

JSPS SAN FRANCISCO NEWSLETTER

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Message from Director Masayuki Izutsu

With life expectancy steadily increasing and birth rates declining, Japan is facing demographic challenges which will have economic, social, political and environmental consequences. The massive surge of globalization together with the information and communication revolution demands we open up our society to the world. To survive under these circumstances, especially important is to establish an inclusive culture which accepts a diversity of opinions, ways of thinking, and/or philosophies while building a knowledge-based and innovative society.

Since 1932, the Japan Society for the Promotion of Science (JSPS) has shouldered the responsibility to provide researchers with a variety of programs crucial to promote scientific activities in Japan. JSPS now has ten overseas offices which serve as a foundation of international research-support networks for Japanese universities to expand their global foothold and activities. A diverse and inclusive culture is indispensable to remain competitive and to keep up with the rapid pace of globalization.



Among the ten overseas offices, JSPS San Francisco is now entering into its twelfth year after its opening in 2003. Professor Seishi Takeda, the former director of JSPS San Francisco played an extremely important role during these years by establishing and developing this office into an active pivot of international scientific cooperation. It was a great honor for me to succeed as the director of this office in April 2014.

This fiscal year, JSPS started to search for ways to strengthen academic relations with its counterparts in Latin American countries, and put our office in charge. We also plan to forge links with surrounding offices from Japanese universities, i.e., to enforce the Japanese University Network in the Bay Area (JUNBA). The JUNBA 2015 Symposium and Summit will be held next January on the theme of "Governance as a Major Leverage Tool for Improving Quality in Higher Education" by inviting senior level management from the University of California with top executives from Japanese universities and also the Ministry of Education, Culture, Sports, Science and Technology of Japan (MEXT).

JSPS San Francisco will carry out two symposia this fiscal year with the University of California, Berkeley, this coming September, and with the University of California, Santa Barbara next March. We will also continue to promote several gatherings for young researchers and research fellows from universities in Japan studying at U.S. universities. In these endeavors, we would like to thank all of you for your kind understanding and cooperation.

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PAST EVENTS

JSPS Fellowship Information Sessions at UCB and UCSD

JSPS fellowship information sessions took place at the University of California, Berkeley (UCB) and the University of California, San Diego (UCSD) on May 3 and May 28 respectively. JSPS San Francisco holds fellowship information sessions regularly to promote JSPS fellowship programs for foreign researchers in the West Coast.

The session at UCB was held during the lunch break of the “Berkeley Japan Studies 2014 Graduate Conference on Ecology and Space” organized by the Center for Japanese Studies (CJS), UCB. Both graduate students and faculty members of CJS attended the session.

The session at UCSD was made possible thanks to the kind support from Zoe Ziliak Michel, Graduate Fellowship Advisor. Following the presentation on the overview of JSPS fellowship programs and its application process, Bill Lennon, Ph.D. Candidate in the Electrical and

Computer Engineering Department of UCSD, shared his experience of participating in the JSPS summer program (NSF East Asia Pacific Summer Institute, 2013).



Presentation by Bill Lennon

JUNBA General Assembly Meeting

The Japanese University Network in the Bay Area (JUNBA) held its 8th general assembly meeting on May 9, 2014 at Hakone Estate and Gardens in Saratoga, CA. The purpose of this annual meeting is to broadly report on JUNBA’s affairs over the course of an entire year. It brought together 23 participants. The meeting started with remarks from JUNBA president Dr. Matsuo followed by the report on JUNBA’s affairs of FY2013 and a plan for FY2014 by JUNBA director-general Dr. Izutsu.

In the second half of the meeting, Dr. Chiho Ochiai, Assistant Professor, Graduate School of Global

Environmental Studies, Kyoto University (visiting scholar at the Institute of Urban and Regional Development, University of California, Berkeley), delivered a lecture titled “Living on the Terrace.” In her engaging lecture, Dr. Ochiai introduced one of the towns in Miyagi Prefecture which was severely afflicted by the Great East Japan Earthquake in 2011 and talked about the living environment before the disaster and the impact of the tsunami on the community. Community preparedness and reactions to earthquakes and wildfires in the Bay Area were also discussed.



Opening remarks by Dr. Matsuo



Lecture by Dr. Ochiai

12th Workshop for Japanese University Administrative Staff in the U.S.

