

# ICFO-UNAM-UNIANDES FRONTIERS RESEARCH SCHOOL: ?Photonics for Quantum Science and Technology

October 13, 2025 to October 17, 2025
Instituto de Fisica, UNAM (Mexico)

The 4th ICFO-UNAM-Uniandes Frontiers Research School is part of a series of school organized jointly by**ICFO - the Institute of Photonic Sciences**, **National Autonomous University of Mexico**, and **Universidad de los Andes**. This school aims to inspire the next generation of researchers in light sciences and related technologies through engaging lectures, seminars, and in-person discussions with leading international scientists from the three institutions.

This year, the school celebrates **the centenary of quantum mechanics** by focusing on the interplay between quantum science and quantum and light-enabled technologies. This focus will introduce fundamental quantum phenomena and current research questions through the modern lens of controlled quantum systems, such as atomic arrays, 2D materials, and

ultracold quantum gases. It will also explore essential tools, such as ultrafast spectroscopy, to probe and control quantum systems.

Participants will gain a strong understanding of basic concepts, an introduction to the current state of the art in these topics and have the opportunity to mingle with top scientists from leading institutions.?

The event will include lectures & seminars, discussion sessions, and student talks and poster session, where participants will have the opportunity to interact and present their own research.

Lectures will be broadcast?**online?**and are open to interested students and researchers worldwide.??

**SPIE@ICFO Chair Research Internships?to conduct a project with an ICFO research group will be offered to select outstanding students attending the school.**

**Lecturers:**

Alonso Botero, Uniandes
Andres de Luna, UNAM
Asaf Paris, UNAM
Carlos Pineda, UNAM
Cesar Cabrera, Universitat Hamburg
Daniel Finkelstein Shapiro, UNAM
Daniel Sahagun, UNAM
Darrick Chang, ICFO
Freddy Jackson, UNAM
Jorge A. Seman, UNAM
Julian Rincon, Uniandes
Luis Mochan Backal, UNAM
Morgan Mitchell, ICFO
Paula Giraldo, Uniandes
Pedro Quinto, UNAM
Ricardo Gutierrez, UNAM
Rocio Jauregui, UNAM
Roland Terborg, ICFO
Rosario Paredes, UNAM

Santiago Caballero, UNAM
Sarah Hirthe, ICFO
Silvana Palacios, Nomadatomics
Veronica Ahufinger, ICFO

**Location:**

The school will be locally organized by the?Instituto de Fisica?within the frame of celebrations for the?International year of Quantum Science and Technology. Instituto de Fisica is at the main Campus of Universidad Nacional Autonoma de Mexico in?Ciudad Universitaria, in the southern part of Mexico City-one of the most vibrant and cosmopolitan cities in Latin America.

Participants will be accommodated in hotels in the city center, with daily round-trip transportation provided by the school via dedicated buses.

**Registration & Accommodation:**
There is **no registration fee** for students attending the school.
**Accommodation** will be provided for all accepted participants. They will be hosted in centrally located hotels, with daily round-trip transportation arranged by the school via dedicated buses.
**Travel Fellowships:**
A limited number of **travel fellowships** are available to support selected participants, with priority given to applicants from developing countries.
All eligible applicants will be **automatically considered** for a travel fellowship-no separate application is required.
**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:**

Applicants must submit:

A Curriculum Vitae, including contact details.
Scanned copies of your complete (Bachelor and Master equivalent) University academic transcripts in English or Spanish.
A one-page (max.) letter describing your background, research interests and motivation for attending the school.
Title & abstract for a proposed contributed talk or poster.
Applications must be submitted online and all required application material must be complete in order to be considered.?

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

Note: If you are from a country with visa-obligations for Mexico, please be advised to already inquire (only inquire) regarding the documentation necessary (usually an invitation letter, plus travel and accommodation bookings) and the potential appointment-situation at the local Mexican Embassy/ visa-office.

**Registration  is now closed.**

**Research Internships:**

Up to two?SPIE@ICFO Chair Research Internships?to conduct a project with an ICFO research group will be offered to selected outstanding students attending the school.?

**About:**

This school is the fourth ICFO-UNAM-Uniandes International School on the Frontiers of light. These schools 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.
The organizers do not tolerate any type of conduct or behaviour considered harassment or bullying and have a clear defined policy against harassment.

**Participating Institutions:**

**ICFO - the Institute of Photonic Sciences**, 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.

**The National Autonomous University of Mexico (UNAM)** is one of the two largest universitie in Latin America and it is often ranked as the best university in Iberoamerica. However, it biggest merit might be making education with high standards available to student originated from all socio-economic backgrounds within the country. UNAM is also home o various research centers with an international scope. Two of them, the Centre for Appli d Physics and Advanced Technology (CFATA) and the Institute of Physics (IFUNAM), are taking part in the organization of this school.?

**Universidad de los Andes (**Uniandes)? is an autonomous, independent, and innovative institution that fosters pluralism, tolerance, and respect for ideas. It strives for academic excellence and provides its students with critical and ethical training to strengthen their awareness of their social and civic responsibilities, as well as their commitment to their community. Specifically, the Department of Physics of the University of the Andes, that is taking part in the organization of this event, stands out for its emphasis on high-quality research, undergraduate, master's and doctoral studies. The research lines offered by the department include High Energy Physics, Astronomy, Biophysics, Theoretical Physics, Condensed Matter and Quantum Optics.?

**Organising Committee:**

Daniel Sahagun Sanchez, Ricardo Gutierrez Jauregui, Remy Fernand Avila Foucat, Ricardo Roman Ancheyta (UNAM), Alejandra Catalina Valencia Gonzalez (Uniandes), Robert Sewell, Giovanna Petrillo (ICFO)