IEEE ICET 2020

CONFERENCE PROGRAM

2020 IEEE The 3rd International
Conference on Electronics Technology

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About IEEE ICET

International Conference on Electronics Technology (IEEE ICET) which is yearly held in Chengdu, China.

It is organized by Sichuan Institute of Electronics, sponsored by IEEE, also with the support of University of Electronic Science and Technology of China, Sichuan University, Southwest Jiaotong University and Singapore Institute of Electronics.

We sincerely hope that IEEE ICET will provide a platform for all delegates to have rich, useful, and effective deliberations that can lead to international cooperation.

Basic protective measures against the COVID-19 from WHO

- Wash your hands frequently
- Maintain social distancing
- Avoid touching eyes, nose and mouth
- Practice respiratory hygiene
- If you have fever, cough and difficulty breathing, seek medical care early
- Stay informed and follow advice given by your healthcare provider

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Welcome

It is indeed a pleasure to welcome all participants of the 2020 IEEE 3rd International Conference on Electronics Technology (IEEE ICET). The conference is organized by Sichuan Institute of Electronics, sponsored by IEEE, also with the support of University of Electronic Science and Technology, Sichuan University, Southwest Jiaotong University and Singapore Institute of Electronics.

The conference tracks focus on issues related to Antennas and Microwaves, Electronics Materials and Devices, Communication and Networks, Power and Electrical Engineering, and Aeronautics and Astronautics and etc.. The conference also brings researchers, academics, practicing engineers, as well as advanced research students together from a number of countries and various sectors to share and discuss their research results and experiences.

The conference program covers 5 keynote presentations, 16 invited and submitted 174 presentations including a wide variety of topics in the field of not only the electronic technologies but also other disciplines. We hope that every participant will find enough material of interests to individual needs. We also hope this conference can provide all participants with a forum to exchange scientific ideas, and to inspire new researches, and new contacts for closer co-operation, so that we can, together, envisage the future of a promising development of related science and technology.

We would like to thank all who helped in making this conference a success. They include members of the conference committees, reviewers who put in a lot of invaluable time in reviewing papers, members of the organization committee for all the arrangements, and the authors and participants, who make this conference a reality. Finally, we hope you can find IEEE ICET 2020 is indeed a rewarding event.

Conference Organizing Committees
Chengdu, China

Conference at a Glance

THURSDAY 7 MAY	FRIDAY 8 MAY	SATRUDAY 9 MAY	SUNDAY 10 MAY	MONDAY 11 MAY	TUESDAY 12 MAY
9:30AM-11:30AM Test Session 1 Test Session 2 Test Session 3-KN I+II+IS 1-8 Test Session 4- Session Chairs	9:00AM-9:10AM Opening Remarks	9:00AM-10:30AM Session 5 Session 6	9:30AM-11:30AM Session 9 Session 10	9:00AM-10:30AM Session 15 Session 16	9:00AM-10:30AM Session 23 Session 24
	9:10AM-9:55AM Keynote Speech I	10:30AM-11:00AM Break		10:30AM-11:00AM Break	10:30AM-11:00AM Break
	9:55AM-10:40AM Keynote Speech II	11:00AM-12:45PM Session 7 Session 8		11:00AM-12:45PM Session 17 Session 18	11:00AM-12:30PM Session 25 Session 26
	10:40AM-10:55AM Break	12:45PM-2:00PM Break		12:45PM-2:00PM Break	12:30PM-2:00PM Break
	10:55AM-11:25AM Invited Speech IV				
11:30AM-1:00PM Break	11:25AM-1:30PM Break	2:00PM-2:45PM Keynote Speech III	11:30AM-1:30PM Break		
1:00PM-3:00PM Test Session 5 Test Session 6 Test Session 7	1:30PM-3:50PM Session 1 Session 2	2:45PM-3:30PM Keynote Speech IV	1:30PM-3:30PM Session 11 Session 12	2:00PM-3:30PM Session 19 Session 20	2:00PM-4:30PM Session 27 Session 28
3:00PM-4:00PM Break	3:50PM-4:20PM Break	3:30PM-3:45PM Break	3:30PM-4:10PM Break	3:30PM-4:10PM Break	4:30PM-5:00PM Break
4:00PM-6:00PM Test Session 8 Test Session 9 Test Session 10-KN III+IV+V IS 9-16	4:20PM-6:25PM Session 3 Session 4	3:45PM-4:30PM Keynote Speech V	4:10PM-5:40PM Session 13 Session 14	4:10PM-6:05PM Session 21 Session 22	5:00PM-6:35PM Session 29 Session 30

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Dr. Eduardo Rodrigues, The School of Design, Management and Production Technologies of Northern Aveiro, Portugal
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Dr. Bo Liu, Beijing University of Technology, China
Dr. Kai Luo, Analog IC Design Center, Sichuan Institute of Solid-State Circuits, China
Dr. Wang Wei, The Second Research Institute of CAAC, Chengdu, China
Dr. Xu Gaofeng, China Academy of Electronics and Information Technology, China

Preparation for Online Conference

Time Zone 时区

Beijing Time (GMT+8) 北京时间（东八区）

You're suggested to set up the time on your computer in advance.

Platform 平台

ZOOM

Video Tutorials 影片教程:

https://support.zoom.us/hc/en-us/articles/206618765-Zoom-Video-Tutorials

GIF Tutorial GIF 教程:

http://IEEE ICET.net/zoom.html

Test before Formal Meeting 正式会议前测试

Date: May 7, 2020 时间：2020 年 5 月 7 日

Prior to the formal meeting, presenters shall join the test room to ensure everything is on the right track. Please check your test time on this program. 在正式会议之前，演讲者应加入测试室测试电脑，网络，学会在线会议的基本操作，以确保一切都能正常进行。 请在日程上查看您的测试时间。

Equipment Needed 所需设备

- A computer with internet connection and camera 带有互联网连接和摄像头的电脑
- Headphones 耳机

Environment Needed 所需环境

- A quiet place 安静的地方
- Stable internet connection 稳定的互联网连接
- Proper lighting and background 适当的照明和背景

Q&A Room 问答室

If you have any problems about the online operating during the conference days, please enter the Q&A room 会议期间如果对在线操作有任何疑问，请进入问答室

Meeting ID: 627-9367-2316 or
https://zoom.com.cn/j/62793672316
房间号：627-9367-2316 or
https://zoom.com.cn/j/62793672316

Presentation Guideline 演讲指南

Voice Control Rules 语音控制规则

- The host will mute all participants while entering the meeting. 主持人在进入会议时会将所有与会者静音
- The host will unmute the speakers' microphone when it is turn for his or her presentation. 演讲人在演讲时主持人将对他/她的麦克风解除静音
- Q&A goes after each speaker, the participant can raise hand for questions, the host will unmute the questioner. 每位演讲者都有问答环节，参与者可以举手提问，主持人将解除提问者的静音
- After Q&A, the host will mute all participants and welcome next speaker. 问答结束后，主持人将全员静音并欢迎下一位演讲者

Oral Presentation 口头报告

- Timing: a maximum of **15 minutes** in total, including 3 minutes for Q&A. Please make sure your presentation is well timed. 时间安排：每个演讲者最多 15 分钟，其中 3 分钟用于问答。 请确保您的演讲在规划的时间内。
- It is suggested that the presenter email a copy of his/her video presentation to the conference email box as a backup in case any technical problem occurs. 为避免现场问题，建议演讲者通过电子邮件将自己的视频演示文稿的副本作为备份发送到会议邮箱。

*Conference Recording 会议记录

The whole conference will be recorded. We appreciate you proper behavior and appearance. 整个会议将被记录。 请您注意适宜的举止和仪表

* The recording will be used for conference program and paper publication requirements. The video recording will be destroyed after the conference and it cannot be distributed to or shared with anyone else, and it shall not be used for commercial nor illegal purpose. It will only be recorded by the staff and presenters have no rights to record. 记录将用于会议日程和论文发表要求。 会议结束后，视频记录将被销毁，并且不能与他人共享或分享，不得用于商业目的或非法目的。 它只能由工作人员记录，演示者无权记录。

Test Sessions at a Glance

	Time	Session		Paper ID	Meeting ID
THURSDAY 7 MAY	9:30-11:30	1	9:30-10:30	T0003 T0004 T0005 T0006 T0007 T0008 T0009 T0010 T0012 T0014 T0015 T0018	654-8151-3676 or https://zoom.com.cn/j/65481513676
			10:30-11:30	T0019 T0020 T0022 T0024 T0025 T0027 T0030 T0032 T0033 T0034 T4003 T4002	
		2	9:30-10:30	T0037 T0040 T0041 T0042 T0044 T0045 T0046 T0047 T0048 T0049 T0050 T0051	622-4034-7357 or https://zoom.com.cn/j/62240347357
			10:30-11:30	T0052 T0053 T0054 T0055 T0061 T0061 T0062 T0064 T0066 T0067 T0068 T0069	
		3	9:30-10:30	T0070 T0071 T0072 T0073 T0074 T0077 T0079 T0081 T0082 T0083 T0084 T0085	991-1775-6218 or https://zoom.com.cn/j/99117756218
			10:30-10:50	KNI KNII	
			10:50-11:30	IS 1—IS 8	
		4	10:30-11:30	Session Chairs	627-9367-2316 or https://zoom.com.cn/j/62793672316
	13:00-15:00	5	13:00-14:00	T0086 T0087 T0089 T0090 T0091 T0092 T0096 T0098 T0099 T0100 T0102 T0105	672-8878-7498 or https://zoom.com.cn/j/67288787498
			14:00-15:00	T0106 T0108 T0109 T0110 T0111 T0112 T0113 T0114 T0115 T0116 T0117 T0118	
		6	13:00-14:00	T0119 T0121 T0122 T0124 T0125 T0126 T0127 T0129 T0130 T0131 T0132 T0135	654-8151-3676 or https://zoom.com.cn/j/65481513676
			14:00-15:00	T0136 T0137 T0139 T0140 T0142 T0143 T0144 T0145 T0147 T0148 T0150 T0151	
		7	13:00-14:00	T0152 T0153 T0154 T0155 T0156 T0157 T0158 T0160 T0161 T0162 T0163 T0164	622-4034-7357 or

		14:00-15:00	T0166 T0167A T0169 T0170 T0171 T0173 T0174 T0175 T0176 T0177 T0178 T0179	https://zoom.com.cn/j/62240347357
16:00-18:00	8	16:00-17:00	T0180 T0181 T0183 T0187 T0188 T0189 T0190 T0191 T0192 T0194 T0195 T0196	991-1775-6218 or https://zoom.com.cn/j/99117756218
		17:00-18:00	T0197 T0198 T0199 T0200 T0201 T0202 T0203 T0204 T0205 T0206 T0207 T0208	
	9	16:00-17:00	T10001 T1003A T1005 T2003 T2004 T2006 T2007 T2008 T2009 T2010 T2012 T2014	672-8878-7498 or https://zoom.com.cn/j/67288787498
		17:00-17:40	T2015 T2016 T2018 T3002 T3003 T3005 T3006 T4001	
	10	16:00-16:40	IS 9-16	654-8151-3676 or https://zoom.com.cn/j/65481513676
		16:40-17:10	KN III KN IV KN V	

Keynote and Invite Speeches at a Glance

	Time	Item	Topic	Meeting ID
Friday 8 May	9:00–9:05	Opening Remarks	Prof. Shiwen Yang, University of Electronic Science and Technology of China | IEEE Fellow (国家杰出青年科学基金获得者，长江学者特聘教授，IEEE Fellow)	991-1775-6218 or https://zoom.com.cn/j/99117756218
	9:05–9:10	Welcome Address	Prof. Yuan Lin, University of Electronic Science and Technology of China (长江学者特聘教授)	
	9:10–9:55	Keynote I	"Defect Engineered Complex Oxide Thin Films with Anomalous Multifunctionalities" Prof. Chonglin Chen The University of Texas at San Antonio, USA	
	9:55-10:40	Keynote II	"Federated Learning Framework at Wireless Network Edge" Prof. Gang Feng University of Electronic Science and Technology of China, China	
	10:55-11:25	Invited Speech 1	"Microwave Solid-State Power Devices Based On Diamond" Yuehang Xu (国家优秀青年基金获得者) University of Electronic Science and Technology of China	
	13:30-13:55	Invited Speech 2	"Design of a Metallic-Dielectric 3D Printed Multi-Beam Lens Antenna" Bing Zhang Sichuan University, China	654-8151-3676 or https://zoom.com.cn/j/65481513676
	13:55-14:20	Invited Speech 3	"Decoupling Techniques in Shared-Aperture Antenna Arrays" Yikai Chen (国家特聘青年专家) University of Electronic Science and Technology of China	
	13:30-13:55	Invited Speech 4	"Improvement of interface layers for high efficient perovskite solar cells " Yiying Zhao (国家特聘青年专家) China Academy of Engineering Physics, China.	622-4034-7357 or https://zoom.com.cn/j/62240347357
	16:20-16:45	Invited Speech 5	"Metamaterial Engineered, Electrically Small Antennas With Enhanced Bandwidth" Ming-Chun Tang (国家优秀青年基金获得者) Chongqing University, Chongqing, China	672-8878-7498 or https://zoom.com.cn/j/67288787498

	16:20-16:45	Invited Speech 6	"Silk Fibroin – An Emerging Material for Self-Powered Smart Electronics" Xiaosheng Zhang (国家特聘青年专家) University of Electronic Science and Technology of China, China	991-1775-6218 or https://zoom.com.cn/j/99117756218
	16:45-17:10	Invited Speech 7	"Flexible Piezoelectric Sensor for Structural Health Monitoring" Hao Yang Nanjing University of Aeronautics and Astronautics, China	
Saturday 9 May	14:00-14:45	Keynote Speech III	"Optimal Trade-Off Phased-Arrays for Future Generation Radars and Communication Systems " Prof. Andrea Massa (IEEE Fellow) University of Trento, Italy	991-1775-6218 or https://zoom.com.cn/j/99117756218
	14:45-15:30	Keynote Speech IV	"Protection and Control Systems and Wide Area Schemes" Prof . Vladimir Terzija (IEEE Fellow) The University of Manchester, UK	
	15:45-16:30	Keynote Speech V	"Applications of Artificial Intelligence and Optimization in Wind Power Systems" Prof. Weihao Hu University of Electronic Science and Technology of China, China	
Sunday 10 May	9:30-9:55	Invited Speech 8	"Detailed modeling and simulation of large-scale wind farm" Zhao Haoran (国家特聘青年专家) Shandong University, China	672-8878-7498 or https://zoom.com.cn/j/67288787498
	9:30-9:55	Invited Speech 9	"Conductive Mechanism and Bionic Characteristics of Analog Memristors Based on Metal Oxides " Tie Dong Cheng Jiangxi University of Science and Technology, China	622-4034-7357 or https://zoom.com.cn/j/62240347357
	13:30-13:55	Invited Speech 10	"Key Technologies of Modular Multilevel Converters" Fujin Deng (国家特聘青年专家) Southeast University, China	654-8151-3676 or https://zoom.com.cn/j/65481513676

