ICFO

Quantum Energy Initiative Workshop

May 18, 2026 to May 22, 2026
ICFO Auditorium

The third **Quantum Energy Initiative Workshop** will happen at ICFO, Castelldefels (Barcelona Spain) from the 18th to the 22nd of May 2026. **Save the date !**

Launched in August 2022, the Quantum Energy Initiative is fostering a worldwide communit of experts willing to develop scientific approaches to evaluating and minimizing the physica resource costs of emerging quantum technologies. This requires the synergy of a broa range of expertises, from fundamental quantum physics to enabling technologies, fro hardware to software, from research to industry

Building on the strong foundations at the firstworkshop (Singapore, Nov 2023), and second workshop (Grenoble, Jan 2025), this third workshop will bring together highly renowne speakers of all these areas, to provide their vision on these exciting and essential questions. I will also leave time for discussions and crossed-fertilization to the build new methodologie and roadmaps.

Invited Speakers:

Fernando Brandao (Keynote), California Institute of Technology & AWS Center for Quantum Computing (USA)
Frank Wilhelm-Mauch, Institute for Quantum Computing Analytic, Forschungszentrum Jüli h (Germany)
Gerard Milburn (Keynote), National Quantum Computing Centre, NQCC (UK)
Juan Parrondo (Keynote), Universidad Complutense de Madrid (Spain)
Chris Langer, Quantinuum (USA)
Oleg Mukhanov, SEEQC (USA)
Yasunobu Nakamura (Keynote), University of Tokyo (Japan)
Michael Vasmer (Inria)

TOPICS OF THE WORKSHOP - Research on energy or other resources in the followin contexts

Fundamental quantum devices: Energy, entropy or resources at the fundamental quantu level, quantum gates, generation and preparation of quantum resources, interconnec quantum functionalities.

Quantum hardware and enabling technologies: Macroscopic energy and entropy fo quantum devices, implementations of cooling systems, control electronics, energy awar

full-stack computers etc.

Quantum algorithms and software: NISQ or large-scale quantum computing, quantu communication protocols, resource optimization, error correction, compilation etc.

Hybrid HPC-quantum, reservoir computing, etc: High-performance computing (HPC) in hybrid with quantum technologies. Reservoir and Neuromorphic computing. Classical computing inspired by quantum algorithms. Other technologies that are hybrids of quantum and classical, etc.

Classical computing & classical information thermodynamics: resources in classica computing, fundamental bounds on classical information processing, etc.

Scientific & Organizing Committee:

Coordination: Raja Yehia and Federico Centrone (ICFO, Barcelona)
Robert Whitney (Universite Grenoble Alpes & CNRS)
Alexia Auffeves (Majulab, CNRS, Singapore)
Frederico Brito (USP/Brazil-TII/UAE)
Olivier Ezratty (EPITA, Paris)
Merce Latorre (ICFO, Barcelona)
Alimuddin Mir (ICFO, Barcelona)
Yasser Omar (University of Lisbon & Portuguese Quantum Institute)

More information to come. Stay tunned!