2018 Cross Strait Quad-Regional Radio Science and Wireless Technology Conference

Final Program

July 21-24, 2018
Golden Morning Hotel
Xuzhou, Jiangsu, China

IEEE AP Society
School of Mathematics and Statistics, Jiangsu Normal University
Nanjing University of Science and Technology
Science and Technology on Electromagnetic Scattering Laboratory
Nanjing Electronic Equipment Institute
Jiangsu Key Laboratory of Education Big Data Science and Engineering
Jiangsu Optical Society
## Conference at a Glance

<table>
<thead>
<tr>
<th>July 21, Saturday</th>
<th>July 22, Sunday</th>
<th>July 23, Monday</th>
<th>July 24, Tuesday</th>
</tr>
</thead>
<tbody>
<tr>
<td>08:30-17:50</td>
<td>Registration</td>
<td>08:30-17:40</td>
<td>Registration</td>
</tr>
<tr>
<td>08:30-9:00</td>
<td>Opening Ceremony</td>
<td>08:30-9:00</td>
<td>Plenary Talk I: Tie Jun Cui, Southeast University</td>
</tr>
<tr>
<td>09:00-9:30</td>
<td>Photograph</td>
<td>9:00-9:30</td>
<td>Plenary Talk II: Zhijian Li, Nanjing Electronic Equipment Institute</td>
</tr>
<tr>
<td>9:30-10:00</td>
<td>Plenary Talk I: Zhongxiang Shen, Nanyang Technology University</td>
<td>9:30-10:00</td>
<td>Plenary Talk III: Ke-Li Wu, The Chinese University of Hong Kong</td>
</tr>
<tr>
<td>10:00-10:30</td>
<td>Plenary Talk II: Jun Hu, University of Electronic Science and Technology of China</td>
<td>10:00-10:15</td>
<td>Tea Break</td>
</tr>
<tr>
<td>10:30-10:45</td>
<td>Tea Break</td>
<td>10:15-12:35</td>
<td>Technical Sessions (Oral)</td>
</tr>
<tr>
<td>10:45-11:15</td>
<td>Plenary Talk III: Wen-Yan Yin, Zhejiang University</td>
<td>11:15-11:45</td>
<td>Technical Tour and Culture Visit</td>
</tr>
<tr>
<td>11:15-11:45</td>
<td>Plenary Talk IV: Dan-Chyi Chang, Lorom Institute of New Products Research and Development</td>
<td>12:00-13:30</td>
<td>Lunch</td>
</tr>
<tr>
<td>12:00-13:30</td>
<td>Lunch</td>
<td>12:35-13:30</td>
<td>Lunch</td>
</tr>
<tr>
<td>14:00-18:00</td>
<td>Registration</td>
<td>15:30-15:45</td>
<td>Tea Break</td>
</tr>
<tr>
<td>15:30-15:45</td>
<td>Tea Break</td>
<td>15:30-15:45</td>
<td>Tea Break</td>
</tr>
<tr>
<td>15:45-17:45</td>
<td>Technical Sessions (Oral)</td>
<td>15:45-17:45</td>
<td>Technical Sessions (Oral)</td>
</tr>
<tr>
<td>18:00-20:30</td>
<td>Dinner Buffet</td>
<td>18:00-20:30</td>
<td>Welcome Reception</td>
</tr>
<tr>
<td>18:00-20:30</td>
<td>Welcome Reception</td>
<td>18:30-20:30</td>
<td>Banquet and Award Ceremony (or Award Banquet)</td>
</tr>
</tbody>
</table>
## Contents

- Conference at a Glance ................................................................. 1
- Contents ......................................................................................... 2
- Chair’s Welcome ............................................................................... 3
- Steering Committee ......................................................................... 4
- Technical Program Committee (in alphabetical order) ......................... 5
- Plenary Speakers’ Introduction ....................................................... 6
- Finalists of CSQRWC2018 Student Paper Competition (Poster) ............ 18
- Oral Presentations ........................................................................... 20
- Plenary Talks .................................................................................. 21
- Transportation Guide ....................................................................... 48
- Venue Guide ................................................................................... 50
- Sponsors or Organizers .................................................................... 51
Chair’s Welcome

Welcome to the 2018 Cross Strait Quad-Regional Radio Science and Wireless Technology Conference (CSQRWC) in Xuzhou, a famous historical city. On behalf of the CSQRWC committee and the CSQRWC 2018 organizing committee, it is my utmost pleasure and honor to welcome you to the CSQRWC 2018 in Xuzhou. I would like to thank you for choosing to participate in our conference and to assure you that we have done and will do everything possible to make your visit to Xuzhou a most technically productive and socially enjoyable one. We have more than 220 excellent peer-reviewed papers and the conference attendees come from the Cross Strait Quad Regions of China and all around the world, reaffirming time and again high technical standard conference. We have prepared a highly illuminating and relevant technical program organized in several parallel sessions over three days. Our conference features nearly 16 organized sessions, with our session organizers having done a phenomenal job in proposing a diverse set of interesting sessions and recruiting high quality papers and authors. In addition to the organized and regular sessions, we have lined up six outstanding plenary speakers that will provide unique perspectives on some of the most interesting and relevant topics for the community. Along with the high quality of the technical program, we have prepared a great social program, for a truly memorable CSQRWC 2018 in Xuzhou. The social program includes a welcome reception, awards banquet, and wonderful Xuzhou historical tours.

Xuzhou is the largest city of northern Jiangsu as well as the most ancient city of the province. As the joining point of Jiangsu, Henan and Shandong provinces, the city boasts of its most important geographic location that makes it the place all the states of ancient China scrambled for. Thousands of years’ history has blessed the city with profound culture, especially when it was the second political center of the Han Dynasty (260BC-220). Now, the city is the center of the Huaihai economic development zone and also one of the nation's most important agricultural product bases.

Jiangsu Normal University, located at Xuzhou, is a regional leading university that is supervised by the Ministry of Education and the Jiangsu Provincial Government. I would specially thank School of Mathematics and Statistics and Jiangsu Normal University for their supports and the contributions from my colleagues to make this great event happened.

Finally, but it is most important. I hope all the friends here enjoy your stay in next several days in Xuzhou!

Wenhua Yu
CSQRWC 2018 General Chair
Professor, Jiangsu Normal University
Steering Committee

**General Chair**
Wenhua Yu (JSNU)

**General Co-Chairs**
Hong-Bo Zhu (NJUPT)
Rushan Chen (NUST)
Zhijian Li (NEEI)
Kun Cai (REI)

**Advisory Committee Chairs**
Dau-Chyrh Chang (LoromGroup)
Qing-Xin Chu (SCUT)
Chi-Hou Chan (CityU)
Kwai Man Luk (CityU)
Quan Xue (CityU)
Li-Xin Guo (XidianU)
Wen-Shan Chen (STUST)
Yi-Chang Cheng (VanungU)

**TPC Chair**
Lei Zhao (JSNU)

**TPC Co-Chairs**
Zhang-Cheng Hao (SEU)
Wei E. I. Sha (ZJU)
Haijing Zhou (IAPCM)
Zhen Lin Wang (NJU)
Li Li (REI)

**Registration Chair**
Shuixia Hao (JSNU)
Zhigang Jia (JSNU)

**Financial Chair**
Hu Chen (JSNU)

**Publication Chairs**
Jianming Liu (JSNU)

**Special Session Committee Chairs**
Changchun Yan (JSNU)
Xiaopeng Shen (CUMT)
Zhenbao Ye (IAPCM)
Shengjun Zhang (TPN MNKL)
Xiu Zhu Ye (BUAA)
Lisheng Xu (NEU)
Jian Li (UESTC)
Ning Sun (NJUPT)
Guoqing Luo (HDU)
Qiang Cheng (SEU)
Luyu Zhao (XidianU)
Yingsong Li (HRBEU)
Tao Li (NJU)

**Local Arrangement Chairs**
Chao Zhang (JSNU)
Gang Yang (JSNU)

**Web Support**
Xiaoli Wang (JSNU)
Fan Yang (JSNU)
<table>
<thead>
<tr>
<th>Technical Program Committee (in alphabetical order)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Qunsheng Cao (NUAA)</td>
</tr>
<tr>
<td>Dau-Chyrh Chang (LoromGroup)</td>
</tr>
<tr>
<td>Chi-Hou Chan (CityU)</td>
</tr>
<tr>
<td>Rushan Chen (NUST)</td>
</tr>
<tr>
<td>Wen-Shan Chen (STUST)</td>
</tr>
<tr>
<td>Yongpin Chen (UESTC)</td>
</tr>
<tr>
<td>Qiang Cheng (SEU)</td>
</tr>
<tr>
<td>Yi-Chang Cheng (VanungU)</td>
</tr>
<tr>
<td>Qing-Xin Chu (SCUT)</td>
</tr>
<tr>
<td>Tiejun Cui (SEU)</td>
</tr>
<tr>
<td>Yijun Feng (NJU)</td>
</tr>
<tr>
<td>Li-Xin Guo (XidianU)</td>
</tr>
<tr>
<td>Zhang-Cheng Hao (SEU)</td>
</tr>
<tr>
<td>Jun Hu (UESTC)</td>
</tr>
<tr>
<td>Lijun Jiang (HKU)</td>
</tr>
<tr>
<td>Kai Kang (UESTC)</td>
</tr>
<tr>
<td>Jian Li (UESTC)</td>
</tr>
<tr>
<td>Long Li (XidianU)</td>
</tr>
<tr>
<td>Yingsong Li (HRBEU)</td>
</tr>
<tr>
<td>Tao Li (NJU)</td>
</tr>
<tr>
<td>Zhuo Li (NUAA)</td>
</tr>
<tr>
<td>Kwai Man Luk (CityU)</td>
</tr>
</tbody>
</table>
Abstract: In this talk, we will introduce the concept of absorptive frequency-selective structures, which are very different from the traditional frequency selective structures (FSS). By introducing losses into the traditional FSS, we can design both absorptive frequency-selective reflection (AFSR) and absorptive frequency-selective transmission (AFST) structures. I will first introduce the motivation behind the design of AFSR and AFST structures. A brief review of the state-of-the-art designs of AFSR and AFST structures will then be given. Design considerations will be presented to widen the absorption bandwidth and to reduce the reflection or transmission loss for the frequency band of interest. Practical examples will be finally provided to demonstrate the performance of the designed AFSR and AFST structures with simulation and measurement results. Further research topics related to absorptive FSS will also be suggested in the end.

Prof. Zhongxiang Shen, (S96 -M98 - SM04 - F17) received the B. Eng. degree from the University of Electronic Science and Technology of China, Chengdu, China, in 1987, the M. S. degree from Southeast University, Nanjing, China, in 1990, and the PhD degree from the University of Waterloo, Waterloo, Ontario, Canada, in 1997, all in electrical engineering.

From 1990 to 1994, he was with Nanjing University of Aeronautics and Astronautics, China. He was with Com Dev Ltd., Cambridge, Canada, as an Advanced Member of Technical Staff in 1997. He spent six months each in 1998, first with the Gordon McKay Laboratory, Harvard University, Cambridge, MA, and then with the Radiation Laboratory, the University of Michigan, Ann Arbor, MI, as a Postdoctoral Fellow. In Jan. 1999, he joined Nanyang Technological University, Singapore, as an Assistant Professor, where he is currently a Full Professor in the School of Electrical and Electronic Engineering. Dr. Shen served as the Chair of the IEEE MTT/AP Singapore Chapter in 2009. From Jan. 2010 to Aug. 2014, he was the Chair of IEEE AP-S Chapter Activities Committee. He is currently the Secretary of IEEE AP-S and an Associate Editor of the IEEE Transactions on Antennas and Propagation.

His research interests include the design of small and planar antennas for various wireless communication systems, analysis and design of frequency-selective structures and absorbers, hybrid numerical techniques for modeling RF/microwave components and antennas. He has authored more than 170 journal papers (among them 100 were published in IEEE Journals) and also presented more than 160 conference papers.
Jun Hu, School of Electronic Science and Engineering, University of Electronic Science and Technology of China, Chengdu, China

Domain Decomposition Methods and Their Application for Scattering by Multiscale Objects

Sunday, July 22, 10:00-10:30, Room1

Abstract: Recently, domain decomposition methods (DDMs) have been payed much attentions on because of their ability for solving multiscale objects. The DDM is based on the philosophy of ‘divide and conquer’. It divides original problems into several closed sub-domains, and enforces transmission conditions (TCs) on touching faces to maintain the continuity of currents or fields across interfaces. Because of the non-conformal property of DDMs, each sub-domain can be meshed independently, and high mesh quality can be easily realized in sub-domains. In addition, the DDMs also provide an effective preconditioner and makes the system matrix for multi-scale problems well-posed.

In this talk, different DDMs for different objects are developed, for example, the JMCFIE-DDM and multi-trace EFIE/MFIE are developed for dielectric, different basis functions and different solvers for sub-domains are available in the framework of DDM. Finally, hybrid FEM-DDM and IE-DDM method is also developed, make very complicated object possible to solve on available workstation or servers.

Prof. Jun Hu (M’06, SM’11) received the B.S., M.S., and Ph.D. degrees in electromagnetic field and microwave technique from the University of Electronic Science and Technology of China (UESTC), Chengdu, in 1995, 1998, and 2000, respectively.

