

Report of the 7th Japanese-French Frontiers of Science (JFFoS) Symposium

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The 7th Japanese-French Frontiers of Science (JFFoS) Symposium was held for four days from 24 to 27 January, 2013 at the Royal Oak Hotel Spa & Gardens in Otsu City, Shiga Prefecture. If you compare Lake Biwa to a gourd cup, the venue would be right near the cape resembling the opening of the cup. There was some snow at night on the second day, but the weather was fine overall. The following is a report of the 7th JFFoS, including some personal views as a participant of the last three symposia.

In the evening on the first day, or the day of arrival, Planning Group Members (PGMs), chairs and speakers gathered and had an opportunity to coordinate the contents of each session. This being the first time that such an approach was taken at the JFFoS, the meeting was well received, and it brought forth enthusiastic discussion. The welcome reception followed, where Prof. Tohru Yoshihisa of the JSPS FoS advisory board and Mr. Jacques Maleval, Special Advisor for Industrial and Technological Innovation of the French Embassy in Tokyo, offered welcome addresses. Despite of their jet lag, French participants engaged in lively interaction at the reception on the first day.

On 25 January, the opening ceremony was held, and Prof. Makoto Asashima, executive director of JSPS, and Dr. Guy Faure, director of the CNRS office for North Asia, delivered the opening remarks and introduced programs of JSPS and CNRS. Following this, PGM co-chairs of France and Japan, Dr. Stéphanie Ruphy and myself expressed our appreciation to the involved persons for their efforts devoted to the symposium, gave some advice on how to steer the session, and expressed our resolution to make the symposium fruitful.

The first session was the Biology/Life Science Session entitled “Small RNAs.” After presentations of understanding on DNA and RNA, far advanced from what participants perhaps learned from textbooks when they were high school students, a very active Q&A session took place. Philosophical or ethical questions also arose, which are distinctive questions of the FoS. After the session finished, a group photo was taken. The photograph was attached to cards and distributed to all participants on the morning of the last day.

In the afternoon, we started with the Earth Science/Environment session on “Meteorite properties: a glimpse on our origins?” Various questions were asked on topics investigating the origins of the solar system and its planets. Interests of participants concentrated on the

origin of the earth's water. Specialists in the humanities and social sciences asked questions relating the theme to history. Next, the Chemistry/Biochemistry session on "Bio Fuel Cells" was held. This is a technology that is developing rapidly toward practical application. There were many concrete questions on their efficiency, life-span and risks. After a break, 37 participants gave Flash Poster Talks, each explaining the contents of their posters in a minute. Following this, participants stood in front of their posters for a poster session of even-numbered posters. With drinks offered, there was lively conversation expanding from discussion on the posters, and it became a very active session. After dinner on the first day, more than 20 people talked until late at night at a hotel bar.

The second day started with the Physics including High-energy and Astrophysics session "Origin of Mass-in the era of the LHC." Questions were asked actively, as six months ago a particle that is consistent with the Higgs boson was discovered using an accelerator. As expected, discussion centered on fundamental topics such as the origin of matter and gravity, and questions and answers focused on truly basic science, such as the origin of the universe and its end.

Later, there was a cultural experience tour to Kyoto using two large buses. First we experienced zen at the Kounji temple beside Nanzenji. After a lecture by a priest on the history of Kounji and the method of zen, everyone devoted themselves to zen meditation for two times, ten minutes each. It was the first time for most of French and Japanese participants, and we were encouraged to concentrate on breathing for meditation. People actively participated in training by the Keisaku stick. Many people said that they were impressed, whereas some frankly spoke about how it was painful to sit on the floor with legs crossed. In any case, experience at the solemn Buddhist temple 340 years after its construction was, in the words of the chief priest, a good opportunity for us to "sanctify our minds." At lunch, we enjoyed Kyoto-style cuisine such as *yuba* at the Shinsen-en Heihachi, which has a splendid garden. Finally, we visited the statue of the Yakushi Buddha and five-storied pagoda of the Toji temple. We were fortunate enough to be able to see the statue of Buddha inside the five-storied pagoda, which is not usually exhibited. Although we had a tight schedule due to traffic congestion on the way to the temples, it was a fulfilling cultural experience tour.

