

JSPS Quarterly

Japan Society for the Promotion of Science



FEATURE: International Prize for Biology

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No. 47
2014
Spring

Presentation Ceremony Held for 2013 International Prize for Biology

On November 18, the 29th annual ceremony for awarding the International Prize for Biology was held in the presence of Their Majesties the Emperor and Empress at the Japan Academy, located in Ueno Park, Tokyo. The ceremony was organized by the Committee on the International Prize for Biology, chaired by Dr. Takashi Sugimura, President of the Japan Academy.

At the ceremony, an opening message was delivered by Dr. Sugimura and a report on the selection process was provided by Dr. Noriyuki Satoh, chair of this year's Selection Committee, after which the prize and an Imperial gift were presented to this year's awardee, Dr. Joseph Felsenstein, Professor, University of Washington, USA. Congratulatory remarks followed from the Prime Minister (read by Mr. Kazuhiro Sugita, Deputy Chief Cabinet Secretary) and from Mr. Hakubun Shimomura, Minister of Education, Culture, Sports, Science and Technology (MEXT). The ceremony concluded with an acceptance address from Dr. Felsenstein.

Their Majesties the Emperor and Empress attended the reception following the ceremony. In a congenial atmosphere, Their Majesties and Dr. Felsenstein engaged in amicable conversation with each other and with other guests, including representatives of embassies and members of the Prize Committee.



Dr. Felsenstein talking with Emperor and Empress at the reception

An International Prize for Biology Commemorative Symposium and Lecture on "Influences and Impacts of Evolutionary Biology" was held on November 21-22 at Kyushu University in Fukuoka.

International Policy Planning Division

Acceptance Address by Dr. Joseph Felsenstein

Thank you for this opportunity to express my appreciation for the International Prize for Biology to the Japan Society for the Promotion of Science and its directors and committee members. We are especially honored to be here in Tokyo in the presence of Their Majesties the Emperor and the Empress. His Majesty has himself advanced the study of the taxonomy of gobioid fishes. I am therefore happy that the field of evolutionary biology, in which His Majesty is a colleague, is receiving the attention which accompanies this Prize. I am pleased at the presence of so many other evolutionary biologists who are colleagues and old friends of ours.

My original training was in theoretical population genetics, a field in which Japanese scientists have taken a remarkable role of leadership, starting in the 1950s and 1960s. The body of theory that I studied lies at the core of the Modern Evolutionary Synthesis, and provides a mathematical framework for describing its basic mechanisms. In graduate school in the mid-1960s I became fascinated by the mathematical, algorithmic, and statistical aspects of a different problem, reconstructing phylogenies, also known as evolutionary

trees. At first I worked on adapting the statistical method of maximum likelihood to the problem of inferring phylogenies. I was able to solve some problems raised by Edwards and Cavalli-Sforza in their pioneering papers on using Brownian motion models of gene frequency change to infer the evolutionary history of phylogenies. In 1973 I constructed an efficient dynamic programming algorithm for computing likelihoods on phylogenies, and in 1981 I applied that algorithm to DNA data.

Adapting the bootstrap method of statistics to phylogenies in 1985 provided a way to know which aspects of the evolutionary tree are well-supported and which are likely to be wrong. In that same year, I also found a statistically valid way to use the phylogeny to see whether two different characters are evolving independently. This is a firm statistical foundation for the task that biologists call the Comparative Method. Since then my work has mostly been in connecting population genetics and quantitative genetics to methods of reconstructing phylogenies.

All of this work at first seemed to be an eccentricity, simply a hobby of mine. But as

time has passed, more and more scientists have gotten involved in inferring phylogenies and in using them to investigate patterns of natural selection. Phylogenies turn out to be central to analyzing data that comes from multiple species. I don't think that I realized that when I started out in the 1960s. Now phylogenies and population genetics are merging in a major reunion of lines of work which have long been separate.

Understanding evolutionary processes and evolutionary history does not immediately solve the basic problems of society: How people can achieve a more democratic society, how we can help support those who are abandoned or exploited, and how we can cope with global destruction of the environment. Evolutionary biology does give us insight into who we are and where we have come from. That insight allows us to see how we relate to nature, and how different forms of life are related to each other. Understanding these connections is fundamental to understanding how humans can relate to that larger world. I believe that in honoring my work, the Japan Society for the Promotion of Science is acknowledging the importance of evolutionary biology in the development of humankind.

Research Center for Science Systems Holds 10th Anniversary Symposium

JSPS's Research Center for Science Systems was established in July 2003. Run by frontline researchers, it functions as a science-promotion think tank. While providing a wide range of recommendations and advice on the design and implementation of JSPS programs, the Center also plays an instrumental role in the operation of the selection and evaluation systems of JSPS's Grants-in-Aid for Scientific Research and other programs. The program officers who carry out these functions are all frontline researchers selected through an open recruitment process.

This July marks the Center's tenth anniversary. In the lead-up to that milestone, a celebrative symposium was held on 16 December, venued at Josui Kaikan on the campus of Hitotsubashi University in Tokyo. It was attended by more than 500 researchers and



Dr. Kobayashi, second from left

administrators who have worked at the Center during the past decade, among whom were some 210 present and past program officers.

The symposium started off with a message from Dr. Makoto Kobayashi, director of the Research Center for Science Systems. Expressing appreciation for the efforts of all those in attendance, he revisited the Center's decade of progress and spoke to its future prospects and aspirations. Then, Mr. Daisuke Yoshida offered a congratulatory message as the director general of MEXT's Research Promotion Bureau.

As the centerpiece of the symposium, Dr. Hiroyuki Yoshikawa, chairman of the JSPS Academic Advisory Board, delivered a commemorative lecture on the Center's role in the succession and advancement of science, in which he expounded upon the great expectations being placed on the Center in such areas as advancing basic research, creating a new generation of research domains, and building a vibrant research community that converges a wide spectrum of research fields. The audience listened with baited interest to Dr. Yoshikawa's message replete with encouragements as well as imperatives.

After the symposium, the Center and its researcher alumni club put on an informal get-together. Throughout, the get-together enjoyed the atmosphere and excitement of a high school class reunion with everybody renewing old acquaintances and friendships.

Research Center for Science Systems

Frontiers of Science Symposiums Held with Germany and France

The 10th Japanese-German Frontiers of Science (JGFoS) Symposium was held in Kyoto, Japan from 31 October through 3 November. Implemented together with JSPS's counterpart, the Humboldt Foundation, the symposium saw the participation of 60 researchers from Japan and Germany. Led by the co-chairs, Prof. Tsuyoshi Nakaya of Kyoto University and Dr. Stefan Bösch of the Karlsruhe Institute of Technology, the event engaged the participants in vigorous discussions on a spectrum of topics ranging from "smart electric-power management" to "pandemics." Over the course of a decade, this was the first time for the symposium to be held outside the Tokyo metropolitan area. With Kyoto as its venue, the participants enjoyed traditional aspects of Japanese culture. Sharing this experience added to their interaction in the technical components of the symposium in drawing the participants from the two countries close together in ways sure to prompt future collaboration between them.



Held in Metz, France from 24 through 26 January 2014, the 8th Japanese-French Frontiers of Science (JFFoS) Symposium attracted the participation of 70 French and Japanese researchers. Co-organized



with CNRS, French Ministry of Foreign Affairs, and French Ministry of Higher Education and Research, its convening also enjoyed the cooperation of the Moselle Department and Moselle Development (a unit of the local government). Setting the tone, introductions delivered by the co-chairs, Prof. Hidetoshi Shimodaira of Osaka University and Dr. Christelle Baunez of the Institut de Neurosciences de la Timone, imbued the participants with a strong sense of encouragement as they spoke to the infinite possibilities that lie ahead for them to cooperate and ultimately jell together as colleagues. That spawned an animated yet relaxed atmosphere over the three days of the symposium, in which everyone intermingled and engaged each other in conversations and inquiries that transcended their specialties and nationalities.

