The Diamond electron Bio-Imaging Centre (eBIC) facility provides the UK scientific community with access to cutting edge instruments for cryo-EM (Electron Microscopy), allowing biological molecules to be viewed at an atomic level. Funded by the Wellcome Trust with the UK Medical Research and Biotechnology and Biology Research Councils, eBIC is currently the largest centre of its kind worldwide. The facility creates large numbers of datasets, which vary widely in quality based on the quality of the samples. The volume of the data requires that automated methods be developed to assess and process datasets as they are produced, including making decisions about the data and building atomic models.

The PhD project aims to produce new software tools to assess the resolution and quality of a cryo-EM reconstruction, to enable appropriate processing decisions to be made. For good quality reconstructions, existing automated model building tools will be extended and new tools developed to facilitate the interpretation of the reconstruction in terms of an atomic model. As well as developing new tools at York, you will also implement those tools in the eBIC computing facility at Diamond to gain experience from real world problems, interact with users, and allow evaluation of new developments.

You will need a proven aptitude for computer programming, however this need not necessarily involve a formal qualification: the project is also suitable for students in a biological science with a strong aptitude for computer programming, or for a computer scientist with an interest in learning a scientific application area. You will be writing computer software for the CCP-EM software package and implementing and testing the software in the Diamond EM facility. The work involves programming and data analysis, both of which are highly transferable skills and will provide you with a marketable skill applicable to many areas of science. You will need to be willing to live for part of each year at each location, the cost of which is reflected in the stipend.

The studentship provides UK/EU tuition fees, an enhanced stipend (£16,300 per year, increasing each year in line with RCUK average) and funds towards travel between sites and conference attendance.

Informal enquiries may be addressed to either supervisor.
Workplace: York Structural Biology Laboratory is a part of the Department of Chemistry but located in the Biology department at York, and provides a vibrant multidisciplinary environment for post-graduate students. The city of York is world famous for its history dating back over two millennia. Diamond Light Source is the UK’s national synchrotron and a leading scientific facility of its type in the world. Located on the Harwell Science and Innovation Campus in South Oxfordshire, it hosts research facilities supporting cutting edge research in all fields of science. 
http://www.diamond.ac.uk/Science/Integrated-facilities/eBIC.html

Funding source: York/Diamond
Eligibility: UK/EU

All research students follow our innovative Doctoral Training in Chemistry (iDTC): cohort-based training to support the development of scientific, transferable and employability skills
For more information contact chemgrad@york.ac.uk or see our web page: http://www.york.ac.uk/chemistry/postgraduate/
The Department of Chemistry holds an Athena SWAN Gold Award and Diamond Light Source Ltd. holds an Athena SWAN Bronze Award, demonstrating commitments to provide equal opportunities and to advance the representation of women in STEM/M subjects: science, technology, engineering, mathematics and medicine.