



# **Topological Matter School: Topological excited States and Non- crystalline Systems (TMS2025)**



**18.Aug - 22.Aug 2025**

**Cod. Z17-25**

**Mod.:**

Face-to-face

**Edition**

2025

**Activity type**

Workshop

**Date**

18.Aug - 22.Aug 2025

**Location**

Miramar Palace

**Languages**

English

**Academic Validity**

50 hours

**Web**

<https://tms-dipc.org/>

**Organising Committee**



## Description

Excitations play a crucial role in determining fundamental electronic and optical properties of a crystal, and can even give rise to states of matter without any equilibrium counterparts. At the single-layer limit, quantum confinement and enhanced interaction effects lead to exotic many-body phenomena. For example, single-layer semiconductors host tightly bound excitons with large binding energies that remain stable even at room temperature. In bilayer and few-layer stacks, the relative twist angle between layers introduces an additional degree of tunability, enabling the exploration of new emergent phenomena. These include strongly correlated electronic states, adjustable band gaps, unique optical and magnetic properties, and correlated topological phases such as spin Hall and fractional quantum Hall effects.

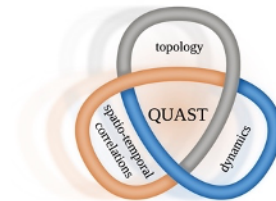
### ORGANIZING COMMITTEE:

- Maia G. Vergniory (DIPC, Max Planck)
- Reyes Calvo (BC Materials)
- Santiago Blanco-Canosa (DIPC, Ikerbasque)
- Adolfo Grushin (Institut NEEL - CNRS)
- Alexander Altland (University of Cologne)
- Julen Ibañez Azpiroz (CFM, Ikerbasque)

### Objectives

The summer school aims to offer a comprehensive introduction to these cutting-edge topics and situate them within the broader framework of emergent phenomena in condensed matter physics.

### Course specific contributors



**Directed by**



**Maia García Vergniory**

Donostia International Physics Center

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# Registration fees

REGISTRATION	UNTIL 20-07-2025
Fee Waiver	0 EUR
Regular attendant	400,00 EUR

## **Place**

### **Miramar Palace**

Pº de Miraconcha nº 48. Donostia / San Sebastián

Gipuzkoa