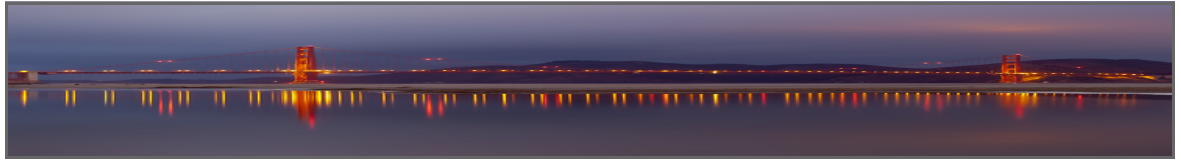




# Japan Society for the Promotion of Science

## San Francisco Volume XXVII Issue October 2012



### ANNOUNCEMENT OF UPCOMING EVENT



## JUNBA 2013

*“Educational Transformation in a Global World  
beyond International Exchange Programs”*

The Japanese University Network in the Bay Area (JUNBA) is pleased to announce that JUNBA 2013 will be held on January 11 and 12, 2013. This event will bring together Japanese university leaders to exchange views on educational transformation in a global world from the viewpoint of university management. While focusing primarily on global human resources development, we will discuss quality assurance and international validity and currency in higher education of Japanese universities.

- Date & Time: Friday, January 11, 2013: 10:00 a.m. - 5:20 p.m.  
Saturday, January 12, 2013: 8:30 a.m.- 6:00 p.m.
- Location: Hilton San Francisco Airport Bayfront  
600 Airport Blvd., Burlingame, CA 94010, USA
- Organized by: JUNBA: Japanese University Network in the Bay Area
- Co-Organized by: Consulate General of Japan in San Francisco \*  
Japan Society for the Promotion of Science (JSPS)
- Supported by: Ministry of Education, Culture, Sports, Science and Technology in Japan (MEXT) \*  
JETRO San Francisco \*

\* Prospective organizations

For further information, please visit JUNBA's webpage. ↓

<http://www.junba.org/junba2013.html> (English)  
[http://www.junba.org/junba2013\\_j.html](http://www.junba.org/junba2013_j.html) (Japanese)

+++ What's JUNBA? +++

JUNBA is a network among Japanese universities which have their offices in the Bay Area. The mission of JUNBA is to assist the enhancement of education and research activities and the creation of new businesses for Japanese universities by helping their internationalization movements, by helping the training of their students and personnel and by promoting a development of academia-industry relationships between Japan and the United States.

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## THE OFFICE STAFF SWITCH

### JSPS San Francisco Wishes a Heartfelt Farewell to an Advisor

#### Toshiaki Tanaka, an Adviser from MEXT

**Mr. Tanaka** has completed his stay in California as a visiting scholar for one year at UCOP (University of California, Office of the President). He was the 11<sup>th</sup> MEXT (Ministry of Education, Culture, Sports, Science and Technology) fellow to work and learn at UCOP. At the same time, he worked at JSPS San Francisco office as an Adviser.

He mainly did research on the kind of problems UC has had recently and how UC struggles to solve such problems, especially the increase in tuition caused by the severe financial situation in the state of California. Therefore he attended the Board of Regents meetings where important matters related to the UC system, including the tuition hike, are discussed. In addition, he attended various meetings and seminars and visited all ten UC campuses. Although it was difficult for him to understand everything because of his lack of English ability, he believes that seeing directly was most important because he could never experience such things if he had stayed in Japan. As adviser of JSPS SF, he was involved in overseeing activities, such as symposiums and other events which were held. He also attended all the JUNBA (Japanese University Network in the Bay Area) Regents meetings to help design the JUNBA Symposium and Summit which are held annually in January.

Reflecting back on his arrival to California one year ago, he recalls he did not have any confidence to stay here because up to this point, he had not engaged in international affairs at all and this was his first time to live and work in a foreign country. However, he said he could enhance his stay thanks to the support from the staff at UCOP, the staff of JSPS SF and the people whom he met during his stay, so he would like to express his sincere gratitude to them. And he said this was an invaluable experience which will be extremely profitable not only for his work but also his life in the future. Now, he wants to use his experiences here to enhance his work in the Japanese government after going back to Japan.