Monday 11 May	16:10-16:35	Invited Speech 11	"Artificial Intelligence-Driven Hybrid Beamforming for Millimetre Wave Massive MIMO System" Jienan Chen University of Electronic Science and Technology of China	672-8878-7498 or https://zoom.com.cn/j/67288787498
Tuesday 12 May	14:00-14:25	Invited Speech 12	"Intelligent Reflecting Empowered Wireless Communications" Gang Yang University of Electronic Science and Technology of China	654-8151-3676 or https://zoom.com.cn/j/65481513676
	14:00-14:25	Invited Speech 13	"Mixed attractors and new intermittencies in a vibro-impact system in a vibro-impact system" Yue Yuan Southwest Jiaotong University, China	622-4034-7357 or https://zoom.com.cn/j/62240347357
	14:25-14:50	Invited Speech 14	"Analysis of Cutting Safety by Stochastic Basin of Attractions" Yan Yao University of Electronic Science and Technology, China	
	14:50-15:15	Invited Speech 15	"Electrohydraulic system control techniques to address the parametric uncertainty and load disturbance" Guo Qing University of Electronic Science and Technology, China	
	17:00-17:25	Invited Speech 16	"Cryptanalysis and Improvement of a Biometrics-based Multi-server Authentication Protocol" Shengqiang Li National Key Laboratory of Science and Technology on Communications, UESTC & The Center for Cyber Security of UESTC	991-1775-6218 or https://zoom.com.cn/j/99117756218

Keynote Speech Abstracts

Dr. C. L. Chen is currently the professor of physics at the Department of Physics and Astronomy in the University of Texas at San Antonio and the fellow of the American Ceramics Society. He received his PhD degree in solid state science (Materials) and MS degree in Physics from the Pennsylvania State University in 1994, MS in Metallurgy Engineering from the Chinese Academy of Sciences (IMR, 1986), and BS in Physics from Huachiao University (1983). He was awarded as the Director's Funded Post-doctoral Fellow in the Los Alamos National Laboratory before he became a faculty member at TcSUH in the University of Houston on May 1996. His research interests have spanned over the areas of multifunctional oxide thin film epitaxy, nanostructure fabrication, surface and interface physics and chemistry, and modeling developments. He has authored and/or coauthored about 200 refereed papers appeared in Nature, Physical Review Letters, Applied Physics Letters, Nanoletters, and others, and delivered near 250 plenary/keynote lectures/invited talks at various international/national conferences, universities, and research institutes. He has served as several international advisory board members in various international conferences, chairs and/or co-chairs in various international and national symposiums such as the American Ceramics Society, Materials Science and Engineering, and others.

Keynote Speech I

"Defect Engineered Complex Oxide Thin Films with Anomalous Multifunctionalities"

May 8 | 9:10-9:55 Meeting ID: 991-1775-6218 or https://zoom.com.cn/j/99117756218

Prof. Chonglin Chen

The University of Texas at San Antonio,USA

Complex oxides have showed various important physical properties such as tunable dielectric and unusual magnetic properties. These extraordinary phenomena are highly dependent upon the degrees of the freedom of the charge distribution, spin and orbital status, and the lattice structures. Among the perovskite cobalt oxide system, the complex cobalt oxides exhibit different cobalt and oxygen coordination varying from tetrahedral, pyramidal to octahedral combinations depending on the oxygen contents, leading to various crystal structures with a great flexibility of the oxygen frameworks. Thus, oxygen nonstoichiometry becomes a very crucial parameter for tuning their atomic structure and physical properties. LnBaCo2O5+d (LnBCO, Ln= rare transition metal elements) systems exhibit various unique physical properties not only due to the presence of A-site disordered and A-site ordered structures (the close ionic sizes of Ln and Ba), but also the degree of ordered oxygen vacancy structures. These defect engineered structures induce the formation of various double perovskite structures and the strong couplings of multifunctionalities from ferroelectricity to ferromagnetism and optic/magnetoelectric response in a single phase double perovskite thin films. More exact to say, defect engineered double perovskite LnBCO system is an only magic oxide system with a single phase oxide compound, two types of ionic charge carriers, three different atomic structures, four field co-tuned multifunctionality system! These findings open a new avenue for material genetic design and synthesis by tailoring the atomic defect structures to facilitate the strong correlated multifunctionalities for energy harvest system and novel device development. Details will be discussed in the talk.

Dr. Gang Feng (M'01, SM'06) received his BEng and MEng degrees in Electronic Engineering from the University of Electronic Science and Technology of China (UESTC), in 1986 and 1989, respectively, and the Ph.D. degrees in Information Engineering from The Chinese University of Hong Kong in 1998. He joined the School of Electric and Electronic Engineering, Nanyang Technological University in December 2000 as an assistant professor and became an associate professor in October 2005. At present he is a professor with the National Laboratory of Communications, UESTC. Dr. Feng has extensive research experience and has published widely in wireless networking research, including nearly 60 IEEE journal and transaction papers. A number of his papers have been highly cited. He has received the IEEE ComSoc TAOS Best Paper Award and ICC best paper award in 2019. His research interests include next generation mobile networks, mobile cloud computing, AI-enabled wireless networking, etc. Dr. Feng is a senor member of IEEE.

Keynote Speech II

"Federated Learning Framework at Wireless Network Edge"

May 8 | 9:55-10:40 Meeting ID: 991-1775-6218 or https://zoom.com.cn/j/99117756218

Prof. Gang Feng

National Key Lab on Communications
University of Electronic Science and Technology of China

Currently, there are nearly 7 billion connected Internet of Things devices and 3 billion Smart-phones at the network edge, which results in explosive growth of energy/spectrum consumption and privacy leakage. Due to the ever increasing computing burden in clouds, it becomes gradually attractive to leverage enhanced local computing resources. In addition, the stringent data security and device privacy concerns are increasing dramatically. Therefore, exploiting local resources to solve some challenging problems in wireless networks while enforcing the data security and devices privacy is becoming one focus in both academia and industry. Fortunately, recently emerging federated learning (FL), a distributed learning paradigm with data protection, provides a highly efficient solution for soliving many challenging issues at wireless network edge. FL enables edge devices to learn a shared network model by aggregating local updates while keeping all the training processes on local devices. This talk will explore recent developments in FL at network edge. I will first review the basic conception of FL and its applications in wreless networks. Then I will introduce two case studies: (1) federated learning based cooperation and augmentation for power allocation over decentralized wireless networks; (2) Device association scheme for radio access network (RAN) slicing by exploiting a hybrid FL reinforcement learning framework, with aim to improve network throughput while reducing handoff cost.

Andrea Massa (IEEE Fellow, IET Fellow, Electromagnetic Academy Fellow) he has been a Full Professor of Electromagnetic Fields @ University of Trento since 2005. At present, Prof. Massa is the director of the network of federated laboratories "ELEDIA Research Center" located in Brunei, China, Czech, France, Greece, Italy, Japan, Peru, and Tunisia with more than 150 researchers. Moreover, he is holder of a Chang-Jiang Chair Professorship @ UESTC (Chengdu - China), Professor @ CentraleSupélec (Paris - France), and Visiting Professor @ Tsinghua (Beijing - China). He has been holder of a Senior DIGITEO Chair at L2S-CentraleSupélec and CEA LIST in Saclay (France), UC3M-Santander Chair of Excellence @ Universidad Carlos III de Madrid (Spain), Adjunct Professor at Penn State University (USA), Guest Professor @ UESTC (China), and Visiting Professor at the Missouri University of Science and Technology (USA), the Nagasaki University (Japan), the University of Paris Sud (France), the Kumamoto University (Japan), and the National University of Singapore (Singapore). He has been appointed IEEE AP-S Distinguished Lecturer (2016-2018) and served as Associate Editor of the "IEEE Transaction on Antennas and Propagation" (2011-2014). His research activities are mainly concerned with inverse problems, antenna analysis/synthesis, radar systems and signal processing, cross-layer optimization and planning of wireless/RF systems, system-by-design

Keynote Speech III

"Optimal Trade-Off Phased-Arrays for Future Generation Radars and Communication Systems"

May 9 | 14:00-14:45 Meeting ID: 991-1775-6218 or https://zoom.com.cn/j/99117756218

Prof. Andrea Massa

University of Trento, Italy

IEEE Fellow

Phased array antennas represent a key component in the development of communication and radar technologies. Thanks to their high flexibility and reconfiguration capabilities, such antennas are suitable devices to be used in 5G or others next generation systems. However, the cost of these systems represents a heavy obstacle to a wide diffusion in the commercial wireless industry, especially when dealing with large fully- populated arrays where each element is equipped with an expensive transmitting/receiving module (TRM). Since several years the scientific community have been making great efforts to find alternative solutions to overcome this issue, among which thinned, sparse or sub-arrayed/clustered arrays, enabling the

achievement of good trade-offs between architecture/feed network complexity and radiation performance. More specifically, recent advances on array design are concerned with the simplification of the beam forming network (BFN) by means of innovative strategies devoted to jointly minimize the unavoidable reduction of the array performance in terms of radiation features and link Quality-of-Service (QoS). The talk with review leading edge solutions in unconventional array design also envisaging future trends and potentialities.

and material-by-design (metamaterials and reconfigurable-materials), and theory/applications of optimization techniques to engineering problems (coms, medicine, and biology).

Prof. Massa published more than 700 scientific publications among which more than 350 on international journals (> 12.000 citations - h-index = 55 [Scopus]; > 9.500 citations - h-index = 48 [ISI-WoS]; > 20.000 citations - h-index = 80 [Google Scholar]) and more than 500 in international conferences where he presented more than 200 invited contributions (> 35 invited keynote speaker) (www.eledia.org/publications). He has organized more than 100 scientific sessions in international conferences and has participated to several technological projects in the European framework (>20 EU Projects) as well as at the national and local level with national agencies (>300 Projects/Grants).

Vladimir Terzija received the Dipl-Ing., M.Sc., and Ph.D. degrees in electrical engineering from the University of Belgrade, Belgrade, Serbia, in 1988, 1993, and 1997, respectively.

He is the EPSRC Chair Professor in Power System Engineering with the Department of Electrical and Electronic Engineering, The University of Manchester, Manchester, U.K., where he has been since 2006. From 1997 to 1999, he was an Assistant Professor at the University of Belgrade, Belgrade, Serbia. From 2000 to 2006, he was a senior specialist for switchgear and distribution automation with ABB, Ratingen, Germany. His current research interests include smart grid applications; wide-area monitoring, protection, and control; multi-energy systems; switchgear and transient processes; ICT, data analytics and digital signal processing applications in power systems.

Prof. Terzija is Editor in Chief of the International Journal of Electrical Power and Energy Systems, IEEE Fellow, Alexander von Humboldt Fellow, as well as a DAAD and Taishan Scholar. He is the recipient of the National Friendship Award, China (2019) and Qilu Friendship Award, China (2018). Since 2018, he is the National Thousand Talents Distinguished Professor at Shandong University, China.

Keynote Speech IV

"Protection and Control Systems and Wide Area Schemes "

May 9 | 14:45-15:30 Meeting ID: 991-1775-6218 or https://zoom.com.cn/j/99117756218

Prof. Vladimir Terzija

The University of Manchester, Manchester, UK

IEEE Fellow

A broad spectrum of advanced technology solutions and novel protection and control techniques will deliver new modes of integrated power system protection and control. Supported by the Global Positioning System, the Synchronized Measurement Technology (SMT) is one of those key technologies. The focus of this presentation are recently finished, or currently undergoing industry funded research projects in which Wide-Area Monitoring, Protection and Control (WAMPAC) applications based on SMT were developed and applied in GB power system. Projects, in which aspects of monitoring, protection and control were studied, will be presented. Monitoring of power systems with thyristor controlled series compensation will be explored. Applications suitable for frequency control of future power systems with high penetration of power electronics connected generation, the so called nonsynchronous generation, will be particularly addressed. A move from classical state estimator to the linear one, much faster, will be presented. A number of practical aspects, also the testing of novel solutions, will be covered by the presentation. An outlook how to prevent potential power system blackouts will be also given.

Weihao Hu (S'06–M'13–SM'15) received the B.Eng. and M.Sc. degrees from Xi'an Jiaotong University, Xi'an, China, in 2004 and 2007, respectively, both in electrical engineering, and Ph. D. degree from Aalborg University, Denmark, in 2012. He is currently a Full Professor and the Director of Institute of Smart Power and Energy Systems (ISPES) at the University of Electronics Science and Technology of China (UESTC). He was an Associate Professor at the Department of Energy Technology, Aalborg University, Denmark and the Vice Program Leader of Wind Power System Research Program at the same department. His research interests include intelligent energy systems and renewable power generation. He has led/participated in more than 15 national and international research projects and he has more than 160 publications in his technical field. He is an Associate Editor for IET Renewable Power Generation, has been Guest Editor-in-Chief for Journal of Modern Power Systems and Clean Energy Special Issue on Applications of Artificial Intelligence in Modern Power Systems, Guest Editor-in-Chief for Transactions of China Electrical Technology Special Issue on Planning and operation of multiple renewable energy complementary power generation systems, and Guest Editor for the IEEE TRANSACTIONS ON POWER SYSTEM Special Section on Enabling very high penetration renewable energy integration into future power systems. He was serving as the Technical Program Chair (TPC) for IEEE Innovative Smart Grid Technologies (ISGT) Asia 2019 and was serving as Secretary and Treasurer of Power & Energy Society Chapter, IEEE Denmark Section. He is currently serving as Chair for IEEE Chengdu Section PELS Chapter and he is an IEEE Senior Member.

Keynote Speech V

"Applications of Artificial Intelligence and Optimization in Wind Power Systems"

May 9 | 15:45-16:30 Meeting ID: 991-1775-6218 or https://zoom.com.cn/j/99117756218

Prof. Weihao Hu

University of Electronic Science and Technology of China, China

Recent years, wind power is experiencing a rapid growth, large number of wind turbines/wind farms have been installed and connected to power systems. In addition to the large centralized wind farms connected to transmission grids, many distributed wind turbines and wind farms are operated as distributed generators in distribution systems. This presentation discusses several applications of artificial intelligence and optimization in wind power systems, including the European and Chinese experiences and some of our research at Institute of Smart Power and Energy Systems (ISPES), University of Electronics Science and Technology of China (UESTC).

Invited Speech Abstracts

He received the B.S., M.S., and Ph.D. degrees from the University of Electronic Science and Technology of China (UESTC), China, in 2004, 2007, and 2010, respectively. He became a Professor of UESTC in 2017 and received National Nature Science Foundation of China (NSFC) Excellent Young Scholars in 2019. His current research topic is microwave integrated circuits and systems. He is now Associate Editors of Microwave and Optical Technology Letters(MOTL) International Journal of Numerical Modelling: Electronic Networks, Devices and Fields (IJNM) and an Editorial Committee of <<Research& progress of Solid State Electronic>>. He has won three provincial and ministerial science and technology awards. He published two books of <<Equivalent circuit modeling of Microwave GaN power transistors>> and <<Microwave Integrated Circuits>>, and is an author or a coauthor of more than 100 scientific papers in international journals of IEEE TMTT, IEEE MWCL, IEEE TED, IEEE EDL, APL, etc.