FoS Symposiums are designed to foster excellent young researchers who while being passionate about their own fields of investigation are eager to overarch them in exchanging ideas with colleagues from other disciplines. For this same purpose, JSPS also carries out FoS Symposiums between Japan and the United States.

Research Cooperation Division

Seventh ASIAHORCs Meeting and Fifth Joint Symposium Held in Indonesia

On 27 November, the 7th meeting of the Asian Heads of Research Councils (ASIAHORCs) was held in tandem with the 5th ASIAHORCs Joint Symposium. Venued in Bali, Indonesia and hosted by the Indonesian Institute of Sciences (LIPI), the aim of these meetings was to advance science and foster young researchers within the Asian region.

The ASIAHORCs meeting brought the heads of leading science-promotion organizations in Japan, China, India, Indonesia, Korea, Malaysia, the Philippines and Thailand together in an exchange of views on the topic “Strengthening of Policy on Innovation Support Systems in Asia.” In his presentation, JSPS president Dr. Yuichiro Anzai introduced JSPS activities, which are being implemented based on its forward-looking third mid-term objectives and plan.

Attended by excellent researchers from the member countries, the symposium was held on the theme “Food Sciences.” A keynote speech was delivered by Dr. Kazuki Kanazawa, professor at Kibi International University, who talked about the function of gut epithelium. Likewise intriguing topics such as “Effects of consumption timing on gastric emptying time” and “Bioavailability of bilberry anthocyanins” were addressed in other presentations.

The next duo of these meetings is scheduled to be hosted by the National Research Council of Thailand in November 2014.

International Policy Planning Division



JUNBA 2014 Held in San Francisco

On January 9-10, the Japanese University Network in the Bay Area (JUNBA) held JUNBA 2014 on the theme “Educational Quality Assurance in a Globalized Higher Education Environment—What Might the Future Bring?” The event brought together Japanese university leaders in an exchange of multi-angular views on ways



to achieve educational quality within a globalized higher education environment. Co-organized by the Consul General of Japan and JSPS, with support from several other Japanese agencies, this 2-day event attracted nearly 100 participants.

It was kicked off with lectures by presidents of two California State Universities, titled “Accreditation in US Higher Education” and “Work, Productivity and Acknowledgement in American Higher Education.” The second day consisted of a keynote lecture on Ministry of Education, Culture, Sports, Science and Technology’s efforts regarding higher education and three sessions in which Japanese university leaders exchanged views and thoughts on subjects revolving around the theme.

Lastly, JUNBA president Dr. Masato Matsuo summarized the event and spoke to the importance of Japanese universities continuing to hold such fora to discuss the promotion of educational globalization in ways that bolster their competitive posture within the world.

For details, please visit our webpage at <http://www.junba.org/junba2014.html>.

JSPS San Francisco Office

Seminars Held with Royal Swedish Academy of Sciences

A few times each year, the JSPS Stockholm Office and the Royal Swedish Academy of Sciences (KVA) get together to hold “KVA Seminars” to provide a platform for Japanese scientists to give lectures on research advances in areas of high interest in Sweden. Three such seminars were held during the 2013 fiscal year. Among them, one invited Prof. Toshio Ando, Institute of Science and Engineering, Kanazawa University, to deliver the lecture, and another invited Prof. Shoichiro Kurata, Graduate School of Pharmaceutical Sciences, Tohoku University.

At the first seminar held on 10 October at the Royal Institute of Technology and Karolinska Institutet, Prof. Ando spoke about how the high-speed atomic force microscope he developed contributes to elucidating protein functions. At the second on 9 January 2014 at Uppsala, Umeå and Stockholm Universities, Prof. Kurata talked about his research on insect immunology, especially on how insects without antibodies can protect against infections.

All the seminars were an enormous success, attracting audiences of 50-70 researchers and students, who asked volleys of questions.

JSPS Stockholm Office



Prof. Kurata giving lecture

Joint Symposium Held with Hokkaido and Helsinki Universities

On 27-28 November, the “Joint Symposium on Environmental Science 2013—Bridging Finland and Japan” was held via collaboration between Hokkaido University, University of Helsinki, and JSPS Stockholm Office. Venued on the campus of Helsinki University in Finland, the event attracted around 20 participants from Japan including Prof. Ichiro Ueda, executive and vice-president of Hokkaido University, and Prof. Masaaki Morikawa, who coordinated the symposium on the Japanese side.

The curtain rose on the symposium with keynote lectures delivered by Prof. Heljä-Sisko Helmisaari and Prof. Takayoshi Koike from the two universities, who gave overviews of the environmental protection situation in both countries. They were followed by presentations by researchers from the two universities on such themes as “sustainable forest management” and “environmental issues under cold weather.” Interest in a bilateral approach to these subjects attracted more than 60 researchers and students to the symposium. In addition, the Stockholm Office gave a brief introduction to JSPS’s programs, spurring interest among the participants to use them to come or go to each other’s countries to advance their research.

A reception was held in the evening of the first day to give the researchers from the two countries an opportunity to get to know each other personally.

This program was started by Prof. Morikawa in 2012 who launched a joint research initiative with Northern European countries. It initially took the form of a scientific exchange implemented jointly by the JSPS Stockholm Office and the Embassy of Japan in Sweden. When later the Hokkaido University Helsinki Office joined in, the effort expanded into a university-scale symposium program, one which the Stockholm Office will happily continue to support in the future.

JSPS Stockholm Office



Symposium coordinator Prof. Morikawa

Symposium on Human-Wildlife Coexistence Held in Kenya

On 6 December, the JSPS Nairobi Research Station cosponsored a symposium with the Japan Information & Culture Centre of the Embassy of Japan in Kenya. Held at the Embassy, the symposium addressed the theme “Leopards, National Park and Communities: Toward Coexistence of Wildlife and Human Societies.”

The Nairobi National Park is a wildlife preserve located adjacent to Nairobi, East Africa’s largest city. A sizable amount of Kenya’s annual revenue comes from tourism, with the Park contributing significantly to that income. For the people living around the Park, however, wild animals



Discussion with participants

that cross its boundaries can be menacing. Mandated to conserve and manage Kenya’s wildlife, the Kenya Wildlife Service (KWS) works to solve issues related to human-wildlife conflict.

Among these issues is the fact that the breeding and hunting activities of leopards and other predators are not confined to within the Park. Land development has been expanding over recent years in the area adjoining the southern side of the Park, bringing about increasing population along with the buying and enclosing of plots. This is disrupting the migration corridors of leopards crossing the Park’s peripheries, creating more frequent encounters and incidents with humans.

The symposium featured a presentation by Ms. Yumi Yamane of Kyoto University, who has been conducting a study of the leopard habitat within the National Park over a period of more than five years. From the KWS, Ms. Grace Nzale and Mr. Moses Mazola gave reports on their activities. Then, a community-based organization offered a briefing on the state of wildlife-caused injury and harm to local people and the measures they are taking to prevent it. Via these presentations, our understanding was strengthened and a discussion advanced on a complex set of issues related to coexistence between wildlife and human communities.

JSPS Nairobi Research Station

New Agreement Concluded with São Paulo Research Foundation

On 9 December, JSPS signed a Memorandum of Understanding (and appended Details of Implementation) with the São Paulo Research Foundation (FAPESP), launching a program of bilateral exchange, initially focused on holding joint workshops for fostering young researchers.

These workshops are meant to promote research cooperation in all fields, including the social sciences and humanities, between Brazil and Japan, while fostering young researchers and supporting curiosity-driven research activities.

In FY 2014, the first two workshops are scheduled, one to be held in Brazil and the other in Japan on the themes “Culture and Society” and “Biodiversity and Environmental Conservation.”

