Majorana Fermions in Semiconducting Nanowires

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Abstract

Majorana fermions can arise as emergent particles in specially designed nanoscale conductors. We have combined superconductors and semiconducting nanowires with strong spin-orbit interaction. At finite magnetic field we find peaks in the density-of-states at zero-bias. The properties of this zero-bias peak compare well with the predictions for Majorana bound states. Background information of this work including a recent publication can be found at kouwenhovenlab.tudelft.nl

Majoranas are thought to solve all quantum computer problems.