Quantum Designer's Special Edition: 100 years of Quantum (QD100)

14.Jul - 18.Jul 2025

Cod. Z13-25

Mod.:
Face-to-face

Edition
2025

Activity type
Workshop

Date
14.Jul - 18.Jul 2025

Location
Miramar Palace

Languages
English

Academic Validity
50 hours

Web
https://qd100.dipc.org

Organising Committee

Description

Quantum design is the concept of implementing interesting ideas, often expressed as theoretical ‘toy models’ or computational algorithms, in modern material systems with advanced functionalities. Moiré materials, quantum computing, topological states of matter, intriguing magnonic and superconducting states are just a few examples of different implementations. They provide a rich playground for basic research and applications.

This special edition of the Quantum Designer Physics Workshop offers the participants to celebrate the year of Quantum Science and Technology in 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 with different layers of complexity, 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, spintronics, and the quest for topologically non-trivial states in hybrid superconducting systems. 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 quantum technologies.

ORGANIZING COMMITTEE

- Daniel Loss (University of Basel)
- Francisco Guinea (IMDEA Nanoscience & DIPC)
- Roman Lutchyn (Microsoft Azure Quantum, Santa Barbara)
- Jelena Klinovaja (University of Basel)
- Vitaly Golovach (CFM-UPV/EHU, DIPC, Ikerbasque)

Objectives

To gather leading experts in the field of quantum design and advanced materials with quantum functionalities.

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

To facilitate communication and foster collaborations between theoretical and experimental physicists.

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

Donostia International Physics Center

EUSKO JAURLARITZA
GOBIERNO VASCO

ZIENTZIA, UNIBERTSITATE ETA BERRIKUNTZA SAILA

DEPARTAMENTO DE CIENCIA, UNIVERSIDADES E INNOVACIÓN

Directed by

Vitaly Golovach

Materialen Fisika Zentroa CFM-UPV/EHU and Donostia International Physics Center, Ikerbasque Research Fellow

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Registration fees

REGISTRATION FEES	UNTIL 06-07-2025
Fee Waiver	0 EUR
Regular Attendant	450,00 EUR

Place

Miramar Palace

Pº de Miraconcha nº 48. Donostia / San Sebastián

Gipuzkoa