

Colloquium Notice

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Signature of topological phase transition in superconducting phase of doped topological insulators

Many of the topological insulators, in their naturally available form are not insulating in the bulk. It has been shown that some of these metallic compounds, become superconductor at low enough temperature and the nature of their superconducting phase is still widely debated. In this talk I show that even the s-wave superconducting phase of doped topological insulators, at low doping, is different from ordinary s-wave superconductors and goes through a topological phase transition to an ordinary s-wave state by increasing the doping. I show that the critical doping is determined using the SU(2) Berry phase on the fermi surface of doped topological insulator and can be modified by different tunable features of the material. At the end I present the results of a recent experiment on the Josephson junctions made of thin films of Bismuth selenide , which can be explained using our theory of doping induced phase transition in topological insulators.

Monday

March 10, 2014

Starts at 12:15 PM

Physics Conference Room, SB B326