

# PIERS 2019 Xiamen

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Photonics & Electromagnetics Research Symposium  
also known as Progress In Electromagnetics Research Symposium

Program

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December 17–20, 2019  
Xiamen, CHINA

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Zhi Hong Hang	Daping He	Qiong He	Decheng Hong
Cheng-Nan Hu	Jun Hu	Huan-Chu Huang	Lingling Huang
Xianglei Huang	Yongjun Huang	Yong-Zhen Huang	Zhi-Xiang Huang
Zheng-Yu Huang	Tommaso Isernia	Baohua Jia	Jian-Hua Jiang
Wei Xiang Jiang	Zhihao Jiang	Shuanggen Jin	Ido Kaminer
Iam-Choon Khoo	Kazuya Kobayashi	Olga Korotkova	Lei Kuang
Wen-Kai Kuo	Puxiang Lai	Kwang-Sup Lee	Dangyuan Lei
Wen Lei	Dominique Lesselier	Cheng Li	Guixin Li
Hu Li	Jensen Li	Jian Li	Jinghe Li
Maokun Li	Ping Li	Tao Li	Xing Li
Xiangping Li	Yang Li	Di Liang	Yu Liang
Zhongzhu Liang	Shaolin Liao	Hongtao Lin	Xiao Lin
Zhili Lin	Dong Liu	Feng Liu	Hai Liu
Hongchao Liu	Na Liu	Quan Liu	Wenxin Liu
Yanhui Liu	Yongmin Liu	Yong-Chun Liu	Zhenguo Liu
Joe LoVetri	Cuicui Lu	Hui Lu	Huihui Lu
Hailu Luo	Yu Luo	Zhengqian Luo	Naoshi Nishimura
Shinichiro Ohnuki	Vladimir Okhmatovski	Yoichi Okuno	Haiyan Ou
Chunmei Ouyang	Massimo Panella	Chao Peng	Jiahui Peng
Liang Peng	Yan Peng	E. Pickwell-MacPherson	Yin Poo
Jixiong Pu	Guanshi Qin	Ciyuan Qiu	Cheng-Wei Qiu
Qiang Ren	Paolo Rocca	Cun-Jun Ruan	Wei E. I. Sha
Rashmi Shah	Zhongxiang Shen	Yury V. Shestopalov	Hongyu Shi
Jin Hui Shi	Jian-Cheng Shi	Lei Shi	Zhimin Shi
Jun Shibayama	Raffaele Solimene	Hai-Zhi Song	Jiming Song
Hong-Bo Sun	Sheng Sun	Shulin Sun	Eng Leong Tan
Shurun Tan	Min Tang	Ming-Chun Tang	Wen Xuan Tang
Saibun Tjuatja	Takashi Tomura	Mei Song Tong	Malay Ranjan Tripathy
Snow H. Tseng	Yasuhide Tsuji	Xin Tu	Binhao Wang
Jiafu Wang	Rongping Wang	Zuojia Wang	Junjie Wu
Kan Wu	Xiang Wu	Yu Mao Wu	Gaobiao Xiao

Jun Xiao  
Sherman Xuegang Xin  
Kai-Da Xu  
Yadong Xu  
Minghong Yang  
Tzong-Jer Yang  
Qiubo Ye  
Biao Zhang  
Jingjing Zhang  
Shuang Zhang  
Yu Zhang  
Zhigang Zheng  
Jie Zhu  
Yiming Zhu

Meng Xiao  
Feng Xu  
Lijun Xu  
Tsuneki Yamasaki  
Ping Yang  
Xiaofeng Yang  
Luqi Yuan  
Cheng Zhang  
Miao Zhang  
Shuyu Zhang  
Junming Zhao  
Feng Zhou  
Jinfeng Zhu

Shumin Xiao  
He-Xiu Xu  
Su Xu  
Jiamiao Yang  
Peng Yang  
Yang Yang  
Remo Proietti Zaccaria  
Fangzheng Zhang  
Mingjiang Zhang  
Xiaotong Zhang  
Lei Zhao  
Jun Zhou  
Li-Guo Zhu

Fengxian Xie  
Kuiwen Xu  
Ting Xu  
Min Yang  
Shunchuan Yang  
Yuanmu Yang  
Pengwang Zhai  
Jianfa Zhang  
Rongjun Zhang  
Xiu-Yin Zhang  
Jibin Zheng  
Yuan Guo Zhou  
Xuefeng Zhu

## **SYMPOSIUM VENUE**

The 2019 Photonics & Electromagnetics Research Symposium, will be held in Xiamen from 17 to 20 December 2019, at the Swiss Grand Xiamen (Address: 12 Lu Jiang Dao, Siming District, Xiamen 361001, China).

## **REGISTRATION**

The PIERS technical sessions will begin at 8:00 on Tuesday, December 17, 2019. You may come to register during 13:00–18:00 on Monday, December 16, 2019, at the registration desks at the Swiss Grand Xiamen, China. Registration is also available from 7:30 to 18:00 on Tuesday, December 17, 2019 and from 8:00 to 18:00 on December 18–20, 2019.

The on-site registration fee is USD 690 or RMB 4700, and the reduced registration fee for a student is USD 450 or RMB 3100 (a valid student ID is required). If you have pre-registered and paid, your name badge and symposium program will be ready for you to pick up at the registration counter during the symposium. Please wear your name badge throughout the meeting. Access to the coffee break, interactive areas, and technical sessions will be prohibited if a name badge is not visible.

## **SPECIAL EVENTS**

### **Symposium Reception**

On Tuesday evening, December 17, all conference participants are invited to a welcome reception at the conference hotel. The tickets are free and handed out on a first-come-first-served basis. Please make reservation in advance for the reception by December 1.

### **Symposium Banquet**

On Thursday evening, December 19, symposium banquet is planned for PIERS participants and their guests. A limited number of banquet tickets will be available. For all participants, the price is USD 60/CNY 420 per person. Please make reservation and pay in advance for the banquet by December 1.

## **PIERS ONLINE**

Information on PIERS 2019 Xiamen and future PIERS is posted at [www.piers.org](http://www.piers.org).

## GUIDELINE FOR PRESENTERS

### Oral Presentations

- **Load and TEST presentation files in advance:**  
All Oral Presenters must load and test presentation files in the PIERS OFFICE no later than 12 hours before the scheduled talk. Presenters are not allowed to detach the session computer and attach their own notebook/laptop to the LCD projector in session rooms.
- **Presentation files format:**  
PDF, Power Point are recommended. Movies or animations in MPEG, Windows Media, and etc, should be tested in PIERS computer in PIERS OFFICE no later than half-day before the session. Presentation files in USB disk are acceptable by PIERS Computer.
- **Report to Session Chair:**  
Presenters are required to report to their session chairs at least 10 minutes prior to the start of their session.
- **Length of your talk:**  
In a regular session, the time length for each talk is 20 minutes. In a focus session, the presentation time limit is 30 minutes for a keynote talk, 20 minutes for an invited talk, and 15 minutes for a contributed talk.
- **DO NOT change presentation sequence:**  
Session Chairs, please be present in the session room at least 15 minutes before the start of the session and must strictly observe the starting time and time limit of each paper and refrain from changing paper presentation sequence.
- **NO picture request:**  
When such a request is made by the presenter, the session chair and session helpers will do their best to ensure that no pictures will be taken at the presentation.

### Poster Presentations

Presenters should post time slots of their presence on the panel and be present for interactive questions at the given time. Each poster can be posted at 8:00–12:00 and 14:00–18:00, and all presenters are suggested to be present at least during 10:00–10:30 and 15:30–16:00.

One panel will be available for each poster. The poster panels for PIERS 2019 Xiamen will be 100 cm Width x 200 cm Height.

All presenters are required to mount their papers 30 minutes before the session and remove them at the end of their sessions.

## PIERS 2019 XIAMEN ORGANIZERS AND SPONSORS

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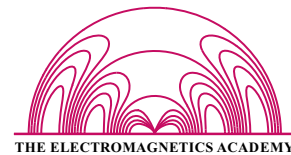
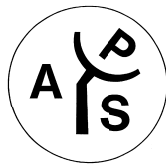
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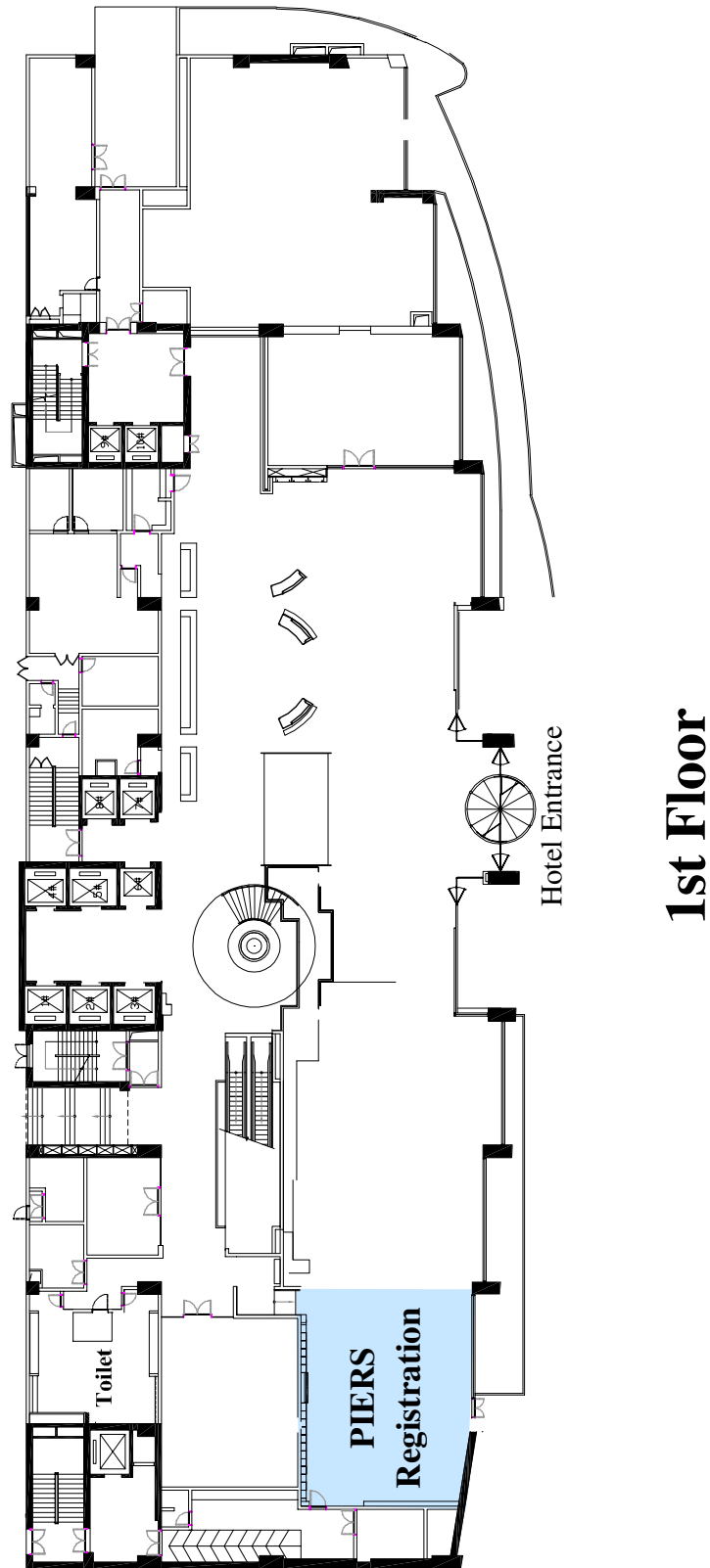
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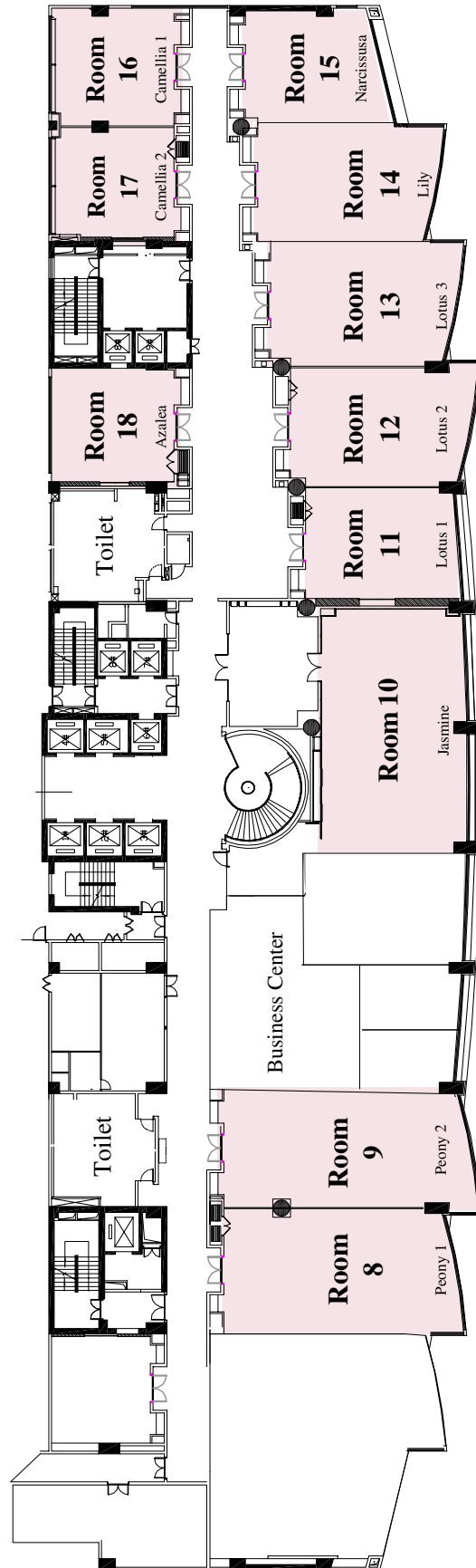
## MAP OF CONFERENCE SITE



**1st Floor**



### 3rd Floor



# 4th Floor

## PIERS 2019 XIAMEN LUNCH MAP



- |                      |                 |            |          |
|----------------------|-----------------|------------|----------|
| 派出所/Police Station   | 停车场/Parking Lot | 电影院/Cinema | 酒店/Hotel |
| 购物中心/Shopping Centre | 美食广场/Food Court | 银行/Bank    |          |

### 人气餐厅/Popular Restaurant

- ① 堂宴/Tangyan Restaurant
- ② 外婆家/Grandma's Home Restaurant
- ③ 清菜家/Qingcaijia Restaurant
- ④ 宴遇/Yanyu Restaurant
- ⑤ 双辉煎蟹海鲜大排档/Shuanghui Seafood Stall

### 快餐/Fast Food

- ⑥ 麦当劳/McDonald's
- ⑦ 肯德基/KFC

### 小吃/Snacks

- ⑧ 姜母鸭阿强煎蟹/Aqiang Ginger Duck Fried Crab
- ⑨ 黄则和花生汤/Huangzehe Peanut Soup
- ⑩ 南望斋沙茶面/Nanwangzhai Shacha Noodle

### 自助餐/Buffer

- ⑪ 泰谷酒店自助餐/Tegoo Hotel Buffet
- ⑫ 海港英迪格酒店自助餐/Hotel Indigo Xiamen Harbour Buffet
- ⑬ 海景千禧酒店自助餐/Millennium Harbourview Hotel Buffet

### 火锅/Hot Pot

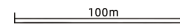
- ⑭ 膏鸭锅火锅/Gaoyaguo Hot Pot
- ⑮ 叁楼伴火锅/Sanlouban Hot Pot
- ⑯ 海底捞火锅/Haidilao Hot Pot
- ⑰ 蜀大侠火锅/Shudaxia Hot Pot
- ⑱ 德庄火锅/Morals Village Hot Pot

### 甜点/Desserts

- ⑲ 港玲珑甜品屋/Ganglinglong Dessert
- ⑳ 杨小贤/Yangxiaoxian Dessert

### 清真/Muslim

- ⑲ 厦门第一家拉面馆/Xiamen Diyijia Ramen
- ⑳ 西北拉面/Northwest Ramen



## GENERAL INFORMATION

### LANGUAGE

The official language for the Symposium is English.

### CURRENCY AND CREDIT CARDS

Chinese currency is CNY with its monetary unit CNY (Yuan). The exchange rate is 1 USD for about 7.0 CNY. Credit cards and cash are acceptable for payments. International credit cards are acceptable in almost all shops, restaurants etc..

### TAX AND TIP

Tipping is by no means a traditional Chinese custom. Please help keep the good custom and do not tip a waiter/waitress or a taxi driver and other persons who provides regular service. Take back any change that is rightfully yours. All advertised prices include tax. Bargaining is quite common on buying merchandise especially from Street Markets.

### TAXI

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

### BUSINESS OPENING HOURS

- **Bank and Post Office**  
Opening hours: usually 09:00 – 17:00, from Monday to Sunday.
- **Government Office**  
Operating hours: generally 08:00 – 17:00, from Monday to Friday.
- **Store**  
Opening hours: usually 10:00 – 21:00, but the large shopping center serves till 22:00, from Monday to Sunday.

### ELECTRICITY

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

## PIERS 2019 XIAMEN TECHNICAL PROGRAM

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### Session 1A1

#### FocusSession.SC3: Photosensitive Materials and Nano-structures for Optical Switching, Sensing and Processing Applications 1

**Tuesday AM, December 17, 2019**

#### Room 1 - Ballroom 1

Organized by Rita Asquini, Iam-Choon Khoo

Chaired by Rita Asquini, Iam-Choon Khoo

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08:10 Liquid Crystal Photonics: Physics and Applications

Keynote

*Vladimir G. Chigrinov (Hong Kong University of Science and Technology);*

08:40 Self-assembled Super-dimension Chiral Liquid Crystalline Photonic Crystals — Out Performing Metamaterial Nanostructures

Invited *Chun-Wei Chen (Pennsylvania State University); Iam-Choon Khoo (Pennsylvania State University);*

09:00 High Sensitivity Biosensing Platform Based on the Integration of Low Refractive Index Resonant Waveguide Grating and Upconversion Nanoparticles

Invited *Yen-Lin Gao (National Chung Cheng University); Jin-Han Lyu (National Chung Cheng University); Duc Tu Vu (National Chung Cheng University); Michael W. Y. Chan (National Chung Cheng University); Lai-Kwan Chau (National Chung Cheng University); Hung-Chih Kan (National Chung Cheng University); Chia Chen Hsu (National Chung Cheng University);*

09:20 Phase Modulation LCOS and Its Application

Invited

*Jiangang Lu (Shanghai Jiao Tong University); Kai Huang (Shanghai Jiao Tong University); Hongzhou Zhang (Shanghai Jiao Tong University); Yifan Feng (Shanghai Jiao Tong University); Changli Sun (Shanghai Jiao Tong University);*

09:40 Ultrafast Synthesis and Switching of Orthogonal Optical Eigenstates Using Cholesteric Liquid Crystals

Invited *Yikun Liu (Sun Yat-sen University);*

10:00 **Coffee Break**

10:30 Environment Friendly Quantum-dot Color Filters for UHD LC Displays

Invited *Yun-Hyuk Ko (Hannam University); Sinil Choi (Hannam University); Gyungju Kim (Hannam University); Prem Prabhakaran (Hannam University); Kwang-Sup Lee (Hannam University);*

10:50 Elastic Switching of Colloidal Inclusions in Liquid Crystal

Invited *Julian Evans (Zhejiang University); Nan Wang (Zhejiang University); Sailing He (Zhejiang University);*

11:10 Slot Waveguide Liquid Crystal Phase Shifters with Planar and Homeotropic Alignment

Invited *Rita Asquini (Sapienza University of Rome); Antonio D'Alessandro (Sapienza University of Rome); Cesare Chiccoli (Istituto Nazionale di Fisica Nucleare); Paolo Pasini (Istituto Nazionale di Fisica Nucleare); Claudio Zannoni (Università di Bologna);*

11:30 Flat Optical Elements Based on Photopatterned Liquid Crystal Polymers

Invited *Qi-Huo Wei (Kent State University);*

11:50 Optical Waveplates Made from Cellulose Nanocrystal Nematics on Patterned Polydimethylsiloxane Substrates

Invited *Nan Wang (Zhejiang University); Chenxi Li (Zhejiang University); Tingbiao Guo (Zhejiang University); Julian Evans (Zhejiang University); Sailing He (Zhejiang University);*

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### Session 1A2

#### SC2: Microwave Metamaterial and Metasurface 1

**Tuesday AM, December 17, 2019**

#### Room 2 - Ballroom 2

Organized by Tie Jun Cui, Yijun Feng

Chaired by Yijun Feng, Yue Li

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08:20 Effective Medium inside Waveguide: Concept and Applications  
Invited

*Yue Li (Tsinghua University);*

08:40 Novel Resonators and Filters Based on Effective LSPs  
Invited

*Zhuo Li (Nanjing University of Aeronautics and Astronautics);*

09:00 A Novel CPW-based Spoof Surface Plasmon Polariton and Its Applications  
Invited

*Jun Wang (Southeast University); Lei Zhao (China University of Mining and Technology); Zhang-Cheng Hao (Southeast University); Xiaopeng Shen (China University of Mining and Technology);*

09:20 Enhancing Absorbing Performances of Microwave Absorbers by Subwavelength Meta-structures  
Invited

*Rui-Xin Wu (Nanjing University); Fei-Fei Li (Nanjing University); Fan-Guang Meng (Nanjing University);*

09:40 Meta-mirror: Harnessing the Polarization and Frequency Responses of Electromagnetic Scattering  
Invited

*Yijun Feng (Nanjing University); Guowen Ding (Nanjing University); Boyu Sima (Nanjing University); Ke Chen (Nanjing University); Junming Zhao (Nanjing University);*

10:00 **Coffee Break**

10:30 Design and Applications of Reconfigurable Reflective Metasurfaces  
Invited

*Long Li (Xidian University); Jiaqi Han (Xidian University); Guangyao Liu (Xidian University);*

10:50 Toroidal Metasurface for Tunable Microwave Waveguide

*Pengfei Qin (Zhejiang University); Er Ping Li (Zhejiang University — UIUC Institute); Hongsheng Chen (Zhejiang University);*

11:10 Can We **Physically** Hack Your Wi-Fi Signals with Programable Metasurface

*Menglin Wei (Peking University); Ya Shuang (Peking University); Hanting Zhao (Peking University); Haoyang Li (Peking University); Lianlin Li (Peking University);*

11:30 1-Bit Transmissive Meta-surface with Low Sidelobe Level by Periodic Phase Modulation  
Invited

*Chong He (Shanghai Jiao Tong University); Xudong Bai (Shanghai Scientific Instrument Factory); Anjie Cao (Shanghai Institute of Satellite Engineering); Weiren Zhu (Shanghai Jiao Tong University);*

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### Session 1A3

#### FocusSession.SC5: Electromagnetic Devices, Sensing, Imaging and Applications 1

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Tuesday AM, December 17, 2019

Room 3 - Ballroom 3

Organized by Shaolin Liao, Lijun Xu

Chaired by Shaolin Liao, Lijun Xu

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08:10 Electromagnetic Multimodal Non-destructive Sensing, Evaluation and Monitoring for CFRPs  
Keynoteing

*Gui Yun Tian (Newcastle University); Qiuji Yi (Newcastle University); Adi Marindra (Newcastle University); Bin Gao (University of Electronic Science and Technology of China);*

08:40 The Study of Focusing Rayleigh Waves EMATs by a Wholly Analytical Method  
Invited

*Yuedong Xie (Beihang University); Wuliang Yin (University of Manchester); Lijun Xu (Beihang University);*

09:00 Focusing Dimension Optimization of Shear Vertical Wave EMATs Using Orthogonal Test Method  
Invited

*Songling Huang (Tsinghua University); Hongyu Sun (Tsinghua University); Shen Wang (Tsinghua University); Qing Wang (Durham University); Wei Zhao (Tsinghua University);*

09:20 Development and Application of Large-depth and Multi-function Electromagnetic Survey System

*Jian-Hua Li (Ministry of Land and Resources); Pin-Rong Lin (Ministry of Land and Resources); Cai-Jun Zheng (Ministry of Land and Resources); Fu-Wen Sun (Ministry of Land and Resources); Fang-Shuai Qi (Ministry of Land and Resources); Wei-Zhong Ding (Ministry of Land and Resources); Xin-Zhuo Liu (Ministry of Land and Resources);*

09:40 High Speed Online Electromagnetic Rail Defect Inspection Based on FPGA Parallel Processing System

*Jiwei Huo (Beijing Jiaotong University); Ze Liu (Beijing Jiaotong University); Chengfei Wang (Beijing Jiaotong University); Wei Yuan (Beijing Jiaotong University); Yadong Wang (Beijing Jiaotong University);*

10:00 **Coffee Break**

10:30 Reconstruction of Resistivity Distribution Surrounding the Borehole of Electromagnetic Wave Resistivity Tool  
Invited

*Shijie Sun (Beihang University); Ying Wang (Beihang University); Jiangtao Sun (Beihang University); Zhang Cao (Beihang University); Junfeng Shi (Beihang University); Lijun Xu (Beihang University);*

- 10:50 Electrical Conductivity Analysis of CFRP with Boundary Element Method and Electromagnetic Simulation  
*Qian Zhao (Qufu Normal University); Wuliang Yin (University of Manchester); Wenru Fan (Civil Aviation University of China);*
- 11:10 Data Preprocessing Methods for Electrical Impedance Tomography: A Review  
*Zeying Wang (Tianjin University); Shihong Yue (Tianjin University); Benyuan Sun (Civil Aviation University of China); Xiaoyuan Liu (Tianjin University); Huaxiang Wang (Tianjin University);*
- 11:30 Measurements and Characterization of Twisted Radio Wave Multipath for Indoor Wireless Communication and Security System  
*Siwen Chen (Nanyang Technological University); Chee Kiat Seow (University of Glasgow); Soon Yim Tan (Nanyang Technological University of Singapore); P. B. De Silva (Nanyang Technological University);*
- 11:50 Optimal Feedback-interferometric Fiber Laser Sensors  
Invited  
*Shaolin Liao (Illinois Institute of Technology);*
- 09:20 On Some Generalisation of Transverse-electric and Transverse-magnetic Guided Waves in a Plane Dielectric Waveguide  
*Daria V. Raschetova (Penza State University); Dmitry V. Valovik (Penza State University);*
- 09:40 PLSR and iPLSR Comparative Study for Determination of Solid Soluble Content in Physalis Peruviana Using Dielectric Spectroscopy  
*Wilson Manuel Castro Silupu (Universidad Privada del Norte); Jimmy Franck Oblitas Cruz (Universidad Privada del Norte); Tony Steven Chuquizuta Trigo (Universidad Nacional Autónoma de Chota); Manuel Augusto Yarlequé Medina (Pontificia Universidad Católica del Perú, Sección Telecomunicaciones);*
- 10:00 **Coffee Break**
- 10:30 The Spatial Coherence Function of Crossly Polarized EM-waves Caused by Depolarization in Continuous Random Medium  
*Yukihisa Nanbu (National Institute of Technology); Mitsuo Tateiba (Kyushu University);*
- 10:50 Resonance Scattering from a Perfectly Conducting Cylinder Covered by Concentric Homogeneous Dielectric Layer  
*Malay Ranjan Tripathy (Amity University Uttar Pradesh); Hitendra Kumar (Amity University Uttar Pradesh); Yury V. Shestopalov (University of Gavle);*
- 11:10 Resonance Scattering by Dielectric Cylinder  
*Hitendra Kumar (Amity University Uttar Pradesh); Malay Ranjan Tripathy (Amity University Uttar Pradesh); Yury V. Shestopalov (University of Gavle);*
- 11:30 Synthesis of Multifocal Anisotropic Impedance Reflector of an Arbitrary Shape  
*Yury Vladimirovich Yukhanov (Southern Federal University); Tatyana Yurievna Privalova (Southern Federal University); Timur O. Amirokov (Southern Federal University); E. E. Privalov (Southern Federal University); Daria E. Titova (Southern Federal University);*
- 11:50 Cylinder Backscattering Reduction Using Two-element Van Atta Array  
*Yury Vladimirovich Yukhanov (Southern Federal University); Tatyana Yurievna Privalova (Southern Federal University); Feruz Setmerovich Topalov (Southern Federal University); Daria E. Titova (Southern Federal University);*

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**Session 1A4**

**SC1: Novel Mathematical Methods in Electromagnetics**

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**Tuesday AM, December 17, 2019**

**Room 4 - Ginkgo**

Organized by Yury V. Shestopalov, Kazuya Kobayashi

Chaired by Dmitry V. Valovik, Mitsuo Tateiba

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- 08:00 Perturbation of Cubic-quartic Optical Solitons by Semi-inverse Variational Principle  
*Anjan Biswas (Alabama A&M University);*
- 08:20 Wiener-Hopf Analysis of the Diffraction by a Strip with Fractional Boundary Conditions  
*Takashi Nagasaka (Chuo University); Kazuya Kobayashi (Chuo University);*
- 08:40 Nonlinear Transverse Magnetic Wave Propagation in a Layer Revisited  
*Dmitry V. Valovik (Penza State University);*
- 09:00 Diffraction by a Semi-infinite Parallel-plate Waveguide with Partial Material Loading  
*Kewen He (Chuo University); Takashi Nagasaka (Chuo University); Kazuya Kobayashi (Chuo University);*



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**Session 1A5**
**SC1&SC3: Design and Simulation of  
Electromagnetic and Optical Devices 1**


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**Tuesday AM, December 17, 2019**
**Room 5 - Banyan 1**

 Organized by Shinichiro Ohnuki, Yasuhide Tsuji, Jun  
Shibayama

 Chaired by Shinichiro Ohnuki, Yasuhide Tsuji
 

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- 08:00 Study on Silicon-based Polarization Rotator Using Asymmetric Slot Waveguides  
*Zejun Zhang (Kanagawa University); Yasuhide Tsuji (Muroran Institute of Technology); Masashi Eguchi (Chitose Institute of Science and Technology); Chun-Ping Chen (Kanagawa University);*
- 08:20 Rayleigh Scattering Distributions in Fiber Gratings  
*Nai-Hsiang Sun (I-Shou University); Sheng-Hua Jin (I-Shou University); Ya-Zhou Li (I-Shou University); Min-Han Tsai (I-Shou University); Jung-Sheng Chiang (I-Shou University); Shih-Chiang Lin (I-Shou University);*
- 08:40 Analysis of the Effect of Geometrical Characteristics on Frequency Response of Dielectric Resonators  
*Maryam Hesari-Sherme (Tarbiat Modares University); Bijan Abbasi-Arand (Tarbiat Modarres University); Mohammad Yazdi (Noshirvany University);*
- 09:00 Propagation Characteristics of Photonic Crystal Fibers with Different Lattices  
*Jung-Sheng Chiang (I-Shou University); Jia-Ming Syu (I-Shou University); Yi-Cheng Li (I-Shou University); Geng-Rong Xu (I-Shou University); Nai-Hsiang Sun (I-Shou University);*
- 09:20 Optical Model for Efficiency Enhancement of Anisotropic OLEDs  
*Xianhua Ke (Huazhong University of Science and Technology); Honggang Gu (Huazhong University of Science and Technology); Xuenan Zhao (Huazhong University of Science and Technology); Shiyuan Liu (Huazhong University of Science and Technology);*
- 09:40 Analysis of a Photoconductive Antenna Using the FDTD Method with the Subgrid Technique  
*Yu Nakano (Hosei University); Jun Shibayama (Hosei University); J. Yamauchi (Hosei University); H. Nakano (Hosei University);*
- 10:00 **Coffee Break**

- 10:30 Chebyshev Apodization in Fiber Gratings  
*Nai-Hsiang Sun (I-Shou University); Min-Yu Tsai (I-Shou University); Yu-Cheng Hsueh (I-Shou University); Jung-Sheng Chiang (I-Shou University); Lain-Chyr Hwang (I-Shou University);*
- 10:50 Modeling of Negative Curvature Hollow-core Fiber  
*Jung-Sheng Chiang (I-Shou University); Chien-Yi Lin (I-Shou University); Jia-Ming Syu (I-Shou University); Kuan-Ting Lai (I-Shou University); Nai-Hsiang Sun (I-Shou University);*
- 11:10 Design of a DC-6 GHz Wideband Electromagnetic Exposure Device  
*Shiqi Wang (Dalian Maritime University); Shao-Jun Fang (Dalian Maritime University); Peng Chen (Dalian Maritime University);*
- 11:30 Structural Optimization for Microwave Scattering Structure with Broadband Performance Based on Reaction-diffusion Equation  
*Mingook Jung (Yonsei University); Jinwoo Park (Agency for Defense Development); Jeonghoon Yoo (Yonsei University);*
- 11:50 Design Analysis and Simulation Investigation of S-band MILO  
*Bilawal Ali (University of Electronic Science and Technology of China); Zhan-Liang Wang (University of Electronic Science and Technology of China); Muhammad Khawar Nadeem (University of Electronic Science and Technology of China); Zhi-Gang Lu (University of Electronic Science and Technology of China); Hua-Rong Gong (University of Electronic Science and Technology of China); Zhaoyun Duan (University of Electronic Science and Technology of China); Yu-Bin Gong (University of Electronic Science and Technology of China);*

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**Session 1A6**
**SC5: Advances in Radar Systems and Signal  
Processing for Remote Sensing**


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**Tuesday AM, December 17, 2019**
**Room 6 - Banyan 2**

Organized by Jibin Zheng, Pia Addabbo, Junjie Wu

 Chaired by Jibin Zheng
 

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- 08:20 Novel Parameter Estimation and Radar Detection Approaches for Multiple Point-like Targets: Design and Comparisons  
*Jun Liu (University of Science and Technology of China); Pia Addabbo (Università degli Studi "Giustino Fortunato"); Danilo Orlando (Università degli Studi "Niccolò Cusano"); Giuseppe Ricci (Università del Salento);*
- 08:40 Multi-component CPS Detection Algorithm Based on Improved Coherently Integrated Cubic Phase Function  
*Langxu Zhao (Xidian University); Haihong Tao (Xidian University); Jia Su (Xidian University); Weijia Chen (Xidian University);*
- 09:00 A Novel Algorithm for Moving/Fixed Target Discrimination in 77 GHz Automotive Radars  
*Mohamed Mabrouk (Air Defence Research and Development Center); Haythem Hussein Abdullah (Electronics Research Institute (ERI)); Kamal Hussein (Air Defence Research and Development Center); Amr Hussein Hussein Abdullah (Tanta University);*
- 09:20 Noise Robust Classification Method of Aircraft Targets Based on Micro-Doppler Effect and Wavelet Decomposition  
*Baoshuai Wang (The 29th Research Institute of China Electronics Technology Group Corporation); Jianghong Liu (The 29th Research Institute of China Electronics Technology Group Corporation); Minjue He (The 29th Research Institute of China Electronics Technology Group Corporation);*
- 09:40 Low Complexity Detection Scheme for Fast Target in Randomized Stepped Frequency  
*Kyungwoo Yoo (KAIST); Joohwan Chun (Korea Advanced Institute of Science and Technology (KAIST)); Byung-Gwan Choi (Agency for Defense Development (ADD));*
- 10:00 **Coffee Break**
- 10:30 Tracking of a Missile Using Interacting Multiple Model  
*Yougeun Oh (Korea Advanced Institute of Science and Technology); Kyungwoo Yoo (Korea Advanced Institute of Science and Technology); Joohwan Chun (Korea Advanced Institute of Science and Technology (KAIST)); Byung-Gwan Choi (Agency for Defense Development (ADD));*
- 10:50 Parameter Estimation Algorithm for Cubic Phase Signal Based on Point Extension NUFFT  
*Yang Yang (Xidian University); Jibin Zheng (Xidian University); Hongwei Liu (Xidian University); Kangle Zhu (Xidian University);*
- 11:10 Target Classification and Tracking Based on Aerodynamic Properties and RCS Information Using Rao-Blackwellized Particle Filter  
*Kyungwoo Yoo (Korea Advanced Institute of Science and Technology); Joohwan Chun (Korea Advanced Institute of Science and Technology (KAIST)); Byung-Gwan Choi (Agency for Defense Development (ADD));*
- 11:30 A Sparse Learning Approach to Multiple Noise-like Jammers Detection  
*Linjie Yan (Institute of Acoustics, Chinese Academy of Sciences); Pia Addabbo (Università degli Studi "Giustino Fortunato"); Chengpeng Hao (Institute of Acoustics, Chinese Academy of Sciences); Danilo Orlando (Università degli Studi "Niccolò Cusano"); Jun Liu (University of Science and Technology of China);*

**Session 1A7****SC5: Subsurface Sensing and Imaging****Tuesday AM, December 17, 2019****Room 7 - Banyan 3**

Organized by Hai Liu, Feng Zhou

Chaired by Hai Liu, Hui Qin

- 08:00 New Detection Method of Magnetic Signal Correlated with Only the Hardness of Steel Plate Using MR Sensor  
Invited  
*Kenji Sakai (Okayama University); Toshihiko Kiwa (Okayama University); Keiji Tsukada (Okayama University);*
- 08:20 Markov Chain Monte Carlo Inversion of Crosshole GPR Data to Characterize Subsurface Structure  
Invited  
*Hui Qin (Dalian University of Technology);*
- 08:40 Design of Experimental Setup for Imitation Modeling of the Radar System for Personnel Screening in Motion  
*Andrey V. Zhuravlev (Bauman Moscow State Technical University); G. Dong (Tsinghua University); V. Razevig (Bauman Moscow State Technical University); Margarita A. Chizh (Bauman Moscow State Technical University); B. Hu (Tsinghua University);*
- 09:00 The Distribution Measurement of the Photo-induced Plasma in Semiconductor by Near-field Scanning Microwave Microscopy  
*Liao Ma (Beihang University); Ning Leng (Beihang University); Xiuzhu Ye (Beihang University); Ming Jin (Beijing University of Chemical Technology); Ming Bai (Beihang University);*

09:20 Multi-scale GPR Full Waveform Inversion with Total Variation Constraint Based on Different Geometric Structure

*Jing Li (Jilin University); Zhaofa Zeng (Jilin University); Nan Huai (Jilin University); Zhijun Huo (Jilin University);*

09:40 Penetration of GPR Waves through Rebar Net

*Hantao Lu (Xiamen University); Hai Liu (Guangzhou University); Feng Han (Xiamen University);*

10:00 **Coffee Break**

10:30 Simulation of Ground Penetrating Radar on Cole-cole Dispersive Media Using the Finite Element Time Domain Method

*Honghua Wang (Guilin University of Technology); Minglin Wang (Guilin University of Technology); Hai Liu (Guangzhou University); Zhi Zhang (Guilin University of Technology);*

10:50 Concrete Rebar Characterization Based on Machine Learning

*Xiaofeng Li (China University of Geosciences); Zhongchang Chen (China University of Geosciences); Xuefeng Yin (China University of Geosciences); Zhiwei Duan (China University of Geosciences); Feng Zhou (China University of Geosciences); Hai Liu (Guangzhou University); Guangyou Fang (Key Laboratory of Electromagnetic Radiation and Sensing Technology, Chinese Academy of Sciences);*

11:10 Migration of GPR Using Diffraction Stacking with Invited Antenna Radiation Pattern Correction

*Hai Liu (Guangzhou University); Zhijie Chen (Guangzhou University); Bangan Xing (Xiamen University); Hantao Lu (Xiamen University);*

11:30 Numerical Simulation of Electrical Characteristics of Fractured Carbonate Reservoirs

*Siyu Wang (China University of Geosciences); Maojin Tan (China University of Geosciences); Xiaochang Wang (Sinopec Petroleum Exploration and Production Research Institute);*

11:50 Borehole-to-surface Resistivity Inversion Method Considering the Resistivity Logging Constraint and Water Injection Monitoring Application

*Qin-Run Yang (China University of Geosciences); Maojin Tan (China University of Geosciences);*

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### Session 1A8

#### Microwave Photonics for Advanced Radar Systems and Applications

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**Tuesday AM, December 17, 2019**

**Room 8 - Peony 1**

Organized by Fangzheng Zhang, Xing Li

Chaired by Fangzheng Zhang

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08:20 Novel Quantization Schemes for Photonic Analog-to-digital Conversion

*Hao Chi (Hangzhou Dianzi University); Shuna Yang (Hangzhou Dianzi University); Bo Yang (Hangzhou Dianzi University); Yanrong Zhai (Hangzhou Dianzi University); Jun Ou (Hangzhou Dianzi University);*

08:40 Widely Tunable Optoelectronic Oscillators

*Yuan Yu (Huazhong University of Science and Technology); Haitao Tang (Huazhong University of Science and Technology); Xinliang Zhang (Huazhong University of Science and Technology);*

09:00 All-electrical Measurement of Frequency Response of High-speed Optoelectronic Devices with Self-reference and On-chip Capability

*Shangjian Zhang (University of Electronic Science and Technology of China (UESTC)); Mengke Wang (University of Electronic Science and Technology of China (UESTC)); Yali Zhang (University of Electronic Science and Technology of China (UESTC)); Zhiyao Zhang (University of Electronics Science and Technology of China); Yong Liu (University of Electronic Science and Technology of China (UESTC));*

09:20 Frequency-tunable Parity-time Symmetric Optoelectronic Oscillator

*Peixuan Li (Southwest Jiaotong University); Caihong Teng (Southwest Jiaotong University); Xihua Zou (Southwest Jiaotong University);*

09:40 Microwave Photonic System with Bandwidth Scaling

*Feifei Yin (Beijing University of Posts and Telecommunications);*

10:00 **Coffee Break**

10:30 Accurate Time Delay Measurement with High Resolution and Low Sampling Rate of Broadband Radar Signal via SBS Based All-optical Accumulating Pulse Compression Gain

*Yonglan Yang (Shanghai Jiao Tong University); Weiqin Zou (Shanghai Jiao Tong University); Xing Li (Shanghai Jiao Tong University); Jianping Chen (Shanghai Jiao Tong University);*

- 10:50 Wideband Radar Doppler Simulator Based on Photonic Microwave Single Sideband Modulator  
Yongsheng Gao (Northwestern Polytechnical University); Wuying Wang (Northwestern Polytechnical University); Xinyuan Wang (Northwestern Polytechnical University);
- 11:10 Improvement of the Time-bandwidth Product in Photonic Time-stretched Coherent Radar  
Siteng Zhang (Shanghai Jiao Tong University); Xing Li (Shanghai Jiaotong University); Weiwen Zou (Shanghai Jiao Tong University); Jianping Chen (Shanghai Jiao Tong University);
- 11:30 High Resolution Phased Array Radar Imaging Based on Microwave Photonics  
Fangzheng Zhang (Nanjing University of Aeronautics and Astronautics);
- 09:30 Single Defect Centers in Diamond Generated by Femtosecond Laser Irradiation  
Invited E Wu (East China Normal University); Youying Rong (East China Normal University); Zhiping Ju (East China Normal University); Si Shen (East China Normal University); Botao Wu (East China Normal University);
- 09:50 Light-matter Interfaces in Rare-earth Ion Doped Solids  
Invited Daniel Oblak (University of Calgary);
- 10:10 **Coffee Break**
- 10:30 Quantum Information Preserving Computational Electromagnetics Methods  
Keynote Dong-Yeop Na (Purdue University); Jie Zhu (Purdue University); Weng Cho Chew (Purdue University);
- 11:00 Simple Estimation Method for Finite-key Security of Twin-field-type Quantum Key Distribution  
Invited Masato Koashi (The University of Tokyo);
- 11:20 Distribution of Gaussian Einstein-Podolsky-Rosen Steering  
Invited Xiaolong Su (Shanxi University); Meihong Wang (Shanxi University); Yu Xiang (Peking University); Haijun Kang (Shanxi University); Dongmei Han (Shanxi University); Qiongyi He (Peking University); Changde Xie (Shanxi University); Kunchi Peng (Shanxi University);
- 11:40 Energy-time Entanglement Based Quantum Key Distribution Network over 100 Users  
Invited Xu Liu (Tsinghua University); Wei Zhang (Tsinghua University); Yidong Huang (Tsinghua University);

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**Session 1A9**

**FocusSession.SC3: Quantum Information Processing and Devices 1**

**Tuesday AM, December 17, 2019**

**Room 9 - Peony 2**

Organized by Hai-Zhi Song, Yong-Chun Liu

Chaired by Hai-Zhi Song, Tongcang Li

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- 08:00 Quantum Control of Spins in Solids  
Keynote Jiangfeng Du (University of Science and Technology of China);
- 08:30 Spin-optomechanics and Quantum-limited Torque Detection  
Invited Tongcang Li (Purdue University);
- 08:50 Universal Quantum Gates with Nitrogen-vacancy Centers in a Levitated Nanodiamond under Thermal Motion  
Invited Xing-Yan Chen (Max-Planck-Institut für Quantenoptik); Zhangqi Yin (Beijing Institute of Technology);
- 09:10 Zero-field Electron Spin Resonance Spectroscopy with Single Spins in Diamond  
Invited Fei Kong (University of Science and Technology of China); Pengju Zhao (University of Science and Technology of China); Fazhan Shi (University of Science and Technology of China); Jiangfeng Du (University of Science and Technology of China);

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**Session 1A10**

**SC2: Nonlinear Plasmonics and Metasurfaces 1**

**Tuesday AM, December 17, 2019**

**Room 10 - Jasmine**

Organized by Yuanmu Yang, Guixin Li

Chaired by Yuanmu Yang

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- 08:00 Short-wavelength Metasurfaces  
Invited Kun Huang (University of Science and Technology of China);
- 08:20 Metasurface for Quantum Photon Source  
Invited Shuming Wang (Nanjing University);

- 08:40 Coupled Oscillator Model: Connecting the Linear and  
Invited Nonlinear Chiroptical Effects of 3D Chiral Metasur-  
faces  
*Lili Gui (Beijing University of Posts and Telecommu-  
nications);*
- 09:00 Photonic Skyrmion in a Plasmonic Vortex  
Invited  
*Luping Du (Shenzhen University);*
- 09:20 Plasmonic Radial Breathing Mode Enabled Second  
Invited Harmonic Generation and Nanoscale Optical Tweez-  
ers  
*Fajun Xiao (Northwestern Polytechnical University);*
- 09:40 High-order Ultraviolet Smith-Purcell Radiation  
Invited  
*Fang Liu (Tsinghua University); Yidong Huang (Ts-  
inghua University);*
- 10:00 **Coffee Break**
- 10:30 Control of Magnetic Dipole Terahertz Radiation by  
Invited Cavity-based Modulation  
*Jia Li (Materials Interfaces Center, Shenzhen Insti-  
tutes of Advanced Technology, Chinese Academy of  
Sciences);*
- 10:50 Non-dispersive Infrared Multi-gas Sensing via Meta-  
Invited material Enabled Multifunctional Pyroelectric Detec-  
tors  
*Xiaochao Tan (Huazhong University of Science and  
Technology); Heng Zhang (Huazhong University of  
Science and Technology); Junyu Li (Huazhong Uni-  
versity of Science and Technology); Haowei Wan  
(Huazhong University of Science and Technology);  
Qiushi Guo (Yale University); Houbin Zhu (Shandong  
University); Huan Liu (Huazhong University of Sci-  
ence and Technology); Fei Yi (Huazhong University  
of Science and Technology);*
- 11:10 Enhancing Second-harmonic Generation by a Plas-  
monic Metasurface Consisted of Fabry-Perot Cavities  
*Xuecai Zhang (Southern University of Science and  
Technology); Minke Jin (Southern University of Sci-  
ence and Technology); Yutao Tang (Southern Uni-  
versity of Science and Technology); Junhong Deng  
(Southern University of Science and Technology);  
Guixin Li (Southern University of Science and Tech-  
nology);*
- 11:30 Nonlinear Polarization Control by Metasurfaces and  
Invited Its Applications  
*Mengxin Ren (Nankai University);*
- 11:50 Directive Emission of Red Conjugated Polymer Em-  
Invited bedded within Zero Index Metasurfaces  
*Rong Zi Wang (Dalian University of Technology);  
Zi Lan Wang (Dalian University of Technology);  
Tun Cao (Dalian University of Technology);*
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- Session 1A11**  
**SC2: Advanced Topological Photonics and**  
**Acoustics toward Future Developments 1**
- 
- Tuesday AM, December 17, 2019**  
**Room 11 - Lotus 1**  
Organized by Jian-Hua Jiang, Yin Poo  
Chaired by Jian-Hua Jiang, Yin Poo
- 
- 08:00 3D Topological Light and Sound  
Invited  
*Baile Zhang (Nanyang Technological University);*
- 08:20 Higher-order All-dielectric Photonic Topological Insu-  
lator  
*Biye Xie (Nanjing University); Peng Zhan (Nanjing  
University); Jian-Hua Jiang (Soochow University);  
Ming-Hui Lu (Nanjing University);*
- 08:40 Topological Valley Transport on the Surface of Biaxial  
Invited Hyperbolic Metamaterials  
*Ruo-Yang Zhang (The Hong Kong University of  
Science and Technology); Qing-Hua Guo (Hong  
Kong University of Science and Technology);  
Che Ting Chan (The Hong Kong University of  
Science and Technology);*
- 09:00 Higher-order Topology and Multidimensional Topo-  
logical Transition in Sonic Crystals  
*Zhan Xiong (Soochow University); Hai-Xiao Wang  
(National Taiwan University); Xiujuan Zhang (Nan-  
jing University); Zhi-Kang Lin (Soochow University);  
Ming-Hui Lu (Nanjing University); Jian-Hua Jiang  
(Soochow University);*
- 09:20 Experimental Realization of Valley-Hall Photonic  
Invited Topological Insulators with Dual-band Kink States  
*Qiaolu Chen (Zhejiang University); Yi Hao Yang  
(Zhejiang University); Huaping Wang (Zhejiang Uni-  
versity); Hongsheng Chen (Zhejiang University);*
- 09:40 A Metasurface with Bidirectional Hyperbolic Surface  
Invited Modes and Position-sensing Applications  
*Chuandeng Hu (The Hong Kong University of Science  
and Technology); Xiaoxiao Wu (The Hong Kong Uni-  
versity of Science and Technology); Bo Hou (Soochow  
University); Weijia Wen (The Hong Kong University  
of Science and Technology);*
- 10:00 **Coffee Break**

- 10:30 Photonic Chern Insulators Made of Gyromagnetic Hyperbolic Metamaterials  
Invited  
*Ruei-Cheng Shiu (National Taiwan University); Hsun-Chi Chang (National Taiwan University); Hai-Xiao Wang (National Taiwan University); Guang-Yu Guo (National Taiwan University);*
- 10:50 Observation of Hofstadter Butterfly and Topological Edge States in Reconfigurable Quasi-periodic Acoustic Crystals  
Invited  
*Xiang Ni (City College of the City University of New York); Kai Chen (City College of the City University of New York); Matthew Weiner (City College of the City University of New York); David J. Apigo (New Jersey Institute of Technology); Camelia Prodan (New Jersey Institute of Technology); Andrea Alù (City University of New York); Emil Prodan (Yeshiva University); Alexander B. Khanikaev (ITMO University);*
- 11:10 Dimensional Hierarchy of Higher-order Topology in Three-dimensional Sonic Crystals  
Invited  
*Xiujuan Zhang (Nanjing University); Biye Xie (Nanjing University); Hong-Fei Wang (Nanjing University); Xiangyuan Xu (Nanjing University); Yuan Tian (Nanjing University); Jian-Hua Jiang (Soochow University); Ming-Hui Lu (Nanjing University); Yan-Feng Chen (Nanjing University);*
- 11:30 Tunable Edge States in Reconfigurable Photonic Crystals  
Invited  
*Hai-Xiao Wang (National Taiwan University); Huangyang Chen (Xiamen University); Jian-Hua Jiang (Soochow University); Guang-Yu Guo (National Taiwan University);*
- 11:50 Higher-order Topology in Photonics and Acoustics: Several Paradigms and Their Applications  
Invited  
*Jian-Hua Jiang (Soochow University);*
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- Session 1A12**  
**SC3: Spoof SPP and Its Applications: From Microwave to Optics**
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- Tuesday AM, December 17, 2019**  
**Room 12 - Lotus 2**  
Organized by Jiafu Wang, Hongyu Shi  
Chaired by Jiafu Wang, Hongyu Shi
- 
- 08:20 Dual-band Multi-beam Antenna via Engineering Mode of Spoof Surface Plasmon Polaritons  
*Yajuan Han (Xidian University); Jiafu Wang (Air Force Engineering University); Shuhong Gong (Xidian University);*
- 08:40 Broadband Propagation of High-order Mode of Spoof Surface Plasmon Polaritons Supported by Compact Complementary Structure  
*Dawei Zhang (Harbin Engineering University); Kuang Zhang (Harbin Institute of Technology); Qun Wu (Harbin Institute of Technology); Tao Jiang (Harbin Engineering University);*
- 09:00 Gradient Phase Metasurface Loaded Rectangular Waveguide and Its Applications  
*Hongyu Shi (Xi'an Jiaotong University);*
- 09:20 Transmission and Isolation Improvements of Multi-layer Circuits Based on Spoof Surface Plasmon Polaritons  
*Pei Hang He (Southeast University); Wen Xuan Tang (Southeast University); Hao Chi Zhang (Southeast University); Tie Jun Cui (Southeast University);*
- 09:40 Large-bending-angle 100%-efficiency Metasurfaces Designed with a Top-down Approach  
*Shiyi Xiao (Shanghai University);*
- 10:00 **Coffee Break**
- 10:30 Machine Learning: Customized Metasurface Design  
*Tianshuo Qiu (Air Force Engineering University); Jiafu Wang (Air Force Engineering University); Shaobo Qu (Air Force Engineering University); Yueyu Meng (Air Force Engineering University);*
- 10:50 Ultra-compact SSPP Waveguide and Its Adjustable Notch Filter Based on Double-sided Parallel-strip Line  
*Hao Feng (Xiamen University); Longfang Ye (Xiamen University);*
- 11:10 Tunable 360 Degrees Phase Shifter Based on Spoof Surface Plasmon Polaritons Waveguide  
*Dou Tian (Xi'an Jiaotong University); Amin Kianinejad (MEDs Technologies); Anxue Zhang (Xi'an Jiaotong University);*
- 11:30 A Novel Analysis Method of Electromagnetic Vortex Wave Based on Modified Dynamic Mode Decomposition  
*Yanming Zhang (The University of Hong Kong); Menglin L. N. Chen (The University of Hong Kong); Li Jun Jiang (The University of Hong Kong);*
- 11:50 A Single-channel Anti-saturation Method Based on LMS Algorithm and Fiber Delay Line  
*Hanbing Liu (National University of Defense Technology); Chenglong Lin (National University of Defense Technology); Mingtuan Lin (National University of Defense Technology); Yuandong Zhou (Organization 93046); Peiguo Liu (National University of Defense Technology);*

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**Session 1A13**
**SC3: Light Propagation, Transformation and Applications 1**


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**Tuesday AM, December 17, 2019**
**Room 13 - Lotus 3**

Organized by Zhili Lin, Jixiong Pu

 Chaired by Zhili Lin, Jixiong Pu

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 08:20 Anomalous Fractional Optical Vortex and Its Properties  
 Invited

*Xinzhong Li (Henan University of Science and Technology);*

 08:40 Advances in Long-distance Orbital Angular Momentum Multiplexing Transmission in Low-loss Ring-core Fiber  
 Invited

*Jian Wang (Huazhong University of Science and Technology);*

09:00 Generation of Vortex Beams Carrying OAM Based on High-efficiency Transmission Metasurfaces

*Kaiting Liu (Huaqiao University); Yuehe Ge (Huaqiao University); Jixiong Pu (Huaqiao University);*

09:20 The Effect of Astigmatism on the Phase Singularities of Focused Cos-Gaussian Vortex Beams

*Bi-Hua Tang (Southwest Medical University); Yong-Ping Song (Sichuan Luzhou High School); Shang-Bin Zheng (Southwest Medical University); Zeng-Hui Gao (Yibin University); Yamei Luo (Luzhou Medical College);*

09:40 Generation of Vortex Beams with On-demand Orbital Angular Momentum by Astigmatic Transformation of Hermite Modes from a Digital Laser

*Xudong Chen (Huaqiao University); Sensen Liu (Huaqiao University); Jixiong Pu (Huaqiao University);*

 10:00 **Coffee Break**

10:30 Generation, Propagation and Control of Partially Coherent Pulse Lasers

*Chaoliang Ding (Luoyang Normal University);*

 10:50 Measuring Laser Wavelength at Attometer Resolution from the Speckle Output of a Single Multimode Fibre  
*Mingzhou Chen (University of St Andrews); Graham D. Bruce (University of St Andrews); Kishan Dholakia (University of St Andrews);*

11:10 Efficient Spectrum Reshaping with Photonic Gauge Potentials in Resonantly Modulated Fiber-loop Circuits

*Lu Ding (Huazhong University of Science and Technology); Bing Wang (Huazhong University of Science and Technology); Peixiang Lu (Huazhong University of Science and Technology);*

11:30 Electromagnetic Cloak Using Polarization Conversion Metasurfaces

*Yufang Wang (Huaqiao University); Yuehe Ge (Huaqiao University); Jixiong Pu (Huaqiao University);*


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**Session 1A14**
**SC4: Advances in Antenna Theory and Techniques 1**


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**Tuesday AM, December 17, 2019**
**Room 14 - Lily**

Organized by Mei Song Tong, Miao Zhang

 Chaired by Mei Song Tong, Miao Zhang

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08:00 Design of Microstrip Patch Antenna for MIMO Applications

*Madhavi Devabhaktuni (RVR & JC College of Engineering); Sudhakar Alapati (RVR & JC College of Engineering);*

08:20 An Improved Adaptive Chaotic Particle Swarm Optimization Algorithm for Antenna Synthesis

*Zi Ruo Chen (Tongji University); Kai Kai Guan (Tongji University); Mei Song Tong (Tongji University);*

08:40 A Broadband High-gain Magneto-electric Dipole Antenna for New Unlicensed Frequency Band

*Ge Zhao (Tongji University); Zi Ruo Chen (Tongji University); Mei Song Tong (Tongji University);*

09:00 The Design and Manufacturing of a Small Monopole Antenna with Minimized Electromagnetic Radiation Health Effects

*Gerard Rushingabigwi (University of Rwanda, College of Science and Technology); Liguang Sun (University of Science and Technology of China); Celestin Twizere (University of Rwanda); Philibert Nsengiyumva (University of Rwanda); Louis Sibomana (University of Rwanda); Ignace Gatere (University of Rwanda); Jean de Dieu Ntawangaheza (Micro/Nano-Electronic System Integration R&D Centre (MESIC)); Yuxing He (Yokohama National University);*


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- 09:20 A Chipless RFID Sensor for Metal Crack Detection Based on Notch Characteristics  
*Meng Meng Li (Tongji University); Guo Chun Wan (Tongji University); Miao Yang (Tongji University); Mei Song Tong (Tongji University);*
- 09:40 Low-profile Annular Patch Antenna for Pattern Diversity Applications  
*Sen Yan (Xi'an Jiaotong University); Yan Zheng (Xi'an Jiaotong University);*
- 10:00 **Coffee Break**
- 10:30 A Low-profile Dual-polarized Antenna with Bandwidth-enhanced EBG Structure  
*Huan Qian Xiong (Tongji University); Feng Xie (Tongji University); Mei Song Tong (Tongji University);*
- 10:50 Bandwidth Improvement of Rectangular Patch Antenna Using Multiple Slots  
*Madhavi Devabhaktuni (RVR & JC College of Engineering); Sudhakar Alapati (RVR & JC College of Engineering);*
- 11:10 Dual-Band Hexagonal Cavity Back Slot Antenna Using TM<sub>110</sub> and TM<sub>210</sub> Modes  
*Sudhakar Alapati (RVR & JC College of Engineering); Jagadeesh Dokuparthi (Acharya Nagarjuna University);*
- 11:30 A Comparative Study of Conformal Antenna Arrays for Aerodynamic Applications  
*Hisham Khalil (The University of Lahore); Umair Rafique (Capital University of Science and Technology); Muhammad Mansoor Ahmed (Mohammad Ali Jinnah University); Saeed Ur Rehman (Nanjing University of Aeronautics and Astronautics (NUAA));*
- 11:50 A Compact Planar Antenna for Super-wideband Applications  
*Hisham Khalil (The University of Lahore); Umair Rafique (Capital University of Science and Technology);*
- 08:10 Scanning Probe Enabled Deterministic Assembly of Invited Functional Nanoparticles for Nanophotonic Applications  
*Jie Bian (Nanjing University); Zaiqin Man (Nanjing University); Weihua Zhang (Nanjing University);*
- 08:30 Controlling the Performance of Polymer Lasers via the Invited Cavity Coupling  
*Tianrui Zhai (Beijing University of Technology); Shuai Zhang (Beijing University of Technology);*
- 08:50 Plasmonic Nanoantennas  
Keynote  
*Jianfang Wang (The Chinese University of Hong Kong);*
- 09:20 Plasmon-exciton Coupling: From DNA Origami to Invited Nanostructured Graphene  
*Mo Lu (University of Cologne); Ling Xin (Max Planck Institute for Intelligent Systems); Steffen Both (University of Stuttgart); Maximilian J. Urban (Max Planck Institute for Intelligent Systems); Markus Pfeiffer (University of Cologne); Boris V. Senkovskiy (Universität zu Köln); Danny Haberer (University of California at Berkeley); Chao Zhou (Max Planck Institute for Intelligent Systems); Felix R. Fischer (University of California at Berkeley); Yoichi Ando (Universität zu Köln); Klaus Meerholz (University of Cologne); Hao Yan (Arizona State University); Thomas Weiss (University of Stuttgart); Laura Na Liu (University of Heidelberg & Max Planck Institute for Intelligent Systems); Alexander Grüneis (Universität zu Köln); Klas Lindfors (University of Cologne);*
- 09:40 Quasi-3D Metasurfaces with Continuous Twists and Invited Giant Chirality  
*Jiafang Li (Beijing Institute of Technology);*
- 10:00 **Coffee Break**
- 10:30 Treatment of Nonconvergence of Fourier Modal Invited Method Arising from Field Hypersingularities at Lossless Metal-dielectric Edges  
*Haitao Liu (Nankai University); Junda Zhu (Nankai University); Yanpeng Mei (Nankai University); Ying Zhong (Tianjin University);*

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**Session 1A15**

**SC2: Nanophotonics for Integration,  
Communication, and Biomedicine  
Applications 1**

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**Tuesday AM, December 17, 2019**

**Room 15 - Narcissus**

Organized by Lili Gui, Cuicui Lu

Chaired by Lili Gui, Jiafang Li

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10:50 Hamiltonian Formulation of Cross-mode Modulation  
Invited in Silicon Waveguide

*Haofan Yang (Huazhong University of Science and Technology); Zhongfei Xiong (Huazhong University of Science and Technology); Hanwen Hu (Huazhong University of Science and Technology); Yuntian Chen (Huazhong University of Science and Technology); Xinliang Zhang (Huazhong University of Science and Technology); Jing Xu (Huazhong University of Science and Technology);*

11:10 Push the Limit of Stability and Speed of Surface-  
Invited enhanced Raman Scattering Bioimaging

*Jian Ye (Shanghai Jiao Tong University);*

11:30 Enhanced Two-photon Absorption and Two-photon  
Invited Luminescence in Monolayer MoS<sub>2</sub> and WS<sub>2</sub> by Defect Repairing

*Ivan M. Kislyakov (Shanghai Institute of Optics and Fine Mechanics, Chinese Academy of Sciences); Jun Wang (Shanghai Institute of Optics and Fine Mechanics, Chinese Academy of Sciences);*

09:20 Design of Electron Optics System for G-band Travel-  
ing Wave Tube

*Chao Zhao (Institute of Electronics, Chinese Academy of Sciences); Wenxin Liu (Institute of Electronics, Chinese Academy of Sciences); Yong Wang (Institute of Electronics, Chinese Academy of Sciences); Xin Guo (Institute of Electronics, Chinese Academy of Sciences); Meng Wang (Key Laboratory of High Power Microwave Sources and Technologies, Chinese Academy of Sciences);*

09:40 Experimental Verification of the Mode-selection  
Method in an Overmoded Ka-band Relativistic Back-  
ward Wave Oscillator

*Shuang Li (Northwest Institute of Nuclear Technology); Yan Teng (Northwest Institute of Nuclear Technology); Dongyang Wang (Northwest Institute of Nuclear Technology); Ligang Zhang (Northwest Institute of Nuclear Technology); Xiaoxin Zhu (Northwest Institute of Nuclear Technology); Changhua Chen (Northwest Institute of Nuclear Technology);*

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### Session 1A16

#### Millimeter Wave and Terahertz Source Devices 1

Tuesday AM, December 17, 2019

Room 16 - Camellia 1

Organized by Cun-Jun Ruan, Wenxin Liu

Chaired by Cun-Jun Ruan, Wenxin Liu

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08:20 Simulation of the Photoconductive Vacuum Diode Ar-  
Invited rays

*Yikun Ding (Beihang University); Jun Dai (Beihang University); Cun-Jun Ruan (Beihang University);*

08:40 Excitation and Amplification of Orbital Angular Mo-  
Invited mentum with the Free Electron

*Juan-Feng Zhu (Peking University); Chao-Hai Du (Peking University); Lu-Yao Bao (Peking University); Xing-Chen Yang (Peking University); Shi Pan (Peking University); Zi-Chao Gao (Peking University); Fan-Hong Li (Peking University); Pu-Kun Liu (Peking University);*

09:00 Self-mixing Interferometry in Terahertz Quantum  
Invited Cascade Lasers

*Yan Xie (Tsinghua University); Weidong Chu (Institute of Applied Physics and Computational Mathematics); Yingxin Wang (Tsinghua University); Ziran Zhao (Tsinghua University);*

10:00 **Coffee Break**

10:30 Design of a TE<sub>10</sub>-TE<sub>20</sub> Mode Converter for Accu-  
rate Characterization of Planar Slow-waves Structures  
with VNA

*Lihong Cao (Shenzhen University); Hao Xiong (Shenzhen University); Shuting Fan (Shenzhen University); Zhengfang Qian (Shenzhen University); Guoxiang Shu (Shenzhen University); Wenlong He (Shenzhen University);*

10:50 Broadband Achromatic Metasurface Devices

*Yihui Xu (University of Electronic Science and Technology of China); Feng Lan (University of Electronic Science and Technology of China); Pinaki Mazumder (University of Michigan); Huayang Liu (University of Electronic Science and Technology of China); Hongxin Zeng (University of Electronic Science and Technology of China); Wenxin Liu (Institute of Electronics, Chinese Academy of Sciences); Binglian Xiao (University of Electronic Science and Technology of China); Yufeng Deng (University of Electronic Science and Technology of China); Zongjun Shi (University of Electronic Science and Technology of China);*

