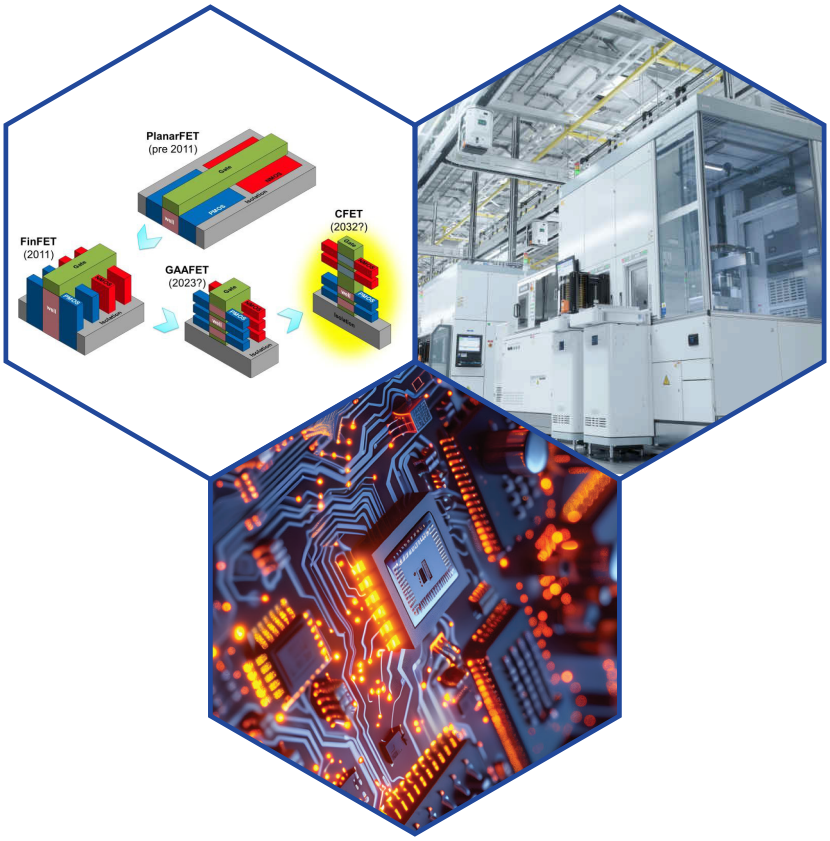
7th IEEE International Conference on Emerging Electronics (ICEE 2025)



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December 13 - 16, 2025

Hilton Bengaluru Embassy Manyata Business Park

Bengaluru, India

Highlights



Technical Symposia

3 Plenary Talks
5 Keynote Talks
150+ Invited Talks
150+ Platform/Oral Presentations
100+ Poster Presentations
800+ Attendees



Tutorials

8 Tutorial Sessions on emerging areas which are on the verge of shaping the semiconductor technology landscape in the next 5 years



Industry Interaction

Brainstorming sessions to find ways and venues to work closely with Industry. This will be a unique platform to build academia – industry collaboration and draw a 10-year plan/roadmap



Industry Sessions

Heated and seated discussion sessions, in a relaxed setting, on emerging technological areas or key showstoppers or major scientific debates with a quest to find the role academia must play in the next 10 years



Young Researchers Meet

A special session to explore research opportunities and faculty positions in leading R&D labs and academic institutions in India.



Women in Semiconductor

Meet the leading women technologist and scientists, and walk through their inspiring journey in the semiconductor world



Extended Paper in IEEE J-EDS

Top 50 contributed papers will be eligible for an extended paper publication in a special edition of the IEEE Journal of Electron Device Society (J-EDS).



Extended Paper in IEEE T-MAT

Top 20 contributed papers in the field of semiconductor materials will be eligible for an extended paper publication in a special edition of The IEEE Transactions on Materials for Electron Devices (T-MAT).



About ICEE 2025

IEEE Electron Devices Society presents the 7th International Conference on Emerging Electronics (ICEE 2025), to be held in person in Bangalore, India, from December 13–16, 2025. We warmly invite you to participate in this prestigious four-day conference, designed to foster cutting-edge discussions and collaborations in semiconductor technologies. ICEE 2025 will feature a diverse range of sessions, including, Technical and rump sessions, Industry-academia discussions, Plenary talks by distinguished experts, Policy sessions on the future of semiconductor technologies.

Our goal is to ensure a safe, comfortable, and enriching experience for all attendees, along with seamless travel arrangements for international participants. This conference serves as a pivotal platform to showcase India's semiconductor ecosystem and foster deeper collaborations among students, researchers, and industry leaders worldwide. We look forward to your valuable contributions and to welcoming you in person at ICEE 2025 in Bangalore.

