Fundamental Science with Quantum Computers and Simulators

14.Sep - 17.Sep 2026

Cod. Z66-26

Mod.:
Face-to-face

Edition
2026

Activity type
Workshop

Date
14.Sep - 17.Sep 2026

Location
Miramar Palace

Languages
English

Academic Validity
40 hours

Organising Committee

Description

The proposal involves co-organizing a UIK Summer School 2026, to be held in San Sebastián/Donostia from September 14 to 17, 2026, focusing on fundamental science enabled by computers and quantum simulators.

The aim is to provide solid training on experimental quantum platforms and to promote interaction between students, young researchers, and leading international research groups.

Objectives

- To offer solid, pedagogically sound, and structured training on the main experimental quantum platforms and their applications to fundamental science.
- To create a space for interaction among students, young researchers, and leading groups in Rydberg atoms, optical lattices, trapped ions, superconducting circuits, and quantum simulation in HEP.
- To promote collaboration between Spanish and international institutions in quantum computing and simulation.

Course specific contributors

Esta escuela forma parte de las actuaciones de la Red de Información y Tecnologías Cuánticas en España (RITCE), ayuda Ref. RED2024-154069-E, financiada por MICIU/AEI 10.13039/501100011033

Directed by

Enrique Rico Ortega

UPV/EHU - Ikerbasque

I have been working in the field of theoretical quantum physics in a broad scope of topics ranging from quantum link models and the preparation of exotic topological states in open systems to implementations of lattice gauge theories using ultra-cold atoms. I have made key contributions to a large number of projects and the ideas from my research with my collaborators have opened new directions to several timely topics in quantum physics in condensed matter, atomic-molecular-quantum optics physics, and beyond. To give an example, in my recent work on the quantum simulation of lattice gauge theories, with my collaborators, we have put forward a very exciting new approach to fundamental problems of high-energy physics. In 2015, I move to Bilbao with the highly competitive and prestigious Ikerbasque research fellow position. Nowadays, I have a permanent position at the UPV/EHU with an Ikerbasque research associate position.

Juan José García Ripoll

Juanjo García Ripoll completed a PhD in ultracold atoms and 5 years of postdoctoral work at the Max Planck Institute for Quantum Optics, in which he contributed to the early developments of quantum simulation and quantum computing. In 2008 he joined CSIC as researcher, leading investigation in quantum hardware and quantum software to operate it. He coordinates the CSIC Platform for Quantum Technologies and the Spanish Network for Quantum Information and Quantum Technologies, and has contributed to the creation of two masters programas in quantum technologies in which CSIC collaborates.

Place

Miramar Palace

Pº de Miraconcha nº 48. Donostia / San Sebastián

Gipuzkoa