2018 IEEE BiCMOS and Compound Semiconductor Integrated Circuits and Technology Symposium

INTEGRATED CIRCUITS and DEVICES in
GaAs, InP, GaN, SiGe, and other compound semiconductor and CMOS technologies

October 14–17, 2018
Sheraton San Diego Hotel and Marina, San Diego, CA, USA

Sponsored by the IEEE Electron Devices Society
Technically co-sponsored by the Solid State Circuits Society
and the Microwave Theory & Techniques Society

FIRST CALL FOR PAPERS

2018 BCICTS Symposium

The 2018 IEEE BiCMOS and Compound semiconductor Integrated Circuits and Technology Symposium (BCICTS) is the IEEE-approved merger of the Bipolar/BiCMOS Circuits and Technology Meeting (BCTM) and the Compound Semiconductor IC Symposium (CSICS). BCICTS is the forum for developments in bipolar, BiCMOS, and compound semiconductor circuits, devices, and technology. Coverage includes all aspects of the technology, from materials, device fabrication, device phenomena, TCAD modeling, compact modeling, integrated circuit design, testing, and system applications. A wide range of integrated circuit technologies are covered including bipolar and field-effect transistors realized in materials such as SiGe, GaAs, GaN, InP, SiC. The latest results in wireless, analog, RF, microwave, high-speed digital, mixed signal, optoelectronic, millimeter wave, and THz integrated circuits are embraced. Subject area groupings are:

HIGH-SPEED DIGITAL, MIXED-SIGNAL, & OPTOELECTRONIC ICs Mixed analog/digital ICs - Digital ICs - (high-speed) DACs and ADCs - Op amps - Voltage references and regulators - Integrated filters - Sensors and actuators - Networking ICs, MUX/DEMUX, Clock and data recovery, Decision circuits, Equalizers - Optical data links, Laser and modulator drivers - High-voltage ICs - Biomedical electronics - Power Management ICs - Energy harvesting ICs - Motor controls - Analog subsystems within a VLSI chip - Packaging of high-performance ICs.

ANALOG, RF, AND MICROWAVE ICs
RF circuits and systems - Radio and transceiver subsystems - LNAs - AGCs - Mixers - Voltage controlled oscillators - Frequency synthesizers - Power amplifiers - RF switches - Noise and distortion suppression - RF Packaging - Integrated RF passives. Analog, RF, mixed-signal, power conversion and optoelectronic circuit blocks and ICs.

mm-WAVE & THZ ICs
Millimeter - wave circuits and systems - THz circuits and systems. MM-Wave switches and amplifiers. Phased-array antenna circuits

DEVICE PHYSICS:
New device physics phenomena in Si, SiGe, SiC, GaN, MOS, and III-V HBTs and FETs - Device design issues and scaling limits - Hot electron effects and reliability physics - Transport and high field phenomena - Noise - Linearity/Distortion - Novel measurement techniques - Operation in extreme environments (low/high temperatures, radiation effects), and ESD phenomena.

MODELING AND SIMULATION
Improved silicon-based BJT and HBT models and physics-based modelling techniques - Improved III-V HBT and FET models and physics-based modelling techniques - Parameter extraction methods and test structures - High-frequency measurement, calibration and de-embedding techniques - RF and thermal simulation techniques - Modelling of passives, interconnect and packages - Statistical modelling - Device, process and circuit simulation - CAD/modelling of power devices - Packaging of power devices.

PROCESS AND DEVICE TECHNOLOGY
Device and IC manufacturing processes, testing methodologies, & reliability - Integration of III-V devices on Si - High performance devices such as GaN power conversion devices - near-THz SiGe HBTs & InP HEMTs - Novel devices such as tunnel FETs (TFETs) - carbon nanotubes, MEMS, graphene & diamond transistors. Optoelectronic and photonic devices such as optical modulators, lasers, photodetectors, and Silicon Photonics - Thermal management technologies, thermal simulation - Advanced packaging of high-power devices and ICs.
Advances in processes and device structures demonstrating high speed, low power, low noise, high current, high voltage, etc. BiCMOS processes - Advanced process techniques - Si and SiC homojunction bipolar/BiCMOS devices and SiGe heterojunction bipolar/BiCMOS devices - Manufacturing solutions related to Bipolar and BiCMOS yield improvements - Fabrication of high-performance passive components, sensors, and MEMs - Process technology related to discrete and integrated bipolar/BiCMOS power devices - IGBT, RF power devices. Wide bandgap bipolar devices (e.g., SiC) and related process technology - 3D Integration - Reliability and testing for IC manufacturing.