General Chair,
7th IEEE ICEE

Meet The Leadership



General Chair

Nihar Ranjan Mohapatra

Professor
Department of Electrical Engineering,
IIT Gandhinagar



General Co-Chair

Kaveri Jain

Member of Technical Staff
Micron Technology



TPC Chair

Deleep Nair

Professor
Department of Electrical Engineering,
IIT Madras



TPC Co-Chair

Krishna Bhuwalka

Senior Director
Huawei Technologies Research and Development
Belgium



Publication Chair

Harshit Agarwal

Associate Professor
Department of Electrical Engineering,
IIT Jodhpur

Industry Engagement Committee



Ritu Sodhi
iVP Semiconductor



Rahul Rao
IBM



Venkata Vanukuru
Bharat Semiconductors

Student Engagement Committee



Nandhita Rao
IBM



Sumit K Mandal
IISc Bengaluru

Themes/Tracks of ICEE 2025

Materials, Process & Device Technologies

1. Advanced Logic Technologies (ALT)
Advanced CMOS platform technologies; Nanosheet-based devices and new channel material devices; Innovations in backside power delivery networks for improved efficiency; Development of new materials and processes to extend CMOS scaling limits; New devices for ultra-low power, ultra-high-speed applications; Monolithic and sequential 3D integration for next-generation device architectures; Design technology co-optimization (DTCO).

2. Advanced Memory Technologies (AMT)
Conventional memories; Emerging memories; 3D memory technologies; Computing-in-Memory & Near-Memory Computing; Memory for AI and Neuromorphic Computing; Memory-Centric System-Technology Co-Optimization (STCO); Next-Generation Storage-Class Memory (SCM) and Persistent Memory.

3. 2D Material Based Technologies (2DT)
Material synthesis, processing and integration; Device engineering for logic, memory, sensing and optoelectronic applications; Modelling of charge transport; Impact of defect and dielectric environment on the device performance; 2D heterostructure, Bandgap engineering and DTCO; Reliability, stability and degradation mechanism; First principles modelling and DFT studies; Excitonic and plasmonic effects in 2D materials; Spintronics and valleytronics applications.

4. Quantum Device Technologies & Electronics (QDTE)
Superconducting Qubit technologies; Semiconductor Qubits (SiGe, Graphene, etc.); Superconductivity; Single Photon Detectors, Single Photon Emitters; Quantum Photonics, On-chip Photonics; Other quantum devices and quantum-enhanced technologies, etc.

5. Other Emerging Devices & Compute Technology (EDCT)
Spintronic and magnetic devices; Steep-slope devices; Topological materials and devices; Phase transitions transistors; Emerging state machines; Continuous time dynamical systems; Novel LT/Cryogenic Devices; Devices for hardware security, machine learning aided sensors and devices.

6. Semiconductor Manufacturing (SM)
New Advanced semiconductor materials and equipment technology; Metrology, inspection, and yield methodologies; Advanced Process Development, process integration, and process control; Smart manufacturing and AI/ML; Novel techniques in manufacturing; Sustainability in manufacturing.

7. Heterogeneous Integration & Advanced Packaging (HIAP)
Emerging trends in Advanced Packaging and Heterogeneous Integration for 2D, 2.5D/3D integrations, Packaging techniques for cryogenic/neuromorphic/quantum computing; Power supply and heat management for high power density packages; Electrical/ thermal/ mechanical/ multiphysics simulations to address reliability, performance and efficiency; Reliability challenges such as warpage, chip package interaction, and chip/board level reliability; Advances and innovation in materials for substrates, interconnects, cryogenic/ high frequency and 6G applications, dielectrics, Thermal interface materials, sustainable materials and characterization techniques; Applications of AI/ML Techniques in packaging; Manufacturing techniques for glass substrates, flexible electronics, MEMS and sensors; Design for Testability and advances in testing such as functional/ parametric/ boundary scan; Automation/ robotics in manufacturing and defense line techniques such as FDC, R2R AND ADC; Electrical & Physical failure analysis to address Package failure modes and Failure detection mechanisms

8. Power Semiconductor Devices & Technologies (PSDT)
High voltage silicon based discrete devices (>200V) such as super junction MOSFETs, IGBTs, thyristors, GTOs and pn-diodes; Low voltage silicon based discrete power devices (≤ 200V) and power devices for power ICs of all voltage ranges; GaN and compound materials (e.g. AlN, Ga_2O_3, GaAs) based power devices, technology and integration; SiC and other material (e.g. Ga_2O_3, diamond) based power devices, technology and integration; System-level impact of power devices; Manufacturing processes, device design, modeling, physics, and reliability of power devices; Power device for applications for automotive and aviation to smart grid; Power devices or circuits and its reliability.

