Bruges is a place that lives and breathes history. Visiting this historic city means travelling back in time to the Middle Ages. It is both magical and authentic. Brugge in medieval times was known as a commercial metropolis in the heart of Europe.

Bruges is one of Europe’s best-preserved cities, evidenced by the fact that its historic city center has been designated an UNESCO world heritage site. The iconic spires of its cathedral and bell tower, its cobbled streets, winding canals and whitewashed façades are almost painfully picturesque.

In the 15th century, Brugge was the cradle of the Flemish Primitives and a center of patronage and painting development for artists such as Jan van Eyck and Hans Memling. Many of their works were exported and influenced painting styles all over Europe. Exceptionally important collections have remained in the city until today. Travelers from all over the world are coming to Belgium to visit Bruges.

**WHY BRUGES?**
The aim of ESSERC (European Solid-State Electronics Conference) is to provide an annual European forum for system-on-chip design is rapidly increasing. This is made available in advances in semiconductor technology. Therefore, more than ever before, a deeper interaction among technologists, device experts, IC designers and system designers is required.

ESSERC is governed by a Steering Committee and consists of Plenary Keynote Presentations, invited papers and session on technology, circuits and joint papers bridging both device and circuit communities, respectively.

GENERAL PURPOSE OF THE CONFERENCE

The conference covers all areas of advanced devices and circuits. It is a continuation of the past ESSERC ESSCIRC conferences. The level of integration for system-on-chip design is rapidly increasing. This is made available in advances in semiconductor technology. Therefore, more than ever before, a deeper interaction among technologists, device experts, IC designers and system designers is required. ESSERC is governed by a Steering Committee and consists of Plenary Keynote Presentations, invited papers and session on technology, circuits and joint papers bridging both device and circuit communities, respectively.

CONFERENCE TRACKS

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ences in the key areas of compact/SPICE-modeling, on electronic, optoelectronic, emerging, and hybrid devices and their IC implementation and interconnection. Verilog-A models of semiconductor devices (including bio/med sensors, MEMS, microwave, RF, high voltage and power, emerging technologies, and novel devices), parameter extraction, reliability and variability, performance evaluation and open-source benchmarking/implementation methodologies. Modeling of interactions between process, device and circuit design, design/technology co-optimization, foundry/foable interface strategies. Numerical, analytical, statistical modeling and simulation of electronic, optical and hybrid devices, interconnect, isolation, and 2D/3D integration. Exploration and characterization of material properties and fabrication processes. Advanced physical phenomena (quantum mechanical and non-stationary transport phenomena, ballistic transport). Mechanical and/or electro-thermal modeling and simulation. Simulations of reliability aspects of materials and devices.

Analog Circuits

Building blocks, systems, and techniques operating in the analog or mixed-signal domain, such as amplifiers, drivers, comparators, filters, references, analog systems, analog interfaces, and analog techniques.

Data Converters


RF & mm-Wave Circuits

Building blocks and front-ends operating at RF, mm-Wave and THz frequencies for wireless communication, radar, sensing, and imaging.

Frequency Generation Circuits

Oscillators and controlled oscillators, PLL, DLL, injection locked oscillators, frequency dividers, any kind of frequency generation or time base circuits and systems.

Digital Circuits & Systems

Digital circuits and memory subsystems for microprocessors, microcontrollers, communication processors, graphics processors, digital systems for communications, video, multimedia, security, and cryptography applications. Digital design techniques for power-performance optimization, clock distribution, soft-error and variation-tolerant design, system-level integration. Devices and circuits for IoT and I/O security (e.g., PUFs, TRNGs).

Power Management


Wireless Systems

Wireless systems: radio transceivers, highly integrated front-ends, SoCs and SiPs, inclusive heterogeneous packaging solutions, at RF, mm-Wave or THz frequencies, for established or future standards, as well as novel applications such as packaging, radio, and sensing, and imaging.

Wireline and Optical Circuits and Systems

2.5/3D interconnect, copper-cable links, and equalizing and equalization loop designs, I/O circuits for advancing data rates, chip to chip system communications, high speed serial interfaces, optical interfaces, laser drivers, optical clocks, and data recovery.

Emerging Computing Devices and Circuits

Novel devices and circuits to improve existing and enable new computing paradigms. In-memory computing and logic-in-memory using emerging devices. Qubit devices and cryogenic circuits for quantum computing. Non-charged based logic devices and circuits (magnetic logic, spintronics and plasmonics), beyond-CMOS (tunnel FETs, Dirac-source FETs). Devices and circuits based on low-dimensional systems (2D materials, nanowires etc.), topological insulators, and phase transitions.

Architectures and Circuits for AI and ML

Silicon implementations of AI, ML, neuromorphic accelerators and processors, together with their applications. Edge and cloud AI computing platforms. In- and near-memory computing at the array/processor-level using commercially available technologies.

Devices & Circuits for Sensors, Imagers and Displays

Dissipation-limited electronic devices and circuits for biomedical and imaging applications. Image sensors and related circuits and systems, SoCs. Automotive, LiDAR, and ultrasonic sensors for ADAS, autonomous driving and mobility. MEMS sensor systems. Wearable, implantable, electronic biomedical, biomedical SoCs, neural interfaces and closed-loop systems. Biosensors, microarrays, and lab-on-chip systems for intra-chip, display and sensing, functional. Devices, circuits, and systems for AR/VR and related sensing/actuation. Product quality and reliability aspects. Device and circuits production processes and design for manufacturability.

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