JSPS San Francisco office held the 12th workshop for Japanese university administrative staff in the U.S. on May 29, 2014 in San Diego, CA during the week of the NAFSA 2014 Annual Conference.

The purpose of this workshop is to exchange information and establish a network between administrative staff from Japanese universities. Twenty-three participants attended the workshop from Fukuoka University of Education, Gifu University, Hitotsubashi University, Kochi University of Technology, Kyoto University, Kyushu

University, the Ministry of Education, Culture, Sports, Science and Technology (MEXT), Nagoya University, Obirin University, Osaka University, Research Organization of Information and Systems, Tokyo Medical University, Tottori University, and the University of Tokyo. In the meeting, participants briefly introduced themselves and shared information and ideas they acquired through attending the NAFSA Conference.

The next workshop will be held in January 2015 in Berkeley, CA.

26th Gathering of JSPS Fellows from Japan in the U.S.

JSPS San Francisco held the 26th Gathering of JSPS fellows from Japan in the U.S. on June 28 at the Institute of East Asian Studies, University of California, Berkeley. The gathering is held three times a year for researchers in the U.S. under Postdoctoral Fellowships for Research Abroad, Research Fellowships for Young Scientists, and other JSPS programs which promote the international mobility of excellent young researchers. This time, 25 fellows, including 4 fellows from outside of California, attended the gathering.

The meeting started with warm greetings from Dr. Masayuki Izutsu, Director of JSPS San Francisco, followed by Masashi Kajiyama, Director of Human Resource Development Program Department of JSPS, who gave a presentation on JSPS fellowship programs for doctoral

and postdoctoral researchers in Japan. He also introduced the programs which facilitate the internationalization of Japanese universities.

Next, each fellow introduced themselves and their current research activities with a short Q&A session following. The fellows then divided into 2 groups and discussed their observations on the strengths of the U.S. higher education system and their ideas and suggestions for improving Japan's system. The fellows appreciated this networking opportunity and chance to share their experiences in the U.S. and views on their future research and career with other researchers.

The next gathering for JSPS fellows from Japan will be held in the East Coast in September.



7th Meeting for Japanese University Faculty Members in the U.S.

On July 18th, JSPS San Francisco Office held the 7th meeting for 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 U.S. Nine faculty members of Japanese universities, who are doing research at San Francisco State University, Stanford University, and the University of California, Berkeley, attended the meeting.

The meeting started with greetings from Masayuki Izutsu, Director of JSPS San Francisco followed by

brief self-introductions from the participants and a discussion session. The topic of the discussion was "How to enhance the global competitiveness of Japanese universities – insights from the experience of conducting research at U.S. universities."

After the meeting, the participants engaged each other in a free discussion about their research activities and living environment in the U.S. in a relaxed atmosphere.

JSPS San Francisco will continue to hold networking events to promote the exchange among researchers from Japan in the U.S.



UPCOMING EVENT

"Long-Term Sustainability through Place-Based, Small-Scale Economies"

Symposium co-organized by JSPS San Francisco and
the Center for Japanese Studies, University of California, Berkeley

This symposium aims to discuss the past and present practice and importance of place-based, small-scale food production systems, evaluate their advantages and limitations, and express their future potential to build the long-term sustainability of human societies.

Date: September 26-27, 2014
Venue: Room 180 Doe Library, UC Berkeley

For further information, please contact JSPS San Francisco at: webmaster@jpsusa-sf.org

NEWS FROM JAPANESE UNIVERSITIES



Hokkaido University Establishes the Global Institution for Collaborative Research and Education (GI-CoRE)

In order to bring together world-class researchers from around the world and within the university, Hokkaido University established the Global Institution for Collaborative Research and Education (GI-CoRE) on April 1, 2014.

GI-CoRE is an educational research organization under the direct control of the president which invites researchers from the world's top universities. Compared to individual researcher exchanges, inviting the whole research unit enables the university to promote further intensive international collaborative research and education that leverages the university's strengths and distinctive features. GI-CoRE also aims to provide support for furthering international collaborative research and education by faculties or schools.

At present, GI-CoRE consists of two global stations; the Global Station for Quantum Medical Science

and Engineering (GSQ) and the Global Station for Zoonosis Control (GSZ). Actual research activity is carried out in the Graduate School of Medicine and the Proton Beam Therapy Center for GSQ, and the Research Center for Zoonosis Control and the Graduate School of Veterinary Medicine for GSZ.

