CROSS STRAIT RADIO SCIENCE AND WIRELESS TECHNOLOGY CONFERENCE

PROGRAM BOOK

2021

As of 31 July 2021, for the most up to date information please visit ee.cityu.edu.hk/skltmw/csrswtc2021

State Key Laboratory of Terahertz and Millimeter Waves
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INNOWAVE

Visionary Strategic Responsible
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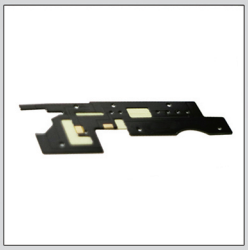
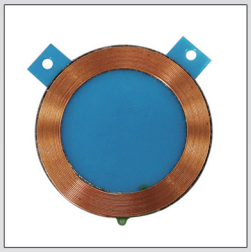
Advanced Antenna Module Designer and Manufacturer for Wireless Communication Terminals

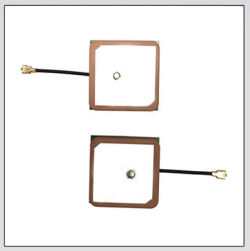


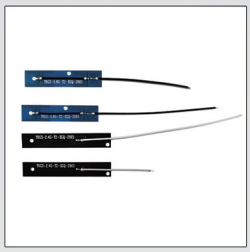










BEST SERVICES

- IoT/Smart Society
- Consumer Electronics
- Vehicular Electronics
- Communication Infrastructure

Kunshan Innowave Communication Technology Co., Ltd.
Building C, No. 1689, Zizhu Road, Yushan Town, Kunshan, Jiangsu, China

CSRSWTC **IS ALL ABOUT CONNECTIONS...**

HISTORY OVERVIEW OF CSRSWTC

Year	Organizer(s)	Venue
1998	Chang Gung Univ. Founded as ***Cross-Strait Wireless Communication Seminar*** (Initiated by ***Prof. Zhao-Yan Li***)	Taiwan
1999	Nanjing Univ. Posts Telecom. Renamed as ***Cross Strait Tri-Regional Radio Science and Wireless Technology Conference***	China
2000	City Univ. Hong Kong	Hong Kong
2001	Dayeh Univ.	Taiwan
2002	Shanghai Univ.	China
2003	Guilin Univ. Electron. Technol.	China
2004	Minghsin Univ. Sci. Technol., National Chiao Tung Univ.	Taiwan
2005	Beijing Inst. Technol.	China
2006	Univ. Macau	Macau
2007	Anhui Univ.	China
2008	Oriental Inst. Technol.	Taiwan
2009	Tianjin Univ. Renamed as ***Cross Strait Quad-Regional Radio Science and Wireless Technology Conference***	China
2010	Hainan Univ.	China
2011	Harbin Inst. Technol.	China
2012	Oriental Inst. Technol.	Taiwan
2013	Univ. Electron. Sci. Technol. China	China
2014	Zhejiang Univ., Nanjing Univ. Sci. Technol., Shanghai Jiao Tong Univ., Hangzhou Dianzi Univ., National Univ. Def. Technol.	China
2015	Xidian Univ., Shannxi Prov. Phys. Soc., Yan'an Univ.	China
2016	National Penghu Univ. Sci. Technol.	Taiwan
2017	South China Univ. Technol., Xiangnan Univ., Gospell Digital Technol. Co., Ltd.	China
2018	Jiangsu Normal Univ.	China
2019	Shanxi Univ., Xi'an Jiaotong Univ., Nanjing Normal Univ.	China
2020	Aerospace Inf. Res. Inst., CAS, Fuzhou Univ., Southern Taiwan Univ. Sci. Technol. Renamed as ***Cross Strait Radio Science and Wireless Technology Conference***	China
2021	City Univ. Hong Kong, Shenzhen Univ. Executed as live/virtual hybrid events *for the first time*	China

PLEASE NOTE: This program book reflects both live and virtual events that should have taken place during CSRSWTC2021, 11—13 October 2021, in Shenzhen, Guangdong, China. Actual events and schedules may be subject to change in compliance with COVID-19 prevention and control regulations from the local authorities. For the latest information please visit www.ee.cityu.edu.hk/skltmw/csrswtc2021.

CSRSWTC2021 Table of Contents

Culture, Communications, Cooperation...

All That Matters

All We Care

For the most up to date information visit:
www.ee.cityu.edu.hk/skltmw/csrswtc2021
or scan the QR code below

For assistance, please email
csrswtc2021@ee.cityu.edu.hk.

CSRSWTC2021 GENERAL CHAIRS' WELCOME

HANG WONG AND TAO YUAN

WELCOME to the 2021 Cross Strait Radio Science and Wireless Technology Conference (CSRSWTC2021) in Shenzhen, one of the Hi-Tech cities in the world. The city of Shenzhen is young and energetic. You can discover in this city the top-one wireless enterprise, the pioneers of electric vehicles, the giants of digital-society service providers, and hundreds of thousands of technology startups. On behalf of the Organizing Committee, we warmly welcome you to Shenzhen and participate in CSRSWTC2021.

It is the first time in the history of CSRSWTC that the conference of this year has been arranged as both live (offline) and virtual (online) events simultaneously, owing to great support and cooperation from the two organizers, i.e., City University of Hong Kong and Shenzhen University. This new initiative of conference model turns a new page of CSRSWTC since 1998. We are gratified that the change has helped to attract more high-quality submissions from various institutions in the cross-strait regions and others across the globe. This enables production of a comprehensive technical program for facilitating information exchange on the advancement and progress in the fields of wireless technologies, antennas, microwaves, millimeter waves, terahertz waves, Big Data, HD imaging, edge computing, IC technologies, IoT, and Bio-electromagnetics. The conduct of this annual event also accelerates technological development in the cross-strait regions and beyond.

CSRSWTC2021 is co-organized by the State Key Laboratory of Terahertz and Millimeter Waves (City University of Hong Kong) and Shenzhen University, and is technically co-sponsored by the IEEE, the IEEE Antennas and Propagation Society, the IEEE Hong Kong AP/MTT Joint Chapter, vivo Mobile Communication Co., Ltd., Xiaomi Inc., and OPPO Guangdong Mobile Telecommunications Co., Ltd. The conference also receives financial support from over ten Hi-Tech companies in China including Innowave, Avary Holding (Shenzhen), General Test Systems, Huaqin, Sunyield Technologies, Beijing Comtest, Rohde & Schwarz China, Beijing StarPoint Technology, Guangzhou Pousen, and Kunshan Fengjingtuo Electronics.

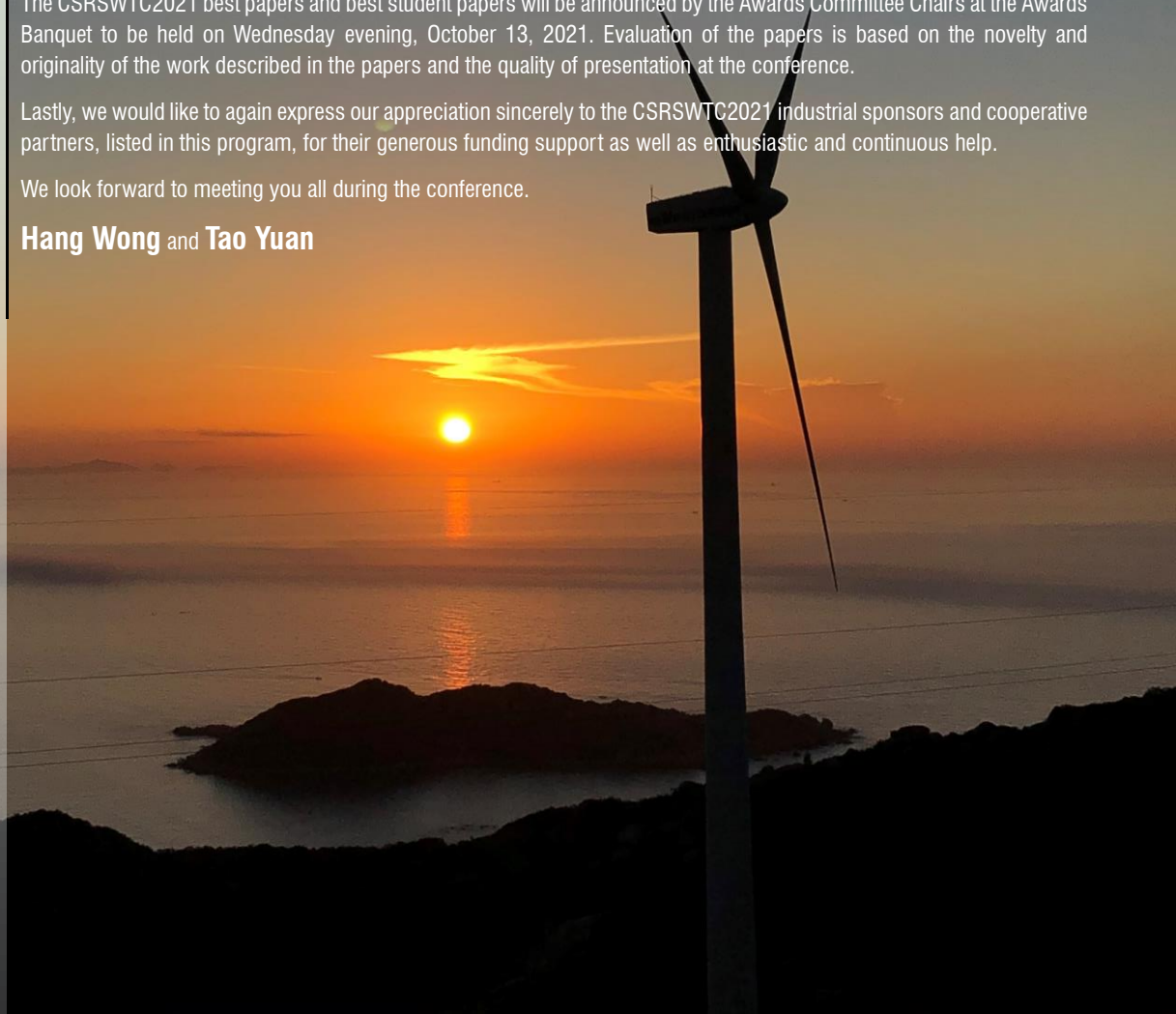
Successful organization of the conference is a joint effort by many volunteers. We are deeply grateful to all the Organizing Committee members and Technical Program Committee reviewers for their contributions to ensure the smooth running of the conference. We also appreciate great support and encouragement from the Honorary Chairs and the International Advisory Committee in organizing CSRSWTC of this year even though we still have COVID-19 travel restrictions in different countries/regions. All participants of CSRSWTC2021 will find a fruitful technical program consisting of high-quality plenary talks, technology vision keynotes, invited talks, and oral and poster presentations. In particular, please do not miss the Opening Session, the Closing Session, the Award Banquet, and the Welcome Reception.

The CSRSWTC2021 best papers and best student papers will be announced by the Awards Committee Chairs at the Awards Banquet to be held on Wednesday evening, October 13, 2021. Evaluation of the papers is based on the novelty and originality of the work described in the papers and the quality of presentation at the conference.

Lastly, we would like to again express our appreciation sincerely to the CSRSWTC2021 industrial sponsors and cooperative partners, listed in this program, for their generous funding support as well as enthusiastic and continuous help.

We look forward to meeting you all during the conference.

Hang Wong and **Tao Yuan**



CSRSWTC2021 TECHNICAL PROGRAM COMMITTEE CHAIRS' MESSAGE

ZHE CHEN AND QINGFENG ZHANG

WE, on behalf of the Technical Program Committee, are very pleased to have you joining us in the 2021 Cross Strait Radio Science and Wireless Technology Conference (CSRSWTC2021). The CSRSWTC2021 is aimed to provide an international interactive forum on the latest advances of radio science and 5G/6G wireless communication technologies for academics and industries among China, Hong Kong, Macau, and Taiwan.

The conference of this year is to be held as live and virtual events on Monday to Wednesday, October 11–13, 2021, where the live event will take place at Sentosa Hotel Emerald Branch, Shenzhen, Guangdong, China. The CSRSWTC2021 is co-organized by the State Key Laboratory of Terahertz and Millimeter Waves (City University of Hong Kong) and Shenzhen University.

The conference program of this year will see a thriving gathering of invited keynote presentations, technical sessions, and exhibitions owing to dedication of the conference Organizing Committee members and Technical Program Committee reviewers. Over 210 technical manuscripts from more than 12 countries/regions, i.e., Mainland China (79%), Hong Kong (10%), Macau (3%), Taiwan (1%), other Asia-Pacific countries/regions (3%), North America (2%), and Europe (2%), have been received and processed through a rigorous single-blind review. Finally, 194 manuscripts have been accepted for presentations, where 50 manuscripts have been selected for poster presentations to be arranged into two live Interactive Forum Sessions on Wednesday afternoon, October 13, 2021, and the rest will be presented orally in totally 33 convened sessions, including four Plenary Sessions, four Technology Vision Keynote Sessions, 11 Regular Sessions, and 14 Special Sessions, to be arranged as live and virtual events in two full days of October 12 and 13, 2021.

The conference sessions of this year cover over 20 technical areas such as artificial intelligence for RF/wireless/antennas, terahertz sciences and technologies, metamaterials/metasurface/smartsurface, 5G/6G wireless or mobile systems, IoT, computational electromagnetic methods, antennas theory and antenna array techniques, RF/microwave/millimeter-wave components and circuits, wireless sensors/sensing and power transmission, bio-electromagnetics and applications, etc. This allows attendees from the cross-strait regions, i.e., China, Hong Kong, Macau, and Taiwan, and the beyond to fully connect, learn, and share, advancing technological cooperation and cultural communication in both academics and industries.

We believe that this intriguing technical program and the flourishing city of Shenzhen will make the conference of this year a memorable event in the 24th anniversary of the CSRSWTC. We look forward to seeing you in Shenzhen in this October. Stay safe and hopefully you enjoy the conference.

Zhe Chen and **Qingfeng Zhang**

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For the latest on CSRSWTC2021
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CSRSWTC2021 PLENARY SPEAKERS

PLENARY SPEAKER I

Yijun FENG
Professor, *Nanjing University*

Title of Presentation:
Multi-Functional Metasurfaces and Antenna Applications

PLENARY SPEAKER II

Jun HU
Professor, *University of Electronic Science and Technology of China*

Title of Presentation:
Domain Decomposition Methods and Multi-Region Multi-Solvers For Electromagnetic Scattering

PLENARY SPEAKER III

Yongxin GUO
Professor, *National University of Singapore*

Title of Presentation:
RF and Antennas in Medicine: WPT, on-/in-Body Antennas and Smart Non-Contact Wireless Sensing of Human Activities

PLENARY SPEAKER IV

Hsi-Tseng CHOU
Professor, *National Taiwan University*

Title of Presentation:
Sharing Various Aspects of Antenna Technologies and their Development Trends at mmW Frequencies for Smart Operation

CSRSWTC2021 TECHNOLOGY VISION KEYNOTE SPEAKERS

KEYNOTE SPEAKER I

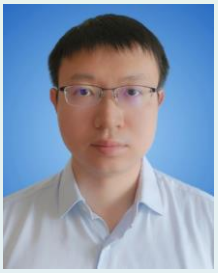
Ruixin WANG

Standard Director, *vivo Mobile Communication Co., Ltd.*

Title of Presentation:

Key Challenges and Standardization Progress of 5G OTA Testing

KEYNOTE SPEAKER II



Wenqiang TIAN

Senior Standardization Engineer, *Guangdong OPPO Mobile Telecommunications Co., Ltd.*

Title of Presentation:

6G: A New Enabler to Create an Era of Interconnection, Integration and Intelligence

KEYNOTE SPEAKER III

Kunpeng WEI

Director of Antenna, *Honor Technologies Co., Ltd.*

Title of Presentation:

Antenna Technologies and Challenges for 1+8+N Intelligent Terminals in All Scenarios

KEYNOTE SPEAKER IV

Xiaolei JIANG

Senior Antenna Design Engineer, *Xiaomi Inc.*

Title of Presentation:

UWB in Smartphone and AIoT: Opportunities and Challenges


Monday


State Key Laboratory of
Terahertz and Millimeter Waves
香港城市大學
City University of Hong Kong
胡法光運動中心
Hu Fa Kuang Sports Centre

For the latest conference and registration information visit:
www.ee.cityu.edu.hk/skltmw/csrswtc2021
or scan the QR codes below

Conference

Registration

For accommodation information visit:
www.sentosahotel.cn

Sentosa Hotel Emerald Branch, Shenzhen

2021 Cross Strait Radio Science and Wireless Technology Conference Schedule Overview (Postponed)

Conference Venue: Sentosa Hotel Emerald Branch, Shenzhen, Guangdong, China

	Time	Lobby	Emerald Hall 1A	Emerald Hall 1B	Emerald Hall 2	Emerald Hall 3A	Emerald Hall 3B	Pearl Hall	Crystal Hall
OCT 11 MON	9:00–18:00	Registration							
	18:30–20:30	Buffet Dinner (1st Floor, Dining Hall)							
October 12 TUE	8:00–8:30	Registration			Opening Session				
	8:30–9:30				Plenary Session 1				
	9:30–10:30				Plenary Session 2				
	10:30–11:00		Conference Photos & Coffee Break						
	11:00–12:00				Technology Vision Keynote Sessions (1 & 2)				
	12:00–13:30		Buffet Lunch (1st Floor, Dining Hall)						
	13:30–15:40		Tu1E: Microwave and Millimeter-Wave Measurement Techniques Chair: T. Yuan	TuSS_01: Planar Antennas With Multifunctional Performances Chairs: N.-W. Liu, Y. F. Cao	TuSS_02: New Concepts of Intelligent Metamaterial and Metasurface Chairs: G. Yang, H. Fu	TuSS_03: Electromagnetic Metamaterials and Their Applications Chairs: W. Zhu, X. Wang	TuSS_04: Antenna Design for 5G/6G Mobile Terminals Chairs: Y. Wang, L. Chang	Tu1P: Antennas Theory and Antenna Array Techniques I Chairs: Y. Liu, Y.-M. Pan, Z. H. Jiang	Tu1C: Antennas Theory and Antenna Array Techniques III Chairs: Y. Li, J. Ren
	15:40–16:00		Coffee Break						
	16:00–18:10		Tu2E: 5G/6G Wireless or Mobile Systems Chairs: L. Guo, Z. Li	TuSS_05: Advanced Multifunctional Antennas for Future Wireless Communications Chairs: C. Zhou, X. Ding	TuSS_06: Microwave Imaging System and Technology Chairs: X. Ye, K. Xu	TuSS_07: Numerical Techniques in Modern Electromagnetics Chairs: K. Wang, A. K. Rashid	TuSS_08: Advanced Power Amplifier Techniques for Modern Wireless Communications Chairs: X. Zhou, S. Chen	Tu2P: RF, Microwave, Millimeter-Wave Components and Circuits I Chairs: Y. Liu, Y.-M. Pan, Z. H. Jiang	Tu2C: RF, Microwave, Millimeter-Wave Components and Circuits III Chairs: W. S. Chan, S. Mehta
	18:30–20:30	Welcome Reception & Buffet Dinner (1st Floor, Dining Hall)							
October 13 WED	8:30–9:30	Registration			Plenary Session 3				
	9:30–10:30				Plenary Session 4				
	10:30–11:00		Coffee Break						
	11:00–12:00				Technology Vision Keynote Sessions (3 & 4)				
	12:00–13:30		Buffet Lunch (1st Floor, Dining Hall)						
	13:30–15:40		We1E: Scattering, Diffraction and Inverse Scattering Chairs: Z. X. Shen, Y. Yang	WeIF1: Interactive Forum Chair: H.-Z. Li	WeSS_01: Filtering Antennas for Compact RF Systems Chairs: P. F. Hu, Y. Liu	WeSS_02: Filtering Components/Structures Chairs: G. Zhang, F. Xiao	WeSS_03: Microwave and Millimeter-Wave Antennas for 5G and B5G Applications Chairs: L. Guo, N. Yang	We1P: Antennas Theory and Antenna Array Techniques II Chairs: Y. Liu, Y.-M. Pan, Z. H. Jiang	We1C: Antennas and RF, Microwave Components Chairs: L. Guo, S.-W. Wong
	15:40–16:00		Coffee Break						
	16:00–18:10		We2E: Internet of Things /Terahertz Sciences and Technologies Chairs: Y. Li, W. Lin	WeIF2: Interactive Forum Chair: H.-Z. Li	WeSS_04: High-Isolation Antenna and Array for 5G and Beyond Chairs: M. Li, D. Wu	WeSS_05: Terahertz Sensing and Antenna Chairs: S.-Y. Zhu, J. Huang	WeSS_06: Advanced Circuits and Systems for Next-Generation Communication Chairs: Y.-J. Guo, K.-D. Xu	We2P: RF, Microwave, Millimeter-Wave Components and Circuits II Chairs: Y. Liu, Y.-M. Pan, Z. H. Jiang	
	18:30–21:00	Closing Ceremony & Awards Banquet (Emerald Hall 2)							

2021 年海峡两岸无线科学与技术会议日程概览（延期）

	时间	大堂	翡翠一厅 A	翡翠一厅 B	翡翠二厅	翡翠三厅 A	翡翠三厅 B	珍珠厅	水晶厅
10月11日 星期一	9:00–18:00	注册							
	18:30–20:30	自助晚餐（1 楼西餐厅）							
10 月 12 日，星期二	8:00–8:30	串讲			开幕仪式				
	8:30–9:30				大会主题报告 1				
	9:30–10:30				大会主题报告 2				
	10:30–11:00		大会合影和茶歇						
	11:00–12:00				工业界前沿技术报告 1 & 2				
	12:00–13:30		自助午餐（1 楼西餐厅）						
	13:30–15:40		**Tu1E: 微波和毫米波测量技术** Chair: Tao Yuan	**TuSS_01: 多功能平面天线** Chairs: Neng-Wu Liu, Yun Fei Cao	**TuSS_02: 智能超材料和超表面新概念** Chairs: Guomin Yang, Haiyang Fu	**TuSS_03: 电磁超材料及其应用** Chairs: Weiren Zhu, Xiong Wang	**TuSS_04: 5G/6G 移动终端天线设计** Chairs: Yan Wang, Le Chang	**Tu1P: 天线理论与天线阵列技术 I** Chairs: Ying Liu, Yong-Mei Pan, Zhi Hao Jiang	**Tu1C: 天线理论与天线阵列技术 III** Chairs: Yujian Li, Jian Ren
	15:40–16:00		茶歇						
	16:00–18:10		**Tu2E: 5G/6G 无线及移动系统** Chairs: Lei Guo, Zheng Li	**TuSS_05: 未来无线通信中的先进多功能天线** Chairs: Changfei Zhou, Xumin Ding	**TuSS_06: 微波成像系统与技术** Chairs: Xiuzhu Ye, Kuiwen Xu	**TuSS_07: 现代电磁学中的数值技术** Chairs: Kai Wang, Amir Khurrum Rashid	**TuSS_08: 现代无线通信中的先进功率放大器技术** Chairs: Xinyu Zhou, Shichang Chen	**Tu2P: 射频、微波、毫米波组件与电路 I** Chairs: Ying Liu, Yong-Mei Pan, Zhi Hao Jiang	**Tu2C: 射频、微波、毫米波组件与电路 III** Chairs: Wing Shing Chan, Shilpa Mehta
	18:30–20:30	欢迎酒会和自助晚餐（1 楼西餐厅）							
10 月 13 日，星期三	8:30–9:30	串讲			大会主题报告 3				
	9:30–10:30				大会主题报告 4				
	10:30–11:00		茶歇						
	11:00–12:00				工业界前沿技术报告 3 & 4				
	12:00–13:30		自助午餐（1 楼西餐厅）						
	13:30–15:40		**We1E: 散射、衍射和逆散射** Chairs: Zhong Xiang Shen, Yu Yang	**WeIF1: 海报互动论坛** Chair: Hao-Zhan Li	**WeSS_01: 紧凑射频系统中的滤波天线** Chairs: Peng Fei Hu, Yanting Liu	**WeSS_02: 滤波组件/结构** Chairs: Gang Zhang, Fei Xiao	**WeSS_03: 5G/B5G 应用中的微波和毫米波天线** Chairs: Lei Guo, Nan Yang	**We1P: 天线理论与天线阵列技术 II** Chairs: Ying Liu, Yong-Mei Pan, Zhi Hao Jiang	**We1C: 天线与射频、微波组件** Chairs: Lu Guo, Sai-Wai Wong
	15:40–16:00		茶歇						
	16:00–18:10		**We2E: 物联网/太赫兹科学与技术** Chairs: Yang Li, Wei Lin	**WeIF2: 海报互动论坛** Chair: Hao-Zhan Li	**WeSS_04: 5G/B5G 高隔离度天线与阵列** Chairs: Min Li, Di Wu	**WeSS_05: 太赫兹传感与天线** Chairs: Shu-Yan Zhu, Jie Huang	**WeSS_06: 下一代通信中的先进电路与系统** Chairs: Ying-Jiang Guo, Kai-Da Xu	**We2P: 射频、微波、毫米波组件与电路 II** Chairs: Ying Liu, Yong-Mei Pan, Zhi Hao Jiang	
	18:30–21:00	闭幕典礼和颁奖晚宴（翡翠二厅）							

会议地址：圣淘沙酒店（翡翠店），广东深圳，中国

CSRSWTC2021 TUESDAY SESSIONS OVERVIEW

Opening Session

(All schedules apply to the GMT+8 time zone.)