International Policy Planning Division



London Office Gives Program Briefings in Holland

On 3-4 December, the staff of the JSPS London Office traveled to Holland where they gave program briefings at Radboud University and VU Amsterdam. Founded in 1923, Radboud University has a student body of more than 18,000 undergraduates and postgraduates. Established some 40 years earlier in 1880, VU Amsterdam's student body exceeds 30,000. The two institutions fall within the top 200 in the Times Higher Education World University Ranking. Both also boast full-fledged research programs spanning a spectrum of fields from organic chemistry, astrophysics and human genetics to linguistics, business and law. Tapping into their expertise in such fields, the universities have recent years been carrying out a number of joint research projects with Japanese universities, marked by achievements in such areas as coauthored publications, joint seminars, and patent applications.

Some 30 researchers from various departments of the universities attended the office's briefings, in which JSPS programs were introduced that can be used in promoting even closer scientific exchange with Japanese colleagues. The staff's visit to Holland was also very meaningful in that it provided an opportunity for them to engage Dutch researchers

and university research-funding managers in a discussion on ways to build more effective partnerships with Japanese universities and research institutes and how to take advantage of JSPS programs in that process.

JSPS London Office



Dr. Gertjan Bögels of Radboud University (right)

UCL Symposium Held on Accessibility

On 9-11 December, the University College London (UCL) held "The Accessibility Symposium" on its campus. The event was selected for support under JSPS London's "Symposium Scheme for Japanese Researchers Based in the UK." Organized by Dr. Catherine Holloway, lecturer in UCL's Department of Civil, Environmental & Geomatic Engineering, the symposium drew the participation of 168 researchers



over the three days of its implementation. They hailed from such diverse fields as electronic engineering, civil engineering, computer science, and social engineering.

The symposium addressed the issue of "accessibility," that is, the ability of everybody, including the aged and handicapped, to use products, buildings and services without difficulty. Besides presentations from individual researchers, the event featured group discussions, workshops and fieldwork including test driving motor-driven wheelchairs and measuring the slope angles most appropriate for them. An observation tour of the Pedestrian Accessibility and Movement Environment Laboratory (PAMELA) was also held.

New Anglo-Japanese research projects are scheduled to be launched as an offshoot of this symposium. More vigorous research exchange in this field between the two countries is expected to realize ever-better accessibility for all.

JSPS London Office

JSPS-Japanese University Briefing Held at University of Freiburg

On 15 November, the JSPS Bonn Office held an event to introduce Japanese universities and Japan visitation programs at the Freiburg Institute for Advanced Studies of the University of Freiburg. The office holds this event every year at various universities around Germany with an aim to kindle student interest in studying and doing research in Japan. Representatives of Japanese universities and research institutions with bases in Europe are invited to participate as information providers in these events. This time, some 40 students and faculty members attended the briefing.

It was kicked off with welcoming remarks by JSPS Bonn Office director Prof. Dr. Keiichi Kodaira, followed by an introductory message from Prof. Dr. Gunther Neuhaus, vice rector for research at the university. Then, Mr. Noriyoshi Masuko, counselor, Embassy of Japan in Germany, used a video to illustrate his presentation on the scholarship and international student-support programs offered by the Ministry of Education, Culture, Sports, Science and Technology, Japan Student Services Organization, and other institutions. Expanding upon Mr. Masuko's remarks, Ms. Harumi Okawa, deputy director of JSPS Bonn Office, introduced JSPS's fellowship offerings. Complementing these presentations, the Japanese university representatives gave short talks on their respective education and research programs. After the coffee

break, two former JSPS fellows reported on their experiences in Japan, and a representative of the German JSPS Club introduced the alumni association's activities.

An information corner was set up just outside the meeting hall, where the university representatives talked to the students during the break and after the meeting. Spirited conversations were seen to continue between them even after the doors to the hall had closed.

JSPS Bonn Office



Students listening to briefing

German-Japanese Colloquium Held in Heidelberg

On 15-17 January, the 10th German-Japanese Colloquium was held on “Frontiers of Laser Science” at Heidelberg University.

Every year, the JSPS Bonn Office holds a German-Japanese Colloquium on a different theme with a different co-organizer. This colloquium, held in cooperation with Heidelberg University on the theme “Frontiers of Laser Science,” was coordinated by Prof. Dr. Matthias Weidemüller of Heidelberg University and Prof. Dr. Kenji Ohmori of the Institute for Molecular Science. It was attended by nine researchers from each Germany and Japan, including young researchers.

On the first day, a study tour was made to the Max Planck Institute for Nuclear Physics and on the second, research presentations and discussions were held at Internationales Wissenschaftsforum Heidelberg. They were attended by Bonn Office director Prof. Dr. Keiichi Kodaira and other members of the office staff.

In the colloquium, speakers with various specializations ranging from quantum mechanics to nuclear physics, molecular biology and computer science delivered reports on their research and engaged each other in animated discussions. Afterwards, the participants voiced various impressions of the event. One commented that he found it to be a valuable opportunity to further expand the potentialities of research in this area. Another said that the event imbued him with

strong stimulus to advance his research and that he looked forward to new collaborations stemming from it.

Toward the end of the event, its venue shifted to Heidelberg University’s Neuenheimer Feld, where a General Physics Colloquium was held. At it, a lecture was delivered by Prof. Dr. Ohmori to an audience also comprising students of the university. The participants said they enjoyed the experience and looked forward to the convening of next general colloquium.

JSPS Bonn Office



During the discussion

Strasbourg Office Gives Program Briefing at University of Nantes

On 19 November, the JSPS Strasbourg Office held a program introductory meeting at the University of Nantes. Its president, Prof. Olivier Laboux, welcomed the group and described the university’s initiatives including its international activities, emphasizing the effort it is making to attract more than 30% of its doctoral students from abroad.

The office members were also given the opportunity to visit one of the university’s laboratories, named CEISAM (Interdisciplinary



University president welcoming JSPS staff

Chemistry: Synthesis, Analysis, Modelling). Prof. Elena Ishow, who coordinated the visit, introduced the activities and unique characteristics of this relatively new laboratory, founded in 2008 through the merger of three laboratories. During the visit, the staff could both see and feel a vibrant atmosphere of cooperation among the lab’s researchers.

At the ensuing JSPS program introductory meeting, the office staff introduced JSPS’s various fellowship and bilateral exchange programs. Eleven former JSPS fellows, including Dr. David Boilley, a board member of JSPS French Alumni Association and physicist who has stayed in Japan four times under various JSPS programs, offered accounts of their experiences. Listening absorbedly, the participants engaged them in probing Q&A discussions.

On the following day, the staff had the pleasure of meeting with Prof. Arnaud Poitou, director of Ecole Centrale—a *grande école*, higher education institution, in the field of engineering—and enjoying an informative discussion with him on the Ecole Centrale’s student and researcher exchanges with Japanese higher education institutions.

JSPS Strasbourg Office

JSPS Program Introduction Held at University of Reims Champagne-Ardenne

On 9 January, members of JSPS’s Strasbourg Office visited the University of Reims Champagne-Ardenne to hold a program introductory meeting. Welcomed by its president Prof. Gilles Baillat and vice president for international relations Prof. Noureddine Manamanni, the staff enjoyed a very informative discussion in which it learned about the university’s programs including its international initiatives. The university actively accepts foreign students, who currently make up more than 30% of its doctoral candidates.

At the introductory meeting, the staff introduced JSPS’s various fellowship and bilateral exchange programs. Afterwards, several members of the faculty who have participated in JSPS’s international programs conveyed their experiences in Japan to the students attending the meeting. Dr. Anne-Lise Dhimane, a member of the JSPS French Alumni Association’s board, also talked about her stay and collaborative research activities under JSPS’s international programs. These comments sparked engrossed interest among the participants, spurring them to ask many questions about JSPS fellowships and living in Japan under them.

