

**Duration: 08:30 - 17:50**

**Room: Oslo**

**WS-09**

**5G – From Concepts to Circuits**

**Organisers:**

Rüdiger Quay, Fraunhofer IAF, Freiburg, Germany

Dietmar Kissinger, IHP, Frankfurt (Oder), Germany

**Abstract**

The ever rising demand of high data-traffic pushes the deployment of 5G cellular systems in 2020. 5G communication is a unifying connectivity concept for the next decade empowering new user experiences, connecting new industries and devices, enabling new services and delivering new levels of efficiency. These 5G communication systems demand high data rates up to 10 Gbps and high device density for Internet of Things.

This workshop will focus on key technologies paving the way to 5G connectivity. These include concepts and solutions for RF MIMO and millimetre-wave RF or hybrid beamforming, in combination with terminal CMOS frontend integration, a very dense base-station deployment, and flexible wireless backhaul networks.

Another critical aspect for 5G mobile and backhaul systems is the demand for a new-generation of broadband linear power amplifiers with high efficiency at high PAPR, supporting higher order modulation schemes. Therefore, this workshop further addresses 5G transmitter innovations at RF and millimetre-wave bands and delivering high linear power with wide-bandwidth and high efficiency at highly reduced form factors and cost.

**Programme**

**08:30 - 09:20 CMOS Front-Ends for 28 GHz 5G Terminals**

K. Entesari, Texas A&M, College Station, USA

**09:20 - 10:10 28 GHz RF Solution for Phased-Array-Systems**

U. Rüdtenklau, Infineon Technologies, Germany

**10:10 - 10:50 Break**

**10:50 - 11:40 Integrated Transceiver Modules with Phased-Array and Beam-Switching Antennas for Millimeter-Wave Access and Backhaul in 5G Mobile Networks**

C. Dehos, L. Dussopt, L. Marnat, CEA-LETI, France

**11:40 - 12:30 Flexible Millimetre-Wave Massive Beamforming Array Circuits for 5G Access and Backhaul Solutions**

A. Malignaggi, M. Ko, D. Kissinger, IHP, Germany

**12:30 - 13:50 Break**

**13:50 - 14:40 Challenges and Innovations in Transmitters of 5G MIMO Systems**

S. Pires, Ampleon, The Netherlands

**14:40 - 15:30 Power Amplifiers and IC Modules for 5G MIMO**

S. Krause, Fraunhofer IAF, Germany

**15:30 - 16:10 Break**

**16:10 - 17:00 Digital Intensive Transmitters for 5G**

L. de Vreede, TU Delft, The Netherlands

**17:00 - 17:50 Characterization of 5G MIMO SDR Transmitters**

N. Borges Carvalho, Universidade de Aveiro, Portugal