MAR17-2016-020361

Abstract for an Invited Paper
for the MAR17 Meeting of
the American Physical Society

Real space imaging of magnetic order and excitations in iron-based superconductors

PETER WAHL, University of St Andrews

The proximity of magnetic order to superconductivity in the phase diagrams of many of the iron-based superconductors indicates an intimate relationship between the two. In my talk, I will discuss local measurements by low temperature scanning tunnelling microscopy and spectroscopy of the magnetic order and magnetic excitations in iron-based superconductors. In the first part of my talk I will discuss detection of magnetic excitations in the non-superconducting parent compound, FeTe, of the iron-chalcogenides by inelastic tunnelling spectroscopy. I will then show the influence of inelastic tunnelling on spectra obtained in the superconducting state and show how the inelastic signal can be used to image the spin resonance mode of the iron-based superconductors in real space, information not available from other methods.