From the JSPS SF staff, we appreciate your warm support on many points and we wish you all the best luck in your future endeavors!



### JSPS San Francisco Welcome a New Member

#### Tomoko Fujita, the new Deputy Director of TUS San Francisco Office

**Tomoko Fujita** is the 8<sup>th</sup> staff of the TUS (Tokyo University of Science) San Francisco office. She has worked for TUS for 3 years at the Kuki Campus Office (School of Management).

This is a good opportunity for her to see universities in the US from the viewpoint of an administrative staff. During her short three month stay here, she hopes to meet many people and visit many places in order to expand her view, and she also hopes to make a basis for good relations between TUS and alumni in the Bay Area.

She is glad that UC Berkeley is near her office as she is interested in spending her lunch break there, people watching, seeing many places, and attending many events there. This is the first time for her to stay in foreign country, so she looks forward to enjoying her life in Berkeley.



## EVENTS OF SUMMER 2012

### The 3<sup>rd</sup> Meeting Held of Japanese University Faculty in the US

On 20 July, the JSPS San Francisco Office held its third meeting of Japanese university faculty members in the U.S.

The purpose of this meeting is to exchange information and establish mutual networks among Japanese university educators and researchers staying in the United States. The meeting was attended by twelve faculty members of Japanese universities here on short stays to do research at Stanford University, UC Berkeley, and UC San Francisco. In the meeting, participants briefly introduced themselves and talked about their current research activities. They then held an exchange of views regarding the future of higher education in Japan. Afterwards, a sociable gathering was held and participants enjoyed comparing notes on their various research activities and sharing information on their living environment in the United States.



### The 20<sup>th</sup> Gathering of JSPS Japanese Fellows in the US

On June 22nd, JSPS San Francisco held its 20th "Gathering of JSPS Japanese Fellows".

These meetings are meant to promote cross-disciplinary exchange among Japanese researchers currently doing their research in the U.S. While serving to deepen the friendly relationships among them, the meeting also provides the researchers with an opportunity to build professional networks. Participating in this year's first gathering were 18 researchers, fourteen of whom were on JSPS Postdoctoral Fellowships for Research Abroad and Research Fellowships for Young Scientists while the rest were on the Strategic Young Researcher Overseas Visits Program for Accelerating Brain Circulation. Alt-

hough most of them reside in the West Coast, some researchers came all the way from the East Coast and the Midwest. Staff from JSPS Tokyo headquarters and San Francisco Office also attended.

The meeting started with greetings from JSPS San Francisco Director Dr. Seishi Takeda, followed by Mr. Yasushi Mitsukuri, Coordinator of JSPS Administration Department, who gave an explanation on the institutional system of JSPS fellowships for Japanese doctoral and postdoctoral researchers. Then the participants introduced themselves and briefly described their research work through PowerPoint. Participants eagerly listened to each presenter as they described their research work, and stimulated and impressed, many questions and ideas were brought up by them. Finally, the two Advisors at JSPS San Francisco from MEXT (Ministry of Education, Culture, Sports, Science and Technology - Japan) also gave presentations on their careers, policies of MEXT and what they are doing here in the U.S.



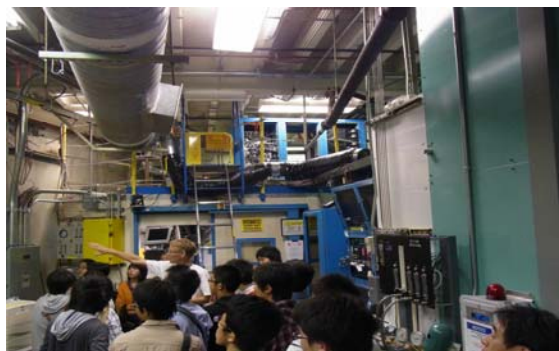
## VISIT TO THE INSTITUTION IN THE BAY AREA

### JSPS staffs participated the SLAC National Accelerator Laboratory Tour

JSPS office participated in a tour of the SLAC National Accelerator Laboratory (SLAC), a U.S. Department of Energy (DOE) laboratory, on Aug. 17th.