Moreover, the staff was given the opportunity to visit two

renowned research laboratories. One was the Institute of Molecular Chemistry. At the other, Research Unit on Vines and Wines from Champagne, Stress and Environment, the staff was introduced to a new variety of grape with excellent resistance to fungal diseases that the lab had developed. Its researchers were now busy at work to adapt the new grape to various vineyard environments.

JSPS Strasbourg Office



Explaining JSPS programs

JSPS-NSFC-CAS Symposium Held Along with Chinese Alumni Meetings

On 6 December, a joint JSPS-NSFC-CAS “International Workshop on the Frontier of Science and Technology” was held at Sun Yat-Sen University in Guangzhou city. Convened collaboratively with JSPS’s Chinese partners, the National Natural Science Foundation of China (NSFC) and Chinese Academy of Sciences (CAS), this symposium sought to advance leading-edge scientific exchange between China and Japan, particularly among young researchers.

Sessions were held on four topics: Novel Approaches to Difficult Diseases, New Horizon of Biomedical Researches, Physical Link of Planets, Waves and Materials, and Exploration of Electromagnetic World. In each, three researchers who are advancing ongoing research under JSPS’s bilateral exchange program delivered presentations, making a total of 12 Japanese and Chinese presenters.

On the next day, the JSPS Fellow Alumni Association in China held its fourth executive council meeting and general assembly at the Guangdong Institute of Eco-environmental and Soil Sciences. The former was attended by 10 members including the council chair, Dr. Xiang Yu, vice-chair, and council member-cum-district leaders. The latter was attended by some 40 alumni members.

At the council meeting presided over by Dr. Yu, an energetic exchange of ideas on the association’s nationwide operations and extensive programs was carried out. In February, Dr. Yu had been invited to attend a meeting of the JSPS Alumni Association of Thailand (JAAT) in Bangkok. He spoke on an initiative started between the two alumni associations to advance exchange between their organizations and members. Reciprocally, JAAT president Dr.



Symposium participants

Busaba Yongsmith came to China and delivered remarks at the general assembly.

Kicking off the general assembly, Dr. Yu reported on the business that had transpired in the council meeting and the alumni activities carried out during the fiscal year. The meeting concluded with remarks by alumni member Prof. Nengchang Chen, who spoke about his research in Japan as a JSPS invitational fellow and how that experience had strengthened his sense of importance in advancing collaboration between Chinese and Japanese researchers while continuing to build the nexus of exchange between the two scientific communities.

At the get-together following the meeting, the alumni strengthened their friendship ties among colleagues in widely diverse realms of science.

JSPS Beijing Office

Alumni Member and Junior Events Held in Freiburg, Germany



“Member-Invites-Member” event

In the afternoon of 15 November, the German JSPS Club held its annual “Member-Invites-Member” event following the JSPS introduction meeting at the Freiburg Institute for Advanced Studies. It was coordinated by alumni members Dr. Christian Becker-Asano and Dr. Bernhard Hildebrandt, both of whom are doing research in Freiburg. At the meeting, Mr. Akira Mizutani, Consul General of Japan in Muenchen, offered introductory remarks, followed by lectures from researchers on such themes as robots and solar batteries. The next morning, the participants enjoyed a guided tour of the University of Freiburg’s “Uniseum” museum.

That afternoon saw the convening of a “Junior Forum,” co-organized by the JSPS Bonn Office and German JSPS Club. Invited to participate in it were young researchers who had gone to Japan under the JSPS Summer Program or JSPS Postdoctoral Fellowship Program. At it, Bonn Office director Prof. Dr. Keiichi Kodaira offered opening

remarks, after which three mid-career and senior alumni members talked about the various career paths they are blazing as researchers. They were followed by 14 Summer Program participants, who told about their experiences in Japan using PowerPoint slides and other visuals. Former JSPS postdoctoral fellows also gave an account their experiences. Lastly, an introduction to the German alumni association was provided by the Club members along with information on how to join, and a description was given of JSPS’s fellowship and other programs to which the young researchers are expected to apply for future support.

Bringing the JSPS Summer Program participants back together, this junior event enjoyed a friendly atmosphere throughout—one brimming with spirited exchanges of views, occasionally punctuated with bursts of laughter.

JSPS Bonn Office



Junior Forum

Philippine Alumni Association Holds General Assembly and Symposium

On 22 November, the JSPS Alumni Association of the Philippines (JAAP) held its inaugural general assembly and symposium on the theme “Enhanced Productivity through Science and Technology” at De La Salle University in Manila. JAAP is the latest JSPS alumni association to be establishing, bringing their worldwide number up to fourteen.

The symposium began with a silent tribute for the victims of Typhoon Yolanda, which had wrought an unprecedented loss of life and property on the people of the Philippines. Afterwards, Prof. Fortunato T. Dela Peña, undersecretary of the Philippines Department of Science and Technology (DOST), offered inspirational remarks to the alumni members. Next, JAAP president Dr. Maricar S. Prudente described the activities that had been carried out by Philippine Society of JSPS RONPAKU Fellows, which was the forerunner of the new alumni association. Operating from 2005, the RONPAKU society held outreach fora and seminars with DOST support and cooperation.

The keynote lecture was given by Prof. Motonari Uesugi, deputy director of the Institute for Integrated Cell-Material Sciences (WPI-iCeMS) and Institute for Chemical Research at Kyoto University, who spoke on the topic “Three Experiments for Changing Japanese

Universities.” These initiatives are (1) the Asian Chemical Biology Initiative (ACBI) carried out under JSPS’s Asia Core Program, through which chemical biology is being advanced across the Asian region and excellent students are being recruited to participate. (2) Lectures from Japanese universities are being provided to the edX online education program. (3) The Institute for Integrated Cell-Material Sciences (iCeMS) is being developed and operated at Kyoto University under JSPS’s World Premier International Research Center Initiative (WPI Program). He spoke about his own research of using chemical substances to effect cell differentiation and variation and the clinical applications of that work. Punctuating his remarks with humor, his speech captivated the audience who vacillated between calm and excited responses to it.

In the afternoon, JAAP’s inaugural general assembly was held. In tandem, the JAAP executive board held what will be its periodic meeting attended by representatives from around the Philippines. They voted on a resolution to advance the alumni association’s agenda autonomously in the future.

JSPS Bangkok Office



Prof. Uesugi



Dr. Prudente



Symposium participants

JSPS Alumni Club in Finland Holds General Assembly

On 27 November, the JSPS Alumni Club in Finland held its 2003 General Assembly at the University of Helsinki. At it, a report was given of the Club’s activities over the fiscal year, new members were welcomed, new Club officials installed, and honorary members elected. A discussion was also held on what the Club’s activities will be in the next fiscal year.

At this juncture, nine new members were admitted, bringing the Club’s total membership up to 74. Dr. Paivi Kristiina Jokinen of Helsinki University was elected the new chair and Dr. Markus Valkeapää of Aalto University, the new vice-chair. Dr. Jokinen was a JSPS postdoctoral fellow for two years from 1994 at the Nara Institute of Science and Technology. Her current research focuses on spoken dialogue management, non-verbal communication, and multimodality. Dr. Valkeapää’s experience as a JSPS fellow was at the Tokyo Institute of Technology where his study was titled “Search and Tailoring of Misfit-Layered Oxide Materials.” The Stockholm Office took advantage of the opportunity to tell the new alumni members that as it will continue to support the Club, it expects them to be vigorous in carrying out its activities.

As the joint symposium between Helsinki and Hokkaido Universities was held on the same day as the General Assembly, the

alumni members joined the symposium participants in that evening’s reception, where they enjoyed chatting with researchers and students from the two universities as well as with each other.

JSPS Stockholm Office



Board members of Alumni Club

Gatherings of Japanese JSPS Fellows Held at Harvard University

Convened on 2 November at Harvard University, this was the twenty-fourth time for one of these gatherings to facilitate networking to be held for young Japanese researchers on dispatch to the United States via JSPS programs. From FY 2004, the gatherings had been implemented on both the west and east coasts by the JSPS San Francisco Office. From this fiscal year, the ones on the west coast will continue to be held by the San Francisco Office, while those on the east coast will be held by the Washington Office.

