janet-forum-2016/>

JSPS Bonn Office

## Japanese-German Symposium Held in Oldenburg



On 20–21 May, the JSPS Bonn Office teamed up with the German JSPS Alumni Association (German JSPS Club) to hold the 21<sup>st</sup> Japanese-German Symposium on the theme “Higher Education—Challenges and Current Developments.” Over its two days, about 130 people, most of whom had experienced JSPS's programs, participated in the symposium held at the University of Oldenburg.

Themed “Higher Education in Japan and Germany” and “Innovating Teacher Education,” the first day's session started with remarks by German Club chair Prof. Heinrich Menkhaus and other representatives of German and Japanese organizations. A comparative analysis was made of the higher education environment in the two countries, while topics such as “higher education transformation in response to global challenges” and “teacher training initiatives” were discussed.

The second day's themes were “Natural Science and Medicine” and “Chemistry.” Topics addressed under the first theme included

“Medical Education in Japan: How the Past Informs the Future” and “Medical Education in Germany: Development of the National Competence Based Catalogue of Learning Objectives,” and under the second theme, “Digital Media in Higher Chemistry Education.”

Throughout the event, presentations spawned zestful volleys of questions and answers, which carried over into the coffee breaks. Amidst this aura of success, JSPS Bonn Office director Prof. Keiichi Kodaira closed the symposium by extending a word of thanks to the participants and voicing expectation for the continued thriving of German-Japanese scientific exchange.

For the symposium program, lecturers' CVs, abstracts, and presentation materials, please see the Bonn Office's webpage:

<http://www.jspss-bonn.de/veranstaltungen/treffen-der-jspss-stipendiaten/2016-higher-education/>

JSPS Bonn Office



## JSPS Strasbourg Office Holds 15<sup>th</sup> Anniversary Event

On 1 June, JSPS's Strasbourg Office joined with Maison Universitaire France-Japon (MUFJ) to hold a symposium to commemorate both the Office's and MUFJ's 15<sup>th</sup> anniversaries. Venued at the University of Strasbourg, it brought together eminent scientists and representatives of universities and science-promotion agencies from France and Japan. They took advantage of the opportunity to celebrate this milestone in the Office's history in a way that overarched and transcended research fields, while looking ahead to ever-richer Franco-Japanese scientific exchange in the future.

Also included among the some 70 people who attended the symposium were members of the French alumni association, Japanese researchers working in France, and representatives of French and Japanese government agencies. The event opened with remarks by MUFJ director Prof. Marie-Claire Lett, followed by congratulatory messages from Prof. Alain Beretz, president of the University of Strasbourg, and Mr. Shinsuke Shimizu, Consul General of Japan in Strasbourg, who both expressed enthusiastic anticipation for the future advancement of scientific collaboration between France and Japan. Then, Mr. Hisashi Kato, advisor to JSPS's International Program Department, revisited the history between Japan and France's Strasbourg region, adding a hearty word of appreciation to all who have been involved in the Strasbourg Office's activities over the years, asking them for their sustained cooperation in making the Office an ever-more vibrant hub for



facilitating Franco-Japanese scientific exchange. Then, Prof. Lett walked the participants back over the Office's and MUFJ's 15-year journey from their establishment using an array of nostalgic pictures and video.

A commemorative lecture was delivered by European Research Council president Prof. Jean-Pierre Bourguignon, who spoke on the theme *A la rencontre de Japonais d'exception grâce aux mathématiques* (My encounters with exceptional Japanese people thanks to mathematics). Prof. Bourguignon is a mathematician and a former JSPS fellow. As such, he talked about the many interesting Japanese who he has associated and worked with over the years. They are not only Japanese who he's known as fellow mathematicians, but also include some 40 Japanese musicians, architects, photographers, entrepreneurs, movie directors, and other distinguished people. In listening to his lecture, the attendees delighted in the personal charm exuded by Prof. Bourguignon as he recounted his encounters with this wide embrace of novel Japanese friends and associates.

The attendees paid rapt attention to the speeches and participated vigorously in a Q&A session moderated by Strasbourg Office director Prof. Hiroyuki Miyamoto in the wrap-up to the symposium. He drew the curtain on the event with a message of gratitude extended to all the people who have supported the Office's programs over long years, and to those whose efforts had made possible the holding of this successful commemorative event.

