Imec and Holst Centre present 14 key achievements at International Solid-State Circuits Conference

Leuven, Belgium, and Eindhoven, The Netherlands – February 16, 2012 – At next weeks International Solid-State Circuits Conference (February 19-23, 2012, San Francisco, USA), imec and Holst Centre present 14 papers on low power design for wireless communication and wireless sensor networks, and organic electronics. Over the week, imec and Holst Centre will issue several news releases showcasing recent important breakthroughs in these different research domains.

Overview of Presentations:

Imec and Holst Centres biomedical chip for fast and accurate diagnosis has been announced by the European subcommittee of the ISSCC 2012 organization as one of the hot items of the conference: 6.5- A 160µA Biopotential Acquisition ASIC with Fully Integrated IA and Motion-Artifact Suppression. (Session 6: Medical, display and imagers). The demo is presented in the industry demonstration session (IDS).

In the session "Diagnostic and therapeutic technologies for health", imec and Holst Centre present paper 17.1 - An 8-Channel Scalable EEG Acquisition SoC with Fully Integrated Patient-Specific Seizure Classification and Recording Processor.

In the session on data converters techniques, imec presents three papers concerning innovative ADC architectures, targeting reconfigurable radios with increased integration and improved power efficiency for future wireless communication systems such as LTE-advanced and the emerging generation of Wi-Fi (IEEE802.11ac) and wireless sensor networks. In the mm-wave and THz techniques session, imec presents a 60GHz transceiver chip in 40nm digital low-power CMOS, obtaining sufficient error vector management (EVM -17dB at 7Gb/s) for modulations as complex as QAM16 in the 4 channels specified by IEEE802.15.3c.

Papers:

27.5 - A 1.7mW 11b 250MS/s 2Ã— Interleaved Fully Dynamic Pipelined SAR ADC in 40nm Digital CMOS

27.7 - A 70dB DR 10b 0-to-80MS/s Current-Integrating SAR ADC with Adaptive Dynamic Range

27.8 A 7-to-10b 0-to-4MS/s Flexible SAR ADC with 6.5-to-16fJ/conversion-step

15.9 - A Low-Power 57-to-66GHz Transceiver in 40nm LP CMOS with -17dB EVM at 7Gb/s

In the session "Innovative circuits in emerging technologies", imec is involved in three presentations about thin-film transistors (TFTs) made up of organic or metal-oxide molecules. TFTs have the potential to be produced very cheaply, with print-like processes on thin plastic sheets. One paper concerns a milestone achievement in bidirectional communication for thin-film RFIDs, enabling item-level RFID tags on the packaging of retail consumer goods. Together with Holst Centre, imec also presents a low-power readout circuit for a miniaturized electronic nose.

Papers:

18.2 - 1D and 2D Analog 1.5kHz Air-Stable Organic Capacitive Touch Sensors on Plastic Foil

18.3 - Bidirectional Communication in an HF Hybrid Organic/Solution-Processed Metal-Oxide RFID Tag

18.4 - A 6b 10MS/s Current-Steering DAC Manufactured with Amorphous Gallium-Indium-Zinc-Oxide thin-film transistors Achieving SFDR > 30dB up to 300kHz

18.6 - Power-Efficient Readout Circuit for Miniaturized Electronic Nose

Moreover, imec and Holst Centre present 3 papers on short-range wireless transceivers. One presentation concerns a new record low-power multi-standard transceiver for sensor networks, another one is about the first integrated impulse radio ultra wideband (IR-UWB) solution for high-quality, low-power mobile applications.
Papers:

26.5 - A 2.7nJ/b Multi-Standard 2.3/2.4GHz Polar Transmitter for Wireless Sensor Networks

26.6 - A Meter-Range UWB Transceiver Chipset for Around-the-Head Audio Streaming

26.8 - A 915MHz 120?W-RX/900?W-TX Envelope-DetectionTransceiver with 20dB In-Band Interference Tolerance

And finally, in the Bioelectronics for Sustainable Healthcare Forum, introduced by Chris Van Hoof, department director integrated systems at imec, Sywert Brongersma, senior principal scientist at Holst Centre presents Chip-Level Electronic Noses for a Sustainable Society.

Further information on imec can be found at www.imec.be [1]

www.holstcentre.com [2]

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Links:
[1] http://www.imec.be
[2] http://www.holstcentre.com