# Quantum oscillations in small-gap insulators

Professor Nigel Cooper

Department of Physics, University of Cambridge

In recent years it has become understood that quantum oscillations of the magnetization as a function of magnetic field, long recognized as a phenomenon intrinsic to metals, can also manifest in insulating systems. Theory has shown that in certain narrow-gap band insulators, quantum oscillations can appear with a frequency set by the area traced out by the minimum gap in momentum space. I shall provide an overview of the theories of quantum oscillations in simple band insulators of this type, and discuss the relevance of these theories to experimental measurements on novel materials.