- 11:10 Reformative EIT Inspired Ultra-sensitive Terahertz Sensing on Micro-volumetric Microfluidic Metamaterial  
*Guiju He (University of Electronic Science and Technology of China); Feng Lan (University of Electronic Science and Technology of China); Pinaki Mazumder (University of Michigan); Luyang Wang (University of Electronic Science and Technology of China); Hongxin Zeng (University of Electronic Science and Technology of China); Ziqiang Yang (University of Electronic Science and Technology of China); Jin Yin (University of Electronic Science and Technology of China); Zongjun Shi (University of Electronic Science and Technology of China); Binglian Xiao (University of Electronic Science and Technology of China);*
- 11:30 Detection of Text Information Hidden in an Envelope Using Terahertz Imaging  
*Zhenwei Zhang (Capital Normal University); Yuejin Zhao (Beijing Institute of Technology); Cunlin Zhang (Capital Normal University); Yuping Yang (Minzu University of China);*
- 09:00 Modified Vernier Effect in the Cascaded SFS Critical Wavelength Structure and Its Sensing Applications in Static Water Pressure and High Temperature  
*Chenxu Lu (Xiamen University); Xiaopeng Dong (Xiamen University); Lihua Lu (Xiamen University); Yunqing Guan (Xiamen University); Shiqi Ding (Xiamen University);*
- 09:20 Design and Analysis of the Birefringent Characteristics of Hollow Core Bandgap Fiber  
*Feng Yin (Xiamen University); Xiaopeng Dong (Xiamen University);*
- 09:40 Ultrasensitive Refractive Index Sensor Based on Thin Diameter Fiber Mach-Zehnder Interferometer  
*Xueqin Lei (Xiamen University); Xiaopeng Dong (Xiamen University);*
- 10:00 **Coffee Break**
- 10:30 Design and Analysis of Special Few Mode Fiber for Sensor Application  
*Xiaopeng Dong (Xiamen University); Chenxu Lu (Xiamen University);*
- 10:50 Optical Models of Graphene and Graphene-  
 Keynoteincorporated Waveguide Devices  
*Kin Seng Chiang (City University of Hong Kong);*
- 11:20 Demonstration of Snapshot-type VIS/NIR Spectroscopic Image Sensor Utilizing Photonic Crystal Multipatterned Filter Array  
*Yasuo Ohtera (Toyama Prefectural University); N. Ikeda (Toyama Prefectural University);*

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**Session 1A17**

**SC3: Design and Application of Optical Fiber and Waveguide for Functional Components and Sensors**

**Tuesday AM, December 17, 2019**

**Room 17 - Camellia 2**

Organized by Xiaopeng Dong, Minghong Yang

Chaired by Xiaopeng Dong

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- 08:00 Modified Design and Application of an Optical Fiber Pressure Sensor for the Depth Measurement of Sea  
*Shiqi Ding (Xiamen University); Yunqing Guan (Xiamen University); Xiaopeng Dong (Xiamen University);*
- 08:20 Detection of Weak Strain and Vibration Signal at Multipoints of a Bridge with Optical Fiber Bragg Gratings  
*Yunqing Guan (Xiamen University); Xiaopeng Dong (Xiamen University);*
- 08:40 High Sensitivity Interferometric Optical Fiber Humidity Sensor Based on a Moisture Sensitive Film  
*Lihua Lu (Xiamen University); Xiaopeng Dong (Xiamen University); Chenxu Lu (Xiamen University);*

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**Session 1A18a**

**Oral Presentations for Best Student Paper Awards — SC4: Antennas and Microwave Technologies**

**Tuesday AM, December 17, 2019**

**Room 18 - Azalea**

Chaired by Dau-Chyrrh Chang, Zhongxiang Shen, Malay Ranjan Tripathy

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- 08:00 3D-printed Wideband Rectangular Dielectric Resonator Antenna  
*Zhen-Xing Xia (City University of Hong Kong); Kwok Wa Leung (City University of Hong Kong);*
- 08:20 Basic Study on Deformation Reconfiguration Technology for 5.8-GHz-band Reflectarray Antennas  
*Keisuke Omoto (Tokyo Institute of Technology); Takashi Tomura (Tokyo Institute of Technology); Hiraku Sakamoto (Tokyo Institute of Technology); Jiro Hirokawa (Tokyo Institute of Technology); Masaaki Okuma (Tokyo Institute of Technology);*

- 08:40 Dual-polarized Low-profile Wideband Filtering Antenna for 5G Applications  
*Sheng Jie Yang (South China University of Technology); Hua Feng Su (South China University of Technology); Yujiang Wu (Hong Kong Applied Science and Technology Research Institute Company Limited (ASTRI)); Xiu-Yin Zhang (South China University of Technology);*
- 09:00 Design of a Tunable UHF RFID Tag Based on Rectangular Loop Antennas for Metallic Objects  
*Yunjing Zhang (Tongji University); Peng Li (Tongji University); Haonan Zeng (Tongji University); Mei Song Tong (Tongji University);*
- 09:20 Design and Simulation of the Beam-wave Interaction System of 400 GHz Clinotron  
*Siming Su (Beijing Vacuum Electronics Research Institute); Jinjun Feng (Beijing Vacuum Electronics Research Institute);*
- 09:40 Robust-efficiency RF Energy Harvesting for Internet of Things Applications  
*Jie Huang (Nanjing University of Information Science and Technology); Haiyang He (Nanjing University of Information Science and Technology); Hucheng Sun (Nanjing University of Information Science & Technology);*
- 10:00 **Coffee Break**
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- Session 1A18b**  
**Oral Presentations for Best Student Paper Awards — SC2: Metamaterials, Plasmonics and Complex Media**
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**Tuesday AM, December 17, 2019**

**Room 18 - Azalea**

Chaired by Hongsheng Chen, Yongmin Liu, Ari Sihvola

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- 10:30 Revisit Cherenkov Radiation in the Hyperbolic Metamaterials  
*Hao Hu (Nanyang Technological University); Xiao Lin (Nanyang Technological University); Dongjue Liu (Nanyang Technological University); Patrice Genevet (Université Cote d'Azur); Baile Zhang (Nanyang Technological University); Yu Luo (Nanyang Technological University);*

- 10:50 Multi-band Tunable Asymmetric Transmission of Linearly Polarized Electromagnetic Waves Achieved by Active Chiral Metamaterial  
*Chenxi Huang (Southeast University); Jingjing Zhang (Southeast University); Qiang Cheng (Southeast University); Tie Jun Cui (Southeast University);*
- 11:10 A 2D Tunable Frequency Selective Absorber Based on Liquid Metal  
*Feng Xie (Tongji University); Mei Song Tong (Tongji University); Meng Wang (Central South University); Jacob J. Adams (North Carolina State University);*
- 11:30 Reconfigurable Spoof Surface Plasmon Polariton Band-stop Filter with Monolithic Schottky Diodes  
*Haotian Ling (Shandong University); Yifei Zhang (Shandong University); Pingjian Chen (Shandong University); Pengfei Qian (Shandong University); Yanpeng Shi (Shandong University); Yiming Wang (Shandong University); Qian Xin (Shandong University); Qingpu Wang (Shandong University); Aimin Song (University of Manchester);*
- 11:50 A Low Permittivity Metamaterial on a Glass Substrate for Fabricating an Atomic Vapor Cell  
*Huihui Mu (Southeast University); Haiyang Zou (Southeast University); Qilong Wang (Southeast University); Zhenfei Song (National Institute of Metrology);*
- 12:10 A Multifunctional Polarization Converter Base on Solid Plasma Metasurface  
*Yu-Peng Li (Nanjing University of Posts and Telecommunications); Hai Feng Zhang (Nanjing University of Posts and Telecommunications); Tong Yang (Nanjing University of Posts and Telecommunications); Yang-Yi Sun (Nanjing University of Posts and Telecommunications);*

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**Session 1P4a**

**SC1: Fast and Efficient Algorithms of CEM**

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**Tuesday PM, December 17, 2019**

**Room 4 - Ginkgo**

Organized by Vladimir Okhmatovski, Weng Cho Chew

Chaired by Weng Cho Chew

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- 13:10 Solving Electromagnetic Scattering Problems with Over 10 Billion Unknowns with the Parallel MLFMA  
*Ming-Lin Yang (Beijing Institute of Technology); Yu-Lin Du (Beijing Institute of Technology); Xin-Qing Sheng (Beijing Institute of Technology);*

- 13:30 The Broadband Green's Function Technique and Its Applications in Periodic Scatterer Scattering  
*Shurun Tan (Zhejiang University/University of Illinois at Urbana-Champaign Institute); Leung Tsang (University of Michigan);*
- 13:50 Broadband Green's Function in 3D Cavity Resonator of Irregular Shape Using Imaginary Wave Number Extraction Technique  
*Mohammadreza Sanamzadeh (University of Michigan); Leung Tsang (University of Michigan);*
- 14:10 An Efficient Volumetric SBR Method for Electromagnetic Scattering Problems  
*Zi He (Nanjing University of Science and Technology); Rushan Chen (Nanjing University of Science and Technology);*
- 14:40 Sparsity-aware Pre-corrected Tensor Train Algorithm for Fast Iterative Solution of Scattering Problems  
*Z. Chen (University of California at Santa Barbara); L. Gomez (Duke University); S. Zheng (University of Manitoba); A. Yucel (Nanyang Technological University); Z. Zhang (University of California at Santa Barbara); Vladimir Okhmatovski (University of Manitoba);*
- 15:00 Fast Multipole Algorithms, a Review and Recent Progress  
*Tian Xia (University of Illinois); Ling Ling Meng (University of Illinois at Urbana-Champaign); Weng Cho Chew (Purdue University);*
- 15:20 Numerical Green's Function for Computational Electromagnetics  
*Hui H. Gan (University of Illinois at Urbana-Champaign); Qi I. Dai (University of Illinois at Urbana-Champaign); Tian Xia (University of Illinois at Urbana-Champaign); Qin S. Liu (The University of Hong Kong); Weng Cho Chew (Purdue University);*
- 15:40 **Coffee Break**
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- Session 1P4b**  
**SC1: Advances in Numerical Modeling and Design**
- 
- Tuesday PM, December 17, 2019**  
**Room 4 - Ginkgo**  
Organized by Yongpin Chen, Sheng Sun  
Chaired by Sheng Sun
- 
- 16:00 A Novel Junction Process Procedure Avoiding Method for EM Scattering from Piecewise Homogeneous Objects  
*Ran Zhao (Anhui University); Kun Fan (Anhui University); Zhi-Xiang Huang (Anhui University); Yongpin Chen (University of Electronic Science and Technology of China); Jun Hu (University of Electronic Science and Technology of China);*
- 16:20 Semi-supervised Extreme Learning Machine for the Parametric Modeling of Microwave Components  
*Li-Ye Xiao (Xiamen University); Wei Shao (University of Electronic Science and Technology of China); Qing Huo Liu (Duke University);*
- 16:40 On the Theoretical and Practical Numerical Performance of Matrix-decomposition-based Fast Direct Solvers  
*Xiao-Wei Huang (Beijing Institute of Technology); Xin-Qing Sheng (Beijing Institute of Technology);*
- 17:00 An Efficient Approach for Predicting Electromagnetic Interference of Electric Drive System Based on Field-circuit-TL Joint Simulation  
*Pei Xiao (University of Electronic Science and Technology of China); Yujian Qin (National University of Defense Technology); Yongfeng Qiu (Hunan University); Gaosheng Li (National University of Defense Technology);*
- 17:20 Generalized Formulation for A-EFIE with Perturbation Method  
*Wenjing Chen (University of Electronic Science and Technology of China); Sheng Sun (University of Electronic Science and Technology of China); Yongpin Chen (University of Electronic Science and Technology of China); Jun Hu (University of Electronic Science and Technology of China);*
- 17:40 A Novel FDTD Cells Generation Technology and MATLAB-GUI Implementation  
*Zheng-Yu Huang (Nanjing University of Aeronautics and Astronautics); Yu-Meng Li (Nanjing University of Aeronautics and Astronautics); Shu-Rui Jiang (Nanjing University of Aeronautics and Astronautics); Zi-An Chen (Nanjing University of Aeronautics and Astronautics); Tong An (Nanjing University of Aeronautics and Astronautics);*
- 18:00 A Novel Spatial Three-dimensional Spherical Array Antenna for OAM Waves Generation  
*Chaoying Li (Beijing University of Posts and Telecommunications); Dan Shi (Beijing University of Posts and Telecommunications);*

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**Session 1P5**
**SC1&SC3: Design and Simulation of  
Electromagnetic and Optical Devices 2**


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**Tuesday PM, December 17, 2019**
**Room 5 - Banyan 1**

 Organized by Shinichiro Ohnuki, Yasuhide Tsuji, Jun  
Shibayama

 Chaired by Shinichiro Ohnuki, Yasuhide Tsuji
 

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- 13:10 Optical Response of SOI Photodiode with Gold Line-and-space Grating to Biomolecular Interactions  
*Hiroaki Satoh (Shizuoka University); Koki Isogai (Shizuoka University); Hiroshi Inokawa (Shizuoka University);*
- 13:30 Tracking indoor PM2.5 Source Using Infrared Optical IoT Sensors  
*Chien-Kun Wang (National Kaohsiung University of Science and Technology); Po-Jui Chiang (National Kaohsiung University of Science and Technology); Shuo Hsien Wang (National Kaohsiung University of Science and Technology); Cheng-Hsiung Tsai (National Kaohsiung University of Science and Technology); Cheng-Hong Yang (National Kaohsiung University of Science and Technology); Tien-Tsorng Shih (National Kaohsiung University of Science and Technology); Jau-Ji Jou (National Kaohsiung University of Science and Technology); Chih-Hsueh Lin (National Kaohsiung University of Science and Technology); Nai-Hsiang Sun (I-Shou University);*
- 13:50 Application of the Contour-path Effective-permittivity Technique to the Three-dimensional FDTD Method  
*Kazuto Suzuki (Hosei University); Jun Shibayama (Hosei University); J. Yamauchi (Hosei University); H. Nakano (Hosei University);*
- 14:10 Study on Analysis of Optical Devices Using Full-vectorial FE-BPM Based on Coordinate Transformation  
*S. Kawamura (Muroran Institute of Technology); Yasuhide Tsuji (Muroran Institute of Technology);*
- 14:30 Reference Solutions of Time-domain Electromagnetic Responses — Accuracy Verification of Finite-difference Methods  
*Soichiro Masuda (Nihon University); Seiya Kishimoto (Nihon University); Shinichiro Ohnuki (Nihon University);*
- 14:50 Behaviour of Poynting Vector for Guided Modes of Dielectric Optical Waveguides and Its Usefulness in the Design of Evanescently Coupled Optical Devices  
*Himanshu Kushwah (University of Delhi); Jagneet Kaur Anand (University of Delhi);*
- 15:10 A Study on Directivity of SOI Photodetector with 2D Hole Array Type Gold Grating  
*Anitharaj Nagarajan (Shizuoka University); Shusuke Hara (Shizuoka University); Hiroaki Satoh (Shizuoka University); Aruna Priya Panchanathan (SRMIST); Hiroshi Inokawa (Shizuoka University);*
- 15:30 **Coffee Break**
- 16:00 Investigation of Plasmon Modes for a Thin-metal Waveguide Using Grating Structure  
*Kou Hamashima (Nihon University); Di Wu (Nihon University); Seiya Kishimoto (Nihon University); Shuichiro Inoue (Nihon University); Shinichiro Ohnuki (Nihon University);*
- 16:20 Efficiency Optimization of Tandem Organic Solar Cells under Oblique Incidence Based on Optical Analysis Method  
*Xuenan Zhao (Huazhong University of Science and Technology); Honggang Gu (Huazhong University of Science and Technology); Xianhua Ke (Huazhong University of Science and Technology); Shiyuan Liu (Huazhong University of Science and Technology);*
- 16:40 Measurement of Narrow Beams in Second-order Fiber Bragg Gratings  
*Nai-Hsiang Sun (I-Shou University); Ya-Zhou Li (I-Shou University); Sheng-Hua Jin (I-Shou University); Jung-Sheng Chiang (I-Shou University); Shih-Chiang Lin (I-Shou University);*
- 17:00 Structural Design of the Electromagnetic Wave Scattering Structure in Aircraft Engine Intake  
*Taeil Lee (Yonsei University); Jeonghoon Yoo (Yonsei University);*

- 17:20 **Strengthening Particle Swarm Optimization for Solving Traveling Salesman Problem**  
*Cheng-Hsiung Tsai (National Kaohsiung University of Science and Technology); Po-Jui Chiang (National Kaohsiung University of Science and Technology); Cheng-Hong Yang (National Kaohsiung University of Science and Technology); Tien-Tsorng Shih (National Kaohsiung University of Science and Technology); Jau-Ji Jou (National Kaohsiung University of Science and Technology); Chih-Hsueh Lin (National Kaohsiung University of Science and Technology); Chien-Hsiang Huang (National Sun Yat-sen University); Chien-Kun Wang (National Kaohsiung University of Science and Technology); Shuo Hsien Wang (National Kaohsiung University of Science and Technology); Nai-Hsiang Sun (I-Shou University);*
- 17:40 **Time-domain Analysis of Heat Conduction Using Fast Inverse Laplace Transform**  
*Shohei Nishino (College of Science and Technology Nihon University); Soichiro Masuda (Nihon University); Seiya Kishimoto (Nihon University); Shinichiro Ohnuki (Nihon University);*
- 18:00 **Substrate Integrated Waveguide (SIW) Based Highly Selective Filtering Power Divider for Radar Applications**  
*Keyur Mahant (Charotar University of Science and Technology); Hiren Mewada (Charotar University of Science and Technology);*
- 13:30 **Development of a Consistent Soil Moisture Decadal Data Record from Multiple Satellites**  
*Steven K. Chan (NASA Jet Propulsion Laboratory, California Institute of Technology); Rajat Bindlish (NASA Goddard Space Flight Center);*
- 13:50 **Soil Moisture Variability Monitoring by a New Physically-based Soil Moisture Index from Passive Microwave Observations**  
*Jiangyuan Zeng (Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences); Kun-Shan Chen (Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences); Chenyang Cui (Suzhou Industrial Park Surveying, Mapping and Geoinformation Co., Ltd.);*
- 14:10 **Numerical Solutions of 3D Maxwell Equations of Vegetation Using the Hybrid Method with 3D Vector Cylindrical Wave Expansions for Remote Sensing of Soil Moisture**  
*Huanting Huang (University of Michigan); Weihui Gu (University of Michigan); Leung Tsang (University of Michigan); Andreas Colliander (California Institute of Technology); Simon H. Yueh (California Institute of Technology);*
- 14:30 **L-band Surface Soil Moisture Retrieval by Inverting Radar Scattering Models for Crops**  
*Seung-Bum Kim (California Institute of Technology); Tien-Hao Liao (California Institute of Technology);*
- 14:50 **Development of a High Resolution Soil Moisture Using SMAP Estimates**  
*Rajat Bindlish (NASA's Goddard Space Flight Center); Pang-Wei Liu (NASA's Goddard Space Flight Center); Bin Fang (University of Virginia); Venkat Lakshmi (University of Virginia); Peggy O'Neill (NASA's Goddard Space Flight Center); Zhengwei Yang (National Agricultural Statistics Service);*

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### Session 1P6a

#### FocusSession.SC5: Applications of Microwave Remote Sensing in Terrestrial Hydrology

Tuesday PM, December 17, 2019

Room 6 - Banyan 2

Organized by Steven K. Chan, Rajat Bindlish

Chaired by Steven K. Chan, Rajat Bindlish

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- 13:10 **Soil Moisture Experiment in the Luan River Supporting the Terrestrial Water Resource Mission**  
*Tianjie Zhao (Aerospace Information research Institute, Chinese Academy of Sciences); Jiancheng Shi (Aerospace Information research Institute, Chinese Academy of Sciences); Liqing Lv (Shanghai Academy of Spaceflight Technology); Hongxin Xu (Shanghai Academy of Spaceflight Technology); Deqing Chen (Information Center of Ministry of Water Resources of China); Qian Cui (Information Center of Ministry of Water Resources of China); Thomas J. Jackson (USDA (retired));*

- 15:10 Downscaling of ASCAT Soil Moisture with MODIS Products Based on Apparent Thermal Inertia in Areas around 54 FLUXNET Stations  
*Qiuxia Xie (Jointly Sponsored by Institute of Remote Sensing and Digital Earth of Chinese Academy of Sciences and Beijing Normal University); Qiting Chen (Jointly Sponsored by Institute of Remote Sensing and Digital Earth of Chinese Academy of Sciences and Beijing Normal University); Peng Li (Jointly Sponsored by Institute of Remote Sensing and Digital Earth of Chinese Academy of Sciences and Beijing Normal University); Li Jia (Jointly Sponsored by Institute of Remote Sensing and Digital Earth of Chinese Academy of Sciences and Beijing Normal University); Massimo Menenti (Jointly Sponsored by Institute of Remote Sensing and Digital Earth of Chinese Academy of Sciences and Beijing Normal University);*
- 15:30 **Coffee Break**
- 17:00 Distinction between Human and Animal in Respiratory Monitoring Based on IR-UWB Radar  
*Pengfei Wang (Fourth Military Medical University); Fulai Liang (Fourth Military Medical University); Yangyang Ma (Fourth Military Medical University); Yang Zhang (The Fourth Military Medical University); Hui Jun Xue (Fourth Military Medical University); Zhao Li (Fourth Military Medical University); Hao Lv (Fourth Military Medical University); Jianqi Wang (Fourth Military Medical University);*
- 17:20 Research on Identifying Different Life States Based on the Changes of Vital Signs of Rabbit under Water and Food Deprivation by UWB Radar Measurement  
*Yangyang Ma (Fourth Military Medical University); Fulai Liang (Fourth Military Medical University); Pengfei Wang (Fourth Military Medical University); Yue Yin (The Fourth Military Medical University); Yang Zhang (The Fourth Military Medical University); Jianqi Wang (Fourth Military Medical University);*

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**Session 1P6b****Medical Electromagnetics, Biological Effects, Bioimaging**

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**Tuesday PM, December 17, 2019****Room 6 - Banyan 2**Chaired by Jan Vrba

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- 16:00 Numerical Study on the Interaction between Terahertz Wave and Skin Tissue Considering the Effect of Sweat Ducts  
*Xiao Yu (Chongqing University); Fan Yang (Chongqing University);*
- 16:20 Comparison of Antennas Proposed for Purpose of Differential Temperature Imaging via UWB Radar  
*Ondrej Fiser (Czech Technical University in Prague); Vojtech Hruby (Czech Technical University in Prague); Jan Vrba, Jr. (Czech Technical University in Prague); David Vrba (Czech Technical University in Prague); Jan Vrba (Czech Technical University in Prague);*
- 16:40 Hyperthermia in Cancer Treatment: SAR Distribution Created by Superposition of EM Fields Irradiated from External and Interstitial Applicators  
*Jan Vrba (Czech Technical University in Prague); Jesus Cumana (Czech Technical University); Ondrej Fiser (Czech Technical University in Prague); Ilya Merunka (Czech Technical University in Prague);*

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**Session 1P7****SC5: Inverse Problems in Microwave and Optics**

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**Tuesday PM, December 17, 2019****Room 7 - Banyan 3**

Organized by Raffaele Solimene, Feng Han

Chaired by Raffaele Solimene, Feng Han

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- 13:10 Real-time Imaging of Moving Anomaly from Scattering Matrix  
*Won-Kwang Park (Kookmin University); Kwang-Jae Lee (Electronics and Telecommunications Research Institute); Seong-Ho Son (Soonchunhyang University);*
- 13:30 Nonlinearized Electromagnetic Imaging of Complex Biological Structures — Towards Data Fusion  
*Yingying Qin (Université Paris-Saclay); Thomas Rodet (Ecole Normale Supérieure Paris-Saclay); Marc Lambert (Université Paris-Saclay); Dominique Lesselier (UMR8506 (CNRS, Centrale Supélec, University Paris-Sud), University Paris-Saclay);*
- 13:50 High Fidelity Modelling of a Microwave Imaging Device for Brain Stroke Monitoring  
*David Rodriguez-Duarte (Politecnico di Torino); Jorge A. Tobon (Politecnico di Torino); Rosa Scapaticci (Institute for Electromagnetic Sensing of the Environment); Branko Kolundzija (WIPL-D); Lorenzo Crocco (CNR — National Research Council of Italy); Francesca Vipiana (Politecnico di Torino);*

- 14:10 Orthogonality Sampling Method as a Tool to Identify  
Invited Discontinuities within Unknown Targets  
*Martina Teresa Bevacqua (Università Mediterranea di Reggio Calabria); Roberta Palmeri (Università Mediterranea di Reggio Calabria); Lorenzo Crocco (CNR — National Research Council of Italy); Tommaso Isernia (Università Mediterranea di Reggio Calabria);*
- 14:30 Preliminary Study of Radiation Operator Properties for NDF and Resolution Estimation  
*Maria Antonia Maisto (Università degli Studi della Campania “Luigi Vanvitelli”); Raffaele Solimene (Università degli Studi della Campania “Luigi Vanvitelli”); Rocco Pierri (Università degli Studi della Campania “Luigi Vanvitelli”);*
- 14:50 The Magnetic Diagnostic System in Tokamaks: The  
Invited Calibration of the Assessment Procedure  
*Andrea Gaetano Chiariello (Università della Campania “Luigi Vanvitelli”); Alessandro Formisano (Università della Campania “Luigi Vanvitelli”); Raffaele Martone (Università della Campania “Luigi Vanvitelli”);*
- 15:10 Novel Approaches to Realize Plasmonic Intrinsic and  
Invited Extrinsic Optical Fiber Sensors with High Sensitivity  
*Nunzio Cennamo (University of Campania Luigi Vanvitelli); Luigi Zeni (University of Campania “Luigi Vanvitelli”);*
- 15:30 **Coffee Break**
- 16:00 Fourier Bases-expansion Contraction Integral Equa-  
Invited tion for Inversion with Phaseless Data  
*Kuiwen Xu (Hangzhou Dianzi University); Lu Zhang (Hangzhou Dianzi University); Yu Zhong (Institute of High Performance Computing, A\*STAR);*
- 16:20 Electromagnetic Forward and Inverse Scattering of  
3D Inhomogeneous Anisotropic Objects Embedded in  
Uniaxial Anisotropic Media  
*Jianliang Zhuo (Xiamen University); Jiawen Li (Xiamen University); Qing Huo Liu (Duke University);*
- 16:40 On the Use of a Virtualized Veselago Lens for Inverse  
Invited Problems  
*Joe Lo Vetri (University of Manitoba); M. Eini Kelesh-teri (University of Manitoba); Ian Jeffrey (University of Manitoba); Vladimir Okhmatovski (University of Manitoba);*
- 17:00 Reconstruction of Composite Model Parameters for  
3-D Microwave Imaging of Biaxial Objects by BCGS-  
FFT and PSO  
*Feng Han (Xiamen University); Jiawen Li (Xiamen University); Yanjin Chen (Xiamen University); Qing Huo Liu (Duke University);*
- 17:20 Near-field Characterization of Root Systems, from  
Invited Computational Modeling and Simulations to Con-  
trolled Laboratory Experiments  
*Abderrahmane Aboudourib (Université Paris-Sud, Université Paris-Saclay, Sorbonne Université); Mohammed Serhir (Centrale Supélec); Dominique Lesse-lier (UMR8506 (CNRS, Centrale Supélec, University Paris-Sud), University Paris-Saclay);*
- 17:40 Data Analysis for the Classification of 3D Magnetic  
Maps  
*Andrea Gaetano Chiariello (Università della Campania “Luigi Vanvitelli”); Alessandro Formisano (Università della Campania “Luigi Vanvitelli”); Raffaele Martone (Università della Campania “Luigi Vanvitelli”);*

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**Session 1P8a**
**SC2: Advances in Metasurfaces**


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**Tuesday PM, December 17, 2019**
**Room 8 - Peony 1**

Organized by Shulin Sun, Qiong He

Chaired by Qiong He

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- 13:10 Strong Coupling of Excitons, Plasmonic and Photonic  
Invited Modes in Organic-dye-doped Metastructures  
*Ru-Wen Peng (Nanjing University); Kun Zhang (Nanjing University); Yue Xu (Nanjing University); Cheng-Yao Li (Nanjing University); Chao-Wei Chen (Nanjing University); Mu Wang (Nanjing University);*
- 13:30 Efficiently Tailoring Electromagnetic Waves on Inter-  
Invited faces with Gradient Antireflection Metasurfaces  
*Hongchen Chu (Nanjing University); Haoyang Zhang (Queen Mary University of London); Yang Hao (Queen Mary University of London); Yun Lai (Nanjing University);*
- 13:50 Metasurface Devices for Optical Analogue Computa-  
Invited tion and Other Applications  
*Yi Zhou (Zhejiang University); Wenhui Wu (Zhejiang University); Rui Chen (Zhejiang University); Wenjie Chen (Zhejiang University); Yungui Ma (Zhejiang University);*
- 14:10 Multi-functional Metasurfaces for Efficiently Manipu-  
Invited lating Electromagnetic Wave  
*Ke Chen (Nanjing University); Guowen Ding (Nanjing University); Wenlong Guo (Air Force Engineering University); Junming Zhao (Nanjing University); Yijun Feng (Nanjing University);*



14:30 Anomalous Diffraction in Phase Gradient Metagratings  
Invited

*Yadong Xu (Soochow University); Yangyang Fu (Soochow University); Yanyan Cao (Soochow University);*

14:50 Secret Sharing Information Encoding with Multichannel Metasurface  
Invited

*Zhenfei Li (Shanghai Jiao Tong University); Chong He (Shanghai Jiao Tong University); Weiren Zhu (Shanghai Jiao Tong University);*

15:10 Nonlinear Nanophotonics: Modeling and Experiment  
Invited

*Lili Gui (Beijing University of Posts and Telecommunications);*

15:30 **Coffee Break**

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**Session 1P8b**

**SC2&SC3: Advanced Metasurface Designs and Optoelectronic Devices**

**Tuesday PM, December 17, 2019**

**Room 8 - Peony 1**

Organized by Yuyi Feng, Lingling Huang

Chaired by Yuyi Feng, Lingling Huang

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16:00 Terahertz Active Metasurface

Invited

*Yan Zhang (Capital Normal University); Jingying Guo (Capital Normal University); Teng Wang (Capital Normal University); Guocui Wang (Capital Normal University); Xinke Wang (Capital Normal University);*

16:20 Dielectric Metasurfaces for Controlling Terahertz Waves  
Invited

*Xueqian Zhang (Tianjin University); Huifang Zhang (Tianjin University); Qiu Wang (Tianjin University); Yuehong Xu (Tianjin University); Meng Liu (Tianjin University); Quan Xu (Tianjin University); Jiguang Han (Tianjin University); Weili Zhang (Tianjin University);*

16:40 Terahertz Functional Materials and Their Application in Metasurface Devices  
Invited

*Fei Fan (Nankai University); Yun-Yun Ji (Nankai University); Shengjiang Chang (Nankai University);*

17:00 Efficient Organic and Perovskite Light-emitting Devices: Carrier Kinetics and Efficiency Modelling  
Invited

*Dawei Di (Zhejiang University);*

17:20 Charge Transfer Effects in Hybrid Nanostructures  
Invited

*Yuyi Feng (Beijing Institute of Technology); Paul Kim (University of California); Clayton A. Nemitz (University of North Carolina); Kwang-Dae Kim (University of Konstanz); Yoonseok Park (Dresden University of Technology); Karl Leo (Dresden University of Technology); James Dorman (Louisiana State University); Jonas Weickert (University of Konstanz); Yongtian Wang (Beijing Institute of Technology); Lukas Schmidt-Mende (University of Konstanz);*

17:40 Ultra-thin Complex-amplitude Modulation Metasurface Based on Multipole Resonances  
Invited

*Qiang Jiang (Tsinghua University); Liangcai Cao (Tsinghua University); Guofan Jin (Tsinghua University);*

18:00 Orbital Angular Momentum Hybridization on Spiral Particles  
Invited

*Xiaopeng Shen (China University of Mining and Technology); Hongmei Ye (China University of Mining and Technology); Yujiao Liao (China University of Mining and Technology); Kui Han (China University of Mining and Technology); Weihua Wang (China University of Mining and Technology);*

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**Session 1P9**

**SC1&SC3&SC5: New Synergies among Machine Learning, Artificial Intelligence, Photonics and Electromagnetics: From Data Processing to Hardware Implementations**

**Tuesday PM, December 17, 2019**

**Room 9 - Peony 2**

Organized by Massimo Panella

Chaired by Massimo Panella

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13:10 Reconstructing Arbitrary Nanoclusters from Single Wide-angle Scattering Images with Neural Networks  
*Thomas Stielow (University of Rostock); Stefan Scheel (University of Rostock);*

13:30 Multivariate Prediction of PM<sub>10</sub> Concentration by LSTM Neural Networks

*Ludovico Di Antonio (University of Rome "La Sapienza"); Antonello Rosato (University of Rome "La Sapienza"); Valentina Colaiuda (University of L'Aquila); Annalina Lombardi (University of L'Aquila); Barbara Tomassetti (University of L'Aquila); Massimo Panella (University of Rome "La Sapienza");*

- 13:50 Automatic Detection of Landscape Painting Elements Based on Machine Learning  
*Zhuohao Cai (Tongji University); Yi Yang (Tongji University); Zhiyao Zhou (Tongji University); Lan Lin (Tongji University);*
- 14:10 A Long-time Multi-object Tracking Method for Football Game Analysis  
Invited *Yuan Chen (Zhejiang University); Wenbin Huang (Zhejiang University); Sailing He (Zhejiang University); Yaoran Sun (Zhejiang University);*
- 14:30 On the Design of a Front-face Grid for Shielding Enclosure Using Evolutionary Computations  
*Tomas Kadavy (Tomas Bata University in Zlín); Stanislav Kovar (Tomas Bata University in Zlín); Roman Senkerik (Tomas Bata University in Zlín); Michal Pluhacek (Tomas Bata University in Zlín);*
- 14:50 Multivariate Prediction in Photovoltaic Power Plants by a Stacked Deep Neural Network  
*Antonello Rosato (University of Rome "La Sapienza"); Rodolfo Araneo (University of Rome "La Sapienza"); Massimo Panella (University of Rome "La Sapienza");*
- 15:10 Modelling the Electromagnetic Characteristics of an Electric Vehicle with Neural Network Technique  
*Yaxin Yu (Chang'an University); Bo Xu (Chang'an University); Zan Zhang (Chang'an University);*
- 15:30 **Coffee Break**
- 16:00 Identity Authentication for PON Based on Cryptography and Machine Learning Assisted Device Fingerprinting  
*Mengfan Cheng (Huazhong University of Science and Technology (HUST)); Shanshan Li (Huazhong University of Science and Technology (HUST)); Lei Deng (Hua Zhong University of Science and Technology); Minming Zhang (Huazhong University of Science and Technology); Songnian Fu (Huazhong University of Science and Technology (HUST)); Deming Liu (Huazhong University of Science and Technology);*
- 16:20 An EM Scattering Data Interpolation Method Based on Decision and Regression Tree  
*Feng Chen (Science and Technology on Electromagnetic Scattering Laboratory); Jia Zhai (Science and Technology on Electromagnetic Scattering Laboratory); Xunwang Dang (Science and Technology on Electromagnetic Scattering Laboratory); Xiaodan Xie (Science and Technology on Optical Radiation Laboratory); Yong Zhu (Science and Technology on Electromagnetic Scattering Laboratory); Hongcheng Yin (National Electromagnetic Scattering Laboratory);*
- 16:40 A PDE-based Deep Learning Scheme for Time Domain Electromagnetic Simulations  
*Yanyan Hu (University of Houston); Yuchen Jin (University of Houston); Xuqing Wu (University of Houston); Jiefu Chen (University of Houston);*
- 17:00 Toward Prediction of Water Vapor Amount by Machine Learning Utilizing Near Infrared Spectrum of the Sky  
*H. Tanaka (Toyama Prefectural University); T. Takaya (Toyama Prefectural University); Yasuo Ohtera (Toyama Prefectural University);*
- 17:20 Role of Physical Insights on Solving Scattering Problems via Learning Approaches  
*Xudong Chen (National University of Singapore); Zhun Wei (National University of Singapore); Kuiwen Xu (Hangzhou Dianzi University);*
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- Session 1P10a**  
**SC2: Nonlinear Plasmonics and Metasurfaces**  
**2**
- 
- Tuesday PM, December 17, 2019**  
**Room 10 - Jasmine**  
Organized by Yuanmu Yang, Guixin Li  
Chaired by Yuanmu Yang
- 
- 13:10 Angular Dispersions and Line-shape Tailoring in KeynoteComplex Metasurfaces  
*Lei Zhou (Fudan University);*
- 13:40 Plasmonic Fano Resonance-enhanced Second-Invited harmonic Generation  
*Dangyuan Lei (City University of Hongkong); Shaodong Liu (Taiyuan University of Technology);*
- 14:00 Building Phase-change Materials Into Metal and Di-Invited electric Metasurfaces  
*Richard F. Haglund (Vanderbilt University); Joshua D. Caldwell (Vanderbilt University); Jason G. Valentine (Vanderbilt University);*
- 14:20 Nonlinear Response of All-dielectric Metasurfaces  
Invited *Shumin Xiao (Harbin Institute of Technology);*
- 14:40 Second Harmonic Generation and Its Nonlinear Polarization Effects from Lithium Niobate Thin Films  
*Junjun Ma (Nankai University); Jiaxin Chen (Nankai University); Mengxin Ren (Nankai University); Wei Wu (Nankai University); Wei Cai (Nankai University); Jingjun Xu (Nankai University);*
- 15:00 Thermo-optical Nonlinearity of Metallic Nanoparticle(s)  
*I. W. Un (Ben-Gurion University); Yonatan Sivan (Ben-Gurion University);*

15:30 **Coffee Break**

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**Session 1P10b**

**SC2: Substrate Integrated and On-chip  
Metamaterials and Their Applications**

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**Tuesday PM, December 17, 2019**

**Room 10 - Jasmine**

Organized by Liang Peng, Kuiwen Xu

Chaired by Liang Peng, Kuiwen Xu

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16:00 Higher-order Topological Insulator in Open Plasmonic System

*Yuan-Zhen Li (Zhejiang University); Jian-Bin Liu (Jilin University); Hongsheng Chen (Zhejiang University); Su Xu (Jilin University); Fei Gao (Zhejiang University);*

16:20 Valley Kink States and Topological Channel Intersections in Substrate-integrated Photonic Circuitry

*Li Zhang (Zhejiang University); Yi Hao Yang (Zhejiang University); Jian-Hua Jiang (Soochow University); Hongsheng Chen (Zhejiang University);*

16:40 Active Tuning of Forward/Backward Second Harmonic Generation in Spoof Surface Plasmonic Waveguide

*Xinxin Gao (Southeast University); Jingjing Zhang (Southeast University); Liangliang Liu (Southeast University); Tie Jun Cui (Southeast University);*

17:00 Enhanced Magneto-optical Effects via Photonic Doping

*Na Liu (Shandong University); Zuoqia Wang (Shandong University); Xun Li (McMaster University);*

17:20 Non-dispersive Infrared Multi-gas Sensing via Metamaterial Enabled Multifunctional Pyroelectric Detectors

*Xiaochao Tan (Huazhong University of Science and Technology); Heng Zhang (Huazhong University of Science and Technology); Junyu Li (Huazhong University of Science and Technology); Haowei Wan (Huazhong University of Science and Technology); Qiushi Guo (Yale University); Houbin Zhu (Shandong University); Huan Liu (Huazhong University of Science and Technology); Fei Yi (Huazhong University of Science and Technology);*

17:40 Tunable Multispectral Color Filter Integrated on the Silicon Substrate

*Zhipeng Wu (Southeast University); Yusheng Zhai (Southeast University); Jitao Ji (Southeast University); Xiangyu Ma (Southeast University); Qilong Wang (Southeast University);*

18:00 Nano-imprinting Based Metamaterial Absorber with Multi-value Structural Resistance Integration  
*Su Xu (Jilin University);*

18:20 High Scanning-rate Leaky-wave Antenna Based on Sub-wavelength Metamaterial Resonance Cells

*Jiangbo Duan (Hangzhou Dianzi University); Kuiwen Xu (Hangzhou Dianzi University); Liang Peng (Hangzhou Dianzi University);*

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**Session 1P11a**

**SC2: Advanced Topological Photonics and Acoustics toward Future Developments 2**

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**Tuesday PM, December 17, 2019**

**Room 11 - Lotus 1**

Organized by Jian-Hua Jiang, Yin Poo

Chaired by Jian-Hua Jiang, Yin Poo

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13:10 Non-Hermitian Skin Effect, Non-Bloch Bands, and Generalized Bulk-boundary Correspondence

*Shunyu Yao (Tsinghua University); Fei Song (Tsinghua University); Zhong Wang (Tsinghua University);*

13:30 Weak Localization and Antilocalization in Nodal-line Semimetals: Dimensionality and Topological Effects

*Wei Chen (Nanjing University); Hai-Zhou Lu (Southern University of Science and Technology); Oded Zeitlinger (ETH Zurich);*

13:50 Anomalous Quadrupole Topological Insulator in Sonic Crystals

*Zhi-Kang Lin (Soochow University); Xiujuan Zhang (Nanjing University); Hai-Xiao Wang (National Taiwan University); Ming-Hui Lu (Nanjing University); Jian-Hua Jiang (Soochow University);*

14:10 Higher-order Photonic Topological Phase on Plasmonic Metasurface

*Yuan-Zhen Li (Zhejiang University); Hongsheng Chen (Zhejiang University); Su Xu (Jilin University); Fei Gao (Zhejiang University);*

14:30 Visualization of Topological Kink States and Corner States in Two Dimensional Photonic Crystals

*Yu Ting Yang (Soochow University); Hua Jiang (Soochow University); Zhi Hong Hang (Soochow University);*

14:50 Topological Phenomena in Dispersive Photonic Lattices

*Ying Chen (Xiamen University); Huanyang Chen (Xiamen University);*

15:10 Numerical Identification of Symmetries in Topological  
Invited Photonics

*Samuel J. Palmer (Imperial College London);  
Richard V. Craster (Imperial College London); Vin-  
cenzo Giannini (Imperial College London);*

15:30 **Coffee Break**

16:00 Spectral Element Method for the Elastic/Acoustic  
Waveguide Problem in Anisotropic Negative Metama-  
terials

*Anqi Ge (Xiamen University); Mingwei Zhuang (Xia-  
men University); Jie Liu (Xiamen University); Na Liu  
(Xiamen University); Qing Huo Liu (Duke Univer-  
sity);*

16:20 Magnetically Tunable Multifunctional Electromag-  
Invited netic Wave Controller

*Wenjin Pei (Nanjing University); Yin Poo (Nan-  
jing University); Xiufeng Tao (Nanjing University);  
Feifei Li (Nanjing University of Information Science  
and Technology); Rui-Xin Wu (Nanjing University);*

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### Session 1P11b

#### SC2: Topological Electromagnetics and Topological Acoustics 1

Tuesday PM, December 17, 2019

Room 11 - Lotus 1

Organized by Fei Gao, Meng Xiao, Luqi Yuan

Chaired by Fei Gao

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16:40 An Unpaired Photonic Dirac Point

*Baile Zhang (Nanyang Technological University);*

17:00 Simulating and Manipulating Topological Physics in  
Photonics Synthetic Dimensions

*Zhengwei Zhou (University of Science and Technology  
of China, Chinese Academy of Sciences);*

17:20 Observation of Chiral Edge Currents in Superradiance  
Lattices of Room-temperature Atoms

*Da-Wei Wang (Zhejiang University);*

17:40 Dynamical Detection of Bulk Photonic Topology

*Feng Mei (Shanxi University);*

18:00 Unidirectional Guided Electromagnetic Waves in an  
All-dielectric Topological Photonic Crystal Waveg-  
uide

*Menglin L. N. Chen (The University of Hong Kong);  
Li Jun Jiang (The University of Hong Kong); Zhi-  
hao Lan (University College London); Wei E. I. Sha  
(Zhejiang University);*

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### Session 1P12

#### SC2: Waves in Complex Medium

Tuesday PM, December 17, 2019

Room 12 - Lotus 2

Organized by Yu Zhang, Yadong Xu

Chaired by Yu Zhang, Yadong Xu

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13:30 Bianisotropy and Unidirectional-zero-reflection in  
Solids: Willis-type Elastic Metamaterials

*Yongquan Liu (Xi'an Jiaotong University); Zix-  
ian Liang (Shenzhen University); Olivier Mondain-  
Monval (University of Bordeaux); Thomas Brunet  
(University of Bordeaux); Andrea Alù (City Univer-  
sity of New York); Jensen Li (Hong Kong University  
of Science and Technology);*

13:50 Manipulating Wave Diffraction with Phase Gradient  
Metagratings

*Yangyang Fu (Nanjing University of Aeronautics and  
Astronautics); Yadong Xu (Soochow University);*

14:10 Metamaterial-based Multiband Absorber in Terahertz  
Region

*Qianman Wu (North University of China);*

14:30 Asymmetric Absorptivity in Phase Gradient Meta-  
gratings

*Yanyan Cao (Soochow University); Yadong Xu (Soo-  
chow University);*

14:50 Effective Medium Theory for Photonic Pseudospin-  
1/2 System

*Neng Wang (Shenzhen University); Ruo-Yang Zhang  
(Nankai University); Guo Ping Wang (Shenzhen Uni-  
versity); Che Ting Chan (The Hong Kong University  
of Science and Technology);*

15:10 Elastic Conformal Cloaking

*Yangyang Zhou (Xiamen University); Huangyang Chen  
(Xiamen University);*

15:30 **Coffee Break**

16:00 PSTD Simulation of Light Propagation through  
Chicken Cornea Tissue

*Tzu-Hao Kuo (National Taiwan University);  
Snow H. Tseng (National Taiwan University);*

16:20 Bioinspired Hydrogel Metamaterial with Broadband Impedance Matching  
*Yu Zhang (Xiamen University); Erqian Dong (Xiamen University); Shahrzad Ghaffari Mosanenzadeh (Massachusetts Institute of Technology); Zhongchang Song (Xiamen University); Qi He (Massachusetts Institute of Technology); Xiaowei Gao (Xiamen University); Xuanhe Zhao (Massachusetts Institute of Technology); Nicholas X. Fang (Massachusetts Institute of Technology);*

16:40 Acoustic Wave Interaction with Underwater Target for Dolphin Biosonar  
*Wen Feng (Xiamen University); Yu Zhang (Xiamen University); Chong Wei (Curtin University);*

17:00 Discussion on Dielectric Approximation in Field Transformation  
*Shi Tang (Hubei University); Yangjie Liu (Hubei University); Wen-Feng Wang (Hubei University);*

17:20 Bioinspired Underwater Angle-controlling Emissions via Conformal Transformation Acoustics  
*Erqian Dong (Xiamen University); Yangyang Zhou (Xiamen University); Yu Zhang (Xiamen University); Huanyang Chen (Xiamen University);*

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**Session 1P13a**

**FocusSession.SC3: Photosensitive Materials and Nano-structures for Optical Switching, Sensing and Processing Applications 2**

**Tuesday PM, December 17, 2019**

**Room 13 - Lotus 3**

Organized by Rita Asquini, Iam-Choon Khoo

Chaired by Rita Asquini, Iam-Choon Khoo

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13:10 Photothermal Conductive Films for Photo-Invited Thermoelectric Sensing  
*Byeongwan Kim (Yonsei University); Minsu Han (Yonsei University); Eunkyoung Kim (Yonsei University);*

13:30 Room Temperature Solution Approaches to Realize Invited Transparent Flexible Electrodes for Optoelectronic Devices  
*Wallace C. H. Choy (The University of Hong Kong);*

13:50 Integrated Silicon-based Waveguides for Wavelength Invited Conversion in 2- $\mu\text{m}$  Mid-infrared Band  
*Shiming Gao (Zhejiang University); Zhihua Tu (Zhejiang University); Taoce Yin (Zhejiang University); Daru Chen (The Hong Kong Polytechnic University); Xiaowei Guan (Technical University of Denmark);*

14:10 Terahertz Graphene Absorber Integrated Sensors  
*Fang Zeng (Xiamen University); Longfang Ye (Xiamen University);*

14:30 Perovskite Microlasers for Optical Sensing and Imaging  
*Qinghai Song (Harbin Institute of Technology);*

15:30 **Coffee Break**

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**Session 1P13b**

**SC3: Electromagnetic and Optical Properties of Photonic Materials, Structures, and Crystal**

**Tuesday PM, December 17, 2019**

**Room 13 - Lotus 3**

Organized by Tzong-Jer Yang, Wen-Kai Kuo

Chaired by Tzong-Jer Yang, Wen-Kai Kuo

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16:00 Tunable Tamm Plasmon Polaritons for Topological Invited Photonics  
*Ivan Vladimirovich Timofeev (Kirensky Institute of Physics, Federal Research Center KSC SB RAS); K.-P. Chen (National Chiao Tung University);*

16:20 UV-degradation Mechanism of Perovskite Solar Cells Invited Unveiled by Ultrafast Spectroscopy  
*Chih-Wei Luo (National Chiao Tung University);*

16:40 Highly Vibrant Reflective Structural Colors from Lossy Metals Using Grating Supermode Resonances  
*Youngji Kim (Ewha Womans University); Kyungmin Jung (Ewha Womans University); Jerome Kartham Hyun (Ewha Womans University);*

17:00 FDTD Modeling and Simulation of Structural Colors from Biological Creatures  
*Liang-Yu Huang (National Taiwan University); Snow H. Tseng (National Taiwan University);*

17:20 High Sensitivity Phase Detection of Dielectric-grating-coupled Surface Plasmon Resonance Sensor for Backside Incident Light  
*Wen-Kai Kuo (National Formosa University); Jaturon Tongpakpanang (National Formosa University); Ping-Hong Kuo (National Formosa University); Po-Chean Gao (National Formosa University);*

17:40 Differential Detection System of Spectra Shift for Surface Plasmon Resonance (SPR) Sensors  
*Wei-Shin Lin (National Formosa University); Jaturon Tongpakpanang (National Formosa University); Wen-Kai Kuo (National Formosa University);*

- 18:00 Review Application of the Field Confinement Effect in Spoof Surface Plasmon Polariton on the Corrugated Metal Micro-striplines in Microwave Regime in Our Work  
*Tzong-Jer Yang (National Chiao Tung University); Jin-Jei Wu (Chung Hua University);*

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**Session 1P14**

**SC4: Advances in Antenna Theory and Techniques 2**

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**Tuesday PM, December 17, 2019**

**Room 14 - Lily**

Organized by Mei Song Tong, Miao Zhang

Chaired by Mei Song Tong, Miao Zhang

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- 13:10 Null-filled Shaped Beam Horizontally Polarized Omnidirectional Antenna  
*Muhammad Shahzad Sadiq (Beihang University); Shahid Ullah (Beihang University); Cun-Jun Ruan (Beihang University);*
- 13:30 Improved Wheeler Cap Microstrip Antenna Efficiency Measurement Based on 3D Printing  
*Ran Fan (Dalian Maritime University); Shao-Jun Fang (Dalian Maritime University);*
- 13:50 Metallized via Loaded Quarter Mode SIW Slot Antenna for Dual-band Operation  
*Sudhakar Alapati (RVR & JC College of Engineering); Jagadeesh Dokuparthi (Acharya Nagarjuna University);*
- 14:10 Modal Analysis for Characterizing Wireless Channels in Fully-enclosed Environment  
*Xin Wang (Nanjing University of Aeronautics & Astronautics); Han Cheng (Nanjing University of Aeronautics & Astronautics); Xuemei Cao (Nanjing University of Aeronautics & Astronautics); Chen Chen (Nanjing University of Aeronautics & Astronautics); Mei Song Tong (Tongji University); Mingyu Lu (West Virginia University Institute of Technology);*
- 14:30 S-shaped High Efficient Meander Monopole Antenna for WLAN/WIMAX/Ultra Wide Band (UWB) Applications  
*Shahid Ullah (Beihang University); Cun-Jun Ruan (Beihang University); Muhammad Shahzad Sadiq (Beihang University); Tanveer Ul Haq (Beihang University); Ayesha Kosar Fahad (Beihang University);*
- 14:50 Physical-layer Security Performance of MISO Time-reversal Ultra-wideband Systems  
*Kawiwat Amnatchotiphan (Rangsit University);*

- 15:10 BER Analysis Using MRT Linear Precoding Technique for Massive MIMO under Imperfect Channel State Information  
*Lusekelo Kibona (Huazhong University of Science and Technology (HUST)); Jian Liu (Huazhong University of Science and Technology (HUST)); Yingzhuang Liu (Huazhong University of Science and Technology (HUST));*

15:30 **Coffee Break**

- 16:00 Output Characteristics of Horn Antennas in Transient Regime  
*Jing-Shyang Yen (National Taipei University of Technology); Xuan-De Huang (National Taipei University of Technology); Chia-Wei Lin (National Taipei University of Technology); Hao Zhang (Hanyang University); Kaviya Aranganadin (Hanyang University); Hua-Yi Hsu (National Taipei University of Technology); Jwo-Shiun Sun (National Taipei University of Technology); Chii-Ruey Lin (National Taipei University of Technology); Ming-Chieh Lin (Hanyang University);*
- 16:20 Grating Lobe Reduction for 2-D Limited Scan Array by Arranged Subarrays Randomly  
*Hongtao Zhang (East China Research Institute of Electronic Engineering); Guilin Sun (East China Research Institute of Electronic Engineering); Yuru Rao (East China Research Institute of Electronic Engineering); Wei Wang (East China Research Institute of Electronic Engineering);*
- 16:40 Resonance Type Bessel Beam Antenna  
*Arsen A. Hakhoumian (Institute of Radiophysics and Electronics, Armenian National Academy of Sciences); O. Mahmoodian (Institute of Radiophysics and Electronics, Armenian National Academy of Sciences);*

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**Session 1P15**

**SC2: Functional Devices and Antennas Based on Metamaterials and Metasurfaces**

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**Tuesday PM, December 17, 2019**

**Room 15 - Narcissus**

Organized by Qiang Cheng, Junming Zhao

Chaired by Junming Zhao, Qiang Cheng

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- 13:10 Novel Steerable Dual-beam Metasurface Antennas Based on Controllable Feeding Mechanism  
*Wanchen Yang (South China University of Technology); Lizheng Gu (South China University of Technology); Wenquan Che (South China University of Technology); Quan Xue (South China University of Technology);*
- 13:30 Polarization Manipulation Realized by Metasurface  
*Xi Gao (University of Electronic Science and Technology of China); Xiongbin Wu (Guilin University of Electronic Technology);*
- 13:50 Meta-surface in the Antenna Engineering: From Generating Directive Beams to the Frequency Scanning Radiations  
*Rui Yang (Xidian University);*
- 14:10 Active Control of Terahertz Waves by VO<sub>2</sub> Metamaterial  
*Caihong Zhang (Nanjing University); Gaochao Zhou (Nanjing University); J. B. Wu (Nanjing University); Biaobing Jin (Nanjing University); Jian Chen (Nanjing University); Peiheng Wu (Nanjing University);*
- 14:30 Focusing Linear to Circular Polarization Converter  
*Hongyu Shi (Xi'an Jiaotong University);*
- 14:50 The Full-space Bessel Beam Modulator Based on Pancharatnam-Berry Metasurface  
*Cheng Zhu (Xidian University); Hang Liang (Xidian University); Fa Wang (Xidian University); Fu-Yan Wen (Xidian University); Jie Huang (Xidian University);*
- 15:10 A Terahertz Spatial Light Modulator Using VO<sub>2</sub>-integrated Salisbury Screen  
*Benwen Chen (South China Normal University); Jingbo Wu (Nanjing University); Caihong Zhang (Nanjing University); Biaobing Jin (Nanjing University); Qi-Ye Wen (University of Electronic Science and Technology of China); Jian Chen (Nanjing University); Peiheng Wu (Nanjing University);*
- 15:30 **Coffee Break**
- 16:00 Inverse Design of Broadband Zero-index Metamaterials  
*Yujing He (Tsinghua University);*
- 16:20 Circular-polarized Frequency Scanning Antenna Array Based on Pancharatnam-Berry Phase  
*Zhiwei Sun (Nanjing University); Junming Zhao (Nanjing University); Hailin Cao (Chongqing University); Yijun Feng (Nanjing University);*
- 16:40 Flexible Microwave Devices and Dual-frequency-scanning Antenna Based on Spoof Surface Plasmon Polaritons  
*Haoran Zu (Xidian University); Bian Wu (Xidian University); Maosong Wu (Xidian University); Liang Chen (701 Research Institute); Wen Su (China Academy of Space Technology);*
- 17:00 A Design of a UWB-MIMO Antenna with Tripe Band-notched Functions Based on Metamaterials  
*Shan Wang (Central South University); Jian Dong (Central South University); Jinjun Mo (Central South University); Meng Wang (Central South University);*
- 17:20 Broadband RCS Reduction Metamaterials Based on Stereo Structures  
*W. Fang (Nanjing University); Y. J. Wang (Nanjing University); X. Y. Xie (Nanjing University); Ping Chen (Nanjing University);*
- 17:40 The Anapole Mode in Compact Metadisk Based on Localized Spoof Surface Plasmons  
*Adeel Ahmed (Zhejiang University); Pengfei Qin (Zhejiang University); Er Ping Li (Zhejiang University);*
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- Session 1P16a**  
**SC4: Novel Frequency Selective Structures and Antennas**
- 
- Tuesday PM, December 17, 2019**  
**Room 16 - Camellia 1**  
Organized by Zhongxiang Shen  
Chaired by Zhongxiang Shen, Bo Li
- 
- 13:10 Design of an Absorber for Large Incident Angles with Invited Antenna Reciprocity  
*Yang Cai (University of Electronic Science and Technology of China); Xian Qi Lin (University of Electronic Science and Technology of China); Jiawei Yu (University of Electronic Science and Technique of China); Shuai Zhang (Aalborg University);*
- 13:30 2-D Frequency Selective Risorber and Its Application on RCS Reduction of Patch Antenna  
*Qiang Chen (National University of Defense Technology); Xueqin Jia (National University of Defense Technology); Yunqi Fu (National University of Defense Techonology);*
- 13:50 Three-layered Frequency Selective Absorber with Wide Transmission Band  
*Ye Han (Nanjing University of Posts and Telecommunications); Longjie Xu (Nanjing University of Posts and Telecommunications);*

- 14:10 Dual-polarized Self-sustained All-metal Bandpass Frequency Selective Surface  
*Binchao Zhang (Beijing Institute of Technology); Kaiqi Cao (Beijing Institute of Technology); Cheng Jin (Beijing Institute of Technology);*
- 14:30 3-D Frequency Selective Surfaces Based on Slotlines: Modeling, Synthesis, and Validation  
*Bo Li (Nanjing University of Posts and Telecommunications); Wanping Zhang (Nanjing University of Posts and Telecommunications); Lei Zhu (University of Macau);*
- 14:50 Double Passband Frequency Selective Surface with Different Vision  
*Yan Zhang (North China Electric Power University); Xiayuan Yao (North China Electric Power University);*
- 15:10 A Novel Frequency Selective Resorber with High In-band Transmission and Wideband Absorption Properties  
*Xiang Gao (Dalian University of Technology); Xian-Jun Sheng (Dalian University of Technology); Ning Liu (Dalian University of Technology); Ning Wang (Dalian University of Technology);*
- 15:30 **Coffee Break**
- 16:00 A Differential-fed Patch Antenna with Symmetric Radiation Pattern Used for Circularly Polarized Phased Array  
*Xin Yang (University of Electronic Science and Technology of China); Xian Qi Lin (University of Electronic Science and Technology of China); Bao Wang (University of Electronic Science and Technology of China);*
- 16:20 A Compact Broadband Low-structural Mode Van Atta Array  
*Libin Yan (Nanyang Technological University); Zhongxiang Shen (Nanyang Technological University);*
- 16:40 The Progresses of Vacuum Electronic Terahertz Sources at IECAS  
*Invited Wenxin Liu (Institute of Electronics, Chinese Academy of Sciences); Chao Zhao (Institute of Electronics, Chinese Academy of Sciences); Xin Guo (Institute of Electronics, Chinese Academy of Sciences); Zhaochuan Zhang (Institute of Electronics, Chinese Academy of Sciences); Meng Wang (Institute of Electronics, Chinese Academy of Sciences);*
- 17:00 High-power and Broadband Terahertz TWT Amplifier Based on High Order Mode Staggered Double Vane Structure  
*Invited Zheng Zhang (Beihang University); Cun-Jun Ruan (Beihang University);*
- 17:20 Design of an Input/Output Coupler for 0.22 THz Sheet Beam Travelling Wave Tubes  
*Invited Hao Xiong (Shenzhen University); Guoxiang Shu (Shenzhen University); Lihong Cao (Shenzhen University); Shuting Fan (Shenzhen University); Wenlong He (Shenzhen University); Zhengfang Qian (Shenzhen University);*
- 17:40 Investigation of W-band High Power TWT Amplifier with Broadband Output Window  
*Chenyu Zhang (Beihang University); Cun-Jun Ruan (Beihang University);*
- 18:00 Consideration of Ohmic Losses of Gyrotron Using Time Domain Method  
*Zi-Chao Gao (Peking University); Chao-Hai Du (Peking University); Shi Pan (Peking University); Fan-Hong Li (Peking University); Juan-Feng Zhu (Peking University); Pu-Kun Liu (Peking University);*
- 18:20 High-harmonic Gyrotrons with Selective Cavities  
*I. V. Bandurkin (Institute of Applied Physics RAS); A. E. Fedotov (Institute of Applied Physics RAS); Andrey P. Fokin (Federal State Budgetary Scientific Institution "Federal Research Center The Institute of Applied Physics of the Russian Academy of Sciences"); Mikhail Yu. Glyavin (Federal State Budgetary Scientific Institution "Federal Research Center The Institute of Applied Physics of the Russian Academy of Sciences"); Alexander G. Luchinin (Institute of Applied Physics of the Russian Academy of Sciences (IAP RAS)); Ivan V. Osharin (Institute of Applied Physics RAS); A. V. Savilov (Institute of Applied Physics RAS);*

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**Session 1P16b**
**Millimeter Wave and Terahertz Source Devices 2**


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**Tuesday PM, December 17, 2019**
**Room 16 - Camellia 1**

Organized by Cun-Jun Ruan, Wenxin Liu

Chaired by Cun-Jun Ruan, Wenxin Liu

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**Session 1P17**
**SC3: Photonic and Microwave Signal Processing**


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**Tuesday PM, December 17, 2019**
**Room 17 - Camellia 2**

Organized by Shiming Gao, Hongyan Fu

 Chaired by Shiming Gao
 

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- 13:30 Fiber Grating Based All-optical Signal Processing  
Invited  
*Xuwen Shu (Huazhong University of Science and Technology);*
- 13:50 A Silicon Photonic Field-programmable Disk Array  
Invited Signal Processor  
*Weifeng Zhang (Beijing Institute of Technology);*
- 14:10 Titanium Dioxide Waveguides and Microring Resonators for Nonlinear Optics  
Invited  
*Meicheng Fu (Technical University of Denmark); Gaoyuan Li (Technical University of Denmark); Yi Zheng (Technical University of Denmark); Hao Hu (Technical University of Denmark); Leif Katsuo Oxenlowe (Technical University of Denmark); Xiaowei Guan (Technical University of Denmark);*
- 14:30 Photonic Signal Processor with Smart Algorithm  
*Hailong Zhou (Huazhong University of Science and Technology); Jianji Dong (Huazhong University of Science and Technology);*
- 14:50 Design of Silicon Photonic Wavelength Conversion Chip for Mode-division Multiplexing Signals  
*Baobao Chen (Zhejiang University); Junfan Chen (Zhejiang University); Yi Zhao (Zhejiang University); Shiming Gao (Zhejiang University);*
- 15:10 Microwave Photonic Signal Processing Based on Fano Resonances  
Invited  
*Linjie Zhou (Shanghai Jiao Tong University); Shuhuang Chen (Shanghai Jiao Tong University); Zhe Xu (Shanghai Jiao Tong University); Liangjun Lu (Shanghai Jiao Tong University); Jianping Chen (Shanghai Jiao Tong University);*
- 15:30 **Coffee Break**
- 16:00 Photonics-based Regenerative Frequency Divider with Even Order Division Ratio  
Invited  
*Xudong Wang (Jinan University); Erwin H. W. Chan (Charles Darwin University); Xinhuan Feng (Jinan University);*
- 16:20 Sparse Nonlinear Equalization in High-speed Visible Light Communication Systems  
Invited  
*Xuezhi Hong (South China Normal University); Guowu Zhang (McGill University);*

- 16:40 Dual-LFM Waveform Generation Based on Optical Injection to a Semiconductor Laser  
*Hao Chen (Nanjing University of Aeronautics and Astronautics); Limin Zhang (Nanjing University of Aeronautics and Astronautics); Guanqun Sun (Nanjing University of Aeronautics and Astronautics); Snehi Bassi (Nanjing University of Aeronautics and Astronautics); Bikash Narkami (Nanjing University of Aeronautics and Astronautics); Shilong Pan (Nanjing University of Aeronautics and Astronautics);*
- 17:00 Multi-passband Microwave Photonic Filter with Flexible Passband Selection Based on a Second-order Solc-Sagnac Interferometer  
*Shangwu Yang (Xiamen University); Weiyu Dai (Xiamen University); Hongyan Fu (Xiamen University);*

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**Session 1P18a**
**Oral Presentations for Best Student Paper Awards — SC5: Remote Sensing, Inverse Problems, Imaging, Radar and Sensing**


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**Tuesday PM, December 17, 2019**
**Room 18 - Azalea**

 Chaired by Kun-Shan Chen, Xudong Chen, Saibun Tjuatja
 

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- 13:10 Passive Bistatic Radar Using Digital Terrestrial Television Broadcasting Signal for Subsurface Target Detection  
*Weike Feng (Tohoku University); Jean-Michel Friedt (FEMTO-ST); Suyun Wang (Tohoku University); Hai Liu (Guangzhou University); Motoyuki Sato (Tohoku University);*
- 13:30 Detection of UAV Target with Multiple Motion Models Based on Keystone Transform and Short Time Matched Filtering Processing  
*Kangle Zhu (Xidian University); Jibin Zheng (Xidian University); Hongwei Liu (Xidian University); Yang Yang (Xidian University);*
- 13:50 Variational Mode Decomposition Analysis of a Flexible RF Sensor for GPR Applications  
*Wenchao He (Tongji University); Tong Hao (Tongji University); Wuan Zheng (Tongji University); Hainan Ke (Tongji University);*