Emerald Hall 2 **08:00–08:30** **Moderator:** *Zhe Chen*

Zoom Conference: ID 883 8122 5264, Password 12345678, Link us02web.zoom.us/j/88381225264?pwd=OWFOR242YzZNVC80STc0RUprUkhZQT09

Plenary Sessions

Emerald Hall 2 **08:30–10:30** **Moderator:** *Shida Zhong*

Zoom Conference: ID 883 8122 5264, Password 12345678, Link us02web.zoom.us/j/88381225264?pwd=OWFOR242YzZNVC80STc0RUprUkhZQT09

08:30–09:30 Yijun FENG Professor, *Nanjing University*

Multi-Functional Metasurfaces and Antenna Applications

09:30–10:30 Jun HU Professor, *University of Electronic Science and Technology of China*

Domain Decomposition Methods and Multi-Region Multi-Solvers for Electromagnetic Scattering

Technology Vision Keynote Sessions

Emerald Hall 2 **11:00–12:00** **Moderator:** *Shida Zhong*

Zoom Conference: ID 883 8122 5264, Password 12345678, Link us02web.zoom.us/j/88381225264?pwd=OWFOR242YzZNVC80STc0RUprUkhZQT09

11:00–11:30 Ruixin WANG Standard Director, *vivo Mobile Communication Co., Ltd.*

11:30–12:00 Wenqiang TIAN Senior Standardization Engineer, *Guangdong OPPO Mobile Telecommunications Co., Ltd.*

Technical Sessions

Emerald Hall 1A Zoom Conference: ID 880 3599 7354, Password 12345678, Link us02web.zoom.us/j/88035997354?pwd=c3I0bkJwaXlKbHdrYnY1aDhra2NXQT09

13:30–15:40 Tu1E Microwave and Millimeter-Wave Measurement Techniques **Chair:** *Tao Yuan*

16:00–18:10 Tu2E 5G/6G Wireless or Mobile Systems **Chairs:** *Lei Guo and Zheng Li*

Emerald Hall 1B Zoom Conference: ID 848 6535 3254, Password 12345678, Link us02web.zoom.us/j/84865353254?pwd=RkFnVWEwMDViWGIwREVKb0F3Z0oxdz09

13:30–15:40 TuSS_01 Planar Antennas With Multifunctional Performances **Chairs:** *Neng-Wu Liu and Yun Fei Cao*

16:00–18:10 ThSS_05 Advanced Multifunctional Antennas for Future Wireless Communications **Chairs:** *Changfei Zhou and Xumin Ding*

Emerald Hall 2 Zoom Conference: ID 833 7786 7724, Password 12345678, Link us02web.zoom.us/j/83377867724?pwd=YnBtR0wxQTFxYWdCS1VOdWFxWWp1UT09

13:30–15:40 TuSS_02 New Concepts of Intelligent Metamaterial and Metasurface **Chairs:** *Guomin Yang and Haiyang Fu*

16:00–18:10 TuSS_06 Microwave Imaging System and Technology **Chairs:** *Xiuzhu Ye and Kuiwen Xu*

Emerald Hall 3A Zoom Conference: ID 868 8865 7971, Password 12345678, Link us02web.zoom.us/j/86888657971?pwd=ZnpDVFM3Y1lhVE9tNEg1eDlqUW1rZz09

13:30–15:40 TuSS_03 Electromagnetic Metamaterials and Their Applications **Chairs:** *Weiren Zhu and Xiong Wang*

16:00–18:10 TuSS_07 Numerical Techniques in Modern Electromagnetics **Chairs:** *Kai Wang and Amir Khurrum Rashid*

Emerald Hall 3B Zoom Conference: ID 833 6380 5829, Password 12345678, Link us02web.zoom.us/j/83363805829?pwd=VERqdmEwc3RUNmR4U2paMFJvakh2QT09

13:30–15:40 TuSS_04 Antenna Design for 5G/6G Mobile Terminals **Chairs:** *Yan Wang and Le Chang*

16:00–18:10 TuSS_08 Advanced Power Amplifier Techniques for Modern Wireless Communications **Chairs:** *Xinyu Zhou and Shichang Chen*

Pearl Hall Zoom Conference: ID 897 6257 7641, Password 12345678, Link us02web.zoom.us/j/89762577641?pwd=b1h3QXFON3B0a28wVGhqOEZNNmwxQT09

13:30–15:40 Tu1P Antennas Theory and Antenna Array Techniques I **Chairs:** *Ying Liu, Yong-Mei Pan, and Zhi Hao Jiang*

16:00–18:10 Tu2P RF, Microwave, Millimeter-Wave Components and Circuits I **Chairs:** *Ying Liu, Yong-Mei Pan, and Zhi Hao Jiang*

Crystal Hall Zoom Conference: ID 874 5088 4475, Password 12345678, Link us02web.zoom.us/j/87450884475?pwd=TXVhUmlWRWV0NkErclIRLzE1SHd0QT09

13:30–15:40 Tu1C Antennas Theory and Antenna Array Techniques III **Chairs:** *Yujian Li and Jian Ren*

16:00–18:05 Tu2C RF, Microwave, Millimeter-Wave Components and Circuits III **Chairs:** *Wing Shing Chan and Shilpa Mehta*

CSRSWTC2021 WEDNESDAY SESSIONS OVERVIEW

Plenary Sessions

(All schedules apply to the GMT+8 time zone.)

Emerald Hall 2 **08:30–10:30** **Moderator:** *Shida Zhong*

Zoom Conference: ID 818 4016 5311, Password 12345678, Link us02web.zoom.us/j/81840165311?pwd=eXZwVHdPZGd4NWVzSW5MSlJiaFd4UT09

08:30–09:30 Yongxin GUO Professor, *National University of Singapore*

RF and Antennas in Medicine: WPT, on-/in-Body Antennas and Smart Non-Contact Wireless Sensing of Human Activities

09:30–10:30 Hsi-Tseng CHOU Professor, *National Taiwan University*

Sharing Various Aspects of Antenna Technologies and Their Development Trends at mmW Frequencies for Smart Operation

Technology Vision Keynote Sessions

Emerald Hall 2 **11:00–12:00** **Moderator:** *Shida Zhong*

Zoom Conference: ID 818 4016 5311, Password 12345678, Link us02web.zoom.us/j/81840165311?pwd=eXZwVHdPZGd4NWVzSW5MSlJiaFd4UT09

11:00–11:30 Kunpeng WEI Director of Antenna, *Honor Technologies Co., Ltd.*

11:30–12:00 Xiaolei JIANG Senior Antenna Design Engineer, *Xiaomi Inc.*

Technical Sessions

Emerald Hall 1A Zoom Conference: ID 897 7495 8254, Password 12345678, Link us02web.zoom.us/j/89774958254?pwd=MllGbjJ4VVBLVFBHNURMQjREM2wrUT09

13:30–15:40 We1E Scattering, Diffraction and Inverse Scattering **Chairs:** *Zhong Xiang Shen and Yu Yang*

16:00–18:10 We2E Internet of Things/Terahertz Sciences and Technologies **Chairs:** *Yang Li and Wei Lin*

Emerald Hall 1B (Onsite Session)

13:30–15:40 WeIF1 Interactive Forum **Chair:** *Hao-Zhan Li*

16:00–18:10 WeIF2 Interactive Forum **Chair:** *Hao-Zhan Li*

Emerald Hall 2 Zoom Conference: ID 867 9650 6230, Password 12345678, Link us02web.zoom.us/j/86796506230?pwd=NDVjcWFFYWhQTVpvaXhJb0pQYzFvUT09

13:30–15:40 WeSS_01 Filtering Antennas for Compact RF Systems **Chairs:** *Peng Fei Hu and Yanting Liu*

16:00–18:10 WeSS_04 High-isolation Antenna and Array for 5G and Beyond **Chairs:** *Min Li and Di Wu*

Emerald Hall 3A Zoom Conference: ID 874 3589 9482, Password 12345678, Link us02web.zoom.us/j/87435899482?pwd=bmRwUWczNnI4TnBuQU1mV1RqKzFRdz09

13:30–15:40 WeSS_02 Filtering Components/Structures **Chairs:** *Gang Zhang and Fei Xiao*

16:00–18:10 WeSS_05 Terahertz Sensing and Antenna **Chairs:** *Shu-Yan Zhu and Jie Huang*

Emerald Hall 3B Zoom Conference: ID 851 4509 6138, Password 12345678, Link us02web.zoom.us/j/85145096138?pwd=R0RvUkZOaHlJcEdWVWgwUTZ0aU1jdz09

13:30–15:40 WeSS_03 Microwave and Millimeter Wave Antennas for 5G and B5G Applications **Chairs:** *Lei Guo and Nan Yang*

16:00–18:10 WeSS_06 Advanced Circuits and Systems for Next-Generation Communication **Chairs:** *Ying-Jiang Guo and Kai-Da Xu*

Pearl Hall Zoom Conference: ID 826 3401 0282, Password 12345678, Link us02web.zoom.us/j/82634010282?pwd=WnY5bllKNHdESDA5RC96TE01MGhpQT09

13:30–15:40 We1P Antennas Theory and Antenna Array Techniques II **Chairs:** *Ying Liu, Yong-Mei Pan, and Zhi Hao Jiang*

16:00–18:10 We2P RF, Microwave, Millimeter-Wave Components and Circuits II **Chairs:** *Ying Liu, Yong-Mei Pan, and Zhi Hao Jiang*

Crystal Hall Zoom Conference: ID 836 7629 6667, Password 12345678, Link us02web.zoom.us/j/83676296667?pwd=Z21QVHlRTlhmY0pFK3ZTbWpwU05xZz09

13:30–15:40 We1C Antennas and RF, Microwave Components **Chairs:** *Lu Guo and Sai-Wai Wong*

Tuesday

CSRSWTC OPENING SESSION

08:00–08:30 | **Tuesday 12 October 2021** | **SENTOSA HOTEL EB EMERALD HALL 2**

ZOOM

ID: 883 8122 5264 | PASSWORD: 12345678

LINK: us02web.zoom.us/j/88381225264?pwd=OWFOR242YzZNVC80STc0RUprUkhZQT09

Moderator: Dr. Zhe Chen
Shenzhen University
Technical Program Committee Chair, CSRSWTC2021

08:00–08:04	*Prof.* **Weixin XIE** Director, ATR National Key Laboratory of Defense Technology, Shenzhen University
08:04–08:08	*Prof.* **Chi Hou CHAN** Director, State Key Laboratory of Terahertz and Millimeter Waves, City University of Hong Kong
08:08–08:12	*Prof.* **Kwai Man LUK** Director, Guangdong-Hong Kong Joint Laboratory for Big Data Imaging and Communication
08:12–08:16	*Prof.* **Qing-Xin CHU** Chair, CSRSWTC2021 Advisory Committee
08:16–08:20	*Dr.* **Jeff CHEN** Vice President, National Association of Investment Enterprises of Taiwan Compatriots
08:20–08:22	*Dr.* **Ka Fai CHAN** Chair, IEEE Hong Kong AP/MTT Joint Chapter
08:22-08:26	*Prof.* **Hang WONG** General Chair, CSRSWTC 2021
08:26–08:30	*Prof.* **Tao YUAN** General Chair, CSRSWTC 2021

深圳大學
SHENZHEN UNIVERSITY

CSRSWTC PLENARY SESSION 1	08:30–09:30	Tuesday 12 October 2021	SENTOSA HOTEL EB EMERALD HALL 2
ZOOM	ID: 883 8122 5264	PASSWORD: 12345678	
	LINK: us02web.zoom.us/j/88381225264?pwd=OWFOR242YzZNVC80STc0RUprUkhZQT09		

Multi-Functional Metasurfaces and Antenna Applications

CSRSWTC PLENARY SPEAKER:

Yijun Feng, Professor, *Nanjing University*

ABSTRACT: Metasurfaces, the two-dimensional version of metamaterials, have attracted unprecedented research interests due to their powerful ability of manipulating electromagnetic (EM) wavefronts and realizing many exotic physics phenomena and novel devices. Composed of arrays of artificially engineered inclusions arranged in a surface that can locally manipulate EM waves over a subwavelength thickness, metasurfaces show their great advantages of flexible phase-front control upon the traditional methods, e.g., dielectric lenses, through phase accumulations. Moreover, by elaborately designing passive or active metasurfaces, multiple EM functionalities can also be enabled through various flexible multiplexing techniques, such as polarization, spins, frequency, or even direction multiplexing, which naturally hold the advantages of low cost, low loss, and easy integration. In this presentation, I will report our recent studies on designing multi-functional metasurfaces that could control the EM waves to realize different behaviors in multi-channels. I will also show the design of programmable metasurfaces that could dynamically and independently tune the far-field scattering behaviors for two orthogonal polarizations with totally distinct functionalities. Particularly, I will showcase how these multi-functional metasurfaces or programmable metasurfaces could be applied to microwave antenna design to improve its performances such as miniaturization, easy integration, multi-beam, and dynamical beam scanning, etc. The proposed multi-functional metasurface concepts may largely enhance the information capacity of the metasurfaces, bringing new degrees of freedom in achieving versatile functionalities and offering untapped potentials for microwave antenna technology.

BIO: Yijun Feng received the Ph.D. degree from the Department of Electronic Science and Engineering, Nanjing University, in 1992. Since then he has been a faculty member and is currently a Full Professor and the Deputy Dean of the School of Electronic Science and Engineering, Nanjing University. From September 1995 to July 1996, he was a Visiting Scientist with the Physics Department, Technical University of Denmark. From August 2001 to August 2002, he was a Visiting Researcher with the University of California at Berkeley. He received the Excellent Young Teacher Program Award of Minister of Education, China, in 1999, and the Excellent Young Teacher Award of the 'Qing Lan' Project of Jiangsu Province, China, in 2003. Prof. Feng's research interests include the electromagnetic metamaterial and applications to microwave and photonic devices, electromagnetic wave theory, and novel microwave functional materials. He has conducted more than twenty scientific research projects including the National 973 and 863 Projects, the National Natural Science Foundation Projects, and the National Key Research and Development Program in China. He has received the 2010 Science and Technology Award (First Grade) of Jiangsu Province, China, and the 1995 Scientific and Technological Progress Award by Minister of Education, China. He has authored or co-authored over 180 peer-reviewed journal papers published in *Science*, *Adv. Mater.*, *Phys. Rev. Applied*, *Phys. Rev. B*, *Phys. Rev. E*, *Appl. Phys. Lett.*, *Opt. Express*, *IEEE T-AP*, *IEEE AWPL*, etc., and over 150 referred international conference papers.

CSRSWTC PLENARY SESSION 2	09:30–10:30	Tuesday 12 October 2021	SENTOSA HOTEL EB EMERALD HALL 2
ZOOM	ID: 883 8122 5264	PASSWORD: 12345678	
	LINK: us02web.zoom.us/j/88381225264?pwd=OWFOR242YzZNVC80STc0RUprUkhZQT09		

Domain Decomposition Methods and Multi-Region Multi-Solvers For Electromagnetic Scattering

CSRSWTC PLENARY SPEAKER:

Jun Hu, Professor, *University of Electronic Science and Technology of China*

ABSTRACT: With rapid development of the computer hardware, the modeling of scattering objects is no longer limited to electrically small objects. More and more questions about how to calculate the scattering of electrically large and multi-scale objects have been raised. Solving the scattering of electrically large and multi-scale objects has become a hot topic. Nonconformal domain decomposition method (DDM) is a powerful method for electromagnetic calculation of electrically large and multi-scale objects. In this report, we will introduce multi-solvers under the framework of DDM, e.g., from the multilevel fast multipole algorithm (MLFMA) for calculating complex metal structures to the integral equation-discontinuous Galerkin (IE-DG) method for electrically large-scale metal structures. The application of DDM in integral equation (IE) greatly increases the modeling flexibility of metal structures. Furthermore, the two-fold DDM formed by IE-DDM-DG combined with the finite element domain decomposition method (FEM-DDM) has great advantages when simulating complex materials and multi-scale objects. For structures where the mesh needs to be reused, the overlapping FEM-DDM-BEM has obvious advantages.

BIO: Jun Hu received the B.S., M.S., and Ph.D. degrees in electromagnetic field and microwave techniques from University of Electronic Science and Technology of China (UESTC), Chengdu, China, in 1995, 1998, and 2000, respectively. In 2001, he was a Research Assistant with the Center of Wireless Communication at City University of Hong Kong, Hong Kong. From March to August in 2010, he was a Visiting Scholar with the Electro Science Laboratory of the Department of Electrical and Computer Engineering at Ohio State University, USA. From February to March in 2011, he was a Visiting Professor with the City University of Hong Kong. He is currently a Full Professor with the School of Electronic Science and Engineering at UESTC, and has been the Vice President of the UESTC since September 2017. His current research interests include integral equation methods in computational electromagnetics, electromagnetic scattering and radiation.

Dr. Hu is an IEEE Senior Member. He served as the Chairman of the Student Activities Committee of the IEEE Chengdu Section during 2010–2016 and the Chairman of the IEEE Chengdu AP/EMC Joint Chapter during 2014–2016. Dr. Hu has authored or co-authored over 300 technical papers. He received the Best Young Scholar Paper Prize from the Chinese Radio Propagation Society in 2004 and many Best Student Paper Awards. He was awarded the National Science Fund for Distinguished Young Scholars by the National Natural Science Foundation of China in 2014, and was awarded the Chang Jiang Scholars by the Ministry of Education, China, in 2016. He was the co-recipient of the 2018 IEEE AP-S Sergei A. Schelkunoff Transaction Paper Award.

CSRSWTC	TECHNOLOGY KEYNOTE VISION SESSION 1	11:00–11:30	Tuesday 12 October 2021	SENTOSA HOTEL EB EMERALD HALL 2
ZOOM	ID: 883 8122 5264		PASSWORD: 12345678	
	LINK: us02web.zoom.us/j/88381225264?pwd=OWFOR242YzZNVC80STc0RUprUkhZQT09			

Key Challenges and Standardization Progress of 5G OTA Testing

CSRSWTC KEYNOTE SPEAKER:

Ruixin Wang, Standard Director, *vivo Mobile Communication Co., Ltd*.

ABSTRACT: With the adoption of millimeter-wave and beamforming technologies in 5G, we will face more challenges on over-the-air (OTA) test. A lot of conventional cable-conducted tests will be replaced with radiation-based tests because of unavailability of coaxial connectors working at millimeter-wave frequencies. All the millimeter-wave user equipment (UE) should be verified with OTA test methodologies to quantify the transmitter/receiver performance such as maximum output power, beam correspondence, error vector magnitude (EVM), and reference sensitivity. To address the issues in 5G OTA tests, many proposals have been made to the 3GPP RAN4 OTA projects. This presentation analyzes challenges for 5G OTA performance test and contrasts advantages and limitations of the methods being permitted (IFF/DFF/NFTF) in 3GPP for millimeter-wave UE. It first introduces the project status and development of 5G OTA test specifications in 3GPP, for both sub-6-GHz and millimeter-wave bands. The challenges and newly defined testing methods in 3GPP will be highlighted and summarized. Next, applicability and testing methods of newly defined 2D/3D multi-probe anechoic chamber (MPAC) for sub-6-GHz and millimeter-wave MIMO OTA demodulation tests will be discussed. Finally, further considerations for OTA projects in 3GPP will be presented.

BIO: Ruixin Wang received the Ph.D. degree from Beijing University of Posts and Telecommunications in 2015. He was a Vice Director of the OTA&LBS Department in China Academy of Information and Communications Technology (CAICT). He is now working as a Standard Director with vivo Mobile Communication Co., Ltd. His is leading 5G OTA testing standardization in 3GPP. He is the rapporteur of several 3GPP 5G OTA projects towards Release 15 and onwards, and is working as an Editor of several 3GPP 5G standards (TR38.810, TR38.827, TR38.884, and TS38.151). Since 2017, he has chaired many OTA Ad-Hocs for 5G. His current focus is on the development of 5G OTA testing methods, UE RF performance verification and standardization in 3GPP/CCSA/IMT-2020 (5G).