During 2001, he was with the Center of Wireless Communication in the City University of Hong Kong, Kowloon, as a Research Assistant. During March to August in 2010, he was visiting scholar in the Electro Science Laboratory of Department of ECE of the Ohio State University. He was Visiting Professor of City University of Hong Kong during Feb. to March in 2011. He is currently full Professor with the School of Electronic Science and Engineering of UESTC, IEEE senior member, member of Applied Computational Electromagnetics Society. Since September 2017, he has been vice president of the UESTC. He also served as chairman of student activities committee in IEEE Chengdu Section during 2010-2016, chairman of IEEE Chengdu AP/EMC Joint Chapter during 2014-2016. He is the author or co-author of over 300 technical papers, received 2004 best young scholar paper prize of Chinese Radio Propagation Society, and many best student papers awards. He was awarded as 2014 National Excellent Youth Fund by the NSFC, awarded as Chang Jing Scholar in 2016. His current research interests include integral equation methods in computational electromagnetics, electromagnetic scattering and radiation.
Wen-Yan Yin, Innovative Institute of Electromagnetic Information and Electronic Integration (EIEI) College of Information Science and Electronic Engineering, Zhejiang University, Hangzhou, China

Multiphysics Computation and Design for the Development of RF Devices and Systems with High Performance and Reliability

Sunday, July 22, 11:00-11:30, Room 1

Abstract:
Multiphysics compatibility strategy, targeting at high performance and reliability, should be the first issue to be considered in many defense and civil fields. In particular, it has been widely employed in the design of RF devices (silicon LDMOSFET, GaAs HBT, and AlGaN/GaN HEMT), components (switch, limiter, low noise amplifier, phase shifter, and mixer, etc.) and electronic warfare systems (high speed data link radio, active phased array radar and navigation system, etc.). While for commercial applications, it is very popular used in the development of high performance, miniaturized, high reliability RF transceivers, RRAM for wireless communication and internet of thing (IoT), etc. However, multiscale multiphysics modeling, computation, and compatibility design methods remain many very challenging tasks even with nowadays.

This presentation will introduce multiscale multiphysics computation & compatibility researches carried out at EIEI of Zhejiang University, China recently. It mainly includes: (1) multiphysics modeling at different scales, (b) high performance computing required for multiscale multiphysics simulation, and (c) multiphysics compatibility design in the development of RF packaging, thermal management of RRAM array, and electromagnetic protection of electronic warfare systems, etc.

Prof. Wen-Yan Yin (F’13) received the M. S. degree in electromagnetic fields and microwave techniques from Xidian University, Xi’an, China, in 1989, and the Ph.D. degree in electrical engineering from Xi’an Jiao Tong University, Xi’an, China, in 1994. From 1993 to 1996, he was an Associate Professor in the Department of Electronic Engineering, Northwestern Polytechnic University (NPU), Xi’an, China. From 1996 to 1998, he was the AvH Research Fellow in the Department of Electronic Engineering, Duisburg University, Germany. From Dec. 1998 to Oct. 2005, he was with the National University of Singapore (NUS), Singapore, as a Research Scientist. From April 2005 to Dec. 2008, he was a Professor in the School of Electronic Information and Electrical Engineering, Shanghai Jiao Tong University (SJTU), Shanghai, China, where he is currently an adjunct Ph.D. candidate supervisor with the Center for Microwave and RF Technologies. Since Jan. 2009, he has been with the Zhejiang University (ZJU), Hangzhou, China, as a “Qiu Shi” Distinguished Professor. He is now the director of the Innovative Institute of Electromagnetic Information and Electronic Integration (EIEI), College of Information Science and Electronic Engineering (ISEE) of ZJU.
As a Leading author, he has published more than 270 international journal papers (more than 160 IEEE papers), including 1 international book and several book chapters. His main research interests are computational electromagnetics and multiphysics and their applications, EMC and EM protection of communication platforms, and nanoelectronics, 3D IC and advanced packaging, etc.

Dr. Yin is now the Associate Editor for the IEEE Trans. Components., Packaging, and Manufacturing Technology and the Associate Editor of IEEE Journal of Multiscale and Multiphysics Computational Techniques. From 2011 to 2012, he was an IEEE EMC Society Distinguished Lecturer. From Jan.2013 to Dec.2016, he was the IEEE EMC Society Shanghai Chapter Chair. From Jan.2011 to Dec.2016, he was an Associate Editor of the International Journal of Electronic Networks, Devices, and Fields. He was also an editorial board member of International Journal of RF and Microwave Computer-Aided Engineering from Jan.2012 to Dec.2014. He is the General Co-Chair of the 2017 IEEE Electrical Design of Advanced Packaging and Systems Symposium (IEEE EDAPS’ 2017), sponsored by the IEEE Electronic Packaging Committee. He was also the Co-Chair of EDAPS’ 2006 and 2011, respectively.

He received the Science and Technology Progress Award of the First Class from the local Shanghai Government of China in 2005 and 2011, respectively, the National Technology Invention Award of the Second Class from the Chinese Government in 2008, the Science and Technology Progress Award of the Second Class of China in 2012, the Defense Technology Invention Award of the Second Class of China in 2015, and several Best Paper Awards of international conf.
Abstract: The Shannon theory, as shown in the following equation, is important in nowadays’ digital data communication. The Shannon theory describes the maximum data rate (or throughput) in channel is related to the number of parallel channels M, effective bandwidth B, signal power S, external noise power and internal noise power. This talk will describe the relationship between all the parameters in Shannon theory and the electromagnetic (EM) performances. The EM performances will include the characteristics of wireless channels (such as antenna and wireless propagation, etc.) and wired channels (such as RF cables, microstrip, stripline, and digital high speed cables, etc.). From the EM channels point of view, the important parameters of EM channels and their measurement techniques will also be discussed in this talk.

Prof. Dau-Chyrh Chang, IEEE Life Fellow and EMA Fellow, is the Chief Scientist and Dean at Lorom Institute of New Products Research and Development. He obtained his BS degree and MS degree from Chung-Cheng Institute of Technology, and Ph.D. degree in Electrical Engineering from University of Southern California. He spent 25 years in antenna R&D at CSIST. For 17 of these years, he served as director of antenna section. During his employment at CSIST, he developed reflector antennas, phased array antennas, slot array antennas, communication antennas, and various antenna test ranges. In 1998, he left his post as director of the antenna section to become Dean of the Engineering School at Da-Yeh University. He had been invited to be the Dean of College of Electrical and Communication Engineering at OIT (Oriental Institute of Technology) in 2006. He has been the Chair Professor and Director of CRC (Communication Research Center) at OIT from 2006 to 2016. He has been established four laboratories during executing various research programs, lab of hybrid antenna near field antenna test range, lab of TRP/TIS communication measurement system, lab of EMC, and lab of EM simulation, at CRC of OIT. Except for various kinds of antenna research, Prof. Chang is also focus on the research on SI (Signal Integrity) with the funding support from Lorom Group. Since August 1, 2016, he changes his career from OIT to Lorom Institute of New Products Research and Development, Lorom Group. He has published over 400 papers at technical journals and technical conferences. Except for the technical papers, he also has more than 20 patents.

Prof. Chang established the IEEE AP-S Taipei Chapter and as the first Chair in 2001, Chair of IEEE MTT-S Taipei Chapter and President of Chinese Microwave Association in 2000-2002. He has been the General Chair of CSTRWC2001, CSTRWC2008, ISAP2008, ICONIC2009, AEM2C2010, CSQRWC2012, PIERS-2013, IEEE MTT-S IMWS-Bio 2015. He is the founding Chair of IEEE iWEM since
2011 and General Chair or Co-General Chair of IEEE iWEM. He received many excellent research awards when he was at CSIST, DYU, and OIT.
Abstract: Metamaterials are traditionally described by effective medium parameters due to the subwavelength scale of unit particles. The continuous nature of medium parameters makes the traditional metamaterials behave as analog metamaterials. Recently, the concept of coding metamaterials or metasurfaces has been proposed, in which metamaterials are characterized by digital coding particles of ‘0’ and ‘1’ with opposite phase responses. It was demonstrated that the electromagnetic waves can be manipulated by changing the coding sequences of ‘0’ and ‘1’. The coding particles provide a link between the physical world and digital world, leading to digital metamaterials and even field programmable metamaterials, which can be used to control the electromagnetic waves in real time. The digital coding representation of metamaterials or metasurfaces can also allow the concepts and signal processing methods in information science to be introduced to physical metamaterials, realizing extreme controls to the electromagnetic waves. Such studies set up the foundation of information metamaterials and metasurfaces. In this presentation, the coding, digital, and field programmable metamaterials and metasurfaces are systematically introduced with particular emphases on recently new developments. The future trend of information metasurface is also predicted.

Prof. Tie Jun Cui received the Ph.D. degree in Xidian University, Xi’an, China, in 1993. In March 1993, he joined the Department of Electromagnetic Engineering, Xidian University, and was promoted to an Associate Professor in November 1993. From 1995 to 1997 he was a Research Fellow with the Institut für Hochfrequenztechnik und Elektronik (IHE) at the University of Karlsruhe, Germany. In July 1997, he joined the Center for Computational Electromagnetics, Department of Electrical and Computer Engineering, University of Illinois at Urbana-Champaign, first as Postdoctoral Research Associate and then Research Scientist. In September 2001, he became a Cheung-Kong Professor with Department of Radio Engineering, Southeast University, Nanjing, China. From 2013, he has been a Representative of People’s Congress of China.

Dr. Cui is the first author of the books Metamaterials – Theory, Design, and Applications (Springer, Nov. 2009) and Metamaterials: Beyond Crystals, Noncrystals, and Quasicrystals (CRC Press, Mar. 2016). He has published over 400 peer-review journal papers in Science, PNAS, Nature Communications, Light Science & Applications, Physical Review Letters, Advanced Materials, etc., which have been cited by more than 17300 times. Dr. Cui was awarded a Research Fellowship from the Alexander von Humboldt Foundation, Bonn, Germany, in 1995. He received Young Scientist Award from the International Union of Radio Science (URSI) in 1999, National Science Foundation of China for Distinguished Yo-
Zhijian Li, Nanjing Electronic Equipment Institute, Nanjing, China

Application of Big Data Mining Technology in Radar Signal Processing

Monday, July 23, 8:30-9:00, Room 1

Abstract: For the requirements of realizing massive electromagnetic big data effectively in the field of radar signal processing, firstly, the concept of electromagnetic big data is introduced. Secondly, the characteristics, the status quo, the application problems and challenges of electromagnetic big data are briefly analyzed. Thirdly, based on the related technology of data mining (such as neural network, grid clustering, etc.), the data mining technology in some typical applications in radar signal processing (such as noise elimination, signal separation, classification recognition based on the deep learning, etc.) are derived. Finally, 8 series of smart products and services based on electromagnetic big data mining are introduced, covering data collection, analysis, processing, interaction, visualization and so on, which makes data mining technology playing a tremendous role in radar signal processing field, reflecting the great actual application value.

Dr. Zhijian Li received the B.Sc. and M.Sc. degrees from Southeast University (SEU), Nanjing, China, in 1991 and 2004, respectively, and the PhD degree from Delft University of Technology (TU Delft), The Netherlands, in 2011.

He has been working in Nanjing Electronic Equipment Institute (NEEI), Nanjing, China, since 1991. From 1991 to 2000, he acted as the project leader to manage many projects in NEEI. From 2000 to 2006, he served as the Director of Microwave Department in NEEI. From 2006 to 2008, he was a Visiting Scholar, funded by China Scholarship Council (CSC), in International Research Centre for Telecommunications and Radar (IRCTR) at TU Delft, where he participated in the project named “Polarimetric Agile Radar in S-And X-band (PARSAX)” funded by Dutch Technology Foundation (STW). From 2009 to 2012, he served as the Assistant President of NEEI. From 2012 to 2017, he served as the Vice President of NEEI. He is currently the Party Committee Secretary of NEEI. From 2018, he has been member of the Twelfth Jiangsu Provincial Committee of the Chinese People’s Political Consultative Conference (CPPCC).

His primary research interests are frequency synthesis techniques, Doppler polarimetric agile radar, FMCW radar, high dynamic range receiver and high linearity transmitter. He focuses his research on system-level simulation of complex radar and communication systems. He has written papers on frequency synthesis techniques, simulation and validation of high dynamic range receiver, system-level simulation of radar systems and novel calibration approach of polarimetric agile radar.

He received the Third Prize for Progress in Science for National Defence in 1995, 1999,
**Abstract:** Filtering network is a compulsory device in a communication system. Its performance decisively determines signal-to-noise ratio, interference rejection and loss dispersion of a transmitter/receiver system. Metal-cavity-type filters, due to their high Q characteristic, are dominantly used in wireless infrastructure equipment and presently their manufacturing completely relies on manual tuning by experienced technologists. With a fast adoption of massive MIMO technology in future 5G wireless systems, demands on microwave filters will be increased in an unprecedented pace. It can be foreseen that a robot automatic tuning (RAT) system with “adaptive thinking” capability will be an inevitable trend in the industry.

