

Sessions: Nanotechnology

Preferred presentation Type: Poster

Signature of Majorana bound states in zigzag chain.

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Abstract:

The research in condensed matter physics with insulators and superconductors topological has contributed greatly to the characterization of the surface properties and modes zero in nanowires. We investigate theoretically, through the recursive Green's function approach, the electron transport through the T-shaped quantum dot (PQ) with a single level and spinless, connected to a zigzag chain and coupled to a p-wave superconductor. This model is an extension of the Kitaev chain for a network triangular of finite-size with for three, four, and five sites. We find that the Majorana zero modes can be tuned through the coupling parameters of the device and the linear conductance show both the Majorana Bound States (MBS) in topological phase and in the general topological phase maximally robust. This more realistic model allows the detection of MBS through of the control of the parameters governing the electronic tunneling and can be helpful for relevant experiments.

References:

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