

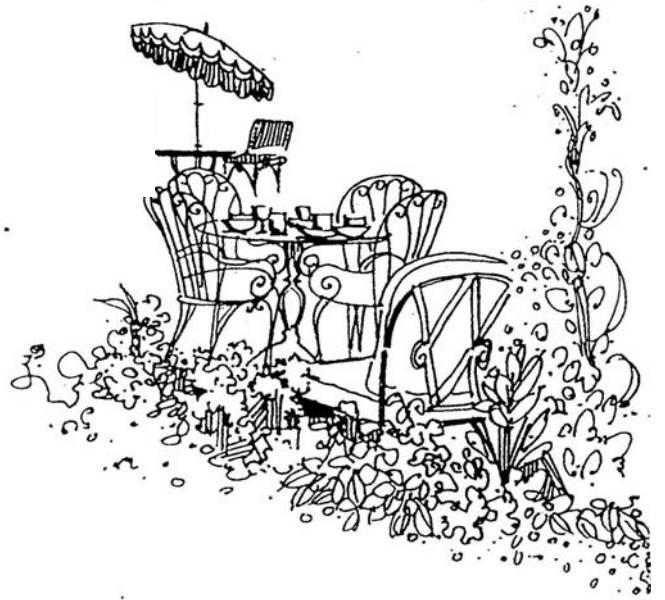
Chez Pierre

Presents ...

Monday, February 2, 2009

12:00pm

MIT Room 4-331



Guifre Vidal

University of Queensland, Australia

“Recent Progress in Entanglement Renormalization”

Entanglement Renormalization (ER) has been proposed as a real space renormalization group transformation for quantum lattice systems in D spatial dimensions [Phys. Rev. Lett. 99, 220405 (2007)]. Its main novelty is the use of disentglers, namely unitary transformations that act across a spin block boundary, to remove short-range entanglement from the system's ground state. In this talk I will first review the basic concepts underlying ER and then present a summary of the most recent results. Specifically, I intend to describe the simulation of lattice systems at a quantum critical point by exploiting scale invariance; and the simulation of two dimensional lattice systems that are beyond the reach of Monte Carlo sampling techniques, including spin models of frustrated antiferromagnets.