Themes/Tracks of ICEE 2025

9. Lasers, LEDs and Displays (LLD)
Materials for emission including, but not restricted to, III-V, II-VI, organics, perovskites; Defects in semiconductors; Sustainable materials; Low dimensional emitters (2D, 1D, 0D); single-photon emitters; semiconductor lasers; LEDs; multi-band emitters; wavelength conversion; Applications: FPA, Quantum technologies, AR/VR/XR, Lidar, VLC, Agriculture, Biology and medicine.

10. MEMS, Sensors and Bio-Electronics (MSBE)
Micro/nano electromechanical systems (MEMS and NEMS); MEMS for Internet of Things; Microfluidics and BioMEMS (organic-inorganic hybrid devices); CMOS-on-MEMS; MEMS Actuators, resonators and integrated inertial measurement units; TFTs, RF MEMS; Micro-optical and optomechanical devices; Micro-power generators; MEMS devices for energy harvesting as well as on-chip energy storage; Sensors includes chemical, molecular and biological detection based on acoustic, electrical, electrochemical, magnetic, mechanical and optical principles; Sensors for environmental monitoring e.g. agri-sensors and gas-sensors; Sensors for process monitoring; Physical and biochemical integrated sensors; Multi-sensors on a chip for wearable and IoT applications; Sensors integrated with energy harvesting; Bio-electronic interfaces and implantable devices; Intelligent sensors with embedded AI; Point-of-care biomedical devices; Integrated biomedical sensing and implantable neural interfaces; Sensors and devices for human-machine interface; Sensors and motors for haptics.

11. Solar Cells & Photodetectors (SCP)
Materials for solar cells and photodetectors, including Si, III-V, III-N, quantum dots, and hybrid perovskites; Defects; Integration with novel functional substrates; Semi-transparent solar cells; Tandem solar cells; Functional solar cells like agrivoltaics & building integrated photovoltaics; Photo-physics and advanced characterization; Hyperspectral detectors; Detectors with unconventional spectral bandwidth, High sensitivity, or high time-resolution; Uncooled IR detectors; Topological optoelectronics and photonics; Scale-up; module design and manufacturing; Recycling or disposal of solar modules; field studies of solar panels.

12. Flexible, Organic, and Wearable Electronics (FLEX)
Large-area electronics; Flexible electronics; Printable electronics; Wearable electronics; Hybrid organic/inorganic microfabrication and devices; Printing for high-resolution or large-area; Flexible displays; Devices and circuits for active and passive display drivers; Ultra-high resolution displays; low-power displays; Displays and imagers for augmented or virtual reality; Holographic devices and displays; Displays with unconventional form or size; Imagers with new materials or flexible platform and printed electronics; Intelligent Image Sensors; In-display Sensors; Scale-up.

Circuits & Systems

1. Neuromorphic Computing (NC)
Implementations of neurons, synapses and other ML/AI circuits employing emerging nanoscale memories; Novel analog and digital CMOS circuits; Novel architectural approaches to implement bio-mimetic computational features; Device-system integration approaches for AI/ML applications.

2. Electronics for AI (AI)
Circuits and architectures for AI processors; Compute in- and near-memory circuits and systems, In-Memory compute for AI workloads; Hardware optimization for new ML models including transformers, Co-designing of hardware for optimal utilization of resources for AI algorithms; Design Automation approaches for AI Accelerators, AI Powered Design Automation; Application of AI accelerators for vision, speech and embedded system tasks; High bandwidth Memory for Deep Learning and handling large scale data; Low power memory and compute for Edge AI and AI in wearables; Domain-specific Accelerators; Dedicated Accelerators for Emerging AI/ML Algorithms; AR/VR Accelerators; Heterogenous Computing Systems

Themes/Tracks of ICEE 2025

3. ULSI Circuits/System-on-Chip/Power SoC (SoC)
Analog and mixed-signal circuits in advanced nodes; high-speed interfaces; mmW and sub-THz circuits; radar-on-chip; digital circuit design; FPGA architectures; AI/ML accelerators; edge computing; in-memory and compute-in-memory (CIM) architectures; circuits and architectures for emerging memory technologies (e.g., MRAM, ReRAM, FeRAM); clocking and timing circuits (PLLs, DLLs, CDRs); hardware security and resilience circuits (PUFs, tamper detection); non-Von Neumann architectures (e.g., neuromorphic, spatial computing); data converters (ADCs/DACs); on-chip power management; automotive-grade circuits; ultra-low power and low-noise techniques; RF front-ends and amplifiers for 5G/6G; SoC challenges in sub-7nm CMOS; RF, analog, and high-voltage design in advanced nodes; novel digital and reconfigurable architectures; chip-package co-design; 2.5D/3D integration; Power ICs and Power SoCs for automotive and industrial systems.