SLAC is located in Menlo Park, California, near Stanford University and about, an hour's drive from JSPS San Francisco Office.

The tour was arranged for Japanese High School students and comprised of three parts. The first part was learning about the research of SLAC Japanese astrophysicist, Dr. Yasunobu Uchiyama, whose main field of research is gamma-ray observations using the Large Area Telescope (LAT) onboard the Fermi Gamma-ray Space Telescope. SLAC has led the development of Fermi, and runs the Instrument Science Operations Center (ISOC), which processes the data from the LAT. SLAC also hosts a large group of researchers working on the Fermi data, including Dr. Uchiyama. The second part was a fun gathering for the Japanese students. The SLAC Accelerator Research Division (ARD) holds a coffee social every Friday and we were invited to join them. They showed us a demonstration of how to make ice cream with milk, sugar, vanilla and liquid nitrogen. During the demonstration, an ARD group member asked us what the liquid around the bowl holding all ingredients was. It was liquid oxygen, he explained to us. The liquid nitrogen was enough cold enough to change the oxygen in the air to the liquid. This demonstration was a very good display to reflect upon science. The last part was the tour of the SLAC facility. On the facility tour, a SLAC engineer was our guide. At first, he gave us basic information about SLAC and then, we went to see the facility. We saw the facility of the linear accelerator, which is the second longest building in the world, and the one for the Stanford Synchrotron Radiation Lightsource (SSRL).



## BAY AREA & JAPAN RELATED NEWS

### Delegation from Budget and Accounts Division in MEXT Visit Procurement Office at Stanford University

On September 5, a delegation from the Budget and Accounts division, Ministry of Education, Culture, Sports, Science and Technology (MEXT) in Japan, visited Stanford University to learn about the e-procurement system "SmartMart." The purpose of this visit was to gather information as a reference for whether the e-procurement system currently used at universities in the United States can be adapted to Japanese universities. The points of discussion included the prevention of improper use of research grants caused by collusion with suppliers, the reduction of personnel expenses, and the simplification of a researcher's office work, etc. They also heard details from both sides of "SmartMart"; the supplier side and the user side.

First, the delegation from MEXT visited the Procurement Office and had a meeting with Mr. Cooper, Chief Procurement Officer, and the people in charge of "SmartMart". They explained the design of the "SmartMart" system through giving us a demonstration. "SmartMart" is used more economically than MEXT had imagined before the visit; especially the selection method of participating companies and the price setting. On specific large contracts with a broad user base such as lab supplies, they assess, reconsider and negotiate regularly, and to increase the user growth rate, they show the amount every month that the department would have saved if they had used "SmartMart," and ask them to give the reasons why they didn't use it. On the other hand, they found out that there are some big differences between Japan and the United States, such as the system of confirming the product by a third person and the administration of the research grant.

Moreover, the delegation could hear from a "SmartMart" user, Dr. Noriaki Sakai, Visiting Scholar at the Sleep and Circadian Neurobiology Laboratory, School of Medicine in Stanford University. His talk, based on personal experience, beginning with the opportunity to start using "Smartmart" to Japan-U.S. comparisons about the process from order to delivery, was greatly beneficial for us.

MEXT proceeds to take measures to prevent the improper use of research grants, taking into consideration the information and knowledge gained from this visit.



