Abstract Submitted for the MAR14 Meeting of The American Physical Society

Superconducting transport through InAs/GaSb heterostructures

VLAD PRIBIAG, Kavli Institute of Nanoscience, Delft University of Technology, CHRISTOPHE CHARPENTIER, WERNER WEGSCHEIDER, Laboratory for Solid State Physics, ETH Zurich, LEO KOUWENHOVEN, Kavli Institute of Nanoscience, Delft University of Technology — Type-II InAs/GaSb heterostructures have recently attracted interest as a two-dimensional topological insulator that can be tuned between the normal and topological quantum phases by means of electrostatic gating. In proximity to a superconductor, 2D topological insulators are predicted to host Majorana zero-modes, a consequence of the helical nature of their edge conduction modes. Here, we present transport measurements through SNS junctions based on InAs/GaSb with NbTiN superconducting contacts. We observe induced supercurrents and investigate the effects of gating and applied magnetic fields, highlighting the potential for Majorana-detection experiments in this system.

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Date submitted: 15 Nov 2013 Electronic form version 1.4