The Global Station for Quantum Medical Science and Engineering started collaborative research with the Radiation Oncology Department at Stanford University (USA). The Global Station for Zoonosis Control will invite researchers from the University of Melbourne (Australia), University College Dublin (Ireland), and King Abdullah University of Science and Technology (Saudi Arabia). These Global Stations are expected to become a research hub to contribute to world-class innovative research.



(From left) Prof. Shirato, Prof. Quynh-Thu Le (Stanford University), President Yamaguchi, Executive and Vice President Prof. Uyeda at the press conference at Hokkaido University on April 23, 2014.





On Aristotelian Essence —‘At last or once again- man will say’—

Kei Chiba, Professor, Hokkaido University

In the JSPS San Francisco Newsletter Vol. XIX (October 2010), I submitted an article summarizing my paper, ‘Aristotle on Essence and Defining-Phrase in his Dialectic’ based on my hunch how the Aristotelian notion of ‘Essence (*to ti ēn einai (TEE)*)’ is introduced in his philosophical system. This paper was the result of a joint project with Professor D. Charles (Oxford University) sponsored by JSPS and the British Academy (2005-7) and was eventually published in *Definition in Greek Philosophy* (OUP 2010) by Professor Charles. My theory has been accepted by scholars and developed since then.

Aristotle developed his theory of dialectic in an attempt to systematize and improve on the Socratic method of dialogue. The *theory of dialectic* is based on the theory of predicables (i.e. types of terms) and thus of categories of predication and entities, and is developed by the method of ‘formal’ (*logikos*) argument in a philosophical analysis of being and identity. The four predicables point to possible answers to the Socratic “What is F?” question. What is signified by the phrase *TEE* is a definable entity, specified in a successful predicate called ‘defining-phrase’ and grasped by a process which differentiates it from the other three predicables. The phrase *TEE* is designed to capture the ideal answer which Socrates was seeking in his “What is F?” question. *TEE* emerges from his reformulation of the Socratic question “What is F?” from the context in which the interlocutor had overlooked what Socrates sought. The question “*TEE* F?”, in using the past tense, reminds the interlocutor that he has overlooked *the thing F itself* in his initial answer, offering, for instance, only an example of F. Zenon Culverhouse (Stanford University) in his review assessed my idea as follows: “Aristotle’s debt to Socrates is seldom discussed in much detail, so K. Chiba’s essay on the Socratic source of Aristotle’s phrase *TEE* is an especially welcome addition. There is little scholarly consensus on the meaning of this phrase, particularly when it comes to making sense of the imperfect ‘ēn’ or ‘was’” (Journal of Hellenic Studies, vol. 132 (Nov. 2012), 274-275).

Professor David Lefebvre (Université Paris-Sorbonne) wrote as follows : “Sur Aristote, l’article de Kei Chiba retiendra l’attention des antiquisants car son auteur prend à bras le corps (enfin ou encore une fois, dira-t-on) la question lancinante du sens exact de l’expression réputée intraduisible *to ti en einai*” (On Aristotle, the article by Kei Chiba received the attention of classical scho-

lars. This is because the author bravely comes to grip (man will say ‘At last or once again’) with the piercing problem of the exact meaning of the expression ‘*to ti ēn einai*’ which has been notoriously taken to be untranslatable.) (Revue Philosophique de Louvain, Tome 110 no1, 169-172 février 2012).

Professor Christopher Shields who read my paper on essence while still in the proof stage invited me to contribute a paper on Aristotle’s inquiry theory for his edition of the Oxford Handbook of Aristotle (Oxford, 2012). In this paper, I argued that essence is made into a causal notion in Aristotle’s heuristic demonstrative inquiry theory. L.P. Gerson (Toronto University) wrote a review as follows: “I shall limit myself to some brief remarks about these essays whose perspectives and conclusions I found particularly thought-provoking. Chiba’s ‘Aristotle on Heuristic Inquiry and Demonstration of What It Is’ begins with an arresting claim” (Notre Dame Philosophical Reviews, Feb. 2013).

Since the notion of essence is a central one in Aristotle’s philosophy, we can further develop many areas, such as his modal ontology and natural philosophy, on the basis of this discovery.