Meeting with Procurement Office



Meeting with Dr. Sakai

## BAY AREA & JAPAN RELATED NEWS



# KYUSHU UNIVERSITY

### Introduction of English Study Program Conducted by Kyushu University CA Office



Kyushu University's English Study Program 2012, which Kyushu University CA Office designed and implemented, has successfully completed its sixth year operation with 87 Kyushu University students participating from Fukuoka, Japan. This summer's program was prepared for two types of student groups. ALEP (Agri-bio Leaders English Program) was specifically for students majoring in agriculture, while SVEP (Silicon Valley English Program) was for students in other disciplines. Despite the fact that the average cost of about \$5000 is to be borne by each student, this program has been very successful as evidenced by the dramatic increase of participants since its inception in 2007, when there was only 9 participants. This year, 150 students applied for 90 possible seats, proving that this program certainly hit the current needs of students.

This program is not the same as other conventional English study programs available elsewhere. The study of English is, of course, the basis of this whole program and was designed specifically for Kyushu University by the Studies in American Language program of San Jose State University. However, there are two unique characteristics in addition to the English program. One is called the "Silicon Valley Program", in which lectures by Silicon Valley visionaries and leaders were implemented with once-a-week field trips to visit Silicon Valley companies and universities. The other characteristic is a home stay for the entire 4 weeks. Students must stay with families in Silicon Valley, usually two in each home and commute to the school every day. Silicon Valley is a perfect area to experience a variety of different cultures, as it is quite well-known for its ethnic diversity.

First of all, in the English study program, participants learned active English communication skills 16 hours per week for 4 weeks. It included "effective presentation skills", "speaking and listening", "accent training" and "campus & community events". Students were given a chance to show the outcome of the English study program at the Final Presentation during the fourth week. All the students must give a talk in English for 5 minutes on a subject of their choice using Power Point slides and without reading any notes.

The Silicon Valley English Program is a little different from ALEP. Let us explain the one for SVEP here. First of all, the lectures presented to the students included lectures in Japanese by venture capitalists, a Silicon Valley commentator, an author known for her visionary skills, and the Director of Kyushu University CA Office. Students also listened to English lectures from two professors of San Jose State University to experience the speed of real lectures in a class room. On the other hand, the field trip was one of the most popular programs for the students as it brought them to the main offices of such popular companies as Google, Yahoo and Oracle, Intuitive Surgical Inc., a manufacturer of robotic surgical system, Plug and Play Tech Center, an incubator, and Stanford University's Linear Accelerator Center (SLAC). Students were able to directly talk to engineers of those companies, businessmen of start-up companies and students and researchers at Stanford University.

As a result of these carefully executed programs, we have obtained fantastic feed-back from students. We noticed that, in general, students did not clearly recognize their progress from the English program itself, but almost all students told us that the obstacles or walls to speak to foreign persons have come down. Some students even said that they made great progress by having many occasions to converse with their host families. Judging from the final presentation, however, we believe that almost all of them have made great progress in English. They impressed us by speaking without hesitation or looking at notes and with great gestures and attitude.

The most influential results were found in the effects of the Silicon Valley Program. By directly talking to engineers and businessmen, listening to lecturers and conversing with host families, many students realized that they had been in a narrow square or an enclosed box while in Japan and came to realize some freer thoughts and views that they had never had before. Some student opinions and feelings extracted from their feed-backs are shown below.

