



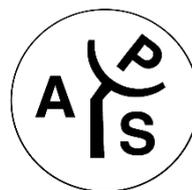
The 22nd IEEE (HK) AP/MTT Postgraduate Conference

20th November 2021, Virtual Event, Hong Kong

Program Book



香港科技大學
THE HONG KONG
UNIVERSITY OF SCIENCE
AND TECHNOLOGY



About the Conference

IEEE (HK) AP/MTT Postgraduate Conference is a dedicated local non-peer-review and non-publication conference for postgraduate students in the fields of Microwave and Antennas. This year is the 22nd anniversary postgraduate conference and will be held virtually on 20th November 2021. The conference is jointly organized by IEEE Hong Kong AP/MTT Joint Chapter, and The Hong Kong University of Science and Technology. The main purpose is to enhance the communications between the postgraduate students in the region and to provide a platform for ideas exchange. This unique occasion will help our students to gain a deeper understanding on the current research focus of the related fields.

Topics includes microwave theory and techniques, antennas and propagation, but are not limited to

Broadband and Multi-Frequency Antennas	Ultra Wideband Antenna and Systems
Mobile and Base Station Systems	RFIC/MMIC
Metamaterials	Novel Microwave and Millimeter Wave Components
EM and Multiphysics Modeling	RF and Microwave Power Amplifiers Design
Integrated Passive Devices	Waveguiding Structures
Microstrip Antennas, Arrays, and Circuits	Dielectric Resonator Antennas
Remote Sensing	Terahertz Technology
MIMO Antennas for Base Stations and Mobile Systems	Internet of Things and Smart City

Zoom Instruction

- 1 Download ZOOM: <https://zoom.us/meetings.html> or <https://zoom.us/zh-cn/meetings.html> (PC client is mandatory)

2 Instructions for Session Chairs

- 2.1 Please arrive at your room using the respective Zoom Meeting link at least 10 mins before the session.
- 2.2 Rename yourself as “**AP-Session Chair-XXX**” or “**MTT-Session Chair – XXX**”, where XXX stands for your name in English.
- 2.3 Our helpers with name “**AP-Support-XXX**” or “**MTT-Support-XXX**” will brief you on the session information with a PowerPoint slide; This slide will be displayed until the session starts.
- 2.4 The helper will also make you “co-host” so that you can share your screen when you want to present or help manage the session. please also read Section 4 of this instruction for more information on how to share screen in Zoom;
- 2.5 When the session starts, the helper will mute the rest participants.
- 2.6 After you let a speaker present his/her paper; the student helper will make the speaker “co-host” so that he/she can share the slides.
- 2.7 Please keep each presentation to the allotted time slot; the helper will notify you when time is running out
- 2.8 During the Q&A, you can encourage audiences to “raise hand”; when you choose an audience, the helper will unmute him/her.

3 Instructions for Speakers

- 3.1 Please arrive at your room using the respective Zoom Meeting link at least 10 mins before the session.
- 3.2 Rename yourself as “**AP-X-Speaker-YYY**” or “**MTT-X-Speaker-YYY**”, where X is the ordinal number of your paper in this session; YYY stands for your name in English.
- 3.3 Our helpers with name “**AP-Support-XXX**” or “**MTT-Support-XXX**” will help test the Share Screen function of Zoom with you; please also read Section 4 of this instruction for more information on how to share screen in Zoom.
- 3.4 Once the session chair let you present your work, the helper will make you “co- host” and you will be able to share your screen

4 Instructions on How to Share Screen in Zoom

4.1 When you are in a Zoom meeting, you can share your screen by clicking Share Screen button on the bottom of Zoom (see Fig. 1).

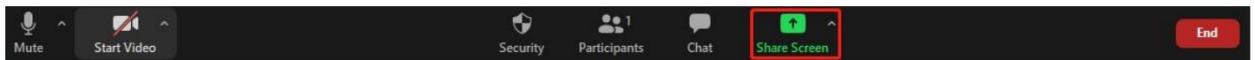


Fig. 1. Bottom control buttons of Zoom.