Attending this event were 42 young Japanese researchers dispatched to the US through JSPS's Postdoctoral Fellowships for Research Abroad, Research Fellowships for Young Scientists, and Strategic Young Researcher Overseas Visit Program. They were joined by Mr. Yasutoshi Nishimura, Senior Vice-Minister of the Japanese Cabinet Office, the Consulate-General of Japan in Boston, and members of JSPS's Tokyo, San Francisco and Washington

DC offices—making a total of 66 participants. As a new initiative, members of the United Japanese Researchers Abroad (UJA), a group of Japanese researchers residing in the US and supported from last year by the Washington Office, were invited to introduce their activities. On another new plane, past JSPS fellow Dr. Satoshi Yoshida, now an assistant professor of Biology at Brandeis University, gave a lecture titled "Having an American Lab." Then, the participants engaged in a spirited discussion on themes they freely chose. With these newly added components, the gathering provided an even broader platform for building networks among the attendees. Having been told by them how meaningful it was to attend the event and receive concrete advice on career building while in America, JSPS looks forward to holding more of these gatherings in the future.

JSPS Washington Office



Dr. Satoshi Yoshida

JSPS Orientation for New Fellows Held in Tokyo

On December 24-26, JSPS held an orientation in Tokyo for recently arriving postdoctoral fellows from countries around the world. The event happened to fall at Christmas; nevertheless, it enjoyed the participation of 28 fellows. They experienced the Yuletide—Japanese style: Working during the day and enjoying Christmas cheer in the evening. To break the ice, the fellows challenged each other with trivia quizzes during the reception party on the first evening. As one highlight, a German fellow hosted by Kyoto University gave a unique presentation on her biological research using a Santa Clause and reindeers to illustrate its content. The Christmas party closed with two members of JSPS staff playing Silent Night on their violin and melodica.

One of the lectures at the orientation was given by Dr. Gavin Whitelaw, an anthropology professor at International Christian University, who spoke on the subject "Engaging with Japan: A Holiday Reflection on Work, Life, and Career." He told the newcomers that it can be useful to wander about aimlessly in getting to know the place you are visiting even if it means getting a little lost, and not being afraid to "take a bite." A bit tongue in cheek, he illustrated this point with an eating experience he had when once working as an English teacher in Yamagata—chomping down grasshoppers boiled in soy sauce.

Following his and the other lectures, the fellows broke up into groups of five to discuss a set of topics, including "What elements are important for developing a successful research career?" The conversations ignited among them were as probing as they were lively.

The highlights of the orientation included an excursion of the traditional Asakusa shopping and temple district, experiencing a tea ceremony at the Happo-en Japanese garden, and visiting the Shinagawa Historical Museum. What the fellows may have found most interesting was a visit to the Ikebukuro Life Safety Learning Center, which features an earthquake simulator. Japan is known for its earthquakes, though most are small tremors. The simulator puts the participant in a violently shaking dining room so they can learn how to react in a real-life setting to a major earthquake. The fellows enjoyed the orientation and its excursion through which they could "lose themselves" in an intensive Japanese experience.

JSPS Fellows Plaza



Group discussion



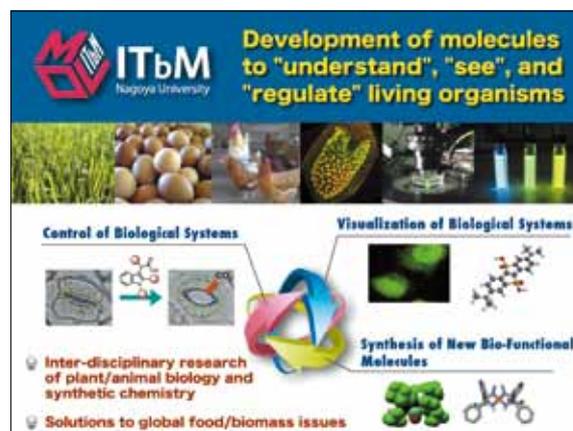
Institute of Transformative Bio-Molecules (ITbM) Nagoya University



Changing the world with molecules

Molecules are extremely small particles that are essential to sustaining life on the planet. Amongst the vast pool of molecules, there are those that profoundly change the way we live. One such example is Penicillin, an antibiotic effective in treating many serious diseases. Such molecules can be defined as "transformative bio-molecules." Led by Prof. Kenichiro Itami of Nagoya University, the Institute of Transformative Bio-Molecules (ITbM) works to create transformative bio-molecules through extensive collaboration between cutting-edge molecular synthetic chemistry and animal/plant biology. This new interdisciplinary field addresses urgent social issues related to the environment, food production, and medical technology, by delivering bio-molecules that can transform the world. One aspect of ITbM's research is to develop molecules that control biological systems, i.e. molecules that dramatically enhance plant growth and improve animal reproduction.

ITbM has a young team of ten Principal Investigators (PIs) who are



ITbM's ten PIs. Top left to right: Drs. Higashiyama, Kinoshita, Yoshimura, Yamaguchi
Bottom left to right: Drs. Torii, Bode, Itami, Crudden, Irie, Ooi

world-leading researchers in the fields of synthetic chemistry, plant/animal biology, and theoretical science. With three overseas PIs concurrently holding posts in Canada, Switzerland and the US, ITbM is an international research center with bilingual administrative staff and "Mix-Labs." These lab spaces enable synthetic chemists, biologists and theoretical scientists from different countries around the world to work alongside each other on the bench, allowing interactive discussions on a daily basis and promoting interdisciplinary research.

Many of the postdoctoral researchers at ITbM are from overseas, and the institute has specialized staff who provide local support for their daily life, accommodations, medical care and for the education of their children—all aimed at making sure the overseas researchers and their families are comfortable living in Nagoya. Located between Tokyo and Osaka, Nagoya University's ITbM provides an enthusiastic research environment for people wanting to "connect molecules, create value, and change the world."



Professor Jeffrey W. Bode Principal Investigator of ITbM at Nagoya University

Profile

2001: PhD; ETH-Zürich, Switzerland

2001-2003: JSPS Postdoctoral Fellow; Tokyo Institute of Technology, Japan

2003-2007: Assistant Professor; University of California, USA

2007-2009: Associate Professor; University of Pennsylvania, USA

2010-present: Professor; ETH-Zürich, Switzerland

2013-present: Visiting Professor, ITbM, Nagoya University, Japan

After finishing his doctoral studies in Switzerland, Dr. Bode came to Japan as a JSPS postdoctoral fellow. Having secured academic posts in the US and Switzerland, where he currently is a full professor, Dr. Bode became one of ITbM's principal investigators working on the development of new methods for carrying out peptide synthesis. He speaks from experience when talking about research in Japan and conveying his thoughts on ITbM's operation.

"My interaction with Japan has extended over a period of 13 years since my JSPS postdoctoral fellowship in Tokyo. The most

important lesson that experience has taught me is the passion that the Japanese people put into science. In Japan, researchers not only have the opportunity but also possess the motivation to work on very hard problems, and the government offers them good support in carrying out fundamental research.

"ITbM conducts high-quality research in a manner different from traditional labs. Synthetic chemists and animal/plant biologists work together in the same lab, making it possible for synthesized molecules to be subjected to biological assays with almost immediate feedback.

"After less than a year of getting ITbM up and running, its research is going extremely well. Now, we are jumping off the starting blocks down a challenging course: focusing on the science we can advance together, thinking about what molecules to create, and embarking on science that none of us could do alone.

"Japan offers warm hospitality, a friendly atmosphere, and fantastic food. It is a safe and very convenient place to live and work. ITbM's office provides generous support to assist overseas researchers in adapting to life in Nagoya. ITbM is very different in terms of its researcher staffing, with a large number of overseas postdocs working at it. We are determined to create an international model where people from diverse countries and cultures can work together effectively and collaboratively.

