



Department of Physics Colloquium

Friday, October 2, 2009 • 4:00 P.M. • 2241 Chamberlin Hall

cookies & coffee served at 3:30 p.m

Search for Time-Reversal-Symmetry-Breaking Effects in Unconventional Superconductors



**Aharon
Kapitulnik**

Stanford University

Host: Chubukov

BCS theory of conventional superconductivity can be described by a condensate of Cooper-pairs of time-reversed states. Such superconductors respect time reversal symmetry and are immune against non-magnetic scattering (the Anderson theorem). However, for unconventional superconductors, which do not respect Anderson theorem, there can be a class of superconductors with “chiral” order parameter for which time-reversal symmetry is broken (TRSB). In this talk we will review our recent studies of TRSB in several systems, emphasizing possible triplet superconductors such as Sr_2RuO_4 , the study of the pseudogap state of high temperature superconductors, and the inverse proximity effect in superconductor/ferromagnet bilayer structures.

For a recent review of our studies see: Aharon Kapitulnik, Jing Xia, Elizabeth Schemm and Alexander Palevski, *New J. Phys.* 11 (2009) 055060.