In this presentation, a “perception” module for the robot, named Model-based Vector Fitting (MVF) method, will be introduced. The perception module analytically extracts the circuit model of a microwave filtering network at any tuning stage in a RAT process. The method incorporates the merits of conventional Cauchy method and vector fitting (VF) method. The MVF method allows pre-assigning the orders of both system zeros and poles. As the coupling topologies of a filtering network is determined by the number of system zeros, the MVF method does not suffer from the over-fitting and under-fitting problems that other method has to deal with. Having had the system model determined, a transversal coupling matrix can be reconstructed from the measured S-parameters. Consequently, the transversal coupling matrix is transformed to the targeted coupling topology corresponding to the physical layout of the filtering network. The transformation strategies for various filtering networks will also be briefly reviewed. A number of practical examples will be demonstrated, including a high order filter, coaxial diplexer and dual a band filter, showing a great effectiveness of the proposed method. The model-based Vector Fitting method can also be applied to many other engineering problems, in which the orders of system zeros and poles need to be predefined.

**Prof. Ke-Li Wu** received the B.S. and M.Eng. from the Nanjing University of Science and Technology, Nanjing, China, in 1982 and 1985, respectively, and the Ph.D. degree from Laval University, Canada, in 1989. From 1989 to 1993, he was with the Communications Research Laboratory, McMaster University. In 1993, he joined the COM DEV International (Now, Honeywell Aerospace), where he was a Principal Member of Technical Staff. Since October 1999, he has been with The Chinese University of Hong Kong, Hong Kong, where he is a Professor and the Director of **Ke-Li Wu, Dept. of Electronic Engineering, The Chinese University of Hong Kong, China**

**Analytical Circuit Model Extraction for Robot Automatic Tuning of Microwave Filtering Networks**

*Monday, July 23, 9:00-9:30, Room 1*
the Radio-frequency Radiation Research Laboratory (R3L).

He has authored numerous publications in the areas of EM modeling, microwave passive components, microwave filter and antenna engineering. His current research interests include circuit domain modeling of EM problems, RF and microwave circuits and systems, synthesis theory and robot automatic tuning (RAT) of microwave filters, decoupling techniques for multiple antennas in both wireless terminals and massive MIMO array antennas.

Prof. Wu is a Fellow of IEEE, a member of IEEE MTT-8 subcommittee (Filters and Passive Components) and also serves as a TPC member for many prestigious international conferences including International Microwave Symposium. He was an Associate Editor of IEEE Transactions on MTT from 2006 to 2009. He was the recipient of the 1998 COM DEV Achievement Award for the development of exact EM design software of microwave filters and multiplexers and Asia Pacific Microwave Conference Prize in 2008 and 2012, respectively.
Finalists of CSQRWC2018 Student Paper Competition (Poster)

Poster Presentations for finalists will be in the Room on Monday, July 22, 13:30-17:00.
Session Co-Chairs: Wen-Yan Yin, Zhejiang University, Hangzhou, China

Decoupling of Multi-Element MIMO Antennas
Min Li, L. J. Jiang, The University of Hong Kong, Hong Kong, China

A Transition Between Single-Layer Substrate Integrated Image Guide and Coaxial Probe
Meng Tian Mu, Yu Jian Cheng, University of Electronic Science and Technology of China, Chengdu, China

Worst Case Analysis of Random Circuits Using Taylor Models and Bernstein Polynomials
Yuchao Guo, Tongyu Ding, Liang Zhang, Jimei University, Xiamen; Jianjia Yi, Lina Zhu, Xidian University, Xi’an, China

Performance Analysis of Dual-Hop Satellite Relaying
Xuewen Wu, Xiaoyu Liu, Jian Ouyang, Nanjing University of Posts and Telecommunications; Qingquan Huang, Army Engineering University of PLA, Nanjing, China; Min Lin, Nanjing University of Posts and Telecommunications

Outage Performance of Intergrated Satellite-Terrestrial Multi-Antenna Relay Networks
Xiaoyu Liu, Xuewen Wu, Jian Ouyang, Nanjing University of Posts and Telecommunications; Qingquan Huang, Army Engineering University of PLA, Nanjing, China; Min Lin, Nanjing University of Posts and Telecommunications

Transport Properties of \textit{C}_3\textit{N} Nanoribbon-Based Nanoscale Transistors
Qize Tian, Tiancheng Zhang, Hui Zeng, Dazhi Ding, Rushan Chen, Nanjing University of Science and Technology, Nanjing, China

Time-dependent QM/EM Simulation Method Applied to Carbon Nanotube
Qingqing Yang, Aiqiang Cheng, Hui Zeng, Dazhi Ding, Rushan Chen, Nanjing University of Science and Technology

A New Design for Spoof Surface Plasmon Polaritons Using Periodic Holes Etched on the Stripline
Jun Wang, Southeast University; Lei Zhao, Jiangsu Normal University, Xuzhou, China; Zhang-Cheng Hao, Southeast University

A Novel Dual-Band and Dual-Polarized Reconfigurable Reflectarray Antenna Element
Shun-Cheng Tian, Yu-Ying Zhao, Long Li, Xidian University, Xian, China

Simulation of Infinite Nano-array using the Periodic Volume Integral Equation Method
Bin Duan, Jihong Gu, Zi He, Dazhi Ding, Rushan Chen, Nanjing University of Science and Technology

DOA Estimation based on Sparse Representation of Covariance Matrix for 4-D Antenna Arrays
Kai Yu, Shifei Tao, Wenbing Ding, Zhenhong Fan, Rushan Chen, Nanjing University of Science and Technology, Nanjing, China

Adaptive Beamforming with Low Sidelobe in Fundamental Component of 4-D Antenna Arrays
Yong Ning, Research Institute of CASIC; Wenbing Ding, Kai Yu, Shifei Tao, Rushan Chen, Nanjing University of Science and Technology, Nanjing, China

Detection of Magnetic Dipole Target Signals by Using Convolution Neural Network
K. Y. Zhang, University of Electronic Science and Technology of China; M. K. Hu, C. P. Du, M. Y. Xia, Peking University

EH₀-Mode Microstrip Leaky-Wave Antennas with Periodical Loading of Shorting Pins
Danpeng Xie, Lei Zhu, University of Macau, Macau, China

GPU Accelerated DGTD Method for EM Scattering Problem from Electrically Large Objects
Haoqing Chen, Lei Zhao, Wenhua Yu, Jiangsu Normal University, Xuzhou, China

Low Loss Millimeter Wave Antennas Using Modified Silicon Micromachining Process
Peiqin Liu, Le Chang, Yue Li, Zhijun Zhang, and Zhenghe Feng, Department of Electronic Engineering, Tsinghua University, Beijing, China

A Multi-Beam Grid Array Antenna with Multi-Port Excitations
Junbing Duan, Sheng Sun, University of Electronic Science and Technology of China, Chengdu, China
Oral Presentations

Sunday, July 22, 08:30-12:00
Sunday, July 22, 13:30-18:00
Monday, July 23, 08:30-12:00
Monday, July 23, 13:30-18:00
<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
</tr>
</thead>
<tbody>
<tr>
<td>08:30</td>
<td>Opening Speech</td>
</tr>
<tr>
<td>Chair: Prof. Lei Zhao, Jiangsu Normal University</td>
<td></td>
</tr>
<tr>
<td>09:00</td>
<td>Photograph</td>
</tr>
<tr>
<td>09:30</td>
<td>Plenary Talks</td>
</tr>
<tr>
<td>Chair: Rushan Chen, Nanjing University of Science and Technology, China</td>
<td></td>
</tr>
<tr>
<td>SU-PT.1A.1</td>
<td>Absorptive Frequency-Selective Structures</td>
</tr>
<tr>
<td>Zhongxiang Sheng, Nanyang Technological University, Singapore</td>
<td></td>
</tr>
<tr>
<td>10:00</td>
<td>Domain Decomposition Methods and Their Application for Scattering by Multiscale Objects</td>
</tr>
<tr>
<td>Jun Hu, School of Electronic Science and Engineering, University of Electronic Science and Technology of China, Nanjing, China</td>
<td></td>
</tr>
<tr>
<td>10:30</td>
<td>Break</td>
</tr>
<tr>
<td>Chair: Haijing Zhou, Institute of Applied Physics and Computational Mathematics, China</td>
<td></td>
</tr>
<tr>
<td>SU-PT.1A.3</td>
<td>Multiphysics Computation and Design for the Development of RF Devices and Systems with High Performance and Reliability</td>
</tr>
<tr>
<td>Wen-Yan Yin, Zhejiang University, Hangzhou, China</td>
<td></td>
</tr>
<tr>
<td>11:15</td>
<td>Performance of EM Channel and Shannon Theory</td>
</tr>
<tr>
<td>Dau-Chyrb Chang, Lorom Institute of New Products Research and Development, Lorom Group, Taiwan</td>
<td></td>
</tr>
</tbody>
</table>
### Nanophotonics and Plasmonics
Session Co-Chairs: Tao Li, Nanjing University, Nanjing, China  
Xue Jin Zhang, Nanjing University, Nanjing, China  
Chang Chun Yan, Jiangsu Normal University, Xuzhou, China

<table>
<thead>
<tr>
<th>Session</th>
<th>Title</th>
<th>Speaker(s)</th>
<th>Institution(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>SU-OP.1P.1</td>
<td>Optical force and its applications based on heterosexual phosphorene waveguide</td>
<td>Chunyu Lu, Jicheng Wang, Zheng-Da Hu School of Science Jiangnan University; Liang Pan, Purdue University</td>
<td></td>
</tr>
<tr>
<td>SU-OP.1P.2</td>
<td>Investigation of the Electromagnetic Wave Propagation in Three Dimensional Plasma</td>
<td>Meng Zhang, Long Li, Xi'an University, Xi'an, China</td>
<td></td>
</tr>
<tr>
<td>SU-OP.1P.3</td>
<td>Rapid Classification of Honey Varieties by Surface Enhanced Raman Scattering Combining with Deep Learning</td>
<td>Zheng Fang, Wen Wang, Aixia Lu, Ying Wu, Ying Liu, Changchun Yan, Jiangsu Normal University Xuzhou, China</td>
<td></td>
</tr>
<tr>
<td>SU-OP.1P.4</td>
<td>Graphene surface plasmon bandgap based on two dimensional Si gratings</td>
<td>Mengjia Lu, Yueke Wang, Jiangnan University, Wuxi, China</td>
<td></td>
</tr>
<tr>
<td>SU-OP.1P.5</td>
<td>Chirality of Ladder-shaped Nanostructures on Polystyrene Microspheres</td>
<td>Chengbei Xie, Huichao Liang, Caiqin Han, Changchun Yan, Jiangsu Normal University Xuzhou, China</td>
<td></td>
</tr>
<tr>
<td>SU-OP.1P.6</td>
<td>Fabrication and Circular Dichroism of Ladder-shaped Nanostructures by oblique angle deposition technique</td>
<td>Huichao Liang, Chengbei Xie, Caiqin Han, Changde Peng, Changchun Yan, Jiangsu Normal University, Xuzhou, China</td>
<td></td>
</tr>
<tr>
<td>SU-OP.1P.7</td>
<td>Studying on the Elasticity of White Blood Cell in Vitro by Optical Tweezers</td>
<td>Qi Tang, Wenjing Xie, Hao Lu, Ying Liu, Jiangsu Normal University Xuzhou, Jiangsu, China</td>
<td></td>
</tr>
<tr>
<td>SU-OP.1P.8</td>
<td>Sterilization effects of several metal nanoparticles</td>
<td>Panpan Zhu, Wenjing Xie, Ying Liu, Hao Lu, Qi Tang, And Caiqin Han, Jiangsu Normal University, Xuzhou, China</td>
<td></td>
</tr>
</tbody>
</table>

**Break**

<table>
<thead>
<tr>
<th>Session</th>
<th>Title</th>
<th>Speaker(s)</th>
<th>Institution(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>SU-OP.1P.9</td>
<td>Length Dependent Surface Enhanced Raman Scattering Obtained from Copper nanorod array substrates</td>
<td>Aixia Lu, Caiqin Han, Changchun Yan, Ying Wu, Jiangsu Normal University, Xuzhou, China</td>
<td></td>
</tr>
<tr>
<td>SU-OP.1P.10</td>
<td>Rapid Detection of Clenbuterol Using Au Nanoparticles Base on Surface-Enhanced Raman Scattering</td>
<td>Wen Wang, Jingwen Li, Lulu Qu, Caiqin Han, Jiangsu Normal University, Xuzhou, China</td>
<td></td>
</tr>
<tr>
<td>SU-OP.1P.11</td>
<td>Study in Topological States in Optical Lattice</td>
<td>Wange Song, Chen Chen, Tao Li, Nanjing University, Nanjing, China; Qingqing Cheng, University of Shanghai for Science and Technology, Shanghai, China</td>
<td></td>
</tr>
</tbody>
</table>

---

22
Study on Detection of Pigment Amaranth Based on Surface-enhanced Raman Scattering
Qi Zou, Yue Yao, Wen Wang, Jingwen Li, Changchun Yan, Caiqin Han, Jiangsu Normal University, Xuzhou, China
SU-OP.1P.13 16:45

