



Canadian Association
of Physicists

Association canadienne
des physiciens et physiciennes

Contribution ID: 3575

Type: **Invited Speaker / Conférencier(ère) invité(e)**

(I) Improving and Manipulating Majorana Zero Modes

Tuesday 20 June 2023 10:45 (30 minutes)

Majorana zero modes appear at the edges of topological superconducting wires as part of the bulk-boundary correspondence in these systems. Thanks to topology, Majoranas are robust against weak perturbations and this makes them promising candidates for qubit building blocks. In Majorana-based qubits quantum information is stored non-locally, avoiding many sources of decoherence. In such qubits logical operations amount to coupling and exchanging Majoranas in space. This means that in order to perform quantum operations we need to learn how to manipulate Majorana modes while reducing diabatic errors.

In this talk we will discuss Majorana chains, how to improve their reliability and how to manipulate them safely on a wire.

Keyword-1

Majorana modes

Keyword-2

Topological superconductivity

Keyword-3

Primary author: PEREG-BARNEA, Tami

Presenter: PEREG-BARNEA, Tami

Session Classification: (DCMMP) T2-7 Quantum Materials Symposium | Symposium sur les matériaux quantiques (DPMCM)

Track Classification: Symposia Day (Tues. June 20) / Journée de symposiums (mardi, le 20 juin): Symposia Day (DCMMP - DPMCM) - Quantum Materials | Matériaux quantiques