4.2 A pop-up window will show to let you choose the screen to share (see Fig. 2).

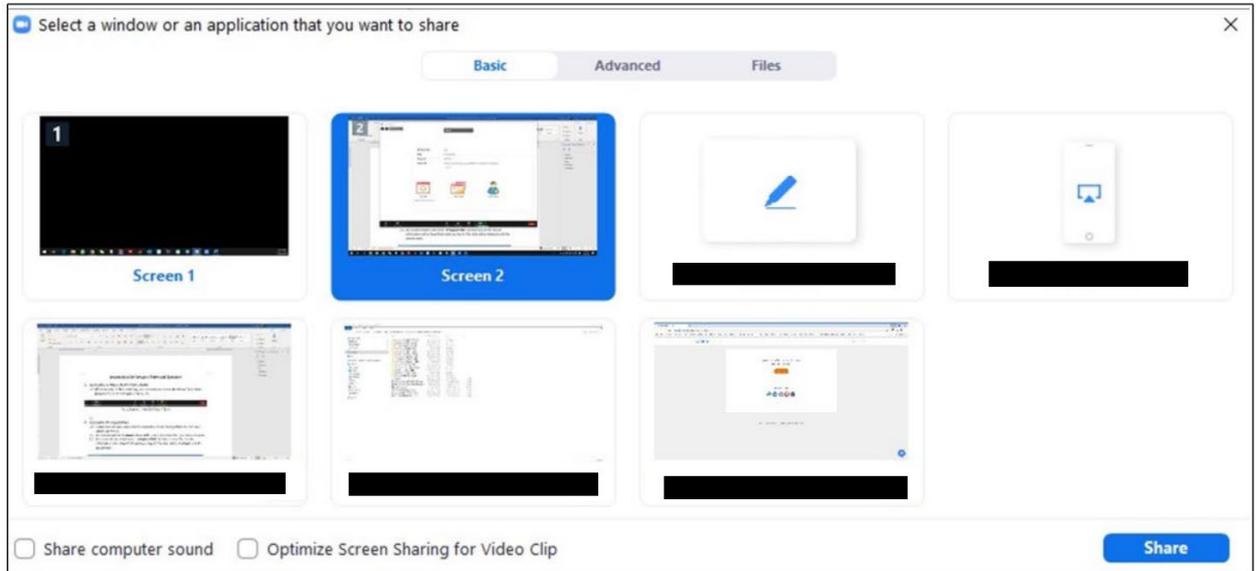


Fig. 2. Pop-up window to select the screen/application to share.

4.3 Be sure to share the window containing your presentation slides.

Program

Antennas and Propagation (AP) Session - AM 20 th November 2021 Session Co-Chairs: Dr. Frankie Chiu <i>The Hong Kong University of Science and Technology</i> Dr. Min Li <i>The Hong Kong University of Science and Technology</i> Zoom Meeting ID: 876 9527 6016 Zoom Password: 12345678 Zoom link: https://us02web.zoom.us/j/87695276016?pwd=WEJmK1hXVkJmVnYWhqdG1RTTFDdmxTUT09		
09:00-09:20	AP-01	Wideband Dielectric Resonator Antenna for Millimeter-wave Applications King-Tung Lo and Hang Wong <i>City University of Hong Kong, Hong Kong SAR, China</i>
09:20-09:40	AP-02	A Pattern Reconfigurable Millimeter Wave Pixel Antenna for Wireless Communication Shiwen Tang, Yujie Zhang, Zixiang Han, Chi-Yuk Chiu, and Ross Murch <i>The Hong Kong University of Science and Technology, Hong Kong SAR, China</i>
09:40-10:00	AP-03	60-GHz Fabry-Perot Cavity Filtering Antenna Driven by an SIW-Fed Filtering Source Hao-Tao Hu, Ka Fai Chan and Chi Hou Chan <i>City University of Hong Kong, Hong Kong SAR, China</i>
10:00-10:20	AP-04	Synthesis and Design of Filtering Antenna with Flexible Passband and Radiation Null Based on Parallel Scheme Meng Yang ¹ , Liang Wu ¹ , and Bian Wu ² ¹ The Chinese University of Hong Kong – Shenzhen, Shenzhen, China ² Xidian University, Xi'an, China
10:20-10:40	AP-05	A Circularly Polarized Open Horn Antenna using 3-D Printing Technology Zhiyi Zhang ¹ , Kwok Wa Leung ¹ , and Kai Lu ² ¹ City University of Hong Kong, Hong Kong SAR, China ² Sun Yat-sen University, Guangzhou, China
10:40-11:00	Break	
11:00-11:20	AP-06	Reducing Divergence Angle of an OAM Beam by Applying a Low Profile Open Resonator Antenna Yuan-long Li and Kwai-man Luk <i>City University of Hong Kong, Hong Kong SAR, China</i>
11:20-11:40	AP-07	A Simple Wide-Angle Scanning Linear Phased Array Zhi-Li Su ¹ , Kai Lu ² , and Kwok Wa Leung ^{1,2} ¹ City University of Hong Kong, Hong Kong SAR, China ² Sun Yat-sen University, Guangzhou, China
11:40-12:00	AP-08	A Wideband 2-Bit Transmitarray Antenna Based on Magnetolectric Dipole Antenna Bingjie Xiang, Xin Dai, and Kwai-Man Luk <i>City University of Hong Kong, Hong Kong SAR, China</i>