Invited Speech 1

"Microwave Solid-State Power Devices Based On Diamond"

May 8 | 10:55-11:25 Meeting ID: 991-1775-6218 or https://zoom.com.cn/j/99117756218

Yuehang Xu 国家优秀青年基金获得者

University of Electronic Science and Technology of China

To further increase the out-power of microwave solid-sate device, diamond has been attracted by many institutes after the great success of GaN material. Compared with GaN, diamond has four times higher breakdown electric field, 10 times higher thermal conductivity, and similar carrier saturation velocity, which enable its great potential in next generation of microwave solid-state power devices. In this talk, the history of microwave solid-state power devices from first generation semiconductors (i.e. Si) to second generation semiconductors (i.e. GaAs) and to third generation semiconductors (i.e. GaN) will be reviewed first. Then the physical basis of diamond material and its progress as an electronic material will be presented. For microwave solid-state devices, very high quality and large area man-made diamond will be needed, which has been an obstacle for many years. Besides diamond material, various state-of-the-art devices will be demonstrated, such as H-terminal MOSFET. Though there are a few good results have been reported for H-terminal MOSFET, its performance is still far away from state-of-the-art GaN devices. There are still many mechanisms need to explore and novel structures are also needed. Finally, the challenges of diamond microwave solid-state power devices will be given out for open discussions.

Bing Zhang (M'12 SM'15) was born in Taiyuan, China. He received the B.E. degree from the Civil Aviation University of China, Tianjin, China, in 2004, the M.E. degree from Shanxi Uni¬versity, Taiyuan, China, in 2008, and the Ph.D. degree from Nanyang Technological Uni-versity, Singapore, in 2012, all in electrical and electronic engineering. He was a Visiting Scholar with the Univer¬sity of Nice Sophia Antipolis, Nice, France, in May 2012, and a Visiting Scientist with Telecom Bretagne, Brest, France, in November 2014 and April 2015. He was a Postdoctoral Researcher with the Microwave Electronics Laboratory, Department of Microtechnology and Nanoscience, Chalmers University of Technology, Gothenburg, Sweden, from November 2011 to October 2015. He was a Research Fel¬low with the Department of Electrical and Computer Engineering, National University of Singapore from 2016 to 2017. He was a part-time Consult¬ant with Sunrise Company, Ltd., Guangzhou, China, where he was involved in developing mobile base station antennas. He was the Chief Technology Officer of Blue Ocean Information Technology Company, Ltd., Wuhan, China, where he was involved in developing wearable electronic devices. He has been a Full Professor with the College of Electronics and Information Engineering at Sichuan University, Chengdu, China since 2017. His research inter-ests include design and codesign of RF passive and active devices, mmWave and THz antennas, packaging of mmWave and THz devices, Antenna-in-Package, 3-D printing technologies for millimeter-wave and THz applications, and wireless power transfer.

Invited Speech 2

"Design of a Metallic-Dielectric 3D Printed Multi-Beam Lens Antenna"

May 8 | 13:30-13:55 Meeting ID:654-8151-3676
or https://zoom.com.cn/j/65481513676

Bing Zhang

Sichuan University, China

A K-band multibeam lens antenna is reported for hydrological radar applications. It is designed with a shared aperture and drifted feeds on elevation and azimuth. The feeds shift off the focal point of the lens onto a planar plane, which generates multibeam by refraction meanwhile eases the mounting of the lens on a smooth surface. A conical horn array is designed as the feed for increased gain and better power capacity. Both dielectric and metallic 3D printing technologies are adopted for fabrication. Measurement results agree with simulation, showing an impedance bandwidth of 18-25 GHz. The boresight gain lies in the range of 24-29 dBi. It radiates seven beams ±34o symmetrically on elevation and azimuth. Mutual coupling between adjacent ports is below – 30 dB. The proposed multibeam lens enriches the choices for hydrological radar applications, in which a large area or multiple targets shall be looked upon from distance away.

Yikai Chen was born in Hangzhou, China, in 1984. He received the B.Eng. and Ph.D. degrees in electromagnetics and microwave technology from the University of Electronic Science and Technology of China (UESTC), Chengdu, China, in 2006 and 2011, respectively. From 2011 to 2015, he was a Research Scientist with the Temasek Laboratories, National University of Singapore, Singapore. In 2015, he joined UESTC, as a Full Professor. He has authored or co-authored over 140 peer-reviewed papers and 53 patents/patent disclosures. He has co-authored the book entitled Characteristic Modes: Theory and Applications in Antenna Engineering (John Wiley, 2015), and one book chapter to Differential Evolution: Fundamentals and Applications in Electrical Engineering (IEEE Wiley, 2009). His current research interests include antenna engineering, computational electromagnetics, and evolutionary optimization algorithms in electromagnetic engineering.

Invited Speech 3

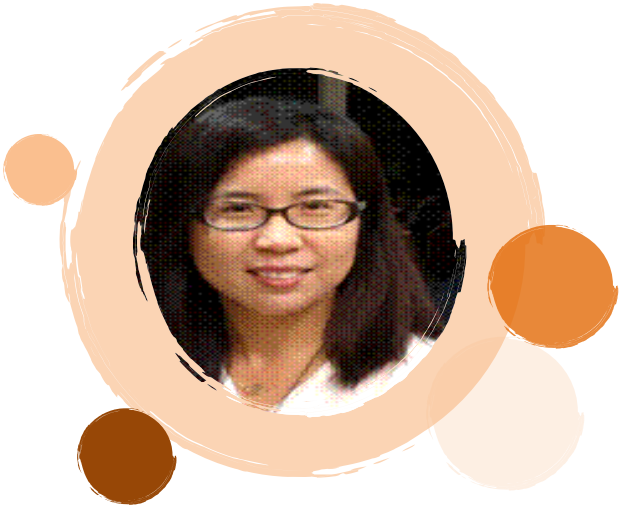
"Decoupling Techniques in Shared-Aperture Antenna Arrays"

May 8 | 13:55-14:20 Meeting ID: 654-8151-3676 or https://zoom.com.cn/j/65481513676

Yikai Chen 国家特聘青年专家

University of Electronic Science and Technology of China

To enhance the throughput of wireless systems and be able to support a large number of users, massive MIMO (Multiple-Input Multiple-Output) antenna configuration has been a significant technology in 5G antenna system. However, the large number of antennas require large volume, which inevitably aggravate the limited radiation aperture over base station tower. It is expected that the sub-6 GHz massive-MIMO antenna array could be shared aperture working with traditional 2G, 3G and 4G antenna. To overcome the challenges in decoupling of shared-aperture antenna arrays, this talk discusses some decoupling techniques in a dual-band shared-aperture antenna array..



Prof. Zhao got her Ph.D. degree from the department of materials science and engineering, the University of Michigan, in 2010. Later she worked as postdoc and senior researcher in University of Tokyo and the Hong Kong University of Science and Technology. Now she works as a professor in institute of materials, China Academy of Engineering Physics. Her major research is focused on organic-inorganic hybrid semiconductors, inorganic semiconductors, and nano-composites geared toward efficient energy conversion. Be particular, devices of interest include perovskite solar cells, radiation detectors, betavoltatic cells, optical gas sensors, and others. She is hosting the national key R and D projects on "development and industrialization of high resolution silicon based radiation detectors" and other projects. So far, she has published more than 20 papers and authorized more than 15 patents. in journals such as advanced materials, nano letters, and journal of materials chemistry A.

Invited Speech 4

"Improvement of Interface Layers for High Efficient Perovskite Solar Cells"

May 8 | 13:30-13:55 Meeting ID: 622-4034-7357 or https://zoom.com.cn/j/62240347357

Yiying Zhao 国家特聘青年专家

China Academy of Engineering Physics, China.

Organic-inorganic hybrid halide perovskite (PVK) materials have been considered as the most promising candidates for next generation solar cells, due to their extraordinary optoelectronic properties such as outstanding photo-voltaic performance, high carrier mobility, low non-radiative charge recombination and adjustable bandgap. Thanks to the numberless efforts on component engineering, crystallization control, and solvent engineering, the efficiency of organic-inorganic perovskite solar cells (PSCs) increased in an astonished rate from initial 3.8% to 25.2% just in a decade. Further improving the efficiency and stability of PSCs requires novel functional materials, better energy level alignment, and lower carrier recombination rate at interfacial defects and at bulk defects in perovskite layers.

Therefore, enhanced light absorption, efficient charge separation, low energy loss across the interfaces, and low carrier recombination at defects are the most desired characteristic for PSCs. Interface device passivation and device structure optimization are the main strategies to improve the efficiency and device stability. In this work, we report a effective TiO2 doped layer for improving electron transport, and a perovskite surface modification layer for improving hole transport, respectively. The Na2S doped TiO2 layer can effectively improve the conductivity of TiO2 layers and also the crystallinity of following perovskite layers, resulting in improved efficiency and stability. A PEA2PbI4-MAPbI3 composite interfacial layer can serve as the hetero-structure and passivation layer simultaneously, leading to the enhancement of charge separation and the effective passivation of the interfacial defects. This work offers a promising path for the fabrication of highly efficient and stable PSCs.

Ming-Chun Tang is currently a full Professor in the School of Microelectronics and Communication Engineering, Chongqing University, China. His research interests include electrically small antennas, RF circuits, metamaterial designs and their applications. Prof. Tang was a recipient of the National Science Fund for Excellent Young Scholars in 2019. His Ph.D. students received Best Student Paper Awards from the IEEE 7th Asia-Pacific Conference on Antennas and Propagation (2018 IEEE APCAP) held in Auckland, New Zealand, 2019 IEEE International Applied Computational Electromagnetics Society (ACES) Symposium, Nanjing, China, 2019 IEEE International Workshop on Electromagnetics: Applications and Student Innovation Competition, Qiangdao, China, and 2019 Cross Strait Quad-Regional Radio Science and Wireless Technology Conference, Taiyuan, China. He is the founding Chair of the IEEE AP-S / MTT-S Joint Chongqing Chapter. He serves on the Editorial Boards of several journals, including IEEE Access, Electronics Letters and IET Microwaves, Antennas & Propagation. He has also served on the review boards of various technical journals, and many international conferences as a General Chair, TPC Member, Session Organizer, and the Session Chair.

Invited Speech 5

"Metamaterial Engineered, Electrically Small Antennas With Enhanced Bandwidth"

May 8 | 6:20-16:45 Meeting ID: 672-8878-7498 or https://zoom.com.cn/j/67288787498

Ming-Chun Tang 国家优秀青年基金获得者

Chongqing University, China

In this talk, we will report various electrically small antennas whose wide bandwidths are enabled with interdigitated near-field resonant parasitic (NFRP) elements. As is well known, electrically small antennas (ESA) generally suffer from narrow bandwidths and low radiation efficiencies. Recently, near-field resonant parasitic (NFRP) antennas have proven to be an effective way to address those ESA deficiencies while having additional merits such as ease of fabrication and being matched to their source without any external feeding network. In order to expand the operational bandwidth of the NFRP ESAs, two methods have been commonly adopted. One utilizes multiple NFRP elements with nearby overlapping resonances to achieve wider bandwidth at the cost of the antenna design complexity. The other employs active elements and, hence, requires DC sources and complex lumped circuits that could lead to potential instabilities. It is highly desirable to attain large bandwidths with only one NFRP element and without additional circuit elements and their requisite DC sources. A wideband ESA has potential applications in space-limited wireless communication systems, e.g., indoor base station, portable, and medical diagnostic systems.

Xiaosheng Zhang is currently a Professor at University of Electronic Science and Technology of China (UESTC). He received the Ph.D. degree in Microelectronics and Solid-State Electronics from Peking University in 2014. And then he joined École Polytechnique Fédérale de Lausanne (EPFL), Switzerland, as a research scientist, and also served as a research associate at The University of Tokyo, Japan. In 2017, he was awarded with the Hundred-Talent Professorship by the University of Electronic Science and Technology of China. His research field covers the micro/nano electronic science and technology, and especially its application for self-powered micro/nano electronics.

Prof. Zhang has published 2 scientific books, more than 50 peer-reviewed papers (Nano Letters, ACS Nano, Nano Energy, etc.) and contributed over 25 conference talks (MEMS, TRANSDUCERS, NEMS, etc.), and authorized 22 invention patents. In recognition for his research accomplishment, Prof. Zhang won over 20 academic awards. He also served as TPC member and session chair for TRANSDUCERS 2019 and IEEE NEMS 2017-2020, and referee for several highly-reputable journals (Nature Communications, ACS Nano, Advanced Functional Materials, Advanced Energy Materials, Nano Energy, etc.). Prof. Zhang currently serves as Associate Editor for IEEE Transactions on Nanotechnology since March 2017.

Invited Speech 6

"Silk Fibroin – An Emerging Material for Self-Powered Smart Electronics"

May 8 | 6:20-16:45 Meeting ID: 991-1775-6218 or https://zoom.com.cn/j/99117756218

Xiaosheng Zhang (国家特聘青年专家)

University of Electronic Science and Technology of China, China

In view of sustainable energy sources to power the Internet of things, recently a new kind of ambient energy harvesting mechanism has been developed. It is named nanogenerator to efficiently harvest and convert biomechanical energy into remarkable electricity, which is thus clean without any source of pollution and sustainable. However, in order for these nanogenerators to make a real impact in daily life applications, further improvements are needed in particular for materials innovation. This talk will introduce our research activities to respond these challenges by developing an emerging and promising material called silk fibroin. More than effective energy harvesting, we also focus on inventing self-powered smart electronics, which combine separated functional components, including a complete chain of sensing-proceeding-responding as well as power sources..

Dr. Hao Yang is currently a full professor in College of Science, Nanjing University of Aeronautics and Astronautics. He got his PhD degree in Institue of Physics, Chinese Academy of Science in 2005. From 2006 to 2009, Dr. Yang worked as a Director's Postdoctoral Fellow in Los Alamos National Laboratory, USA. In August 2009, Dr. Yang joined Soochow University as a full professor. And in May 2015, he relocated to Nanjing University of Aeronautics and Astronautics. Dr. Yang's research mainly focused on the oxide thin films (such as ferroelectric, piezoelectric, and multiferroic etc) and correlated devices. He has published about 100 research papers in Nature Materials, Advanced Materials, Advanced Functional Materials, and APL etc. All these publications have been cited more that 2000 times.

Invited Speech 7

"Flexible Piezoelectric Sensor for Structural Health Monitoring"

May 8 | 16:45-17:10 Meeting ID: 991-1775-6218 or https://zoom.com.cn/j/99117756218

Hao Yang

Nanjing University of Aeronautics and Astronautics, China

Active Lamb wave detection is an effective and simple monitoring method for structural health monitoring (SHM). Piezoelectric lead zirconate titanate (PZT) ceramics are most commonly used transducer to excite and receive Lamb wave. However, due to their hardness, thickness and brittleness, PZT ceramics are severely limited in detecting damage from curved surface structures. Herein, we report flexible PZT film sensor is an excellent candidate for receiving Lamb wave used in Lamb wave-based SHM of aircrafts. An improved piezoelectric coefficient d33 (~ 130 pm/V) is obtained in epitaxial PZT film grown on flexible mica substrate via van der Waals heteroexpitaxy. Superior stable ferroelectricity and piezoelectricity retain in flexible PZT film after bending 104 cycles under a radius of 8.016 mm. As determined from both experiment and simulation, flexible PZT film is demonstrated as an ultrasonic sensor with high sensitivity to be bonded on the curved aluminum plate for damage monitoring based on Lamb wave. Our work demonstrates that flexible PZT films have enormous potential for real-time light-weight and high-sensitivity sensors for SHM of aging aircrafts.

