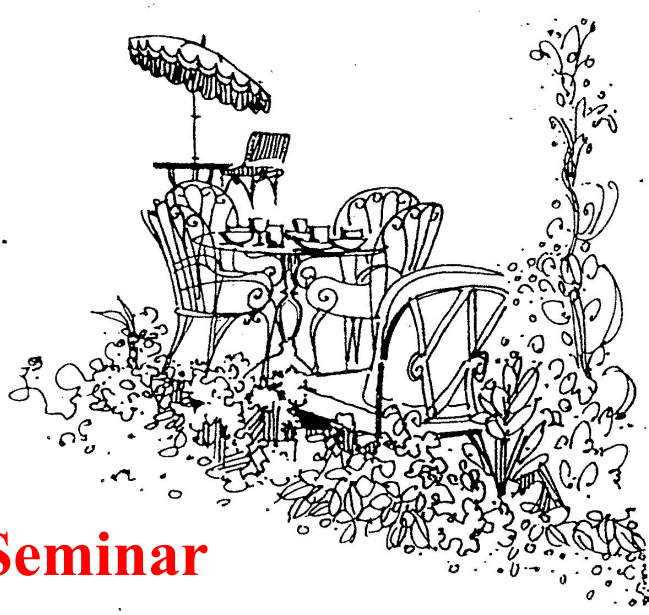
Chez Pierre

Presents ...

Monday, November 16, 2015
12:00pm
MIT Room 4-331



Chez Pierre Seminar

Andrey Chubukov

University of Minnesota

”Superconductivity near a quantum critical point“

I discuss the interplay between non-Fermi liquid behaviour and superconductivity near a quantum-critical point (QCP) in a metal. It was thought by many researchers that in D=2, non-Fermi liquid behaviour near a QCP extends to energies well above superconducting Tc, and that superconductivity involves non-Fermi-liquid quasiparticles and emerges due to peculiar interplay between strong attraction and strong pair-breaking effects from self-energy. I argue that this is not necessary always the case. I show that in a situation when critical bosons are slow compared to electrons, fermionic self-energy plays little role for superconductivity in 2D, despite that it is strong and destroys fermionic coherence. I discuss the special role of “first Matsubara frequency” in this regard. I present explicit results for Tc for the set of models with frequency-dependent effective interaction, including the strong coupling limit of electron-phonon interaction.