4. RF, Millimeter and THz Technologies, Circuits and Systems (RF-THz)
High Performance III-V, III-Nitride and SiGe devices for mm-wave to THz applications; Power device technologies for micro and mm-wave; mm-wave and THz analog front ends, PAs, LNAs and mixers; RF energy harvesting devices and circuits; Packaging of high-frequency devices; Tunable high-Q passives for mmW applications, SAW/BAW devices, device and circuits for 6G applications; On-chip antenna arrays and beam forming for mmW and THz applications.

Modeling, Simulation & Reliability

1. Modelling and Simulations (MS)
Technology CAD and benchmarking for novel/emerging technologies; Atomistic process and device simulations; Compact models for emerging/novel devices; Modelling of alternative computing devices; Material and interconnect modelling; Advanced packaging and 3D integration modelling; Device modelling for photonic, quantum, neuromorphic devices; Modelling of power and RF devices; Fundamental and physical insights into fundamental processes or technological showstoppers in different device types, etc.

2. Reliability of Devices and Systems (RDS)
Reliability of devices, circuits and systems for consumer, industrial, biomedical, automotive, military and aerospace; Robustness and security of electronic circuits and systems; Reliable systems with unreliable devices; Reliability of cryogenic devices for future quantum computing applications; Noise characterization; Degradation mechanisms of emerging memories; Radiation effects (Soft Error Radiation) on devices, circuits and systems for terrestrial and aerospace applications, Reliability of devices, circuits and systems for more-than-Moore; Reliability modelling and aging assessment, Reliability testing, Reliability of biomedical devices, circuits and systems; Reliability of automotive and aerospace devices circuits and systems.

3. ESD Devices and Circuits (ESD)
ESD reliability in advanced CMOS and beyond CMOS technology nodes; ESD behaviour of emerging technologies; ESD device physics; Latch-up issues in advanced CMOS nodes; ESD issues and protection methodology in GaN based circuits/systems; ESD behaviour and physics in 2D materials; ESD device modelling approaches; Full chip verification methodology; System level ESD and SEED.

Key Dates

21st April - Monday - Call for papers

16th May - Friday - Submissions open

1st August - Friday - Submissions close

15th September - Monday - Acceptance notification of oral and poster papers

6th October - Monday - Camera-ready paper submission

13th October - Monday - Technical program announcement

20th October - Monday - Early bird registration deadline

13th December - Saturday - Conference start

16th December - Tuesday - Conference end

SPONSORSHIP MODEL

BENEFITS	DIAMOND	PLATINUM	GOLD
	₹ 10 Lakhs + GST	₹ 6 Lakhs + GST	₹ 3 Lakhs + GST
Sponsorship acknowledgment during opening session	✅	✅	✅
Branding	On all conference signage	On all conference signage	On all conference signage
Advert on Social Media platforms	✅	✅	✅
Advert in Conference Booklet	Full page	Half page	❌
Company Video	5-minute loop	3-minute loop	❌
Company's logo on all material for participants (bag/bagpack or gift)	✅	✅	❌
A 20-minute technical talk during social event or regular program	✅	❌	❌
Exhibition Stall (10 sq m.)	Included	+1 Lakhs	+1.5 Lakhs
Delegate registration	6	4	2

Advertisement in Conference Booklet

Type	Amount
Conference Booklet Back Cover	₹ 1,00,000 +GST
Conference Booklet Front / Back Inside Cover	₹ 75,000 +GST
Conference Booklet Inner Page	₹ 50,000 +GST

Exhibition Stall Only - 1.5 lakhs +GST

Amenities	
10 sq m. area	1 Desk, 2 Chairs
1 Waste bin and stall fascia (letter cut)	1 Spotlight, 2 plug point (5 amp)

18% GST will be applicable on all
For any clarifications & queries, please contact us at ***secretary@ieee-icee.org***

Venue :
Hilton Bengaluru Embassy Manyata Business Park

This luxury 5-star hotel is strategically located at the gateway of Manyata Business Park, making it an ideal choice for business travelers.

The hotel is adjacent to Karle Town Centre and offers easy access to key business hubs like Hebbal, Bhartiya City, Brigade Magnum, and Brigade Opus, all within 10 minutes.



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Electron Devices Society

7th ICEE 2025 IEEE

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