JSPS Strasbourg Office

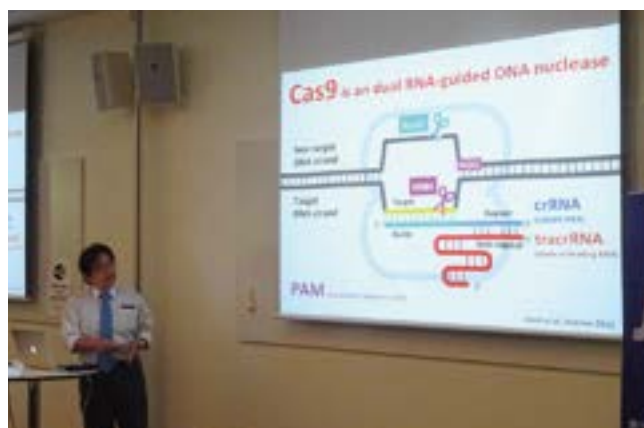
## KVA-JSPS Seminar Held in Stockholm

On 7–8 June, a seminar jointly sponsored by JSPS and the Royal Swedish Academy of Sciences (KVA) was held at Stockholm University and the Science for Life Laboratory (SciLifeLab) of Karolinska Institutet. This KVA-JSPS Seminar is planned by members of the Swedish academy who play leading roles in a wide variety of research fields. Distinguished Japanese researchers, whose work is of great interest in both countries, are invited to give lectures in them. This time, Dr. Osamu Nureki, professor, Department of Biological Sciences, The University of Tokyo, came from Japan as the invited lecturer.

Following first-day remarks by JSPS Stockholm Office deputy director Ms. Yuriko Kawakubo, Dr. Nureki delivered a lecture on "molecular mechanisms of membrane transporters," in which he discussed the latest advances in elucidating the molecular structure of membrane transporters of ions, sugar, amino acids, and xenobiotics (foreign chemical substances within the body) driven by Rocker-switch, Helical-sliding, Gated-pore and other unique mechanisms. On the second day, he spoke about the development and possible medical application of a genome-editing tool (CRISPR-Cas9) that can target specific genomic loci using single-guide RNAs.

On both days, a great many researchers and students came to hear the lectures, after which they engaged Dr. Nureki in animated Q&A discussions.

JSPS Stockholm Office



Dr. Osamu Nureki



## Joint Symposium Held on Carbon Nanomaterials in London

On 13 June, the JSPS London Office worked with the Royal Society of Chemistry (RSC) and the Chemical Society of Japan (CSJ) in holding the Seventh UK-Japan Symposium on Fundamental Research Advances in Carbon Nanomaterials. From the advent of carbon nanomaterial research, Japan and the UK have played world-leading roles in its advancement. The theme set the tone for a dynamic exchange between the two countries' chemical research communities.

RSC and CSJ have been holding these symposiums on an annual basis since 2007. The JSPS London Office's purpose for taking part in this year's symposium was to advance UK-Japanese scientific exchange while elevating Japan's persona as a chemistry powerhouse in the London area and wider UK.

In the symposium, four top researchers from the Chemical Society of Japan delivered speeches, while among the UK speakers was a member of the JSPS Alumni Association of the UK and Republic of Ireland. The stream of participants flowing to the event from around the UK exceeded in number the lecture hall's seating capacity. Many were young researchers, over 40 of whom participated in the poster session. Spirited exchanges of views animated the Q&A periods after the speeches and spilled over into the coffee breaks and lunch time. The interest exuded by the participants as they engaged the speakers and gathered around the posters bespoke a recognition of Japan's high level of expertise in the chemical research domain. Aspiring to interact and collaborate with Japanese counterparts, many British researchers gravitated to the JSPS booth wanting to



learn more about JSPS's fellowship and joint research programs.

Following the symposium, an event titled "Japan-UK Collaboration in Chemistry: Commemorating the Partnership between the Chemical Society of Japan and Royal Society of Chemistry" was held at the Embassy of Japan in the UK. It featured a keynote speech and reception. The speech was given by Dr. Tony James, who is professor at the University of Bath and a member of both the RSC and UK JSPS alumni association. Drawing vividly upon his experiences in Japan, Dr. James kindled heightened enthusiasm for UK-Japanese collaboration. The attendees of the reception took advantage of its informal setting to continue a leisurely exchange of views on the symposium's topics.

