

Conference Program

2020 IEEE MTT-S International Conference
on Numerical Electromagnetic and Multiphysics Modeling
and Optimization

2020 IEEE MTT-S International Conference on Numerical Electromagnetic and Multiphysics Modeling and Optimization (NEMO) | 978-1-7281-6966-8/20/\$31.00 ©2020 IEEE | DOI: 10.1109/NEMO49486.2020.9343628



**December 07- 09, 2020,
Hangzhou, China**

MAM 2020

2020 IEEE MTT-S International Conference
on Numerical Electromagnetic and
Multiphysics Modeling and Optimization
December 07- 09, 2020, Hangzhou, China

Conference Program



ZJU-UIUC
INSTITUTE



Map of Deefly Zhejiang Hotel

浙江宾馆平面一览图



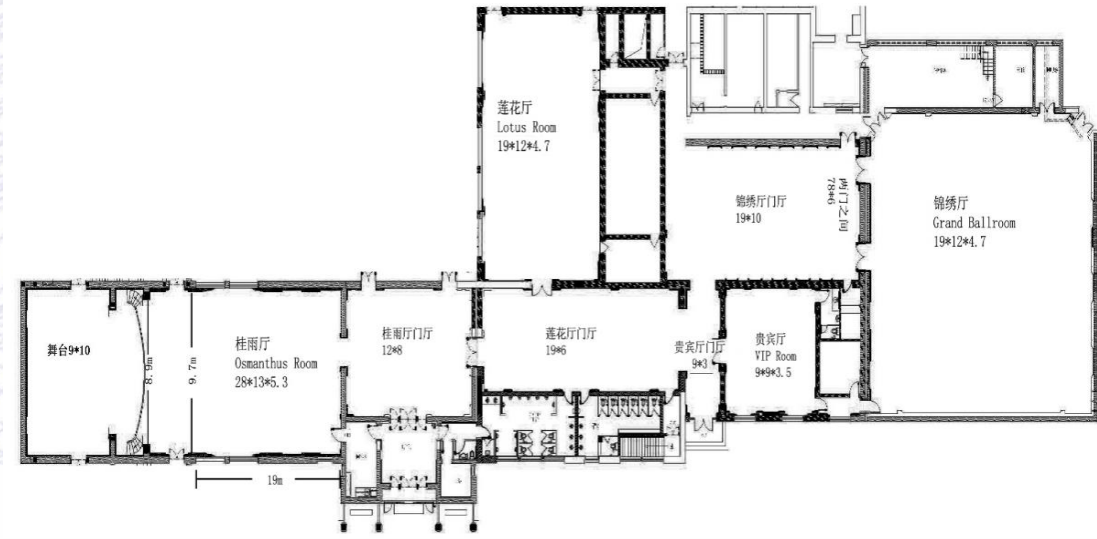
Address: Deefly Zhejiang Hotel,

278 Santaishan Road, Xihu District, Hangzhou

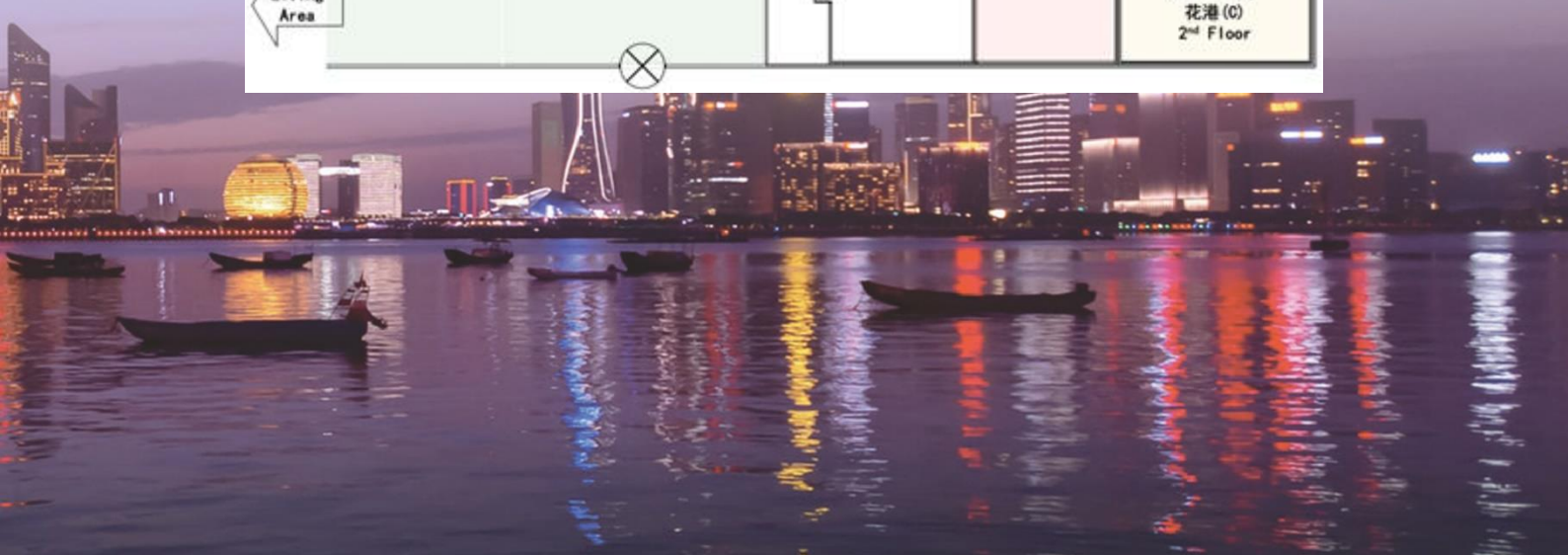
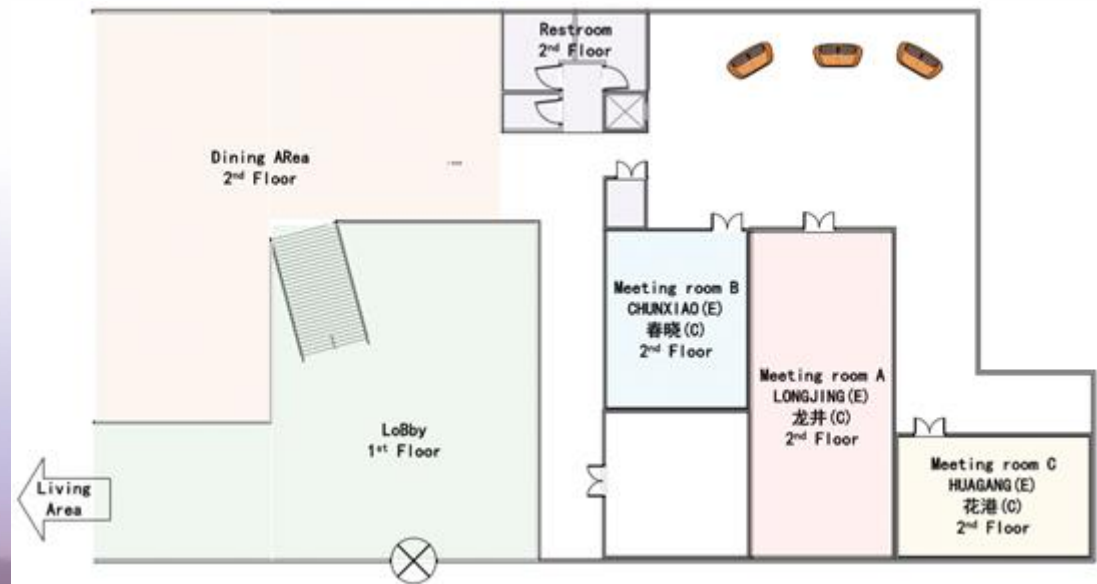
地址: 杭州市西湖区三台山路 278 号 浙江宾馆



Map of VIP Building



Map of Main Building



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Beihang University

Xidian University

Tianjin University

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Ningbo University

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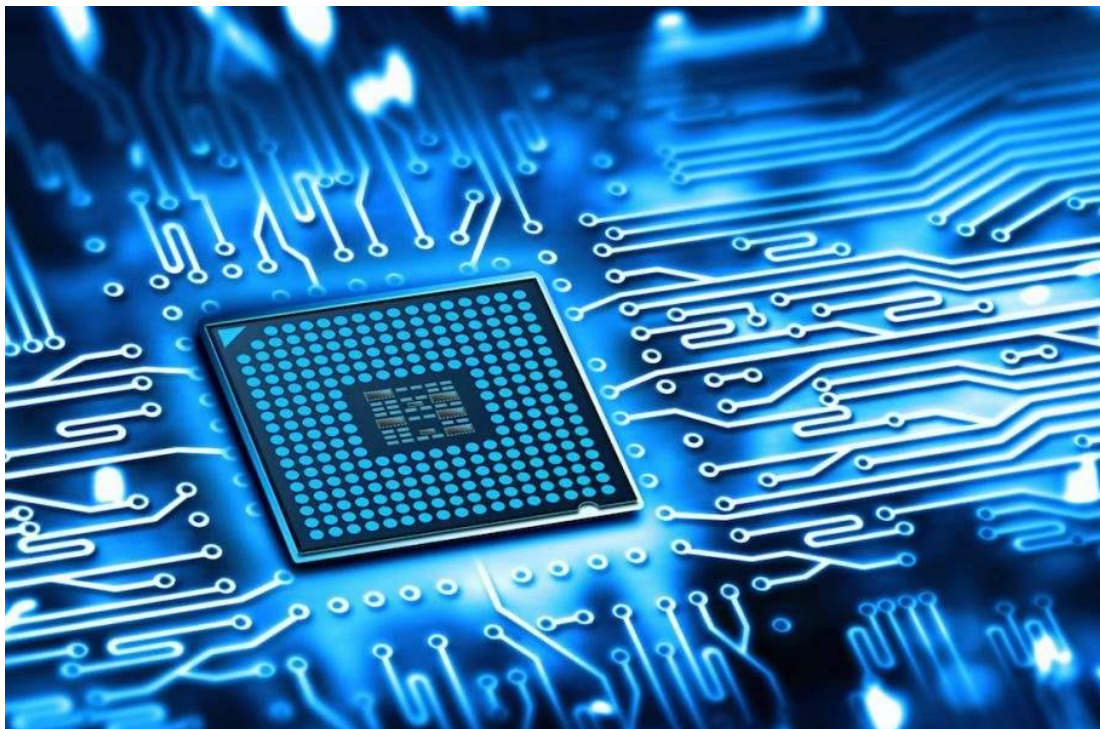
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Greetings from IEEE MTT-S NEMO 2020



Dear Colleagues and Friends,

Welcome to NEMO2020! IEEE MTT Society's annual focal event on Numerical Electromagnetic and Multiphysics Modeling Optimization.

Founded by the IEEE MTT Society, and started in 2014, NEMO2020 is the continuation of a series of annual global numerical electromagnetic modeling and optimization held in Pavia, Italy (2014), Ottawa, Canada (2015), Beijing, China (2016), Pabelon, Mexico, Sevilla, Spain (2017), Reykjavik, Iceland (2018), and Cambridge, MA, USA (2019).

NEMO2020 (www.nemo-ieee.org) brings together experts of electromagnetics- and multiphysics-based modeling, simulation, optimization and design for RF, microwave, terahertz, optics, and other applications.

This conference is an ideal forum to share new ideas on modeling and design for electromagnetics and multiphysics, propose efficient design algorithms, tools, routes, strategies, and anticipate the modeling/analysis/optimization needs of future technologies and applications.

NEMO2020 aims to stimulate broad discussion and exploration of disruptive technologies for MAPE in addition to traditional topics. The conference features an exciting technical program, an industry exhibition, a special program of Women in NEMO for MAPE, and invited talks by internationally recognized experts in electromagnetic and multiphysics modeling, simulation, high performance computing, and optimization applied for RFIC, 3DIC, SiP, Terahertz Electronics, Nanoelectronics, Nanophotonics, and 5G



Wen-Yan Yin



Erping Li



Junfa Mao

General Co-Chairs

wireless communication, etc. The conference banquet will be held on 8th, December, around 349 papers from domestic China and abroad have been submitted, the Best Student Paper Award together with Women in NEMO for MAPE award will also be presented during the banquet.

IEEE Trans. on MTT will publish a mini-special issue devoted to NEMO2020. NEMO2020 is also technically co-sponsored by the IEEE Antennas and Propagation Society and IEEE Electromagnetic Compatibility Society.

Our conference venue (Deefly Zhejiang Hotel) is right next to the West Lake, diverse social programs are also provided such as “Thousands of years of love for Songcheng”, “Pleasure Cruise in West Lake” and

“West Lake Tour”.

We would like to express our thanks to our co-organizers, sponsors, contributors and all of the attendees for your hard work and effort! Our best wishes are to all NEMO2020 attendees, we hope all of you enjoy your time in Hangzhou and have a great time!

General Co-Chairs:

Prof. **Wen-Yan Yin**, Zhejiang University

Prof. **Erping Li**, ZJU-UIUC Institute

Prof. **Junfa Mao**, Shanghai Jiaotong University




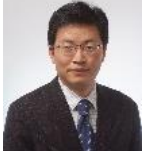
December 7-9, 2020


NEMO2020 Committee Officers

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Dan Jiao (USA)

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Zhun Wei (China)

Zi He (China)

Conference Site and Office Location

NEMO2020 will be held during December 7- December 9 ,2020 at Zhejiang Deefly Hotel. Zhejiang Deefly Hotel locates at No.278 Santaishan Road, Xihu District, Hangzhou, China.

Registration

On-site registration for NEMO2020 will be available at the lobby of the Main Building of Deefly Zhejiang Hotel, No. 278 Santaishan Road, Xihu District, Hangzhou, China.

The on-site student registration requires a valid student ID. If you have pre-registered, your name badge and Technical Program will be ready for you to pick up at the registration desk during the conference. Please wear your name badge throughout the conference. Access will be prohibited to the exhibition, tea break, interactive areas, and technical sessions if a name badge is not visible.

Registration Hours:

Day	Time
Sunday, 6 th , December, 2020	12:00 - 22:00
Monday, 7 th December, 2020	08:00 - 17:40
Tuesday, 8 th December, 2020	08:00 - 17:40
Wednesday, 9 th December, 2020	08:00 - 15:30

Registration Fees:

Registration Type	On-Site Registration
IEEE MTT-S Member	USD \$500
IEEE Member	USD \$540
Non-IEEE Member	USD \$680

IEEE MTT-S Student Member	USD \$340
IEEE Student Member	USD \$360
Student Non-IEEE Member	USD \$450

NEMO 2020 Registration Fee Includes:

- Conference Proceedings
- Welcome reception
- Banquet
- Lunch Buffet
- Dinner Buffet
- Coffee breaks for every conference day

Additional ticket for the Banquet is available on site if required: Standard Price (Lunch: Buffet: 150/person/time, Dinner Buffet: 180/person/time).

Projection Facilities

Standard LCD projector (connected to a local PC) will be provided in each conference room.

Guidelines for Presentations

Information for Candidates of Student Paper Competition and Women in NEMO for MAPE

The winners of the Best Student Paper Award and Women in NEMO for MAPE Award will be selected by Conference Award Committee and announced during the Conference Banquet. Winners will receive conference awards.

Information for Oral Presentations

Presenters are required to report at their session room to their session chair at least 15 minutes prior to the beginning of their session. Presenters are suggested to try out their presentations if there is any concern about the format, presentation length, etc. It is mandatory that the presentations should be loaded to the computer supplied by conference ahead of the beginning of each session. Any delays in the start of a presentation behind schedule due to the presenter’s disregard of this guidance will

result in less presentation time for that paper. All oral presentations are limited to 20 minutes including 15 minutes' presentation and 5 minutes' Q&A. The Session Chair will remind the presenter 10 minutes after the presentation starts. The session room will be equipped with a computer and an LCD projector. This is the only permissible projection system. Presenters MUST use the session's computer for their presentations, i.e, their presentation must be loaded in advance on this computer. The online part of the conference will be conducted through WebEx.

Each computer is equipped with an USB flash memory, the operating system for session computers is Microsoft Windows 7 (or newer). The software available on each machines are Adobe Acrobat Reader (for PDF), MathType and Microsoft Office (Version: Office 2013) with Word, Excel and PowerPoint available. Therefore, all presenters must be compatible with these packages. There will be also assistance and advice available to presenters at registration desk. Please remember that due to the very large number of papers and a tight schedule, the responsibility of having your paper ready for presentation at the scheduled time is very important.

Information for Oral Presentations

Presenters are required to put up their papers 15 minutes prior to the beginning of their session. During this time, the presenter must stand by the display board to answer questions and discuss about the contents of the poster informally. The poster display should include a statement of the topic, objectives of the research or project, the methodology used to solve the problem or implement the program, the major findings or outcomes and their significance and conclusions. There should be a logical sequence-introduction, development and conclusion of your display.

At heading should be prepared for your presentation using lettering at least 3cm high. The heading should include the title of the poster, all author names and institutional affiliations.

One poster board is provided for each presentation, which is 1.2 meter high by 0.8 meter wide. The background color of the board is usually beige or white. Pins or tapes are provided by conference committee to mount your posters on the boards. All materials to be displayed should be prepared before your arrival. Supplies will not be available at the conference site.

General Information

Conference Venue

Deefly Zhejiang Hotel

Address: No. 278 Santaishan Road, Xihu District, Hangzhou, China



Zhejiang Deefly Hotel



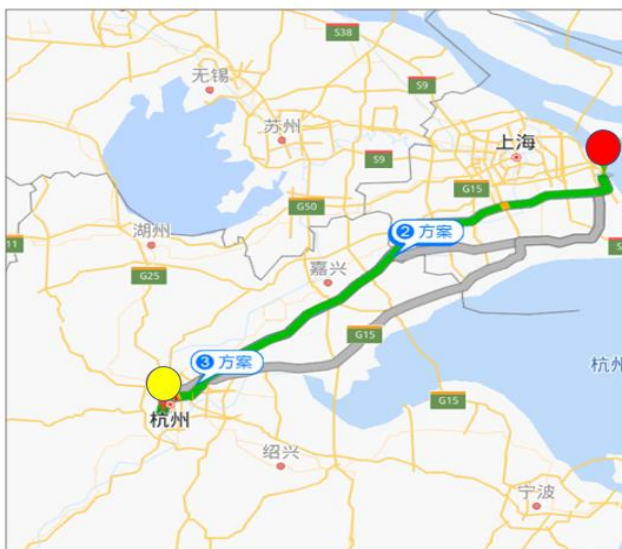
Conference Hall of Zhejiang Deefly Hotel



Accommodation of Zhejiang Deefly Hotel

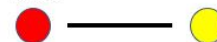
Transportation

Plan A: Shanghai Pudong International Airport to Deefly Zhejiang Hotel



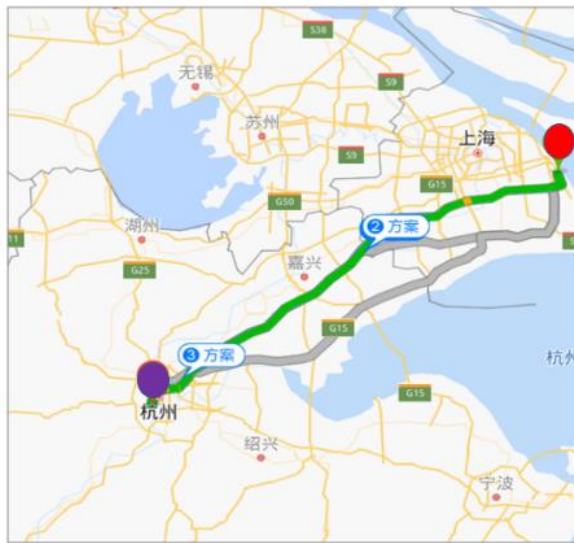
● 上海浦东国际机场
Shanghai Pudong International Airport
上海浦东旅游大巴士-杭州武林门
Travel Bus Station, Shanghai Pudong International Airport - Wulinmen, Hangzhou, around 100RMB/person, takes 3 hours.

● 武林门-蝶来浙江宾馆
Deefly Zhejiang Hotel
地址：浙江省杭州市西湖区三台山路278号
Address: No. 278 Santaishan Road, Xihu District, Hangzhou, around 30 RMB, takes 20 mins.



