



**DEMOKRITOS**  
NATIONAL CENTER FOR SCIENTIFIC RESEARCH



**ΠΑΝΕΠΙΣΤΗΜΙΟ ΠΑΤΡΩΝ**  
UNIVERSITY OF PATRAS

# Nanoelectronic Memristive Devices for Quantum and Neuromorphic Computing (MEM-Q)

International Workshop Series

<http://www.mem-q.eu>



**May 14-16, 2018**

Kurchatov Institute, Moscow, RUSSIA



**Fall, 2018**

Chania, Crete, GREECE

## Workshop Scope

The MEM-Q workshop series gets together leading experts and research groups with significant contribution to the contemporary state-of-the-art of memristive nanomaterials and technologies, working towards the development of memristors as building blocks for quantum and neuromorphic computing, breaking the limitations and red-brick wall of the conventional Boolean logic and von Neumann architecture. MEM-Q workshops will provide a timely discussion on the emerging applications of memristive devices in new-generation information storage and models of quantum and neural circuits for neuroprocessors, programmable arrays and quantum computers. Furthermore, the workshops target to create new ideas related to stochastic nature and nonlinear dynamics of memristors that provide for the creation of brain-like spiking neural network architectures and neurohybrid systems. Stimulated round table and panel discussions are envisioned to contribute to an enhanced interaction between physicists, neurobiologists, engineers, computer scientists.

The following topics are suggested for prospective authors (but not limited to):

- Physics and technology of memristive nanomaterials and devices
- Computer simulation of memristive phenomenon
- Modeling and design of memristive circuits and systems
- Novel memristor-based paradigms of neuromorphic and quantum computing
- Memristive neurohybrid systems
- Stochastic phenomena in memristive materials and systems

### Important Dates

Abstract Submission deadline: 2<sup>nd</sup> April 2018

Abstract Acceptance Notification: 6<sup>th</sup> April 2018

### Workshop Organization

Kurchatov Institute, Moscow, Russia (Prof. Mikhail Kovalchuk)

Lobachevsky University, Nizhny Novgorod, Russia (Prof. Evgeny Chuprunov)

NCSR “Demokritos”, Athens, Greece (Dr. Georgios Nounesis)

Democritus University of Thrace, Xanthi, Greece (Prof. Pantelis Botsaris)

University of Patras, Patras, Greece (Prof. Demosthenes Polyzos)

Foundation of Research and Technology Hellas, Patras, Greece (Prof. Vassilios Bourganos)

### Workshop Sponsors

Greek–Russian Joint R&D Project on Quantum Technologies

“Memristive nanomaterials and electronic devices for quantum and neuromorphic computing”  
(MEM-Q)

Russian Megagrant Project

“Fluctuation phenomena in multistable systems for new generations of memristor-based electronic devices and neuromorphic technologies of artificial intelligence”  
(STOLab)

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