

Panel at IEEE/CIC ICC 2021, Xiamen, China

Title: **Green 6G: Challenges and Research Directions**

Time: **14:00-15:50 (Beijing Time), Thursday, July 29, 2021**

Room: **Room 1, Xiamen International Conference Center Hotel**

ZOOM: **<https://zoom.us/j/9962752882>**

Moderator: **Zhisheng NIU (Tsinghua University)**

Panelists:

- 1) Chunfeng CUI (China Mobile Research Institute)**
- 2) David López-Pérez (Huawei Paris Research Center)**
- 3) Yang YANG (ShanghaiTech Univ.)**
- 4) Yan ZHANG (Univ. of Oslo)**

Panel description:

In addition to ultra-dense deployment of base stations (BSs), it is foreseen that 5G/6G networks need to further deploy a large number of edge computing servers to support task offloading and machine learning (ML) algorithms for smarter, ultra-reliable and low-latency communications (uRLLC). To this end, not only the radio access networks (RAN) face with high energy cost, the computing on edge servers will also have huge energy barriers. As a result, a new horizon of green artificial intelligence (AI) and a holistic approach for green communication and green computing co-design need to be taken in order to make future 6G networks cost-effective and environmentally sustainable.

In this panel, leading experts from operators, industry, and academia will present their visions on 6G network and discuss about the key challenges and tentative research directions on how to make 6G network greener.



Prof. Zhisheng Niu graduated from Beijing Jiaotong University, China, in 1985, and got his M.E. and D.E. degrees from Toyohashi University of Technology, Japan, in 1989 and 1992, respectively. During 1992-94, he worked for Fujitsu Laboratories Ltd., Japan, and in 1994 joined with Tsinghua University, Beijing, China, where he is now a professor at the Department of Electronic Engineering. His major research interests include queueing theory and traffic engineering, wireless communications and mobile Internet, vehicular communications and smart networking, and green communication and networks.

Dr. Niu has been serving IEEE Communications Society since 2000, first as Chair of Beijing Chapter (2000-2008) and then as Director of Asia-Pacific Board (2008-2009), Director for Conference Publications (2010-2011), Chair of Emerging Technologies Committee (2014-2015), and Director for Online Contents (2018-2019). He has also served as editor of *IEEE Wireless Communication* (2009-2013) and associate Editor-in-Chief of IEEE/CIC joint publication *China Communications* (2012-2016), and currently serving as Editor-in-Chief of *IEEE Trans. Green Commun. & Networks* (2020-2022). He received the Outstanding Young Researcher Award from Natural Science Foundation of China in 2009, Best Paper Awards from IEEE Communication Society Asia-Pacific Board in 2013 and from *Journal of Communications and Information Networks* (JCIN) in 2019, Distinguished Technical Achievement Recognition Award from IEEE Communications Society Green Communications and Computing Technical Committee in 2018, and Harold Sobol Award for Exemplary Service to Meetings & Conferences from IEEE Communication Society in 2019. He was selected as a distinguished lecturer of IEEE Communication Society (2012-2015) as well as IEEE Vehicular Technologies Society (2014-2018). He is a fellow of both IEEE and IEICE.



Dr. CUI Chunfeng, Director of Future Mobile Technology Lab, China Mobile Research Institute, has been focusing on research and standardization of 3G/4G/5G/6G advanced mobile communications technologies and innovative emerging technologies for more than 20 years, and currently also acts as vice chair of IMT 2030 Requirement Group.



Dr. David López-Pérez is an Expert and Technical Leader at Huawei Paris Research Center, France, who has devoted most of his career to the study of both cellular and Wi-Fi networks, where his main research interests are in network performance analysis, both theoretical- and simulation-based, network planning and optimisation, energy efficiency, as well as technology and feature development. David's main contributions are around the understanding of small cells and ultra-dense networks. He has also pioneered work on cellular and Wi-Fi inter-working, and investigated both multi-antenna capabilities and ultra-reliable low latency features for future indoor networks. David was recognised as Bell Labs Distinguished Member of Staff in 2019, has authored 1 book on small cells, and has published more than 150 research manuscripts on a variety of related topics. David has filed 54 patents applications with more than 25 granted as of today, and has received a number of prestigious awards. He is an editor of IEEE TWC.



Prof. Yang Yang is a full professor at ShanghaiTech University, China, serving as the Master of Kedao College and the Director of Shanghai Institute of Fog Computing Technology (SHIFT). He is also an adjunct professor with the Research Center for Network Communication at Peng Cheng Laboratory, China. Yang's research interests include fog computing networks, service-oriented collaborative intelligence, wireless sensor networks, IoT applications, and advanced testbeds and experiments. He has published more than 300 papers and filed more than 80 technical patents in these research areas. Yang is a Fellow of the IEEE.



Prof. Yan Zhang is currently a Full Professor with the Department of Informatics, University of Oslo, Norway. He received the Ph.D. degree from the School of Electrical and Electronics Engineering, Nanyang Technological University, Singapore. He received M.S. and B.S from Beihang University and Nanjing University of Post and Telecommunications, respectively. His research interests include next-generation wireless networks leading to 6G, green and secure cyber-physical systems (e.g., smart grid and transport). Dr. Zhang is an Editor (or Area Editor, Senior Editor, Associate Editor) for several IEEE transactions/magazine, including IEEE Network Magazine, IEEE Transactions on Green Communications and Networking, IEEE Transactions on Network Science and Engineering, IEEE Transactions on Vehicular Technology, IEEE Transactions on Industrial Informatics, IEEE Communications Survey and Tutorials, IEEE Internet of Things Journal, IEEE Systems Journal, IEEE

Vehicular Technology Magazine, and IEEE Blockchain Technical Briefs. He is a symposium/track chair in a number of conferences, including IEEE ICC 2021, IEEE SmartGridComm 2021, and IEEE Globecom 2017. He is the Chair of IEEE Communications Society Technical Committee on Green Communications and Computing (TCGCC). He is an IEEE Communications Society Distinguished Lecturer and IEEE Vehicular Technology Society Distinguished Speaker. He was an IEEE Vehicular Technology Society Distinguished Lecturer during 2016-2020. Since 2018, Prof. Zhang was a recipient of the global “Highly Cited Researcher” Award (Web of Science top 1% most cited worldwide). He is Fellow of IEEE, Fellow of IET, elected member of Academia Europaea (MAE), elected member of the Royal Norwegian Society of Sciences and Letters (DKNVS), and elected member of Norwegian Academy of Technological Sciences (NTVA).