

The UK-Japan Symposium on Atomic and Molecular Manipulation: Force and Tunnel Current in Scanning Probe Microscopy

The UK-Japan Symposium on Scanning probe microscopy was held at The University of Nottingham, U.K. on the 15th and 16th of December. The meeting was well attended, with 31 Scientific delegates from the U.K., 6 from Japan, and 6 from Europe, in addition to representatives from IOP Publishing, IOP Conferences and JSPS London in attendance.

The symposium was designed to facilitate informal discussion, both between U.K. – Japan researchers, and also early career researchers and established academics. An excellent series of academic presentations was given, highlighting several ongoing collaborations between the U.K. and Japan. Some highlights included Prof. Sugawara and Prof. Kantorovich giving complementary presentations on combining experimental and theoretical expertise (respectively) on solving the problem of Co manipulation on Cu(110), Dr. Watkins providing a talk on simulations interpreting the experiments of Prof. Fukuma (at Kanzawa University), and Dr. Rahe giving a presentation on work derived from the atom tracking system developed by Dr. Abe (at Osaka University). Other indirect collaborations were evident – Janina Ladenthin gave a talk on work that followed from a research visit to the FHI by the organizer (Dr. Sweetman), but had also just finished an Intern program at NIMS with Dr. Shimizu and Dr. Custance. In addition to the talks a poster session was held at the end of the first day to allow some of the student attendees to talk about their current research topics. This was assisted by a £100 student poster prize that was provided by ScientaOmicron (one of the industrial sponsors of the symposium) and awarded after assessment of the posters by invited speakers from both the U.K. and Japan.

On the second day one of the sessions was reserved for a networking session. In this session the delegates were divided into groups putting together Japanese and U.K. Researchers who had not previously collaborated. Each group was assigned to discuss three topics: one possible collaboration that could be funded by the JSPS (or European funding agency) using information provided during the previous day by Ms. Ogaya from JSPS London, one scientific topic related to their research or collaborative interests, and a lateral thinking exercise based on the Japanese word game 'Shiritori'. Due to the enthusiastic response of the delegates the networking session was a definite success – with the session overrunning 30 minutes into the lunch break due to the animated discussions. At the end of the session each group wrote the results of the session on the white boards around the symposium room so that other groups could read them over the lunch break. Finally, after the end of the formal symposium the invited speakers from Japan were invited in an informal lab tour around the facilities at Nottingham to discuss technical experimental issues.

As well as the talks highlighting the ongoing UK-Japan collaborations, the symposium allowed for discussions to generate new potential collaborations. For example - the work presented by Dr. Sagisaka inspired a conversation between the organizer (Dr. Sweetman), Dr. Sagisaka and Dr. Custance. It was agreed that there would be an

attempt to combine the expertise developed by Dr. Sagisaka in dopant deposition with the NC-AFM imaging expertise of Dr. Sweetman and Dr. Custance. It was agreed that the Atom Probe group at NIMS and the Nanoscience group at the University of Nottingham would share data on the imaging of P_2 and P_4 dopant structures on Si(100) as experiments are performed in both groups over the coming year, which will greatly speed up the interpretation of results and may lead to a joint publication. Another example was the presentation from Prof. Sugimoto, during which he mentioned unpublished results from his group that related to planned work at Nottingham. During discussions after the talk it transpired that his group had performed several key experiments already planned at Nottingham, and as a result of these discussions a number of important modifications could be made ahead of time to prevent duplication of work already carried out in Japan. The possibility of a short (1-3 months) visiting professorship at the group of Prof. Sugimoto, sponsored by the University of Tokyo, to continue the collaboration between the two groups, was also discussed.

- Dr. Adam Sweetman



Symposium Attendees