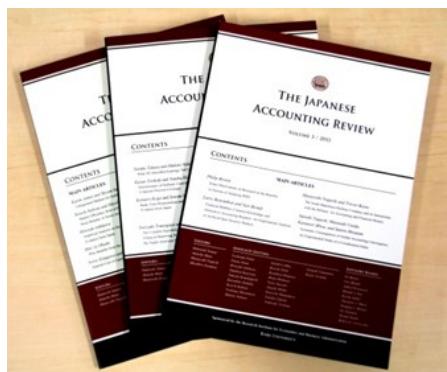
Research Institute for Economics and Business Administration Kobe University

Established in 1919 as the Commercial Research Institute of Kobe Higher Commercial School, the Research Institute for Economics and Business Administration (RIEB) boasts the longest history of all social science research institutes affiliated to national universities in Japan. It is also the only research institute among all universities in Japan that focuses on the dual fields of economics and business administration.

Our primary objective is to advance the frontier of academic research in the fields of economics and business administration, emphasizing publications in international refereed journals. On the basis of RePEc (Research Papers in Economics) rankings, RIEB is the 6th academic institution in economics and related fields in Japan, the 24th in Asia, and among the top 8% in the world.

In pursuit of our primary objective, RIEB has vigorously involved itself in cutting-edge research activities. Areas of particular focus where notable results have been achieved include: (i) the development of global economy with diversity; (ii) finance and macroeconomic dynamics; (iii) technology management and international competitiveness; and (iv) theoretical and empirical studies on accounting systems.

In 2011, RIEB launched *The Japanese Accounting Review* (TJAR), currently the only international refereed journal in accounting based in Japan. The TJAR welcomes innovative works in all areas of accounting related not only to the Asia-Pacific region, but to all parts of the world. Along with the regular publication of the TJAR, the annual *TJAR International Conference* is held every year. The 5th TJAR International Conference (to be held on



December 21st, 2014) is now calling for submissions. In addition to the TJAR conferences, RIEB hosts various seminars and symposia at both national and international levels throughout the year.

Another important objective of RIEB is to collect and maintain historically valuable materials. The affilat-

ed *Integrated Center for Corporate Archives* collects and maintains historical documents pertaining to business administration. Our collections include highly-regarded archives such as the "Kanebo Collection" and the "Kanematsu Collection." Earlier this year, the RIEB *Business Mechanization Exhibition* was certified as a 'Satellite Museum of Historical Computers' by the Information Processing Society of Japan for its collection of early computing machines including the first punch-card sorter manufactured in Japan, which was developed through cooperation between Kobe University and Kanegafuchi Jitsugyo in the 1940s. The one displayed here is the only punch-card sorter produced in Japan that has survived until today.



In addition to our academic objectives described above, we also seek to contribute to society through educational activities that are founded upon our academic achievements as well as industry-academia collaborative projects.



For further details regarding RIEB, please visit our web site at: <http://www.rieb.kobe-u.ac.jp/index-e.html>



Developing Single Particle Analysis in Liquid for Analytical Service

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Rapid progress in manufacturing technologies supplies useful particles that improve our lives. Meanwhile, uniformity in the quality of individual particles influences overall performance so it is important to analyze them individually. Single particle analysis contributes to the control of overall quality and uniformity of particles, improving particle functionality through rationalizing the particle manufacturing processes. In industry, particle products are qualified through methods to check average properties of particles such as the angle of repose, while research and development for sophisticated particles rely on single particle analysis such as Raman microscopy. The methods for average properties of particles are simple and fast while the degree of deviation of manufactured particles are difficult to recognize. The conventional methods for single particle analysis provide detailed information with the tendency of manufactured particles. However, these methods take a long time to analyze so it is labor intensive to measure several hundreds of particles to find the tendency in a particle sample.

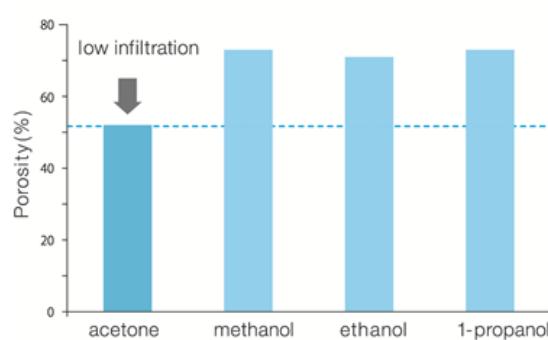
We are developing a new analytical technique based on the measurement of magnetic susceptibility. This technique, with the development of an appropriate instrument and software for single particle analysis, measures several hundred or more of individual particles with reduced time and labor for analysis. Magnetic susceptibility of a particle composed of polymer or other nonmagnetic material is obtained from magnetophoresis of the particle in a magnetic circuit where a strong magnetic field is applied without power supply. In the measurement, the consumption of a sample is small; it uses a

