QuSciTech'25

www.univ-medea.dz/quscitech25

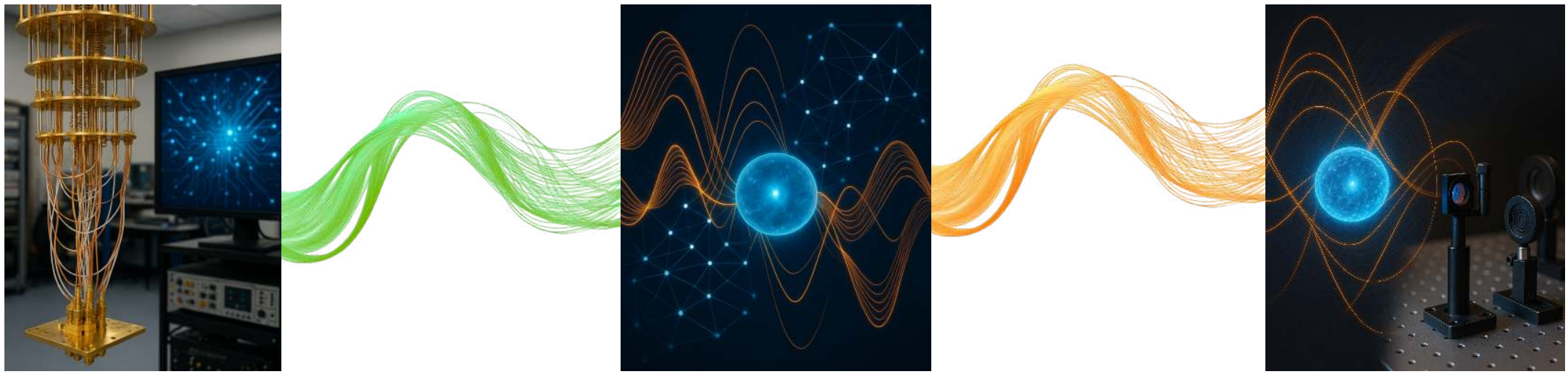
QUANTUM SCIENCE TECHNOLOGY 2025

UNIV MEDEA 24-06-2025

الورشة الأولى حول العلوم والتكنولوجيا الكمية

Quantum Science and Technology

June 24th, 2025. Faculty of Sciences, University of Medea, Algeria



This event on Quantum Science and Technology will take place at the Faculty of Sciences, University of Medea, Algeria, on the 24th of June 2025. The aim of the workshop is to bring together leading scientists in the domain of quantum science and technology to discuss the latest achievements in this field. The event will open the opportunity for PhD students and interested researchers to learn about the new progress in the field of quantum science and quantum-based technologies. The workshop includes keynote talks and will host a panel discussion with invited scientists well known in the quantum science and technology community worldwide. The event can be attended virtually (online), where participants also have the opportunity to present their works related to the topic of the workshop.

Targeted audience background

- Physics
- Computer Science
- Electrical Engineering

INVITED SPEAKERS

Pr. Badis Ydri	University of Annaba, Algeria
Pr. Mauro Paternostro	Palermo University, Italy
Pr. Alessandro Ferraro	University of Milano, Italy

SCIENTIFIC COMMITTEE

Prof. Mustapha Moumni, Univ Batna 1
Prof. Habib Aissaoui, Univ Constantine 1
Dr. Hamza Adnane, Univ Bouira
Dr. Hamza Bougroura, Univ Batna 1
Dr. Mohamed Sadek Zidi, Univ Jijel
Dr. Mohamed Ameziane Sadoune, Univ Bouira
Dr. Oussama Houhou, Univ Medea
Dr. Taha Rouabah, Univ Constantine 1

ORGANIZING COMMITTEE

Dr. Oussama Houhou, Univ Medea
Dr. Taha Rouabah, Univ Constantine 1

Participate at the workshop with Zoom or watch the talks with Youtube

YouTube LIVE https://www.youtube.com/watch?v=8cYXW_-8GXA

zoom https://us05web.zoom.us/j/82826741839?pwd=Co4h9xF2fWuP0boWyb1et32NiEHzlg.1

events.lpteam@univ-medea.dz

https://www.univ-medea.dz/quscitech25

QuSciTech'25

www.univ-medea.dz/quscitech25

QUANTUM SCIENCE TECHNOLOGY 2025

UNIV MEDEA 24-06-2025

Quantum Science and Technology

June 24th, 2025
Faculty of Sciences, University of Medea
Medea, Algeria

MEDEA QUANTUM CITY

INTERNATIONAL YEAR OF Quantum Science and Technology

WORLD QUANTUM DAY APRIL 14 • EVERY DAY IN 2025

Event Programme

- **Opening**: 8:50 AM
- **Invited talks**: 09:00 – 10:00
  - Prof. Mauro Paternostro (University of Palermo): Pushing things with light: a (gentle) introduction to quantum optomechanics.
  - Prof. Alessandro Ferraro (University of Milan): Quantum information science: probing quantumness at macroscopic scales
  - Prof. Badis Ydri (University of Annaba): An Initiation to Matrix Quantum Mechanics
- **Panel discussion**: 10:00 – 10:30
- **Short talks session**: 10:30 – 12:10

