Condensed Matter Theory Center

center for nanophysics and advanced materials

Condensed Matter Colloquium

Thursday, September 26, 2013

2:00 pm, Room 1201

Prof. Jing Xia

University of California, Irvine

Surface Transport in Topological Kondo Insulator SmB_6

In this talk we will discuss the existence of topological order in a 3D strongly correlated material SmB6, which has recently been proposed theoretically as a topological Kondo insulator. We will present transport evidence for a highly conductive surface state surrounding a truly insulating bulk: At low temperature we found that the Hall resistance scales with the surface, and is independent of the thickness. Using non-local transport measurements, we demonstrate that the electric conducting is mostly along the surface at low temperatures and in zero magnetic field. At even lower temperatures, we demonstrate the weak localization effect, which is consistent with a surface state with spin momentum locking. The Kondo-effect-like resistance saturation will also be discussed.

Refreshments at 1:30 pm in Room 1305F

physics University of Maryland