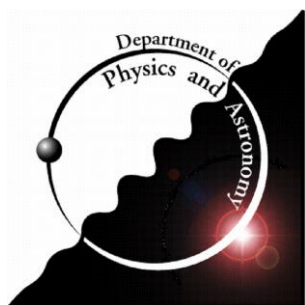




PHYSICS AND ASTRONOMY COLLOQUIUM

Dr. Tami Pereg-Barnea

McGill University

"Driving Topology, Hunting Majoranas"

Abstract

The study of topology in condensed matter is a rapidly growing field. Recent activity ranges from classifying the possible topological systems to first principles calculations of real materials. In this talk I will use a simple language to introduce the subject and survey some recent developments. In the first part of my talk I will present different ways in which a topologically trivial system can be driven into a topological phase. In the second part I will discuss the possibility of observing Majorana fermions in topological superconductors. Majorana fermions are peculiar non-abelian quasiparticles which are as their own antiparticles. They were predicted back in 1937 but have never been observed as genuine elementary particles. Recently, condensed matter systems are offering a new route for constructing and detecting such particles in the vortex cores of topological superconductors. I will present several ideas for realizing topological superconductors.

Wednesday, March 26, 2014

3:30 p.m.

Bob Wright Centre

A104