10:30 – 10:40	Basic demonstration of quantum teleportation algorithm for students	Serkan Akkoyun	Sivas Cumhuriyet University, Turkey
10:40 – 10:50	A lightweight and efficient multiparty semi-quantum secret sharing protocol	Mustapha Anis Younes	University of Bejaia
10:50 – 11:00	Quantum Communications in 6G for Providing Security and Speed	Rekia Bendouma	University of Medea
11:00 – 11:10	Quantum machine learning for cancer detection	Badereddine Gherbi	University of Setif 1
11:10 – 11:20	The future of authentication security:from classical to quantum	Feryal Ait Ramdane	University of Blida 1
11:20 – 11:30	Leveraging quantum computing principles to resolve semantic challenges in Arabic language processing	Abdeldjalil Hani	University of Setif 1
11:30 – 11:40	Disordered Bose-Einstein condensation in quantum droplets	Keltoum Redaouia	University of Khemis Meliana
11:40 – 11:50	Generalized quantum mechanics and its effect	Hafida Moulla	University of Khenchela
11:50 – 12:00	Geometric deformations and their imprint on relativistic quantum systems	Lakhdar Sek	University of El Oued
12:00 – 12:10	Heat capacity and stability of interacting Tomonaga-Luttinger liquid with impurity for interaction constant K=1/2.	Abdellah Touati	University of Bouira

- **Closing**: 12:10

QUANTUM SCIENCE TECHNOLOGY 2025

UNIV MEDEA 24-06-2025

Quantum Science and Technology

June 24th, 2025. Faculty of Sciences, University of Medea, Algeria

Invited Speakers

Mauro holds the position of Full Professor of Quantum Information Science at the Department of Physics and Chemistry at the University of Palermo. He served as Professor of Quantum Optics at Queen's University Belfast (QUB). He earned his PhD from QUB in 2005 and subsequently held prestigious fellowships, including a Leverhulme Trust Early Career Fellowship (2005-2008) at QUB and the Universität Wien (Austria), a visiting Research Fellowship at the University of Queensland (Australia, 2008), and an EPSRC Career Acceleration Fellowship at QUB (2008-2014).

Appointed as Lecturer at QUB in 2008, he was later honored with an Alexander von Humboldt Fellowship for Senior Scientists in 2011. With a prolific research career, Mauro has authored over 250 publications in leading scientific journals, amassing more than 16,000 citations and securing over €20 million in research funding.

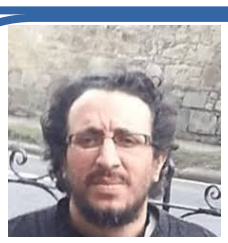
He currently serves as Editor-in-Chief of Quantum Science and Technology and sits on the Editorial Boards of Optics Communications, EPJ Quantum Technology, Entropy, and Physical Review Research.

Mauro has made significant contributions—both theoretical and experimental—to cavity optomechanics, quantum thermodynamics, and the study of the quantum-to-classical transition.

Alessandro Ferraro is a Professor of Physics at the University of Milan (UniMI), Italy, and a key member of the Quantum Information Group at the same institution. Ferraro earned his PhD in Physics from the University of Milan in 2005 and further expanded his expertise through postdoctoral positions and prestigious fellowships at several prominent research institutions.

His research focuses on quantum information and quantum optics, with particular emphasis on quantum correlations (such as entanglement and discord), open quantum systems, decoherence, quantum control, and quantum thermodynamics. He has published over 100 peer-reviewed papers in prestigious journals, and many most-cited articles in Physical Review A. His work involves collaborations with leading institutions across Europe, and worldwide, and his articles have been cited more than 4500 times.

In addition to his research, Ferraro is actively involved in teaching, offering courses in Quantum Information. He also supervises PhD students and postdoctoral researchers. Ferraro has participated in several EU-funded projects. He continues to contribute to advancements in quantum physics while maintaining an active academic presence.



Badis Ydri is a Professor of Theoretical Particle Physics at the University of Annaba, Algeria. Badis Ydri earned his PhD in 2001 from Syracuse University (USA) under the guidance of Professor A.P. Balachandran, with groundbreaking work on 'Fuzzy Physics'. He further solidified his academic credentials by obtaining his Habilitation from Annaba University in 2011.

Professor Ydri maintains an active international research presence through his connections to the prestigious Dublin Institute for Advanced Studies (Ireland) as Adjunct Professor, and to the Abdus Salam International Centre for Theoretical Physics (ICTP, Italy) as a Regular Research Associate.

His postdoctoral career includes, Marie Curie Fellowship at Humboldt University Berlin (Germany), and Hamilton Fellowship at the Dublin Institute for Advanced Studies.

Ydri's research interests include: noncommutative geometry; the gauge/gravity duality; computational physics of string theory; renormalization group and Monte Carlo methods in matrix models and noncommutative field theories; emergent geometry, gravity and cosmology from matrix models; and foundations of quantum mechanics. Additionally, he is also interested in string theory; quantum information; causal dynamical triangulation; Horava–Lifshitz gravity; supersymmetric and noncommutative standard models; and supersymmetric gauge theory in four dimensions.

In addition to his distinguished scientific and academic career, Badis Ydri is also a writer and thinker with six books in physics and the philosophy of physics.