few milligrams or less of dry particles to prepare the dispersion liquid which gives several tens of samples for magnetophoretic measurements. The obtained data is processed through software analysis which makes analysis short and simple. The instrument is also compact and will be portable. This setting makes this technology compatible with other analytical equipment and useful in some particular situations such as on-site analysis of environmental particles during fieldwork.

Magnetic susceptibility is a useful parameter to analyze the bulk and surface of a particle. Chemical modification of particle surface, for example, changes magnetic susceptibility of a particle. Thus, efficiency of chemical modification can be monitored through magnetic susceptibility measurements. Another interesting example is to find porosity of a particle with this method. The porous part of a particle affects magnetic susceptibility because bulk material and filling substance for pores (e.g. solvent) have different values of magnetic susceptibility. These characteristics of magnetic susceptibility measurements shed light on some parameters of particles that have not yet been investigated.

Commercializing this instrument is our current goal and we are working on improving usability of the instrument which is an ongoing challenge. Further automation of the instrument is the key for instrumental usability so we are confident to overcome this challenge. We hope this technology is widely recognized to improve research, development, and manufacturing of particles in the near future.

Pore volume and porosity of a particle



The advantages

- Both porosity and solvent-infiltrating volume of pores of a particle are analyzed with solvent/solution of your interest.
- This is applicable to, for example, track porosity shift of polymer particles.

◆ Example

Sample: porous silica gel (HPLC packing material)

Volume of solvent infiltrating pores was similar in various solvents except acetone. This indicates that acetone has low affinity to silica gel.
(volume of infiltrating acetone = $7.73 \pm 0.04 \times 10^{-17} \text{ m}^3 \text{ per particle}$)



OSAKA UNIVERSITY

Symposium held by the AKIRA Project (FIRST Program)



The symposium entitled, "Future Medical Treatment Created by Immunology" was held for a general audience at the Miraikan Hall, National Museum of Emerging Science and Innovation (Miraikan), on Saturday, February 1, 2014, and saw a total of 167 participants. The purpose of the symposium was to present four years' worth of research achievements by the AKIRA Project: "Comprehensive understanding of immune dynamism: toward manipulation of immune responses" funded by the FIRST Program* which is supported by the Cabinet Office, Government of Japan and JSPS.

At the beginning of the symposium, core researcher of the AKIRA Project, Professor Shizuo Akira, Osaka University, gave a lecture on the "Potential of New Treatments Created by Immunology." Among the research outcomes of the AKIRA Project, three outstanding topics obtained through interdisciplinary research of imaging, structural biology, and systems biology were introduced. One is the discovery of Regnase-1, a specific RNase of cytokine-encoding mRNA. This enzyme works like a brake on inflammation; therefore, the inhibition of Regnase-1 was expected to accelerate immune responses and increase the efficiency of cancer immunotherapy. The second is the disease specific M2 macrophages. Until now, it was considered that there was only one type of M2 macrophage that had several functions, but the Akira group found specific M2 macrophages for allergy, metabolic syndrome, cancer, and intractable diseases respectively and opened up the way for entirely novel treat-



Discussion session: "Future Medical Treatment Created by Immunology"

ments targeting macrophages. The third is the elucidation of the activation mechanism of NLRP3 inflammasome which causes gout, neurodegenerative disease, and so on. Professor Akira showed many fruitful seeds for future therapeutics and intelligibly explained them to the general audience using CG movies.

Following this, Dr. Kunihiro Hattori (Chugai Pharmaceutical Co., Ltd.) gave a lecture entitled, "Antibody Drugs - the Potential and Prospect." He showed the audience how medicines using antibodies were developed and explained the novel technologies for next generation antibodies. He also mentioned the rapidly growing market in recent years of biomedicines including antibody drugs, although it requires an extended period of time to make into a product.

