

## **Report of the 8<sup>th</sup> Japanese-German Frontiers of Science (JGFoS) Symposium**

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I am writing this report in an airplane heading for Paris. On the morning two days ago, the 8<sup>th</sup> Japanese-German Frontiers of Science Symposium was concluded. Two days after seeing off the German participants, I am departing for Europe to attend another international conference, relieved to have been able to fulfill my responsibilities as Planning Group Member (PGM) co-chair of the host country, and feeling slightly absent-minded.

From 27 to 30 October 2011, for a total of four days, the 8<sup>th</sup> Japanese-German Frontiers of Science (JGFoS) Symposium was held at the Hotel New Otani Tokyo. I am pleased to have been able to participate as a member of the host country to hold this symposium this year on the 150<sup>th</sup> anniversary of exchange between Germany and Japan, and play a part in such a long history of scientific exchange between the two countries. It was encouraging, especially because this year the Great East Japan Earthquake had occurred in March, causing the accident at the nuclear power plant, and to be honest, I had apprehension as to whether we could convene it.

This was the third time I had participated in the JGFoS. This symposium, in which we can be acquainted with many unique and inquisitive researchers, listen to talks on the “Frontiers of Science,” and engage in stimulating conversation with German and Japanese participants regardless of discipline, country or position, is special to us and is different from the conferences that we researchers usually attend.

At the welcome reception held in the evening on the day of arrival, the German PGM co-chair Dr. Stephanie Grond, PGM Dr. Uwe Wiechert, whom I had worked with in the Earth Science Session, and I celebrated our reunion since last year. I also exchanged greetings with people whom I met for the first time. At the opening ceremony next morning, both persons who delivered the opening remarks, Prof. Makoto Asashima, Executive Director of Japan Society for the Promotion of Science (JSPS), and Dr. Ulrike Albrecht, Head of Strategy and External Relations Department of the Alexander von Humboldt Foundation, referred to the Great East Japan Earthquake, which made us re-acknowledge the severity of the disaster. We PGM co-chairs offered some remarks welcoming the participants with key terms such as “Be Outspoken!” and “Let’s socialize!”

The JGFoS consists of six sessions. This year, the sessions were ordered in the following way: “Interaction between Ocean and Atmosphere” in the “Earth Science, Geosciences, and Environment Session,” “Fluid-Structure-Interaction in Math and Engineering” in the “Mathematics, Informatics, and Engineering Session,” “Optogenetics: Manifold Applications” in the “Biology and Life Science Session,” “Beyond the Standard Model—Search for a New Physics” in the “Physics and Astrophysics Session,” “Towards a Unified Theory of Action for the Social Sciences” in the “Social Sciences Session,” “Chemical Solutions for Carbon Resource Issues” in the “Chemistry and Material Science Session.” The format of each session was as follows: one introductory speaker, German or Japanese, and two speakers, German and Japanese, each gave a 25-minute talk, which was followed by an overall discussion for about 45 minutes, in which a total of about 60 researchers participated.

An oceanographer talking about a large-scale experiment analyzing interaction between ocean and climate, an information scientist seeking optimal visualization of fluid and solid interface, a brain scientist who succeeded in controlling sleep—a physiological phenomenon—using light, a physicist seeking a new theory through international collaboration, an experimental economist explaining about the decision-making of human beings by using the example of how many days payment of debt could be postponed according to interest rate, an enthusiastic chemist working on energy issues—being able to catch a glimpse of the life of each researcher, not to mention the quality of the content, is what makes this symposium fascinating. During the 130 minutes allocated to each session including the three talks, many hands are raised, resulting in the lack of time for discussion. From my positive point of view, I think that every time at JGFoS, Japanese participants and German participants actively vie with each other to ask questions, which reminds me that this is a place where promising young researchers gather together.

Since attending JGFoS, what has always remained in my mind is the simple but great question: “What’s new?” Since I am a scientist, it is meaningless to do research unless I work on something new. In my opinion, it is unsurprising that leading scientists work on new topics and I think we are never asked such a question at the usual conference. When asked anew in earnest why, which part of, and how is my research at the forefront, I sometimes have trouble answering, and I suppose those who were asked the question will continue to ask themselves about it. I often think it is quite difficult for me to explain the difference between “what is advanced” and “what is at the frontier” without being self-righteous. However, it is certainly the FoS that makes this kind of dialogue possible, where gifted young researchers from a

variety of fields assemble.

As for occasions other than the sessions, we were able to interact with each other at the reception at the German Embassy on the first day and a cultural tour mainly featuring Asakusa on the second day. At a “night-time session” organized on our own, we went out to the streets of Akasaka and talked about each other’s countries at a Japanese-style pub until late at night.

