

INVITED SESSION SUMMARY**Title of Session:**

Recent advances in 5G system channel modelling

Name, Title and Affiliation of Chair:

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Details of Session (including aim and scope):

Continuously increasing demand for higher data rates, larger network capacity, higher energy efficiency, and higher mobility has motivated research for 5G communication systems. 5G is generally agreed on for set of new requirements for wireless communications systems. These requirements will need to address several critical performance areas including cost constraints, traffic latency, reliability, security, availability, heterogeneous structure of networks, multicast/broadcast requirements, the need to serve a variety of different devices, and reduced energy consumption.

Accurate 5G indoor and outdoor channel characterization and modelling are crucial for determining the system performance and thus for system and for 5G network realization. Namely, 5G radio wave propagation is affected by various drawbacks that more or less corrupt the original transmitted signal arriving at the receiver (free-space propagation, object penetration, reflection, scattering, diffraction, and absorption caused by atmospheric gases, fog, and precipitation).

To generate reliable propagation models for 5G systems and further to determine standard performance measures of 5G systems, corresponding path loss models must be built for link budget and signal strength prediction, with the inclusion of directional and beam-forming antenna arrays and co-channel interference, while temporal dispersion caused by multipath propagation (impacting the timing, packet and frame sizes, and other air interface design parameters) should also be characterized. So, general statistical models will not be sufficient in order to assess the performance of system and specific models related to real-world reference scenarios with fine classification of terms will be required.

We invite authors to contribute original research articles as well as review articles that will illustrate and stimulate the continuing effort to understand the essential nature of 5G propagation phenomena modelling. Accepted papers will show a span of new developments from the 5G propagation theory.

This section will let the participants know more about these fundamental principles of 5G communications.

Potential topics include but are not limited to the following:

- 5G fading channel modelling and simulation
- 5G path loss characterization
- Interference/noise mitigation
- 5G massive MIMO
- Modulation/detection
- Visible light communication in 5G
- 5G channel capacity
- 5G cognitive radio application

Main Contributing Researchers / Research Centres (tentative, if known at this stage):**Website URL of Call for Papers (if any):****Email & Contact Details:**

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