Subsequent to the two lectures, there was a discussion session about "Future Medical Treatment Created by Immunology". Under the coordination of Ms. Yukiko Motomura, a member of the Editorial Board of the Mainichi Newspaper, Dr. Tomohiro Kuroasaki, Specially Appointed Professor (Osaka University), Dr. Junichi Taguchi, Director of the Tokyo Midtown Clinic, and Ms. Yuri Kato, television personality, took the podium, in addition to the two lecturers previously mentioned. In this session, opinions from various viewpoints were submitted and a deep discussion was held on how the development of immunology research could pave the way for creating new medical treatments for diseases such as cancer and allergic diseases.

The AKIRA Project also held a lecture for the public entitled, "To the Milky Way of the Inside of the Human Body - the Movements and Functions of Immune Cells Viewed through the Two-Photon Excitation Microscopy -" at the planetarium in Sophia Sakai, Sakai City, on November 24, 2013. This lecture consisted of two sessions, and 231 participants from primary school children to adults joined the event. Live cell imaging movies from various regions of the human body taken by two-photon microscopy were projected onto the dome screen.

Dr. Masaru Ishii (Professor, Osaka University), one of the sub-project leaders of the AKIRA Project and Dr. Joji Fujisaki, an assistant professor at Columbia University, got up on stage. They explained the content of

(Continued on page 10)

*FIRST Program: "Funding program for World-Leading Innovative R&D on Science and Technology"



18th International Congress on Renal Nutrition and Metabolism 2016 (ICRNM2016) April 19 (Tue.) to 23 (Sat.), 2016, Okinawa, JAPAN

Welcome

On behalf of the International Society on Nutrition and Metabolism in Renal Disease (ISRN) and Okinawa Dialysis and Transplant Association (ODTA), it is our privilege and pleasure to invite you to visit Okinawa, Japan, and attend the 18th International Congress on Renal Nutrition and Metabolism 2016 (ICRNM2016) on April 19-23, 2016.

The purpose of this society is to advance the knowledge on nutritional and dietary therapy in chronic kidney disease (CKD) and to foster communication on the advancements of this knowledge by means of scientific meetings and cooperation with dieticians and other scientific societies of nephrology and dialysis.

Preparations are underway to offer you an interesting world-class program including state-of-the-art lectures by eminent speakers from all over the world. However, the success of our meeting still depends on your presence and active participation.

We hope that this meeting will give new insights into the understanding and therapeutic strategy of CKD, and provide an excellent opportunity for promoting and renewing friendship.

At ICRNM2016, we will make every effort to support the Scientific Program Committee of ISRN to compile exciting, cutting-edge programs, including high quality worldwide research in nephrology, dieticians and related fields. Translational medicine will be emphasized in each session mixing basic science, clinical pharmacology and health care delivery which will undoubtedly strengthen our ties with ISRN. It will also provide an excellent source of information, inspiration, and motivation for young scholars, dieticians, and other health-care workers, particularly in the Asian region and so contribute to the further globalization of ISRN.

We look forward to welcoming you in Okinawa!

Prof. Kunitoshi Iseki, Congress President
Director and Clinical Professor; Dialysis Unit, University Hospital of the Ryukyus
207 Uehara, Nishihara, Okinawa 903-0215, Japan
Okinawa Heart and Renal Association (OHRA)

(Continued from page 9)

the movies and interesting aspects of conducting research as well as what inspired them to become scientists.

Cheers arose from the audience when real cells started blinking like stars in the dark sky on the planetarium dome. A high school student said, "It is very interesting because they are not made by computer graphics but real cells."

According to the questionnaire, participants seemed to enjoy the real adventure world inside the human body and understood the phrase, "Seeing is believing."



Live cell imaging projected onto the planetarium dome

INTERVIEW WITH JSPS FELLOWS IN THE U.S.



MR. NAOKI TAKEISHI

- 2011 B.S., Mechanical Engineering, Shizuoka University
 2013 M.S., Graduate School of Biomedical Engineering, Tohoku University
 2013- Ph.D. student, Graduate School of Biomedical Engineering, Tohoku University
 2014- JSPS Research Fellow (DC2)
 2014- Visiting Student, Mechanical Engineering, Massachusetts Institute of Technology

Naoki Takeishi is a JSPS research fellow in the Biological Flow Studies Laboratory of Prof. Takuji Ishikawa at Tohoku University. He is now also a visiting student in the MechanoBiology Laboratory of Prof. Roger D. Kamm at Massachusetts Institute of Technology (MIT). His research fields and interests are biomechanics in microcirculation, computational fluid dynamics and cancer metastasis.