He received his bachelor, master and PhD degrees from Shandong University (SDU), Technishe Universitaet Berlin (TUB), and Technical University of Denmark (DTU), respectively. He has work experiences in State Grid Corporation of China (SGCC, China), Younicos AG (Germany), DIgSILENT GmbH (Germany) and Center for Electric Power and Energy (CEE) of DTU. He got the national scholarship for outstanding overseas students in 2015, and was selected as the Thousand Talent Plan (Youth Program), Qilu Young Scholar in 2017. Currently, he is a full-professor at Shandong University.

He is IEEE senior member, member of CIGRE Working Group C6.C1.33 (Integrated Energy system) Working Group and CIGRE C4.56 (Electromagnetic transient simulation models for large-scale system impact studies in power systems having a high penetration of inverter connected generation), Vice Chair of Shandong Energy Research Association. Currently he is an Associate Editor of the IET Renewable Power Generation, IET Journal of Engineering, the Youth Editor of Power System Protection and Control. He is also the guest associate editor of Special Issue of IEEE Transactions on Energy Conversion, guest Editor-in-chief of Special Issue of International Journal of Electrical Power& Energy Systems.

Invited Speech 8

"Detailed Modeling And Simulation Of Large-Scale Wind Farm"

May 10 | 9:30-9:55 Meeting ID: 672-8878-7498 or https://zoom.com.cn/j/67288787498

Zhao Haoran 国家特聘青年专家

Shandong University, China

With the rapid growth of wind power penetration, the complexity of the power system has greatly increased. In order to improve the computation efficiency, the existing wind farm model has been highly simplified and clustered, which cannot accurately describe necessary dynamics of wind farm. This study combines the advantages of various professional simulation platforms, and establish a joint simulation platform that can refine the modeling of most complex components in the power grid, and ensure real-time performance.

Tiedong Cheng was born in Yichun city, Jiangxi province, China in 1975. He is currently an associate professor of Jiangxi University of Science and Technology, Jiangxi, China. He received the B.S and Phd degrees in physical electronics from Nanchang University and Guangdong University of Technology, China, respectively. He used to be a researching engineer in EPCOS (zhuhaiFTZ) Co.,Ltd and assistant researcher in department of applied physics, Hong Kong Polytechnic University. His research interests are piezoelectric devices, memristors, embedded system and analog integrated devices. As a researcher interested in engineering and science at the same time, he successfully transformed his own patent technology (about piezoelectric and pressure-sensitive devices) into the field of public safe production and medical equipment.

Invited Speech 9

"Conductive Mechanism and Bionic Characteristics of Analog Memristors Based on Metal Oxides "

May 10 | 9:30-9:55 Meeting ID: 622-4034-7357 or https://zoom.com.cn/j/62240347357

Tie Dong Cheng

Jiangxi University of Science and Technology, China

The analog memristor is one of the most commonly known devices in the electronic components that are the closest to the synapse in the nervous system. It was found that most metal oxide thin films can show the characteristics of memristor by modulating the preparation process, electrodes material and film thickness. An effective physical model for simulating the memristor was built. The model equation is based on the fermi gold law, and the transport process of charge in the Mental-Insulator-Mental structure is described in terms of the number of defects, the coupling between those defects and electrode and the probability of the carrier tunneling. The relationship between the voltage and current of the analog memristor can be well simulated by the interface of the metal oxide and the metal electrode according to the model.

The results of the test and simulation show that the memristor prepared in this work has the learning ability and the neurosynaptic simulation ability similar to the conditional reflex with the continuous and memory-based conductance change of the memristor. A single analog memristor can simulate the conditioned reflex of the Pavlov's dog. a plurality of analog memristors can be used to simulate and complete the high-efficiency image recognition function; and the experiment and the simulation also prove that the prepared memristor has the relevant plasticity of the pulse time possessed by the synapse, short-term plasticity, long-term plasticity and learning-forget-restudy and other biological characteristics..

Fujin Deng is a Ph. D, Chief Youth Professor of Southeast University, IEEE Senior Member and Head of Department of Power Electronics. He pursued his Ph. D degree in Aalborg University, Aalborg, Denmark from 2009 to 2012. From 2012 to June, 2015, he was a postdoctoral researcher in the Department of Energy Technology, Aalborg University, Aalborg, Denmark, where he was an assistant Professor from July, 2015 to April, 2017. He joined the School of Electrical Engineering, Southeast University in 2017. He hosts ten projects such as National Natural Science Foundation of China, Jiangsu Province Double Talents Project, Jiangsu Province Six Talents High-level Project, Jiangsu Natural Science Foundation and other projects. He has published more than one hundred academic papers, and applied for more than ten invention patents. His main research interests include wind power generation, high-voltage direct-current technology, modular multilevel converters and DC grid.

Invited Speech 10

"Key Technologies of Modular Multilevel Converters"

May 10 | 13:30-13:55 Meeting ID: 654-8151-3676
or https://zoom.com.cn/j/65481513676

Fujin Deng 国家特聘青年专家

Southeast University, China

In the context of large-scale development of renewable energy putting forward higher requirements for the development of power electronic technology, modular multilevel converter (MMC) with its highly modular structure has become the core technology of high-voltage and large capacity power electronic converter. With the advantages of easy to expand, low harmonic, easy to redundant design and so on, the MMC has been widely used in high-voltage DC transmission, motor drive, rail transit, energy storage and so on. In this report, the key technologies of the MMC are discussed, including control, fault diagnosis and system fault-tolerant control.

Jienan Chen received the B.S. and Ph.D degrees in communication systems from the University of Electronic Science and Technology of China (UESTC), Chengdu, China in 2007 and 2014, respectively. He is currently an Associate Professor in the National Key Laboratory of Science and Technology on Communications at the UESTC. He also worked in the School of Electrical and Computer Engineering, University of Minnesota, Minneapolis, as a visiting scholar in 2012 and 2014 and then as postdoctoral scholar at the University of North Texas. He also served as symposium chair for Globalsip 2019. His current research interests include VLSI circuit designs, low-power circuit designs, and stochastic computation-based system designs.

Invited Speech 11

"Artificial Intelligence-Driven Hybrid Beamforming for Millimetre Wave Massive MIMO System"

May 11 | 16:10-16:35 Meeting ID: 672-8878-7498 or https://zoom.com.cn/j/67288787498

Jienan Chen

University of Electronic Science and Technology of China

Hybrid analog/digital processing is crucial for millimeter-wave (mmWave) MIMO systems, due to its ability to balance the gain and cost. Despite fruitful recent studies, the optimal beamforming/combining method remains unknown for a practical multiuser, broadband mmWave MIMO equipped with low-resolution phase shifters and low-resolution analog-to-digital converters (ADCs). In this paper, we leverage artificial intelligence techniques to tackle this problem. Particularly, we propose a neural hybrid beamforming/combining (NHB) MIMO system, where the various types of hybrid analog/digital mmWave MIMO systems are transformed into a corresponding autoencoder (AE) based neural networks. Consequently, the digital and analog beamformers/combiners are obtained by training the AE based new model in an unsupervised learning manner, regardless of particular configurations. Using this approach, we can apply a machine learning-based design methodology that is compatible with a range of different beamforming/combing architectures. We also propose an iterative training strategy for the neural network parameter updating, which can effective guarantee fast convergence of the established NHB model. According to simulation results, the proposed NHB can offer a significant performance gain over existing methods in term of bit error rate (BER). Moreover, NHB is more promising for practice due to its better flexibility and compatibility.

Dr. Gang Yang is currently an Associate Professor with the National Key Laboratory of Science and Technology on Communications, and the Center for Intelligent Networking and Communications, University of Electronic Science and Technology of China (UESTC). He received the B.Eng. and M.Eng. degrees in 2008 and 2011, respectively, from the University of Electronic Science and Technology of China, and the Ph.D. degree from Nanyang Technological University, Singapore in 2015. He was a Research Fellow with National University of Singapore in 2015. His research interests include Internet-of-Things communications, reconfigurable/symbiotic communication based on intelligent reflecting/backscatter, and wireless powered communications. He is the principal Investigator or core researcher of several national-level projects with total funding of 10,000,000+, RMB, funded by National Natural Science Foundation of China, and the National Key R&D Program of China. He has publised 40+ prestigous international journal or conference papers, with 3 ESI highly cited paper, and applied 10+ patens, with 4 granted patens. He was a recipient of the IEEE Communications Society Transmission, Access, and Optical Systems (TAOS) Technical Committee Best Paper Award in 2016, the Chinese Government Award for Outstanding Self-Financed Students Abroad in 2015, and the Academic Newcomer Award of UESTC in 2018. He served for the IEEE Globecom'17 as Publicity Co-Chair.

Invited Speech 12

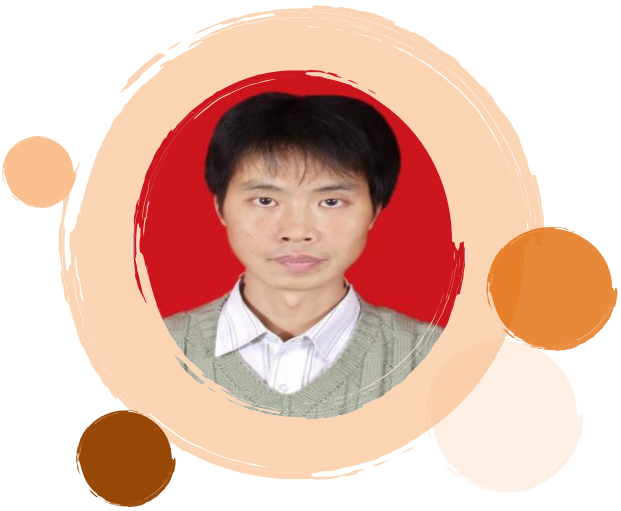
"Intelligent Reflecting Empowered Wireless Communications"

May 12 | 14:00-14:25 Meeting ID: 654-8151-3676 or https://zoom.com.cn/j/65481513676

Gang Yang

University of Electronic Science and Technology of China

Intelligent reflecting communication (IRC) has recently emerged as a promising technology for spectrum- and energy- efficient as well as cost-efficient communication technology. This presentation will dscuss the recent advances of IRS from the perspects of intelligent backscatter enabled symbiotic communicaton (IBSC) and intelligent reflecting surface assisted communicaton (IRSC). On the one hand, IBSC enables wireless-powered backscatter devices to modulate their information symbols over ambient radio-frequency (RF) carriers (e.g., WiFi, TV, or cellular signals) without using any costly and power-hungry RF transmitter. IBSC is especially attractive for Internet-of-Things (IoT) communication, since it does not need dedicated radio spectrum due to the spectrum sharing between the backscatter transmission and the ambient transmission. Since the backscatter transmission depends on the ambient RF signals, there are many challenging problems in both fundamental theory and key techniques waiting to be issued, for example, how to design a high-rate IBSC transceiver and allocate resource optimally? In the first part of this presentation, we will provide efficient technical solutions for the above questions. In particular, we will focus on IBSC over OFDM carriers, MIMO-IBSC, as well as full-duplex IBSC. On the other hand, intelligent reflecting surface (IRS) is a rising and revolutionizing communication technology, through which wireless propagation environment can be intelligently reconfigured. In particular, an IRS consists of a large number of passive reflecting elements, which can adjust the phases and/or amplitudes of the incident signals to intentionally establish preferable channels. In the second part of this presentation, we will discuss the optimal designs of an IRS-assisted downlink non-orthogonal-multiple-access (NOMA) system and an IRS-assisted direct device-to-device (D2D) communication system, respectively.



Prof. Yue Yuan received PHD in Dynamics and Control from Southwest Jiaotong University in 2008. Since then he has worked in Mechanics and Engineering Institute, Southwest Jiaotong University. He has visited University of Aberdeen from March, 2015 to March, 2016. His scientific interests include nonlinear dynamics, dynamics of nonsmooth system. His present scientific activity is concentrated on dynamics of railway vehicles and strange nonchaotic dynamics. He is the member of science committee of International Conference on Nonlinear Dynamics and Control 2020 (ICNDC-2020). He is also the member of science committee of International Conference on Engineering Viberation-2020 (ICoEV2020). Till now he has presided three projects funded by National Natural Science Foundation of China.

Invited Speech 13

"Mixed Attractors And New Intermittencies in A Vibro-Impact System in A Vibro-Impact System"

May 12 | 14:00-14:25 Meeting ID: 622-4034-7357 or https://zoom.com.cn/j/62240347357

Yue Yuan

Southwest Jiaotong University, China

Mixed attractors and new intermittencies in a vibro-impact system are uncovered in the six dimensional Poincaré map of a symmetric three-degree of freedom vibro-impact system. Accompanied by symmetry restoring bifurcation, this mixed attractors are the consequence of novel intermittencies that occurs between two conjugate sets and a chaotic set. The six dimensional Poincaré map P is the 2-fold composition of another virtual implicit map Q, yielding the symmetry of the system. Map Q can capture two conjugate attractors, which is at the core of the dynamics of the vibro-impact system. Three types of symmetry restoring bifurcations are analyzed in detail. First, if two conjugate chaotic attractors join together, the chaos-chaos intermittency induced by attractor-merging crisis takes place. Second, if two conjugate quasiperiodic sets are suddenly embedded in a chaotic one, periodic chaos is induced by a new intermittency between the three attractors. Third, if two conjugate quasiperiodic attractors connect with each other directly, they merge to form a single symmetric quasiperiodic one. For the second case, the new intermittency is caused by the collision of two conjugate quasiperiodic attractors with an unstable symmetric limit set. As the iteration number is increased, the largest finite-time Lyapunov exponent of the QC does not converge to a constant, but fluctuates in the positive region.

Yao Yan has been working on nonlinear cutting dynamics since his PhD, with 17 high-impact peer-reviewed journal papers focusing on the studies of different cutting processes, such as turning, grinding and drilling. He has been awarded the Shanghai Excellent Graduates' Dissertation in 2016. He has been awarded the Young Scientists Fund of the National Natural Science Foundation of China (NSFC) and the General Program of NSFC on the study of nonlinear cutting dynamics. During his PhD, he has worked as a visiting scholar for one year on downhole drilling in the Centre for Applied Dynamics Research at the University of Aberdeen. From this visit, he has developed successful collaboration with Prof. Marian Wiercigroch yielded a series of high-impact journal papers as the first author. He has independently developed innovative research ideas on safety estimation for cutting process, which has been published in Physical Review E. His expertise in the field of nonlinear dynamics has been recognised in the scientific community, as demonstrated by the prizes received and the invitations to peer-review journal papers and the scientific committee panel at international conferences. He has been invited to give talks at the renowned international conferences, including ICTAM2016, ENOC2017 and NODYCON2019.

