

Skymionic materials

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The recent discovery of skyrmions in magnetic materials and of their self organisation into a skyrmion lattice together with their potential use for magnetic storage has made skyrmion physics one of the hottest topics in magnetism research.

A PhD studentship is available starting from October 2017 to work on skymionic materials, including materials which have previously been identified to exhibit skymionic behaviour, as well as exploring new materials which may exhibit this behaviour. The project will make use of a number of experimental techniques to synthesize the crystals and will encompass the study of the crystals produced through detailed investigations of their structural and magnetic properties. The project will involve several collaborations with research groups both within the UK and Internationally. To complement our in-house studies, there will also be scope for taking part in experiments at international facilities using neutrons, muons and synchrotron radiation.

The project takes place in the context of a wider programme of materials investigation currently underway within the Superconductivity and Magnetism Group in the University of Warwick. The University of Warwick is one of the five consortium universities in the UK National Research Programme on "Skymionics: From Magnetic Excitations to Functioning Low-Energy Devices", funded by the EPSRC, UK, involving the universities of Durham, Oxford, Cambridge and Southampton. Industrial partners with interest in magnetic systems for data storage are also involved.

This is a new, exciting and fast moving field and an ideal project for a strong and enthusiastic student.

The student will be enrolled on the Materials Physics Doctorate scheme (go.warwick.ac.uk/MPDOC). This gives access to a tailored research degree to help you exploit our own outstanding materials growth, fabrication, characterisation and computational capabilities, and those at central facilities. A broad education in Materials Physics is provided through dedicated modules under the Midlands Physics Alliance Graduate School, and external courses.