

Abstract Submitted
for the MAR14 Meeting of
The American Physical Society

Novel phases in topological superconducting quantum dots

KAREN MICHAELI, The Weizmann Institute of Science, LIANG FU, Massachusetts Institute of Technology — Recent progress in realizing topological superconductors has paved the road to study new physical phenomena resulting from the non-abelian statistics of the Majorana modes they host. A particularly interesting situation arises when Majorana bound states in a closed topological superconducting dot are coupled to external normal leads. In this talk, we will show that interactions with the quantum dot drive the lead electrons into a non-Fermi liquid phase, which can be understood by mapping the problem to a variant of a Kondo system. Interestingly, the non-Fermi liquid states in these systems are more robust than in the conventional two channel Kondo problem. This is because realizations with different numbers of metallic leads are connected to each other by a line of fixed points. We will conclude with a discussion of the experimental consequences of our theory.

Karen Michaeli
The Weizmann Institute of Science

Date submitted: 15 Nov 2013

Electronic form version 1.4