Montreal SSCS Chapter Hosts an Event in June 2018

The IEEE Solid-State Circuits Society (SSCS) Montreal Chapter, in collaboration with the Strategic Microsystems Alliance of Quebec (www.resmiq.org), organized a seminar at Polytechnique Montreal on 1 June 2018. During the two-hour lecture, Distinguished Lecturer (DL) Prof. Sorin P. Voinigescu from the University of Toronto presented "Circuit Topologies and Design Methodologies for High Data-Rate mm-Wave Radio Transceivers in SOI and FDSOI CMOS."

Voinigescu discussed fully digital architectures and circuit topologies for future wireless backhaul systems. He also addressed the impact of the back-gate bias on the measured current-voltage characteristics, transconductance, and f_T and f_{MAX} variations. Different analog building blocks, e.g., low-noise amplifier, mixer, switches, and phase-array circuit topologies based on fully depleted silicon on insulator, were scrutinized. Some of the predistortion and spectral shaping techniques were also presented in the lecture. Valuable questions and answers were discussed at the end of the talk.

SSCS DL Prof. Sorin P. Voinigescu poses with attendees at Polytechnique Montreal.

For more information on the SSCS Montreal Chapter's past events and upcoming seminars, please visit the Chapter's website at www.ieeesscs-montreal.org.

—Mohammad Honarparvar
Chapter Vice-Chair

—Mohamad Sawan
Chapter Chair

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Energy-Efficient Data Converter Design Course in Ireland

A two-day short course, Selected Topics in Mixed-Signal Integrated Circuit Design, was hosted on 14–15 June 2018 by the Circuits and Systems Research Centre, Department of Electronics and Computer Engineering, University of Limerick, Ireland. Course instructor Prof. Klaas Bult is a world-renowned Distinguished Lecturer, Broadcom fellow, IEEE Fellow, and multiaward winner at the International Solid-State Circuits Conference.


Prof. Klaas Bult talked about mixed-signal IC design.

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This year's course content focused on data converters in system-on-chip/embedded environments with high-performance and energy-efficient targets. The first day began with insight into what determines power dissipation of an analog-to-digital converter (ADC) followed by directions for the design of high-efficiency ADCs and methods for quick power estimation of various ADC building blocks.

The second day of the course concentrated on the comparison of power dissipation in various ADC architectures and a full lecture dedicated to embedded data converters. High-speed digital-to-analog converters (DACs) were covered in depth during the final two lectures with a detailed analysis of various error mechanisms in current-steering DACs and how to minimize these errors.

The feedback from the attendees was extremely positive. Attendees said that a great deal of knowledge was shared and the course was very relevant to their work and research.

The lecturers, organizers, and attendees of the Selected Topics in Mixed-Signal Integrated Circuit Design course.

There were also two guest lectures on state-of-the-art automotive topics by Peter Barry, chief software architect–autonomous driving, Jaguar Land Rover, Shannon, Ireland, and Yulung Tang, senior MMIC design engineer at Arralis, Ltd., Limerick, Ireland.

Barry's lecture was "Overview of Automated Driving Systems," and Tang's lecture was "FMCW Radar Design for Autonomous Vehicles." Both guest lectures were very topical subjects.

The two-day seminar attracted over 60 attendees from Europe and worldwide, from countries such as Spain, Portugal, India, England, and Ireland.

—Hooman Reyhani

Prof. Bram Nauta, Prof. Luuk Spreeuwers, and Students from the University of Twente Visit Tsinghua University

Prof. Bram Nauta, Prof. Luuk Spreeuwers, and 22 students from the University of Twente, Enschede, The Netherlands, visited Tsinghua University, Beijing, on 24 July 2018.

During the visit, Nauta gave the lecture "Towards Flexible Channel Filtering in Low-GHz Receivers." Nauta reviewed the current requirements and research stages for flexible channel filtering. He introduced noise and interferer robustness as key problems that need to be solved and explored new architectures of receiver designs, which may be applied in future radio systems. He also explained thermal noise canceling techniques and N-path filters. To conclude his talk, Nauta talked about recent developments of radio frequency channel selective filter receivers. Attendees discussed design issues and applications of circuits with Nauta after the lecture.

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Prof. Nauta with the attendees of his lecture "Towards Flexible Channel Filtering in Low-GHz Receivers."

The IEEE Solid-State Circuits Society (SSCS) Tsinghua Student Chapter hosted a group of 22 students from the University of Twente consisting of electrical engineering undergraduate and master's students. The SSCS