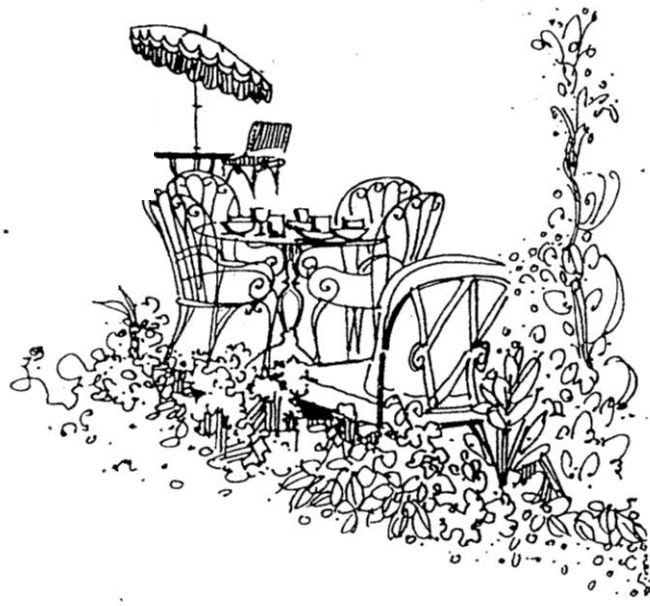
Chez Pierre

Presents ...

Monday, February 7, 2011
12:00pm
MIT Room 4-331



Joshua Folk

University of British Columbia

"Quantum Interference in Graphene: Old Tricks to Decipher a New Material"

Graphene is one of the hottest "new" materials of the decade, and groups around the world have enlisted an impressive array of highly sophisticated measurement tools to decipher its unique properties in record time. This seminar will describe, in contrast, a set of graphene experiments based on very simple--almost old-fashioned--techniques: low temperature electrical transport measurements of quantum interference phenomena such as weak localization and universal conductance fluctuations. By implementing these measurements in creative ways, we succeed in accessing a variety of graphene physics that has resisted more direct approaches. The talk will begin with measurements of graphene's g-factor, ripple topography, and the pseudo-magnetic gauge field that results from ripple strain, then move on to directions for the future, including interaction-based corrections to the density of states and the possibility of paramagnetic defects in the graphene lattice.