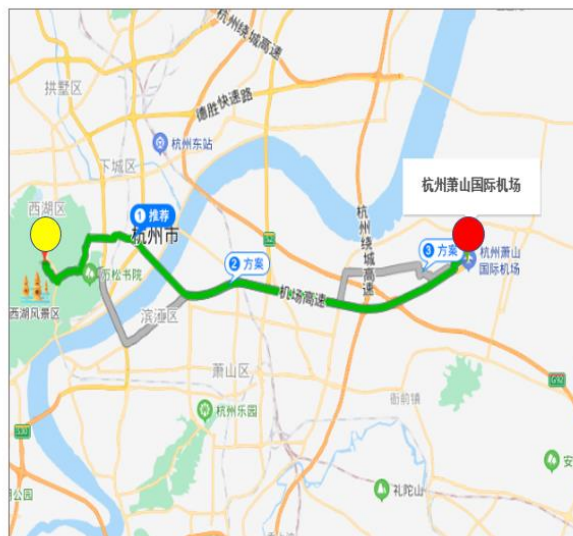
Around 3.5 hours
Distance: 208.9 km

Plan B: Shanghai Pudong International Airport to Deefly Zhejiang Hotel



- 上海浦东国际机场
Shanghai Pudong International Airport
 - 上海浦东国际机场-上海虹桥火车站
Subway Line 2 Pudong International Airport-Hongqiao Railway Station, 1.5 hours, 9 yuan.
 - 上海虹桥火车站-杭州东站
Hongqiao Railway Station-Hangzhou East Railway Station, 1-1.5 hours, 59-100yuan/person
 - 杭州东站-蝶来浙江宾馆
Hangzhou East Railway Station - Deefly Zhejiang Hotel
地址：浙江省杭州市西湖区三台山路278号
Address: No. 278 Santaishan Road, Xihu District, Hangzhou, around 40 RMB, takes 40 mins.
- ————— ●
Around 3.5 hours
Distance: 208.9 km

Plan C: Hangzhou Xiaoshan International Airport to Deefly Zhejiang Hotel



- 杭州萧山国际机场
Hangzhou Xiaoshan International Airport
 - 蝶来浙江宾馆
Deefly Zhejiang Hotel
地址：浙江省杭州市西湖区三台山路278号
Address: No. 278 Santaishan Road, Xihu District, Hangzhou, around 130 RMB, takes 60 mins.
- ————— ●
Around 50 mins
Distance: 34.6 km

About Hangzhou

Hangzhou is the capital of Zhejiang Province. It is one of the central cities in the Yangtze River Delta, covering 16.8 kilometers. Perennial temperature averages 17.8°C. It is the core city of Dawan district around Hangzhou Bay, the center city of G60 science and technology innovation corridor of Shanghai Jiahang, and an important international e-commerce center.

Local Events

✧ West Lake Tour



✧ West Lake Cruise (Only for female attendees)



❖ Thousands of Years of Love for Songcheng



Language

English is used as the official language in NEMO2020. Mandarin is the common spoken language in China's public society.

Currency and Credit Cards

China's currency is RMB with its monetary unit RMB Yuan. The exchange rate is about 1USD for 6.8 RMB. VISA Card and Master Card can be used in China.

Tax and Tip

All the shopping is free of tax. Be sure to make big bargaining when buy merchandise from the Street Market. Tipping is by no means a traditional Chinese custom. Please help keep the good customs and do not tip a waiter/waitress or a taxi driver and other person who provides regular services.

Electricity

In China, the standard outlets provide AC of 220V/50Hz.

TAXI

Usually, a taxi is available along the roadsides, while you wave for it. However, at main streets it is only available at taxi stops or in front of a hotel.

Internet Access

WLAN and WIFI accesses are available in the conference venue.

KEYNOTE SPEECH 1 (Grand Ballroom)

Machine Learning and Cognition-Driven Approaches to Microwave Design

Professor Q. J. Zhang, Chancellor's Professor
Department of Electronics, Carleton University, Fellow of the IEEE, and a
Fellow of the Canadian Academy.

Monday, 7th, December, 2020 08:50 - 09:40

Abstract: Machine learning technologies have contributed to the phenomenal progress in computer-based vision, speech processing, control and more. In the microwave design automation area, the learning and generalization features of neural networks have provided a unique capability to address challenges in modeling and design. With significant progress in electromagnetic and device modeling, along with dramatic changes in the computing environment, high-fidelity electromagnetic/device modeling and optimization are now an essential part of RF/microwave design. However new design challenges continue to rise. Design requirements are becoming more stringent, components and circuits are becoming more complex, and frequency is getting higher. More sophistication in multi-physics modeling and design are becoming increasingly necessary. Meaningful design problems easily become computationally prohibitive. In this talk, we explore the application of artificial neural networks and machine learning technologies for electromagnetic and nonlinear device modeling and optimization. We will highlight emerging directions of knowledge-based, cognition-driven design. Incorporating traditional design knowledge and engineering empirical equations into artificial neural networks, knowledge-based and machine-learning-based computational technologies are producing fine-grained modeling and design solutions for problems where no formulas are available. Deep neural networks solve nonlinear problems in higher dimensions. Neural networks are also formulated to provide instant solutions to microwave inverse modeling problems addressing the challenges of non-uniqueness in inverse modeling.



About the Speaker: Qi-Jun Zhang received the B. Eng. Degree from Nanjing University of Science and Technology, Nanjing, China in 1982, and the Ph.D. Degree in Electrical Engineering from McMaster University, Hamilton, Canada, in 1987. He was a research engineer with Optimization Systems Associates Inc., Dundas, Ontario during 1988-1990, developing advanced commercial software for microwave optimization. He joined the

Department of Electronics, Carleton University, Ottawa, Canada in 1990 where he is presently a Chancellor's Professor. He has served as the Chair of Department of Electronics during 2009-2011. On leave from Carleton University, he has also been with the School of Microelectronics, Tianjin University, Tianjin, China. His research interests are modeling, optimization, neural network and machine-learning technologies for highspeed/high-frequency electronic design, and has published over 300 papers in the area. He is an author of Neural Networks for RF and Microwave Design (Boston: Artech House, 2000), a coeditor of Modeling and Simulation of High-Speed VLSI Interconnects (Boston: Kluwer, 1994), a coeditor of Simulation-Driven Design Optimization and Modeling for Microwave Engineering (London: Imperial College Press, 2013), and an Associate Editor of IEEE Transactions on MTT. He is a founding executive of IEEE MTT society's annual conference on Numerical Electromagnetic/Multiphysics Modeling and Optimization (NEMO) and a General Chair of NEMO-2015. Dr. Zhang is the Chair of the Technical Committee on Design Automation (MTT-2) of the IEEE MTT Society. He is a Fellow of the IEEE, and a Fellow of the Canadian Academy of Engineering.

KEYNOTE SPEECH 2 (Grand Ballroom)

Micro/Nanoelectronics: Towards End of Scaling and Beyond

Professor Bin Yu, Zhejiang University, Hangzhou, the Fellow of IEEE, Fellow of National Academy of Inventors.

Monday, 7th, December, 2020 10:00 - 10:50

Abstract – This speech is divided into two parts: In the first part, some general trends in nanoscale silicon-based CMOS chip technology will be briefly reviewed. As one of the examples of the global industrial effort on pushing forward ultra-scalable IC technology, research on non-conventional transistor structure will be reflected with the focus on “three-dimensional” FinFET. In the second part of the seminar, the role of emerging nanostructures and nano-devices in the “post-silicon” era will be discussed. Graphene has received significant interests from both academia and industry lab, attributed to its distinctive layered configuration, band structure, and quantum phenomena. The atomically-thin sheets could be potentially grown by conventional thin-film techniques. While graphene has been explored as both active and passive elements in future electronics, its gap-less nature implies fundamental limits that promote innovations in device principle and material engineering. This seminar will introduce research results in prototype demonstrations of logic switches, non-volatile

memories, on-chip interconnects, and sensors on emerging 2D nanostructures and heterostructures. Major challenges and near-future research opportunities will be highlighted.



About the Speaker: Bin Yu received Ph.D. degree in Electrical Engineering from University of California at Berkeley. His academic career includes positions at Stanford University, State University of New York, and Zhejiang University. His research is in the field of solid-state devices, nanoelectronics, sensors, and nanomaterials. Specific interests include post-CMOS/post-Si devices, non-volatile memories, “post-Cu” carbon-based interconnects, sensors, solar cells, and other emerging devices based on 1D/2D/3D nanostructures. He has authored/co-authored 8 book/contributed book chapters, more than 260 research papers, and was the speaker of more than 120 keynote/invited talks to conferences, professional societies, universities, national labs, and industry around the world. As one of the most prolific inventors in micro/nanoelectronics, he has more than 300 awarded U.S. patents and several dozens of European/Japanese/Taiwanese patents. Dr. Yu served on the invited panels and advisory/organizing/technical program committees of many international conferences, serving as chair, co-chair, or member. He was/is Editor of IEEE Electron Devices Letters, Associated Editor of IEEE Transactions on Nanotechnology, Editor of Nano-Micro Letters, and Guest Editor of IEEE Transactions on Electron Devices and IEEE Transactions on Nanotechnology. He is the Fellow of IEEE, Fellow of National Academy of Inventors, and recipient of IEEE Distinguished Lectureship and IBM Faculty Award. His prior research accomplishments include the world’s first THz silicon CMOS transistor and the world’s first 10-nm gate length FinFET, among many others.

KEYNOTE SPEECH 3 (Grand Ballroom)

Wigner-Smith Time Delays in Electromagnetics

Professor Eric Michielssen, Department of Electrical Engineering and Computer Science, University of Michigan, a Fellow of the IEEE and a number of URSI Commission B.

Monday, 7th, December, 2020 10:50 – 11:40

Abstract: In 1960, Felix Smith published a seminal paper entitled "Lifetime Matrix in Collision Theory" that expressed time delays experienced by particles interacting with

a potential well (Lifetime in Collision Theory, Phys Rev, vol. 118, no. 1, 1960). Starting from the Schrodinger equation, Smith showed that these time delays can be expressed as the diagonal of the product of the system's scattering matrix and its frequency derivative, a quantity known today as the Wigner-Smith (WS) time delay matrix. While the correspondence between the Schrodinger and Helmholtz equations has been used to compute WS time delay matrices for 2D electromagnetic cavities, Smith's theory never has been formally extended to the Maxwell case. Here, we develop a WS formalism for electromagnetic fields and establish relationships between time delay and scattering matrices for closed geometries (waveguide networks with potentially non-TEM terminations), open structures (scatterers), and mixed systems (antennas). For each of the above, we show that the time delay matrix can be computed as the volume integral of properly renormalized electric or magnetic fields, and use time delay matrices to express frequency derivatives of impedance matrices. For open systems, we establish relationships between the eigenmodes of the time delay matrices and characteristic modes, and develop schemes to compute time delay matrix elements from surface currents. Finally, we leverage WS time delay matrices to categorize scattering phenomena involving multiscale structures comprising both smooth and rough surfaces, as well as quasi-resonant cavities.



About the Speaker: **Eric Michielssen** received his M.S. in Electrical Engineering (Summa Cum Laude) from the Katholieke Universiteit Leuven (KUL, Belgium) in 1987, and his Ph.D. in Electrical Engineering from the University of Illinois at Urbana-Champaign (UIUC) in 1992. From 1992 to 2005, he served on the faculty at UIUC. In 2005, he joined the University of Michigan, Ann Arbor, where he currently is the Louise Ganiard Johnson

Professor of Engineering and Professor of Electrical Engineering and Computer Science. He also serves as the institution's Associate Vice President for Advanced Research Computing and Co-Director for its Precision Health Initiative.

Eric Michielssen received a Belgian American Educational Foundation Fellowship in 1988 and a Schlumberger Fellowship in 1990. Furthermore, he was the recipient of a 1994 International Union of Radio Scientists (URSI) Young Scientist Fellowship, a 1995 National Science Foundation CAREER Award, and the 1998 Applied Computational Electromagnetics Society (ACES) Valued Service Award. In addition, he was named 1999 URSI United States National Committee Henry G. Booker Fellow and selected as the recipient of the 1999 URSI Koga Gold Medal. He also was awarded the UIUC's 2001 Xerox Award for Faculty Research, appointed 2002 Beckman Fellow in the UIUC Center for Advanced Studies, named 2003 Scholar in the Tel Aviv University Sackler Center for Advanced Studies, selected as UIUC 2003 University and Sony Scholar. In 2011 he received the UM College of Engineering David E. Little Research Excellence Award. In 2014 he was the recipient of the IEEE APS

Chen-To-Tai Distinguished Educator Award, and in 2017 he received the IEEE APS Sergei A. Schelkunoff Transactions Prize Paper Award. He is a Fellow of the IEEE (elected 2002) and a member of URSI Commission B.

Eric Michielssen authored or co-authored over 200 journal papers and book chapters and over 400 papers in conference proceedings. His research interests include all aspects of theoretical and applied computational electromagnetics. His research focuses on the development of fast frequency and time domain integral-equation-based techniques for analyzing electromagnetic phenomena, and the development of robust optimizers for the synthesis of electromagnetic/optical devices.

KEYNOTE SPEECH 4 (Grand Ballroom)

Modeling and Simulation Challenges Involving Multi-Physics, Multi-Scale, Multi-Dimension and Multi-Signal Electromagnetics

Professor Ke Wu, Poly-Grames Research Center, Department of Electrical Engineering, Ecole Polytechnique, University of Montreal, a Fellow of the IEEE, a Fellow of the Canadian Academy of Engineering (CAE) and a Fellow of the Royal Society of Canada.

Tuesday, 8th, December, 2020 8:00 - 8:50

Abstract: In parallel with the chronological progress in computing technologies, field/circuit modeling and simulations (M&S) have been instrumental in the scientific discovery, engineering design and technological development of RF, wireless and microwaves over MHz-through-THz. Thanks to the on-going investigation and deployment of emerging functional materials, processing techniques, and wireless devices, our applied electromagnetic community is deemed to enjoy in the many years to come an undisputable R&D expansion. However, a change in M&S landscape is transpiring before us which can affect our capability in connection with future high-frequency scientific and engineering development. In this presentation, we will discuss challenges in multi-physics, multi-scale, multi-dimension and multi-signal M&S environment that could stagnate our further hardware R&D activities in the field. Nevertheless, we can mold these computational challenges to create unique opportunities for our community to excel and expand further into a multi-dimensional and multi-functional scientific and engineering exploration and exploitation. We need to get ourselves prepared for the dawn of a new age.



About the Speaker: **Ke Wu** is Professor of Electrical Engineering at Polytechnique Montreal (University of Montreal). He holds the NSERC-Huawei Industrial Research Chair in Future Wireless Technologies (the first Huawei-endowed Chair in the world). He has been the Director of the Poly-Grames Research Center. He was the Canada Research Chair (2002-2016) in RF and millimeter-wave engineering and the Founding Director (2008-2014) of the Center for Radiofrequency Electronics Research of Quebec. Dr. Wu is also with the School of Information Science and Engineering at Ningbo University, on leave from his home institution. He has authored/co-authored over 1300 referred papers, and a number of books/book chapters and more than 50 patents. Dr. Wu was the general chair of the 2012 IEEE MTT-S International Microwave Symposium (the largest IEEE annual conference). He was the 2016 President of the IEEE Microwave Theory and Techniques Society (MTT-S). He also serves as the inaugural North-American representative in the General Assembly of the European Microwave Association (EuMA). He was the recipient of many awards and prizes including the inaugural IEEE MTT-S Outstanding Young Engineer Award, the 2004 Fessenden Medal of the IEEE Canada, the 2009 Thomas W. Eadie Medal from the Royal Society of Canada (The Academies of Arts, Humanities and Sciences of Canada), the Queen Elizabeth II Diamond Jubilee Medal, the 2013 Award of Merit of Federation of Chinese Canadian Professionals, the 2014 IEEE MTT-S Microwave Application Award, the 2014 Marie-Victorin Prize (Prix du Québec – the highest distinction of Québec in the Natural Sciences and Engineering), the 2015 Prix d'Excellence en Recherche et Innovation of Polytechnique Montréal, the 2015 IEEE Montreal Section Gold Medal of Achievement and the 2019 IEEE MTT-S Microwave Prize. He is a Fellow of the IEEE, a Fellow of the Canadian Academy of Engineering (CAE) and a Fellow of the Royal Society of Canada. He was an IEEE MTT-S Distinguished Microwave Lecturer from Jan. 2009 to Dec. 2011.

KEYNOTE SPEECH 5 (Grand Ballroom)

Dynamically Adaptive Refinement for Multiphysics and Multiscale Modeling

Professor Jianming Jin, Center for Computational Electromagnetics, Department of Electrical and Computer Engineering, University of Illinois at Urbana-Champaign Urbana, Illinois, a Fellow of IEEE, OSA, ACES, and Electromagnetics Academy.

Tuesday, 8th, December, 2020 08:50 - 09:40

Abstract: Except for a few relatively simple cases, a majority of multiphysics problems are very challenging for numerical modeling because most of them involve multi-spatial and temporal scales, which can vary over several orders of magnitude. Since the numerical modeling of multiphysics problems requires not only an accurate solution of all the individual physical fields involved, but also an accurate coupling of all these different physical fields, the multiscale problem has to be addressed in a coupled and often combined simulation. In such a simulation, the multi-spatial scales due to small geometrical features and fast spatial variations of the physical fields can be resolved either through fine geometrical meshes (h-refinement) or high polynomial orders (p-refinement). Similarly, the multi-temporal scales due to the complicated coupling and interaction of different physical fields can be resolved using either small time step sizes or high-order integration schemes. However, because of the dynamic nature of the physical fields and their interaction, the fast varied fields can evolve and propagate in both space and time. Consequently, both spatial and temporal refinements have to be performed in a dynamic fashion to achieve the best efficiency with a guaranteed accuracy. In this talk, we will discuss this problem and use the discontinuous Galerkin time-domain method as an example to illustrate the concept of dynamically adaptive refinement to tackle time-varying multiscale problems in highly challenging multiphysics modeling.



About the Speaker: Jian-Ming Jin is Y. T. Lo Chair Professor in Electrical and Computer Engineering and Director of the Electromagnetics Laboratory and Center for Computational Electromagnetics at the University of Illinois at Urbana-Champaign. He has authored and co-authored over 280 papers in refereed journals and over 20 book chapters. He has also authored *The Finite Element Method in Electromagnetics*, *Electromagnetic Analysis and Design in Magnetic Resonance Imaging*, and *Theory and Computation of Electromagnetic Fields*, co-authored *Computation of Special Functions*, *Finite Element Analysis of Antennas and Arrays*, and *Fast and Efficient Algorithms in Computational Electromagnetics*. His name often appeared in the University of Illinois's List of Excellent Instructors. He was elected by ISI among world's most cited authors in 2002. He is a Fellow of IEEE, OSA, ACES, and Electromagnetics Academy. Recently, he received the 2014 ACES Technical Achievement Award, 2015 IEEE APS Chen-To Tai Distinguished Educator Award, 2016 ACES Computational Electromagnetics Award, and 2017 IEEE APS Harrington-Mitra Computational Electromagnetics Award.

KEYNOTE SPEECH 6 (Grand Ballroom)

Deep Learning Based Design and Simulation Methodologies for HBM (High-bandwidth Memory Module) in Artificial Intelligence (AI) Server Computers

Professor Jounggho Kim, Professor of Electrical Engineering Department of KAIST, IEEE Fellow.

Tuesday 8th, December, 2020 09:50-10:40

Abstract: Recently, we are facing a newly emerging technology and industrial transition, named as 4th Industrial Revolution, which is based on artificial intelligence (AI), big data platform, and cloud system. Especially, emergence of artificial intelligence is aided by availability of big data, deep learning algorithms, and high performance GPU computing machines. Accordingly, demands for advanced performance of terabyte/s bandwidth computing performance are rapidly increasing. However, continuously growing gaps between GPU performance and DRAM I/O data bandwidth are becoming the critical barrier to limit the AI computing performance. In order to meet the pressing needs of higher data transfer bandwidth, High Bandwidth Memory (HBM) computing systems are becoming key solutions using TSV, Si interposer technologies, and stacked memory architectures.

In this presentation, we will introduce innovative deep learning methodologies for the design and the simulations of HBM AI computing systems including the TSV, high-speed channel, interposer, cooling structures, and PDN networks, considering signal integrity, power integrity and thermal integrity. The deep learning algorithms are the core part of the machine learning methods, and can give us outstanding opportunities for the estimation of the signal integrity, power integrity and thermal integrity analysis, as well as the design optimization process. They can provide us fast, and efficient design and verification process with less computing time, less computing power, and less memory resources. We will present basic concepts of the deep learning algorithms, and demonstrate the applications including channel performance evaluation, PDN impedance estimation, and thermal design analysis in HBM systems using DNN(Deep Neural Network), and CNN(Convolutional Neural Network). Also, we will discuss the possibility of RNN(Recurrent Neural Network) and GAN(Generative Adversary Network) methods. In addition, we will show applications of EMI suppression and design optimization of the PDN in HBM using reinforcement learning methods. Finally, we will propose future directions of the deep learning methods for system designs and optimization called as “ADA (All Design by AI).”