- 14:10 Effects of Temporally-varying Tropospheric Path Delay on the Imaging Performance of Moon-based SAR  
*Zhen Xu (Institute of Remote Sensing and Digital Earth, Chinese Academy of Science); Kun-Shan Chen (Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences); Huadong Guo (Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences);*
- 14:30 Supervised Descent Method for Full-wave Microwave Imaging  
 Invited  
*Rui Guo (Tsinghua University); Zekui Jia (Tsinghua University); Xiaoqian Song (Tsinghua University); Maokun Li (Tsinghua University); Fan Yang (Tsinghua University); Shenheng Xu (Tsinghua University); Aria Abubakar (Schlumberger Houston Formation Evaluation);*
- 14:50 Polarimetric Calibration for a Ground-based Synthetic Aperture Radar System  
*Suyun Wang (Tohoku University); Weike Feng (Tohoku University); Motoyuki Sato (Tohoku University);*
- 15:10 A Four-component Polarimetric Decomposition Method Based on Generalized Scattering Models  
*Guoqing Wu (National University of Defense Technology); Si-Wei Chen (National University of Defense Technology); Xuesong Wang (National University of Defense Technology);*
- 15:30 **Coffee Break**
- 16:20 High-efficiency Fusion Splicing of Mid-infrared Special Fibers with the Silica Fibers  
*Yongjing Wu (Beijing University of Technology); Pingxue Li (Beijing University of Technology); Chuanfei Yao (Beijing University of Technology);*
- 16:40 Sensitivity-enhanced Temperature Sensor Based on Cascaded Polymer-infiltrated Mach-Zehnder Interferometers Created in Graded Index Fibers  
*Fengchan Zhang (Shenzhen University); Jun He (Shenzhen University); Xizhen Xu (Shenzhen University); Bin Du (Shenzhen University); Yiping Wang (Shenzhen University);*
- 17:00 Simultaneous Radar Detection and Microwave Frequency Measurement Based on Microwave Photonics  
*Jingzhan Shi (Nanjing University of Aeronautics and Astronautics); Fangzheng Zhang (Nanjing University of Aeronautics and Astronautics); Shilong Pan (Nanjing University of Aeronautics and Astronautics);*
- 17:20 A Frequency Hopping Communication System Using Directly Modulated Laser Based Optical Heterodyne Technique  
*Rui Wang (China Ship Development and Design Centre); Li Tao (China Ship Development and Design Centre); Mengxue Li (China Ship Development and Design Centre); Zhili Wang (China Ship Development and Design Centre); Hui Tan (China Ship Research and Design Center);*

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**Session 1P18b**

**Oral Presentations for Best Student Paper Awards — SC3: Optics and Photonics**

**Tuesday PM, December 17, 2019**

**Room 18 - Azalea**

Chaired by Rita Asquini, Sailing He, Hai-Zhi Song

- 16:00 Fabrication and Applications of Polymer Planar Bragg Grating Sensors Based on Cyclic Olefin Copolymers  
*Stefan Kefer (University of Applied Sciences Aschaffenburg); Manuel Rosenberger (University of Applied Sciences Aschaffenburg); Steffen Hessler (University of Applied Sciences Aschaffenburg); Maiko Girschikofsky (University of Applied Sciences Aschaffenburg); Stefan Belle (University of Applied Sciences Aschaffenburg); Gian-Luca Roth (University of Applied Sciences Aschaffenburg); Bernhard Schmauss (University of Erlangen-Nuremberg); Ralf Hellmann (University of Applied Sciences Aschaffenburg);*

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**Session 2A1**

**SC2&SC3&SC4: Graphene Photonics, Electromagnetics Science and Applications**

**Wednesday AM, December 18, 2019**

**Room 1 - Ballroom 1**

Organized by Baohua Jia, Jianfa Zhang, Jinfeng Zhu

Chaired by Jianfa Zhang, Jinfeng Zhu

- 08:00 New Materials and Approaches  
 Keynote  
*Rodney S. Ruoff (Ulsan National Institute of Science & Technology (UNIST));*
- 08:30 New-type On-chip Electron Sources  
 Invited  
*Xian Long Wei (Peking University); Gongtao Wu (Peking University); Yuwei Wang (Peking University); Wei Yang (Peking University); Zhiwei Li (Peking University);*
- 08:50 Deep-learning Inverse Design for Graphene-based Nanophotonics  
 Invited  
*Yingshi Chen (Xiamen University); Qing Huo Liu (Duke University); Jinfeng Zhu (Xiamen University);*

- 09:10 Advances and Applications of Monolayer Graphene Based Perfect Absorption  
Invited  
*Chu-Cai Guo (National University of Defense Technology); Yansong Fan (National University of Defence Technology); Yiming Chen (National University of Defense Technology); Zhihong Zhu (National University of Defense Technology);*
- 09:30 Graphene-assisted Light Manipulation in Plasmon Systems  
Invited  
*Hua Lu (Northwestern Polytechnical University);*
- 10:00 **Coffee Break**
- 10:30 Multi-layered Parallel Plate Waveguide with Electrically and Magnetically Biased Graphene Walls  
*Mojtaba Mohaghegh (Tarbiat Modares University); Bijan Abbasi-Arand (Tarbiat Modarres University); Mahmoud Shahabadi (University of Tehran);*
- 10:50 Flexible Optoelectronic and Optomechanical Fiber Devices Based on Two-dimensional Materials  
Invited  
*Fei Xu (Nanjing University); Yi-Feng Xiong (Nanjing University);*
- 11:10 Terahertz Identification Tags Based on Graphene Metasurface  
Invited  
*Yijun Cai (Xiamen University); Yongbo Guo (Xi'an University of Science and Technology); Jinfeng Zhu (Xiamen University); Yuan Guo Zhou (Xi'an University of Science and Technology);*
- 11:30 Tunable Graphene-based Absorbers in Terahertz Range  
Invited  
*Longfang Ye (Xiamen University);*
- 11:50 Performance Improvement of Graphene Nonlinear Devices  
Invited  
*Yong Fang (Chengdu University of Technology);*
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- Session 2A2**  
**SC2: Dielectric Metasurfaces: Fundamentals and Applications 1**
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- Wednesday AM, December 18, 2019**  
**Room 2 - Ballroom 2**  
Organized by Fei Ding, Cheng Zhang  
Chaired by Fei Ding, Cheng Zhang
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- 08:10 Meta-optics: Meta-lens for Imaging and Sensing  
Keynote  
*Mu-Ku Chen (Research Center for Applied Sciences, Academia Sinica); Ren Jie Lin (National Taiwan University); Lin Li (Research Center for Applied Sciences, Academia Sinica); Cheng Hung Chu (Research Center for Applied Sciences); Hsin Yu Kuo (Research Center for Applied Sciences, Academia Sinica); Jia-Wern Chen (Research Center for Applied Sciences, Academia Sinica); Ji Chen (Nanjing University); Vin-Cent Su (National Taiwan University); Shuming Wang (Nanjing University); Tao Li (Nanjing University); Zhenlin Wang (Nanjing University); Shining Zhu (Nanjing University); Din Ping Tsai (Research Center for Applied Sciences, Academia Sinica);*
- 08:40 Dielectric Metalens Array for Polarimetric Beam Profiling  
Invited  
*Zhenyu Yang (Huazhong University of Science and Technology (HUST)); Zhaokun Wang (Huazhong University of Science and Technology (HUST)); Yuxi Wang (Huazhong University of Science and Technology (HUST)); Xing Feng (Huazhong University of Science and Technology (HUST)); Ming Zhao (Huazhong University of Science and Technology (HUST)); Jinsong Xia (Huazhong University of Science and Technology (HUST));*
- 09:00 Intuitive Semi-analytical Description of Quasi-normal Modes in Resonant Photonic Nanostructures  
Invited  
*Haitao Liu (Nankai University); Jianing Wan (Nankai University); Junda Zhu (Nankai University); Ying Zhong (Tianjin University);*
- 09:20 Raman Spectroscopy as a Near-field Probe for High-refractive-index Nanostructures  
Invited  
*Soren Raza (Technical University of Denmark);*
- 09:40 Microwave Approach to Study Resonant Features of All-dielectric Metasurfaces  
*Anton S. Kupriianov (Jilin University); Vladimir R. Tuz (Institute of Radio Astronomy of National Academy of Sciences of Ukraine);*
- 10:00 **Coffee Break**
- 10:30 High-performance Deep-ultraviolet Metasurfaces  
Invited  
*Cheng Zhang (National Institute of Standards and Technology); Shawn Divitt (National Institute of Standards and Technology); Qingbin Fan (Nanjing University); Wenqi Zhu (National Institute of Standards and Technology); Amit K. Agrawal (National Institute of Standards and Technology); Ting Xu (Nanjing University); Henri J. Lezec (National Institute of Standards and Technology);*

- 10:50 Dielectric Metasurfaces for Versatile Electromagnetic Wave Manipulation  
Invited *Min Qiu (Westlake University);*
- 11:10 Polarization-dependent Optical Response Using Sub-wavelength Structures  
Invited *Lei Zhang (Xi'an Jiaotong University);*
- 11:30 Integrated Metalens for Compact Imaging  
Invited *Beibei Xu (Nanjing University); Shi-Ning Zhu (Nanjing University); Tao Li (Nanjing University);*
- 11:50 On Resonance Laser Printing of Dielectric Metasurfaces  
Invited *Xiaolong Zhu (Technical University of Denmark); Airidas Žukauskas (Technical University of Denmark); Andreas Raimund Stilling-Andersen (Technical University of Denmark); Anders Kristensen (Technical University of Denmark);*
- 09:40 Convolutional Neural Networks for Imaging of Microstructures  
*Peipei Ran (Université Paris-Saclay); Dominique Lesselier (UMR8506 (CNRS, Centrale Supélec, University Paris-Sud), University Paris-Saclay); Mohammed Serhir (Université Paris-Saclay);*
- 10:00 **Coffee Break**
- 10:30 A New Method Based on GAN to Solve the Electromagnetic Wave Scattering Problems  
Invited *Kuiwen Xu (Hangzhou Dianzi University); Zhenchao Ma (Hangzhou Dianzi University);*
- 10:50 Frontiers in Deep Learning for Inversion and Imaging  
Invited *Marco Salucci (University of Trento); Xudong Chen (National University of Singapore); Maokun Li (Tsinghua University); Andrea Massa (University of Trento);*
- 11:10 Coastal Sea Surface Temperature Retrieval Based on UAV Infrared Imaging  
*Zhao Zhang (Zhejiang University); Hui Huang (Zhejiang University);*
- 11:30 Model-driven Machine Learning Methods for Non-destructive Testing Applications  
Keynoted *Roberto Miorelli (CEA LIST); Pierre Calmon (CEA LIST); Christophe Reboud (CEA LIST);*

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### Session 2A3

#### FocusSession.SC5: Machine Learning for Inversion and Imaging 1

Wednesday AM, December 18, 2019

Room 3 - Ballroom 3

Organized by Dominique Lesselier, Xudong Chen

Chaired by Dominique Lesselier, Xudong Chen

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- 08:20 Sensitivity Analysis of Pulsed Eddy-Current Non-destructive Testing  
Invited *Sandor Bilicz (Budapest University of Technology and Economics (BME)); Roberto Miorelli (CEA LIST);*
- 08:40 Projective Network and Its Application in SAR Target Information Retrieval  
*Qian Song (Fudan University); Feng Xu (Fudan University);*
- 09:00 Improving the Quality of Images of a Homogeneous Anisotropic Weld Mold with a Local Optimization Scheme Based on a Surrogate Model  
*Corentin Ménard (CEA-LIST); Sébastien Robert (CEA-LIST); Dominique Lesselier (UMR8506 (CNRS, Centrale Supélec, University Paris-Sud), University Paris-Saclay);*
- 09:20 Deterministic Nonlinear Electromagnetic Inversion Hybridized with Unsupervised Machine Learning  
Invited *Feng Han (Xiamen University); Jiawen Li (Xiamen University); Yanjin Chen (Xiamen University); Jianliang Zhuo (Xiamen University); Qing Huo Liu (Duke University);*

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### Session 2A4

#### SC1: Computational Techniques in Electromagnetics and Applications

Wednesday AM, December 18, 2019

Room 4 - Ginkgo

Organized by Tsuneki Yamasaki, Yoichi Okuno

Chaired by Tsuneki Yamasaki, Yoichi Okuno

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- 08:00 Prediction of Peruvian Golden Berry Quality Parameters along Maturation Process: A Dielectric Spectroscopy Application  
*Tony Steven Chuquizuta Trigos (Universidad Nacional Autónoma de Chota); Manuel Augusto Yarlequé Medina (Pontificia Universidad Católica del Perú, Sección Telecomunicaciones); Wilson Manuel Castro Silupu (Universidad Privada del Norte);*
- 08:20 Modelling and Simulation of Onboard Wire Antennas for a 3U CubeSat  
*Umang Garg (Birla Institute of Technology and Science); Rutwik Narendra Jain (Birla Institute of Technology and Science);*

- 08:40 On the Optimal Extraction of the Image for on-road Vehicle Tracking by Using Fractal Analysis  
*Takashi Kuroiwa (Nihon University); Syota Yazawa (Nihon University); Kiyozumi Niizuma (Nihon University);*
- 09:00 Numerical Analysis of Pulse Response from Periodically Arrayed Dispersion Media with Rectangular Cavity  
*Ryosuke Ozaki (Nihon University); Tsuneki Yamasaki (Nihon University);*
- 09:20 An FDTD Model for Low and High Altitude Sample Points of Loran-C Electric Fields  
*Lili Zhou (Shaanxi University of Science and Technology); Qiaoqiao Wang (Shaanxi University of Science and Technology); Zhonglin Mu (Air Force Engineering University); Jingjing Yan (Shaanxi University of Science and Technology); Jiaqi Zhu (Shaanxi University of Science and Technology);*
- 09:40 On the Termination of a FDTD Computational Domain with Neural Network Approach  
*Yaxin Yu (Chang'an University); Xinwei Du (Chang'an University); Zan Zhang (Chang'an University);*
- 10:00 **Coffee Break**
- 10:30 Dielectric Spectral Profiles for Andean Tubers Classification: A Machine Learning Techniques Application  
*Tony Steven Chuquizuta Trigoso (Universidad Nacional Autónoma de Chota); Jimmy Franck Oblitas Cruz (Universidad Privada del Norte); Wilson Manuel Castro Silupu (Universidad Privada del Norte);*
- 10:50 Application of Machine Learning in the Discrimination of Citrus Fruit Juices: Uses of Dielectric Spectroscopy  
*Tony Steven Chuquizuta Trigoso (Universidad Nacional Autónoma de Chota); Jimmy Franck Oblitas Cruz (Universidad Privada del Norte); Wilson Manuel Castro Silupu (Universidad Privada del Norte);*
- 11:10 A Few Natures of Resonance Curves of a Metal Grating Placed in Conical Mounting: Examination from a Viewpoint of Sensor Application  
*X. Xu (Zhejiang University); Miaoning Zheng (South China Normal University); Yoichi Okuno (South China Normal University);*
- 11:30 Algebraic, Exponential, and other Regularization Techniques for Taming Infinities in Classical and Quantum Electrodynamical Fields  
*Alireza Baghai-Wadji (University of Cape Town);*

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**Session 2A5**
**SC1&SC5: Efficient Computational Electromagnetics Methods and Their Applications in Geophysical and Remote Sensing**


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**Wednesday AM, December 18, 2019**
**Room 5 - Banyan 1**

Organized by Jinghe Li, Naixing Feng

 Chaired by Jinghe Li, Naixing Feng
 

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- 08:20 Compact and Efficient ME-based BZT-PML Implementation for Truncating 3D VLF Subsurface Sensing Problems  
*Naixing Feng (Shenzhen University); Jinghe Li (Guilin University of Technology); Jiazhou Liu (China Academy of Electronics and Information Technology); Guo Ping Wang (Shenzhen University); Wen-Yan Yin (Zhejiang University);*
- 08:40 An Efficient Algorithm of Explicit Sensitivity Matrix in 3D Marine Controlled-source Electromagnetic Imaging  
*Bo Chen (Jilin University); Hongnian Wang (Jilin University); Showwen Yang (Jilin University);*
- 09:00 Pinpoint and Efficient DZT-based FDTD Implementations Using Optimal 2nd-order PML Truncation  
*Jiazhou Liu (China Academy of Electronics and Information Technology); Shixin He (China Academy of Electronics and Information Technology); Wenlin Cheng (China Shipbuilding Trading Co. Ltd.);*
- 09:20 Analysis of Time Domain Scattering Characteristics of Maritime Targets Based on Closed-form TDSBR  
*Hao Wang (Xidian University); Wenwen Fan (Xidian University); Bing Wei (Xidian University);*
- 09:40 A Mixed Finite Element Method with Right-hand-side Correction for Low-frequency Plane Wave Electromagnetic Modeling  
*Changwei Li (Guilin University of Technology); Lei Gao (Guilin University of Technology); Jian Liu (Guilin University of Technology);*

 10:00 **Coffee Break**

- 10:30 Volume Surface Integral Equation Method Based on Genetic Algorithm for Optimizing RCS Reduction by Composite Metallic and Dielectric Targets  
*Qiang-Ming Cai (Southwest University of Science and Technology); Yu-Yu Zhu (Southwest University of Science and Technology); Xin Cao (Southwest University of Science and Technology); Li-Feng Wu (University of Electronic Science and Technology of China); Run-ren Zhang (Duke University); Naixing Feng (Shenzhen University); Yan-Wen Zhao (University of Electronic Science and Technology of China (UESTC));*
- 10:50 A Noise Suppression Technique for Dielectric Barrier Discharge Ion Source  
*Qiqiang Liu (Xiamen University); Yuxian Zhang (Xiamen University); Zhen Guan (Xiamen University); Lixiao Wang (Xiamen University); Luhong Wen (Ningbo University); Qing Huo Liu (Duke University);*
- 11:10 Identification of Buried Slate in Subsurface Imaging at Low Spatial Sampling Rate  
*Yuxian Zhang (Xiamen University); Lixiao Wang (Xiamen University); Naixing Feng (Xiamen University); Qing Huo Liu (Duke University);*
- 11:30 Domain Decomposition Based Integral Equation Modeling of Electromagnetic Field for Complex Structure in Geophysical Application  
*Jinghe Li (Guilin University of Technology); Naixing Feng (Shenzhen University); Honghua Wang (Guilin University of Technology);*
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- Session 2A6**  
**SC1: Single and Multiple Scattering in the Earth System: Theory and Applications 2**
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- Wednesday AM, December 18, 2019**  
**Room 6 - Banyan 2**  
Organized by Lei Bi, Pengwang Zhai  
Chaired by Lei Bi, Pengwang Zhai
- 
- 08:00 Characteristics of Diffuse Attenuation Coefficient  $K_d(490)$  in the Yangtze River Estuary and Preliminary Application in Airborne LiDAR Depth Sounding Evaluation  
*Xiaoyu Zhang (Zhejiang University); Jiaying Chen (Zhejiang University);*
- 08:20 Estimation of the Ocean Surface Irradiance Reflectance from Measurement of Ocean Color  
*Xiaolong Yu (Xiamen University); Zhongping Lee (University of Massachusetts Boston);*
- 08:40 Ocean Subsurface Study from ICESat-2 Mission  
Invited  
*Xiaomei Lu (Science Systems and Applications, Inc.); Yongxiang Hu (NASA Langley Research Center); Yuekui Yang (NASA Goddard Space Flight Center);*
- 09:00 Impact of Aerosol Type and Vertical Distribution on Satellite Retrieval of Aerosol Optical Depth  
Invited  
*Jing Li (Peking University);*
- 09:20 Information Content from Multi-angle, Multi-wavelength, and Multi-polarization Satellite Observations for Clouds  
*Manting Zhang (Nanjing University of Information Science & Technology); Shiwen Teng (Nanjing University of Information Science & Technology); Chao Liu (Nanjing University of Information Science & Technology); Xiuqing Hu (China Meteorological Administration);*
- 09:40 Program of Spaceborne Oceanic Lidar Based on Semi-analytic Monte Carlo Method  
*Xiaoyu Cui (Zhejiang University); Qun Liu (Zhejiang University); Yudi Zhou (Zhejiang University); Kai Zhang (Zhejiang University); Dong Liu (Zhejiang University);*
- 10:00 **Coffee Break**
- 10:30 Multiple Scattering Effects in Lidar and Its Potential Application for Water Cloud Detection  
*Kai Zhang (Zhejiang University); Yupeng Zhang (Zhejiang University); Yudi Zhou (Zhejiang University); Qun Liu (Zhejiang University); Nanchao Wang (Zhejiang University); Xue Shen (Zhejiang University); Xiaoyu Cui (Zhejiang University); Dong Liu (Zhejiang University);*
- 10:50 Indian Ocean Sea-surface Temperature and Aerosol Influences on Recent Trends in Asian Monsoon  
*Yushan Liu (Sun Yat-sen University); Bingqi Yi (Sun Yat-sen University);*
- 11:10 Evaluation of Surface Solar Radiation Fluxes from Various Reanalysis and Satellite Observation Products  
*Yuxiao Li (Sun Yat-sen University); Bingqi Yi (Sun Yat-sen University);*
- 11:30 Ocean Optics in the Theoretical Frame of Radiative Transfer: Foundation and Frontiers  
*Peng-Wang Zhai (University of Maryland Baltimore County);*
- 11:50 Solving the Electromagnetic Problem of a Moving Charge between the Earth and the Ionosphere Using the Planarly Layered Medium Theory  
*Bo O. Zhu (Nanjing University);*

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**Session 2A7**
**SC5: Electromagnetic Well Logging**


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**Wednesday AM, December 18, 2019**
**Room 7 - Banyan 3**

Organized by Decheng Hong, Hu Li

 Chaired by Decheng Hong
 

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- 08:00 A New Layering Algorithm Based on Array Induction Logging Curves Using Machine Learning  
*Lei Zhang (Institute of Acoustics, Chinese Academy of Sciences); Fubai Li (BeiJing Information Science & Technology University); Youming Ji (BeiJing Information Science & Technology University); Jian Wang (Institute of Acoustics, Chinese Academy of Sciences); Hao Chen (Institute of Acoustics, Chinese Academy of Sciences);*
- 08:20 Simulation of Full Responses of Triaxial Induction Logging in 1D Layered Arbitrarily Anisotropic Formations  
*Zhuangzhuang Kang (Jilin University); Hongnian Wang (Jilin University); Shouwen Yang (Jilin University);*
- 08:40 An Ultra-deep Boundary Detection Method Based on Electric Field Analysis  
*Decheng Hong (Jilin University); Na Li (Jilin University); Tao Chen (China Petroleum Logging Co., Ltd.); Qiuli He (China Petroleum Logging Co., Ltd.); C. Shi (China Petroleum Logging Co., Ltd.);*
- 09:00 New Methodology of Extra-deep Boundary Detection While Drilling Using the Electric Field from a Magnetic Dipole Antenna  
*Lei Wang (China University of Petroleum); Shanjun Li (Beyond Bits Technology); Yiren Fan (China University of Petroleum (East China));*
- 09:20 Feasibility of the Dimensionality Reduction Modeling Method in Electromagnetic Logging-While-Drilling  
*Zhenguan Wu (China University of Petroleum (East China)); Yiren Fan (China University of Petroleum (East China)); Lei Wang (China University of Petroleum); Shaogui Deng (China University of Petroleum); Runren Zhang (Duke University);*
- 09:40 Robust Stochastic Inversion of Extra-deep Azimuthal Resistivity LWD Measurements Using a Parallel Tempering Markov Chain Monte Carlo Sampling  
*Weina Zhao (Qingdao University of Technology); Lei Wang (China University of Petroleum);*
- 10:00 **Coffee Break**

- 10:30 Analysis of Different Azimuthal Electromagnetic LWD Signals on Anisotropic Complex Reservoirs  
*Kesai Li (Chengdu University of Technology); Jie Gao (China University of Petroleum); Xiang Zhao (Logging Branch of Southwest Petroleum Engineering Company Limited, SINOPEC);*
- 10:50 A Hybrid Levenberg-Marquardt-particle Swarm Optimization Inversion Method for the Azimuthal Resistivity Measurements  
*Yanxue Wang (China University of Petroleum (East China)); Yiren Fan (China University of Petroleum (East China)); Lei Wang (China University of Petroleum (East China)); Zhenguan Wu (China University of Petroleum (East China));*
- 11:10 Multi-component Induction Logging Response and Sensitivity Analysis in TTI Formation  
*Shiyu Chen (China University of Petroleum (East China)); Yizhi Wu (China University of Petroleum (East China)); Yiren Fan (China University of Petroleum (East China)); Zhenguan Wu (China University of Petroleum (East China));*
- 11:30 Response Simulation of MCI6505 Microresistivity Imaging Tool  
*Chunli Lu (CNPC Logging); Shasha Shan (CNPC Logging); Hong Xiao (CNPC Logging); Liming Jiang (CNPC Logging); Xueqing Ma (CNPC Logging);*
- 11:50 Coordinate-free Formulation and Evaluation of Tensor Green's Functions for General Homogeneous Uniaxial Anisotropic Media  
*Guanglong Xing (Yanshan University); Yangyang Wang (Xidian University);*

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**Session 2A8**
**SC2&SC4: Recent Advances in Metasurfaces and Their Application to Antennas**


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**Wednesday AM, December 18, 2019**
**Room 8 - Peony 1**

Organized by He-Xiu Xu, Zhihao Jiang

 Chaired by He-Xiu Xu, Zhihao Jiang
 

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- 08:20 Gap-plasmon Metasurfaces Enabled High-efficiency Quarter-wave Plates  
 Invited *Fei Ding (University of Southern Denmark);*

08:40 Frequency-and-spin Multiplexed Multifunctional  
Invited Metadevices

*He-Xiu Xu (Air Force Engineering University);  
Menghua Jiang (National University of Singapore);  
Qing Peng (Air Force Engineering University); Hai-  
wen Liu (Xi'an Jiaotong University); Cheng-Wei Qiu  
(National University of Singapore);*

09:00 High-efficiency Planar Huygens' Metasurface for Wave  
Manipulation

*Qiming Peng (Shanghai Jiao Tong University);  
Weiren Zhu (Shanghai Jiao Tong University);*

09:20 Generation of the Omnidirectional Circularly Polar-  
ized Wave Carrying OAM

*Die Li (Xidian University); Chenchen Liu (Xidian  
University); Yuchen Gan (Xidian University); Xiaom-  
ing Chen (Xi'an Jiaotong University); Jianjia Yi (Xi-  
dian University);*

09:40 Design of a Metasurface with Wide RCS Reduction  
Bandwidth

*Tayyab Ali Khan (Xi'an Jiaotong University); Jian-  
xing Li (Xi'an Jiaotong University); Usman Raza  
(Xi'an Jiaotong University); Juan Chen (Xi'an Jiao-  
tong University); Anxue Zhang (Xi'an Jiaotong Uni-  
versity);*

10:00 **Coffee Break**

10:30 3D-printed Conformal Metasurface Engineered for  
Structured Wave-front Shaping

*Hai-Peng Li (Airforce Engineering University);  
Guangming Wang (Airforce Engineering Univer-  
sity); He-Xiu Xu (Airforce Engineering University);  
Tong Cai (Airforce Engineering University);*

10:50 Holographic Metasurface Reflectarray for Terahertz  
Radiation

*Peng-Yuan Wang (University of Duisburg-Essen);  
Fan-Yi Meng (Harbin Institute of Technology);  
Yue-Long Lyu (Harbin Institute of Technology);  
Benedikt Sievert (University of Duisburg-Essen);  
Andreas Rennings (University of Duisburg-Essen);  
Daniel Erni (University of Duisburg-Essen, Campus  
Duisburg);*

11:10 A Wideband Polarization Conversion Slot Antenna  
Using Metasurface

*Chang Ding (Central South University); Jian Dong  
(Central South University); Jinjun Mo (Central South  
University); Shan Wang (Central South University);  
Meng Wang (Central South University);*

11:30 Frequency-multiplexed Bifunctional Metasurfaces

*Chaohui Wang (Air force Engineering University);  
Yan Zhao Wang (Air force Engineering University);  
He-Xiu Xu (Air Force Engineering University);*

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**Session 2A9**

**FocusSession.SC3: Quantum Information  
Processing and Devices 2**

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**Wednesday AM, December 18, 2019**

**Room 9 - Peony 2**

Organized by Hai-Zhi Song, Yong-Chun Liu

Chaired by Guo-Yong Xiang, Lixing You

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08:00 Interactions between Topological Qubit Chains and  
KeynoteMicrowave Fields in Superconducting Quantum Cir-  
cuits

*Wei Nie (Tsinghua University); Yu-Xi Liu (Tsinghua  
University);*

08:30 Superconducting Nanowire Single Photon Detectors  
Invited for Quantum Information

*Lixing You (Shanghai Institute of Microsystem and  
Information Technology (SIMIT), Chinese Academy  
of Sciences);*

08:50 Superconducting Nanowire Single-photon Detectors  
Invited at Near- and Mid-infrared Spectral Ranges

*Xiaolong Hu (Tianjin University);*

09:10 Quantum Photonic Chip Based on Lithium Niobate  
Invited and Silicon

*Ping Xu (National University of Defense Technology);  
Yingwen Liu (National University of Defense Technol-  
ogy); Chao Wu (National University of Defense Tech-  
nology);*

09:30 Hybrid-integrated Silicon Quantum Photonics To-  
ward Scalable Photonic Quantum Information Process-  
ing

*Yasutomo Ota (The University of Tokyo); Ryota Kat-  
sumi (The University of Tokyo); Alto Osada (The  
University of Tokyo); Masahiro Kakuda (The Univer-  
sity of Tokyo); Satoshi Iwamoto (The University of  
Tokyo); Yasuhiko Arakawa (The University of Tokyo);*

09:50 High Performance Quantum Photon Source Using  
Invited Semiconductor Quantum Dots

*Yongheng Huo (University of Science and Technology  
of China);*

10:10 **Coffee Break**



- 10:30 Zero-tradeoff Multi-parameter Estimation from Multiple Heisenberg Uncertainty Relations  
Invited  
*Zhibo Hou (University of Science and Technology of China, CAS); Jun-Feng Tang (University of Science and Technology of China, CAS); Haidong Yuan (The Chinese University of Hong Kong); Guo-Yong Xiang (University of Science and Technology of China, CAS); Chuanfeng Li (University of Science and Technology of China, CAS); Guangcan Guo (University of Science and Technology of China, CAS);*
- 10:50 Improving Quantum Sensing by Monitoring Quantum Trajectories  
Invited  
*Yao Ma (Xi'an University of Technology); Wen Yang (Beijing Computational Science Research Center);*
- 11:10 Quantum State Engineering Using Nonlinear Interferometer  
Invited  
*Liang Cui (Tianjin University); Jie Su (Tianjin University); Jiamin Li (Tianjin University); Z. Y. Ou (Indiana University-Purdue University Indianapolis); Xiaoying Li (Tianjin University);*
- 11:30 Optical Neural Networks with Low Circuit Depths  
Invited  
*Xiao-Ming Zhang (City University of Hong Kong); Man-Hong Yung (Southern University of Science and Technology);*
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- Session 2A10**  
**SC2: Plasmonic Nanoantennas and Metamaterials for the Design of New Nanophotonic Devices 1**
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- Wednesday AM, December 18, 2019**  
**Room 10 - Jasmine**  
Organized by Pai-Yen Chen, Yang Li  
Chaired by Pai-Yen Chen, Yang Li
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- 08:00 Lithium Niobate on Insulator for On-chip Nonlinear Optics and Device Applications  
*Yuanlin Zheng (Shanghai Jiao Tong University); Shijie Liu (Shanghai Jiao Tong University); Tingting Ding (Shanghai Jiao Tong University); Xianfeng Chen (Shanghai Jiao Tong University);*
- 08:20 Unity Integration of Optical Sensing and Photoelectric Conversion in Au-Si Nanojunctions  
*Qin Chen (Jinan University);*
- 08:40 Near-field Optical Imaging of Highly Confined and Tunable Mid-infrared Polaritons in van der Waals Crystals  
*Zebo Zheng (Sun Yat-sen University);*
- 09:00 Ultrafast and Unidirectional Spontaneous Emission Boosted by a Plasmonic Hybrid Nanoantenna  
*Guoce Yang (Tsinghua University); Benfeng Bai (Tsinghua University);*
- 09:20 Harnessing Smith-Purcell Radiation by Metasurfaces  
*Yongmin Liu (Northeastern University);*
- 09:40 Nonlinear Dynamics of High- $\beta$  Semiconductor Lasers Operated in Threshold Region under Optical Feedback  
*Tao Wang (Hangzhou Dianzi University); X. H. Wang (Hangzhou Dianzi University); Z. L. Deng (Hangzhou Dianzi University); J. C. Sun (Hangzhou Dianzi University); G. P. Puccioni (Istituto Sistemi Complessi, CNR); Gaofeng Wang (Hangzhou Dianzi University); Gian Luca Lippi (Université Cote d'Azur);*
- 10:00 **Coffee Break**
- 10:30 Superdirective Radiation from Photopumped 2D-material Metasurfaces  
*Pai-Yen Chen (University of Illinois at Chicago);*
- 10:50 Control of the Exciton Radiative Lifetime in Atomically Thin Membranes  
*Hong-Hua Fang (INSA-CNRS-UPS, LPCNO, Université de Toulouse); B. Han (INSA-CNRS-UPS, LPCNO, Université de Toulouse); C. Robert (INSA-CNRS-UPS, LPCNO, Université de Toulouse); M. A. Semina (Ioffe Institute); D. Lagarde (INSA-CNRS-UPS, LPCNO, Université de Toulouse); E. Courtade (INSA-CNRS-UPS, LPCNO, Université de Toulouse); T. Taniguchi (National Institute for Materials Science); K. Watanabe (National Institute for Materials Science); T. Amand (INSA-CNRS-UPS, LPCNO, Université de Toulouse); B. Urbaszek (INSA-CNRS-UPS, LPCNO, Université de Toulouse); M. M. Glazov (Ioffe Institute); X. Marie (INSA-CNRS-UPS, LPCNO, Université de Toulouse);*
- 11:10 Threshold and Quantum Efficiency of Plasmonic Nanolasers  
*Renmin Ma (Peking University);*
- 11:30 Low-loss Zero-index Metamaterials Based on a Bound State in the Continuum (BiC)  
*Yang Li (Tsinghua University);*
- 11:50 Thermal Effects — An Alternative Mechanism for Plasmonic-assisted Photo-catalysis  
*Yonatan Dubi (Ben-Gurion University); I. W. Un (Ben-Gurion University); Yonatan Sivan (Ben-Gurion University);*

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**Session 2A11**
**SC2: Topological Metamaterials**


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**Wednesday AM, December 18, 2019**
**Room 11 - Lotus 1**

Organized by Qing-Hua Guo, Shuang Zhang

 Chaired by Jian-Wen Dong, Qing-Hua Guo
 

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- 08:00 Observation of Corner States in Topological Photonic Crystal Slabs  
*Fu-Long Shi (Sun Yat-Sen University); Xiao-Dong Chen (Sun Yat-Sen University); Wei-Min Deng (Sun Yat-Sen University); Jian-Wen Dong (Sun Yat-Sen University);*
- 08:20 The Shape of Electromagnetic Multipoles  
*Wei Liu (National University of Defense Technology);*
- 08:40 Photonic Nodal Rings Associated with Electromagnetic Anti-duality Symmetry  
*Ruo-Yang Zhang (The Hong Kong University of Science and Technology); Qing-Hua Guo (Hong Kong University of Science and Technology); Biao Yang (Hong Kong University of Science and Technology); Neng Wang (Shenzhen University); Che Ting Chan (The Hong Kong University of Science and Technology);*
- 09:00 Photonic Weyl Semimetal with Time-reversal Symmetry Breaking  
*Dongyang Wang (Hong Kong University of Science and Technology); Biao Yang (National University of Defense Technology); Jiaguang Han (Tianjin University); Shuang Zhang (University of Birmingham);*
- 09:20 Photonic Hourglass Nodal Line  
*Lingbo Xia (Tianjin University); Qing-Hua Guo (Hong Kong University of Science and Technology); Biao Yang (Hong Kong University of Science and Technology); Jiaguang Han (Tianjin University); Shuang Zhang (University of Birmingham);*
- 09:40 Topological Photonic Metamaterials: From Theory to Design  
*Biao Yang (National University of Defense Technology);*
- 10:00 **Coffee Break**
- 10:30 Chiral Transport of Pseudo-Fermionic Field in Inhomogeneous Weyl Metamaterials with Synthetic U(1) Gauge Potential  
*Hongwei Jia (Nankai University);*

- 10:50 Valley Physics in Non-Hermitian Acoustic Artificial Crystal  
*Mudi Wang (Hong Kong University of Science and Technology);*
- 11:10 Nonreciprocal Parity-time Phase in Magnetized Waveguides  
*Ze-Zheng Zhang (Nankai University); Jia-Qi Yuan (Nankai University); Lin-Shan Sun (Nankai University); Bo Zhao (Nankai University); Yan-Rong Zhang (Nankai University); Ming Kang (Tianjin Normal University); Jing Chen (Nankai University);*
- 11:30 Angular Momentum-dependent Topological Transport  
*Tianshu Jiang (The Hong Kong University of Science and Technology); Meng Xiao (Wuhan University); Che Ting Chan (The Hong Kong University of Science and Technology);*
- 11:50 Photonic Topological Phases in Bianisotropic Metamaterials  
*Ruey-Lin Chern (National Taiwan University); You-Zhong Yu (National Taiwan University);*

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**Session 2A12**
**SC2: Novel Methods for Sound Manipulation Based on Intriguing Physics**


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**Wednesday AM, December 18, 2019**
**Room 12 - Lotus 2**

Organized by Zhi Hong Hang, Min Yang

 Chaired by Zhi Hong Hang
 

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- 08:20 Complex Sound Field Control Using Acoustic Metamaterials  
 Invited  
*Guancong Ma (Hong Kong Baptist University);*
- 08:40 Acoustic Metasurface for Wavefront Engineering and Their Applications  
 Invited  
*Bin Liang (Nanjing University);*
- 09:00 Anomalous Quadrupole Topological Insulators: Theory and Experiments  
*Jian-Hua Jiang (Soochow University);*
- 09:20 Switchable Omnidirectional Acoustic Insulation through Open Window Structures with Ultrathin Metasurfaces  
 Invited  
*Hong-Xiang Sun (Jiangsu University); Yong Ge (Jiangsu University); Shou-Qi Yuan (Jiangsu University); Yun Lai (Nanjing University);*

- 09:40 Broadband Near-perfect Absorption of Low-frequency  
Invited Sound by Subwavelength Metasurface  
*Houyou Long (Nanjing University); Chen Shao (Nanjing University); Chen Liu (Nanjing University); Ying Cheng (Nanjing University); Xiao-Jun Liu (Nanjing University);*
- 10:00 **Coffee Break**
- 10:30 Equivalent Circuit Models for Two-dimensional Full-tensor Anisotropic Acoustic Metamaterials  
*Tsutomu Nagayama (Kagoshima University); Shuntaro Uchida (Kagoshima University); Seiji Fukushima (Kagoshima University); Toshio Watanabe (Kagoshima University);*
- 10:50 Acoustic Metamaterial with Reconfigurable Geometric Parameter  
*Xing Xu (Shenzhen University); Zixian Liang (Shenzhen University);*
- 11:10 Topological Corner States Based on Dimension Extension in Phononic Crystals  
Invited  
*Chang Qing Xu (King Abdullah University of Science and Technology); Zeguo Chen (King Abdullah University of Science and Technology); Ying Wu (King Abdullah University of Science and Technology (KAUST));*
- 11:30 Sub-wavelength Manipulation of Broadband Sound in Ventilation System  
*Mengyao Xie (Acoustic Metamaterials Group Ltd.); Min Yang (Acoustic Metamaterials Group Ltd.);*
- 11:50 Acoustic Wave Manipulation Using Acoustic Artificial Microstructures  
*Wei Zhao (Soochow University); Meng Yuan (Soochow University); Zhi Hong Hang (Soochow University);*
- 08:40 Spectroscopic Investigation of Charge Transfer in Conjugated Polymer/MoS<sub>2</sub> Organic/2D Heterojunctions  
*Christopher E. Petoukhoff (Okinawa Institute of Science and Technology); Sofiia Kosar (Okinawa Institute of Science and Technology); Manami Goto (Okinawa Institute of Science and Technology); Ibrahim Bozkurt (Rutgers University); Manish Chhowalla (Rutgers University); Keshav M. Dani (Okinawa Institute of Science and Technology Graduate University);*
- 09:00 Valley Zeeman Effect in Two-dimensional Transition Metal Dichalcogenides Heterostructures with Ferromagnetic Semiconductor CrI<sub>3</sub>  
*Tao Hu (Shanghai University); Guodong Zhao (Shanghai University); Heng Gao (Shanghai University); Yabei Wu (Shanghai University); Yuting Qi (Shanghai University); Alessandro Stroppa (Shanghai University); Wei Ren (Shanghai University);*
- 09:20 Novel Deposition Techniques for High Efficient and Stabled Perovskite Solar Cells  
*Fengxian Xie (Fudan University);*
- 09:40 Electric-field Manipulation in Planar Perovskite Solar Cells  
*Zhao-Kui Wang (Soochow University);*
- 10:00 **Coffee Break**
- 10:30 Photoexcitation Dynamics in Perovskite Solar Cells  
*Run Long (Beijing Normal University);*
- 10:50 Robust Perovskite-based Subwavelength Single-mode Laser and White LEDs  
*Juan Du (Shanghai Institute of Optics and Fine Mechanics, Chinese Academy of Sciences);*

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**Session 2A13****SC3: Organic and Perovskite Optoelectronics**

Wednesday AM, December 18, 2019

**Room 13 - Lotus 3**

Organized by Fengxian Xie, Wallace C. H. Choy

Chaired by Wallace C. H. Choy, Fengxian Xie

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- 08:20 Strategies to Achieve High-efficiency White OLEDs for Lighting and Display  
*Chen-Chao Huang (Soochow University); Wei Luo (Soochow University); Man-Keung Fung (Soochow University);*

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**Session 2A14a****SC4: Designs and Measurements of Phased Array Antennas for 5G UE and BS Systems, Part 1 & 2**

Wednesday AM, December 18, 2019

**Room 14 - Lily**

Organized by Dau-Chyrh Chang, Cheng-Nan Hu, Huan-Chu Huang

Chaired by Dau-Chyrh Chang, Cheng-Nan Hu

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- 08:00 Overview of Some Factors Influencing the mm-Wave AiP Solution in Cellular Phones and Some Corresponding Promising Solutions  
 Invited *Huan-Chu Huang (Vivo Mobile Communication Co., Ltd.); Yijin Wang (Vivo Mobile Communication Co., Ltd.); Xianjing Jian (Vivo Mobile Communication Co., Ltd.);*
- 08:20 Uncertainty in Designing 5G Phased Array Antenna  
 Invited *Dau-Chyrh Chang (Atenlab Corporation);*
- 08:40 Angle Estimation through Millimeter Wave MIMO in 5G Systems  
 Invited *Cheng-Nan Hu (Oriental Institute of Technology); Alfred Tsai (FIH Limited); Kwo-Jyr Wong (FIH Limited); Philip Lo (FIH Limited);*
- 09:00 The Genetic Algorithm for 5G MIMO Auto-calibration  
 Invited *Cheng-Nan Hu (Oriental Institute of Technology); Alfred Tsai (FIH Limited); Philip Lo (FIH Limited);*
- 09:20 Over the Air Testing and Error Analysis of 5G Active Antenna System Base Station in Compact Antenna Test Range  
 Invited *Yanpu Hu (China Academy of Information and Communications Technology (CAICT)); Shouyuan Wang (China Academy of Information and Communications Technology (CAICT)); Shaogeng An (China Academy of Information and Communications Technology (CAICT));*
- 09:40 Design of Plane Wave Generator in Compact Range for 5G OTA Testing  
 Invited *Siyang Sun (China Academy of Information and Communications Technology); Na Wang (China Academy of Information and Communications Technology); Xin Ma (China Academy of Information and Communications Technology); Siting Zhu (China Academy of Information and Communications Technology); Ruixin Wang (China Academy of Information and Communications Technology);*
- 10:00 **Coffee Break**
- 10:30 Manipulation of Polarization Rotation through Spherical Active Coated Nanoparticle Antenna at Optical Wavelength  
*Qaisar Hayat (Shanghai Jiao Tong University); Jun-Ping Geng (Shanghai Jiao Tong University); Xianling Liang (Shanghai Jiao Tong University); Rong-Hong Jin (Shanghai Jiaotong University); Chong He (Shanghai Jiao Tong University);*
- 10:50 Miniaturization of Low-profile Omnidirectional Vertical Polarization VHF Patch Antenna  
*Chaofan Ren (Shanghai Jiao Tong University); Jun-Ping Geng (Shanghai Jiao Tong University); Chao Xie (Shanghai Jiao Tong University); Erwei Liu (Shanghai Jiao Tong University); Jiawei Han (Shanghai Jiao Tong University); Xu Xu Cheng (Shanghai Jiao Tong University); Kun Wang (Shanghai Jiao Tong University); Xianling Liang (Shanghai Jiao Tong University); Rong-Hong Jin (Shanghai Jiaotong University);*
- 11:10 A Miniaturized SIW  $H$ -plane Horn Using Slow-wave Structures  
*Yin Zhang (Xidian University); Jing-Ya Deng (Xidian University); Dong-Quan Sun (Xidian University); Li-Xin Guo (Xidian University);*
- 11:30 Wideband, Large-angle Metamaterial Absorber Based on Resistive Multi-resonant Modes  
*Ting Shi (Chongqing University); Ming-Chun Tang (Chongqing University);*
- 11:50 A Wide Band, Wide-angle Metamaterial Absorber Based on Dispersion Control  
*Ting Shi (Chongqing University); Ming-Chun Tang (Chongqing University);*

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**Session 2A15**

**SC2: Nanophotonics for Integration, Communication, and Biomedicine Applications 2**

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**Wednesday AM, December 18, 2019**

**Room 15 - Narcissus**

Organized by Lili Gui, Cuicui Lu

Chaired by Lili Gui, Cuicui Lu

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**Session 2A14b**

**SC4&SC2: Metamaterial-engineered and Compact Antennas and Arrays**

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**Wednesday AM, December 18, 2019**

**Room 14 - Lily**

Organized by Jun-Ping Geng, Ming-Chun Tang

Chaired by Jun-Ping Geng

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- 08:00 High-performance Single-crystalline Perovskite Thin-film Photodetector  
Invited  
*Zhenqian Yang (Peking University); Yuhao Deng (Peking University); Xiaowei Zhang (Peking University); Suo Wang (Peking University); Hua-Zhou Chen (Peking University); Sui Yang (University of California Berkeley); Jacob B. Khurgin (Johns Hopkins University); Nicholas X. Fang (Massachusetts Institute of Technology); Xiang Zhang (University of Hong Kong); Renmin Ma (Peking University);*
- 08:20 Active Metasurfaces and Waveguiding with Photoexcited Graphene  
Invited  
*Yuancheng Fan (Northwestern Polytechnical University);*
- 08:40 Light-driven Micro-drones with Plasmonic Nanomotors Based on Optical Spin-orbit Interaction  
Invited  
*Xiaofei Wu (University of Wurzburg); Raphael Ehehalt (University of Wurzburg); Gary Razinskas (University of Wurzburg); Thorsten Feichtner (University of Wurzburg); Bert Hecht (University of Wurzburg);*
- 09:00 Emerging Functions Enabled by Grating Couplers  
Invited  
*Xin Tong (Tianjin University); Yongjun Guo (Tianjin University); Meng Zhang (Tianjin University); Henan Liu (Tianjin University); Guifang Li (University of Central Florida); Lin Zhang (Tianjin University);*
- 09:20 Deep-neural Networks for Inverse Design of Integrated Photonics  
Invited  
*Keisuke Kojima (Mitsubishi Electric Research Laboratories); Mohammad Tahersima (Mitsubishi Electric Research Laboratories); Toshiaki Koike-Akino (Mitsubishi Electric Research Laboratories); Devesh Jha (Mitsubishi Electric Research Laboratories); Yingheng Tang (Mitsubishi Electric Research Laboratories); Kieran Parsons (University of California); Fengqiao Sang (Purdue University); Jonathan Klamkin (University of California);*
- 09:40 Nanophotonic Routers Based on Intelligent Algorithm  
Invited  
*Cuicui Lu (Beijing Institute of Technology);*
- 10:00 **Coffee Break**
- 10:30 Integrated Microwave Photonics for High Performance Sensing  
Invited  
*Liwei Li (University of Sydney); Xiaoke Yi (University of Sydney); Suenxin Chew (University of Sydney); Linh Nguyen (University of Sydney); Robert A. Minasian (University of Sydney);*
- 10:50 Scalable Cavity Optomechanical Magnetometers on a Chip  
Invited  
*Bei-Bei Li (Institute of Physics, Chinese Academy of Sciences); Douglas Bulla (Defence Science and Technology Group); Ali Dehghan-Manshadi (University of Queensland); Warwick P. Bowen (University of Queensland);*
- 11:10 Reconfigurable Polaritonic and Dielectric Mid-infrared Metasurfaces Using Phase Change Materials  
Invited  
*Xinghui Yin (Harvard University); Christina M. Spägle (Harvard University); Michele Tamagnone (Harvard University); Kundan Chaudhary (Harvard University); Stefano L. Oscurato (Harvard University); Jiahao Li (Kansas State University); Ruoping Li (Harvard University); Noah A. Rubin (Kansas State University); Luis A. Jauregui (Harvard University); Philip Kim (Harvard University); James H. Edgar (Kansas State University); Antonio Ambrosio (Harvard University); Federico Capasso (Harvard University);*
- 11:30 1D Photonic Crystals with 2D Materials as a Way to Develop All-optical Switchers  
Invited  
*Ivan M. Kislyakov (Shanghai Institute of Optics and Fine Mechanics, Chinese Academy of Sciences); Jun Wang (Shanghai Institute of Optics and Fine Mechanics, Chinese Academy of Sciences);*
- 11:50 High-contrast Nanostructure Arrays in Polymer-based 3D Photonic Integration Platform  
Invited  
*Lin Wu (Westlake University); Ziyang Zhang (Westlake Institute for Advanced Study);*
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- Session 2A16**  
**SC3: Terahertz Wave Sensing and Imaging:  
From Novel Devices to Applications**
- 
- Wednesday AM, December 18, 2019**  
**Room 16 - Camellia 1**  
Organized by Li-Guo Zhu, Emma Pickwell-MacPherson  
Chaired by Li-Guo Zhu, Xuequan Chen
- 
- 08:00 Superresolution THz Confocal Microscopy Based on Superoscillatory Metalens  
Invited  
*Gang Chen (Chongqing University);*

08:20 Improving Sample Characterisation for THz in vivo  
Invited Imaging of Skin and Other Applications

Xuequan Chen (*The Chinese University of Hong Kong*); Qiushuo Sun (*The Chinese University of Hong Kong*); Rayko Stantchev (*The Chinese University of Hong Kong*); Hannah Lindley-Hatcher (*Warwick University*); Emma Pickwell-MacPherson (*The Chinese University of Hong Kong & University of Warwick*);

08:40 High-performance Dual-mode Graphene-based THz  
Invited Modulator

Liang-Hui Du (*Institute of Fluid Physics, China Academy of Engineering Physics*); Pei-Ren Tang (*University of Science and Technology of China*); Jiang Li (*Institute of Fluid Physics, China Academy of Engineering Physics*); Li-Guo Zhu (*Institute of Fluid Physics, China Academy of Engineering Physics*);

09:00 Ultrafast Electron Solvation Dynamics in Water

Invited

Tianwu Wang (*National University of Defense Technology*); David G. Cooke (*McGill University*); Peter Uhd Jepsen (*Technical University of Denmark*);

09:20 Systematic Shift of Vibrational Modes Identified in  
Invited Saturated Fatty Acids with Terahertz Time-Domain Spectroscopy

Shuting Fan (*Shenzhen University*); Xiangyu Dai (*Shenzhen University*); Zhengfang Qian (*Shenzhen University*); Vincent P. Wallace (*The University of Western Australia*);

09:40 Improving Spintronic Terahertz Emitter via Photonic  
Invited Crystals and Metamaterials

Zheng Feng (*Institute of Electronic Engineering, CAEP*); Dacheng Wang (*Institute of Electronic Engineering, CAEP*); Haifeng Ding (*Nanjing University*); Jianwang Cai (*Institute of Physics, Chinese Academy of Sciences*); Wei Tan (*Institute of Electronic Engineering, China Academy of Engineering Physics*);

10:00 **Coffee Break**

10:30 Revealing Out-of-equilibrium Ultrafast Dynamics of  
Invited Photocurrent and Photocurrent in a Topological Insulator Bi<sub>2</sub>Se<sub>3</sub> Thin Film

Zuanming Jin (*Shanghai University*); Fan Liu (*University of Shanghai for Science and Technology*); Nan Su (*Shanghai University*); Shunyi Ruan (*Shanghai University*); Xian Lin (*Shanghai University*); Yan Peng (*University of Shanghai for Science and Technology*); Yiming Zhu (*University of Shanghai for Science and Technology*); Guohong Ma (*Shanghai University*);

10:50 Real-time Near-field Terahertz Spectroscopy Imaging  
Shengxin Yang (*Nanjing University*); Caihong Zhang (*Nanjing University*); Jingbo Wu (*Nanjing University*); Biaobing Jin (*Nanjing University*); Jian Chen (*Nanjing University*); Peiheng Wu (*Nanjing University*);

11:10 Terahertz Beam-scanning Meta-Device

Rong Tang (*Shanghai University*); Haoyang Zhou (*Fudan University*); Qiushi Li (*Shanghai University*); Bowen Yang (*Shanghai University*); Shiyi Xiao (*Fudan University*); Lei Zhou (*Fudan University*);

11:30 Numerical Simulation on Terahertz Non-destructive  
Evaluation of Defect in Composite Materials

Yew Li Hor (*A\*STAR Institute of High Performance Computing*); Wen-Jun Ding (*A\*STAR*);

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### Session 2A17

#### SC2: New Materials for Electromagnetic Devices: Theory and Applications

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Wednesday AM, December 18, 2019

Room 17 - Camellia 2

Organized by Juan Chen, Daping He

Chaired by Juan Chen, Daping He

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08:20 Polarization Reconfigurable Annular Ring Slot Antenna Design

Jianxing Li (*Xi'an Jiaotong University*); Junwei Shi (*Xi'an Jiaotong University*); Kai-Da Xu (*Xi'an Jiaotong University*); Juan Chen (*Xi'an Jiaotong University*); Anxue Zhang (*Xi'an Jiaotong University*);

08:40 Optical Tuning of Dielectric Properties of Amorphous  
Cu Doped  $\alpha$ -Fe<sub>2</sub>O<sub>3</sub> in the THz Range

Chuanhui Wang (*Hubei University of Education*);

09:00 Design of a Single Zero Compensation Dipole Antenna

Yi Lu (*Xi'an Jiaotong University*); Juan Chen (*Xi'an Jiaotong University*); Xumin Yu (*University of Electronic Science and Technology of China*);

09:20 High Conductive Graphene Assembled Film for  
Millimeter-wave Microstrip Antenna Array Application

Rongguo Song (*Wuhan University of Technology*); Daping He (*Wuhan University of Technology*);

09:40 Dynamically Tunable Four Band Filtering Attenuator  
Based on Graphene Integrated Microstrip Multi-mode Resonator

Chi Fan (*Xidian University*); Bian Wu (*Xidian University*); Nan Wu (*701 Research Institute*); Maosong Wu (*701 Research Institute*); Wen Su (*China Academy of Space Technology*);

- 10:00 **Coffee Break**
- 10:30 Doping of Metal Hydride in Nanocrystalline Carbonyl Iron Powders for Microwave Absorbing Materials Working at High Temperature  
*Zhi Hong Chen (Wuhan University of Technology); Yanqi Wang (Wuhan University of Technology); Wei Li (Wuhan University of Technology); Jianguo Guan (Wuhan University of Technology);*
- 10:50 A Graphene-based Yagi Antenna with Reconfigurable Pattern  
*Peng Hu (Xi'an Jiaotong University); Juan Chen (Xi'an Jiaotong University); Xuming Yu (Academy of Space Technology);*

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**Session 2A18a**  
**Education in Electromagnetics**

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**Wednesday AM, December 18, 2019**

**Room 18 - Azalea**

Organized by Eng Leong Tan, Zheng-Yu Huang

Chaired by Eng Leong Tan, Zheng-Yu Huang

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- 08:00 Research on the Application of Virtual Reality in the Practice Teaching of Major Courses  
*Fusheng Peng (Army Engineering University); Zhiyuan Tu (Army Engineering University); Chunjie Huang (Army Engineering University); Xu Han (Army Engineering University); Jie Wang (Army Engineering University); Zhengyu Huang (Nanjing University of Aeronautics and Astronautics (NUAA));*
- 08:20 How to Choose the Approach Angle in Teaching Electromagnetics?  
*Ari Sihvola (Aalto University);*
- 08:40 Improvement on Teaching Microwave Engineering Course by Incorporating the Artificial Intelligence Technology  
*Yu Miao Gao (Tongji University); Xin Yu Guo (Tongji University); Mei Song Tong (Tongji University);*
- 09:00 A Novel Teaching Method for the Advanced Engineering Electromagnetics Course Based on a Three-in-one Mode  
*Min Jun Li (Tongji University); Si Ce Wang (Tongji University); Mei Song Tong (Tongji University);*
- 09:20 Incorporation of Modeling and Simulation Techniques with the Education on Electromagnetics and Microwave Technology  
*Si Ce Wang (Tongji University); Min Jun Li (Tongji University); Mei Song Tong (Tongji University);*

- 09:40 M1-D Fundamental Implicit Coupled Line-FDTD Methods on Mobile Devices for Electromagnetic and Microwave Courses  
*Eng Leong Tan (Nanyang Technological University); Ding Yu Heh (Nanyang Technological University);*

10:00 **Coffee Break**

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**Session 2A18b**  
**Oral Presentations for Best Student Paper Awards — SC1: CEM, EMC, Scattering & EM Theory**

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**Wednesday AM, December 18, 2019**

**Room 18 - Azalea**

Chaired by Jiefu Chen, Eng Leong Tan, Mei Song Tong

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- 10:30 Time-division Efficient Parallel Algorithm for Designing Metallic Slabs for Quantum Walk  
*Di Wu (Nihon University); Takashi Yamaguchi (Tokyo Metropolitan Industrial Technology Research Institute); S. Inoue (Nihon University); Shinichiro Ohnuki (Nihon University);*
- 10:50 Fast Solution of Volume-surface Integral Equations for Conducting-anisotropic Media  
*Zi Ruo Chen (Tongji University); Li Zhang (Tongji University); Qing Xu (Tongji University); Hao Hui Su (Tongji University); Mei Song Tong (Tongji University);*
- 11:10 Application of Nodal Discontinuous Galerkin Time Domain Method Based on Wave Equation in Electromagnetic Simulations  
*Qi Yang (Xidian University); Yan Shi (Xidian University);*
- 11:30 Topological States of Interacting Photon Pairs Emulated in a Topoelectrical Circuit  
*Nikita A. Olekhno (Ioffe Institute); Egor I. Kretov (ITMO University); Andrei A. Stepanenko (ITMO University); Dmitry S. Filonov (Tel Aviv University); Vitaly V. Yaroshenko (ITMO University); Barbara Cappello (Politecnico di Torino); Ladislau Matekovits (Politecnico di Torino); Maxim A. Gorlach (ITMO University);*
- 11:50 Accurate Solution for Surface Integral Equations with Sharp-corner Objects Based on Nyström Scheme  
*Qing Xu (Tongji University); Ge Zhao (Tongji University); Mei Song Tong (Tongji University);*

12:10 Efficient Characterization of Topological Photonics Using the Broadband Green's Function  
*Zhaoyang Feng (Zhejiang University); Shurun Tan (Zhejiang University/University of Illinois at Urbana-Champaign Institute); Leung Tsang (University of Michigan); Er Ping Li (Zhejiang University — UIUC Institute);*

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**Session 2A0**  
**Poster Session 1**

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**Wednesday AM, December 18, 2019**

**8:00 AM - 12:00 AM**

**Room Corridor**

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1 A Simulation Method of Satellite Electromagnetic Interference in Complex Space Environment  
*Yanyan Wang (Science and Technology on Complex System Control and Intelligent Agent Cooperation Laboratory); Kangkang Gao (Harbin Engineering University); Dawei Zhang (Harbin Engineering University); Tao Jiang (Harbin Engineering University);*

2 Simulation of HPM Environment of Electrically Super-large Platforms Using HF Asymptotic Methods  
*Xi He (Hangzhou Normal University); Zusheng Jin (Naval Research Academy); Jialin Shi (Naval Research Academy); Wenli Wu (Naval Research Academy); Yu Zuo (Naval Research Academy);*

3 The Study of the Blooming Effect at 7 T Magnetic Resonance  
*Yurong Zhu (Southern Medical University); Jia-jia Wang (Southern Medical University); Jijun Han (Southern Medical University); Yunyu Gao (Southern Medical University); Sherman Xuegang Xin (South China University of Technology);*

4 Influence of RF Breakdown Plasma on Dispersion Relation of High Frequency Structures and Characteristics of Generated Microwave in Relativistic Backward Wave Oscillators  
*Yuzhang Yuan (Aval University of Engineering); Jin Meng (Naval University of Engineering); Jun Zhang (National University of Defense Technology); Danni Zhu (Aval University of Engineering); Yancheng Cui (Aval University of Engineering);*

5 Frequency Tunable Filter Patch Antenna Based on Spoof Surface Plasmon Polaritons  
*Yuziang Jia (Air Force Engineering University); Jiafu Wang (Air Force Engineering University); Yajuan Han (Xidian University); Yueyu Meng (Air Force Engineering University); Ya Fan (Air Force Engineering University); Qi Yuan (Air Force Engineering University); Shaobo Qu (Air Force Engineering University);*

6 FDTD Simulation of Terahertz Wave Propagation in Time-varying Plasma  
*Weizhong Yan (Shanghai Aerospace Electronics Co., Ltd.); Dongzhi Chen (Shanghai Aerospace Electronics Co., Ltd.); Fanwei Kong (Shanghai Aerospace Electronics Co., Ltd.); Xudong Bai (Shanghai Scientific Instrument Factory);*

7 Phase Control of All-dielectric Metalens in Long-wavelength Infrared  
*Xiaoyan Shi (Changchun Institute of Optics, Fine Mechanics and Physics, Chinese Academy of Sciences); Dejia Meng (Changchun Institute of Optics, Fine Mechanics and Physics, Chinese Academy of Sciences); Yandong Fan (Changchun Institute of Optics, Fine Mechanics and Physics, Chinese Academy of Sciences); Fuming Yang (Changchun Institute of Optics, Fine Mechanics and Physics, Chinese Academy of Sciences); Zheng Qin (Changchun Institute of Optics, Fine Mechanics and Physics, Chinese Academy of Sciences); Yuhao Zhang (Changchun Institute of Optics, Fine Mechanics and Physics, Chinese Academy of Sciences); Enzhu Hou (Changchun Institute of Optics, Fine Mechanics and Physics, Chinese Academy of Sciences); Zhongzhu Liang (Changchun Institute of Optics, Fine Mechanics and Physics, Chinese Academy of Sciences);*

8 Broadband and Polar-insensitive Radar Cross Section Reduction of a Cylindrical Target on the Conformal Frequency Selective Surface with Resistors  
*Chengli Li (Huazhong University of Science and Technology); L. Li (Huazhong University of Science and Technology); S. Guo (Huazhong University of Science and Technology); Ling Miao (Huazhong University of Science and Technology); Jian-Jun Jiang (Huazhong University of Science and Technology);*

9 Design of an Ultra-thin Tunable Metamaterial Absorber for Broadband Frequency Applications  
*Kainan Qi (Communication University of China); Luchao Wang (Beijing Mechanical and Electrical Engineering General Design Department); Shulan Kong (Science and Technology on Electromagnetic Scattering Laboratory); Yan Wang (Science and Technology on Electromagnetic Scattering Laboratory);*



