SPEAKERS

Meik Kottkamp has more than 25 years of technology experience in the cellular industry. He is Principal Technology Manager Wireless for Rohde & Schwarz in Munich and is responsible for strategic marketing and product portfolio development covering existing and new 3GPP technologies. His focus is 5G NR, specifically for industrial applications, and 6G research. Meik joined Rohde & Schwarz in August 2007 after working for 11 years for Siemens and NSN. He holds a Dipl.-Ing. degree of electrical and microwave engineering from the Leibniz University Hannover, Germany

Antonio Capone is a Full Professor at the Department of Electronics, Information and Bioengineering of the Politecnico di Milano, where he is the director of the Advanced Network Technologies Laboratory (ANTLab). His expertise is on networking and his main research activities include protocol design (MAC and routing) and performance evaluation of wireless access and multi-hop networks, traffic management and quality of service issues in IP networks, and network planning and optimization. He received the M.S. and Ph.D. degrees in electrical engineering from the Politecnico di Milano in 1994 and 1998, respectively.

Umberto Spagnolini is Professor of Statistical Signal Processing, Director of Joint Lab Huawei-Politecnico di Milano and Huawei Industry Chair at Politecnico di Milano, scientific coordinator of 6G Wireless Networks and Technologies of PNRR PE14 RESTART, a large Eu-National project. Recent interests are on MIMO channel estimation, cooperative and distributed inference, vehicular systems (V2X and radar), integrated communication and sensing. He is technical expert of standard-essential patents and IP.

Melanie Mauersberger is a Product Manager for signal and spectrum analysers at Rohde & Schwarz. She graduated in Electrical Engineering at the Technical University of Munich with research stays at the university of Bologna and Georgia Tech. Her expertise is in test and measurement of cellular infrastructure equipment. She has worked with manufacturer and operator customers globally on 5G NR base station and O-RU conformance tests.

INFOLINE

> May 30, 2023
> 1.15 - 7.00 pm
> Emilio Gatti Conference Room DEIB- Politecnico di Milano (Bldg. 20)

for registration:
CLICK HERE

Discover the latest updates in the world of wireless communications from test and measurement experts. Discover more on 5G evolution towards 6G, including O-RAN ecosystem. Rohde & Schwarz and the Politecnico di Milano have the pleasure to invite you to the 5G Seminar.

In particular we will talk about:

- **5G Advanced Release** 17/18 and its transit to 6G
- **V2x applications** and Integrated Sensing and Communications
- **5G private networks** performance for industrial/ mission-critical applications
- **Overview of OpenRAN** and OpenSource implementations
- **Open RAN** – Interoperability and network performance

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5G TECHNOLOGY UPDATES

MAY 30, 2023

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PROGRAM

1:15-1:45 pm	**Registration**
1:45-2:00 pm	**Introduction**
2:00-2:45 pm	**5G Advanced Release 17/18 and its transit to 6G** Meik Kottkamp, Technology Manager, Rohde & Schwarz
2:45-3:15 pm	**V2x applications and Integrated Sensing and Communications** Umberto Spagnolini, Professor of Telecommunications, Politecnico di Milano
3:15-4:00 pm	**5G private networks performance for industrial/ mission critical applications** Meik Kottkamp, Technology Manager, Rohde & Schwarz
4:00-4:30 pm	**Coffe Break**
4:30-5:00 pm	**Overview of OpenRAN and OpenSource implementations** Antonio Capone Dean of School of Industrial and Information Engineering, Politecninco di Milano
5:00-5:45 pm	**OpenRAN - Interoperability and network performance** Melanie Mauersberger, Product Manager, Rohde & Schwarz
5:45-6:00 pm	**Q&A**
6:00-7:00 pm	**Demo and Cocktail**

MEIK KOTTKAMP

abstract

5G public networks are widely deployed since many years. Additionally, the interest in private network deployments, specifically covering manufacturing use cases, remains high. GSA reported at least 794 organizations deploying LTE or 5G Private Mobile Networks. Rohde & Schwarz is a market leading supplier in the mobile and wireless communications sector, and at the same time Rohde & Schwarz runs innovative production in high manufacturing depth in-company owned factory facilities. In one of our production facilities, namely within the Teisnach factory, we do operate an own private 5G network in order to analyze the potential of applying reliable and low latency communication on the shop floor. As enabled by current German regulations, we applied and got granted own private spectrum in 5G NR band 78. This presentation will provide insides into 5G performance assessment through objective, independent measurements with particular focus on reliable low latency communication. We present first-hand experience from 5G SA network architecture deployments. Furthermore, we discuss the opportunities and challenges testing user devices tailored to industrial applications in the lab.

abstract

Since it is market introduction in 2019 based on 3GPP Release 15 specifications, 5G NR was largely deployed. According to the Ericsson Mobility report from Dec 2022 228 service providers offer commercial 5G and serving around 870 million subscriptions. The number is expected to reach 5 billion by the end of 2028. Obviously, the technology evolves over time the same way as previous cellular generations like 4G, 3G and 2G did. This presentation reviews the main enhancements recently added in 5G Rel17 and the planned ones in 5G Rel18 also known as 5G Advanced. We will further illustrate the main research directions in 6G, for example sub-THz operation, joint communication & sensing (JCAS) and reconfigurable intelligent surfaces (RIS) to name a few. This will also include initial test solutions relevant 6G research.

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ANTONIO CAPONE

abstract

This seminar discusses the concept of Open RAN (Radio Access Network) and its motivations for architectural change, such as software-defined networking for wireless networks, management and control complexity on different time scales, virtualization, and interoperability. The seminar explores the history of Open RAN and its evolution from xRAN to C-RAN to O-RAN. It also examines the issues surrounding the functional split between baseband and radio units and the fronthauling technologies and protocols. Additionally, the seminar discusses RAN disaggregation and virtualization, the challenges associated with HW acceleration, and software-based radio units. Overall, this seminar provides a comprehensive overview of Open RAN and its key elements.

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UMBERTO SPAGNOLINI

abstract

6G wireless technology targets to revolutionize many fields, one is the mobility industry including intelligent, cooperative, and sustainable mobility environment. High-performance connectivity is a key enabler of connected and autonomous vehicles (CAVs). Fast and massive vehicle-to-everything (V2X) connectivity among vehicles, either over infrastructure network and among themselves, is based on high-frequency 5G mmwave and 6G sub-THz technology. MIMO technology is purposely designed for collimated connectivity. However, collimated MIMO V2X connectivity is impaired by blockage and antennas' misalignments due to the vehicle's movement, research directions are aiming to mitigate these effects. Multi-technology sensing (camera, lidar, radar) is essential for augmented perception in CAVs. Radar and communication functionalities are complementary one another, such that a novel paradigm is currently researched as successfully combine these two technologies. A remarkable goal of integrated communication and sensing is to provide an accurate positioning service. Talk will cover all these topics framed within the future mobility paradigm.

MELANIE MAUERSBERGER

abstract

Opening the network architecture can foster innovation and accommodate individual needs. However, it also brings new challenges in terms of interoperability between the network equipment of different vendors. Testing this equipment is crucial to ensure interoperability between components from different vendors and to deliver the same customer experience as with traditional RAN. In this session, Melanie Mauersberger will talk about the required test steps from validating individual components to verifying end-to-end network performance.

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