ICFO

ICFO FRONTIERS RESEARCH SCHOOL: Energy Systems Across Scales - From Fundamentals to Impact

June 29, 2026 to July 03, 2026
Elements Room

This school aims to complement the training of the next generation of researchers and professionals working in **emerging energy technologies**. It will provide a broad and interdisciplinary perspective on the fundamental processes that underpin modern energy systems, while highlighting the urgent need to translate scientific advances into practical solutions that can contribute to tackling climate change.

This **5-day interdisciplinary school** will cover topics including:

Energy Harvesting, exploring how energy can be captured from renewable sources such as sunlight and heat, and the fundamental principles governing these processes.

Energy Transport and Transfer, focusing on how energy flows through materials and across interfaces, from nanoscale transport phenomena to system-level considerations.
Energy Conversion and Storage, examining the mechanisms that enable the transformation of energy into usable forms and the technologies that allow it to be stored and deployed efficiently.
From Discovery to Impact, addressing how advances in fundamental science can be translated into scalable technologies, industrial innovation, and real-world energy solutions.

By bringing together experts from different scientific and technological backgrounds, the school will offer participants a transversal view of the field and foster dialogue across disciplines involved in the energy transition.

The program will include lectures, tutorials, research seminars, industry sessions, as well as opportunities for discussion and interaction among participants. A poster session will allow attendees to present their work and exchange ideas with speakers and peers.

Lecturers:

Shaffiq Jaffer, University of Toronto
Kassio Zanoni, University of Valencia
Mitradeep Sarkar, ICFO
Nicoletta Liguori, ICFO
Libai Huang, Purdue University
Jordi Martorell, ICFO
Niek van Hulst, ICFO
Ernest Pastor, Institute of Physics of Rennes
Hui Luo, University of Surrey
Fernando Gomollon Bel, AGATA
Francisco Bernal, ICFO
Jing Yu, ICN2
Sergio Pablo-Garcia Carrillo, IMN-CNM, CSIC (CEI UAM+CSIC)
Pau Farras, University of Irland-Galway
Ifan Stephens, Imperial College London
Christine Gabardo, CERT Systems Inc

Tutorial speakers:

Julien Legendre, ICFO
Antonio Sampaoli, ICFO

Saül Garcia-Orrit, ICFO
Sonia Rani, ICFO
Francisco Bernal, ICFO
Marcelo Chavez, ICFO

360 CARLA Career Symposium on Energy, Environment and Sustainability

On the first day of the school, ICFO will host the 360 CARLA Career Symposium on Energy, Environment and Sustainability on Monday, 29 June, from 14:00 to 19:00.

The symposium will offer participants valuable insights into diverse career paths and job opportunities in this advancing field of photonics, while providing an overview of emerging technology trends and applications.

Further details of the program will be available on the CARLA Hub website (https://carlahub.eu/) and the registration link will also be shared here soon.

The symposium is organized by ICFO within the framework of 360CARLA grant number 101135838.

Registration & Accommodation

The school will be limited to a maximum of **30 external students**, selected on the basis of academic merit. 30 places will be reserved to ICFO students.

Local accommodation for 4 nights will be provided for a maximum of 30 external participants from outside the Barcelona region.

There is NO fee for students to attend the school.

Travel Fellowships

ICFO will offer up to **five SPIE@ICFO Chair Travel Fellowships** for selected undergraduate or masters students from outside the Barcelona region to attend the school.

All eligible applicants will be automatically considered for travel fellowships.

The fellowships will include reimbursement of travel expenses of up to ?350 and accommodation for 4 nights.

Research Internships

Up to **two SPIE@ICFO Chair Research Internships** to conduct a project with an ICFO research group are also available on a competitive basis to outstanding undergraduate or masters students selected to attend the school. To be eligible, students must still be enrolled in an undergraduate or masters program when they undertake the internship.

For any questions, please contact us at frontiers@icfo.eu

Eligibility

We welcome applications from individuals worldwide with a variety of backgrounds, including optics, physics, mathematics, electronics, engineering, chemistry and biology.

Candidates must have an excellent academic record, and a strong commitment for scientific research.

Priority will be given to masters-level and advanced undergraduate students, although PhD students and young researchers are welcome to apply.

Persons with disabilities are strongly encouraged to apply. There are no restrictions of citizenship or gender.

How To Apply

To register for the school applicants must submit:

A Curriculum Vitae
Scanned copies of your complete (Bachelor and Master equivalent) University academic transcripts in English or Spanish
A statement describing your background, research interests and motivation for attending the school.
Title & abstract for a proposed poster(if any)

Applicants will automatically be considered for the fellowships and / or internships on offer.

The deadline for applications is 17 May. Successful applicants will be notified during the week

of 18 May.

For any questions, please contact us at frontiers@icfo.eu.

Venue:

ICFO is a young research institution that aims to advance the very limits of the science and technology of light, tackling important challenges faced by society at large in all areas of life, including health, energy, information, safety, security and caring for the environment. ICFO is a member of BIST, the Barcelona Institute of Science and Technology, and is situated in Castelldefels, a small town located by the sea just outside of Barcelona, Spain.

More information about how to get to ICFO can be found HERE.

About:

International Schools on the Frontiers of Light aim at giving talented young researchers and students worldwide a first introduction to a thematic research area and a taste of an international research environment. These schools incorporate a dynamic and social learning environment beyond participating in lectures, including group discussions, direct interactions with the lecturers, student talks and poster presentations.

ICFO does not tolerate any type of conduct or behavior considered harassment or bullying and has clearly defined policies against harassment.

Organizing Committee:
Prof. Dr. Pelayo Garcia de Arquer (ICFO), Prof. Dr. Nicoletta Liguori (ICFO), Dr. Giovanna Petrillo (ICFO).

This project has received funding from RED2024-154266-T funded by MICIU/AEI 10.13039/501100011033.