Abstract Submitted
for the MAR16 Meeting of
The American Physical Society

Local and non-local conductance of one-dimensional topological superconductor with Majorana bound states ZHI-QIANG BAO, FAN ZHANG, The University of Texas at Dallas — A one-dimensional topological superconductor has a full pairing gap in the bulk and Majorana bound states on the boundary. It is well known that the existence of Majorana bound states enables a quantized resonant local Andreev reflection. Here we find that non-local topological signatures can also be induced by the Majorana bound states in a simple setup, even though the bulk is fully gapped. The non-local conductance, which can even be quantized, depends crucially on the symmetries, the topological index, and the mesoscopic properties of the bulk. Coulomb interactions can further drive the hybrid system into a novel phase, which can be understood by a set of renormalization-group flow equations.

Zhi-qiang Bao
The University of Texas at Dallas

Date submitted: 06 Nov 2015 Electronic form version 1.4