MAR09-2008-002887

Abstract for an Invited Paper
for the MAR09 Meeting of
the American Physical Society

Sleuthing Hidden Order in URu_2Si_2

PREMALA CHANDRA, Center for Materials Theory, Dept. of Physics and Astronomy, Rutgers University

In this talk, I will provide an overview of recent experimentally-driven advances in our understanding of the hidden order in URu_2Si_2; constraints and implications for future theoretical work will be discussed. State-of-the-art pressure, neutron and transport measurements [1] on this material have led to the confirmation of the phase diagram proposed on theoretical grounds for URu_2Si_2 several years ago [2], while recent neutron [3], ARPES and STM studies provide growing evidence for the formation of a density wave of unknown character [2]. I will also describe the challenge of linking the observed excitations to the underlying hidden order, and will discuss ongoing theoretical advances in this direction.

References:
[1] A. Villaume et al., arXiv:0805.0672.
[2] P. Chandra et al., Nature 417, 831 (2002); V. Tripathi et al., J. Phys. Cond. Mat. 17, 5285 (2005).
[3] C.R. Wiebe et al., Nature Physics 3, 96 (2007).