About the Speaker: Joungho Kim received B.S. and M.S. degrees in electrical engineering from Seoul National University, Seoul, Korea, in 1984 and 1986, respectively, and Ph.D degree in electrical engineering from the University of Michigan, Ann Arbor, in 1993. In 1996, he moved to KAIST (Korea Advanced Institute of Science and Technology). He is currently professor at electrical engineering department of KAIST. Since joining KAIST, his research centers on EMC modeling, design, and measurement methodologies of 3D IC, TSV, Interposer, System-in-Package, multi-layer PCB, and wireless power transfer (WPT) technologies. Especially, his major research topic is focused on chip-package-PCB co-design and co-simulation for signal integrity, power integrity, ground integrity, timing integrity, and radiated emission in 3D IC, TSV and Interposer. He has authored and co-authored over 527 technical papers published at refereed journals and conference proceedings. He published a book, “Electrical Design of Through Silicon Via,” by Springer in 2014. Currently, he is the director of Samsung-KAIST Industry Collaboration Center.

Dr. Joungho Kim was Conference chair of IEEE EDAPS 2015 in Seoul. And he was the conference chair of IEEE WPTC (Wireless Power Transfer Conference) 2014, held in Jeju Island, Korea. And he was the symposium chair of IEEE EDAPS Symposium 2008. He is also an associated editor of the IEEE Transactions of Electromagnetic Compatibility. He received Outstanding Academic Achievement Faculty Award of KAIST in 2006, KAIST Grand Research Award in 2008, KAIST International Collaboration Award in 2010, and KAIST Grand Research Award in 2014, respectively. He was appointed as an IEEE EMC society distinguished lecturer in a period from 2009-2011. He received Technology Achievement Award from IEEE Electromagnetic Society in 2010. Currently, he is an IEEE fellow.

KEYNOTE SPEECH 7 (Grand Ballroom)

Evaluation of Wearable and Implantable Wireless Medical Devices

Koichi Ito, Professor Emeritus
Center for Frontier Medical Engineering, Chiba University, Japan,
Life Fellow of the IEEE and a Fellow of the IEICE.

Tuesday, 8th, December, 2020 10:40-11:30

Abstract: Recently, various types of wearable as well as implantable wireless medical devices have been developed and tested, for example, to monitor physiological parameters, to deliver drugs and to stimulate nervous systems. One of the key technologies for R&D of such wireless medical devices is body-centric wireless communications. It is not so easy to utilize a real human body to evaluate performances of the devices experimentally. Instead, computer simulation is usually performed with sophisticated digital or numerical human-body phantoms. Today, many commercial softwares and phantom models are available. Various types and shapes of human-body phantoms are used, e.g., head, hand, abdomen, torso, whole-body, etc. The size and shape of the phantoms sometimes affect radiation characteristics of the devices.

However, experiments with human-body physical phantoms are indispensable to validate the results of numerical simulation or to avoid animal experiments for implantable devices. Many different types of physical human phantoms have been developed and utilized for their purposes in the experimental investigations. Typical physical human phantoms are liquid, gel, semi-hard (semi-solid) and solid phantoms. Particularly, semi-hard (semi-solid) phantoms are suitable to the experiments for implantable medical devices because it is easy to embed devices at the right position in the phantoms and to fix them without any support.



About the Speaker: Koichi Ito received the B.S. and M.S. degrees from Chiba University, Japan, and the Ph.D degree from Tokyo Institute of Technology, Japan. He is currently a Professor Emeritus and Visiting Professor at the Center for Frontier Medical Engineering (CFME), Chiba University. From 2005 to 2009, he was Deputy Vice-President for Research, Chiba

University. From 2009 to 2015, he served as Director of the CFME, Chiba University.

His main research interests include small antennas for mobile communications, microwave antennas for medical applications, research on evaluation of the interaction between electromagnetic fields and the human body by use of phantoms, and antenna systems for body-centric wireless communications.

Dr. Ito is a Life Fellow of the IEEE and a Fellow of the IEICE, Japan. He served as Chair of the Technical Committee on Human Phantoms for Electromagnetics, IEICE, an Associate Editor for the IEEE Transactions on Antennas and Propagation, an AdCom member for the IEEE AP-S, a Distinguished Lecturer for the IEEE AP-S, General Chair of IEEE iWAT2008, a member of the Board of Directors, the Bioelectromagnetics Society, a Councilor to the Asian Society of Hyperthermic Oncology, General Chair of ISAP2012, a Delegate to the European Association on Antennas and Propagation, a Vice-President of the Japanese Society for Thermal Medicine, and IEEE AP-S President for 2019. He currently serves as Vice-Chair of Commission K, URSI (International Union of Radio Science), and as IEEE AP-S Immediate Past-President for 2020.



Session 1 (CHUNXIAO Room)

Modeling, Simulation and Design of 3DIC and Advanced

Packaging

Tuesday, December 8, 12:30-14:30

Organizers and Session Chairs: Prof. Young Woo Kim (NAIST), Dr. Hanzhi Ma (Zhejiang University)

12:30-12:50	1. <i>Statistical Analysis and Modeling of a High Bandwidth Memory (HBM) Interposer Channel</i> Youngwoo Kim (Nara Institute of Science and Technology, Japan)
12:50-13:10	2. <i>Sensitivity Analysis of High-Speed Links with Design Space Dimensionality Reduction</i> Hanzhi Ma (Zhejiang University, China), Er-Ping Li (Zhejiang University, China), Andreas Cangelaris (University of Illinois, USA), Xu Chen (University of Illinois at Urbana-Champaign, USA)
13:10-13:30	3. <i>A Novel Through Mold Plate (TMP) for Signal and Thermal Integrity Improvement of High Bandwidth Memory (HBM)</i> Keeyoung Son (KAIST, Korea (South), Subin Kim (Korea Advanced Institute of Science and Technology, Korea (South)), Hyunwook Park (Korea Advanced Institute of Science and Technology (KAIST), Korea (South)), Seongguk Kim (KAIST), Korea (South), Keunwoo Kim (Korea Advanced Institute of Science and Technology(KAIST), Korea (South)), Shinyoung Park(Korea Advanced Institute of Science and Technology, Korea (South)), Boogyo Sim (KAIST, Korea (South)), Seungtaek Jeong (Korea Advanced Institute of Science and Technology, Korea (South)), Gapyeol Park (KAIST, Korea (South)), Joungho Kim (KAIST, Korea (South))
13:30-13:50	4. <i>Convolutional Neural Network-based Fast and Accurate Irregular Shape Power/Ground Plane Impedance Estimation Method for High-Speed Signaling</i> Keunwoo Kim (Korea Advanced Institute of Science and Technology(KAIST), Korea (South)), Daehwan Lho (Korea Advanced Institute of Science and Technology, Korea (South)), Hyunwook Park (Korea Advanced

	Institute of Science and Technology (KAIST), Korea (South)), Keeyoung Son (KAIST, Korea (South)), Seongguk Kim (KAIST, Korea (South)), Shinyoung Park (Korea Advanced Institute of Science and Technology, Korea (South)), Boogyo Sim (KAIST, Korea (South)), Subin Kim (Korea Advanced Institute of Science and Technology, Korea (South)), Joungho Kim (KAIST, Korea (South))
13:50-14:10	5. <i>Impact of multiple radiation leak paths on shielding effectiveness of ground vias in conformal-shielded SiP</i> Tuomin Tao, Zheming Gu, Guanglai Hu, Weifeng Liu, Er-Ping Li (Zhejiang University, China)
14:10-14:30	6. <i>Modeling and Simulation of an Improved Resistive Random Access Memory Array</i> Tan-Yi Li (Zhejiang University, China), Wen-Yan Yin (Zhejiang University, China), Wenchao Chen (Zhejiang University, China), Da-Wei Wang (Zhejiang University, China), Hao Xie (Zhejiang University, China) & Qiwei Zhan (Zhejiang University, USA)

Session 2 (Grand Ballroom A)

Deep Neural Network-Based Optimization and Applications

Monday, December 7, 12:30-14:30

Organizers and Session Chairs: Prof. Qijun Zhang (*Carleton University*), Dr. Feng Feng (*Carleton University*), Dr. Weicong Na (*Beijing University of Technology*) and Dr. Wenyan Liu (*Shaanxi University of Science and Technology*)

12:30-12:50	1. <i>Deep Neural Network with Batch Normalization for Automated Modeling of Microwave Components</i> Weicong Na, Ke Liu, Wan-Rong Zhang, Hong-Yun Xie and Dongyue Jin (Beijing University of Technology, China)
12:50-13:10	2. <i>Recent Advances in Deep Neural Network Technique for High-Dimensional Microwave Modeling</i> Jing Jin (Carleton University, Canada & Tianjin

	<p>University, China) , Feng Feng (Tianjin University, China), Wei Zhang (Tianjin University, China), Jianan Zhang (Tianjin University, China & Carleton University, Canada), Zhihao Zhao (Carleton University, Canada & Tianjin University, China) & Qijun Zhang (Carleton University, Canada)</p>
13:10-13:30	<p>3. <i>A Wiener-Type Dynamic Neural Network Approach to the Modeling of Nonlinear Microwave Devices and Its Applications</i> Wenyuan Liu (Shaanxi University of Science and Technology, China), Weicong Na (Beijing University of Technology, China), Feng Feng (Tianjin University, China), Lin Zhu (Tianjin Chengjian University, China) & Lin Qian (Qinghai University for Nationalities)</p>
13:30-13:50	<p>4. <i>Dual-Band FSS Inverse Design Using ANN with Cognition-Driven Sampling</i> Enze Zhu (Zhejiang University, China), Xingxing Xu (Zhejiang University, China), Zhun Wei (Zhejiang University, China), Wen-Yan Yin (Zhejiang University, China) & Ruilong Chen (Shanghai Aerospace Electronic Technology Institute, China)</p>
13:50-14:10	<p>5. <i>An Accurate Neuro-Space Mapping Method for Heterojunction Bipolar Transistor Modeling</i> Shuxia Yan (Tianjin Polytechnic University, China), Shuang Zhang (Tiangong University, China), Yaoqian Zhang (Tiangong University, China), Xu Dong & Weiguang Shi (Tianjin Polytechnic University, China)</p>
14:10-14:30	<p>6. <i>Recent Advances in EM-Centric Multiphysics Optimization of Microwave Components</i> Wei Zhang (Tianjin University, China), Feng Feng (Tianjin University, China), Jing Jin (Tianjin University, China), Shuxia Yan (Tianjin Polytechnic University, China), Weicong Na (Beijing University of Technology, China) & Qijun Zhang (Carleton University, Canada)</p>

Session 3 (CHUNXIAO Room)

Advances in Numerical Modeling and Nanophotonics

Monday, December 7, 12:30-14:30

Organizers and Session Chairs: Organizers and Session Chairs:
Associate Prof. Yijun Cai (*Xiamen University of Technology*), Associate
Prof. Yuanguo Zhou (*Xi'an University of Science and Technology*) and Dr.
Qiwei Zhan (*Zhejiang University*)

12:30-12:50	1. <i>Fast prediction of lithography mask near field with a deep fully convolutional network (Invited)</i> Yiqian Mao (Duke University, USA), Qiwei Zhan (Zhejiang University, China), Runren Zhang (Duke University, USA) & Qing Huo Liu (Duke University, USA)
12:50-13:10	2. <i>Simulation of Optical Bistability with Photonic Crystals by the Spectral Element Method (Invited)</i> Ma Luo (Sun Yat-Sen University, China), Jin Yao (Xiamen University, China) & Qing Huo Liu (Duke University, USA)
13:10-13:30	3. <i>Spectral properties of three-slit-box-cavity structured surface simulated by FDTD method</i> Yutao Zhang, Jian Liu, Kaihua Zhang, Yiwei Huo, Biao Wang & Xiaobing Wang (Shanghai Radio Equipment Research Institute, China)
13:30-13:50	4. <i>Tailoring Strong Multimode Interaction in a Graphene-based Coupled Plasmonic System</i> Ye Ming Qing, Liang Wei Wu & Hui Feng Ma (Southeast University, China)
13:50-14:10	5. <i>An Efficient Way to Calculate the Uncertainty of HEMP Field-Line-Coupling with Nonlinear Load</i> Zheng Liu (State Key Laboratory of Intense Pulsed Radiation Simulation and Effect, China)
14:10-14:30	6. <i>Thermally switchable dual-function plasmonic metasurface for perfect absorption based on VO₂</i> Yubin Y Zhang (Laser Fusion Research Center China Academy of Engineering Physics & Southwest University of Science and Technology, China)

Session 4- I (Grand Ballroom B)

Progress in Metasurfaces and Metamaterials - I

Monday, December 7, 2020, 12:30-14:30

Organizers and Session Chairs: Dr. Fei Gao (Zhejiang University), Prof. Weixiang Jiang (Southeast University, China)

12:30-12:50	1. <i>Non-interleaved Metasurface for Manipulating Full Circular Polarizations in microwave region (Invited)</i> Kuang Zhang (Harbin Institute of Technology, China), Yueyi Yuan (Harbin Institute of Technology, China), Badreddine Ratni (Univ Paris Nanterre, France), Shah Nawaz Burokur (LEME, France) & Wu Qun (Harbin Institute of Technology, China)
12:50-13:10	2. <i>Transversely Spinning of Light in Metamaterials (Invited)</i> Liang Peng & Tianwei Lan (Hangzhou Dianzi University, China)
13:10-13:30	3. <i>Reconfigurable spoof surface plasmon polaritons on elastic substrates (Invited)</i> Wenxuan Tang (Southeast University, China)
13:30-13:50	4. <i>Ultra-broadband Linear Polarization Converter Based on Single-layer Reflective Metasurface (Invited)</i> Guohong Du (Chengdu University of Information Technology, China)
13:50-14:10	5. <i>Channel shared information encoding with wavelength multiplexed metasurface</i> (Best Student Paper Candidate) Zhenfei Li & Weiren Zhu (Shanghai Jiao Tong University, China)
14:10-14:30	6. <i>Programmable Metasurface Cloaking for Arbitrarily External Object</i> (Best Student Paper Candidate) Lin Bai (Southeast University, China), Weicong Chen (Southeast University, China) & Weixiang Jiang (SEU,China)

Session 4- II (Grand Ballroom B)

Progress in Metasurfaces and Metamaterials – II

Monday, December 7, 14:30-16:30

Organizers and Session Chairs: Dr. Fei Gao (Zhejiang University), Prof. Weixiang Jiang (Southeast University, China)

14:30-14:50	1. <i>Wideband and Low-Profile Dual-Circularly-polarized Millimeter-Wave Reflect-Arrays (Invited)</i> Zhihao Jiang (Southeast University, China)
14:50-15:10	2. <i>OAM Multiplexing in Multipath Environment (Invited)</i> Xiaoming Chen, Wei Xue, (Xi'an Jiaotong University, China)
15:10-15:30	3. <i>Confined Orbit Angular Momentum in Deep-subwavelength Plasmonic Resonator (Invited)</i> Xuanru Zhang, Tiejun Cui (Southeast University, China)
15:30-15:50	4. <i>Nonreciprocal chiral responses in gyrotropic metasurfaces (Invited)</i> Zuojia Wang (Zhejiang University, China) & Na Liu (Shandong University, China)
15:50-16:10	5. <i>Multiphysics simulation of laser dynamics on nano-structured surface</i> Yukun Yuan, Fengzhou Fang (Tianjin University, China)
16:10-16:30	6. <i>Terahertz Cherenkov radiation on designer-surface-plasmon metamaterials</i> (Best Student Paper Candidate) Jie Zhang, Fei Gao (Zhejiang University, China)

Session 5- I (Lotus Room)

Hybrid FDTD Method and Applications – I

Monday, December 7, 12:30-14:30

Organizers and Session Chairs: Prof. Jian Wang (*Ningbo University, China*), Prof. Juan Chen (*Xi'an Jiaotong University*), Dr. N. X. Feng (*Shenzhen University*) and Associate Prof. Xuesong Meng (*CAEP Software Center, China*)

12:30-12:50	1. <i>Learning Unsplit-field PML for the FDTD Method by Deep Differentiable Forest (Invited)</i> Yingshi Chen (Xiamen University, China)
12:50-13:10	2. <i>Nodal Waveguide Ports for Simulation of RF Circuits in the FDTD Method</i> Yong Wang, Scott Langdon (Remcom Inc., USA)
13:10-13:30	3. <i>Efficient inversion for complex structures using domain decomposition based IE modeling</i> Jinghe Li (Guilin University of Technology, China), Naixing Feng (Shenzhen University, China), Xiangling Wu (Guilin University of Technology, China), Mengkun Ran (Guilin University of Technology, China), Tong Mu (Guilin University of Technology, China)
13:30-13:50	4. <i>An Unconditionally Stable FDTD Method for Simulating Graphene</i> Ning Xu, Juan Chen&Jianguo Wang (Xi'an Jiaotong University, China)
13:50-14:10	5. <i>Comparison of Five Formulations for Evaluating Q Factors of Antennas</i> Gaobiao Xiao (Shanghai Jiaotong University, China), Yuyang Hu (Shanghai Jiaotong University, China) & Shang Xiang (Lund University, Sweden)
14:10-14:30	6. <i>Computationally Efficient Modeling of Time Domain Field-to-Wire Coupling in Multi-Layered Shielded Cables Using JEMS-FDTD</i> Xuesong Meng (Institute of Applied Physics and Computational Mathematics, China)

Session 5- II (Lotus Room)

Hybrid FDTD Method and Applications -II

Monday, December 7, 14:30-16:30

Organizers and Session Chairs: Prof. Jian Wang (*Ningbo University, China*), Prof. Juan Chen (*Xi'an Jiaotong University*), Dr. N. X. Feng (*Shenzhen University*) and Associate Prof. Xuesong Meng (*CAEP Software Center, China*)

14:30-14:50	1. <i>Research on Hybrid Algorithm of Explicit Newmark-FDTD and Traditional FDTD Methods</i> Xinbo He, Bing Wei & Kaihang Fan (Xidian University, China)
14:50-15:10	2. <i>Analytical Investigations On FDTD Numerical Dispersion</i> Yu Cheng (Beihang University, China), Guangzhi Chen (Beihang University, China), Xiang-hua Wang (Tianjin University of Technology and Education, China) & Shunchuan Yang (Beihang University, China)
15:10-15:30	3. <i>Study on SAR Distribution of Human Body Using a Modified Conformal FDTD Method</i> Jian Wang (University of Ningbo, China), Yin-Shui Xia (Faculty of Electrical Engineering and Computer Science, Ningbo University, China) & Wen-Yan Yin (Zhejiang University, China)
15:30-15:50	4. <i>Exploration of data-driven methods for multiphysics electromagnetic partial differential equations</i> Haiyang Fu, Wenjie Cheng & Yilan Qin (Fudan University, China)
15:50-16:10	5. <i>Research on Radio Wave Coverage inside Train in Confined Space</i> Baichuan Liu, Zhenyu Zhao, Jun Hong Wang (Beijing Jiaotong University, China)

Session 6 (Lotus Room)

Computational Nanoelectronics and Applications

Monday, December 7, 16:40-18:40

Organizers and Session Chairs: Dr. Wenchao Chen (*Zhejiang University*),
Associate Prof. Xianghua Wang (*Tianjin University of Technology and
Education*)

16:40-17:00	1. <i>Theoretical Study of Bilayer Composite Barrier Based Ferroelectric Tunnel Junction Memory</i> (Invited) Huali Duan (ZJU-UIUC Institute, International Campus, China), Wenxiao Fang (CEPREI Laboratory, China), Leitao Liu (GlobalFoundries Inc., USA), Wenchao Chen (Zhejiang University, China).
17:00-17:20	2. <i>Stability-Improved HIE-FDTD for Magnetized Graphene from Microwave to THz Band</i> (Invited) Xiang-hua Wang (Tianjin University of Technology and Education, China)
17:20-17:40	3. <i>Parallel Simulation of Resistive Random Access Memory with Hexahedral Elements</i> Tan-Yi Li (Zhejiang University, China), Wen-Yan Yin (Zhejiang University, China), Wenchao Chen (Zhejiang University, China), Da-Wei Wang (Zhejiang University, China), Qiwei Zhan (Zhejiang University, USA) & Guangrong Li (Institute of Applied Physics and Computational Mathematics & CAEP Software Center for High Performance Numerical Simulation, China).
17:40-18:00	4. <i>Plasmon tuning and electromagnetic field enhancement of Au@Ag nanorod-gold film nanostructure</i> Yanping Yin (Jiangsu University of Science and Technology, China)
18:00-18:20	5. <i>Performance Analysis of Ultra-thin-Body, Double-Gate pMOSFETs at 5 nm Technology Node</i> Afshan Khaliq (Zhejiang University, China)
18:20-18:40	6. <i>High-performance parallel algorithm for multi-component drift diffusion reaction model and its application on total ionization effects</i> Zhaocan Ma (Software Center for High Performance Numerical Simulation, China)