Invited Speech 14

"Analysis of Cutting Safety by Stochastic Basin of Attractions"

May 12 | 14:25-14:50 Meeting ID: 622-4034-7357 or https://zoom.com.cn/j/62240347357

Yan Yao

University of Electronic Science and Technology, China

Nonlinearity and non-smoothness in regenerative cutting incurs subcritical Hopf bifurcation to introduce large-amplitude chatter into linearly stable region, yielding cutting multi-stability called unsafe cutting (UC) in unsafe zones (UZs). Due to the time delay induced by regenerative effect in chip formation, the cutting multi-stability cannot be analyzed by conventional basin of attraction since delayed terms involve infinite-many dimension. To address this issue, infinite-many dimensional time-delayed states are approximated by a Fourier series aligned on a straight line, and the coefficients of the basis functions and the cutting process are used to construct the stochastic basin of attraction. Inside the stochastic basin of attraction, there exists a safe basin with no chatter. This findings are instrumental in designing a new state-dependent intermittent control to guide the cutting dynamics towards the safe basins. It is also seen that the state-dependent intermittent control is efficient in improving the cutting safety and shrinking the unsafe zones, even when the targeted basin for the control is larger than the real safe basin.

Qing Guo is a full professor in School of Aeronautics and Astronautics, University of Electronic Science and Technology of China. Dr. Guo is also the Academic and Technical Leaders Reserve Candidates of Sichuan Province, China, the IEEE Senior member, the Youth Expert Group Leader of Fluid Control Engineering Branch, the member of Fluid Transmission and Control Branch, Hydraulic Branch, Chinese Mechanical Engineering Society. From December 2013 to December 2014, he was an academic visitor with Center for Power Transmission and Motion Control, Department of Mechanical Engineering, University of Bath, UK. His research interests include Fluid Transmission and Control, Exoskeleton Robot, and Aircraft Guidance and Control. He has published more than 50 papers as the first and corresponding authors.

Invited Speech 15

"Electrohydraulic System Control Techniques To Address The Parametric Uncertainty And Load Disturbance"

May 12 | 14:50-15:15 Meeting ID: 622-4034-7357 or https://zoom.com.cn/j/62240347357

Guo Qing

University of Electronic Science and Technology, China

Electro-hydraulic servo systems (EHSs) are currently widely used in mechatronic control engineering as they have a superior load efficiency compared with motor drive systems. However, there exist model uncertainties in EHS involving hydraulic parametric uncertainty and unknown external load, which will degrade the motion performance and stability of the EHS system. In this presentation, a class model-based control techniques such as robust H_inf controller, parametric adaptive controller, nonlinear backstepping controller are tried to be used in electro-hydraulic system to address these typical problems and improve the positive control performance of EHS under largely external load and uncertain hydraulic parameters.

Shengqiang Li received the B.E. degree from the UESTC, Chengdu, China, in 2003, and Ph.D. degree in cryptography from Xidian University in 2008. He is currently an Associate Professor with the National Key Laboratory of Science and Technology on Communications, UESTC and the Center for Cyber Security of UESTC. His research interests include the pseudorandom sequence, the secure communication, and the cryptography.

Invited Speech 16

"Cryptanalysis and Improvement of a Biometrics-based Multi-server Authentication Protocol"

May 12 | 17:00-17:25 Meeting ID: 991-1775-6218
or https://zoom.com.cn/j/99117756218

Shengqiang Li

National Key Laboratory of Science and Technology on Communications, UESTC & The Center for Cyber Security of UESTC

In 2015, Odelu et al. proposed an efficient biometrics-based authentication protocol for multi-server environment. They claimed that their scheme is secure against different possible known attacks and satisfies attractive security properties. However, in this paper, we prove that Odelu et al.'s scheme is vulnerable to offline password guessing attack and fails to provide three-factor security. To overcome these weakness, we propose an enhanced scheme by applying fuzzy verifier to local password verification in login phase. Security analysis shows that our proposed scheme not only maintains the advantages of the Odelu et al.'s scheme but also withstand the offline password guessing attack. Therefore, our improved scheme can provide three-factor security.

Parallel Sessions at a Glance

	Time	Session	Topic	Paper ID	Meeting ID
Friday 8 May	13:30-15:50	1	Antennas and Microwaves-Antenna Theory and Technology	T0040 T0067 T0077 T0176 T0115 T10001	654-8151-3676 or https://zoom.com.cn/j/65481513676
		2	Electronics Materials and Devices-Photonics and Optoelectronics	T0012 T0033 T0155 T0189 T2006 T3005	622-4034-7357 or https://zoom.com.cn/j/62240347357
	16:20-18:25	3	Antennas and Microwaves-Microwave Principle and Application	T0055 T0129 T0010 T0071 T0053	672-8878-7498 or https://zoom.com.cn/j/67288787498
		4	Electronics Materials and Devices-Electronic Materials and Performance Analysis	T0052 T0098 T0124 T0198 T2007	991-1775-6218 or https://zoom.com.cn/j/99117756218
Saturday 9 May	9:00-10:30	5	Power and Electrical Engineering-Smart Grid and Micro Grid Technology	T0068 T0090 T0087 T0161 T0195 T0050	654-8151-3676 or https://zoom.com.cn/j/65481513676
		6	Electronics Materials and Devices-Electronic Component Design and Optimization	T0070 T0197 T0127 T0137 T0207 T0109	622-4034-7357 or https://zoom.com.cn/j/62240347357
	11:00-12:45	7	Power and Electrical Engineering-Digital Circuits and Systems	T0018 T0020 T0022 T0044 T0086 T0110	672-8878-7498 or https://zoom.com.cn/j/67288787498
		8	Electronics Materials and Devices-Microelectronics and Solid State Electronics	T0119 T0145 T0045 T0167AT0102 T0174 T2003	991-1775-6218 or https://zoom.com.cn/j/99117756218
Sunday 10 May	9:30-11:30	9	Power and Electrical Engineering-New Energy Power Generation and Grid Connection Technology	T0047 T0084 T0009 T0064 T0054 T0143	672-8878-7498 or https://zoom.com.cn/j/67288787498
		10	Electronics Materials and Devices-Electronic Component Design and Optimization	T0125 T0194 T0196 T0199 T0135 T0200	622-4034-7357 or https://zoom.com.cn/j/62240347357
	13:30-15:30	11	Power and Electrical Engineering-Power Electronics and Transmission Technology	T0163 T0201 T0061 T0139 T2014 T0203	654-8151-3676 or https://zoom.com.cn/j/65481513676

		12	Electronics Materials and Devices-Converter Structural Design and Modeling	T0003 T2018 T0051 T0062 T0178 T0175 T0008	991-1775-6218 or https://zoom.com.cn/j/99117756218
	16:10-17:40	13	Power and Electrical Engineering-Digital Circuits and Systems	T0136 T0152 T2009 T0190 T2010	672-8878-7498 or https://zoom.com.cn/j/67288787498
		14	Electronics Materials and Devices-New battery and Energy Storage Technology	T0100 T0164 T0177 T0166 T2016 T0099	622-4034-7357 or https://zoom.com.cn/j/62240347357
Monday 11 May	9:00-10:30	15	Power and Electrical Engineering-Mechatronics	T0117 T0154 T0048 T0171 T0204 T0113	654-8151-3676 or https://zoom.com.cn/j/65481513676
		16	Electronics Materials and Devices-Electronic Materials and Performance Analysis	T0019 T0108 T0114 T0042 T0081 T0202	622-4034-7357 or https://zoom.com.cn/j/62240347357
	11:00-12:45	17	Power and Electrical Engineering-Modern Power System Operation and Control	T0006 T0030 T0096 T0132 T2015 T0074	991-1775-6218 or https://zoom.com.cn/j/99117756218
		18	Electronics Materials and Devices-Physical Electronics and Optoelectronics	T0015 T0046 T0085 T0131 T2012 T0005 T0091	672-8878-7498 or https://zoom.com.cn/j/67288787498
	14:00-15:30	19	Power and Electrical Engineering-Design and Modeling of Smart Appliances	T0007 T0111 T0140 T0061 T0148	654-8151-3676 or https://zoom.com.cn/j/65481513676
		20	Communication and Networks-Computer Network and Satellite Communication	T0170 T0188 T0069 T0156 T0024 T0158	622-4034-7357 or https://zoom.com.cn/j/62240347357
	16:10-18:05	21	Power and Electrical Engineering-Photovoltaic System and Energy Engineering	T0180 T0130 T0181 T0183	991-1775-6218 or https://zoom.com.cn/j/99117756218
		22	Communication and Networks-Communication Principle and Technology	T0122 T0073 T0151 T3006 T0079 T0014	672-8878-7498 or https://zoom.com.cn/j/67288787498
Tuesday 12 May	9:00-10:30	23	Communication and Networks-Signal Analysis and Processing	T0025 T0066 T0072 T0112 T0157 T0206	654-8151-3676 or https://zoom.com.cn/j/65481513676
		24	Power and Electrical Engineering-Electrical Fault Diagnosis and Analysis	T0082 T0169 T0147 T0162 T4001 T0126	622-4034-7357 or https://zoom.com.cn/j/62240347357

11:00-12:30	25	Communication and Networks-Internet of Things and Vehicle Network Technology	T0004 T0192 T1003A T0205 T3003 T4002	991-1775-6218 or https://zoom.com.cn/j/99117756218
	26	New Intelligent System & Measurement And Control Technology	T0049 T0089 T0116 T0187 T0191 T4003	672-8878-7498 or https://zoom.com.cn/j/67288787498
14:00-16:30	27	Communication and Networks-Mobile Communication and Wireless Technology	T0105 T0106 T0144 T0160 T3002 T0034 T0041	654-8151-3676 or https://zoom.com.cn/j/65481513676
	28	Aeronautics and Astronautics	T0037 T0121 T0083 T0173 T0179	622-4034-7357 or https://zoom.com.cn/j/62240347357
17:00-18:35	29	Communication and Networks-Signal Analysis and Processing	T0208 T2004 T0027 T0142 T0032	991-1775-6218 or https://zoom.com.cn/j/99117756218
	30	Computer and Information Science	T0092 T0150 T0153 T0118 T1005	672-8878-7498 or https://zoom.com.cn/j/67288787498

Parallel Session Details

Friday | 8 May, 2020

S1: Antennas and Microwaves-Antenna Theory and Technology

Meeting ID: 654-8151-3676 or https://zoom.com.cn/j/65481513676

Chair: Bing Zhang, Sichuan University, China

1:30PM-3:50PM

Invited Speech 2	Design of a Metallic-Dielectric 3D Printed Multi-Beam Lens Antenna **Bing Zhang** Sichuan University, China
Invited Speech 3	Decoupling Techniques in Shared-Aperture Antenna Arrays **Yikai Chen** University of Electronic Science and Technology of China
T0040	A Low Pass and Wide Angle Frequency Selective Surface with Miniaturized Elements **Dr. Xu Bingzheng**, Jia Shengli, Zheng Ting Nanjing University, China
T0067	Amelioration Of Coaxial Cavity Antenna **Ms. Men Gao**, Duoli Cao, Qingli Lv China Academy of Space Technology, China
T0077	A Slotted Frequency Selective Surface with its Application in Microstrip Antenna RCS Reduction **Ms. Xujing Huang**, Zhiying Zhao, Guobin Wan Northwestern Polytechnical University, China
T0176	A Water-Loaded Pattern Reconfigurable Antenna **Dr. Qingyuan Fang**, Mengzhe Jin, Tong Wang Shijiazhuang Tiedao University, China
T0115	Design of a Novel Planar HF Antenna for Airborne Communications **Mr. Changlong Qiu**, Gao Wei, Kangkang Han and Xianlei Li Northwestern Polytechnical University, China
T10001	An S-Band Beam-Shaping Array Antenna Based on Pyramidal Horn **Mr. Bai Weida**, Jiang Tao, Yan Chen, Jiang Zili, Zong Zijian, Yan Feng Northwest Institute of Nuclear Technology, China

S2: Electronics Materials and Device-Photonics and Optoelectronics

Meeting ID: 622-4034-7357 or https://zoom.com.cn/j/62240347357

Chair: Yiying Zhao, China Academy of Engineering Physics, China.

1:30PM-3:50PM

Invited Speech 4	Improvement of Interface Layers for High Efficient Perovskite Solar Cells **Yiying Zhao** China Academy of Engineering Physics, China.
T0012	Research on Pulsed Laser Induced Single Event Effect for High-Speed Serial Interface **Mr. Junze Li**, Suge Yue, Maoxin Che and Xiaojing Song Beijing Microelectronics Technology Institute, China
T0033	Study on Beam-shaping Mirrors for Gaussian Beams at Frequency of 170GHz **Dr. Guohui Zhao**, Qianzhong Xue, Hongfang Yang and Liang Chen Taishan University, China
T0155	Development of the Control System of High Speed Synchronous Rotating Mirror for Space Laser Ranging Wang Haitao, **Dr. Cao Yu**, Gao Xiong , Zhang Xin, Han Junfeng ,Xie Meilin,Liu Peng, Jing Feng Xi'an Institute of Optics and Precision Mechanics of CAS, China
T0189	Enhanced Photoelectronic Currents by The Self-Assembled Hybrid Layers of Graphene Oxide Quantum Dot and Liquid Exfoliated Graphene **Ms. Tingting Jia**, Jizhao Zhang, Yunfang Jia College of Electronic Information and Optical, China
T2006	Color-tunable Luminescence and Energy Transfer Properties of Dy3+/Eu3+ Co-Doped Ca1.5Sr1.5(PO4)2 Phosphor for White LED Applications **Dr. Xiaofang Yu** and Xiaoyun Mi Changchun University of Science and Technology, China
T3005	Airport-specific Light-guiding Taxiing Guidance Sign **Ms. Ma Xiaodan**, Li Tuo, Jiang Li, Yang Xiaolong, Chen Fei Second Research Institute of Civil Aviation Administration of China

3:50PM-4:20PM

Break

S3: Antennas and Microwaves-Microwave Principle and Application

Meeting ID: 672-8878-7498 or https://zoom.com.cn/j/67288787498

Chair: Ming-Chun Tang, Chongqing University, China

4:20PM–6:25PM

Invited Speech 5	Metamaterial Engineered, Electrically Small Antennas with Enhanced Bandwidth **Ming-Chun Tang** Chongqing University, China
T0055	Radar Adaptive Waveform Selection Behavior Recognition Based on Neural Network **Mr. Kaiyuan Zhang**, Junpeng Yu, Xiaoyan Peng, Yifei Hao UESTC China
T0129	Automatic Calibration of Detectors Under Pulsed Microwave **Mr. Wang Mingcai**, Hao Wenxi, Fan Qiuhu, Liu Yingjun, Miao Yunling Northwest Institute of Nuclear Technology, China
T0010	Research on the Topological Characteristics of Truss Structure for Large Space Modular Deployable Truss Antenna **Assoc. Prof. Dake Tian**, Lu Jin, Rongqiang Liu, Zhaojing Liu, Ke Zhang, Xiaodong Fan Shenyang Jianzhu University, China
T0071	Radar Seeker Anti-Jamming Performance Prediction and Evaluation Method Based on the Improved Grey Wolf Optimizer Algorithm and Support Vector Machine **Mr. Fankang Bu**, Jun He, Haorun Li, Qiang Fu NUDT, China
T0053	A Time Domain Simulation Method for SLED Pulse Compression System **Mr. Zili Jiang**,Tao Jiang,Zhengfeng Xiong,Chen Yan, Weida Bai Northwest Institute of Nuclear Technology, China

