

第 10 回 CSIS セミナー
第 79 回 ナノ・スピン工学研究会
スピントロニクス国際共同大学院セミナー
半導体スピントロニクス研究室講演会の開催について

日 時 : 平成 27 年 8 月 31 日 (月) 15:00-16:00

場 所 : 電気通信研究所 ナノ・スピン総合研究棟 4 階 401 号室

講 師 : Dr. Justin LLANDRO (Cavendish Laboratory, University of
Cambridge, UK)

講演題目 : Magnetism and Related Phenomena in 2D & 3D Materials,
Metamaterials and Heterostructures

概 要 :

Inducing anisotropies (for example, by breaking symmetries) is the fundamental cause of many fascinating phenomena of both fundamental interest and value for applications. A famous example is the Rashba spin-orbit coupling, resulting from broken perpendicular spatial inversion symmetry, on which many spintronics applications rely to permit the manipulation of electron spins without magnetic fields. Very recent discoveries include the topologically protected edge states of the quantum Hall effect and the symmetry-protected high-mobility surface states of graphene and topological insulators; at a higher length scale, patterning of a thin film into antidots or magnetostatically coupled islands gives rise to the rich behaviour of magnetic metamaterials such as artificial spin ices and magnonic crystals.

This seminar will present the results of investigations performed in the Thin Film Magnetism Group at the Cavendish Laboratory on spin-dependent phenomena in 2D and 3D magnetic nanostructures and heterostructures, studied by high-resolution photoelectron emission microscopy (PEEM) and electron holography. Low-temperature magnetotransport measurements of 2D electron and hole systems, including topological insulators and semiconductor quantum wells, will also be presented. The talk will seek to give a flavour of the rich physics to be found at anisotropic interfaces and in interacting, nanostructured systems, and of the potential of emergent behaviours to provide new material properties for applications.

