The 33rd Microelectromechanical Systems (MEMS) Conference (IEEE MEMS 2024)
May 13–15, 2024
Crowne Plaza Albany – The Desmond Hotel
Albany, New York

Key Dates
- Extended Abstract and Full Paper: 02/15/2024
- Notification of Acceptance: 04/01/2024
- Final Paper Submission: 05/01/2024

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2024 Theme
Advances and Challenges for Chiplets and for Hardware Security

The IEEE Microelectronics Design & Test Symposium (MDTS) provides a forum for academic and industry researchers and engineers to discuss the latest advances in microelectronics, share their visions in modern microelectronic technologies, and foster academic-industry collaboration. The 33rd MDTS explores challenges and advances on two major fronts: chiplets and hardware security. Chiplets break large chip designs into smaller, ideally reusable, integrated circuits, and the Universal Chiplet Interconnect Express (UCiE) standard addresses the challenges of connecting chiplets in the package. Hardware security for chip designs covers a broad range of issues, from preventing reverse engineering to blocking takeovers and data theft or manipulation.

The Program Committee invites researchers and practitioners to submit tutorial, panel, and special session proposals. The committee also encourages authors to submit original, unpublished papers. Topics of interest include, but are not limited to:

- Chiplets: UCiE, interconnect, and packaging; Partitioning; Design cycle time impact; Microprocessor case studies; Physical rework in the manufacturing process; 2.5D and 3D applications; Applications of AI/ML to optimization; Heterogeneous integration

- Hardware Security: Microarchitectural attacks; Side channel attacks and mitigation; (Anti-)Reverse engineering and physical attacks; Fault attacks; Hardware obfuscation; Computer-aided design (CAD) for security; SoC security; Field-programmable gate array (FPGA) and reconfigurable fabric security; Internet-of-Things (IoT) and cyber physical system security

- Micro Devices, Circuits and Microsystems: Analog/mixed-signal/radio-frequency (RF) circuits; Low-power low-voltage design; Sensors and sensing systems; Smart system design for automotive, robotics and automation; Circuits and systems for approximate and evolvable computing; Memristor-based devices

- Biomedical, Photonics, and Quantum Electronics: Biomedical and bio-inspired circuits and systems; Microelectromechanical systems (MEMS) sensors and bioelectronics; Nanobiophotonics for optical imaging, sensing, and diagnostics; Terahertz photonics for communications; Photodetectors, sensors, and imaging; Photonics for energy and green photonics

- Electronic Design & Test Methodologies and Electronic Design Automation (EDA): Electronic design tools for advanced packaging, bio-inspired and neuromorphic systems; processes, methodologies, and applications for Photonics devices, circuit, and system design; System-on-Chip (SoC)/intelligent property (IP) testing strategies; Hardware/software co-verification; Design for testability (DfT) & built-in self-test (BIST) for digital designs, analog/mixed-signal integrated circuits (ICs), and memories

- Emerging Technologies and Applications: Computing-in-memory architectures; Neural networks, AI, ML, and DL in design and test of microelectronics; IoT, edge nodes, or pipelines for real-time data visualizations and monitoring in design and test of microelectronics; Application of cognitive, neuromorphic and quantum computing; High-speed serializer/deserializer (SerDes); Next-generation design-technology co-optimization; Advanced interconnect; 3D manufacturing

Proposals must include title, topic abstract, speakers’ short bio, and a list of contributing papers. Paper submissions may be six-page full papers or two-page extended summaries. Accepted papers presented at the symposium have the option of being published in IEEE Xplore®. Full details can be found on the mdts.ieee.org website.

Jake Karrfalt Best Student Paper Award
To encourage student participation in the microelectronics research community, MDTS will recognize the top student paper. Student must be the first author and the presenter.

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Call for Papers

The 33rd Microelectronics Design & Test Symposium
(IEEE MDTS 2024)

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3rd CFP, December 7, 2023