JOINT SESSION 1: Foundry Functional Diversification (All Invited Talks)
10:30 A.M. ~ 12:30 P.M., Tuesday, April 28
Ballroom B

Chair: Carlos Mazuré, SOITEC, France

10:30 A.M.
JS11 Semiconductor Specialty Technologies in IOT Era
Hsiao-Chin Tuan
TSMC, Taiwan

Internet of Things (IOT) has caught a lot of attention recently due to tremendous business opportunities. In this talk, the speaker intends to give the historical figures in PC/NB and smartphones at first, and then bring in the overall view of IOT. And then it will deploy to various semiconductor technology challenges and opportunities for IOT applications, including micro-controllers, micro-processors, wireless technologies, sensors, power managements, etc. The audience should expect to get clearer pictures of devices in IOT from this talk.

11:00 A.M.
JS12 Tunable and Reconfigurable Solutions Using RFSOI-on-HR-Si Technologies
Julio Costa
Qorvo, Inc., USA

Tunable and Reconfigurable applications using RFSOI-on-HR (high resistivity) silicon technology are being deployed in increasing numbers in today’s advanced RF cellular handsets in order to provide increasing data rates demanded by the consumer market. These RFSOI solutions are being deployed to meet the demanding specifications of complex 4G RF cellular front-ends with numerous transmit and receive bands, as well as the possibility of multiple antennae and new architectures which involves Uplink and Downlink carrier aggregation. Such new architectures present extreme challenges for conventional fixed band systems composed of PA’s, switches and filters. The talk will present a chronology of the RFSOI-on-HR silicon technology development in the industry through the last decade and highlight novel uses of its capabilities in 4G systems as well as the critical specifications needed in this application space.

11:30 A.M.
JS13 Design-Technology Innovations Enabling Differentiation in Emerging Applications
Srinivasa Banna
GLOBALFOUNDRIES, USA

The rapid evolution of applications in the consumer and mobile space coupled with the emergence of the Internet of Things (IoT) are driving foundries to diversify design-technology solutions. This talk will discuss innovations that are on the horizon to enable differentiation in power, performance, cost, and time-to-volume, while solving the issues with unprecedented integration of “user-experience” functions. Technology innovations in the areas of FDSOI, eNVM, MEMS, RF, Ultra-Low Vmin SRAM, 3D and Design innovations on DVFS, Post-Silicon tuning, Analog optimization will be reviewed.
Engineered Substrates: The Foundation to Meet Current and Future RF Requirements
Jean Mean Le Mail
Soitec, France

Growing complexity and need for improved performance of the new generations of RF products require more complex design and process. Both can be optimized and simplified by using engineered substrates. In this paper, we will demonstrate how customizing an SOI wafer by introducing additional layers in the substrates lead to improved RF performance. Co-optimization of design, process and engineered substrates as a global approach brings the products that will address the next challenges of the RF industry.

12:30 P.M. Lunch