

# Research & Research Training Office

## Faculty Seminar

March 6, 2007

**Prof Stewart Campbell**

### **Abstract: Magnetism for the Masses – Magnetic Materials and their Impact on Society**

Remarkable technological and commercial developments have taken place in the field of magnetism in the past two or three decades. Indeed, society relies on magnetic materials to an extent unimaginable even as recently as 20 years ago. Their usefulness and applications range from the trivial but indispensable 'fridge magnets' to the ubiquitous computer (with its unlimited scope for application), recording media, mobile telephones and superconducting magnets with their life-saving potential in scanning and imaging devices.

An introduction to the basic effects, underlying principles and techniques of magnetism will be presented, along with an overview of the advances that have occurred in magnetic materials in recent years. These range from the weakest known form of magnetism - the diamagnetism of high temperature superconductors - to the strongest known magnetism - the long range ferromagnetic order of Nd-Fe-B based compounds.

A special treat will be the interactive opportunity to explore some of the fundamental effects of magnetism using experimental laboratory demonstrations. The experiments will be set up for use both before and after the presentation.