- 10 Applications of Zero-index Materials in Photonics and Acoustics  
*Bingbing Liu (Soochow University); Tao Xu (Soochow University); Wei Zhao (Soochow University); Jie Luo (Soochow University); Hongchen Chu (Soochow University); Yun Lai (The Hong Kong University of Science and Technology); Zhi Hong Hang (Soochow University);*
- 11 Sculpting Extreme Electromagnetic Field Enhancement in Free Space for Molecule Sensing  
*Guang-Xu Su (Nanjing University); Fanxin Liu (Zhejiang University of Technology); Peng Zhan (Nanjing University); Zhenlin Wang (Nanjing University);*
- 12 TM and TE Modes Spoof Surface Plasmon Polaritons Excitation by Linear-to-circular Polarization Conversions  
*Tonghao Liu (Air Force Engineering University); Yueyu Meng (Air Force Engineering University); Hua Ma (Air Force Engineering University); Jiafu Wang (Air Force Engineering University); Hua Ma (Air Force Engineering University);*
- 13 A Wideband Transmission Frequency Selective Surface Resonator  
*Jianfeng Wei (Huazhong University of Science and Technology); Sai Guo (Huazhong University of Science and Technology); Yun He (Huazhong University of Science and Technology); Qian Chen (The 38th Research Institute of China Electronics Technology Group Corporation); Ning Zhao (The 38th Research Institute of China Electronics Technology Group Corporation); Shaowei Bie (Huazhong University of Science and Technology); Jian-Jun Jiang (Huazhong University of Science and Technology);*
- 14 Study on Raman Spectrum Detection Method Based on Surface Enhanced Micro-nano Fiber  
*Yuan Liu (Qilu University of Technology, Shandong Academy of Sciences); Jinyu Wang (Qilu University of Technology, Shandong Academy of Sciences); Zhen Li (Qilu University of Technology, Shandong Academy of Sciences); Jiqiang Wang (Qilu University of Technology, Shandong Academy of Sciences); Yanong Ning (Qilu University of Technology, Shandong Academy of Sciences); Tongyu Liu (Qilu University of Technology, Shandong Academy of Sciences);*
- 15 Comparison of Single-pump FOPA and Raman Assisted FOPA Performance in a 16 Channel DWDM Transmission System  
*Sergejs Olonkins (Riga Technical University); Andis Supe (Riga Technical University); Vjaceslavs Bobrovs (Riga Technical University); Dmitrijs Prigunovs (Riga Technical University);*
- 16 Observation of Optical States below the Light Cone with Compound Lattices  
*Jiajun Wang (Fudan University); Ang Chen (Fudan University); Maoxiong Zhao (Fudan University); Wenzhe Liu (Fudan University); Yiwen Zhang (Fudan University); Lei Shi (Fudan University); Jian Zi (Fudan University);*
- 17 Research of PAM-4 Modulated WDM-PON Architecture for 5G Millimeter-wave Hybrid Photonics-wireless Interface  
*Toms Salgals (Riga Technical University); Inna Kurbatska (Riga Technical University); Vjaceslavs Bobrovs (Riga Technical University); Sandis Spolitis (Riga Technical University);*
- 18 Parametric Simulation of 'Hot-wire'-based Gas Velocity Sensor Using Optical Fiber  
*Zhen Li (Qilu University of Technology (Shandong Academy of Sciences)); Jiqiang Wang (Qilu University of Technology (Shandong Academy of Sciences)); Moyu Hou (Qilu University of Technology (Shandong Academy of Sciences)); Lin Zhao (Qilu University of Technology (Shandong Academy of Sciences)); Jinyu Wang (Qilu University of Technology (Shandong Academy of Sciences)); Yuan Liu (Qilu University of Technology (Shandong Academy of Sciences)); Guofeng Dong (Qilu University of Technology (Shandong Academy of Sciences)); Tongyu Liu (Qilu University of Technology (Shandong Academy of Sciences));*
- 19 A Color Compensation Method for Three Primary-color LED Light Sources  
*Wen Hao Kang (Tongji University); Guo Chun Wan (Tongji University); Mei Song Tong (Tongji University);*
- 20 Performance Evaluation of a Compact Near-infrared Fluorescence Imaging System  
*Wook Jae Yoo (Korean Association for Radiation Application); Ki-Tek Han (Korean Association for Radiation Application); Jeho Min (Korean Association for Radiation Application); Han-Ki Jang (Korean Association for Radiation Application); Kyoung Won Jang (Dongnam Institute of Radiological & Medical Sciences); Sang Hun Shin (FNC Technology Co., Ltd.); Bongsoo Lee (Chung-Ang University);*

- 21 Numerical Analyses of All-optical Ultra-fast Gate Switches Employing Periodically Poled Lithium Niobate Devices: Output Deterioration and Pattern Effect by Device Fabrication Errors  
*Yutaka Fukuchi (Tokyo University of Science); Eizo Uzu (Tokyo University of Science); Takahiro Yoshida (Tokyo University of Science); Masaya Fujisawa (Tokyo University of Science);*
- 22 Improved Equivalent Circuit Models of THZ Quantum Cascade Lasers for SPICE Simulation  
*Weilin Ye (Shantou University); Xupeng Xiao (Shantou University); Zihan Tu (Shantou University); Bo Zhou (Shantou University); Jingwen Yan (Shantou University); Tao Wu (Shantou University); Fupai Wu (Shantou University); Zhidan Zheng (Shantou University); Chuantao Zheng (Jilin University);*
- 23 Few-layer MoTe<sub>2</sub>-on-silicon Laser-like Emission at Near Infrared Wavelength  
*Juntao Li (Sun Yat-Sen University); Hanlin Fang (Sun Yat-Sen University); Jin Liu (Sun Yat-Sen University);*
- 24 Plasmonic Band-pass/stop Filters Based on Metal-Insulator-Metal Slit Waveguides  
*Xuewei Zhang (Nanjing University of Aeronautics and Astronautics); Shaobin Liu (Nanjing University of Aeronautics and Astronautics); Zheng-Yu Huang (Nanjing University of Aeronautics and Astronautics); Xiang-Kun Kong (Nanjing University of Aeronautics and Astronautics); Ling-Ling Wang (Nanjing University of Aeronautics and Astronautics); Feng Xue (Nanjing University of Aeronautics and Astronautics);*
- 25 An Improved Dual Hole Substrate Coupling 105 GHz Quasi-optical Cavity Design and Experiment  
*Xiao-Fan Yang (University of Electronic Science and Technology of China); Yong-Hu Zeng (State Key Laboratory of Complex Electromagnetic Environment Effects on Electronics and Information System); Lian-Dong Wang (State Key Laboratory of Complex Electromagnetic Environment Effects on Electronics and Information System); Xian Qi Lin (University of Electronic Science and Technology of China);*
- 26 Noncontact Measurement of Permittivity Based on CSRR at Microwave Frequencies  
*Jing Dong (Zhejiang University); Xinyi Wang (China Ship Development and Design Center); Yangyang He (China Ship Development and Design Center);*
- 27 Design of Fragment-type Wideband Matching Structure Using an Improved Genetic Algorithm  
*Pengfei Yu (East China Research Institute of Electronic Engineering); Liguo Sun (University of Science and Technology of China); Fei Ji (East China Research Institute of Electronic Engineering); Xingguo Chen (East China Research Institute of Electronic Engineering);*
- 28 Ultra-low Power RF Designs in Smart Dust IoT Network Applications  
*Sang-Min Han (Soonchunhyang University); Won-Sang Yoon (Hoseo University); Jongsik Lim (Soonchunhyang University); Dal Ahn (Soonchunhyang University);*
- 29 Miniaturized Wide Bandwidth Antenna Array with Meta-material Decoupling Structure  
*Jianfeng Jiang (Harbin Engineering University); Yingfeng Xia (Harbin Engineering University); Yingsong Li (Harbin Engineering University);*
- 30 Design of Tunable Substrate Integrated Waveguide Cavity Resonator under Slow-wave and Fast-wave Loading Conditions  
*Yuliang Zhou (University of Electronic Science and Technology of China); Haiyan Jin (University of Electronic Science and Technology of China); Yong Mao Huang (Xihua University); Du Xu (University of Electronic Science and Technology of China); Maurizio Bozzi (University of Pavia);*
- 31 Three-dimensional Frequency Selective Surface with Quasi-elliptic Bandpass Response  
*Yu Zuo (Naval Research Academy); Haijun Wan (Naval Research Academy); Jianxuan Li (Naval Research Academy); Jialin Shi (Naval Research Academy); Zusheng Jin (Naval Research Academy);*
- 32 Terahertz Low Profile Antenna Based on Spoof Surface Plasmon Polaritons  
*Youheng Sun (Beijing Institute of Technology); Zhipeng Liu (Beijing Institute of Technology); Yong Liu (Beijing Institute of Technology); Xin Lv (Beijing Institute of Technology);*
- 33 Flexible Graphene Assembled Film with High Conductivity for NFC Antenna Application  
*Siting Li (Wuhan University of Technology); Daping He (Wuhan University of Technology);*
- 34 Relative Permittivity Imaging Based on Spoiled Gradient Echo Sequence  
*Yunyu Gao (Southern Medical University); Jijun Han (Southern Medical University); Yurong Zhu (Southern Medical University); Jiajia Wang (Southern Medical University); Sherman Xuegang Xin (South China University of Technology);*

- 35 Design of a W-band Endfire Directional Tapered Slot Antenna on Silicon Substrate  
*Ye Deng (Key Laboratory of Antenna and Microwave Technology); Fuguo Zhu (Key Laboratory of Antenna and Microwave Technology); Bin Li (Key Laboratory of Antenna and Microwave Technology); Jin-ping Zhang (Key Laboratory of Antenna and Microwave Technology);*
- 36 A Novel Design for Slotted Microstrip Antenna with Multilayer Patch  
*Kai Kai Guan (Tongji University); Chun Xia Yang (Shanghai Normal University); Mei Song Tong (Tongji University);*
- 37 Ultraviolet Imaging Detection for the Discharge of Polluted Insulators Based on Iterative Threshold Segmentation  
*Wen Shuang Duan (Shanghai University of Engineering Science); Shu Jia Yan (Shanghai University of Engineering Science); Mei Song Tong (Tongji University); Jin Ke Lu (Liupanshui Electric Power Company, Guizhou Power Grid Co. Ltd.); Hong Tao Shan (Shanghai University of Engineering Science);*
- 38 A Novel Microstrip Antenna Applying Metamaterial to Design Arbitrary Dielectric Constant Substrate  
*Jianhui Jiang (Hunan University); Pei Xiao (University of Electronic Science and Technology of China); Yongfeng Qiu (Hunan University); Zhu Liu (Hunan University); Gaosheng Li (Hunan University);*
- 39 Shaping Electromagnetic Waves by Using Bianisotropic Huygens' Metasurface  
*Tianliang Yu (Beihang University); Dawei Liu (Beihang University);*
- 40 Wideband MMIC Nonlinear Transmission-line Comb Generator  
*Shibin Zhang (The 41st Research Institute of CETC and National Key Lab of Electronic Measurement Technology); Guoqing Fan (The 41st Research Institute of CETC and National Key Lab of Electronic Measurement Technology); Qiliang Li (The 41st Research Institute of CETC and National Key Lab of Electronic Measurement Technology); Congyu Xu (The 41st Research Institute of CETC and National Key Lab of Electronic Measurement Technology);*
- 41 Study on Average Power Handling Capacity of Graphene Nanoribbon Interconnects  
*Peidong Li (Shanghai Jiao Tong University); Min Tang (Shanghai Jiaotong University); Yang Tang (Microsystem & Terahertz Research Center, China Academy of Engineering Physics); Haikun Yue (Microsystem & Terahertz Research Center, China Academy of Engineering Physics);*
- 42 Compact Dual Band MIMO Antenna with High Isolation  
*Xian Jing Lin (South China University of Technology); Yue Zheng (Dongguan University of Technology); Yu-Fan Wang (Dongguan University of Technology); Ying-Xin Lai (Dongguan University of Technology);*
- 43 A Compact Unidirectional Radiated PIFA UHF RFID Tag Antenna  
*Zijian Xing (Northwestern Polytechnical University); Ziliang Li (Northwestern Polytechnical University); Ling Wang (Northwestern Polytechnical University); Kun Wei (Northwestern Polytechnical University);*
- 44 A Dual-band Reflection-type Phase Shifter  
*Yu-Chieh Hsuan (Feng Chia University); Bo-Ru Lai (Feng Chia University); Wei-Cun Chen (Feng Chia University); Chia-Hung Chang (Feng Chia University);*
- 45 Sensitivity Analysis of the Feed System for the TM VGOS Telescope  
*Zheng Xiong Sun (Shanghai Institute of Technology); Jin Qing Wang (Shanghai Astronomical Observatory, Chinese Academy of Sciences); Guang Li Wang (Shanghai Astronomical Observatory, Chinese Academy of Sciences);*
- 46  $\text{Ca}^{2+}$  Variation Mediate Neuron Development in Extremely Low Frequency Electromagnetic Field  
*Yi Zhang (Duke University); Shun Cheng (Xiamen University); Zheng Mao (Duke University); Youyu Zhang (Duke University); Qing Huo Liu (Duke University);*
- 47 A Novel Coherent Integration Algorithm for Radar Detection of Hypersonic Vehicle Target Based on MRFT and LVD  
*Yunpeng Mi (National Space Science Center, Chinese Academy of Sciences); Yunhua Zhang (National Space Science Center, Chinese Academy of Sciences); Jiefang Yang (National Space Science Center, Chinese Academy of Sciences); Xiaojin Shi (Center for Space Science and Applied Research, CAS);*
- 48 Assessment of CYGNSS Coastal Wind Speed Retrieval  
*Xiaohui Li (Beihang University); Dongkai Yang (Beihang University); Jingsong Yang (Second Institute of Oceanography, State Oceanic Administration); Gang Zheng (Second Institute of Oceanography, State Oceanic Administration);*

- 49 Checkerboard AMC Surface for Ultra-wideband Radar Cross Section Reduction  
*Yajin Wang (Communication University of China); Jianxun Su (Communication University of China); Zengrui Li (Communication University of China);*
- 50 Image Recognition Based on Convolution Neural Network with Small Data Set  
*Lan Chen (Shanghai Institute of Technology); Zhiyuan Jiang (Shanghai Institute of Technology); Zhiyong Wang (Shanghai Institute of Technology);*
- 51 A Novel Azimuth Multichannel Reconstruction Approach for Moving Targets in Multichannel Sliding Spotlight SAR  
*Zhengbin Wei (Inner Mongolia University of Technology); Wei Xu (Inner Mongolia University of Technology); Pingping Huang (Inner Mongolia University of Technology); Weixian Tan (Inner Mongolia University of Technology); Zhiqi Gao (Inner Mongolia University of Technology); Bo Liu (Qian Xuesen Laboratory, China Academy of Space Technology); Jialuo Hu (Inner Mongolia University of Technology);*
- 52 Raman Spectroscopy of High-purity  $^{13}\text{CO}_2$  Gas  
*Vladimir Vladimirovich Vitkin (ITMO University); I. K. Chubchenko (ITMO University); Konstantin M. Grigorenko (ITMO University); Y. Kenzhebaeva (ITMO University); Artem A. Kharitonov (ITMO University); A. V. Polishchuk (ITMO University);*
- 53 Radiation Source Individual Identification Method Based on Fractal Box Dimension and ELM  
*Jian Shi (Yangzhou Marine Electronic Instrument Institute); Hui Zhang (Harbin Engineering University); Wei Lv (China United Network Communications Corporation Heilongjiang Branch); Yuan Tian (Harbin Engineering University);*
- 54 Arc Array Bistatic Synthetic Aperture Radar for Full Azimuth Imaging  
*Kai Li (Inner Mongolia University of Technology); Pingping Huang (Inner Mongolia University of Technology); Wei Xu (Inner Mongolia University of Technology); Weixian Tan (Inner Mongolia University of Technology); Xiujuan Li (Inner Mongolia University); Wen Hong (National Key Laboratory of Microwave Imaging Technology);*
- 55 Designing of 0.22 THz Stepped Frequency Radar Imaging System Based on Gyrotron  
*Chengxin Zhang (University of Science and Technology); Yang Yan (University of Science and Technology);*
- 56 Side Lobes Suppressing Technology for Aperiodic Millimeter Wave Array Antenna  
*Shih-Chung Tuan (Oriental Institute of Technology);*
- 57 Radar Cross Section of Wind Turbine with Cone Covered Pillar  
*Shih-Chung Tuan (Oriental Institute of Technology); Shen Shou Max Chung (National Penghu University of Science and Technology);*
- 58 The Influence of Rain Cluster on Analysis of Target Polarization Properties  
*Fang Liu (Beijing Institute of Technology); Liangcong Zhang (Beijing Institute of Technology); Jingxuan Yang (Science and Technology on Electromagnetic Scattering Laboratory);*
- 59 Terahertz Wave Modulation Utilizing Superconductor-metal Metamaterials  
*Siyu Duan (Nanjing University); Jingbo Wu (Nanjing University); Jiacheng Cai (Nanjing University); Xiaoqing Jia (Nanjing University); Caihong Zhang (Nanjing University); Biaobing Jin (Nanjing University); Jian Chen (Nanjing University); Peiheng Wu (Nanjing University);*
- 60 Abnormal Fluctuations in Transmission Spectrum of Metasurface Measurement and Solution  
*Yanrui Chen (Shanghai University); Zhong Hu (Shanghai University); Bowen Yang (Shanghai University); Shiyi Xiao (Shanghai University);*
- 61 A Resorber Metasurface Design: S-band Transmission and X-band Absorption  
*Yanrui Chen (Shanghai University); Zhong Hu (Shanghai University); Shiyi Xiao (Shanghai University);*
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- Session 2P1**
- SC3: Structured Light-matter Interaction 1**
- 
- Wednesday PM, December 18, 2019**
- Room 1 - Ballroom 1**
- Organized by Zhimin Shi, Olga Korotkova
- Chaired by Zhimin Shi
- 
- 13:10 Wavepacket Non-diffracting Light Beams  
Invited  
*Enrique J. Galvez (Colgate University); Fabio J. Aucapucella (Colgate University); Yingsi Qin (Colgate University); Kristina L. Wittler (Colgate University); Brianna M. Holmes (Colgate University); Anupama Motee (Colgate University);*

- 13:30 Orbital Angular Momentum in Partially Coherent Beams  
Invited  
*Greg Gbur (University of North Carolina at Charlotte);*
- 13:50 Mode Sorter with Astigmatic Gouy Phase  
Invited  
*Pei Zhang (Xi'an Jiaotong University); Junliang Jia (Xi'an Jiaotong University); Qing Liu (Xi'an Jiaotong University); Kepeng Zhang (Xi'an Jiaotong University); Maping Hu (Xi'an Jiaotong University); Hong Gao (Xi'an Jiaotong University);*
- 14:10 Direct Tomography of Structured Light  
Invited  
*Ziyi Zhu (University of South Florida); Darrick Hay (University of South Florida); Zhimin Shi (University of South Florida);*
- 14:30 Statistics of Structured Beams in Turbulent Atmosphere: Effects of Spatial Coherence, Phase and Polarization  
Invited  
*Fei Wang (Soochow University); Jiayi Yu (Soochow University); Yangjian Cai (Soochow University);*
- 14:50 Tailoring Photonic Angular Momentum with Structured Light  
Invited  
*Qi-Wen Zhan (University of Dayton);*
- 15:10 Simultaneous and Efficient Spin and Wave-front Manipulation with Metasurfaces  
Invited  
*Dongyi Wang (Fudan University); Feifei Liu (Fudan University); Shulin Sun (Fudan University); Qiong He (Fudan University); Lei Zhou (Fudan University);*
- 15:30 **Coffee Break**
- 16:00 Recent Advances in Chip-scale Structured Light Manipulation on Versatile Platforms  
Invited  
*Jian Wang (Huazhong University of Science and Technology);*
- 16:20 Structured Light-matter Interactions in Engineered Nonlinear Media  
Invited  
*Natalia M. Litchinitser (Duke University); Jingbo Sun (Duke University); Wiktor Walasik (Duke University); Eric G. Johnson (Clemson University);*
- 16:40 Light-matter Interaction Mediated by Tightly Focused Structured Light and Disorder Nanostructures  
*Yi Xu (Jinan University);*
- 17:00 Radiation Forces of Partially Coherent Circular Airy Beams on a Rayleigh Particle  
*Mingli Sun (Zhejiang University); Jiahao Zhang (Zhejiang University); Nan Li (Zhejiang University); Kaikai Huang (Zhejiang University); Huizhu Hu (Zhejiang University); Xian Zhang (Zhejiang University); Xuanhui Lu (Zhejiang University);*
- 17:20 Experimental Measurement of Scintillation Index of Vortex Beams Propagating in Underwater Turbulence  
Invited  
*Tengfei Lu (Huaqiao University); Yongxin Liu (Huaqiao University);*
- 17:40 Partially Coherent Beams with Structured Spatial Coherence  
Invited  
*Lipeng Wan (Zhejiang University); Daomu Zhao (Zhejiang University);*
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- Session 2P2a**  
**SC2: Microwave Metamaterial and Metasurface 2**
- 
- Wednesday PM, December 18, 2019**  
**Room 2 - Ballroom 2**  
Organized by Tie Jun Cui, Yijun Feng  
Chaired by Qiang Cheng, Xiaopeng Shen
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- 13:10 Passive Wireless Communication Using Stray Wi-Fi Signals and Programmable Metasurface  
*Ya Shuang (Peking University); Hanting Zhao (Peking University); Menglin Wei (Peking University); Haoyang Li (Peking University); Lianlin Li (Peking University);*
- 13:30 Novel Wireless Communication Architecture with Non-cooperative Blind Signals  
*Hanting Zhao (Peking University); Ya Shuang (Peking University); Menglin Wei (Peking University); Haoyang Li (Peking University); Lianlin Li (Peking University);*
- 13:50 A Novel Bi-functional Metamaterial for Independent Manipulation of Acoustic and Electromagnetic Waves  
Invited  
*Qiang Cheng (Southeast University); Cheng Zhang (Southeast University); Tie Jun Cui (Southeast University);*
- 14:10 Magnetic Plasmon Propagation on Particle Chains  
Invited  
*Xiaopeng Shen (China University of Mining and Technology); Yujiao Liao (China University of Mining and Technology); Hongmei Ye (China University of Mining and Technology); Kui Han (China University of Mining and Technology); Weihua Wang (China University of Mining and Technology);*
- 14:30 Polarization Selective Dual-band Millimeter Wave Coding Metasurface and Its Application for Controlling Transmitted Waves  
*Shahid Iqbal (Southeast University); Qiang Xiao (Southeast University); Tie Jun Cui (Southeast University);*

14:50 A Tunable Metasurface with Switchable Functionalities: From Perfect Transparency to Perfect Absorption  
*Yue Li (Shanghai University); Jing Lin (Fudan University); Huijie Guo (Fudan University); Yanrui Chen (Shanghai University); Wujiong Sun (Fudan University); Shiyi Xiao (Fudan University); Lei Zhou (Fudan University);*

15:10 Effective Medium Theory for Multilayer Metamaterials: Role of Near-field Corrections  
*Bowen Yang (Shanghai University); Tong Liu (Fudan University); Shaojie Ma (Fudan University); Shiyi Xiao (Shanghai University); Lei Zhou (Fudan University);*

15:30 **Coffee Break**

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**Session 2P2b**

**SC2: Reconfigurable Metamaterials, Metasurfaces, and FSS**

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**Wednesday PM, December 18, 2019**

**Room 2 - Ballroom 2**

Organized by Jian Li, Yongjun Huang

Chaired by Jian Li, Yongjun Huang

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16:00 Fast and Automatic RF Design Based on MATLAB-HFSS Control Applied on Magnetic Absorber with Metasurface  
*Jamel Ben Romdhane Hajri (University of Electronic Science and Technology of China (UESTC)); Daniele Insera (University of Electronic Science and Technology of China); Weiwei Gu (University of Electronic Science and Technology of China); Wei Hu (University of Electronic Science and Technology of China); Yongjun Huang (University of Electronic Science and Technology of China); Jian Li (University of Electronic Science and Technology of China); Guangjun Wen (University of Electronic Science and Technology of China);*

16:20 Active Modulation of EIT-like Response with a Metal-graphene Hybrid Metasurface in Microwave Regime  
*Kui Cai (Shanghai Jiao Tong University); Jin Zhang (Shanghai Jiao Tong University); Weiren Zhu (Shanghai Jiao Tong University);*

16:40 Ultra-wideband Active Absorber Based on Multiple Frequency Selective Surface and Magnetic Layers  
*Weiwei Gu (University of Electronic Science and Technology of China); Haobin Zhang (Science and Technology on Electronic Information Control Laboratory); Wenxian Zheng (Tsinghua Shenzhen International Graduate School); Yongjun Yang (University of Electronic Science and Technology of China); Wei Hu (University of Electronic Science and Technology of China); Daniele Insera (University of Electronic Science and Technology of China); Zhengwu Xu (Tsinghua Shenzhen International Graduate School); Gui Li (University of Electronic Science and Technology of China); Dongliang Zhang (University of Electronic Science and Technology of China); Jian Li (University of Electronic Science and Technology of China); Yongjun Huang (University of Electronic Science and Technology of China); Guangjun Wen (University of Electronic Science and Technology of China);*

17:00 Study on the Characteristics of Mercury-based Electromagnetic Metamaterials and Its Temperature Sensing Technology  
*Hualong Yu (University of Electronic Science and Technology of China); Liang Ma (University of Electronic Science and Technology of China); Wenxian Zheng (Tsinghua Shenzhen International Graduate School); Yongjun Yang (University of Electronic Science and Technology of China); Yongjun Huang (University of Electronic Science and Technology of China); Jian Li (University of Electronic Science and Technology of China); Zhengwu Xu (Tsinghua Shenzhen International Graduate School); Gui Li (University of Electronic Science and Technology of China); Dongliang Zhang (University of Electronic Science and Technology of China); Guangjun Wen (University of Electronic Science and Technology of China);*

- 17:20 Ultra-wideband Dual-layer Magnetic Absorber with Active Impedance Matching  
*Wei Hu (University of Electronic Science and Technology of China); Haobin Zhang (Science and Technology on Electronic Information Control Laboratory); Wenxian Zheng (Tsinghua Shenzhen International Graduate School); Yongjun Yang (University of Electronic Science and Technology of China); Weiwei Gu (University of Electronic Science and Technology of China); Daniele Inserra (University of Electronic Science and Technology of China); Zhengwu Xu (Tsinghua Shenzhen International Graduate School); Gui Li (University of Electronic Science and Technology of China); Dongliang Zhang (University of Electronic Science and Technology of China); Jian Li (University of Electronic Science and Technology of China); Yongjun Huang (University of Electronic Science and Technology of China); Guangjun Wen (University of Electronic Science and Technology of China);*
- 17:40 Numerical Investigation of Microwave Optomechanical Metasurface  
*Yongjun Huang (University of Electronic Science and Technology of China); Liang Ma (University of Electronic Science and Technology of China); Jian Li (University of Electronic Science and Technology of China); Wenjiao Wang (University of Electronic Science and Technology of China); Guangjun Wen (University of Electronic Science and Technology of China);*
- 18:00 Compact Microwave Passive Components Based on the Metamaterial Unit Cells  
 Invited *Jian Li (University of Electronic Science and Technology of China); Liang Ma (University of Electronic Science and Technology of China); Wenxian Zheng (Tsinghua Shenzhen International Graduate School); Yongjun Yang (University of Electronic Science and Technology of China); Yongjun Huang (University of Electronic Science and Technology of China); Zhengwu Xu (Tsinghua Shenzhen International Graduate School); Gui Li (University of Electronic Science and Technology of China); Dongliang Zhang (University of Electronic Science and Technology of China); Guangjun Wen (University of Electronic Science and Technology of China);*

- 18:20 Studies of a Two-dimensional Coaxial Bragg Structure with Double Helically Corrugated Surfaces  
*Ying-Xin Lai (Dongguan University of Technology); Tai-Jun Liu (Dongguan University of Technology); Fang-Yuan Chen (Dongguan University of Technology); Jian Li (University of Electronic Science and Technology of China); Guangjun Wen (University of Electronic Science and Technology of China);*

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**Session 2P3a**
**FocusSession.SC5: Machine Learning for Inversion and Imaging 2**


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**Wednesday PM, December 18, 2019**
**Room 3 - Ballroom 3**

Organized by Dominique Lesselier, Xudong Chen

 Chaired by Dominique Lesselier, Xudong Chen
 

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- 13:10 Enhanced Microwave Imaging Using a Deep Learning  
 Invited Technique for Breast and Stored-grain Imaging  
*Vahab Khoshdel (University of Manitoba); Ahmed Ashraf (University of Manitoba); Ian Jeffrey (University of Manitoba); Colin Gilmore (University of Manitoba); Joe LoVetri (University of Manitoba);*
- 13:30 Automatic Human Image Cutout  
*Shengwei Zhou (Xidian University); Haoyang Li (Peking University); Ya Shuang (Peking University); Lianlin Li (Peking University);*
- 13:50 Microwave Imaging and Recognition of Hand Sign Language  
*Haoyang Li (Peking University); Ya Shuang (Peking University); Menglin Wei (Peking University); Hanting Zhao (Peking University); Wenbo Du (Peking University); Lianlin Li (Peking University);*
- 14:10 Reducing Effect of Acoustic Inhomogeneity in Thermoacoustic Imaging Using Machine Learning  
 Invited *Zhicheng Wang (ShanghaiTech University); Xiong Wang (ShanghaiTech University);*
- 14:30 Solving Electrical Impedance Tomography via Deep Learning Approach  
*Xudong Chen (National University of Singapore); Zhun Wei (National University of Singapore);*
- 14:50 Deep Learning Approach for the Far-field Subwavelength Imaging Using Near-field Resonant Metalens at Microwave Frequencies  
*He Ming Yao (The University of Hong Kong); Min Li (The University of Hong Kong); Wei E. I. Sha (Zhejiang University); Li Jun Jiang (The University of Hong Kong);*
- 15:30 **Coffee Break**

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**Session 2P3b**
**SC5: Deep Learning Approaches for Electromagnetic Forward and Inverse Problems**


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**Wednesday PM, December 18, 2019**
**Room 3 - Ballroom 3**

Organized by Feng Xu, Lei Kuang

 Chaired by Qian Song, Lingyan Han
 

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- 16:00 A New Two-step Deep Learning Approach for Electromagnetic Inverse Scattering Problems  
*He Ming Yao (The University of Hong Kong); Wei E. I. Sha (Zhejiang University); Li Jun Jiang (The University of Hong Kong);*
- 16:20 Pulsar Image Feature Classification Based on Multi-scale Full Convolutional Network  
*Baojin Yang (Nanjing University of Science and Technology); Dazhi Ding (Nanjing University of Science and Technology); Rushan Chen (Nanjing University of Science and Technology); Zhenhong Fan (Nanjing University of Science and Technology);*
- 16:40 A Transfer Learning Approach for Recognizing the Digital Radiator  
*Qi Wang (Shanghai Jiao Tong University); Gao-biao Xiao (Shanghai Jiao Tong University);*
- 17:00 Ground Moving Target Imaging of Synthetic Aperture Radar Based on Improved Range History Fitting Method  
*Rui Li (Nanjing University of Science and Technology); Xiaodong Ye (Nanjing University of Science and Technology); Rushan Chen (Nanjing University of Science and Technology);*
- 17:20 SAR Image Generation Using Structural Bayesian Deep Generative Adversarial Network  
*Jia Zhai (Science and Technology on Electromagnetic Scattering Laboratory); Xunwang Dang (Science and Technology on Electromagnetic Scattering Laboratory); Feng Chen (Science and Technology on Electromagnetic Scattering Laboratory); Xiaodan Xie (Science and Technology on Optical Radiation Laboratory); Yong Zhu (Science and Technology on Electromagnetic Scattering Laboratory); Hong-Cheng Yin (Science and Technology on Electromagnetic Scattering Laboratory);*
- 17:40 Targets Recognition Based on Deep Learning  
*Huan Liu (East China Normal University); Lei Kuang (East China Normal University); Qing Huo Liu (Duke University);*

- 18:00 A Convolution Neural Network-based Method for Designing Honeycomb Absorbing Material  
*Lingyan Han (East China Normal University); Lei Kuang (East China Normal University); Huan Liu (East China Normal University); Jianxia Lu (East China Normal University); Qing Huo Liu (Duke University);*

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**Session 2P4**
**FocusSession.SC1: Advanced Numerical Techniques in Computational Electromagnetics**


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**Wednesday PM, December 18, 2019**
**Room 4 - Ginkgo**

Organized by Mei Song Tong, Naoshi Nishimura

 Chaired by Mei Song Tong
 

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- 13:30 EM Pulse Propagation Modeling of Tunnels with Three-dimensional TDPE Method  
*Zi He (Nanjing University of Science and Technology); Yu-Qian Bian (Nanjing University of Science and Technology); Hongcheng Yin (National Electromagnetic Scattering Laboratory); Rushan Chen (Nanjing University of Science and Technology);*
- 13:50 On the Modeling of Edge Diffraction Effect of a Finite Ground Plane in Equivalent Electromagnetic Models  
*Huapeng Zhao (University of Electronic Science and Technology of China); Chaofeng Li (University of Electronic Science and Technology of China);*
- 14:10 Application of Stochastic Gradient Descent Method in Method of Moments  
*Liangshuai Guo (Tsinghua University); Maokun Li (Tsinghua University); Shenheng Xu (Tsinghua University); Fan Yang (Tsinghua University);*
- 14:30 Influence on Antenna Q-factors of PEC Obstacles  
*Ling Ma (Shanghai Jiao Tong University); Gao-biao Xiao (Shanghai Jiao Tong University); Rui Liu (Shanghai Jiao Tong University);*
- 14:50 A Stabilized Time-domain Integral Equation Solver Using Associated Laguerre Functions  
*Ming-Da Zhu (Donghua University); Tapan Kumar Sarkar (Syracuse University); Yu Zhang (Xidian University);*
- 15:30 **Coffee Break**



- 16:00 Fast Wide Angular Sweeping of Scattering from Large Targets by Hybrid MPI and OpenMP Parallel Skeletonization  
*Si-Lu Huang (Beijing Institute of Technology); Xiao-Min Pan (Beijing Institute of Technology); Xin-Qing Sheng (Beijing Institute of Technology);*
- 16:20 Fast Direct Error-controlled Solution of Scattering Problems via H-matrix Accelerated Locally Corrected Nystrom Discretization of Combined Field Integral Equation  
*Reza Gholami (University of Manitoba); Z. Chen (University of California at Santa Barbara); M. Shafieipour (Manitoba Hydro International); T. Qiu (University of Manitoba); Vladimir Okhmatski (University of Manitoba);*
- 16:40 Design of Plasmonic Devices by a Time-frequency Domain Analysis Using the FDCFD-FILT Method  
*Di Wu (Nihon University); K. Hamashima (Nihon University); N. Namekata (Nihon University); S. Inoue (Nihon University); Shinichiro Ohnuki (Nihon University);*
- 17:00 Dynamical Modeling for Electromagnetic Problems: **Keynote**The Need of Artificial Intelligence Era  
*Mei Song Tong (Tongji University);*
- 14:10 Bound States in the Continuum Based on Coherent Perfect Reflection  
*Shiwei Dai (Chongqing University); Dezhuan Han (Chongqing University);*
- 14:30 Near-field Electromagnetic Multipolar Properties of Bound States in the Continuum  
*Yi Xu (Jinan University);*
- 14:50 Bound States in the Continuum in the Dielectric Waveguide with Metal Grating Controlled by Polarization  
*Ryo Kikkawa (Hiroshima University); Munehiro Nishida (Hiroshima University); Yutaka Kadoya (Hiroshima University);*
- 15:10 Giant Enhancement of Goos-Hänchen Shift Assisted by Quasi-bound State in the Continuum  
*Feng Wu (Tongji University); Jiaju Wu (Tongji University); Haitao Jiang (Tongji University); Yong Sun (Tongji University); Hong Chen (Tongji University);*
- 15:30 **Coffee Break**
- 16:00 Theory of Reflectionless Scattering Modes  
 Invited  
*Chia Wei Hsu (University of Southern California); William R. Sweeney (Yale University); A. Douglas Stone (Yale University);*

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**Session 2P5**
**Bound States in the Continuum: Physics and Applications**
**Wednesday PM, December 18, 2019**
**Room 5 - Banyan 1**

Organized by Dezhuan Han, Lei Shi, Chao Peng

 Chaired by Dezhuan Han, Chao Peng
 

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- 13:10 How Close to BIC We Can Approach in Subwavelength Dielectric Resonators?  
 Invited  
*Almas Phattakhovich Sadreev (Federal Research Center KSC SB RAS);*
- 13:30 Topological Protected Complete Polarization Conversion and Its Relation with BIC  
 Invited  
*Yu Guo (Stanford University); Meng Xiao (Wuhan University); Shanhui Fan (Stanford University);*
- 13:50 Generating Circularly Polarized States by Breaking Bound States in the Continuum  
*Wenzhe Liu (Fudan University); Bo Wang (Fudan University); Yiwen Zhang (Fudan University); Jiajun Wang (Fudan University); Maoxiong Zhao (Fudan University); Lei Shi (Fudan University); Jian Zi (Fudan University);*
- 16:20 Evolution of Topological Charges in Bound State in the Continuum  
 Invited  
*Chao Peng (Peking University);*
- 16:40 The Shift of Photoassociation Spectra at an External Magnetic Field  
 Invited  
*Yuqing Li (Shanxi University);*
- 17:00 Bound States in the Continuum Induced by Topological Subspace and Disorder  
*Yi-Xin Xiao (Soochow University); Guancong Ma (Hong Kong Baptist University); Zhao-Qing Zhang (The Hong Kong University of Science and Technology); Che Ting Chan (The Hong Kong University of Science and Technology);*
- 17:20 Generating Optical Vortex Beams by Momentum-space Polarization Vortices Centered at Bound States in the Continuum  
*Bo Wang (Fudan University); Wenzhe Liu (Fudan University); Maoxiong Zhao (Fudan University); Yiwen Zhang (Fudan University); Jiajun Wang (Fudan University); Ang Chen (Fudan University); Fang Guan (Fudan University); Xiaohan Liu (Fudan University); Lei Shi (Fudan University); Jian Zi (Fudan University);*

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**Session 2P6a**
**FocusSession.SC5: Electromagnetic Devices,  
Sensing, Imaging and Applications 2**


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**Wednesday PM, December 18, 2019**
**Room 6 - Banyan 2**

Organized by Shaolin Liao, Lijun Xu

 Chaired by Shaolin Liao, Lijun Xu
 

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- 13:10 Nanowire Based THz and Infrared Detectors  
Invited  
*Lan Fu (The Australian National University);*
- 13:30 Experimental Analysis of a Phased Array Antenna for Sea-area Seismic Data Transmission  
*Wen Hui Li (Air Force Engineering University); Lumei Li (State Radio Monitoring Center); Lan-jie Zhou (Xiamen Research Centre of Seismologic Surveying); Weihua Fang (Xiamen Research Centre of Seismologic Surveying); Yuqi Wang (Xiamen Research Centre of Seismologic Surveying); Xue Lei (Xiamen Research Centre of Seismologic Surveying);*
- 13:50 Research on Calibration Device of Surface Current Sensor  
*Wenwu Song (Science and Technology on Electromagnetic Compatibility Laboratory); Chen Huang (Science and Technology on Electromagnetic Compatibility Laboratory); Chengchao Hua (Science and Technology on Electromagnetic Compatibility Laboratory); Yi Liu (Science and Technology on Electromagnetic Compatibility Laboratory);*
- 14:10 Study of Measuring Error of Rogowski Coil  
*Shanming Lu (Science and Technology on Electromagnetic Compatibility Laboratory); Wenwu Song (Science and Technology on Electromagnetic Compatibility Laboratory); Chen Huang (Science and Technology on Electromagnetic Compatibility Laboratory);*
- 14:30 Online Detection of Wear Particles Using Electrostatic Tomography and Convolutional Neural Network  
*Qian Xue (Civil Aviation University of China); Jing Liu (Civil Aviation University of China); Yihu Wang (Civil Aviation University of China); Wenru Fan (Civil Aviation University of China);*
- 14:50 Electromagnetic Sensing and Imaging Methods in Industrial Flow Measurements  
*Huaxiang Wang (Tianjin University); Zihan Xia (Tianjin University); Ziqiang Cui (Tianjin University);*

- 15:10 Integrated Photonics Devices Using Zero-index Meta-Invited materials

*Yixuan Zeng (Hunan University); Zhixiang Tang (Hunan University); Shaolin Liao (Illinois Institute of Technology); Yu Peng (Harvard University);*

- 15:30 **Coffee Break**
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**Session 2P6b**
**SC1: Single and Multiple Scattering in the  
Earth System: Theory and Applications 1**


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**Wednesday PM, December 18, 2019**
**Room 6 - Banyan 2**

Organized by Lei Bi, Pengwang Zhai

 Chaired by Lei Bi, Pengwang Zhai
 

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- 16:00 A Hybrid Method for Modeling Polarized Radiative  
Invited Transfer in Spherical-shell Planetary Atmosphere  
*Feng Xu (University of Oklahoma); Robert A. West (California Institute of Technology); Anthony B. Davis (California Institute of Technology);*
- 16:20 On the Order of Atmospheric Scattering, Its Polariza-  
Invited tion and Computation Efficiency  
*Minzheng Duan (Institute of Atmospheric Physics, Chinese Academy of Sciences);*
- 16:40 Linearized  $T$ -matrix Method Using the Invariant-  
imbedding  $T$ -matrix Method  
*Bingqiang Sun (Fudan University);*
- 17:00 Measuring the Near-backscattering Phase Function of  
Atmospheric Particles  
*Chen Zhou (Nanjing University);*
- 17:20 Optical Properties of Atmospheric Aerosols: New  
Modeling Capabilities and Applications  
*Lei Bi (Zhejiang University); Wushao Lin (Zhejiang University); Zheng Wang (Zhejiang University); Ruirui Zong (Zhejiang University);*
- 17:40 Scattering of Molecules and Particles and the Model-  
Invited ing of Remote Sensing Reflectance of Deep Waters  
*Zhongping Lee (University of Massachusetts Boston);*
- 18:00 Floating Algae Detection from AHI on Himawari-8 in  
China Seas  
*Shaoling Shang (Xiamen University); Zhongping Lee (University of Massachusetts Boston); Jing Yan (Xiamen University);*

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**Session 2P7**
**SC5: Emerging New Techniques, Theory, and Data in Microwave Remote Sensing**


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**Wednesday PM, December 18, 2019**
**Room 7 - Banyan 3**

Organized by Shurun Tan, Su Xu

 Chaired by Shurun Tan, Su Xu
 

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- 13:10 A Coherent Reflectivity Model for Layered Media over an Inhomogeneous Half Space for Microwave Remote Sensing of Polar Ice Sheet Subsurface Temperatures  
 Invited *Haokui Xu (University of Michigan); Leung Tsang (University of Michigan); Joel T. Johnson (The Ohio State University); Kenneth C. Jezek (The Ohio State University); Prasad Gogineni (The University of Alabama); Stephen J. Yan (The University of Alabama);*
- 13:30 An Improved Model for Soil Moisture Content Estimation from GPS/BD SNR Measurements  
*Xiaoyu Ma (Zhejiang University/University of Illinois at Urbana-Champaign Institute); Zhizhan Tang (Zhejiang University/University of Illinois at Urbana-Champaign Institute); Shurun Tan (Zhejiang University/University of Illinois at Urbana-Champaign Institute);*
- 13:50 An NIBC/Nystrom/SMCG Method Implemented with MoM for Broadband Emissivities from Large-scale Polar Ocean Surfaces  
 Invited *Yanlei Du (Tsinghua University); Leung Tsang (University of Michigan); Jian Yang (Tsinghua University);*
- 14:10 Surface-Volume-Surface Electric Field Integral Equation for Solution of Scattering Problems on Composite Dielectric Objects in Stratified Media  
 Invited *Reza Gholami (University of Manitoba); S. Zheng (University of Manitoba); Vladimir Okhmatovski (University of Manitoba);*
- 14:30 Imaging Hydraulic Fractures by a Machine Learning Approach  
 Invited *Runren Zhang (Duke University); Qingtao Sun (Duke University); Xinyuan Zhang (Duke University); Liangze Cui (Duke University); Zhenguan Wu (China University of Petroleum (East China)); Dezhi Wang (Duke University); Qing Huo Liu (Duke University);*
- 14:50 Application of the Time-series Passive Microwave Brightness Temperature to Estimate Snow Water Equivalent on the Tibetan Plateau  
 Invited *Jinmei Pan (Institute of Remote Sensing and Digital Earth, Chinese Academy of Science);*
- 15:10 An Improved Snow Depth Retrieval Algorithm for AMSR2 Passive Microwave Data Based on Snow Survey Data in Northeast China  
 Invited *Yanlin Wei (Jilin University); Xiaofeng Li (Jilin University); Kai Zhao (Jilin University); Lingjia Gu (Jilin University);*
- 15:30 **Coffee Break**
- 16:00 The Validation and Analysis of Snow Depth Inversion Algorithm in Northeast China Based on Measured Data  
 Invited *Lili Wu (Xinyang Normal University); Yueqing Chen (Xinyang Normal University); Xiao-Feng Li (Northeast Institute of Geography and Agroecology, Chinese Academy of Sciences); Kai Zhao (Northeast Institute of Geography and Agroecology, Chinese Academy of Sciences); Yan Yu (Xinyang Normal University);*
- 16:20 Application of Multi-frequency Tomography Radar Observations for Snow Stratigraphy  
 Invited *Xiaolan Xu (California Institute of Technology); Jan-Willem De Bleser (California Institute of Technology); Jiyue Zhu (University of Michigan); Haokui Xu (University of Michigan); Leung Tsang (University of Michigan);*
- 16:40 Azimuth Phase Center Adaptive Adjustment on Transmit/Receive for Azimuth Uniform Sampling in HRWS SAR  
*Jialuo Hu (Inner Mongolia University of Technology); Wei Xu (Inner Mongolia University of Technology); Pingping Huang (Inner Mongolia University of Technology); Weixian Tan (Inner Mongolia University of Technology); Zhenhua Zhang (Beijing Research Institute of Telemetry);*
- 17:00 Imaging Radar Based on Time Modulated Array with Pulse Compression  
 Invited *Jingfeng Chen (Shanghai Jiao Tong University); Chong He (Shanghai Jiao Tong University); Xudong Bai (Shanghai Aerospace Electronics Company Ltd.); Anjie Cao (Shanghai Institute of Satellite Engineering); Weiren Zhu (Shanghai Jiao Tong University);*

- 17:20 Phased Array Model of Designing a Large-aperture,  
Invited Achromatic Optical Metalens and Applications in Remote Sensing  
*Qi Song (Suzhou Institute of Biomedical Engineering and Technology, Chinese Academy of Sciences); Nianxi Xu (Changchun Institute of Optics, Fine Mechanics and Physics, Chinese Academy of Sciences); Dongzhi Shan (Changchun Institute of Optics, Fine Mechanics and Physics, Chinese Academy of Sciences); Naitao Song (Changchun Institute of Optics, Fine Mechanics and Physics, Chinese Academy of Sciences); Ruoqian Gao (Changchun Institute of Optics, Fine Mechanics and Physics, Chinese Academy of Sciences); Yan Gong (Suzhou Institute of Biomedical Engineering and Technology, Chinese Academy of Sciences); Jinsong Gao (Changchun Institute of Optics, Fine Mechanics and Physics, Chinese Academy of Sciences);*
- 17:40 Magnetic Metamirrors as Band-stop Spatial Frequency Filters  
*Xuan Chen (Zhejiang University); Wenchao Chen (Zhejiang University); Zuoja Wang (Shandong University); Hongsheng Chen (Zhejiang University); Er Ping Li (Zhejiang University — UIUC Institute);*
- 18:00 Cavity-enhanced Absorption Spectroscopy in the  
Invited Near- and Mid-infrared for Gas Sensing  
*Chuantao Zheng (Jilin University); Kaiyuan Zheng (Jilin University); Qixin He (Jilin University); Weilin Ye (Shantou University); Yu Zhang (Jilin University); Yiding Wang (Jilin University); Frank K. Tittel (Rice University);*
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- Session 2P8a**  
**SC4: Advanced Phased Array Theory and Technology**
- 
- Wednesday PM, December 18, 2019**  
**Room 8 - Peony 1**  
Organized by Peng Yang, Yanhui Liu, Paolo Rocca  
Chaired by Peng Yang, Yanhui Liu
- 
- 13:10 Study on Scattering Pattern Controlling of Phased  
Invited Array by Lens  
*Qiang Zhang (China National Key Laboratory of Antenna and Microwave Technology); Lei Sun (Nanjing Research Institute of Electronics Technology, National Key Laboratory of Antenna and Microwave Technology); Xiaoqi Li (Nanjing Research Institute of Electronics Technology); Zhipeng Zhou (Nanjing Research Institute of Electronics Technology);*
- 13:30 Smart Wide-angle Coverage Phased Array Antenna  
Invited for Small Satellites  
*Zhujun Li (Academy of Space Electronic Information Technology); Yan Li (Xi'an Institute of Space Radio Technology (CAST Xi'an)); Ruoxin Li (Academy of Space Electronic Information Technology); Peng Lv (Academy of Space Electronic Information Technology); Jianbo Zhang (Academy of Space Electronic Information Technology); Xurong Qin (Academy of Space Electronic Information Technology); Buning Tian (China Academy Space Technology (Xi'an));*
- 13:50 A Low cost 2-bit Coding Microstrip Patch Antenna  
Invited for Dynamic Polarization, 2-D Beam Switching and RCS Reduction  
*L. Yin (University of Electronic Science and Technology of China); R. Zhao (University of Electronic Science and Technology of China); Y. Y. Gan (University of Electronic Science and Technology of China); Peng Yang (University of Electronic Science and Technology of China);*
- 14:10 Synthesizing Thinned Massive Antenna Arrays Utilizing Modified Iterative FFT for 5G Millimeter-wave  
Invited Communication  
*Yanhui Liu (Xiamen University); Qiangke Luo (Xiamen University); Foxiang Liu (Xiamen University); Qing Huo Liu (Duke University); Y. Jay Guo (University of Technology Sydney (UTS));*
- 14:30 Wide-angle Scanning Phased Array Based on Long Slot Antenna  
*Wen-Liang Zhou (University of Electronic Science and Technology of China); Shi-Wei Qu (University of Electronic Science and Technology of China); Shiwen Yang (University of Electronic Science and Technology of China);*
- 14:50 Dipole Antenna Array Fed by a SIW Based Circular Resonator for Generating Plane Spiral Orbital Angular Momentum Wave  
*Yuqi Chen (Zhejiang University); Shilie Zheng (Zhejiang University); Xinyue Wang (Zhejiang University); Zelin Zhu (Zhejiang University); Zhixia Wang (Zhejiang University); Xianmin Zhang (Zhejiang University);*
- 15:30 **Coffee Break**

**Session 2P8b****SC1&SC3: Advances in Electromagnetic Modeling and Simulations for Biophotonics**

Wednesday PM, December 18, 2019

Room 8 - Peony 1

Organized by Snow H. Tseng, Shih-Hui Chang

Chaired by Snow H. Tseng

- 16:00 Plasmonic-enhanced Signal Detection in SERS Substrate and Photonic Crystal Biosensors  
Invited  
*Hui-Hsin Hsiao (National Taiwan Normal University); Mykhaylo M. Dvoymenko (National Academy of Sciences of Ukraine); Hao Ke (National Taiwan Normal University); Juen-Kai Wang (National Taiwan University);*
- 16:20 Spectral Modeling for Wiener Estimation in Raman Spectroscopy  
Invited  
*Quan Liu (Nanyang Technological University); Yanru Bai (Nanyang Technological University);*
- 16:40 Study on Driving Current of Inductive Electromagnetic Launcher on Projectile Outlet Velocity  
*Chuan-Feng Zhang (Anhui University); Tongqing Liao (Anhui University); Tiezhen Jiang (Anhui University); Pei-Jun Cai (Jianghuai College of Anhui University);*
- 17:00 Morphological Discrimination and Classification of Complex Aerosol Aggregates via Simulated Two-dimensional Multi-spectral Light Scattering  
Invited  
*Stephen Holler (Fordham University); Emily Shipley (Fordham University); Sequoyah Walters (West Chester University); Kevin B. Aptowicz (West Chester University);*
- 17:20 Backward Output-side-grooves Regulated Light Wave Resonance in a Subwavelength Metallic Slit and an Ultrahigh Energy Accumulator  
Invited  
*Jian-Shiung Hong (National Cheng Kung University); Kuan-Ren Chen (National Cheng Kung University);*
- 17:40 Imaging through Dense Turbid Medium by Polarimetric Imaging  
Invited  
*Haofeng Hu (Tianjin University); Xiaobo Li (Tianjin University); Zhenzhou Cheng (Tianjin University); Tiegen Liu (Tianjin University);*

**Session 2P9****FocusSession.SC3: Quantum Information Processing and Devices 3**

Wednesday PM, December 18, 2019

Room 9 - Peony 2

Organized by Hai-Zhi Song, Yong-Chun Liu

Chaired by Alireza Baghai-Wadji, Yong-Chun Liu

- 13:10 High-efficiency Generation of Heralded Narrowband Color-entangled States  
Invited  
*Jin-Hui Wu (Northeast Normal University); Xiao-Jun Zhang (Northeast Normal University); Giuseppe C. La Rocca (Scuola Normale Superiore and CNISM); M. Artoni (European Laboratory for Nonlinear Spectroscopy);*
- 13:30 Electromagnetically-Induced-Transparency Based Quantum Manipulation of Lights  
Invited  
*Jun-Xiang Zhang (Zhejiang University);*
- 13:50 1D/2D NEMS for Quantum Information Processing  
Invited  
*Guangwei Deng (University of Electronic Science and Technology of China);*
- 14:10 Quantum Entanglement and Quantum Squeezing in Optomechanical Systems with a Parametric Amplifier  
Invited  
*Chang-Sheng Hu (Fuzhou University); Huaizhi Wu (Fuzhou University); Yong Li (Beijing Computational Science Research Center); Shi-Biao Zheng (Fuzhou University);*
- 14:30 Quantum Dynamics of Ultracold Atoms in the Momentum Space  
Invited  
*Bo Yan (Zhejiang University);*
- 14:50 Bypassing the Dynamic Reciprocity with a Chiral Cross-Kerr Nonlinearity  
Invited  
*Keyu Xia (Nanjing University); Franco Nori (RIKEN and University of Michigan); M. Xiao (Nanjing University);*
- 15:10 Edge Current and Orbital Angular Momentum of Chiral Superfluids  
Invited  
*Wenzeng Nie (Sichuan University); Wen Huang (Southern University of Science and Technology); Hong Yao (Tsinghua University);*
- 15:30 **Coffee Break**
- 16:00 Generalization by Symmetrization of Trotter's Product Rule Involving Arbitrary Number of Non-commuting Operators  
*Alireza Baghai-Wadji (University of Cape Town);*

- 16:20 Quantum Field Theory Method for Spin Decoherence and Its Application to Shallow NV Centres  
*John Alexander Crosse (New York University Shanghai & New York University);*
- 16:40 Arbitrary Controlable Non-Markovianity of Open Quantum Dynamics  
Invited  
*Jing-Wei Wen (Tsinghua University); Ming-Jie Tao (Tsinghua University); Qing Ai (Beijing Normal University); Gui Lu Long (Tsinghua University);*
- 17:00 Cascaded Nonlinearity and Single-photon Nonlinearity in Optical Microcavity  
Invited  
*Ming Li (University of Science and Technology of China); Chang-Ling Zou (University of Science and Technology of China);*
- 17:20 Improve Spin-based Noise Sensing with Adaptive Measurements  
*Yi-Hao Zhang (Beijing Computational Science Research Center); Wen Yang (Beijing Computational Science Research Center);*
- 14:10 Exterior Whispering-gallery Modes in a Double-layer Crystalline Microdisk Resonator  
*Yuanlin Zheng (Shanghai Jiao Tong University); Zhiwei Fang (East China Normal University); Shijie Liu (Shanghai Jiao Tong University); Ya Cheng (Shanghai Institute of Optics and Fine Mechanics, Chinese Academy of Sciences); Xianfeng Chen (Shanghai Jiao Tong University);*
- 14:30 Comparative Study of Optical and Microwave Antennas  
*Wei E. I. Sha (Zhejiang University);*
- 14:50 Generation and Manipulation Chiral Broadband Terahertz Waves in Ferromagnetic Heterostructure Nanofilms  
*Xiaojun Wu (Beihang University);*
- 15:10 Measuring the Energy of Plasmonic Hot-holes by Single Particle Electrochemistry  
*Evangelina Pensa (Imperial College London); Julian Gargiulo (Ludwig-Maximilians-Universität); Alberto Lauri (Imperial College London); Sebastian Schlücker (University of Duisburg-Essen); Emiliano Cortés (Ludwig-Maximilians-Universität Munich); Stefan A. Maier (LMU Munich);*

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**Session 2P10a**

**SC2: Plasmonic Nanoantennas and Metamaterials for the Design of New Nanophotonic Devices 2**

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**Wednesday PM, December 18, 2019**

**Room 10 - Jasmine**

Organized by Pai-Yen Chen, Yang Li

Chaired by Pai-Yen Chen, Yang Li

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- 13:10 Plasmon Lasers as High Efficient On-chip Coherent Surface Plasmon Generator  
*Hua-Zhou Chen (Peking University); Jia-Qi Hu (Peking University); Suo Wang (Peking University); Bo Li (Peking University); Xing-Yuan Wang (Peking University); Yi-Lun Wang (Peking University); Lun Dai (Peking University); Renmin Ma (Peking University);*
- 13:30 Electrically-driven Plasmonic Nanorod Metamaterials  
*Pan Wang (King's College London); Alexey V. Krasavin (King's College London); Mazhar E. Nasir (King's College London); Wayne Dickson (King's College London); Anatoly V. Zayats (King's College London);*
- 13:50 Plasmonic Vortex Nanolaser  
*Yi-Fei Mao (Peking University); Hua-Zhou Chen (Peking University); Renmin Ma (Peking University);*

15:30 **Coffee Break**

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**Session 2P10b**

**SC2: Light-matter Interactions in Metamaterials and Plasmonics**

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**Wednesday PM, December 18, 2019**

**Room 10 - Jasmine**

Organized by Chun-Chieh Chang

Chaired by Chun-Chieh Chang

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- 16:00 Self-assembled Metal Nanoparticles as Metasurfaces or Metamaterials  
Invited  
*Kaoru Tamada (Kyushu University); Koichi Okamoto (Osaka Prefecture University);*
- 16:20 Ultrastrong Plasmon-exciton Coupling between Ag Nanoparticles and Conjugated Polymers  
*Christopher E. Petoukhoff (Okinawa Institute of Science and Technology); Keshav M. Dani (Okinawa Institute of Science and Technology Graduate University); Deirdre M. O'Carroll (Rutgers University);*

- 16:40 Tunable Random Lasing Emissions Enabled by Metallic Nanoparticles  
*Ya-Ju Lee (National Taiwan Normal University); Ting-Wei Yeh (National Taiwan Normal University); Pei-Rong Wu (National Taiwan Normal University); Yung-Chi Yao (National Taiwan Normal University); Jing-Yu Haung (National Taiwan Normal University);*
- 17:00 Liquid Crystal Active Plasmonic Devices  
*Shie-Chang Jeng (National Chiao Tung University); Yu-Ju Hung (National Sun Yat-Sen University);*
- 17:20 Metalens-enabled Low-power Solid-state Beam Steering in Two Dimensions  
*You-Chia Chang (Columbia University); Min Chul Shin (Columbia University); Christopher T. Phare (Columbia University); Steven A. Miller (Columbia University); Euijae Shim (Columbia University); Michal Lipson (Cornell University);*
- 17:40 Enhancement of Second Harmonic Generation with 3D Meta-resonators  
*Hui-Hsin Hsiao (National Taiwan Normal University); Andreas Wickberg (Karlsruhe Institute of Technology); Carsten Rockstuhl (Karlsruhe Institute of Technology); Martin Wegener (Karlsruhe Institute of Technology (KIT)); Wei Yi Tsai (Research Center for Applied Sciences); Tsung Lin Chung (Research Center for Applied Sciences); Din Ping Tsai (Research Center for Applied Sciences, Academia Sinica);*
- 18:00 Probing the Dark Excitons in 2D Semiconductors  
 Invited with Nonlinear Optical Spectroscopy and Plasmonic Nanocavity  
*Dangyuan Lei (City University of Hongkong);*
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- Session 2P11**  
**SC2: Topological Electromagnetics and Topological Acoustics 2**
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- Wednesday PM, December 18, 2019**  
**Room 11 - Lotus 1**  
 Organized by Fei Gao, Meng Xiao, Luqi Yuan  
 Chaired by Meng Xiao, Luqi Yuan
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- 13:30 Quantum Machine Learning for Quantum Many-body Ground State  
*Chao-Yang Lu (University of Science and Technology of China);*
- 13:50 Realize Charge-2 Dirac Point through Engineering Topological Superlattice  
*Hui Liu (Nanjing University);*
- 14:10 Prediction of Topological Invariants in Photonic Crystals Using Machine Learning  
*Bei Wu (Huazhong University of Science and Technology); Kun Ding (The Hong Kong University of Science and Technology); Che Ting Chan (The Hong Kong University of Science and Technology); Yuntian Chen (Huazhong University of Science and Technology);*
- 14:30 Topological Cavity Mode on a Dislocation  
*Hai-Xiao Wang (National Taiwan University); Fei-Fei Li (Nanjing University); Zhan Xiong (Soochow University); Yin Poo (Nanjing University); Rui-Xin Wu (Nanjing University); Sajeev John (University of Toronto); Jian-Hua Jiang (Soochow University);*
- 14:50 Discrete Diffraction Controlling in Synthetic Dimensions  
*Bing Wang (Huazhong University of Science and Technology);*
- 15:10 Realization of Topologically Valley Transport in Silicon-On-Insulator Platform  
*Xin-Tao He (Sun Yat-Sen University); Hao-Yang Qiu (Sun Yat-Sen University); Xiao-Dong Chen (Sun Yat-Sen University); Jian-Wen Dong (Sun Yat-Sen University);*
- 15:30 **Coffee Break**
- 16:00 Robust Bound States in the Continuum in the Dimerized Chain  
*Qianju Song (Chongqing University); Dezhuhan Han (Chongqing University);*
- 16:20 Pseudospin and Topological Charge Conversion in Dirac-like Photonic Lattices  
*Daohong Song (Nankai University); Jingjun Xu (Nankai University); Zhigang Chen (Nankai University);*
- 16:40 Electromagnetic Scattering Laws in Weyl Systems  
*Ming Zhou (University of Wisconsin — Madison); Lei Ying (University of Wisconsin — Madison); Ling Lu (Institute of Physics, Chinese Academy of Sciences); Lei Shi (Fudan University); Jian Zi (Fudan University); Zongfu Yu (University of Wisconsin);*
- 17:00 Quantum Optics in a Topological Waveguide under the Dynamic Modulation  
*LuoJia Wang (Shanghai Jiao Tong University); Luqi Yuan (Shanghai Jiao Tong University);*
- 13:10 Multiple Edge States from Reciprocal Continuous Media  
*Jinying Xu (Xiamen University); Yineng Liu (Xiamen University); K. S. Chan (City University of Hong Kong); Jensen Li (Hong Kong University of Science and Technology);*

- 17:20 Observation of Topological Corner State in Two-dimensional Dielectric Photonic Crystals  
*Xiaoxi Zhou (Soochow University); Zhi-Kang Lin (Soochow University); Shanshan Li (Soochow University); Weixin Lu (Soochow University); Bo Hou (Soochow University); Jian-Hua Jiang (Soochow University);*

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**Session 2P12**

**SC2: Nanoplasmonics and Meta-optics**

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**Wednesday PM, December 18, 2019**

**Room 12 - Lotus 2**

Organized by Tao Li, Xiangping Li

Chaired by Tao Li, Xiangping Li

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- 13:10 Four-dimensional Imaging Based on Metalens Array  
*Shuming Wang (Nanjing University);*
- 13:30 Dynamic Control of Terahertz Wavefronts with Graphene Metasurfaces  
*Qiushi Li (Shanghai University); Min Jia (Fudan University); Tong Liu (Fudan University); Haoyang Zhou (Fudan University); Qiong He (Fudan University); Yanrui Chen (Shanghai University); Shiyi Xiao (Shanghai University); Lei Zhou (Fudan University);*
- 13:50 Broadband Generation of Perfect Hybrid-order Poincaré Sphere Beams Based on Dielectric Metasurface  
*Mingze Liu (Nanjing University); Pengcheng Huo (Nanjing University); Wenqi Zhu (National Institute of Standards and Technology); Cheng Zhang (National Institute of Standards and Technology); Si Zhang (Nanjing University); Ting Xu (Nanjing University);*
- 14:10 Selection and Manipulation of Multipolar Resonances by Engineering Structured Fields  
*Jeng Yi Lee (National Dong Hwa University);*
- 14:30 Exceptionally Large Nonlinearity of Nanomaterials through Photothermal Interaction  
*Shi-Wei Chu (National Taiwan University);*
- 14:50 Spatially-resolved Dynamically-reconfigurable Control over Thermal Emission  
*Qiang Li (Zhejiang University); Ziquan Xu (Zhejiang University); Min Qiu (Westlake University);*
- 15:10 Saturable Scattering for Detection and Spectroscopy of Ultra-small Single Plasmonic Nanoparticles  
*Tianyue Zhang (Jinan University); Jian Xu (Jinan University); Xiangping Li (Jinan University);*

15:30 **Coffee Break**

- 16:00 Spin-orbital Coupling for Chiral Imaging and Sensing  
*Qi-Wen Zhan (University of Dayton);*

- 16:20 Modulating Propagating Surface Plasmons on Silver Nanowires  
*Hong Wei (Institute of Physics, Chinese Academy of Sciences);*

- 16:40 Space-charge Effects on Plasmonic Interactions in Semiconducting Nanoparticles  
*Thomas T. Y. Wong (Illinois Institute of Technology); Tao Shen (Kunming University of Science and Technology); Zi Wang (Illinois Institute of Technology);*

- 17:00 Optical Long Data Storage Enabled by Nanoplasmonics  
*Qiming Zhang (University of Shanghai for Science and Technology); Min Gu (University of Shanghai for Science and Technology);*

- 17:20 Photonic Coupling at the Nanoscale: From Sensor to Actuator  
*Jie Bian (Nanjing University); Jingjing Zhu (Nanjing University); Chenyu Dong (Nanjing University); Weihua Zhang (Nanjing University);*

- 17:40 Two-dimensional Molybdenum Disulfide Supported Tunable Hybrid Surface Plasmon Waveguide  
*Xiao-Yong He (Shanghai Normal University);*

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**Session 2P13**

**SC3: Micro/nano Structured Photonic and Optoelectronic Devices**

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**Wednesday PM, December 18, 2019**

**Room 13 - Lotus 3**

Organized by Jing Feng, Kwang-Sup Lee, Hong-Bo Sun

Chaired by Jing Feng, Kwang-Sup Lee

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- 13:10 Flexible Nanowire Photodetectors and Image Sensors  
Invited  
*Guozhen Shen (Institute of Semiconductors, Chinese Academy of Sciences);*

- 13:30 Perovskite and Plasmonic Optoelectronics: From Photoconversion to Light Emission  
Invited  
*Dong Ha Kim (Ewha Womans University);*

- 13:50 Application of Transferable ZTO Nanospheres Monolayer to LED and UV Detectors  
Invited  
*Ui Jin Jung (Hanyang University); Dohyun Kim (Hanyang University); Dong Su Shin (Hanyang University); Jinsub Park (Hanyang University);*