Surface-enhanced Raman spectroscopy for highly sensitive detection of Methyl Parathion
Wenxin Zhang, Jingjing Cheng, Jingwen Li, Yue Yao, Changchun Yan, Caiqin Han, Jiangsu Normal University, Xuzhou, China
SU-OP.1P.14 17:00

Ag Nanoparticle-Modified Silver Nanorods for Surface Enhanced Raman Scattering
Jingwen Li, Wen Wang, Yue Yao, Changchun Yan, Caiqin Han, Jiangsu Normal University, Xuzhou, China
SU-OP.1P.15 17:15

Tunable Terahertz Plasmonic Perfect Absorber Based on Arrow-shaped InSb Array
Jitong Wang, Hao Zhang, Xiangjun Zhang, China University of Mining and Technology
SU-OP.1P.16 17:30

Rainbow trapping and releasing in InSb graded grating strip at the terahertz range
Yan Liu, Ruoying Kanyang, Genquan Han, Cizhe Fang, Jincheng Zhang, Yue Hao, Xidian University, Xi’an, China; Yao Shao, China Electric Power Research Institute, Beijing, China
SU-OP.1P.17 17:45

High-performance SERS substrates based on all-dielectric metasurfaces (invited talk)
Xuejin Zhang, Nanjing University, Nanjing, China
SU-OP.1P.18 18:00

Physical Fabrication of Functional Nanostructures and SERS Sensor Application (invited talk)
Caiqin Han, Jiangsu Normal University, Xuzhou, China
Microwave/millimeter wave integrated antennas  
Session Co-Chairs: Ke Gong, Xiyang Normal University, China  
Xiaoming Liu, Anhui Normal University, China

SU-OP.2P.1  
An Effective Design on Low Sidelobe of Vivaldi Antenna in Multi-Antenna Systems  
Mingyue Shui, Hongzhi Zhao, Baoli Zhao, Xiaoyan Zhao, Zhaoneng Jiang, Hefei University of Technology, Hefei, China

SU-OP.2P.2  
A wideband single ridge waveguide-based slot antenna with low profile  
Song Qi, Jijun Yan, Jiahong Lin, Zheng Li Shanghai Key Laboratory of Electromagnetic Environmental Effects for Aerospace Vehicle, China;

SU-OP.2P.3  
A Loop Antenna with Coupling Strip and Tuner for All-Metal-Shell Handset Application  
Chong-Zhi Han, College of Information Engineering Shenzhen University, Shenzhen, China; Mo-Lin Fan, Kunshan Innovave Communication Technology Co. Ltd. Kunshan, China; Guan-Long Huang, Zeng-Pei Zhong, Tao Yuan, College of Information Engineering Shenzhen University, Shenzhen, China

SU-OP.2P.4  
Broadband Circularly polarized Sequential-Rotation Array Antenna with Compact Sequential-Phase Feed  
Hongzhi Zhao, Mingyue Shui, Wanmei Deng, Zheng Fang, Zhaoneng Jiang, HeFei University of Technology, Hefei, China

SU-OP.2P.5  
A New Pattern Reconfigurable Loop Antenna with Wide Beam Width  
Min Gao, Bowei Wang, Yan Li, Buning Tian, Academy of Space Electronic Information Technology, Xi’an, China

SU-OP.2P.6  
Substrate Integrated Dielectric Resonator Antennas in Ka Band  
Ke Gong, Bing Jie Deng, Peng Hu, Dong Dong Ma, Xue Hui Hu, You Chao Tu, Xinyang Normal University, Xinyang, China

SU-OP.2P.7  
Broadband FSS for Millimeter Radiometer  
Xiaoming Liu, Anhui Normal University, Wuhu, China; Fang Zhang, Anhui Xinhua University, Hefei, China; Lu Gan, Chijing Zhang, Anhui Normal University, Wuhu, China

SU-OP.2P.8  
Ultrathin Corrugated Metallic Strips for Ultrawideband Surface Wave Trapping at Terahertz Frequencies  
Yan Liu, Genquan Han, Yan Huang, and Yue Hao, Xidian University Xi’an, China; Yao Shao, China Electric Power Research Institute Beijing, China

Break  
15:30

Microwave/millimeter wave integrated antennas  
Session Co-Chairs: Ke Gong, Xiyang Normal University, China  
Xiaoming Liu, Anhui Normal University, China

SU-OP.2P.9  
Modeling Broad-band Power Amplifier Using Hybrid Time-Delay Neural Network  
Hui Ming, Zhang Xingang, Zhang Meng, Nanyang Normal University, Nanyang, China.

SU-OP.2P.10  
A Compact Dual-band Endfire Antenna Feed with the Balanced Microstrip Line  
Fang Wang, Runbo Ma, Liping Han, Rongcao Yang, Wenmei Zhang, Shanxi University, Shanxi, China
SU-OP.2P.11 16:15
A Compact CPW-Fed UWB Antenna with Quadruple Band-Notched Characteristics
Zeng-Pei Zhong, Mo-Lin Fan, Guan-Long Huang, Tao Yuan, Shenzhen University, Shenzhen, China; Mo-Lin Fan, Kunshan Innovwave Communication Technology Co. Ltd. Kunshan, China
SU-OP.2P.12 16:30
Design of an UWB Meter-wave Oblique Polarized Array Antenna
Jia Fang, CETC 38, Hefei, China; Hao Qin, KLAASA, Hefei, China; Yongdong Zang, CETC 38, Hefei, China
SU-OP.2P.13 16:45
Effective Design on Low Sidelobe of Vivaldi Antenna in Multi-Antenna Systems
Mingyue Shui, Hongzhi Zhao, Baoli Zhao, Xiaoyan Zhao, Zhaoneng Jiang, Hefei University of Technology, Hefei, China
SU-OP.2P.14 17:00
The Analysis of Element and Array of Parabolic Reflector Antenna with Hexagonal Aperture
Ju Feng, Feilong Gao, Southwest Jiaotong University, Chengdu, China
SU-OP.2P.15 17:15
A SIW Horn Antenna with Dynamically Tunable Graphene-Based Attenuator
Hui Chen, Zhen-Guo Liu, Wei-Bing Lu, An-Qi Zhang, Southeast University Nanjing, China
SU-OP.2P.16 17:30
Design of Out-of-Phase Power Divider Fed Endfire Antenna with Wide Bandwidth
Yuanhua Sun, Yang Liu, Yihe Liu, Nianqing Tang, Yao Li, Dajun Xu, Yongyan Yu, Neijiang Normal University, Neijiang City, China; Zhibo Du, Chengdu University of Information Technology, Chengdu, China
**Plasmonic metamaterials and applications**  
Session Co-Chairs: Yong Jin Zhou, Shanghai University, Shanghai, China  
Kai Da Xu, Xiamen University, Xiamen, China

**SU-OP.3P.1**  
13:30  
**Broadband Electromagnetic Waves Harvesting Based on Effective Surface Plasmon Polaritons**  
(invited talk)  
*Kuan Wang, Zhuo Li, Jianfeng Shi, Changqing Gu, Nanjing University of Aeronautics and Astronautics, Nanjing, China; Liangliang Liu, Nanjing University of Information Science and Technology, China; Yu Luo, Nanyang Technological University, Singapore*

**SU-OP.3P.2**  
13:45  
**Realizing deep-subwavelength negative-index waveguiding by a single-side conformal surface plasmons**  
*Liangliang Liu, Nanjing University of Information Science and Technology, Nanjing, China; Zhuo Li, Nanjing University of Aeronautics and Astronautics, Nanjing, China; Yu Luo, Nanyang Technological University, Singapore*

**SU-OP.3P.3**  
14:00  
**Planar Waveguides Based on Spoof Surface Plasmon Polaritons Supported by Two-conductor Transmission Lines**  
*Dawei Zhang, Kuang Zhang, Qun Wu, Xuejun Sha, Harbin Institute of Technology, Harbin, China*

**SU-OP.3P.4**  
14:15  
**A Two-Way THz Frequency Splitter Using CPS-Based SSPPs**  
*Ying Jiang Guo, Xiamen University, Xiamen, China; Kai Da Xu, Xiamen University, Xiamen, China; Ke Fan Hou, University of Electronic Science and Technology of China, Chengdu, China*

**SU-OP.3P.5**  
14:30  
**A high-resolution sensor using active plasmonic metamaterials**  
*Jing Cai, Yong Jin Zhou, and Qiao Yu Li, Shanghai University, Shanghai, China; State Key Laboratory of Transducer Technology, Chinese Academy of Sciences, Shanghai, China*

**SU-OP.3P.6**  
14:45  
**The Fano resonance on substrate integrated waveguides**  
*Qiao Yu Li, Yong Jin Zhou, Shanghai University, Shanghai, China; State Key Laboratory of Transducer Technology, Chinese Academy of Sciences, Shanghai, China*

**SU-OP.3P.7**  
15:00  
**Wavenumber-Splitting Metasurfaces for Multi-Channel Diffusive Invisibility**  
(invited talk)  
*He-Xiu Xu, Guang-Ming Wang, Xiao-Kuan Zhang, Fang Yuan, Air force Engineering University (AFEU), Xi’an, China; Xiaohui Ling, Hengyang Normal University Hengyang, China*

**SU-OP.3P.8**  
15:15  
**The Investigation of Tightly Packed Spoof Surface Plasmon Polaritons Waveguides with Novel Layouts**  
*Rui Ting Yan, Hao Chi Zhang, Tie Jun Cui, Southeast University, China*

**Break**  
15:30

**5G Communication Antennas, Metamaterials, and Metasurfaces**  
Session Chair: Long Li, Huiqing Zhai, and Yan Shi, Xidian University, Xi’an, China

**SU-OP.3P.9**  
15:45  
**Design of a Traveling Wave Slot Array on Substrate Integrated Waveguide for 24GHz Traffic Monitoring**  
*Lin Zhang, Long Li, Hao Yi, Xidian University, Xi’an, China*

**SU-OP.3P.10**  
16:00  
**Design of A Filtering Monopole Antenna with Wideband Harmonic Rejection**  
(invited talk)
Millimeter-Wave (mmW) Antenna Design for 5G Massive MIMO applications (invited talk)
Cheng-Nan Hu, Communication Engineering dept. of OIT, Taipei, ROC(Taiwan); Dau-Chyrh Chang, Lorom Institute of Technology, Taipei, Taiwan

A Novel Broadband Microstrip Patch Antenna with Small Ground Plane (invited talk)
Hao Yi, Yangzi Wang, Long Li, Xidian University, Xi’an, China

Construction of arbitrarily shaped cloaks using characteristic mode method (invited talk)
Lin Zhang, Yan Shi, Xidian University, Xi’an, China

Broadband Lumped-element Quadrature Hybrid for Intermediate Frequency Applications
Qipeng Wang, Sijie He, Yucheng Zhu, Ninglin Wang, Xiaxian Li, Peiqi Chen, Lingxuan Huang, Zhikuang Cai, Bo Zhou, Nanjing University of Posts and Telecommunication, Nanjing, China

Wideband low-profile Substrate-Integrated Waveguide-Based 60-GHz Magneto-Electric Dipole Antenna (invited talk)
Zeng Jingtao, Luk Kwai-Man, University of Hong Kong, Hong Kong, China

A Dual-Polarized Magneto-Electric Dipole Array for 60 GHz Application (invited talk)
Ao Li, Kwai Man Luk, state Key Laboratory of Millimeter Wave City University of Hong Kong, Hong Kong, China
**Advanced Phased Array and Application**  
Session Co-Chairs: Peng Yang and Xianzhen Zhong, University of Electronic Science and Technology of China, Chengdu, China

**SU-OP.4P.1**  
**13:30**  
**Planar Beam-Scanning Sparse Array Synthesis with Minimum Spacing Constraint**  
Chuang Yan, Peng Yang, University of Electronic Science and Technology of China, Chengdu, China

**SU-OP.4P.2**  
**13:45**  
**Approximate Calculation of HPBW for Uniform Circular Array**  
Hua Tang, Zaiping Nie, Xianzheng Zong, University of Electronic Science and Technology of China, Chengdu, China

**SU-OP.4P.3**  
**14:00**  
**Antenna Array Configuration in Air-to-Ground Communications Scenario**  
Hua Tang, Xianzheng Zong, Bichao Chen, Zaiping Nie, University of Electronic Science and Technology of China, Chengdu, China

**SU-OP.4P.4**  
**14:15**  
**A two-step method for the synthesis of Massively-thinned large planar arrays**  
Xin-Kuan Wang, Gui-Bao Wang, Shaanxi University of Technology, Hanzhong, China

**SU-OP.4P.5**  
**14:30**  
**A Millimeter-Wave Phased Array Fed Biconvex Lens Antenna**  
Chen Chen, Shiwen Yang, Shiwei Qu, Yikai Chen, University of Electronic Science and Technology of China, Chengdu, China

**SU-OP.4P.6**  
**14:45**  
**A Shared Aperture Dual-Polarization Tightly Coupled Dipole Array**  
Peiji Yang, Shiwen Yang, Jianhui Huang, Shi-Wei Qu, Yikai Chen, University of Electronic Science and Technology of China, Chengdu, China

**SU-OP.4P.7**  
**15:00**  
**Spaceborne phased array antenna for communication systems**  
Yan LI, Buning TIAN Institute of Space antenna and technology, Academy of Space Electronic Information Technology, Xi’an, China