Overall, I think that we could be given a passing mark in regard to improving hospitality—an assignment that had been relayed to us from last year’s PGM co-chair, Prof. Takashi Ooi of Nagoya University. The Japanese garden that could be seen from the breakfast hall was beautiful, and there were sighs of appraisal from the participants. We stopped assigning seats to participants during sessions—a routine that had been usual at FoS symposia held in Japan. Prof. Kei Yoshimura of the University of Tokyo was kind enough to set up a group page for JGFoS2011 on Facebook. On the otherhand, there also remain points that need to be improved concerning how to chair the sessions, and I would like to pass these on to next year’s PGM co-chairs, Dr. Atsushi Wakamiya and Dr. Tobias Moser. Stephanie and I each drew a paper fortune called *omikuji* at the Sensoji temple in Asakusa. Mine was for “rich harvest,” and Stephanie’s for “lean harvest,” but we are both confident about “further progress” in JGFoS2012.

A major factor being the key to success of this symposium is how to select the session topics. I would like to make one point which I have felt in general concerning the symposium, in particular at the PGM meetings, where each session topic is selected by 12 PGMs (a pair of German and Japanese PGMs for six sessions) and afterward the speakers for each session by each PGM pair. That is, recently in every session, the key terms “life,” “energy,” and “global environment” have appeared. However, these themes are often too broad to be covered by one session. Also, it is often difficult to separate science and technology. In other words, we have difficulty fitting such broad themes into the current JGFoS format and style. Because at present, the next year’s theme is determined at the two PGM meetings during the symposium, we definitely lack the time and sometimes understanding to advance discussion since about half of the PGMs would have participated in the JGFoS for the first time. I think that how to select topics which cross over the sessions is an agenda worth considering hereafter.

Progress in science—needless to say, it is achieved through the persistent and ongoing efforts of each scientist, and whether the efforts can grow into fruits that can be shared with society

is often a matter of serendipity, or unexpected coincidences discovered through one's efforts and luck. Research itself is not at all "inorganic." It is a very human approach, so these coincidences may include meetings between scientists. In my understanding, the FoS program is implemented to increase the possibility of such coincidences. Basic research in Japan can be compared with the basic strength of the human being. Whether the scientific strength of Japan can be truly improved; in other words, whether world-class scientists can be fostered in Japan depends largely on the continuous implementation of programs like the FoS symposia.

JGFoS 2011—It was definitely an asset for me as a scientist to be given this opportunity to meet many colleagues. It would be more than I could have hoped for if other participants have felt the same way. I extend my appreciation especially to the introductory speakers and speakers, who took time out of their busy schedules to kindly take on their responsibilities, and all the participants who triggered active discussion. My thanks also go to the Japan Society for the Promotion of Science (JSPS), the Alexander von Humboldt Foundation, and other staff in charge of the logistical aspects, for their dedicated support. I would also like to thank Profs. Shigeo Koyasu, Hiroaki Misawa, Takeshi Kakegawa, Atsushi Iriki, and Yoshimichi Sato of the JSPS FoS Symposium Advisory Board for offering us helpful advices every now and then.

When I look back, I realize that this year's PGM team had already started at a follow-up round at a bar in Potsdam, where we gathered after last year's symposium was concluded. Impressed by the hospitality of the German organizers, we talked about improvements that we could work on in regard to both the content and the logistics. Also in Japan, we made further considerations at a German-style beer hall that last year's PGM, Dr. Masahiko Inami of Keio University, recommended to us.

Finally, I extend my thanks to Dr. Astushi Wakamiya of Kyoto University, Dr. Shinsaku Hiura of Hiroshima City University, Dr. Shunsuke Managi of Tohoku University, Dr. Masao Doi of Kyoto University, and Dr. Yuki Kawaguchi of the University of Tokyo—the five PGMs who supported me as colleagues this year during my term as the PGM co-chair. I look forward to another reunion!



Dr. TANIMOTO, PGM Co-Chair  
of Japan



Dr. GROND, PGM Co-Chair  
of Germany



Scene from a Session



Scene from Poster Session



Group Photo



From the left, Dr. Moser, PGM Co-Chair of 9<sup>th</sup> JGFoS, Dr. Tanimoto, PGM Co-Chair of 8<sup>th</sup> JGFoS, Dr. Grond, PGM Co-Chair of 8<sup>th</sup> JGFoS, and Dr. Wakamiya, PGM Co-Chair of 9<sup>th</sup> JGFoS