S4: Electronics Materials and Devices-Electronic Materials and Performance Analysis

Meeting ID: 991-1775-6218 or https://zoom.com.cn/j/99117756218

Chair: Xiaosheng Zhang, University of Electronic Science and Technology of China, China

4:20PM–6:25PM

Invited Speech 6	Silk Fibroin – An Emerging Material for Self-Powered Smart Electronics **Xiaosheng Zhang** University of Electronic Science and Technology of China, China

Invited Speech 7	Flexible Piezoelectric Sensor for Structural Health Monitoring **Hao Yang** Nanjing University of Aeronautics and Astronautics, China
T0052	Multiple-Relaxation-Time Lattice Boltzmann Model for Squeeze Film Air Damping Of Large Knudsen Number In MEMS Pu Li, **Mr. Chengde Zhu**, Yuming Fang Southeast University, China
T0098	Effects of Drain Doping Profile and Gate Structure on Ambipolar Current of TFET **Mr. Jie Li**, Qian Xie, Anpeng Huang, Zheng Wang University of Electronic Science and Technology of China, China
T0124	Improving The Signal Integrity, Impedance Control And Attenuation Of The Thin Transmission Lines Printed On Flexible Substrates **Mr. Zhenhao Liang**, Yanpeng Xie, Qiang Chen Hefei University of Technology, China
T0198	Study on Fundamental Impedance of Series Capacitor Controlled by Thyristor Chongkai Cai, Junmei Weng, Yongjun Yu, Weifeng Xu, Hui Zhao and **Assoc. Prof. Ziang Duanmu** Chongqing University, China
T2007	The Research of Spectral Response for GaAsP/GaP PIN Photodiode **Assoc. Prof. Xiao Xuefang**, Chen Chao Xiamen University of Technology, China

Saturday | 9 May, 2020

S5: Power and Electrical Engineering-Smart Grid and Micro Grid Technology

Meeting ID: 654-8151-3676 or https://zoom.com.cn/j/65481513676

Chair: Zhenyuan Zhang, UESTC, China

9:00AM-10:30AM

T0068	State Channel based Energy Trading Scheme in Smart Grid **Assoc. Prof. Guofang Dong**, Man Yang Yunnan MinzuUniversity, China
T0090	A Comprehensive Evaluation Method of Reactive Voltage Coordination Control Strategy in Active Distribution Network **Mr. Yunfei Xu**, Yanxiang Yao, Yujiang Li, Changqi Li Dali Power Supply Bureau, Yunnan Power Grid Co., Ltd, China
T0087	A New Method of Intelligent Maintenance of Smart Grids via MST Image Collaborative Displays Zhengrui Peng and **Dr. Chen Zhang** Shanghai Jiao Tong University, China
T0161	New Suppression Strategy for Low Frequency Oscillation between Interconnected Power Grids **Mr. Hu Jinhao**, Li Xin, Liu Yun Electric Power Corporation Research Institute, State Grid Hunan
T0195	An Automatical Parameter Droop Control for HESS in Hybrid AC/DC Microgrid Yihong Zhang, **Mr. Di Zhu**, Yijin Yang, Zihao Liu, Sen Wu, Qian Chen Donghua University, China
T0050	Planning of PV-ESS System for Distribution Network Considering PV Penetration Gangjin Ye, Junhai Wang, Xuan Yang, **Ms. Lebing Zhao**, Jiayi Shang, Mengyao Wu, and Tianyu Zhao Zhejiang University, China

S6: Electronics Materials and Devices-Electronic Component Design and Optimization

Meeting ID: 622-4034-7357 or https://zoom.com.cn/j/62240347357

Chair: Hao Yang, Nanjing University of Aeronautics and Astronautics, China

9:00AM-10:30AM

T0070	Research on the Architecture of Edge Computing SoC with Ultra-Low Power Cui Guoyu, Pang Zhenjiang, **Mr. Feng Shanggong**, Wang Dawei, Cheng Jingwen, Zhou Shengang

	Beijing Haawking Technology Company Limited, China
T0197	A Low Cost High Performance Polynomial Multiplier Design For FPGA Implementation **Mr. Liejun Ma**, Xingjun Wu, Guoqiang Bai Tsinghua University, China
T0127	Scheduling Algorithm of Maximize the Number of Porosity for the Time-Triggered DIMA System **Mr. Yang Mi**, Jing Qu , Jinbo Zhang , Mingwu Yao Xidian University, China
T0137	An FPGA-Based Reconfigurable CNN Accelerator for YOLO **Mr. Shiguang Zhang**, Jian Cao, Quan Zhang, Qi Zhang, Ying Zhang, Yuan Wang Peking University, China
T0207	A Two-Step VCO-Based ADC with PWM Pre-coded Coarse Quantizer **Mr. Sherif Ghozzy,** Hani Fikry Ragai and Mohamed El-Nozahi Teaching Assistant, Egypt
T0109	An Embedded Tracing Debug Implementation for Crossbar Type Bus in Muti-core SoC **Ms. Haixia Duan**, Lixin Yu, Haiyang Zhou and Shiyuan Zhang Beijing Microelectronics Technology Institute, China

10:30AM-11:00AM
Break

S7: Power and Electrical Engineering-Digital Circuits and Systems

Meeting ID: 672-8878-7498 or https://zoom.com.cn/j/67288787498
Chair: Zhenyuan Zhang, University of Electronic Science and Technology of China
11:00AM-12:45PM

T0018	A Negative Pulse GOA Circuit Consisted of a-IGZO TFT **Dr. Zhibin Han**, Liuqi Zhang, Jianxin Liu, Baixiang Han, Gary Chaw, Xin Zhang, Shengdong Zhang Peking University Shenzhen Graduate School, China
T0020	A GOA Circuit Capable Of Simultaneously Outputting Positive And Negative Pulses **Dr. Liuqi Zhang**, Gary Chaw, Baixiang Han, Zhibin Han TCL China Star Optoelectronics Technology Co., Ltd, Shenzhen, China
T0022	A GOA Circuit Composed of a-IGZO TFT with Q-point Precharge Function **Dr. Zhibin Han**, Liuqi Zhang, Jianxin Liu, Baixiang Han, Gary Chaw, Xin Zhang, Shengdong Zhang Peking University Shenzhen Graduate School, China

T0044	Performance Analysis of Width and Thickness Tapered Geometries on Electrical Power Harvested from a Unimorph Piezoelectric Cantilever beam **Mr. Dauda Sh. Ibrahim**, Sun Beibei, Orelaja Adewale Oluseyi and Umer Sharif Southeast University, China
T0086	Memristive Hidden Chaotic System and Circuit Based on Sprott-2 System **Mr. Licai Liu**, Chuanhong Du, Shuaishuai Shi, Shixue Zhang, Mingfu Zhang and Qun Ding Anshun University, China
T0110	Laser Simulation of Transient Ionizing Radiation Effects in the Double-Power Integrated Circuit **Ms. Weiyi Cao**, Yuanfu Zhao, Liang Wang, Tongde Li, Chenglong Sui, Chunqing Yu and Ruilong Han Beijing Microelectronics Technology Institute, China

S8: Electronics Materials and Devices-Microelectronics and Solid State Electronics

Meeting ID: 991-1775-6218 or https://zoom.com.cn/j/99117756218

Chair: Wenjing Jie, Sichuan Normal University, China

11:00AM-12:45PM

T0119	Research on Phase Current Reconstruction with Single Current Sensor Using Vector Pulse Interpolation Method **Mr. Haochen Wang**, Yi Zhang, Haifeng Wei, Kai Li, Yuanjiang Li, Weiting Liu Jiangsu University of Science and Technology, China
T0145	An Automatic Detection Method For Bradykinesia In Parkinson's Disease Based On Inertial Sensor **Ms. Juanjuan He**, Zhiming Yao, Jianguo Wang, Bochen Li ,Xianjun Yang University of Science and Technology of China, CASHIPS, China
T0045	A Low Complexity FIR Filter with an Efficient Frequency Response Masking Technique **Ms. Huahua Li**, Xingyuan Tong, and Qinqin Li Xi'an University of Posts and Telecommunications, China
T0167A	Low Power LUT-Based Multiplier Array for Convolutional Neural Networks **Ms. Min Liu**, Hailong Jiao Peking University Shenzhen Graduate School, China
T0102	Research on Simplification Techniques of a Spur Suppressing Method in DDFS **Mr. Yuan Xue**, Zhongsong Ma, University of Chinese Academy of Sciences, China
T0174	High-Speed SRAM with Flexible Read/Write Data Width Tailored for Convolutional Neural Network **Dr. Xiaowei Chen** and David Bogacz Cedarville University, USA

T2003	An Energy-Efficient Bagged Binary Neural Network Accelerator **Mr. Songhong Liang**, Yingcheng Lin*, Wei He, Ling Zhang, Mingmei Wu, Xichuan Zhou Chongqing University, China

Sunday | 10 May, 2020

S9: Power and Electrical Engineering-New Energy Power Generation and Grid Connection Technology

Meeting ID: 672-8878-7498 or https://zoom.com.cn/j/67288787498

Chair: Zhao Haoran, Shandong University, China

9:30AM-11:30AM

Invited Speech 8	Detailed Modeling and Simulation of Large-Scale Wind Farm **Zhao Haoran** Shandong University, China
T0047	Research on Evaluation of Comprehensive Energy Measurement Business Based on Fuzzy Analytic Hierarchy Process Mouhai Liu, Rui Huang, Jun Lu, **Mr. Weiwei Lin** North China Electric Power University, China
T0084	Prediction of Direct Normal Irradiance Based on Ensemble Deep Learning Models **Mr. Chengying Zhang**, Zhen Yan, Chao Ma, Xiaoli Xu University of Chinese Academy of Sciences, China
T0009	Analysis and Design of a C-type Filter for a Wind or Solar Power Plant Sheng-Kuan Wang and **Mr. Cheng-Ying Lu** Ming Chi University of Technology, Taiwan
T0064	Wind Power Interval Prediction Based on Kernel Density Estimation with Optimal Bandwidth Hanjun Zhang, Si Chen, Weifeng Duan, **Mr. Xu Yunfei** Dali Power Supply Bureau, Yunnan Power Grid Co., Ltd, China
T0054	System Reserve Optimization Considering Uncertainties of Wind Power and Load Forecasting Gangjin Ye, Qiang Xu, Haibo Lu, Weiting Qian, **Mr. Shenglan Xu**, Xuan Yang, Mengyao Wu Zhejiang University, China
T0143	the System Value Analysis of Wind Power Under the Context of Considering Externality **Mr. Shun Ma**, Ming Chen, Lei Yang, Ganggang Liu, Chun Han Power Grid Planning & Research Center of Guangdong Power Grid Co., Ltd, China

S10: Electronics Materials and Devices-Electronic Component Design and Optimization

Meeting ID: 622-4034-7357 or https://zoom.com.cn/j/62240347357

Chair: Tie Dong Cheng, Jiangxi University of Science and Technology, China

9:30AM-11:30AM

Invited Speech 9	Conductive Mechanism and Bionic Characteristics of Analog Memristors Based on Metal Oxides **Tie Dong Cheng** Jiangxi University of Science and Technology, China
T0125	Implementation Method of CORDIC Algorithm to Improve DDFS Performance **Mr. Wenjun Chen**, Tianya Wu, Wangwang Tang, Kai Jin, Guangming Huang Central China Normal University, China
T0194	An External Capacitorless Low-Dropout Regulator With 5.58uV Integrated Output Noise From 10 Hz to 100kHz Using Adaptive Bias Technique **Mr. Xinfa Zheng**, Haigang Feng, Ning Zhang Tsinghua Shenzhen International Graduate School, China
T0196	A 0.03-3GHz Inductorless Wideband Low Noise Amplifier in 65nm CMOS **Mr. Huan Deng**, Haigang Feng, Ning Zhang Shenzhen International Graduate School Tsinghua University, China
T0199	Design and Verification of Radiation Hardened Scanning D Flip-Flop **Ms. Meihui Li**, Bei Cao, Fengchang Lai, Nan Zhang Heilongjiang University, China
T0135	A 40nm CMOS Ultra-Wideband Active Power Divider/Combiner Design **Ms. Tianran Zhao**, Zhangfa Liu Beijing Jiaotong University, China
T0200	Hardware Implementation of A Cryptographically Secure Pseudo-Random Number Generators Based on Koblitz Elliptic Curves **Ms. Xuemei Tian**, Ru Ding, Xingjun Wu, Guoqiang Bai Tsinghua University, China
11:30AM-1:30PM Break	

S11: Power and Electrical Engineering-Power Electronics and Transmission Technology

Meeting ID: 654-8151-3676 or https://zoom.com.cn/j/65481513676

Chair: Fujin Deng, Southeast University, China

1:30PM-3:30PM

Invited Speech 10	Key Technologies of Modular Multilevel Converters" **Fujin Deng** Southeast University
T0163	Optimization Design of Coupling Mechanism of Wireless Power Transfer System Based on LCC/S Topology Nan Liu, **Mr. Xinfang Gao**, Zhongping Yang, Fei Lin, Yi Wang, Yuyu Geng Beijing Jiaotong University, China

T0201	A Full Monolithic 26GHz LNA with Special Transmission Line and Transformer for 5G Applications in 55nm and 65nm CMOS **Ms. Li Rao**, Haigang Feng, Ning Zhang Tsinghua Shenzhen International Graduate School, China
T0061	Research on Method of Mechanical State Characteristics Diagnosis Based on STFT and RVM for Transformer Winding **Prof. Zhang Shiling** State Grid Chongqing Electric Power Company/ Chongqing Electric Power Research Institute
T0139	Analysis and Comparison of SP and S/SP Compensated Wireless Power Transfer System for AGV Charging **Mr. Yi Wang**, Ming Li, Zhongping Yang and Fei Lin Beijing Jiaotong University
T2014	Development and Application of Numerical Control High-voltage Pulsed Electric Field Treatment System with Super-Low-Frequency **Mr. Hualu Song**, Yinfa Yan, Zhanhua Song, Fuyang Tian, Yudao Li, Fade Li Shandong Agricultural University, China
T0203	Inductive Electricity Experiment Of Buildings Under High Voltage Transmission Lines **Dr. Hui Liu**, Zhihao Chen, Chuanbin Liu,Guoqing Ma, Jinxia Yao , and Zhao Qi State Grid Shan Dong Electric Power Research Institute, China

S12: Electronics Materials and Devices-Converter Structural Design and Modeling

Meeting ID: 991-1775-6218 or https://zoom.com.cn/j/99117756218

Chair: Huang Wen, University of Electronic Science and Technology of China, China