IMPORTANT DATES
Friday May 4, 2018 – Abstracts Due
Friday, June 22, 2018 – Decision E-mail Sent
Friday, August 31, 2018 – Final Manuscript Due

Authors must submit an abstract (not more than 4 pages including figures and other supporting material) of results not previously published or not already accepted by another conference. Papers will be selected on the basis of the abstract.

The abstract must concisely and clearly state:

a) **The purpose of the work**
b) **What specific new results have been obtained**
c) **How it advances the state-of-the-art or the industry**
d) **References to prior state-of-the-art**
e) **Sub-committee preference:**
- **Analog, RF, and Microwave ICs**
- **Device Physics**
- **High-Speed Digital, Mixed-Signal, & Optoelectronic ICs**
- **Modeling & Simulation**
- **mm-Wave and THz ICs**
- **Process & Device Technology**

Abstracts must include: title, name(s) of the authors(s), author affiliations, corresponding authors' postal and e-mail addresses, and telephone numbers. The committee will honor the authors' preference where possible but reserves the right to place the paper in other review categories.

Company and governmental clearances must be obtained prior to submission of the abstract.

Accepted abstracts may be used for publicity purposes. Portions of these abstracts may be quoted in magazine articles publicizing the Symposium. **Please note on the abstract if this is not acceptable.**

Abstracts must be submitted electronically using the www.bcicts.org system. The **only** accepted file format is **PDF**. Authors will be informed of the decision on their submissions by June 22, 2018. Authors of accepted papers are required to submit a **PDF** of a 4-page camera-ready paper to IEEE by August 31, 2018 for publication in the Symposium Digest.

Further questions on abstract submission may be addressed to the Symposium Technical Program Co-Chairs:

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Symposium information, including abstract submission instructions and a link to the abstract submission system is available on the BCICTS website at:

http://www.bcicts.org

Starting in 2018, the IEEE Bipolar and BiCMOS Circuits and Technology Meeting (BCTM) and the IEEE Compound Semiconductor Integrated Circuit Symposium (CSICS) will join forces and merge under a new name: IEEE BiCMOS and Compound Semiconductor Integrated Circuits and Technology Symposium (BCICTS) pronounced “Be-Six.” BCICTS is the premier forum for developments in bipolar, BiCMOS, and compound semiconductor integrated circuits, devices, and technology. Coverage includes all aspects of the technology: materials, device fabrication, device phenomena, TCAD modeling, compact modeling, integrated circuit design, testing, and system applications. A wide range of integrated circuit technologies are covered, including bipolar, BiCMOS, SiGe, GaAs, GaN, InP, SiC, and CMOS. The latest results in wireless, analog, RF, microwave, high-speed digital, mixed signal, optoelectronic, millimeter wave, and THz integrated circuits are embraced.

The 2018 BiCMOS and Compound Semiconductor Integrated Circuits and Technology Symposium (BCICTS) will be held October 14–18, 2018 at the Sheraton San Diego Hotel and Marina in San Diego, California, USA. BCICTS is sponsored by the IEEE Electron Devices Society and technically co-sponsored by the IEEE Solid State Circuits Society and the IEEE Microwave Theory & Techniques Society. BCICTS will unify the long, rich, and complementary technical legacies of BCTM (31 years) and CSICS (39 years) into one exemplary symposium. In addition to the strong technical program, BCICTS will include a vibrant technical exhibition and several social events that allow participants to interact and network in a relaxed setting. We look forward to seeing you in 2018 in beautiful San Diego, California!

Peter Magnee and Brian Moser **2018 IEEE BCICTS Co-Chairs**