



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

Launched in August 2022, the [Quantum Energy Initiative](#) is fostering a worldwide community of experts willing to develop scientific approaches to evaluating and minimizing the physical resource costs of emerging quantum technologies. This requires the synergy of a broad range of expertises, from fundamental quantum physics to enabling technologies, from hardware to software, from research to industry

Building on the strong foundations at the first [workshop \(Singapore, Nov 2023\)](#), and second [workshop \(Grenoble, Jan 2025\)](#), this third workshop will bring together highly renowned speakers of all these areas, to provide their vision on these exciting and essential questions. It will also leave time for discussions and cross-fertilization to build new methodologies 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 Jülich (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 following contexts

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

Quantum hardware and enabling technologies: Macroscopic energy and entropy for quantum devices, implementations of cooling systems, control electronics, energy aware full-stack computers etc.

Quantum algorithms and software: NISQ or large-scale quantum computing, quantum 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 classical computing, fundamental bounds on classical information processing, etc.

Scientific & Organizing Committee:

Coordination: Raja Yehia and Federico Centrone (ICFO, Barcelona)

Robert Whitney (Université 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 tuned!

** If you require an accommodation to participate in this event due to a disability, please contact the Events Team at events@icfo.eu as soon as possible.