

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



26.Jun - 30.Jun 2023

Cod. Z07-23

Mod.:

Face-to-face

Edition

2023

Activity type

Workshop

Date

26.Jun - 30.Jun 2023

Location

Materials Physics Center (CSIC-UPV/EHU)

Languages

English

Academic Validity

50 hours

Web

<http://sscha.eu/Schools/2023/home/>

Organising Committee



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)

Objectives

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.

Course specific contributors



Directed by



Ion Errea

UPV/EHU

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.

Teachers



Raffaello Bianco



Dorde Dangic

University of the Basque Country



Guglielmo Marchese

La Sapienza University, Italy



Giovanni Marini

ISTITUTO ITALIANO DI TECNOLOGIA



Diego Martínez Gutiérrez

CFM



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Lorenzo Monacelli

EPFL



Antonio Siciliano Siciliano

Sapienza, University of Rome

Registration fees

REGISTRATION FEES

UNTIL 18-06-2023

Fee Waiver	0 EUR
Standard fee	150,00 EUR

Place

Materials Physics Center (CSIC-UPV/EHU)

Manuel de Lardizabal, 4. 20018 Donostia / San Sebastián

Gipuzkoa