

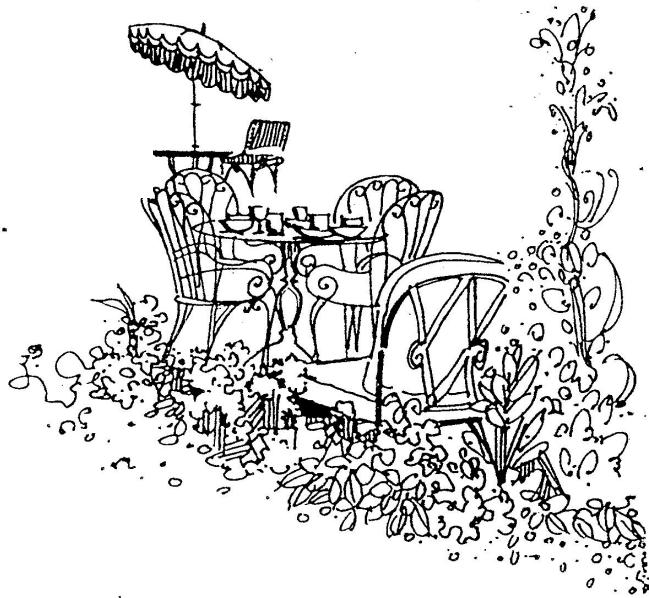
Chez Pierre

Presents ...

Wednesday, September 9, 2015

12:00pm

MIT Room 4-331



Chez Pierre Seminar

Suchitra Sebastian

University of Cambridge, UK

” Quantum oscillations in a Kondo insulator“

Quantum oscillations in strongly correlated metals provide an excellent mapping of the constant energy Fermi surface in momentum space. It proves a conundrum, therefore, when our measurements reveal quantum oscillations in the magnetisation of the Kondo insulator SmB₆ despite the gap in density of states at the Fermi energy of these materials, which precludes a conventional Fermi surface. I will discuss the Fermi surface geometry mapped by quantum oscillation measurements in insulating SmB₆, which strongly resembles that of the conduction electron Fermi surface in the metallic rare-earth hexaborides. The temperature dependent quantum oscillation amplitude meanwhile strongly deviates from the conventional Lifshitz Kosevich form expected for fermionic quasiparticles, signalling the unconventional character of the ground state which exhibits quantum oscillations despite its electrical insulating properties.