

JSPS fellow: Dr Leonel Marques

From: University of Nottingham, Advanced Optics Faculty of Engineering

Host institution: the University of Kitakyushu

Host researcher: Prof. Seung-Woo Lee

My JSPS fellowship has enabled me to perform an exciting research work and gave me the opportunity to learn more about the Japanese culture in the work place as in the daily life. I applied for a 3 months fellowship. At the time it was difficult to apply for a longer period due to my current project in the UK but nevertheless those were 3 intensive months of research work.

The research that I undertook in Japan aimed to complement and explore more the applications of my current nanoparticle research project into new biosensing scenarios. With this approach the development of nanoscale devices allows researchers to explore new paths of R&D and to generate new scientific findings. In this collaborative work, we combine my expertise in hybrid nanoparticles design and Prof. Lee's expertise in nanosensors development at the University of Kitakyushu. To be brief with the idea, we assembled different set of modified nanoparticle over an optical fibre to generate a new set up of optical biosensing for the identification of proteins. The University of Kitakyushu was well equipped as for required chemicals as for equipment/facilities to perform the work. Prof. Lee and his team helped me since day one not only for my research work but also with details regarding housing and daily life (Figure 1). The work that I had the chance to develop with my lab colleagues was excellent. My integration within the group felt so natural that after a while it looked like that I was working there for a longer time than I actually was. Also, I must say that it is a very nice campus, very calm, where a strong commitment is felt all over the day among all the research labs that I came across.

Prof. Lee supported my initial research work since day one, and we did make the best of the time we had to perform our work. The work outcome was pretty good considering the time we had on the project. I was able to build up a multilayer of nanoparticles over an optical fibre and to transform that assembly process into a biosensor. The work came along so well that we are currently continuing sets of experiments to drive forward our initial efforts and given continuity to this new international collaboration. We aim to show case our results as scientific papers in the near future.

The University of Kitakyushu is located in the Kyushu Island. Although I didn't had the chance and time to visit other parts of Japan, I did manage to visit some specific places in this island. The island has a tropical weather and landscape that promote a beautiful place to live in. I would recommend visiting Mount Aso, an active volcano located in a beautiful green area. If you can, go by car so you are not restricted with bus and train timetables. Another great place to visit will be Beppu where many onsen spots are located (hot springs are an excellent way to relax the body and mind). Fukuoka is the largest city in the island and has a fantastic city vibe over it, as well as several

beaches to enjoy with calm and warm water (according to the city website). The food is excellent and always fresh, plus a reasonable price. The large selection of national dishes was fantastic, something to bare in mind for the food enthusiasts. And to finish, Japanese people are fantastic and welcoming and will help you in moving around but I would recommend some basic Japanese language skills and to learn some more once you are there. A wonderful work and living experience that I aim to repeat as soon as I have the chance.



Figure 1 – Prof. Lee's research team during a conference we all went to in Kokura.