



Festkörper-Kolloquium und Seminar TRR 80

am Donnerstag, 16.05.2013

um 17:15 Uhr

spricht

Prof. Andrew Boothroyd

University of Oxford

im HS 3 im Physik-Department

über das Thema

Unravelling emergent order in magnetic oxides by neutron spectroscopy

A major theme in correlated electron physics is the existence of complex forms of nano-scale order involving several different electronic degrees of freedom. Such phenomena can dramatically influence the physical properties of materials, the most prominent example of which is the occurrence of high temperature superconductivity in the layered copper oxides.

This talk will be concerned with how emergent electronic order influences spin dynamics in complex antiferromagnetic oxides. Advances in neutron spectroscopy have made it possible to measure the complete spectrum of cooperative spin excitations in magnetically ordered systems in great detail. I will illustrate how studies of the spin dynamics can provide key insights into the nature of complex ground states. I will present recent results on a half-doped layered manganite which conclusively distinguish between different models proposed for its ground state [1], and I will show how a striking hour-glass magnetic spectrum found in layered cobalt oxides sheds light on the existence of charge stripe correlations in the copper oxide superconductors [2].

[1] G. E. Johnstone, T. G. Perring, O. Sikora, D. Prabhakaran, and A. T. Boothroyd,
Phys. Rev. Lett. **109**, 237202 (2012).

[2] A. T. Boothroyd, P. Babkevich, D. Prabhakaran, and P. G. Freeman,
Nature, **471**, 341 (2011).

ab 17:00 Uhr Kaffee vor dem Hörsaal

Einführung: C. Pfleiderer