

Department of Physics

Condensed Matter Physics

Clarendon Laboratory, Parks Road, Oxford OX1 3PU



CONDENSED MATTER SEMINAR

Thursday 28 November at 2.15pm

“Nucleation, motion and detection of skyrmions”

Dr Katharina Zeissler
University of Leeds, UK

The study of topological objects has emerged as a fascinating phenomenon in solid state research from both the fundamental and the applied perspectives. An exciting candidate in this field of research is the magnetic skyrmion which is unaltered by certain elastic transformations such as a stretching, bending or twisting. The skyrmion's topology has interesting consequences on how it interacts with electrons, other skyrmions, and defects and on how it responds to a driving force. In this talk, I will address aspects of skyrmion creation, motion and detection, at room temperature, in cobalt based multilayer devices. I will discuss two skyrmion nucleation pathways: electrical current and local magnetic fields. I will show electrical current driven motion, observed using scanning transmission x ray microscopy (STXM), in amorphous cobalt based devices. In particular, the skyrmion diameter dependence on the skyrmion Hall angle will be discussed. I will conclude the talk by showing individual skyrmion detection using electrical measurements.

*Host: Prof Thorsten Hesjedal
Simpkins Lee Room, Beecroft Building*