

# SPECIAL SESSION ON ADVANCES & FUTURE TRENDS IN ELECTRONIC CIRCUITS & SYSTEMS WITH EMERGING DEVICES

SMACD 2024: 2-5 JULY, VOLOS, GREECE

The 2024 edition of the **International Conference on Synthesis, Modeling, Analysis and Simulation Methods, and Applications to Circuit Design (SMACD)** will be held from **2 to 5 July** in Volos, Greece. SMACD is a forum devoted to modeling, simulation, and synthesis for Analog, Mixed-signal, RF (AMS/RF), and multi-domain (nanoelectronics, biological, MEMS, optoelectronics, etc.) integrated circuits and systems, as well as, emerging technologies and applications. Open-source tools and methods for IC design and experiences with modeling, simulation, and synthesis techniques in diverse application areas are also welcomed. Objective technologies include CMOS, beyond CMOS, and More-than-Moore such as MEMs, power devices, sensors, passives, etc. SMACD is **technically co-sponsored by IEEE, IEEE CEDA, and IEEE CASS**, and its proceedings will be published in **IEEE Xplore**.

## SPECIAL SESSION ON ADVANCES & FUTURE TRENDS IN ELECTRONIC CIRCUITS & SYSTEMS WITH EMERGING DEVICES

The field of electronic circuits and systems is at a crossroads, prepared to leverage the transformative capabilities of emerging devices that are expanding the current boundaries in electronics. The integration of technologies like AI, machine learning, future communication systems (5G+, 6G), and the IoT requires innovations beyond the confines of computing, encompassing the entire spectrum of electronic systems and their applications. Emerging electronic devices, such as ReRAMs, CBRAMs, PCMs, MRAMs, FTJs, and FeFETs, are widely researched in this new era of technological innovation, due to their energy efficiency, compact size, and versatility, pushing the boundaries of what electronic circuits can achieve. Nevertheless, the path to fully realizing the potential of these device technologies is not without challenges. Issues such as scalability, manufacturing processes, reliability, and integration with conventional electronics present significant obstacles. Furthermore, the vast majority of the emerging devices researched to date are still a considerable distance away from being ready for large-scale commercialization, facing fundamental challenges in modeling, simulation, and circuit design.

This special session aims to serve as a platform for the exchange of ideas and research findings in the field of emerging device technologies. It seeks to bring together researchers and experts in the field to discuss the latest developments, address the challenges, and explore the vast possibilities of these technologies. The goal is to foster collaboration and innovation, paving the way for the next generation of electronic circuits and systems that will shape the future of technology.

The topics of this special session include, but are not limited to:

- Physical and behavioral modeling of emerging device technologies
- Design of innovative adaptive analogue circuits
- Development of mem-computing arrays with emerging technologies
- Neural networks and neuromorphic circuits with emerging technologies
- CMOS integration of emerging technologies

### IMPORTANT DATES

Spec. Ses. Paper Submission Deadline ..... March 10<sup>th</sup>, 2024  
 Author Notification ..... March 26<sup>th</sup>, 2024  
 Early Registration Deadline ..... April 8<sup>th</sup>, 2024

### TECHNICAL CO-SPONSORSHIP BY



### SPECIAL SESSION ORGANIZERS

Ioannis Messaris, DE  
 Dimitrios Prousalis, DE  
 Ronald Tetzlaff, DE



### CONFERENCE VENUE

Department of Electrical and Computer Engineering  
 University of Thessaly  
 Sekeri & Cheiden st., Pedion Areos  
 Volos, Greece

### ORGANIZED BY