12:00-12:20	AP-09	Multi-polarization Phase Retrieval in Near Field Far-field Transformation Yuan Ping and Lijun Jiang <i>The University of Hong Kong, Hong Kong SAR, China</i>
12:20-12:40	AP-10	Modelling and Simulation of Spatial-Temporal Correlated and Coherent Sea Clutter Using Koopman Mode Decomposition Yanming Zhang and Lijun Jiang <i>The University of Hong Kong, Hong Kong SAR, China</i>
12:40-14:00	Lunch	
Session	<p style="text-align: center;">Antennas and Propagation (AP) Session - PM 20th November 2021</p> <p>Session Co-Chairs: Dr. Frankie Chiu <i>The Hong Kong University of Science and Technology</i> Dr. Min Li <i>The Hong Kong University of Science and Technology</i></p> <p>Zoom Meeting ID: 844 5347 3755 Zoom Password: 12345678 Zoom link: https://us02web.zoom.us/j/84453473755?pwd=c1dwZFV4R2FsbjFMcFdCUTZkeWNTQT09</p>	
14:00-14:20	AP-11	Wideband Differential DRA Based on Balanced Microstrip-to-Slotline Power Divider Sari Ayse and Bin Li <i>Beijing Institute of Technology, Beijing, China</i>
14:20-14:40	AP-12	A Novel Kind of Compact Dielectric Resonator Antenna for Beam-scanning Application Sun Wen-Jian and Hang Wong <i>City University of Hong Kong, Hong Kong SAR, China</i>
14:40-15:00	AP-13	Decoupling of Dielectric Resonator Antenna Changwu Tong ¹ , Nan Yang ¹ , and Kwok Wa Leung ^{1,2} ¹ <i>Sun Yat-sen University, Guangzhou, China</i> ² <i>City University of Hong Kong, Hong Kong SAR, China</i>
15:00-15:20	AP-14	A Wide-Angle Scanning Luneburg Lens Antenna Yi Xuan Zheng, Shao Yong Zheng, and Nan Yang <i>Sun Yat-sen University, Guangdong, China</i>
15:20-15:40	AP-15	Design of an Open Resonator Antenna using True Time Delay Metasurfaces Tayyab Ali Khan and Alex M.H. Wong <i>City University of Hong Kong, Hong Kong SAR, China</i>