CSRSWTC	TECHNOLOGY KEYNOTE VISION SESSION 2	11:30–12:00	Tuesday 12 October 2021	SENTOSA HOTEL EB EMERALD HALL 2
ZOOM	ID: 883 8122 5264		PASSWORD: 12345678	
	LINK: us02web.zoom.us/j/88381225264?pwd=OWFOR242YzZNVC80STc0RUprUkhZQT09			

6G: A New Enabler to Create an Era of Interconnection, Integration and Intelligence

CSRSWTC KEYNOTE SPEAKER:

Wenqiang Tian, Senior Standardization Engineer, *Guangdong OPPO Mobile Telecommunications Co., Ltd*.

ABSTRACT: Evolution of mobile communication has greatly promoted social development in recent decades. From 1G to 5G, people's dependence on mobile communication is rapidly increasing. For future mobile communication systems, we envision that 6G will become a new enabler to create an era of interconnection, integration and intelligence. 5G constructs basic connection between human and things around. In the era of 6G, interconnection capabilities will be continuously improved and expanded. Meanwhile, integrated communication systems on the basis of enhanced interconnection will be established in the era of 6G to offer better user experience. With improvement in 6G connectivity and capability of integration, a historical change will happen to these objects connected by future wireless communication systems. In the past few decades, the object to be connected was information. With the development of interconnection and integration, the connected objects in the future will become the intelligence. Building an intelligent interaction and intelligent world will be a new challenge and vision for 6G.

BIO: Wenqiang Tian received the B.S. degree from Fudan University in 2010, and the Ph.D. degree from University of Chinese Academy of Sciences in 2015. He is currently a Senior Standardization Engineer at OPPO. He participated in 5G standardization and focused on the physical layer in 3GPP RAN1 R15 and R16. Since 2018, he started B5G/6G research and led internal study of the AI-empowered physical layer design for future wireless communication systems. Dr. Tian has promoted research of AI in 3GPP SA1 working group since 2019. He is also the co-rapporteur of AI-MIMO study in IMT-2020 5G AI working group. He has organized the first Wireless Communication AI Competition in 2021.

Emerald Hall 1A (13:30–15:40)

Tu1E: Microwave and Millimeter-Wave Measurement Techniques

Chair: Tao Yuan, Shenzhen University

Zoom | ID: 880 3599 7354 | PASSWORD: 12345678

LINK: us02web.zoom.us/j/88035997354?pwd=c3I0bkJwaXlKbHdrYnY1aDhra2NXQT09

13:30 **Tu1E-1: Challenges and Applicability of OTA Measurement for 5G Millimeter Wave Mobile Device *[Invited]***

Y. Liu, CAICT; X. Sun, CAICT; Y. Zhou, CAICT

13:55 **Tu1E-2: Use of CDF Functions for Evaluating GNSS Antenna Radiation Performance *[Invited]***

X. Wu, CAICT; L. Li, CAICT; X. Zhang, CAICT

14:20 **Tu1E-3: Application Researches of Flexible Printed Circuit Board With AiP Module *[Invited]***

X. Hu, Avary Holding (Shenzhen) Co., Ltd.

Emerald Hall 1B (13:30–15:40)

TuSS_01: Planar Antennas With Multifunctional Performances

Chairs: Neng-Wu Liu, Xidian University; Yun Fei Cao, South China University of Technology

Zoom | ID: 848 6535 3254 | PASSWORD: 12345678

LINK: us02web.zoom.us/j/84865353254?pwd=RkFnVWEwMDViWGIwREVKb0F3Z0oxdz09

13:30 **TuSS_01-1: Miniaturized Full-Wavelength Slot Antenna With Bent Ground Plane and Loaded Microstrip Resonators *[Invited]***

Y. Lan, South China Univ. Technol.; Y. F. Cao, South China Univ. Technol.

13:55 **TuSS_01-2: Suppression of Stopbands in Periodic Leaky-Wave Antennas *[Invited]***

J. Liu, Sun Yat-sen Univ.; S. Yin, Sun Yat-sen Univ.; S. Cai, Sun Yat-sen Univ.

14:20 **TuSS_01-3: A Wideband Compact Dual-Polarized Microstrip Patch Antenna Under Triple-Resonance**

Y.-D. Liang, Xidian Univ.; N.-W. Liu, Xidian Univ.; G. Fu, Xidian Univ.; L. Zhu, Univ. Macau

14:40 **TuSS_01-4: Compact Pattern-Diversity Patch Antenna by Using TM_{10} and TM_{20} Modes**

H. Deng, Univ. Macau; L. Zhu, Univ. Macau

15:00 **TuSS_01-5: Dual-Polarization and Wideband Metasurface With Eight OAM Beams**

H.-F. Huang, South China Univ. Technol.; S.-H. Xie, South China Univ. Technol.

15:20 **TuSS_01-6: Near-Field Spatial Shaping Based on Planar Time Reversal Mirror**

H.-F. Huang, South China Univ. Technol.; X.-L. Tang, South China Univ. Technol.

Emerald Hall 2 (13:30–15:40)

TuSS_02: New Concepts of Intelligent Metamaterial and Metasurface

Chairs: Guomin Yang, Fudan University; Haiyang Fu, Fudan University

Zoom ID: 833 7786 7724 PASSWORD: 12345678
LINK:us02web.zoom.us/j/83377867724?pwd=YnBtR0wxQTFxYWdCS1VOdWFxWWp1UT09

13:30 TuSS_02-1: A New Anti-Jamming Wireless Communication Scheme Based on Spread-Spectrum Metasurface *[Invited]*

X. Wang, Polytechnique Montréal

13:55 TuSS_02-2: A Compact Lateral Excited Gradient Refractive Index Metamaterial Unit Cell *[Invited]*

X. Ren, City Univ. Hong Kong; Q.-W. Lin, City Univ. Hong Kong; H. Wong, City Univ. Hong Kong; W. He, Shenzhen Univ.

14:20 TuSS_02-3: An OOK Wireless Communication System Based on Transmissive Digital Coding Metasurface

J. C. Ke, Southeast Univ.; Y. X. Jiang, Southeast Univ.; M. Z. Chen, Southeast Univ.; J. W. Zhang, Southeast Univ.; Q. Cheng, Southeast Univ.

14:40 TuSS_02-4: Dynamic Control of Electromagnetic Waves by 2-Bit Programmable Metasurface in Dual-Band

Y. Saifullah, Fudan Univ.; G.-M. Yang, Fudan Univ.; F. Xu, Fudan Univ.

15:00 TuSS_02-5: Perfect Control Diffraction Order Based on PGM

Y. Wang, Harbin Inst. Technol.; Y. Yuan, Harbin Inst. Technol.; Q. Wu, Harbin Inst. Technol.; S. N. Burokur, Univ. Paris Nanterre; K. Zhang, Harbin Inst. Technol.

15:20 TuSS_02-6: Grating Lobe Reduction in Sparse Arrays With a Metasurface Lens

S. Lin, Huaqiao Univ.; Y. Ge, Fuzhou Univ.; Z. Chen, Fuzhou Univ.

Emerald Hall 3A (13:30–15:40)

TuSS_03: Electromagnetic Metamaterials and Their Applications

Chairs: Weiren Zhu, Shanghai Jiao Tong University; Xiong Wang, ShanghaiTech University

Zoom ID: 868 8865 7971 PASSWORD: 12345678
LINK:us02web.zoom.us/j/86888657971?pwd=ZnpDVFM3Y1IhVE9tNEg1eDlqUW1rZz09

13:30 TuSS_03-1: Analysis of Topological Slow-Light by a Tailored Transfer-Matrix Method *[Invited]*

Y.-X. Sha, Peking Univ.; M.-Y. Xia, Peking Univ.

13:55 TuSS_03-2: Decoupling Control of Orthogonally-Polarized Waves via Dual-Programmable Metasurfaces

X. G. Zhang, Southeast Univ.; Y. L. Sun, Southeast Univ.; W.-X. Jiang, Southeast Univ.

14:15 TuSS_03-3: A Low-Profile Omnidirectional Ultra-Wideband Planar Monopole Antenna Based on Highly Conductive Graphene Film

W. Li, Xidian Univ.; W. Luo, Wuhan Zhongyuan Electron. Group Co., Ltd.; W. Su, CAST (Xi'an); J. Liu, Xidian Univ.; B. Wu, Xidian Univ.

14:35 TuSS_03-4: An Ultra-Thin Reconfigurable Polarization Converter Based on an Active Metasurface

X. Ma, Xidian Univ.; Y. Lin, Xidian Univ.; T. Wang, Xidian Univ.; G. Liu, Xidian Univ.; J. Han, Xidian Univ.; L. Li, Xidian Univ.

14:55 TuSS_03-5: High Temperature Resistant Ultra-Wideband Rasorber Using Low Loss Insulate Tile and Double Lossy Frequency Selective Surface

S. Leung, Nanjing Univ.; C. Liang, Nanjing Univ.; Y. Wang, Nanjing Univ.; M. Zhou, Gen. Design Inst. Hubei Aerospace Technol. Res. Inst.; F. Li, Nanjing Univ.; Y. Poo, Nanjing Univ.

15:15 TuSS_03-6: Design of Energy Selective Surface With Ultra-Wide Protection Band

W. Gong, Shanxi Univ.; W. Zhang, Shanxi Univ.

Emerald Hall 3B (13:30–15:40)

TuSS_04: Antenna Design for 5G/6G Mobile Terminals

Chairs: Yan Wang, Fudan University; Le Chang, Xi'an Jiaotong University

Zoom ID: 833 6380 5829 PASSWORD: 12345678
LINK:us02web.zoom.us/j/83363805829?pwd=VERqdmEwc3RUNmR4U2paMFJvakh2QT09

13:30 TuSS_04-1: A Decoupling Method for E-Plane Coupled Millimeter-Wave MIMO Dielectric Resonator Antennas *[Invited]*

X.-J. Wu, Shenzhen Univ.; Z. Chen, Shenzhen Univ.; T. Yuan, Shenzhen Univ.; S.-Z. Liu, CSDDC

13:55 TuSS_04-2: A Multi-Band Antenna in Terminal Device by Machine-Learning Design *[Invited]*

Y. Pan, Huawei Technologies Co. Ltd.; Y. Fang, Huawei Technologies Co. Ltd.; Y. He, Huawei Technologies Co. Ltd.; J. Zhou, Huawei Technologies Co. Ltd.; H. Li, Huawei Technologies Co. Ltd.; Y. Jin, Huawei Technologies Co. Ltd.

14:20 TuSS_04-3: Opportunities and Challenges of Antenna Design for Future 5G Mobile Terminals

S. Wang, vivo Mobile Commun. Co., Ltd.; R. Li, vivo Mobile Commun. Co., Ltd.; Y. Han, vivo Mobile Commun. Co., Ltd.; M. Yao, vivo Mobile Commun. Co., Ltd.

14:40 TuSS_04-4: One Way to Realize Decoupled MIMO Antenna on Shared Aperture for 5G Mobile Phone

S. Li, OPPO Guangdong Mobile Telecom. Co., Ltd.; Z. Wang, OPPO Guangdong Mobile Telecom. Co., Ltd.

15:00 TuSS_04-5: A Four-Element 5G MIMO Antenna Design for Mobile Terminals Using Self-Curing Decoupling Technique

J. Sui, Sun Yat-sen Univ.; X. Fang, Sun Yat-sen Univ.; Z. Luo, Sun Yat-sen Univ.

15:20 TuSS_04-6: MIMO Antenna With Decoupled Antenna Pairs for 5G Mobile Terminals

S.-M. Liao, Shenzhen Sunway Commun. Co., Ltd.

Pearl Hall (13:30–15:40)

Tu1P: Antennas Theory and Antenna Array Techniques I

Chairs: Ying Liu, Xidian University; Yong-Mei Pan, South China University of Technology; Zhi Hao Jiang, Southeast University

Zoom ID: 897 6257 7641 PASSWORD: 12345678
LINK:us02web.zoom.us/j/89762577641?pwd=b1h3QXFON3B0a28wVGhqOEZNNmwxQT09

13:30 Tu1P-1: The Design and Verification of a Hierarchical Wideband Beamforming System for SKA MFAA

L. Jiang, KLAASA; R. Cao, KLAASA; X. Tao, KLAASA; Z. Li, KLAASA; G. Peng, KLAASA; Y. Zhang, KLAASA

13:50 Tu1P-2: Dual-Mode Circularly Polarized Radiations on a Thin Dielectric by Surface Wave Manipulation

B. Wang, City Univ. Hong Kong; Y. To, City Univ. Hong Kong; H. Wong, City Univ. Hong Kong

14:10 Tu1P-3: A Broadside Integrated Microwave/ Millimeter-Wave Shared-Aperture Antenna

X.-H. Ding, Nantong Univ.; W.-W. Yang, Nantong Univ.; L. Guo, Dalian Univ. Technol.; W. Qin, Nantong Univ.; J.-X. Chen, Nantong Univ.

14:30 Tu1P-4: A 1-Bit Ultra-Wideband Frequency-Scanning Planar Array Antenna

Q. Wang, Southeast Univ.; W. X. Jiang, Southeast Univ.

14:50 Tu1P-5: A New Method for Side Lobe Suppression is Coined

X. Dai, City Univ. Hong Kong; K. M. Luk, City Univ. Hong Kong

15:10 Tu1P-6: Integrated Sub-6 GHz MIMO Antenna and Millimeter-Wave Antenna Array With Shared Radiator

X.-T. Yuan, Shenzhen Univ.; Z. Chen, Shenzhen Univ.

Crystal Hall (13:30–15:40)

Tu1C: Antennas Theory and Antenna Array Techniques III

Chairs: Yujian Li, Beijing Jiaotong University; Jian Ren, Xidian University

Zoom ID: 874 5088 4475 PASSWORD: 12345678

LINK: us02web.zoom.us/j/87450884475?pwd=TXVhUmlWRWV0NkErclIRLzE1SHd0QT09

13:30 **Tu1C-1: Spoof Surface Plasmon Polaritons-Fed Dual Polarized Patch Antenna Array *[Invited]***

D. Cao, Beijing Jiaotong Univ.; Y. Li, Beijing Jiaotong Univ.; J. Wang, Beijing Jiaotong Univ.

13:55 **Tu1C-2: A Broadband Circularly Polarized Planar Monopole Filter-Antenna With Novel GND-Plane Structure *[Invited]***

J. Wang, Commun. Univ. China; L. Chen, CAICT; Q. Zhang, CAICT; X. An, CAICT

14:20 **Tu1C-3: Equivalent Magnetic Currents Controlling of LP Patch Antennas for Multi-Mode Multifunctional Performance**

N.-W. Liu, Xidian Univ.; L. Zhu, Univ. Macau

14:40 **Tu1C-4: A 1-Bit Reconfigurable Antenna in Ku-Band**

X. Li, Southeast Univ.; Z. H. Wu, Southeast Univ.; Q. Cheng, Southeast Univ.

15:00 **Tu1C-5: Co-Aperture Dual Frequency Circularly Polarized GPS Antenna Array**

T. Yin, Xidian Univ.; J. Ren, Xidian Univ.; J. Hao, Xidian Univ.; Y. Yin, Xidian Univ.

15:20 **Tu1C-6: Multi-Beam Antenna Based on Square Ring Slot and Metasurface**

Z. Zhao, Shanxi Univ.; W. Zhang, Shanxi Univ.

Emerald Hall 1A (16:00–18:10)

Tu2E: 5G/6G Wireless or Mobile Systems

Chairs: Lei Guo, Dalian University of Technology; Zheng Li, Beijing Jiaotong University

Zoom | ID: 880 3599 7354 | PASSWORD: 12345678

LINK: us02web.zoom.us/j/88035997354?pwd=c3I0bkJwaXlKbHdrYnY1aDhra2NXQT09

16:00 **Tu2E-1: Electrically Leaky-Wave Antenna With Fixed-Frequency Beam-Scanning Property *[Invited]***

Z. Li, Beijing Jiaotong Univ.; B. Wei, Beijing Jiaotong Univ.; S. Wang, Beijing Jiaotong Univ.; S. Liu, Beijing Jiaotong Univ.; J. Wang, Beijing Jiaotong Univ.

16:25 **Tu2E-2: Design of Compact Tri-Band MIMO Antenna Using Decoupling Structures for 5G Mobile Terminals *[Invited]***

J. Luo, Commun. Univ. China; P. Wang, CAICT; X. Chen, CAICT

16:50 **Tu2E-3: A Dual-Channel Energy Harvesting SOLANT Module for RF and Optical Energy Harvesting**

Z. Zhao, Hohai Univ.; J. Yu, Hohai Univ.; X. Zhu, Nanjing Univ. Inf. Sci. Technol.

17:10 **Tu2E-4: Design of Water Patch Antennas**

J. Sun, City Univ. Hong Kong; K. M. Luk, City Univ. Hong Kong

17:30 **Tu2E-5: Modeling and Design of Dual-Band Rectenna for 5G-IoT Applications**

X. Li, Dalian Univ. Technol.; W. Yang, Nantong Univ.; L. Guo, Dalian Univ. Technol.

17:50 **Tu2E-6: Bidirectional Dielectric Resonator Antenna With Two Reflectors**

S. A. A. Alghurbani, Tianjin Univ. Technol. Edu.; L. Y. Feng, Tianjin Univ. Technol. Edu.; M. Wang, Innetech (Tianjin) Electron. Co., Ltd.; M. J. Adamu, Tianjin Univ.; W. S. Ji, Tianjin Univ. Technol. Edu.

Emerald Hall 1B (16:00–18:10)

TuSS_05: Advanced Multifunctional Antennas for Future Wireless Communications

Chairs: Changfei Zhou, Dalian University of Technology; Xumin Ding, Harbin Institute of Technology

Zoom | ID: 848 6535 3254 | PASSWORD: 12345678

LINK: us02web.zoom.us/j/84865353254?pwd=RkFnVWEwMDViWGlwREVKb0F3Z0oxdz09

16:00 **TuSS_05-1: An Electrically Tunable Leaky-Wave Antenna Based on Slotted Metagratings Using Liquid Crystal *[Invited]***

O. H. R. Al Soad, Harbin Inst. Technol.; C. Zhou, Dalian Univ. Technol.; J. Fu, Harbin Inst. Technol.; Q. Wu, Harbin Inst. Technol.

16:25 **TuSS_05-2: A Differentially-Fed High-Gain Tri-Band Hybrid Antenna for 2.4/3.5/5.2 GHz *[Invited]***

C. F. Zhou, Dalian Univ. Technol.

16:50 **TuSS_05-3: A Microstrip Antenna for UWB Applications**

M. Wang, Jimei Univ.; J. Xiao, Jimei Univ.; T. Ding, Jimei Univ.

17:10 **TuSS_05-4: Miniaturized Dual-Frequency Directional Antenna Suitable for Radio Frequency Identification**

J. Guo, Jimei Univ.; C.-Z. Han, Jimei Univ.; L. Zhang, Jimei Univ.; T.-Y. Ding, Jimei Univ.

17:30 **TuSS_05-5: Anisotropic Coding Metasurface for Vortex Beam Generator Application**

L. Zhang, Jimei Univ.; C. Zhou, Jimei Univ.; T. Ding, Jimei Univ.

17:50 **TuSS_05-6: A Reconfigurable Omnidirectional Circularly Polarized Antenna**

M. Chen, Nanjing Univ. Inf. Sci. Technol.; J. Huang, Nanjing Univ. Inf. Sci. Technol.; H. Sun, Nanjing Univ. Inf. Sci. Technol.; X. Zhu, Nanjing Univ. Inf. Sci. Technol.

Emerald Hall 2 (16:00–18:10)

TuSS_06: Microwave Imaging System and Technology

Chairs: Xiuzhu Ye, Beijing Institute of Technology; Kuiwen Xu, Hangzhou Dianzi University

Zoom | ID: 833 7786 7724 | PASSWORD: 12345678

LINK:us02web.zoom.us/j/83377867724?pwd=YnBtR0wxQTFxYWdCS1VOdWFxWWp1UT09

16:00 **TuSS_06-1: Learning Approach to Inverse Scattering Problem for Anisotropic Scatterer Imaging *[Invited]***

X. Ye, Beijing Inst. Technol.; D. Yang, Beihang Univ.

16:25 **TuSS_06-2: Machine-Learning-Based Microwave-Induced Thermoacoustic Tomography for Brain Hemorrhage Detection *[Invited]***

X. Wang, ShanghaiTech Univ.

16:45 **TuSS_06-3: A Resonant Microwave Sensor for Non-Destructive Testing of Damages in Dielectrics**

X. He, Northwestern Polytechnical Univ.; J. Hao, Northwestern Polytechnical Univ.; B. Lv, Northwestern Polytechnical Univ.; C. Li, Northwestern Polytechnical Univ.; Y. Du, R&D Inst. Northwestern Polytechnical Univ. Shenzhen; G. Tian, Newcastle Univ.

17:05 **TuSS_06-4: Design of 180°-Scanning Leaky-Wave Antenna at Sub-6 GHz Band**

Y. Wei, Southern Univ. Sci. Technol.; Q. Zhang, Southern Univ. Sci. Technol.

17:25 **TuSS_06-5: Design of Millimeter-Wave MIMO Endfire Antenna Array for 5G Communication**

Z. Ruan, Southern Univ. Sci. Technol.; Q. Zhang, Southern Univ. Sci. Technol.

Emerald Hall 3A (16:00–18:10)

TuSS_07: Numerical Techniques in Modern Electromagnetics

Chairs: Kai Wang, Peng Cheng Laboratory; Amir Khurrum Rashid, Southern University of Science and Technology

Zoom | ID: 868 8865 7971 | PASSWORD: 12345678

LINK: us02web.zoom.us/j/86888657971?pwd=ZnpDVFM3Y1lhVE9tNEg1eDlqUW1rZz09

16:00 **TuSS_07-1: Finite Thickness Incorporated GSTC for Characterizing Zero-Thickness Metasurfaces *[Invited]***

K. Wang, Peng Cheng Lab.; Q. Zhang, Peng Cheng Lab.; Q. Zhang, Peng Cheng Lab.

16:25 **TuSS_07-2: An Efficient Spectral Domain Method of Moments for Electrically Large Planar Circuits *[Invited]***

A. K. Rashid, Southern Univ. Sci. Technol.; Q. Zhang, Southern Univ. Sci. Technol.; K. Wang, Southern Univ. Sci. Technol.

