

My research stays at The Institute for Chemical Research, Kyoto University 8th -29th January 2012.

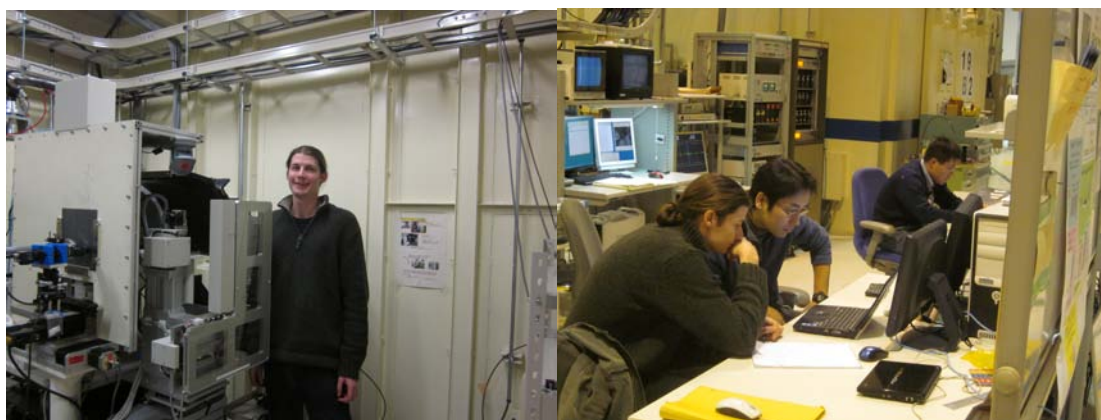
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As a part of the young researchers exchange program I spent three weeks at the Institute for Chemical Research, Kyoto University in Prof Shimakawa's research group. During this time I had a fruitful exchange of ideas with many members of the group.

Among many things, I learned about the existence of lots of different structural derivatives of the 134-perovskite $\text{CaCu}_3\text{Fe}_2\text{B}'_2\text{O}_{12}$ ($\text{B}' = \text{Ir, Nb, Re, Rh, Ru, Sb and Ta}$) which have been prepared by Dr Wei-Tin Chen a postdoc in the group. These compounds are related to the 134-perovskite $\text{CaCu}_3\text{Ti}_4\text{O}_{12}$ but are novel in that some of them exhibit Fe /B' site ordering in the crystal structure as well as the A/A' ordering of the Ca and Cu. The degree of this order appears to be related to synthesis conditions, while some derivative are only obtained in a completely disordered state. I was able to help assist to quantify the degree of disorder of the B/B' site using previously collected data from BL02B2 at the synchrotron Spring8, which I modelled in a refinement package 'Topas'.

During my stay I was also fortunate to participate in a synchrotron experiment at Spring-8. During this experiment we were able to measure many different $\text{CaCu}_3\text{BB}'_2\text{O}_{12}$ samples which had been prepared under different conditions. I was also able to measure some different samples that I had prepared in Edinburgh – the data will be a very helpful addition to my PhD thesis. It was interesting to observe the operation of the different beamlines at Spring 8. In particular the beam line BL19-B2 was very impressive, which had complete automation of sample changing and alignment which meant it was very easy to collect a lot of data quickly.

I am very grateful for the Institute for Chemical Research for funding my stay in Japan and giving me this great opportunity. I am also very grateful to everyone in Prof. Shimakawa's group who looked after me so well and made my stay truly memorable. I am looking forward to future collaborations in Japan and the UK!



At Spring 8: In the beamline hutch of BL19-B2 and hard at work discussing the analysis of the collected data!