For more information on the symposium, please see the following website:

<http://www.jspss.org/event/2016/04/uk-japan-symposium-on-research-advances-in-carbon-nanomaterials.html>

JSPS London Office

## JSPS and CASS Hold Joint Symposium in Beijing



JSPS Beijing Office director Prof. Kaoru Hirota



On 30 July, JSPS and the Chinese Academy of Social Sciences (CASS) held their fifth joint symposium, this time on a theme of "Literature, Thought and Sino-Japanese Relations." Initiated in 2012, these symposiums are held to promote exchange in the humanities and social sciences among Japanese and Chinese researchers. Held this year at the Xinhai Jinjiang Hotel Beijing, the seminar featured a diverse lineup of lectures including one on Sino-Japanese relations and another on the famed Chinese writer Lu Xun (known as Rojin in Japanese).

Moderated by Prof. Zhao Jinghua of CASS's Institute of Literature, the event began with an opening ceremony, in which Ms. Zhou Yunfan, vice-director of CASS's International Cooperation Bureau, offered words of thanks to JSPS for its joint sponsorship of the symposium. Representing JSPS, Beijing Office director Prof. Kaoru Hirota introduced JSPS's international programs, giving emphasis to its invitational fellowships for research in Japan.

Dr. Yoichi Komori, professor, The University of Tokyo, delivered a keynote speech on Sino-Japanese relations from an historical perspective geared to improve and enrich the bilateral

relationship. Shifting subjects, Prof. Zhao spoke on the part played by the writer Lu Xun in Sino-Japanese literature exchange.

Sessions were held on three themes: "Issues extant within the China-Japan relationship," "Japan and China within the space of culture and thought," and "Role of Lu Xun within Sino-Japanese cultural exchange." Fifteen researchers (five Japanese and 10 Chinese) addressed the sessions from the vantage points of their various specializations. The researchers who flocked to the event listened with riveted interest to the lectures and buoyed up the Q&A sessions with volleys of comments and questions. Throughout, the symposium's themes sparked and advanced meaningful discussions. The ability of the event to assemble some 60 spirited participants testified to its success.

For information of JSPS's Beijing Office, please visit the following website (Chinese and Japanese only):

<http://www.jspss.org.cn/jspssbj/site/indexch.jsp>

JSPS Beijing Office

## Forum on Space Science Held in Washington, DC

The 21<sup>st</sup> “Science in Japan” Forum was held on 10 June at the Cosmos Club in Washington, DC. Themed “US-Japan Collaboration in Space Science—Past, Present and Future,” it featured distinguished speakers from Japan and the US. During his keynote lecture, Dr. Saku Tsuneta, director general, Institute of Space and Astronautical Science at Japan Aerospace Exploration Agency (JAXA), said “We had a beautiful launch of ASTRO-H (Hitomi). This success owed to close collaboration between JAXA, the National Aeronautics and Space Administration (NASA), and other countries from the satellite’s conception throughout construction.”

Talking about the in-orbit breakup of Hitomi, Dr. Tsuneta remarked that JAXA will repair and improve the satellite’s on-board systems while strengthening its NASA partnership, which over the past 30 years has paid dividends that will accrue to ever-greater space science advances in the future.

Mr. Geoffrey L. Yoder, associate administrator, NASA Science Mission Directorate, replied “In the future, as NASA continues to pursue a bold program of human and robotic exploration together with other space-faring nations, international cooperation will continue to be a fundamentally important component of NASA policy and an intrinsic part of planning for future missions.”

Throughout the day, the speakers spurred lively Q&A discussions with the participants, who numbered approximately 110, including researchers from universities, research institutes, and government agencies.

The forum was cosponsored by the American Association for the



Advancement of Science, U.S. Department of Energy, JAXA, Japan Science and Technology Agency, NASA, and the National Science Foundation. This display of strong support from leading American organizations testified to the excellent relationship enjoyed between the two country’s science communities. The JSPS Washington Office will continue striving to cultivate this valuable partnership.

For more details on this event, please visit the Washington Office’s website: <http://jpsusa.org/wp/sijforum>

JSPS Washington Office

## Gathering of Japanese Researchers in the United States



On 16 July, the JSPS San Francisco Office held a gathering of Japanese researchers in the US at the David Brower Center in Berkeley. The event created an opportunity for both resident and visiting Japanese researchers to expand their networks while providing them a unique opportunity to engage in opinion sharing on differences in the research environments and research methods between the US and Japan. This year for the first time, all Japanese researchers in the US, including JSPS fellows, visiting Japanese faculty and resident Japanese faculty, were invited to participate in the event. The dynamism stirred by this array of researchers with diverse experiences in the US gave the discussion new and deeper dimensions.