1:30PM-3:30PM

T0003	A 92%-Efficiency Hybrid Envelope Tracking Modulator based on 3-Level Hysteresis-Controlled Buck Converter with Capacitor Current Integration Sensor **Mr. Zhehan Zhuang**, Qian Xie, Zheng Wang University of Electronic Science and Technology of China, China
T2018	A High-Voltage Dynamic Level Shifter with Current Mirror and Augmented Cross-Coupling Structure for High-Side NMOS Gate Driver **Dr. Kai Luo**, Jingcheng Xiao, Kai Luo Analog IC Design Center, Sichuan Institute of Solid-State Circuits, China
T0051	Design and Optimization of a Current-driven Phase-shift Full-bridge Converter with GaN Devices and Large Conversion ratio **Dr. Kaimin Shi**, Xinbin Hou, Zili Liu, Qing Liu, Donglai Zhang, Zicai Wang, Hua Zhang Shenzhen Academy of Aerospace Technology, China
T0062	The Design of NCO Built in Ultra High-speed Data Converter **Mr. Zehua Zhu**, Haiyang Quan, Ling Tian, Tieliang Zhang, Xinmang Peng and Lei Zhang

	Beijing Microelectronics Technology Institute, China
T0178	Current-Sharing Active-Clamped Forward Power Converter with Self-driven Synchronous Rectifier **Dr. Zhang Di**, Zhang Donglai, Wang Zicai, Zhang Hua, Zhang Ying Shenzhen Academy of Aerospace Technology, China
T0175	Single Space Object Image Super Resolution Reconstructing Using Convolutional Networks in Wavelet Transform Domain **Mr. Xubin Feng**, Xiuqin Su, Zhengpu Xu, Meilin Xie, Peng Liu, Xuezheng Lian, Feng Jing, Yu Cao Xi'an Institute of Optics and Precision Mechanics, Chinese Academy of Sciences, China
T0008	A Model Reference Voltage Mode Control for Ripple Cancellation Buck Converter of Wide-Operation Range **Dr. He Liu**, Donglai Zhang, Zicai Wang, Xinbin Hou, Hua Zhang, Zili Liu Power Electronic & Motion Control Center Shenzhen, Academy of Aerospace Technology Shenzhen, China

3:30PM-4:10PM
Break

S13: Power and Electrical Engineering-Digital Circuits and Systems

Meeting ID: 672-8878-7498 or https://zoom.com.cn/j/67288787498
Chair: Yong Sang, Dalian University of Technology, China
4:10PM–5:40PM

T0136	A New Compensation Pixel Circuit based on A-Si TFTs **Dr. Bin Liu**, Quansheng Liu, Jingjing Liu, Feng Zhu, Hang Zhou Peking University Shenzhen Graduate School, China
T0152	Reflection Coefficient Between Complex Impedances **Assoc. Prof. Lamin Zhan**, Shihao Qi , Baoquan Hu , Yunzhong Wu , Changzhong Chen Huazhong University of science and technology, China
T2009	Design of a High Precision Undervoltage Protection Circuit Based on High Voltage BCD Technology **Mr. Jun Pan**, Rui Xu,Can Guo,Junan Zhang Sichuan Institute of Solid-State Circuits China Electronics, Technology Group Corp.Chongqing, China
T0190	Driving Circuit Design of Vibrating Wire Sensor Based on Frequency Sweep Mode **Assoc. Prof. Yong Sang**, Zengren Zhang Dalian University of Technology, China

T2010	Design of a High Precision Low Temperature Drift Oscillation Circuit Based on CMOS Technology **Mr. Rui Xu**, Jun Pan Sichuan Institute of Solid-State Circuits China Electronics, Technology Group Corp.Chongqing, China

S14: Electronics Materials and Devices-New Battery and Energy Storage Technology

Meeting ID: 622-4034-7357 or https://zoom.com.cn/j/62240347357

Chair: Xu Zhiqiang, University of Electronic Science and Technology of China

4:10PM–5:40PM

T0100	Stability Analysis of Photovoltaic and Battery Energy Storage Systems Integrated to Weak Grid Chuangxin Fang, Ying Liu, Zhiping Hu, Lan Ai, **Mr. Ming Yi**, Dang Zhu and Yunhui Huang Wuhan University of Technology Wuhan, China
T0164	State of Charge Estimation of Lithium Battery Based on FFRLS-SRUKF Algorithm **Mr. Tianle Zhang**, Siyuan Yang, Jieyu Hu, Jianlong gao, Dong liu Southwest Jiaotong University, China
T0177	Nickel Oxide Hole Transporting Layer for High Efficiency Two-dimensional Ruddlesden-Popper Perovskite Solar Cell **Mr. Yan Shangqin**, Zhong Hong, Zhou Hang Peking University, China
T0166	SOC Estimation of Lithium Battery Based on Improved Unscented Kalman Filter **Mr. Yiyang Wang**, YuDi Guo, JieYu Hu, Fan Lu, ChengXi Li, Dong Liu Southwest Jiaotong University, China
T2016	Investigating the MgAl-doping n-type ZnO(MgAlZnO) Metal Oxide Film Used As The ITO Cathode Buffer Layer In The Inverted Polymer Solar Cell **Dr. Chen Jinxiang**, Zhou Hang Peking University Shenzhen Graduate School, China
T0099	Research on Grid-Connected/Islanded Control Strategy of Photovoltaic and Battery Storage Systems as Emergency Power Supply of Pumping Storage Power Station Zhaohui Kan, Zilong Li, Shuaixuan Li, Tong Zhang, **Dr. Dang Zhu**, Ming Yi and Yunhui Huang Wuhan University of Technology Wuhan, China

Monday | 11 May, 2020

S15: Power and Electrical Engineering-Mechatronics

Meeting ID: 654-8151-3676 or https://zoom.com.cn/j/65481513676

Chair: Li Haiqing, University of Electronic Science and Technology of China, China

9:00AM-10:30AM

T0117	Torque Distribution Strategy of Four-Wheel Independent Drive Electric Vehicle Based on Optimal Energy Consumption **Dr. Luole Guo**, Hongbing Xu, Jianxiao Zou, Hongyu Jie, Gang Zheng University of Electronic Science and Technology of China, China
T0154	Coordinated Charge and Discharge Strategy for Electric Vehicles Based on Chance Constraints Yan Xu and **Mr. Chenguang Wang** North China Electric Power University (Baoding)
T0048	Coordination Control of Synchronous Condenser and Reactive Power Compensation Equipment in UHVDC Converter Station Qipin XuLi, li Liu, Hongchao Zhu, Chunjian Xu and **Dr. Shaoxing Zhao** NARI Technology Development Co. Ltd, China
T0171	A Series Multilevel Converter with Phase DC Bus Voltage Fluctuation Suppression for PMSG in Wind Power System **Mr. Baiyan Sun**, Congzhe Gao, Mingshi Liu Beijing Institute of Technology, China
T0204	A High Performance Parallel Negative Voltage Charge Pump **Mr. Bo Li**, Lichao Hao,Dengyun Lei China Electronics Corporation, China
T0113	Permanent Magnet Synchronous Motor Control Algorithm Based on Mathematical Model Considering Time Delay Link **Dr. Hongyu Jie**, Hongbing Xu, Xiaoshuai Xin, Gang Zheng, Luole Guo UESTC, China

S16: Electronics Materials and Devices-Electronic Materials and Performance Analysis

Meeting ID: 622-4034-7357 or https://zoom.com.cn/j/62240347357

Chair: Jinping Zhang, University of Electronic Science and Technology of China, China

9:00AM-10:30AM

T0019	A Trigger Inspection Platform for sTGC Detector Front-end Electronic Boards **Dr. Shuang Zhou**, Feng Li, Peng Miao, Xinxin Wang, Naijie Zhang, Liang Han, and Ge Jin University of Science and Technology of China, China

T0108	Mechanism and Reduction of Drain Current Drop in InGaZnO Thin Film Transistors **Dr. Guangmiao Wan**, Yuzhi Li, Zeke Zheng, Shimin Ge, Shan Li and Xinnan Lin Peking University, China
T0114	Ultra Wide Acoustic Bandgap Detection in Novel Octagonal Phononic Crystal of MEMS Materials Lubna Razia Zafar, Jian Huang, **Dr. Muhammad Ammar Khan** University of Electronic Science and Technology of China (UESTC), China
T0042	Design of A 3-D Band-stop FSS with High Selectivity **Dr. Jia Shengli** , Xu Bingzheng, Zheng Ting AVIC LeiHua Electronic Technology Research Institute, China
T0081	A Novel High Voltage SOI LIGBT with Split Gate and Carrier Stored Layer **Assoc. Prof. Jinping Zhang**, Yang Zhao, Rui Jin, Jiang Liu, Mingchao Gao and Bo Zhang University of Electronic Science and Technology of China (UESTC), China
T0202	A Full-color Micro LEDs Display Based on IGZO TFT **Dr. Yang Sun**, Jack Fan, Bo He, Min Zhang, Shujhih Chen, Xin Zhang, Chia-En Lee, Qiuyan Fang Peking University Shenzhen Graduate School, China

10:30AM-11:00AM
Break

S17: Power and Electrical Engineering-Modern Power System Operation and Control

Meeting ID: 991-1775-6218 or https://zoom.com.cn/j/99117756218
Chair: Wang Peng, University of Electronic Science and Technology of China
11:00AM-12:45AM

T0006	Research on the Shortest Variable-Slip Mode DC-side Voltage Control of APF Command Current **Assoc. Prof. Dedong Zhou**, Danyang Zhao Lanzhou Polytechnical College, China
T0030	Study on Cross-Voltage Grade Interaction of Fusion Power Source Power Quality Control Device **Mr. Wu Bang"an** Anhui University, China
T0096	Integrated Energy Monitoring and Management Platform Based on Ubiquitous Power Internet of Things Yan Xu, **Mr. Jianhao Zhang** North China Electric Power University (Baoding), China
T0132	Research on Control Strategy of Multi-distributed Power System Based on Improved Droop Control **Mr. Yuanbo Dang**, Kaibo Mai, Tongmiao Cao

	Zhengzhou university, China
T2015	Development and Application of Numerical Control Dc Superimposed Low-frequency High-voltage Pulse Generating Device **Mr. Hualu Song**, Yinfa Yan, Zhanhua Song, Fuyang Tian, Yudao Li, Fade Li Shandong Agricultural University, China
T0074	Research on Classification Method of Voltage Sag Based on Scenario Analysis **Mr. Yunzhao Wang**, Yuzhen Zhao Zhengzhou University, China

S18: Electronics Materials and Devices-Physical Electronics and Optoelectronics

Meeting ID: 672-8878-7498 or https://zoom.com.cn/j/67288787498

Chair: Zheng Di, Southwest Jiaotong University, China

11:00AM-12:45AM

T0015	Thermoelastic Damping in The Flexural Vibration of Bilayered Microbeam Resonators with Annular Cross-Section Pu Li, **Mr. Zhijun Luo** and Yuming Fang Southeast University, China
T0046	A Multifunction Relaxation Oscillator with Area and Power Consumption Reduced **Dr. Qinqin Li**, Xingyuan Tong Xi'an University of Posts & Telecommunications, China
T0085	Design and Experiment of Transverse Driving Oscillator for Nuclear Magnetic Resonance Gyroscopes **Assoc. Prof. Shu Qiang** , Ji Fang , Zhu Mingzh ,Wang Baoxu Institute of Mechanical Manufacturing Technology, China Academy of Engineering Physics, China
T0131	A Classification Method of Impulse Waveforms for Non-Instrusive Load Monitoring Applicaiton Qifeng Huang, **Dr. Hanmiao Cheng**, Shihai Yang, Kaijie Fang, Yixuan Huang and Guofang Xia State Grid Jiangsu Electric Power Company Marketing Service Center, China
T2012	A Realtime Auto-focus Microscope System Based on a Visual Programming Software **Ms.Yi Zhang**, Jianli Wang, Lu Chen Southeast University. China
T0005	A 140GHz High Extinction Ratio Sandwich Terahertz Polarizer **Dr. Zhang jianfeng**, Zou Yi Beijing Institute of Technology, China
T0091	Inspection of Progressive Dark pixels for Large-Size IJP AMOLED Displays **Dr. Dongwei Li**, Wei Lu and Baixiang Han Peking University Shenzhen Graduate School, China

12:45AM-2:00PM
Break

S19: Power and Electrical Engineering-Design and Modeling of Smart Appliances

Meeting ID: 654-8151-3676 or https://zoom.com.cn/j/65481513676

Chair: Du Yuefang, University of Electronic Science and Technology of China

2:00PM-3:30PM

T0007	Novel High Efficiency Three-Port Bidirectional Step-up/Step-down DC/DC Converter for Photovoltaic Systems **Prof. Yu-En Wu** National Kaohsiung University of Science and Technology, Taiwan
T0111	Numerical Study of Transformer Breathing Based on VOF Model Zilan He, Jing Huang, Hengzhen Li, An Wang, **Dr. Shuai Yuan** Southwest Jiaotong University, China
T0140	A ZVS DC-DC Converter Based on Buck Topology **Dr. Qiang Tong** Shenzhen Institute of Information Technology, China
T0061	Research on Method of Mechanical State Characteristics Diagnosis Based on STFT and RVM for Transformer Winding **Prof. Zhang Shiling** State Grid Chongqing Electric Power Company, Chongqing Electric Power Research Institute, China
T0148	Design of a Synchronous Rectifier Flyback DC-DC Converter Using GaN FETs for Commercial Aerospace Applications **Dr. Qiang Tong** Shenzhen Institute of Information Technology, China

S20: Communication and Networks-Computer Network and Satellite Communication

Meeting ID: 622-4034-7357 or https://zoom.com.cn/j/62240347357

Chair: Liu Chuanlin, Southwest Petroleum University, China

2:00PM-3:30PM

T0170	A Novel Adaptive Rate Matching Algorithm based on LDPC for Satellite Communication Zhongliang Deng, **Ms. Yanyue Yang**, Ke Wang, Wenliang Lin, Ruiliang Song and Xiaotian Zhou Beijing University of Posts and Telecommunications, China

T0188	Achieving a Heterogeneous Software-Defined Networks with CamoVisor **Mr. Qi Wu**, Hongchang Chen PLA Strategic Support Force Information Engineering University, China
T0069	Requirement on the Timing Accuracy of Satellite-Ground Joint Positioning and Inter-Node Time Synchronization **Mr. Chao Ma**, Jun Yang, Sili Liu, and Chao Zhou Changsha(Hunan), China
T0156	Research on a Method of Two Aircraft Intersection Measurement Based on INS/ CNS Integrated Navigation **Dr. Xie Meilin** , Cao Yu ,Hao Wei ,Huang Wei , Lian Xuezheng ,Liu Kai ,Jing Feng,Liu Peng,Feng Xubin Xi'an Institute of Optics and Precision Mechanics of CAS, China
T0024	A Hierarchical Modeling Method for Intelligent Satellite Application Software **Ms. Xueyan Wang**, Jun Yang, Xiye Guo and Zhi Qu National University of Defense Technology, China
T0158	A Method to Improve the Positioning Accuracy of the Intersection of two Planes **Mr. Xuezheng Lian**, Meilin Xie, Wei Huang, Xubin Feng, Feng Jing, Peng Liu and Yu Cao Xi'an Institute of Optics and Precision Mechanics of CAS, China

3:30PM-4:10PM
Break

S21: Power and Electrical Engineering-Photovoltaic System and Energy Engineering

Meeting ID: 991-1775-6218 or https://zoom.com.cn/j/99117756218
Chair: Cao Zhong, Guangzhou University, China
4:10PM–6:05PM

