

# MOCAS

INTERNATIONAL CONFERENCE ON  
MODERN CIRCUITS AND SYSTEMS TECHNOLOGIES

- 11-13 June 2025
- Dresden University of Technology (TUD), Dresden, Germany
- <https://tud.de/ing/mocast2025>

## Special Session Announcement: ADVANCES IN MEMRISTIVE NEUROMORPHIC DEVICES & CIRCUITS FOR ARTIFICIAL INTELLIGENCE AND EDGE COMPUTING



The 14th International Conference on Modern Circuits and Systems Technologies (MOCAS) aims to bring together leading academic and industrial scientists and researchers to exchange and share their knowledge and experiences about all aspects of Circuits and Systems.

### Session Description:

As semiconductor technology approaches the limits of downscaling, the need for alternatives to the traditional Von Neumann architecture grows. Neuromorphic computing, inspired by the structure and function of the human brain, offers a promising solution, particularly for developing intelligent systems such as vision processors, auditory systems, and robotic locomotion. Recent breakthroughs in device technology, circuit design, and computational modeling have united researchers from diverse fields, including electronics, computer science, neuroscience, materials science, and device fabrication. These interdisciplinary efforts aim to create more efficient electronic systems for artificial intelligence (AI) applications and neuromorphic hardware that more accurately replicates biological neural networks than conventional CMOS systems. Integrating memristors into the design toolkit promises to drive advancements beyond Moore's Law, enabling the development of smart, multipurpose systems that can sense,

store, and process data in the same location, opening up new opportunities for AI and edge computing.

**The session will cover a wide range of topics, including, but not limited to, the following areas:**

- Theory of memristors and memristor-based circuits
- Emerging bio-inspired devices and materials
- Neuromorphic design approaches for data sensing, storage, and processing
- Circuit and system design with bio-inspired nanotechnologies
- Applications in AI, edge computing, and neuromorphic engineering

The goal of the proposed special session is to bring together researchers from diverse academic disciplines, including electronics, computer science, neuroscience, and materials science, to foster collaboration and knowledge exchange in the rapidly evolving field of neuromorphic engineering. By encouraging the sharing of ideas and insights, the session will promote future advancements in this area and help identify key challenges and opportunities. It will also provide participants, especially early-career scientists, with an opportunity to stay informed about the latest developments, emerging trends, and open questions in neuromorphic computing, artificial intelligence, and edge computing.

### Special Session Organizers:

**Ahmet Samil Demirkol**, TU Dresden, Germany  
**Alon Ascoli**, Politecnico di Torino, Italy  
**András Horváth**, Pázmány Péter Catholic Univ., Hungary  
**Fernando Corinto**, Politecnico di Torino, Italy  
**Ronald Tetzlaff**, TU Dresden, Germany

MOCAS is Technically Sponsored by IEEE. All accepted papers are expected to be included in IEEE Xplore and will be indexed by EI.

Authors of selected accepted papers will be invited to submit extended version of their paper to the MOCAS Special Issue at **Advanced Electronic Materials**.



### Important Dates:

<b>17.03.2025</b> Deadline for Regular Paper Submission	<b>17.03.2025</b> <b>Deadline for Special Session Paper Submission</b>	<b>17.04.2025</b> Acceptance Notification for Papers	<b>24.04.2025</b> Camera-ready Submission for all Papers	<b>24.04.2025</b> Early Bird Registration deadline	<b>11.-13.06.2025</b> MOCAS 2025 conference in Dresden
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