IEEE CICC Call for Papers

Regular Paper Submission Deadline: November 15, 2021
Industry Session Papers: December 13, 2021

2022 IEEE Custom Integrated Circuits Conference (CICC)

is sponsored by the IEEE Solid-State Circuits Society
and technically co-sponsored by the IEEE Electron Devices Society

April 24 – 27, 2022 at Renaissance Newport Beach Hotel, Newport Beach, CA

Submission of original unpublished work in following areas:

Analog Circuits and Techniques and building blocks such as amplifiers, comparators, frequency generation and clocking circuits, filters, references, and nonlinear signal processing circuits.

Data Converters including Nyquist and oversampled A/D, D/A, time-to-digital, frequency-to-digital, and analog-to-information converters of all types driven by new techniques, architectures, technologies or applications.

Digital Circuits, SoCs, and Systems for papers with IC prototypes in technologies that enhance the efficiency, performance, reliability or security of integrated systems. Areas of interest include, but are not limited to, processors, accelerators, interconnect fabrics, memory and foundational hardware design building blocks with associated tools, techniques, and methodologies in advanced nodes. Circuit and architecture co-design for domain-specific applications such as AI, cloud computing, autonomous transportation, low-temperature computing, quantum computing circuits, genome sequencing, sensing, edge computing, and communication are also of interest.

Emerging Technologies, Systems, and Applications with hardware-focused papers in the technologies of tomorrow extending from a new device to system integration and applications with a focus on, but not limited to:

- **Next-generation technology and sensors** including devices, integration, and packaging including nano-primitives, non-silicon-based technology, and advanced assembly. Sensor interfaces for MEMS, mm-wave/THz, flexible, printed, large-area and organic electronics, electronic-photonic co-design, and silicon photonics. Emerging computing paradigms including photonic and quantum computing hardware, and AL/ML utilizing new devices, analog, and mixed-signal circuits

- **Biomedical circuits, systems, and applications** including neural interfaces, microarrays, lab-on-a-chip, bio-inspired circuits, implantable and/or wearable systems, closed-loop systems with sensing and actuation, medical imaging, and other biosensors including biomedical signal processing SoCs, AI/Machine-Learning for mixed-signal/sensing.

Foundation of System Design (New This Year) with research topics that show innovations in system design, which extend beyond a single integrated circuit. The platforms which can benefit from such innovations are, for example, commercially available programmable hardware such as FPGAs, neuromorphic platforms such as Intel Loihi and IBM TrueNorth, quantum platforms such as D-wave, IBM quantum composer, to name a few. The applications that can be mapped onto such hardware platforms can belong to the following categories include, but are not limited to, the Internet of Things, Biomedical applications, Machine Learning, Big Data management and Autonomous Driving Assistance Systems, Robotics and Secure Systems.

Power Management circuits and design techniques for papers on switched-mode integrated converters using inductive, capacitive, and hybrid architectures, energy harvesting circuits, wireless power transfer, power management circuits for automotive applications, linear regulators, control and management circuits, circuit techniques with novel wide-bandgap devices and drivers, and other methods to improve system overall efficiency and performance.

Wireless Transceivers and RF/mm-Wave Circuits and Systems for low-power, energy-efficient and high performance wireless links, biomedical and sensing networks, IoT applications, cellular connectivity including M2M applications (LTE-M, NB-IoT), emerging broadband and MIMO networks (5G, WLAN), vehicle-to-vehicle (V2V), millimeter-wave & THz systems (radar, sensing and imaging), frequency synthesis and LO generation.

Wireline and Optical Communication Circuits and Systems in areas including serial and parallel links for intra-chip and chip-to-chip interconnections, memory and graphics interfaces, backplanes, long-haul, power line communications, 2.5/3D interconnect and chiplet based solutions including packaging; novel I/O circuits and signaling methods, clocking techniques including PLLs and CDRs; components such as equalizers, ADC/DAC/DSP-based transceivers, silicon photonics and optical interface circuitry for pluggable and co-packaged optics.

Conference Technical Sessions and Events

Technical Sessions addressing a broad range of circuits, applications, design techniques, tools, test, reliability, and emerging technologies, and providing education on new, state-of-the-art developments is the core of the CICC technical program.

Industry Sessions highlighting the role of solid-state circuits and SoCs in the creation of novel products.

Educational Sessions instructed by recognized invited speakers who are among the best in the industry are included in the conference. They are valuable opportunities to refresh key skills in traditional circuit-design methods and acquire knowledge in vital new areas in analog, digital, and RF integrated circuit design.

Panels, *Forums* and a *Plenary Session* provide a platform for leaders from industry and academia to present highlights on new research and development related to circuit design and to debate key issues and controversial topics. CICC panels are well known for their lively and thought-provoking discussion and audience participation.

Our *Welcome Reception* and *Conference Luncheon* provide additional opportunities for discussion and peer networking.

Paper Submission

Technical Session Papers are **2 pages** in length. Papers should be camera-ready and submitted electronically in PDF format using the CICC website (www.ieee-cicc.org). **Blind review will be adopted this year. Please follow the instructions given at the submission website to submit a blind version for review and a complete version for publication.** Appropriate company and government clearances MUST be obtained prior to submission. Papers must report an **original unpublished work** and concisely explain how the state-of-the-art is advanced, including results. Circuit-design papers must include measured experimental results that substantiate performance claims. **Deadline for paper submission is 11:59 pm Pacific Time on November 15, 2021.** Authors of accepted papers will be notified by email by **January 10, 2022**. Top-rated papers will be invited to special issues in the *IEEE Journal of Solid-State Circuits* and *IEEE Solid-State Circuits Letters*.

Industry Session Papers (non-archived in IEEE *Xplore*) can range from a single paragraph abstract to 1 page with a maximum of 2 figures. These are non-blind submissions. **Deadline for paper submission is 11:59 pm Pacific Time on December 13, 2021.** Authors of accepted papers will be notified by email by **January 10, 2022**.

For more information, please visit www.ieee-cicc.org.

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