



Department of Physics Colloquium

Friday, October 1, 2010 • 4:00 P.M. • 2241 Chamberlin Hall

cookies & coffee served at 3:30 p.m

The Phase Diagrams of the High Temperature Superconductors



Subir Sachdev

Harvard

The last three decades have witnessed the discovery of many new superconductors, with properties dramatically different from the conventional low temperature superconductors described by the Bardeen-Cooper-Schrieffer theory. These new superconductors can have much higher critical temperature, and all display antiferromagnetism in their phase diagrams. I will highlight important experimental discoveries of the past two years, and argue that they support a unifying theory and phase diagram for these new superconductors. I will also note the still mysterious “strange metal” region of the phase diagram, and its recent holographic description by methods drawn from string theory.