



**THz-Workshop:
Millimeter- and Sub-Millimeter-
Wave circuit design and
characterization**



Date of the Workshop: September 26, 2014, Venice, Italy - during ESSDERC-ESSCIRC'2014

Organised by: Thomas Zimmer, University Bordeaux, France

Abstract: In Europe, a huge effort is actually undertaken to strengthen Europe's leading edge position in SiGe HBT technology and modeling as well as SiGe enabled mm-wave applications thanks to the Catrene RF2THz and FP7-IP DOTSEVEN projects.

The purpose of this full-day workshop is to discuss state-of-the-art methods and techniques used to design mmWave and sub-mmWave circuits and how to measure them. The design of (sub-)THz elementary building blocks such as LNA, PA, oscillators and mixers as well as on-chip antennas will be discussed; a framework for selecting the appropriate measurement technique will be given.

Furthermore, SiGe-based integrated mmWave sensors will be reviewed and challenges in the integrated design, for testing, as well as concepts for future applications will be treated, followed by insights from an application driven design to a qualified product.

Programme

Friday, September 26th, 2014 (8:50-15:00)

- 8:50 *Introduction*, Thomas Zimmer, University Bordeaux 1
- 9:00 *Coherent sub-THz transmission systems in Silicon technologies: design challenges for frequency synthesis*
Alexandre Siligaris, CEA-Leti, Grenoble, France
- 9:30 *Circuit building blocks for millimeter and sub-millimeter-wave systems*
Ullrich Pfeiffer, University of Wuppertal, Germany
- 10:00 *Millimeter-wave amplifiers for E- and V-band wireless backhaul*
Erik Öjefors, SiversIMA, Sweden
- **10:30 Coffee break**
- 11:00 *Measurement and characterization of circuits in the mm-wave and sub-THz range*
Marco Spirito, Technical University of Delft, Netherlands
- 11:30 *Nonlinear distortion in mm-wave SiGe HBTs: Modeling and measurements*
Paulius Sakalas, University of Dresden, Germany
- 12:00 *Accuracy investigations of calibration and de-embedding techniques*
Manuel Potereau, University Bordeaux 1, France
- **12:30-13:30: Buffet lunch**
- 13:30 *Integrated mm-wave sensors with antenna-in-package: From concepts to applications*
Andreas Stelzer, Johannes Kepler University Linz, Austria
- 14:00 *Toward 100-Gbit/s 240-GHz short-range communication using SiGe-transceivers and an FPGA-based baseband*
Janne Leivo, Trebax, Sweden
- 14:30 *From Research to Industry: Highly integrated mm-wave transceiver for automotive radar applications*
Erich Kolmhofer, Infineon - DICE GmbH & Co KG, Austria
- **15:00 End of Workshop**