- 14:10 Multifunctional Semiconducting Polymer Dots for Super-resolution Imaging and in Vivo Sensing  
Invited *Changfeng Wu (Southern University of Science and Technology);*
- 14:30 Strategies for Enhanced Spatial Resolution and Color Vibrancy in Dielectric Structural Colors  
Invited *Jerome Kartham Hyun (Ewha Womans University);*
- 14:50 Organic Single Crystalline Materials for Optoelectric Functional Devices  
Invited *Ran Ding (Jilin University); Jing Feng (Jilin University); Hong-Bo Sun (Jilin University);*
- 15:10 Ink-jet Printed Block Copolymer Structural Color Sensors and Displays  
*Cheolmin Park (Yonsei University); Han Sol Kang (Yonsei University); Tae Hyun Park (Yonsei University);*
- 15:30 **Coffee Break**
- 16:00 Plasmonic Nanoantennas Based on Nanosphere Lithography  
Invited *Yue-Feng Liu (Jilin University);*
- 16:20 Fast-switching Electrochromic WO<sub>3</sub>/ZnO Nanorods with a PEDOT:PSS Layer  
*Su-Hua Yang (National Kaohsiung University of Applied Sciences); Chih-Fu Kao (National Kaohsiung University of Science and Technology); Jia-Hua Yang (National Kaohsiung University of Science and Technology);*
- 16:40 Looping Exceptional Points in Anti-parity-time Symmetric Systems  
Invited *Xu-Lin Zhang (Jilin University);*
- 17:00 Constructing Metal Arch Nanobridges Utilizing Photothermal-induced Nanobonding Technique  
*Pintu Ghosh (Zhejiang University); Jinsheng Lu (Zhejiang University); Hao Luo (Zhejiang University); Wei Wang (Zhejiang University); Ziquan Xu (Zhejiang University); Min Qiu (Zhejiang University); Qiang Li (Zhejiang University);*
- 17:20 Flexible and Stretchable Organic Light-emitting Devices  
Invited *Jing Feng (Jilin University);*
- 17:40 Electrical Performance Improvement of InAs/InP Nanowire Telecom-band Light Emitting Diodes  
*Guoqiang Zhang (NTT Corporation); Takehiko Tawara (NTT Corporation); Hideki Gotoh (NTT Corporation);*
- 18:00 High-precision Optical Displacement Sensor Based on the Nano-gratings  
*Mengwei Li (North University of China); Rui Zhang (North University of China); Li Jin (North University of China);*

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**Session 2P14**
**SC4: Advanced Antennas for 5G Applications**


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**Wednesday PM, December 18, 2019**
**Room 14 - Lily**

Organized by Xiu-Yin Zhang, Yang Yang

 Chaired by Xiu-Yin Zhang, Yang Yang
 

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- 13:30 Mutual Coupling Reduction of Slot Array Antenna for 5G Millimeter-wave Handset  
*Xiaoming Chen (Xi'an Jiaotong University); Muhammad Abdullah (Reykjavik University); Shuai Zhang (Aalborg University); Teng Li (Xi'an Jiaotong University); Qinlong Li (Xi'an Jiaotong University);*
- 13:50 The Methods for Generating Radiation Null in Filtering Antennas  
*Lei Wang (Nantong University); Kai Xu (Nantong University); Jin Shi (City University of Hong Kong);*
- 14:10 An Advanced Antenna Based on Vector Synthetic Mechanism for 5G Application  
*He Huang (Xidian University);*
- 14:30 An Improved Method for Extracting the Coupling Coefficient of Filtering Antennas within Complex Boundaries  
*Chi Ren (South China University of Technology); Cheng Guo (South China University of Technology); Xiao Zhang (Shenzhen University); Lei Zhu (University of Macau); Tao Yuan (Shenzhen University);*
- 14:50 Advanced Multifunctional Antennas for 5G and Beyond  
*Yang Yang (University of Technology Sydney); Zhonghao Hu (Rosenberger Technologies (Australia) Pty Ltd.);*
- 15:10 Novel Hexagonal Ring Compact Patch UWB Antenna Design Based on Minkowski and Koch Fractal Combination Structure  
*Shuo Yang (Lanzhou University); Guanmao Zhang (Lanzhou University); Jiali Ru (Lanzhou University); Guanping Fan (Lanzhou University); Mingyang Zhai (Lanzhou University);*

 15:30 **Coffee Break**


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- 16:00 A Compact Dual-band Filtering Antenna Using Stub-loaded Open-loop Resonators  
*Chong-Hao Tan (Xidian University); Jing-Ya Deng (Xidian University); Si-Min Hou (Huawei Xi'an Research Institute); Dong-Quan Sun (Xidian University); Li-Xin Guo (Xidian University);*
- 16:20 Broadband RF Communication System Design for Smart Houses including Wi-Fi and 5G  
*Feza Turgay Çelik (Middle East Technical University); Kamil Karaçuha (Informatics Institute of Istanbul Technical University);*
- 16:40 Broadband CPW-fed Stub-loaded Slot Antenna Array for 5G mm-Wave Applications  
*Xiaoke Zhang (Xi'an Jiaotong University); An Yang (Xi'an Jiaotong University); Peng Hu (Xi'an Jiaotong University); Jianxing Li (Xi'an Jiaotong University); Anxue Zhang (Xi'an Jiaotong University);*
- 17:00 Dual Band Quasi-Yagi Antenna Array Structure for the Side Loop Reduction by Using Binomial Weighting  
*Kamil Karaçuha (Informatics Institute of Istanbul Technical University); Feza Turgay Çelik (Middle East Technical University);*
- 17:20 Broadband Dual-polarized Cross-shaped Aperture Waveguide Filtenna Array with High Gain Low Grating-lobe and High Selectivity  
*Tao Zhang (Nanjing University of Aeronautics and Astronautics); Yong Huang (Shanghai Radio Equipment Research Institute); Xunxun Lu (Shanghai Radio Equipment Research Institute); Yao Ma (Shanghai Radio Equipment Research Institute); Chao Liu (Shanghai Radio Equipment Research Institute); Mei Jiang (Shanghai Radio Equipment Research Institute);*
- 13:50 Transverse Photon Spin Assisted by Me Coupling in Homogeneous Medium  
*Liang Peng (Hangzhou Dianzi University); Fei Gao (Zhejiang University); Hongsheng Chen (Zhejiang University); Shuang Zhang (University of Birmingham);*
- 14:10 Giant In-plane Asymmetric Spin Angular Shifts  
*Xinxing Zhou (Hunan Normal University);*
- 14:30 Detection of Orbital Angular Momentum-induced Beam Shifts by Weak Measurement  
*Wenguo Zhu (Jinan University); Wenjin Long (Jinan University); Jianhui Yu (Jinan University); Zhe Chen (Jinan University);*
- 14:50 Topological Phase Transitions in Spin-orbit Photonics  
*Xiaohui Ling (Fudan University); Fuxin Guan (Fudan University); Qiong He (Fudan University); Shiyi Xiao (Fudan University); Lei Zhou (Fudan University);*
- 15:10 Non-abelian Gauge Field Optics and Pseudo-spin Related Photonics  
*Zhongfei Xiong (Huazhong University of Science and Technology); Ruo-Yang Zhang (Nankai University); Yuntian Chen (Huazhong University of Science and Technology); Che Ting Chan (The Hong Kong University of Science and Technology);*
- 15:30 **Coffee Break**
- 16:00 Direct Probing and Mapping the Photonic Spin-orbit Interactions in the Near Field of Nanostructures  
*Benfeng Bai (Tsinghua University); Lin Sun (Tsinghua University); Tong Cui (Tsinghua University); Jia Wang (Tsinghua University);*
- 16:20 Dielectric Metasurface Image Displays Enabled with Magnetic Resonance  
*Guoxing Zheng (Wuhan University); Juan Deng (Wuhan University); Qi Dai (Wuhan University); Zile Li (Wuhan University);*
- 16:40 Intuitive Semi-analytical Description of Subwavelength Plasmonic Trench Waveguide  
*Haitao Liu (Nankai University); Junda Zhu (Nankai University); Tong Zhu (Nankai University); Hongwei Jia (Nankai University); Ying Zhong (Tianjin University);*
- 17:00 Generating Bona Fide Twisted Gaussian Schell-model Beams  
*Haiyun Wang (Soochow University); Lin Liu (Soochow University); Fei Wang (Soochow University); Yangjian Cai (Soochow University);*

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**Session 2P15**
**SC3: Spin Photonics and Chiral Photonics**


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**Wednesday PM, December 18, 2019**
**Room 15 - Narcissus**

Organized by Yuntian Chen, Hailu Luo

 Chaired by Yuntian Chen
 

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- 13:30 Synthesis Non-Abelian Gauge Fields in Fiber  
*Yi Yang (Massachusetts Institute of Technology); Chao Peng (Peking University); Di Zhu (Massachusetts Institute of Technology); Hrvoje Buljan (University of Zagreb); John D. Joannopoulos (Massachusetts Institute of Technology); Bo Zhen (University of Pennsylvania); Marin Soljačić (Massachusetts Institute of Technology);*

17:20 Multipolar Conversion Induced Subwavelength High- $Q$  Kerker Supermodes  
*Weijin Chen (Huazhong University of Science and Technology); Yuntian Chen (Huazhong University of Science and Technology); Wei Liu (National University of Defense Technology);*

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**Session 2P16**

**SC3: Fiber Sensing Technology and Fiber-based Devices 1**

**Wednesday PM, December 18, 2019**

**Room 16 - Camellia 1**

Organized by Mingjiang Zhang

Chaired by Mingjiang Zhang, Da-Peng Zhou

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13:10 Optical Devices Based on Few-mode Fiber  
 Invited  
*Li Pei (Beijing Jiaotong University);*

13:30 Fiber Bragg Grating Demodulation Stabilization  
 Invited Method for Varying Thermal Environment in Aerospace Application  
*Junfeng Jiang (Tianjin University); Kun Liu (Tianjin University); Shuang Wang (Tianjin University); Xiaojun Fan (Tianjin University); Xuezhong Zhang (Tianjin University); Tiegen Liu (Tianjin University);*

13:50 Distributed Perturbation Measurement with Ultra-  
 Invited weak FBG Array  
*Feng Wang (Nanjing University); Yixin Zhang (Nanjing University); Xuping Zhang (Nanjing University);*

14:10 Recent Advances on Phase-sensitive OTDR with Co-  
 Invited herent Detection  
*Zinan Wang (University of Electronic Science & Technology of China);*

14:30 Femtosecond Laser-inscribed Multimode Fiber Bragg  
 Invited Gratings  
*Jun He (Shenzhen University); Xizhen Xu (Shenzhen University); Changrui Liao (Shenzhen University); Yiping Wang (Shenzhen University);*

14:50 Distributed Acoustic Sensor Based on a Two-mode  
 Invited Fiber  
*Mengmeng Chen (Nanjing Xiaozhuang University); Ali Masoudi (University of Southampton); Francesca Parmigiani (University of Southampton); Gilberto Brambilla (University of Southampton);*

15:10 Chaotic BOCDA without Temperature and Strain  
 Cross Sensitivity  
*Xiaocheng Zhang (Taiyuan University of Technology); Jianzhong Zhang (Taiyuan University of Technology); Mingjiang Zhang (Taiyuan University of Technology); Shuang Shuang Liu (Taiyuan University of Technology);*

**15:30 Coffee Break**

16:00 Investigation of Distributed Disturbance Sensing Sys-  
 Invited tem Based on Asymmetric Dual Mach-Zehnder Interferometry with Intelligent Video Surveillance  
*Kun Liu (Tianjin University); Tiegen Liu (Tianjin University); Junfeng Jiang (Tianjin University); Pengfei Ma (Tianjin University); Zhenshi Sun (Tianjin University); Liwang Zhang (Tianjin University); Zhongyuan Xu (Tianjin University);*

16:20 Hollow Core Fiber Enabled Resonators and Sensors  
 Invited  
*Xiaobei Zhang (Shanghai University);*

16:40 Parallel Computation Technology for Distributed Op-  
 Invited tical Fiber Sensing System  
*Baoquan Jin (Taiyuan University of Technology); Yu Wang (Taiyuan University of Technology); Yuejuan Lv (Taiyuan University of Technology); Xin Liu (Taiyuan University of Technology); Qing Bai (Taiyuan University of Technology); Hongjuan Zhang (Taiyuan University of Technology); Yan Gao (Taiyuan University of Technology);*

17:00 Phase-coded Brillouin Optical Correlation Domain  
 Invited Analysis with 2-mm Resolution Based on Intensity Modulation  
*Dexin Ba (Harbin Institute of Technology); Yue Li (Harbin Institute of Technology); Xiaopei Zhang (Harbin Institute of Technology); Yongkang Dong (Harbin Institute of Technology);*

17:20 Batch-producible Hybrid Fabry-Perot Fiber-Optic  
 Invited Sensors for Dual-parameters Measurement  
*Shuang Wang (Tianjin University); Wen Wu (Tianjin University); Junfeng Jiang (Tianjin University); Kun Liu (Tianjin University); Xue Wang (Tianjin University); Xun Yu (Tianjin University); Weian Cai (Tianjin University); Xiaofei Zhang (Tianjin University); Tiegen Liu (Tianjin University);*

17:40 Distributed Strain Measurement with Millimeter-  
 level-spatial-resolution Based on Broadband Chaotic  
 Laser  
*Qian Zhang (Taiyuan University of Technology); Mingjiang Zhang (Taiyuan University of Technology); Yahui Wang (Taiyuan University of Technology); Jianzhong Zhang (Taiyuan University of Technology); Le Zhao (Taiyuan University of Technology);*

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**Session 2P17a**
**SC3: Si-based Light Emission Devices and Lasers**


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**Wednesday PM, December 18, 2019**
**Room 17 - Camellia 2**

Organized by Cheng Li, Haiyan Ou

 Chaired by Cheng Li
 

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 13:30 GePb Alloy: Band Structure, Epitaxy and Device Application  
 Invited

*Buwen Cheng (Institute of Semiconductors, Chinese Academy of Sciences); Jun Zheng (Institute of Semiconductors, Chinese Academy of Sciences); Xiangquan Liu (Institute of Semiconductors, Chinese Academy of Sciences); Wenqi Huang (Institute of Semiconductors, Chinese Academy of Sciences); Zhi Liu (Institute of Semiconductors, Chinese Academy of Sciences); Chunlai Xue (Institute of Semiconductors, Chinese Academy of Sciences);*

 13:50 Ge- and Si-based InAs/GaAs Quantum Dot Lasers  
 Invited

*Hailong Wang (Qufu Normal University); Qian Gong (Shanghai Institute of Microsystem and Information Technology, Chinese Academy of Sciences);*

 14:10 High Sn Fraction GeSn Quantum Dots for Si-based Light Emission  
 Invited

*Lu Zhang (Xiamen University); Haiyang Hong (Xiamen University); Kun Qian (Xiamen University); Cheng Li (Xiamen University);*

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**Session 2P17b**
**SC3: Microcavity Lasers and Optical Frequency Combs**


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**Wednesday PM, December 18, 2019**
**Room 17 - Camellia 2**

Organized by Yong-Zhen Huang, Guanshi Qin

 Chaired by Guanshi Qin
 

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14:30 High Performance Plasmonic Nanolasers with External Quantum Efficiency Exceed 10%

*Suo Wang (Peking University); Hua-Zhou Chen (Peking University); Renmin Ma (Peking University);*

 14:50 Graphene Enhanced and Controllable Kerr and Laser Frequency Combs  
 Invited

*Baicheng Yao (University of Electronic Science and Technology of China); Teng Tan (University of Electronic Science and Technology of China); Zhongye Yuan (University of Electronic Science and Technology of China);*

15:10 Noise Characteristics of the Hybrid WGM-FP Lasers under External Optical Feedback

*You-Zeng Hao (Institute of Semiconductors, Chinese Academy of Sciences); Fu-Li Wang (Institute of Semiconductors, Chinese Academy of Sciences); Ji-Liang Wu (Institute of Semiconductors, Chinese Academy of Sciences); Yue-De Yang (Institute of Semiconductors, Chinese Academy of Sciences); Jin-Long Xiao (Institute of Semiconductors, Chinese Academy of Sciences); Yong-Zhen Huang (Institute of Semiconductors, Chinese Academy of Sciences);*

 15:30 **Coffee Break**

16:00 Chaos from a Solitary Free-running Microcavity Laser

*Chun-Guang Ma (Institute of Semiconductors, Chinese Academy of Sciences); Zhi-Xiong Xiao (Institute of Semiconductors, Chinese Academy of Sciences); Yong-Zhen Huang (Institute of Semiconductors, Chinese Academy of Sciences); Yue-De Yang (Institute of Semiconductors, Chinese Academy of Sciences); Jin-Long Xiao (Institute of Semiconductors, Chinese Academy of Sciences);*

16:20 Broadband Supercontinuum Generation from 600 to 5400 nm in a Tapered Fluorotellurite Fiber

*Zhenrui Li (Jilin University); Chuanfei Yao (Jilin University); Zhixu Jia (Jilin University); Fang Wang (Jilin University); Guanshi Qin (Jilin University); Yasutake Ohishi (Toyota Technological Institute); Weiping Qin (Jilin University);*

16:40 Design of All-solid W-type Index Fluorotellurite Fibers with Near-zero-flattened Chromatic Dispersion for Optical Frequency Comb Generation

*Yali Huang (Jilin University); Ningning Zhou (Jilin University); Qing Li (Jilin University); Zhixu Jia (Jilin University); Fei Wang (Jilin University); Weiping Qin (Jilin University); Daming Zhang (Jilin University); Guanshi Qin (Jilin University);*

 17:00 Development of Er-doped Fiber Optical Frequency Comb with Intra-cavity EOM  
 Invited

*Shiyong Cao (National Institute of Metrology); Baikeli Lin (National Institute of Metrology); Fei Meng (National Institute of Metrology); Yige Lin (National Institute of Metrology); Zhanjun Fang (National Institute of Metrology);*

17:20 Mode Interactions in Microsized Lasers  
Invited  
*Qinghai Song (Harbin Institute of Technology);*

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**Session 2P0**  
**Poster Session 2**

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**Wednesday PM, December 18, 2019**

**14:00 PM - 18:00 PM**

**Room Corridor**

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|---|--|----|--|
| 1 | Shielding Effectiveness of Liquid Electrolyte<br><i>Stanislav Kovar (Tomas Bata University in Zlin); Martin Pospisilik (Tomas Bata University in Zlin); Jan Valouch (Tomas Bata University in Zlin); Milan Adamek (Tomas Bata University in Zlin);</i>   | 8  | A New Design for Two-layer Thin Wideband Radar Absorber<br><i>Hong Qin Zheng (Tongji University); Qing Xu (Tongji University); Mei Song Tong (Tongji University);</i>  |
| 2 | Calculation of the Electric Field in Shadowed Region by Hybrid Method<br><i>Ding-E Wen (Science and Technology on EMC Laboratory); Qi Zhang (Science and Technology on EMC Laboratory); Wei Zhang (Science and Technology on EMC Laboratory); Ming Zhang (Science and Technology on EMC Laboratory); Chonghua Fang (Science and Technology on EMC Laboratory);</i> | 9  | Optical Diagnostics on Characteristics of the Cathode and Anode Plasma Evolutions in a Magnetically Insulated Coaxial Diode<br><i>Danni Zhu (Aval University of Engineering); Jun Zhang (National University of Defense Technology); Jin Meng (Naval University of Engineering); Yuzhang Yuan (Aval University of Engineering); Yancheng Cui (Aval University of Engineering);</i>   |
| 3 | A Scattering Evaluation Method of Chaff Cloud Based on VRT and SVM<br><i>Yanchun Zuo (Xidian University); Lixin Guo (Xidian University); W. Liu (Xidian University);</i>   | 10 | The Feynman Diagrammatic Approach to the Evolution of a Two-level System<br><i>Chong Wang (Science and Technology on Electromagnetic Scattering Laboratory);</i>   |
| 4 | Human Action Recognition Based on Skeleton and Convolutional Neural Network<br><i>Yusi Yang (Tongji University); Zhuohao Cai (Tongji University); Yingdong Yu (Tongji University); Tong Wu (Tongji University); Lan Lin (Tongji University);</i>   | 11 | The Research of Extraordinary Transmission Mechanism on Metallic Grating Structure Based on NS-FDTD<br><i>Jundui Mu (Anhui University); Pingjuan Zhang (Anhui Science and Technology University); Minquan Li (Anhui University); Kaifeng Cui (Anhui University); Dui Liu (Anhui University); Xuhui Zhang (Anhui University);</i>   |
| 5 | A Timing Sequence Feature Fusion Algorithm for Multi-module Data Acquisition System<br><i>Wen Hao Kang (Tongji University); Guo Chun Wan (Tongji University); Mei Song Tong (Tongji University);</i>   | 12 | Ultra-thin Polarization-insensitive Plasmon-induced Transparency Metamaterials<br><i>Feng Xue (Nanjing University of Aeronautics and Astronautics); Shaobin Liu (Nanjing University of Aeronautics and Astronautics); Hai-Ming Li (Nanjing University of Aeronautics and Astronautics); Xiang-Kun Kong (Nanjing University of Aeronautics and Astronautics); Ling-Ling Wang (Nanjing University of Aeronautics and Astronautics); Xuewei Zhang (Nanjing University of Aeronautics and Astronautics);</i>     |
| 6 | Interference Probability Calculation Method of Frequency Agile Radar Based on the Spectrum of Interference Signal<br><i>Zhili Wang (China Ship Development and Design Centre);</i>   | 13 | Hybrid Substrate Integrated Waveguide and Spoof Localized Surface Plasmon Filter<br><i>Zhang-Biao Yang (National University of Defense Technology); Dong-Fang Guan (National University of Defense Technology); Xian-Jun Huang (National University of Defense Technology); Peng You (National University of Defense Technology); Shen-Da Xu (National University of Defense Technology); Li Liu (National University of Defense Technology); Shao-Wei Yong (National University of Defense Technology);</i> |
| 7 | An Improved Target Detection Method Based on Sonar Image Processing<br><i>Jiahao Lu (Tongji University); Shitong Zhang (Tianjin University); Hongwei Zhang (Tianjin University); Lan Lin (Tongji University);</i>  | 14 | Guided Inverse Design of Surface Plasmon Polaritons Based Nanophotonic Films by Deep Learning<br><i>Yingshi Chen (Xiamen University); Jinfeng Zhu (Xiamen University);</i>   |

- 15 Wideband Asymmetric Transmission and Energy Selection Metamaterial for Linearly Polarized Wave  
*Juzheng Han (Nanjing University of Science and Technology); Xiang-Kun Kong (Nanjing University of Aeronautics and Astronautics);*
- 16 A Design Method of Ultra-wideband Self-reconfigurable Electromagnetic Pulse Protection Surface  
*Wenzhuo Wang (Science and Technology on Electromagnetic Compatibility Laboratory); Dongdong Wang (Science and Technology on Electromagnetic Compatibility Laboratory); Jingxian Yang (Science and Technology on Electromagnetic Compatibility Laboratory); Chengchao Hua (Science and Technology on Electromagnetic Compatibility Laboratory);*
- 17 Integrated Metamaterial with Functionalities of Absorption and Electromagnetically Induced Transparency  
*Zhengyong Song (Xiamen University); Apeng Chen (Xiamen University); Jiahe Zhang (Xiamen University);*
- 18 Application of Optical Vibration Sensor on Mine Draught Fan Monitoring System  
*Guofeng Dong (Qilu University of Technology (Shandong Academy of Sciences)); Lin Zhao (Qilu University of Technology (Shandong Academy of Sciences)); Jiqiang Wang (Qilu University of Technology (Shandong Academy of Sciences)); Zhen Li (Qilu University of Technology (Shandong Academy of Sciences)); Yuan Liu (Qilu University of Technology (Shandong Academy of Sciences)); Jinyu Wang (Qilu University of Technology (Shandong Academy of Sciences)); Tongyu Liu (Qilu University of Technology (Shandong Academy of Sciences));*
- 19 Integration of FBG Optical Sensor Network in DWDM-PON Transmission System  
*Klinda Vilcane (Riga Technical University); Richards Murnieks (Riga Technical University); Marina Aleksejeva (Riga Technical University); Janis Braunfelds (Riga Technical University); Ilja Lyashuk (Riga Technical University); Vjaceslavs Bobrovs (Riga Technical University);*
- 20 Application of Phase-sensitive Fiber Optic Parametric Amplifier in Phase Modulated Signal Regeneration  
*Kaspars Zakis (Riga Technical University); Andis Supe (Riga Technical University);*
- 21 Design of a Hybrid Multimode Fiber Amplifier with Optimized Mode Dependent Gain and Wavelength Dependent Gain  
*Junhe Zhou (Tongji University); Yufeng Liu (Tongji University);*
- 22 On-chip Stokes Polarimeter Based on a Two-dimensional Grating  
*Yanxian Wei (Huazhong University of Science and Technology); Hailong Zhou (Huazhong University of Science and Technology); Jianji Dong (Huazhong University of Science and Technology); Xinliang Zhang (Huazhong University of Science and Technology);*
- 23 A Hierarchical Processing Algorithm for Frequency Parameters of Capacitive Sensors  
*Fei Feng (Tongji University); Xin Yu Guo (Tongji University); Guo Chun Wan (Tongji University); Mei Song Tong (Tongji University);*
- 24 Portable Beam-profile System Using Inorganic Scintillation Screens for the DIRAMS Electron Accelerator  
*Heujin Lim (Dongnam Institute of Radiological & Medical Sciences); Sang Koo Kang (Dongnam Institute of Radiological & Medical Sciences); Hee Chang Kim (Dongnam Institute of Radiological & Medical Sciences); Seung Heon Kim (Dongnam Institute of Radiological & Medical Sciences); Dong Eun Lee (Dongnam Institute of Radiological & Medical Sciences); Kyoung Won Jang (Dongnam Institute of Radiological & Medical Sciences); Dong Hyeok Jeong (Dongnam Institute of Radiological & Medical Sciences); Manwoo Lee (Dongnam Institute of Radiological & Medical Sciences);*
- 25 Bismuth-based Optical Frequency Comb Source  
*Yutaka Fukuchi (Tokyo University of Science); Ryoichi Miyauchi (Tokyo University of Science);*
- 26 Broadband Circular Polarized Composite Spiral Antenna Using Two-layer AMC  
*Yawen Song (Anhui University); Ping-Juan Zhang (Anhui Science and Technology University); Yanyang Liu (Anhui University); Kaiyue Duan (Anhui University); Lichang Huang (Anhui University); Minquan Li (Anhui University);*
- 27 Direction Finding with Time Modulation for Phased Array  
*Chong He (Shanghai Jiao Tong University); Xudong Bai (Shanghai Scientific Instrument Factory); Anjie Cao (Shanghai Institute of Satellite Engineering); Jingfeng Chen (Shanghai Jiao Tong University);*
- 28 A Compact Dual-band WiFi Energy Harvester  
*Sanchith Padmaraj (Illinois Institute of Technology); K. Nirish Patil (Illinois Institute of Technology); Shaolin Liao (Illinois Institute of Technology);*

- 29 Novel Applications of Vertical Via in MMCM Interconnection  
*Pengfei Yu (East China Research Institute of Electronic Engineering); Ligu Sun (University of Science and Technology of China); Xingguo Chen (East China Research Institute of Electronic Engineering); Guangchi Wang (East China Research Institute of Electronic Engineering);*
- 30 The Application of IABC\_Keans in Array Antenna Pattern Synthesis  
*Yun Zhou (Liaoning Normal University); Shao-Jun Fang (Dalian Maritime University); Hongmei Liu (Dalian Maritime University); Te Shao (Dalian Maritime University);*
- 31 Metallized Blind Via Holes and Surface Etching Incorporation for Miniaturization Enhancement in Slow-wave Substrate Integrated Waveguide  
*Yuliang Zhou (University of Electronic Science and Technology of China); Haiyan Jin (University of Electronic Science and Technology of China); Yong Mao Huang (Xihua University); Du Xu (University of Electronic Science and Technology of China); Maurizio Bozzi (University of Pavia);*
- 32 A Design of Broadband Circularly Polarized Directional Antenna Using Cavity Reflector  
*Liangrong Ge (Beijing Institute of Technology); Wei-Ming Li (Beijing Institute of Technology); Sihui Bao (Beijing Institute of Technology); Wu Ren (Beijing Institute of Technology); Zheng Hui Xue (Beijing Institute of Technology);*
- 33 RCS Measurement Based on Frequency-sparse 3-D Imaging  
*Yang Liu (Guilin University of Electronic Technology); Kefei Liao (Guilin University Of Electronic Technology);*
- 34 Combined Design of Monopole and Strip Resonator for WLAN/WiMAX Triple-band Application  
*Jong-Sung Kim (Kyung Sung University);*
- 35 Through-the-Debris Imagery of Vital Signs Using UWB MIMO Bioradar  
*Fulai Liang (The Fourth Military Medical University); Pengfei Wang (Air Force Medical University); Weifeng Song (Airforce Medical University); Yangyang Ma (Air Force Medical University); Hui Jun Xue (The Fourth Military Medical University); Zhao Li (The Fourth Military Medical University); Xiao Yu (The Fourth Military Medical University); Jianqi Wang (The Fourth Military Medical University);*
- 36 An Improved Genetic Algorithm for Multiband Microstrip Antenna Design  
*Chen Jing Zhang (Tongji University); Chun Xia Yang (Tongji University); Mei Song Tong (Tongji University);*
- 37 A Novel Output-capacitorless Low-Dropout Regulator for Power Management  
*Bin Wang (Tongji University); Gang Zhang (Tongji University); Miao Yang (Tongji University); Mei Song Tong (Tongji University);*
- 38 High Efficiency 2nd and 3rd Harmonic Tuned Power Amplifier  
*Xiaoxiao Li (China Academy of Science and Technology); Hongxi Yu (China Academy of Space Technology (CAST));*
- 39 A Compact Bandpass Filter Using Novel Microstrip Dual-mode Resonator with Hexagonal Structure  
*Xin-Yu Ning (Anhui University); Haoran Zhu (Anhui University); Zhi-Xiang Huang (Anhui University);*
- 40 A Circularly Polarized Printed Antenna with Modified Slots and Slits for RFID Reader  
*Ehab Ghanem (University of British Columbia); Es-mat Abdel-Fattah Abdallah (Electronics Research Institute); Mohamed Aly Aboul-Dahab (Arab Academy for Science and Technology and Maritime Transport);*
- 41 The Performance Analysis of a Spinning Magnet as a Mechanical Antenna  
*Wei Shi (National University of Defense Technology); Qiang Zhou (National University of Defense Technology); Bin Liu (National University of Defense Technology);*
- 42 A Method of Sparse Plane Arrays Synthesis Based on Archimedean Spiral and Quantum Search Algorithm  
*Yu Zuo (Science and Technology on Electromagnetic Compatibility Laboratory); Chengchao Hua (Science and Technology on Electromagnetic Compatibility Laboratory); Jingxian Yang (Science and Technology on Electromagnetic Compatibility Laboratory); Tianhua Yue (Wuhan Ship Development and Design Institute Co. Ltd.);*
- 43 Development of PLA-based 3D Printed Quad-ridged Horn Antenna for Tomography Application  
*Folin Oktafiani (Institut Teknologi Bandung); Efrina Yanti Hamid (Institut Teknologi Bandung); Achmad Munir (Institut Teknologi Bandung);*

- 44 Dual-band Circularly Polarized Shared-aperture Antenna  
*Guilin Sun (East China Research Institute of Electronic Engineering); Hongtao Zhang (Xidian University); Yuru Rao (East China Research Institute of Electronic Engineering); Ru Meng (East China Research Institute of Electronic Engineering);*
- 45 A Novel Device Model Validation System for 1.5 T and 3 T MRI Safety Assessment  
*Shuo Song (University of Houston); Yu Wang (University of Houston); Jianfeng Zheng (University of Houston); Qingyan Wang (University of Houston); Ji Chen (University of Houston);*
- 46 Design and Development of Mini-Marx Generator Charged by a Cockcroft-Walton Voltage Multiplier  
*Zhaofeng Zhang (Hanyang University); Kaviya Aranganadin (Hanyang University); Jing-Shyang Yen (National Taipei University of Technology); Hua-Yi Hsu (National Taipei University of Technology); Po-Yu Chang (National Cheng Kung University); Ming-Chieh Lin (Hanyang University);*
- 47 On the Diagnosis of Incipient Faults in Transmission Lines Using a Projection Approach Based on Phase Patterns  
*Moussa Kafal (CEA, LIST); Wafa Ben Hassen (CEA, LIST, Laboratoire de Fiabilite et Integration Capteurs);*
- 48 Electromagnetic Scattering and Spatial-temporal Correlation Analysis of Ground Clutter Based on Moving Platform  
*Wei Liu (Xidian University); Donghai Xiao (Xidian University); Yanchun Zuo (Xidian University); Lixin Guo (Xidian University);*
- 49 A Complex RCS Calibration Data Interpolation Method Based on Compressed Sensing  
*Wenqiang Chen (Science and Technology on Electromagnetic Scattering Laboratory); Chao Gao (Science and Technology on Electromagnetic Scattering Laboratory); Yanjie Cui (Science and Technology on Electromagnetic Scattering Laboratory); Yongquan Jiang (Science and Technology on Electromagnetic Scattering Laboratory); Li Yang (Science and Technology on Electromagnetic Scattering Laboratory);*
- 50 Box Office Prediction Based on Big Data Using Xgboost Algorithm  
*Lan Chen (Shanghai Institute of Technology); Zhiyuan Jiang (Shanghai Institute of Technology);*
- 51 A Novel Radio Frequency Interference Suppression Method for SAR Based on Spectrum Extrapolation  
*Weida Xing (Inner Mongolia University of Technology); Wei Xu (Inner Mongolia University of Technology); Pingping Huang (Inner Mongolia University of Technology); Weixian Tan (Inner Mongolia University of Technology); Jialuo Hu (Inner Mongolia University of Technology); Mingzhi Zhang (China Institute of Geo-Environmental Monitoring);*
- 52 An Accurate Modeling Method for Near-field Echo Characteristics  
*Yanjie Cui (Science and Technology on Electromagnetic Scattering Laboratory); Wenqiang Chen (Science and Technology on Electromagnetic Scattering Laboratory); Qi Jia (Science and Technology on Electromagnetic Scattering Laboratory); Liang Man (Science and Technology on Electromagnetic Scattering Laboratory); Xiang-Yang Zhang (Science and Technology on Electromagnetic Scattering Laboratory);*
- 53 Gas Analyzer for Investigating Stable Carbon Isotopes Concentration  
*E. E. Popov (ITMO University); I. K. Chubchenko (ITMO University); Konstantin M. Grigorenko (ITMO University); A. V. Polishchuk (ITMO University); Vladimir Vladimirovich Vitkin (ITMO University);*
- 54 Block Varying PRI Design for High Squint Sliding-spotlight Synthetic Aperture Radar  
*Yifan Zhang (Inner Mongolia University of Technology); Pingping Huang (Inner Mongolia University of Technology); Wei Xu (Inner Mongolia University of Technology); Weixian Tan (Inner Mongolia University of Technology); Zhixia Wu (Inner Mongolia University of Technology); Yachao Li (Xidian University);*
- 55 Study on Water Information Extraction Method Based on Tiangong-2 Interferometric Imaging Radar Altimeter Data  
*Xiaojin Shi (Center for Space Science and Applied Research, CAS); Xiao Dong (National Space Science Center, Chinese Academy of Sciences); Jiefang Yang (National Space Science Center, Chinese Academy of Sciences); Yunhua Zhang (National Space Science Center, Chinese Academy of Sciences);*
- 56 Research on Accurate Calibration Method Based on Broad Measurement at a High Grazing Angle  
*Feiliang Liu (Science and Technology on Electromagnetic Scattering Laboratory); Chao Gao (Science and Technology on Electromagnetic Scattering Laboratory); Aijun Jia (Troops 31401 PLA); Yang Bai (Science and Technology on Electromagnetic Scattering Laboratory);*



- 57 Key Features and Reliability Factors of Vibrational Signal Processing  
*Dmitry M. Klionskiy (Saint Petersburg Electrotechnical University "LETI"); Vladimir V. Geppener (Saint Petersburg Electrotechnical University "LETI");*
- 58 Analyze of Frequency Selective Surfaces by Hybrid MOM-PO-GTD Method  
*Samir Mendil (National Engineering School of Tunis (ENIT)); Taoufik Aguilu (University of Tunis El Manar (UTM));*
- 59 Study of Surface Roughness of Conductor at Terahertz Frequencies  
*Zhihui Wang (Southwest China Institute of Electronic Technology);*
- 60 Measurement of Atmospheric Opacity in K-band of Nanshan 25 m Radio Telescope  
*Kai Wang (Xinjiang Astronomical Observatory, Chinese Academy of Sciences); Binbin Xiang (Xinjiang Astronomical Observatory, Chinese Academy of Sciences); Mao-Zheng Chen (Xinjiang Astronomical Observatory, Chinese Academy of Sciences); Xue-Feng Duan (Xinjiang Astronomical Observatory, Chinese Academy of Sciences); Hao Yan (Xinjiang Astronomical Observatory, Chinese Academy of Sciences); Jun Ma (Xinjiang Astronomical Observatory, Chinese Academy of Sciences); Yang Wang (Xinjiang Astronomical Observatory, Chinese Academy of Sciences); Liang Cao (Xinjiang Astronomical Observatory, Chinese Academy of Sciences);*
- 61 Inter-comparison Characterization of Nitrous Acid Measurements by IBBCEAS and LOPAP  
*Gui Cheng Gan (University of Shanghai for Science and Technology); Han Ai (University of Shanghai for Science and Technology); Yucun Liu (University of Shanghai for Science and Technology); Jia Luo Zhang (University of Shanghai for Science and Technology); Shengrong Lou (Shanghai Academy of Environmental Science); Jun Chen (University of Shanghai for Science and Technology);*
- 08:20 Self-focusing Effect of Annular Beams Propagating from Orbit to the Ground in the Atmosphere  
*Invited Xiaoling Ji (Sichuan Normal University); Yuqiu Zhang (Sichuan Normal University);*
- 08:40 Simulation Investigation of the Feasibility to Propagate and Focus Continuous-wave (CW) Light through a Turbid Medium  
*Pei-Lin Chou (National Taiwan University); Snow H. Tseng (National Taiwan University);*
- 09:00 Imaging and Focusing of Light Beams through Multi-mode Fibers  
*Invited Jixiong Pu (Huaqiao University); Liqing Wu (Huaqiao University); Weiru Fan (Huaqiao University); Ziyang Chen (Huaqiao University);*
- 09:20 Light Beam Structure Control Based on Fiber Array Coherent Combining, Propagation through Inhomogeneous Media  
*Invited Valerii P. Aksenov (V.E. Zuev Institute of Atmospheric Optics, SB RAS); Vadim V. Dudorov (V.E. Zuev Institute of Atmospheric Optics, SB RAS); V. V. Kolosov (V.E. Zuev Institute of Atmospheric Optics, SB RAS); M. E. Levitsky (Scientific and Innovative Enterprise TOPAZ);*
- 09:40 Using OAM Modes for High Speed Optical Fibre Communications  
*Invited Siyuan Yu (Sun Yat-sen University);*
- 10:00 **Coffee Break**
- 10:30 Coherence Manipulation and Its Applications  
*Invited Yangjian Cai (Soochow University); Jiayi Yu (Soochow University); Fei Wang (Soochow University);*
- 10:50 Cooling and Trapping Strontium Atoms by 461 nm Lasers  
*Invited Xian Zhang (Zhejiang University); Tong Li (Zhejiang University); Naicheng Zhang (Zhejiang University); Xiangyu Tong (Zhejiang University); Kaikai Huang (Zhejiang University); Xuanhui Lu (Zhejiang University);*
- 11:10 Scan Efficiency of Structured Illumination in Single Pixel Imaging  
*Invited Shan Jiang (Shandong University); Xianye Li (Shandong University); Zexin Zhang (Shandong University); Wenjie Jiang (Shandong University); Yupeng Wang (Shandong University); Guanbai He (Shandong University); Yurong Wang (Shandong University); Baoqing Sun (Shandong University);*
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- Session 3A1**  
**SC3: Structured Light-matter Interaction 2**
- 
- Thursday AM, December 19, 2019**  
**Room 1 - Ballroom 1**  
Organized by Zhimin Shi, Olga Korotkova  
Chaired by Zhimin Shi
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**Session 3A2**
**SC2: Multidimensional Metaphotonics for  
Extraordinary Wave Manipulation**


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**Thursday AM, December 19, 2019**
**Room 2 - Ballroom 2**

Organized by Yongmin Liu, Zuoqia Wang

 Chaired by Yongmin Liu, Zuoqia Wang
 

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08:20 From Passive to Active Manipulation of the Polarization States of Light via Metastructures

 Invited *Mu Wang (Nanjing University); Ru-Wen Peng (Nanjing University);*

08:40 Origami Metawall: Mechanically Controlled Absorption and Deflection of Light

 Invited *Min Li (Zhejiang University); Lian Shen (Zhejiang University); Liqiao Jing (Zhejiang University); Su Xu (Jilin University); Bin Zheng (Zhejiang University); Xiao Lin (Nanyang Technological University); Yi Hao Yang (Zhejiang University); Zuoqia Wang (Shandong University); Hongsheng Chen (Zhejiang University);*

09:00 Smith-Purcell Radiation from Drift Electrons in Graphene

 Invited *Xiao Xiong (A\*STAR); Wen-Jun Ding (A\*STAR); Lin Wu (A\*STAR); Yue Li (National University of Singapore); Cheng-Wei Qiu (National University of Singapore);*

09:20 Observation of Exceptional Points in Active Non-Hermitian Graphene Metasurfaces

 Invited *Teun-Teun Kim (Institute for Basic Science (IBS)); Sang Hyun Park (Institute for Basic Science (IBS)); Sung-Gyu Lee (Institute for Basic Science (IBS)); Sanghyup Lee (Institute for Basic Science (IBS)); Tae Woo Ha (Institute for Basic Science (IBS));*

09:40 Dynamically Tunable Polarization in Metamaterials

 Invited *Jin Hui Shi (Harbin Engineering University);*

 10:00 **Coffee Break**

10:30 Photonic Heterostructure as a Platform for Engineered Chiroptical Responses

 Invited *Zuoqia Wang (Shandong University); Chuanning Niu (Shandong University); Yongmin Liu (Northeastern University); Xun Li (McMaster University);*

10:50 A Broadband Achromatic Metalens Array for Integral Imaging in the Visible

 Invited *Zhi-Bin Fan (Sun Yat-Sen University); Hao-Yang Qiu (Sun Yat-Sen University); Han-Le Zhang (Beihang University); Xiao-Ning Pang (Sun Yat-Sen University); Lidan Zhou (Sun Yat-sen University); Lin Liu (Sun Yat-sen University); Hui Ren (Beihang University); Qiong-Hua Wang (Beihang University); Jian-Wen Dong (Sun Yat-Sen University);*

11:10 Multi-dimensional Wavefront Shaping at Structured Interfaces

 Invited *Zi-Lan Deng (Jinan University); Dejiao Hu (Jinan University); Xiangping Li (Jinan University);*

11:30 Realization of Low-loss Epsilon-near-zero Properties Using PT-symmetric Metasurfaces

 Invited *Pai-Yen Chen (University of Illinois at Chicago);*

11:50 Chern Insulator in On-chip Optomechanical System

 Invited *Xiang Ni (City College of the City University of New York); Andrea Alù (City University of New York);*


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**Session 3A3**
**SC5: Radar Scattering and Imaging: Theory and Application**


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**Thursday AM, December 19, 2019**
**Room 3 - Ballroom 3**

Organized by Kun-Shan Chen, Saibun Tjuatja

 Chaired by Kun-Shan Chen, Saibun Tjuatja
 

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08:20 Modeling and Characterization of Time-varying Clutter in ISAR Imaging

*Jon Mitchell (The University of Texas at Arlington); Saibun Tjuatja (University of Texas at Arlington);*

08:40 A Fast Generation Algorithm of Radar Images for Ship Recognition

*Dandan Gu (Science and Technology on Electromagnetic Scattering Laboratory); Ming Feng (Science and Technology on Electromagnetic Scattering Laboratory); Zhijie Xie (Science and Technology on Electromagnetic Scattering Laboratory); Feiming Wei (Shanghai Jiao Tong University); Yajun Wu (Science and Technology on Electromagnetic Scattering Laboratory);*

09:00 A Fast GPU-based Simulation of SAR Images

*Cheng-Yen Chiang (Xuchang University); Kun-Shan Chen (Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences); Chih-Yuan Chu (Xuchang University); Zhao-Liang Li (ICube, Uds, CNRS); Gen-Yuan Du (Xuchang University);*


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- 09:20 A Full-wave Approach to Polarimetric Synthetic Aperture Radar Imaging Simulation  
*Chiung-Shen Ku (Institute of Remote Sensing and Digital Earth, CAS); Kun-Shan Chen (Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences); Chih-Yuan Chu (Xuchang University); Zhao-Liang Li (Institute of Agricultural Resources and Regional Planning, Chinese Academy of Agricultural Sciences); Gen-Yuan Du (Xuchang University);*
- 09:40 Backscattering Model Analyses for Improving Ocean Surface Wind Scatterometry at C- and Ku-band  
*Xingou Xu (National Space Science Center, Chinese Academy of Sciences); Saibun Tjuatja (University of Texas at Arlington); Xiaolong Dong (National Space Science Center, Chinese Academy of Sciences);*
- 10:00 **Coffee Break**
- 10:30 Microwave Emission of Rock Change with Compressive Stress: Experiments and Physics  
*Wenfei Mao (Northeastern University); Lixin Wu (Central South University); Shanjun Liu (Northeastern University); Yuan Qi (Central South University);*
- 10:50 Compression Based Machine-learning-assisted Analysis of Polarimetric Scattering from Cylindrical Components of Vegetation  
*Xiaofeng Wang (Zhejiang University); Chao Yang (Zhejiang University); Zheng Zhang (Zhejiang University); Yang Du (Zhejiang University);*
- 11:10 Mining Seismic Anomaly from Satellite Microwave Big Data: Methodology and Case Studies  
*Yuan Qi (Central South University); Lixin Wu (Central South University); Wenfei Mao (Northeastern University); Miao He (Central South University);*
- 11:30 Classification of Oil Palm Growth Status with L Band Microwave Satellite Imagery  
*Chia Ming Toh (Universiti Tunku Abdul Rahman); S. H. Tey (Applied Agriculture Resources Shd. Bhd. (AARSB)); H. T. Ewe (Universiti Tunku Abdul Rahman); G. Vetharatnam (Universiti Tunku Abdul Rahman);*
- 08:20 Accuracy Analysis and Ionospheric Compensation of Radio Navigation and Positioning System under Dynamic Sea Surface Background  
*Jialin Shi (Naval Research Academy); Zusheng Jin (Naval Research Academy); Jianxuan Li (Naval Research Academy); Anxia Jiao (Yantai Automobile Engineering Professional College);*
- 08:40 New Development of DGTD Method and Its Applications  
*Lei Zhao (China University of Mining and Technology); Geng Chen (Xuzhou Normal University); Jiahao Zhu (Jiangsu Normal University); Wenhua Yu (Jiangsu Normal University);*
- 09:00 Application of Cubic Polynomial Inter/Extrapolation to FG-FFT Algorithm for Wideband Electromagnetic Analysis  
*Wei-Bin Kong (Yancheng Institute of Technology); Xiaofang Yang (Yancheng Institute of Technology); Jia Ye Xie (Nanjing Institute of Technology); Feng Zhou (Yancheng Institute of Technology); Kai Lai Zheng (Nanjing University of Posts and Telecommunications);*
- 09:20 Surrogate Modeling Techniques for Designing Multi-layer Multistopband Frequency Selective Surfaces  
*Jinjun Mo (Central South University); Lin Wang (Central South University); Shan Wang (Central South University); Jian Dong (Central South University);*
- 09:40 Modeling the Influence of Steel Mesh on Magnetic Proximity Detection Systems (PDSs) in Underground Coal Mines  
*Chenming (Jim) Zhou (National Institute for Occupational Safety and Health (NIOSH)); Jacob Carr (National Institute for Occupational Safety and Health (NIOSH));*
- 10:00 **Coffee Break**
- 10:30 High-order DGTD for Solving EM Scattering from Hypersonic Aircraft with Plasma Sheath  
*Jianmin Liu (Nanjing University of Science and Technology); Zhenhong Fan (Nanjing University of Science and Technology); Dazhi Ding (Nanjing University of Science and Technology); Rushan Chen (Nanjing University of Science and Technology);*

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### Session 3A4

#### SC1: Recent Advances on Electromagnetics Modelling and Simulation Methods

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Thursday AM, December 19, 2019

Room 4 - Ginkgo

Organized by Yu Mao Wu, Lei Zhao

Chaired by Yu Mao Wu, Lei Zhao

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- 10:50 Advances in Simulation and Calculation of Physical System of Hydrogen Atomic Clock  
*Shanmin Liu (Nanjing University of Aeronautics and Astronautics); Xiaoguang Wu (Nanjing University of Aeronautics and Astronautics); J. Wang (Nanjing University of Aeronautics and Astronautics); W. Wang (Nanjing University of Aeronautics and Astronautics);*
- 11:10 The Efficient High Frequency Methods on Electromagnetics Scattering  
*Yu Mao Wu (Fudan University);*
- 11:30 Scattering Analysis of a High-speed Moving Object  
*Pengcheng Ren (East China Normal University); Lei Kuang (East China Normal University); Qing Huo Liu (Duke University);*
- 09:20 Inversion of Underground Structure Based on Time-domain Full Waveform Conjugate Gradient Method  
*Mengyang Shi (Shanghai Jiao Tong University); Wenxuan Shi (Shanghai Jiao Tong University); Xingzhao Liu (Shanghai Jiaotong University); Yesheng Gao (Shanghai Jiao Tong University); Bin Yuan (Shanghai Jiaotong University);*
- 09:40 Grouting Sleeve Fullness Detection Method Based on Microwave Radio Frequency  $S$  Parameter  
*Xiaoqiu Zheng (Shanghai Jiao Tong University); Jiamin Qi (Shanghai Jiao Tong University); Wenxuan Shi (Shanghai Jiao Tong University); Chao Wang (Shanghai Jiao Tong University); Bin Yuan (Shanghai Jiaotong University);*

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10:00 **Coffee Break**

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**Session 3A5**  
**SC1: Advanced Algorithms for Solving Electromagnetic and Electro-Thermal Problems**

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**Thursday AM, December 19, 2019**

**Room 5 - Banyan 1**

Organized by Min Tang, Gaobiao Xiao

Chaired by Min Tang

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- 08:20 Efficient Parallelization of MLFMA for 3D Electromagnetic Scattering Problems on Sunway Many-core Processor SW26010  
*Wei-Jia He (Beijing Institute of Technology); Ming-Lin Yang (Beijing Institute of Technology); W. Wang (Computer Network Information Center, Chinese Academy of Sciences); Xin-Qing Sheng (Beijing Institute of Technology);*
- 08:40 Simulation of Airborne Ground Penetrating Radar Model for Detecting Underground Targets Based on CST-MWS  
*Jiamin Qi (Shanghai Jiao Tong University); Mengyang Shi (Shanghai Jiao Tong University); Wenxuan Shi (Shanghai Jiao Tong University); Chao Wang (Shanghai Jiao Tong University); Bin Yuan (Shanghai Jiaotong University);*
- 09:00 Thermal Simulation of 3-D Stacked Integrated Circuits with Layered Finite Element Method  
*Bo Li (Shanghai Jiao Tong University); Min Tang (Shanghai Jiaotong University); Yuwen Zhi (The 54th Research Institute of China Electronic Technology Corporation); Huixian Yu (The 54th Research Institute of China Electronic Technology Corporation);*
- 10:30 Generalized Transition Matrix Models for Open Cavities  
*Yuyang Hu (Shanghai Jiao Tong University); Rui Liu (Shanghai Jiao Tong University); Shang Xiang (Lund University); Gaobiao Xiao (Shanghai Jiao Tong University);*
- 10:50 Design, Implementation and Analysis of Solid-state Megahertz Continuous High-repetition-frequency High-voltage Pulse Source  
*Shuangxing Zhao (Shanghai Jiao Tong University); Chao Wang (Shanghai Jiao Tong University); Wenxuan Shi (Shanghai Jiao Tong University); Xiaoqiu Zheng (Shanghai Jiao Tong University); Bin Yuan (Shanghai Jiao Tong University);*

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**Session 3A6**

**SC5: Challenges in Experimental Wavefield Imaging: Calibration, Modelling Error, and Algorithms**

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**Thursday AM, December 19, 2019**

**Room 6 - Banyan 2**

Organized by Joe LoVetri, Jean-Charles Bolomey

Chaired by Ian Jeffrey, Colin Gilmore

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- 08:20 Calibration and Modelling Error Reduction Techniques in Microwave Imaging: A Review  
*Joe LoVetri (University of Manitoba); M. Asefi (151 Research Inc.); Colin Gilmore (University of Manitoba); I. Jeffrey (University of Manitoba);*

- 08:40 Experimental Testing and Calibration Issues in the Realization of a Microwave Imaging Device for Brain Stroke Monitoring  
*Jorge A. Tobon (Politecnico di Torino); David Rodriguez-Duarte (Politecnico di Torino); Rosa Scapatucci (Institute for Electromagnetic Sensing of the Environment); Giovanna Turvani (Politecnico di Torino, DET-POLITO); Gennaro Bellizzi (University of Naples Federico II); Nadine Joachimowicz (Université Paris-Sud); Bernard Duchêne (CNRS, CentraleSupélec, Université Paris-Sud); Mario Roberto Casu (Politecnico di Torino); Lorenzo Crocco (CNR — National Research Council of Italy); Francesca Vipiana (Politecnico di Torino);*
- 09:00 Preliminary Experimental Validation of Radar Imaging for Stroke Detection with Phantoms  
*Navid Ghavami (King's College London); Ioannis Sotiriou (King's College London); Panagiotis Kosmas (King's College London);*
- 09:20 A Compact Dual-band L-shape Monopole Antenna for Microwave Thorax Imaging  
*Haolin Zhang (Tsinghua University); Maokun Li (Tsinghua University); Fan Yang (Tsinghua University); Shenheng Xu (Tsinghua University); Hongyu Zhou (Tsinghua University); Yubo Yang (Tsinghua University);*
- 09:40 Assessing a Radar Imaging Approach Against a Multimodal Breast Phantom  
*Jacinta E. Browne (Dublin Institute of Technology); Giuseppe Ruvio (Endowave Ltd.); Raffaele Solimene (Università degli studi della Campania Luigi Vanvitelli); Antonio Cuccaro (Università degli studi della Campania Luigi Vanvitelli); Gaia Fiaschetti (Sapienza University); Andrew J. Fagan (Mayo Clinic); Sean Cournane (St. James's Hospital); Jennie Cooke (St. James's Hospital); Jorge A. Tobon Vasquez (CNR-IREA); Max J. Ammann (Dublin Institute of Technology);*
- 10:00 **Coffee Break**
- 10:30 Automatic Calibration of Experimental Inversion Data through Parametric Phaseless Inversion  
*Colin Gilmore (University of Manitoba); Ian Jeffrey (University of Manitoba); Mohammad Asefi (151 Research Inc.); Nicholas Geddert (151 Research Inc.); Kevin Brown (151 Research Inc.); Joe LoVetri (University of Manitoba);*
- 10:50 Bypassing the Exact Knowledge of Primary Sources in Shape Estimation from Scattered Fields  
*Martina Teresa Bevacqua (Università Mediterranea di Reggio Calabria); Roberta Palmeri (Università Mediterranea di Reggio Calabria); Tommaso Isernia (Università Mediterranea di Reggio Calabria);*
- 11:10 Benchmark Head Phantoms for Microwave Imaging of Brain Strokes  
*Soroush Abedi (Sorbonne Université et Université Paris Saclay); Nadine Joachimowicz (Université Paris Saclay); Bernard Duchêne (CNRS, CentraleSupélec, Université Paris-Sud); H. Roussel (Sorbonne Université et Université Paris Saclay); Jorge A. Tobon (Politecnico di Torino); David Rodriguez-Duarte (Politecnico di Torino); Rosa Scapatucci (Institute for Electromagnetic Sensing of the Environment); Francesca Vipiana (Politecnico di Torino); Lorenzo Crocco (CNR — National Research Council of Italy);*
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- Session 3A7**  
**SC5: Remote Sensing of the Atmosphere, Ocean, Hydrology and Cryosphere**
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- Thursday AM, December 19, 2019**  
**Room 7 - Banyan 3**  
 Organized by Shuanggen Jin  
 Chaired by Wentao Duan, Minmin Huang
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- 08:20 Rainfall Analysis of Northwest Pacific Influenced for Tropical Typhoon Chan-hom  
*Jieying He (National Space Science Center, Chinese Academy of Sciences); Haonan Chen (Colorado State University); Shengwei Zhang (National Space Science Center, Chinese Academy of Sciences); Na Li (National Space Science Center, Chinese Academy of Sciences);*
- 08:40 Impacts of Tropospheric Delays on Multi-GNSS PPP from Empirical and Numerical Weather Models  
*Ke Su (Shanghai Astronomical Observatory, Chinese Academy of Sciences); Shuanggen Jin (Nanjing University of Information Science and Technology);*
- 09:00 Plasmaspheric TEC Correction for Ionospheric Occultation Inversion  
*Gao Chao (Shanghai Astronomical Observatory, Chinese Academy of Sciences); Shuanggen Jin (Nanjing University of Information Science and Technology);*

- 09:20 Long-term (2003–2017) Trends of Vegetation Condition Index (VCI) in Guangdong Using Modis Data and Implications for Drought Assessment  
*Weijiao Li (Guangzhou Institute of Geochemistry, Chinese Academy of Sciences); Yunpeng Wang (Guangzhou Institute of Geochemistry, Chinese Academy of Sciences);*
- 09:40 Remote Sensing Data Analysis for the Effects of Three Selected Aerosols on Both Energy Budgets and Health: A Case of South-West Asia  
*Gerard Rushingabigwi (University of Science and Technology of China); Philibert Nsengiyumwa (University of Rwanda); Celestin Twizere (University of Rwanda); Louis Sibomana (University of Rwanda); Damien Hanyurwimfura (University of Rwanda); François Zimulinda (University of Rwanda); Ignace Gatere (University of Rwanda); Wilson Kalisa (Qingdao University);*
- 10:00 **Coffee Break**
- 10:30 Soil Moisture Retrieval in Southeast China from Spaceborne GNSS-R Measurements  
*Zhounan Dong (Shanghai Astronomical Observatory, Chinese Academy of Sciences); Shuanggen Jin (Shanghai Astronomical Observatory, Chinese Academy of Sciences);*
- 10:50 A Model of Entrance Pupil Irradiance Estimation of the Multi-pixel Sensor on a Moon-based Earth Radiation Observatory  
*Wentao Duan (Nanjing University of Information Science & Technology); Shuanggen Jin (Nanjing University of Information Science and Technology);*
- 11:10 Polarimetric D-InSAR for Detection of the Processes Affecting the Ground of the Periglacial Environment  
*Franck Garestier (UMR 6143 CNRS M2C); Stephane Guillaso (GFZ); Elena Zakharova (Institut of Water Problems); Alexei Kouraev (UMR 5566 CNRS LEGOS); Thomas Chevalier (UMR 6143 CNRS M2C); Roman Desyatkin (Institute for Biological Problems of Cryolithozone, SB RAS);*
- 11:30 Non-linear Deformation Estimation Using Pol-D-INSAR over Coastal-permafrost Areas  
*Thomas Chevalier (UMR 6143 CNRS M2C); Franck Garestier (UMR 6143 CNRS M2C); Stephane Guillaso (GFZ); Benoit Laignel (UMR 6143 CNRS M2C);*

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**Session 3A8**
**SC4: Applications of New Techniques in Antennas and Circuits 1**


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**Thursday AM, December 19, 2019**
**Room 8 - Peony 1**

Organized by Qiubo Ye, Jun Xiao, Tongyu Ding

 Chaired by Qiubo Ye, Jun Xiao
 

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- 08:20 A Ku-band Conformal Half-Yagi Antenna for Microwave Communication  
*Lirong Mei (The 54th Research Institute of China Electronics Technology Group Corporation); Lei Lang (The 54th Research Institute of China Electronics Technology Group Corporation); Naibo Zhang (Beijing University of Posts and Telecommunications); Yang Li (The 54th Research Institute of CETC (CETC-54)); Yuqi Zhou (The 54th Research Institute of CETC (CETC-54)); Shujie Chu (The 54th Research Institute of CETC (CETC-54)); Youwei Liu (The 54th Research Institute of CETC (CETC-54)); Jingsong Yang (The 54th Research Institute of CETC (CETC-54));*
- 08:40 A Design of Frequency Reconfigurable Antenna Based on Meta-surface  
*Shuai Huang (Laboratory of Electromagnetic Compatibility, China Academic Electronic and Information Technology); Jia Cao (Laboratory of Electromagnetic Compatibility, China Academic Electronic and Information Technology); Xiaobin Tang (Laboratory of Electromagnetic Compatibility, China Academic Electronic and Information Technology); Tongyu Ding (Jimei University); Jie Chen (Laboratory of Electromagnetic Compatibility, China Academic Electronic and Information Technology);*
- 09:00 A High-gain Circularly Polarized Antenna Design  
*Jun Xiao (Jimei University); Tongyu Ding (Jimei University); Zhuo Yang (Jimei University); Qiubo Ye (Jimei University);*
- 09:20 Reflection-type Multi-focus Metasurface Based on Pancharatnam-Berry Phase Elements  
*Xu Min Ding (Harbin Institute of Technology); Yue Wang (Harbin Institute of Technology); Chunsheng Guan (Harbin Institute of Technology); Tongyu Ding (Jimei University); Kuang Zhang (Harbin Institute of Technology); Qun Wu (Harbin Institute of Technology);*

- 09:40 24 GHz Circular Cavity-backed Slot Antenna Based on Corrugated Substrate Integrated Waveguides  
*Yiming Zhang (South China Normal University); Yuxin Lin (South China Normal University); Hui Liu (Zhejiang University); Sailing He (Zhejiang University);*
- 10:00 **Coffee Break**
- 10:30 Design of a Compact UWB Monopole Antenna with Slotted Patches  
*Zhe Cai (South China Normal University); Yiming Zhang (South China Normal University); Hui Liu (Zhejiang University); Chenyang Meng (South China Normal University);*
- 10:50 A Compact Ultra-wideband Directional Dipole Antenna with Wide Beamwidth  
*Yongming Yang (The 36th Research Institute of China Electronics Technology Group Corporation); Gang Chen (Air Force Equipment Departments in Hangzhou Military Agency); Yongheng Cao (No. 708 Marine Design & Research Institute of China);*
- 11:10 Radiation Performance Improvement of Microstrip Antenna Using AMC Structure  
*Ali Jamali-Arand (Tarbiat Modares University); Bijan Abbasi-Arand (Tarbiat Modarres University);*
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- Session 3A9**  
**SC3: Terahertz Systems and Bioapplications 1**
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- Thursday AM, December 19, 2019**  
**Room 9 - Peony 2**  
Organized by Jun Zhou, Yan Peng, Yiming Zhu  
Chaired by Jun Zhou, Yan Peng
- 
- 08:00 Terahertz Spectroscopy and Imaging of Biological Matter  
Invited  
*Hong-Liang Cui (Chongqing Institute of Green and Intelligent Technology, Chinese Academy of Science);*
- 08:20 Terahertz Near-field Spectrum and Its Applications  
Invited  
*Feng Xiao (University of Electronic Science and Technology of China); Yueying Wang (University of Electronic Science and Technology of China); Zhuocheng Zhang (University of Electronic Science and Technology of China); Xiaoqiuyan Zhang (University of Electronic Science and Technology of China); Tianyu Zhang (University of Electronic Science and Technology of China); Xingxing Xu (University of Electronic Science and Technology of China); Sen Gong (University of Electronic Science and Technology of China); Tao Zhao (University of Electronic Science and Technology of China); Min Hu (University of Electronic Science and Technology of China);*
- 08:40 Towards Effective Cancer Diagnosis via THz Imaging  
Invited  
*Feng Qi (Shenyang Institute of Automation, Chinese Academy of Sciences);*
- 09:00 THz Wave Sub-diffraction-limited Ghost Microscope  
Invited  
*Li-Guo Zhu (Institute of Fluid Physics, China Academy of Engineering Physics);*
- 09:20 Fast Terahertz Imaging with a Frequency Up-conversion Sensor  
Invited  
*Zhanglong Fu (Shanghai Institute of Microsystem and Information Technology, Chinese Academy of Sciences); Dixiang Shao (University of Shanghai for Science and Technology); Ruizhi Li (Shanghai Institute of Microsystem and Information Technology, Chinese Academy of Sciences); Wenjian Wan (Shanghai Institute of Microsystem and Information Technology, Chinese Academy of Sciences); Zhiyong Tan (Shanghai Institute of Microsystem and Information Technology, Chinese Academy of Sciences); Zhenzhen Zhang (Shanghai Institute of Microsystem and Information Technology, Chinese Academy of Sciences); Lian-gliang Gu (University of Shanghai for Science and Technology); Xuguang Guo (University of Shanghai for Science and Technology); Juncheng Cao (Shanghai Institute of Microsystem and Information Technology, Chinese Academy of Sciences);*
- 09:40 Determination of Terahertz-frequency-dependent Skin Penetration Depth Based on Water Sorption-desorption Assessment  
*Borwen You (University of Tsukuba); Ja-Yu Lu (National Cheng Kung University); Chin-Ping Yu (National Sun Yat-Sen University); Pei-Hwa Wang (National Taiwan University);*
- 10:00 **Coffee Break**

