



7th IEEE Electron Devices Technology and Manufacturing (EDTM) Conference 2023

Seoul, Korea, March 7th – 10th, 2023

<https://ewh.ieee.org/conf/edtm/2023/index.html>

The 7th Electron Devices Technology and Manufacturing Conference (**EDTM 2023**) will be held in Seoul, the capital and largest metropolis of Korea which is home to the headquarters of global-leading local companies. **EDTM 2023** is a full four-day conference to be held during March 7-10, 2023. **EDTM 2023** aims to be a premier global forum for researchers and engineers from around the world coming to share new discoveries and discuss about any device/manufacturing-related topics, including but not limited to, materials, processes, devices, packaging, modeling, reliability, manufacturing and yield, tools, testing, and any emerging device technologies, as well as workforce training. The Theme for **EDTM 2023** is:

Strengthen the global semiconductor research Collaboration beyond the COVID-19 pandemic era.

- Paper submission Starts: **August 31, 2022**
- Paper Submission Deadline: **October 24, 2022**
- Notification for Acceptance: **End of December, 2022**
- Conference format: Please visit website for details.

1. Materials: All device-related materials, including semiconductors, magnetics, ferroelectrics, insulators, metals, liquid crystals, photoresist, organic films, precursors, EUV photoresist, etching gas, filaments, and phase-changing materials. Materials engineering for reducing costs, and improving reliability/yield/manufacturability. Smart materials enabling intelligent devices are highly welcome.

2. Process, Tools, Yield, and Manufacturing: Semiconductor processes and equipment, including process modules (deposition, dry/wet etch, cleaning, planarization, isolation, dielectrics, metals, silicides, lithography), process integration, process control, equipment impact on devices, reliability and yield, self-assembly techniques, process sensing, process enhancement by AI/ML, etc.

3. Semiconductor Devices: All semiconductor devices including Si/Ge CMOS, interconnects, compound semiconductors, oxide semiconductors, low-dimensional nanomaterials (van der Waals heterostructures, nanowires, nanotubes, nanosheets, quantum dots), ferroelectric, spintronics, 3D devices, RF/THz devices, etc. Emerging device concepts for future computing are encouraged, such as tunnel FET, negative capacitance FET, topological insulators, phase transitions, Qubit devices, etc.

4. Memory Technologies: All memories, including embedded and standalone memories, volatile and nonvolatile memories, in-memory and neuromorphic computing. Topics on charge-based memories, RRAM, MRAM, PCM, FeRAM, cross-point and selectors, bio-inspired memory, scaling, processing, characterization, reliability, modeling, 3D integration, read/write/erase, novel hierarchies and architectures for memory-centric computing.

5. Photonics, Imaging and Display: Topics on photonics, photonics for energy, optoelectronics, microwave photonics, nano-photonics, optical sensors including emerging materials, perovskites, etc, optical communications/networking, optical switch, bio-photonics, lasers, optical systems, bio-imaging, imagers, display technology including QLEDs, OLEDs, VR, AR, and others, and other emerging technologies in photonics, imaging and display.

6. Power and Energy Devices: Device technologies related to high-voltage devices, power/RF devices, energy harvesting devices, photovoltaics, energy storage devices, discrete/integrated power devices, power modules/systems. Power device structures such as diodes, BJTs, FETs, IGBTs. Power device materials such as wide bandgap and ultra-wide bandgap materials (SiC, GaN, AlN, GaO, etc.). Power device fabrication processes, modeling and simulation.

7. Modeling and Simulation: Advances in modeling/simulation of electron devices, packages, and processes. Numerical, analytical, and statistical modeling/simulation of electronic, optical or hybrid devices, interconnects, technology CAD, benchmarking, monolithic integration, heterogeneous integration, design-technology co-optimization (DTCO), system-technology co-optimization (STCO), parasitic elements, fabrication processes, physical phenomena, mechanical systems, electro-thermal effects, test structures, and methodologies.

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Secretariat:

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8. Reliability: Advances in reliability of materials, processes, devices, modules and systems including interconnects, ESD, latch-up, soft errors, radiation, noises and mismatch behavior, hot-carrier effects, self-heating, biasing and thermal instabilities, dielectric wear-out and breakdown, process charging damage, electromigration, reliability test structures and methodologies, defect monitoring and control, electromagnetic robustness, and design-for-reliability. Also, topics on reliability of emerging memories, more-than-Moore application, biomedical devices, automotive, and aerospace application.

9. Packaging and Heterogeneous Integration: Advances in packaging and heterogeneous integration technologies, including 2.1D, 2.5D and 3D integrations. Topics on advanced packaging and manufacturing technologies, such as waferlevel packaging, chiplets, ultra-fine-pitch interconnection, sub-micron package-level wiring, optical/wireless interconnect, power/sensor device packaging, controlling thermal-expansion coefficient, thermal management.

10. Sensor, MEMS, Bio-Electronics: Advances in sensors and actuators including MEMS, BioMEMS/NEMS, transducers, resonators, micro/nano-fluidic devices, bio-sensors, implantable biomedical devices, biomolecular-based memories, bio-transistors, semiconductor synthetic biological devices/systems, semiconductor synaptic/neural devices, brain-inspired computing, brain-interface devices, and heterogeneous integration with CMOS.

11. Flexible and Wearable Electronics: Topics on flexible and wearable electronics including flexible and wearable transistors and related integrated circuits, sensors, RFID, light emitting diodes, lighting and display, energy harvesting and storage devices, novel and manufacturing process for flexible and wearable electronics, and materials for flexible and wearable electronics.

12. Nanotechnologies: Advances in nanotechnologies including nanomaterials, nanoelectronics, low-dimensional systems including 2D materials and devices, nanophotonics, nanofabrication, nanoenergy, nanobiomedicine, nanosensors, and related nano characterization/modelling techniques.

13. Disruptive Technologies - IoT, AI/ML, Neuromorphic & Quantum Computing: Topics on disruptive technologies

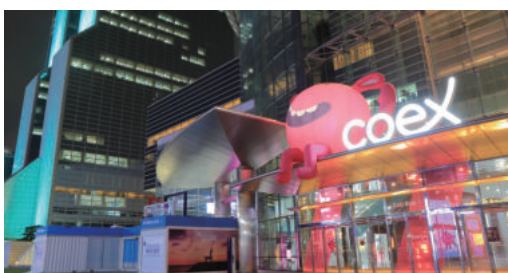
ABOUT SEOUL



Seoul, the capital city of the Republic of Korea, has been the center of the country for the long period of its own history. Now in its 600th year of official history, Seoul is a city where Korea's traditional and modern cultures coexist.

Seoul has full of cultural heritages with unique stories, and you can find traditional architectures in their original forms on one side of the city and ultra-modern buildings on the other, existing in a perfect harmony. The city lies in a natural basin, surrounded by a series of mountains and hills, and its grandeur and magnificent scenic beauty makes the capital, one of the most attractive metropolitan cities of the world. Aside from bustling pace of life and modern architecture, a number of invaluable cultural assets bases their pride on the long history of Seoul.

VENUE : COEX, Seoul, Korea



COEX, well known for its shopping and cultural diversity, is the heart of international exchange among nations and provides the biggest convention center and exhibition space in Korea.

Directly connected to the Samseong Station of subway line 2 and Bongeunsa station of subway line 9, it includes a shopping center, a movie theater, a musical concert hall, exhibition halls and famous restaurants. It is also close to a casino, hotels, department stores, and other various amenities.