

WORKSHOPS AND SHORT COURSES

Duration : 09:00 to 18:20

Sept 6, 2015



WS12

SiGe for mmWave and THz

Organisers

Thomas Zimmer, University of Bordeaux, France

Abstract

This workshop will cover SiGe HBT technologies as well as SiGe enabled mm-wave and THz applications. In fact, nowadays SiGe technologies have passed the 600 GHz barrier in terms of maximum oscillation frequency and the 700 GHz barrier is foreseen to fall in 2015. Intrinsic advantages of SiGe HBTs such as co-integration with CMOS permit to design compact, reliable and cost efficient systems for mm-wave applications.

The workshop comprises 4 sessions: In the first session, the world-leading SiGe technologies from Europe will be presented. The second sessions addresses compact modelling and design challenges for mm-wave and THz devices and circuits. In the third sessions, radar related innovative design concepts will be introduced. In the last session, end users will give insights about application challenges and potential solutions for qualified products.

Programme

9:00 - 09:10 Welcome

Thomas Zimmer, University of Bordeaux, France

9:10 - 09:40 Advances in SiGe BiCMOS Technology for mm-Wave Applications in the DOTSEVEN Project

Klaus Aufinger, Infineon, Germany

9:40 - 10:10 55nm SiGe BiCMOS for Optical, Wireless and High-Performance Analog Applications

Pascal Chevalier, STMicroelectronics, France

10:10 - 10:40 Optimization of vertical doping profiles for high-speed SiGe HBTs

Holger Rücker, IHP, Germany

10:40 - 11:20 Coffee Break

11:20 - 12:05 Impact of physical effects and compact modeling on mm-wave circuit performance

Andreas Pawlak, Dresden University of Technology, Germany

12:05 - 12:50 Challenges in Modeling, Design, and Characterization of Terahertz Circuits in Silicon

Ullrich Pfeiffer, University of Wuppertal, Germany

13:00 - 14:20 Lunch Break

14:20 - 15:05 From Adaptive Modulation Schemes towards Software Defined Radar (SDR)

Andreas Stelzer, Johannes Kepler University Linz, Austria

15:05 - 16:00 Concepts for Highly Integrated Automotive Radar Circuits

Herbert Jäger, Infineon - DICE GmbH & Co KG, Austria

Matthias Porranzl, Johannes Kepler University Linz

16:00 - 16:30 Coffee Break

16:30 - 17:15 Beyond 10 Gbit/s mm-wave wireless communication using SiGe BiCMOS transceivers

Erik Öjefors, SiversIMA, Sweden

17:15 - 18:00 Application challenges and potential solutions for robust radar sensors

Dirk Steinbuch, Bosch, Germany

18:00 - 18:20 Open discussion and concluding remarks