- 10:30 Terahertz Biosensors Based on Metasurfaces  
Invited  
*Biaobing Jin (Nanjing University);*
- 10:50 Metasurface for Manipulating Terahertz Super Focusing  
Invited  
*Xiaofei Zang (University of Shanghai for Science and Technology); Yiming Zhu (University of Shanghai for Science and Technology);*
- 11:10 Sensitivity Detection of Biomarkers by Graphene Based Microfluidic-chip Using Terahertz Spectroscopy  
Invited  
*Yiwen Sun (Shenzhen University); Fushi Wang (Shenzhen University); Jialiang Huang (Shenzhen University); Xudong Liu (Shenzhen University);*
- 11:30 Terahertz Microfluidic Biosensing Platform Based on Intense Wave-matter-interaction Channels  
Invited  
*Feng Lan (University of Electronic Science and Technology of China); Jing Yin (University of Electronic Science and Technology of China); Pinaki Mazumder (University of Michigan); Jun Zhou (University of Electronic Science and Technology of China); Yaxin Zhang (University of Electronic Science and Technology of China); Luyang Wang (University of Electronic Science and Technology of China); Guiju He (University of Electronic Science and Technology of China); Hongxin Zeng (University of Electronic Science and Technology of China); Zongjun Shi (University of Electronic Science and Technology of China); Ziqiang Yang (University of Electronic Science and Technology of China);*
- 11:50 Multi-angular Terahertz Polarimetry for Complicated-structure Characterization  
Invited  
*Xuequan Chen (The Chinese University of Hong Kong); Emma Pickwell-MacPherson (The Chinese University of Hong Kong & University of Warwick);*
- 12:10 Split Ring Resonator Sensor Designed for Complex Permittivity Measurement of Tiny Biological Materials  
*Jialu Ma (University of Electronic Science and Technology of China); Jingchao Tang (University of Electronic Science and Technology of China); Kaicheng Wang (University of Electronic Science and Technology of China); Lianghao Guo (University of Electronic Science and Technology of China); Wenfei Bo (University of Electronic Science and Technology of China); Yang Yang (University of Electronic Science and Technology of China); Haibo Jiang (Chengdu Institute of Biology, Chinese Academy of Sciences); Zhe Wu (University of Electronic Science and Technology of China); Bao-Qing Zeng (University of Electronic Science and Technology of China); Yu-Bin Gong (University of Electronic Science and Technology of China);*
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- Session 3A10**  
**SC2: Metamaterial-based Polarization Manipulation 1**
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- Thursday AM, December 19, 2019**  
**Room 10 - Jasmine**  
Organized by Jin Hui Shi, Chunmei Ouyang  
Chaired by Mengxin Ren, Jin Hui Shi
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- 08:20 All-dielectric Terahertz Metamaterial Polarization Converter  
Invited  
*Yanfeng Li (Tianjin University);*
- 08:40 Enhancing Chiral Light-matter Interactions by Metamaterials  
Invited  
*Yongmin Liu (Northeastern University);*
- 09:00 Graphene Metamaterials for Active Polarization Modulation at Terahertz Frequencies  
Invited  
*Teun-Teun Kim (Institute for Basic Science (IBS));*
- 09:20 TM Polarized Superscattering Pattern Shaping from Subwavelength Hyperbolic Nanowires  
Invited  
*Yineng Liu (Xiamen University);*
- 09:40 Collective-mode Engineered Optical Activity in Metamaterials  
*Fei Xie (Nankai University); Wei Wu (Nankai University); Wei Cai (Nankai University); Mengxin Ren (Nankai University); Jingjun Xu (Nankai University);*
- 10:00 **Coffee Break**



- 10:30 A Tunable Device for Switching between Absorber and Frequency Selective Surface Tailored by Gravity Field  
*Xing-Liang Tian (Nanjing University of Posts and Telecommunications); Hai Feng Zhang (Nanjing University of Posts and Telecommunications); Li Zeng (Nanjing University of Posts and Telecommunications); Zhen-Hua Zhao (Nanjing University of Posts and Telecommunications);*
- 10:50 Circular Dichroism in Metal/Dielectric/Metal Non-chiral Metasurfaces  
*Li Bang Mao (Dalian University of Technology); Hisang Chen Chui (Dalian University of Technology); Tun Cao (Dalian University of Technology);*
- 11:10 Electrically Programmable Terahertz Diatomic Molecules for Chiral Optical Control  
*Longqing Cong (Nanyang Technological University);*
- 11:30 2D Dielectric Periodic Structure for Microwave Polarization Rotator  
*Arsen A. Hakhoumian (Institute of Radiophysics and Electronics, Armenian National Academy of Sciences); Armen Sargsyan (Yerevan State University);*
- 09:00 The Difference between Raman and Photoluminescence Enhancement by Metal Nanoparticles  
*Greg Sun (University of Massachusetts Boston); Jacob B. Khurgin (Johns Hopkins University);*
- 09:20 Light Manipulation on All-dielectric Nanostructures for Enhanced Infrared Fingerprint Detection  
*Yinong Xie (Xiamen University); Jinfeng Zhu (Xiamen University);*
- 09:40 Hybrid Structure Plasmon Resonance Narrow Linewidth Optical Filter  
*Rong He (Fudan University); Rongjun Zhang (Fudan University); Jun Guo (Fudan University); Liangyao Chen (Fudan University); Junpeng Guo (University of Alabama in Huntsville);*
- 10:00 **Coffee Break**
- 10:30 Silicon Nano-ring Array Guided Mode Resonance Optical Filter  
*Cheng Chen (Fudan University); Yu Wu (Fudan University); Rongjun Zhang (Fudan University); Jun Guo (Fudan University); Liangyao Chen (Fudan University); Junpeng Guo (University of Alabama in Huntsville);*
- 10:50 Quasi-direct Transition Induced by Si = O Defect State Dominates Fluorescence in Small Silicon Nanocrystals  
*Hong Shen (Fudan University); Jinjin Wang (Fudan University); Ming Lu (Fudan University); Songyou Wang (Fudan University);*
- 11:10 Graphene-based Broadband Plasmon-induced Transparency and Its Applications  
*Bin Li (Xiamen University); Huiqing Hong (Xiamen University); Guoxiong Cai (Xiamen University); Qing Huo Liu (Duke University);*
- 11:30 Hybrid Structure Quadrupole Mode Plasmon Resonance Narrow Line-width Optical Filters  
*Ziyi Wang (Fudan University); Rongjun Zhang (Fudan University); Junpeng Guo (University of Alabama in Huntsville);*

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### Session 3A11

#### SC3: Plasmonic and Photonic Nanostructure Surfaces for Manipulations of Light

Thursday AM, December 19, 2019

Room 11 - Lotus 1

Organized by Junpeng Guo, Rongjun Zhang, Jinfeng Zhu

Chaired by Junpeng Guo, Jinfeng Zhu

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- 08:20 Study of the Plane Metallic Film with Strong Optical Absorption to Induce the Lens Effect Observed in the Visible Region  
*A. Q. Jiang (Fudan University); K. Y. Zang (Fudan University); E. T. Hu (Fudan University); H. T. Tu (Fudan University); L. I. Xu (Fudan University); W. S. Ren (Fudan University); O. Yoshie (Waseda University); Y. P. Lee (Hanyang University); Y. X. Zheng (Fudan University); S. Y. Wang (Fudan University); H. B. Zhao (Fudan University); J. P. Guo (University of Alabama in Huntsville); C. Z. Wang (Iowa State University); K. M. Ho (Iowa State University); D. W. Lynch (Iowa State University); Liangyao Chen (Fudan University);*
- 08:40 Plasmonics-nanofluidics Hybrid Device as Ultrasensitive Platform for IR Spectroscopic Study of Nanoconfinement Effect  
*Thu Hac Huong Le (The University of Tokyo);*

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### Session 3A12

#### SC3: Silicon Photonic and Electronic Integration

Thursday AM, December 19, 2019

Room 12 - Lotus 2

Organized by Binhao Wang, Di Liang

Chaired by Binhao Wang

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08:20 Monolithic III-V Quantum Dot Lasers on Silicon for  
Invited Silicon Photonics

*Siming Chen (University College London); Alwyn J. Seeds (University College London); Huiyun Liu (University College London);*

08:40 A 12 Gb/s Quantum Dot Microring Laser Transmitter  
Invited with Integrated CMOS Driver

*Samuel Palermo (Texas A&M University);*

09:00 Hybrid III-V/Si and Si Basic Building Block De-  
vices for Quantum Transmitters: Gain-switched Hy-  
brid Laser and Si-VOA

*Théo Verolet (III-V Lab, a Joint Lab from Nokia, Thales and CEA); Pierre Fanneau (III-V Lab, a Joint Lab from Nokia, Thales and CEA); Joan Manel Ramirez (III-V Lab, a Joint Lab from Nokia, Thales and CEA); Delphine Néel (III-V Lab, a Joint Lab from Nokia, Thales and CEA); Alexandre Shen (III-V Lab, a Joint Lab from Nokia, Thales and CEA);*

09:20 Progresses on Optical Frequency Comb Generation in  
Invited CMOS-compatible Microcavities

*Wenfu Zhang (Xi'an Institute of Optics and Precision Mechanics, Chinese Academy of Sciences); Leiran Wang (Xi'an Institute of Optics and Precision Mechanics, Chinese Academy of Sciences); Weiqiang Wang (Xi'an Institute of Optics and Precision Mechanics, Chinese Academy of Sciences); Zhizhou Lu (Xi'an Institute of Optics and Precision Mechanics, Chinese Academy of Sciences); Wei Zhao (Xi'an Institute of Optics and Precision Mechanics, Chinese Academy of Sciences);*

09:40 3D Direct Laser Written Polymer Coupler for Low  
Loss Fiber-to-Chip Coupling on SOI Platform

*Haozhi Luo (Sun Yat-sen University); Lifeng Chen (Sun Yat-sen University); Xinlun Cai (Sun Yat-Sen University);*

10:00 **Coffee Break**

10:30 Ultra-large Silicon Photonic Switches with Integrated  
Invited MEMS

*Tae Joon Seok (Gwangju Institute of Science and Technology); Ming C. Wu (University of California, Berkeley);*

10:50 Optical Memristive Switch Using Si-GST Hybrid In-  
Invited tegration

*Linjie Zhou (Shanghai Jiao Tong University); Hanyu Zhang (Shanghai Jiao Tong University); Hao Hu (Shanghai Jiao Tong University); Ningning Wang (Shanghai Jiao Tong University); Liangjun Lu (Shanghai Jiao Tong University); Jianping Chen (Shanghai Jiao Tong University);*

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### Session 3A13

### SC3: Electro-optic Materials for Tunable Photonic Devices

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Thursday AM, December 19, 2019

Room 13 - Lotus 3

Organized by Huihui Lu, Maria-Pilar Bernal

Chaired by Huihui Lu

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08:20 The Research Progress of Electro-optic Polymer and  
Invited Devices

*Shuhui Bo (Technical Institute of Physics and Chemistry, Chinese Academy of Sciences); Zhuo Chen (Technical Institute of Physics and Chemistry, Chinese Academy of Sciences); Zhen Zhen (Technical Institute of Physics and Chemistry, Chinese Academy of Sciences); Xinhou Liu (Technical Institute of Physics and Chemistry, Chinese Academy of Sciences);*

08:40 Resonance Enhanced All-optical Power Tuning and  
Invited Modulation of a WSe<sub>2</sub>-based Fiber-optic Microring

*Heyuan Guan (Jinan University); Jiangli Dong (Jinan University); Wentao Qiu (Jinan University); Zhe Chen (Jinan University);*

09:00 Second-order Nonlinear Optical Chromophores with  
Invited Conjugated Steric Hindrances for Electro-optics @ 830 nm

*Jieyun Wu (University of Electronic Science and Technology of China); Wen Wang (University of Electronic Science and Technology of China); Jingdong Luo (City University of Hong Kong);*

09:20 Lithium Niobate Nanophotonics for Electro-optic and  
Invited Nonlinearity Exaltation Applications

*Wentao Qiu (Jinan University); Jiangli Dong (Jinan University); Heyuan Guan (Jinan University); Jianhui Yu (Jinan University); Zhe Chen (Jinan University);*

09:40 Electro-optic Effect in Periodically Poled Lithium  
Invited Niobate Crystals and Its Detection System

*Huaxi Chen (Fujian Institute of Research on the Structure of Matter, Chinese Academy of Sciences); Xinbin Zhang (Fujian Institute of Research on the Structure of Matter, Chinese Academy of Sciences); Wei Guo (Fujian Institute of Research on the Structure of Matter, Chinese Academy of Sciences); Guangwei Li (Fujian Institute of Research on the Structure of Matter, Chinese Academy of Sciences); Xinkai Feng (Fujian Institute of Research on the Structure of Matter, Chinese Academy of Sciences); Wanguo Liang (Fujian Institute of Research on the Structure of Matter, Chinese Academy of Sciences);*

- 10:00 **Coffee Break**
- 10:30 Aperture-coupled Plasmonic Voltage Tunable Filter Based on Asymmetric Micro-ring Resonators  
*Zhihao Gou (Lanzhou University); Guanmao Zhang (Lanzhou University); Litao Qiao (Lanzhou University); Yaping Zhao (Lanzhou University); Panpan Ren (Lanzhou University);*
- 10:50 Electrically Tunable Surface Plasmonic Resonance and Its Field Distribution Dependent Modulation on Lithium Niobate  
*Zhijin Huang (Jinan University); Huihui Lu (Jinan University);*
- 11:10 Electro-optic Materials with Ultrahigh Electro-optic Coefficient and Enhanced Long-term Alignment Stability  
*Huajun Xu (University of Washington); Fenggang Liu (Guangzhou University);*
- 11:30 Electro-optic Mode Deflection Based on a Lithium Niobate Waveguide Incorporated with Microstructured Electrodes  
*Liling Liu (Jinan University); Zhijin Huang (Jinan University); Yang Li (Jinan University); Wentao Qiu (Jinan University); Heyuan Guan (Jinan University); Huihui Lu (Jinan University);*
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- Session 3A14**  
**SC4: Recent Progress in Millimeter and Sub-Millimeter Wave Array Antennas**
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- Thursday AM, December 19, 2019**  
**Room 14 - Lily**  
Organized by Takashi Tomura, Miao Zhang  
Chaired by Takashi Tomura, Miao Zhang
- 
- 08:20 Latest Achievements on Millimeter and Sub-millimeter Wave Antenna Design at IETR  
Invited *Nicola Bartolomei (Université de Rennes 1); Thomas Potelon (Université de Rennes 1); Marco Faenzi (Université de Rennes 1); Antoine Calteau (Université de Rennes 1); Michele Del Mastro (Université de Rennes 1); Francesco Foglia Manzillo (CEA-LETI); Adham Mahmoud (Université de Rennes 1); Srdan Paković (Université de Rennes 1); Alvaro José Pascual-Gracia (Université de Rennes 1); Jorge Ruiz-García (Université de Rennes 1); Maciej Smierzchalski (CEA-LETI); David González-Ovejero (Université de Rennes 1); Ronan Sauleau (Université de Rennes 1); Mauro Ettorre (Université de Rennes 1);*
- 08:40 Integrated Antennas for Terahertz Photonic Crystal Waveguides  
Invited *Daniel Headland (Osaka University); Withawat Withayachyumnankul (The University of Adelaide); Masayuki Fujita (Osaka University); Tadao Nagatsuma (Osaka University);*
- 09:00 W-band Low Phase Sensitivity Reflectarray Antennas with Wideband Characteristics  
Invited *Euncheol Choi (Seoul National University); Sangwook Nam (Seoul National University);*
- 09:20 A W-band High-gain Substrate-integrated Waveguide Slot Array Antenna  
*Yiwen Wu (Southeast University); Zhang-Cheng Hao (Southeast University);*
- 09:40 Compressed Geodesic Luneburg Lenses  
*Qingbi Liao (KTH Royal Institute of Technology); Oscar Quevedo-Teruel (KTH Royal Institute of Technology);*
- 10:00 **Coffee Break**
- 10:30 Corporate-fed Single-layer SIW Slot Array Antenna with Suppressed Sidelobes  
Invited *Zewei Li (Xiamen University); Baoquan Duan (Xiamen University); Miao Zhang (Xiamen University); Jiro Hirokawa (Tokyo Institute of Technology); Qing Huo Liu (Duke University);*
- 10:50 Electrically Large Circular Polarized Waveguide Slot Array Antennas for 60-GHz-band GATE system  
Invited *Takashi Tomura (Tokyo Institute of Technology); Jiro Hirokawa (Tokyo Institute of Technology);*
- 11:10 Low-profile Millimeter Wave Antenna Arrays for 5G Wireless Communication and Automotive Radar Applications  
Invited *Qi Wu (Southeast University); Jieyi Yin (Southeast University); Jiahao Xie (Southeast University); Cheng Yu (Southeast University); Haiming Wang (Southeast University); Wei Hong (Southeast University);*
- 11:30 A Parallel Plate Slot Antenna Array Used in SAR Satellite  
*Ahmed E. Gohar (Electronics Research Institute); Mohamed S. El-Gendy (Electronics Research Institute); Haythem Hussein Abdullah (Electronics Research Institute (ERI)); M. El din Abo El-Soud (Mansoura University);*

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**Session 3A15**
**SC5: Electromagnetic Analysis and Design in MRI**


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**Thursday AM, December 19, 2019**
**Room 15 - Narcissus**

 Organized by Feng Liu, Sherman Xuegang Xin,  
Xiaotong Zhang

 Chaired by Sherman Xuegang Xin, Xiaotong Zhang
 

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 08:20 A Novel Method for Flexible Distributed Capacitance  
Invited Coil Simulation in MR Imaging

*Shuai Zhang (Chinese Academy of Sciences); Shengping Liu (Chongqing University of Technology); Nan Li (Shenzhen Institutes of Advanced Technology, Chinese Academy of Sciences); Feng Du (Shenzhen Institutes of Advanced Technology, Chinese Academy of Sciences); Xiaoliang Zhang (University of California); Ye Li (Shenzhen Institutes of Advanced Technology, Chinese Academy of Sciences);*

 08:40 A Novel Asymmetric Active Shim Coil Design for  
Imaging Area above the Patient Bed in MRI

*Chaoqun Niu (Institute of Electrical Engineering, Chinese Academy of Sciences); Fangfang Tang (The University of Queensland); Hongyi Qu (Institute of Electrical Engineering, Chinese Academy of Sciences); Qiuliang Wang (Institute of Electrical Engineering, Chinese Academy of Sciences); Feng Liu (The University of Queensland);*

 09:00 The Recent Research Progress of a Low-field  
Permanent-magnet-based MRI Head Imager in Singapore  
University of Technology and Design

*Shao Ying Huang (Singapore University of Technology and Design);*

 09:20 A Novel Mixed Integer Programming Scheme for  
Passive Shimming in MRI

*Hongyi Qu (Institute of Electrical Engineering, Chinese Academy of Sciences); Chaoqun Niu (Institute of Electrical Engineering, Chinese Academy of Sciences); Yang Liu (Institute of Electrical Engineering, Chinese Academy of Sciences); Qiuliang Wang (Institute of Electrical Engineering, Chinese Academy of Sciences); Feng Liu (The University of Queensland);*

 09:40 A Hybrid MoM/FDTD Method for Modeling an  
Eight-channel MRI RF Coil for Human Head Imaging  
at 7 T

*Yang Liu (Institute of Electrical Engineering, Chinese Academy of Sciences); Qiuliang Wang (Institute of Electrical Engineering, Chinese Academy of Sciences); Zhentao Zuo (Institute of Biophysics, Chinese Academy of Sciences); Zhe Wang (Institute of Biophysics, Chinese Academy of Sciences); Chaoqun Niu (Institute of Electrical Engineering, Chinese Academy of Sciences); Hongyi Qu (Institute of Electrical Engineering, Chinese Academy of Sciences); Rong Xue (Institute of Biophysics, Chinese Academy of Sciences); Feng Liu (The University of Queensland);*

 10:00 **Coffee Break**

10:30 DAGAN-based Subject-specific SAR Estimation

Invited

*Xinlian Chen (South China University of Technology); Jiajia Wang (Southern Medical University); Sherman Xuegang Xin (South China University of Technology);*

 10:50 Uniformity-modeled Magnetic Resonance Electrical  
Properties Tomography for Nasopharyngeal Carcinoma

*Xiaonan Li (Institute of Electrical Engineering, Chinese Academy of Sciences); Zilong Yuan (Hubei Cancer Hospital); Guo-Qiang Liu (Institute of Electrical Engineering, Chinese Academy of Sciences); Xiaokai Li (Institute of Electrical Engineering, Chinese Academy of Sciences); Lili Hu (Institute of Electrical Engineering, Chinese Academy of Sciences);*

 11:10 The Improvement of MR EPT Reconstruction with  
High Permittivity Materials

*Jiajia Wang (Southern Medical University); Yurong Zhu (Southern Medical University); Jijun Han (Southern Medical University); Jieru Chi (Qingdao University); Chaoqun Niu (Institute of Electrical Engineering, Chinese Academy of Sciences); Sherman Xuegang Xin (South China University of Technology);*

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**Session 3A16a**
**SC1: Interactions of Discharge Plasmas with Liquids: Fundamentals and Applications 1**


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**Thursday AM, December 19, 2019**
**Room 16 - Camellia 1**

Organized by Qiang Chen, Xin Tu

 Chaired by Qiang Chen
 

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- 08:00 Gas-liquid Interfacial Plasmas Generating Short-lived  
Invited Reactive Species for Drug/Gene Transfer into Living  
Cells  
*Toshiro Kaneko (Tohoku University); Shota Sasaki (Tohoku University); Ryosuke Honda (Tohoku University); Makoto Kanzaki (Tohoku University);*
- 08:20 The Bactericidal Effect of Plasma-activated Saline  
Invited and Its Application  
*Li Guo (Xi'an Jiaotong University); Ruobing Xu (Xi'an Jiaotong University); Dingxin Liu (Xi'an Jiaotong University); Michael G. Kong (Xi'an Jiaotong University);*
- 08:40 Penetration Effect of Cold Atmospheric Plasmas on  
Invited Model Human Tissues  
*Tongtong He (Xi'an Jiaotong University); Dingxin Liu (Xi'an Jiaotong University); Mingzhe Rong (Xi'an Jiaotong University); Michael G. Kong (Old Dominion University);*
- 09:00 Development of an Plasma-activated Water Device  
and Its Performance of Sterilization  
*Zifeng Wang (Xi'an Jiaotong University); Shengduo Xu (Xi'an Jiaotong University); Dingxin Liu (Xi'an Jiaotong University); Li Guo (Xi'an Jiaotong University);*
- 09:20 Degradation of Organic Pollutants in Water Using  
Invited Non-thermal Plasma Generated in Microbubbles  
*Yanan Liu (Donghua University); Jihui Sun (Donghua University); Cihao Wang (Donghua University); Han Zhang (Donghua University); Ai Zhang (Donghua University); Zhuayu Sun (Donghua University);*
- 09:40 Pulsed Power Applications for Agriculture and Food  
Processing  
*Koichi Takaki (Iwate University); K. Takahashi (Iwate University);*
- 10:00 **Coffee Break**
- 10:30 Computational Distributed Optical Fiber Sensing via  
Invited Ghost Imaging in the Time Domain  
*Da-Peng Zhou (Dalian University of Technology); Wei Peng (Dalian University of Technology); Liang Chen (University of Ottawa); Xiaoyi Bao (University of Ottawa);*
- 10:50 Chaotic Brillouin Optical Correlation Domain Analy-  
Invited sis  
*Jianzhong Zhang (Taiyuan University of Technology);*
- 11:10 High-efficiency Random Fiber Laser Sensor for Ultra-  
Invited sonic Wave Detection  
*Liang Zhang (Shanghai University);*
- 11:30 Sapphire Fiber Bragg Gratings with Improved Spec-  
tral Properties for High-temperature Measurements  
*Xizhen Xu (Shenzhen University); Jun He (Shenzhen University); Changrui Liao (Shenzhen University); Yiping Wang (Shenzhen University);*
- 11:50 Single Slope-assisted Chaotic BOCDA for Dynamic  
Strain Measurement  
*Le Zhao (Taiyuan University of Technology); Yahui Wang (Taiyuan University of Technology); Mingjiang Zhang (Taiyuan University of Technology); Jianzhong Zhang (Taiyuan University of Technology);*

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**Session 3A17a**
**SC3: Ultrafast Lasers and Technologies**


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**Thursday AM, December 19, 2019**
**Room 17 - Camellia 2**

Organized by Jiahui Peng, Tao Cao

 Chaired by Tao Cao
 

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- 08:20 Background-free Ultrabroadband Coherent Anti-  
stokes Raman Scattering Spectrometry Based on an  
All-fibre Laser Source  
*Tao Cao (Huazhong University of Science & Technology); Jikun Yan (Huazhong University of Science & Technology); Ziyue Guo (Huazhong University of Science & Technology); Shaozhen Liu (Huazhong University of Science & Technology); Kailin Hu (Huazhong University of Science & Technology); Zhihong Liu (Huazhong University of Science & Technology); Jiahui Peng (Huazhong University of Science & Technology);*
- 08:40 Advanced Ultrafast Laser Sources Harnessing Fiber-  
optic Nonlinearities  
*Guoqing Chang (Institute of Physics, Chinese Academy of Sciences);*

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**Session 3A16b**
**SC3: Fiber Sensing Technology and  
Fiber-based Devices 2**


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**Thursday AM, December 19, 2019**
**Room 16 - Camellia 1**

Organized by Mingjiang Zhang

 Chaired by Mingjiang Zhang, Junfeng Jiang
 

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09:00 Tunable Ultrafast Pulses Generation by Soliton-plasma Interactions  
*Yuxin Leng (Shanghai Institute of Optics and Fine Mechanics, CAS);*

09:20 Pressure Tuning of Ultrafast Photocarrier Dynamics in Black Phosphorus  
*Fuhai Su (Institute of Solid State Physics, Chinese Academy of Sciences); Shujuan Xu (Institute of Solid State Physics, Chinese Academy of Sciences); Huachao Jiang (Institute of Solid State Physics, Chinese Academy of Sciences); Jin Yang (Institute of Solid State Physics, Chinese Academy of Sciences);*

10:00 **Coffee Break**

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**Session 3A17b**

**SC3: Light Propagation, Transformation and Applications 2**

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**Thursday AM, December 19, 2019**

**Room 17 - Camellia 2**

Organized by Zhili Lin, Jixiong Pu

Chaired by Zhili Lin, Jixiong Pu

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10:30 Influence of the Mode Order on Thermal Blooming of Laser Beams in the Air  
*Xiaoqing Li (Sichuan Normal University); Zhouling Ding (Sichuan Normal University); Xiaoling Ji (Sichuan Normal University);*

10:50 Wavelength and Polarization Effects in Strong-field Ionization of Diatomic Molecules Driven by Mid-infrared Laser Pulses  
*Zhiyang Lin (Huaqiao University); Baoqing Lin (Huaqiao University); Wenqing Yang (Huaqiao University); Jixiong Pu (Huaqiao University);*

11:10 Propagation of Partially Coherent Laser Beams in Nonlinear Media  
*Huan Wang (Sichuan Normal University); Xiaoling Ji (Sichuan Normal University);*

11:30 Interaction Characteristics of High-intensity Lasers with Plasma in Ponderomotive Regime  
*Zhili Lin (Huaqiao University); Bosong Yu (Huaqiao University); Xudong Chen (Huaqiao University); Jixiong Pu (Huaqiao University);*

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**Session 3A0**

**Poster Session 3**

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**Thursday AM, December 19, 2019**

**8:00 AM - 12:00 AM**

**Room Corridor**

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- 1 Asymmetric Light Reflectance on Dielectric Surfaces with Nano-structure  
*Penggang Li (Xiamen University); Junyong Kang (Xiamen University); Kai Huang (Xiamen University);*
- 2 Comparison of Dispersion Models for the Silver Nanostructure in FDTD Simulations  
*Chao Liu (Anhui University); Yu Liu (University of Electronic Science and Technology of China (USTC));*
- 3 Improving the Medium-long Term Frequency Stability of Pulsed Optically Pumped Rubidium Clock  
*Qian Shen (Institute of Optics and Fine Mechanics, Chinese Academy of Sciences); Jianliao Deng (Shanghai Institute of Optics and Fine Mechanics, Chinese Academy of Sciences); Haixiao Lin (Institute of Optics and Fine Mechanics, Chinese Academy of Sciences); Song Zhang (Shanghai Institute of Optics and Fine Mechanics, Chinese Academy of Sciences); Yuzhu Wang (Shanghai Institute of Optics and Fine Mechanics, Chinese Academy of Sciences);*
- 4 Absorption of Electromagnetic Wave by Uniform Plasma Plate  
*Zhennan Xiao (Xidian University); Bing Wei (Xidian University); De-Biao Ge (Xidian University);*
- 5 Band-notch Absorber with Two-sided Absorption Bands and Two Reflection Bands  
*Ling-Ling Wang (Nanjing University of Aeronautics and Astronautics); Shaobin Liu (Nanjing University of Aeronautics and Astronautics); Zheng-Yu Huang (Nanjing University of Aeronautics and Astronautics); Xiang-Kun Kong (Nanjing University of Aeronautics and Astronautics); Xuewei Zhang (Nanjing University of Aeronautics and Astronautics); Feng Xue (Nanjing University of Aeronautics and Astronautics);*
- 6 Optimization of Nonspherical Gold Nanoparticles for Photothermal Therapy  
*Paerhatijiang Tuersun (Xidian University); Xiayiding Yakupu (Xinjiang Normal University);*

- 7 Design of a Flexible Broadband Tunable Radar Absorbing Material Based on Patterned Graphene Patches  
Kai Li (*University of Electronic Science and Technology of China*); Wentao He (*University of Electronic Science and Technology of China*); Zhiming Li (*University of Electronic Science and Technology of China*); Hai-Yan Chen (*University of Electronic Science and Technology of China*); Hong Rao (*University of Electronic Science and Technology of China*); Wei Luo (*University of Electronic Science and Technology of China*); Xiao Long Weng (*University of Electronic Science and Technology of China*);
- 8 Broadened Region for Robust Optical Bistability in Nonlocal Core-shell Nanoparticle  
Yang Huang (*Jiangnan University*); Lei Gao (*Soochow University*);
- 9 Hyperbolic Metamaterial for Tamm Plasmon Polariton Application  
Rashid Gelmedinovich Bikbaev (*Kirensky Institute of Physics*); Stepan Yakovlevich Vetrov (*Siberian Federal University*); Ivan Vladimirovich Timofeev (*Kirensky Institute of Physics, Federal Research Center KSC SB RAS*);
- 10 Broadband Electromagnetically Induced Transparency Based on Planar Metamaterials  
Hai-Ming Li (*Nanjing University of Aeronautics and Astronautics*); You-Yun Xu (*Nanjing University of Posts and Telecommunications*);
- 11 Simulation Studying for a THz Modulator with Resonance Cavity Coupled to Graphene-loaded Metal Wire Grating  
Mingyang Jia (*Shenzhen University*); Jie Lin (*Shenzhen University*); Xudong Liu (*Shenzhen University*); Yiwen Sun (*Shenzhen University*);
- 12 Experimental Study on Recognition and Optimization for Intrusion Events in Fiber-optic Perimeter Defense Area  
Pei Chao Chen (*Huaqiao University*);
- 13 Implementation of Null Space Initialization for the Constant Modulus Algorithm in a Wireless MIMO Transmission System  
Junhe Zhou (*Tongji University*); Dongke Wu (*Tongji University*);
- 14 A Built-In Radio-frequency Amplifier Waveguide CO<sub>2</sub> Laser System  
Suripon Somkuarnpanit (*King Mongkut's Institute of Technology*); Surin Rodtim (*King Mongkut's Institute of Technology*);
- 15 An Intelligent Control System of Music Rhythms by RGB-LED Lamp  
Xin Yu Guo (*Tongji University*); Guo Chun Wan (*Tongji University*); Mei Song Tong (*Tongji University*);
- 16 2 μm Thulium-doped Fiber Laser Based on Synchronously Pumped Mode-locking  
Shiting Huang (*Shenzhen University*); Songlin Zhang (*Shenzhen University*); Chun-Yu Guo (*Shenzhen University*); Shuang-Chen Ruan (*Shenzhen University*); Shupeng Lian (*Shenzhen University*); Hongyi Chen (*Shenzhen University*); Qitao Lue (*Han's Laser Technology Industry Group Co., Ltd.*);
- 17 FBG Sensors Network Embedded in Spectrum-sliced WDM-PON Transmission System Operating on Single Shared Broadband Light Source  
Ugis Senkans (*Riga Technical University*); Janis Braunfelds (*Riga Technical University*); Ilya Lyashuk (*Riga Technical University*); Jurgis Porins (*Riga Technical University*); Sandis Spolitits (*Riga Technical University*); Viktors Haritonovs (*Riga Technical University*); Vjaceslavs Bobrovs (*Riga Technical University*);
- 18 Design of New Miniaturized Broadband Bandpass Filter Based on SIR  
Kaiyue Duan (*Anhui University*); Ping-Juan Zhang (*Anhui Science and Technology University*); Dongya Cheng (*Anhui University*); Yawen Song (*Anhui University*); Lichang Huang (*Anhui University*); Minquan Li (*Anhui University*);
- 19 A Wideband Fabry-Perot Antenna with Low-RCS High-GBP Using Embed-chessboard Polarization Conversion Metasurface  
Zhiming Liu (*Nanjing University of Aeronautics and Astronautics*); Zheng-Yu Huang (*Nanjing University of Aeronautics and Astronautics*); Shaobin Liu (*Nanjing University of Aeronautics and Astronautics*); Xiang-Kun Kong (*Nanjing University of Aeronautics and Astronautics*); Feng Xue (*Nanjing University of Aeronautics and Astronautics*); Ling-Ling Wang (*Nanjing University of Aeronautics and Astronautics*);
- 20 Simulation of the Future OAM-based Transmission Systems  
Fuchun Mao (*Wireless Innovation Lab of Yunnan University*); Ming Huang (*Yunnan University*); Jingjing Yang (*Yunnan University*); Chengfu Yang (*Wireless Innovation Lab of Yunnan University*); Tinghua Li (*The Technical Center of China Tobacco Yunnan Industrial Co. Ltd.*); Yanli Zhao (*Yi-Xin-Tang Pharmaceutical Group Co., Ltd.*);

- 21 A 25-Gb/s Optical Receiver Front-end in 65-nm CMOS  
*Xu Chang (Nanjing University of Posts & Telecommunications); Changchun Zhang (Nanjing University of Posts and Telecommunications); Feng Yuan (Nanjing University of Posts and Telecommunications); Yi Zhang (Nanjing University of Posts and Telecommunications); Ying Zhang (Nanjing University of Posts & Telecommunications);*
- 22 Dual-band Antenna Design for Moving Terminal Applications  
*Yanyan Wang (Science and Technology on Complex System Control and Intelligent Agent Cooperation Laboratory); Qingxi Chi (Science and Technology on Complex System Control and Intelligent Agent Cooperation Laboratory); Mingrui Hao (Science and Technology on Complex System Control and Intelligent Agent Cooperation Laboratory); Yunong Bu (Science and Technology on Complex System Control and Intelligent Agent Cooperation Laboratory); Hang Zhang (Science and Technology on Complex System Control and Intelligent Agent Cooperation Laboratory);*
- 23 Experimental Verification of a Dominant CRLH Waveguide Leaky-wave Antenna for Radar Application  
*Qingshan Yang (National Space Science Center, Chinese Academy of Sciences); Xiaowen Zhao (National Space Science Center, Chinese Academy of Sciences); Yunhua Zhang (National Space Science Center, Chinese Academy of Sciences);*
- 24 Research on Serrations of Reflector Used in CATR  
*Yongquan Jiang (Science and Technology on Electromagnetic Scattering Laboratory); Chongjiang Mo (Science and Technology on Electromagnetic Scattering Laboratory); Wenqiang Chen (Science and Technology on Electromagnetic Scattering Laboratory); Dewang Kong (Science and Technology on Electromagnetic Scattering Laboratory);*
- 25 A Novel Notch Antenna Based on Improved Single CSRR  
*Sihui Bao (Beijing Institute of Technology); Wu Ren (Beijing Institute of Technology); Liangrong Ge (Beijing Institute of Technology); Zheng Hui Xue (Beijing Institute of Technology); Wei-Ming Li (Beijing Institute of Technology);*
- 26 A Planar Rabbet Microstrip-fed Monopole Antenna for UWB System  
*Cheng-Hsing Hsu (National United University); Chia-Hao Chang (National United University); Ja-Hao Chen (Feng-Chia University); Ching-Fang Tseng (National United University);*
- 27 Effect of Inhomogeneous Radiofrequency Field on Water Content-based Electrical Properties Tomography: A Simulation Study  
*Jijun Han (Southern Medical University); Yunyu Gao (Southern Medical University); Jiajia Wang (Southern Medical University); Yurong Zhu (Southern Medical University); Feng Liu (The University of Queensland); Sherman Xuegang Xin (South China University of Technology);*
- 28 Embroidered and e-textile Conductors Embedded inside 3D-printed Structures  
*Zahangir Khan (Tampere University); Han He (Tampere University); Xiaochen Chen (Tampere University); Leena Ukkonen (Tampere University); Johanna Virkki (Tampere University);*
- 29 A Constant Insertion Loss Phase Shifter Used for Low Sidelobe Level Arrays  
*Yuan Jiang (University of Electronic Science and Technology of China); Rui Li (Nanjing Research Institute of Electronics Technology (NRIET)); Lei Lin (Nanjing Research Institute of Electronics Technology (NRIET));*
- 30 A Spectrum Sensing Scheme Based on Second-order Variable Step Energy Detection for Detecting 3bit Passive Wireless RFID Tag Antenna  
*Ming Xu Zhang (Tongji University); Guo Chun Wan (Tongji University); Mei Song Tong (Tongji University);*
- 31 A Miniaturized Broadband Radiating Structure Based on Microstrip and Slot Complementary Coupling  
*Tianye Ma (Nanjing Research Institute of Electronic Technology); Jinping Zhang (Nanjing Research Institute of Electronic Technology);*
- 32 A Low Power and Narrowband Microwave IoT-based Smart Campus Security Control  
*Akbar Hendra (Universitas Hasanuddin); Elyas Palantei (Universitas Hasanuddin (UNHAS)); Syafaruddin (Universitas Hasanuddin); Muhammad Sabirin Hadis (Balla Cerdas Ltd. Co. and STMIK AKBA); Wardi (Universitas Hasanuddin); Sunarno (Universitas Gadjah Mada (UGM)); Eko Setijadi (Institut Teknologi Sepuluh Nopember (ITS), ITS Sukolilo Campus); Intan Sari Areni (Universitas Hasanuddin); Merna Baharuddin (Chiba University); Arif Hidayat (Remote Sensing Center LAPAN); Nurfitri (Universitas Hasanuddin);*



- 33 Analysis and Design of Mutual Inductance Stability Using Hexagonal Coil  
*Jian Feng (Anhui University); Kaihong Song (Anhui University); Jie Wu (Anhui University); Xin-Yu Ning (Anhui University);*
- 34 Designs of Coupled-resonator Filters Using Dual-transmission Lines  
*Ren-Fu Tsai (National University of Kaohsiung); Pu-Hua Deng (National University of Kaohsiung); Chieh-Hung Lu (National University of Kaohsiung);*
- 35 Theoretical Design of RF Filtering Switch Using Short-circuited Stubs and Coupled-lines  
*Hang Sun (Kanagawa University); Chun-Ping Chen (Kanagawa University); Zejun Zhang (Kanagawa University); Tetsuo Anada (Kanagawa University);*
- 36 High Polarization Purity MMW Antenna Based on LTCC Technology  
*Yanting Lv (Shanghai Aerospace Electronics Co., Ltd.); Fanwei Kong (Shanghai Aerospace Electronics Co., Ltd.); Mengmeng Sun (Shanghai Aerospace Electronics Co., Ltd.); Jingyi Qian (Shanghai Aerospace Electronics Co., Ltd.); Weizhong Yan (Shanghai Aerospace Electronics Co., Ltd.); Xudong Bai (Shanghai Aerospace Electronics Co., Ltd.);*
- 37 Spatiotemporal Switching Mode Design for Parallel Channel Sounding and Performance Evaluation  
*Zepeng Zhao (Tongji University); Min Hui Song (Tongji University); Xuefeng Yin (Tongji University); Jie Ning (Huawei Technologies Corporation);*
- 38 A Novel UWB Directional Antenna for Single Borehole Radar  
*Chunguang Ma (University of Electronic Science and Technology of China); Xianzheng Zhao (PetroChian Dagang Oilfield Company);*
- 39 A Fast and Accurate Device Model Validation Strategy Using Rotational Invariant Lead Trajectories  
*Yu Wang (University of Houston); Jianfeng Zheng (University of Houston); Shuo Song (University of Houston); Qingyan Wang (University of Houston); Ji Chen (The University of Houston);*
- 40 A Multiband High Gain Grooves Antenna  
*Ping-Juan Zhang (Anhui Science and Technology University); Minquan Li (Anhui University);*
- 41 Gain Improvement of a UWB Antenna Using a Single-layer FSS  
*Naser Ojaroudi Parchin (University of Bradford); Raed A. Abd-Alhameed (University of Bradford); Ming Shen (Aalborg University);*
- 42 Spectral Differences in Three Types of Blooms in China Coastal Waters and Implication for Their Discrimination from Space  
*Xue Li (Xiamen University); Shaoling Shang (Xiamen University); Zhongping Lee (University of Massachusetts Boston); Jingyu Wu (Xiamen University); Gong Lin (Xiamen University);*
- 43 Broadband Frequency-selective Rasorber with Transmission Window  
*Jiayong Yu (Communication University of China); Jianxun Su (Communication University of China); Zengrui Li (Communication University of China);*
- 44 Hepatic Lesion Recognition Based on Deep Visual Feature Learning  
*Shengqing Zhai (Tongji University); Wenbo Ou (Central South University of Forestry and Technology); Yusi Yang (Tongji University); Lan Lin (Tongji University);*
- 45 Synthetic Aperture Radar Signal Simulation of Ships on Sea Surface Based on Trajectory Deviations  
*Yuhua Guo (Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences); Zhenghuan Xia (Beijing Institute of Satellite Information Engineering); Guangjun He (Beijing Institute of Satellite Information Engineering); Pengming Feng (Beijing Institute of Satellite Information Engineering); Xiaojing Hou (Tianjin Polytechnic College);*
- 46 A Special Processor of Passive Infrared Detector Based on Artificial Neural Network  
*Miao Yang (Tongji University); Wei Hua Xiao (Tongji University); Zhi Gang Han (Tongji University); Mei Song Tong (Tongji University);*
- 47 A Parameter Estimation Processor for Multi-component LFM Signal Based on a Complex-valued Convolutional Neural Network  
*Hanning Su (National University of Defense Technology); Qinglong Bao (National University of Defense Technology);*
- 48 Estimation of the Ship RCS on the Dynamic Sea Surface  
*Jialin Shi (Naval Research Academy); Rui Chen (Naval Research Academy); Yu Zuo (Naval Research Academy); Anxia Jiao (Yantai Automobile Engineering Professional College);*

- 49 Land Deformation of Surabaya City, Indonesia Based on DInSAR and Multiple Images Interferometric SAR  
*Joko Widodo (Chiba University); Peberlin Parulian Sitompul (Chiba University); Achmad Munir (Institut Teknologi Bandung); Ramadan Abouelmagd (Desert Research Center); Pakhrur Razi (Universitas Negeri Padang); Daniele Perissin (Chinese University of Hong Kong); Josaphat Tetuko Sri Sumantyo (Chiba University);*
- 50 Passive UHF RFID-based User Interface on a Wooden Surface  
*Adnan Mehmood (Tampere University); Ville Vianto (Tampere University); Han He (Tampere University); Xiaochen Chen (Tampere University); Oğuz 'Oz' Buruk (Tampere University); Leena Ukkonen (Tampere University); Johanna Virkki (Tampere University);*
- 51 A Substrate-insensitive Antenna Array with Broad Bandwidth and High Efficiency for 5G Mobile Terminals  
*Naser Ojaroudi Parchin (University of Bradford); Raed A. Abd-Alhameed (University of Bradford); Ming Shen (Aalborg University);*
- 52 A Radiation-beam Switchable Antenna Array for 5G Smartphones  
*Naser Ojaroudi Parchin (University of Bradford); Raed A. Abd-Alhameed (University of Bradford); Ming Shen (Aalborg University);*
- 53 Systematic Z-scan Measurements of the Third Order Nonlinearity of Chalcogenide Glasses  
*Qiuli Li (Ningbo University); Rongping Wang (Ningbo University);*
- 54 Influence of the Ground Plane Dimensions on the Performance of Slot Antennas  
*K. Akinwale Amusa (Federal University of Agriculture); Sulaiman Adeniyi Adekola (University of Lagos);*
- 55 Luminescence Properties of Cr<sup>2+</sup> Doped ZnSe in Mid-infrared Waveguides  
*Zhen Yang (Ningbo University); Rongping Wang (Ningbo University);*
- 56 An Optical Soot Particle Measurement Setup Based on CRDS and LII  
*Jialuo Zhang (University of Shanghai for Science and Technology); Meng Wang (University of Shanghai for Science and Technology); Mingxu Su (University of Shanghai for Science and Technology); Huinan Yang (University of Shanghai for Science and Technology); Jun Chen (University of Shanghai for Science and Technology);*
- 57 Estimation and Fusion of Mining Multi-level Deformation with OTD-InSAR Based on Prior Model and Kriging  
*Le-Le Zhang (Inner Mongolia University of Technology);*
- 58 Improved Lv's Distribution for Noisy Multicomponent LFM Signals Analysis  
*Jibin Zheng (Xidian University); Hongwei Liu (Xidian University); Qing Huo Liu (Duke University);*
- 59 A Reliable Method for Reducing Low-frequency Phase Noise and Extraction Material Parameter in Terahertz Time-domain Spectroscopy  
*Dayou Liu (Shenyang Institute of Automation, Chinese Academy of Sciences); Feng Qi (Shenyang Institute of Automation, Chinese Academy of Sciences);*
- 60 Optical Fiber Based Localized Surface Plasmon Resonance Sensor Prepared by Self-assembled Gold Nanoparticles on Block Copolymer Monolayer  
*Mengdi Lu (Dalian University of Technology); Ming Lin (Dalian University of Technology); Wei Peng (Dalian University of Technology);*
- 61 Layered Chiral Spheres with Zero Backscattering  
*Syed Agha Hassnain Mohsan (Comsats Institute of Information Technology); Muhammad Junaid Mughal (Comsats Institute of Information Technology); Qaisar Abbas Naqvi (Quaid-i-Azam University);*
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- Session 3P4a**  
**SC1: FDTD Method in Multiphysics Simulation**
- 
- Thursday PM, December 19, 2019**  
**Room 4 - Ginkgo**  
 Organized by Wei E. I. Sha, Zhi-Xiang Huang  
 Chaired by Wei E. I. Sha
- 
- 13:10 Particle Simulation of Plasmons  
 Invited *Wen-Jun Ding (A\*STAR); Lin Wu (A\*STAR);*
- 13:30 Multiphysics Modeling and Simulation of Carrier Transport in Nanoscale Device: Combination of Classical Electromagnetics and Quantum Mechanics  
 Invited *Hui Zeng (Nanjing University of Science and Technology); Rushan Chen (Nanjing University of Science and Technology);*
- 13:50 A Novel Symplectic FDTD Method for Simulating Maxwell-Schrödinger Equations  
*Guoda Xie (Anhui University); Zhixiang Huang (Anhui University); Wei E. I. Sha (Zhejiang University); Xianliang Wu (Anhui University);*

- 14:10 Multiscale Compressed Strategy with Merged Characteristic Basis Function Method for Analyzing the Targets with Sharp  
*Chenlu Li (Hefei Normal University); Zhong-Gen Wang (Anhui University of Science and Technology); Zhenzhen Chen (Hefei University);*
- 14:30 The Electromagnetic Scattering Characteristics of Two-dimensional Dusty Plasma Based on Hypersonic Vehicle  
*Wei Chen (Anhui University); Li-Xia Yang (Jiangsu University); Zhi-Xiang Huang (Anhui University);*
- 14:50 Smith-Purcell Radiation Enhanced by Periodic Split-Ring Resonator Metamaterials  
*Xingxing Xu (University of Electronic Science and Technology of China); Zhuocheng Zhang (University of Electronic Science and Technology of China); Xiaoli Zhang (University of Electronic Science and Technology of China); Yueying Wang (University of Electronic Science and Technology of China); Sen Gon (University of Electronic Science and Technology of China); Renbin Zhong (University of Electronic Science and Technology of China); Min Hu (University of Electronic Science and Technology of China);*
- 15:10 Ultra-wideband Characteristic Basis Function Method Merging the Secondary Level Characteristic Basis Functions for Rapid Computation of Wideband Scattering Problems from Conducting Targets  
*Wen-Yan Nie (Huainan Normal University); Zhong-Gen Wang (Anhui University of Science and Technology); Chenlu Li (Hefei Normal University);*
- 15:30 **Coffee Break**
- 16:00 On the Modelling of Magnetized Cold Plasmas in FDTD Scheme  
*Yaxin Yu (Chang'an University);*
- 16:20 Application of Hybridized Discontinuous Galerkin Time Domain Method into the Solution of Multiscale Electromagnetic Problems  
*Invited Yan Shi (Xidian University); Peng Wang (Xidian University); Zhen Guo Ban (Xidian University); Qi Yang (Xidian University); Shi Chen Zhu (Xidian University);*
- 16:40 An Efficient 3D SEM Combining with DDM for Low-frequency Subsurface Sensing  
*Invited Yuan Guo Zhou (Xi'an University of Science and Technology); Jian Liang Zhuo (Xiamen University); Na Liu (Xiamen University); Qing Huo Liu (Duke University);*
- 17:00 Parallel Subdomain Level DGTD Method with Automatic Load Balancing  
*Qiang Ren (Beihang University); Jiamei Mi (Beihang University);*
- 17:20 An Efficient Implementation of Perfectly Matched Layers within a High-order Discontinuous Galerkin Time Domain Method  
*Liang Chen (King Abdullah University of Science and Technology (KAUST)); Mehmet Burak Ozakin (King Abdullah University of Science and Technology (KAUST)); Hakan Bagci (King Abdullah University of Science and Technology (KAUST));*
- 17:40 A 3D Fast Solver for Logging-while-drilling Based on the Total Field/Scattered Field DGFDM Method  
*Runren Zhang (Duke University); Zhenguan Wu (China University of Petroleum (East China)); Qingtao Sun (Duke University); Mingwei Zhuang (Xiamen University); Qiang-Ming Cai (Southwest University of Science and Technology); Dezhi Wang (Duke University); Qing Huo Liu (Duke University);*
- 18:00 The Memory Efficient Discontinuous Galerkin Finite-element Time-domain Scheme for Periodic/Aperiodic Structures  
*Pengfei Wen (Beihang University); Qiang Ren (Beihang University); Jiefu Chen (University of Houston);*

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**Session 3P4b**

**SC1: Discontinuous Galerkin Method and Domain Decomposition**

Thursday PM, December 19, 2019

Room 4 - Ginkgo

Organized by Qiang Ren, Ping Li

Chaired by Qiang Ren

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**Session 3P5**

**SC5: Atmospheric Light Scattering, Radiative Transfer, and Remote Sensing**

Thursday PM, December 19, 2019

Room 5 - Banyan 1

Organized by Ping Yang, Xianglei Huang

Chaired by Xianglei Huang, Bingqi Yi

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- 13:30 An Advanced Radiative Transfer Modeling System (ARMS)  
*Fuzhong Weng (State Key Laboratory of Severe Weather);*
- 13:50 Active Remote Sensing of Cloud Properties Based on Lidar and Radar  
*Chuanfeng Zhao (Beijing Normal University);*
- 14:10 Impacts of Dust Aerosol Scattering and Emission on FY-3D HIRAS Simulations  
*Lei Bi (Zhejiang University); Shouguo Ding (Chinese Academy of Meteorological Sciences, China Meteorological Administration); Fuzhong Weng (Chinese Academy of Meteorological Sciences, China Meteorological Administration);*
- 14:30 Diurnal Variation of Cloud Properties during the Daytime from Himawari-8 Satellite Retrievals  
*Bingqi Yi (Sun Yat-sen University);*
- 14:50 Feasibility of Retrieving Ice Cloud Properties Based on Spaceborne Mid-to-far-infrared Measurements  
*Masanori Saito (Texas A&M University); Ping Yang (Texas A&M University);*
- 15:10 Impact of Dust Aerosol Absorbility at Shortwave Bands on Regional Climate in East Asia  
*Zheng Wang (Zhejiang University); Lei Bi (Zhejiang University); Wushao Lin (Zhejiang University);*
- 15:30 **Coffee Break**
- 16:00 Effect of Vertical Inhomogeneity of Frozen Hydrometeor Habits in Microwave Simulations of Tropical Cyclones  
*Hejun Xie (Zhejiang University); Lei Bi (Zhejiang University); Wei Han (Numerical Weather Prediction Center, China Meteorological Administration); Jincheng Wang (Numerical Weather Prediction Center, China Meteorological Administration);*
- 16:20 Improved Aerosol Retrievals over Complex Regions Using NPP VIIRS Observations  
*Yikun Yang (Beijing Normal University); Chuanfeng Zhao (Beijing Normal University); Lin Sun (Shandong University of Science and Technology); Hao Fan (Beijing Normal University);*
- 16:40 Evaluation of Mixed-phase Cloud Optical Properties by Assuming Various Cloud Particle Model  
*Qing Luo (Sun Yat-Sen University); Bingqi Yi (Sun Yat-sen University);*
- 17:00 Cloud Longwave Scattering: A Missing Link in Current Models for Realistic Atmosphere and Surface Radiative Couplings  
*Xianglei Huang (The University of Michigan); Yi-Hsuan Chen (The University of Michigan); Xiuhong Chen (The University of Michigan); Ping Yang (Texas A&M University); Wu-Yin Lin (Brookhaven National Laboratory);*
- 17:20 Advanced Modeling Capabilities for Simulating Single and Multiple Scattering in the Atmosphere with Inclusion of the Polarization State  
*Ping Yang (Texas A&M University); Jiachen Ding (Texas A&M University); Masanori Saito (Texas A&M University); Xu Liu (NASA Langley Research Center);*
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- Session 3P6**
- SC5: Inverse Problems in Electromagnetics: Emerging Tools and Applications in Imaging and Design Problems, Part 1 & 2**
- 
- Thursday PM, December 19, 2019**
- Room 6 - Banyan 2**
- Organized by Lorenzo Crocco, Tommaso Isernia, Maokun Li
- Chaired by Maokun Li, Martina Teresa Bevacqua
- 
- 13:10 A Bernoulli-Gaussian Binary Inversion Method for High-frequency Electromagnetic Imaging of Metallic Reflectors  
*Fang-Fang Wang (Nanjing University of Posts and Telecommunications); Qing Huo Liu (Duke University);*
- 13:30 Metamaterials Based Devices through Inverse Scattering: A Novel Design Tool  
*Roberta Palmeri (Università Mediterranea di Reggio Calabria); Martina Teresa Bevacqua (Università Mediterranea di Reggio Calabria); Tommaso Isernia (Università Mediterranea di Reggio Calabria);*
- 13:50 Limited-view Experiments towards a Practical Radar-based Microwave Imaging Prototype for Fruit Assessment  
*Navid Ghavami (King's College London); Ioannis Sotiriou (King's College London); Panagiotis Kosmas (King's College London);*
- 14:10 A Data-driven Linearized Inverse Scattering Approach  
*Raffaele Solimene (Università degli Studi della Campania "Luigi Vanvitelli"); Edwin A. Marengo (North-eastern University);*

- 14:30 FDTD-based Computational Modeling of the Response of a Possibly Damaged Composite Laminate to a Point Source Nearby  
*Changyou Li (Northwestern Polytechnical University);*
- 14:50 A Preliminary Assessment of the Effects of Algorithm Parameters on Distorted Contrast Source Inversion  
*Ian Jeffrey (University of Manitoba); Joe LoVetri (University of Manitoba); J. Peters (University of Manitoba); S. Girouard (University of Manitoba); R. Kristjanson (University of Manitoba); B. Qu (University of Manitoba); K. Krakalovich (University of Manitoba); Nicholas Geddert (151 Research Inc.); Kevin Brown (151 Research Inc.); Colin Gilmore (University of Manitoba);*
- 15:10 Tools for the Exploitation of the Time-space Correlation in Inverse Scattering Problems  
*Marco Salucci (University of Trento); Maokun Li (Tsinghua University); Paolo Rocca (University of Trento); Andrea Massa (University of Trento);*
- 15:30 **Coffee Break**
- 16:00 Localizing Unknown Breast Tumors Using Standalone Microwave Tomography without Structural Priors  
*Qianqian Fang (Northeastern University); Edward Xu (Northeastern University); Shijie Yan (Northeastern University);*
- 16:20 Levenberg-Marquardt Algorithm for Acousto-electric Tomography Based on the Complete Electrode Model  
*Changyou Li (Northwestern Polytechnical University); Kang An (Northwestern Polytechnical University); Kuisong Zheng (Northwestern Polytechnical University); Dominique Lesselier (UMR8506 (CNRS, CentraleSupélec, Université Paris-Sud), Université Paris-Saclay);*
- 16:40 Analysis of Polarizing Parameters of Lunar Craters Using High-resolution Images Based on Radar  
*Jiixin Wan (Fudan University); Hongxia Ye (Fudan University); Ming Xu Zhang (Tongji University); Mei Song Tong (Tongji University);*
- 17:00 Data Augmentation in Wiener Estimation Algorithm for Spectroscopic Image Reconstruction  
*Yasuo Ohtera (Toyama Prefectural University); N. Ikeda (Toyama Prefectural University);*
- 17:20 Surface State Monitoring of Concrete Samples Utilizing Snapshot-type Photonic Crystal Spectroscopic Imager  
*Yasuo Ohtera (Toyama Prefectural University); A. Sato (Toyama Prefectural University);*
- 17:40 Supervised Descent Method for Electrical Impedance Tomography  
*Maokun Li (Tsinghua University); Ke Zhang (Tsinghua University); Rui Guo (Tsinghua University); Fan Yang (Tsinghua University); Shenheng Xu (Tsinghua University); Aria Abubakar (Schlumberger Houston Formation Evaluation);*

**Session 3P7**

**SC1: Electromagnetic and Acoustic/Seismic Technologies in Oilfield Applications: Sensing, Modeling, and Inversion 1**

**Thursday PM, December 19, 2019**

**Room 7 - Banyan 3**

Organized by Jiefu Chen, Shaogui Deng

Chaired by Jiefu Chen, Shaogui Deng

- 13:10 Research on Water Holdup Detection Method and Tool Design Using Conical Spiral Transmission Line  
*Yong Wei (Yangtze University); Houquan Yu (Yangtze University); Qiang Chen (China Petroleum Logging CO. LTD.); Guoquan Liu (China Petroleum Logging CO. LTD.); Chaoxian Qi (University of Houston); Jiefu Chen (University of Houston);*
- 13:30 Electromagnetic Logging Response in Multilayered Arbitrary Uniaxial Electrical Anisotropic Formation  
*Xufei Hu (China University of Petroleum-Beijing at KARAMAY); Yiwei Wei (China University of Petroleum-Beijing at KARAMAY); Haitao Shi (China University of Petroleum-Beijing at KARAMAY); Lingyan Bian (China University of Petroleum-Beijing at KARAMAY);*
- 13:50 The Response Characteristics of Dielectric Logging in Anisotropic Formation  
*Zhiqiang Li (22nd Institute of China Electronics and Technology Group Corporation); Zhiqiang Yang (22nd Institute of China Electronics and Technology Group Corporation); Yongli Ji (22nd Institute of China Electronics and Technology Group Corporation); Chen Li (22nd Institute of China Electronics and Technology Group Corporation); Jingjing Zhang (22nd Institute of China Electronics and Technology Group Corporation);*
- 14:10 Application of Dielectric Logging in the Oilfield Area  
*Zhiqiang Yang (22nd Institute of China Electronics and Technology Group Corporation); Jingjing Zhang (22nd Institute of China Electronics and Technology Group Corporation); Chen Li (22nd Institute of China Electronics and Technology Group Corporation);*

- 14:30 A Fast Forward and Inversion Method for Long Distance Cross-well Electromagnetic Imaging Logging System  
*Zhiqiang Yang (22nd Institute of China Electronics and Technology Group Corporation); Yongli Ji (22nd Institute of China Electronics and Technology Group Corporation); Zhiqiang Li (22nd Institute of China Electronics and Technology Group Corporation); Huaxiong Wang (22nd Institute of China Electronics and Technology Group Corporation); Fengyun Guo (22nd Institute of China Electronics and Technology Group Corporation);*
- 14:50 Supervised Descent Method for Magnetotelluric Data Inversion  
*Rui Guo (Tsinghua University); Maokun Li (Tsinghua University); Fan Yang (Tsinghua University); Shenheng Xu (Tsinghua University); Aria Abubakar (Schlumberger Houston Formation Evaluation);*
- 15:10 An Extended Geometric Factor Theory and Application for Logging-While-Drilling Electromagnetic Measurements  
*Pan Zhang (China University of Petroleum); Shaogui Deng (China University of Petroleum); Lei Wang (China University of Petroleum); Lianyun Cai (China University of Petroleum); Chunyang Jiang (China University of Petroleum);*
- 15:30 **Coffee Break**
- 16:00 A Novel Detecting Ability Quantification Method of Electromagnetic Logging While Drilling Based on Sensitivity Function  
*Lianyun Cai (China University of Petroleum); Shaogui Deng (China University of Petroleum);*
- 16:20 Self-adaptive Modeling of Electromagnetic Logging-While-Drilling in High Angle and Horizontal Wells  
*Zhengan Wu (China University of Petroleum (East China)); Lei Wang (China University of Petroleum); Yiren Fan (China University of Petroleum (East China)); Runren Zhang (Duke University); Qing Huo Liu (Duke University);*
- 16:40 Three-component Low-frequency Electromagnetic Induction Remote Detection with the Use of Volume Integral Equation  
*Kangkang Wu (China University of Petroleum (East China)); Shaogui Deng (China University of Petroleum (East China)); Baojun Wei (China University of Petroleum (East China));*
- 17:00 An Efficient Hierarchical Inversion of Array Lateral Logging in Anisotropic Formation  
*Yizhi Wu (China University of Petroleum (East China)); Yiren Fan (China University of Petroleum (East China)); Zhengan Wu (China University of Petroleum (East China)); Chaoliu Li (Research Institute of Petroleum Exploration & Development); Chao Yuan (Research Institute of Petroleum Exploration & Development);*
- 17:20 An Efficient Method for Extracting Horizontal Resistivity of Anisotropic Formation Based on Multicomponent Induction Logging and Its Application  
*Tianlin Liu (China University of Petroleum (East China)); Shaogui Deng (China University of Petroleum (East China)); Lianyun Cai (China University of Petroleum);*
- 17:40 Rapid Simulation of Logging-While-Drilling Resistivity Measurements Using Neural Network Algorithm  
*Zhongxu Yin (China University of Petroleum (East China)); Yiren Fan (China University of Petroleum (East China)); Zhengan Wu (China University of Petroleum (East China)); Yizhi Wu (China University of Petroleum (East China));*
- 18:00 Investigation of Tool Structure Effect by an Improved FD Scheme Based on Triaxial Induction Logging in Radial Stratified Anisotropic Media  
*Chunyang Jiang (China University of Petroleum); Shaogui Deng (China University of Petroleum (East China)); Lianyun Cai (China University of Petroleum);*
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- Session 3P8a**  
**SC4: Applications of New Techniques in Antennas and Circuits 2**
- 
- Thursday PM, December 19, 2019**  
**Room 8 - Peony 1**  
Organized by Qiubo Ye, Jun Xiao, Tongyu Ding  
Chaired by Qiubo Ye, Tongyu Ding
- 
- 13:10 A New Method for Improving the Performance of Antennas Mounted on a Vehicle in the HF Band  
*Ensieh Ghasemi Mizuji (Iran University of Science and Technology); Bijan Abbasi-Arand (Tarbiat Modarres University); Ali Abdolali (Iran University of Science and Technology);*

- 13:30 Design and Simulation of Dual-polarized Non-planar Conformal Phased Array Antenna  
*Lei Lang (The 54th Research Institute of China Electronics Technology Group Corporation); Lirong Mei (The 54th Research Institute of China Electronics Technology Group Corporation); Naibo Zhang (Beijing University of Posts and Telecommunications);*
- 13:50 Design of a Dual-polarization Log-periodic Antenna (LPDA) in PCB  
*Yi Wang (The 36th Research Institute of China Electronics Technology Group Corporation); Linya Zhou (The 36th Research Institute of China Electronics Technology Group Corporation);*
- 14:10 Design of a High-gain Dual-frequency Omnidirectional Antenna  
*Lin-Ya Zhou (Xidian University); Yi Wang (The 36th Research Institute of China Electronics Technology Group Corporation);*
- 14:30 Multiple L-shaped Probe-fed Circularly Polarized Microstrip Antenna  
*Yufeng Wang (Jiaxing Novel-idea Communication Technology Co. Ltd.); Huiying Fu (Jiaxing Novel-idea Communication Technology Co. Ltd.); Wei Zhu (Zhejiang JEC Electronic Co. Ltd.); Daxin Lv (The 36th Research Institute of China Electronics Technology Group Corporation);*
- 14:50 A Design of Cophase Center for Orthogonal Polarization Signal Simulation System  
*Daxin Lv (The 36th Research Institute of China Electronics Technology Group Corporation);*
- 15:10 A Novel Low Profile Multi-linear Polarization Reconfigurable Cavity-backed Magneto-Electric Dipole Antenna  
*Yang Peng (Xiamen University); Wei Zhang (Xiamen University); Dingzhao Chen (Xiamen University); Shanguo Yang (Science and Technology on Electronic Information Control Laboratory); Yanhui Liu (Xiamen University);*
- 15:30 **Coffee Break**
- 16:00 Dual-port Dual-band Annular Antenna with Polarization Diversity Based on Composite Right/Left Handed Transmission Line for Smartwatch  
*Buyun Wang (Xi'an Jiaotong University); Sen Yan (Xi'an Jiaotong University);*
- 16:20 A Dual- and Wideband Textile Monopole Integrated with an AMC Plane for WBAN-UWB Application  
*Ping Jack Soh (Universiti Malaysia Perlis (UniMAP)); Nur Farahiyah Mohamad Aun (Universiti Malaysia Perlis (UniMAP)); Yan Zheng (Xi'an Jiaotong University); Azremi Abdullah Al-Hadi (Universiti Malaysia Perlis (UniMAP)); Herwan-syah Lago (Universiti Malaysia Perlis (UniMAP)); Sen Yan (Xi'an Jiaotong University);*
- 16:40 Parity-time Symmetry in Medical Telemetry  
*Pai-Yen Chen (University of Illinois at Chicago);*
- 17:00 Development of Wideband and Compact Multi-mode Wearable Antennas  
*Ke Zhang (Southeast University); Zhihao Jiang (Southeast University);*
- 17:20 Maintenance-free Moisture Sensor on Dishcloth Substrate  
*Xiaochen Chen (Tampere University); Han He (Tampere University); Yunshan Yang (City University of Hong Kong); Meinan Gou (City University of Hong Kong); Lauri Sydänheimo (Tampere University of Technology); Leena Ukkonen (Tampere University); Johanna Virkki (Tampere University);*
- 17:40 Synthesis of Chemiluminescence Functionalized Magnetic Carbon Composites and Its Application for Label-free Detection of Disease Related Biomarkers  
*Rui Yang (University of Science and Technology of China); Hua Cui (University of Science and Technology of China);*
- 18:00 Eco-friendly Flexible Wireless Platforms by 3D Printing Pen  
*Adnan Mehmood (Tampere University); Xiaochen Chen (Tampere University); Han He (Tampere University); Leena Ukkonen (Tampere University); Johanna Virkki (Tampere University);*

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**Session 3P8b**
**SC4: Frontiers, Challenges and Prospects of Wearable Antennas and Wireless Biosensors**

