



55th IEEE Semiconductor Interface Specialists Conference



December 11–14, 2024 (Tutorial: December 11)
Catamaran Resort Hotel and Spa, San Diego, CA
www.ieeesisc.org



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Call for Papers

The SISC is a workshop-style conference that provides a forum for device engineers, solid state physicists, and material scientists to discuss topics of common interest, formally through invited and contributed presentations, and informally during poster and rump sessions. SISC is sponsored by the IEEE Electron Devices Society and is held right after IEDM.

This year, SISC will be held as a fully in-person event.

The program includes talks and poster presentations (theory and experiment) on the role of materials, interfaces, and defects on performance and reliability of:

- **Logic Devices** for future technology nodes (Nanosheet, CFET, VFET, etc.),
- **Steep Sub-Threshold** slope logic devices (Tunnel FETs, etc.),
- Insulators on **High-Mobility** substrates (SiGe, Ge, etc.),
- **Low Dimensional** materials and devices,
- Non-Volatile Memory for **AI / In-Memory / Neuromorphic Compute** (ReRAM, PCM, ECRAM, etc.),
- **Ferroelectric** devices (FeFET, FeRAM, etc.),
- **Amorphous Oxide Semiconductor** channel transistors (IGZO, etc.),
- **Monolithic and/or Heterogeneous** ICs (BEOL, interconnects, packaging, etc.),
- **Wide Bandgap** semiconductor power devices (SiC, GaN, β -Ga₂O₃, etc.),
- Materials and devices for **Qubits in Quantum Computing and Cryogenic Electronics**, including machine learning / materials discovery techniques developed and used for their study.



Confirmed Invited Speakers

- **Dr. Sandy Liao**, TSMC, Taiwan
CFET Technology for Future Logic Scaling
- **Prof. Saptarshi Das**, Penn State U., USA
Monolithic 3D Integration of Functionally Diverse 2D Devices
- **Dr. Daewon Ha**, Samsung, S. Korea
Emerging Memory Landscape
- **Prof. Sumeet Gupta**, Purdue U., USA
Variability in Hafnia-based Ferroelectrics: A Phase-Field Simulation based Perspective
- **Dr. Chris Neumann**, Intel, USA
Hafnia-Based FeRAM for High-Density, High-Speed Embedded Memory
- **Dr. Adrian Chasin**, imec, Belgium
IGZO Thin-Film Transistor Reliability: the Last Standing Roadblock for Memory Applications
- **Prof. Siddharth Rajan**, The Ohio State U., USA
Device Engineering for High-Performance Gallium Oxide Electronics

Invited Honorary Lecture

- **Prof. Andre Stesmans**, KU Leuven, Belgium
Electron Spin Resonance as Powerful Spectroscopy for Assessment of Point Defects in Semiconductor/Insulator Structures: Some Historical Reflections on Interfaces

Wednesday evening Tutorial

- **Prof. Shinichi Takagi**, U. Tokyo, Japan
Hafnia-Based Ferroelectric FETs and Capacitors for Low-Power Memory and AI Applications: Physical Understanding of Device Operation and Reliability

A **Best Student Presentation Award** will be given in memory of E. H. Nicollian.

A **Best Poster Award** will be given in memory of T. P. Ma.



[Abstract submission is now open, deadline: July 22, 2024](https://www.ieeesisc.org)

Abstract submission, previous technical programs, contact information, etc.: <https://www.ieeesisc.org>