Following self-introductions at the opening of the gathering, 14 researchers reported on their current research activities, each attended by a spirited Q&A session. Highlighting the event was a lecture, titled “A Career Path in the US as a Japanese Researcher,” delivered by Dr. Shingo Kajimura, associate professor, University of California, San Francisco, Department of Cell and Tissue Biology. Sharing his extensive experience of operating a laboratory in the US, he gave the participants advice on what he’s learned about allocating research effort and other aspects of laboratory management. When it comes to hiring the best lab assistants, he said “Anyone can

acquire the basic knowledge needed to assist in doing research. The important thing is to identify people with ‘talent’ for it, meaning enthusiasm and deep interest in the research endeavor.”

The participants, then, divided into seven highly animated discussion groups to brainstorm ways to improve the research environment in Japan. Several methodological improvements were suggested and discussed, including promoting human resource mobility between universities and companies, diversifying career paths, and increasing the joint use of research facilities.

The event concluded with comments by Dr. Kajimura and by Dr. Toru Tamiya, director of the JSPS San Francisco Office, with the researchers continuing to discuss their research and life in the US over refreshments. The Office aims to expand even further researcher participation in future gatherings so as to promote the building of a robust Japanese researcher network in the United States. The next gathering of Japanese researchers hosted by JSPS’s San Francisco is scheduled to be held in the winter of 2017.

Please visit the following website for more information about the JSPS San Francisco Office: <http://www.jpsusa-sf.org/index.php>

JSPS San Francisco Office

## JAAP Research Symposium and General Assembly held in Manila

On 29 July, JSPS teamed up with the JSPS Alumni Association of the Philippines (JAAP) and the Department of Science and Technology (DOST) to hold an international symposium titled “Sustainable Food System Innovation in the Changing Global Environment.” The fourth in the series of JAAP Research Symposia, it was held in Manila during “National Science and Technology Week.” A unique variety of topics, ranging from the Japanese *bento* lunchbox to farming innovations in the Philippines, stirred a spirited discussion among the event’s 50 some participants.

The symposium started off with the welcome remarks by JAAP president Dr. Jaime C. Montoya, and messages from Mr. Tatsuo Kitagawa, director, Japan Information and Culture Center, Embassy of Japan in the Philippines, and JSPS Bangkok Office director Prof. Kuniaki Yamashita. A keynote message was delivered by DOST secretary Prof. Fortunato T. de la Peña.

Dr. Keiko T. Natsuki, professor, Tokyo University of Agriculture, gave a lecture titled “Tomorrow’s Lunchbox and Safe Food Production,” in which she discussed Japan’s farming problems and initiatives taken to address them, while talking about the merits of Japan’s unique *bento* lunchbox. Dr. Susan May F. Calumpang, Scientist I, University of the Philippines Los Baños, spoke on the themed “Alternative Pest Management Strategies: Farmer Innovations,” in which she introduced newly developed insect pest control systems. In the afternoon, Dr. Seiji Katagiri, professor, Hokkaido University, introduced multiple ovulation and embryo transfer (MOET) as a livestock reproductive technology



in a presentation titled “Livestock Breeding Innovations towards Food Sufficiency.” Dr. Danai Tiwawech, secretary, JSPS Alumni Association of Thailand (JAAT), delivered greetings from Thailand and introduced his alumni association’s activities.

Then, Prof. Yamashita gave a talk about the programs and activities of JSPS’s Bangkok Office, while a number of JAAP members shared their experiences in Japan as JSPS fellows. Finally, Prof. Yamashita and Dr. Montoya presented a medal to this year’s RONPAKU dissertation PhD graduate.

In the General Assembly, an election of board members was held, with Dr. Susan M. Gallardo getting the nod to be the new JAAP president for the 2016-2018 period.

For additional information about this symposium, please visit the following site: [http://jsps-th.org/jsps\\_en/2016/07/29/1056/](http://jsps-th.org/jsps_en/2016/07/29/1056/)

JSPS Bangkok Office



### Essay by a Former Fellow

Dr. Alecia Bellgrove

In 1999 I commenced my JSPS postdoctoral fellowship with Dr. Masakazu Aoki at the Shimoda Marine Research Centre (SMRC), University of Tsukuba. I was immediately struck by the beauty of the landscape and the generosity of the people of Shimoda. With support from JSPS, I learnt the language to enhance my relationships with the Japanese and capacity to foster new opportunities.

I returned to Australia for a lectureship at Deakin University, Warrnambool Campus, while continuing research collaboration with my networks that now spread across much of Japan. From Australia, I watched with horror as the 2011 tsunami devastated the Tohoku region of Japan, including the township of Shizugawa where I had taken samples during my postdoc research. I worried about the effects of the disaster on the survivors who depend on the ocean for their livelihood.