Thursday PM, December 19, 2019

Room 8 - Peony 1

 Organized by Zhihao Jiang, Pai-Yen Chen  
 Chaired by Zhihao Jiang, Pai-Yen Chen
 

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**Session 3P9a**
**SC3: Terahertz Systems and Bioapplications 2**

Thursday PM, December 19, 2019

Room 9 - Peony 2

 Organized by Jun Zhou, Yan Peng, Yiming Zhu  
 Chaired by Jun Zhou, Yiming Zhu
 

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- 13:10 High Performance THz Master-oscillation Power-amplifier Quantum Cascade Lasers  
Invited  
*Haiqing Zhu (Shanghai Institute of Technical Physics, Chinese Academy of Sciences); Huan Zhu (Shanghai Institute of Technical Physics, Chinese Academy of Sciences); Fangfang Wang (Shanghai Institute of Technical Physics, Chinese Academy of Sciences); Jianxin Chen (Shanghai Institute of Technical Physics, Chinese Academy of Sciences); Gangyi Xu (Shanghai Institute of Technical Physics, Chinese Academy of Sciences); Li He (Shanghai Institute of Technical Physics, Chinese Academy of Sciences);*
- 13:30 Terahertz Laser Frequency Comb and Applications  
Invited  
*Hua Li (Shanghai Institute of Microsystem and Information Technology, Chinese Academy of Sciences); Jun-Cheng Cao (Shanghai Institute of Microsystem and Information Technology, Chinese Academy of Sciences);*
- 13:50 THz Birefringence inside Femtosecond Laser Filament in Air  
Invited  
*Qiang Su (Nankai University); Nan Zhang (Nankai University); Weiwei Liu (Nankai University);*
- 14:10 Broadband Terahertz Radiation from Two-colour Femto-laser Induced Gas Plasmas for Biomedical Application  
Invited  
*Xiao-Yu Peng (Chongqing Institute of Green and Intelligent Technology, Chinese Academy of Sciences); Wang Sheng (Chongqing Institute of Green and Intelligent Technology, Chinese Academy of Sciences); Fu Tang (Chongqing Institute of Green and Intelligent Technology, Chinese Academy of Sciences); Jun Zhou (University of Electronic Science and Technology of China);*
- 14:30 Investigations on a Continuously Frequency-tunable Gyrotron and Transmission Line in a DNP/NMR System  
Invited  
*Diwei Liu (University of Electronic Science and Technology of China); Tao Song (University of Electronic Science and Technology of China); Qiao Hu (University of Electronic Science and Technology of China); Jie Huang (University of Electronic Science and Technology of China); Yanqing Zhang (University of Electronic Science and Technology of China); Chen Zhang (University of Electronic Science and Technology of China); Wei Wang (University of Electronic Science and Technology of China); Shenggang Liu (University of Electronic Science and Technology of China);*
- 14:50 Study on Characterization of Terahertz Power Measurement Standard and Traceability of Detector Responsivity  
Invited  
*Bo Fang (China Jiliang University); Cenke Qi (China Jiliang University); Yanjiao Gao (China Jiliang University); Le Zhang (China Jiliang University); Jimhui Cai (China Jiliang University);*
- 15:10 Simulating the Response of Terahertz Radiation to Cell Membrane by Finite-difference-time-domain Method  
*Lianghao Guo (University of Electronic Science and Technology of China); Wenfei Bo (University of Electronic Science and Technology of China); Jingchao Tang (University of Electronic Science and Technology of China); Kaicheng Wang (University of Electronic Science and Technology of China); Jialu Ma (University of Electronic Science and Technology of China); Yang Yang (University of Electronic Science and Technology of China); Haibo Jiang (Chengdu Institute of Biology, Chinese Academy of Sciences); Zhe Wu (University of Electronic Science and Technology of China); Bao-Qing Zeng (University of Electronic Science and Technology of China); Yu-Bin Gong (University of Electronic Science and Technology of China);*
- 15:30 **Coffee Break**
- 
- Session 3P9b**  
**SC4: Microwave and Terahertz Devices**
- 
- Thursday PM, December 19, 2019**  
**Room 9 - Peony 2**  
Organized by Yu-Bin Gong, Zhaoyun Duan  
Chaired by Zhaoyun Duan
- 
- 16:00 A Multi-GW X Band Klystron Like RBWO with Efficiency of 50%  
*Dewen Yang (Northwest Institute of Nuclear Technology); Changhua Chen (Northwest Institute of Nuclear Technology); Yanchao Shi (Northwest Institute of Nuclear Technology); Renzhen Xiao (Northwest Institute of Nuclear Technology); Yan Teng (Northwest Institute of Nuclear Technology); Zhiqiang Fan (Northwest Institute of Nuclear Technology); Wenyuan Liu (Northwest Institute of Nuclear Technology); Jun Sun (Northwest Institute of Nuclear Technology);*



- 16:20 Ultra-wideband Absorber Based on Graphene Meta-material  
*Panpan Ren (Lanzhou University); Guanmao Zhang (Lanzhou University); Litao Qiao (Lanzhou University); Yaping Zhao (Lanzhou University); Zhihao Gou (Lanzhou University);*
- 16:40 Advance of Theoretical Research on Relativistic Backward Wave Oscillator Operating in Higher Modes  
*Yan Teng (Northwest Institute of Nuclear Technology); Dongyang Wang (Northwest Institute of Nuclear Technology); Hu Ye (Northwest Institute of Nuclear Technology); Shuang Li (Northwest Institute of Nuclear Technology); Dewen Yang (Northwest Institute of Nuclear Technology); Xiaoling Wu (Northwest Institute of Nuclear Technology);*
- 17:00 Multi-band Microstrip Filter Based on Sierpinski Triangle Fractal  
*Jiali Ru (Lanzhou University); Guanmao Zhang (Lanzhou University); Shuo Yang (Lanzhou University); Mingyang Zhai (Lanzhou University);*
- 17:20 A High-efficiency Long-pulse Relativistic Backward Wave Oscillator  
*Yibing Cao (Northwest Institute of Nuclear Technology); Jun Sun (NINT); Zhimin Song (Northwest Institute of Nuclear Technology); Ping Wu (Northwest Institute of Nuclear Technology); Zhiqiang Fan (Northwest Institute of Nuclear Technology); Meng Zhu (Northwest Institute of Nuclear Technology);*
- 17:40 Broadband 'Doubly-enhanced' Hotspots in Extraordinarily Transparent Metallic Lenses  
*Samuel J. Palmer (Imperial College London); Xiaofei Xiao (Imperial College London); Nicolas Pazos-Perez (Universitat Rovira i Virgili); Luca Guerrini (Universitat Rovira i Virgili); Miguel A. Correa-Duarte (Universidade de Vigo); Stefan Alexander Maier (Imperial College London); Richard V. Craster (Imperial College London); Ramon A. Alvarez-Puebla (Universitat Rovira i Virgili); Vincenzo Giannini (Imperial College London);*
- 18:00 Design of W-band Front End for Active Imaging System  
*Ming Zhou Zhan (University of Electronics Science and Technology of China); Yi-Fu Xie (University of Electronics Science and Technology of China);*

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**Session 3P10**
**SC2: Metamaterials and Metasurfaces for Microwave Engineering**


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**Thursday PM, December 19, 2019**
**Room 10 - Jasmine**

Organized by Wei Xiang Jiang, Wen Xuan Tang

 Chaired by Wei Xiang Jiang, Wen Xuan Tang
 

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- 13:10 Design of a Novel Absorber with Switchable Absorption and Transmission Bands Based on PIN Diode  
 Invited *Yinrui Zhao (Lanzhou University); Buxiong Qi (Lanzhou University); Zhong-Lei Mei (Lanzhou University);*
- 13:30 High-performance Meta-devices Based on Multilayer Meta-atoms for W-band Beam Redirecting  
 Invited *Rong Tang (Shanghai University); Bowen Yang (Shanghai University); Tong Liu (Fudan University); Huijie Guo (Fudan University); Shiyi Xiao (Shanghai University); Lei Zhou (Fudan University);*
- 13:50 Ultrathin Self-feeding Metasurface with Broadband Polarization Conversion and Electromagnetic Emission  
 Invited *Si Jia Li (Air Force Engineering University); Tie Jun Cui (Southeast University); Xiang-Yu Cao (Air Force Engineering University of CPLA); Yunbo Li (Southeast University); Wei Xiang Jiang (Southeast University); Qiang Cheng (Southeast University);*
- 14:10 Vertical, Horizontal to Circular Polarization Reconfigurable Array Antenna with EBG Unit Cells  
*Raimi Dewan (University of Rennes 1); Mohamed Himdi (University of Rennes 1); Mohamad Kamal A Rahim (Universiti Teknologi Malaysia (UTM));*
- 14:30 Triple-wide-band Linear to Circular Polarization Converters Using Bi-layered Metasurfaces  
*Ayesha Kosar Fahad (Beihang University); Cun-Jun Ruan (Beihang University); Tanveer Ul Haq (Beihang University); Shahid Ullah (Beihang University);*
- 14:50 Dual-wideband Cross Polarization Conversion Metasurface Based on a Symmetric Split Ring Resonator  
*Yong-Qiang Liu (Science and Technology on Electromagnetic Scattering Laboratory); Xunwang Dang (Science and Technology on Electromagnetic Scattering Laboratory); Liangsheng Li (Science and Technology on Electromagnetic Scattering Laboratory); Hong-Cheng Yin (Science and Technology on Electromagnetic Scattering Laboratory);*

- 15:10 Digital-coded Unit Cell for Dual-band and Dual-polarized Programmable Metasurface  
*Ying Zhe Zhang (Southeast University); Qiang Xiao (Southeast University); Xiang Wan (Southeast University); Tie Jun Cui (Southeast University);*
- 15:30 **Coffee Break**
- 16:00 Research on Microwave Transmission Characteristics in Multilayer Dielectric Structure Based on PSO  
Invited  
*Kaizi Hao (Beijing Institute of Technology); Xin Wang (Beijing Institute of Technology); Lang Zhou (Beijing Institute of Technology); Yiting Wang (Beijing Institute of Technology); Yanze Gao (Beijing Institute of Technology); Qingfeng Shi (Beijing Institute of Technology); Zhuo Li (Beijing Institute of Technology);*
- 16:20 Active Plasmonic Sensors for High-sensitivity Microwave Measurements  
Invited  
*Yong Jin Zhou (Shanghai University); Qiao Yu Li (Shanghai University); Hong Zhou Zhao (Shanghai University); Jing Cai (Shanghai University); Rong-Lin Shao (Shanghai University);*
- 16:40 Wide-angle Generation of Microwave Carrying OAM Using Field Transformation  
Invited  
*Hongyu Shi (Xi'an Jiaotong University);*
- 17:00 60-GHz Highly Efficient Leaky-wave Antenna with Low Dispersion Based on Substrate-integrated-hole Metasurface  
*Qiao Chen (KTH Royal Institute of Technology); Oskar Zetterström (KTH Royal Institute of Technology); Xiaoxing Yin (Southeast University); Oscar Quevedo-Teruel (KTH Royal Institute of Technology);*
- 17:20 Multiband Fractal Metasurface with Linear to Linear and Linear to Circular Polarization Conversion  
*Si Jia Li (Air Force Engineering University); Tie Jun Cui (Southeast University); Xiang-Yu Cao (Air Force Engineering University of CPLA); Yunbo Li (Southeast University); Wei Xiang Jiang (Southeast University); Qiang Cheng (Southeast University);*
- 13:10 Comprehensive Theory of Frequency Conversion from Metal Nanoparticles — A Transformation Optics Approach  
Invited  
*K. Nireekshan Reddy (Ben-Gurion University); P. Y. Chen (Ben-Gurion University); Antonio I. Fernandez-Dominguez (Universidad Autonoma de Madrid); Yonatan Sivan (Ben-Gurion University);*
- 13:30 Illusion Optics and Acoustics with Ordinary Materials  
*Yichao Liu (Zhejiang University); Fei Sun (Taiyuan University of Technology); Yungui Ma (Zhejiang University);*
- 13:50 Spin, Equivalence and Topological Protection in Surface Plasmon Polariton  
Invited  
*Liang Peng (Hangzhou Dianzi University);*
- 14:10 Bi-functional Metasurfaces  
Invited  
*Shan Zhu (Xiamen University); Yadong Xu (Soochow University); Huanyang Chen (Xiamen University);*
- 14:30 Optoelectronic Modeling of Two-dimensional Photodetectors  
Invited  
*Guoyang Cao (Soochow University); Xiaofeng Li (Soochow University);*
- 14:50 Recent Progress in Effective Surface Plasmon Polaritons  
Invited  
*Zhuo Li (Nanjing University of Aeronautics and Astronautics);*
- 15:10 Deep-subwavelength Focusing with Self-similar Chain of Spoof Plasmonic Resonators  
*Liangliang Liu (Nanjing University of Information Science and Technology);*
- 15:30 **Coffee Break**
- 16:00 Topological Photonics in a Synthetic 2D Space Including Both Frequency and OAM Axes of Light  
Invited  
*Luqi Yuan (Shanghai Jiao Tong University); Xi'anfeng Chen (Shanghai Jiao Tong University); Meng Xiao (Wuhan University); Shanhui Fan (Stanford University);*
- 16:20 Bi-layered Broadband Polarization Rotation Metasurface  
Invited  
*Xiaojun Huang (Xi'an University of Science and Technology); Xia Ma (Xi'an University of Science and Technology); Shuqi Wang (Xi'an University of Science and Technology);*

**Session 3P11****SC2: Microwave and Terahertz Plasmonics**

Thursday PM, December 19, 2019

Room 11 - Lotus 1

Organized by Jingjing Zhang, Yu Luo

Chaired by Yu Luo, Wei Liu

16:40 Investigation on the Electromagnetic Contribution of Repeated Structures  
*Ding-E Wen (Southeast University); Ziliang Guo (Science and Technology on Electromagnetic Compatibility Laboratory); Sheng Li (Science and Technology on Electromagnetic Compatibility Laboratory); Tianhua Yue (Science and Technology on Electromagnetic Compatibility Laboratory); Xiaojun Huang (Science and Technology on Electromagnetic Compatibility Laboratory);*

17:00 Extremely Anisotropic Media by Waveguide Metamaterials with Low Loss  
*Wenjie Ji (Soochow University); Jie Luo (Soochow University); Yun Lai (Nanjing University);*

17:20 Quantum Signatures in Plasmonics Systems with Sub-nanometer Feature Sizes  
 Invited *Dangyuan Lei (City University of Hongkong);*

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**Session 3P12a**  
**SC2&SC3: Novel Ways to Control**  
**Light-matter Interactions 1**

**Thursday PM, December 19, 2019**

**Room 12 - Lotus 2**

Organized by Xiao Lin, Ido Kaminer, Hongsheng Chen

Chaired by Xiao Lin, Ido Kaminer

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13:10 Synthetic Non-Abelian Gauge Fields and Anyons in Photonic and Atomic Systems  
 Keynote *Hrvoje Buljan (University of Zagreb);*

13:40 Quantum Information Processing and Trancieving with Integrated Optics  
 Invited *Jianwei Wang (Peking University);*

14:00 Eigenmode Engineering of Nanolasers  
 Invited *Renmin Ma (Peking University);*

14:20 Robust Mode Conversion in NV Centers Using Exceptional Points  
 Invited *Adi Pick (Technion-Israel Institute of Technology); Shahar Silberstein (Hebrew University); Nimrod Moiseyev (Technion-Israel Institute of Technology); Nir Bar-Gill (Hebrew University);*

14:40 Tailored Excitation of Guided Modes with Dipolar Sources  
 Invited

*Michela Florinda Picardi (King's College London and London Centre for Nanotechnology); M. Neugebauer (Max Planck Institute for the Science of Light); J. S. Eismann (Max Planck Institute for the Science of Light); P. Banzer (Max Planck Institute for the Science of Light); G. Leuchs (Max Planck Institute for the Science of Light); A. V. Zayats (King's College London and London Centre for Nanotechnology); F. J. Rodríguez-Fortuño (King's College London and London Centre for Nanotechnology);*

15:00 Combined Electric and Magnetic Polarization of Nanoparticles near Surfaces: Optical Forces, Position Sensing and Optical Nanorouting  
 Invited

*Lei Wei (King's College London and London Centre for Nanotechnology); Jack J. Kingsley-Smith (King's College London and London Centre for Nanotechnology); Michela F. Picardi (King's College London and London Centre for Nanotechnology); Anatoly V. Zayats (King's College London and London Centre for Nanotechnology); Francisco J. Rodríguez Fortuño (King's College London);*

15:20 On-chip Localization Detector Based on Transverse Kerker Scattering  
 Invited

*Ankan Bag (Max Planck Institute for the Science of Light); Martin Neugebauer (Max Planck Institute for the Science of Light); Sebastian A. Schulz (University of St Andrews); Peter Banzer (Max Planck Institute for the Science of Light);*

15:40 **Coffee Break**

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**Session 3P12b**  
**SC3: Optical, Electro-magnetic and Acoustic**  
**Manipulation in Biology**

**Thursday PM, December 19, 2019**

**Room 12 - Lotus 2**

Organized by Remo Proietti Zaccaria, Dan Cojoc

Chaired by Remo Proietti Zaccaria, Dan Cojoc

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16:00 Optical Manipulation in Biological Samples: 3D-printed BioBots  
 Invited

*Ada-Ioana Bunea (Technical University of Denmark); Einstom Engay (Technical University of Denmark); Alexandre Wetzel (Technical University of Denmark); Kirstine Berg-Sorensen (Technical University of Denmark); Rafael Taboryski (Technical University of Denmark);*

- 16:20 Optoelectronic Tweezers Size Effects for Electrical Components and Biomedical Samples  
Invited  
*Steven L. Neale (University of Glasgow);*
- 16:40 Direct Laser Writing of 3D Microstructures for Optical Trapping  
Invited  
*Carlo Liberale (King Abdullah University of Science and Technology);*
- 17:00 Controlled Mechanical Motions of Microparticles in Optical Tweezers  
*Zhi-Yuan Li (South China University of Technology); Hua-Kang Yu (South China University of Technology); Jian-Feng Chen (South China University of Technology); Jing Liu (South-Central University for Nationalities);*
- 17:20 Monitoring Acoustically Trapped Mycobacteria in a Microfluidic Chamber Using Wavelength Modulated Raman Spectroscopy  
Invited  
*Mingzhou Chen (University of St Andrews); Vincent O. Baron (University of St Andrews); Björn Hammarstrom (University of Southampton); Peter Glynn-Jones (University of Southampton); Robert J. H. Hammond (University of St Andrews); Stephen. H. Gillespie (University of St Andrews); Kishan Dholakia (University of St Andrews);*
- 17:40 Optical Binding and Its Exceptional Point: More is Different  
Invited  
*Li Xiao (The Hong Kong University of Science and Technology); C. T. Chan (The Hong Kong University of Science and Technology); Jack Ng (Southern University of Science and Technology);*
- 18:00 Cell Mechanics with Piconewton Forces  
Invited  
*Dan Cojoc (Institute of Materials — National Research Council);*
- 18:20 Frontiers in Single Molecule Manipulation and Imaging of DNA-protein Transactions  
Keynote  
*Gijs J. L. Wuite (VU University Amsterdam);*
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- Session 3P13**  
**SC3: 2D Materials Photonics and Optics**
- 
- Thursday PM, December 19, 2019**  
**Room 13 - Lotus 3**  
Organized by Hongtao Lin, Tingyi Gu, Zhengqian Luo  
Chaired by Hongtao Lin
- 
- 13:10 Compact Waveguide Lasers Based on 2D Saturable-absorber Materials  
Keynote  
*Feng Chen (Shandong University);*
- 13:40 Dynamics of Carbon-nanotube-mode-locked Fiber Lasers  
Keynote  
*Xueming Liu (Zhejiang University); Yudong Cui (Zhejiang University);*
- 14:10 2D Materials-based Ultrafast Photonics and All-light Processing  
Keynote  
*Han Zhang (Shenzhen University);*
- 14:40 Progress on Pulsed Mid-infrared Fiber Lasers at  $3 \sim 4 \mu\text{m}$   
Invited  
*Jianfeng Li (University of Electronic Science and Technology of China (UESTC)); Hongyu Luo (University of Electronic Science and Technology of China (UESTC)); Jian Yang (University of Electronic Science and Technology of China (UESTC));*
- 15:00 High-repetition-rate Pulse Fiber Lasers Enabled by 2D Materials Deposited Microfiber Devices  
Invited  
*Zhi-Chao Luo (South China Normal University);*
- 15:30 **Coffee Break**
- 16:00 Transition Metal Dichalcogenides Mode Locked Fiber Laser  
Invited  
*Dong Mao (Northwestern Polytechnical University);*
- 16:20 GHz Harmonic Mode Locked Erbium Doped Fiber Lasers with High Signal to Noise Ratio Using Carbon Nanotube Polymer Composite Film  
Invited  
*Chengbo Mou (Shanghai University); Qianqian Huang (Shanghai University); Mohammed Al Araimi (Higher College of Technology); Aleksey Rozhin (Aston University);*
- 16:40 Two-dimensional Nanomaterial-based Optical Switchers for Ultrafast Photonics  
Invited  
*Meng Zhang (Beihang University);*
- 17:00 High Energy Ultrafast Pulse Generation from Single Mode Fiber Lasers Mode Locked with Evanescent Wave Based Saturable Absorber  
Invited  
*Peiguang Yan (Shenzhen University); Jintao Wang (Shenzhen University); Shuang-Chen Ruan (Shenzhen University);*
- 17:20 Direct Generation of Pulsed Vortex Lasers in Visible Based on 2D-material Saturable Absorbers  
Invited  
*Qingyu Tian (Xiamen University); Bin Xu (Xiamen University); Nan Li (Xiamen University); Jie Lu (Xiamen University); Linjie Zhan (Xiamen University); Weiwei Cai (Xiamen University);*
- 17:40 Graphene Metallization of Integrated Electro-optomechanical Resonators  
Invited  
*Xiang Xi (The Chinese University of Hong Kong); Zefeng Chen (The Chinese University of Hong Kong); Jian-Bin Xu (The Chinese University of Hong Kong); Xiankai Sun (The Chinese University of Hong Kong);*

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**Session 3P14**
**SC4: Spatial-Feeding Antennas and Arrays**


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**Thursday PM, December 19, 2019**
**Room 14 - Lily**

Organized by Yuehe Ge, Zhenguo Liu

 Chaired by Yuehe Ge, Zhenguo Liu

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- 13:10 A Compact Terahertz Airy Beam Generator Using the Invited Reflective Metasurface  
*Zhang-Cheng Hao (Southeast University);*
- 13:30 A Novel 1-bit Dual-polarized Reconfigurable Transmitarray Element at Ku Band  
*Yu Wang (Tsinghua University); Shenheng Xu (Tsinghua University); Fan Yang (Tsinghua University);*
- 13:50 Circularly Polarized Fabry-Perot Resonator Antenna: Recent Progress  
*Zhenguo Liu (Southeast University);*
- 14:10 A Programmable Metasurface with Full 360° Reflective Phase Tuning and Its Application to Anomalous Reflection and Wave Focusing  
*Hai-Sheng Hou (Air Force Engineering University); Tong Cai (Airforce Engineering University); Guang-Ming Wang (Missile Institute of Air Force Engineering University);*
- 14:30 Design of Single-layer Broadband Reflectarray Antennas  
*Lu Guo (Nanjing University of Science and Technology);*
- 14:50 Compact Fully-planar Folded Transmitarray Antennas with Fixed or Multiple Beams  
*Yuehe Ge (Huaqiao University); Guowei Li (Huaqiao University); Yufang Wang (Huaqiao University); Zhenglong Wang (Huaqiao University); Zhizhang (David) Chen (Dalhousie University);*
- 15:10 Broadband Circularly-polarized Millimeter-wave Multibeam Antennas  
*Zhihao Jiang (Southeast University);*
- 15:30 **Coffee Break**
- 16:00 Analysis of Tightly and Loosely Coupled Dipole Arrays for Broadband UAV Data Link  
*Yang Wang (Beihang University); Qi Wu (Beihang University); Shunchuan Yang (Beihang University);*

- 16:20 Transmitarray Element Design for Subharmonic Injection-locked RTD Oscillators in THz Band  
*Meng Zhang (University of Duisburg-Essen); Andreas Rennings (University of Duisburg-Essen); Simone Clochiatti (University of Duisburg-Essen); Khaled Arzi (University of Duisburg-Essen); Werner Prost (University of Duisburg-Essen); Nils Weimann (University of Duisburg-Essen); Daniel Erni (University of Duisburg-Essen, Campus Duisburg);*
- 16:40 Terahertz Reconfigurable On-chip Antenna with Dielectric Resonator Loaded with Graphene  
*Hao Liang (Shenzhen University); Canqin Zhou (Shenzhen University); Zhengfang Qian (Shenzhen University);*
- 17:00 Design of a Low-profile Transmitarray Antenna  
*Hong Zhu (Nanjing University of Science and Technology); Lu Guo (Nanjing University of Science and Technology); Wenjie Feng (Nanjing University of Science and Technology);*
- 17:20 Spatial-feeding 2D Electronically Wide-angle Beam-scanning Reflectarray Antennas  
*Yuehe Ge (Huaqiao University); Zhenglong Wang (Huaqiao University); Guowei Li (Huaqiao University);*

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**Session 3P15**
**SC3: Photonic Devices for Modulation, Detection and Signal Processing**


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**Thursday PM, December 19, 2019**
**Room 15 - Narcissus**

Organized by Ciyuan Qiu, Kan Wu

 Chaired by Ciyuan Qiu, Kan Wu

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- 13:30 Low-voltage Si-Ge Avalanche Photodiodes for Data-Invited com  
*Binhao Wang (Hewlett Packard Enterprise); Zhihong Huang (Hewlett Packard Enterprise); Xiaoge Zeng (Hewlett Packard Enterprise); Di Liang (Hewlett Packard Enterprise); Wayne V. Sorin (Hewlett Packard Enterprise); Marco Fiorentino (Hewlett Packard Enterprise); Raymond G. Beausoleil (Hewlett Packard Enterprise);*
- 13:50 Parallel Radio-frequency Signal-processing Unit Invited Based on Mode Multiplexed Photonic Integrated Circuit  
*Yu Yu (Huazhong University of Science and Technology);*

- 14:10 **Optical Frequency Comb and Nyquist Pulse Generation with Integrated Silicon Modulators**  
Invited  
*Siqi Liu (Shanghai Jiao Tong University); Kan Wu (Shanghai Jiao Tong University); Linjie Zhou (Shanghai Jiao Tong University); Jianping Chen (Shanghai Jiao Tong University);*
- 14:30 **Low-loss Silicon Optical Filter with Narrow Bandwidth and Steep Roll-off Based on Cascaded Feed-forward Microring Resonators**  
Invited  
*Lei Zhang (Institute of Semiconductors, Chinese Academy of Sciences); Haoyan Wang (Institute of Semiconductors, Chinese Academy of Sciences); Jincheng Dai (Institute of Semiconductors, Chinese Academy of Sciences); Xin Fu (Institute of Semiconductors, Chinese Academy of Sciences); Lin Yang (Institute of Semiconductors, Chinese Academy of Sciences);*
- 14:50 **Scaling the Footprint of Mode Division Multiplexed On-chip Interconnection**  
Invited  
*Ke Xu (Harbin Institute of Technology);*
- 15:10 **Double Repetition Rate Nyquist Pulse Generation Based on Cascaded Push-Pull Intensity Modulators**  
*Bingjian Zhang (Shanghai Jiao Tong University); Kan Wu (Shanghai Jiao Tong University); Tianzhu Zhang (Shanghai Jiao Tong University); Siqi Liu (Shanghai Jiao Tong University); Jianping Chen (Shanghai Jiao Tong University);*
- 15:30 **Coffee Break**
- 16:00 **Silicon Photonics Transceivers for High Speed Optical Interconnect and Coherent Transmission**  
Invited  
*Lei Wang (Wuhan Research Institute of Posts and Telecommunications); Xi Xiao (Wuhan Research Institute of Posts and Telecommunications); Miaofeng Li (Wuhan Research Institute of Posts and Telecommunications); Daigao Chen (Wuhan Research Institute of Posts and Telecommunications); Hongguang Zhang (National Optoelectronics Innovation Center); Bo Zhang (Accelink Tech. Co., Ltd.); Xiang Li (Wuhan Research Institute of Posts and Telecommunications); Ming Luo (Wuhan Research Institute of Posts and Telecommunications); Haibo Li (Wuhan Research Institute of Posts and Telecommunications); Shaohua Yu (Wuhan Research Institute of Posts and Telecommunications);*
- 16:20 **A Hitless Reconfigurable Optical Add-drop Multiplexer Based on Sidewall Bragg Gratings in Silicon Multimode Waveguides**  
Invited  
*Hui Yu (Zhejiang University); Xiaofei Wang (Zhejiang University); Jianyi Yang (Zhejiang University);*
- 16:40 **On-chip Reconfigurable Mode Converter Compatible with WDM Using Parallel Micro-ring Resonators**  
Invited  
*Huifu Xiao (Lanzhou University); Yonghui Tian (Lanzhou University); Xu Han (Lanzhou University); Wenping Chen (Lanzhou University); Hao Jia (Lanzhou University); Jianhong Yang (Lanzhou University);*
- 17:00 **A Novel 2D Plasmonic MoO<sub>3</sub> Driven pH Sensor on Silicon Photonics Platform**  
Invited  
*Guanghui Ren (RMIT University); Baoyue Zhang (RMIT University); Arnan Mitchell (RMIT University); Jian Zhen Ou (RMIT University);*
- 17:20 **A Multi-channel Up-conversion Single-photon Detector at Telecom Band**  
*Ming-Yang Zheng (Jinan Institute of Quantum Technology); Quan Yao (Jinan Institute of Quantum Technology); Bing Wang (University of Science and Technology of China); Xiuping Xie (Jinan Institute of Quantum Technology); Qiang Zhang (Jinan Institute of Quantum Technology);*
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- Session 3P16**  
**SC1: Interactions of Discharge Plasmas with Liquids: Fundamentals and Applications 2**
- 
- Thursday PM, December 19, 2019**  
**Room 16 - Camellia 1**  
Organized by Qiang Chen, Xin Tu  
Chaired by Qiang Chen
- 
- 13:10 **Degradation of Paracetamol in Water by a DBD Created Non-thermal Plasma**  
Invited  
*Dunpin Hong (University of Orléans/CNRS); Y. Baloul (University of Orléans/CNRS); N. Korichi (University of Orléans/CNRS); M. Magureanu (NILPR); H. Rabat (University of Orléans/CNRS); C. Colas (University of Orléans/CNRS); B. Maunit (University of Orléans/CNRS); O. Aubry (University of Orléans/CNRS);*
- 13:30 **Degradation of Pharmaceutical Molecules in Aqueous Solution by Dielectric Barrier Discharges**  
Invited  
*Hervé Rabat (University of Orléans/CNRS); Noussaïba Korichi (University of Orléans/CNRS); Olivier Aubry (University of Orléans/CNRS); Dunpin Hong (University of Orléans/CNRS);*
- 13:50 **Lignocellulose Biomass Liquefied by Plasma Electrolysis under Alkaline Conditions**  
Invited  
*Zhe Feng (Xiamen University); Xianhui Zhang (Xiamen University);*

- 14:10 Reactive Species Diagnosis of Nanosecond Pulse Excited Bubble Discharge and Application of Synergistic Activated Carbon in Humic Acid Removal  
Invited  
*De-Zheng Yang (Dalian University of Technology); Xiongfeng Zhou (Dalian University of Technology); Jian-Ping Liang (Dalian University of Technology); Kun Yang (Shihezi University); Feng Chen (Shihezi University); Wen-Chun Wang (Dalian University of Technology);*
- 14:30 Characteristics of Water Loss and Oxides Generation Using Positive and Negative Corona with Interaction Distances and Discharge Voltages  
Invited  
*Ke Chen (Hohai University); Qingyan Zhang (Hohai University); Jinhua Wang (Hohai University); Chang-ping Zhu (Hohai University); Yongfeng Jiang (Hohai University); Bingyan Chen (Hohai University);*
- 14:50 The Dynamics of High-aspect Ratio, High-electron-density Atmospheric-pressure Microplasmas Confined Inside Capillaries  
Invited  
*Shuqun Wu (Nanjing University of Aeronautics and Astronautics); Chang Liu (Nanjing University of Aeronautics and Astronautics); Xueyuan Liu (Nanjing University of Aeronautics and Astronautics); Lu Yang (Nanjing University of Aeronautics and Astronautics); Lu Yang (Nanjing University of Aeronautics and Astronautics); Chaohai Zhang (Nanjing University of Aeronautics and Astronautics);*
- 15:10 Insights of Gaseous Plasma Interacting with Liquid through Advanced Optical Diagnostics  
Invited  
*Qing Xiong (Chongqing University); Wanlian Li (Chongqing University); Zhan Shu (Chongqing University); Pengfei Liu (Chongqing University);*
- 15:30 **Coffee Break**
- 16:00 The Short-lived Plasma in a Collapsing Bubble Produced by Underwater Pulsed Discharge  
Invited  
*Yifan Huang (Shenzhen Institutes of Advanced Technology, CAS);*
- 16:20 Microplasma-liquid Interaction Based Binary Pt<sub>3</sub>Co Nanoflowers Synthesis  
Invited  
*Ying Wang (Nanjing University of Science and Technology); Bo Ouyang (Nanjing University of Science and Technology); Bowei Zhang (Nanjing University of Science and Technology); Yizhong Huang (Nanyang Technological University); R. S. Rawat (Nanyang Technological University);*
- 16:40 Plasma Based Strategies for Synthesis and Processing of Electrode Materials in Energy Application  
Invited  
*Bo Ouyang (Nanjing University of Science and Technology); Ying Wang (Nanjing University of Science and Technology);*
- 17:00 High-performance Plasma-enabled Biorefinery of Microalgae into Value-added Products  
Invited  
*Renwu Zhou (The University of Sydney); Rusen Zhou (Queensland University of Technology); Xianhui Zhang (Xiamen University);*
- 17:20 Pathways of Hydrogen Produced from Ethanol-water Mixtures by Liquid Phase Plasma  
Invited  
*Yanbin Xin (Dalian Maritime University); Bing Sun (Dalian Maritime University); Xianhui Zhang (Xiamen University);*
- 17:40 The Formation and Enhancement of Aqueous Hydrogen Peroxide in a Plasma-liquid System with the Liquid as Anode  
*Jiao Lin (Xiamen University); Xinyi He (Xiamen University); Qiang Chen (Xiamen University);*
- 18:00 In-situ Quantification of Aqueous Hydrogen Peroxide in the DC Plasma-liquid Systems  
*Xinyi He (Xiamen University); Jiao Lin (Xiamen University); Qiang Chen (Xiamen University);*
- 18:20 Aqueous Gold Nanoparticles Generated by AC and Pulse-power-driven Plasma Jet  
Invited  
*Yi Qi (Beijing University of Chemical Technology); Zhongwen Li (Beijing University of Chemical Technology); Pan Hu (Beijing University of Chemical Technology); Yawen Yang (Beijing University of Chemical Technology); Zhangchuan Xia (Beijing University of Chemical Technology); Ruixue Wang (Beijing University of Chemical Technology); Pengcheng Xie (Beijing University of Chemical Technology);*
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- Session 3P17**  
**SC3: Cavity Optomechanics**
- 
- Thursday PM, December 19, 2019**  
**Room 17 - Camellia 2**  
Organized by Yong-Chun Liu  
Chaired by Yong-Chun Liu, Yongmin Li
- 
- 13:10 Strong Quantum Entanglement via a Controllable Four-wave-mixing Mechanism in an Optomechanical System  
Invited  
*Yongmin Li (Shanxi University); Xiang You (Shanxi University);*

13:30 Enhancing Optomechanical Coupling by Reducing the  
Invited Nonlinear Order

*Gui-Lei Zhu (Huazhong University of Science and Technology); Xin-You Lv (Huazhong University of Science and Technology); Liang-Liang Wan (Huazhong University of Science and Technology); Tai-Shuang Yin (Huazhong University of Science and Technology); Qian Bin (Huazhong University of Science and Technology); Ying Wu (Huazhong University of Science and Technology);*

13:50 Nonreciprocal Phonon Transfer by Photons in an Op-  
Invited tomechanical System

*Haitan Xu (Peking University); Luyao Jiang (University of Chicago); Aashish Clerk (Yale University); Jack G. E. Harris (University of Chicago);*

14:10 Enhancement of Single-photon Optomechanical Ef-  
Invited fects

*Jie-Qiao Liao (Hunan Normal University);*

14:30 Phonon and Photon Lasing in Optomechanical Cavi-  
Invited ties

*Kaiyu Cui (Tsinghua University); Jian Xiong (Tsinghua University); Zhilei Huang (Tsinghua University); Yidong Huang (Tsinghua University);*

14:50 Quantum Optomechanical Heat Engines

Invited

*Keye Zhang (East China Normal University);*

15:10 Squeezed Light Enhanced Optomechanical Magne-  
Invited tometry

*Bei-Bei Li (Institute of Physics, Chinese Academy of Sciences); Jan Bilek (Technical University of Denmark); Ulrik L. Andersen (Technical University of Denmark); Warwick P. Bowen (University of Queensland);*

15:30 **Coffee Break**

16:00 Enhanced Nonlinear Interaction Effects in a Four-  
Invited mode Cavity Optomechanical Ring

*Ying-Dan Wang (Institute of Theoretical Physics, Chinese Academy of Sciences);*

16:20 High Q/V Photonic-plasmonic Hybrid Cavities and  
Invited Their Applications

*Cuicui Lu (Beijing Institute of Technology); Hongyu Zhang (Beijing Institute of Technology);*

16:40 Non-reciprocal Conversion of Radio-frequency to Op-  
Invited tical Signals by Multimode Opto-electro-mechanical Transducer

*Nicola Malossi (University of Camerino); Iman Moadel Haghighi (Technical University of Denmark); Riccardo Natali (University of Camerino); Giovanni Di Giuseppe (University of Camerino); David Vitali (University of Camerino);*

17:00 Cavity QED with Magnons and Phonons: Entangle-  
Invited ment and Squeezing at Macroscopic Scale

*Girish S. Agarwal (Texas A&M University); Jie Li (Delft University of Technology);*

17:20 Noise-enhanced Synchronization in PT-symmetric  
Invited Optomechanical System

*Changlong Zhu (Tsinghua University); Jing Zhang (Tsinghua University);*

17:40 Intracavity-squeezed Optomechanical Cooling  
Invited

*Jing-Hui Gan (Tsinghua University); Yong-Chun Liu (Tsinghua University);*

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**Session 3P0**  
**Poster Session 4**

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**Thursday PM, December 19, 2019**

**14:00 PM - 18:00 PM**

**Room Corridor**

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- 1 A Method to Improve Low Frequency Testing Capability of RCS Measurement System  
*Dewang Kong (Science and Technology on Electromagnetic Scattering Laboratory); Chongjiang Mo (Science and Technology on Electromagnetic Scattering Laboratory); Yongquan Jiang (Science and Technology on Electromagnetic Scattering Laboratory); Fang Liu (Science and Technology on Electromagnetic Scattering Laboratory);*
- 2 Fast Measurement of a Circular Polarization Antenna Based on RPIM Method  
*Liwei Li (East China Jiaotong University); Aliou Jalilou (East China Jiaotong University); Xiao-Yan Zhang (East China Jiaotong University); Aiyun Zhan (East China Jiaotong University); Yimeng Zhao (East China Jiaotong University);*
- 3 Research Status of the High-power Microwave Sources Based on Gyromagnetic Nonlinear Transmission Lines  
*Yancheng Cui (Aval University of Engineering); Jin Meng (Naval University of Engineering); Yuzhang Yuan (Aval University of Engineering); Danni Zhu (Aval University of Engineering);*
- 4 Lightning Electromagnetic Pulse Coupling and Corresponding Protection Advisement  
*Shengquan Zheng (Science and Technology on Electromagnetic Compatibility Laboratory); Dongdong Wang (Science and Technology on Electromagnetic Compatibility Laboratory); Liang Chen (Science and Technology on Electromagnetic Compatibility Laboratory);*



- 5 Parameter Estimation of LFM Signal Intercepted by Synchronous Nyquist Folding Receiver Based on Instantaneous Autocorrelation  
*Xinqun Liu (National University of Defense Technology); Tao Li (National Innovation Institute of Defense Technology (NIIDT)); Xiaolei Fan (National University of Defense Technology); Shaoying Su (National University of Defense Technology);*
- 6 A Device Pose Estimation Method Based on Monocular Visual Odometry  
*Yongkang Lin (Tongji University); Yusi Yang (Tongji University); Lan Lin (Tongji University);*
- 7 Research on Cross-sensory Information Enhancement Effect Based on the Analysis of Multi-mode Brain Imaging  
*Rong Gu (Tongji University); Yusi Yang (Tongji University); Zhuohao Cai (Tongji University);*
- 8 A Finite Time Observer-based Continuous Sliding Model Control Design for a Quadrotor UAV  
*Jian Shi (Yangzhou Marine Electronic Instrument Institute); Mingyang Jiu (Harbin Engineering University); Wei Lv (China United Network Communications Corporation Heilongjiang Branch);*
- 9 Experimental Research on the Protection Effect of the Direct Lightning Protection Module for Short-wave Transmission System  
*Dongdong Wang (Science and Technology on Electromagnetic Compatibility Laboratory); Liang Chen (China Ship Development and Design Center); Shengquan Zheng (China Ship Development and Design Center); Kun Yang (China Ship Development and Design Center); Lie Zhang (China Ship Development and Design Center);*
- 10 Analytical Approach for Dielectric Property Measurements of Biological Tissues Based on Transmission Phase-shift Method  
*Rizki Putra Prastio (Institut Teknologi Bandung); Tati L. R. Mengko (Institut Teknologi Bandung); Andriyan Bayu Suksmono (Institut Teknologi Bandung); Donny Danudirdjo (Institut Teknologi Bandung); Astri Handayani (Institut Teknologi Bandung); Achmad Munir (Institut Teknologi Bandung);*
- 11 Polarization Insensitive Electromagnetically Induced Transparency in Topological Insulator Metasurface  
*Renxia Ning (Huangshan University); Jin Wang (Huangshan University); Haijun Wu (Huangshan University); Dekai Li (Huangshan University); Zhenhai Chen (Huangshan University); Hongwen Qian (Fifty-eight China Electronic Science and Technology Corporation);*
- 12 Ultrathin and Flexible Dual-band Resorber  
*Lixia Li (Southwest University); Tiancheng Han (University of Electronic Science and Technology of China);*
- 13 Observation of Conical-diffraction-like Propagation on a Type-II Dirac Metasurface  
*Haitao Li (Soochow University); Chuandeng Hu (The Hong Kong University of Science and Technology); Bo Hou (Soochow University);*
- 14 A Novel Coding Phase Gradient Metasurface for Wideband RCS Reduction  
*Wenjun Qi (Nanjing University Of Aeronautics And Astronautics); Yong-Jiu Zhao (Nanjing University of Aeronautics and Astronautics); Jiaqing Chen (Nanjing University Of Aeronautics And Astronautics); Chao Liu (Nanjing University of Information Science & Technology);*
- 15 Design and Verification Absorption-transmission-integrated Frequency Selective Structure Based on Spoof Surface Plasmon Polariton Modes  
*Lin Zheng (Air Force Engineering University); Yongfeng Li (Air Force Engineering University); Yueyu Meng (Air Force Engineering University); Jiafu Wang (Air Force Engineering University); Jingming Jiang (Air Force Engineering University); Mingbao Yan (Air Force Engineering University); Jieqiu Zhang (Air Force Engineering University); Shaobo Qu (Air Force Engineering University);*
- 16 Design of a Broadband and Switchable Absorber Using an Absorb/Reflective FSS  
*Sai Guo (Huazhong University of Science and Technology); Yu-Lu Zhang (Huazhong University of Science and Technology); Yun He (Huazhong University of Science and Technology); Ling Miao (Huazhong University of Science and Technology); Jian-Jun Jiang (Huazhong University of Science and Technology);*
- 17 Switchable Slow Light Rainbow Trapping and Releasing in Strongly Coupling Topological Photonic Systems  
*Jian-Feng Chen (South China University of Technology); Wenyao Liang (South China University of Technology); Zhi-Yuan Li (South China University of Technology);*
- 18 Pulsed All-fiber Laser Based on the Modulation of Fiber Bragg Gratings by Flexural Acoustic Wave  
*Cai Fen Li (Nankai University); Xiaofang Han (Nankai University); Feng Gao (Nankai University); Ze Zhang (Academy of Opto-Electronics Chinese Academy of Sciences); Guoquan Zhang (Nankai University); Jingjun Xu (Nankai University);*

- 19 48–54 GHz Millimeter-wave Holography System  
*Shuji Yamamoto (Kansai University); H. Tsuchiya (National Institute for Fusion Science); R. Takenaka (University of Hyogo); M. Koga (University of Hyogo); Y. Nagayama (Nihon University); M. R. Asakawa (Kansai University); S. Yamaguchi (Kansai University);*
- 20 A Hybrid Fiber Nonlinearity Compensation Algorithm  
*Junhe Zhou (Tongji University); Yutian Yan (Tongji University);*
- 21 A Finite-difference Time Domain Method for Analysis in Optical Waveguides: The Time Stability Determination  
*Suripon Somkuarnpanit (King Mongkut's Institute of Technology); Chariya Wongtaycham (King Mongkut's Institute of Technology);*
- 22 Electron Beam Monitoring Using the Radiation Induced Emissions Generated in Optical Fibers  
*Kyoung Won Jang (Dongnam Institute of Radiological & Medical Sciences); Heuijin Lim (Dongnam Institute of Radiological & Medical Sciences); Man-woo Lee (Dongnam Institute of Radiological & Medical Sciences); Yeong-Rok Kang (Dongnam Institute of Radiological & Medical Sciences); Wook Jae Yoo (Korean Association for Radiation Application); Sang Hun Shin (Konkuk University); Bongsoo Lee (Chung-Ang University); Dong Hyeok Jeong (Dongnam Institute of Radiological & Medical Sciences);*
- 23 1.5  $\mu\text{m}$  Synchronously Pumped Mode-locked Fiber Laser  
*Shukai Zheng (Shenzhen University); Xiaogang Ge (Shenzhen University); Chun-Yu Guo (Shenzhen University); Peng Li (Shenzhen University); Mengyuan Qin (Shenzhen University); Jianhua Li (Shenzhen University); Shuang-Chen Ruan (Shenzhen University); Qitao Lue (Han's Laser Technology Industry Group Co., Ltd.);*
- 24 Hybrid ARoF-WDM PON Infrastructure for 5G Millimeter-wave Interface and Broadband Internet Service  
*Toms Salgals (Riga Technical University); Aleksandrs Ipatovs (Riga Technical University); Vjaceslavs Bobrovs (Riga Technical University); Sandis Spolitis (Riga Technical University);*
- 25 Investigation on Temperature and Strain Sensing via SBS Slow Light in Few-mode Optical Fibers  
*Lijun Li (Lanzhou University of Technology); Shanglin Hou (Lanzhou University of Technology); Jingli Lei (Lanzhou University of Technology); Daobin Wang (Lanzhou University of Technology); Xiaoxiao Li (Lanzhou University of Technology); Huiqin Wang (Lanzhou University of Technology); Minghua Cao (Lanzhou University of Technology);*
- 26 Compact Dual-wideband Bandpass Filter Using Stub Loaded Zero-degree Feed Coupling Structure  
*Lichang Huang (Anhui University); Ping-Juan Zhang (Anhui Science and Technology University); Minquan Li (Anhui University); Yawen Song (Anhui University); Kaiyue Duan (Anhui University);*
- 27 Analysis on Interference Impact of 4G/5G in 450 MHz on Digital Terrestrial Television Broadcasting  
*Guntis Ancans (Riga Technical University); Evaldas Stankevicius (Vilnius Gediminas Technical University); Vjaceslavs Bobrovs (Riga Technical University); Nauris Osis (Riga Technical University);*
- 28 A 65 nm CMOS Phase-locked Loop for 5G Mobile Communications  
*Suming You (Nanjing University of Posts & Telecommunications); Changchun Zhang (Nanjing University of Posts and Telecommunications); Feng Yuan (Nanjing University of Posts and Telecommunications); Yi Zhang (Nanjing University of Posts and Telecommunications); Ying Zhang (Nanjing University of Posts & Telecommunications);*
- 29 Zero-attracted Lorentzian Algorithm for System Identification  
*Yanyan Wang (Science and Technology on Complex System Control and Intelligent Agent Cooperation Laboratory); Qingxi Chi (Science and Technology on Complex System Control and Intelligent Agent Cooperation Laboratory); Xin Wang (Beijing Electro-Mechanical Engineering Institute); Yunong Bu (Science and Technology on Complex System Control and Intelligent Agent Cooperation Laboratory); Xujun Guan (Science and Technology on Complex System Control and Intelligent Agent Cooperation Laboratory);*
- 30 Corneal Topography Measurement Based on Structured Light Projection and High Dynamic Range Imaging  
*Meng-ting Xu (Xiamen University); Yan-Ping Chen (Xiamen University); Huang-Ping Yan (Xiamen University); Gao-Feng Zheng (Xiamen University);*

- 31 Optimizing OAM Side-lobe Levels Using Sparse 2D Array  
*Donghua Yang (Chongqing University of Posts and Telecommunications); Yang Wang (Chongqing University of Posts and Telecommunications); Tao Hu (Chongqing University of Posts and Telecommunications); Jie Liu (Chongqing University of Posts and Telecommunications); Wenjun Jie (Chongqing University of Posts and Telecommunications); Chun Jin (Chongqing University of Posts and Telecommunications);*
- 32 The Design of EBG for Enhancing the Isolation in Dual-band Microstrip Antennas  
*Mingtao Bai (Beijing Institute of Technology); Wu Ren (Beijing Institute of Technology); Zheng Hui Xue (Beijing Institute of Technology); Wei-Ming Li (Beijing Institute of Technology);*
- 33 Miniaturized Ultra-wideband Ground Penetrating Radar Antenna Based on Vehicle Mobile Platform  
*Yameng Zhu (Nanjing University of Aeronautics and Astronautics); Yonggang Zhou (Nanjing University of Aeronautics and Astronautics); Tong Xu (Nanjing University of Aeronautics and Astronautics);*
- 34 De-noising of the  $B_1^+$  Field for Electrical Properties Reconstruction in MRI  
*Jiajia Wang (Southern Medical University); Yunyu Gao (Southern Medical University); Jijun Han (Southern Medical University); Jieru Chi (Qingdao University); Sherman Xuegang Xin (South China University of Technology);*
- 35 Frequency Tuning in a Subterahertz Large-orbit Gyrotron  
*Yu. K. Kalynov (Institute of Applied Physics RAS); Ivan V. Osharin (Institute of Applied Physics RAS);*
- 36 Magnetization Curve Equivalent Method for Speeding FEM Calculation of the Special Designed MCR Iron Cores  
*Xuxuan Chen (Wuhan University of Science and Technology); Wei Ai (Wuhan University of Science and Technology); Bin Wang (Wuhan University of Science and Technology); Wei Jin (Wuhan University of Science and Technology);*
- 37 A New Class-F Microwave Rectifier Circuit with Harmonic Suppression  
*Si Ce Wang (Tongji University); Min Jun Li (Tongji University); Mei Song Tong (Tongji University);*
- 38 Study on Super Wideband Compact Ovoidal Printed Antenna  
*Agus Dwi Prasetyo (Telkom University); Bambang Setia Nugroho (Universitas Indonesia); Budi Syihabuddin (Institut Teknologi Bandung); Achmad Munir (Institut Teknologi Bandung);*
- 39 Design of Two-dimensional Millimeter Wave Virtual Array Based on Sparse MIMO Array  
*Bin Li (Key Laboratory of Antenna and Microwave Technology); Jinping Zhang (Key Laboratory of Antenna and Microwave Technology); Ye Deng (Key Laboratory of Antenna and Microwave Technology); Zhipeng Zhou (Nanjing Research Institute of Electronics Technology); Lei Sun (Nanjing Research Institute of Electronics Technology, National Key Laboratory of Antenna and Microwave Technology);*
- 40 Low Phase Noise Power Distribution Technology in the Design of Reference Frequency Source Circuits  
*Cheng-Jie Jiang (China Electronic Technology Group Corporation NO. 36 Institute); Jie Qian (China Electronic Technology Group Corporation NO. 36 Institute); Xiao-Guo Huang (China Electronic Technology Group Corporation NO. 36 Institute);*
- 41 Zero Biased InGaAs SBD with  $ft = 11$  THz for Terahertz Detection  
*Bin Niu (Nanjing Electronic Devices Institute); Daoyu Fan (Nanjing Electronic Devices Institute); Kunpeng Dai (Nanjing Electronic Devices Institute);*
- 42 Design of Low Profile Broadband Circularly Polarized Slot Spiral Antenna Based on Double Layer AMC  
*Chunyang Jin (Anhui University); Minquan Li (Anhui University); Yanyang Liu (Anhui University); Dongya Cheng (Anhui University); Kaifeng Cui (Anhui University); Jun Wang (Beijing Electromechanical Engineering Institute);*
- 43 A High-gain, Low RCS and Dual-frequency Microstrip Antenna Using Frequency Selective Surface  
*Tang Chen (Southwest University of Science and Technology); Qiang-Ming Cai (Southwest University of Science and Technology); Lin Zhu (Southwest University of Science and Technology); Bo-Wen Luo (Southwest University of Science and Technology); Yu-Yu Zhu (Southwest University of Science and Technology); Xin Cao (Southwest University of Science and Technology); Runren Zhang (Duke University); Naixing Feng (Shenzhen University); Yan-Wen Zhao (University of Electronic Science and Technology of China (UESTC));*

- 44 A Simulation Research on RF Detection Method for Polymeric Insulator  
*Huiguang Zhao (Xinxiang Power Supply Company); Zhifeng Ma (Xinxiang Power Supply Company); Haiming Wang (Xinxiang Power Supply Company); Fang Qu (Xinxiang Power Supply Company); Xinming Wang (Xinxiang Power Supply Company); Runqi Wu (Hunan University); Xiangqian Zhu (Hunan University); Jungang Yin (National Astronomical Observatories of Chinese Academy of Sciences);*
- 45 Relationship between Horizontal Reflectance and Scattering Phase Function  
*Yongchao Wang (Xiamen University); Zhongping Lee (University of Massachusetts Boston); Shaoling Shang (Xiamen University);*
- 46 A Genetic Algorithm Based Method for Dielectric Characterization and Diffuse Scattering Mechanism for Rough Construction Materials  
*Haikuo Tian (Chongqing University of Posts and Telecommunications); Xi Liao (Chongqing University of Posts and Telecommunications); Yang Wang (Chongqing University of Posts and Telecommunications); Shasha Liao (Chongqing University of Posts and Telecommunications); Jihua Zhou (Chongqing Jinmei Communications Co., LTD);*
- 47 Synthesis of Frequency-invariant Beam Patterns under Accurate Sidelobe Control by Second-order Cone Programming  
*Liyang Chen (Xiamen University); Yuqiang Wang (Southwest China Research Institute of Electronic Equipment); Yanhui Liu (Xiamen University); Y. Jay Guo (University of Technology Sydney (UTS));*
- 48 Multi-sensor Data Mining of Long-grouped Train Braking System Based on an LSTM Network  
*Wen Jing Liu (Tongji University); Ming Xu Zhang (Tongji University); Guo Chun Wan (Tongji University); Mei Song Tong (Tongji University);*
- 49 Non-contact Measurement of Heart Rate Based on Facial Video  
*Cheng Wang (Tongji University); Yuling Jiang (Waseda University); Zhuohao Cai (Tongji University); Lan Lin (Tongji University);*
- 50 A New Method of System-level EMC Evaluation Based on Deep Learning  
*Yumei Wang (China Ship Development and Design Center); Changhao Li (Harbin Engineering University); Hanyu Shan (Harbin Engineering University); Dawei Zhang (Harbin Engineering University); Tao Jiang (Harbin Engineering University);*
- 51 Multi-AI-brain Machine Compete Against Human in Rock-Paper-Scissors Game  
*Lei Wang (Zhejiang University); Sailing He (Zhejiang University);*
- 52 Photo-induced Effects in As-Se and Ge-As-Se Chalcogenide Films  
*Zheng Zhang (Ningbo University); Rongping Wang (Ningbo University);*
- 53 On-chip Light Emission from Vertical Optical Antenna Arrays Driven by Inelastic Electron Tunnelling  
*Kai Braun (Eberhard Karls University Tuebingen); Lukas Jakob (University of Tuebingen); Frank Wackenhut (University of Tuebingen); Monika Fleischer (University of Tuebingen); Alfred J. Meixner (Eberhard-Karls-University Tuebingen);*
- 54 Modeling High-power Waveguide Windows Using Finite-difference Time-domain Simulations  
*Shijun Mi (Hanyang University); Yue Wang (Hanyang University); Kaviya Aranganadin (Hanyang University); Jing-Shyang Yen (National Taipei University of Technology); Ruei-Fu Jao (Guangdong Industry Technical College); Hua-Yi Hsu (National Taipei University of Technology); Ming-Chieh Lin (Hanyang University);*
- 55 A Novel Multi-layer Millimeter Wave Reflectarray Antenna  
*Liwei Guo (Guilin University of Electronic Technology); Simin Li (Guilin University of Electronic Technology); Xing Jiang (Guilin University of Electronic Technology);*
- 56 GTD Model Parameters Estimation Based on Improved LS-ESPRIT Algorithm  
*Shu-Yu Zheng (Air Force Engineering University); Xiao-Kuan Zhang (Air Force Engineering University); Bin-Feng Zong (Air Force Engineering University); Jiang Li (Air Force Engineering University);*
- 57 A W-band Antenna Array Based on SIW Structure with Enhanced Gain and High Isolation  
*Manlai Ding (Aerospace Information Research Institute, Chinese Academy of Science); Xuemei Wang (Aerospace Information Research Institute, Chinese Academy of Science); Li Tang (Aerospace Information Research Institute, Chinese Academy of Science); Jiameng Qu (Aerospace Information Research Institute, Chinese Academy of Science); Rui Wu (Aerospace Information Research Institute, Chinese Academy of Science);*

- 58 Significance of the Ground Plane Width on the Fields Radiated by Rectangular Slot Antennas  
*K. Akinwale Amusa (Federal University of Agriculture); Sulaiman Adeniyi Adekola (University of Lagos);*
- 59 Parameter Extraction for Equivalent Circuit of Common Mode Choke Based on Deep Neural Network, Random Forest Tree and Extreme Gradient Boosting Algorithm  
*Zheng Li (Suzhou Institute of Biomedical Engineering and Technology, Chinese Academy of Sciences); Jian Guo (Suzhou Institute of Biomedical Engineering and Technology, Chinese Academy of Sciences); Wenchang Xu (Suzhou Institute of Biomedical Engineering and Technology, Chinese Academy of Sciences); Yu Guo (Suzhou Institute of Biomedical Engineering and Technology, Chinese Academy of Sciences); Fengmei Li (Suzhou Institute of Biomedical Engineering and Technology, Chinese Academy of Sciences); Yeming Zhao (Suzhou Institute of Biomedical Engineering and Technology, Chinese Academy of Sciences); Kaichen Hong (Suzhou Institute of Biomedical Engineering and Technology, Chinese Academy of Sciences); Xiaohe Chen (Suzhou Institute of Biomedical Engineering and Technology, Chinese Academy of Sciences);*
- 60 Non-invasive THz Near-field Compressive Ghost Microscope  
*Si-Chao Chen (University of Science and Technology of China);*
- 61 A Dual-band Dual-polarized Antenna with AMC Reflector for 5G Base Stations  
*Qingchong Liu (Zhejiang University); Hui Liu (Zhejiang University); Sailing He (Zhejiang University);*
- 08:20 Recent Advances in the S-band Metamaterial-inspired Vacuum Electronic Devices at UESTC  
*Zhaoyun Duan (University of Electronic Science and Technology of China);*
- 08:40 A Discussion on Free-electron Radiation from an Interface  
*Baile Zhang (Nanyang Technological University);*
- 09:00 Free-electron Quantum Optics: Theory and Experiments  
*Kangpeng Wang (Technion, Israel Institute of Technology); Ido Kaminer (Technion, Israel Institute of Technology);*
- 09:20 Generating Orbital Angular Momentum Wave Using Free Electrons  
*Mengxuan Wang (Tsinghua University); Fang Liu (Tsinghua University); Kaiyu Cui (Tsinghua University); Xue Feng (Tsinghua University); Wei Zhang (Tsinghua University); Yidong Huang (Tsinghua University);*
- 09:40 Superlight Normal Doppler Effect in Negative Refractive-index Systems  
*Xiao Lin (Nanyang Technological University); Baile Zhang (Nanyang Technological University);*
- 10:00 **Coffee Break**
- 10:30 Super Graphene Bolometers  
*Invited*  
*Qiushi Guo (Yale University); Renwen Yu (The Barcelona Institute of Science and Technology); Cheng Li (Yale University); Shaofan Yuan (Yale University); Bingchen Deng (Yale University); F. Javier García De Abajo (ICFO — Institut de Ciències Fotòniques, The Barcelona Institute of Science and Technology); Fengnian Xia (Yale University);*
- 10:50 Tunable Nonlinear Optical Responses in 2D Materials  
*Invited*  
*Shiwei Wu (Fudan University);*
- 11:10 Nonlinear Graphene Nanoplasmonics  
*Invited*  
*Joel Douglas Cox (University of Southern Denmark); F. Javier Garcia De Abajo (ICFO-Institut de Ciències Fotòniques, The Barcelona Institute of Science and Technology);*
- 11:30 Light-matter Interactions in the Zero-index Limit  
*Invited*  
*Iñigo Liberal (Universidad Pública de Navarra, Campus Arrosadía);*

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**Session 4A1**

**SC2&SC3: Novel Ways to Control Light-matter Interactions 2**

**Friday AM, December 20, 2019**

**Room 1 - Ballroom 1**

Organized by Xiao Lin, Ido Kaminer, Hongsheng Chen

Chaired by Xiao Lin, Hongsheng Chen

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- 08:00 Cherenkov Radiation in Hyperbolic Metamaterial  
*Invited*  
*Fang Liu (Tsinghua University); Yidong Huang (Tsinghua University);*

11:50 Light Redirection and Splitting via Meta-resonator Based on Photonic Crystal with Low Effective Index  
*Guoyan Dong (University of Chinese Academy of Sciences); Pengwu Qiao (University of Chinese Academy of Sciences); Shuhui Zheng (University of Chinese Academy of Sciences);*

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**Session 4A2**

**SC2: Dielectric Metasurfaces: Fundamentals and Applications 2**

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**Friday AM, December 20, 2019**

**Room 2 - Ballroom 2**

Organized by Fei Ding, Cheng Zhang

Chaired by Fei Ding, Cheng Zhang

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08:20 All-polarization Generation and Focusing Using Dielectric Metasurfaces  
 Invited *Fei Ding (University of Southern Denmark); Bingdong Chang (Technical University of Denmark); Xiaowei Guan (Technical University of Denmark); Sergey I. Bozhevolnyi (University of Southern Denmark);*

08:40 Chalcogenide Glass Mid-infrared Photonics and Materials  
 Invited *Hongtao Lin (Zhejiang University);*

09:00 Controlling Phase, Amplitude, and Polarization of Ultrafast Optical Pulses Using Dielectric Metasurfaces  
 Invited *Amit Agrawal (National Institute of Standards and Technology); Cheng Zhang (National Institute of Standards and Technology);*

09:20 Broadband Orbital and Spin Angular Momentum Detection on Dielectric Metasurface  
 Invited *Si Zhang (Nanjing University); Pengcheng Huo (Nanjing University); Peng Chen (Nanjing University); Wenqi Zhu (National Institute of Standards and Technology); Cheng Zhang (National Institute of Standards and Technology); Mingze Liu (Nanjing University); Yanqing Lu (Nanjing University); Ting Xu (Nanjing University);*

09:40 Structural Color Generation from Disordered Polydisperse TiO<sub>2</sub> Particles  
*Kyungnae Baek (Ewha Womans University); Al-Mahmudur Alam (Ewha Womans University); Jieun Son (Ewha Womans University); Yi-Rong Pei (Ewha Womans University); Dong Ha Kim (Ewha Womans University); Jin-Ho Choy (Ewha Womans University); Jerome Kartham Hyun (Ewha Womans University);*

10:00 **Coffee Break**

10:30 Dielectric Metasurfaces for Coupling, Focusing, and Near-field Heat Transfer  
 Invited *Sailing He (Zhejiang University);*

10:50 High NA Silicon Metalens at Visible Wavelengths  
 Invited *Haowen Liang (Sun Yat-Sen University); Qiaoling Lin (Sun Yat-sen University); Qian Sun (Sun Yat-Sen University); Juntao Li (Sun Yat-sen University);*

11:10 Near-infrared Super-absorbing All-dielectric Metasurface  
 Invited *Qiang Li (Zhejiang University); Hao Luo (Zhejiang University); Jingyi Tian (Zhejiang University); Min Qiu (Westlake University);*

11:30 Dielectric Metasurfaces for Omnidirectional Polarizer  
 Invited *Jie Luo (Soochow University); Yun Lai (Nanjing University);*

11:50 Metasurface for Constructing a Stable High-Q Planar Open Cavity  
*Jichao Fu (Zhejiang University); Yi Jin (Zhejiang University); Sailing He (Zhejiang University);*

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**Session 4A3**

**Recent Advances in Numerical Simulation and Application of Electromagnetic Scattering from Target/Rough Surface**

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**Friday AM, December 20, 2019**

**Room 3 - Ballroom 3**

Organized by Li-Xin Guo, Yu Liang

Chaired by Yu Liang

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08:20 Study of Coupling Scattering from Targets and the Rough Surface Based on the Efficient Numerical Scheme  
*Yu Liang (Yangzhou University); Li-Xin Guo (Xidian University);*

08:40 Combination of Uniform Design with Support Vector Regression to Assist Analysis of Electromagnetic Scattering from Targets  
*Donghai Xiao (Xidian University); Li-Xin Guo (Xidian University); Wei Liu (Xidian University); Muyu Hou (Xidian University); Yanchun Zuo (Xidian University);*

09:00 Fast Simulations of Electromagnetic Scattering from One Dimensional Rough Surface over a Frequency Band Using FMM-Maehly  
*An-Qi Wang (Anhui University); Xue Zhang (Anhui University); Zhi-Xiang Huang (Anhui University);*

