

## **Beth Howe - 13<sup>th</sup> Oxford School of Neutron Scattering, September 2013.**

In September I had the opportunity to attend the 13<sup>th</sup> Oxford School of Neutron Scattering. This is a two-week school where the fundamental theory behind neutron diffraction and spectroscopy is taught and different techniques for applying neutron scattering to structural studies are discussed. Lectures and classes are given by leading scientists from both ISIS (the spallation neutron source at the Rutherford Appleton Laboratory, Oxford) and the ILL (Institut Laue-Langevin neutron reactor source, Grenoble).

During the first week of the school the theory behind diffraction and the interactions of neutrons with matter were explained. We also had the opportunity to visit ISIS and see some of the instruments used for neutron diffraction – from reflectometry instruments to small angle scattering instruments. How to go about writing a proposal for neutron beamtime was also discussed and in pairs we wrote and submitted draft proposals, which were then assessed by the school organisers so we could receive feedback.

The second week of the school focussed more on applications. The first half of this week was spent learning about the different diffraction and spectroscopy techniques in more depth and what information can be gained from each. The second half of the week was then spent looking at case studies of how neutron scattering can be applied to real current research.

I feel that the school was a great opportunity for me and gave me a good grounding in the theory behind neutron scattering. This is particularly useful as I have two neutron experiments coming up at ISIS in two quite different areas – one neutron reflectometry experiment looking at the structure of the ionic solutions at a graphene surface and one neutron partial structure factor diffraction experiment looking at the structure adopted by ionic solutions when confined in the internal pore spaces of activated carbons. I am very grateful to Pembroke for giving me the grant money to attend the school.