"At ITbM, we are looking for ambitious and adventurous people who want to try something new, and we believe that ITbM provides an environment that motivated people will find very attractive."

For more detailed information about ITbM, please visit our website: <http://www.itbm.nagoya-u.ac.jp>



The following fellows participated in JSPS's Science Dialogue Program during the period from October through December 2013. For details about the program, please see its website: <http://www.jsps.go.jp/english/e-plaza/e-sdialogue/>.

Overseas Fellowship Division

Iwate Prefectural Mizusawa High School

Date: 22 November

Dr. Adriana LEDEZMA ESTRADA (MEXICO)

Host institution: Tohoku University

Title: "Degradation of Antibiotics by Electrochemical Oxidation Process Using an Activated Carbon Felt Cathode."

Ibaraki Prefectural Takezono High School

Date: 3 December

Dr. Muhammad SAQIB (AUSTRALIA)

Host institution: National Institute of Advanced Industrial Science and Technology

Title: "Introduction to Plant DNA and RNA Viruses, Their Impact"

Seishin Gakuen High School and Junior High School

Date: 18 December

Dr. Ricardo Shohei HATTORI (BRAZIL)

Host institution: Tokyo University of Marine Science and Technology

Title: "Effects of Global Warming on Fish Reproduction"

Dr. Wei QIAO (CHINA)

Host institution: Tohoku University

Title: "Waste to Bioenergy"

Dr. Fatemeh SAFARI (IRAN)

Host institution: Nara Institute of Science and Technology (The University of Tokyo at date of lecture)

Title: "Introduction to Cancer Research"

Dr. Chuan-Ming YEH (TAIWAN)

Host institution: National Institute of Advanced Industrial Science and Technology

Title: "Plant Defense Responses to Environmental Stresses"

Gunma Prefectural Takasaki Girls' High School

Date: 4 October

Dr. Alexandre J. Y. FIORI (FRANCE)

Host institution: National Institute for Materials Science

Title: "Synthesis of Diamond by Chemical Vapor Deposition Method"

Saitama Prefectural Kumagaya High School

Date: 2 December

Mr. Christoph Bernd Manfred HOERIG (GERMANY)

Host institution: The University of Tokyo

Title: "Physics: Make It Simple!"

Dr. Maria MIHALIKOVA (SLOVAKIA)

Host institution: The University of Tokyo

Title: "Observation of Tropopause Folds in Antarctica"

Dr. Anton MYALITSIN (GERMANY)

Host institution: RIKEN

Title: "Non-linear Spectroscopy of the Surface"

Dr. Mu-Yun WANG (TAIWAN)

Host institution: The University of Tokyo

Title: "Sheep in Wolf's Clothing: Predator Mimicry between Moth and Jumping Spider"

Chiba Municipal Chiba High School

Date: 12 December

Dr. Elina Kristina STAAF (SWEDEN)

Host institution: National Institute of Radiological Sciences

Title: "Cellular Effects of Mixed Beams of Radiation"

Ichikawa Gakuen Ichikawa Senior High School (Chiba)

Date: 1 October

Dr. Chadwick Bruno Jean BOULAY (CANADA)

Host institution: Keio University

Title: "Life as an International Brain-Computer Interface Researcher"

Dr. Marius Ernst BURKLE (GERMANY)

Host institution: National Institute of Advanced Industrial Science and Technology

Title: "Small, Smaller, Nano (and Beyond) or How Small is Nano?"

Dr. Choong Hyun LEE (KOREA)

Host institution: The University of Tokyo

Title: "Materials Innovation for Advanced Semiconductor Devices"

Date: 2 October

Dr. Anthony Tadeus Herve BEAUCAMP (FRANCE)

Host institution: Chubu University

Title: "Optics Manufacturing in the 21st Century"

Dr. Dahanayakage Don Gihan Lakmal DAHANAYAKA (SRI LANKA)

Host institution: Ibaraki University

Title: "Satellite Remote Sensing for Environmental Assessment of Water Bodies"

Dr. Xian-Yang QIN (CHINA)

Host institution: RIKEN

Title: "Discovery of Novel Molecular Targets by Chemical Screening for Personalized Medicine of Liver Cancer"

Date: 4 October

Dr. Sam Suzanna R. COPPIETERS (BELGIUM)

Host institution: Tokyo University of Agriculture and Technology

Title: "Experimental Strain Analysis"

Dr. Atmika PAUDEL (NEPAL)

Host institution: The University of Tokyo

Title: "Discovery of Novel Antibiotics Using Silkworm Infection Model"

Dr. Sailendra Nath SARMA (BANGLADESH)

Host institution: The University of Tokyo

Title: "Stem Cell Research—What Is It All About?"

Junior High and Senior High School at Komaba, University of Tsukuba (Tokyo)

Date: 5 October

Dr. Xin-You LU (CHINA)

Host institution: RIKEN

Title: "Controllable Superconducting Qubit"

Date: 19 October

Dr. Bostjan BERTALANIC (SLOVENIA)

Host institution: The University of Tokyo

Title: "Stories, History and Science"

Date: 16 November

Dr. Seino Anne Karel JONGKEES (NEW ZEALAND)

Host institution: The University of Tokyo

Title: "Panning for Gold: Selection of Catalytic Peptides Using the RaPID System"

Tokyo Metropolitan Toyama Senior High School

Date: 26 October

Mr. Pablo Arturo APARICIO SANCHEZ (SPAIN)

Host institution: Nagoya University

Title: "Introduction to Chemistry: Study of Inorganic Molecules in Batteries"

Date: 14 November

Dr. Michael Joseph WILKING (U.S.A.)

Host institution: The University of Tokyo

Title: "Why I Study Neutrinos at Super-Kamiokande"

Niigata Municipal Bandai Senior High School (Niigata)

Date: 18 October

Dr. Aleksandr M. KHALAIDOVSKI (GERMANY)

Host institution: The University of Tokyo

Title: "Physics and Gravitational Waves—Study and Research in Germany and Japan"



1. Kumagaya High School 2-3. Ichikawa Senior High School 4. Tsukuba Univ. Junior High and Senior High School at Komaba 5. Fujishima Senior High School

Kanazawa University Fuzoku High School (Ishikawa)

Date: 17 December

Dr. Marek Edward Thomas SCHMIDT (GERMANY)

Host institution: Japan Advanced Institute of Science and Technology
Title: "My Career in Germany, UK, Japan and Graphene Research"

Fukui Prefectural Fujishima Senior High School

Date: 22 November

Dr. Martina Samin MULLER (SWITZERLAND)

Host institution: Nagoya University
Title: "Becoming a Behavioral Biologist"

Fukui Prefectural Koshi High School

Date: 5 October

Dr. Stefan FUNKNER (GERMANY)

Host institution: Fukui University
Title: "Laser, Molecules and Spectroscopy"

Date: 14 December

Dr. Yun Chang SHIN (KOREA)

Host institution: Osaka University
Title: "Physics with Neutrons"

Yamanashi Prefectural Hikawa High School

Date: 10 October

Dr. Zhongli ZHANG (CHINA)

Host institution: The University of Tokyo
Title: "An Introduction to X-ray Astronomy and International Research"

Date: 5 December

Dr. Mridul Kanti MANDAL (BANGLADESH)

Host institution: University of Yamanashi
Title: "Mass Spectrometry as Excellent Research Tool"

Yamanashi Prefectural Kofu First High School

Date: 18 October

Dr. Gregor MAUCEC (SLOVENIA)

Host institution: Kyoto University
Title: "Discrimination in the Application of Death Penalty"

Yamanashi Prefectural Tsuru High School

Date: 6 December

Dr. Wen LIU (CHINA)

Host institution: Tokyo Institute of Technology
Title: "Remote Sensing"