I recently led a marine study tour of 19 Australian students to Japan. It was supported by funding from the Australian New Colombo Plan. We visited the Tsukiji fish market and Asakusa old town in Tokyo, then went south to the coastal town of Shimoda for an intensive

study event at the SMRC. The students snorkeled in diverse waters bathed by the Kuroshio Current, participated in a “science communication through art” workshop, and sampled plankton and benthos from the Tsukuba II research vessel while carrying out their own research projects. Moving up north to Sendai, the students presented their findings at an international symposium convened with the Marine Plant Ecology Group of Tohoku University, in which they learnt through interaction with their Japanese counterparts about the Group’s interesting research in this field. Farther up the Tohoku coast, we visited the town of Shizugawa Minamisanriku to observe firsthand the devastation wreaked by the tsunami and witness the power of a community to reinvent itself in ways that cultivate a bright future. Striving for global recognition in sustainable aquaculture, the town, with its coastal catchment, has won certification from the Agriculture Stewardship Council (ASC) and Forest Stewardship Council (FSC)—the only town in the world to achieve both standards.

The seeds of opportunity planted by my JSPS postdoc experience have now blossomed, enabling me to enhance the lives of my students and to open up a new world of possibilities for the next generation of Australian and Japanese scientists.



Photo by Donna Squire



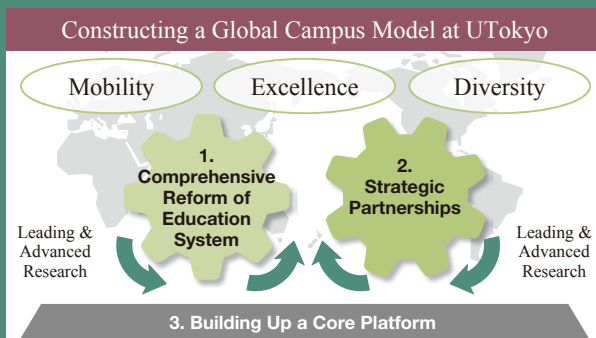
## Top Global University Project Introducing Participating Schools

The project's aim 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.



### The University of Tokyo

*"It was a valuable experience in which I was able to build close friendships with the students from ANU, many of whom have aspirations as high as or higher than my own."* —reflected one of the students from the University of Tokyo who participated in the program. This year, the University of Tokyo (UTokyo)



launched a short-term exchange program in partnership with the Australian National University (ANU) designed to provide their undergraduate students international learning opportunities via the framework of Strategic Partnership between the two universities. Starting in Japan, the students participated in a collaborative study of Japanese society through interdisciplinary analyses of Mt. Fuji and its importance, physically and spiritually, to the Japanese. Moving to Australia, the students learned about the country's cultural milieu and changing environmental landscape, taking a transdisciplinary perspective.

UTokyo has been supporting cross-departmental projects to establish strategic partnerships, which are university-wide, flexible collaborative relationships with overseas universities, including this project with ANU, for the purpose of extending a global outreach to students through education and research activities. Currently 65 projects with 26 universities are underway, enabling approximately 700 students to travel from/to UTokyo. So far, UTokyo has concluded agreements to establish

strategic partnerships with six universities: Princeton University, University of Cambridge, ANU, Peking University, ETH Zurich, and Seoul National University.

UTokyo is also working to strengthen its relationship with the Massachusetts Institute of Technology (MIT), having concluded an MoU with its Department of Mechanical Engineering—the first Asian university to do so—that allows credit transfer for undergraduate exchange students. Lectures are conducted using MOOCs or Skype, and joint symposia and workshops with industry are proactively organized.

As a leading research university in a non-English speaking region, the University of Tokyo is working to create a unique “global campus model” underpinned by the Top Global University Project. In creating this model, three pillars have been put in place: Strategic partnership, educational system reform to accommodate greater mobility, excellence and diversity, and a core platform to facilitate global campus planning and implementation. Upon these pillars, UTokyo is vigorously carrying out activities that propel it toward becoming a global campus model.