**SU-OP.4P.8**  
**15:15**  
**Estimation of DOA and Power for Multiple Emitters Based on Single Spinning Antenna**  
Xiaodan Zhu, Weiqiang Zhu, Zhuo Chen, Kerang Wang, Nanjing Electronic Equipment Institute, Nanjing, China

**Break**  
**15:30**

**Spoof Surface Plasmon Ploaritons**  
Session Co-Chairs: Xiaopeng Shen, China University of Mining and Technology, Xuzhou, China

**SU-OP.4P.9**  
**15:45**  
**Millimeter-wave Endfire Antenna Based on Spoof Surface Plasmon Polaritons**  
Xue-Feng Zhang, Jian-Xin Chen, Nantong University, Nantong, China

**SU-OP.4P.10**  
**16:00**  
**Photonic-doped Zero-index Media as Coherent Perfect Absorbers**  
Jie Luo, Soochow University, Suzhou, China; Yun Lai, Nanjing University, Nanjing, China

**SU-OP.4P.11**  
**16:15**  
**Filtering Balun Based on Spoof Surface Plasmon Polariton**  
Mingzhu Du, Ke Chen, Yijun Feng, Nanjing University, Nanjing, China

**SU-OP.4P.12**  
**16:30**  
**A comparison of whispering gallery modes in plasmonic and silicon waveguides**  
Lin Chen, Jingya Xie, Xiaofei Zang, Qingqing Cheng, Yiming Zhu, University of Shanghai for Science and Technology, Shanghai, China
SU-OP.4P.13  
Topological Edge States in Systems of Spoof Surface Plasmon Polaritons  
Hong Xiang, Dezhuan Han, Chongqing University, Chongqing, China

16:45

SU-OP.4P.14  
Polarization-sensitive absorber based on metamaterials  
Zheng Zhu, Ruiqiang Zhao, Wenjin Lv, Jigang Bing, Yuxiang Li, Jinhui Shi, Harbin Engineering University, Harbin, China

17:00

SU-OP.4P.15  
Dispersion and Loss of Complex Structured Plasmonic Surface  
Hao Chi Zhang, Xinxin Gao, Jiayuan Lu, Pei Hang He, Tie Jun Cui, Southeast University, Nanjing, China; Hao Chi Zhang, Yu Luo, Nanyang Technological University, Singapore

17:15

SU-OP.4P.16  
Chiral metamirrors for spin-selective absorption and beam deflection  
Zuojia Wang, Shandong University Jinan, China; Liqiao Jing, Hongsheng Chen, Zhejiang University, Hangzhou, China

17:30

SU-OP.4P.17  
Metadevices Based on Electromagnetic Localization and Canalization  
Su Xu, Jian-Bin Liu, Jia-Wei Li, Vladimir R. Tuz, Hong-Bo Sun, Jilin University, Changchun, China

17:45
Body Sensor network for healthcare application
Session Co-Chairs: Lisheng Xu, Northeastern University, Shenyang, China
Zedong Nie, Shenzhen, Institute of Advanced Technology, Shenzhen, China

SU-OP.5P.1 13:30
Inter-BSN Interference Investigation for Body Sensor Networks
Tiegang Zhao, Liang Zhang, Tongyu Ding, Jimei University, Xiamen, China; Yuekun Pei, Dalian University, Dalian, China; Wen Sun, Xidian University Xian, China

SU-OP.5P.2 13:45
A Wideband Miniaturized Implantable Antenna for Biomedical Application at HBC Band
Xin Wang, Jingjing Shi, Lisheng Xu, Sino-Dutch, Northeastern University, Shenyang, China; Jianqing Wang, Nagoya Institute of Technology, Nagoya, Japan

SU-OP.5P.3 14:00
Electromagnetic Interference through Vent Array on Computer Enclosure
Run Xiong, Army Engineering University of PLA, Xuzhou, China; Qin Yin, Army Engineering University of PLA, Nanjing, China; Zhengyu Huang, Nanjing University of Aeronautics and Astronautics, Nanjing, China

SU-OP.5P.4 14:15
Investigation on Various antenna design techniques for Vital Signs Monitoring
Ramadhani Selemani Mpanda, Qiancheng Liang, Lisheng Xu, Qi Lin, Jingjing Shi, Northeastern University Shenyang, China

SU-OP.5P.5 14:30
Equivalent Circuit Model for Closely Spaced Patch Antenna and Microstrip Line with Loaded Defected Microstrip Structure
Yuting Zhao, Harbin Engineering University, Harbin, China; Yingsong Li, Chinese Academy of Sciences, Beijing, China; Lu Liao, Xidian University, Xi’an, China; Vladimir Mordachev, Eugene Sinkevich, Belarusian State University of Informatics and Radioelectronics, Minsk, Belarus

SU-OP.5P.6 14:45
Equivalent Circuit Model of Crosstalk Reduction Parallel Transmission Lines with Defected Microstrip Structures
Xiaomin Liu, Harbin Engineering University, Harbin, China; Yingsong Li, Yuting Zhao, Chinese Academy of Sciences, Beijing, China; Lu Liao, Xidian University, Xi’an, China; Vladimir Mordachev, Eugene Sinkevich, Belarusian State University of Informatics and Radioelectronics, Minsk, Belarus

SU-OP.5P.7 15:00
Real-time Measurement and Evaluation System of Electromagnetic Field Emission with Short-time Frequency Conversion Based on Virtual Instrument Technology
Li Jianxuan, Zhao Zhihua, Zhang Xiongming, Naval University of Engineering, Wuhan, China; Jin Zusheng, Shi Jialin, Chen Rui, Naval Research Academy, Shanghai, China

SU-OP.5P.8 15:15
A Printed Dipole Array Antenna for Non-contact Monitoring System
Qiancheng Liang, Ramadhani Selemani Mpanda, Xin Wang, Jingjing Shi, Lisheng Xu, Northeastern University, Shenyang, China

Break 15:30

New devices and systems of Internet of Things (IoT)
Session Co-Chairs: Jian Li and Yongjun Huang, University of Electronic Science and Technology of China, Chengdu, China

SU-OP.5P.9 15:45
Miniaturized Branch-line Coupler using Delta Stubs
Zhikuang Cai, Sijie He, Qipeng Wang, Xuan Ni, Yucheng Zhu, Ninglin Wang, Xiuxian Li, Peiqi Chen, Lingxuan Huang, Bo Zhou, Nanjing University of Posts and Telecommunications, Nanjing, China

Performance Modeling and Analysis for Traffic Path Guidance System
Hui Sun, Huixing Fang, Lanyang Ji, Yangzhou University, Yangzhou, China
SU-OP.5P.10 16:00

Compact UHF RFID Tag Antenna for Application of Domestic Animals Management
Jian Li, Yongjun Huang, Guangjun Wen, Rui Xu, Liang Ma, University of Electronic Science and Technology of China, Chengdu, China
SU-OP.5P.11 16:15

Screw tightening monitoring with RFID passive tag
Daniele Inserra, Jian Li, Yongjun Huang, Guangjun Wen, University of Electronic Science and Technology of China, Chengdu, China; Haobin Zhang, Le Zuo, Science and Technology on Electronic Information Control Laboratory
SU-OP.5P.12 16:30

Compact Filtering Monopole Antennas Based on the Miniatuirised Coupled Filter
Wenbin Cheng, Dagang Li, University of Electronic Science and Technology of China - Zhongshan Institute
SU-OP.5P.13 16:45

Design of Miniaturized Multi-Protocol UHF RFID Reader Module (invited talk)
Jian Li, Jun Chen, Zhong Huang, Boyang Zhang, Yongjun Huang, Guangjun Wen, University of Electronic Science and Technology of China, Chengdu, China
SU-OP.5P.14 17:00

High Gain Circularly Polarized Substrate Integrated Coaxial Line Fed Antenna Array for RFID Band
Wei Hu, Daniele Inserra, Yongjun Huang, Guangjun Wen, Jian Li, University of Electronic Science and Technology of China, Chengdu, China; Haobin Zhang, Le Zuo, Science and Technology on Electronic Information Control Laboratory
SU-OP.5P.15 17:15

A Modified Objective Quality Index for Image Fusion (invited talk)
Zhizhong Fu, Yuwei Xu, Lijuan Xu, Yufei Zhao, Jin Xu, Xiaofeng Li, University of Electronic Science and Technology of China, Chengdu, China
SU-OP.5P.16 17:30
### Plenary Talks

**Chair:** Mingyao Xia, Peking University, China

**MO-PT.1A.1**  
**Information Metasurfaces: From Concepts to Systems**  
Tie Jun Cui, Southeast University, Nanjing, China  
- **8:30**

**MO-PT.1A.2**  
**Application of Big Data Mining Technology in Radar Signal Processing**  
Zhijian Li, Nanjing Electronic Equipment Institute, Nanjing, China  
- **9:00**

**MO-PT.1A.3**  
**Analytical Circuit Model Extraction for Robot Automatic Tuning of Microwave Filtering Networks**  
Ke-Li Wu, Dept. of Electronic Engineering, The Chinese University of Hong Kong, Hong Kong, China  
- **9:30**

---

### Advanced computational methods for RF applications

**Session Co-Chairs:** Hongxing Zheng, Hebei University of Technology, Tianjin, China

**MO-OP.1A.1**  
**Analysis of Radar Cross Section of a Moving Ellipsoid Target**  
Yajing Li, Kuisong Zheng, and Mingyue Yang, Northwestern Polytechnical University, Xi’an, China  
- **10:15**

**MO-OP.1A.2**  
**Design of Dual Frequency Antenna Fed by Coplanar Waveguide**  
Da Wang, Hongxing Zheng, Mengjun Wang, Erping Li, Hebei University of Technology, Tianjin, China  
- **10:30**

**MO-OP.1A.3**  
**A Compact Tri-Band Printed Antenna Design**  
Yang Zhou, Hongxing Zheng, Mengjun Wang, Erping Li, Hebei University of Technology Tianjin, China  
- **10:45**

**MO-OP.1A.4**  
**Validation of Maneuvering Target RCS by Computation based on Feature Selective Validation (FSV)**  
Zhou Bo, Dai Huanyao, Zhang Yang, Qiao Huidong, Luoyang Electronic Equipment Testing Center, Luoyang, China  
- **11:00**

**MO-OP.1A.5**  
**Specific Excitation Conditions Achieved by Near Field Source in EM Analysis**  
Lu Liu, Xianzheng Zong, Zaiping Nie, University of Electronic Science and Technology of China, Chengdu, China  
- **11:15**

---

**Session Co-Chairs:** Yuan-Guo Zhou, Xi’an University of Science and Technology, Xi’an, China  
Juan Chen, Xi’an Jiaotong University, Xi’an, China

**MO-OP.1A.6**  
**Terahertz Generation from Plasmonic Metasurfaces (invited talk)**  
Ming Fang, Zhixiang Huang, Xianliang Wu, Anhui University, Hefei, China; Wei E. I. Sha, Zhejiang University, Hangzhou, China  
- **11:30**

**MO-OP.1A.7**  
**A Hybrid Implicith-explicit FDTD Method to simulate the MDGDM Nanostructure (invited talk)**  
Yuan-Guo Zhou, Li Li, Aote Zhang, Tianling Wang, Xiaobing Han, Xi’an University of Science and Technology, Xi’an, China  
- **11:45**

**MO-OP.1A.8**  
**Implementation of Acquisition Algorithm for Multi-System Software-based BD/GPS Receiver**  
- **12:00**
Artificial sum frequency generation from resonant metasurface
Jin Yao, Guoxiong Cai, Xiamen University, China; Qing Huo Liu, Duke University, Durham, USA
MO-OP.1A.9

A Generalized Eigenvalue Equation Directly Associated with Radiation Power
Ling Ma, Gaobiao Xiao, Yibei Hou, Shanghai Jiao Tong University, Shanghai, China
MO-OP.1A.10

