

## Workshop

# Prototyping 5th Generation Cellular Wireless Technology

12-June-2017, Oulu, Finland in conjunction with EuCNC'17

### Scope and Objectives

This Workshop is co-organized by four collaborative research funded projects targeting Olympic events: the EU-funded Flex5Gware and MiWaveS as well as the EU-Korea co-funded 5G CHAMPION, and the EU-Japan co-funded 5G-MiEdge. This collaboration gathers massive competence and knowledge in the field of 5G technology and related prototyping and benefits from complementary contributions: Flex5Gware's contributions related to a prototyping and testing ecosystem including highly reconfigurable hardware (HW) platforms together with HW-agnostic software (SW) platforms targeting both network elements and devices and taking into account increased capacity, reduced energy footprint, as well as scalability and modularity, to enable a smooth transition from 4G mobile wireless systems to 5G. MiWaveS contributes with specific competence on mmWave RF technology which was obtained through demonstration activities in the field of low-cost and advanced millimetre-wave (mmW) technologies providing multi-Gigabits per second access to mobile users and contribute to sustain the traffic growth. The 5G CHAMPION consortium will report of their respective activities for setting up a fully functional prototype for the 2018 PyeongChang Winter Olympic Games in Korea, i.e. two years ahead of 2020, the official launch of 5G with a specific focus on direct mobile device-satellite communication and other 5G enabling technologies. Members of the 5G-MiEdge consortium the activities targeted at the preparation for the Tokyo olympic games in Japan in 2020.

### Program 9h-12h

#### Keynotes

**The 5G Test Network in Finland**, LEHMUSVUORI Jari (NOKIA)

**Benefit of emerging MEC and mmWave technologies**, BARBAROSSA Sergio (Sapienza university of Rome, TM 5G-MiEdge)

#### Presentation Session 1: Next Generation 5G Features – Session Chair: Giuseppe Destino, University of Oulu, Finland

**Narrowband IoT service provision to 5G User Equipment via a satellite component**; DELEU Thibault, CHUBERRE Nicolas, GINESTE Mathieu, FRASCOLLA Valerio

**Adaptive automotive communications solutions of 10 years lifetime enabled by ETSI RRS Software Reconfigurability technology**; MUECK Markus, CHOI Seungwon, IVANOV Vladimir, KIM Kyunghoon, AHN Heungseop, HAUSTEIN Thomas, FRASCOLLA Valerio

#### Presentation Session 2: mmWave Technology – Session Chair: Emilio Calvanese Strinati, CEA Leti, France

**Proof of concept of mmWave high capacity backhaul: RF and antenna design**, DESTINO Giuseppe, CLEMENTE Antonio, PÄRSSINEN Aarno, KURSU Olli, KORVALA Aki, SMIERZCHALSKI Maciej, DIABY Fatimata, KIM Il Gyu, CHUNG Heesang

**Multiple antenna techniques for device pairing of a mmWave high capacity backhaul system**; DESTINO Giuseppe, PETTISSALO Marko, LEINONEN Marko, HAUKIPURO Jari, KURSU Olli, PÄRSSINEN Aarno, CASSIEU Nicolaus

**Hardware-In-the-Loop Trials and Demonstrations for 5G mm-Wave Communications; a Waveform Study**; MOHAMMADI Jafar, LUO Jian, FRASCOLLA Valerio, YUNOKI Katsuo, TAKINAMI Koji, SAKAGUCHI Kei, GIA Khanh Tran, BARBAROSSA Sergio

#### Presentation Session 3: Radio Frequency Enabling Technology – Session Chair: Valerio Frascolla, INTEL, Germany

**Blocking and blockage scenarios with beamforming for 5G**; SARAVANAN Visvesh Saravanan, PRIALE Camila, FAERBER Michael

**PA model including memory effects**; PRIALE Camila Priale, SARAVANAN Visvesh, FAERBER Michael

**MiWaveS millimeter-wave antennas for 5G access and backhauling**; POTELON T. T., FOGLIA MANZILLO F., ETTORRE M., SAULEAU R., SÄILY J., LAMMINEN A., KAUNISTO M., AURINSALO J., MARNAT L., DUSSOPT L., MAYRARGUE S.