

# Summer School on the Calculation of Ionic Quantum and Anharmonic Effects with the Stochastic Self- Consistent Harmonic Approximation (SSCHA school 2023)



**26.juin - 30.juin 2023**

**Cod. Z07-23**

**Modalité:**

En personne

**Édition**

2023

**Type d'activité**

Workshop

**Date**

26.juin - 30.juin 2023

**Location**

Materialen Fisika Zentroa (CSIC-UPV/EHU)

**Langues**

Anglais

**Reconnaissance officielle par l'État**  
50 heures

## **Comité d'organisation**

Fundación  
**BBVA**



## Description

The efficient and accurate calculation of how ionic quantum and thermal fluctuations impact the free energy of a crystal, its atomic structure, and phonon spectrum is one of the main challenges of solid state physics, especially when strong anharmonicity invalidates any perturbative approach. To tackle this problem, this school combines theoretical lectures as well as hands-on sessions on the stochastic self-consistent harmonic approximation (SSCHA) method, which is devised to tackle efficiently these problems, given by the developers of the code.

### ORGANIZING COMMITTEE:

Ion Errea (UPV/EHU, Spain)

Diego Martínez (CFM, Spain)

Lorenzo Monacelli (EPFL, Switzerland)

Raffaello Bianco (UNIMORE, Italy)

### Objectifs

The main goal of the school is to provide a deep theoretical and practical understanding of the SSCHA code, as well as to give the participants the option to share their own research.

### Collaborateurs spécifiques au cours



## Directed by



### **Ion Errea**

UPV/EHU

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Ion Errea is an Associate Professor at the University of the Basque Country and leads the Quantum Theory of Materials group at the Centro de Física de Materiales. His research focusses on the development of theoretical methods for calculating complex properties of solids, such as quantum and anharmonic effects in atomic vibrations and the electron-phonon interaction, and the application of these methods in hydrogen-based superconductors, thermoelectric materials, phase transitions in solids, nanostructures, etc. He is an ERC grantee, research associate at the Donostia International Physics Center, and member of Jakiunde.

## Professeurs



**Raffaello Bianco**

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**Dorde Dangic**

University of the Basque Country

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**Guglielmo Marchese**

La Sapienza University, Italy

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**Giovanni Marini**

ISTITUTO ITALIANO DI TECNOLOGIA

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**Diego Martínez Gutiérrez**

CFM

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**Francesco Mauri**

University of Rome

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**Lorenzo Monacelli**

EPFL

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**Antonio Siciliano Siciliano**

Sapienza, University of Rome

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# Tarifs inscription

| REGISTRATION FEES | JUSQU'AU 18-06-2023 |
|-------------------|---------------------|
| Fee Waiver        | 0 EUR               |
| Standard fee      | 150,00 EUR          |

## Lieu

Gipuzkoa