12th SiGe Symposium

250th ECS Meeting, Calgary (Canada), October 25 – 29, 2026

The 12th International SiGe, Ge, & Related Compounds: Materials, Processing and Devices Symposium will be Symposium G04 of the 250th ECS Meeting. This meeting will provide a forum for reviewing and discussing materials and device related aspects of SiGe, Ge, and Related Compounds. There are 10 areas of interest:

1. Heterojunction Bipolar Transistors

Device physics, process technology, modeling, reliability, circuit applications (analog, digital, and RF to mm-wave).

2. FET Technology

Advanced CMOS, Compound Semiconductor Devices (III-V, Group IV), 2-D Materials FET, TFET, FDSOI, FinFETs, Nanowire FETs, Negative-Capacitance FET, Oxide TFTs, Ferroelectric FETs, and transistors with high bandgap materials (SiC, GaN, and Ga_2O_3).

3. Optoelectronics

Detectors, Waveguides, Quantum cascade structures, Photovoltaic cells, Photoluminescence, Electroluminescence, Integration with CMOS electronics, Ge buffers for III-V Optoelectronics on Si, monolithic optoelectronic integrated circuits (OEICs).

4. Epitaxy

Pre-epi surface preparation of Si, SiGe and Ge; Growth of Group IV epitaxial layers: graphene, Si, Ge, SiC, SiGe, SiGe:C, GeSn, SiGeSn. Epitaxial growth of other materials on Si or Ge such as III-V's; Novel growth techniques and precursors; Selective growth; Novel in-situ doping approaches; Quantum wire/dot growth.

5. Emerging Applications & Quantum Computing

Nano-structured devices, quantum devices based on group-IV semiconductors, THz devices, electro-mechanical properties of SiGe layers, MEMs, TFTs, amorphous SiGe layer applications, heterogeneous 3D integration.

6. Process and Integration

All aspects of integration like substrate engineering, monolithic and hetero-integration of SiGe/Ge devices and systems; yield, reliability and related processing including diffusion and suppression, Si/Ge intermixing, Oxidation and Nitridation, Cleaning & etching of SiGe, Ge, and SiGeC.

7. Strain Engineering

Stress engineering for GAA (Gate-All-Around) transistors. Performance and reliability of PMOS and NMOS transistors with SiGe and striped Si/SiGe channels. Stress engineering for 3D stacking technology. Efficiency of stress engineering for ultra-short channels approaching L = 10 nm. Ge quantum wells.

8. Surfaces and Interfaces

Surface Passivation, High K interface, Metal Contact, Interfacial electrical properties and its characterization. Electro-mechanical properties of SiGe layers, MEMs, TFTs.

9. Related Compounds

Material growth, processing, and characterization of related compounds (such as GaN, SiC, h-BN, etc.), devices with emerging applications (such as Micro LED/Mini LED, GaN on Si power electronics…) and device reliability.

10. Metrology & Characterization

Advancements in the nanoscale characterization of Group IV and III/V alloys in terms of their bulk (composition, strain, crystallinity, doping, dimensions, morphology, band structure, mobility) as well as surface/interface properties.

Student Award Session

Abstract Submission Deadline : March 27, 2026