16:45 **TuSS_07-3: Modes Analysis of 2D Waveguides in Terms of SE Using the MFCM**

K. Wang, SIAT; F.-Q. Yu, SIAT; A. K. Rashid, Southern Univ. Sci. Technol.; Q. Zhang, Southern Univ. Sci. Technol.; Q.-Y. Zhang, Peng Cheng Lab.

17:05 **TuSS_07-4: Transmission Line Coupling Analysis Using FDTD Algorithm and MTL Model**

J. Li, Beijing Jiaotong Univ.; Y. Wang, Beijing Jiaotong Univ.; X. Jia, Beijing Jiaotong Univ.

17:25 **TuSS_07-5: A Hybrid Fast Hankel Transform Algorithm for Electromagnetic Simulation of Multilayer Medium Problem**

M. Fan, Hangzhou Dianzi Univ.; P. Zhao, Hangzhou Dianzi Univ., Faraday Dyn., Ltd.; Z. Zhao, Hangzhou Dianzi Univ., Faraday Dyn., Ltd.; B. Yuan, Hangzhou Dianzi Univ., Faraday Dyn., Ltd.; G. Wang, Hangzhou Dianzi Univ., Faraday Dyn., Ltd.

17:45

TuSS_06-6: Scalable Cascaded Convolutional Neural Networks for Solving Inverse Scattering Problems

C. Zhang, Hangzhou Dianzi Univ.; K. Xu, Hangzhou Dianzi Univ.; R. Song, Hefei Univ. Technol.

Emerald Hall 3B (16:00–18:10)

TuSS_08: Advanced Power Amplifier Techniques for Modern Wireless Communications

Chairs: Xinyu Zhou, Princeton University; Shichang Chen, Hangzhou Dianzi University

Zoom | ID: 833 6380 5829 | PASSWORD: 12345678

LINK:us02web.zoom.us/j/83363805829?pwd=VERqdmEwc3RUNmR4U2paMFJvakh2QT09

16:00 TuSS_08-1: Class-F Power Amplifier With Dual-Mode Filtering Response *[Invited]*

L. Zhou, City Univ. Hong Kong; X. Zhou, Princeton Univ.; Z. X. Yang, City Univ. Hong Kong; W. S. Chan, City Univ. Hong Kong

16:25 TuSS_08-2: Design of Harmonic Tuned Dual-Band Generalized High-Efficiency Parallel-Circuit Class-E/F_3 Power Amplifier *[Invited]*

Z. X. Yang, City Univ. Hong Kong; W. S. Chan, City Univ. Hong Kong; L. H. Zhou, City Univ. Hong Kong

16:50 TuSS_08-3: A New Method to Design Highly Efficient C-Band Harmonic-Tuned Power Amplifiers

J. Shi, Sun Yat-sen Univ.; X. Fang, Sun Yat-sen Univ.; X. Zhou, Princeton Univ.

17:10 TuSS_08-4: A Highly Efficient Doherty Power Amplifier Based on Harmonic-Tuned Technique for 5G Application

W. Dong, Jiangsu Univ.; W. Kong, Jiangsu Univ.; J. Xia, Jiangsu Univ.

Pearl Hall (16:00–18:10)

Tu2P: RF, Microwave, Millimeter-Wave Components and Circuits I

Chairs: Ying Liu, Xidian University; Yong-Mei Pan, South China University of Technology; Zhi Hao Jiang, Southeast University

Zoom | ID: 897 6257 7641 | PASSWORD: 12345678

LINK:us02web.zoom.us/j/89762577641?pwd=b1h3QXFON3B0a28wVGhqOEZNNmwxQT09

16:00 Tu2P-1: Optimized Design of Ni/GaN Schottky Barrier IMPATT Diode With n-Type GaN Deep Level Defects

X.-Y. Zhang, Xidian Univ.; H. Lei, Shanghai Inst. Space Power-Sources; L. Du, Shanghai PMT Res. Inst.; S. Ji, Shanghai PMT Res. Inst.; X. Li, Shanghai PMT Res. Inst.; Y. Li, Xidian Univ.; L.-A. Yang, Xidian Univ.; Y. Hao, Xidian Univ.

16:20 Tu2P-2: Quantitative Study of Near-Field Microwave Microscopy: Application to Metrology of Dielectrics at Nanoscale

W. Guo, National Inst. Metrology; H. Xu, National Inst. Metrology; W. Liang, National Inst. Metrology; Q. Gao, National Inst. Metrology

16:40 Tu2P-3: Design of Generative Simulator System Based on Broadband Carrier

R. Zhang, Beijing Inst. SLMV; Q. Li, Beijing Inst. SLMV; M. Song, Beijing Inst. SLMV; J. Cao, Beijing Inst. SLMV; G. Liu, Beijing Inst. SLMV; R. Xue, Beijing Inst. SLMV

17:00 Tu2P-4: Hierarchical Basis Function Based DGTD Method With Conformal PML to Analyze Electromagnetic Scattering Problem

C. Li, Beihang Univ.; Q. Ren, Beihang Univ.; X. Wei, Xi'an Univ. Sci. Technol.; R. Huang, Xi'an Univ. Sci. Technol.; Y. Zhou, Xi'an Univ. Sci. Technol.

17:30

TuSS_08-5: A Bandwidth Enhanced Outphasing Power Amplifier

S. Li, Hangzhou Dianzi Univ.; S. Chen, Hangzhou Dianzi Univ.; J. Cai, Hangzhou Dianzi Univ.; X. Zhou, Princeton Univ.; G. Wang, Hangzhou Dianzi Univ.; T. Liu, Ningbo Univ.

17:20

Tu2P-5: Human Behavior Recognition Based on BP Neural Network

H. Liu, Chengdu Technological Univ.; L. Tu, Inf. Commun. Co. (Big Data Center), State Grid Yueyang Power Supply Co.; T. Chen, Chengdu Technological Univ.; C. Xie, Chengdu Technological Univ.; J. Xiao, Chengdu Technological Univ.; Y. Chen, Chengdu Technological Univ.

17:50

TuSS_08-6: Design of W-Band SiGe BiCMOS Balanced Power Amplifier

Y. Xu, No.38 Res. Inst. CETC; Z. Li, No.38 Res. Inst. CETC; G. Peng, No.38 Res. Inst. CETC; X. Tao, No.38 Res. Inst. CETC; Y. Zhang, No.38 Res. Inst. CETC; R. Cao, No.38 Res. Inst. CETC

17:40

Tu2P-6: Wrist Pulse Wave Velocity Measurement Based on Dual Complementary Split Ring Resonator Pairs

Y. Li, Dalian Univ. Technol.; C.-S. Lee, Dalian Univ. Technol.; Y. Ding, Dalian Univ. Technol.; C.-X. Jiang, Dalian Univ. Technol.; B. Zhang, Dalian Univ. Technol.; Z.-Q. Wang, Dalian Univ. Technol.

Crystal Hall (16:00–18:05)

Tu2C: RF, Microwave, Millimeter-Wave Components and Circuits III

Chairs: Wing Shing Chan, City University of Hong Kong; Shilpa Mehta, Auckland University of Technology

Zoom | ID: 874 5088 4475 | PASSWORD: 12345678

LINK: us02web.zoom.us/j/87450884475?pwd=TXVhUmlWRWV0NkErclIRLzE1SHd0QT09

16:00 **Tu2C-1: Integration Method of Millimeter Wave Chip Cavity Passive Components Based on Metal Assisted Chemical Etching *[Invited]***

W. Huang, Hefei Univ. Technol.; Y. Sun, Hefei Univ. Technol.; X. Luo, Hefei Univ. Technol.; M. Kraman, UIUC; L. Sang, Hefei Univ. Technol.; X. Chen, CAICT

16:25 **Tu2C-2: A Wideband 3 × 3 Nolen Matrix With Flat Phase Differences**

Y. Yang, City Univ. Hong Kong; Y. F. Pan, City Univ. Hong Kong; W. S. Chan, City Univ. Hong Kong; Z. X. Yang, City Univ. Hong Kong; S. Y. Zheng, Sun Yat-sen Univ.

16:45 **Tu2C-3: Design and Realization of a Ku-Band High Performance Frequency Synthesizer for Radar System**

H. Yin, Mar. Electron. Instr. Inst.; J. Li, Mar. Electron. Instr. Inst.; X. Chen, Mar. Electron. Instr. Inst.

17:05 **Tu2C-4: Optimal Design of a High Power Coaxial Microstrip Transition Structure**

H. Yin, Mar. Electron. Instr. Inst.; L. Li, Mar. Electron. Instr. Inst.; F. Guan, Mar. Electron. Instr. Inst.

17:25 **Tu2C-5: Design of an X-Band Filter Limiting RF Receiver Front-End With Withstanding 250W Pulse Power**

L. Li, Mar. Electron. Instr. Inst.; K. Chen, Mar. Electron. Instr. Inst.; H. Yin, Mar. Electron. Instr. Inst.; F. Guan, Mar. Electron. Instr. Inst.; D. Ni, Mar. Electron. Instr. Inst.

17:45 **Tu2C-6: A High Linearity Reconfigurable Mixer for Software-Defined Radios**

S. Mehta, Auckland Univ. Technol.; X. J. Li, Auckland Univ. Technol.

Moderator: Prof. Tao Yuan
Shenzhen University
General Chair, CSRSWTC2021

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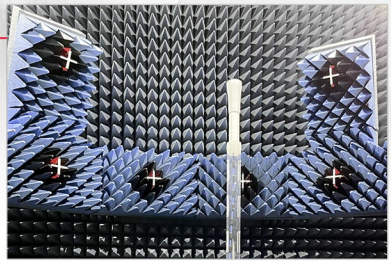

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*"Yuheng System": China Mobile 5G FR1 MIMO Test System.

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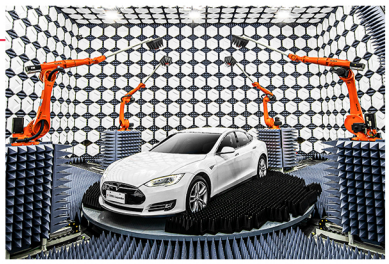

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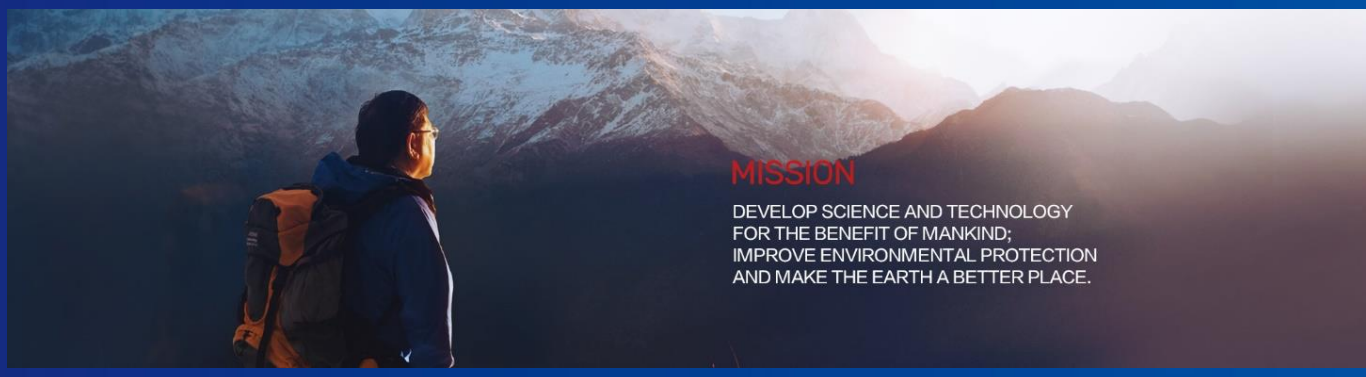

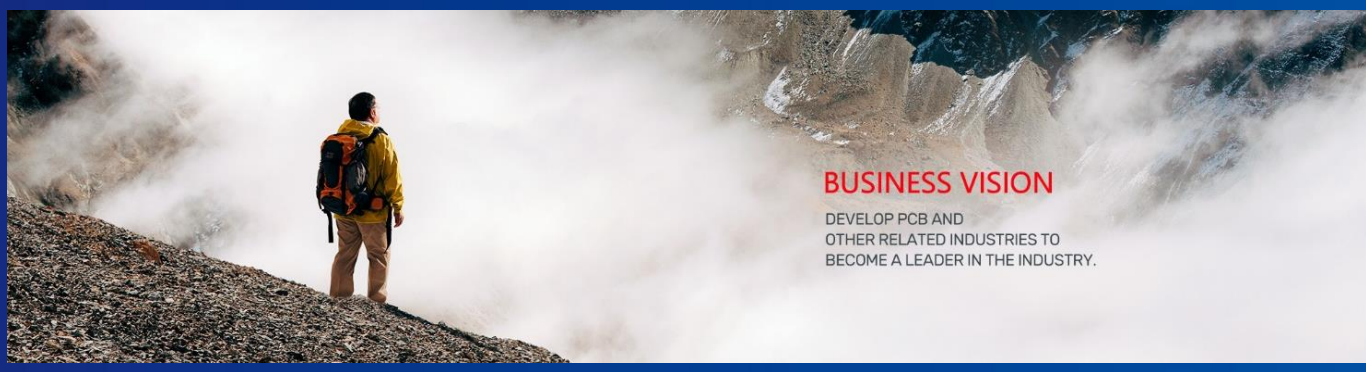

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CSRSWTC PLENARY SESSION 3	08:30–09:30	Wednesday 13 October 2021	SENTOSA HOTEL EB EMERALD HALL 2
ZOOM	ID: 818 4016 5311	PASSWORD: 12345678	
	LINK: us02web.zoom.us/j/81840165311?pwd=eXZwVHdPZGd4NWVzSW5MSlJiaFd4UT09		

RF and Antennas in Medicine: WPT, on-/in-Body Antennas and Smart Non-Contact Wireless Sensing of Human Activities

CSRSWTC PLENARY SPEAKER:

Yongxin Guo, Professor, *National University of Singapore*

ABSTRACT: RF and Antennas in medicine have received a lot of attention recently. Numerous applications in medical diagnostics and therapeutics ranging from cardiac pacemakers to emerging devices in visual prosthesis, brain computer interfaces and body area networks have spurred electronic engineers to propose new wireless medical devices. In the meantime, the aging population poses many challenges to healthcare systems, especially on chronic illness monitoring and management. Non-contact life activity detection methods can improve the user experience and realize long-term monitoring, and the pandemic of COVID-19 also raises the demand for non-contact wireless solutions. In this talk, I would mainly cover our recent research progress on wearable/implantable antennas, wireless power, smart non-contact wireless sensing of life activities for biomedical applications.

BIO: Dr. Yongxin Guo is currently a Full Professor at the Department of Electrical and Computer Engineering, National University of Singapore (NUS). Concurrently, He is the Director of the Center for Peak of Excellence on Smart Medical Technology at NUS Suzhou Research Institute (NUSRI-Suzhou) and the Co-Director of the Center for Information Engineering and Artificial Intelligence, National University of Singapore Chongqing Research Institute (NUSRI-CQ). He has authored or co-authored over 490 international journal and conference papers and 4 book chapters. He holds over 40 granted/filed patents in USA, China and Singapore. His current research interests include RF sensing, antennas and electromagnetics in medicine, wireless power for biomedical applications and internet of things, wideband and small antennas for wireless communications, and RF/microwave circuits and MMIC modelling/design. He has graduated 17 PhD students at NUS.

Dr. Guo is an IEEE Fellow. He was the recipient of the 2020 IEEE Microwave and Wireless Components Letters Tatsuo Itoh Prize of the IEEE Microwave Theory and Techniques Society (MTT-S). He is serving as the Editor-in-Chief of IEEE Journal of Electromagnetics, RF and Microwave in Medicine and Biology (2020–2023). He served in the IEEE Fellow Evaluation Committee for IEEE Engineering in Medicine and Biology Society (2019–2020). He was the Chair of the IEEE AP-S Technical Committee on Antenna Measurement in 2018–2020. He served as the Associate Editor of IEEE Antennas and Propagation Magazine (2018–2020), IEEE Journal of Electromagnetics, RF and Microwave in Medicine and Biology (2017–2020), Electronics Letters (2015–2019), IEEE Antennas and Wireless Propagation Letters (2013–2018), and IET Microwaves, Antennas & Propagation (2014–2017). He has served as the General Chair/Co-Chair for a number of international conferences including IEEE MTT-S IMBioC 2022, MTT-S IMWS-AMP 2020, APMC 2019, AWPT 2017, ACES-China 2017, IEEE MTT-S IMWS-AMP 2015, and IEEE MTT-S IMWS-Bio 2013. He has served as the Technical Program Committee (TPC) Co-Chair for IEEE MTT-S IMBioC 2020, IMWS-AMP 2017/2019, and RFIT2009.

CSRSWTC PLENARY SESSION 4	09:30–10:30	Wednesday 13 October 2021	SENTOSA HOTEL EB EMERALD HALL 2
ZOOM	ID: 818 4016 5311	PASSWORD: 12345678	
	LINK: us02web.zoom.us/j/81840165311?pwd=eXZwVHdPZGd4NWVzSW5MSlJiaFd4UT09		

Sharing Various Aspects of Antenna Technologies and their Development Trends at mmW Frequencies for Smart Operation

CSRSWTC PLENARY SPEAKER:

Hsi-Tseng Chou, Professor, *National Taiwan University*

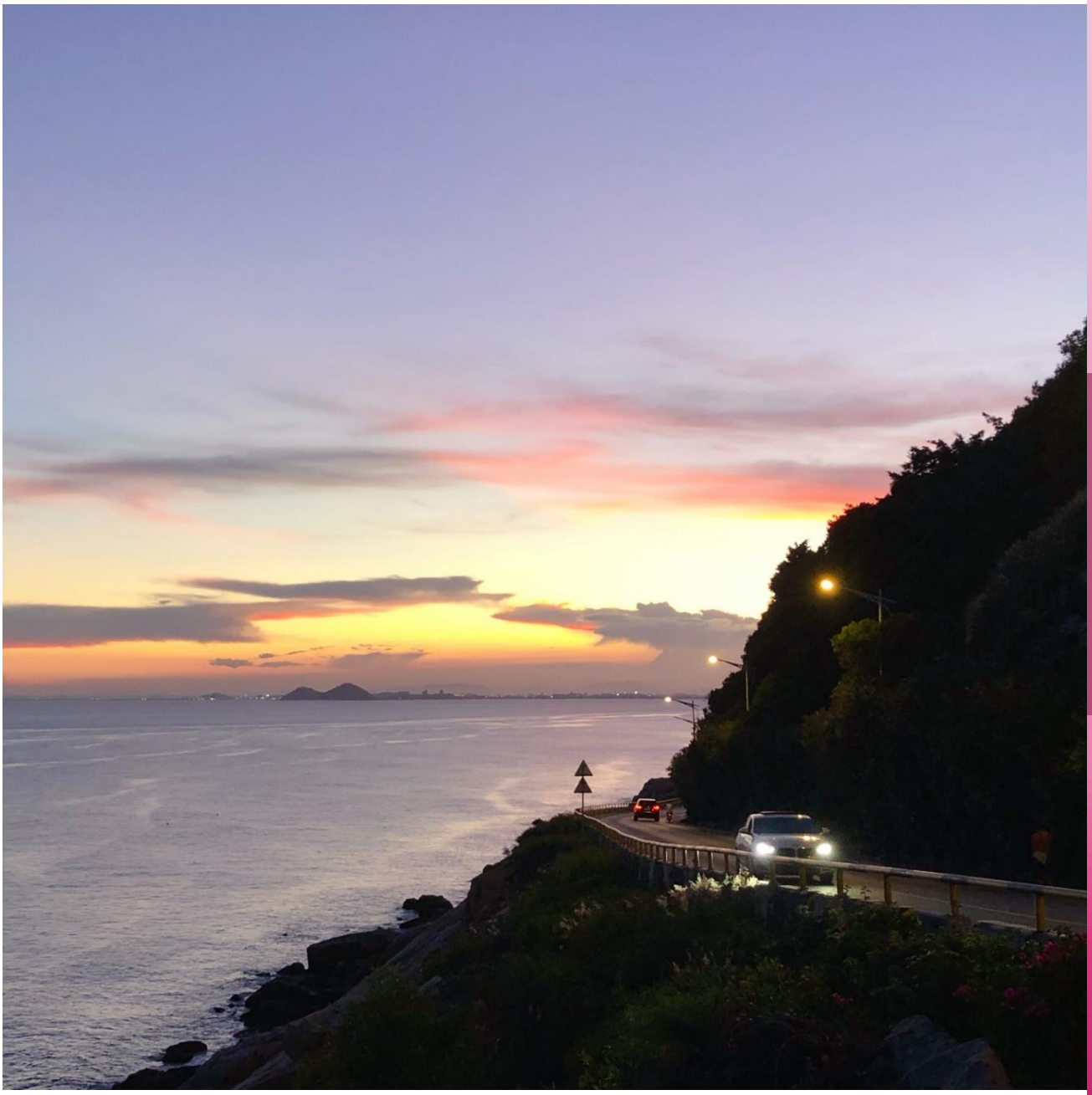
ABSTRACT: Millimeter-wave (mmW) frequencies will become the major frequency bands for the next generations of mobile communications. Its short wavelengths and high propagation loss behaviors make the antenna implementation very challenging. In these cases, antenna arrays will compensate for these losses and perform the beam steering, where antenna-in-package (AiP) and antenna-in-module (AiM) expect to receive much attention. These AiP and AiM will accommodate many features to integrate the RF devices and antenna architectures. A variety of considerations should be taken into account in practical design. With the increase in frequencies, various antenna technologies should be developed to make the AiPs and AiMs effective in their functionality. In this presentation, the author will share some considerations in the antenna realizations for various fabrication processes. The development trend of integrating the module with the RF devices will be discussed based on the author's past experiences. The goal of this presentation is to share the experiences and gain various opinions on every aspect of antenna realization.

BIO: Hsi-Tseng Chou received the B.S. degree in electrical engineering from National Taiwan University in 1988, the M.S. and the Ph.D. degrees in electrical engineering from the Ohio State University (OSU) in 1993 and 1996, respectively. He is currently appointed as a Distinguished Professor with the Graduate Institute of Communication Engineering and Department of Electrical Engineering, National Taiwan University, Taiwan.

