

# MONDAY WORKSHOPS AND SHORT COURSES

8:30 – 12:20

Room 3

## WSM1 (EuMC/ECWT)

### Wireless Transmitter Design for Future Wireless Systems

#### Organisers

Markus Mayer (Chair), Technische Universität Wien, Austria  
Michael Gadringer (Co-Chair), Technische Universität Wien, Austria

#### Abstract

Future wireless systems are expected to provide increased information capacities, lower handset costs and better integration of voice, video and data information. Each of these issues poses new and more stringent challenges on the systems' and circuits' design. This will lead to tighter compromises between linearity and PAE, which will demand for better PA linearisation schemes or even more ingenious transceiver architectures and semiconductor devices. This workshop will address these issues in two parts. The first part will present the current status in modern GaN device design and the traditional concepts of wireless transmitter design. DSP (or FPGA) based PA linearisers are no longer an expensive way to improve transmitter efficiency. In a second part PA design strategies and non-conventional transmitter architectures based on the envelope elimination and restoration and on reconfigurable power amplifiers will be presented. This workshop gives an overview of the state of the art in this field with contributions on recent developments from some of the top European research groups belonging to the TARGET European Network of Excellence. The following talks will be presented:

#### Programme

**08:30 – 09:00** *GaN Devices for High Performance RF Power Amplifiers*

C. Gaquière et al., Université de Lille, France

**09:00 – 09:30** *Modelling of Power Amplifier Static and Dynamic Behavior*

D. Silveira, M. Gadringer, M. Mayer, G. Magerl,  
Technische Universität Wien, Austria

**09:30 – 10:00** *An Overview on Digital Baseband Predistortion for Linearising RF Power Amplifiers*

P. L. Gilabert, G. Montoro, E. Bertran,  
Universidad Politecnica de Cataluña, Spain

**10:00 – 10:20** *Coffee*

**10:20 – 10:50** *Power Amplifier Design Strategies for Advanced Applications*

P. Colantonio et al., Università di Roma Tor Vergata, Italy

**10:50 – 11:20** *A Reconfigurable SiGe HBT for Multi-Band Step Envelope Tracking Power Amplifier*

A. Cidronali et al., Università di Firenze, Italy

**11:20 – 11:50** *Modulated Switching Mode Power Amplifiers: A New Paradigm for the Power-Efficiency vs. Spectrum Efficiency Trade-Off*

J. C. Pedro, P. Cabral, Universidade de Aveiro, Portugal,  
C. Fager, Chalmers University, Sweden,  
J. A. Garcia, Universidad de Cantabria, Spain

**11:50 – 12:20** *Polar/ET Transmitters: Non-Idealities and Practical Implementation Aspects*

J. C. Pedro, P. Cabral, Universidade de Aveiro, Portugal,  
C. Fager, Chalmers University, Sweden,  
J. A. Garcia, Universidad de Cantabria, Spain