Session 7- I (LONGJING Room)

Random Media and Remote Sensing-I

Wednesday, December 9, 13:10-15:10

Organizers and Session Chairs: Dr. Shurun Tan (*Zhejiang University, China*)

13:10-13:30	<p>1. <i>Numerical Simulations of Roughness Scale Effects on Bistatic Ocean Scattering (Invited)</i> Yanlei Du (Tsinghua University, China), Shurun Tan (Zhejiang University, China), Xiaofeng Yang (Aerospace Information Research Institute, Chinese Academy of Sciences, China), Jing Wang (Laboratory of Science and Technology on Information System Engineering, China) & Jian Yang (Tsinghua University, China)</p>
13:30-13:50	<p>2. <i>Passive and Active Multiple Scattering Model of Trees at Microwave Frequencies (Invited)</i> Maryam Salim (University of Michigan, USA), Shurun Tan (Zhejiang University, China), Roger De Roo (University of Michigan, USA), Andreas Colliander (JPL, USA) & Kamal Sarabandi (University of Michigan, USA)</p>
13:50-14:10	<p>3. <i>A Hybrid Method for Full-wave Simulation of Vegetation (Invited)</i> Weihui Gu (University of Michigan, USA), Leung Tsang (University of Michigan, Ann Arbor, USA)</p>
14:10-14:30	<p>4. <i>Stochastic-Galerkin Finite-Difference Time-Domain for Waves in Random Layered Media (Invited)</i> (Best Student Paper Candidate) Der-Han Huang (University of Illinois at Urbana-Champaign, USA), Andreas Cangellaris (University of Illinois, USA), Xu Chen (University of Illinois at Urbana-Champaign, USA)</p>
14:30-14:50	<p>5. <i>Parametric modeling of the magnetotelluric impedance (Invited)</i> Xinyi Xu (Zhejiang University, China), Mark Butala (Zhejiang University, China),</p>
14:50-15:10	<p>6. <i>Polarimetric Bistatic Scattering from Multiple Parallel Dielectric Finite Cylinders (Invited)</i> Yang Du (Zhejiang University, China)</p>

Session 8 (LONGJING Room)

Quantum Electromagnetic-I

Monday, December 7, 16:40-18:40

Organizers and Session Chairs: Dr. Wei E.I. Sha (Zhejiang University, China)

16:40-17:00	1. <i>Multiscale Algorithms Based on Semi-quantum Electromagnetic Models and Applications (Invited)</i> Liqun Cao (China Academy of Sciences, China)
17:00-17:20	2. <i>The charge separation and dissipation in radiated molecular wires (Invited)</i> Hang Xie (Chongqing University, China)
17:20-17:40	3. <i>Numerical Gauge Invariance of Electromagnetic System in Inhomogeneous Environment</i> Guoda Xie (Anhui University, China)
17:40-18:00	4. <i>Active control of graphene-hBN based hyperbolic metamaterial</i> Dongdong Li, (Zhejiang University, China)
18:00-18:20	5. <i>Single Quantum-dot Purcell Factor in a Slow Light Topological Valley Photonic Crystal Waveguide</i> Xiaotian Cheng (Zhejiang University, China)
18:20-18:40	6. <i>Quantum Signatures in Plasmonics Systems with Sub-nanometer Feature Sizes (Abstract) (Invited)</i> Dangyuan Lei (City University of Hong Kong, China)

Session 9- I (Huagang Room)

Theory and Application Electromagnetic Thermal

Co-simulation- I

Monday, December 7, 12:30-14:30

Organizers and Session Chairs: Dr. Huanhuan Zhang (Xidian University) & Dr. Wei E.I. Sha (Zhejiang University, China)

12:30-12:50	1. <i>Geometry Influence of Metallic Nano-particles on Absorption for Organic Solar Cells (Invited)</i> Longqian Cao, Yusheng Li and Zi He (Nanjing University of Science And Technology, China)
12:50-13:10	2. <i>Fast Algorithms for Thermal Simulation of Integrated Systems (Invited)</i> Min Tang & Bo Li (Shanghai Jiaotong University, China)
13:10-13:30	3. <i>Design of Multifunction Antennas in a Common Aperture</i> Xiaoyan Zhao, Zhixin Wang, Shichun Huang, Fangzheng Ji, Zhaoneng Jiang (Hefei University of Technology, China)
13:30-13:50	4. <i>Reconfigurable-Bandwidth Wideband Bandpass Filter with Independently Controllable Notch bands</i> Xiao-Kun Bi, Shao-Hua Guo, Xiao Zhang, Sai-Wai Wong & Tao Yuan (Shenzhen University, China)
13:50-14:10	5. <i>Research on The Optimization Method of Fast Start-Up Electronic Gun in Traveling-Wave Tube</i> Tieyang Wang (China Electronic Product Reliability and Environmental Testing Research Institute, China), Fangfang Song (Electronic Product Reliability and Environmental Testing Research Institute, China) & Wei Wang (The Twelfth Research Institute of China Electronics Technology Group, China)

Session 9- II (Huangang Room)

Theory and Application Electromagnetic Thermal

Co-simulation-II

Monday, December 7, 14:30-16:30

Organizers and Session Chairs: Dr. Huanhuan Zhang (*Xidian University*) & Dr. Wei E.I. Sha (*Zhejiang University, China*)

14:30-14:50	1. <i>The Discontinuous Galerkin Time-Domain Method for the Analysis of Heat Conduction (Invited)</i> Na Liu (Xiamen University, China), Xi Chen (Xiamen University, China), Mingwei Zhuang (Xiamen University, China), Guoxiong Cai (Xiamen University, China) & Qing Huo Liu (Duke University, USA)(Invited talk)
14:50-15:10	2. <i>Finite element analysis of the photothermal effect of</i>

	<p><i>graphene-based hybrid plasmonic waveguide (Invited)</i> Ting Wan, Ruiyao Zhang, Linfa Li, Tianhao Chen (Nanjing University of Posts and Telecommunications, China)</p>
15:10-15:30	<p>3. <i>A Novel DDM Based on Full Basis Functions Division for Solving Electromagnetic Scattering</i> Zongjing Gu (The 41st Institute of CETC, China), Fushun Nian (Science and Technology on Electronic Test & Measurement Laboratory, China), Shengli Liang (The 41st Institute of CETC, China), Baoguo Yang (Science and Technology on Electronic Test & Measurement Laboratory, China) & Yan Chen (Beijing Aerospace Automatic Control Institute, National Key Laboratory of Science and Technology on Aerospace)</p>
15:30-15:50	<p>4. <i>Research on Parallel Method of Moments On Domestic Supercomputer Platform</i> Yan Chen (Beijing Aerospace Automatic Control Institute, National Key Laboratory of Science and Technology on Aerospace, China), Zongjing Gu (China Electronics Technology Instruments Co., Ltd., China), Yanyan Li (Beijing Aerospace Automatic Control Institute, National Key Laboratory of Science and Technology on Aerospace, China), Xuehui Shao (Beijing Aerospace Automatic Control Institute, National Key Laboratory of Science and Technology on Aerospace, China), Peng Sun (Beijing Aerospace Automatic Control Institute, National Key Laboratory of Science and Technology on Aerospace, China) & Xiaoming Qiang (Beijing Aerospace Automatic Control Institute, National Key Laboratory of Science and Technology on Aerospace, China)</p>
15:50-16:10	<p>5. <i>Study on the choices of design parameters for inverse design of metasurface using Deep Learning</i> Junjie Hou (Central China Normal University, China), Hai Lin (Central China Normal University, China), Lijie Chen (China Ship Development Design Center, China), Feng Deng (China Ship Development Design Center, China), Chonghua Fang (China Ship Development Design Center, China)</p>

Session 10- I (Grand Ballroom B)

High-Performance Computing Electromagnetic and Multiphysics and Applications- I

Wednesday, December 9, 10:10-12:10

Organizers and Session Chairs: Dr. Rong Tian

(*Institute of Applied Physics and Computational Mathematics*), Dr. Weijie Wang (*Institute of Applied Physics and Computational Mathematics*) and Dr. Qiwei Zhan (*Zhejiang University, China*)

10:10-10:30	<p>1. <i>Non-intrusive reduced-order modeling of parameterized electromagnetic scattering problems using cubic spline interpolation (Invited)</i> Liang Li (University of Electronic Science and Technology of China, China), Kun Li (University of Electronic Science and Technology of China, China), Stéphane Lanteri (INRIA-Sophia Antipolis, France) and Ting-Zhu Huang (University of Electronic Science and Technology of China, China)</p>
10:30-10:50	<p>2. <i>Efficient Implementation of Multilevel Fast Multipole Algorithm on SW26010 Many-core Processor</i> (Best Student Paper Candidate) Weijia He, Minglin Yang, Xin-Qing Sheng (Beijing Institute of Technology, China)</p>
10:50-11:10	<p>3. <i>Morphological Transformation Strategy for the Computation of Effective Physical Properties Using Digital Rock</i> Yihui Zhang, Chen Guo & Zhenzhen Fan (Chang'an University, China)</p>
11:10-11:30	<p>4. <i>Design of Miniaturized Dual-bandpass Frequency Selective Surface Based on 2.5-Dimensional Closed Loop</i> Jingjing Zhang (Northwestern Polytechnical University, China)</p>
11:30-11:50	<p>5. <i>Numerical Studies of High Power Microwave Argon breakdown based on SETD method</i> Lin Wang & Huaguang Bao (Nanjing University of Science and Technology, China)</p>
11:50-12:10	<p>6. <i>The Influence of Metal Contact Surface Roughness on Third-Order Passive Intermodulation</i> Yan Li, Hao-Nan Zhou, Yang Shi, Wei Tian & Chuang-Chuang Fang (China Jiliang University, China)</p>

Session 10- II (Grand Ballroom B)

High-Performance Computing Electromagnetic and

Multiphysics and Applications-II

Wednesday, December 9, 13:10-15:10

Organizers and Session Chairs: Dr. Rong Tian

(*Institute of Applied Physics and Computational Mathematics*), Dr. Weijie Wang (*Institute of Applied Physics and Computational Mathematics*) and

Dr. Qiwei Zhan (*Zhejiang University, China*)

13:10-13:30	1. <i>PANDA-TSC: Large-scale Thermo-Mechanical Coupling Analyses</i> (Invited) Hongpan Niu (Institute of Systems Engineering, CAEP, China)
13:30-13:50	2. <i>Stress evolution and failure models in elastic-plastic electrodes during electrochemical-mechanical coupling</i> Jici Wen (Institute of Mechanics, China)
13:50-14:10	3. <i>High performance hydrodynamic solver library for complex geometrical regions</i> (Invited) Na Liu (Institute of Applied Physics and Computational Mathematics, China)
14:10-14:30	4. <i>Mechanism for magnetic field generation and growth in Richtmyer Meshkov instability in plasma</i> Yanqun Yu (Institute of Applied Physics and Computational Mathematics, China)
14:30-14:50	5. <i>Numerical investigation of shock wave generation in water conditions for irregular shaped explosive</i> Huang Chao, Na Liu, Pan Zhang (Institute of Applied Physics and Computational Mathematics, China)
14:50-15:10	6. <i>The positivity-preserving numerical method for compressible multi-media flow</i> Chun Wu Wang (Nanjing University of Aeronautics and Astronautics, China)

Session 10- III (Grand Ballroom B)

High-Performance Computing Electromagnetic and

Multiphysics and Applications-III

Wednesday, December 9, 15:20-17:20

Organizers and Session Chairs: Dr. Rong Tian

(*Institute of Applied Physics and Computational Mathematics*), Dr. Weijie

Wang (*Institute of Applied Physics and Computational Mathematics*) and

Dr. Qiwei Zhan (*Zhejiang University, China*)

15:20-15:40	1. <i>Numerical investigations on dynamic interactions between the underwater explosion shock wave and a movable sphere</i> Wenbin Wu (Peking University, China)
15:40-16:00	2. <i>Improved XFEM for 3D crack propagation (Invited)</i> Longfei Wen, Guizhong Xiao, Rong Tian & Lixiang Wang (CAEP Software Center for High Performance Numerical Simulation, China)
16:00-16:20	3. <i>An Improved Generalized Finite Element Method for Elastoplastic Large Deformation Analysis</i> Qinglin Duan, Jinwei Ma & Songtao Chen (Dalian University of Technology, China)
16:20-16:40	4. <i>Phased field modeling for dynamics failure of metals</i> Zhanli Liu (TsingHua University)
16:40-17:00	5. <i>An Efficient Domain Decomposition Method in Multiphysics Simulation of Package Systems</i> Weijie Wang (Institute of Applied Physics and Computational Mathematics)
17:00-17:20	6. <i>Massively Parallel Fully Coupled Simulation of Semiconductor Device Based on Newton-Krylov Method</i> Guangrong Li (Institute of Applied Physics and Computational Mathematics)

Session 11 (HUAGANG Room)

Transistor Modeling for Microwave Device and Circuit

Monday, December 7, 16:40-18:40,

Organizers and Session Chairs: Prof. Yuehang Xu (*University of Electronic Science and Technology of China*), Prof. Xiaohua Ma (*Xidian University, China*), Associate Prof. Yunqiu Wu (*University of Electronic Science and Technology of China*)

16:40-17:00	1. <i>A Bendable Microwave GaN HEMT on CVD Parylene-C Substrate</i> (Best Student Paper Candidate) Yan Wang, Wei Dai, Yunqiu Wu, Yunchuan Guo, Ruimin Xu, Bo Yan, & Yuehang Xu (University of Electronic Science and Technology of China, China)
17:00-17:20	2. <i>Reliability Evaluation of IGBT Modules in Wind Power Converter Considering the Effects of Different Failure Sites</i> Wei Lai, Zhi Wang, Hongjian Xia & Dan Luo (Chongqing University, China)
17:20-17:40	3. <i>An Improved Drain-Current Model for FinFETs</i> Xusheng Liu, Yunqiu Wu, Jun Liu, Fang Wang, Yiming Yu, Chenxi Zhao, Huihua Liu & Kai Kang (University of Electronic Science and Technology of China, China)
17:40-18:00	4. <i>An Antenna Design Method Based on Guassian Process Surrogate Model and Differential Evolution Algorithm</i> Xuezhi Chen, Yubo Tian, Jing Gao & Tianliang Zhang (Jiangsu University of Science and Technology, China)
18:00-18:20	5. <i>A Physical Charge-based Model for VTH of p-GaN gate HEMTs</i> Ying Xia (Hangzhou Dianzi University, China)
18:20-18:40	6. <i>Modeling of a 20W GaN HEMT using QPZD model</i> Xiuling Yu, Shuman Mao, Xiaoqiang Xie & Yuehang Xu (University of Electronic Science and Technology of China, China)

Session 12 (Lotus Room)

Machine Learning for Metasurface Imaging-I

Tuesday, December 8, 12:30-14:30

Organizers and Session Chairs: Prof. Lianlin Li (*Peking University*)

12:30-12:50	<p>1. <i>Design of Real-Time Tunable-Focus Active Metasurfaces</i> (Best Student Paper Candidate) Di Wang, Li-Zheng Yin, Yi-Dong Wang, Tie-Jun Huang, Feng- Yuan Han, Yunhua Tan& Pu-Kun Liu (Peking University, China)</p>
12:50-13:10	<p>2. <i>Investigation of Adam for Low-Frequency Electromagnetic problems</i> G. L Shuai (Tsinghua University, China; Science and Technology on Electromagnetic Scattering Laboratory, China), Maokun Li (Tsinghua University, China), Shenheng Xu (Tsinghua University, China), Fan Yang (Tsinghua University, China), Jie Zhang (Science and Technology on Electromagnetic Scattering Laboratory, China)</p>
13:10-13:30	<p>3. <i>Non-periodic metamaterial based on ENZ medium</i> Yue Li& Ziheng Zhou (Tsinghua University, China)</p>
13:30-13:50	<p>4. <i>Microwave Lip Recognition Based on Reconfigurable Metasurface Using Deep Learning</i> Hengxin Ruan (Peking University, China)</p>
13:50-14:10	<p>5. <i>Microwave Classification and Imaging of Hand Sign Language</i> Haoyang Li& Hongrui Zhang (Peking University, China)</p>
14:10-14:30	<p>6. <i>Microwave Lip Recognition Based on Programmable Metasurface Using Deep Learning</i> Haoyang Li& Hengxin Ruan (Peking University, China)</p>

Session 13 (LONGJING Room)

Computational Nanophotonics

Tuesday, December 8, 12:30-14:30

Organizers and Session Chairs: Prof. Zhixiang Huang (*Anhui University, China*), Associate Prof. Xingang Ren (*Anhui University, China*) and Associate Prof. Ming Fang (*Anhui University, China*)

12:30-12:50	1. <i>Study on Optical-Electric-Thermal Performance of the Perovskite Solar Cells Based on Embedding Different Geometric Metal Nanoparticles (Invited)</i> Hao Ren, Xingang Ren, Qingqing Deng, Zhixiang Huang, Xianliang Wu (<i>Anhui University, China</i>)
12:50-13:10	2. <i>Multiphysical modeling and simulation of semiconductor micro/nano lasers based on parallel GPU solver ((Invited)</i> Ke Xu (<i>Anhui University, China</i>)
13:10-13:30	3. <i>Broadband Green's Function Technique Applied to 3D Periodic Scatterers Band Characterization</i> Zhaoyang Feng, Shurun Tan (<i>Zhejiang University, China</i>)
13:30-13:50	4. <i>Electromagnetic Scattering from One-dimensional Gaussian Rough Surface Based on Stochastic Integral Equation</i> Anqi Wang (<i>Anhui University, China</i>)
13:50-14:10	5. <i>A Stochastic Integral Equation Method for Simulating the EM Scattering from Gaussian Rough Surface</i> Anqi Wang, Zhixiang Huang & Mengnan Zhu (<i>Anhui University, China</i>)
14:10-14:30	6. <i>Multi-quantum States Transition of One-dimensional Nanotube by d'Alembert-Schrödinger Hybrid Method</i> Shitao Chen (<i>Anhui University, China</i>)

Session 14- I (CHUNXIAO Room)

Modeling and Simulation of High Power Microwave Effects for EM Protection – I

Monday, December 7, 14:30-16:30

Organizers and Session Chairs: Prof. Liang Zhou (*Shanghai Jiaotong University, China*) & Dr. Feng Qin (*China Academy of Engineering Physics Key Laboratory of Complex Electromagnetic Environment, China*) & Xiaofeng Hu (*National Key Laboratory on Electromagnetic Environment Effects, China*)

14:30-14:50	1. <i>Characterization of Electromagnetic Wave Coupling With a Noncoaxial Cable with Apertures on its Shield (Invited)</i> Oussama Gassab, Liang Zhou & Wen-Yan Yin
14:50-15:10	2. <i>Wideband High Power Microwave Coupling Analysis of Automotive Engine</i> Jinliang Cai (Institute of Applied Electronics, CAEP, China) & Feng Qin (Institute of Applied Electronics, China Academy of Engineering Physics, China)
15:10-15:30	3. <i>Prediction of Electromagnetic Environment Effect on UAV's Datalink Based on Gaussian Process Regression</i> Dongxiao Zhang, Yazhou Chen, Min Zhao, Tong Xu & Erwei Cheng (National Key Laboratory on Electromagnetic Environment Effects, China)
15:30-15:50	4. <i>Electromagnetic Pulse Response Characteristics of AgNWs@SiO2/PVA Composites</i> Zhaoming Qu (Army Engineering University, China), Min Zhao (National Key Laboratory on Electromagnetic Environment Effects, China), Yang Yuan (National Key Laboratory on Electromagnetic Environment Effects, China), Xiaoning Sun (National Key Laboratory on Electromagnetic Environment Effects, China), Shukun Gao (National Key Laboratory on Electromagnetic Environment Effects, China)
15:50-16:10	5. <i>Characteristics of Microwave Breakdown in Cavity Filter under High Power Microwave Environment</i>