## BAY AREA & JAPAN RELATED NEWS

- ◆ *To tell you the truth, I have been spending my university life without any objectives by simply studying for the tests and working on a side-job. I envisioned my future as entering a large company and having a family without much effort.*
- ◆ *I thought that life was difficult and getting a job was severe, but found that both life and work should be enjoyable.*
- ◆ *The people in Silicon Valley seem to be doing something they really like to do and, therefore, they are enjoying their lives and jobs.*
- ◆ *Everybody here is challenging something.*
- ◆ *I found that I can work in foreign countries or at least I now know what it's like to work in a global world. It feels very close to me now.*
- ◆ *I have not studied hard in the past and spent much time in side jobs and parties. I now realize how much time I wasted. I would like to study harder and become a useful and indispensable person.*
- ◆ *I have now learned how bad the situation is in Japan which I never realized when I was there. I want to work to improve Japan.*
- ◆ *I realized how important it was to speak English, since I can expand my world and opportunities if I speak English well.*
- ◆ *English is not something to study on paper, but something to get used to. It is simply a communication device and means of transmitting my thoughts.*
- ◆ *This program definitely widened my views and made it easier for me to see the future. I did not realize how narrow my vision was before.*
- ◆ *I found what skills and knowledge are lacking for me. And I learned that having wider views and getting interested in what is happening in the world is more important than anything.*
- ◆ *By standing outside of Japan, I realized the wonderful parts of Japan as well as the weak points.*
- ◆ *I was exposed to various views, pathways and thoughts here in Silicon Valley. My world view has certainly expanded.*
- ◆ *By meeting and talking to many persons here, I found a clue to see who I am and what I want to do. I will move fast before forgetting these important feelings when I get home.*
- ◆ *I met many people who had high objectives even if he or she was raised in Japan and realized that nothing will happen if I am looking towards the inside. I will raise my antenna and try to pick up as much information as possible to keep myself at the top.*
- ◆ *It was absolutely the first time for me to spend every day thinking and pondering things from a wider and deeper point of view.*
- ◆ *The most impressive point of this trip was to expand my world, to know other people's opinion, thoughts and their lives.*
- ◆ *The program taught me that there were a lot of things I have never experienced and that most of them are actually reachable. It really depends on me and how much effort I will spend from now on.*



## BAY AREA & JAPAN RELATED NEWS



### National Institutes for the Humanities Research Institution for Humanity and Nature

#### Introduction of RIHN (Research Institution for Humanity and Nature) and GEC-Japan Platform

RIHN (Research Institute for Humanity and Nature) is an academic research institute established in 2001 under the authority of MEXT for the purposes of (1) designing and conducting interdisciplinary and integrated research projects on the impact of humanity and nature interaction on environmental issues and (2) advancing the field of global environmental studies. RIHN funds and hosts interdisciplinary academic research projects and promotes transdisciplinary dialogue for the academic communities who work on global environmental and sustainability change. Further information about RIHN can be found on our website: [http://www.chikyu.ac.jp/index\\_e.html](http://www.chikyu.ac.jp/index_e.html).

RIHN recently has more than 1000 researchers actively working on various aspects of humanity-nature connections and their impact on environmental change. We have 5 major research domains (resources, circulation, diversity, ecology and ecohistory) and 3 initiatives (Gaia, Oikos, Ethos) under the scope of "Futurability Initiatives". Hence, we are running grand-design research projects that are at various stages of their 3 to 5 year project implementation periods and are generally conducted in the Asia-Pacific.

Global change, both environmental and social, and sustainability development within socio-ecological systems are main issues targeted by communities focusing on further interaction between science and society. Meanwhile, the recent Future Earth and sustainable development goals initiatives underline the importance of regional nodes with structural frameworks connecting researchers, service users and policy-initiators of regional basis.

Realizing this necessity for regional consciousness and accumulative dialogue, RIHN, together with Japan representatives of the Global Environmental Change Programs, has initiated the Global Environmental Change - Japan (GEC-Japan) Platform (<http://www.chikyu.ac.jp/gec-jp/>) in order to facilitate and promote institutional and research collaboration among global change researchers. Having its emphasis and starting point in Japan, the GEC-Japan initiative endeavors to focus on establishment of sound and innovative research community to be a channel for Asia Vision on global change and sustainability development. Asia focus does not mean to exclude other regions, but rather, gathering scientific and societal efforts of all who are interested in and working on Asia and Asia-Pacific to create an interdisciplinary research-based and transdisciplinary model for global change and sustainability issues. We are also in the process of transforming GEC-Japan into GEC-Asia Platform to promote dialogue and transdisciplinary actions among Asia scholars. We also hope to establish strong and interactive connections with our colleagues in the US in order to achieve our global mission by focusing on the peculiarities and potentials of the Asia-Pacific for global environmental change.





