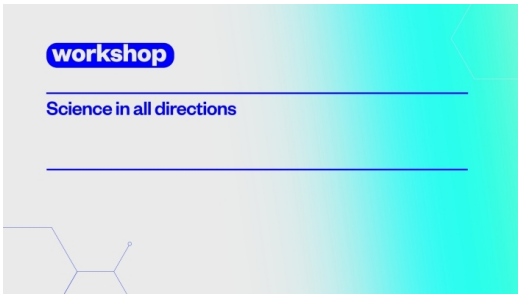
Quantum Designer Physics (QDP2022)



18.Jul - 21.Jul 2022

Cod. Z18-22

Mod.:
Face-to-face

Edition
2022

Activity type
Workshop

Date
18.Jul - 21.Jul 2022

Location
Miramar Palace

Languages
English

Academic Validity
40 hours

Web
http://qdp2022.dipc.org

Organising Committee

Description

The workshop will highlight recent advances in material systems designed for studying the most intriguing physical phenomena at the nanoscale. These phenomena are related to spin, topology, and coherence, which make it possible for the materials to display quantum functionalities. While Condensed Matter Physics is rich in material systems in which almost any physics can be readily found and studied, with recent developments of quantum materials, it appears possible to purposefully design material systems with a given physical phenomenon in mind. Thus, a 'toy model' which could be conceived to exhibit an interesting behavior can be implemented in quantum materials for basic science or applications.

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 low 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)

Francisco Guinea (IMDEA Nanoscience, DIPC, Ikerbasque)

Andres Arnau (CFM-UPV/EHU, DIPC)

Vitaly Golovach (CFM-UPV/EHU, DIPC, Ikerbasque)

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

Directed by

Vitaly Golovach

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

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Teachers

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Harvard University

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University of Basel

Registration fees

REGISTRATION FEES	UNTIL 10-07-2022
Regular Attendant	300,00 EUR

Place

Miramar Palace

Pº de Miraconcha nº 48. Donostia / San Sebastián

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