



# Quantum Designer Physics (QDP2019)



**01.Juil - 04.Juil 2019**

**Cod. Z09-19**

**Modalité:**

En personne

**Édition**

2019

**Type d'activité**

Workshop

**Date**

01.Juil - 04.Juil 2019

**Location**

Miramar Palace

**Langues**

Anglais

**Reconnaissance officielle par l'État**

40 heures

**Comité d'organisation**



## Description

The workshop Quantum Designer Physics will highlight recent advances in material systems purposefully designed for studying some of the most intriguing physical phenomena at the nanoscale. Very broadly these phenomena are related to spin, topology, and coherence, which make it possible for the materials to display quantum functionalities. Condensed Matter Physics is known for providing a rich variety of material systems in which almost any physics can be readily found and studied. But, with the recent development of quantum materials, it appears to be possible to design a suitable material system to implement a desired physics on demand. Thus a 'toy model' which could be conceived to exhibit an interesting behavior could be implemented in a material system and become a reality.

This workshop brings together the leading experts working on quantum materials and aims at creating a stimulating atmosphere for discussing new physics on the marvelous sites of San Sebastian. We will discuss recent progress in creating ordinary and topological quantum systems in different dimensions as well as some of the most exotic quantum materials based on graphene and other n-dimensional materials. We will update on the progress in spin-based quantum computing with a look into the prominent future of quantum technologies. The quest for Majorana bound states in hybrid superconducting systems and topological quantum computing are also on our agenda. We hope the workshop will foster collaborations and inspire its attendants to tackle new problems with great ideas which make a difference for fundamental physics, lead to applications, and advance futuristic technologies.

### Organizing committee

- Daniel Loss, University of Basel, Switzerland
- Francisco Guinea, IMDEA Madrid and University of Manchester, UK
- Andrés Arnau, DIPC and CFM-UPV/EHU, Donostia-San Sebastian (chair)
- Vitaly Golovach, DIPC and CFM-UPV/EHU, Ikerbasque, Donostia-San Sebastian (chair)

### Objectifs

To bring together leading experts working on the frontiers of the design of advanced materials with quantum functionalities.

To present and discuss the recent developments in the field and determine directions of future research.

To facilitate the discussion and foster collaborations between theoretical and experimental physicists, including local scientists from Donostia.

To create the conditions for young and brilliant scientists to present their work and make themselves visible in this rapidly developing field.

### Collaborateurs spécifiques au cours



## Directed by



### **Vitaly Golovach**

Materialen Fisika Zentroa CFM-UPV/EHU and Donostia International Physics Center

---



### **Andrés Arnau Pino**

UPV/EHU

---

## Tarifs inscription

REGISTRATION	JUSQU'AU 01-07-2019
INVITED SPEAKER / ORGANIZERS	0 EUR
REGULAR ATTENDANT	300,00 EUR