	<p><i>(Invited)</i> Haiyang Wang (University of Electronic Science and Technology of China, China)</p>
16:10-16:30	<p>6. <i>Transparent PEDOT: PSS based composite film for high power microwave shielding application</i> <i>(Invited)</i> Feng Qin (Institute of Applied Electronics, China Academy of Engineering Physics, China)</p>

Session 14- II (CHUNXIAO Room)

Modeling and Simulation of High Power Microwave Effects for EM Protection –II

Monday, December 7, 16:40-18:40

Organizers and Session Chairs: Prof. Liang Zhou (*Shanghai Jiaotong University, China*) & Dr. Feng Qin (*China Academy of Engineering Physics Key Laboratory of Complex Electromagnetic Environment, China*) & Xiaofeng Hu (*National Key Laboratory on Electromagnetic Environment Effects, China*)

16:40-17:00	<p>1. <i>Design of Ti3C2Tx MXene/Ni Hybrids for High-Performance Electromagnetic Absorption and Absorption-Based Electromagnetic Interference Shielding</i> Ruibin Jiang (Shaanxi Normal University, China)</p>
17:00-17:20	<p>2. <i>Susceptibility Atmospheric Breakdown Characteristics of Repetitive High-Power Microwave Pulse</i> Yu Daojie, Kai He, Baiseng Guo, Mengjuan Chai, Beibing Cai, Jinjin Wei & Dongfang Zhou (Strategic Support Force Information Engineering University, China)</p>
17:20-17:40	<p>3. <i>Study on the Characterization of Shielding Effectiveness of Materials under Wide Band Electromagnetic Pulse</i> Zhiyang Yan (China Academy of Engineering Physics, China)</p>

17:40-18:00	4. <i>Electro-Thermal analysis of SiGe HBT under HPM Injection (Invited)</i> Zhen Lu (Shanghai Jiaotong University, China)
18:00-18:20	5. <i>Research on the damage mechanism of typical radio fuse induced by narrow band HPM</i> Jiangchuan Lin (China Academy of Engineering Physics, China)
18:20-18:40	6. <i>High-frequency Equivalent Circuit Modeling for Overvoltage Detection</i> Bo-Wen Liu, Guoping Zou & Xing-Chang Wei (Zhejiang university, China)

Session 15 (Grand Ballroom A)

Electrothermal Modeling and Simulation of High Density Interconnects

Monday, December 7, 16:40-18:40

Organizers and Session Chairs: Prof. Wensheng Zhao (*Hangdian University*), Associate Prof. Shunchuan Yang (*Beihang University*)

16:40-17:00	1. <i>Electrical modeling and characterization of silicon-core differential TSV interconnects (Invited)</i> Libo Qian (Ningbo University, China)
17:00-17:20	2. <i>Kron-Branin Model of Braided Coaxial Cable Illuminated by Electromagnetic Wave</i> Ping Wu (Tsinghua University, China), Cui Meng (Tsinghua University, China), Zhifei Xu (Missouri University of Science and Technology & Electromagnetic Compatibility Laboratory (EMC), USA) & Jun Fan (Missouri University of Science and Technology, USA)
17:20-17:40	3. <i>An Accurate and Stable ES-FEM for High Density Interconnect Electro-Thermal Co-Simulations</i> Yangfan Zhang & Shunchuan Yang (Beihang University, China)
17:40-18:00	4. <i>Circuit Modeling of Shielded Differential Carbon Nanotube Bundle Filled Through-Silicon Vias</i>

	Wen-Sheng Zhao (Hangzhou Dianzi University, China), Qing-Hao Hu (Hangzhou Dianzi University, China), Da-Wei Wang (Zhejiang University, China) & Gaofeng Wang (Hangzhou Dianzi University, China)
18:00-18:20	5. <i>Design of flexible broadband power divider based on defect ground compensation</i> Jindi Hu (Xidian University, China)
18:20-18:40	6. <i>High-Order ES-FEM for Interconnect Modeling</i> Yuan Yin, Yangfan Zhang & Shunchuan Yang (Beihang University, China)

Session 16- I (Grand Ballroom B)

Fast Computational Electromagnetics Algorithms and Applications– I

Tuesday, December 8, 12:30-14:30

Organizers and Session Chairs: Prof. Dazhi Ding, (*Nanjing University of Science and Technology, China*), Dr. Zi He, (*Nanjing University of Science and Technology, China*)

12:30-12:50	1. <i>Large-Scale Parallel DGTD and FETD Method for Transient Microwave Heating (Invited)</i> Panpan Wang (Xidian University, China), Peiyu Chen (Xidian University, China), Wei E.I. Sha (Zhejiang University, China) & Huanhuan Zhang (Xidian University, China)
12:50-13:10	2. <i>Computational Method for Solving Surface Integral Equations by Combining Various Basis Functions (Invited)</i> Ting Su (Hainan University, China), Jin Chen (PLA University of Science and Technology, China), Jinlong Wang (PLA University of Science and Technology, China)&Chun Chen (Xiangtan University, China)

13:10-13:30	3. <i>Design and Optimization of FBAR Filter Using Acoustic-Electromagnetic Coupling Model and MBVD Model (Invited)</i> Shitao Chen (Anhui University, China)
13:30-13:50	4. <i>Discontinuous Galerkin Time Domain Method for Coupled Field-circuit Problems in Periodic Structures (Best Student Paper Candidate)</i> Zuyin Xu, Huaguang Bao, Hui Zeng & Rushan Chen (Nanjing University of Science and Technology, China)
13:50-14:10	5. <i>Efficient Scannable Frequency-invariant Pattern Synthesis Using Iterative Spatiotemporal Fourier Transform</i> Liyang Chen (University of Electronic Science and Technology of China & Yangtze Delta Region Institute (Quzhou), China), Yanhui Liu (University of Electronic Science and Technology of China, China)

Session 16- II (Grand Ballroom B)

Fast Computational Electromagnetics Algorithms and Applications–II

Tuesday, December 8, 14:30-16:30

Organizers and Session Chairs: Prof. Dazhi Ding, (*Nanjing University of Science and Technology, China*), Dr. Zi He, (*Nanjing University of Science and Technology, China*)

14:30-14:50	1. <i>Spurious Mode Free Broadband Green's Function Technique for Periodic Scatterers Using The Combined Field Integral Equation Formulation</i> Zhaoyang Feng (Zhejiang University, China), Shurun Tan (Zhejiang University, China), Er-Ping Li (Zhejiang University, China) & Leung Tsang (University of Michigan, Ann Arbor, USA)
14:50-15:10	2. <i>Conformal spherical array pattern synthesis based on CMA-ES Algorithm</i> Zepeng Zhang & Pengfei Gu (Nanjing University of Science and Technology, China)

15:10-15:30	3. <i>The Capacitance Effect in Perovskite Solar Cells by Equivalent Circuit Model</i> Ting Xu (Zhejiang University, China), Zishuai Wang (The University of Hong Kong, China) & Wei E. I. Sha (Zhejiang University, China)
15:30-15:50	4. <i>An Efficient iterative MoM-PO Hybrid Method for Calculating Scattered Fields of the Multiscale and Multiphysics Scatterers</i> Zhiyang Xue (Fudan University, China)
15:50-16:10	5. <i>Irregular Subarray Tiling of Small-Scale Wide-Angle Phased-Array</i> (Best Student Paper Candidate) Pengfei Gu, Qiao Zhao & Rushan Chen (Nanjing University of Science and Technology, China)
16:10-16:30	6. <i>Mesh Refinement Based Simulation of Complex Plasma Dynamics during High Power Millimeter Wave Breakdown</i> Pratik Ghosh and Bhaskar Chaudhury (Dhirubhai Ambani Institute of Information and Communication Technology (DA IICT), India)

Session 16- III (Grand Ballroom B)

Fast Computational Electromagnetics Algorithms and Applications–III

Tuesday, December 8, 16:40-18:40

Organizers and Session Chairs: Prof. Dazhi Ding, (*Nanjing University of Science and Technology, China*), Dr. Zi He, (*Nanjing University of Science and Technology, China*)

16:40-17:00	1. <i>Wave Propagation Modeling in Curved Tunnels with Three-Dimensional ADI-PE Method</i> Yingqi Liu, Xinrui Liu, Zhirong Zeng and Zi He (Nanjing University of Science and Technology, China)
17:00-17:20	2. <i>Scattering study of a time-continuous breaking wave model generated in DualSPHysic</i> Jiajing Wang, Biyi Wu, Guo Kun-yi, Xin-Qing Sheng (Beijing Institute of Technology, China)

Session 17- I (Lotus Room)

Modeling and Simulation of Marine Electromagnetic – I

Tuesday, December 8, 14:30-16:30

Organizers and Session Chairs: Prof. Bing Wei (*Xidian University*) and
Kuisong Zheng (*Xidian University*)

14:30-14:50	1. <i>Investigation on the Electromagnetic Scattering from The Chaff Cloud in Airflow with VRT (Invited)</i> Lixin Guo & Yanchun Zuo (<i>Xidian University, China</i>)
14:50-15:10	2. <i>Ocean Waves Inversion Based on Airborne Radar Images with Small Incident Angle (Invited)</i> Daozhong Sun, Yunhua Wang, Yining Bai & Yanmin Zhang (<i>Ocean University of China, China</i>)
15:10-15:30	3. <i>Influence of Metal Pad to the Radiation-field of the Vertically Polarized EMP Radiating-wave Simulator (Invited)</i> Xiangqin Zhu, Wei Wu & Wei Jia (<i>Northwest Institute of Nuclear Technology, Xi'an, China</i>)
15:30-15:50	4. <i>Submarine Target Detection Based on Static Electrical Impedance Tomography</i> Kang An, Shuting Qin, Changyou Li & Kuisong Zheng (<i>Northwestern Polytechnical University, China</i>)
15:50-16:10	5. <i>Circuit Modeling of the Cable Shield Injection</i> Zhi-tong Cui (<i>State Key Lab. of Intense Pulsed Radiation Simulation and Effect</i>), Bing Wei (<i>Xidian University, China</i>), Chuanbao Du (<i>State Key Laboratory of Intense Pulsed Radiation Simulation and Effect, China</i>) & Qin Feng (<i>Northwest Institute of Nuclear Technology, China</i>)
16:10-16:30	6. <i>Analysis of Far-Field Scattering and Near-Field Coupling of a Target above Rough Surface using DD-FDTD</i> (Best Student Paper Candidate) Wei Tian (<i>Xi'dian University, China & Yan'an University, China</i>), Bing Wei (<i>Xi'dian University, China</i>) & Ming-Hao Gong (<i>Xi'dian University, China</i>)

Session 17- II (Lotus Room)

Modeling and Simulation of Marine Electromagnetic –II

Tuesday, December 8, 16:40-18:40

Organizers and Session Chairs: Prof. Bing Wei (*Xidian University*) and
Kuisong Zheng (*Xidian University*)

16:40-17:00	<p>1. <i>A New Perspective from Facility Position for Statistical Analysis of Antenna Transient Response Excited by HEMP</i> Chuanbao Du (State Key Laboratory of Intense Pulsed Radiation Simulation and Effect, China), Zheng Liu (State Key Laboratory of Intense Pulsed Radiation Simulation and Effect, China), Congguang Mao (State Key Laboratory of Intense Pulsed Radiation Simulation and Effect, China) & Xu Zhang (Communication Support Team, China)</p>
17:00-17:20	<p>2. <i>Quantitative Analysis of Field Uniformity in "Spring-Thunder" Bounded-Wave EMP Simulator</i> Linshen Xie, Wei Wu & Xiangqin Zhu (Northwest Institute of Nuclear Technology, Xi'an, China)</p>
17:20-17:40	<p>3. <i>The implement of the hybrid mesh in US-FETD by using Domain decomposition method</i> (Best Student Paper Candidate) Kaihang Fan, Bing Wei & Xinbo He (Xidian University, China)</p>
17:40-18:00	<p>4. <i>Electro-thermal Analysis of a 65 nm Channel MOSFET Under The HPEMP interference</i> Yong Li (Northwest Institute of Nuclear Technology, China)</p>
18:00-18:20	<p>5. <i>Multi-azimuth wide-band scattering characteristics analysis of large-scale targets on the sea</i> Hao Wang, Bing Wei & Wenwen Fan (Xidian University, China)</p>
18:20-18:40	<p>6. <i>A Rotating Permanent Magnet Transmitter for Magnetic Induction Communication in RF-impenetratable Environment</i> Yu Liu, Muyu Hou & Shuhong Gong (Xidian University, China)</p>

Session 18 (Grand Ballroom B)

Modeling and Design of Novel Microwave Devices for 5G

Applications

Wednesday, December 9, 08:00-10:00

Organizers and Session Chairs: Prof. Haiwen Liu (Xi'an Jiaotong University) & Prof. Xiaochun Li, (Shanghai Jiaotong University)

08:00-08:20	1. <i>A Simple Wideband Bandpass Filter Using Triangle Stub Loaded Loop Resonator (SLLR) (Invited)</i> Hongliang Tian & Haiwen Liu (Xi'an Jiaotong)
08:20-08:40	2. <i>A Novel Dual-Band Bandpass Filter Using Quadruple-Mode Stub Loaded Ring Resonator (SLRR) (Invited)</i> Mingli Sun & Haiwen Liu (Xi'an Jiaotong University, China)
08:40-09:00	3. <i>An Efficient Explicit Approach for Analysis of Carbon Nanotube (CNT) Transistor (Invited)</i> Xuan Zhang, Xiaochun Li, Ping Li, Yan Li & Junfa Mao (Shanghai Jiaotong University, China)
09:00-09:20	4. <i>A Circularly-Polarized Frequency-Reconfigurable Antenna with Self-Complementary Metasurface</i> Ge Zhao & Mei Song Tong (Tongji University, China) Student Paper Competition
09:20-09:40	5. <i>Design of an 11-Pole BPF Using Cascaded Triplets of TM₀₁₀ Mode Dielectric Ring Resonators</i> Fan Liu (Saitama University, Japan), Zhewang Ma (Saitama University, Japan), Weihao Zhang (Saitama University, Japan), Masataka Ohira (Saitama University, Japan), Dongchun Qiao (Huawei Technologies Japan K.K., Japan), Guosheng Pu (Huawei Technologies Japan K.K., Japan) & Masaru Ichikawa (Huawei Technologies Japan K.K., Japan)
09:40-10:00	6. <i>A 3D Printed Plasma Dielectric Resonator Antenna</i> Ziwei Li (Beijing University of Posts and Telecommunications, China), Zhijiao Chen (Beijing University of Posts and Telecommunications, China), Xiaoming Liu (Anhui Normal University, China), Limei Qi (Beijing University of Posts and Telecommunications, China), Yuan Yao Beijing

	University of Posts and Telecommunications, China), Junsheng Yu (University of Electronic Science and Technology of China, China) and Xiaodong Chen (Queen Mary University of London, United Kingdom (Great Britain)), Haiwen Liu(Xi'an Jiaotong University, China), Taotao Huang(Xi'an Jiaotong University, China)
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Session 19- I (CHUNXIAO Room)

Deep Learning Imaging and Applications – I

Tuesday, December 8, 14:30-16:30

Organizers and Session Chairs: Associate Prof. Maokun Li (*Tsinghua University, China*) & Dr. Zhun Wei (*Zhejiang University, China*)

14:30-14:50	1. <i>Using Ternary Adversarial Networks to Capture Geometric Information in the Reconstruction of Porous Media</i> (Best Student Paper Candidate) Long Chen, Shuai Li & Chen Guo (Chang'an University, China)
14:50-15:10	2. <i>Deep Learning Based Attack on Phase-Truncated Optical Encoding (Invited)</i> (Best Student Paper Candidate) Lina Zhou (The Hong Kong Polytechnic University, Hong Kong), Xudong Chen (National University of Singapore, Singapore) & Wen Chen (The Hong Kong Polytechnic University, Hong Kong)
15:10-15:30	3. <i>Electromagnetic Inverse Problem and its applications on Non-invasive Imaging</i> Zhun Wei (Zhejiang University, China)
15:30-15:50	4. <i>Learning-based Full-aperture Fields retrieval method from limited-aperture measurement</i> Cheng Zhang and Kuiwei Xu (Hangzhou Dianzi University, China)

15:50-16:10	5. <i>Structural similarity loss functions for deep learning based inverse scattering methods</i> Rencheng Song & Youyou Huang (Hefei University of Technology, China)
16:10-16:30	6. <i>A deep learning based through wall imaging inverse scattering problem</i> Xiuzhu Ye (Beijing Institute of Technology, China)

Session 19- II (CHUNXIAO Room)

Deep Learning Imaging and Applications –II

Tuesday, December 8, 16:40-18:40

Organizers and Session Chairs: Associate Prof. Maokun Li (*Tsinghua University, China*) & Dr. Zhun Wei (*Zhejiang University, China*)

16:40-17:00	1. <i>Data-driven learnable Intelligent Electromagnetic Sensing with integrated Data Acquisition & Processing</i> Haoyang Li, Hongrui Zhang, Hengxin Ruan & Lianlin Li (Peking University, China)
17:00-17:20	2. <i>Programmable Metasurface Based Microwave Gesture Detection and Recognition Using Deep Learning (Invited)</i> Hengxin Ruan, Haoyang Li&Lianlin Li (Peking University, China)
17:20-17:40	3. <i>InP HBT Small Signal Modeling based on Artificial Neural Network for Millimeter-wave Application</i> Ao Zhang & Jianjun Gao (East China Normal University, China)
17:40-18:00	4. <i>Efficient Yield Optimization of Microwave Circuits Using Space Mapping Surrogates and Parallel Data Generation</i> Jianan Zhang, Feng Feng & Qijun Zhang (Carleton University, Canada)

Session 20- I (HUAGANG Room)

Modeling and Optimization of 2- and 3-D Structures for Electromagnetic Protection – I

Wednesday, December 9, 08:00-10:00

Organizers and Session Chairs: Dr. Xianjun Huang (*National University of Defense Technology, China*), Associate Prof. Qifeng Liu (*Chongqing University, China*), Dr. Feng Qin (*China Academy of Engineering Physics Key Laboratory of Complex Electromagnetic Environment, China*), Dr. Dongdong Wang (*China Ship Design and Development Center*) and Dr. Chonghua Fang (*China Ship Design and Development Center*)

08:00-08:20	1. <i>Electromagnetic Environment Effects and Protection of Complex Electronic Information Systems (Invited)</i> Qifeng Liu (Chongqing University, China)
08:20-08:40	2. <i>Adjustable Microwave Absorbing Array Controlled with Units Ratio Combination (Invited)</i> Zhuang Wu (Hunan University, China), Yanhong Zou (Hunan University, China), Xianjun Huang (College of Electronic Science and Technology, China) & Xiqiao Chen (Hunan University, China)
08:40-09:00	3. <i>Research and Design on Low Reflectivity of One-dimensional metal-dielectric Photonic Crystal Shielding Film (Invited)</i> Xiaoli Xu (National University of Defense Technology, China)
09:00-09:20	4. <i>The Leaky Radiation of Gap in Aircraft and Its Influence on Interference-Path-Loss (Invited)</i> Yueyun Hu (Shanghai Aircraft Design & Research Institute, China)
09:20-09:40	5. <i>Confidence Analysis Method for Cable Distributed Parameter Model based on Verification & Validation (Invited)</i> Qiang Liu (Institute of Applied Physics and Computation Mathematics, China), Longquan Zhong (Institute of Applied Electronics, China), Liping Yan (Sichuan University, China), Xiang Zhao (Sichuan

	University, China), Haijing Zhou
09:40-10:00	6. <i>Controlling of Surface Impedance and Designing of Low Profile Antennas (Invited)</i> Gaosheng Li (Hunan University, China)

Session 21- I (HUAGANG Room)

Reliability Modeling of RF Devices and Circuits – I

Wednesday, December 9, 10:10 - 11:10

Organizers and Session Chairs: Prof. Wenxiao Fang (CEPREI, China)