Dr. Julien TRIPETTE (FRANCE)

Host institution: The National Institute of Health and Nutrition
Title: "Using Active Video Game to Reduce Sedentary Screen Time and Increase Physical Activity"

Nagano Prefecture Suwa Seiryu High School

Date: 22 November

Dr. Martin WEILER (GERMANY)

Host institution: Tokyo Institute of Technology
Title: "Photoionization Induced Solvent Migration in Acetanilide(H₂O)-Cluster"

Shizuoka Prefectural Iwata Minami High School

Date: 4 December

Dr. Edgard Gaston Benoit Henry PIERRE (FRANCE)

Host institution: High Energy Accelerator Research Organization
Title: "Explaining the Universe with Neutrons"

Shizuoka Prefectural Nirayama High School

Date: 11 October

Dr. Darren John LECLERE (UK)

Host institution: Toyohashi University of Technology
Title: "How Solar Energy Works"

Aichi Prefectural Jishukan Senior High School

Date: 19 October

Dr. Sek-Bik Jennifer KAN (UK)

Host institution: Kyoto University
Title: "On a Journey Towards Becoming a Synthetic Organic Chemist"

Dr. Risky A. KRISTANTI (INDONESIA)

Host institution: Osaka University
Title: "Rhizoremediation is a New Happiness for Aquatic Environments"

Aichi Prefectural Kasugai High School

Date: 25 November

Dr. Kenji SUMIDA (NEW ZEALAND)

Host institution: Kyoto University
Title: "Design and Synthesis of New Materials for a Sustainable Energy Future"

Aichi Prefectural Okazaki Senior High School

Date: 28 October

Dr. Emmanuel COMBE (FRANCE)

Host institution: National Institute of Advanced Industrial Science and Technology
Title: "Producing Electricity by Recovering Waste Heat via Thermoelectric Conversion"

Date: 18 November

Dr. Alexander KRAH (GERMANY)

Host institution: Kyoto University
Title: "Research Beyond Borders—Research on ATP Synthases"

Aichi Prefectural Zuiryo High School

Date: 6 November

Dr. Etienne SKRZYPEK (FRANCE)

Host institution: Kyoto University
Title: "Questions in Geosciences"

Nagoya Koyo Senior High School (Aichi)

Date: 17 December

Dr. Abdelrasoul Mahmoud GADELMOULA (EGYPT)

Host institution: The University of Tokyo

Title: "Tribology Science: Towards A Better Understanding, Reliable Design, and Consumer Satisfaction"

Hyogo Prefectural Ashiya International Secondary School

Date: 10 October

Dr. Viskam WIJEWARDANA (SRI LANKA)

Host institution: Osaka Prefecture University
Title: "Dendritic Cell Based Cancer Immunotherapy"

Date: 31 October

Dr. Claire Fiona Esther WATSON (UK)

Host institution: Kyoto University
Title: "Japanese Monkeys and Culture"

Konko Gakuen Junior and Senior High School (Okayama)

Date: 16 October

Dr. Michele DALL'ARNO (ITALY)

Host institution: Nagoya University
Title: "Doing Research in Quantum Physics"

Hiroshima University High School (Hiroshima)

Date: 22 November

Dr. Ahmed Abd El-Rahman ASKORA (EGYPT)

Host institution: Hiroshima University
Title: "Bacteriophages and Future Biotechnology"

Saga Prefectural Chienkan Senior High School

Date: 16 November

Dr. Hamdi BEN YAHIA (TUNISIA)

Host institution: National Institute of Advanced Industrial Science and Technology
Title: "Importance of Crystallography in Material Science"

Dr. Pedro Eduardo FERREIRA (PORTUGAL)

Host institution: Nagasaki University
Title: "Me and My Science"

Dr. Yayan SOFYAN (INDONESIA)

Host institution: Kyushu University
Title: "Let's Discover Our Earth!! Gravity Monitoring in Volcano and Geothermal Area"

Date: 16 December

Dr. John Duong PHAN (US)

Host institution: National Institutes for the Humanities
Title: "Using Linguistics to Unlock the Past"

Miyazaki Prefectural Nobeoka High School

Date: 1 November

Dr. Md. Shamim HOSSAIN (BANGLADESH)

Host institution: Kyushu University
Title: "Mechanisms of Learning and Memory-Related Gene Expression in Hippocampus During Neuroinflammation"



6. Toyama Senior High School 7. Kofu First High School 8-9. Tsuru High School 10. Nobeoka High School

Hailing from Bulgaria, Dr. Vladimir Konstantinov Kotev has from October 2011 been conducting research with his host researcher, Dr. Tetsuya Mouri, in the Faculty of Engineering at Gifu University under a JSPS postdoctoral fellowship. After obtaining his PhD from the Institute of Mechanics, Bulgarian Academy of Sciences and while working there as an assistant professor, he heard about Dr. Mouri's laboratory from his colleagues and decided to ask Dr. Mouri to host him.

- What are you currently researching under your JSPS fellowship?

I am working on developing a compact, patient-safe and easy-to-use robotized system for orthopedic surgery. Our goal is to develop a robotized system for bone drilling and cutting procedures in order to avoid problems incurred in free-hand operations and to reduce the procedure time as much as possible. The system consists of two hand-held executive modules for drilling and cutting, respectively. In our robotized system, drilling and cutting conditions automatically change in line with bone density. The system can also monitor time, velocity, resistant force, penetration depth, and temperature during the procedure, which can be beneficial for surgeons. I have had meetings with surgeons at Gifu University Hospital, and they have given me valuable help in conducting my research.

- How did you become interested in your research field?

As a mechanical engineer, I have always been interested in the design and dynamical modeling of mechatronic systems and robots with biomedical applications. My interest in this field started when I was a master's student, and as a doctoral student I continued to apply my knowledge of mechanics, design and control to bioengineering and robotics. Now, I want to further advance my research in areas of robotics and biomechanics, because I think that robots will be increasingly engaged with humans in the future by assisting and serving them and altering their environment.

- How did you get to know your Japanese host researcher?

My colleagues at my institute in Bulgaria have had a long and beneficial cooperative relationship with the Kawasaki and Mouri Laboratory at Gifu University. So I had many discussions on research work in the laboratory with them. One of my colleagues, who had joined the Kawasaki and Mouri Laboratory under a JSPS Postdoctoral Fellowship, told me about his experience in it. Moreover, I browsed the laboratory's website and was highly impressed with the richness of its research portfolio and scientific accomplishments. I was especially attracted by its innovative and cutting-edge research on the design and control of robotized hands, prosthetic and rehabilitation robots as well as virtual reality and haptic human interface. So I made contact with Prof. Mouri and sent him my research plan, and

was very grateful that he agreed to host me. After that, I applied for a JSPS Postdoctoral Fellowship and fortunately was awarded one. Under it, I have found that JSPS provides excellent conditions for conducting research and living in Japan.

- Besides working with Dr. Mouri, are there other reasons that you chose Japan to pursue your research?

As is well-known, Japan is famous for its advanced technology and scientific achievements in various fields. Japan is also a leader in the production of high-quality machines, electronics, computers and robots. Upon graduating from high school, I read some papers written by Japanese researchers, which sparked my interest in Japan. I wanted to get some experience in that environment. Moreover, I thought that Japanese universities offer excellent study conditions along with an opportunity to conduct research. I am very happy that my dream could be realized. Besides the scientific aspects, I wanted to get to know the Japanese people and experience the Japanese lifestyle and culture.

- Now that you've been there for a couple of years, what is your impression of your host institution?

This laboratory advances top-level innovative research on robotics in various areas such as robot hands, prostheses controlled by biological signals, rehabilitation systems, virtual reality, and haptic interface. It has even developed a tree-pruning robot. Being very famous all over Japan, the laboratory has allowed me to meet many robotics researchers who know Prof. Kawasaki and Prof. Mouri and their work. They publish and exhibit their research in mostly top-level conferences and journals. As both professors have a wealth of experience in the area of robotics, one can learn much from them. On another plane, I also enjoy having interesting discussions with the students in my lab. As they are very industrious, intelligent and motivated, I believe that the students are truly inspired by their work.

