# ICFO-TIFRH Frontiers Research School: Hot topics in Quantum Material and Ultrafast Optics

September 24, 2025 to September 26, 2025
TIFR Hyderabad campus, India

The school will feature experts from **ICFO**, **TIFRH** and invited speakers in an **intensive 3-day workshop** directed to students wishing to enter the vibrant field of Photonic Sciences.

Topics covered will include:

Quantum Materials
Nanophotonics
Nonlinear Optics
Attoscience and Ultrafast Optics
Nanomaterials
Interface engineering

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

**Invited speakers:**

**Javier Garcia de Abajo** (ICFO)
**Karthik V Raman** (Tata Institute of Fundamental Research Hyderabad)
**Rana Saha** (Indian Institute of Science Education and Research Tirupati)
**Ipsita Das** (Princeton University, TIFR Alumni & ICFO Alumni)
**K. Thyagarajan** (Formerly IIT Delhi)
**Varun Raghunathan** (Indian Institute of Science, Bengaluru)
**Joyee Ghosh** (Indian Institute of Technology Delhi, ICFO Alumni)
**Jens Biegert** (ICFO)
**Sudipta Mandal** (ELI-ALPS, Hungary; Anubal Fusion, India, ICFO Alumni)
**T. N. Narayanan** (Tata Institute of Fundamental Research Hyderabad)

**Rajesh Bera** (ICFO)
**Cesare Soci** (Nanyang Technological University)
**Siddharth Dhomkar** (Indian Institute of Technology Madras)
**Anjani Priyadarsini** (Amazon Web Services India)

**Location:**

**Hyderabad** is home to historic marvels such as the Birla Temple, Charminar and Golkonda Fort. It is among the most diverse, harmonious, and vibrant cities in India with rich Science and Technology base and thriving start-up ecosystem. The school will be locally organized by the Tata Institute of Fundamental Research (TIFR) Hyderabad, which is one of the premie research institutes in India, together with Hyderabad Photonics Initiative (HyPhI). It is locat d near the central University of Hyderabad.

The TIFR Hyderabad campus is situated at:

36/P, Gopanpally

Serilingampally Mandal,

Ranga Reddy District,

Hyderabad 500107

Participants will be hosted close to the campus. Back and forth daily transportation to TIFR Hyderabad will be arranged in buses provided by the school. Additional information can b found atHow to Reach TIFR Hyderabad.

**School Fees, Registration & Accommodation:**

MSc: Rs 4000/-

PhD and Postdoc: Rs 6000/-

Accommodation on twin-sharing basis for three nights and catering will be provided for all students accepted to attend the workshop in-person.

**Eligibility:**
The school is open to registration from interested students and researchers worldwide.

We welcome applications from individuals worldwide with a variety of backgrounds, including optics, physics, mathematics, electronics, engineering, chemistry and biology. Persons with disabilities are strongly encouraged to apply. There are no restrictions of citizenship or gender.
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.

**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
A one-page (max.) letter describing your background, research interests and motivation for attending the school
Title & abstract for a proposed contributed poster

Applications must be submitted online and all required application material must be complete in order to be considered.
The deadline for applications is **July 30, 2025**. Successful applicants will be notified during the week of 03 August 2025.
For any questions, please contact us at frontiers@icfo.eu
Note: If you are from a country with visa-obligations to attend the school, 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 Embassy/ visa-office.
Questions should be directed to hyphi@tifrh.res.in

**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. The schools incorporate a dynamic and social learning environment beyond participating in lectures, including e.g. group discussions, direct interactions with the lecturers, student talks and poster presentations.

International Frontiers Schools aim to be inclusive and welcoming, and adhere to ICFO's policy on Diversity in Conferences, Meetings and Workshops.

The organizers do not tolerate any type of conduct or behavior considered harassment or

bullying and follow ICFO guidelines on Harassment & Bullying.

**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.

Tata Institute of Fundamental Research is a National Centre of the Government of India, funded by the Department of Atomic Energy, as well as a deemed University. The Institute was founded in 1945 with support from the Sir Dorabji Tata Trust under the vision of Dr Homi Bhabha. Tata Institute of Fundamental Research (TIFR) is one of the premier institutes of scientific research in India that works at the very cutting edge of world science, with several specialized centers including National Centre for Radio Astrophysics (NCRA), International Centre for Theoretical Sciences (ICTS), National Centre for Biological Sciences (NCBS) and Homi Bhabha Centre for Science Education (HBCSE). TIFR Hyderabad is an ambitious new campus, spreading over ~200 acres, adjacent to the University of Hyderabad, hosting various branches of fundamental science and technology.

**Scientific Organizing Committee:**

Dr. Chaitanya Kumar Suddapalli (TIFR Hyderabad), Prof. Vandana Sharma, (IIT Hyderabad , Prof. M. Krishnamurthy (TIFR Hyderabad), Dr. Harish Krishnamoorthy, (TIFR Hyderabad), r. Prashant Kumar Singh (TIFR Hyderabad), Prof. Robert Sewell (ICFO), Dr. Ram Gopal ( IFR Hyderabad), Dr. G. Rajalakshmi (TIFR Hyderabad), Dr. Pranav R. Shirhatti (TIFR Hyderabad).

**Advisor Committee**:?
Prof. Subhashish Dutta Gupta (TIFR Hyderabad), Prof. G. Ravindra Kumar (TIFR Mumbai), Prof D. Narayan Rao (University of Hyderabad)
**(Image credit: MCQST / Christoph Hohmann)**