Dr. Chou joined the ElectroScience Laboratory (ESL) in OSU as a graduate research associate in 1991–1996 and as a post-doctoral researcher in 1996–1998. He has been technical consultants to 11 industrial companies. In the career, he has a history of technical research collaborations with more than 50 industrial companies and research institutes in terms of project funding. He has helped to cultivate two Taiwanese companies to build the antenna capability in DTV ODU and mobile communication BTS applications from their startup stages for the new business, and these two companies have become world-class known in the area of communications. He has also funded a startup company in the antenna system performing production line testing and calibration. His research interests include wireless communication network, electrically large antenna design, antenna-in-package, antenna measurement, electromagnetic scattering, and asymptotic high frequency techniques such as uniform geometrical theory of diffraction (UTD), novel Gaussian beam techniques, and UTD type solution for periodic structures.

Dr. Chou has received numerous awards to recognize his distinguished contributions in the technological developments. Some important ones include Distinguished Contribution Award in promoting inter-academic and industrial cooperation from the Ministry of Education, Distinguished Engineering Professor Award from the Chinese Institute of Engineers, Distinguished Electrical Engineering Professor Award from

the Chinese Institute of Electrical Engineering, and University's Industrial Economics Contribution Award (2008), National Industrial Innovation Awards—Key Technology Elite Award (2011), and Industrial-Academia Collaboration Award (2017), all from the Ministry of Economics. His work in active antenna calibration was awarded with Future Technology Award in 2020 by the Ministry of Science and Technology (MOST), Taiwan. The industrial-academia consortium run by his team was selected among the best consortium by MOST in 2020. He was elected in 2004 as one of the Nation's Ten Outstanding Young Persons by Junior Chamber International, in 2005 a National Young Person Medal from China Youth Corps of Taiwan, and as one of the Top 10 Rising Stars in Taiwan by Central News Agency of Taiwan. He has served as the Chair of the IEEE AP-S Taipei chapter and received the Best Chapter Award in 2012, and is currently the Chair of the EMC-S Taipei chapter. He received Outstanding Branch Counselor Awards from IEEE including IEEE headquarter, R-10, and Taipei section, respectively. He received the IEEE Technical Field Undergraduate Teaching Award in 2014. He has published more than 545 journal and conference papers, and holds 45 patents. He is an IEEE Fellow and IET Fellow, and an elected member of the URSI International Radio Science US commission B.



CSRSWTC	TECHNOLOGY KEYNOTE VISION SESSION 3	11:00–11:30	Wednesday 13 October 2021	SENTOSA HOTEL EB EMERALD HALL 2
ZOOM	ID: 818 4016 5311		PASSWORD: 12345678	
	LINK: us02web.zoom.us/j/81840165311?pwd=eXZwVHdPZGd4NWVzSW5MSlJiaFd4UT09			

Antenna Technologies and Challenges for 1+8+N Intelligent Terminals in All Scenarios

CSRSWTC KEYNOTE SPEAKER:

Kunpeng Wei, Director of Antenna, *Honor Technologies Co., Ltd.*

ABSTRACT: Antenna techniques and challenges in Honor's 1+8+N all-scenario intelligent terminals are included in this presentation. To be introduced are emerging applications in millimeter waves, ultra-wideband (UWB) technology, WIFI 6e, and sub-6 GHz 4×4 MIMO antennas as well as specific application demands determined by newly allocated communication bands. Driven by the cellular and short-range communication technologies, the Honor's 1+8+N all-scenario intelligent terminals have been developed and are dedicated to communications with higher rate, lower delay, and enhanced intelligence. Antennas in these terminals are requested to realize smart switching and multiband/wideband coverage in limited space with high isolation, low directivity, and no dead pixel. This has brought huge challenges to the design of terminal antennas. Development trend of the terminal antenna techniques will be discussed as well based on practical application scenarios.

BIO: Kunpeng Wei received the Ph.D. degree at Tsinghua University, China, in 2013. From April 2012 to July 2012, he was a Visiting Scholar at Georgia Institute of Technology, USA. He was with the Huawei Consumer Business Group as the Director of Antenna from 2016 to 2020. He is now with the Honor Technologies Co., Ltd. as the Director of Antenna, and is responsible for product development, new technology research, and product supports for smartphones, tablets, PCs, home routers, and smart TVs.

Dr. Wei received the Academic Newcomers Award in 2011 by the Ministry of Education, China, the Tsinghua University Special Scholarship (Top 10 Excellent Student) in 2012, the Outstanding Graduates of Tsinghua University in 2013. He also received many career awards such as the Huawei Gold Medal Team Award (2017), the Huawei Individual Gold Medal Award (2018), and the Huawei CBG Personal Award of Mobile Phone Product President (2020). He is an IEEE Senior Member and serves as a Reviewer for IEEE T-AP and IEEE AWPL.

CSRSWTC	TECHNOLOGY KEYNOTE VISION SESSION 4	11:30–12:00	Wednesday 13 October 2021	SENTOSA HOTEL EB EMERALD HALL 2
ZOOM	ID: 818 4016 5311		PASSWORD: 12345678	
	LINK: us02web.zoom.us/j/81840165311?pwd=eXZwVHdPZGd4NWVzSW5MSlJiaFd4UT09			

UWB in Smartphone and AIoT: Opportunities and Challenges

CSRSWTC KEYNOTE SPEAKER:

Xiaolei Jiang, Senior Antenna Design Engineer, *Xiaomi Inc*.

ABSTRACT: Ultra-wideband (UWB) technology has attracted much attention in academic studies and industrial applications such as consumer and automobile electronics. In this presentation, development history and basic principle of the UWB technology will be reviewed. The motivation in adopting UWB technology, the technological status of UWB in smartphones and AIoT terminals, and the development trend of UWB technology for future industry will be analyzed. Also to be showcased are promising UWB-technology-enabled applications in smartphones and AIoT terminals that could contribute to dramatic performance upgrade, surpass those conventional counterparts, and eventually lead to a new generation of technological revolution. Finally, challenges in the implementation of the UWB technology in smartphones and AIoT terminals will be discussed.

BIO: Xiaolei Jiang received the B.S. degree in electronics and information engineering in 2011, and the Ph.D. degree in 2016, both from Tsinghua University, Beijing, China. From October 2014 to March 2015, he was a Visiting Scholar with the Ando and Hirokawa Lab at Tokyo Institute of Technology, Japan. In July 2016, he joined Huawei Technologies, Beijing, China, as a Senior Antenna Design Engineer. He led antenna architectures for several smartphone products with a worldwide sales volume of over 10M units. Since January 2019, he has been with Xiaomi Technology, Beijing, China, and is currently a Senior Antenna Design Engineer. He is now leading antenna architectures for several smartphone production lines and is the key contributor of emerging antenna techniques in Xiaomi. He filed 8 patents and was awarded with 2019 Patent Contribution Award of Xiaomi Corporation for the contribution to 5G antennas for full screen smartphones. He led research and development of several critical UWB techniques for smartphone antennas, and was awarded with 2020 Technology Award of Xiaomi Corporation. He serves as a Reviewer for IEEE T-AP and IEEE AWPL.

Emerald Hall 1A (13:30–15:40)

We1E: Scattering, Diffraction and Inverse Scattering

Chairs: Zhong Xiang Shen, Nanyang Technological University; Yu Yang, Xidian University, Xi'an Technological University

Zoom | ID: 897 7495 8254 | PASSWORD: 12345678

LINK:us02web.zoom.us/j/89774958254?pwd=MlIGbjJ4VVBLVFBHNURMQjREM2wrUT09

13:30 **We1E-1: Energy-Selective Surfaces of Low Radar Cross-Section *[Invited]***

L. Zhou, Nanyang Technological Univ.; Z. X. Shen, Nanyang Technological Univ.

13:55 **We1E-2: A Parallel Monte Carlo Simulation Algorithm for the Irradiance Reflectance Properties of a Rough Sea Surface Based on MPI *[Invited]***

Y. Yang, Xidian Univ., Xi'an Technological Univ.; L.-X. Guo, Xidian Univ.

14:20 **We1E-3: Research on Scattering Characteristics of Ship Targets on Two-Dimensional Dynamic Sea Surface**

F. Shi, Xidian Univ.; J. Li, Xidian Univ.; W. Jiang, Xidian Univ.; M. Zhang, Xidian Univ.; Z. Li, Electro-Mechan. Eng. Inst.

14:40 **We1E-4: Simulation of Correlated 3-D Sea Clutter Based on Statistical Model on the Zynq Platform**

S. Zhang, Xidian Univ.; P. Wei, Xidian Univ.; D. Nie, Xidian Univ.; M. Zhang, Xidian Univ.; Y. Cai, Beijing Inst. CET

15:00 **We1E-5: Simulation for the Ship Kelvin Wake With Narrow Components in SAR Image**

L. Wang, National Univ. Def. Technol.; J. Liu, National Univ. Def. Technol.; G. Min, National Univ. Def. Technol.; Y. Xie, National Univ. Def. Technol.

15:20

Emerald Hall 2 (13:30–15:40)

WeSS_01: Filtering Antennas for Compact RF Systems

Chairs: Peng Fei Hu, City University of Hong Kong; Yanting Liu, Nanjing University of Science and Technology

Zoom | ID: 867 9650 6230 | PASSWORD: 12345678

LINK: us02web.zoom.us/j/86796506230?pwd=NDVjcWFFYWhQTVpvaXhJb0pQYzFvUT09

WeSS_01-1: Compact Filtering Dielectric Resonator Antenna With Quasi-Isotropic Radiation Pattern *[Invited]*

P. F. Hu, City Univ. Hong Kong, CityU Shenzhen Res. Inst.; K. W. Leung, City Univ. Hong Kong, CityU Shenzhen Res. Inst.; Y. M. Pan, SCUT; S. Y. Zheng, Sun Yat-sen Univ.

WeSS_01-2: Bandwidth-Controllable Omnidirectional Filtering Dielectric Resonator Antenna With Planar Feeding Method *[Invited]*

N. Yang, Sun Yat-sen Univ.; K. W. Leung, City Univ. Hong Kong; Y. Liu, Nanjing Univ. Sci. Technol.

WeSS_01-3: A Filtering Dielectric Resonator Antenna With Defected Ground Structures

X. Liu, City Univ. Hong Kong, CityU Shenzhen Res. Inst.; K. W. Leung, City Univ. Hong Kong, CityU Shenzhen Res. Inst.; N. Yang, Sun Yat-sen Univ.

WeSS_01-4: A Magnetoelectric Dipole Filtering Antenna With Asymmetric Feed Structure

R. Hou, Xidian Univ.; J. Ren, Xidian Univ.; Y. Yin, Xidian Univ.

WeSS_01-5: A Planar Filtering Quasi-Yagi Antenna Using an Absorptive Branch

S. Wang, Nanjing Normal Univ.; F. Fan, Nanjing Normal Univ.; G. Zhang, Nanjing Normal Univ.; R. Gómez-García, Univ. Alcalá; L. Yang, Univ. Alcalá; Y. Li, Shenzhen Univ.; S.-W. Wong, Shenzhen Univ.

WeSS_01-6: On the Paraxial Approximation and Phase-Gradient Methods for Risley Prism Inspired Beam-Steering Metasurface Antennas

J. Wang, Huaqiao Univ.; Y. Ge, Fuzhou Univ.; Z. Chen, Fuzhou Univ.

Emerald Hall 3A (13:30–15:40)

WeSS_02: Filtering Components/Structures

Chairs: Gang Zhang, Nanjing Normal University; Fei Xiao, University of Electronic Science and Technology of China

Zoom | ID: 874 3589 9482 | PASSWORD: 12345678

LINK:us02web.zoom.us/j/87435899482?pwd=bmRwUWczNnl4TnBuQU1mV1RqKzFRdz09

13:30 **WeSS_02-1: Novel Equivalent Circuit Analysis Method of FSS Based on Full-Connected Neural Networks *[Invited]***

S. Mao, Xidian Univ.; S. Sun, Aero. Sci. Key Lab. HPEMW; X. Liu, Aero. Sci. Key Lab. HPEMW; B. Wu, Xidian Univ.

13:55 **WeSS_02-2: Slow-Wave Substrate Integrated Waveguide Filter With Miniaturized Dimensions and Controllable Transmission Zeros *[Invited]***

D. D. Yuan, Xidian Univ.; J. Y. Deng, Xidian Univ.; L. Q. Luo, Xidian Univ.

14:20 **WeSS_02-3: Application of Quasi-Bandpass Filter in 3.5 GHz Microstrip Oscillator *[Invited]***

D. Huang, UESTC; J. Lei, S.W. China Inst. Electron. Technol.; Y. Chen, UESTC; B. Chen, UESTC; B. Yuan, UESTC; F. Xiao, UESTC

14:45 **WeSS_02-4: Millimeter-Wave Balanced Filtering Crossover Using Multi-Layered SIW Cavity**

X. Zhou, Nanjing Normal Univ.; G. Zhang, Nanjing Normal Univ.; J. Zheng, Nanjing Normal Univ.; M. Li, Nanjing Normal Univ.

15:05 **WeSS_02-5: Modular Design of a Fourth-Order Waveguide Bandpass Filter With High Selectivity**

L. Chen, Nanjing Normal Univ.; Z.-C. Guo, Nanjing Normal Univ.; G. Zhang, Nanjing Normal Univ.

15:25 **WeSS_02-6: Design of a Dual-Wideband Filtering Power Divider Using Genetic Algorithm**

W. Li, Nanjing Normal Univ.; G. Zhang, Nanjing Normal Univ.; Z. Zhang, Nanjing Normal Univ.

Emerald Hall 3B (13:30–15:40)

WeSS_03: Microwave and Millimeter Wave Antennas for 5G and B5G Applications

Chairs: Lei Guo, Dalian University of Technology; Nan Yang, Sun Yat-sen University

Zoom | ID: 851 4509 6138 | PASSWORD: 12345678

LINK:us02web.zoom.us/j/85145096138?pwd=R0RvUkZOaHJcEdWVWgwUTZ0aU1jdz09

13:30 **WeSS_03-1: Compact Broadband Dielectric Resonator Antenna for 5G Applications *[Invited]***

L. Guo, Dalian Univ. Technology; C. Zhou, Dalian Univ. Technology; H. Li, Dalian Univ. Technology; W. Yang, Nantong Univ.

13:55 **WeSS_03-2: Substrate-Integrated Filtering Dielectric Resonator Antenna for 28-GHz Applications *[Invited]***

Y.-T. Liu, Nanjing Univ. Sci. Technol.

14:20 **WeSS_03-3: Millimeter-Wave Ultra-Wideband Circularly Polarized Planar Antenna Using Spiral-Arm Loaded Dipole**

Y. Li, Hangzhou Dianzi Univ.; K. Fan, Hangzhou Dianzi Univ.; G. Luo, Hangzhou Dianzi Univ.

14:40 **WeSS_03-4: Ultrathin Spoof Surface Plasmons Polaritons Antenna With Flat-Top Radiation Patterns**

C. Wang, Sun Yat-sen Univ.; Y. Zheng, Sun Yat-sen Univ.; S. Zheng, Sun Yat-sen Univ.

15:00 **WeSS_03-5: Millimeter-Wave Higher-Order-Mode Slotted Cavity Antennas With Polarization Flexibility**

S.-L. Chen, Univ. Technol. Sydney

15:20

Pearl Hall (13:30–15:40)

We1P: Antennas Theory and Antenna Array Techniques II

Chairs: Ying Liu, Xidian University; Yong-Mei Pan, South China University of Technology; Zhi Hao Jiang, Southeast University

Zoom | ID: 826 3401 0282 | PASSWORD: 12345678

LINK:us02web.zoom.us/j/82634010282?pwd=WnY5blIKNHdESDA5RC96TE01MGhpQT09

13:30 We1P-1: Pattern Conversion Methods for EH_0-Mode Microstrip Leaky Wave Antenna

J. Duan, Univ. Macau; L. Zhu, Univ. Macau

13:50 We1P-2: A Wideband Multi-Linear Polarization Reconfigurable Antenna Based on AMC Reflector

D. Chen, Xiamen Univ.; Y. Liu, Yangtze Delta Region Inst. (Quzhou) UESTC; S.-L. Chen, Univ. Technol. Sydney

14:10 We1P-3: Dual-Band Reconfigurable Fabry-Pérot Cavity Antenna Based on Metasurface

L. Bai, Southeast Univ.; X. G. Zhang, Southeast Univ.; W. X. Jiang, Southeast Univ.

14:30 We1P-4: Dual Circular Polarized Fabry-Pérot Antenna With Loaded Polarizer

Y.-L. Li, City Univ. Hong Kong; K. M. Luk, City Univ. Hong Kong

14:50 We1P-5: A Simple Decoupling Method for Patch Antennas With Restored Radiation Patterns

C. Tong, Sun Yat-sen Univ.; N. Yang, Sun Yat-sen Univ.; Z. Wu, Sun Yat-sen Univ.; K. W. Leung, Sun Yat-sen Univ., City Univ. Hong Kong; Z. Chen, Shenzhen Univ.

15:10 We1P-6: A High-Gain Patch Antenna With Reconfigurable Broadside and Bidirectional Beams Under Operation of Dual High-Order Modes

K.-D. Hong, Shenzhen Univ.; X. Zhang, Shenzhen Univ.; Z. Chen, Shenzhen Univ.; L. Zhu, Univ. Macau; T. Yuan, Shenzhen Univ.

Crystal Hall (13:30–15:40)

We1C: Antennas and RF, Microwave Components

Chairs: Lu Guo, Nanjing University of Science and Technology; Sai-Wai Wong, Shenzhen University

Zoom | ID: 836 7629 6667 | PASSWORD: 12345678

LINK:us02web.zoom.us/j/83676296667?pwd=Z21QVHlRTlhmYOpFK3ZTbWpwU05xZz09

13:30 We1C-1: Reflectarray Unit Cell Designs Using Half-Cut Technique *[Invited]*

P. Ning, Nanjing Univ. Sci. Technol.; L. Guo, Nanjing Univ. Sci. Technol.

13:55 We1C-2: A Compact Wideband Open-Slot MIMO Antenna With Parasitic Strips *[Invited]*

H. Liu, Shenzhen Univ.; L. Zhang, Shenzhen Univ.; Y. He, Shenzhen Univ.; W. Li, Shenzhen Univ.; S.-W. Wong, Shenzhen Univ.

14:20 We1C-3: Microwave Delay Lines Based on Intercalated Graphene

W. Huang, Hefei Univ. Technol.; K. Wang, Hefei Univ. Technol.; Q. He, Hefei Univ. Technol.; M. Kraman, UIUC; L. Sang, Hefei Univ. Technol.; X. Chen, CAICT

14:40 We1C-4: Design of a Broadband Frequency Selective Absorption and Transmission Structure

Z. Yang, Res. Inst. SSAC AVIC, Aero. Sci. Key Lab. HPEMW; X. Zhang, Res. Inst. SSAC AVIC, Aero. Sci. Key Lab. HPEMW; X. Liu, Res. Inst. SSAC AVIC, Aero. Sci. Key Lab. HPEMW

15:00 We1C-5: Comparation of UV and IR Signatures of Rocket Plumes With Different Observation Angles

D. Zhang, Xidian Univ.; L. Bai, Xidian Univ.

15:20 We1C-6: A Ka-Band Compact Five-Port Power Divider

F. Yang, South China Univ. Technol.; Q.-X. Chu, South China Univ. Technol.

Emerald Hall 1A (16:00–18:10)

We2E: Internet of Things/Terahertz Sciences and Technologies

Chairs: Yang Li, Xidian University; Wei Lin, University of Technology Sydney

Zoom | ID: 897 7495 8254 | PASSWORD: 12345678

LINK: us02web.zoom.us/j/89774958254?pwd=MIlGbjJ4VVBLVFBHNURMQjREM2wrUT09

16:00 **We2E-1: Electrically Small Huygens Dipole Rectennas for Wireless Power Transfer Applications *[Invited]***

W. Lin, Univ. Technol. Sydney; R. W. Ziolkowski, Univ. Technol. Sydney

16:25 **We2E-2: Performance Improvements for On-Chip Antenna Via Structural and Material Engineering *[Invited]***

Q. He, Hefei Univ. Technol.; K. Wang, Hefei Univ. Technol.; M. Kraman, UIUC; L. Sang, Hefei Univ. Technol.; W. He, CAICT; W. Huang, Hefei Univ. Technol.

16:50 **We2E-3: Dual-Band GaN Transistor-Based RF-DC Rectifier**

Z. Zhang, Hangzhou Dianzi Univ.; Z. Cheng, Hangzhou Dianzi Univ.; V. Fusco, Queen's Univ. Belfast; N. Buchanan, Queen's Univ. Belfast; C. Gu, Queen's Univ. Belfast

17:10 **We2E-4: Design and Optimization of Terahertz Bandpass Filter Based on SiC Substrate**

S. Liu, Xidian Univ.; K. Zhang, Ceyear Technol. Instr. Co., Ltd.; S. Cao, Shanghai PMT Res. Inst.; Z. Wu, Shanghai AST; Y. Xu, Shanghai PMT Res. Inst.; Y. Li, Xidian Univ.; L.-A. Yang, Xidian Univ.; Y. Hao, Xidian Univ.

17:30 **We2E-5: Theoretical Investigation on Negative Differential Resistance Characteristics of Lattice-Matched AlGaInN/GaN Resonant Tunneling Diodes**

W. Yang, Xidian Univ.; L. Du, Shanghai PMT Res. Inst.; K. Wang, Shanghai PMT Res. Inst.; Y. Zeng, Shanghai PMT Res. Inst.; M. Zhu, Shanghai PMT Res. Inst.; Y. Li, Xidian Univ.; L.-A. Yang, Xidian Univ.; Y. Hao, Xidian Univ.

Emerald Hall 2 (16:00–18:10)

WeSS_04: High-Isolation Antenna and Array for 5G and Beyond

Chairs: Min Li, The Hong Kong University of Science and Technology; Di Wu, Shenzhen University

Zoom | ID: 867 9650 6230 | PASSWORD: 12345678

LINK: us02web.zoom.us/j/86796506230?pwd=NDVjcWFFYWhQTVpvaXhJb0pQYzFvUT09

16:00 **WeSS_04-1: A High Isolation Circularly Polarized Antenna for Full-Duplex Applications *[Invited]***

D. Wu, Shenzhen Univ.; Y.-X. Sun, Shenzhen Univ.; B. Wang, City Univ. Hong Kong; R. Lian, Henan Univ.

16:25 **WeSS_04-2: Decoupling of Antennas With Adjacent Frequency Bands *[Invited]***

M. Li, HKUST; L. Jiang, HKU; L. K. Yeung, HKU

16:50 **WeSS_04-3: The Design of a Novel Dual-Polarized Reflectarray Antenna Element With High Isolation**

Y. Mo, Chongqing Univ. Posts Telecom.; M. Wang, Chongqing Univ. Posts Telecom.; Z. Chen, Chongqing Univ.; Z. Tian, Chongqing Univ.

