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5th IEEE Electron Devices Technology and Manufacturing (EDTM) Conference, 2021

EDTM2021 Theme: **Intelligent Technologies for Smart and Connected Life**

Chengdu, China, March 9th - 12th, 2021

Three-page camera-ready paper submission deadline: October 25th, 2020

The **IEEE Electron Devices Technology and Manufacturing (EDTM) Conference 2021** is a four-day meeting to be held in Chengdu, China, during **March 9th to 12th, 2021**. Sponsored by IEEE *Electron Devices Society* (EDS), EDTM is a premier conference, providing a unique forum for discussions on a broad range of device/manufacturing-related topics. EDTM rotates among the hot-hubs of semiconductor manufacturing in Asia, coming to China in 2021.

Technical Areas

EDTM 2021 solicits papers in all areas of electron devices, including materials, processes, devices, packaging, modeling, reliability, manufacturing and yield, tools, testing, and any emerging device technologies. Authors should select a technical category based on the detailed descriptions in this flyer during online submission of papers.

Oral and Poster Sessions

EDTM 2021 will include three days of parallel technical sessions of oral and poster presentations. Best Paper Award, Best Student Paper Awards and Best Poster Awards will be selected. *Partial travel supports may be requested by students from the IEEE recognized financially challenged countries to present their accepted papers at the conference.*

Publications

EDTM 2021 papers will be subjected to IEEE standard review processes and publishing guidelines. The accepted and presented papers will be published in the EDTM 2021 Proceedings included in *IEEE Xplore*. The authors of a selected number of high-impact papers will be invited to submit extended versions for publication in the *IEEE Journal of Electron Devices Society* (J-EDS), subjected to J-EDS review and publication policy.

Short Courses and Tutorials

EDTM 2021 will start with a set of short courses and tutorials on March 9th, 2021. Tutorials teach selected topics from the basics to the state-of-the-arts, allowing the attendees to catch up a topic quickly. Short Courses discuss the latest research and challenges on hot and advanced topics encompassing the EDTM 2021 Theme, including heterogeneous integration, artificial intelligence (AI) and machine learning (ML), internet of everything (IoET), 5G+, autonomous systems, industry 4.0, future computing and quantum information processing, all enabled by electron devices.

Exhibition

EDTM 2021 offers vendors to showcase their newest products and technologies, allowing attendees to learn about new tools and techniques that can help them to succeed at work.

Original papers solicited in the following, but not limited to, technical areas:

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

Process and Tools for 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.

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Original papers solicited in the following, but not limited to, technical areas:

Semiconductor Devices: All semiconductor devices including Si/Ge CMOS, interconnects, compound semiconductors, low-dimensional nanomaterials, van der Waals heterostructures, nanowires, nanotubes, nanosheets, quantum dots, spintronics, flexible and wearable electronics, 3D devices, RF and 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.

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.

Photonics, Imaging and Display: Topics on photonics, photonics for energy, optoelectronics, microwave photonics, nano-photonics, optical sensor technologies, optical communications and networking, optical switching devices, bio-photonics, lasers, optical systems, imagers, display, and other emerging technologies in photonics, imaging and display.

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

Modeling and Simulation: Advances in modeling and simulation of devices, packages, and processes, including numerical, analytical, and statistical modeling and simulation of electronic, optical or hybrid devices, interconnects, heterogeneous integration, parasitic elements, fabrication processes, physical phenomena, mechanical systems, electro-thermal effects, test structures and methodologies.

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, reliability test structures and methodologies, defect monitoring and control, electromagnetic robustness, and design-for-reliability.

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

Yield and Manufacturing: Topics on semiconductor manufacturing technologies and yield enhancement including clean-room management, wafer handling, uniformity of process, repeatability of tool, design-for-manufacturability (DFM), design-for-test (DFT), defect density, yield management using sensing, connectivity, AT/ML and big data techniques.

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

Flexible and Wearable Electronics: Topics on flexible and wearable electronics including flexible sensors, RFID, thin-film transistors, lighting and display, energy harvesting and storage devices, materials for flexible electronics, etc.

Nanotechnologies: Advances in nanotechnologies including nanomaterials, nanoelectronics, nanophotonics, nanofabrication, nanoenergy, nanobiomedine, nanosensors, and related nano characterization and modelling techniques.

Disruptive Technologies - IoT, AI/ML, Neuromorphic & Quantum Computing: Topics on disruptive technologies including quantum computing, neuromorphic and bio-inspired computing, AT/ML. IoET, cloud/edge computing, etc.

EDTM 2021 is sponsored by,

Paper template and submission portal at the EDTM 2021 website:
https://ewh.ieee.org/conf/edtm/2021

Submission starts: August 1, 2020; Deadline: October 25, 2020