## INTERVIEW WITH JSPS FELLOW IN THE U.S



### Dr. Tatsuhiro Misumi

2007: B.S., Department of Physics, The University of Tokyo

2009: M.S., Yukawa Institute for Theoretical Physics, Department of Physics, Kyoto University

2009-2012: JSPS Research Fellow (DC1)

2010-2011: Junior Research Associate, Physics Department, Brookhaven National Laboratory (Excellent Young Researcher Overseas Visit Program of JSPS)

2012: Ph.D., Yukawa Institute for Theoretical Physics, Department of Physics, Kyoto University

2012-present: JSPS Postdoctoral Fellow for Research Abroad / Postdoctoral Research Associate, Physics Department, Brookhaven National Laboratory

**Dr. Tatsuhiro Misumi** is an elementary particle physicist, who received a Ph.D from Kyoto University in 2012. From his childhood, he has been interested in the birth and death of the universe. When he met elementary particle physics, he admired its power to reveal the ultimate truth of existence. His current study is lattice field theory, which is so far the most reliable framework to describe the dynamics of elementary particles and interactions. Combined with the great ability of supercomputers, it enables us to understand how things around us are constructed out of such basic particles and interactions. This new sphere is called Lattice QCD simulation. After moving to BNL, he has been involved in the collaborative study with Michael Creutz on new formulations of the theory, which can make the simulation more efficient and powerful.

#### *Q1: Why did you choose the U.S. to pursue your research?*

I joined Brookhaven National Lab for the first time in April of 2010. One of the main reasons I came here is that a great number of leading researchers in my field are concentrated in the U.S. from all parts of the world. I do not know a better research environment than this among top-level scientists. In particular, my present supervisor, Michael Creutz, is a pioneer of lattice QCD simulations and the best person for me to collaborate with. The other reason to move to the U.S. is that I had an interest in the living environment here. I

thought that a change of lifestyle would lead to a change in the way of looking at the world, and it would be good for my research too.

#### *Q2: What is your impression of the research environment in the U.S.? How is it different from your lab in Japan?*

The biggest impression of the research environment here is that no one stays at the lab late at night. Most of the researchers, especially theoretical physicists, like to keep their life style: sleep at night and wake up in the morning. On the other hand, they concentrate on their work and do their best within the work time from 9am-5pm. I have experience of doing research in Kyoto and Tokyo in Japan, and in my impression, the young scientists in Japan tend to work long and sometimes stay all night. I think this is just a difference in styles, and I do not want to say that one is better than the other. However, as for me, the U.S. research style keeps me in good shape and my mind always clear.

#### *Q3: What merits do you derive from conducting your research in the U.S.?*

First of all, I love the living environment in NY and I feel no stress here. I can concentrate on research more than I did in Japan. Secondly, the theory group at BNL is the most active and leading one in my research field. Day by day researchers enjoy exciting discussions on up-to-date ideas. What is special here is that anybody can join such open-minded discussions

irrespective of positions. These opportunities stimulate my mind to think deeper on my study as well as produce new collaborations. Lastly, in the U.S., I have lots of chances to talk about my own work with the authorities in the field and can call people's attention to them. I consider the best way of letting researchers notice the value of one's work is to discuss it with influential researchers in the field.

#### *Q4: What is your dream? And do you have any advice about doing research abroad for young researchers?*

One of my dreams is to figure out an epoch-making method to study particle physics and establish a new field. Although my research field, lattice field theory, successfully simulates phenomena of elementary particles, it does not work under some ultimate situations such as a very high-density system. To make more progress in this field, we need a completely new idea to solve this problem. I believe that I can figure out a bypath no one has yet noticed.

As for advice to young researchers studying abroad, I recommend them to be more aggressive and more skeptical of common knowledge. Fights against old ideas lead to new ideas, and fights against new ideas improve them dialectically.

