



Canadian Association  
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Contribution ID: 4305

Type: **Poster (Non-Student) / Affiche (Non-étudiant(e))**

## **(POS-63) Engineering the geometry of space time: Emergence of Majorana fermions**

*Tuesday, May 28, 2024 5:59 PM (2 minutes)*

In 2010 Sau *et al* proposed a topological superconducting Majorana fermions can be realized in a semiconductor quantum well coupled to an *s*-wave superconductor and a ferromagnetic insulator. In the same year, Alica, proposed a simpler architecture for detecting Majorana fermions by applying an in-plane magnetic field to a (110)-grown semiconductor coupled only to an *s*-wave superconductor. Here we propose an alternative setup, wherein a topological superconducting phase is in proximity to a tilted Dirac materials with a variable tilt parameter, in order to explore if the system can be driven into a topological superconducting state. Success creating topological superconductors would open these systems up as a unique flexible platform for topological quantum computation.

### **Keyword-1**

Geometry of space-time

### **Keyword-2**

Majorana Fermions

### **Keyword-3**

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**Session Classification:** DCMMP Poster Session & Student Poster Competition (11) | Session d'affiches DPMCM et concours d'affiches étudiantes (11)

**Track Classification:** Technical Sessions / Sessions techniques: Condensed Matter and Materials Physics / Physique de la matière condensée et matériaux (DCMMP-DPMCM)