Quantum Designer Physics (QDP2019)

01.Jul - 04.Jul 2019

Cod. Z09-19

Mod.:
Face-to-face

Edition
2019

Activity type
Workshop

Date
01.Jul - 04.Jul 2019

Location
Miramar Palace

Languages
English

Academic Validity
40 hours

Organising Committee

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)

Objectives

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.

Course specific contributors

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GOBIERNO VASCO
HEZKUNTZA SAILA
DEPARTAMENTO DE EDUCACIÓN

DIPC

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Universidad del País Vasco
Euskal Herriko Unibertsitatea

Directed by

Vitaly Golovach

Ikerbasque Research Fellow, Materialen Fisika Zentroa CFM and Donostia International Physics Center, Ikerbasque Research Fellow

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Andrés Arnau Pino

UPV/EHU

Registration fees

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

Place

Miramar Palace

Pº de Miraconcha nº 48. Donostia / San Sebastián

Gipuzkoa