Multi-Quantum State Control of Nano-tube by the Maxwell-Schrödinger Hybrid Method
(invited talk)
Zengdong Yang, Lei Zhang, Hui Zeng, Dazhi Ding, Rushan Chen, Nanjing University of Science and Technology
MO-OP.1A.11
<table>
<thead>
<tr>
<th>Session</th>
<th>Title</th>
<th>Chair/Authors</th>
</tr>
</thead>
<tbody>
<tr>
<td>MO-OP.2A.1</td>
<td>A Block Vectorized-Filling Method with Unified Quadrature</td>
<td>Jun Hu, Wen Zhang, Jie-Ling Zhang, Tong-Tong Qiu, Xue Lan, Nanjing University of Science and Technology, Nanjing, China; Wei-Dong Li, Southeast University, Nanjing, China</td>
</tr>
<tr>
<td>MO-OP.2A.2</td>
<td>Fast analysis of electromagnetic scattering from conducting targets using MLCBFM with RACA algorithm</td>
<td>Wanqing You, Yufa Sun, Anhui University, Hefei, China</td>
</tr>
<tr>
<td>MO-OP.2A.3</td>
<td>Parametric Models of Creeping Wave Scattering Center in Resonance Range</td>
<td>Huang Qi, He Siyuan, Electronic Information School, WHU Wuhan, China; Lin Hai, College of Physical Science and Technology, CCNU, Wuhan, China; Fangshun Deng, China Shipbuilding Industry Corporation No.722 Institute, Wuhan, China</td>
</tr>
<tr>
<td>MO-OP.2A.4</td>
<td>Fast Wideband Scattering Analysis Based on IE-ODDM and Cubic Polynomial Inter/Extrapolation</td>
<td>Wei-Bin Kong, College of Information Engineering; Bao-Min Jia, Human Resources Office Yancheng Institute of Technology, Yancheng, China; Feng Zhou, Ru-Gang Wang, College of Information Engineering; Kai-Lai Zheng, Nanjing University of Posts and Telecommunications, Nanjing, China; Jia-Ye Xie, Industrial Center Nanjing Institute of Technology, Nanjing, China</td>
</tr>
<tr>
<td>MO-OP.2A.5</td>
<td>Wideband Evaluation of Planar Finite Periodic Structures Using ASED Basis Function and Interpolation Technique</td>
<td>Wei Jie Fu, Ping Du, Jian Xun Xu, Hefei University of Technology, Heifei, China</td>
</tr>
<tr>
<td>MO-OP.2A.6</td>
<td>Multi-parameter Estimation of Concentred Loop and Dipole Planar Array</td>
<td>Guibao Wang, Xinkuan Wang, Shaanxi University of Technology, Hanzhong, China; Lanmei Wang, Zhihai Chen, Xidian University, Xi’an, China</td>
</tr>
<tr>
<td>MO-OP.2A.7</td>
<td>A Low Complexity Anti-collision Algorithm for RFID Using Query Tree</td>
<td>Fan Yang, Jiangsu Normal University, Xuzhou, China; Yong Yang, China University of Mining Technology, Xizhou, China; Hu Chen, Jiangsu Normal University; Shougang Ren, Nanjing Agricultural University, Nanjing, China; Lei Zhao, Jiangsu Normal University</td>
</tr>
<tr>
<td>MO-OP.2A.8</td>
<td>Ungrounded Lightning Surge Protection Device for Wireless Sensor Networks Node in the Wilderness</td>
<td>Cao Qinghua, Yang Lixia, Yan Shi, Jiangsu University, Zhenjiang, China</td>
</tr>
<tr>
<td>MO-OP.2A.9</td>
<td>Implementation of GPS Software Receiver Based on GNU Radio</td>
<td>Yuekun Pei, Huaowei Chen, Bingnan Pei, Dalian University, Dalian, China</td>
</tr>
<tr>
<td>MO-OP.2A.10</td>
<td>A Novel UWB-SP Sensor Based on Notched Microstrip Line</td>
<td>Jinhong Wei, Youjie Yan, Tingyong Jiang, Shoulong Zhang, Fanghong Huang, Northwest Institute of Nuclear Technology, Xi’an, China</td>
</tr>
</tbody>
</table>
Metamaterial
Session Co-Chairs: Zhuo Li, Nanjing University of Aeronautics and Astronautics, Nanjing, China

MO-OP.3A.1  
10:15
High-Efficiency Multiband Cross-Polarization Converter based on Metasurface at Terahertz Frequency
Haipeng Zhao, Yannan Jiang, Jiao Wang, Shuo Yang, Guangxi Key Laboratory of Wireless Wideband Communication & Signal Processing, Guilin, China

MO-OP.3A.2  
10:30
Dual-ultrawideband Linear-to-circular Converter with Double Rotation Direction in Terahertz Frequency
Shuo Yang, Yannan Jiang, Jiao Wang, Haipeng Zhao, Guangxi Key Laboratory of Wideband Communication & Signal Processing, Guilin, China

MO-OP.3A.3  
10:45
Digital Metasurface with Simultaneous EM Absorption and Scattering
Liu Xi Yang, Wei Yuan, Jun Yan Dai, Jun Chen Ke, Cheng Zhang, Jin Yang, Qiang Cheng, SEU, Nanjing, China

MO-OP.3A.4  
11:00
Asymmetric Transmission for Linearly Polarized Wave through Tunable Chiral Metasurface
Chenxi Huang, Qiang Cheng, Southeast University, Nanjing, China

MO-OP.3A.5  
11:15
Microwave Vortex Beam Generation Using Holographic Artificial Impedance Surface
Nan wei, Hui Feng Ma, Southeast University, Nanjing, China

MO-OP.3A.6  
11:30
Design Method of Absorbing Electromagnetic Window Structure
Haotong Li, Yongxing Che, Xiaofeng Yuan, Science and Technology on Electromagnetic Scattering Laboratory, Beijing, China

MO-OP.3A.7  
11:45
An Absorptive/Transmissive Frequency Selective Surface with a High-selectivity Passband
Yixiao Diao, Qingxin Guo, Lu Chen, Zengrui Li, School of Information Engineering Communication university of China, Beijing, China

MO-OP.3A.8  
12:00
Tunable control of electromagnetically induced transparency in hybrid graphene metamaterials
Zi-Yu Wang, Southeast University Chengxian College, Nanjing, China; Jian Shao, Xuzhou University of Technology, Xuzhou, China; Lei Bai, Southeast University Chengxian College, Nanjing, China

MO-OP.3A.9  
12:15
A Tunable Absorber with Switched Absorption/Transmission Property
Hong Zhou Zhao, Yong Jin Zhou, Shanghai University, Shanghai, China

MO-OP.3A.10  
12:30
Broadband Coding Metasurface for Radar Cross Section Reduction
Lin Bai, Xin Ge Zhang, Shi Hao Bai and Wei Xiang Jiang, Southeast University, Nanjing, China

MO-OP.3A.11  
12:45
Planar transport of subwavelength magnetic localized surface plasmons modes
Yujiao Liao, Hongmei Ye, Kui Han, Weihua Wang, Xiaopegn Shen, University of Mining and Technology, Xuzhou, China
Artificial Metamaterials and Metasurfaces  
Session Co-Chairs: Ping Du, Hefei University of Technology, China  
Caiqin Han, Jiangsu Normal University, China

MO-OP.4A.1  
A Broadband Metamaterial Microwave Absorber Utilizing Both Magnetic and Electric Resonances  
Wenjun Wang, Hua Huang, Boyu Sima, Bo Zhu, and Yijun Feng, School of Electronic Science and Engineering, Nanjing University, Nanjing, China

MO-OP.4A.2  
Strong Field Enhancement with the Anapole Mode in Split Dielectric Nanocuboid Metasurfaces  
Guanghou Sun, Xuejin Zhang, Yongyuan Zhu, Nanjing University, Nanjing, China

MO-OP.4A.3  
Study of Wideband RCS Reduction on Coding Metasurface  
Jiaji Yang, Chenchen Ge, Rongzhou Gong, Huazhong University of Science and Technology, Wuhan, China; Yongzhi Cheng, Wuhan University of Science and Technology, Wuhan, China

MO-OP.4A.4  
Study on Modeling of Visible Light Communication in Indoor Furniture Scene  
Tingliang Zhang, Lixin Guo, and Zhongyu Liu, Xidian University, Xi’an, China

MO-OP.4A.5  
Reconfigurable 2-bit Digital Coding Metasurfaces in a non-contact way  
Xin Ge Zhang, Wei Xiang Jiang, Southeast University, Nanjing, China; Dongcun Pan, PLA Information Engineering University, Zhengzhou, China

MO-OP.4A.6  
Three-dimensional bi-functional lens based on conformal mapping  
Jian Tang, Wei Xiang Jiang, Southeast University, Nanjing, China

MO-OP.4A.7  
Reconfigurable Directive Multiple Beam Emissions Lens Formed with 2D and 3D Linear Coordinate Transformation Optics  
Jin Chen, Xujin Yuan, Daining Fang

MO-OP.4A.8  
Influence of plasma sheath on radiation characteristics of antenna based on ray tracing method  
Kai-xiong Ma, Xiao-nan Jiang, Jiang-ting Li, Li-xin Guo, Xidian University, Xi’an, China

MO-OP.4A.9  
Frequency and Absorptivity Reconfigurable Plasma Absorber  
Yongdiao Wen, Shaobin Liu, Xiangjun Kong, Qiming Yu, Zhiming Liu, Nanjing University of Aeronautics and Astronautics, Nanjing, China

MO-OP.4A.10  
A New Method to Mitigate Communication Blackout Based on Sandwich Structure  
Chenggang Wen, Xianzheng Zong, Zaiping Nie, University of Electronic Science and Technology of China Chengdu, China; Chaoguang Lin, Geliang Sun, The Tenth Research Institute of CASC First Research Institute, Beijing, China

MO-OP.4A.11  
Design of A Wideband Coding Metasurface for RCS Reduction  
Jiaji Yang, Chenchen Ge, Rongzhou Gong, Huazhong University of Science and Technology, Wuhan, China; Yongzhi Cheng, Wuhan University of Science and Technology, Wuhan, China
Advanced Techniques on Antennas and Metamaterials  
Session Co-Chairs: Yue Li, Tsinghua University, China  
Zhen Liao, Hangzhou Dianzi University, Hangzhou, China

MO-OP.5A.1  
Boundary-Based Optimization Strategy for Fragment-Type Isolation Structure Designs  
Dawei Ding, Shaofeng Wang, Wenwen Wu, Xingyu Zhu, Jiangsu University, Zhenjiang, China  
10:15

A Triband MIMO Antenna for WLAN / WiMAX Applications  
Yong Yun Deng, Xi Wang Dai, Guo Qing Luo, Hangzhou Dianzi University, Hangzhou, China  
10:30

MO-OP.5A.2  
Mutual Coupling Reduction of Microstrip MIMO Antenna Array by Differential Feeding (invited talk)  
Lei Zhao, Dazhi Piao, Communication University of China, Beijing, China  
10:45

MO-OP.5A.3  
Multi-Beam Antennas for Massive MIMO System with Vertical Spatial Filtering Technique  
Yuefeng Hou, Yue Li, Peiqin Liu, Xiaolei Jiang, Zhijian Zhang, Zhenghe Feng, Tsinghua University, Beijing, China  
11:00

MO-OP.5A.4  
Three Methods to Generate Orbital Angular Momentum Beams in Microwaves (invited talk)  
Changjiang Deng, Beijing Institute of Technology, Beijing, China; Zhenghe Feng, Tsinghua University, Beijing, China  
11:15

MO-OP.5A.5  
Magnetic Plasmon Propagation in Deep-Subwavelength Plasmonic Metamaterial Resonators (invited talk)  
Zhen Liao, Guo Qing Luo, Hangzhou Dianzi University, Hangzhou, China  
11:30

MO-OP.5A.6  
A Double-layer Transmitarray Element Based on Complementary FSS Structure (invited talk)  
Wenxing An, Liuyan Hong, Shenrong Li, Tianjin University, Tianjin, China  
11:45

MO-OP.5A.7  
A CPW-Fed Broadband Regular-Hexagonal Slot Antenna with Loaded Spiral Slot  
Shuai Yuan, Nanjing university of Aeronautics and Astronautics, Nanjing, China; Zeheng Lai, Antenna department Fujian Fuda Beidou communication technology Co., LTD Fuzhou, China  
12:00

MO-OP.5A.8  
3D Frequency Selective Rasorber Based on 2D Slotline Structures  
Bo Li, Yixiong Zhang, Lei Zhu, Nanjing University of Posts and Telecommunications, Nanjing, China  
12:15

MO-OP.5A.9  
Massive MIMO Antenna Array Deployment for Airport in Air-to-Ground Communications  
Hua Tang, Xianzheng Zong, Bichao Chen, Zaiping Nie, University of Electronic Science and Technology of China, Chengdu, China  
12:30

MO-OP.5A.10  
A Wideband Wide-Angle Time-Domain Electronically Scanned Array Based on Energy Pattern Reconfigurable Elements  
Shaoqiu Xiao, Zhiguo Jiang, University of Electronic Science and Technology of China, Chengdu, China  
12:45
Monday, July 23
MO-OP.1P
Room 1

**Active Periodic Structure, FSS and Metamaterials**
Session Co-Chairs: Shengjun Zhang, TPN MNKL, Beijing, China
Yumao Wu, Fudan University, Shanghai, China