Website: <http://www.u-tokyo.ac.jp/en/academics/sgu.html>



UTokyo and ANU students giving group presentations



Dr. Bryan R. Moser

2012 PhD, The University of Tokyo  
2013-present Lecturer, System Design & Management, MIT  
2014-present Project Associate Professor, Graduate School of Frontier Sciences, UTokyo

A graduate of both MIT (Computer Science/Engineering and Technology/Policy) and UTokyo (Graduate School of Frontier Sciences), Dr. Moser joined UTokyo as a Project Associate Professor in 2014. He creates a vibrant bridge between Boston and Tokyo via the Global Teamwork Lab (GTL), which he founded with UTokyo Associate Prof. Kazuo Hiekata. GTL provides a platform for advancing research by teams working across national and disciplinary boundaries on complex systems. Through an array of new courses, symposia, experiments and joint research projects, students are matched with

communities and industries in ways that allow them to rapidly investigate, design, and launch solutions to complex sociotechnical problems. UTokyo students are expected to actively engage with society in solving daunting problems. Dr. Moser says, “Our students in Tokyo and Boston are excellent, yet they get their inspiration and sense of responsibility by leveraging their abilities to solve grand challenges across cultures. We expect them to be impatient with passive cultural exchange; instead to be highly motivated in combining global teamwork with a focus on immediately relevant and valuable outcomes.”



## Science Dialogue

### Scientific Adventure of a JSPS British Hong Konger Fellow in Japan

Dr. Chit Hong Yam



On 10 June, Dr. Chit Hong Yam visited Kagawa Prefectural Takamatsu Sakurai High School to give a lecture under JSPS's Science Dialogue program to 19 selected students from all grades. Hailing from Hong Kong, he is currently carrying out research in the fields of aeronautics and astronautics at the Japan Aerospace Exploration Agency (JAXA). Themed "Why I love space and rocket science; How to think like a scientist," his lecture was held in the school's specially equipped computer room.

#### "Be curious!"

To begin his lecture, Dr. Yam asked a probing question to the students, "Have you ever thought of why stars exist?" He told them that great scientific achievements, including landing on the moon, have sprung from simple curiosity. His current research is expected to improve the accuracy of multiple gravity-assisted rocket trajectories using high fidelity design. He attributes the zeal that prods him to challenge such



complex research to the curiosity that animated his boyhood. He encouraged the students to be curious, saying that "curiosity makes us ask questions, motivating us to explore."



After introducing himself, Dr. Yam spoke about his field of astronautics, giving examples of various space missions. To make the topic easy for the students to understand, he introduced them to a space simulation game, which challenges the player to optimize interplanetary rocket trajectories, such as transfers between the Earth and Mars. Acquainting them with rocket science, the game gave the students a rudimentary understanding of the process for designing space missions.

During the lecture, one student asked, "Do extra-terrestrials (ETs) actually exist?" Dr. Yam replied "That's the million-dollar question," saying that although their existence is not yet confirmed scientifically, exploring the universe and discovering new earth-like planets and life forms is the dream that propels astronomers to keep searching.

After his lecture, Dr. Yam told us that his Science Dialogue experience caused him to vividly reflect upon his own initial motivation and passion for scientific research. One reason he said that he decided to deliver the lecture was a desire to imbue the students with broad perspectives, while giving himself what promised to be a unique learning experience via interaction with Japanese high school students. The students' response to a post-lecture questionnaire showed about 90% of them saying that Dr. Yam's lecture had motivated them, heightening their interests in science. They also said that they wanted to apply in their own studies what Dr. Yam advocated to be the attributes of a scientist; namely, "Be creative—Don't limit yourself or be afraid of being different."

The following fellows participated in JSPS's Science Dialogue Program during the period from April through June 2016. 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
Saitama Prefectural Kawaguchi-kita High School	Dr. DANG, T. Q.	Vietnam
Junior High School at Komaba, University of Tsukuba (Tokyo)	Dr. NEMETH, E.	Hungary
Senior High School at Komaba, University of Tsukuba (Tokyo)	Dr. MENENDEZ SANCHEZ, J.	Spain
Tokyo Metropolitan High School of Science and Technology	Dr. HSU, L.	Taiwan
Hosei Univ. Girls' High School (Kanagawa)	Dr. SAUCET, S. B.	France
Toyama Prefectural Toyama High School	Dr. FULCO, F.	Italy
	Dr. SAMANTA, R. C.	India
Fukui Prefectural Fujishima Senior High School	Dr. VALVERDE-MURILLO, E.	Spain
	Dr. ALAM, A.	India
Fukui Prefectural Wakasa High School	Dr. ANSOLDI, S.	Italy
	Dr. CHEN, H.	Taiwan

