Nanotechnology Meets Quantum Information (NanoQI'24)

22.Jul - 25.Jul 2024

Cod. Z17-24

Mod.:
Face-to-face

Edition
2024

Activity type
Workshop

Date
22.Jul - 25.Jul 2024

Location
Miramar Palace

Languages
English

Academic Validity
40 hours

Web
http://nanoqi.dipc.org

Organising Committee

Description

Advances in the understanding and control of the quantum properties of matter and in nanofabrication are laying the groundwork for revolutionary new technologies and information processing capabilities. Following the successful schools in 2016, 2017, 2019 and 2022, the summer school NanoQI'24 provides an introduction to the basics and recent advances in major areas of quantum information theory and solid-state-based quantum technologies. Both the physics of different implementations of quantum information technologies and the applicable theoretical methods are covered.

ORGANIZING COMMITEE:

Geza Giedke (DIPC, Ikerbasque)

Alejandro González-Tudela (IFF CSIC)

Ataç Imamoglu (ETH Zurich)

Objectives

The school is aimed at PhD students and young postdocs interested in quantum information processing and quantum technologies and offers lectures by leading researchers in the field (both from experiment and theory) that offer an overview of the main concepts and methods and explain promising current research directions. In addition it offers a forum for all participants to present and discuss their own research with their colleagues and senior researchers.

Course specific contributors

Directed by

Geza Giedke

DIPC

Teachers

Jason Alicea

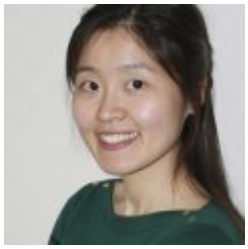
Caltech

Daniel Barredo González

CSIC

Harry Buhrman

Quantinuum & Univ of Amsterdam



Deung-Jang (DJ) Choi ---

Centro de Física de Materiales (CSIC-UPV/EHU)

Francisco Guinea López

IMDEA Nanoscience - DIPC

Klemens Hammerer

Leibniz Universität Hannover

Atac Imamoglu

Hannes Pichler

Universitat Innsbruck & IQOQI

The research group led by Hannes Pichler is interested in theoretical quantum optics, in the context of quantum many-body physics and quantum information processing science. We strive to push the frontier of quantum technology by developing novel applications and quantum computing protocols for near-term quantum devices, focussing on quantum optical systems, such as Rydberg atom arrays, waveguide QED setups, and ultracold atoms. To achieve this goal, our research spans a wide spectrum, from microscopic modeling of the physics of specific quantum devices, to understanding their emergent quantum many-body phenomena. It builds on a variety of analytical and numerical techniques from quantum optics, quantum information, and condensed matter theory.

Seigo Tarucha -

RIKEN

Silvia Viola Kusminskiy

RWTH Aachen University

Registration fees

REGISTRATION FEES	UNTIL 14-07-2024
Fee Waiver	0 EUR
Regular Attendant	400,00 EUR

Place

Miramar Palace

Pº de Miraconcha nº 48. Donostia / San Sebastián

Gipuzkoa