

Frontline of 5G workshop: Insights on 5G antenna & propagation R&D from Sony and regional



Zhinong YING is a Principle Engineer of antenna technology at the Radio Technology Lab within Research Center Lund at Sony, Sweden. He's an antenna expert with 20 years of experience gained at Ericsson, Sony Ericsson, and Sony in Lund. He works mainly on antennas, EMF, and wireless networks. He has also authored and co-authored over 160 papers in various journals, conferences and industry publications. He holds more than 160 patents in the fields of antennas and new-generation wireless networks. He has also contributed seven book chapters on mobile antennas, small antennas and MIMO antennas for mobile communications.



Gert Frølund Pedersen is a professor at Aalborg University, heading up the Antennas, Propagation and Millimeter-wave Systems LAB alongside more than 35 researchers. He has also been the Head of the Doctoral School on wireless communication with around 40 Ph.D. students, from 2009 to 2019. His research interests include radio communication for mobile terminals, especially small antennas, diversity systems, propagation, and biological effects. He has published more than 500 peer-reviewed papers, several books and book chapters, and holds more than 50 patents.



Fredrik Tufvesson is a professor of radio systems in the department of Electrical and Information Technology at Lund University. His main research interest is the interplay between the radio channel and the rest of the communication system with various applications in 5G systems, such as Massive MIMO, mm-Wave communication, vehicular communication and radio-based positioning. He has authored around 90 journal papers and 140 conference papers. He is a fellow of the IEEE and he recently got the Neal Shepherd Memorial Award for the best propagation paper in IEEE Transactions on Vehicular Technology and the IEEE Communications Society best tutorial paper award.



Kun Zhao is a senior research engineer of antenna technology and standardization at Research Center Lund at Sony, Sweden. He is a 3GPP RAN 4 delegate for Sony. He also works as an industrial postdoc in Antennas, Propagation and Radio Networking, Aalborg University, Aalborg, Denmark. His current research interests include mm-Wave antenna and propagation for 5G communications, MIMO antenna systems, user-body interactions and body-centric wireless communications. Kun Zhao received the B.S. degree in Communication Engineering from Beijing University of Posts and Telecommunications (BUPT), Beijing, China in 2010, M.S. and Ph.D. degree from Royal Institute of Technology (KTH), Stockholm, Sweden, in 2012 and 2017, respectively.



Ingmar Andersson, Ingmar Andersson received his M.Sc. and Ph.D. degrees from Chalmers University of Technology (CTH), Gothenburg, Sweden in 1982 and 1989, respectively. From 1989 to 1991, he worked as an assistant professor in optoelectronics at CTH. He joined the High-Speed Electronics Research Center (HSERC) at Ericsson in 1991. Since 2013, Ingmar has worked with 5G mm-wave array antenna hardware research and testbeds. In recent years, Ingmar has had a project manager role within the 5G mm-array antenna hardware research focusing on key components/technologies and integration aspects. Currently, he holds a Master Researcher position at Ericsson.

Abstract

The global development of fifth-generation (5G) communication is well under way, with intensive research and development happening within both the industry and academia.

5G cellular systems are expected to achieve higher data rates, improved energy efficiency, higher reliability and lower latency that together could transform whole industries. Antenna systems are a critical component of this worldwide transition to 5G and major efforts have already been in this area.

To find out the latest news in this field, join renowned Sony researchers and industry experts in our 'Frontline of 5G' workshop, where, together with Sony's regional partners from Ericsson and Lund university, we'll delve into discussions on the latest research on antenna systems for 5G (and beyond), the latest propagation research and development, and the key challenges involved in this fast growing area of 5G.

Topics will include 5G-enabling antenna techniques and channels, such as Massive MIMO array antennas (in both sub-6GHz bands and millimeter-wave bands), beamforming techniques for base stations and terminals, mm wave channel sounder and advanced measurement technology.

Workshop outline

- Welcome: Opening and introduction of Sony Research Center, Lund, Sweden
Sony Research Center: Dr. Zhinong Ying, Principal Engineer
- *5G mm-Wave antenna 3GPP requirements and key challenges in UE devices* Sony Research Center: Dr. Kun Zhao
- *5G mm-Wave channel and system study with state-of-the-art mm-Wave high speed channel sounder*
Lund University: Prof. Fredrik Tufvesson
- *mm-Wave antenna design and measurements for UE devices, AAU antenna Lab*
Aalborg University: Prof. Gert Petersen
- *5G mm-Wave antenna systems for base stations, beam management*
Ericsson Research: Dr. Ingmar Andersson, Master Researcher, 5G antenna system