<table>
<thead>
<tr>
<th>Session</th>
<th>Title</th>
<th>Time</th>
<th>Presenter(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>MO-OP.1P.1</td>
<td>Active Frequency Selective Surface Based L-band Noise Rejection Conformal Radome</td>
<td>13:30</td>
<td>Liang Zhang, Tongyu Ding, Jimei University Xiamen, China; Shaoqing Zhang, Yan Wang, Shenyang Aircraft Design and Research Institute, Shenyang, China</td>
</tr>
<tr>
<td>MO-OP.1P.2</td>
<td>A Novel Dual-band Reconfigurable Frequency Selective Surface</td>
<td>13:45</td>
<td>Shuai Chen, Wen Jiang, Xidian University, Xi’an, China</td>
</tr>
<tr>
<td>MO-OP.1P.3</td>
<td>The design and experimental verification of broadband absorbing structure combined by Al2O3/Al2O3 composites and metamaterials</td>
<td>14:00</td>
<td>Xiaofei Liu, Lu Hao, Xiaoshu Yang, Xiaodang Guo, Beijing Electro-mechanical Engineering Institute, Beijing, China; Haitao Liu, National University of Defense Technology, Changsha, China</td>
</tr>
<tr>
<td>MO-OP.1P.4</td>
<td>A Switchable Filter Based On a Deformable Array</td>
<td>14:15</td>
<td>Xin Chen, Nianxi Xu, Xiaoguo Feng, Yansong Wang, Yang Tang, Dongzi Shan, Haitao Song, Changchun Institute of Optics, Chinese Academy of Sciences, Changchun, China</td>
</tr>
<tr>
<td>MO-OP.1P.5</td>
<td>Design of quaternary layer high-efficiency transmitting phase-gradient metasurface</td>
<td>14:30</td>
<td>Naitao Song, Nianxi Xu, Yang Xu, Xin Chen, Dongzi Shan, Yansong Wang, Xiaoguo Feng, Yang Tang, Changchun Institute of Optics, Chinese Academy of Sciences, Changchun, China</td>
</tr>
<tr>
<td>MO-OP.1P.6</td>
<td>An active frequency selective surface structure with controllable switching characteristics</td>
<td>14:45</td>
<td>Bingbing Sun, Xiaochun Liu, Wenwu Zhang, Fang Liang, Jinan Institute of Special structure, Jinan, Shandong, China</td>
</tr>
<tr>
<td>MO-OP.1P.7</td>
<td>The fast solver to calculate the scattered fields from nano-periodic structures based on integral equations</td>
<td>15:00</td>
<td>Kewei Chen, Jie Zhu, Yumao Wu, Fudan University, Shanghai, China</td>
</tr>
<tr>
<td>MO-OP.1P.8</td>
<td>A Reconfigurable Polarization Converter Based on Active Metasurface</td>
<td>15:15</td>
<td>Wan Li Yang, and Xi Gao, Guilin University of Electronic Technology, Guilin, China</td>
</tr>
</tbody>
</table>

Break | 15:30 |

| MO-OP.1P.9 | The Active Way of Tunable Frequency Selective surfaces | 15:45 | Shengjun Zhang, Yichun Cui, Mingliang Wang, Xia Ai, Lei Mu, Weidong Wang, Ge Li, Xin Liu, Jiaqi Liu, Gang Meng National Key Laboratory of Science & Technology on Test Physics and Numerical Mathematics, Beijing, China; Yuan Sun, Zhaohui Qi, The Institute of Effectiveness Evaluation of Flying Vehicle, Beijing, China; Hui Xue, Beijing Institute of system engineering, Beijing, China |
| MO-OP.1P.10 | Design of A Wave-absorbing Frequency Selective Surface Unit | 16:00 | Yi-Dan Han, Bang-Cai Zhu, Xidian University, Xi’an, China; Ze-Hong Yan, Xidian University, Xi’an, China |
| MO-OP.1P.11 | Synchronization Error Estimation of High-speed AD Sampling Based on Digital Phase Discrimination | 16:15 | |
A Modified Nonlinear Chirp Scaling Algorithm Based on the Numerical Estimation
Fuyuan Xu, Xinwei Chen, Deguo Zeng, Youjie Qi, Jin Qin, Nanjing Electronic Equipment Institute, Nanjing, China; Hua Zhong, Hangzhou Dianzi University, Hangzhou, China
MO-OP.1P.12 16:30

Research on Phase Differential Demodulation Method of Narrow Pulse MSK Signal
Chen Yun, Yang Jian, Liu Jian, Song Dawei, Shang Binbin, Nanjing Electronic Equipment Institute, Nanjing, China
MO-OP.1P.13 16:45

An Algorithm of Signal Sorting Based on Pulse Amplitude
Zhonghao Shen, Jun Zhang, Hui Guo, Fanghui Lv, Fei Wei, Dept. of Fifth Research Office, Nanjing Electronic Equipment Institute, Nanjing, China
MO-OP.1P.14 17:00

Research on Reconstruction of Target Scattered Field Based on Scattering Center Model
Min Zhao, Xiaofeng Que, Zaiping Nie, University of Electronic Science and Technology of China, Chengdu, China
MO-OP.1P.15 17:15

Aeromagnetic Compensation Algorithm Based on Calibration of Fluxgate Measurements
Dehua Liu, University of Electronic Science and Technology of China, Chengdu, China; Changping Du, and Mingyao Xia, Peking University, Beijing, China
MO-OP.1P.16 17:30
<table>
<thead>
<tr>
<th>Time</th>
<th>Session Title</th>
<th>Speaker(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>13:30</td>
<td>New Electromagnetic Imaging Technique and System</td>
<td>Xiuzhu Ye, Beihang University, Beijing, China</td>
</tr>
<tr>
<td></td>
<td><strong>MO-OP.2P.1</strong> Optimal Meshing for Inverse Scattering Problems</td>
<td>Keji Liu</td>
</tr>
<tr>
<td>13:45</td>
<td><strong>A comparison of the MR-TSOM and DBIM in reconstructing 2D model of human breast (invited talk)</strong></td>
<td>Xiuzhu Ye, Kuiwen Xu, Department of Electronics and Information Engineering Beihang University, Beijing, China</td>
</tr>
<tr>
<td></td>
<td><strong>MO-OP.2P.2</strong> A Novel Microwave Power Deposition Monitoring Method by Thermoacoustic Imaging (invited talk)</td>
<td>Lifan Xu, Xiong Wang, ShanghaiTech University, Shanghai, China</td>
</tr>
<tr>
<td>14:00</td>
<td><strong>MO-OP.2P.3</strong> Comparative Study of Big Data Classification Algorithm Based on SVM</td>
<td>Huasheng Zou, Zhiyuan Jin, Ningbo Dahongying University, Ningbo, China</td>
</tr>
<tr>
<td>14:15</td>
<td><strong>MO-OP.2P.4</strong> Use of BP Artificial Neural Network for Quantification of Defect in Multilayer Riveted Structure (invited talk)</td>
<td>Yang Wang, Yu Tao, Yidong Lin, Chaofeng Ye, ShanghaiTech University, Shanghai, China</td>
</tr>
<tr>
<td></td>
<td><strong>MO-OP.2P.5</strong> Electromagnetic Time-Reversal Imaging of the Remote Aerial Targets</td>
<td>Jianglong Zhu, Xianzheng Zong, Zaiping Nie, University of Electronic Science and Technology of China, Chengdu, China</td>
</tr>
<tr>
<td>14:45</td>
<td><strong>MO-OP.2P.6</strong> Synthesis of Reflectarray Based on Deep Learning Technique</td>
<td>Tao Shan, Maokun Li, Shenheng Xu, Fan Yang, Tsinghua University, Beijing, China</td>
</tr>
<tr>
<td></td>
<td><strong>MO-OP.2P.7</strong> Electromagnetic properties of fiber-reinforced laminates (invited talk)</td>
<td>Changyou Li, Northwestern Polytechnical University, Xi’an, China</td>
</tr>
<tr>
<td>15:00</td>
<td><strong>MO-OP.2P.8</strong> Design of a Novel Wideband Printed Dipole Array Antenna</td>
<td></td>
</tr>
<tr>
<td>15:30</td>
<td><strong>MO-OP.2P.9</strong> Quadruple Feed MIMO Antennas with One Shared Radiator for 5G Mobile Terminals (invited talk)</td>
<td>Yiping Xia, Aobo Chen, Guodong Jing and Luyu Zhao, Xidian University, Xi’an, China; Yingsong Li, Harbin Engineering University, Harbin, China</td>
</tr>
<tr>
<td>15:45</td>
<td><strong>MO-OP.2P.10</strong> A Dual-polarized Magneto-electric Dipole Antenna with a Novel Feeding Structure</td>
<td>Yade Fang, Yufa Sun, Zuming Li, Anhui University, Hefei, China</td>
</tr>
<tr>
<td>16:00</td>
<td><strong>MO-OP.2P.11</strong> Circular slot Vivaldi antenna with low backlobe</td>
<td>Yuanxi Cao, Gao Wei, Northwestern Polytechnical University, Xi’an, China</td>
</tr>
<tr>
<td>16:15</td>
<td><strong>MO-OP.2P.12</strong> Design of a Novel Wideband Printed Dipole Array Antenna</td>
<td></td>
</tr>
</tbody>
</table>
Design of RFID Textile Dipole Antenna
Yuanhua Sun, Ying Lei, Yihe Liu, Nianqing Tang, Yao Li, Dajun Xu, Yongyan Yu, Neijiang Normal University, Neijiang City, China; Zhibo Du, Chengdu University of Information Technology, Chengdu, China
MO-OP.2P.13 16:45

Design of a Compact LTE MIMO Antennas for Laptop Computers
Wen-Shan Chen, Wen-Fu Yang, Guang-Ren Zhang, Southern Taiwan University of Science and Technology, Tainan, Taiwan
MO-OP.2P.14 17:00

Broadband Dual-Polarized Base Station Antenna for LTE/5G C-band Applications (invited talk)
Chih-Wei Hsiao and Wen-Shan Chen, Southern Taiwan University of Science and Technology, Tainan, Taiwan
MO-OP.2P.15 17:15
Monday, July 23
13:30-18:00
MO-OP.3P Room 3

Nonlinear Electromagnetics
Session Co-Chairs: Zhixiang Huang, Anhui University, Hefei, China
Wei E.I. Sha, Zhejiang University, Zhejiang, China

MO-OP.3P.1
Transmission of arbitrary electromagnetic beam through uniaxial anisotropic cylinder
Dong Zhu, Bo Wu, Huayong Zhang, Zhixiang Huang, Anhui University, Hefei, China
13:30

MO-OP.3P.2
Gaussian beam scattering from a sphere on or near a plane surface
Yifang Yuan, Bo Wu, Zhixiang Huang, Anhui University, Hefei, China
13:45

MO-OP.3P.3
A Hybrid Algorithm Based on FDTD and Spatially filtered FDTD methods for Multiscale Problem
Guoda Xie, Zhixiang Huang, Bo Wu, Xianliang Wu, Anhui University, Hefei, China
14:00

MO-OP.3P.4
An Eight-Port Dual-Band Antenna Array for 5G Smartphone Applications
Zhiqing Ding, Ting Yao, Xuemei Liu, Xiaoli Wang, Zhiwei Liu, East China Jiaotong University, Nanchang, China
14:15

MO-OP.3P.5
The Near-Field Scattering of Chaff Cloud
Yanchun Zuo, Lixin Guo, Donghai Xiao, Xidian University, Xi’an, China
14:30

MO-OP.3P.6
Study of propagation of Airy array vortex beams in turbulent atmosphere
Xu Yan, Lixin Guo, Teng Gong, Xidian University, Xi’an, China; Mingjian Cheng, National University of Defense Technology, Hefei, China
14:45

MO-OP.3P.7
Average BER of maritime visible light communication system in atmospheric turbulent channel
Xiao-tong Zheng, Li-xin Guo, Ming-jian Cheng, Jiang-ting Li, Xidian University, Xi’an, China
15:00

MO-OP.3P.8
Effects of Diffraction and Ground Reflection on Ray-Dependent-Based Coverage Predictions in Urban Microcellular Environments
Z.-Y. Liu, T.-L. Zhang, L.-X. Guo, J. Li, Xidian University, Xi’an, China
15:15

Break 15:30

Nonlinear Electromagnetics
Session Co-Chairs: Zhixiang Huang, Anhui University, Hefei, China
Wei E.I. Sha, Zhejiang University, Zhejiang, China

MO-OP.3P.9
Study on Frequency Drift Phenomenon of Time Varied Plasma in 1D Metal Resonant Cavity
Bixue Zhou, Xiaoyue Li, Lixia Yang, Lijuan Shi, Jiangsu University, Zhenjiang, China
15:45

MO-OP.3P.10
A Compact Circular Polarized Antenna with Wide Beamwidths for CNSS Applications
Gang Zhao, Fu-Shun Zhang, Chao Li, Xidian University, Xi’an, China
16:00

MO-OP.3P.11
Parabolic Equation Method for Airborne Radar Signal Prediction under the Surface Duct Environment
Xiaochuan Deng, Cheng Liao, Liang Zhou, Dongmin Zhang, Ju Feng, Institute of Electromagnetics Southwest Jiaotong University, Chengdu, China
16:15

MO-OP.3P.12
UWB Technique for 2-D Meshed Planner Waveguide Communication Sheet
Tianyi Liu, Feng Yang, University of Electric Science and Technology of China, Chengdu, China
16:30
The Coupling Analysis of the Field to Underground Tunnel Engineering Using AH FDTD Method
Zheng-Yu Huang, Nanjing University of Aeronautics and Astronautics, Nanjing, China