10:10-10:30	1. <i>Simulation and Effect, China), Congguang Mao (State Key Laboratory of intense Pulsed Radiation Simulation and Effect, China)</i> Dongyang Sun (NINT, China), Xu Zhang (Communication Support Team, China)
10:30-10:50	2. <i>Thermal-Electric-Mechanical coupling simulation of Cu Pillar Bumps under AC current</i> Kai Li (South China University of Technology & Science and Technology on Reliability Physics and Application of Electronic Component Laboratory, China), ZhiWei Fu (Science and Technology on Reliability Physics and Application of Electronic Component Laboratory), Si Chen (Science and Technology on Reliability Physics and Application of Electronic Component Laboratory), GuoYuan Li (South China University of Technology, China), Jile Xu (Science and Technology on Reliability Physics and Application of Electronic Component Laboratory, China)
10:50-11:10	3. <i>Distributed Characterization of On-Chip Spiral Inductors for Millimeter- Wave Frequencies (Invited)</i> Ernest Smith Mawuli, Yunqiu Wu, Delanyo Kulevome, Chenxi Zhao, Huihua Liu, Yiming Yu, Kai Kang (University of Electronic Science and Technology of China, China)
11:10-11:30	4. <i>Scattering Environment Analysis of Quantum Radar for the Typical 2D target</i> Chonghua Fang (China Ship Design and Development Center, China), Xinyang Shi (Wuhan Maritime

	Communication Research Institute, China), Qifeng Liu (Chongqing University & China, China), Feifei Lei (Wuhan Ship Development and Design Institute Co. Ltd, China), Dongdong Wang (Science and Technology on Electromagnetic Compatibility, China)
11:30-11:50	5. <i>Interdisciplinary Research on Flexible and Conformal Microwave Device/Materials</i> <i>Interdisciplinary Research on Flexible and Conformal Microwave Device/Materials</i> Xianjun Huang (College of Electronic Science and Technology, China), Lixiang Yao (National University of Defense Technology, China), Peiguo Liu (National University of Defense Technology, China)

Session 22- I (LONGJING Room)

Deep Neural Network-Based Optimization and Applications – I

Tuesday, December 8, 14:30 - 16:30

Organizers and Session Chairs: Prof. Yumao Wu (*Fudan University*)

14:30-14:50	1. <i>The Efficient Multilevel Fast Physical Optics Method for Calculating the Scattered Field (Invited)</i> (Best Student Paper Candidate) Fengli Song, Yumao Wu, & Yaqiu Jin (Fudan University, China)
14:50-15:10	2. <i>Near-field coupling induced Fano resonance in spoof plasmonic metamaterials</i> Qiaoyu Li & Yongjin Zhou (Shanghai University, China)
15:10-15:30	3. <i>Analysis of electromagnetic scattering of plasma-covered targets</i> Yang Jun Zhou (Xidian University China)
15:30-15:50	4. <i>An Efficient Hybrid Method for the Optimization of Antenna Radiation Problems</i> Hanru Shao (Ningbo University, China)
15:50-16:10	5. <i>Passive wireless temperature sensors for harsh environment (Invited)</i>

	Yongjin Zhou, Wen Qi Li & Yu Wei Mao (Shanghai University, China)
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Session 22- II (LONGJING Room)

Deep Neural Network-Based Optimization and Applications- II

Tuesday, December 8, 16:40-17:40

Organizers and Session Chairs: Prof. Yumao Wu (*Fudan University*)

16:40-17:00	1. <i>Study on the characteristics of wave transmission in dusty plasma</i> Shuting Qin, Kuisong Zheng & Kang An (Northwestern Polytechnical University, China)
17:00-17:20	2. <i>Ultra-Wideband Cylindrical Conformal Array Antenna Based on LPKDA</i> Zhixin Wang, Xiaoyan Zhao, Fangzheng Ji, Shichuan Huang & Zhaoneng Jiang (Hefei University of Technology, China)
17:20-17:40	3. <i>A Well-Scaling Parallel FEM-DDM Algorithm for Electromagnetic Simulation on SW26010 Many-core Processor</i> Jianzhong Lai (Beijing Institute of Technology, China)

Session 23- I (CHUNXIAO Room)

**Modeling, Simulation and Design of RF Devices and Circuits
for 5G Communication– I**

Wednesday, December 9, 13:10 - 14:30

Organizers and Session Chairs: Prof. Kai Kang (*University of Electronic Science and Technology of China*), Prof. Guoqing. Luo (*Hangzhou Dianzi University*), Dr. Jun Liu(*Hangzhou Dianzi University*), Prof. Haijun Gao (*Hangzhou Dianzi University*)

13:10-13:30	<p>1. <i>Mechanical and Electromagnetic Analysis of Flexible Fractal Interconnect Structures under High Frequency</i> MengJun Wang (Hebei University of Technology, China)</p>
13:30-13:50	<p>2. <i>A Tunable Bandpass-to-Bandstop Filter Using Memristor and Varactors</i> Guokai Zhao & Bin You (Hangzhou Dianzi University, China)</p>
13:50-14:10	<p>3. <i>Design of High-Directivity Directional Couplers With 2-bit Fragment-type Structure</i> Wenjuan Zhang & Gang Wang (University of Science and Technology of China, China)</p>
14:10-14:30	<p>4. <i>A 2.5-GHz FBAR-Based Push-Pull Class-C Oscillator With Low Phase Noise</i> Jiarui Dong, Qingwen Li, Yuqiang Xie, Zheyang Cao & Xiuping Li (Beijing University of Posts and Telecommunications, China)</p>

Session 24- I (HUAGANG Room)

EMC Modeling, Design and Simulations and Applications– I

Tuesday, December 8, 14:30 - 16:30

Organizers and Session Chairs: Prof. Qi Wu (*Beihang University*), Prof. Yujian Li (*Beijing Jiaotong University*), Prof. Xiaobing Wang (*Shanghai Key Laboratory of Electromagnetic Environmental Effects for Aerospace Vehicle*)

14:30-14:50	1. <i>A Novel Method of Lightning Protection for Airborne Antennas</i> Jing Ling, Liming Xu, YaHui Zhou, YangTao Wan, Chen Gao & Peng Li (National Information Control Laboratory, China)
14:50-15:10	2. <i>Influence of Transmission Path Randomness on Terminal Reflection Characteristics</i> Ruimin Bai, Zhenzhen Peng, Ze Yu & Bing Li (Beihang University, China)
15:10-15:30	3. <i>The Electromagnetic Field Distribution in Electrically Large Reflective Cavities</i> Peng Hu (Southeast University, China)
15:30-15:50	4. <i>DC-DC Converter Faults Identification Based on Electromagnetic Emission</i> Huizhen Shu, Donglin Su, Yaoyao Li, Hui Xu, Shaoxiong Cai (Beihang University, China)
15:50-16:10	5. <i>A Fault Location Method for Shielded Cables based on Coupling Characteristics</i> Zhenzhen Peng, Ruimin Bai & Bing Li (Beihang University, China)
16:10-16:30	6. <i>On the Modelling of Maximum Field Distribution within Reverberation Chamber Using the Generalized Extreme Value Theory</i> Peng Hu (Southeast University, China)

Session 24- II (HUAGANG Room)

EMC Modeling, Design and Simulations and Applications– II

Tuesday, December 8, 16:40 - 18:10

Organizers and Session Chairs: Prof. Qi Wu (*Beihang University*), Prof. Yujian Li (*Beijing Jiaotong University*), Prof. Xiaobing Wang (*Shanghai Key Laboratory of Electromagnetic Environmental Effects for Aerospace Vehicle*)

16:40-17:00	<p>1. <i>Simulation Analysis of a Composite Simulator for the SREMP Environment</i></p> <p>LiuHong Huang (Tsinghua University, China), Xiong Jiuliang (Academy of Military Science PLA China, China), Cui Meng (Tsinghua University, China), Zheng Pan (Academy of Military Science PLA China, China), Jie Yang (Academy of Military Science PLA China, China), Li Yuebo (Academy of Military Science PLA China, China)</p>
17:10-17:30	<p>2. <i>High-Speed Transmission Cable Performance - Simulations and Measurements</i></p> <p>Yunqing Li (Zhejiang University, China), Fang He (Zhejiang Zhaolong Interconnect Technology Co., Ltd., China), Oussama Gassab (Shanghai Jiao Tong University, China) & Wen-Yan Yin (Zhejiang University, China)</p>
17:30-17:50	<p>3. <i>Magnetic Field Analysis of Linear motor for High-Speed Maglev Train</i></p> <p>Jiali Shao (Beijing Jiaotong University, China)</p>
17:50-18:10	<p>4. <i>Implementation Method of Anti Electromagnetic Interference in Identical and Adjacent Frequency for the Data link of UAV</i></p> <p>Min Zhao, Tong Xu, Dongxiao Zhang, Xing Zhou, Erwei Cheng, Xijun Zhang, Shukun Gao, Yazhou Chen (National Key Laboratory on Electromagnetic Environment Effects, China)</p>

Session 25- I (LONGJING Room)

Modeling of Inverse Electromagnetic Problems and Their Simulation - I

Wednesday, December 9, 08:00 - 10:00

Organizers and Session Chairs: Associate Prof. Kuiwen Xu (*Hangzhou Dianzi University, China*), Associate Prof. Dr. Xiuzhu Ye (*Beijing Institute of Technology, China*), Associate Prof. Rencheng Song, (*Hefei University of Technology, China*) and Prof. Xuesong Yang (*University of Electronic Science and Technology of China*)

08:00-08:20	1. <i>Electromagnetic properties and optimizations of the laminated composites (Invited)</i> Changyou Li, Qian Zhu & Xiaoquan He (Northwestern Polytechnical University, China)
08:20-08:40	2. <i>Forward and Inverse Problems for Three Dimensional Electromagnetic Imaging in the Multiple Scattering Regime (Invited)</i> Ting Zhang (Zhejiang University, China)
08:40-09:00	3. <i>Simulation of Source Scattering Localization Based on Compressed Sensing</i> Zhiyi Tang, Mengxin Lin, Yuting Wu & Jiangtao Huangfu (Zhejiang University, China)
09:00-09:20	4. <i>Modeling and Inversion in Electrical Impedance Tomography</i> Zhun Wei (Zhejiang University, China)
09:20-09:40	5. <i>Electromagnetic inverse scattering with perceptual adversarial networks</i> Rencheng Song & Youyou Huang (Hefei University of Technology, China)
09:40-10:00	6. <i>Fast Multiparametric Electromagnetic Full-Wave Inversion Via Solving Contracting Scattering Data Equations Optimized by the 3-D MRF Model (Invited)</i> Yanjin Chen (Xiamen University, China), Jiawen Li (Xiamen University, China), Jianliang Zhuo (Xiamen University, China), Feng Han (Xiamen University, China) & Qing Huo Liu (Duke University, USA)

Session 25- II (LONGJING Room)

Modeling of Inverse Electromagnetic Problems and Their Simulation - II

Wednesday, December 9, 10:10 – 11:50

Organizers and Session Chairs: Associate Prof. Kuiwen Xu (*Hangzhou Dianzi University, China*), Associate Prof. Xiuzhu Ye (*Beijing Institute of Technology, China*), Associate Prof. Rencheng Song, (*Hefei University of Technology, China*) and Prof. Xuesong Yang (*University of Electronic Science and Technology of China*)

10:10 – 10:30	<p>1. <i>Inverse Modeling of Electromagnetic Devices by Machine Learning (Invited)</i> Lin Yuan (University of Electronic Science and Technology of China, China), Xue-Song Yang (University of Electronic Science and Technology of China, China), Chao Wang (University of Electronic Science and Technology of China, China), & Bing-Zhong Wang (University of Electronic Science and Technology of China, China)</p>
10:30-10:50	<p>2. <i>A Regularization Scheme Based on Gaussian Mixture Model for EM Data Inversion</i> (Best Student Paper Candidate) Xiaoqian Song (Tsinghua University, China), Maokun Li (Tsinghua University, China), Aria Abubakar (Schlumberger-Doll Research, USA)</p>
10:50 – 11:10	<p>3. <i>A brain stroke detection method based on deep learning method</i> Xiuzhu Ye (Beijing Institute of Technology, China)</p>
11:10 – 11:30	<p>4. <i>A hybrid input scheme based on U-net CNN to solve the quantitative microwave imaging</i> Lu Zhang and Kuiwen Xu (Hangzhou Dianzi University, China)</p>
11:30 – 11:50	<p>5. <i>Attenuation estimation of long coaxial cable with regularization method</i> Y Gao (CAEP, China)</p>

Session 26- I (Lotus Room)

Wave Propagation and Scattering of Sea-ship – I

Wednesday, December 9, 10:10 – 11:50

Organizers and Session Chairs: Prof. Min Zhang (*Xidian University*),

Associate Prof. Ding Nie (*Xidian University*)

10:10-10:30	1. <i>A Complementary Study on the Trapped Surface Field Excited by the Vertical Electric Dipole Over a Dielectric-Coated Conductor</i> Tingting Gu (<i>Zhejiang University, China</i>)
10:30-10:50	2. <i>Simulation of EM Scattering from Nonlinear Sinusoidal Sea Waves Modulated by Hydrodynamic Effect in Nearshore Region</i> Ding Nie, Hangyu Ren, Hui Wang & Min Zhang (<i>Xidian University, China</i>)
10:50-11:10	3. <i>Establishment of radar target characteristic database based on scattering center extraction and neural network prediction</i> YiAnran Wang (<i>Fudan University, China</i>)
11:10-11:30	4. <i>The transmission characteristic of polarized laser in sandstorm on Mars</i> Yufeng Yang, Anli Han, Kangkang Chang (<i>Xi'an University of Technology, China</i>)
11:30-11:50	5. <i>Design of a stealth and lightweight underwater vehicle mast</i> Liang Dong (<i>Wuhan Secondary Ship Design and Research Institute, China</i>)
11:50-12:10	6. <i>Multi-objective optimization design of a multilayer radar absorbing material</i> Liang Dong (<i>Wuhan Secondary Ship Design and Research Institute, China</i>)

Session 27- I (Grand Ballroom A)

Novel Electromagnetic Materials Modeling, Simulation and Application– I

Wednesday, December 9, 13:10 - 15:10

Organizers and Session Chairs: Prof. Xiaohe Chen (*Suzhou Institute of Biomedical Engineering and Technology Chinese Academy of Sciences*) & Dr. Yan Li (*China Jiliang University*)

13:10-13:30	1. <i>Using X-ray Reflectivity to Probe Intermixing at Material Interfaces with Applications to Periodic Multilayer Mirrors</i> Xuyang Bai, Shurun Tan & Oleksy Penkov (Zhejiang University, China)
13:30-13:50	2. <i>Spoof Surface Plasmon polariton Structure for Electromagnetic Radiation Suppression (Invited)</i> Yan Li (China Jiliang University, China) & Er-Ping LI (Zhejiang University, China)
13:50-14:10	3. <i>Effect of Microgeometry on the Effective Dielectric Property of Anisotropic Composites</i> Zhenzhen Fan (School of Information Engineering, Chang'an University, China), Bowen Ling (School of Earth, Energy and Environmental Science, Stanford University, USA) & Chen Guo (Chang' an University, China)
14:10-14:30	4. <i>Determining Cost-Effective Mixtures of Materials to Create Composites with Desired Complex Permittivity</i> Erin Kiley and Jacob Foley (Massachusetts College of Liberal Arts, USA)
14:30-14:50	5. <i>A Novel Model for Electromagnetic Properties of Complex Microstructure Composites Based on Support Vector Regression</i> Yanan Chen, Yi Liao, Baowen Hu, Guochang Shi, Yahan Hu & Yuan Zhang (Shanghai Radio Equipment Research Institute, China)
14:50-15:10	6. <i>A Compact Ultra-Wideband Polarization-Insensitive Metamaterial Absorber at 5G Millimeter Wave Band</i> Xiaoyong Lei (Hebei University of Technology, China), Shuyun Huo (Hebei University of Technology, China), Mengjun Wang (Hebei University of Technology, China), Yan Li (China Jiliang University, China)

Session 27- II (Grand Ballroom A)

Novel Electromagnetic Materials Modeling, Simulation and Application– II

Wednesday, December 9, 15:20 – 17:20

Organizers and Session Chairs: Prof. Xiaohe Chen (*Suzhou Institute of Biomedical Engineering and Technology Chinese Academy of Sciences*) & Dr. Yan Li (*China Jiliang University*)

15:20-15:40	1. <i>Simulation of Third-order Inorganic Intermodulation on a Rough Contact Surface</i> Yan Li (China Jiliang University, China), Zhi-Yi Gao (Hebei University of Technology, China), Yang Shi (China Jiliang University, China), Hao-Nan Zhou (China Jiliang University, China), Chuangchuang Fang (China Jiliang University, China) & Wei Tian (China Jiliang University, China)
15:40-16:00	2. <i>An incident angle and azimuth angle insensitive circular polarization regulator in microwave regime using metasurface</i> Zhizhu Zhai (Xi'an University of Technology, China), Mingjun Wang (Xi'an University of Technology & Shaanxi Civil-Military Integration Key Laboratory of Intelligence Collaborative Networks, China) & Zihan Wang (Anhui University, China)
16:20-16:40	3. <i>Research on equivalent circuit of bearing current discharge based on carbon nanotubes</i> Jiaming Hu (Shenyang University of Technology, China), Baodong Bai (Shenyang University of Technology, China) & Dezhi Chen (School of Electrical Engineering, Shenyang University of Technology, China)
16:40-17:00	4. <i>A Novel Three-Dimensional Frequency Selective Surface With Stable Resonance</i> Yuxu Chen, Guobin Wan (Northwestern Polytechnical University, China)

Session 28- I (Grand Ballroom A)

Modeling, Simulation and Design of THz Devices and Circuits– I

Tuesday, December 8, 12:30 - 14:30

Organizers and Session Chairs: Organizers and Session Chairs: Prof. Chaohai Du (*Peking University*) and Dr. Wenxin Liu (*Aerospace Information Research Institute, Chinese Academy of Sciences*)

12:30-12:50	1. <i>Modeling and Simulation of an Antenna-Coupled Image-Reject High-Temperature Superconducting Terahertz Receiver (Invited)</i> Xiang Gao, Jianping An & Xiangyuan Bu (Beijing Institute of Technology, China)
12:50-13:10	2. <i>Multiphysics Modeling and Thermal-Frequency Tuning of THz Gyrotron Devices</i> Chao-Hai Du (Peking University, China), Zichao Gao (Peking University, China), Fan-Hong Li (Peking University, China), Shi Pan (China North Industries Corporation, China) and Pu-Kun Liu (Peking University, China)
13:10-13:30	3. <i>Design and Analysis of High Power, Broadband Terahertz Vacuum Photomixer Device (Invited)</i> Jun Dai, Yikun Ding & Cunjun Ruan (Beihang University)
13:30-13:50	4. <i>The tunable topological valley states in designer surface plasmon crystals based on liquid crystals</i> Fujia Chen (Zhejiang University, China)
13:50-14:10	5. <i>Design of an Asymmetric Multistage Depressed Collector for Terahertz Traveling Wave Tubes (Invited)</i> Wenxin Liu (AIRCAS, China), Yue Ou (UCAS, China), Zhengyuan Zhao (AIRCAS, China), Longlong Yang (AIRCAS, China), Zhihao Jing (AIRCAS, China), Kedong Zhao (AIRCAS, China), Ziqiang Yang (University of Electronic Science and Technology of China, China), Yanyu Wei (University of Electronic Science and Technology of China, China)

Session 28- II (Grand Ballroom A)

Modeling, Simulation and Design of THz Devices and Circuits– II

Tuesday, December 8, 14:30 - 16:30

Organizers and Session Chairs: Organizers and Session Chairs: Prof. Chaohai Du (*Peking University*) and Dr. Wenxin Liu (*Aerospace Information Research Institute, Chinese Academy of Sciences*)

14:30-14:50	1. <i>Dispersion Characteristics of Rectangular Grating SWS with a Semi-Hole Embed Sheet Beam for Terahertz Radiation</i> Longlong Yang (AIRCAS, China), Zhengyuan Zhao (AIRCAS, China), Yue Ou (UCAS, China), Kedong Zhao (AIRCAS, China), Zhihao Jing (AIRCAS, China), Wenxin Liu (AIRCAS, China)
14:50-15:10	2. <i>Nonlinear Theory and Simulation of Terahertz Gyrotron Devices</i> Xiang-Bo Qi (Beijing Institute of Long March Vehicle, China), Chao-Hai Du (Peking University, China) & Pu-Kun Liu (Peking University, China)
15:10-15:30	3. <i>Multiphysics Modeling of CMOS Fully Integrated 2.58 THz Thermal Detector</i> Xu Wang, Mengjie Li & Zhao Li (Tianjin University, China)
15:30-15:50	4. <i>Investigation on High Power THz Radial Extended Interaction Oscillator (Invited)</i> Shaomeng Wang (University of Electronic Science and Technology of China, China)
15:50-16:10	5. <i>Thermal Analysis of Electron Gun for Terahertz Traveling Wave Tubes Based on L-BFGS Algorithm (Best Student Paper Candidate)</i> Yue Ou (UCAS, China), Longlong Yang (AIRCAS, China), Zhengyuan Zhao (AIRCAS, China), Kedong Zhao (AIRCAS, China), Zhihao Jing (AIRCAS, China), Zhihao Jing (AIRCAS, China), Wenxin Liu (AIRCAS, China)
16:10-16:30	6. <i>Beam-wave Interaction and Error Analysis for Sub-Terahertz Folded Waveguide Traveling Wave Tubes</i> Zhengyuan Zhao (AIRCAS, China), Yue Ou (UCAS, China), Longlong Yang (AIRCAS, China), Kedong Zhao (AIRCAS, China), Zhihao Jing (AIRCAS, China), Wenxin Liu (AIRCAS, China)

