



▼ Tuesday, March 20, 2018 ■ 9:30 - 11:00 ▼

Plenary Keynote Talks

Room: Auditorium**IMT-2020 (5G) standardization process****Dr. Ying Peng, DaTang Telecommunication Technology & Industry Holding Co. Ltd (CATT)**

INVITED SPEAKER

Abstract

The scope of 5G is much broader than the previous generations of mobile broadband communication systems. We are talking here about not just an enhancement to the traditional mobile broadband scenarios, but extending the application of this technology to use cases involving ultra-reliable and low latency communications, and massive machine-type communications. The ITU's work in developing the standards for IMT-2020, in close collaboration with the whole range of 5G stakeholders, is now well underway, along with the associated spectrum management and spectrum identification aspects.

Biography

Dr. Ying Peng received her Ph.D degree from University of Bristol, U.K in 2006, and joined Datang Telecommunication in 2008. She has been working on ITU-R WP5D since the end of 2008 till now. She is now working as one of co-chair of SWG Evaluation in WP5D. Dr. Peng has also been regularly attending 3GPP TSG RAN1 meeting since 2008. Dr. Peng devoted herself to the whole working process of IMT-advanced ("4G") specification process including evaluation, submission and specification during 2008-2012 in ITU-R WP5D. Now Dr. Peng has been also working on a variety of topics/documents related to IMT-2020, including M.2320 for IMT future trends, M.2083 for IMT vision, M.2410 and M.2411 for IMT-2020("5G") technology requirements and submission templates, and she has also completed M.2412 for IMT-2020 evaluation guidance as the chair of SWG EVAL. She has a rich standardization experience and good knowledge of working method and process on ITU-R WP5D, and a thorough technical knowledge background on other external organizations, e.g. 3GPP. She has been engaged in 3GPP LTE/LTE-A/NR standardizations and now is serving as a rapporteur in 3GPP for technical topic of V2X.

Embracing Over The Air (OTA) Testing—A challenge or an opportunity for 5G
Giampaolo Tardioli, Keysight Technologies

KEYNOTE SPEAKER

Abstract

This talk will discuss the challenges and opportunities involved with over the air testing as it relates to 5G.

Biography

Giampaolo Tardioli is vice president of the Keysight Technologies Network Access segment, part of the Communications Solutions Group. He is in charge of solutions serving the base station, front haul and backhaul markets. Prior to his current position, Dr. Tardioli was vice president of the Chipset and Components segment. He joined Hewlett-Packard in 1998 and served in a variety of senior management roles in planning, R&D, quality, operations and manufacturing both at the division and business unit levels. Dr. Tardioli holds an M.Sc. in Electrical Engineering from the Università Politecnica delle Marche, Italy, and a Ph.D. in Computational Electromagnetics from the University of Victoria, Canada.

T&M Challenges and Current Developments for 5G Testing in a Future Networked World

Christoph Pointner, Rohde & Schwarz



KEYNOTE SPEAKER

Abstract



With 3GPP Release 15, a complete set of specifications providing the set of features and functionality needed for deploying a commercially operational 5G system will be delivered, while an initial set for so-called non-standalone (NSA) operation in combination with 4G was finalized already in December 2017. With this 5G is now a reality. Whereas the fundamental requirements for eMBB, mMTC and URLLC have not changed, technical challenges need to be overcome. For example for the sub 6 GHz frequency range, testing the massive MIMO capabilities of base stations needs to be addressed. For UEs and base stations alike, the utilization of the cm and mm wave spectrum provides its own challenges from a testing perspective. Characterizing antennas in general but also transceiver performance characterization of DUTs (e.g. EVM measurements) needs to be performed in an over-the-air environment. Amongst others this approach poses additional requirements with respect to moving the reference plane in the overall measurement setup. This presentation shows available T&M capabilities as well as different approaches to overcome these challenges. It also provides an overview of measurement results for different DUTs, like a sub 6 GHz massive MIMO base station antenna, and a flexible design of an antenna array that can be used across different applications including UEs.

Biography

Christoph Pointner has joined Rohde & Schwarz in 2005. Since then he has held several managerial positions within the Secure Communications Division before joining the systems group of the Test & Measurement Division in 2014. Until 2017 he served as Senior Director of EMC, Antenna and A&D Test Systems and, alongside this assignment, from January to June 2017 as General Manager of the System Support Center at Rohde & Schwarz USA, Inc. In July 2017 he took over the responsibility as Vice President for Signal Generators, Audio Analyzers and Power Meters.