## INTERVIEW WITH JSPS FELLOW IN THE U.S



### Dr. Hiromasa Takemura

2007: B. A., Department of Life and Cognitive Sciences, The University of Tokyo

2009: M. A., Department of Life Sciences, The University of Tokyo

2012: Ph.D, Department of Life Sciences, The University of Tokyo

2009-2011: JSPS Research Fellow (DC1)

2011-2012: JSPS Research Fellow (DC2)

2012-present: JSPS Research Fellow (PD)/ Postdoctoral Fellow at Department of Psychology, Stanford University

**Dr. Hiromasa Takemura** has been studying the human visual system. He earned a Ph.D from the Department of Life Sciences, Graduate School of Arts & Sciences, The University of Tokyo. His dissertation work focused on visual motion perception, by using psychophysical experiments and functional magnetic resonance imaging (fMRI) for human participants.

From April, Dr. Takemura started working at the Department of Psychology, Stanford University. At Stanford, he started using a new non-invasive neuroimaging technique, called diffusion-weighted imaging (DWI), to examine fiber connections in the human brain.

#### *Q1: Why did you choose the U.S. to pursue your research?*

While obtaining my Ph.D, I visited more than 20 laboratories in Japan and the U.S. to think about my next career as a researcher. My current host laboratory is one of those that I visited. I finally decided to go to Stanford because my current laboratory is pushing novel research on the human brain by combination of several distinct techniques, such as fMRI, DWI and electrocorticogram (ECoG). The understanding of the human brain is technically challenging, because non-invasive measurements on the brain have limitations in spatial and temporal resolution. It is practically impossible to understand the human brain only by one research technique. Stanford is the best place for me to learn new research techniques and combine them to make big progress in understanding the human brain.

#### *Q2: What is your impression of the research environment in the U.S.? How is it different from your lab in Japan?*

The first difference I noticed is work-life balance. Although American researchers work hard and are highly motivated by their research, they try to spend as much time as possible with their families. In my impression, American researchers have high time-management skills which enables them to work very efficiently. Second, at Stanford, people in different departments share expensive machines, such as magnetic resonance imaging (MRI) scanner, through a well-organized online reservation system. I think that this type of system is one of the bases for the high productivity of neuroscience research at Stanford.

#### *Q3: What merits do you derive from conducting your research in the U.S.?*

There are several advantages to study in the U. S. First, there are many excellent postdocs and graduate students who are coming from a variety of countries and have different scientific backgrounds. We have plenty of chances to discuss with them in order to improve the quality of our own study. It is exciting for me to work with people who have very different cultural and scientific backgrounds. The second advantage is being able to learn English writing and presentation skills. At least in my research field, cognitive neuroscience and psychology, we need to explain many parts of the findings and its interpretation by using sentences, not mathematical equations. In most cases, English skills are very critical for the quality of scientific papers. Experience in working with established American researchers

will provide a great advantage from this viewpoint.

#### *Q4: What is your dream? And do you have any advice about doing research abroad for young researchers?*

It is hard to talk about my “dream”, but my scientific goal is to understand the human brain as much as I can, before retirement. Life is limited, and neuroscience probably cannot reveal all about the human brain within the next 30 or 40 years. However, if neuroscientists keep doing high-quality research over generations, I think that it will be possible to understand the human brain in the future. My goal (in my lifetime) is to keep doing high-quality scientific studies on the human brain, which will be helpful for the next generation.

Advice about research abroad is always hard, because there is no perfect answer. Research abroad has some risks. It is highly dependent upon your career plans, your personal life, and your research interest. I have only one general advice: you should not postpone doing what you should do. We cannot obtain everything in our lifetime. However, if you decide to do what you really want to do early in your career stage, you will get a chance.