Why did you choose the U.S. to conduct your research?

I have been anxious to prove my insight into biological mechanisms in cancer metastasis by using computer simulation techniques. In the MIT MechanoBiology Laboratory, experiments are tightly coupled with computational models for investigating biological phenomena, and many of their outstanding performances in biomechanics are well known throughout the world. I thought this would be the best place for me to tackle the challenges of modeling cancer metastasis. In addition, Prof. Roger D. Kamm, my supervisor at MIT, is a world leading scholar in Biomechanics. I am sure that this experience in his laboratory allows me to not only enhance my knowledge, but also broaden my perspective on biomechanics research. Another motivation for conducting research in the U.S. is that I would like to gain insight into the biomechanics of cancer metastasis from the standpoint of my background, mechanical engineering.

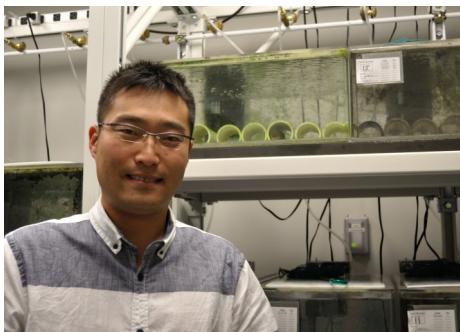
What is your impression of the research environment in the U.S.?

The biggest impression is the speed of the research cycle. It is much faster than that of a laboratory in Japan. We, in Prof. Kamm's laboratory, have a meeting with him every week to share the progress in our research. We either have to achieve something or propose questions in a time span of a week. Therefore, we have to totally manage our research by ourselves, where we make a

speedy decision about our goal in one week, raise questions in our current work, create a strategy for a goal, etc. This was a challenge and a rather stressful thing for me at first, but now I enjoy it. I have confidence in myself in terms of continuously and consistently coming up with a question and protocol for a goal. It was a new discovery for me, and one of the best benefits of doing research at MIT. If I had not come here, I would never have been able to handle my projects better or find a way to derive my potential. We also have another group meeting with a research group at the National University of Singapore from 8:00 AM every week to share leading knowledge in biomechanics. Such international collaboration helps me not only to broaden my knowledge but also to be a morning person.

How do you take advantage of your experiences in the U.S. and apply it to your research or career?

I would like to apply my developing model based on experimental data to clarify not only cancer metastasis but also other pathological or physiological processes such as the inflammation reaction of leukocytes and the maintenance of hemostasis by platelets. In that case, my experience at MIT will be helpful to understand such biologically complex phenomena through biomechanics and prove insight into them from a mechanical perspective. I would like to have a continuous impact on the field of biomechanics or biomedical engineering, and synthesize what I have done so far as "Biomechanics of Microcirculation". There is still much work to do for this, but I am sure that the research networks I have made in the U.S. will help me achieve it.



DR. TSUNEHIKO KOHASHI

- 2002 B.E., School of Engineering Science, Osaka University
 2009 Ph.D., Graduate School of Frontier Biosciences, Osaka University
 2009-10 and 2011-13 Postdoctoral Fellow, Graduate School of Science, Nagoya University
 2010- Postdoctoral Fellow, Department of Biology, Washington University in St. Louis
 2013- JSPS Postdoctoral Fellow

I am interested in how animals can respond ‘appropriately’ to their environment, in other words, generation of adaptive behaviors by the nervous system. This field of research is roughly divided into two parts: sensory processing to extract useful information from the environment and motor control to let the animals move in manners adaptive or ‘logically correct’ to the information. I was studying the latter part during my Ph.D. and am currently studying the former issue in the U.S.

Why did you choose the U.S. to conduct your research?

This is because my current project is only possible at the current lab in the U.S. In the last year of my Ph.D., I met Dr. Carl Hopkins at Cornell University who is studying sensory processing in African electric fish. I was fascinated by his research about how elegantly the nervous system of the fish processes fine temporal structure of electric signals that they generate to communicate with each other, which involves common computational challenges in human auditory communication. Later on when I asked Dr. Hopkins for a postdoc opening in his lab, he instead suggested I join one of his successors, Dr. Bruce Carlson at Washington University in St. Louis. I joined Carlson Lab in 2010.

What is your impression of the research environment in the U.S.?