Constructing accurate Radio Environment Maps with Kriging Interpolation in Cognitive Radio Networks
Danlei Mao, Wei Shao, Zuping Qian and Hong Xue Xin Lu, Nanjing Electronic Equipment Institute, Army Engineering University of PLA, Nanjing, China
<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
<th>Title</th>
<th>Authors</th>
<th>University</th>
</tr>
</thead>
<tbody>
<tr>
<td>13:30</td>
<td>MO-OP.4P.1</td>
<td>Capacitive Probe Fed Broadband Circularly Polarized Omnidirectional Antenna</td>
<td>Jun-Xiu Su, Fu-Shun Zhang, Xidian University, Xi’an, China</td>
<td></td>
</tr>
<tr>
<td>13:45</td>
<td>MO-OP.4P.2</td>
<td>Optimal Antenna Installation Position Analysis for Wireless Networks in Underground Tunnels</td>
<td>Yu Huo, Hongyu Ma, China University of Mining and Technology, Xuzhou, China</td>
<td></td>
</tr>
<tr>
<td>14:00</td>
<td>MO-OP.4P.3</td>
<td>A Wideband Sleeve Monopole Antenna</td>
<td>Chao-Qiang Feng, Fu-Shun Zhang, Xidian University, Xi’an, China</td>
<td></td>
</tr>
<tr>
<td>14:15</td>
<td>MO-OP.4P.4</td>
<td>Circularly Polarized Crossed Dipole with Magnetoelectric Dipole for Wideband and Broadbeam Applications</td>
<td>Han-Jing Zhang, Fu-Shun Zhang, Xidian University, Xi’an, China</td>
<td></td>
</tr>
<tr>
<td>14:30</td>
<td>MO-OP.4P.5</td>
<td>On the Integration Method of Low Profile and Wide Beam Scanning Phased Array</td>
<td>Guang Li, Fu-Shun Zhang, Xidian University, Xi’an, China</td>
<td></td>
</tr>
<tr>
<td>14:45</td>
<td>MO-OP.4P.6</td>
<td>A Method for Calculating the Purity of Vortex Electromagnetic Waves</td>
<td>Zheyuan Zhang, Xianzheng Zong, Qi Li, Zaiping Nie, University of Electronic Science and Technology of China, Chengdu, China</td>
<td></td>
</tr>
<tr>
<td>15:00</td>
<td>MO-OP.4P.7</td>
<td>Wideband Vivaldi Antenna Design with Reduced Radar Cross Section</td>
<td>Tayyab A. Khan, Jianxing Li, Juan Chen, Muhammad Abdullah, Anxue Zhang, Xi’an Jiaotong University, Xi’an, China</td>
<td></td>
</tr>
<tr>
<td>15:15</td>
<td>MO-OP.4P.8</td>
<td>Reconfigurable Microstrip Antenna Array for Frequency Selectivity Application</td>
<td>Fukun Sun, Fushun Zhang, Xidian University, Xi’an, China</td>
<td></td>
</tr>
<tr>
<td>15:30</td>
<td>Break</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15:45</td>
<td>MO-OP.4P.9</td>
<td>A Wideband Dipole Antenna Using an Impedance-matched Network</td>
<td>Dongjie Qin, Baohua Sun, Jin Zhang, Xidian University, Xi’an, China</td>
<td></td>
</tr>
<tr>
<td>16:00</td>
<td>MO-OP.4P.10</td>
<td>Wideband Circularly Polarized Crossed Dipole Antenna with Parasitic Elements</td>
<td>Lijun Zhang, Baohua Sun, Xidian University, Xi’an, China</td>
<td></td>
</tr>
<tr>
<td>16:15</td>
<td>MO-OP.4P.11</td>
<td>A novel compact wideband tightly coupled bowtie antenna</td>
<td>Ge Zhao, Ying Zeng Yin, Xidian University, Xi’an, China</td>
<td></td>
</tr>
<tr>
<td>16:30</td>
<td>MO-OP.4P.12</td>
<td>Development of Wilkinson Power Divider for UWB Application</td>
<td>Bo Pang, Ying-Zeng Yin, Xidian University, Xi’an, China</td>
<td></td>
</tr>
<tr>
<td>16:45</td>
<td>MO-OP.4P.13</td>
<td>Design of Double-Notch Ultra-Wideband Antenna</td>
<td>San Peng Miao, Hongxing Zheng, Mengjun Wang, Erping Li, Hebei University of Technology, Tianjin, China</td>
<td></td>
</tr>
</tbody>
</table>
MO-OP.4P.14 17:00
A Coplanar Waveguide Fed Tri-Band Antenna Based on Circular Ring Structure
Chuhan Lu, Hongxing Zheng, Mengjun Wang, Erping Li, Hebei University of Technology, Tianjin, China

MO-OP.4P.15 17:15
Single-Feed Wideband Circularly Polarized Antenna With Novel Parasitic Elements
Yineng Heng, Yingzeng Yin, Xidian University, Xi’an, China

MO-OP.4P.16 17:30
Low-Profile Multi-Mode Wideband Patch Antennas
Neng-Wu Liu, Lei Zhu, Guang Fu, Xidian University, Xi’an, China
High Performance Multi-Scale/Multi-Physics Computing
Session Co-Chairs: Wei-Jie Wang, Software Center for High Performance Numerical Simulation, CAEP Beijing, China; Xunwang Zhao, Xi’an University, Xi’an, China

MO-OP.5P.1 13:30
Novel Strategies Based on Domain Decomposition Method for Electromagnetic Problem Analysis (invited talk)
Wei-Jie Wang, Software Center for High Performance Numerical Simulation, CAEP Beijing, China; Zhen-Bao Ye, Hai-Jing Zhou, Institute of Applied Physics and Computational Mathematics Beijing, China

MO-OP.5P.2 13:45
Analysis of Working Process for Cloud Computing Systems
Lanyang Ji, Yangzhou University, Yangzhou, China; Jie Ding, Nanjing University, Nanjing, China; Xu Zhao, Beijing Smartchip Microelectronics Technology Company limited, Beijing, China

MO-OP.5P.3 14:00
Accurate Analysis of JEM Interference In Airborne Array Characteristics using Parallel HO-IE-DDM (invited talk)
Yingyu Liu, Qin Su, Xunwang Zhao, Yu Zhang, Chang Zhai, Xi’an University, Xi’an, China

MO-OP.5P.4 14:15
A Novel Collaborative Filtering Algorithm Based on Trust
Yuhan Mao, School of Automation, Beijing Institute of Technology, Beijing, China

MO-OP.5P.5 14:30
A Mesh-less Method Based on Artificial Neural Network for Solving Poisson Equation
Hai-Li Zhang, University of Electronic Science and Technology of China, Chengdu, China; Xiao-Yang He, Ming-Yao Xia, Peking University, Beijing, China

MO-OP.5P.6 14:45
A Hybrid Algorithm for Field-to-line Coupling Analysis above Ground (invited talk)
Dongmin Zhang, Cheng Liao, Liang Zhou, Xiaochuan Deng, Ju Feng, Southwest Jiaotong University, Chengdu, China

MO-OP.5P.7 15:00
Extra-Atmospheric Aircraft Control System Design Based on Loop Shaping Method
Peng Liu, Xun Luo, Han Yin, Shengjun Zhang, Jiaqi Liu, Beijing Institute of Space Long March Vehicle, Beijing, China

MO-OP.5P.8 15:15
Collaborative Filtering Algorithm Based on Trusted Similarity
De Meng, Nanjing Normal University, Nanjing, China

Break 15:30

MO-OP.5P.9 15:45
Multilayer Substrate Integrated Waveguide Bandpass Filter With Square Complementary Split-Ring Resonators
Jun Yang, Juan Xu, Qufu Normal University, Qufu, China

MO-OP.5P.10 16:00
A Wideband GaAs Double-Balanced Mixer and Driver Amplifier MMIC
Heng Xie, Yong Fan, School of Electronic Science and Engineering, Chengdu, China

MO-OP.5P.11 16:15
A Compact Ultra Wide Stopband Filter Based on Quarter-Mode Substrate Integrated Waveguide
Jian-Gang Zhu, Jian-sheng Zuo, Shanghai Institute of Measurement and Testing Technology, Shanghai, China; Ya-Na Yang, Guo-Hui Li, Li Sun, Shanghai University, Shanghai, China
A 26-40 GHz Broadband Fixed IF Sub-harmonic mixer Based on Schottky Diode
Jianhong Hou, Xing Li, Yangqiong Ou, Minghua Zhao, Yong Fan, University of Electronic Science and Technology of China, Chengdu, China

Compact Bandpass Filter Using Two Ring Resonators and Two Open Stubs
Fengyu Zhang, Kai Da Xu, Yanhui Liu, Department of Electronic Science, Xiamen University, Xiamen, China

The Millimeter-Wave Low-Loss Suspended Microstrip Power Divider/Combiner Design

Compatible Topological Electromagnetic Waveguides
Fei Gao, Zhejiang University, Hangzhou, China; Haoran Xue, Zhaoju Yang, Baile Zhang, Nanyang Technological University, Singapore
Transportation Guide

Conference Venue: Zhengde Fubowan Plaza- Block A, Golden morning Hotel
ADD: Block A, Zhengde Fubowan Plaza, No.1 Fenghua South Road, Quanshan District, Xuzhou.

The conference recommends hotel for Golden Morning Hotel and Shangjing Siji Hotel. As the two hotels mentioned above are close to each other, the details for Shangjing Siji Hotel are omitted. The details of how to get to Golden Morning Hotel are given below.

1. From Xuzhou Guanyin International Airport to Golden Morning Hotel
   (1) By Taxi
   Golden Morning Hotel is 45km far from Terminal 1, Guanyin International Airport. The maximum taxi fee is RMB 150. It takes around an hour.

   (2) By Shuttle Bus
   Airport Line is exactly from Terminal 1, Guanyin International Airport, to Pineline storage and transportation company. The bus ticket is 20 RMB, and it takes around an hour. Please see Fig. 1.

2. From Xuzhou East Railway Station to Golden Morning Hotel
   (1) By Taxi
   Golden Morning Hotel is 18.4km far from East Railway Station. The maximum taxi fee is RMB 50. It takes around half an hour.

   (2) By Bus
   No.72 bus is exactly from East Railway Station, to Golden Morning Hotel (bus station named FengHua Yuan). The bus ticket is 2.00 RMB, and it takes around an hour. Please see Fig. 2.

3. From Xuzhou Railway Station to Golden Morning Hotel
   (1) By Taxi
   Golden Morning Hotel is 8km far from Xuzhou Railway Station. The maximum taxi fee is RMB 20. It takes half an hour.

   (2) By Bus
   No.11 additional bus is exactly from Xuzhou Railway Station, to Fenghua Yuan. The bus ticket is 2.00 RMB, and it takes around an hour. Please see Fig. 3.
The Second Floor of Golden Morning Hotel
Sponsors or Organizers

CSQRWC 2018 is pleased to welcome our Patrons. Thank you for your support of CSQRWC 2018!

IEEE AP Society
School of Mathematics and Statistics, Jiangsu Normal University
Nanjing University of Science and Technology
Science and Technology on Electromagnetic Scattering Laboratory
Nanjing Electronic Equipment Institute
Jiangsu Key Laboratory of Education Big Data Science and Engineering
Jiangsu Optical Society
江苏师范大学
数学与统计学院概况

江苏师范大学数学与统计学院的历史可以追溯到1952年，是学校办学历史最长、综合实力最强的学院之一。数学是江苏省“十二五”、“十三五”一级重点学科，统计学是江苏高校一期和二期优势学科。学院拥有数学、统计学两个一级学科硕士学位授予权，同时招收课程与教学论（数学）硕士研究生和学科教学（数学）专业学位研究生。学院有数学与应用数学、信息与计算科学、应用统计学和经济统计学等四个本科专业，其中数学与应用数学是国家级特色专业、江苏省品牌专业、江苏省特色专业，数学类是江苏省“十二五”重点专业类。应用数学学科梯队是江苏省“青蓝工程”优秀学科梯队，统计建模与智慧江苏是江苏省“青蓝工程”科技创新团队，非线性分析及其应用团队、大数据统计分析团队是江苏省高等学校优秀科技创新团队，分析学课程群团队是江苏省高等学校优秀教学团队。目前在校本科生800余名，硕士研究生近200名。

学院始终把人才培养作为中心任务。素以教风严谨，管理规范著称；人才培养方案富有特色，人才培养质量优良。近五年来，共获得“江苏省研究生培养创新工程”项目 25 项，其中江苏省优秀硕士学位论文 5 篇；国家精品课程 1 门，国家精品资源共享课 1 门，江苏省精品课程 2 门，江苏省优秀研究生课程 1 门；获得全国教育科学优秀成果奖 1 项、江苏省优秀教学成果奖 3 项、江苏省教育科学优秀成果奖 1 项；近五年在高等教育出版社出版教材 7 部，其中国家“十一五”规划教材 2 部、江苏省精品教材 2 部、江苏省重点教材 1 部；获得省优秀本科毕业论文二、三等奖 6 项、本科优秀毕业论文团队 3 个；获得江苏省第二、第三届数学基础课授课大赛特等奖 1 项、一等奖 2 项。

学院现有江苏省教育大数据科学与工程重点实验室 1 个、江苏省实验教学示范中心 1 个、中央财政支持地方高校共建实验室 2 个、徐州市工程技术研究中心 1 个、徐州市重点实验室 1 个。学院开通了美国数学会 MathSciNet，购置了包括中国学术期刊全文数据库、Web of Science 数据库、Kluwer Online 全文期刊库、Springer Link 全文数据库、Elsevier 全文期刊数据库等十几种国内外大型数据库，为广大师生提供良好的教学科研和学习条件。