17:10 **WeSS_04-4: Mutual Coupling Reduction of CP Patch Antennas Using Hybrid Technique**

M. Y. Jamal, HKU; M. Li, HKU; L. Jiang, HKU

17:30 **WeSS_04-5: Millimeter-Wave Substrate-Integrated Dielectric Resonator Antennas**

Y.-X. Sun, Shenzhen Univ., Southeast Univ.; D. Wu, Shenzhen Univ.

17:50

We2E-6: Effect of Fixed Charge at Interface Between InP and Bonding Layer on Performance of Double δ-Doping InP HEMT-on-Silicon Substrate

Y. Chen, Xidian Univ.; J. Lou, Shanghai PMT Res. Inst.; L. Du, Shanghai PMT Res. Inst.; X. Song, Shanghai PMT Res. Inst.; L. Di, Shanghai PMT Res. Inst.; Y. Li, Xidian Univ.; L.-A. Yang, Xidian Univ.; Y. Hao, Xidian Univ.

WeSS_04-6: High Gain Hexagonal Shaped Antenna Array for Mobile Ground Penetrating Radar Applications

M. Waqas, Namal Inst.; S. Ur Rehman, Namal Inst.; A. K. Rashid, Southern Univ. Sci. Technol.; W. A. Malik, Abasyn Univ.; A. Aziz, Islamia Univ. Bahawalpur

Emerald Hall 3A (16:00–18:10)

WeSS_05: Terahertz Sensing and Antenna

Chairs: Shu-Yan Zhu, City University of Hong Kong, Sun Yat-sen University; Jie Huang, Southwest University

Zoom | ID: 874 3589 9482 | PASSWORD: 12345678

LINK: us02web.zoom.us/j/87435899482?pwd=bmRwUWczNnl4TnBuQU1mV1RqKzFRdz09

16:00 **WeSS_05-1: Imprint and Si Dry Etching Technologies for THz Antennas at 1 THz *[Invited]***

S.-Y. Zhu, Sun Yat-sen Univ., City Univ. Hong Kong; Y.-L. Li, City Univ. Hong Kong; G.-B. Wu, City Univ. Hong Kong; C. H. Chan, City Univ. Hong Kong; K. M. Luk, City Univ. Hong Kong; S. W. Pang, City Univ. Hong Kong

16:25 **WeSS_05-2: Silicon-Based Rod Probe for the Near-Field THz Antenna Measurement *[Invited]***

Z.-M. Peng, NSSC, CAS, Univ. CAS; H.-T. Zhu, NSSC, CAS; J. Meng, NSSC, CAS; D. Zhang, NSSC, CAS

16:50 **WeSS_05-3: Low-Cost Wet-Etching Method to Fabricate a Robust THz Tri-Layer Polarizer With a High Extinction Ratio**

Z. Huang, Zhejiang Univ. Sci. Technology; H. P. Chan, City Univ. Hong Kong; E. Pickwell-MacPherson, Chinese Univ. Hong Kong; E. P. J. Parrott, Chinese Univ. Hong Kong

17:10 **WeSS_05-4: Planar Terahertz Yagi Antenna Fed by Corrugated Substrate Integrated Waveguide**

Q. L. Zhang, City Univ. Hong Kong; B. J. Chen, City Univ. Hong Kong; K.-M. Shum, City Univ. Hong Kong; C. H. Chan, City Univ. Hong Kong

17:30 **WeSS_05-5: Performance Analysis of Millimeter-Wave Optic Modulators in Thin-Film Lithium Niobate**

Y. Zhang, City Univ. Hong Kong; K. Zhang, City Univ. Hong Kong; J. Yang, City Univ. Hong Kong; C. Wang, City Univ. Hong Kong

17:50 **WeSS_05-6: Hybrid Thin-Film Lithium Niobate/Silicon Waveguide Scheme for Efficient Terahertz Generation**

J. Yang, City Univ. Hong Kong; C. Wang, City Univ. Hong Kong

Emerald Hall 3B (16:00–18:10)

WeSS_06: Advanced Circuits and Systems for Next-Generation Communication

Chairs: Ying-Jiang Guo, China Academy of Engineering Physics; Kai-Da Xu, Xi'an Jiaotong University

Zoom | ID: 851 4509 6138 | PASSWORD: 12345678

LINK: us02web.zoom.us/j/85145096138?pwd=R0RvUkZOaHlJcEdWVWgwUTZOaU1jdz09

16:00 **WeSS_06-1: Propagation Measurement at 340 GHz *[Invited]***

Y.-J. Guo, CAEP; Z. Cai, CAEP; X. Deng, CAEP; K.-D. Xu, Xi'an Jiaotong Univ.

16:25 **WeSS_06-2: 60-GHz On-Chip Half-Mode SIW Bandpass Filter Using GaAs Technology *[Invited]***

X. Weng, Xi'an Jiaotong Univ.; K.-D. Xu, Xi'an Jiaotong Univ.; Y. Guo, CAEP; Q. Chen, Tohoku Univ.

16:50 **WeSS_06-3: Bandpass Filter Based on Spoof Surface Plasmon Polaritons and Substrate Integrated Waveguide**

Y. Liu, Xi'an Jiaotong Univ.; K.-D. Xu, Xi'an Jiaotong Univ.; L. Tan, Sichuan FST Res. Inst. MEM; Q. Chen, Tohoku Univ.

17:10 **WeSS_06-4: Dual Band Class E Power Amplifier With π Network**

C. Rong, Gannan Normal Univ.; H. Xu, Gannan Normal Univ.; C. Li, Gannan Normal Univ.

17:30 **WeSS_06-5: Dual Band Divide-by-2 Injection-Locked Frequency Divider Using Multi-Inductance**

W.-C. Lai, NYUST; S.-L. Jang, NTUST; H.-W. Liu, NTUST

17:50 **WeSS_06-6: Cross-Coupled Divide-by-4 Differential Injection-Locked Frequency Divider With LC Tank**

W.-C. Lai, NYUST; S.-L. Jang, NTUST

Pearl Hall (16:00–18:00)

We2P: RF, Microwave, Millimeter-Wave Components and Circuits II

Chairs: Ying Liu, Xidian University; Yong-Mei Pan, South China University of Technology; Zhi Hao Jiang, Southeast University

Zoom | ID: 826 3401 0282 | PASSWORD: 12345678

LINK:us02web.zoom.us/j/82634010282?pwd=WnY5blIKNHdESDA5RC96TE01MGhpQT09

16:00 **We2P-1: A Dual-Band Millimeter-Wave Cavity-Backed Slot Antenna for Terminal Applications**

X. Yin, Shenzhen Univ.; X. Yang, Shenzhen Univ.; L. Ge, Shenzhen Univ.

16:20 **We2P-2: EIT Metamaterial Biosensor for Sensitive Detection of Glioma Cells**

J. Zhang, Shanghai Jiao Tong Univ.; N. Mu, S.W. Hospital, Army Medical Univ.; L. Liu, Advantest (China) Co., Ltd.; T. Chen, S.W. Hospital, Army Medical Univ.; W. Zhu, Shanghai Jiao Tong Univ.

16:40 **We2P-3: Spin-Distance Multiplexing Microwave Holography for Information Encoding With a Non-Interleaved Metasurface**

Z. Li, Shanghai Jiao Tong Univ.; W. Zhu, Shanghai Jiao Tong Univ.

17:00 **We2P-4: A Novel Multimode Dielectric Resonator Filter Without Shielding**

Z. Wu, Sun Yat-sen Univ.; W. Tang, Sun Yat-sen Univ.; S. Zheng, Sun Yat-sen Univ.

17:20 **We2P-5: A High-Efficiency Broadband Rectifier With Wide Input Power Range**

K. Zhang, Sun Yat-sen Univ.; B. Zeng, Sun Yat-sen Univ.; S. Zheng, Sun Yat-sen Univ.; M. Xia, Sun Yat-sen Univ.

17:40 **We2P-6: A Novel Dual-Mode Dielectric Resonator Filter Based on Half-Mode Resonance**

B. Zhao, Shenzhen Univ.; S.-W. Wong, Shenzhen Univ.; D. Wang, Shenzhen Univ.

Emerald Hall 1B (13:30–15:00)

WeIF1: Interactive Forum

Chair: Hao-Zhan Li, Shenzhen University

WeIF1-1: Millimeter-Wave Circularly Polarized Staircase Curl Antenna Array With 50% Axial Ratio Bandwidth

J. Tian, Beijing Univ. Posts Telecom.; Z. Chen, Beijing Univ. Posts Telecom.; H. Liu, Xi'an Jiaotong Univ.; J. Yu, Beijing Univ. Posts Telecom.; X. Chen, Queen Mary Univ. London

WeIF1-2: Flexible Omnidirectional Circularly Polarized Wrist-Band Array Antenna for Wearable Applications

H. Yang, South China Univ. Technol.; X. Liu, South China Univ. Technol.; Z. Zhang, South China Univ. Technol.

WeIF1-3: Dual-Polarized Broadband Wide-Angle Scanning Array Antenna Based on Metasurface

Q. Zhang, Xidian Univ.; W. Jiang, Xidian Univ.; J. Zhang, Xidian Univ.

WeIF1-4: A Mode Reconfigurable Antenna Based on Liquid Crystal

J. Shu, Shanghai Jiao Tong Univ.; Y. Zhang, Shanghai Jiao Tong Univ.

WeIF1-5: A Miniature Tri-Band Folded Shorted-Patch Antenna for 5G Communication

S. Lin, Shenzhen Univ.; X. Yang, Shenzhen Univ.; L. Ge, Shenzhen Univ.

WeIF1-6: Design of a Filtering Dielectric Resonator Antenna Array With Simple Feeding Network

C. Zhao, South China Univ. Technol.; Y.-M. Pan, South China Univ. Technol.

WeIF1-7: A Dual-Band Negative Group Delay Circuit With Three-Conductor Coupled Lines

Y. Meng, Dalian Maritime Univ.; Z. Wang, Dalian Maritime Univ.; Z. Zhu, Dalian Maritime Univ.; S. Fang, Dalian Maritime Univ.; H. Liu, Dalian Maritime Univ.

WeIF1-8: The Utility Model Relates to a Substrate Integrated Dielectric Resonator Antenna Using a Microstrip Line Coupled With a T-Slot

X.-W. Zhou, Tianjin Univ. Technol. Edu.; W.-S. Ji, Tianjin Univ. Technol. Edu.; L. Y. Feng, Tianjin Univ. Technol. Edu.; M. Wang, Innetech (Tianjin) Electron. Co., Ltd.; B.-L. Zhao, Tianjin Univ. Technol. Edu.

WeIF1-9: A 3-D Printed Circularly Polarized Open-Ended Waveguide Antenna

C. W. Zhang, South China Univ. Technol.; Z. L. Ma, South China Univ. Technol.

Emerald Hall 1B (13:30–15:00)

WeIF1-10: A Double-Layer 2-D Monopulse SIW Slot Array Antenna Using Cavity Resonators

B. Wu, Xidian Univ.; R. Tang, Xidian Univ.; Z. Zhou, Xidian Univ.; L. Chen, Xidian Univ.; T. Zhang, Xidian Univ.

WeIF1-11: Chinese-Characters Jin-Shaped Patch Antenna Array for 5G Millimeter Wave Communications

J. Jiang, Shenzhen Univ.; B. Feng, Shenzhen Univ.

WeIF1-12: Research on Field-Circuit Co-Simulation of Cable Shielded With Pigtail

Z. Chen, NUAA; H. Yuan, NUAA; Q. Cao, NUAA

WeIF1-13: Balanced Microstrip Circuit With Differential Negative Group Delay Characteristics

Z. Zhu, Dalian Maritime Univ.; Z. Wang, Dalian Maritime Univ.; Y. Meng, Dalian Maritime Univ.; S. Fang, Dalian Maritime Univ.; H. Liu, Dalian Maritime Univ.

WeIF1-14: Modified Tolley-Lawson Model for Elimination of Magnetic Interference by Aeromagnetic Platform

Z. Yuan, UESTC; S. Jing, Peking Univ.; C. Du, Peking Univ.; M. Xia, Peking Univ.

WeIF1-15: RCS Reduction for UAV Array

L. Zhou, Shanghai SECE Res. Inst., STNSD Lab.; H. Zhou, Shanghai SECE Res. Inst.; Y. Wang, Nanjing Univ. Sci. Technol.; B. Liu, Nanjing Univ. Sci. Technol.; Z. Lv, Shanghai SECE Res. Inst.; Q. Tang, STNSD Lab.

WeIF1-16: A Dual-Polarized Lens Antenna Using LTCC Based Phase-Shifting Surface for D Band Applications

Q.-Y. Guo, City Univ. Hong Kong; G. H. Sun, City Univ. Hong Kong; H. Wong, City Univ. Hong Kong

WeIF1-17: Investigation on Failure Modes and Failure Mechanisms of Novel Silicon Based MMEMS Coupler Under Thermal-Shock Test

K. Wang, Shanghai PMT Res. Inst.; G. Liu, Shanghai PMT Res. Inst.; L. Du, Shanghai PMT Res. Inst.; Y. Jiang, Shanghai PMT Res. Inst.; S. Ji, Shanghai PMT Res. Inst.; W. Zhu, Shanghai PMT Res. Inst.

WeIF1-18: A Broadband 4×4 Butler Matrix With Tunable Phase Shifters Group

X.-Z. Wang, South China Univ. Technol.; F.-C. Chen, South China Univ. Technol.

WeIF1-19: 3D Scattering Center Extraction Based on ESPRIT Algorithm

Y. R. Wang, Fudan Univ.; Y. M. Wu, Fudan Univ.; X. Y. He, STEMS Lab.

Emerald Hall 1B (13:30–15:00)

WeIF1-20: Broadband Monopole Antenna Design With Integrated CB-CPW, SIW and Slots Structure

Z. Ding, Nanjing Univ. Sci. Technol.; Y. Wang, Nanjing Univ. Sci. Technol.; S. Tao, Nanjing Univ. Sci. Technol.; H. Wang, Nanjing Univ. Sci. Technol.; C. Pei, Nanjing Univ. Sci. Technol.; D. Zhang, Nanjing Forestry Univ.

WeIF1-21: A Compact Wideband Vivaldi Antenna for K and Ka Bands

J. Chen, Sun Yat-sen Univ.; X. Meng, Sun Yat-sen Univ.; M. Zhou, Sun Yat-sen Univ.; Y. Jin, Sun Yat-sen Univ.

WeIF1-22: A Dual-Band High-Efficiency Power Amplifier Based on Novel Impedance Matching and Harmonic Control Structure

Z.-B. Zhang, South China Univ. Technol.; L.-Y. Wei, South China Univ. Technol.; F.-C. Chen, South China Univ. Technol.

WeIF1-23: Design of Efficiency-Enhanced Wideband Power Amplifiers Based on Novel Matching Network With Controllable Transmission Zeros

L.-Y. Wei, South China Univ. Technol.; Z.-B. Zhang, South China Univ. Technol.; F.-C. Chen, South China Univ. Technol.

WeIF1-24: Gas Heating Analysis in High-Power Microwave Breakdown Process Based on SETD Method

M. Tang, Nanjing Univ. Sci. Technol.; L. Wang, Nanjing Univ. Sci. Technol.; H. Bao, Nanjing Univ. Sci. Technol.; Z. Fan, Nanjing Univ. Sci. Technol.; D. Ding, Nanjing Univ. Sci. Technol.; R. Chen, Nanjing Univ. Sci. Technol.

WeIF1-25: A Wideband Central-Fed Magneto-Electric Dipole for Millimeter-Wave Applications

L. Xiang, Southeast Univ.; D. W. Xi, Southeast Univ.; F. Wu, Southeast Univ.

Emerald Hall 1B (16:00–17:30)

WeIF2: Interactive Forum

Chair: Hao-Zhan Li, Shenzhen University

WeIF2-1: DGTD Method With Multi-Level Local Time-Stepping Scheme for Field-Circuit Co-Simulation

J. Zhu, Nanjing Univ. Sci. Technol.; T. Zhang, Nanjing Univ. Sci. Technol.; Z. Fan, Nanjing Univ. Sci. Technol.; H. Bao, Nanjing Univ. Sci. Technol.; D. Ding, Nanjing Univ. Sci. Technol.; R. Chen, Nanjing Univ. Sci. Technol.

WeIF2-2: A Ridge Gap Waveguide 4×4 Butler Matrix for Multibeam Application

L.-Q. Luo, Xidian Univ.; L. Chen, Xidian Univ.; Y.-F. Yang, Xidian Univ.

WeIF2-3: Design of LTCC Millimeter Wave Broadband Array Antenna Based on Characteristic Mode Theory

Y. Wang, Nanjing Univ. Sci. Technol.; Z. Ding, Nanjing Univ. Sci. Technol.; S. Tao, Nanjing Univ. Sci. Technol.; H. Wang, Nanjing Univ. Sci. Technol.; C. Pei, Nanjing Univ. Sci. Technol.; D. Zhang, Nanjing Forestry Univ.

WeIF2-4: Compact and Wideband Circularly Polarized Metamaterial Antenna for the 3.5GHz Band Communication

B. Zhang, Shanghai Univ.; K. Pi, Shanghai Univ.; X. Xu, Shanghai Univ.

WeIF2-5: A New Characteristic Basis Function Generation Method for General EM Problems

C. Li, Shandong Normal Univ.

WeIF2-6: Recognition of 3D Target ISAR Images Based on Lightweight Network

J. H. Zhou, Fudan Univ.; Y. M. Wu, Fudan Univ.; C. S. Yue, Fudan Univ.

WeIF2-7: Design of a Broadband 200 GHz Mixer Used in the Terahertz Communication System

J. Meng, NSSC, CAS; D. Zhang, NSSC, CAS; X. Li, NSSC, CAS; H. Zhu, NSSC, CAS

WeIF2-8: Active Planar Van Atta Array Reflector With Switchable Retroreflection

J. Ning, Nanjing Univ.; K. Chen, Nanjing Univ.; Y. Zheng, Nanjing Univ.; S. Zhou, Nanjing Univ.; J. Zhao, Nanjing Univ.; Y. Feng, Nanjing Univ.

WeIF2-9: Solutions of Magnetic-Field Integral Equation Using Linear-Linear Basis Function With Characteristic Basis Function

F. Gao, NUAA; X. Chen, NUAA, Southeast Univ., NUIST; L. Zhang, NUAA; G. Yu, NUAA; Z. Dong, NUAA; C. Gu, NUAA

Emerald Hall 1B (16:00–17:30)

WeIF2-10: Mutual Coupling Reduction of Patch MIMO Antenna Using Shorting Pins

Q. Li, Xi'an Jiaotong Univ.; M. Abdullah, Reykjavik Univ.; Y. Yin, Xi'an Jiaotong Univ.; X. Chen, Xi'an Jiaotong Univ.

WeIF2-11: A Shaping-Time-Adjustable Shaper Designed for High-Rate Photon Counting X-Ray Detectors

Y. Yang, Beijing Univ. Posts Telecom.; X. Wang, QuantumTec Medical Devices Ltd.; H. Li, QuantumTec Medical Devices Ltd.; Z. Xing, QuantumTec Medical Devices Ltd.; Y. Wu, Beijing Univ. Posts Telecom.; H. Xu, ShanghaiTech Univ.; W. Wang, Beijing Univ. Posts Telecom.

WeIF2-12: Evaluation of Routing Protocol for Aircraft Ad Hoc Networks Communication

X. Xue, Beijing ALMV Res. Inst.; J. Cao, Beijing ALMV Res. Inst.; G. Meng, Beijing ALMV Res. Inst.; P. Zheng, Beijing ALMV Res. Inst.; L. Gao, Beijing ALMV Res. Inst.

WeIF2-13: A 1-Bit Programmable Phase-Gradient Lens Based on Polarization Conversion Metasurface

D. Li, Xi'an Jiaotong Univ.; J. Yi, Xi'an Jiaotong Univ.; R. Feng, Xidian Univ.; M. Lin, Xidian Univ.; X. Zhao, Xidian Univ.

WeIF2-14: A Pin-Loaded and SIW-Fed Circular Patch Antenna With Stable High Gain and Wide Impedance Bandwidth

Y.-F. Yang, Shenzhen Univ.; X. Zhang, Shenzhen Univ.; T.-Y. Tan, Shenzhen Univ.; L. Zhu, Univ. Macau; T. Yuan, Shenzhen Univ.

WeIF2-15: A Slot Spiral GNSS Antenna With Wide AR Bandwidth and Beamwidth

Z.-P. Zhong, Shenzhen Univ.; X. Zhang, Shenzhen Univ.; T. Yuan, Shenzhen Univ.

WeIF2-16: A Multi-Polynomial CRC Circuit for 5G Standard Using Parallel Pipelining Architecture

J.-H. Pan, Shenzhen Univ.; S. Zhong, Shenzhen Univ.; P. Zhang, Shenzhen Univ.; T. Yuan, Shenzhen Univ.

WeIF2-17: Multi-Port Metasurface Antenna on Fan-Out Wafer Level Packaging

L. Zhong, Harbin Inst. Technol. (Shenzhen); Z. Chen, Harbin Inst. Technol. (Shenzhen)

WeIF2-18: Spatial Distribution of Electromagnetic Fields from Underwater Double Electric-Dipoles

X. Zhang, Northwestern Polytechnical Univ.; K. Zheng, Northwestern Polytechnical Univ.; X. Sun, Northwestern Polytechnical Univ.; Z. Yan, Northwestern Polytechnical Univ.; S. Zhang, CRIRP Qingdao Res. Ctr.

WeIF2-19: Intelligent Beamforming on Programmable Metasurface

S. Li, Fudan Univ.; G.-M. Yang, Fudan Univ.; F. Xu, Fudan Univ.

Emerald Hall 1B (16:00–17:30)

WeIF2-20: Bonding Wire Based RF Front-End Tunable Impedance Matching Network for K and Ka Bands

J. Chen, Sun Yat-sen Univ.; X. Meng, Sun Yat-sen Univ.; M. Zhou, Sun Yat-sen Univ.; Y. Jin, Sun Yat-sen Univ.

WeIF2-21: A Dual-Band Dielectric Resonator Antenna With Triple-Mode for Monopole-Like Linear and Circular Polarizations

L. Wang, Shenzhen Univ.; S.-W. Wong, Shenzhen Univ.; R.-S. Chen, Shenzhen Univ.

WeIF2-22: Benchmark Analysis of YOLO Performance on Edge Intelligence Devices

H. Feng, Shenzhen Univ.; G. Mu, Shenzhen Univ.; S. Zhong, Shenzhen Univ.; P. Zhang, Shenzhen Univ.; T. Yuan, Shenzhen Univ.

