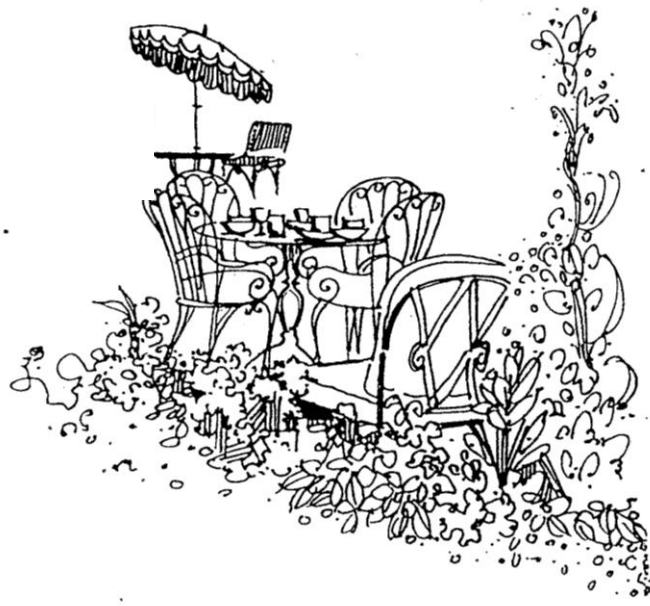
Chez Pierre

Presents ...

Monday, May 13, 2013
12:00pm
MIT Room 4-331



Anton Akhmerov
Harvard University

"Adaptive tuning of Majorana fermions in a quantum dot chain"

I will explain how to overcome the obstacles that disorder and high density of states pose to the creation of unpaired Majorana fermions in one-dimensional systems. This is achieved by splitting the system into a chain of quantum dots, which are then tuned such that the chain can be viewed as an effective Kitaev chain with maximally localized Majorana fermions. Resonant Andreev spectroscopy allows us to make this tuning adaptive, so that each pair of dots may be tuned independently of the other. Our numerical simulations show that already in three quantum dots it is possible to have almost completely decoupled Majorana fermions.