Venue	Lecturer	Nationality
Yamanashi Prefectural Hikawa High School	Dr. MARQUES GONZALEZ, S.	Spain
Yamanashi Prefectural Tsuru High School	Dr. BRUOT, N.	France
	Dr. NAVANEETHAIYER, U.	Sri Lanka
Shizuoka Kita High School (Shizuoka)	Dr. CAO, S. V.	Vietnam
Shizuoka Prefectural Numazu Higashi Senior High School	Dr. KISS, G. G.	Hungary
	Dr. KEREVER, A. D.	France
Aichi Prefectural Nishio Senior High School	Dr. PARK, S.	Korea
	Dr. ROBLES, C. M.	USA
	Dr. SNIJDERS, L.	Netherlands
Mukogawa Women's University Junior & Senior High School (Hyogo)	Dr. LU, S.	Taiwan
Tokushima Prefectural Jonan High School	Dr. VAVRICKA, C. J.	USA
Kagawa Prefectural Takamatsu Sakurai High School	Dr. YAM, C.	UK

## Research and Life in Japan By a JSPS Fellow No. 39

### Dr. Cheng-Hsiu Tsai

#### *Rise and Fall of the Largest Animals: Baleen Whales*

JSPS Postdoctoral Fellow, National Museum of Nature and Science, 2015–present  
Ph.D. (Vertebrate Paleontology), University of Otago, New Zealand, 2015  
Research Assistant, National Museum of Natural Science, Taiwan, 2011



National Museum of Nature and Science  
collections repository in Tsukuba

*Coming to Japan from Taiwan, Dr. Cheng-Hsiu Tsai is conducting research with his host, Dr. Naoki Kohno, at National Museum of Nature and Science under a JSPS Postdoctoral Fellowship. We asked him about his research activities and life in Japan.*

**Q. Please tell us about the research you're currently doing under the JSPS fellowship?**

My current research topic is “Rise and fall of the largest animals—baleen whales.” I specialize in the evolutionary history of this iconic animal. My research has two distinctive objectives: To describe and report newly discovered scientifically unknown fossil whales, and to integrate data on all known fossil and living baleen whales and draw a clear picture of their evolutionary pathway.

**Q. Why are you so fascinated with whales and their evolution?**

I vividly remember my first encounter with the subject. In 2004, the carcass of a huge sperm whale (*Physeter macrocephalus*), measuring about 17 meters long, was found awash on the western coast of Taiwan. At the time, I was an undergraduate in the Department of Biology at National Cheng Kung University (NCKU). Luckily, I was given a chance to participate in a dissection team led by the university.



Dr. Tsai at dissection site of sperm whale, 2004  
© Taiwan Cetacean Society

Dissecting a 17-meter long animal absolutely blew my mind! I was greatly and simply astonished by its sheer size and wondered how and why a whale could grow so large. This was

basically where I started my research on whales.

**Q. So, why did you come to Japan to pursue that research?**

In Japan, the field of paleontology is relatively well developed. There are not many other countries in the world that host such a professional and sophisticated academic society dedicated to paleontology. The abundance of whale specimens here was definitely another vital factor in deciding to conduct my research in Japan. Japanese research institutions have collected and accumulated a considerable amount of whale fossil records with unique values over the history of whale studies.

**Q. I see, so how did you find your host researcher?**

I first met my host researcher, Dr. Naoki Kohno, in 2013, when I came to the National Museum of Nature and Science in Tsukuba to examine some whale specimens while collecting data for my PhD study in New Zealand. We kept in touch, discussing from time to time research related issues after I went back to New Zealand to finish my PhD study.

**Q. From your experience, what's your view of the culture of a Japanese laboratory?**

I have experienced research in three countries: Taiwan, New Zealand, and currently in Japan. My impression is that lab culture varies more on who is leading the lab and less on its geographical location. And the interpersonal relationship between a researcher and his/her host is a very important determining factor in judging the quality of a lab environment. During my PhD study with my thesis supervisor, R. E. Fordyce, in New Zealand and currently under my JSPS fellowship with Naoki in Japan, I feel lucky to have a relationship of fellowship and friendship with them, instead of a hierarchical one.

When I started my JSPS fellowship last year at the Museum, one thing I felt a bit uneasy about was that there was no coffee and tea time for co-researchers to freely share ideas within an unofficial setting. Though it took a bit of time, we now have a coffee/tea time, which we enjoy every day. It's playing an important role in advancing

collegial communication.

**Q. What is your interest outside your research work?**

I have trouble making a distinction between my research work and daily life. After coming home from the museum, I am still happy to spend a good amount of time reading books and articles in my research field or doing research-related activities.

