



PhD Studentship Available

High Energy Single-Crystal Microdiffraction on I15 Applied to Noble-Gas Compounds

A fully-funded PhD studentship is available to work on a collaborative project held between The University of Edinburgh, The Jožef Stefan Institute (Ljubljana) and Diamond Light Source to work on the effect of extreme pressure on compounds of the noble gases.

Background

The distinction between intra- and inter-molecular interactions in compounds of the heavier p-block elements is often harder to define than in the first row, but transitions between them control properties such as non-metallic, metalloid and metallic behaviour and affect electronic structure and electrical conductivity. The aim of this project is to explore and manipulate the interface between intra- and intermolecular bonding in compounds of the noble gases xenon and krypton using pressures up to 50 GPa (half a million times atmospheric pressure). Crystal structures will be determined on Beamline I15 at Diamond, transforming the quality of high-pressure single-crystal diffraction data available at synchrotrons. Other techniques to be used include vibrational spectroscopy and periodic density functional theory as well as specialised methods for handling highly reactive fluorine-containing compounds.

The studentship will be of duration 3.5 years and based in The School of Chemistry and The Centre of Science at Extreme Conditions at The University of Edinburgh and Diamond Light Source with an extended visit to the Jožef Stefan Institute in Ljubljana in Year 1. The project is fully funded, covering UK fees and a stipend at the EPSRC standard rate (starting at £15,285). It will be a mixture of practical and computational work, but a strong background in the synthesis of air-sensitive compounds and crystallography would be an advantage, suiting a candidate with a background in chemistry or materials science.

Applications

Informal enquiries should be addressed to S.Parsons@ed.ac.uk, with applications made through the EUCLID system as outlined at <http://www.chem.ed.ac.uk/studying/postgraduate-research/applications-and-entry-requirements>. Applicants must have a 1st class or an upper 2nd class honours degree (or equivalent) and meet the EPSRC eligibility criteria: <https://www.epsrc.ac.uk/skills/students/help/eligibility/>. The position will remain open until it is filled.

Equality and Diversity

The School of Chemistry holds a Silver Athena SWAN award in recognition of our commitment to advance gender equality in higher education. The University is a member of the Race Equality Charter and is a Stonewall Scotland Diversity Champion, actively promoting LGBT equality. The University has a range of initiatives to support a family friendly working environment. See our University Initiatives website for further information. University Initiatives website: <https://www.ed.ac.uk/equality-diversity/help-advice/family-friendly>