Topological Matter School 2022 (TMS22)

22.Aug - 26.Aug 2022

Cod. Z19-22

Mod.:
Face-to-face

Edition
2022

Activity type
Workshop

Date
22.Aug - 26.Aug 2022

Location
Miramar Palace

Languages
English

Academic Validity
50 hours

Web
http://tms.dipc.org

Organising Committee

Description

Understanding and exploiting the robustness of topological superconductivity and the unique quantum mechanical properties of strongly entangled particles is a thriving avenue to develop new quantum technologies. The first ideas and platforms, notably Majorana zero modes at the edges of one-dimensional topological superconductors, have led to a richer landscape of systems that include unconventional superconductors, spin-liquids, fractional quantum Hall states, as well as the simulation of many-body ground states in quantum computers. A hands-on session on quantum matter and AI with emphasis on quantum computing will also be delivered. This new edition is devoted to pedagogically present the main recent developments in the field in order to prepare future generations to uncover the true potential of these developments.The main goal is to cover basic and advanced aspects of the field, including the so interesting topological superconductivity and its application to quantum information. In this sense, we will cover:

- Topological band theory
- Unconventional superconductivity
- Theory of spin liquids and strong entanglement
- Experimental techniques such as, transport measurements and neutron scattering
- Majorana bound states and beyond
- Superconducting topological materials

After school there will be a hands-on session on quantum matter and AI with emphasis on quantum computing

ORGANIZING COMMITTEE:

Maia G. Vergniory (DIPC, Ikerbasque)

Reyes Calvo (Universidad de Alicante)

Santiago Blanco-Canosa (DIPC, Ikerbasque)

Fernando de Juan (DIPC, Ikerbasque)

Adolfo Grushin (Institut NEEL – CNRS)

Alexander Altland (University of Cologne)

Frank Pollmann (Technical University of Munich)

Objectives

The general aim of this one-week school is a **meeting targeting young researchers**, as **master and graduate students,** for introducing the participants to the young field of topological states of matter as well as the latest advances.

Course specific contributors

Directed by

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Donostia International Physics Center

Teachers

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Registration fees

REGISTRATION FEES	UNTIL 28-07-2022
Regular attendant	350,00 EUR

Place

Miramar Palace

Pº de Miraconcha nº 48. Donostia / San Sebastián

Gipuzkoa