

CEA - Saclay 91191 Gif-sur-yvette Cedex
Service de Physique de l'Etat Condensé
SÉMINAIRE

Mercredi 16 juin 11h15

Orme des Merisiers SPEC Salle Itzykson, Bât.774

MAJORANA FERMIONS IN TOPOLOGICAL INSULATORS

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Majorana fermions are spatially localized superpositions of electron and hole excitations in the middle of a superconducting energy gap. These unusual particles have been predicted to occur at the interface between a magnetic and superconducting electrode, in contact with a topological insulator. A single qubit can be encoded nonlocally in a pair of spatially separated Majorana fermions. Such Majorana qubits are in demand as building blocks of a topological quantum computer, but direct experimental tests of the nonlocality remain elusive. We will discuss methods to detect Majorana fermions by shot noise and discuss how the familiar flux qubit might be used to read out the state of a Majorana qubit.

A coffee break will be served at 11h00. The seminar will be given in English.

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