Abstract Submitted
for the MAR14 Meeting of
The American Physical Society

Majorana fermions in hybrid superconductor-semiconductor nanowire devices KUN ZUO, VINCENT MOURIK, DAVID VAN WOERKOM, FOKKO DE VRIES, Delft University of Technology, SEBASTIEN PLISSARD, ERIK BAKKERS, Eindhoven University of Technology, LEO KOUWENHOVEN, Delft University of Technology — Recently the first experimental signatures of Majorana fermions were reported. Experiments are now focusing on more rigorous ways to identify Majorana's. Since Majorana's should come in pairs, further experimental evidence could be given by measuring the correlated emergence of two Majorana's at both ends of the topological superconductor. Additionally, recent developed theories show that interacting Majorana's lead to an oscillation between a splitted zero bias peak and a single zero bias peak in both gate and magnetic field space. We perform our experiments in three terminal normal-superconductor-normal InSb nanowire devices. This enables us to simultaneously probe both Majorana fermions by using tunneling spectroscopy from the two normal contacts into the superconducting contact. An improved gate design enhances gating of Majorana's makes it possible to observe the oscillatory peak splitting behavior. Our preliminary results are in line with the expected behavior of interacting Majorana bound states at the ends of a topological superconductor.

Kun Zuo
Delft University of Technology

Date submitted: 15 Nov 2013 Electronic form version 1.4