- Generally speaking, what is your impression of Japan's research environment?

I have been happy to have the chance to visit some other laboratories and to attend exhibitions and conferences where I could meet other researchers and get familiar with their work. My impression is that Japanese laboratories are well-equipped with modern technologies and that they advance innovative research with mostly practical applications. The students and staffs are also very motivated and they work hard to achieve the highest quality of research. As Japanese universities and institutes provide an excellent working environment, it is not surprising that many foreign researchers choose Japan to conduct their research.

- So far, what has your research achieved under the JSPS fellowship?

I am conducting research related to the



Dr. Vladimir Konstantinov Kotev

JSPS Postdoctoral Fellow, Faculty of Engineering, Gifu University, Japan, 2011-2013
Assistant Professor, The Institute of Mechanics, Bulgarian Academy of Sciences (BAS), Bulgaria, 2009-2011
Ph.D. (Biomechanics), The Institute of Mechanics, BAS, Bulgaria, 2008
M. Sc. (Mechanical Engineering), Technical University of Sofia, Bulgaria, 2002

modification and improvement of a hand-held orthopedic robotized module named DORO. So far, we have designed a bone-drilling module, named ODRO, that drills at a preliminary depth and detects bone breakthrough. One of the advantages that we have built into ODRO is that it can be used without a navigation system. Now, I am working on the development of a robotized module, OCRO, used for bone-cutting procedures. OCRO is intended to operate at a preliminary setting of depth and stop automatically after the cutting process is completed. It is also being built to perform cutting with appropriate thrust force and feed rate based on variable bone density. I have had the chance to discuss my research with medical doctors and medical robotics researchers, and they recognize the advantages of my research particularly with regard to patient safety. We have presented the results of our work in scientific journals and at international conferences.

- What do you do outside your research work?

I like riding my bicycle and going for walks around the city. I also like meeting the local people and talking with them. Moreover, I have a Japanese class that I attend every week. Especially challenging for me is writing Japanese letters and words. In addition, I am really keen on visiting traditional Japanese houses, temples, and shrines as well as historical and science museums. Also, I love Japanese gardens, parks and castles. I am really happy that I have opportunities to travel to places of interest here and there around Japan. Whenever I have free time, I go to visit a new place and eat the local food,

such as *udon*, *soba*, *miso* soup, *okonomiyaki*, and of course *sushi*.

- What do you think of life in Japan – its culture and customs?

For me, Japan offers a wonderful mixture of the ancient and modern. On one hand, the Japanese observe traditions, practice ancient rituals and hold festivals. They have strict rules about their traditional clothes and food. On the other, they love modern technologies and their lives are very much influenced by the modern wonders of the world. It is interesting how well the old and modern stand side by side in harmony. In fact, it is its harmony that I particularly like about the Japanese lifestyle. I am also impressed by the people's modesty and respect for each other. The Japanese are very kind-hearted and honest, and they always try to help. I find them to be very understanding of people from different cultures and religions.

- Before coming to Japan, what kind of image did you have of the country? Has your perception changed?

Before I came here, I mainly knew about Japan from what I had read in books or seen on TV. I basically knew Japan for its cars, machines

and technologies, and martial arts. I bought some products made in Japan, which gave me some affinity for the country. Now, I am happy that I have had the chance to learn more about Japanese history, traditions, culture and music. Living in Japan has given me a deeper knowledge of the Japanese people. I have discovered firsthand that they have a very positive attitude towards life and a very strong work ethic. They are also well-organized, which makes Japanese life less stressful.

- What do you plan to do after your fellowship ends?

I will continue my research in the area of robotics and biomechanics in the Institute of Mechanics at the Bulgarian Academy of Sciences. I have accumulated substantial experience which will allow me to participate in other projects in the future. I have also had a lot of conversations on robotics and medical engineering with other scientists. So, I hope to continue not only my collaboration with my colleagues in this laboratory but also to strengthen the relationship enjoyed between my department at the Academy in Bulgaria and this laboratory in Japan. Furthermore, I want to establish new connections with other researchers in Japan.

- Please give some advice for young researchers who may be thinking about doing research in Japan?

I would definitely recommend that they come to Japan because the research staffs are very professional and the laboratories are well-equipped and offer an excellent research environment. Japan is also a beautiful and safe country. You will find the Japanese to be a very polite, honorable, hospitable, and reliable people.

From our interview with him, it was abundantly apparent that Dr. Kotev has both enjoyed and found very fruitful his stay in Japan. His research with Dr. Mouri and his lab mates has advanced steadfastly step by step. There is a very high demand within the medical community and among the general public for the kind of robotized systems they are developing to perform orthopedic surgery. The considerable time and effort he has devoted to advancing this research, the deep understanding he has cultivated of the Japanese culture and people, and the strong bonds he has tied with his Japanese colleagues are sure to pay great dividends after he returns to Bulgaria both in advancing milestone research there and in promoting vibrant collaboration with Japan.

Introducing Japan: Gifu City

Currently, I am living and working in Gifu city. It is a beautiful and quiet city located in the central part of Japan, only 20 minutes by train from Nagoya. Its location is very convenient for travelling both around Japan and internationally as one can easily get to the Chubu Centrair International Airport in Nagoya.

Gifu is surrounded by mountains. The most popular among them is Mount Kinka in the heart of the city. The Nagara River runs along its foot and the famous Gifu Castle sits on its top. The castle was the residence of many lords, among them Oda Nobunaga, who initiated the unification of Japan in the late 16th century after a long period of warring states. The castle was destroyed at one point, then reconstructed to its present shape in 1956. Making this place especially attractive is a ropeway that goes directly from Gifu Park, at the base of Mount Kinka, to the castle on the mountain top, which commands a lovely view of the city. People who

like climbing can reach the top by ten different routes. For those who prefer walking, Gifu Park is a wonderful place for taking a stroll. There are stone paths going around a lake, and in the evenings the whole area is illuminated with hundreds of small lamps.

The city is also well-known for its cormorant fishing on the Nagara River. This is an old art of fishing dating back some 1300 years. The powerful leader Oda Nobunaga patronized this art, setting the stage for it becoming such a long-lasting tradition. What makes cormorant fishing so interesting is the way in which the fishermen on the boat skillfully manipulate several cormorants that swallow the fish (called *ayu*). This ritual of fishing can be observed from sightseeing boats that pick up the spectators from a quay. Even more spectacularly, the fishing takes place at night with fires (*kagaribi*) in iron baskets hanging from the fishing boats to light up the river's surface.

Another place one should visit in Gifu is the Gifu Great Buddha (Shoho-ji Temple) that accommodates a 13-meter high statue of Buddha. One can also take a walk through the roofed Yanagase shopping arcade in downtown Gifu city. It offers a full array of shops, restaurants and bars—something for every taste. For those who enjoy relaxing in a hot spa (*onsen*), there are several hotels near Mount Kinka with onsen baths (one being Nagaragawa Onsen). Sitting in the hot spring water, one can enjoy a nice view of the mountain.

Finally, Gifu is also famous for its

paper lanterns, one of the city's traditional crafts. They are built around a thin wooden frame and can be plain or decorated with scenes. Most of these lanterns are still made by hand, which makes them a genuine article of art.

So, I would recommend Gifu to those who are looking for a relaxing holiday or who are interested in history and traditional crafts.



Sitting atop Mt. Kinka



With his wife Galina in Gifu Park





Cover photo:

Rakugan—Lovely Japanese sweets (*wagashi*) made of rice powder with Japanese *wasanbon* sugar, molded into a sea bream, flower blossoms and other lucky items, and packed in a decorative box for festive occasions such as lantern and doll festivals.

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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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