

SEMINAR ANNOUNCEMENT

DEPARTMENT OF ELECTRICAL AND COMPUTER ENGINEERING
COLLEGE OF DESIGN AND ENGINEERING
Website: <https://cde.nus.edu.sg/ece>

Area: Microwave & Radio Frequency

Host: Professor Chen Zhi Ning

Technical Seminar Jointly Organized by
IEEE Singapore RFID and ECE NUS

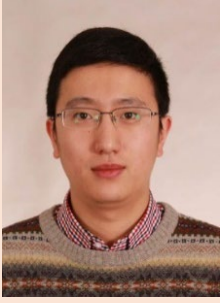
Merlion RFID Forum 2023 Paper Sharing Series

TOPIC	:	Dual Polarized Wide-Angle Scanning Phased Array Antenna for 5G Communication System
SPEAKER	:	Professor Shuai Zhang Aalborg University, Denmark
DATE	:	Monday, 20 March 2023
TIME	:	4:00PM to 5:00PM
VENUE	:	E4-04-07, E-cube 3 College of Design and Engineering, National University of Singapore Alternatively, Join Zoom Meeting https://nus-sg.zoom.us/join/91234567890 [Registration is required] Meeting ID: 822 7189 3642 Passcode: 676397

ABSTRACT

A dual-polarized phased array antenna will be presented with wide-angle scanning capability. To improve the mutual coupling in the array, a current cancellation method (CCM) is proposed by changing the current distribution on the excited unit to induce a pair of the canceled currents on the adjacent unit. Meanwhile, this current distribution broadens the beam-width of the unit in the array. Besides, the proposed method can also optimize the array unit size and achieve a small inter-unit distance for wide-angle scanning capability. A low-profile dual-polarization antenna operating in the bandwidth from 4.4 GHz to 5.0 GHz is designed as a linear array and a planar array to verify the proposed method. Regardless of the linear array or planar array, the mutual coupling in the array is below -19 dB, which is better than that in conventional arrays. Meanwhile, the antenna unit in the array can radiate a wide-beam pattern. Two arrays can scan over $\pm 60^\circ$ for both polarizations. Within the scanning range, the realized gain reduction is less than 3 dB and the side-lobe level is lower than -7.5 dB. To verify the performance, two array antenna prototypes are fabricated and tested. The experimental results agree well with the simulation.

BIOGRAPHY



Shuai Zhang received the B.E. degree from the University of Electronic Science and Technology of China, Chengdu, China, in 2007 and the Ph.D. degree in electromagnetic engineering from the Royal Institute of Technology (KTH), Stockholm, Sweden, in 2013. In 2014, he joined Aalborg University, Denmark, where he currently works as Associate Professor and the head of antenna research group with over 12 staff. In 2010 and 2011, he was a Visiting Researcher at Lund University, Sweden and at Sony Mobile Communications AB, Sweden, respectively. He was also an external antenna specialist at Bang & Olufsen, Denmark from 2016-2017. He has supervised/co-supervised 7 Postdocs and 18 PhD students. He has coauthored over 115 articles in well-reputed international journals and over 16 US or WO patents. His citations in Scopus are over 3700 with H index of 29.

His current research interests include: millimeter-wave antennas for cellular communications, biological effects, metasurfaces, CubeSat antennas, Massive MIMO antennas, wireless sensors, and RFID antennas.

He is the Associate Editor for IEEE Antennas and Wireless Propagation Letters; Sensors; and IET Microwaves, Antennas and Propagation. He is also a reviewer for all the top IEEE and IET journals in antenna areas, where he got the prize of "Top Reviewers in IEEE Transactions on Antennas and Propagation 2019-2020 and 2020-2021". He is the General Co-Chair for iWAT2023 at Aalborg, Denmark, the Super Reviewer (previously known as Super TPC or Vice Chair) for IEEE APS 2020 and 2021 and the TPC for several top IEEE conferences. He is the recipient of "IEEE Antennas and Propagation Society Young Professional Ambassador" in 2022, where he gives presentation for different IEEE Chapters on mmwave mobile terminal antennas and massive MIMO base station antennas. He has also been intensively invited to international conference and industry to give keynote/plenary speech and presentations. He was invited to serve as a reviewer for Icelandic Research Fund in 2019 and 2020. From 2019-2023, He is the Management Committee for EU COST Action CA18223 of SyMat, which mainly focuses on high symmetrical periodic structures or metamaterials.

E-mail: sz@es.aau.dk

CONTACT PERSON

Dr. Xinyi Tang Tang_Xinyi@i2r.a-star.edu.sg

Dr. Peiqin Liu eleliup@nus.edu.sg

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