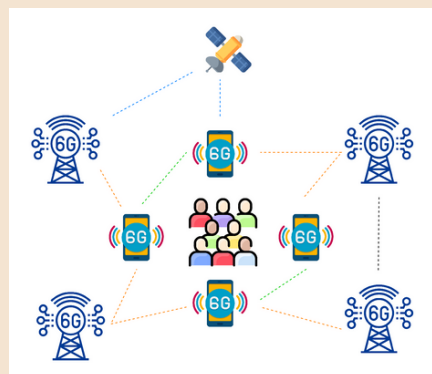


EMF Exposure Evaluation Approaches and Perspectives in 6G



Abstract

With the rapid deployment of 5G and the continued evolution toward beyond-5G (B5G) systems, electromagnetic field (EMF) exposure has become a critical topic of global concern. The objectives of our workshop are twofold: to bring together different perspectives and approaches in evaluating EMF exposure around Europe and the globe, and to foster collaboration and unify efforts in EMF exposure research, addressing critical concerns related to public exposure limits in the context of emerging wireless networks and the proliferation of new technologies.

Workshop outline

Our Workshop will consist of 5 technical talks that will reflect the state of the EMF exposure in 6G research on the German, European and international levels.

1. Welcome and Introduction by the Workshop Chairs (5 min)
2. Technical talks by invited speakers: (18 min per speaker) 15 + 3 min Q&A
 - a. "Human Exposure Assessment in 5G: Challenges and Considerations for 6G", Mr. Thanh Tam Julian Ta (RWTH Aachen University, Germany)
 - b. "RF-EMF exposure assessments using channel sounder at 5G mm-wave frequencies", Ms. Sudha Malik (Eindhoven University of Technology, Netherlands)
 - c. "EMF exposure assessment from 5G massive MIMO base stations", Dr. Bo Xu (Ericsson, Sweden)
 - d. "Numerical assessment technologies on EMF dosimetry at frequencies above 6 GHz", Prof. Kun Li (The University of Electro-Communications, Japan)
 - e. "Channel Modeling for Predicting EMF Exposure", Ms. Xueyun Long (Karlsruhe Institute of Technology, Germany)
3. Summary and closing remarks by the Workshop Chairs (5 min)

Speakers

Thanh Tam Julian Ta, born 1989 in Germany, received the B.Sc. and M.Sc. degrees in Electrical Engineering from RWTH Aachen University, Aachen, Germany, in 2019 and 2023. He has been a research assistant and Ph.D. student at the Institute of High Frequency Technologies, RWTH Aachen University, since 2023. His research interests centers on RF EMF exposure assessment for mobile communication, focussing on the potential impacts of 6G technologies on the exposure levels.

Sudha Malik is a doctoral candidate at Eindhoven University of Technology, focused on development and in-field verification of exposure reduction techniques using channel sounder at 5G mm-wave frequencies. Previously, she gained several years of experience in RF and microwave engineering at IIT Kanpur, contributing to projects for the Indian Defense and also Space Research Organization. Her work involved the design and characterization of 5G antennas, metamaterial absorbers, and rasorbers. Sudha holds a Master's degree in RF and Microwave Engineering from NSUT Delhi and a Bachelor's degree in Electronics and Communication Engineering.

Bo Xu received the PhD. degree from Zhejiang University, Hangzhou, Zhejiang, China, and KTH Royal Institute of Technology, Stockholm, Sweden in a joint doctoral program. Since 2018, he has been with Ericsson Research, Ericsson AB, Stockholm, working on EMF compliance assessment and software solutions of radio base stations, including EMF research, standardization, product development, and compliance testing. He is the author of many key journal publications in the field regarding 5G EMF exposure assessment methods and software feature solutions. He has been working on EMF-related topics for 10 years.

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Xueyun Long received the B.Sc. degree in electronic information engineering from the Beijing Institute of Technology, Beijing, China, in 2018, the M.Sc. degree in electronic and information technology from the Karlsruhe Institute of Technology, Karlsruhe, Germany, in 2021, where she is currently pursuing the Dr.-Ing. (Ph.D.E.E) degree in electronic engineering at the Institute of Radio Frequency Engineering and Electronics. Her research interests include EMF exposure and wave propagation.

Kun Li received his B.E. in Communication Engineering from Nanjing University of Posts and Telecommunications in 2011 and a Ph.D. in Electrical Engineering from the University of Toyama in 2017. He has held research roles at the National Institute of Information and Communications Technology in Tokyo, Kagawa University, and CNRS/IETR at the University of Rennes 1. In 2023, he became an Associate Professor at the Advanced Wireless and Communication Research Center, University of Electro-Communications in Tokyo. His research focuses on electromagnetic safety, antenna design, and wireless communication. Dr. Li received the URSI Young Scientist Award in 2020 and holds key roles in IEEE and URSI.