Program

Microwave Theory and Techniques (MTT) Session - AM 20 th November 2021 Session Co-Chairs: Prof. Ross Murch <i>The Hong Kong University of Science and Technology</i> Dr. Shanpu Shen <i>The Hong Kong University of Science and Technology</i> Zoom Meeting ID: 832 3786 8913 Zoom Password: 12345678 Zoom link: https://us02web.zoom.us/j/83237868913?pwd=TjBWV3M5blpJaHVtNFdNaUZDNHd2UT09	
09:00-09:20	MTT-01 A 6.3-8.7 GHz Phase-Locked Loop in 65nm CMOS Pizeng Zhou ¹ , Liang Wu ¹ , Chao Li ² , Zehui Kang ¹ , Shiyuan Zheng ¹ , and Quan Xue ² ¹ <i>The Chinese University of Hong Kong – Shenzhen, Shenzhen, China</i> ² <i>South China University of Technology, Guangzhou, China</i>
09:20-09:40	MTT-02 A 224-Gb/s PAM4 High-Linearity, Energy-Efficiency Differential to Single-Ended Driver in 130-nm SiGe BiCMOS Jiahua Fu ^{1,3} , Pingyi Cai ¹ , Xiongshi Luo ² , Xuewei You ² , Quan Pan ² , Yao Li ¹ , Fujiang Lin ¹ , and Liang Wu ³ ¹ <i>University of Science and Technology of China, Hefei, China</i> ² <i>Southern University of Science and Technology, Shenzhen, China</i> ³ <i>The Chinese University of Hong Kong – Shenzhen, Shenzhen, China</i>
09:40-10:00	MTT-03 An On-Chip Extraction Method of Dielectric Constant Based on Perturbed SIW Cavities at Terahertz Frequencies Shangcheng Kong, Kam Man Shum, Chi Hou Chan <i>City University of Hong Kong, Hong Kong SAR, China</i>
10:00-10:20	MTT-04 A 0.45THz 2-D Scalable Radiator Array in CMOS With 28.2dBm EIRP Using an Elliptical Teflon Lens Liang Gao and Chi Hou Chan <i>City University of Hong Kong, Hong Kong SAR, China</i>
10:20-10:40	MTT-05 Analytical Design Method and Implementation of Broadband 4 × 4 Nolen Matrix Ye Yang ¹ , Y. F. Pan ¹ , W. S. Chan ¹ , and S. Y. Zheng ² ¹ <i>City University of Hong Kong, Hong Kong SAR, China</i> ² <i>Sun Yat-sen University, Guangzhou, China</i>
10:40-11:00	Break
11:00-11:20	MTT-06 Dispersive Box Sections for Quasi-TEM Mode Monoblock Dielectric Filters Yan Zhang and Ke-Li Wu <i>The Chinese University of Hong Kong, Hong Kong SAR, China</i>
11:20-11:40	MTT-07 A Metallic Shield-free Tri-mode Dielectric Resonator Filter Yin Hui Li ¹ , Shao Yong Zheng ¹ , and Yong Mei Pan ² ¹ <i>Sun Yat-sen University, Guangzhou, China</i> ² <i>South China University of Technology, Guangzhou, China</i>
11:40-12:00	MTT-08 A Quadruplet Section of Monoblock Dielectric Filters with Full Control of Transmission Zeros Yuliang Chen and Ke-Li Wu <i>The Chinese University of Hong Kong, Hong Kong SAR, China</i>

12:00-12:20	MTT-09	Coupling Matrix of Non-Resonant Device Xun Chen and Qingfeng Zhang <i>Southern University of Science and Technology, Shenzhen, China</i>
12:20-12:40	MTT-10	A Broadband Rectifier with a Frequency-selective Adaptive Power Range Baihua Zeng and Shaoyong Zheng <i>Sun Yat-sen University, Guangzhou, China</i>
12:40-14:00	Lunch Time	
Session		<p style="text-align: center;">Microwave Theory and Techniques (MTT) Session - PM 20th November 2021</p> <p style="text-align: center;">Session Co-Chairs: Prof. Ross Murch <i>The Hong Kong University of Science and Technology</i> Dr. Shanpu Shen <i>The Hong Kong University of Science and Technology</i></p> <p style="text-align: center;">Zoom Meeting ID: 864 3578 9721 Zoom Password: 12345678 Zoom link: https://us02web.zoom.us/j/86435789721?pwd=THBBRldpT0QzWmtoTFZmU2RXSVNNdz09</p>
14:00-14:20	MTT-11	A Reconfigurable 1-bit Transmissive Meta-atom based on Functional Material in Ka-Band Yat-Sing To and Hang Wong <i>City University of Hong Kong, Hong Kong SAR, China</i>
14:20-14:40	MTT-12	Polarization Reconfigurable Reflecting Surface Based on Grid Defected Ground Structures Junhui Rao, Yujie Zhang, Shanpu Shen, Chi-Yuk Chiu, and Ross Murch <i>The Hong Kong University of Science and Technology, Hong Kong SAR, China</i>
14:40-15:00	MTT-13	A Multibeam Ambient Electromagnetic Energy Harvester with Full Azimuthal Coverage Wenhui Deng, Shuihong Wang, and Shaoyong Zheng <i>Sun Yat-sen University, Guangzhou, China</i>
15:00-15:20	MTT-14	Characteristic Mode Analysis of ESPAR Antennas for Energy Efficient MIMO Systems Zixiang Han, Shanpu Shen, Chi-Yuk Chiu, and Ross Murch <i>The Hong Kong University of Science and Technology, Hong Kong SAR, China</i>