WeIF2-23: Broadband Pattern-Reconfigurable Patch Antenna Fed by Resonators

T.-Y. Tan, Shenzhen Univ.; X. Zhang, Shenzhen Univ.; T. Yuan, Shenzhen Univ.

WeIF2-24: Design of an MMW Circularly Polarized Lens Antenna

X. Cai, Harbin Inst. Technol. (Shenzhen); K. X. Wang, Harbin Inst. Technol. (Shenzhen)

WeIF2-25: A Circularly-Polarized-Reconfigurable Water Antenna With Liquid Dielectric

H.-Z. Li, Shenzhen Univ.; Z. Chen, Shenzhen Univ.; H. Wong, City Univ. Hong Kong; X. Zhang, Shenzhen Univ.; X.-T. Yuan, Shenzhen Univ.; T. Yuan, Shenzhen Univ.

Closing Ceremony and Awards Banquet

Moderator: Dr. Xiao Zhang
Shenzhen University
Publicity Chair, CSRSWTC2021

18:30–18:50	Summary of CSRSWTC2021	*Prof.* **Tao YUAN** General Chair, CSRSWTC2021
18:50–19:10	Closing Speech	*Prof.* **Hang WONG** General Chair, CSRSWTC2021
19:10–19:25	Closing Speech	*Prof.* **Qing-Xin CHU** Chair, CSRSWTC2021 Advisory Committee
19:25–19:30	Handover Ceremony	*Prof.* **TAO YUAN** General Chair, CSRSWTC2021
19:30–21:00	Awards Banquet ■ Music Band Performance I ■ Lucky Draw I ■ CSRSWTC2021 TPC Chair Presentation (*Dr.* **Zhe CHEN**) ■ Awards Presentation ■ Music Band Performance II ■ Certificates to Sponsors and Supporters ■ Thank You Speech (*Prof.* **Tao YUAN**) ■ Lucky Draw II ■ Music Band Performance III	

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About us

Beijing Comtest, founded in 1995, is a professional testing system solution provider in deep cooperation with Rhodes & Schwartz and VIAVI (formerly JDSU) for over 15 years.

Beijing Comtest provides professional testing solutions in the areas including but not limited to wireless communication, EMC, 5G/6G, wireless channel simulation, and optical fibers.

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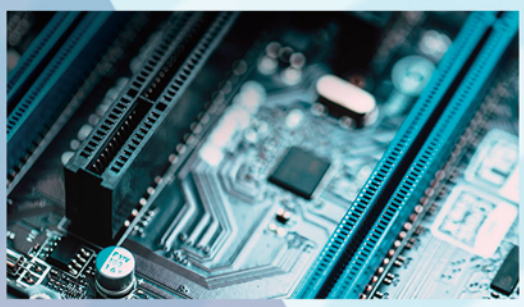

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CSRSWTC2021 EXHIBITING COMPANIES

CSRSWTC2021 VIRTUAL AND ONSITE EXHIBITORS AS OF 31 JULY 2021	*For the most up-to-date information, please visit: www.ee.cityu.edu.hk/skltmw/csrswtc2021*

Avary Holding (Shenzhen) Co., Ltd.

AVARY Holding was founded from the corporate restructuring of Fukui Precision Components (Shenzhen) Co., Ltd. on April 29, 1999. Avary has been listed on the Shenzhen Stock Exchange since September 18, 2018, with the stock name and symbol of Avary Holding and 002938, respectively.

Avary is primarily engaged in the design, research and development, manufacture, and sales of all types of printed circuit boards. These finished products and components are widely applied to various types of communication, computing, and consumer products. Avary features first-class quality and services and provides a full range of circuit board products to meet the needs of "one-stop shopping" from customers.

Avary's core mission is to advance the development of science and technology, benefit humankind, better protect the environment, and make the Earth a better place. Avary has been honored for its years of cooperation with world-class clients, and has long been engaged in the use of advanced and innovative technologies to increase efficiency and reduce costs. Avary has used these technologies to create a complete production supply marketing system, and has built modernized "efficient, rational, automated, and unmanned" factories. This makes Avary one of the most important, influential, and well-known manufacturers in the industry.

Avary puts great emphasis on R&D. The company establishes an R&D center in Shenzhen, and owns more than 580 patents worldwide. Avary has ranked the second place in the global PCB industry since 2013, and has been named the Top 1 Supplier since 2017.

Beijing Comtest Co., Ltd.

BEIJING Comtest, founded in 1995, is a professional testing system solution provider in deep cooperation with Rhodes & Schwartz and VIAVI (formerly JDSU) for over 15 years. Beijing Comtest provides professional testing solutions in the areas including but not limited to wireless communication, EMC, 5G/6G, wireless channel simulation, and optical fibers.

Since the establishment, Beijing Comtest has successfully developed a large number of products that have been widely used in R&D, production, equipment testing, metrology testing, communication engineering infrastructure, and operator maintenance. Featured products include UPTS compliance testers of communication protocol, superlink network testers, multi-channel optical power monitoring systems, and multi-core optical fiber insertion loss and return loss environment test systems.

Beijing StarPoint Technology Co., Ltd.

BEIJING StarPoint Technology, as known as StarPoint and established in 2001, has been focusing on R&D and sales of test/measurement products and solutions for mobile communication. StarPoint owns a large number of in-house-developed test/measurement technologies and has contributed significantly to rapid progress of the global 5G industry. StarPoint has been the world's leading supplier of innovative wireless testing solutions, and supports a wide range of customers such as operators, certification agencies, and device/chipset companies worldwide. StarPoint was awarded with the 2016 National Science and Technology Progress Top Grade Award in China.

CSRSWTC2021 EXHIBITING COMPANIES

CSRSWTC2021 VIRTUAL AND ONSITE EXHIBITORS AS OF 31 JULY 2021	*For the most up-to-date information, please visit: www.ee.cityu.edu.hk/skltmw/csrswtc2021*

General Test Systems Inc.

GENERAL Test Systems Inc. (GTS) focuses on wireless testing, specifically, over-the-air (OTA) testing, for the internet of everything from technology breakthrough to product innovation. GTS test solutions cover wireless UEs, smart homes, and customized testing systems for satellite internet and intelligently connected vehicles (ICVs). Featured GTS products are CTIA-certification-level laboratory testing solutions, R&D testing solutions, mm-wave CATR solutions, ICV antenna/OTA test solutions, reverberation test systems, manufacturing OTA test systems.

In recent years, rapid growth of GTS relies on enabling competency of GTS in measurement theory/algorithms, electromagnetic simulation, and centerpiece components. GTS owns 66 approved patents worldwide. GTS is one of proponents for the radiation-two-stage (RTS) testing method for MIMO OTA testing, and owns the patent of the RTS method. The RTS method has been incorporated into multiple international standards by 3GPP and CTIA as one of the two standard testing methods. In addition, GTS products have entered global markets such as the United States, the United Kingdom, South Korea, Taiwan, Canada, etc.

Guangzhou Pousen System Technology Co., Ltd.

GUANGZHOU Pousen is a leading supplier of long-term industrial information solutions and is committed to providing technical services for communication equipment, consumer electronics, and automotive component industries. Pousen mainly focuses on the sales of Dassault's series of products, such as Abaqus, CST, Catia, and Delmia. Pousen also provides high-performance HPC-based computing services to customers. Up to date Pousen has served more than 600 customers. Dassault Systèmes, the 3DEXPERIENCE company, provides business and people with virtual universes to imagine sustainable innovations. Its world-leading solutions transform the way products are designed, produced, and supported. Dassault Systèmes' collaborative solutions foster social innovation, expanding possibilities for the virtual world to improve the real world. The group brings value to over 250,000 customers of all sizes, in all industries, in more than 140 countries. Dassault Systèmes is recognized by Business Week of US as one of the "10 little known European companies that are changing the world".

Huaqin Co., Ltd.

HUAQIN Co., Ltd., founded in 2005 and headquartered in Shanghai, is the world's leading enterprise specialized in smart hardware products. As part of its mission "Improve People's Communication and Life", Huaqin offers end-to-end product development, manufacturing, and operation of software, hardware, and systems to global technology companies. With a large base of customers distributed in more than 100 countries and regions worldwide and covering over 80 operators, Huaqin provides global consumers with hundreds of millions of intelligent products including mobile phones, tablets, laptops, smart wearables, AIoT products, IDC products, and automotive electronics.

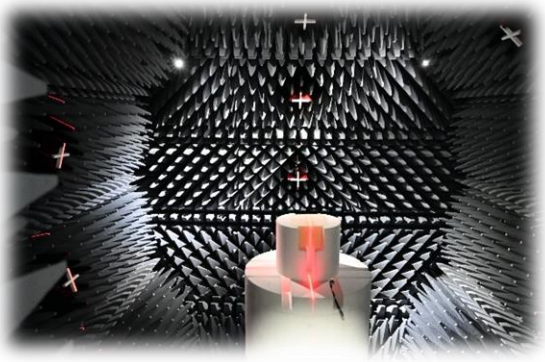
CSRSWTC2021 EXHIBITING COMPANIES

CSRSWTC2021 VIRTUAL AND ONSITE EXHIBITORS AS OF 31 JULY 2021	*For the most up-to-date information, please visit: www.ee.cityu.edu.hk/skltmw/csrswtc2021*

Innowave Co., Ltd.

INNOWAVE, established in 2012, is headquartered in Kunshan, Jiangsu, China, with R&D branches and manufacturing bases deployed in multiple metropolises including Beijing, Shanghai, Shenzhen, Hangzhou, Xi'an, and Dongguan. Innowave has been the dedicated suppliers for industrial giants in the areas of electronics and communications, and supports international customers with its thriving product ecosystem.

Innowave products are extensively ranged, technically advanced, and acknowledged with professionalism. Innowave provides professional service of products associated with wireless technology for 5G and beyond, and also owns independent intellectual properties in critical antenna techniques for mobile devices, tablets, drones, televisions, CPE, routers, smart wearables, PON integration, IoT, etc. Cooperative partners and customers of Innowave, e.g., Huawei, Xiaomi, vivo, OPPO, Huaqin, Wingtech, DJI, State Grid, Dahua Tech., 360, Little Genius, Amazon (Kindle), Samsung, LG, Honeywell, Motorola, Lenovo, and Kodak, are internationally well-known pioneers in the field of smart electronic and mobile devices.



Kunshan Fengjingtuo Electronics Co., Ltd.

KUNSHAN Fengjingtuo Electronics Co., Ltd., is the earliest company in China engaged in R&D of 3-D MID technology. The company products mainly include mobile terminal antennas, RF connectors for wearables, sensors, reflectors, mobile payment security accessories, medical accessories, auto accessories, etc. The company products are widely used in multiple areas of people's daily life. Major customers of the company include high-tech corporations worldwide such as Liantao, Amphenol, Price, Molex, Luxshare Precision, and Suzhou Hi-P.

Rohde & Schwarz China

ROHDE & Schwarz is one of the world's leading manufacturers of test & measurement, secure communications, monitoring and network testing, and broadcasting equipment. Founded more than 80 years ago, the independent company has an extensive sales and service network with subsidiaries and representatives in more than 70 countries and over 12,300 highly qualified employees. Rohde & Schwarz develops, produces, and markets a wide range of electronic capital goods for industry, infrastructure operators and government customers. The independent group is among the technology and market leaders in all of its business fields, including wireless communications and RF test and measurement, broadcast and media, air traffic control and military radio communications, cybersecurity and network technology. In fiscal year 2019/2020, Rohde & Schwarz generated EUR 2.58 billion in revenue.

CSRSWTC2021 EXHIBITING COMPANIES

CSRSWTC2021 VIRTUAL AND ONSITE EXHIBITORS AS OF 31 JULY 2021	*For the most up-to-date information, please visit: www.ee.cityu.edu.hk/skltmw/csrswtc2021*

Sunyield Technologies Co., Ltd.

SUNYIELD Technologies Co., Ltd., headquartered in Shenzhen, is a leading company in R&D and sales of near-field multi-probe antenna measurement systems. Sunyield has been focusing on innovation of antenna measurement products and solutions for years and its customers are widely ranged in China.

The featured Sunyield antenna measurement systems include spherical near-field, planar near-field, and compressed field solutions, meeting requirement of diverse passive and active antenna measurement for civil and military applications.

Sunyield owns complete antenna measurement production lines and occupies most of the market share in China. The market share has surpassed the Indian and the US counterparts. Sunyield attracts customers with leading technologies, flexible solutions, and high-quality services, and is dedicated to win-win cooperation on the basis of “Developing Chinese Antenna Measurement Technology” and “Customer-Centric”.

HUAQIN
华勤技术

COMPANY PROFILE

Founded in 2005 and based in Shanghai, Huaqin Technology is the world's leading enterprise specialized in smart hardware products. As part of its mission to "Improve People's Communication and Life", Huaqin offers end-to-end product development, manufacturing, and operation of software, hardware, and systems to global tech companies. With a large customer base in more than 100 countries and regions worldwide, covering more than 80 operators, Huaqin provides global consumers with hundreds of millions of intelligent products including mobile phones, tablets, laptops, smart wearables, AIoT products, IDC products, and automotive electronics.

Contact number of headquarters:
0086-21-61651266
E-mail: cooperation@huaqin.com

CSRSWTC2021 AUTHOR INDEX (BRIEF)

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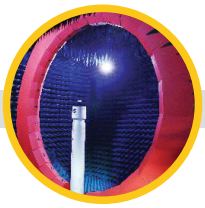
SUNYIELD
新益技术

Professional Wireless Measurement Systems



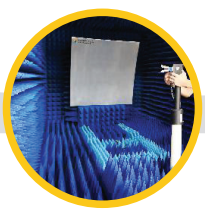










SUNYIELD

Company Profile

Sunyield Technologies Co. Ltd., founded in 2011, is the earliest company in China to research on near-field multi-probe antenna measurement technology. Over the years, Sunyield has focused on technology innovation and market development of related fields and serviced most antenna manufacturers in China. Sunyield is committed to becoming a world-leading manufacturer in the global market.

Headquartered in Shenzhen, a city of vitality, Sunyield has set up research and development (R&D) centers in Shenzhen and Xi'an. With internationally advanced technologies and painstaking R&D efforts, Sunyield Technologies has launched SY-16/16M, SY-24/24L, SY-64/68, SY-128, SY-168, SY-180, SPR-3000, SPR-650, SYH, SY-MIMO, SPR-Scanner, SYCR-Handy, SPCR-Parallel, and SY-OAR series antenna measurement systems. The SY series measurement systems feature stable, fast, and accurate performance, and support G, C, W, LTE, WIFI, GPS NB-IoT, and other tests of network systems. Our technologies have reached the internationally first-class standard, and is the first to achieve real-time active TRP and TIS measurement in the world. Sunyield Technologies has delivered customized antenna measurement systems for various applications, and the current focuses are antenna measurement systems for 5G communication in 3D MIMO, vehicle networking, and Internet of Things, etc.

With Respect Customer, Trust Customer, and Serve Customer as entrepreneurial spirit, Sunyield is committed to providing dedicated, professional, and concentrated service to customers, and meanwhile to achieving our mission: Bring Innovation to Science and Technology, and Bring Profit to the Enterprise.

Sunyield was certified by the ISO9001-2008 Quality Management System and was rated as a National High-Tech Enterprise in 2015. Sunyield has filed a number of software copyrights and patents regarding antenna measurement system technologies. Sunyield Technologies is now a member of CCSA, an associate member of CTIA, and a unit member of ASIA, and has been in cooperation with CAICT and many institutions and organizations.

Tel:0755 8299 7688
Email:service@sunyield.com
www.sunyield.com

Website

WeChat

CSRSWTC2021 AFFILIATION INDEX

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2021 Cross Strait Radio Science and Wireless Technology Conference

CSRSWTC2021 VIRTUAL PRESENTATION GUIDELINES AND INSTRUCTIONS

Congratulations on having your paper selected for presentation at CSRSWTC2021!

This is the ***first*** document out of ***three*** documents related to your CSRSWTC2021 presentation. This first document provides guidelines and instructions for preparing your virtual oral presentation. The second and the third documents provide guidelines and instructions for preparing your onsite presentation for oral and poster sessions, respectively, and will be available soon after the release of this first document.

Special Notice: In light of the COVID-19 situation in Shenzhen and for safety of the attendees, the CSRSWTC2021 Organizing Committee has decided to postpone the conference to 11—13 October 2021. The rescheduled CSRSWTC2021 is still to be held as an onsite/online hybrid event. The online event and virtual technical presentations will be performed by Zoom meetings through specific room IDs or links. The access to the Zoom meetings will be provided in the CSRSWTC2021 Program Book. By following these guidelines and instructions, your presentation should provide a rewarding experience for both you and your colleagues.

Please kindly be aware of that the presentation instructions are subject to change in compliance with COVID-19 prevention and control regulations from the local authorities. For the latest information please visit the CSRSWTC2021 webpage.

For the presentation, you are required to carry out the following steps. Please read the entire document before you begin creating your presentation.

1. Create your presentation using the **Oral Presentation PowerPoint template** available on the CSRSWTC2021 webpage.

2. Save your presentation both as PowerPoint (.pptx) and Portable Document Format (.PDF), and make sure both files can be displayed correctly.

3. Verify that you have received all the required approvals from your (academic, corporate, and government) institutions and sponsors to present the information included in your presentation slides. The CSRSWTC2021 will neither assume nor bear ANY responsibility for materials that you submit or present without appropriate approvals or clearances.

A. Presentation Preparation Guidelines

Technical paper presentation materials will not be formally published or archived and do not need to be IEEE Xplore compliant. Your presentation MUST be in electronic format and MUST use the CSRSWTC2021 presentation template available on the CSRSWTC2021 webpage.

All virtual technical presentations at the CSRSWTC2021, regardless of special session or regular session presentation, will now adhere to the same PowerPoint template and instructions. We recommend that presentations are prepared to be roughly 15–18 minutes long with allowance that special session papers and invited papers might be 5 minutes longer, remaining about 2–5 minutes for questions and answers (Q&As). Keep your time frame in mind when preparing the length of your PowerPoint slides.

As a reminder again, please update your personal conference schedule by checking on the CSRSWTC2021 webpage in case any change would be made to the conference program or presentation instructions.

B. Instructions to CSRSWTC2021 Session Chairs

1. The Session Chairs are required to log in the scheduled Zoom meeting room at least 15 minutes prior to start of the chaired session. The recommended time frames for the conference sessions and presentations are:

Plenary Session Presentations: 1 hour each

50 minutes for presentation and 10 minutes for Q&As;

Technology Vision Keynote Session Presentations: 30 minutes each

25 minutes for presentation and 5 minutes for Q&As;

Invited Paper Presentations: 25 minutes each

20 minutes for presentation and 5 minutes for Q&As;

Regular Paper Presentations: 20 minutes each

15 minutes for presentation and 5 minutes for Q&As.

2. The Session Chairs are responsible for controlling general progress of the chaired session in compliance with the designated session schedule. The Session Chairs should keep in mind the time frame of each presentation and remind presenters, when appropriate, of speeding up or slowing down the presentation.

3. In case of any missing presenter (no show paper), the Session Chairs may authorize a short break within the designated period of the missing presentation. This maintains the session schedule rigorously unchanged and avoids any conflict of time for other presentations.

4. When the session is in progress, the Chair should not log out the Zoom meeting room. All the presenting sessions will be recorded, and logging out the meeting room would interrupt the recording.

5. The information regarding detailed session schedule will be available in the distributed conference program and on the CSRSWTC2021 webpage.

6. If you have any question in using Zoom, please read the Zoom Instructions in the **Part D** of this document.

C. Instructions to CSRSWTC2021 Oral Presenters

1. Presenters must log in the designated Zoom meeting room at least 10 minutes prior to start of the session. The recommended time frames for the conference sessions and presentations are:

Plenary Session Presentations: 1 hour each

50 minutes for presentation and 10 minutes for Q&As;

Technology Vision Keynote Session Presentations: 30 minutes each

25 minutes for presentation and 5 minutes for Q&As;

Invited Paper Presentations: 25 minutes each

20 minutes for presentation and 5 minutes for Q&As;

Regular Paper Presentations: 20 minutes each

15 minutes for presentation and 5 minutes for Q&As.

2. Please read the **Part A** of this document and prepare your presentation slides carefully using the requested presentation template.

3. The information regarding detailed session schedule will be available in the distributed conference program and on the CSRSWTC2021 webpage.

4. All accepted papers MUST be presented at the conference. No show papers will be excluded from the conference proceedings to be submitted for publication in IEEE Xplore.

5. If you have any question in using Zoom, please read the Zoom Instructions in the **Part D** of this document.

D. Zoom Instructions for Attendees

1. Download Zoom at zoom.us.

2. For Session Chairs

(1) Please log in the scheduled Zoom meeting room at least 15 minutes prior to start of the Chaired session;

(2) Rename your Zoom personal ID using the nomenclature as follows;

Session Categories	Session ID	Chair
Plenary/Technology Vision Keynote Session	1, 2, 3, 4	Chair-CCC
Special/Regular Session (12 Oct)	TuXX	TuXX-Chair-CCC
Special/Regular Session (12 Oct) – Onsite	TuXX	TuXX-Chair-Onsite-CCC
Special/Regular Session (13 Oct)	WeXX	WeXX-Chair-CCC
Special/Regular Session (13 Oct) – Onsite	WeXX	WeXX-Chair-Onsite-CCC

where “TuXX” and “WeXX” indicate the specific session IDs to be available in the conference program, and “CCC” represents the name in English of the Chair;

(3) The Session Chairs will briefly introduce the presenter at the beginning of each presentation. 1–2 students will be deployed to assist the Session Chairs in managing the Zoom meeting and coordinating the presentation. These students will be identified as Helpers and renamed using the nomenclature as follows;

Session	Session ID	Helper
Plenary/Technology Vision Keynote Session	1, 2, 3, 4	Support-HHH
Special/Regular Session (12 Oct)	TuXX	TuXX-Support-HHH
Special/Regular Session (13 Oct)	WeXX	WeXX-Support-HHH

where “TuXX” and “WeXX” indicate the specific session IDs to be available in the conference program, and “HHH” represents the name in English of the Helper;

(4) The Helper will be responsible for managing the Zoom meeting to make sure the presenting screen is properly shared and displayed. Please read **Part D.4** of this document on how to share screens in Zoom;

(5) As each presentation starts, the Helper will mute the rest Zoom meeting participants;

(6) After the Chair introduces the presenter and allows the presentation to begin, the Helper will set in Zoom as “Co-Host” for the presenter and allow the presenter to share the screen;

(7) Please keep in mind the time frame of each presentation and remind the presenter when appropriate;

(8) In the Q&As, the Session Chairs are responsible for encouraging participants of the chaired session to ask questions by letting the audience click in Zoom “raise hand”. After the Chair chooses a “raise hand” audience, the Helper will unmute the selected audience.