After returning to the hotel, the Material/Biomaterial Science session on "Atom manipulation" was held. Under the interesting theme of the manipulation and measurement of each atom, questions were actively asked on the limits and methods of application. At dinner, PGMs of the next JFFoS gathered at another meeting room and started to work on selecting themes

of next year's session, referring to the feedbacks on future topics by participants. On this day, mainly French participants went out to pubs and enjoyed informal discussions at the neighboring mall instead of the hotel bars.

On the third day, or the last day, there was the Social Sciences/Humanities session on "Gender and Science." This theme stayed at second place for the past two years, before it was finally chosen this time at a PGM meeting selecting session topics. Before the session started, PGM Dr. Ruphy, who was sitting next to me, told me how "she was excited that it would finally start in 5 minutes." The session was carried out from a very broad perspective, from the viewpoint of equal opportunities of employment and participation for men and women, to historical and social themes, and even themes on natural sciences about how the size of the male and female is determined in the animal world. Following this, a poster session for posters of odd numbers was held. There had already been a lot of discussion on the posters, also at the coffee breaks, so there was fairly shorter discussion in front of the posters compared to the first time.

After lunch, the Theoretical and Applied Mathematics/Informatics session on "Image Analysis" was held. The main theme was how to make computers recognize images. There was broad discussion from methodology to prospects, on how to utilize experience and symmetry, and how cognition by senses other than vision is achieved. After the break, the final session of the symposium, the Medical/Neuroscience entitled "Brain Machine Interface, BMI, (Neural networks)" was held. I was impressed by how medical science had advanced to such an extent that patterns of vision could be read from brain waves, sensation could be conveyed, and signals to muscles could be used to move another part of the body. Questions were asked from very broad perspectives such as the meaning of the mind of the human being, aging, and ethics, resulting in a session suitable for a final session.

At the closing ceremony, JSPS President Prof. Yuichiro Anzai and Mr. Jacques Maleval, Special Advisor of the French Embassy, offered remarks. President Anzai gave a heart-warming message, mentioning about how the content of the medical session was closely related to his area of expertise. Mr. Maleval especially acknowledged Dr. Cecile Margossian, who was mainly in charge of the arrangements for the French participants, and expressed his appreciation to the people involved.

After the closing ceremony, a dinner was held, and several of the Japanese participants left to depart. Nevertheless, about 30 participants from both countries gathered again at a pub at a neighboring mall and interacted until late at night, reluctant to close the symposium.

As my overall impression, I was most impressed by the excellent symposium venue. The scenery of Lake Biwa and the ample facilities, especially the screen that could be seen clearly from the rearmost, and spacious seats, offered a comfortable environment for the participants to concentrate on scientific and international discussion. The talks of each session were well-prepared, with consideration about the diverse audience. This may be an outcome of this first approach for PGMs, chairs and speakers to gather in the afternoon of the first day to have a meeting. I think that, with thorough understanding of the content, participants actively took part in discussion of interdisciplinary or technical value.

From this year, the rainbow-colored FoS logo appeared at various places at the venue. The FoS is a rare opportunity for young researchers conducting leading-edge research to interact with each other and to discuss various topics transcending disciplines and boundaries between countries. The achievements may not be immediately listed as research papers. However, from participants whom I talked to, I received comments that they were able to enjoy valuable experiences that cannot be replaceable.

I would like to conclude by extending my appreciation to, first of all, the participants of this 7th Japanese-French Frontiers of Science symposium, Chairman of the JSPS FoS advisory board Prof. Shigeo Koyasu, members of the advisory board Prof. Masayuki Numao, Prof. Yuko Fujigaki and Prof. Tohru Yoshihisa, and Ms. Hiroko Takuma, head of Research Cooperation Division II, JSPS. Owing to the advices, preparation, and participation of many people from France and Japan, I believe the symposium ended in great success. As the PGM Co-chair and a participant of three JFFoS symposia, I would like to express my sincere appreciation for such efforts and look forward to further development of the JFFoS symposium.



Scene from a Discussion



Scene from a Session

Scene from Poster Session



Dr. Doi and Dr. Ruphy PGM Co-chairs

Tribute to the Japanese and French PGMs



Group Photo