Session 29- I (Grand Ballroom A)

Fast Hybrid Integral Equation Algorithms for Simulating

Transient EM Responses– I

Monday, December 7, 14:30 - 16:10

Organizers and Session Chairs: Associate Prof. Mingda Zhu (*Xi'dian University, China*), Dr. Wei Luo (*The 38th Research Institute of China Electronics Technology Group Corporation*) & Prof. Xunwang Zhao (*Xi'dian University, China*)

14:30-14:50	1. <i>Numerical Evaluation of Weakly Near-Singular Integrals in Time-Domain Integral Equations</i> Ming-Da Zhu , Zhongchao Lin , Xun-Wang Zhao & Yu Zhang (Xidian University, China)
14:50-15:10	2. <i>An Oscillatory Quadrature Method for the Time-Domain Integral Equation using Laguerre Functions</i> Ming-Da Zhu, Zhongchao Lin, Xun-Wang Zhao & Yu Zhang (Xidian University, China)
15:10-15:30	3. <i>A Stabilized TDIE-TDPO Method using Associated Laguerre Functions for Electromagnetic Radiation and Scattering Analysis</i> Ming-Da Zhu, Zhongchao Lin, Xun-Wang Zhao and Yu Zhang (Xidian University, China)
15:30-15:50	4. <i>Efficient Analysis of Shielding Effectiveness of Metallic Enclosures on Complex Platforms Using the Calderón Preconditioned Time Domain Integral Equation Method</i> Wei Luo (The 38th Research Institute of China Electronics Technology Group Corporation, China) & Wen-Yan Yin (Zhejiang University, China)
15:50-16:10	5. <i>Integral Equation Domain Decomposition Method Based on the Out-of-Core Solver</i> Yingyu Liu, Ming-Da Zhu, Zhongchao Lin & Xun-Wang Zhao, Chang Zhai, Peng Hou (Xidian University, China)

Session 30- I (Lotus Room)

Efficient Optimization Using Multi-fidelity surrogate– I

Wednesday, December 9, 08:00 - 10:00

Organizers and Session Chairs: Assistant Prof. Qingsha Cheng (SUSTECH, China), Prof. Shaoyong Zheng (National Engineering Research Center of Mobile Communications (SYSU Branch), China), Slawomir Koziel, (University of Reykjavik, Iceland) & Anna Pietrenko-Dąbrowska (Gdansk University of Technology, Poland, China)

08:00-08:20	<p>1. <i>Antenna Modeling by Nested Kriging with Automated Domain Thickness Determination (Invited)</i> Slawomir Koziel (Gdansk University of Technology, Poland), Anna Pietrenko-Dąbrowska (Gdansk University of Technology, Poland) & Qingsha Cheng (Southern University of Science and Technology, China)</p>
08:20-08:40	<p>2. <i>Surrogate-Assisted Enhanced Global Optimization Based on Hybrid DE for Antenna Design (Invited)</i> Zhen Zhang (Harbin Institute of Technology & Southern University of Science and Technology, China), Hongcai Chen (Southern University of Science and Technology, China) & Qingsha Cheng (Southern University of Science and Technology, China)</p>
08:40-09:00	<p>3. <i>Differential Evolution Optimization Algorithm for Electromagnetic Device Design with High-dimensional Mixed Discrete-Continuous Variables (Invited)</i> Haijun Wang (Sun Yat-sen University, China), Shengxin Zhang (City University of Hong Kong, China), Bingjie Xiang (Sun Yat-sen University, China) & Shaoyong Zheng (Sun Yat-sen University, China)</p>
09:00-09:20	<p>4. <i>Low-Cost Surrogate Modeling of Compact Microstrip Circuits in Highly-Dimensional Parameters Spaces Using Variable-Fidelity Nested Co-Kriging v2</i> Slawomir Koziel (Gdansk University of Technology, Poland), Anna Pietrenko-Dąbrowska (Gdansk University of Technology, Poland) Qingsha Cheng (Southern University of Science and</p>

	Technology, China) & Zhen Zhang (Harbin Institute of Technology & Southern University of Science and Technology, China)
09:20-09:40	5. <i>Metamodels and Iterative Design Correction for Rapid Optimization of Compact Microwave Components</i> Anna Pietrenko-Dabrowska (Gdansk University of Technology, Poland), Slawomir Koziel(Gdansk University of Technology, Poland), Qingsha Cheng(Southern University of Science and Technology, China) & Zhen Zhang(Harbin Institute of Technology & Southern University of Science and Technology, China)
09:40-10:00	6. <i>Optimization of Multi-Antiparallel Coil for Separation-Insensitive Mutual Inductance Using Ternary-Coding-Based Genetic Algorithm</i> Yuxin Zhang (University of Electronic Science and Technology of China, China) & Huapeng Zhao (University of Electronic Science and Technology of China, China)

Session 31- I (Lotus Room)

Women in NEMO for MAPE

Efficient Electromagnetic Algorithms and Validation– I

Wednesday, December 9, 13:10 - 15:10

Organizers and Session Chairs: Dr. Yang Liu (*Institute of Applied Physics and Computational Mathematics, China*), Dr. Yueqian Wu (*Institute of Applied Physics and Computational Mathematics, China*) and Hongxia Ye (*Fudan University*)

13:10-13:30	1. <i>Efficient TDS-PO Hybrid Method for Scattering Analysis of Large-Scale PEC Target Partially Coated by Thin Dielectric Materials (Invited)</i> (Women in NEMO for MAPE award Candidate) Yang Liu & Haijing Zhou (Institute of Applied Physics and Computational Mathematics, China)
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13:30-13:50	<p>2. <i>Bayesian Optimization for Antenna Design via Multi-Point Active Learning (Invited)</i> Mei Wang (China Electronics Technology Group Corp 38th Research Institute, China), Yi Zhu (Xidian University), Haitao Li (Beijing Institute of Remote Sensing Equipment, China), Jinzhu Zhou (Xidian University) & Pingan Wang (China Electronics Technology Group Corp 38th Research Institute, China)</p>
13:50-14:10	<p>3. <i>An H-LU Preconditioner for the Hybrid Finite Element-Boundary Integral</i> Ruiqing Liu, Minglin Yang, Biyi Wu, Xin-Qing Sheng (Beijing Institute of Technology, China)</p>
14:10-14:30	<p>4. <i>Parallel discontinuous Galerkin surface integral equation method for solving large and complex PEC scattering problems</i> (Women in NEMO for MAPE Award Candidate) Yulin Du, Xiaowei Huang, Minglin Yang, Xin-Qing Sheng (Beijing Institute of Technology, China)</p>
14:30-14:50	<p>5. <i>A Comparison of Dispersion Characteristics of Several Parabolic Equations</i> Dandan Wang, Xiaoli Xi & Yurong Pu (Xi'an University of Technology, China)</p>
14:50-15:10	<p>6. <i>FDTD-based Shielding Effectiveness Prediction of Enclosures Made of Composite Materials</i> (Best Student Paper Candidate) Jinyu Zhong (Sichuan University, China), Bowen Feng (Sichuan University, China), Liping Yan (Sichuan University, China), Xiang Zhao (Sichuan University, China), Qiang Liu (Institute of Applied Physics and Computation Mathematics, China), Xuesong Meng (Institute of Applied Physics and Computation Mathematics, China) and Haijing Zhou (Institute of Applied Physics and Computation Mathematics, China)</p>

Session 31- II (Lotus Room)

Women in NEMO for MAPE

Efficient Electromagnetic Algorithms and Validation– II

Wednesday, December 9, 15:20 - 17:20

Organizers and Session Chairs: Dr. Yang Liu (*Institute of Applied Physics and Computational Mathematics, China*), Dr. Yueqian Wu (*Institute of Applied Physics and Computational Mathematics, China*) and Hongxia Ye (*Fudan University*)

15:20-15:40	<p>1. <i>The Validation of the Simulated HIRF Effects in Metallic Cases Using Parallel FDTD Solver on a High Performance Computer (Invited)</i> (Women in NEMO for MAPE Award Candidate) Yueqian Wu (IAPCM, China)</p>
15:40-16:00	<p>2. <i>A Fast Time Domain Electric Field Integral Equations for Predicting Transient Responses of Dielectric Objects (Invited)</i> (Women in NEMO for MAPE Award Candidate) Li Huang (Shanghai Jiaotong University, China), Ming-Da Zhu (Xidian University, China), Hao-Xuan Zhang (Shanghai Jiaotong University, China), & Liang Zhou (Shanghai Jiaotong University, China)</p>
16:00-16:20	<p>3. <i>Study of A RPIM Method Independent of Shape Parameters</i> Xiaoyan Zhang (East China Jiaotong University, China), Liwei Li (East China Jiaotong University, China), Ruilong Chen (East China Jiaotong University, China) & Shunchuan Yang (Beihang University, China)</p>
16:20-16:40	<p>4. <i>A Skeletonization accelerated MLFMA for Volume-Surface Integral Equation</i> Yannan Liu (CAEP Software Center for High Performance Numerical Simulation, China) & Xiaomin Pan (Beijing Institute of Technology, China)</p>
16:40-17:00	<p>5. <i>Surface Differential Equations Based Eigenmode Theory for Open Perfectly Electrically Conducting Objects</i></p>

	Xiaojie Chen (Institute of Applied Physics and Computational Mathematics&CAEP Software Center for High Performance Numerical Simulation, China)
17:00-17:20	6. <i>Three-dimensional Automatic FEM Mesh Generation for Full-wave Electromagnetic Simulations</i> Tiantian Liu (CAEP Software Center for High Performance Numerical Simulation, China)

Session 32- I (Grand Ballroom A)

Antenna Modeling, Simulation and Applications– I

Wednesday, December 9, 08:00 - 10:00

Organizers and Session Chairs: Prof. Wenmei Zhang (*Shanxi University, China*) & Prof. Haiming Wang (*Southeast University, China*)

08:00-08:20	1. <i>Improved High Gain Miniaturized Bow-Tie antenna with AMC</i> Yinuo Li & Juan Chen (Xi'an Jiaotong University, China)
08:20-08:40	2. <i>UHF RFID Reader Antenna with Four Sub-Arrays for Near-Field and Far-Field Operations</i> Xu Rui, Zhongxiang Shen & Wong Loke Loong (Nanyang Technological University, Singapore)
08:40-09:00	3. <i>Broadband CP Antenna Based on the Complementary Circular Structure</i> Wenmei Zhang (Shanxi University, China)
09:00-09:20	4. <i>Wideband Half-wave Dipole Antenna for 5G Communication System</i> Hefei Han (China Academy Of Engineering Physics, China), Yuanxi Cao (Xi'an Jiaotong University, China)
09:20-09:40	5. <i>Multi-objective Evolutionary Optimization Methods for High-Dimensional Antenna Designs</i> Jian Dong (Central South University, China)
09:40-10:00	6. <i>Analysis and design of corporate-feed waveguide slot array antennas by hybrid method of moments and finite element methods</i> Takashi Tomura & Jiro Hirokawa (Tokyo Institute of Technology, Japan)

Session 32- II (Grand Ballroom A)

Antenna Modeling, Simulation and Applications– II

Wednesday, December 9, 10:10 - 11:50

Organizers and Session Chairs: Prof. Wenmei Zhang (*Shanxi University, China*) & Prof. Haiming Wang (*Southeast University, China*)

10:10-10:30	1. <i>Dual-band Co-planar Waveguide Slot Antenna for 5G sub-6 GHz Applications</i> Mohamed Aboualalaa (<i>Electronic Research Institute & Egypt-Japan University of Science and Technology, Egypt</i>)
10:30-10:50	2. <i>Dual-Band Aperture-Shared Circular Polarized Array Antenna for X-/Ku-Band Satellite Communications</i> Xingxing Xu (<i>Zhejiang University, China</i>), Guanghui Xu (<i>Anhui University, China</i>) & Wen-Yan Yin (<i>Zhejiang University, China</i>), Ruilong Chen (<i>Shanghai Aerospace Electronic Technology Institute, China</i>)
10:50-11:10	3. <i>A Ferrite-Loaded Wideband Circular Polarization Array Antenna with Compact Sequential-Phase Feed</i> Angang Du (<i>SJTU, China</i>)
11:10-11:30	4. <i>Flexible Dual-polarized UWB Antennas for Breast Tumor Imaging</i> Haoran Zhang & Hui Li (<i>Dalian University of Technology, China</i>)
11:30-11:50	5. <i>Ultra-Wideband Harmonic Suppression of Microstrip Antennas Using Compact Defected Ground Structure</i> Jun Fan (<i>China Academy of Engineering Physics, China</i>)

Session 33- I (LONGJING Room)

New Progress in Theory, Design, and Applications of Metasurfaces– I

Monday, December 7, 12:30 - 14:30

Organizers and Session Chairs: Prof. Yan Shi (*Xidian University, China*),
Prof. Qiang Cheng (*Southeast University, China*) & Prof. Long Li (*Xidian
University, China*)

12:30-12:50	1. <i>Asymmetric transmission and polarization manipulation in metamaterials (Invited)</i> Jinhui Shi (Harbin Engineering University, China)
12:50-13:10	2. <i>Helicity-selective metasurface for generating spatially energy-controllable multi-beams (Invited)</i> Ke Chen, Guowen Ding, Tian Jiang, Yijun Feng & Junming Zhao (Nanjing University, China)
13:10-13:30	3. <i>Anisotropic Metasurface Holography in 3D Space with High Resolution and Efficiency (Invited)</i> Junwei Wu (Southeast University, China)
13:30-13:50	4. <i>The Design Formulas of Substrate Integrated Multilayer Tensor Metasurfaces (Invited)</i> Bo O.Zhu (Nanjing University, China)
13:50-14:10	5. <i>Reflective Metasurfaces: Retrieval of Constitutive Effective Parameters Using Simplex S-Parameters</i> Feng-Yuan Han, Yi-Dong Wang, Li- Zheng Yin, Di Wang & Pu-Kun Liu (Peking University, China)
14:10-14:30	6. <i>Recent Developments to the Multiphysics Modeling of THz Devices</i> Li Xu, Xing Li, Bingqi Liu, Zhonghai Yang & Bin Li (University of Electronic Science and Technology of China, China)

Session 33- II (LONGJING Room)

New Progress in Theory, Design, and Applications of Metasurfaces– II

Monday, December 7, 14:30 -15:30

Organizers and Session Chairs: Prof. Yan Shi (*Xidian University, China*),
Prof. Qiang Cheng (*Southeast University, China*) & Prof. Long Li (*Xidian
University, China*)

14:30-14:50	1. <i>Broadband and High-Gain Circularly Polarized Antenna by Using EBG Structures</i> Zi-Jian Han (Beijing Institute of Space Long March Vehicle, China)
14:50-15:10	2. <i>The Design Formulas of Substrate Integrated Multilayer Tensor Metasurfaces</i> Bo O.Zhu (Nanjing University, China)
15:10-15:30	3. <i>Low-Memory Hybrid Discontinuous Galerkin Time Domain Algorithm</i> Zhenguo Ban, Shichen Zhu, Yan Shi & Long Li (Xidian University, China)
15:30-15:50	4. <i>A Simple Equivalent Circuit Model of Parallel Conducting Strip Arrays</i> Wenting Li, Long Zhang, Yejun He, Sai-Wai Wong, Hancheng Tu (Shenzhen University, China)

Session 34- I (HUAGANG Room)

Large Signal Behavior Modeling of RF Transistors and Circuits– I

Tuesday, December 8, 12:30 - 14:30

Organizers and Session Chairs: Associate Prof. Jialin Cai (*Hangzhou Dianzi University, China*) & Associate Prof. Chao Yu (*Southeast University, China*)

12:30-12:50	1. <i>Behavioral Modeling and Digital Predistortion of Radio Frequency Power Amplifier for 5G and Beyond (Invited)</i> Chao Yu (Southeast University, China)
12:50-13:10	2. <i>Linearization of Multi-Octave Power Amplifiers with Strong Memory Effects</i> (Best Student Paper Candidate) Long Chen (Tsinghua University, China), Wenhua Chen (Tsinghua University, China), Youjiang Liu (China Academy of Engineering Physics, China), Xiaofan Chen (Tsinghua University, China), Fadhel Ghannouchi (University of Calgary, Canada) Student Paper Competition
13:10-13:30	3. <i>A Novel Measurement Based Method Enabling Rapid Extraction of Bayesian Inference-Based Behavioral Model</i> Fei Wang, Jialin Cai, Jun Liu & Jiangtao Su (Hangzhou Dianzi University, China)
13:30-13:50	4. <i>Polynomial-Assisted Neural Network Behavioral Model of Wideband Radio Frequency Power Amplifiers for 5G New Radio</i> Yucheng Yu (Southeast University, China), Hang Yin (Southeast University, China), Chao Yu (Southeast University, China), Jialin Cai (Hangzhou Dianzi University, China) Student Paper Competition
13:50-14:10	5. <i>Piecewise Small Signal Behavioral Model for GaN HEMTs based on Support Vector Regression</i> Mingqiang Geng(Hangzhou Dianzi University, China),Jialin Cai (Hangzhou Dianzi University,

	<i>China) Chao Yu (Southeast University, China), Jiangtao Su (Hangzhou Dianzi University, China)& Jun Liu (Hangzhou Dianzi University, China)</i>
14:10-14:30	6. <i>A Cascaded Memory Polynomial-Neural Network Behavior Model For Digital Predistortion</i> Jiaming Chu (Tsinghua University, China), Wenhua Chen (IEEE,China), Long Chen (Tsinghua University, China), Zhenghe Feng (Tsinghua University, China)

Session 35- I (Grand Ballroom B)

“5G Mobile System Analysis and Modeling”– I

Monday, December 7, 16:40 - 18:20

Organizers and Session Chairs: Prof. Xiaoming Chen (*Xi’an Jiaotong University*) and Associate Prof. Luyu Zhao (*Xi’an Jiaotong University*)

16:40-17:00	1. <i>Dual-Polarized Wideband Dielectric Resonator Antenna Array for mm-wave Mobile Terminals (Invited)</i> Yibo Cheng & Hui Li (Dalian University of Technology, China)
17:00-17:20	2. <i>Recent Development of Diversity Dielectric Resonator Antenna and Throughput Verification (Invited)</i> Nan Yang (Sun Yat-sen University, China) & Kwok Wa Leung (City University of Hongkong, Hong Kong, China)
17:20-17:40	3. <i>Measurement of OFDM Signals with PAPR Reduction in the Presence of Hardware Impairments</i> Hua Wang (Keysight Technologies Denmark) & Xiaoming Chen (Xi’an Jiaotong University, China)
17:40-18:00	4. <i>Reverse-Rotation Helical Antennas for Omnidirectional Circular Polarization</i> Zhenxin Hu (School of Automation, Guangdong University of Technology, China) & Wenwei Wang (Nanjing University of Science and Technology, China)
18:00-18:20	5. <i>Investigation of mutual coupling reduction in base station antenna array</i> Yiran Da&Xiaoming Chen (Xi’an Jiaotong University, China)

Session 36- I (HUAGANG Room)

Modelling, Design and Application of mm-wave antennas– I

Wednesday, December 9, 13:10 - 15:10

Organizers and Session Chairs: Prof. Hui Li (*Dalian University of Technology, China*) & Prof. Qi Liu (*Hangzhou Dianzi University, China*)

