Postgraduate Scholarship in Ferroelectric Metal-Organic Frameworks
Supervisors: Drs Nicholas Bristowe and Paul Saines

A funded PhD position is available in the field of inorganic material chemistry exploring the development of new ferroelectric metal-organic frameworks. This project is in competition with other projects offered by the School of Physical Sciences for one of a number of Vice Chancellor's PhD studentships.

Metal-organic frameworks (MOFs), which combine inorganic and organic building blocks in the same extended solid, have recently attracted significant attention for their fascinating functional electronic and magnetic properties. This is facilitated by their tremendous compositional flexibility, leading to unique architectures that enable new routes to achieving and optimising functional properties. This project will explore the smart design of optimised ferroelectric MOFs with functional properties at ambient conditions by optimising both the supramolecular host-guest interactions within these materials and the structural distortions of the framework. This project will use a combination of synthesis and experimental characterisation of these promising compounds informed and interpreted through first principles calculations. The precise balance of experimental and computational approaches will be tailored to fit the interests and abilities of the successful candidate.

The successful candidate will be based at the University of Kent's main campus in Canterbury in the Functional Materials Group of the School of Physical Sciences. This is a rapidly growing department offering a fresh and exciting research environment, whose multidisciplinary expertise and wide variety of advanced instrumentation is an excellent match to the project. The project will be supervised jointly by Drs Nicholas Bristowe and Paul Saines, who are experts in studying these materials by computational and experimental approaches, respectively. It will involve the synthesis of perovskite-based MOFs, their structural characterisation using powder and single crystal diffraction and electronic and magnetic property measurements. This will be completed alongside theoretical methods including first principles calculations based on density functional theory in addition to group theoretical techniques.

Entry requirements and Funding: Applicants should have or expect to obtain a first or upper second class honours degree (or equivalent) in Chemistry, Physics or a related subject. Previous experience with X-ray diffraction, inorganic synthesis and/or first principles calculations would be advantageous but full training in all techniques underpinning this project will be provided. Most importantly we are looking for a self-motivated person eager to explore this new area of electronic materials.

This is a Vice Chancellor's Research Scholarship, which will be offered at the standard UK Research Councils' rate (currently £14,777; to cover living costs) and will additionally cover tuition fees at the Home/EU rate (currently £4260 per annum). This scholarship is available to both UK and EU nationals and will involve undertaking teaching/demonstrating duties during the period of study. This PhD Studentship is due to start in September 2019.

Webpage(s): https://www.kent.ac.uk/physical-sciences/staff/profiles/academics/paul-saines.html &
https://www.kent.ac.uk/physical-sciences/staff/profiles/academics/nicholas-bristowe.html

Contact: For further information or informal enquiries, please contact Paul Saines at P.Saines@kent.ac.uk or Nicholas Bristowe at N.C.Bristowe@kent.ac.uk.

How to Apply: : To apply please go to [https://www.kent.ac.uk/courses/postgraduate/18/chemistry] / [https://www.kent.ac.uk/courses/postgraduate/212/physics].
You will need to apply through the online application form on the main University website. Please note that you will be expected to provide personal details, education and employment history and supporting documentation (Curriculum Vitae, transcript of results, two academic references).

Deadline Date for Applications: 8th February 2019