



Post-doctoral Research Opportunity

Microscopic Origin of Ferromagnetism in Spintronic Materials

A postdoctoral fellow position is available in understanding the microscopic origin of ferromagnetism in spintronic materials.

High-quality dilute magnetic semiconductors (DMSs) are required to realise spintronics – the next generation of electronic systems that will use the magnetic spin, rather than charge, of electrons for computation and information storage. DMSs have been widely reported above room temperature, but there are wide variations in the spintronic behaviors described. In particular, the origin of ferromagnetism is not clear. Therefore, there is a major opportunity for the application of new, element- and position-specific analysis techniques for revealing the microscopic origin of ferromagnetism in DMSs. In this project, we will employ atom probe, electron microscopy and other techniques to study the nanostructural effects in DMSs. The aims are to understand the microscopic origin of ferromagnetism in DMSs, and to direct the fabrication of high-quality DMSs.

We are seeking researchers with a recent PhD in physics, materials science or a related discipline, and a sound knowledge of and experience in one or more of the following areas: nanomagnetism, spintronics, microscopy and microanalysis, ab initio density-functional calculation, or thin film deposition. Strongly motivated researchers with aspirations to research excellence are encouraged to apply.

To discuss the project or for further information, please contact Dr Rongkun Zheng.

Further Information:

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“Nanotechnology has given us the tools to play with the ultimate toy box of nature – atoms and molecules. The possibilities to create new things appear to be limitless.”

Horst Stormer

Physicist Nobel Prize Winner 1998



The Australian Key Centre for Microscopy and Microanalysis is the research-arm of the University of Sydney's Electron Microscope Unit (www.emu.usyd.edu.au) and is a node of the ARC Centre of Excellence for Design in Light Metals (www.arclightmetals.org.au). It is also headquarters of the Australian Microscopy & Microanalysis Research Facility (www.ammrf.org.au).