3. Instructions for Presenters

(1) Please log in the scheduled Zoom meeting room at least 10 minutes prior to start of the presenting session;

(2) Rename your Zoom personal ID using the nomenclature as follows;

Session	Session ID	Speaker
Plenary/Technology Vision Keynote Session	1, 2, 3, 4	Plenary/Keynote-PPP
Special/Regular Session (12 Oct)	TuXX	TuXX-Presenter-PPP
Special/Regular Session (12 Oct) – Onsite	TuXX	TuXX-Presenter-Onsite
Special/Regular Session (13 Oct)	WeXX	WeXX-Presenter-PPP
Special/Regular Session (13 Oct) – Onsite	WeXX	WeXX-Presenter-Onsite

where “TuXX” and “WeXX” indicate the specific session IDs to be available in the conference program, and “PPP” represents the name in English of the presenter;

(3) The Helper will assist the presenter in testing the Share Screen in Zoom, and the Zoom personal IDs of the Helpers will be renamed using the nomenclature as follows;

Session	Session ID	Helper
Plenary/Technology Vision Keynote Session	1, 2, 3, 4	Support-HHH
Special/Regular Session (12/10)	TuXX	TuXX-Support-HHH
Special/Regular Session (13/10)	WeXX	WeXX-Support-HHH

where “TuXX” and “WeXX” indicate the specific session IDs to be available in the conference program, and “HHH” represents the name in English of the Helper;

(4) Once the presenter is allowed by the Session Chair to start the presentation, the Helper will set in Zoom as “Co-Host” for this presenter and enable the screen share.

4. How to Share Screens in Zoom

(1) After you join in a Zoom meeting, you can share your screen by clicking the “Share Screen” button in the Zoom control toolbar at the bottom of the Zoom screen (see Fig. 1);

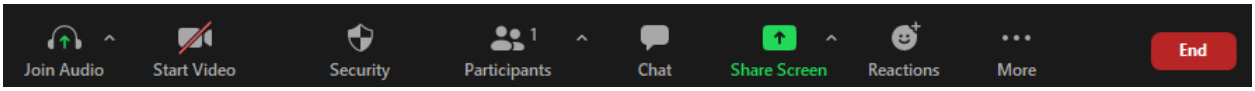


Fig 1. Bottom control buttons of Zoom.

(2) A pop-up window will appear letting you choose which screen from your computer to share (see Fig. 2);

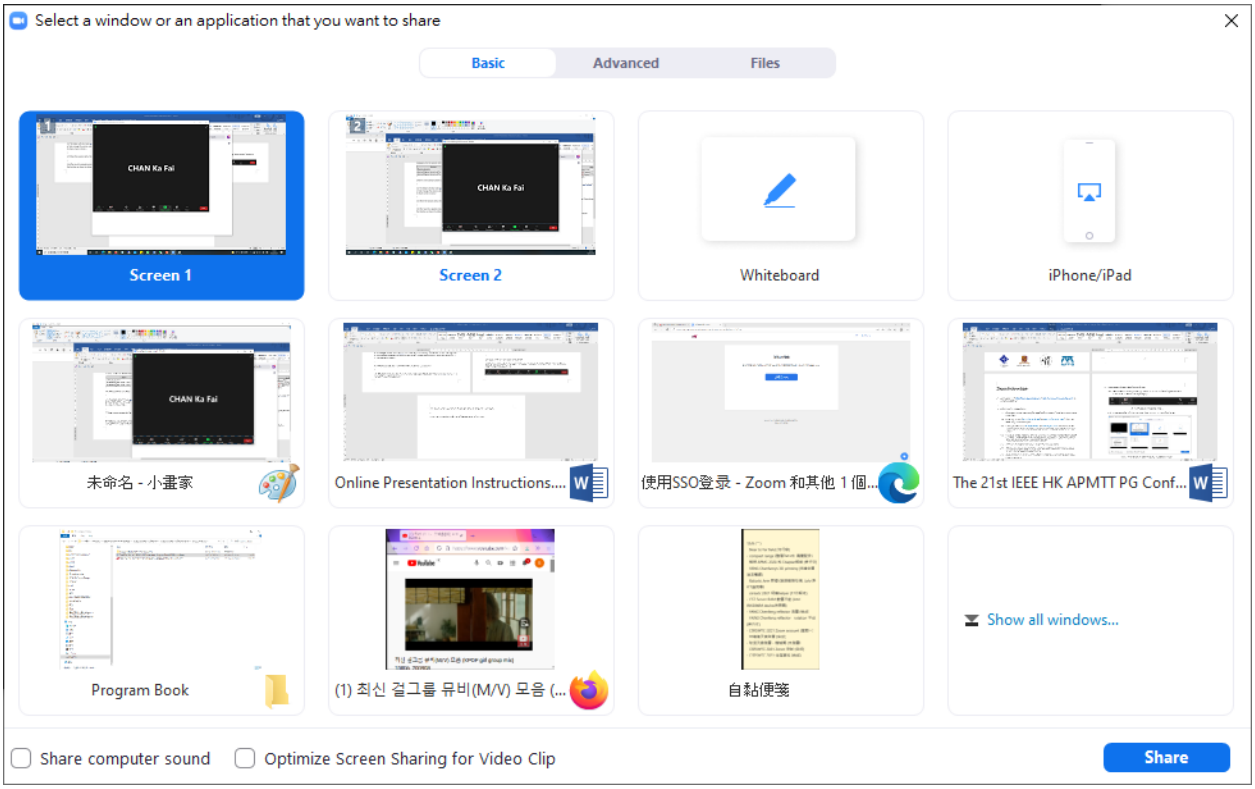


Fig. 2. The pop-up window showing the selected screen from the presenter's computer to be shared

(3) Make sure to have the presentation slides shown in the shared screen;

(4) Enjoy your presentation!

We look forward to seeing your work presented at CSRSWTC2021!

CSRSWTC2021 Technical Program Committee

www.ee.cityu.edu.hk/skltmw/csrswtc2021

CSRSWTC2021 PODIUM PRESENTATION GUIDELINES AND INSTRUCTIONS

Congratulations on having your paper selected for presentation at CSRSWTC2021!

This document provides guidelines and instructions for preparing your oral podium presentation. By following these guidelines and instructions, your presentation should provide a rewarding experience for both you and your colleagues.

Special Notice: In light of the COVID-19 situation in Shenzhen and for safety of the attendees, the CSRSWTC2021 Organizing Committee has decided to postpone the conference to 11—13 October 2021. The rescheduled CSRSWTC2021 is still to be held as an onsite/online hybrid event. The onsite event and technical presentations will be arranged at Sentosa Hotel Emerald Branch, Shenzhen, Guangdong, China. The conference schedule will be detailed in the CSRSWTC2021 Program Book.

Please kindly be aware of that the presentation instructions are subject to change in compliance with COVID-19 prevention and control regulations from the local authorities. For the latest information please visit the CSRSWTC2021 webpage.

For the presentation, you are required to carry out the following steps. Please read the entire document before you begin creating your presentation.

1. Create your presentation using the **Oral Presentation PowerPoint template** available on the CSRSWTC2021 webpage.

2. Save your presentation both as PowerPoint (.pptx) and Portable Document Format (.PDF), and make sure both files can be displayed correctly.

3. Verify that you have received all the required approvals from your (academic, corporate, and government) institutions and sponsors to present the information included in your presentation slides. The CSRSWTC2021 will neither assume nor bear ANY responsibility for materials that you submit or present without appropriate approvals or clearances.

A. Presentation Preparation Guidelines

Technical paper presentation materials will not be formally published or archived and do not need to be IEEE Xplore compliant. Your presentation MUST be in electronic format and MUST use the CSRSWTC2021 oral presentation template available on the CSRSWTC2021 webpage. The use of any hard media for presentations is NOT allowed at CSRSWTC2021.

All oral podium presentations at the CSRSWTC2021, regardless of special session or regular session presentation, will now adhere to the same PowerPoint template and instructions. We recommend that presentations are prepared to be roughly 15–18 minutes long with allowance that special session papers and invited papers might be 5 minutes longer, remaining about 2–5 minutes for questions and answers (Q&As). Keep your time frame in mind when preparing the length of your PowerPoint slides.

As a reminder again, please update your personal conference schedule by checking on the CSRSWTC2021 webpage in case any change would be made to the conference program or presentation instructions.

B. Instructions to CSRSWTC2021 Session Chairs

1. The Session Chairs are required to arrive at the chaired session room at least 15 minutes prior to start of the session, and pick up check-in lists at the Reception Desk. The Reception Desk will be deployed at the same floor to the conference session halls. The Session Chairs should remind presenters of the chaired session to check in with you prior to start of the session.

2. The Session Chairs are required to log in the scheduled Zoom meeting room at least 15 minutes prior to start of the chaired session. 1–2 students will be deployed in each session room to assist the Chairs in logging in and renaming the Zoom personal IDs following a requested nomenclature.

3. The recommended time frames for the conference sessions and presentations are:

Plenary Session Presentations: 1 hour each

50 minutes for presentation and 10 minutes for Q&As;

Technology Vision Keynote Session Presentations: 30 minutes each

25 minutes for presentation and 5 minutes for Q&As;

Invited Paper Presentations: 25 minutes each

20 minutes for presentation and 5 minutes for Q&As;

Regular Paper Presentations: 20 minutes each

15 minutes for presentation and 5 minutes for Q&As.

4. The Session Chairs are responsible for controlling general progress of the chaired session in compliance with the designated session schedule. The Session Chairs should keep in mind the time frame of each presentation and remind presenters, when appropriate, of speeding up or slowing down the presentation.

5. In case of any missing presenter (no show paper), the Session Chairs may authorize a short break within the designated period of the missing presentation. This maintains the session schedule rigorously unchanged and avoids any conflict of time for other presentations.

6. When the session is in progress, the Chair should not log out the Zoom meeting room. All the presenting sessions will be recorded, and logging out the meeting room would interrupt the recording.

7. At the end of the session, the Session Chairs are required to return in person the check-in list to the Reception Desk. The information regarding detailed session schedule will be available in the distributed conference program and on the CSRSWTC2021 webpage.

8. If you have any question in using Zoom, please read the CSRSWTC2021_Presentation_Guideline_Virtual available on the CSRSWTC2021 webpage.

C. Instructions to CSRSWTC2021 Podium Presenters

1. Presenters must arrive at the scheduled session room at least 10 minutes prior to start of the session and check in with the Session Chairs. Please save and store your presentation slide in a USB drive and bring it to the conference. The Helper will assist you in uploading your presentation slide file to the computer at the podium, and listing the files in a sequence in compliance with the designated presentation schedule. The Helper will also assist you in displaying your presentation slides properly through Screen Share in Zoom.

2. The recommended time frames for the conference sessions and presentations are:

Plenary Session Presentations: 1 hour each

50 minutes for presentation and 10 minutes for Q&As;

Technology Vision Keynote Session Presentations: 30 minutes each

25 minutes for presentation and 5 minutes for Q&As;

Invited Paper Presentations: 25 minutes each

20 minutes for presentation and 5 minutes for Q&As;

Regular Paper Presentations: 20 minutes each

15 minutes for presentation and 5 minutes for Q&As.

3. Please read the **Part A** of this document and prepare your presentation slides carefully using the requested presentation template.

4. All accepted papers MUST be presented at the conference. No show papers will be excluded from the conference proceedings to be submitted for publication in IEEE Xplore.

5. The information regarding detailed session schedule will be available in the distributed conference program and on the CSRSWTC2021 webpage.

6. If you have any question in using Zoom, please read the CSRSWTC2021_Presentation_Guideline_Virtual available on the CSRSWTC2021 webpage.

We look forward to seeing you in Shenzhen in October!

CSRSWTC2021 Technical Program Committee

www.ee.cityu.edu.hk/skltmw/csrswtc2021

2021 Cross Strait Radio Science and Wireless Technology Conference

CSRSWTC2021 INTERACTIVE FORUM PRESENTATION GUIDELINES AND INSTRUCTIONS

Congratulations on having your paper selected for presentation at CSRSWTC2021 Interactive Forum Session!

This document will assist you in preparing your Interactive Forum Presentation so that you can communicate your research, innovations, results, and future work in a manner that is rewarding to the CSRSWTC2021 attendees and to you. Please read the entire document before you start preparing your presentation.

Special Notice: In light of the COVID-19 situation in Shenzhen and for safety of the attendees, the CSRSWTC2021 Organizing Committee has decided to postpone the conference to 11—13 October 2021. The rescheduled CSRSWTC2021 is still to be held as an onsite/online hybrid event. The Interactive Forum Presentations will be arranged at Sentosa Hotel Emerald Branch, Shenzhen, Guangdong, China. The Interactive Forum Session schedule will be detailed in the CSRSWTC2021 Program Book.

Please kindly be aware of that the presentation instructions are subject to change in compliance with COVID-19 prevention and control regulations from the local authorities. For the latest information please visit the CSRSWTC2021 webpage.

Verify that you have received all the required approvals from your (academic, corporate, and government) institutions and sponsors to present the information included in your presentation materials. The CSRSWTC2021 will neither assume nor bear ANY responsibility for materials that you submit or present without appropriate approvals or clearances.

A. Interactive Forum Overview

The Interactive Forum (IF) will be held in the Emerald Hall 1B of the Sentosa Hotel Emerald Branch, Shenzhen, China, on Wednesday, 13 October 2021, at 13:30–17:30. Please familiarize yourself with the location of the Interactive Forum prior to the assigned time of your presentation.

Your paper (and presentation) is one of 50 presentations that are scheduled for the Interactive Forum, and the Forum includes two sessions each with 25 presentations.

Your presentation will be assigned with a unique paper ID, and will be referred to using the nomenclature “IF Session – Paper #”, e.g., WeIF1-1. Please make a note of your specific paper/presentation ID, as it will be used to locate your presentation board during your specific IF session.

Each IF session shall have a Chair and 1–2 student volunteers responsible for check-in and offering technical assistance. Please arrive at least 15 minutes prior to the start of your IF session and meet your session Chair for check-in. You are required to stay at your presentation room for the entire duration of your IF session.

The presentation IDs and detailed session schedules are included in the CSRSWTC2021 Program Book to be released on the CSRSWTC2021 webpage in the mid of September, 2021.

B. Interactive Forum Poster Preparation Instructions

2021 Cross Strait Radio Science and Wireless Technology Conference

Your Interactive Forum Presentation at CSRSWTC2021 will consist of a printed poster in size of A1 page (594 mm × 841 mm), pinned on the poster board deployed in the presentation room. An ID card will be pinned onto each poster board prior to the IF session to offer specific presentation location to each presenter.

This single, printed poster should present the participant's research and cover the primary motivations, insights, design, construction and results of the project.

This single poster should be divided into five sections:

- Status Quo: background and motivation, current state-of-the-art. What problem are you trying to solve, or what improvement are you trying to make?
- New Insights: describe what's new about your approach, concept, how it works, assumptions and weaknesses.
- Description: Hardware description, experimental layout and explanation: How it is built and tested?
- Quantitative Impacts: what were your results, and how do they compare with existing technologies or techniques?
- Conclusion: final product of your work. Where is this leading, and what are the next steps

Your poster MUST be in printout format and MUST use the CSRSWTC2021 IF Poster template available on the CSRSWTC2021 webpage.

Note: All IF participants are responsible for preparing and bringing their posters to the IF session in person and disposing their posters at the end of their session. Any poster left and unclaimed in the session room after this session is closed will be discarded. The CSRSWTC2021 will neither assume nor bear ANY responsibility for loss of your poster or any personal item. The CSRSWTC2021 will not provide any poster printing service onsite for any IF presenter. Please prepare your poster ready in printout format before start of the session.

The CSRSWTC2021 Technical Program Committee appreciates your contribution to CSRSWTC2021 and we look forward to seeing you in Shenzhen this October!

CSRSWTC2021 Technical Program Committee

www.ee.cityu.edu.hk/skltmw/csrswtc2021

CSRSWTC2021 TRAVEL INFORMATION

Traffic

Located in the central area of Nanshan District of Shenzhen, China, Sentosa Hotel Emerald Branch (EB), the CSRSWTC2021 onsite venue, is *~1.5 Km* away from Shenzhen University and *~450 m* away from the nearest subway station. Traveling to the conference hotel in the city of Shenzhen would be a journey of convenience and leisure thanks to the thriving local public transportation network. Provided below are several selected traffic options to the city of Shenzhen for the conference attendees from major cities of China, Hong Kong, Macau, Taiwan, and other countries/regions worldwide.

Train / Cruise Ship / Highway (including shuttles and personal vehicles)

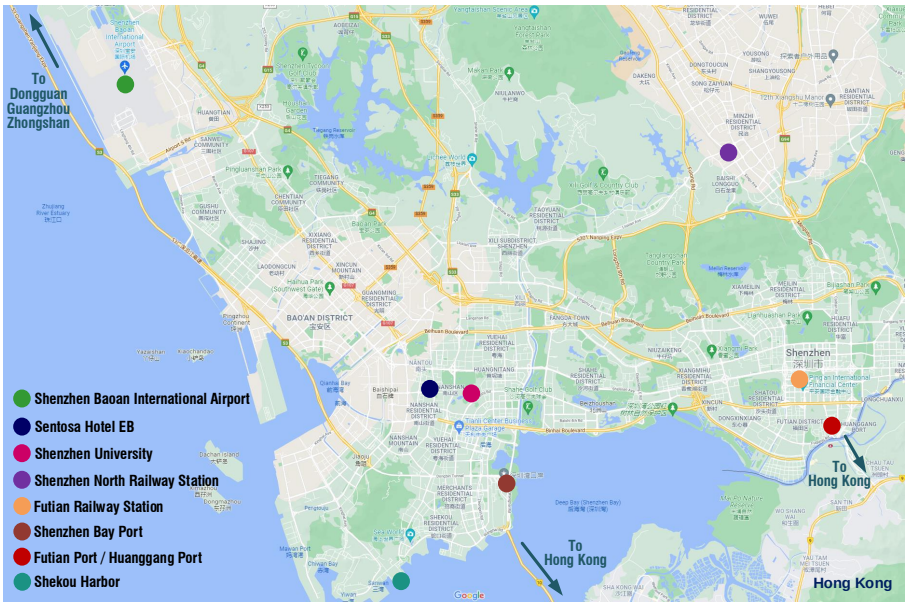
suggested for attendees from the Guangdong-Hong Kong-Macau big bay area and the surrounding cities

Airplane

suggested for other domestic and international attendees

The estimated durations of travel from the major public transportation nodes of Shenzhen to the conference hotel are summarized as follows. Positions of the major landmarks have been labeled in the map below.

	Subway	Drive	Bus	Walk
Shenzhen University	15 mins	10 mins	20–30 mins	>30 mins
Shenzhen Baoan International Airport	40–50 mins	30–40 mins	>60 mins	X
Shenzhen North Railway Station	50–60 mins	35–45 mins	>60 mins	X
Futian Railway Station	40–50 mins	30–40 mins	>60 mins	X
Shenzhen Bay Port (China Customs)	X	20–25 mins	>60 mins	X
Futian Port (China Customs)	40–50 mins	30–40 mins	>60 mins	X
Huanggang Port (China Customs)	60–70 mins	40–50 mins	>60 mins	X
Luohu Port (China Customs)	60–70 mins	40–50 mins	>60 mins	X
Shekou Harbor	45–55 mins	30–40 mins	>60 mins	X



For more information about travel routes and transportations, please visit

https://map.baidu.com

https://www.12306.cn

https://www.szairport.com

https://www.cmskchp.com/

http://map.amap.com/subway/

https://www.szmc.net/szmc_en/Stations_and_Maps/Stations/

Wish you a nice and safe trip!

Facilities and Services

Cable and wireless internet connections are available at the conference hotel.

Accommodation is available at the conference hotel with a special discount offer. Please see the conference *webpage* for more information.

China uses generally 220 V, 50 Hz, AC. If you are from the countries/regions where a different standard of volt or frequency is used, you need to have converters for your domestic electric devices to be used on your trip to China.

Take a chance to enjoy the traditional Cantonese cuisine in Shenzhen!

CSRSWTC2021 TRAVEL INFORMATION

About Shenzhen

Shenzhen is a major sub-provincial city and one of the special economic zones of China. The city is located on the east bank of the Pearl River estuary on the central coast of southern province of Guangdong, bordering Hong Kong to the south, Dongguan to the north, and Huizhou to the northeast. With a population of 17.56 million as of 2020, Shenzhen is the fifth most populous city proper in China. Shenzhen is a global center in technology, research, manufacturing, finance, and transportation, and the Port of Shenzhen is the world's fourth busiest container port.

In the early 1980s, economic reforms introduced by Deng Xiaoping resulted in the city becoming the first special economic zone of China due to its close proximity to Hong Kong, attracting foreign investment and migrants searching for opportunities. In thirty years, the city's economy and population boomed and has since emerged as a hub for technology, international trade, and finance; it is the home to the Shenzhen Stock Exchange, one of the largest stock exchanges in the world by market capitalization and the Guangdong Free-Trade Zone. As of 2020, Shenzhen is ranked as an Alpha- (global first-tier) city by the Globalization and World Cities Research Network and ranked as having the 8th most competitive and largest financial center in the world. Its nominal GDP has surpassed neighboring cities of Guangzhou and Hong Kong and is now among the top ten cities with the largest economies in the world. Shenzhen also has the fifth-highest number of billionaires of any city in the world, the second largest number of skyscrapers of any city in the world, the 32nd largest scientific research output of any city in the world, and several notable educational institutions, such as Shenzhen University and Southern University of Science and Technology.

Due to the city being a leading global technology hub, Shenzhen has been dubbed by media China's Silicon Valley. The city's entrepreneurial, innovative, and competitive-based culture has resulted in the city being home to numerous small-time manufacturers or software companies. Several of these firms became large technology corporations such as phone manufacturer Huawei, holding company Tencent, and drone-maker DJI. As an important international city, Shenzhen hosts numerous national and international events every year, such as the 2011 Summer Universiade and the China International High-tech Achievements Fair. Shenzhen's rapid success has resulted in the Chinese government turning Shenzhen into a model city.

Information comes from Wikipedia.

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