## INTERVIEW WITH JSPS FELLOW IN THE U.S



### Dr. Akihiro Okamoto

2007: B.S., Department of Applied Chemistry, Faculty of Engineering, University of Tokyo

2009: M.S., Department of Applied Chemistry, School of Engineering, University of Tokyo

2009-2011: JSPS Research Fellowship for Young Scientists (DC1)

2011: Ph.D., Department of Applied Chemistry, School of Engineering, University of Tokyo

2011-2012: JSPS Postdoctoral Research Fellow (PD) at Department of Applied Chemistry, University of Tokyo

2012-present: JSPS Postdoctoral Research Fellow (SPD) at Department of Earth Sciences, University of Southern California (and Laboratory of Bioenergy Science and Technology at Tokyo University of Pharmacy and Life Sciences)

**Dr. Akihiro Okamoto** was conferred a Ph.D. of engineering half a year ahead of schedule at the department of applied chemistry, the University of Tokyo. He started his research career in the laboratory of photochemistry and electrochemistry supervised by Prof. Kazuhito Hashimoto. After conducting inorganic artificial-photosynthesis studies, he initiated his work on electro microbiology as a founding member for the bioenergy conversion/production project in the laboratory. He just started his second post-doctoral career in the University of Southern California at the Department of Earth Sciences under the supervision of Prof. Kenneth Nealson.

He investigates a phenomenon in which bacteria transport electrons with extracellular solid electron acceptors, such as Fe (III)- and Mn(IV)-oxide insoluble minerals and even artificial electrodes, via proteins localized at cellular membrane surface. This so-called extracellular electron transport (EET) process represents a central driving force for geochemical mineral cycling and engineered bioelectrochemical energy production/conversion processes. He has done work for the fundamental electrochemistry on EET process, and industrial applications of microbial fuel cells, soil bioremediation and microbial iron corrosion.

#### *Q1: Why did you choose the U.S. to pursue your research?*

I wanted to challenge myself in the U.S. where a much larger community in the field of EET has been cultivated compared with Japan. Although bioenergy and bio-

electric systems are currently intense research subjects in Japan, limited people and disciplines are involved in the study of the basic sciences underlying these technologies. On the other hand, the international society in the U.S. focusing on the science of the EET processes gathers together a number of people with various backgrounds such as physics, chemistry, biology and informatics. This size and diversity of community is the biggest motivation of mine for coming to the U.S. for my postdoctoral career, and also the reason why I decided to come to the laboratory of Prof. Kenneth Nealson who has advanced the science of EET at the center of the community for 25 years since he discovered one of the first bacteria with EET capability.

#### *Q2: What is your impression of the research environment in the U.S.? How is it different from your lab in Japan?*

In the U.S., almost everything about research is left to the discretion of individual scientists and even students in my laboratory. I think this characteristic clearly represents a difference compared with a Japanese laboratory. On one hand, this absence of pressure from top to bottom here could enhance the productivity of researchers who are good enough to motivate themselves and further their research on their own two feet. On the other hand, I think this atmosphere would make it difficult for some students to harvest skills and knowledge that are necessary to become an individual and successful researcher. The difference in the U.S. gives me a chance to be more thoughtful towards how I would communicate with

younger researchers and be involved in education in the future.

#### *Q3: .What merits do you derive from conducting your research in the U.S.?*

I have gained sophisticated and diverse collaborators since I started my research in the U.S. Better collaboration allows me not only to progress faster in my research, but also more chances to broaden my knowledge and scientific perspectives. In fact, I started a new project for a microbe living in extremely high pH condition stimulated by discussions with collaborators, and this has given me other collaborations with more people. I think I derive a good and positive growth cycle thanks to the research environment here in the U.S.

#### *Q4. What is your dream? And do you have any advice about doing research abroad for young researchers?*

I vaguely think my dream is that my work in science and/or education will bring about a better world. Contributing to the development of bioenergy technology is one option. However, as the science of EET is fast evolving and it could change the fundamental concepts in bioenergetics, I cannot assess the potential of this science yet. It is, thereby, difficult to explain now what I want to do specifically, yet I think I will just have the science proceed until it takes me somewhere I want to be.

For younger researchers, first you should cultivate yourself as a professional researcher. Then you can enjoy your research almost anywhere in the world, and that changes your world.