T0180	Using Hardware-in-the-Loop Simulation Platform For Empirical Testing of Photovoltaic System Zhixing Liu, **Mr. Tianyu Li**, Mengyao Shu, Yaojie Sun and Lei Ma Fudan University, China
T0130	Multi-Objective Optimization for Capacity Configuration of PV-Based Electric Vehicle Fast Charging Stations **Ms. Jing Liu**, Congzhe Gao, Yecong Cao Beijing Institute of Technology, China
T0181	MPPT Test Based on Hardware-in-the-loop Simulation Platform of Photovoltaic Systems Wenchong Huang, **Ms. Mengyao Shu**, Tianyu Li, Yaojie Sun, Lei Ma Fudan University, China

T0183	Analysis of Photovoltaic Agriculture Model Based on the Single Axis Tracking System Rui Zhang, **Dr. Mingxin Wang**, Yaojie Sun, Lei Ma Fudan University, China

S22: Communication and Networks-Communication Principle and Technology

Meeting ID: 672-8878-7498 or https://zoom.com.cn/j/67288787498

Chair: Jienan Chen, University of Electronic Science and Technology of China

4:10PM–6:05PM

Invited Speech 11	Artificial Intelligence-Driven Hybrid Beamforming for Millimetre Wave Massive MIMO System **Jienan Chen** University of Electronic Science and Technology of China
T0122	A Joint Time-Frequency Domain Frequency Offset Estimation Algorithm for Burst Communication **Mr. Shuofeng Wang**, Qin Zhang Beijing Institute of Technology, China
T0073	Narrowband Interference Cancellation Technology of OFDM System based on Artificial Neural Network **Mr. Xiangfei Wang**, Yahui Hou,Xianghui Shen Communication University of China, China
T0151	A novel Cooperative MIMO Transmission Scheme Based on STBC for Event-Driven WSNs **Mr. Li Jun**, Xie Wujun Li Jun AVIC Aerospace life-support industries LTD, China
T3006	Secure Transmission in Cognitive Relaying Networks with Full-duplex Technique **Dr. Zhihui Shang**, Tao Zhang, Xiaohua Wang, Weiwei Yang, Liwei Tao and Ruiqian Ma Army Engineering University of PLA, Zunyi Medical University; China
T0079	Characteristics Assessment of GNSS Observations on Smart Devices **Ms. Wanqing Li**, Junzhi Li, Zhiqiang Dai, Qixiang Fu Sun Yat-sen university & China
T0014	A Method For Predicting the BER of Wireless Digital Communication Equipment **Dr. Wang Biao**, Wang Xue-Tian, Li Hang and Gao Hong-Min Beijing Institute of Technology, China

S23: Communication and Networks-Signal Analysis and Processing

Meeting ID: 654-8151-3676 or https://zoom.com.cn/j/65481513676

Chair: Wu Junjie, University of Electronic Science and Technology of China

9:00AM-10:30AM

T0025	Feature Extraction And Classification Method Of Mine Microseismic Signals Based on CEEMDAN_SE **Mr. Qiwen Yi**, Tiedong Cheng, Yiwen Wu, Zhizhao Zhang Jiangxi University of Science and Technology, China
T0066	Real-time SAR-CORDIC Algorithm and Application in Signal Generation and Scene Simulation Zhao Wenda, **Mr. Chen Decheng**, Han Song, Wang Yanfei Aerospace Information Research Institution, China
T0072	Research on Detection of Spoofing Signal with Small Delay Based on KNN **Dr. Junzhi Li**, Wanqing Li, Shaofeng He, Zhiqiang Dai, Qixiang Fu Sun Yat-Sen University, China
T0112	Research on Radar Signal Recognition Technology Based on Deep Learning **Mr. Yuze Wu**, Yan Mao and Xu Chen Wuhan University of Technology, China
T0157	A Reconfigurable Mixed signal CMOS Design for Multiple STDP Learning Rules **Mr. Chongyang Huan**, Yuan Wang, Xiaoxin Cui, Xing Zhang Peking University, China
T0206	Analysis on the Effect of Multi-Path Propagation on Multilateration (MLAT) System in Airport Apron **Assoc. Prof. Wei Wang**, Chenmengjiao, Zenglili, Huawei, xuzili, zhanglu The second research institute of CAAC, China

S24: Power and Electrical Engineering-Electrical Fault Diagnosis and Analysis

Meeting ID: 622-4034-7357 or https://zoom.com.cn/j/62240347357

Chair: Jing Shi, University of Electronic Science and Technology of China

9:00AM-10:30AM

T0082	Typical Ice-Wind Fault Analysis Based on Correlation Analysis and Naive Bayesian Method GU Kaikai, CHEN Kai, GU Ran, WANG Ruoyue, **Mr. PENG Zhonghan**, SONG You NARI Group Corporation, China

T0169	A Fault Location Method for DC Micro-Grid Based on The Improved Analytical Method Xu Yan; **Ms. Xue Yanjing**; Cheng Shu North China Electric Power University, China
T0147	Research of Windage Fault Early Warning Technology for Overhead Transmission Lines Based on Multi Parameters **Mr. Liu Hui**, Jia Ran, Zhou Chao, Liu Chuanbin, Zhang Yang, Liu Rong State Grid ShanDong Electric Power Research Institute ShanDong, China
T0162	Wall Interference Assessment of Two-Dimensional Wind Tunnel Test Using Panel Method **Mr. Xie Yi**, Liu Guangyuan and Chen Dehua China Aerodynamics Research and Development Center, High Speed Aerodynamics Institute, China
T4001	Engineering Practice of On-line Monitoring and Intelligent Diagnosis System for Secondary Equipment in Smart Substation Tao Jun, Zhong Ming, Wang Jiangping, **Mr. Dong Jinzhao**, Wang Zhihua, Jiang zhuoyan Wuhan Kemov Electric Co., Ltd., & China
T0126	Fault Location Method for DC Distribution Network Based on Impedance Parameters Identification Xu Yan, **Ms. Cheng Shu**, Xue Yanjing North China Electric Power University, China

10:30AM-11:00AM

Break

S25: Communication and Networks-Internet of Things and Vehicle Network Technology

Meeting ID: 991-1775-6218 or https://zoom.com.cn/j/99117756218

Chair: Jianjun Yang, University of North Georgia, USA

11:00AM-12:30AM

T0004	A Stability-based Clustering Scheme for Vehicular Networks Dengyin Zhang, **Ms. Min Zhang**, Fei Ding, Shengbo Eben Li, Keqiang Li Nanjing University of Posts and Telecommunications, China
T0192	Performance Analysis of FHRP in a VLAN Network with STP **Mr. Faisal Shahriar**, Jiancun Fan Xi'an Jiaotong University, China
T1003A	A Route Generating Algorithm for Autonomous Driving in Vehicle-to-Infrastructure Communications in Vehicular Networks **Assoc. Prof. Jianjun Yang** University of North Georgia, USA

T0205	Unmanned Shop Laboratory: An Extensible and Scalable Research, Teaching and Learning Smart Space System **Dr. Peter ChunYu YAU**, WOO Hok Luen, Dennis WONG, Joe Wai Kin KAN Hong Kong Institute of Vocational Education
T3003	A Design of Intelligent Wearable Health Monitoring System Based on IoT **Ms. Yuntao Zeng**, Lianda Zhu Glasgow college, University of Electronic Science and Technology of China
T4002	Research on Distributed Automatic Test System for Secondary Loop of Substation that Based on Wireless Communication Zhou Di, Zhong Youping, Wang Zizhan,Yang Wei, Peng Shuming, **Mr. Han Minchou** Wuhan Kemov Electric Co., Ltd., China

S26: New Intelligent System & Measurement and Control Technology

Meeting ID: 672-8878-7498 or https://zoom.com.cn/j/67288787498

Chair: Liao Yongbo, University of Electronic Science and Technology of China

11:00AM-12:30AM

T0049	Online Monitoring of Self-elevating Leveling Ship based on Edge Computing **Mr. Gang Li**, Jian Lan, Qin Li Shanghai University, China
T0089	Distributed Adaptive Tracking Control of Nonlinear Multi-Agent Systems with Input Saturation **Dr. Boxian-Lin**, Weihao-Li, Kaiyu-Qin, Xi Chen University of Electronic Science and Technology of China, China
T0116	The Hardware in-Loop Simulation System Based on SUMO for Autonomous Optimization Control Algorithm at Intersection Min Peng, **Dr. Zijun Liang**, Pengfei Feng, Yun Xiao Hefei University, China
T0187	Method for Realizing on - line Condition Monitoring of Protective Device Based on Data of Information Processing System **Mr. Kun Luo**, Yongxiao Shi, Li Liu, Zhengxin Li, Kun Zhou, Dongfang Hao and Shenglin Xu Bijie Power Supply Burea, China
T0191	WISERING: Research on Intelligent Motion-Sensing Interactive Software And Hardware Integration System for Multi-Finger Collaboration **Mr. Lianda Zhu**, Yuntao Zeng University of Electronic Science and Technology of China

12:30AM-2:00PM

Break

S27: Communication and Networks-Mobile Communication and Wireless Technology

Meeting ID: 654-8151-3676 or https://zoom.com.cn/j/65481513676

Chair: Gang Yang, University of Electronic Science and Technology of China

2:00PM-4:30PM

Invited Speech 12	Intelligent Reflecting Empowered Wireless Communications **Gang Yang** University of Electronic Science and Technology of China
T0105	A Genetic Algorithm Based Scheduling Scheme for WRSN **Mr. Fanxing Liu** Sichuan University, China
T0106	Design of Dual-Band Frequency Selective Surface with Large Band Ratio for 5G Communication **Mr. Zhiying Zhao**, Guobin Wan, Xujing Huang Northwestern Polytechnical University, China
T0144	Topology Control of Wireless Sensor Networks Based on layered Sleep Scheduling **Mr. Haisheng Cheng** and Haiqin Xu China Donghua University, China
T0160	Wireless Communication Jamming Recognition based on Lightweight Residual Network **Mr. Xiaole Yang**, Yongbin Wang, Tianhui Fu Naval University of Engineering, China
T3002	Precision Time and Frequency Joint Synchronization Protocol for Wireless Ad Hoc Networks **Mr. Yanchao Qiu**, Qin Zhang, Siyu Gao Beijing Institute of Technology, China
T0034	Fortified Network Security Perception: A Decentralized Multiagent Coordination Perspective **Dr. Ming Liu**, Lu Ma, Chao Li, Ruiguang Li CNCERT/CC, China
T0041	Research and Design of Shore Power Cloud Network System Based on Cloud Platform **Mr. Hao Liu**, Xian Yu, Kun Wang and Haitao Tian State Grid Electric Power Research Institute, NARI Group Corporation Nanjing, Nanjing NARI Information Communication Technology Co., Ltd

S28: Aeronautics and Astronautics

Meeting ID: 622-4034-7357 or https://zoom.com.cn/j/62240347357

Chair: Yue Yuan, Southwest Jiaotong University, China

2:00PM-4:30PM

Invited Speech 13	Mixed Attractors and New Intermittencies in A Vibro-Impact System in a Vibro-Impact System **Yue Yuan** Southwest Jiaotong University, China
Invited Speech 14	Analysis of Cutting Safety by Stochastic Basin of Attractions **Yan Yao** University of Electronic Science and Technology, China
Invited Speech 15	Electrohydraulic System Control Techniques to Address the Parametric Uncertainty and Load Disturbance **Guo Qing** The University of Electronic Science and Technology, China
T0037	Dynamic Acceleration Compensation for Attitude and Heading Reference System Based on Recurrent Neural Network **Dr. Li Xiang**, Liu Xiaoqin, Shi Qi Guilin University of Electronic Technology, China
T0121	Integrated Topological Optimization Design Method for Solid Rocket Motor Xianglin Cai, **Assoc. Prof. Yang Liu**, Qiang Cai, Yangyang Luo, Gaofei Wei Northwestern Polytechnical University, China
T0083	A Study on the Path Planning Algorithm of the Unmanned Aerial Vehicle **Prof. Deyu Zhang**, Yue Gu, Yanhui Lv, Haolei Sun Shenyang Ligong University, China
T0173	The Archiving Data Pool Research Of Intelligent Manufacturing Oriented To Impeller Design **Prof. Guangrong Li**, Yuanguo Cao, Yongqiang Bao, Sufang Zhao, Qiyuan Bian, Xingwang Wang Nanjing Institute of Technology Nanjing, China
T0179	Investigation of Supercritical Fluid Treatment for SiN/SiON/AlGaN/GaN MIS-HEMTs **Mr. Shuhao Xiong**, Xinnan Lin Peking University, China

4:30PM-5:00PM

Break

S29: Communication and Networks-Signal Analysis and Processing

Meeting ID: 991-1775-6218 or https://zoom.com.cn/j/99117756218

Chair: Li Shengqiang, University of Electronic Science and Technology of China

5:00PM–6:35PM

Invited Speech 16	Cryptanalysis and Improvement of A Biometrics-Based Multi-Server Authentication Protocol **Shengqiang Li** National Key Laboratory of Science and Technology on Communications, UESTC &

	The Center for Cyber Security of UESTC
T0208	A Passive Detection Method of Divers Based on Deep Learning **Mr. Bo Jin**, Gaofeng Xu China Academy of Electronics and Information Technology, China
T2004	Modeling Partial Pulse Overlap Probability between two Periodic Pulse Signals **Dr. Guofeng Jiang** and Hongbo Yuan Air Force Engineering University, China
T0027	Research on Baseband Signal Processing Transceiver Module Chun-mei Liu, Hong-min Gao, **Dr. Zhong-jie Zhao** Beijing Institute of Technology, China
T0142	Direction-of-Arrival Estimation for Coprime Array via Toeplitz Covariance Matrix Reconstruction **Dr. Bing Sun**, Chen-xi Wu, Huai-lin Ruan, Hua Zhong National University of Defense Technology, China
T0032	Modeling and Simulation of Anti-ship Missile Passive Jamming Signal **Dr. Yi Zou**, Jianfeng Zhang Beijing Institute of Technology, China

S30: Computer and Information Science

Meeting ID: 672-8878-7498 or https://zoom.com.cn/j/67288787498

Chair: Liu Chuanlin, Southwest Petroleum University, China

5:00PM–6:35PM

T0092	Feature-based Discrimination of Thyroid Cancer on ultrasound images **Dr. Xi Yang**, Shupeng Qiu, Qiong Luo Guangdong University of Foreign Studies, China
T0150	Anonymous Bitcoin Mixing Scheme Based on Semi-Trusted Supervisor Tianlong Fei, **Mr. Yuan Chang**, Jiaqi Wang, Ning Lu, Wenbo Shi Northeastern University, China
T0153	Spawned Target Tracking Algorithm Based On GLMB Model In RFS Theory **Mr. Lin Yi-fu**, Liu Ze-ping, Liu Deng-kun, Liu Ji-ying North China Institute of Computing Technology, China
T0118	GS-RNN: A Novel RNN Optimization Method based on Vanishing Gradient Mitigation for HRRP Sequence Estimation and Recognition **Mr. Zhang Yifan**, Qian Fengchen, Xiao Fei College of Information and Communication, NUDT, China
T1005	Application of Hamming Code Based Error Correction Algorithm in Quantum Key Distribution System **Dr. Xiaodong Zhong**, Ge Jin University of Science and Technology of China

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