

Report on my experiences of the JSPS Summer Programme

I stayed at Nagoya University, working under the supervision of Professor Toshiaki Shoji. My research was (and is) in the area of pure mathematics known as representation theory of groups. For the non-expert, groups are certain mathematical objects which may be regarded as the 'atoms of symmetry'. For any type of symmetry that occurs in the mathematical or real world, there will be an associated group which encodes the symmetry in a certain sense. Representations of groups provide a formal mathematical way of unravelling and studying this symmetry. Now it is often the want of pure mathematicians to try to classify and describe all of the possible types of behaviour that can occur subject to the axioms they are interested in. Part of Professor Shoji's world-leading research is to try to classify and understand the representation theory of so-called finite reductive groups, which arise naturally and play a central role in modern pure mathematics.

Professor Shoji had published a paper in which he developed a new approach to studying a certain sub-class of finite reductive groups. My project on the JSPS Summer Programme was then to try to show that his approach could be applied to another sub-class of these groups. Since this work is very specialised it was essential to have first-hand training from Professor Shoji in order to attempt such a project. There are many subtleties and geometrical intuitions in pure mathematics which cannot survive the medium of formal academic writing. Because of this, it is important to spend many hours in discussion, with the aid of a large blackboard in order to understand the creative process of another mathematician's work. I am very grateful that Professor Shoji provided many opportunities for this during my stay. In the end I proved that the approach does not work for the other sub-class of finite reductive groups. This was very surprising to both of us and has stimulated a rethink about the best way to approach these groups in the future. Professor Shoji has taken a sincere interest in my mathematical investigations since I returned to the UK and I am looking forward to meeting him at a conference he is organising at Nagoya later in 2010.

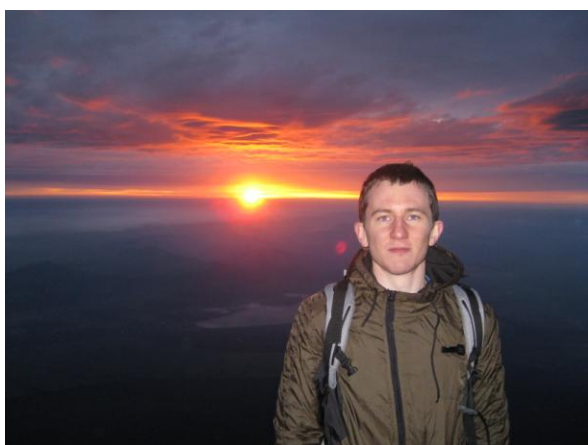
My general experiences of being in a Japanese academic environment were also very positive. I shared a spacious office with a friendly postdoctoral researcher, Dr Minamide. I was pleased to see that the office and communal areas were adorned with large blackboards: essential for serious pure mathematics. Dr Minamide and the other PhD students and postdocs I had the pleasure of meeting in the department were very welcoming to me and frequently invited me to lunch in one of the many local eateries. I attended several conferences (including one in Hokkaido), and gave a talk about my own research at one of them. Although the standard procedure (for maths at least) is to just turn up at conferences without prior registration, I was always made to feel very welcome and included when I arrived, despite being the only westerner.

Language was not as big a problem as I had thought. Whilst the general level of English spoken 'on the streets' was lower than I had expected, the level within the academic community was much higher. I think that the effort that I made to learn some Japanese before my trip really did make practical life easier in many situations though. I was then inspired to take (and pass) the Japanese Language Proficiency Test (level 4) upon my return to the UK.

I took advantage of a number of opportunities to engage fun activities at the weekends, often with other JSPS fellows, including climbing Mt Fuji, watching a sumo tournament, visiting Kyushu and various onsens and attending Japanese cookery lessons. A notable highlight was a weekend spent at my host researcher's ancestral family home, in the shadow of Mt Fuji. Also, the experience of staying with a host family, the Hirais, was certainly one of the most unforgettable, particularly as it was my first real taste of Japan. I have so many wonderful memories from that weekend that it seems like I was there much longer. The Hirais continued to support me by email during my stay in Japan and even came to Tokyo to see me off when the programme ended. They have remained in touch ever since and have asked me to stay with them again when I visit Japan next.

The JSPS Summer Program has been a life-changing experience for me. It has made me seriously consider an academic career in Japan. I can't wait to go back there!

Matthew Clarke



At the summit of Mt Fuji



Nagoya Castle