13:10-13:30	1. <i>MIE resonance based urtra-thin all-dielectric phase array in MMws (Invited)</i> Yang Liu & Jianjia Yi (Key Laboratory of Integrated Services Networks, Xidian University, China)
13:30-13:50	2. <i>Dual-Polarized Cavity-Backed Bow-Tie Slot Arrays for 5G Mobile Handsets</i> (Women in NEMO for MAPE Award Candidate) Yibo Cheng & Hui Li (Dalian University of Technology, China)
13:50-14:10	3. <i>Compact Dual-Band Millimeter-Wave Dielectric Resonator Antenna for 5G applications (Invited)</i> Lei Guo (Dalian University of Technology, China) & Wen-Wen Yang (Nantong University, China)
14:10-14:30	4. <i>55-GHz Low Sidelobe Ring-Loading Patch Antenna on LTCC Technology</i> (Women in NEMO for MAPE Award Candidate) Yuefang Zhu, Zihang Qi, Peihua Ji, Wenyu Zhao & Xiuping Li (Beijing University of Posts and Telecommunications, China)
14:30-14:50	5. <i>A Novel Dual-band Base Station Antenna with Parasitic Structure</i> Wei Luo & Zhixiong Ni & Yi Ren (Chongqing University of Posts and Telecommunications, China)
14:50-15:10	6. <i>Micro strip line coupled Ultra-Wideband Millimeter Wave Dielectric Resonator Antenna for 5G Applications</i> Abinash Gaya & Mohd Haizal Jamaluddin (Universiti Teknologi Malaysia, Malaysia)

Session 36- II (HUAGANG Room)

Modelling, Design and Application of mm-wave antennas- II

Wednesday, December 9, 15:20 - 17:20

Organizers and Session Chairs: Prof. Hui Li (*Dalian University of Technology, China*) & Prof. Qi Liu (*Hangzhou Dianzi University, China*)

15:20-15:40	1. <i>A Sequential-Phase Fed Dual-Band Dual-Circular-Polarized Patch Antenna for Ka-Band Satellite Communications</i> Hongfei Liu, Yejun He, Long Zhang and Wei He (Shenzhen University, China)
15:40-16:00	2. Investigation and Design of Laser Diode based Diver-to-Diver Optical Communication System Syed Agha Hassnain Mohsan, COMSATS University Islamabad, Pakistan
16:00-16:20	3. <i>Wideband Millimeter Wave Planner Sub-array with Enhanced Gain for 5G Communication Systems</i> Yuanzhi Liu, Mustapha C.E. Yagoub (University of Ottawa, Canada)
16:20-16:40	4. <i>Compact Wideband Linear Antenna Array Using Substrate Integrated Waveguide Cavity for 5G Communication Systems</i> Yuanzhi Liu, Mohammad Faridani and Mustapha C.E. Yagoub (University of Ottawa, Canada)
16:40-17:00	5. <i>Wideband Circularly Polarized Millimeter Wave Dielectric Resonator Antenna with defected ground structure for 5G Communications</i> Abinasha Gaya (Universiti Teknologi Malaysia, Malaysia), Mohd Haizal Jamaluddin (Universiti Teknologi Malaysia, Malaysia) & Ayman A. Althuwayb (Jouf University, Kingdom of Saudi Arabia)
17:00-17:20	6. <i>Method for Determining the Width of Injection Line for Line Injection Method of Cable Transfer Impedance</i> Lei Chen (Southeast University, China)

Session 37- I (CHUNXIAO Room)

New Progress in Antenna Theory and Techniques– I

Wednesday, December 9, 08:00 - 10:00

Organizers and Session Chairs: Prof. Jian Dong (Central South University, China), Prof. Qiubo Ye (Jimei University, China) & Prof. Jun Xiao (Jimei University)

08:00-08:20	1. <i>An Electrochemical Reconfiguration Method of Liquid Metal for Realizing Tunable Electronics (Invited)</i> Meng Wang & Jian Dong (Central South University, China)
08:20-08:40	2. <i>A Circularly Polarized Microstrip Patch Antenna (Invited)</i> Jun Xiao, Delin Luo, Tongyu Ding & Qiubo Ye (Jimei University, China)
08:40-09:00	3. <i>Antenna Topology Optimization Based on Angle-modulated Bat Algorithm</i> Zhiyu Wang, Jian Dong, Meng Wang (Central South University, China), Jinjun Mo (Guilin University of Electronic Technology, China)
09:00-09:20	4. <i>A Novel Dual-Band Dual-Pattern Radiation Patch Antenna Based on Mode Analysis Theory Under TM01 and TM02 Mode</i> Huachong Liu, Linglong Meng, Xingyue Huo, Shoushan Liu (Shandong University of Science and Technology, China), Jun Xiao (Jimei University, China)
09:20-09:40	5. <i>A Multifunctional Frequency-Reconfigurable Patch Antenna Based on Liquid Metal</i> Zu Ang Liu, Wen Jie Liu, & Mei Song Tong (Tongji University, China)
09:40-10:00	6. <i>Compact UWB MIMO antenna with quasi-self-complementary half-slot structure</i> Bing Yang (Wuhan Polytechnic University, China)

Session 37- II (CHUNXIAO Room)

New Progress in Antenna Theory and Techniques– II

Wednesday, December 9, 10:10 – 12:10

Organizers and Session Chairs: Prof. Jian Dong (*Central South University, China*), Prof. Qiubo Ye (*Jimei University, China*) & Prof. Jun Xiao (*Jimei University*)

10:10-10:30	1. <i>A Novel Design of Triple-band Cylindrical Dielectric Resonator Antenna for WLAN Application (Invited)</i> Jing Rui Wang, Li Zhang, Mei Song Tong (Tongji University, China)
10:30-10:50	2. <i>Recent Development of Tightly Coupled Reflectarray Antenna (TCRA) for Multifunctional Systems (Invited)</i> Junxun Zhang, Long Zhang, Wenting Li, Yejun He, Sai-Wai Wong (Shenzhen University, China)
10:50-11:10	3. <i>An Artificial Neural Network Based Design of Triple-Band Microstrip Patch Antenna for WLAN Applications</i> Jingrui Wang, Wenjie Liu & Mei Song Tong (Tongji University, China)
11:10-11:30	4. <i>A Novel Miniaturized Dual-Band Slot Antenna for WLAN/WiMAX Communications</i> Wenjie Liu, Jingrui Wang, Mei Song Tong (Tongji University, China)
11:30-11:50	5. <i>Design of a Circularly Polarized Metasurface Antenna with Characteristic Mode Theory</i> Chang Ding (Central South University, China)
11:50-12:10	6. <i>Frequency Selective Surface Design Based on Equivalent Circuit</i> Wei Wang (Central South University, China)



NEMO2020

Women in NEMO for MAPE

Location	Osmanthus Room, 1 st floor of VIP Building, Deefly Zhejiang Hotel, Hangzhou, China
Time	12:30-15:30, Dec. 8, 2020

How to embrace change

WIM stands for “Women in Microwaves” subcommittee under MGA Committee in IEEE MTT-S AdCom, and is the subset of Women in Engineering (WIE) working within the field of microwave engineering. The mission of WIM is to attract more woman graduate students and professionals to join MTT-S, and also increase the visibility of females in MTT-S through various activities.

WIM will present a focus session to explore and discuss how to embrace the changes along with the rapidly developing and changing environment.

Schedule

Technical report	12:30-12:50	Prof. Dan Jiao
	12:50-13:10	Prof. Qiaowei Yuan
Panel session	13:10-13:20	Prof. Wenquan Che
		Opening remarks
	13:20-15:30	Panelist Discussion
		Q&A
		Social

Moderator



Wenquan Che

South China University of Technology, China

Dr. Che (Senior Member, IEEE) received the Ph.D. degree from the City University of Hong Kong (CITYU), Hong Kong, in 2003. From March 2002 to September 2002, she was a Visiting Scholar with the Polytechnique de Montréal, Montreal, QC, Canada. From 2005 to 2006 and from 2009 to 2012, she was a Research Fellow and a Visiting Professor with CITYU. She is currently a Professor with the South China University of Technology, Guangzhou, China. Dr. Che is currently an Elected Member of the IEEE MTT-S AdCom (2018–2023). She was a recipient of the 2007 Humboldt Research Fellowship presented by the Alexander von Humboldt Foundation of Germany, the 5th China Young Female Scientists Award in 2008, and the Distinguished Young Scientist awarded by the National Natural Science Foundation Committee (NSFC) of China in 2012. She is currently the Editor-in-Chief of the Microwave and Optical Technology Letters.

Speakers



Dan Jiao

Purdue University, USA

Dan Jiao (Fellow, IEEE) received the Ph.D. degree from the University of Illinois at Urbana–Champaign, Champaign, IL, USA, in 2001. In September 2005, she joined the School of Electrical and Computer Engineering, Purdue University, West Lafayette, IN, USA, as an Assistant Professor, where she is currently a Professor. She has authored 3 book chapters and over 260 articles in refereed journals and international conferences.

She was a recipient of the 2006 Jack and Cathie Kozik Faculty Start Up Award, the 2008 National Science Foundation (NSF) CAREER Award, the Intel Corporation's Technology CAD Divisional Achievement Award, the 2002 Intel Corporation's Components Research the Intel Hero Award.



Qiaowei Yuan

Tohoku Institute of Technology, Japan

Qiaowei Yuan received the PhD from Xidian University in 1997. From 2002 to 2007, she worked in Intelligent Cosmos Research Institute, Sendai, Japan. From 2007 to 2008, she was an Associate Professor of Tokyo University of Agriculture and Technology. From 2009-2019, she served as a professor in National Institute of Technology, Sendai College. Currently, she is a professor and the head of IoT technology research project in Tohoku Institute of Technology. She received the Achievement Awards from IEICE Technical Committee on Wireless Power Transfer from 2016 to 2017, IEICE Technical Committee on Antenna Propagation in 2020, respectively. Dr. Yuan is the chair of IEEE Sendai WIE, executive committee member of IEEE Sendai Section.

Panelists



Juan Chen

Xi'an Jiaotong University



Cui Meng

Tsinghua University



Hui Li

Dalian University of Technology



Yang Liu

Institute of Applied Physics and Computational Mathematics, Beijing



Wen Yuan Liu

Shaanxi University of Science and Technology



Ye Han

Nanjing University of Posts and Telecommunications

With the rapidly developing and changing environment, COVID-19 pandemic, new technology, knowledge explosion, and a fast changing world..... as scientific researchers, what can we do?

Some topics to discuss:

- What is changing? What always remain the same?
- The challenges we meet along with those changes (in life or work).
- How to overcome the roadblocks from the change?
- Examples and advice to embrace changes.

NEMO2020 Poster Session Grand Ballroom Corridor(锦绣厅走廊)

Tuesday, December 8, 12:30 – 14:30

Session Chairs: Bin Zheng, Fei Gao, Haoliang Qian, Qiwei Zhan, Shurun Tan, Wei Sha, Wenchao Chen, Xiao Lin, Ying Li, Zhun Wei (*Zhejiang University*)

1. <i>SERS Prediction with Deep Learning</i> Mengmeng Li & Zixuan Ma (Nanjing University of Science and Technology & Communication Engineering, China)
2. <i>High-Order Finite Difference Time Domain Method Based on the Versatile Split-Field 1-D Propagator on 3-D Grids</i> Lei Kuang (School of Information Science and Technology, East China Normal University, China)
3. <i>A Wide band Millimeter Wave E-shape Antenna in Package with Embedded Wafer Level Ball Grid Array Technology</i> Bin Lu (Anhui University, China), Haoran Zhu (Anhui University, China) , Zongming Duan (University of Science and Technology of China (USTC), China) & Yuefei Dai (The 38 th Research Institute of China Electronic Technology, China)
4. <i>Time-Domain Shielding Effectiveness Evaluation of Metallic Enclosures Above Layered Half-Space</i> Le Cao (Xi'an University of Science and Technology, China) (Yiwen Wei (Xidian University, China) and Mingxiang Gao (Xi'an Jiaotong University, China)
5. <i>A Broadband Circular Polarization Antenna Applied For Base-Station</i> Xiangkui Hu, Haoran Zhu, Xianliang Wu, Zhixiang Huang & Bo Wu (Anhui University, China)
6. <i>Research and application of full band radio infrared stealth nanocomposites</i> Xiaogang Zhang (Research Institute of China Electronics Technology Group Corporation, China)
7. <i>A High-Speed Low-Power Flash ADC with Continued Pipelined Gating in 28-nm CMOS</i> Yumiao Gao, Lei Qiu, Xinyu Guo & Mei Song Tong (Tongji University, China)
8. <i>Automatic Synthesis for On-chip Transformer</i> Zachary Su & Yinfei Weng (Xpeedic, China)
9. <i>Filtering Power Divider</i> Yi Cheng, Haoran Zhu, Zhixiang Huang, Xianliang Wu & Bo Wu (Anhui University, China)
10. <i>Prediction Scheme of Field Strength Distribution of Vehicle Electromagnetic Immunity Test Based on GB 34660-2017 Standard</i> Mingyu Ma (China Automotive Test Center (Tianjijn) Co., Ltd, China)
11. <i>Simulation and Analysis of the Influence of External Cables on the Electromagnetic Radiation of the Electronic Equipment</i> Yu Gao(Suzhou Institute of Biomedical Engineering and Technology, Chinese Academy of Sciences, China), Kaicheng Hong(Suzhou Institute of Biomedical

<p>Engineering and Technology, Chinese Academy of Sciences, China), Wenchang Xu(Suzhou Institute of Biomedical Engineering and Technology, Chinese Academy of Sciences, China), Fengmei Li(Suzhou Institute of Biomedical Engineering and Technology, Chinese Academy of Sciences, China), Liang Xuejun (Huazhong University of Science and Technology, China) Jingkun Mao (Tianjin University of Technology, China)& Xiaohe Chen (Suzhou Institute of Biomedical Engineering and Technology, Chinese Academy of Sciences, China)</p>
<p>12. Eigen-analysis of Cavity Perturbations by Combining Vector Potential Electromagnetics with Broadband Periodic Green's Function <i>Ruoxing Gao (University of Michigan, USA), Xuyang Bai (Zhejiang University, China), Shurun Tan (Zhejiang University, China)</i></p>
<p>13. <i>VLF Near-field of Radio Wave Penetrating Into A Ground Medium</i> <i>Honglei Xu (Science and Technology on Electromagnetic Scattering Laboratory, China), Tingting Gu (Zhejiang University, China)</i></p>
<p>14. <i>An active detection approach for hidden radio-frequency receivers discovery</i> Qing-Yun Liang (Defence Industry Secrecy Examination and Certification Center, China)</p>
<p>15. <i>Ultra-Wideband Harmonic Suppression of Microstrip Antennas Using Compact Defected Ground Structure (Abstract)</i> Jun Fan (China Academy of Engineering Physics, China)</p>
<p>16. <i>A Shaped Beam Antenna Method Based on Electromagnetic Band Gap Structure</i> Jingkun Mao (Tianjin University of Technology, China), Jiang Xiao (ETS-lindgren, China), Yu Guo (Suzhou Institute of Biomedical Engineering and Technology, Chinese Academy of Sciences, China) & Xiaohe Chen (Suzhou Institute of Biomedical Engineering and Technology, Chinese Academy of Sciences, China)</p>
<p>17. <i>Design of low-profile wide-band high-gain circularly polarized antenna based on metasurface</i> Zhangwei Wei (Anhui University, China)</p>
<p>18. Reverse-Rotation Helical Antennas for Omnidirectional Circular Polarization (Abstract) Zhenxin Hu (School of Automation, Guangdong University of Technology, China) & Wenwei Wang (Nanjing University of Science and Technology, China)</p>
<p>19. <i>A new low-coupling MIMO antenna based on metamaterials for 5G</i> Yaqin Li (AnHui University, China)</p>
<p>20. <i>A Compact Monopole MIMO Antenna for WLAN Communications</i> Kaikai Guan, Ge Zhao, & Mei Song Tong (Tongji University, China)</p>
<p>21. <i>An Efficient ISAR Imaging Deception Jamming Method of Chirp Modulation Signal</i> Yanwei Zhao (China Academy of Launch Vehicle Technology, China)</p>
<p>22. <i>Fast ISAR Image Simulation of Targets with Rough Boundary at Terahertz Frequencies</i> Hui Chen, Wenming Yu & Tiejun Cui (Southeast University, China)</p>

23. <i>Characterisation of bulk semiconductor solar cell without antireflection coating</i> Yufei Huang, Subin Wang & Lingying Wang (Xiamen University of Technology)
23. <i>An Improved Differential CSRR-Based Sensor for Characterizing the Magneto-Dielectric Materials</i> Hongyi Gan, Liqun Li, Wen-Sheng Zhao, Da-Wei Wang & Gaofeng Wang (Hangzhou Dianzi University, China)
24. <i>A Discontinuous Galerkin Method for Thermal Simulation of Microchannel Cooling</i> Hailong Li, Min Tang & Junfa Mao (Shanghai Jiaotong University, China)
25. <i>Electro-Thermal Analysis of Suspended Multiwalled Carbon Nanotubes</i> Longfei Li, Peidong Li & Min Tang (Shanghai Jiaotong University, China)
26. <i>The Influence of Metal Contact Surface Roughness on Third-Order Passive Intermodulation</i> Yan Li, Hao-Nan Zhou, Yang Shi, Wei Tian & Chuang-Chuang Fang (China Jiliang University, China)
27. <i>A Novel High-order Symplectic Compact FDTD Schemes For Optical Waveguide Simulation</i> Xiaojing Kuang (Hefei Normal University, China)
28. <i>Modal Analysis of Optical Waveguide using a Novel Symplectic Compact FDTD Schemes</i> Xiaojing Kuang (Hefei Normal University, China)
29. <i>Investigation on Electromagnetic Scattering from Dynamic Sea Surfaces Covered by Natural Sea Slicks</i> Pengju Yang, Wenjing Mu, Rui Wu (Yanan University, China)
30. <i>Electromagnetic Scattering from Rough Sea Surfaces Contaminated by Oil Spills</i> Rui Wu, Shanshan Wang, Pengju Yang (Yanan University, China)
31. <i>A CPW-Fed Miniaturized Dual-Band Antenna for 5G Applications</i> Xuemei Li, Haoran Zhu, Zhixiang Huang (Anhui University, China)
32. <i>Shielding Effect Analysis on Layered Chiral and Dielectric Spheres</i> Syed Agha Hassnain Mohsan (COMSATS University, Islamabad, Pakistan)
33. <i>Cassegrain Antenna Design, Fabrication, and Testing for Passive Millimeter Wave Imaging</i> Syed Agha Hassnain Mohsan (COMSATS University, Islamabad, Pakistan)
34. <i>A Novel Temperature Sensor Based on Chipless RFID Tags</i> Xin Yu Guo, Guo Chun Wan, Yu Miao Gao and Mei Song Tong (Tongji University, China)
35. <i>Land Clutter Data Generation Using Generative Adversarial Network</i> Xunwang Dang, Yong chen, Chao Wang, Hongcheng Yin, Honglei Xu (Science and Technology on Electromagnetic Scattering)
36. <i>Circular Flat-top Beam Pattern Synthesis of a Rotated Sparse Planar Dipole Array with Minimum Element Spacing Constraint</i> Foxiang Liu (Xiamen University), Wei Zhang (China Academy of Space Technology (Xi'an)), Liyang Chen & Yanhui Liu (University of Electronic Science and Technology of China)

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More information about joining IEEE and MTT-S can be found at our membership page.



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Zhaolong owns industry-leading technology research and development laboratories, and has a full range of special laboratories for physical and mechanical properties, transmission performance, environmental resistance tests, material tests, and integrated application of combustion experiment systems, which provide a strong guarantee for product design and manufacturing. Zhaolong obtained the qualification of Intertek Group's "Satellite Project" laboratory.

Zhaolong keeps up with technological revolution, and its products are widely applied to various fields such as Cloud Computing, 5G, Smart City, IoT, and AI.



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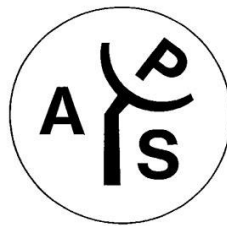
General Test Systems Inc. (in short, GTS) has become one of the major providers in Over-the-Air (OTA) testing of mobile terminal antenna during the past seven years. GTS' fast growth relies on its enabling competency in measurement theory/algorithms, electromagnetic simulation, as well as core components like broadband and narrow-beam testing probes, high precision positioning systems, high-performance EPP absorbers, and system integration capability.



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安全与电磁兼容 SAFETY & EMC

SAFETY & EMC magazine started the first publication from 1989, it is the unique official publication (CN 11-3452/TM, ISSN 1005-9776) synthetically introducing the safety and EMC technology of electronic and electric industry at present in China, which is supervised by Ministry of Industry and Information Technology of PRC and sponsored by China Electronic Standardization Institute (CESI).

SAFETY & EMC is a bimonthly publication with a cohesive, innovative and professional workforce. In 2008, it started its English edition yearly, and erected the bridge for international academic communication. Until now, its readers are more 500'000. Most of them are engineers, teachers and students; however, there are a lot of marketing and purchasing personnel becoming its faithful readers.

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