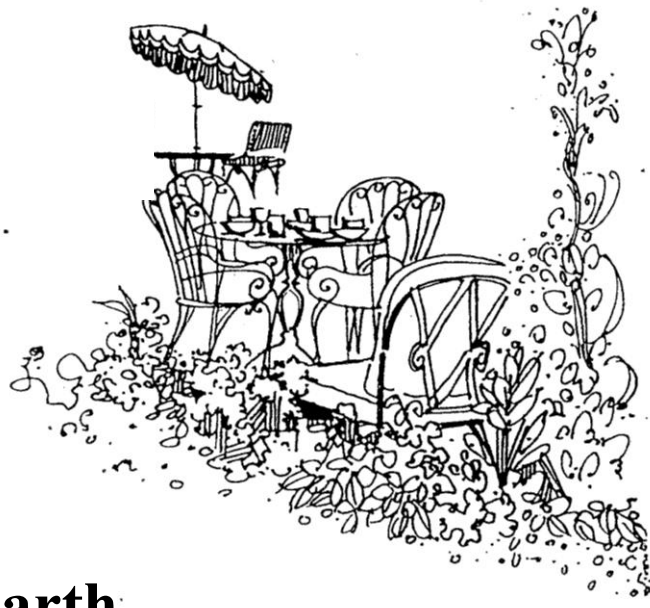
Chez Pierre

Presents ...

Monday, October 1, 2012
12:00pm
MIT Room 4-331



Nitin Samarth

Penn State University

"Interfacing Magnetism with Topological Insulators"

Interfacing topological insulator surface states with superconductors, ferromagnets and antiferromagnets is of interest because this could yield "exotic broken symmetry surface phases" [1,2]. Motivated by these predictions, we have undertaken a concerted program to develop epitaxial topological insulator heterostructures [3] wherein "candidate" topological insulators are interfaced with a variety of magnetic systems. I will provide an overview of our ongoing program to interface Bi2Se3 with insulating magnetic systems. I will then discuss in more detail recent experiments that study the properties of epitaxially grown Mn-doped Bi2Se3 [4] and that probe the spin texture and Berry phase of Dirac cone surface states in this material [5].

1. M. Z. Hasan and C. L. Kane, Rev. Mod. Phys. 82, 3045 (2010).
2. X. -L. Qi and S. -C. Zhang, Rev. Mod. Phys. 83, 1057 (2011).
3. A. Richardella et al., Appl. Phys. Lett. 97, 262104 (2010).
4. Duming Zhang et al., arxiv: 1206.2908.
5. Su-Yang Xu et al., Nature Physics 8, 616 (2012).