I have to admit that I am quite obsessed with whales, especially baleen whales. I am a whale-specialty merchandise collector, who buys anything affordable, dreaming that a “whale economy” will emerge in the near future! Think about it, cats are quite popular and it is very easy to find all kinds of fantastic feline photography, illustrations, designer goods, leading to a new economic term in Japan: *nekonomics* (*neko* means cat in Japanese). Every time I purchase something featuring whales, I cannot help from hoping that “*whalenomics*” will become a popular theme in the near future!

**Q. Do you plan to create a *whalenomics* boom after your fellowship ends? Just kidding, how will you pursue your research?**

No doubt, I will want to find an academic position that allows me to continue my research on fossil whales and whale evolution. I am particularly hoping to teach in the biology department of a university. However, I am aware that most biologists in biology departments are inevitably working on some aspect of molecular biology.

Biological scientists tend to look at things on the molecular and DNA level, being inclined to assume that they have the answer to all questions. However, it's perilous, I think, to conclude that we can unravel all of the mysteries of life from only a tiny micro-perspective. I believe that it is critical to have paleontologists on the faculty to teach evolution from a wider perspective in biology departments.

**Q. How would you like to contribute to social development through your research on whales?**

Apart from doing research and authoring scientific papers, I am also writing popular science articles for public consumption. The writing style of a popular article is indeed quite different from that of a scientific paper. It requires a special kind of communication skill to share ideas with people who have little or no science background. I also give lectures about my research on whales to the public, whenever possible. Opportunities like JSPS's Science Dialogue program provide me with a very unique public outreach opportunity. Direct communication with people is necessary if they are to grasp what we, paleontologists, are working on and looking to accomplish.

In a nutshell, I want to bridge the gap between researchers and the public. Ultimately, I am hoping that we can achieve a kind of social development in which everyone possesses and freely shares a scientific mindset.

*If there were background music to our interview, it would be the singing of whales, which could be*

*heard to resonate in Dr. Tsai's enthusiasm for not only his research but its beloved subjects. As a paleontologist, his research is intensely scientific, searching out and putting together bits and pieces of the whale's evolutionary puzzle in a mammoth task of tracing its ancestry back millions of years. While in Japan, this quest has taken Dr. Tsai from Hokkaido to Okinawa, from one tip of the archipelago to the other. People around*

*the world have come to relate to the whale as a mammalian relative and fellow traveler across the millennia. Dr. Tsai's work in promulgating popular science on whales will surely add deeper dimensions to people's connectivity and fascination with them—as exhibited these days in the popularity of whale watching. Who knows, it may even help to generate a new “whalenomics” boom!*



Cleaning a new fossil whale in 2012 (Photo by R. E. Fordyce)

## Introducing Japan: Tsukuba City

Tsukuba is a carefully designed academic city, which makes my research and life here both easy and enjoyable. There is "Park Boulevard," which runs through the center of Tsukuba City, extending a distance of 5 km from north to south. Wherever the Boulevard crosses main streets, there are overhead bridges for pedestrians and bicycles, relieving people of any worry about traffic accidents.

Luckily, my apartment is located along



Distant view of Tsukuba EXPO with rocket monument

Park Boulevard. About six in the morning, I enjoy jogging along the Boulevard toward its southern end. During the winter, the surface of a large pond in Doho Park, situated along my jogging route, gets icy and slightly frozen over. In the dim light of early morning, the just-rising sun's reflection on the pond appears to be whales below the surface about to break through the ice at any moment.

On the other hand, the National Museum of Nature and Science, where my office is located, is in the northern part of Tsukuba. I bike along the northern end of Park Boulevard to commute there. In the spring, when *sakura*, Japanese cherry trees, are in full bloom, a small section of the Boulevard on my way to the museum is overhung with light pink sakura petals, a scene that reminds me of krill abundantly blanketing the ocean surface, ready



to be swallowed up by baleen whales (one of the greatest shows of feeding behavior on Earth).

The history of Tsukuba City and its adjacent Mt. Tsukuba and Tsukuba-san Shrine can be readily found in tourist information sites on the Internet. I believe that their descriptions and illustrations may lure you to this fascinating city, which combines a mecca of modern science with a repository of ancient culture.



**Cover photo:**

The grape harvest is symbolic of fall in Japan's countryside. Grape stocks used in making Japanese wine came from the West during the Meiji period. Indigenous to Japan is the mountain grape (*yamabudo*), though more palatable to bears than humans.

**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.

Contact Information [quarterly@jsps.go.jp](mailto:quarterly@jsps.go.jp)