

Majorana bound states in coupled quantum dots

Tom Dvir

Guanzhong Wang, Greg Mazur, Nick van Loo, David van Driel, Alberto Bordin, Leo Kouwenhoven

Delft University of Technology, The Netherlands

t.dvir@tudelft.nl

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The creation and detection of Majorana-bound states in semiconductor-superconductor hybrids have been an outstanding challenge facing the condensed matter community for over a decade. This challenge is fueled both by fundamental scientific interest and the promise it holds for quantum computation. Conventional approaches to realizing Majorana-bound states face difficulties due to the demanding requirements for semiconducting quality. We adopt an alternative method for this problem by coupling quantum dots via a superconductor. The formation of this single unit cell of the Kitaev chain allows us to observe the presence of Majorana-bound states at fine-tuned values of the potential landscape. In this talk, I will provide an overview of the formation of the Kitaev chain and the underlying microscopic picture. I will also discuss the observed experimental signatures of the so-called "Poor man's Majorana" states and how to improve them..

References

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