Overall, faculty in the U.S. seems to have more control over actively shaping their own research environment than in Japan. Here I list two specific examples in the U.S. system that I really appreciate at my current institution.

1. Stockroom

Consumable lab supplies, paper towels for instance, are sometimes purchased only in large quantities at one time, meaning that each lab needs to have a large storage space. In my department, there is a facility called a stockroom which performs the acceptance inspection of purchased goods as well as functions as an on-campus store for common lab supplies. Stockroom purchases, such as a giant box full of paper towels, are made inde-

pendently of the labs, split into small batches and resold to the labs. Thanks to this system, you can buy as many paper towels as you need at one time and save a lot of precious lab space.

2. Graduate stipend

This is not only good for students, but for faculty as well. The fact that the faculty and department fund their students from their limited budget serves as a good motivation for faculty to be responsible for their mentees: you do not want to have more students than you can actually supervise because it comes at a cost. In this context, I also appreciate the emphasis placed on the qualifying exams in the U.S. If a student fails the exams, he or she has to leave school in the middle of the graduate program because the faculty can determine that the student does not have the capability to become a good scientist so there's no sufficient reason to fund the student anymore. This is harsh for the student, but in my opinion, the earlier the better, especially in a country like Japan, where ageism was not illegal up until very recently.

How do you take advantage of your experiences in the U.S. and apply it to your research or career?

In the U.S., I have learned a top-down approach to conduct research projects in which you collect data towards research goals. This is opposite to a bottom-up approach I had taken during my Ph.D. in which you accumulate data to discover something. I want to be able to flexibly switch between the two approaches to maximize productivity.

Mentoring students, particularly undergraduate students, has also been a wonderful opportunity for me to think about how I should communicate with students from various social/cultural backgrounds. In short, you can never expect that they do what they are supposed to until you clearly tell them to do so.

OFFICE STAFF SWITCH

Introducing New Program Coordinators

Takayuki Kurahashi joined our office as the Program Coordinator and is in charge of the accounting affairs and managing the office website. He is also in charge of coordinating gatherings for researchers and administrative staff of Japanese universities in the U.S. Last year he worked in the Research Cooperation Division at JSPS headquarters and was in charge of supporting multilateral research collaboration between research institutions in Japan and other countries. Prior to that, he had been working for the department of entrance examinations and public relations at Kochi University of Technology, where he was engaged in the recruitment of new students and arrangement of entrance examinations. He is interested in the admissions system and its background in American universities, especially how to gather highly-motivated students with great talent. During his stay here, he wants to improve his English skills, visit a lot of ballparks in the U.S. and study American card games and its strategy.



Makiko Toyoda joined our office as the Program Coordinator and is in charge of administrative affairs for the Japanese University Network in the Bay Area (JUNBA) along with coordinating meetings for Japanese university faculty members in the U.S. and editing the office newsletter. Last year, she worked in the Bilateral Cooperation Division at JSPS headquarters, where she coordinated bilateral joint research programs in cooperation with overseas science-promotion organizations in Asian and African countries. Prior to that, she had been working in the International Affairs Office of Hitotsubashi University, where she was mainly engaged in international student services. During her stay here, she looks forward to enjoying the beautiful weather and beaches in California.

Heartfelt Farewell to Our Advisor, Nobukazu Hinata

Nobukazu Hinata is completing his appointment as a visiting scholar at the University of California, Office of the President (UCOP) and returning to Japan in August. He is the 13th fellow sent to UCOP from the Ministry of Education, Culture, Sports, Science and Technology of Japan (MEXT). During his 10-month stay in California, he also worked at JSPS San Francisco office as an advisor. From May of this year, he acted as an advisor to the Japanese University Network in the Bay Area (JUNBA) as well.

At UCOP, he mainly researched the recent trends in California higher education. The University of California (UC) system has two major issues: one is tuition freezes and budget cuts, and the other is transfer from community colleges to UC. He attended the UC Regents meetings, state legislature hearings, seminars organized by universities, and also interviewed UC staff and read papers to learn how these issues arose and how UC attempts to solve them. UC is trying to overcome these problems in cooperation with California State University (CSU) and community colleges. But some researchers mention California needs more drastic reform, such as changing the Master Plan for Higher Education in California. We need to keep these trends under review from now on because it is useful for Japanese universities to learn from them.

His warm and strong support for our activities was truly appreciated and all of us at JSPS San Francisco wish him all the best in his future endeavors!



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