A Platform based Approach to 5G: Design, Prototyping and Test

Luke Schreier, National Instruments



KEYNOTE SPEAKER

Abstract



For many, 5G represents that next major standard for cellular connectivity, but 5G is significant beyond just the next cell phone standard. It will have huge implications for connectivity that will take use beyond the smart phone to vehicles, hospitals, medical devices, factories, and smart cities. In the case of vehicle design, systems that used to operate independently are increasingly designed such that mechanical and electrical systems operate within a holistic system of an autonomous vehicle. Highlights of this presentation will include:

- The challenges of testing new devices and systems, and how this could be a major bottleneck for organizations
- How every standard follows a progression that starts with research and prototyping, and then moves to the design and development of the enabling semiconductor technology
- The test challenges that lie ahead and the architectural requirements needed
- How we will look to the past and apply systems thinking to a connected world from beam steering, synchronization to lowering the cost of millimeter wave measurement within the industries highlighted

Biography

Luke Schreier was an applications engineer before transitioning to product management in 2003. His focus areas have spanned the entire portfolio of modular instrumentation and PXI platform products as well as aerospace/defense and semiconductor application spaces. He has been heavily involved in the company's automated test product and go-to-market strategies for more than a decade. As the leader of NI's product management and product marketing teams in automated test, Luke focuses on growth strategies for modular instrumentation, continuing to advance the PXI industry ecosystem, and furthering cross-industry exploration of best practices for automated test engineering and management. He holds a bachelor's degree in mechanical engineering from the University of Nebraska-Lincoln.

Room: 402 A/B

Innovation and Entrepreneurship in the Wireless Communication Industry
Dr. Gordon GC Liang, Pivotone



INVITED SPEAKER

Abstract



The wireless industry has experienced a rapid growth phase, and the Internet of Things(IoT) system now covers the world with a smart sensor network, connecting people in the rapid sleepless digital world. 5G has brought about breakthroughs in features and functions for mobile systems. And high-speed, point-to-point communication systems connect them together seamlessly. 5th generation wireless provides over one million wireless connections within one square kilometer. And, the anytime and anywhere data rate is 100 MBPS, and the demanded speed is over 1 to 2 GBPS. Today's engineers face extensive innovation challenges. The active and passive components, devices, dielectric material, and the miniature circuits all must be considered and integrated together to satisfy the demands of today's consumers. In this invited plenary **keynote** talk, Dr. Liang (Gordon GC Liang) will share his observations on technology advancement, and how to meet the challenges and the opportunities that result. He will also share how entrepreneurship can help build companies in this dynamic world of wireless technology and business challenges.



Biography

Since his early career, Dr. Liang (Gordon GC Liang) has started several companies that specialize in wireless technology, from Silicon Valley California to dynamic Chinese rapidly growing areas. His companies have contributed not only technology but also support the wireless industry. With the core values of vision, professionalism, and integrity, Dr. Liang and his organization, Pivotone, have made significant contributions to the wireless industry. At EDI CON CHINA 2018, Dr. Liang is going to share his experiences as an entrepreneur. With the grasp of technology in one hand and business in other, his unique perspective combined with his practical approach, open minded mentality, and unselfishness to the industry enable him to be able to lead and to train strong research and development teams, working with universities and R&D organizations, colleagues, and the collaborators to contribute to the wireless world.

Solid State RF Energy is the Smart Technology Solution for 2018
Dr. Klaus Werner, RF Energy Alliance



INVITED SPEAKER

Abstract



Cooking applications are just the beginning; as the benefits of solid-state RF energy (SSRFR) technology are being realized in other industries such as lighting, medical and automotive. These new markets present ultra-high volume opportunities for businesses operating directly and peripherally in the RF technology industry. They also present alternative revenue potential to that of currently maturing markets such as cellular infrastructure. The RF Energy Alliance (RFEA) is leading the necessary cross-industry collaboration needed to facilitate even more market momentum through the establishment of technical workshops, roadmaps and standards. This keynote will address the emerging technology trends that will shape the SSRFE market in 2018.

The Advantages of Using Multiple Satellite Navigation Systems
Rainer Horn, SpaceTec Partners



INVITED SPEAKER

Abstract



The last 15 years saw an enormous increase in the use of Global Navigation Satellite Systems (GNSS). Satellite Navigation, originally designed for defense purposes, has become the backbone of a growing multi-billion dollar industry. There are more than 3 billion single frequency receivers in use worldwide (about 2/3 of these are installed in smart-phones and tablets). Besides the mass market, GNSS also serves a growing number of professional applications – from network synchronisation to surveying - all the way to safety-of-life services. Currently, there are four global Satellite Navigation systems deployed: GPS, GLONASS, BEIDOU and GALILEO. While only 15 years ago, a hybrid receiver, able to receive and process the signals of more than one system was a large, heavy and expensive unit, nowadays GNSS chip manufacturers are starting to have 3 - 4 GNSS enabled while maintaining low cost, low mass and low power consumption. In this presentation we will address the advantages and disadvantages of multiple GNSS operating in the same frequency bands. It should be noted that UN ICG and several other organizations have been pushing for interoperability of the different systems. GPS and GALILEO actually signed an agreement on this subject and the other systems have also chosen signal coding and modulation schemes for minimizing the interference between systems. Of course each system creates some noise to the other systems which, with current receiver designs, reduces the signal to noise ratio of the wanted signals. It is expected, that next-generation receivers using vector processing or other novel concepts, will be less affected by this problem.