09:20 A Plasma Density Measurement Sensor Based on a LTCC Antenna  
*Zhen-Hua Zhao (Nanjing University of Posts and Telecommunications); Hai Feng Zhang (Nanjing University of Posts and Telecommunications); Li Zeng (Nanjing University of Posts and Telecommunications); Xing-Liang Tian (Nanjing University of Posts and Telecommunications);*

09:40 Analysis of Performance of Shipborne Cross-Eye Jamming against Anti-ship Missile  
*Yun Cheng (National University of Defense Technology); Tianpeng Liu (National University of Defense Technology); Kai Huo (National University of Defense Technology); Bo Peng (National University of Defense Technology); Zhen Liu (National University of Defense Technology); Xiang Li (National University of Defense Technology);*

10:00 **Coffee Break**

10:30 An Update on the Extended Advanced IEM for Scattering from Randomly Rough Surfaces  
*Yongxing Li (Zhejiang University); Jingsong Yang (Second Institute of Oceanography, State Oceanic Administration); J. C. Shi (Institute of Digital Earth and Remote Sensing Applications, Chinese Academy of Sciences); Yang Du (Zhejiang University);*

10:50 Stealth Design of the Quantum Radar Scattering Based on the Two Typical 2D Targets  
*Chong-Hua Fang (China Ship Development and Design Center); Xinyang Shi (Wuhan Maritime Communication Research Institute); Lei Lu (China Ship Development and Design Centre); Tianhua Yue (Wuhan Ship Development and Design Institute Co. Ltd.);*

11:10 Beam Switching Using Active Frequency Selective Surface (AFSS) for 5G Applications  
*Nosherwan Shoaib (National University of Sciences and Technology (NUST)); Aimen Raza (National University of Sciences and Technology (NUST));*

11:30 Overview of Some Analytical and Numerical Strategies for Scattering from the Target/Rough Surface  
*Yu Liang (Yangzhou University); Li-Xin Guo (Xidian University);*

11:50 Study on the Efficient Numerical Method For Scattering from Multiple Targets and Rough Surface under the TM Case  
*Yu Liang (Yangzhou University); Li-Xin Guo (Xidian University);*

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### Session 4A4

#### SC1: Advances in Integral Equation Methods and Applications

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Friday AM, December 20, 2019

Room 4 - Ginkgo

Organized by Jiming Song, Jun Hu

Chaired by Jiming Song, Xiao-Min Pan

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08:20 Electro-thermal Analysis of Microwave Limiter Based on the Time-domain Volume Surface Integral Equation Field-circuit Coupling Method  
*Dazhi Ding (Nanjing University of Science and Technology); Shitao Chen (Nanjing University of Science and Technology); Tao Pan (Nanjing University of Science and Technology); Hanzhang Li (Nanjing University of Science and Technology); Rushan Chen (Nanjing University of Science and Technology);*

08:40 Low Frequency Stable and Accurate Potential-based Time Domain Integral Equations for Dielectric Regions  
*Thomas Edgar Roth (University of Illinois at Urbana-Champaign); Weng Cho Chew (Purdue University);*

09:00 Acceleration of the Updating Process of 2D-FDTD Based on Machine Learning Techniques  
*Liangshuai Guo (Tsinghua University); Maokun Li (Tsinghua University); Shenheng Xu (Tsinghua University); Fan Yang (Tsinghua University);*

09:20 Solving Multi-scale Electromagnetic Problems by a Recursive Skeletonization Factorization in the Framework of SIE-DDM  
*Ming Jiang (University of Electronic Science and Technology of China); Zhi Rong (University of Electronic Science and Technology of China); Yongpin Chen (University of Electronic Science and Technology of China); Sheng Sun (University of Electronic Science and Technology of China); Jun Hu (University of Electronic Science and Technology of China);*

09:40 Skeletonization Improved Calculation of Electric Fields by the Impedance Matrix of MoM  
*Di Wu (Beijing Institute of Technology); Yan-Nan Liu (Beijing Institute of Technology); Xiao-Min Pan (Beijing Institute of Technology); Xin-Qing Sheng (Beijing Institute of Technology);*

10:00 **Coffee Break**

10:30 Fast Solution of Array Structures with Equivalence Principle Algorithm  
*Hanru Shao (Ningbo University);*

- 10:50 Surface Integral Equation-based Equivalent Electromagnetic Models for Antennas and EMC Problems  
*Huapeng Zhao (University of Electronic Science and Technology of China); Xinhui Zhang (University of Electronic Science and Technology of China); Chaofeng Li (University of Electronic Science and Technology of China); Sihong Tao (University of Electronic Science and Technology of China); Xinzhi Li (University of Electronic Science and Technology of China); Kangning Li (University of Electronic Science and Technology of China); Jun Hu (University of Electronic Science and Technology of China);*
- 11:10 Volume Surface Integral Equation for Scattering from Composite PEC and Bi-anisotropic Objects  
*Jinbo Liu (Communication University of China); Zengrui Li (Communication University of China); Jiming Song (Iowa State University);*
- 11:30 The Multilevel Physical Optics Method for Calculating High Frequency Scattered Fields from Electrically Large Coated Scatterers  
*Zhiyang Xue (Fudan University); Yu Mao Wu (Fudan University);*
- 11:50 A Research on the Electromagnetic Scattering of Civilian Vehicle  
*Zhijie Xie (Science and Technology on Electromagnetic Scattering Laboratory); Ming Feng (Science and Technology on Electromagnetic Scattering Laboratory); Qiping Chen (Science and Technology on Electromagnetic Scattering Laboratory); Jiaxuan Lin (Science and Technology on Electromagnetic Scattering Laboratory); Yajun Wu (Science and Technology on Electromagnetic Scattering Laboratory);*
- 08:20 Deep Neural Network for Solving Nonlinear Electromagnetic Inverse Scattering with Phaseless Data  
*Kuiwen Xu (Hangzhou Dianzi University); Liang Wu (Hangzhou Dianzi University);*
- 08:40 Study on Absolute Image Reconstruction for Chest Electrical Impedance Tomography  
*Ke Zhang (Tsinghua University); Maokun Li (Tsinghua University); Fan Yang (Tsinghua University); Shenheng Xu (Tsinghua University); Aria Abubakar (Schlumberger Houston Formation Evaluation);*
- 09:00 Status of ThomX and TTX2 — Development of a High Power Optical Cavity Used for Laser Electron Beam Interaction  
*Huan Wang (Tsinghua University); Loïc Amoudry (Université Paris-Saclay); Ronic Chiche (Université Paris-Sud); Wenhui Huang (Tsinghua University); Aurélien Martens (Université Paris-Sud); Viktor Soskov (Université Paris-Sud); Kevin Cassou (Université Paris-Sud); Kevin Dupraz (Université Paris-Sud); Daniele Nutarelli (Université Paris-Sud); Lixin Yan (Tsinghua University); Fabian Zomer (Université Paris 11); Chuanxiang Tang (Tsinghua University);*

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**Session 4A5b**
**SC4&SC1: Advanced Antenna Designs and Computational Electromagnetics**


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**Friday AM, December 20, 2019**
**Room 5 - Banyan 1**

 Organized by Malay Ranjan Tripathy, Zhining Chen  
 Chaired by Malay Ranjan Tripathy
 

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**Session 4A5a**
**SC1&SC5: Applications of Electromagnetic and Multiphysics Methods in Biomedical Imaging**


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**Friday AM, December 20, 2019**
**Room 5 - Banyan 1**

 Organized by Dong Liu, Maokun Li  
 Chaired by Maokun Li
 

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- 08:00 Recent Advances, Challenges, and Future Direction of Brain Electrical Impedance Tomography  
*Canhua Xu (Fourth Military Medical University); Xiu-Zhen Dong (The Fourth Military Medical University);*
- 09:20 Bandwidth and Gain Improvements of Low-profile H-shaped Microstrip Patch Antenna under Quadruple-mode Resonance  
*Zheng-Yu Xiong (Xidian University); Jing-Ya Deng (Xidian University); Neng-Wu Liu (Xidian University); Dong-Quan Sun (Xidian University); Li-Xin Guo (Xidian University);*
- 09:40 Space-time-coding Digital Metasurfaces for Antenna Applications  
*Lei Zhang (Southeast University); Qiang Cheng (Southeast University); Tie Jun Cui (Southeast University);*
- 10:00 **Coffee Break**



- 10:30 Improved Machine-learning-assisted Optimization and Its Applications to Antenna Designs  
*Yi Cao (Southeast University); Qi Wu (Southeast University); Haiming Wang (Southeast University); Wei Hong (Southeast University);*
- 10:50 Four-beam Antenna Array with Low Side-lobe for Base Station Application  
*Teng Li (Xi'an Jiaotong University); Qinlong Li (Xi'an Jiaotong University); Ming Zhang (Xi'an Jiaotong University); Anxue Zhang (Xi'an Jiaotong University); Jiaying Zhang (Shanghai EM-Testing); Xiaoming Chen (Xi'an Jiaotong University);*
- 11:10 Synthesizing Low Side-lobe Beampattern with Arbitrary Linear Polarization Reconfigurability Using Multiple Multi-line Polarization Reconfigurable Elements  
*Dingzhao Chen (Xiamen University); Yanhui Liu (Xiamen University); Ming Li (Xiamen University); Y. Jay Guo (University of Technology Sydney (UTS));*
- 11:30 Wideband Low-profile Metasurface Antenna Fed by Co-planar L-probe  
*Wei Liu (National University of Singapore); Zhining Chen (National University of Singapore); Xianming Qing (Institute for Infocomm & Research, A-STAR);*
- 11:50 Deep Learning Explorations in Wireless Channel Encoders  
*Vandana Bhatia (Amity University Uttar Pradesh); Priya Ranjan (Amity University Uttar Pradesh); Malay Ranjan Tripathy (Amity University Uttar Pradesh);*
- 08:20 Characterization of High Winds from Satellite Scatterometers  
*Wenming Lin (Nanjing University of Information Science and Technology); M. Portabella (Institut de Ciències del Mar — CSIC);*
- 08:40 Improved High Winds from Combined Observations of HY-2A and B Satellites Based on Convolutional Neural Networks  
*Xingou Xu (National Space Science Center, Chinese Academy of Sciences); Xiaolong Dong (National Space Science Center, Chinese Academy of Sciences);*
- 09:00 Typhoon Monitor by China Ocean Satellites  
*Xiaomin Ye (National Satellite Ocean Application Service); Mingsen Lin (National Satellite Ocean Application Service); Yi Zhang (National Satellite Ocean Application Service); Xinzhe Yuan (National Satellite Ocean Application Service);*
- 09:20 Wind and Wave Retrieval from Chinese Gaofen-3 SAR Data under Cyclonic Condition  
*Weizeng Shao (Zhejiang Ocean University);*
- 09:40 Reconciling Hurricane Hunter, ASCAT, and Buoy Wind Observations under High and Extreme Wind Conditions  
*Marcos Portabella (Institut de Ciències del Mar — CSIC); Federica Polverari (Institut de Ciències del Mar (ICM-CSIC)); Wenming Lin (Nanjing University of Information Science and Technology); Joseph Sapp (Global Science & Technology, Inc.); Paul S. Chang (National Oceanic and Atmospheric Administration (NOAA-NESDIS)); Zorana Jelenak (National Oceanic and Atmospheric Administration (NOAA-NESDIS)); Ad Stoffelen (Royal Netherlands Meteorological Institute (KNMI)); Alexis Mouche (Institut Français de Recherche pour l'Exploitation de la Mer (IFREMER)); Gerd-Jan van Zadelhoff (Royal Netherlands Meteorological Institute (KNMI));*

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### Session 4A6

#### SC5: Tropical Cyclones Remote Sensing and Data Assimilation 1

Friday AM, December 20, 2019

Room 6 - Banyan 2

Organized by Xiaofeng Yang, Biao Zhang

Chaired by Xiaofeng Yang

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- 08:00 Estimate of Tropical Cyclone Wind and Rain from SMR Onboard HY-2B  
*Xiaobin Yin (Beijing Piesat Information Technology Co. Ltd.); W. Zhou (National Satellite Ocean Application Service); M. Lin (National Satellite Ocean Application Service); Y. Li (Beijing Piesat Information Technology Co. Ltd.); C. Ma (National Satellite Ocean Application Service); S. Wang (Beijing Piesat Information Technology Co. Ltd.);*
- 10:00 **Coffee Break**
- 10:30 Tropical Cyclone Center Automatic Determination Model Based on HY-2 and Quikscat Wind-vector Products  
*Tangao Hu (Hangzhou Normal University);*
- 10:50 Automatic Detection of Tropical Cyclones from Satellite Passive Microwave Observations  
*Xiaofeng Yang (Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences); Sheng Wang (Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences); Kunsheng Xiang (Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences);*

- 11:10 Impact of Assimilation of ATMS Data on the Numerical Simulation of Typhoon MARIA (2018)  
*Lei Zhang (Innovation Center of Regional High-Resolution NWP Modelling); Baode Chen (Innovation Center of Regional High-Resolution NWP Modelling);*
- 11:30 Modeling of Storm Surges in the Pearl River Estuary during 1993 ~ 2013  
*Yongcun Cheng (Beijing PIESAT Information Technology Co., Ltd.); Xiaofeng Lv (Beijing PIESAT Information Technology Co., Ltd.); Xiaobao You (Beijing PIESAT Information Technology Co., Ltd.); Xiaobin Yin (Beijing PIESAT Information Technology Co., Ltd.);*
- 11:50 A Parametric Model for Asymmetric Wind Field of Tropical Cyclones Based on Cross-polarization SAR Observations  
*Sheng Wang (Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences); Xiao Feng Yang (Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences);*
- 09:00 Least-squares Reverse Time Migration with Combined Towed-streamer and OBS Data  
*Huachen Yang (Ocean University of China); Jianzhong Zhang (Ocean University of China);*
- 09:20 A Fast and Efficient Method for Deep Detection of Formation Boundary Based on Transient Electromagnetic Logging  
*Guangdong Xu (China University of Petroleum (East China)); Shaogui Deng (China University of Petroleum (East China)); Xiyong Yuan (China University of Petroleum (East China)); Wenbo Li (China University of Petroleum (East China));*
- 09:40 First-arrival Slope Tomography of OBS Data  
*Qianfeng Zhang (Ocean University of China); Tongyu Li (Ocean University of China); Huachen Yang (Ocean University of China); Jianzhong Zhang (Ocean University of China);*
- 10:00 **Coffee Break**
- 10:30 Multiphysics Simulation of Piezoelectric Transducer in Acoustic Well Logging Based on the Time Domain Spectral Element Method  
*Mingwei Zhuang (Xiamen University); Qiwei Zhan (University of Texas at Austin); Weichen Zhan (Xiamen University); Na Liu (Xiamen University); Qing Huo Liu (Duke University);*
- 10:50 Study on Extracting Anisotropic Formation Resistivity from Electromagnetic Wave Resistivity Logging While Drilling  
*Jie Gao (China University of Petroleum); Hao Wang (China University of Petroleum); Hang Chen (China University of Petroleum);*

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**Session 4A7**

**SC1: Electromagnetic and Acoustic/Seismic Technologies in Oilfield Applications: Sensing, Modeling, and Inversion 2**

**Friday AM, December 20, 2019**

**Room 7 - Banyan 3**

Organized by Jiefu Chen, Shaogui Deng

Chaired by Jiefu Chen, Shaogui Deng

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- 08:00 Fast Computing Method of Azimuthal Electromagnetic Logging While Drilling Based on Complex Image Theory  
*Wenbo Li (China University of Petroleum (East China)); Shaogui Deng (China University of Petroleum (East China));*
- 08:20 Reverse Time Migration of Refraction Waves in OBS Data  
*Huachen Yang (Ocean University of China); Jianzhong Zhang (Ocean University of China);*
- 08:40 Determination of Dip Angle and Anisotropy of Formation Using a Novel Transient Multicomponent Induction Logging Method  
*Xiyong Yuan (China University of Petroleum (East China)); Shaogui Deng (China University of Petroleum (East China)); Yiren Fan (China University of Petroleum (East China));*
- 11:10 Frequency Domain Spectral Element Method for Poroelastic Wave Modeling  
*Weichen Zhan (Xiamen University); Mingwei Zhuang (Xiamen University); Qing Huo Liu (Duke University);*
- 11:30 Bed Boundary Determination Using Joint Inversion of Deep Shear Wave Imaging and Extra-deep Azimuthal Electromagnetic Resistivity  
*Zhoutuo Wei (China University of Petroleum (East China)); Zhiqiang Li (22nd Institute of China Electronics and Technology Group Corporation); Shaogui Deng (China University of Petroleum (East China));*
- 11:50 GPU Accelerated Electromagnetic Modeling in Stratified Formations for Subsurface Sensing and Communication  
*Jiefu Chen (University of Houston); Shubin Zeng (University of Houston); Han Lu (University of Houston); Xin Fu (University of Houston);*

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**Session 4A8a**
**SC4: Wireless Power Transfer for Biomedicine and IoTs**


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**Friday AM, December 20, 2019**
**Room 8 - Peony 1**

Organized by Yongxin Guo

 Chaired by Yongxin Guo, Shao Ying Huang
 

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- 08:20 Recent Developments in Wireless Power Transfer Technology  
*Si-Ping Gao (National University of Singapore); Yongxin Guo (National University of Singapore);*
- 08:40 Design, Fabrication and Measurement of an High Efficiency WPT System for Long Distance Transmission  
*F. H. Zhang (Fudan University); Guo-Min Yang (Fudan University); Ya-Qiu Jin (Fudan University);*
- 09:00 Planar Split-ring Loops with High  $Q$ -factor for Wireless Power Transfer  
*Jingchen Wang (Xi'an-jiaotong Liverpool University); Eng Gee Lim (Xi'an-jiaotong Liverpool University); Mark Paul Leach (Xi'an-jiaotong Liverpool University); Zhao Wang (Xi'an-jiaotong Liverpool University); Rui Pei (Xi'an-jiaotong Liverpool University); Zhenzhen Jiang (Xi'an-jiaotong Liverpool University); Yi Huang (The University of Liverpool);*
- 09:20 Microwave Power Transmission to Multiple Targets Simultaneously with Multibeam Forming  
*Xin Wang (Nanjing University of Aeronautics & Astronautics); Xuemei Cao (Nanjing University of Aeronautics & Astronautics); Zhongqiang Tang (Nanjing University of Aeronautics and Astronautics); Mengying Li (Nanjing University of Aeronautics and Astronautics); Bodong Ruan (Nanjing University of Aeronautics and Astronautics); Mingyu Lu (West Virginia University Institute of Technology);*
- 09:40 An Alternative Transmitter Coil Design for Wireless Power Transfer — Birdcage Coil  
*Wen Xin Yong (Singapore University of Technology and Design); Wenshen Zhou (Singapore University of Technology and Design); Shao Ying Huang (Singapore University of Technology and Design);*
- 10:00 **Coffee Break**

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**Session 4A8b**
**Wireless Power Transfer**


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**Friday AM, December 20, 2019**
**Room 8 - Peony 1**

 Chaired by Elyas Palantei
 

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- 10:30 A Wireless Electrical Power Charging Based on RF Harvesting Energy Illuminated from Base Stations  
*Elyas Palantei (Universitas Hasanuddin (UNHAS)); Merna Baharuddin (Chiba University); Dewiani Djamaaluddin (Hasanuddin University); Bayu Sukarta (Hasanuddin University); Arvin Asrah (Hasanuddin University);*
- 10:50 Wireless Power Transfer Using Capacitive Coupling for High Power Applications  
*Muhammad Hamza Saeed (UET Lahore); Syed Abdul Rahman Kashif (UET Lahore); Noor Ul Ain (UET Lahore); Abdullah Tariq Sipra (UET Lahore); Junaid Rafique (UET Lahore); Hammad ul Hassan (UET Lahore);*
- 11:10 A Smart RF Harvesting Energy Absorber Applied for Low Electrical Power Charging Unit  
*Nurfritri (Universitas Hasanuddin); Elyas Palantei (Universitas Hasanuddin); Intan Sari Areni (Universitas Hasanuddin);*

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**Session 4A9**
**SC4: Advanced MM-Wave and THz Integrated Circuits and Antennas 1**


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**Friday AM, December 20, 2019**
**Room 9 - Peony 2**

Organized by Ying-Jiang Guo, Kai-Da Xu

 Chaired by Ying-Jiang Guo
 

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- 08:20 A Silicon-based On-chip Antenna Operating at 77 GHz  
*Qiu hao Li (Xiamen University); Weiwen Li (Xiamen University); Bocong Ren (Xiamen University); Liangcai Zhang (Xiamen University); Baoping Zhang (Xiamen University);*
- 08:40 Design and Fabrication of Graphene-based Reconfigurable Antennas from Millimeter to Terahertz Wave Ranges  
*Canqin Zhou (Shenzhen University); Hao Liang (Shenzhen University); Shuting Fan (Shenzhen University); Guozhang Shu (Shenzhen University); Yiling Sun (Shenzhen University); Zhengfang Qian (Shenzhen University);*

- 09:00 Design of Low Power Class-C Voltage Controlled Oscillator Using 0.13  $\mu\text{m}$  SiGe BiCMOS for K-band Applications  
*Hamed M. Mosalam (Electronics Research Institute); Ahmed B. Musa (Electronics Research Institute (ERI)); Mohammed K. Ali (Elfayoum University); Haythem Hussein Abdullah (Electronics Research Institute (ERI));*
- 09:20 Review of Some New Spoof Surface Plasmon Polariton Waveguides  
 Invited *Ying-Jiang Guo (Institute of Electronic Engineering, China Academy of Engineering Physics); Kai-Da Xu (Xi'an Jiaotong University); Xu Cheng (Institute of Electronic Engineering, China Academy of Engineering Physics); Xianjin Deng (Institute of Electronic Engineering, China Academy of Engineering Physics);*
- 09:40 Key Technologies of Terahertz Components Based on Schottky Barrier Diodes  
 Invited *Yong Zhang (University of Electronic Science and Technology of China); Jianhang Cui (University of Electronic Science and Technology of China);*
- 10:00 **Coffee Break**
- 10:30 An Improved UWB Bandpass Filter with a Notch-band Based on Asymmetric Parallel-coupled Line with Compact Size  
*Xinlin Xia (University of Electronic Science and Technology of China); Ying-Jiang Guo (Institute of Electronic Engineering, China Academy of Engineering Physics); Xu Cheng (Institute of Electronic Engineering, China Academy of Engineering Physics); Xianhu Luo (Institute of Electronic Engineering, China Academy of Engineering Physics);*
- 10:50 Research on the Theory of THz Power Combining Based on Degenerate Mode Superposition and Mode Order Reduction Principle  
 Invited *Ming Zhou Zhan (University of Electronics Science and Technology of China);*
- 11:10 A K-band Driven Power Amplifier for Automotive Radar Applications in 0.15- $\mu\text{m}$  GaAs pHEMT Process  
*Xianhu Luo (Institute of Electronic Engineering, China Academy of Engineering Physics); Xu Cheng (Institute of Electronic Engineering, China Academy of Engineering Physics); Jiangan Han (Microsystem and Terahertz Research Center, China Academy of Engineering Physics); Xinlin Xia (University of Electronic Science and Technology of China); Ying-Jiang Guo (Institute of Electronic Engineering, China Academy of Engineering Physics);*
- 11:30 Design of W-band Waveguide-based Direct-conversion Transceiver for Vital Signal Monitoring  
*Heesoo Kim (Sogang University); Won-Seok Choe (Sogang University); Jihoon Doo (Sogang University); Jongyoun Kim (Sogang University); Changmin Lee (Sogang University); Jinho Jeong (Sogang University);*
- 11:50 Low Loss Multi-beam Terahertz Transmitarray Antenna for Remote Sensing  
*Guang Liu (National Space Science Center, Chinese Academy of Sciences); Zhenzhan Wang (National Space Science Center, Chinese Academy of Sciences); Hongjian Wang (National Space Science Center, Chinese Academy of Sciences);*
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- Session 4A10a**  
**SC2: Metamaterial-based Polarization Manipulation 2**
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- Friday AM, December 20, 2019**  
**Room 10 - Jasmine**  
 Organized by Jin Hui Shi, Chunmei Ouyang  
 Chaired by Jin Hui Shi, Jianfa Zhang
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- 08:00 Polarization Optics with Atomically Thin Two-dimensional Materials  
 Invited *Jianfa Zhang (National University of Defense Technology);*
- 08:20 Polarization Manipulation Based on Anisotropic Metasurface  
 Invited *Huifeng Ma (Southeast University);*
- 08:40 Intrinsic and Extrinsic Chirality in Metamaterials  
 Invited *Chunying Guan (Harbin Engineering University);*
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- Session 4A10b**  
**SC2: Recent Advances in Thermal Meta-devices**
- 
- Friday AM, December 20, 2019**  
**Room 10 - Jasmine**  
 Organized by Cheng-Wei Qiu, Tiancheng Han  
 Chaired by Tiancheng Han
- 
- 09:00 New Perspectives on Heat Transfer in Moving Medium  
 Invited *Ying Li (National University of Singapore);*
- 09:20 CMA-ES Based Topology Optimization for Thermal-electrical Bifunctional Devices  
 Invited *Garuda Fujii (Shinshu University);*

- 09:40 An Ultra-thin Colored Textile with Simultaneous Active and Passive Heating Abilities  
*Qiang Li (Zhejiang University); Hao Luo (Zhejiang University); Min Qiu (Westlake University);*
- 10:00 **Coffee Break**
- 10:30 Reverse Optimization for Designing Proactive and Passive Thermal Cloak  
Invited *Zhiguo Qu (Xi'an Jiaotong University); J. Guo (Xi'an Jiaotong University);*
- 10:50 High-temperature Refractory Metasurfaces for Solar Thermophotovoltaic Energy Harvesting  
*Chun-Chieh Chang (National Taiwan Normal University); Wilton Junior de Melo Kort-Kamp (Los Alamos National Laboratory); John Nogan (Sandia National Laboratories); Ting-Shan Luk (Sandia National Laboratories); Abul K. Azad (MPA-CINT, Los Alamos National Laboratory); Antoinette J. Taylor (MPA-CINT, Los Alamos National Laboratory); Diego Alejandro Roberto Dalvit (Los Alamos National Laboratory); Milan Sykora (Los Alamos National Laboratory); Hou-Tong Chen (Los Alamos National Laboratory);*
- 11:10 Remote Thermal Cloak  
Invited *Tianzhi Yang (Tianjin University);*
- 11:30 Metamaterial Enhanced Thermal Radiation and Application  
Invited *Jiang Yang (Zhejiang University); Wei Du (Zhejiang University); Shen Zhang (Zhejiang University); Yungui Ma (Zhejiang University);*
- 11:50 Strategy towards Better Interfaces between Two-dimensional Materials and Their Dielectric Substrate with Improved Thermal Dissipation  
Invited *Xiangfan Xu (Tongji University);*
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- Session 4A11**  
**SC3: Optical Wavefront Engineering: Inverse or Compensate Scattering in Complex Media**
- 
- Friday AM, December 20, 2019**  
**Room 11 - Lotus 1**  
Organized by Jiamiao Yang, Puxiang Lai  
Chaired by Puxiang Lai
- 
- 08:20 Single Multimode Fiber-based Spatiotemporal Evolutional Optogenetics Enabled by Wavefront Shaping  
*Tianting Zhong (Hong Kong Polytechnic University); Zhihai Qiu (Hong Kong Polytechnic University); Yuchen Song (Hong Kong Polytechnic University); Lei Sun (Hong Kong Polytechnic University); Puxiang Lai (Hong Kong Polytechnic University);*
- 08:40 Enhancement of Imaging Quality in Multimode Optical Fiber  
Invited *Zhong Wen (Zhejiang University); Chenlei Pang (Zhejiang University); Qing Yang (Zhejiang University);*
- 09:00 Angular-spectrum Modeling of Focusing Light Inside Scattering Media by Optical Phase Conjugation  
Invited *Jingwei Li (Huawei Technologies Co., Ltd.); Jiamiao Yang (Huawei Technologies Co., Ltd.);*
- 09:20 Wavefront Shaping Improves the Performance of Multiphoton Microscopy  
Invited *Wei Zheng (Shenzhen Institutes of Advanced Technology, Chinese Academy of Sciences);*
- 09:40 A Multiple-phase-mask Model Constrained by the Spatial Power Spectrum Density  
Invited *Honglin Liu (Shanghai Institute of Optics and Fine Mechanics, Chinese Academy of Sciences);*
- 10:00 **Coffee Break**
- 10:30 Optical Focusing and Manipulation through a Multimode Fiber Based on the Direct Decomposition of the Fiber Reflection Matrix  
*Li Jin (Hong Kong Polytechnic University); Tianting Zhong (Hong Kong Polytechnic University); Huanhao Li (Hong Kong Polytechnic University); Zhipeng Yu (Hong Kong Polytechnic University); Puxiang Lai (Hong Kong Polytechnic University);*
- 10:50 Object Imaging and Point-spread-function Retrieving through Scattering Media via Bispectrum Analysis Combined Phase-diversity  
Invited *Jie Cao (Beijing Institute of Technology); Yingbo Wang (Beijing Institute of Technology); Chengqiang Xu (Beijing Institute of Technology); Mingyuan Tang (Beijing Institute of Technology); Qun Hao (Beijing Institute of Technology);*
- 11:10 Exploiting the Point Spread Function for Optical Imaging through a Scattering Medium Based on Deconvolution Method  
Invited *Hexiang He (Sun Yat-sen University); Xiangsheng Xie (Sun Yat-sen University); Yikun Liu (Sun Yat-sen University); Haowen Liang (Sun Yat-sen University); Jianying Zhou (Sun Yat-sen University);*
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- 08:00 Deep Tissue Optical Imaging and Non-invasive Precise Optogenetics for Neuroscience  
Invited *Ke Si (Zhejiang University); Wei Gong (Zhejiang University);*

11:30 Polarization Control of Light through Highly Scattering Media by Wavefront Shaping  
Invited

*Lei Gong (University of Science and Technology of China); Panpan Yu (University of Science and Technology of China);*

11:50 Optical Orbital-angular-momentum-multiplexed Data Transmission through Multimode Fiber Assisted by SMART Technique  
Invited

*Qian Zhao (Shandong Normal University); Yangjian Cai (Soochow University); Lei Gong (University of Science and Technology of China);*

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**Session 4A12**  
**SC3: Biophotonics**

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**Friday AM, December 20, 2019**

**Room 12 - Lotus 2**

Organized by Ting Xu, Quan Liu, Jinfeng Zhu

Chaired by Quan Liu, Jinfeng Zhu

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08:20 Recent Advances on Singlet Oxygen Luminescence Detection  
Invited

*Buhong Li (Fujian Normal University);*

08:40 Deep Tissue Focusing through Scattering Medium Based on Adaptive Optics  
Invited

*Wei Gong (Zhejiang University School of Medicine); Ke Si (Zhejiang University);*

09:00 Tissue Autofluorescence of Advanced Glucation End Products as a Biomarker for Diabetic Complications  
Invited

*Chen-Yuan Dong (National Taiwan University);*

09:20 Development of Depth-sensitive Optical Spectroscopy  
*Quan Liu (Nanyang Technological University); Weiming Su Joshua (Nanyang Technological University);*

09:40 A Resolution-enhanced Shadow Imaging System Using Mega-scale Submicron Pixel Image Sensors

*Cheng Yang (Nanjing University); Yunlong Meng (Nanjing University); Lankun Lin (Nanjing University); Xinyu Shen (Nanjing University); Tao Yue (Nanjing University); Feng Yan (Nanjing University);*

10:00 **Coffee Break**

10:30 Plasmonic Sensing on Fiber Tip  
Invited

*Tian Yang (The University of Michigan — Shanghai Jiao Tong University Joint Institute);*

10:50 Optical Nanoantennas for Plasmon-enhanced Infrared Spectroscopy  
Invited

*Kai Chen (Jinan University);*

11:10 Tumor Marker Biosensing by Low-cost Plasmonic Metasurfaces  
Invited

*Jinfeng Zhu (Xiamen University); Zhengying Wang (Xiamen University);*

11:30 Effect of Nanosecond Pulsed Electric Fields on Skin Cancer: Simulation and Experiment  
Invited

*Xin Rao (University of Electronic Science and Technology of China); Jun Zhou (University of Electronic Science and Technology of China); Yiyao Liu (University of Electronic Science and Technology of China); Xiaodong Chen (Queen Mary University of London);*

11:50 A Study of Wheat Wax Optical Properties

*Eugene Romanovich Bukhanov (Federal Research Center-Krasnoyarsk Scientific Center Siberian Branch Russian Academy of Science); Yuru Leonidovich Gurevich (Federal Research Center-Krasnoyarsk Scientific Center Siberian Branch Russian Academy of Science); Ksenia Alexandrovna Shabanova (Reshetnev Siberian State University of Science and Technology);*

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**Session 4A13**

**SC3: Liquid Crystals for Advanced Photonics**

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**Friday AM, December 20, 2019**

**Room 13 - Lotus 3**

Organized by Lujian Chen, Zhigang Zheng

Chaired by Lujian Chen, Zhigang Zheng

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08:10 Liquid Crystal Based Chirality Invertible Active Planar Optics  
Keynote

*Peng Chen (Nanjing University); Wei Hu (Nanjing University); Yan-Qing Lu (Nanjing University);*

08:40 Application of Liquid Crystal in Micro Display  
Invited

*Qiong-Hua Wang (Beihang University); Fan Chu (Beihang University); Li-Lan Tian (Sichuan University); Rui Li (Sichuan University); Wei Duan (Beihang University);*

09:00 Electro-optical Properties of Fluorinated Blue Phase Liquid Crystals and Phase Grating Applications  
Invited

*Liang Gao (Hebei University of Technology); Yubao Sun (Hebei University of Technology);*

- 09:20 Liquid Crystal Enabled Active Nanophotonic Devices  
Invited  
*Yanjun Liu (Southern University of Science and Technology); Y. Zhang (Southern University of Science and Technology); D. Xiao (Southern University of Science and Technology); S. T. Yin (Southern University of Science and Technology); D. Luo (Southern University of Science and Technology); X. W. Sun (Southern University of Science and Technology of China);*
- 09:40 Regulation of Holographic Polymer/Liquid-crystal Composites for Colored 3D Image Storage  
Invited  
*Haiyan Peng (Huazhong University of Science and Technology); Xiaolin Xie (Huazhong University of Science and Technology);*
- 10:00 **Coffee Break**
- 10:30 Biological and Chemical Optical Sensor Based on Liquid Crystals  
Invited  
*Xiaofang Niu (Southern University of Science and Technology); Dan Luo (Southern University of Science and Technology);*
- 10:50 Real-time Multi-spectral Imaging System using Blue-phase Liquid Crystal Fabry-Perot Tunable Filter  
Invited  
*Takahiro Ishinabe (Tohoku University); Kosuke Shinatake (Tohoku University); Rihito Kuroda (Tohoku University); Kazuhiro Wako (Sendai National College of Technology); Yosei Shibata (Tohoku University); Shigetoshi Sugawa (Tohoku University); Hideo Fujikake (Tohoku University);*
- 11:10 Liquid Crystal Alignment Films: From Inorganic ZnO Nanostructures to Biodegradable Silk Fibroin  
Invited  
*Shie-Chang Jeng (National Chiao Tung University);*
- 11:30 Orientation Control of Supramolecular Helical Nanofilament Liquid Crystal Phase  
Invited  
*Dong Ki Yoon (Korea Advanced Institute of Science and Technology);*
- 08:20 Mid-IR Coherent Supercontinuum Generated in Chalcogenide Fibers Pumped by Few-optical-cycle Cr:ZnSe Laser  
Invited  
*Yuchen Wang (Istituto di Fotonica e Nanotecnologie — CNR); S. O. Leonov (Bauman Moscow State Technical University); E. Vicentini (Istituto di Fotonica e Nanotecnologie — CNR); A. Gambetta (Istituto di Fotonica e Nanotecnologie — CNR); P. Laporta (Istituto di Fotonica e Nanotecnologie — CNR); Gianluca Galzerano (Istituto di Fotonica e Nanotecnologie — CNR);*
- 08:40 Chalcogenide, Crystalline Silicon and Amorphous Silicon for Mid-infrared Applications  
Invited  
*Xin Gai (City University of Hong Kong);*
- 09:00 High Average Power Picosecond Thulium-doped All-fiber Amplifier  
Invited  
*Pingxue Li (Beijing University of Technology); Xuan Wang (Beijing University of Technology); Chuanfei Yao (Beijing University of Technology);*
- 09:20 Nonlinear Diffraction via Noncollinear Frequency Conversion in Orientation-patterned GaAs  
Invited  
*Yan Sheng (Australian National University); Pawel Karpinski (Wroclaw University of Technology); Wieslaw Krolkowski (Australian National University);*
- 09:40 HgCdSe Semiconductors for Applications in Next Generation Infrared Detectors  
Invited  
*Wen Lei (University of Western Australia); Yongling Ren (The University of Western Australia); Zekai Zhang (The University of Western Australia); Wenwu Pan (The University of Western Australia); Imtiaz Madni (The University of Western Australia); Gilberto A. Umana-Membreno (University of Western Australia); Lorenzo Faraone (University of Western Australia);*

10:00 **Coffee Break**

- 10:30 Chip-integrated Suspended Membrane Platforms for Mid-infrared Applications  
Invited  
*Zhenzhou Cheng (Tianjin University);*

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**Session 4A14**

**SC3: Advanced Long Wave Photonic Platforms & Applications 1**

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**Friday AM, December 20, 2019**

**Room 14 - Lily**

Organized by Xin Gai, Rongping Wang, Wen Lei

Chaired by Xin Gai, Wen Lei

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10:50 Very Long Wave Infrared Quantum Cascade Lasers  
*Junqi Liu (Institute of Semiconductors, Chinese Academy of Sciences); S. Z. Niu (Institute of Semiconductors, Chinese Academy of Sciences); J. C. Zhang (Institute of Semiconductors, Chinese Academy of Sciences); N. Zhuo (Institute of Semiconductors, Chinese Academy of Sciences); L. J. Wang (Institute of Semiconductors, Chinese Academy of Sciences); S. Q. Zhai (Institute of Semiconductors, Chinese Academy of Sciences); S. M. Liu (Institute of Semiconductors, Chinese Academy of Sciences); F. Q. Liu (Institute of Semiconductors, Chinese Academy of Sciences); Z. G. Wang (Institute of Semiconductors, Chinese Academy of Sciences);*

11:10 Review of Continuous-wave Terahertz Phase Imaging  
 Invited  
*Dayong Wang (Beijing University of Technology); Lu Rong (Beijing University of Technology);*

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#### Session 4A15

#### SC5: Ghost Imaging and Single Pixel Imaging

Friday AM, December 20, 2019

Room 15 - Narcissus

Organized by Hongchao Liu, Wen Chen

Chaired by Hongchao Liu

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08:20 Optical Machine Learning with Incoherent Light and  
 Invited a Single-pixel Detector  
*Shuming Jiao (Shenzhen University); Yang Gao (Shenzhen University); Jun Feng (Shenzhen University); Ting Lei (Shenzhen University); Zhenwei Xie (Harbin Institute of Technology); Xiao-Cong Yuan (Shenzhen University);*

08:40 Imaging Against Harsh Environment Based on  
 Invited Second-order Correlation  
*Wei-Tao Liu (National University of Defense Technology);*

09:00 Computational Spectral Imaging via a Single DMD  
 Invited  
*Ming-Jie Sun (Beihang University); Wen Chen (Beihang University);*

09:20 Phase Imaging Based on Single Pixel Detection  
 Invited  
*Yafei Sun (Shandong University); Xianye Li (Shandong University); Baoqing Sun (Shandong University);*

09:40 Positive-negative Ghost Imaging and Its Optical En-  
 Invited cryptation  
*Hongchao Liu (University of Macau);*

10:00 **Coffee Break**

10:30 High-quality Object Reconstruction Based on Ghost  
 Invited Imaging  
*Yin Xiao (The Hong Kong Polytechnic University); Lina Zhou (The Hong Kong Polytechnic University); Wen Chen (The Hong Kong Polytechnic University);*

10:50 Fractional-order Ghost Imaging with Thermal Light  
 Invited  
*De-Zhong Cao (Yantai University);*

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#### Session 4A16

#### Electromagnetic Compatibility, Electromagnetic Shielding

Friday AM, December 20, 2019

Room 16 - Camellia 1

Chaired by Er Ping Li

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08:20 Study on the EMI Model of the Transient Bus Enclo-  
 sure Circulating Current Caused by GIS Disconnecter  
 Operation  
*Zhining Yang (Wuhan University of Technology); Xixiu Wu (Wuhan University of Technology); Chao Li (Wuhan University of Technology); Bo Wen (Wuhan University of Technology); Ling Wang (China Electric Power Research Institute Co., LTD); Bichuan Xu (Jiangxi Electric Power Company);*

08:40 The Package Lid Integrated with a CSRR and In-  
 terdigitated Structure for Electromagnetic Radiation  
 Suppression  
*Yan Li (Zhejiang University); Er Ping Li (Zhejiang University — UIUC Institute);*

09:00 Effect of Double-layer Coating on Microwave Absorb-  
 ing Properties of Electromagnetic Shielding Fabric  
*Jiajia Duan (Zhongyuan University of Technology); Xiuchen Wang (Zhongyuan University of Technology); Yayun Li (Zhongyuan University of Technology); Zhe Liu (Zhongyuan University of Technology);*

09:20 Experimental Characterization of SRR-based Multi-  
 layer X-band Wave Absorber  
*Budi Syihabuddin (Institut Teknologi Bandung); Mohammad Ridwan Effendi (Institut Teknologi Bandung); Achmad Munir (Institut Teknologi Bandung);*

09:40 Modeling of Nonuniform Transient Electromagnetic  
 Field Coupling to Transmission Line Using the Elec-  
 tric Field Representation Method  
*Jun Guo (Xi'an Jiaotong University); Yan-Zhao Xie (Xi'an Jiaotong University);*

10:00 **Coffee Break**



- 10:30 Effect of Different Infiltration Methods of Micro-media on Shielding Effectiveness of Electromagnetic Shielding Fabrics  
*Jiajia Duan (Zhongyuan University of Technology); Xiuchen Wang (Zhongyuan University of Technology); Yayun Li (Zhongyuan University of Technology); Zhe Liu (Zhongyuan University of Technology);*
- 10:50 Analysis of Electromagnetic Coupling to a Shielded Line Based on Extended BLT Equation  
*Bao-Lin Nie (University of Electronic Science and Technology of China);*
- 11:10 Study on Shielding Effectiveness of Multilayer Electromagnetic Shielding Fabrics Containing Multiple Wave-absorbing Fibers  
*Yayun Li (Zhongyuan University of Technology); Zhe Liu (Zhongyuan University of Technology); Jiajia Duan (Zhongyuan University of Technology); Xiuchen Wang (Zhongyuan University of Technology);*

**Session 4A0****Poster Session 5****Friday AM, December 20, 2019****8:00 AM - 12:00 AM****Room Corridor**

- 1 Simulation and Test Verification of Low Frequency Magnetic Field Distribution Characteristics of Ship Equipment  
*Chengchao Hua (Science and Technology on Electromagnetic Compatibility Laboratory); Chen Huang (Science and Technology on Electromagnetic Compatibility Laboratory); Jingxian Yang (Science and Technology on Electromagnetic Compatibility Laboratory); Wenzhuo Wang (Science and Technology on Electromagnetic Compatibility Laboratory); Y. Zuo (Science and Technology on Electromagnetic Compatibility Laboratory);*
- 2 Design of a Broadband Absorber Based on Antenna Reciprocity  
*Dace Zha (Huazhong University of Science and Technology); Zhaowang Cao (Huazhong University of Science and Technology); Sai Guo (Huazhong University of Science and Technology); Fan He (Huazhong University of Science and Technology); Rui Li (Huazhong University of Science and Technology); Jian-Jun Jiang (Huazhong University of Science and Technology);*
- 3 Unusual Optical Force in a Compound System Containing Left-handed Material Cylinders  
*Yineng Liu (Xiamen University);*
- 4 Transforming Thermal Convection: Steady and Transient Regimes  
*Gaole Dai (Fudan University); Jiping Huang (Fudan University);*
- 5 Multi-frequencies Capacitively Coupled Discharge Simulation  
*Zhuwen Zhou (Guizhou Education University); Chen Lu (Guizhou Education University); Zhou Lu (Guizhou Education University);*
- 6 OAM Carried by Vortex Pulsed Beam Propagation through Oceanic Turbulence  
*Yun Zhu (Jiangnan University); Ye Li (Jiangnan University); Yixin Zhang (Jiangnan University);*
- 7 Electromagnetic Symmetric Hybrid Wave Propagation Problem in a Medium with Arbitrary Nonlinear Saturation  
*Valeria Yu. Martynova (Penza State University); Dmitry V. Valovik (Penza State University);*
- 8 Knowledge-aided Color Loading Sparse Recovery STAP Algorithm  
*Zhixia Wu (Inner Mongolia University of Technology); Zhiqi Gao (Inner Mongolia University of Technology); Pingping Huang (Inner Mongolia University of Technology); Wei Xu (Inner Mongolia University of Technology); Z. H. Zhang (Beijing Research Institute of Telemetry);*
- 9 Time-domain Behavioral Modeling and Protection Effect Simulation of Lightning Protection Device for Short-wave Transmission System  
*Dongdong Wang (Science and Technology on Electromagnetic Compatibility Laboratory); Liang Chen (China Ship Development and Design Center); Shengquan Zheng (China Ship Development and Design Center); Kun Yang (China Ship Development and Design Center); Lie Zhang (China Ship Development and Design Center);*
- 10 Comparison of Three Methods for Solving the Eigenvalues of VLF Modal Equation in Earth-ionosphere Waveguide  
*Yurong Pu (Xi'an University of Technology); Xueni Han (Xi'an University of Technology); Dandan Wang (Xi'an University of Technology); Xiaoli Xi (Xi'an University of Technology);*

- 11 Far-end Crosstalk Mitigation in High-speed PCBs Using Floating Conductor Structure  
*Lin Zhu (Southwest University of Science and Technology); Qiang-Ming Cai (Southwest University of Science and Technology); Xiao-Bo Yu (Southwest University of Science and Technology); Liang Zhang (Southwest University of Science and Technology); Chao Zhang (Southwest University of Science and Technology); Yu-Yu Zhu (Southwest University of Science and Technology); Xin Cao (Southwest University of Science and Technology);*
- 12 Cause Analysis and Solution for Periodic Oscillation in Transmissive Metasurfaces Test  
*Yanrui Chen (Shanghai University); Huijie Guo (Fudan University); Shiyi Xiao (Shanghai University);*
- 13 Optically Transparent Ultra-broadband Metamaterial Absorber  
*Fantao Lu (Southwest University); Tiancheng Han (University of Electronic Science and Technology of China);*
- 14 Negative Energy Consumption of Thermostats at Ambient Temperature: Electricity Generation with Zero Energy Maintenance  
*J. Wang (Fudan University); J. Shang (Fudan University); Jiping Huang (Fudan University);*
- 15 Design of a P-band Absorber Based on Metamaterial and Magnetic Material  
*Jingxian Yang (Science and Technology on Electromagnetic Compatibility Laboratory); Wenzhuo Wang (Science and Technology on Electromagnetic Compatibility Laboratory); Chengchao Hua (Science and Technology on Electromagnetic Compatibility Laboratory); Long Xiao (China Ship Development and Design Center); Junfeng Chen (Science and Technology on Electromagnetic Compatibility Laboratory);*
- 16 Manipulation of Spoof Surface Plasmon Polaritons Based on Hyperbolic Metasurface  
*Yueyu Meng (Air Force Engineering University); Hua Ma (Air Force Engineering University); Tonghao Liu (Air Force Engineering University); Jiafu Wang (Air Force Engineering University); Shaobo Qu (Air Force Engineering University);*
- 17 Phase Singularities of Cos-Gaussian Vortex Beams through an Astigmatic Lens  
*Bi-Hua Tang (Southwest Medical University); Yong-Ping Song (Sichuan Luzhou High School); Shang-Bin Zheng (Southwest Medical University); Zeng-Hui Gao (Yibin University); Yamei Luo (Luzhou Medical College);*
- 18 Efficient All-optical Bistability in Magnetic Metamaterials  
*Yan Yin (Xiamen University); Jin Yao (Xiamen University); Guoxiong Cai (Xiamen University); Qing Huo Liu (Duke University);*
- 19 Research on Multi-sensor Wireless Network Based on Complex Tunnel Engineering and Its Data Pushing Method  
*Lan Chen (Shanghai Institute of Technology); Wei Hong (Shanghai Institute of Technology); Zhiyuan Jiang (Shanghai Institute of Technology);*
- 20 Phosphide-based Nano-materials as Hydrogen-producing Catalysts  
*Weiwei Chen (University of Electronic Science and Technology); Zhaojun Qin (University of Electronic Science and Technology); Zhiming M. Wang (University of Electronic Science and Technology); Zhifeng Ren (University of Houston); Hai-Zhi Song (Southwest Institute of Technical Physics);*
- 21 Engineering of Bandgap and Edge State Based on One-dimensional Photonic Crystal Containing Hyperbolic Metamaterials  
*Feng Wu (Tongji University); Chunhua Xue (Tongji University); Jiaju Wu (Tongji University); Haitao Jiang (Tongji University); Hong Chen (Tongji University);*
- 22 Dynamic-range Enhancement of Heterodyne THz Imaging by the Use of a Soft Paraffin-wax Substrate Lens on the Detector  
*Hui Yuan (Johann Wolfgang Goethe-Universität); Alvydas Lisauskas (Johann Wolfgang Goethe-Universität Frankfurt); Meng Zhang (University of Duisburg-Essen); Andreas Rennings (University of Duisburg-Essen, Campus Duisburg); Hartmut G. Roskos (Johann Wolfgang Goethe-Universität Frankfurt);*
- 23 **S**-polarized Brewster Effect in Alumina via Magnetic Metamaterial Film  
*Yongzhi Li (Air Force Engineering University); Jiafu Wang (Air Force Engineering University); Lin Zheng (Air Force Engineering University); Xinmin Fu (Air Force Engineering University); Yao Jing (Air Force Engineering University); Yuxiang Jia (Air Force Engineering University); He Wang (Air Force Engineering University); Pang Yang (Air Force Engineering University);*
- 24 On-chip Nanophotonic devices Based on Intelligent Algorithm  
*Zhouhui Liu (Beijing Institute of Technology); Cuicui Lu (Beijing Institute of Technology);*

- 25 Millimeter-wave Channel Modelling and Ray-tracing Method Validation  
*Wen-Tron Shay (National Chiao-Tung University); Kuan-Ju Shen (National Chiao-Tung University); Yu-Rong Chen (National Chung-Cheng University); Ying-Ying Lin (National Chiao-Tung University); Zuo-Min Tsai (National Chung Cheng University); Jenn-Hwen Tarnq (National Chiao Tung University);*
- 26 Shape Analysis of the East Asian Finless Porpoise (*Neophocaena Asiaorientalis Sunameri*) Mandibles Using 3D Geometric Morphometric Based on CT Scan  
*Jiao Li (Institute of Hydrobiology, Chinese Academy of Sciences); Zhitao Wang (Institute of Hydrobiology, Chinese Academy of Sciences); Ding Wang (Institute of Hydrobiology, Chinese Academy of Sciences); Kexiong Wang (Institute of Hydrobiology, Chinese Academy of Sciences);*
- 27 Transmittance of Diffraction- and Attenuation-resistant Vortex Frozen Beams in Oceanic Turbulence  
*Shibao Deng (Jiangnan University); Dongyu Yang (Jiangnan University); Lifa Hu (Jiangnan University); Yixin Zhang (Jiangnan University);*
- 28 A Dual-band Reconfigurable Textile Antenna for Body-centric IoT Networks  
*Ongoiba Ousmane (Chongqing University of Posts and Telecommunications); Yang Wang (Chongqing University of Posts and Telecommunications);*
- 29 0.6–7 GHz Microwave Computer Tomography for Breast Cancer Screening with Fast Reconstruction of Back Projection Method  
*Akiho Ueno (Kansai University); K. Terashima (Kansai University); T. Hanashima (Nihon University); Y. Nagayama (Nihon University); M. R. Asakawa (Kansai University); S. Yamaguchi (Kansai University);*
- 30 Fast and Accurate Antenna Array Pattern Synthesis Using Iterative FFT via Least-square Active Element Pattern Expansion (LS-AEPE)  
*Jingjing Bai (Institute of Electromagnetics and Acoustics); Yanhui Liu (Xiamen University); Qing Huo Liu (Duke University);*
- 31 A Broadband Power Divider with 90 Degree Phase Shifter  
*Hui Liu (Zhejiang University); Chenyang Meng (South China Normal University); Yiming Zhang (South China Normal University); Yuxin Lin (South China Normal University); Sailing He (Zhejiang University);*
- 32 Transverse Electron Beam Motion in RBWO with Low Guiding Magnetic Field  
*Huida Wang (Tsinghua University); Renzhen Xiao (Northwest Institute of Nuclear Technology); Ping Wu (Northwest Institute of Nuclear Technology); Changhua Chen (Northwest Institute of Nuclear Technology); Xiaoze Li (Northwest Institute of Nuclear Technology);*
- 33 Powerful Third-harmonic Large-orbit Gyrotron for Plasma Applications  
*Yu. K. Kalynov (Institute of Applied Physics RAS); I. V. Bandurkin (Institute of Applied Physics RAS); Vladimir N. Manuilov (Institute of Applied Physics RAS); Ivan V. Osharin (Institute of Applied Physics RAS); A. V. Savilov (Institute of Applied Physics RAS); N. A. Zavolsky (Institute of Applied Physics, Russian Academy of Sciences);*
- 34 DoA and Bandwidth Estimation of Unknown Signals Based on MT-BCS through Multiple Snapshots Data  
*Shi Hui Zhang (The Three Gorges University); Qinghe Zhang (Three Gorges University); Li Ping Shi (China Three Gorges University); Chao Yi (China Three Gorges University); Guang Xu Liu (China Three Gorges University);*
- 35 A Fuzzy PID Controller with Neural Network Algorithm for Freight Trains' Braking System  
*Zhi Ping Sun (Tongji University); Wen Hao Kang (Tongji University); Guo Chun Wan (Tongji University); Mei Song Tong (Tongji University);*
- 36 Development of High Power Class-E Amplifier for Radio Communication of Tsunami Early Warning System  
*Kusmadi (Universitas Sangga Buana); Budi Syihabuddin (Institut Teknologi Bandung); Galih Mustiko Aji (State Polytechnic of Cilacap); Artdhita Fajar Pratiwi (State Polytechnic of Cilacap); Purwiyanto (State Polytechnic of Cilacap); Chairunnisa (Institut Teknologi Bandung); Achmad Munir (Institut Teknologi Bandung);*
- 37 Adjustable Dual-frequency FSS-amplifier Metasurface  
*Ruichao Zhu (Air Force Engineering University); Jiafu Wang (Air Force Engineering University); Xiaofeng Wang (Air Force Engineering University); Tianshuo Qiu (Air Force Engineering University); He Wang (Air Force Engineering University); Zhenxu Wang (Air Force Engineering University);*
- 38 A Compact Circularly Polarized Mono-pulse Antenna with Frequency Agility  
*Yan Xue (Anhui University); Jie Wu (Anhui University); Lihua Wang (Anhui University);*

- 39 Tunable Bandstop Filters Based on Varactor-loaded Multi-mode Resonators  
*Xiao-Guo Huang (No. 36 Research Institute of China Electronic Technology Group Corporation); Jie Qian (No. 36 Research Institute of China Electronic Technology Group Corporation);*
- 40 Application of Machine Learning Method to the Prediction of EM Response of Reflectarray Antenna Elements  
*Li Ping Shi (China Three Gorges University); Qinghe Zhang (Three Gorges University); Shi Hui Zhang (The Three Gorges University); Guang Xu Liu (China Three Gorges University); Chao Yi (China Three Gorges University);*
- 41 Flexible and Low Profile Antenna with AMC for Wireless Body Area Network Applications  
*Kaifeng Cui (Anhui University); Pingjuan Zhang (Anhui Science and Technology University); Dongya Cheng (Anhui University); Chunyang Jin (Anhui University); Jundui Mu (Anhui University); Jun Wang (Beijing Electro-mechanical Engineering Institute); Minquan Li (Anhui University);*
- 42 Overview of the Design Strategies for the Circularly Polarized UHF RFID Tag Antenna  
*Wei Luo (Chongqing University of Posts and Telecommunications); Rong-Bu He (Guizhou Power Grid Company Ltd.); Ping Wang (Chongqing University of Posts and Telecommunications);*
- 43 Dispersion and Nonlinearity Engineering for Hybrid Waveguide Comprised of Chalcogenide and Silicon Oxynitride  
*Shiqi Ai (City University of Hong Kong); Donghai Zhang (City University of Hong Kong); Yuhua Li (City University of Hong Kong); Sai Tak Chu (City University of Hong Kong); Xin Gai (City University of Hong Kong);*
- 44 Radio Frequency Interference Suppression in RCS Measurement  
*Ming Lyu (Science and Technology on Electromagnetic Scattering Laboratory); Haohao Hou (Science and Technology on Electromagnetic Scattering Laboratory); Yan Wang (Science and Technology on Electromagnetic Scattering Laboratory); Fang Liu (Science and Technology on Electromagnetic Scattering Laboratory); Yang Bai (Science and Technology on Electromagnetic Scattering Laboratory);*
- 45 Using Captured by RGB-D Video Sensor Data in Numerical Simulation Environment for the Development of New Microwave Personnel Screening System  
*Andrey V. Zhuravlev (Bauman Moscow State Technical University); G. Dong (Tsinghua University); V. Razevig (Bauman Moscow State Technical University); Margarita A. Chizh (Bauman Moscow State Technical University); B. Hu (Tsinghua University);*
- 46 Analysis and Assimilation of Microsized Satellite-based Data in Tropical Cyclone Monitoring  
*Jieying He (National Space Science Center, Chinese Academy of Sciences); Xinguo Zhu (Ningbo Water Facilities Operation and Management Center); Shengwei Zhang (National Space Science Center, Chinese Academy of Sciences);*
- 47 Electromagnetic Scattering Modeling Method of Multiscale Structure Based on Absorbing Coating  
*Nan Wu (China Ship Development and Design Center); Maosong Wu (Xidian University); Jiaqi Zhou (Xidian University); Bian Wu (Xidian University);*
- 48 Forest Biomass Inversion in Jilin Province of China Based on Machine Learning and Multi-source Remote Sensing Data  
*He Liu (Jilin University); Lingjia Gu (Jilin University); Ruizhi Ren (Jilin University);*
- 49 An Analytical Method for Calculating the Pattern of Surface Conformal Array  
*Ping Xu (Harbin Engineering University); Shiping Tang (Naval Research Academy); Jiaxin Yao (Harbin Engineering University); Dawei Zhang (Harbin Engineering University); Tao Jiang (Harbin Engineering University);*
- 50 A Chaotic Approach on Solar Irradiance Forecasting  
*T. A. Fathima (ADAPT SFI Research Centre); Vasudevan Nedumpozhimana (ADAPT SFI Research Centre); Yee Hui Lee (Nanyang Technological University Singapore); Stefan Winkler (Advanced Digital Sciences Center (ADSC)); Soumyabrata Dev (University College Dublin);*
- 51 Detection of Small Inhomogeneities via Direct Sampling Method in Limited-aperture Inverse Scattering Problem  
*Chi Young Ahn (National Institute for Mathematical Sciences); Taeyoung Ha (National Institute for Mathematical Sciences); Won-Kwang Park (Kookmin University);*

- 52 Diffraction Pattern of the Cholesteric Layer with Tangential-conical Boundary Conditions  
*Rashid Gelmedinovich Bikbaev (Kirensky Institute of Physics); Mikhail Nikolaevich Krakhalev (Kirensky Institute of Physics); Ivan Vladimirovich Timofeev (Kirensky Institute of Physics, Federal Research Center KSC SB RAS); Vitaly Sergeevich Sutormin (Kirensky Institute of Physics); Victor Yakovlevich Zyryanov (Kirensky Institute of Physics);*
- 53 Investigation on a High-efficiency MILO with Ridged Disk-loaded Vanes  
*Xiaoyu Wang (National University of Defense Technology); Yu-Wei Fan (National University of Defense Technology); Ting Shu (National University of Defense Technology); An-Kun Li (National University of Defense Technology); Yuanqiang Yu (National University of Defense Technology); Zeyang Li (National University of Defense Technology);*
- 54 Deep Learning thru Neural Networks for Space and Aeronautics  
*Francis Castanie (National Polytechnics Institute of Toulouse (INPT));*
- 55 Dual Polarization (TE and TM) Terahertz Spoof Surface Plasmon Polaritons Enabled by Metasurface  
*Rong Tang (Shanghai University); Zhong Hu (Shanghai University); Shiyi Xiao (Shanghai University); Lei Zhou (Fudan University);*
- 56 Hollow-sphere-structured MoS<sub>2</sub> for Near-infrared Photoresponse Enhancement  
*Yingdong Han (Tianjin University); Jie Wang (Tianjin University); Zhenzhou Cheng (Tianjin University); Tiegen Liu (Tianjin University);*
- 57 UWB Band-notched Monopole Antenna Design Using Electromagnetic-bandgap Structure  
*Bing Wang (Chongqing University of Posts and Telecommunications); Yuqi Yang (Chongqing University of Posts and Telecommunications); Yan-Yu Wei (University of Electronic Science and Technology of China);*
- 58 Investigation on 0.1 THz Array Beams Folded Waveguide Traveling Wave Tube  
*Duo Xu (University of Electronic Science and Technology of China); Wei Shao (University of Electronic Science and Technology of China); Tenglong He (University of Electronic Science and Technology of China); Hexin Wang (University of Electronic Science and Technology of China); Zhan-Liang Wang (University Electronic Science and Technology of China); Zhi-Gang Lu (University of Electronic Science and Technology of China); Hua-Rong Gong (University of Electronic Science and Technology of China); Zhaoyun Duan (University of Electronic Science and Technology of China); Jinjun Feng (Beijing Vacuum Electronics Research Institute); Yu-Bin Gong (University of Electronic Science and Technology of China);*
- 59 Correlation between ENSO and Radio Refractive Index over West Africa  
*Kayode David Adedayo (Federal University of Technology); Joseph Babatunde Dada (Elizade University); Adekunle Titus Adediji (Federal University of Technology); Moses O. Ajewole (Federal University of Technology Akure);*
- 60 Comparative Analysis of Linear- and Planar-arrays of Rectangular Slot Antennas  
*K. Akinwale Amusa (Federal University of Agriculture); Sulaiman Adeniyi Adekola (University of Lagos);*
- 61 Time Domain Reflectometry for Underground Pipe Leakage Localization with Loss Compensation  
*Chunqiao Wei (Northwestern Polytechnical University); Yichou Huang (Northwestern Polytechnical University); Changyou Li (Northwestern Polytechnical University); Ruonan Zhang (Northwestern Polytechnical University);*

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**Session 4P1a**
**SC2&SC3: Novel Ways to Control  
Light-matter Interactions 3**


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**Friday PM, December 20, 2019**
**Room 1 - Ballroom 1**

Organized by Xiao Lin, Ido Kaminer, Hongsheng Chen

Chaired by Xiao Lin, Hongsheng Chen

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13:10 Optical Super-oscillations and Sub-nanometer Metrology  
Invited by  
*Guanghui Yuan (Nanyang Technological University);*

13:30 Artificial Neural Nanophotonics

Invited

*Zongfu Yu (University of Wisconsin-Madison); Dianjing Liu (University of Wisconsin-Madison);*

13:50 Parity-time Symmetric Meta-gratings to Manipulate Surface Plasmon Polaritons

Invited

*Yongmin Liu (Northeastern University);*

14:10 Chirality Reversing in Dielectric Nanocavities

*Xinrui Mao (Peking University); Hongyi Luan (Peking University); Renmin Ma (Peking University);*

14:30 Light-driven Motors in Nonliquid Environments

Invited

*Jinsheng Lu (Zhejiang University); Qiang Li (Zhejiang University); Min Qiu (Westlake University);*

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### Session 4P1b

#### Metasurface, Metamaterials and Plasmonics

Friday PM, December 20, 2019

Room 1 - Ballroom 1

Chaired by Ari Sihvola, Yuancheng Fan

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14:50 Polarization Conversion Abnormal Reflection by All-dielectric Phase Gradient Metasurface Based on High-permittivity Ceramic

*Liyang Li (Air Force Engineering University); Mingde Feng (Air Force Engineering University); Jun Wang (Air Force Engineering University); Jiafu Wang (Air Force Engineering University); Jieqiu Zhang (Air Force Engineering University); Shaobo Qu (Air Force Engineering University);*

15:10 Complementary Split Rectangular Resonators Based Metamaterial Sensor for Dielectric Material's Measurements: Design and Comparative Analysis

*Abdul Samad (Beijing Institute of Technology); Weidong Hu (Beijing Institute of Technology); Waseem Shahzad (Beijing Institute of Technology); Leo P. Ligthart (Delft University of Technology);*

15:30 **Coffee Break**

16:00 Realization of Near-infrared Active Fano-resonant Metasurface by Precisely Controlling the Phase Transition of  $\text{Ge}_2\text{Sb}_2\text{Te}_5$

*Wei Zhu (Institute of Physics, Chinese Academy of Sciences); Yuancheng Fan (Northwestern Polytechnical University); Ce Li (Institute of Physics, Chinese Academy of Sciences); Ruisheng Yang (Northwestern Polytechnical University); Shi Yan (Institute of Physics, Chinese Academy of Sciences); Fuli Zhang (Northwestern Polytechnical University); Chang-Zhi Gu (Institute of Physics, CAS); Junjie Li (Institute of Physics, Chinese Academy of Sciences);*

16:20 Transmission Characteristics of Surface Waves in Defective Absorbing Layers

*Hong Rao (University of Electronic Science and Technology of China); Hai-Yan Chen (University of Electronic Science and Technology of China); Yang Zhou (University of Electronic Science and Technology of China); Rongbo Shen (University of Electronic Science and Technology of China); Fengxia Li (University of Electronic Science and Technology of China); Haipeng Lu (University of Electronic Science and Technology of China); Kai Li (University of Electronic Science and Technology of China); Jianliang Xie (University of Electronic Science and Technology of China); Long-Jiang Deng (University of Electronic Science and Technology of China);*

16:40 Design of Electromagnetic Metasurfaces for Directional Scattering in High Temperature Environment

*Qingting He (University of Electronic Science and Technology of China); Hai-Yan Chen (University of Electronic Science and Technology of China); Yang Zhou (University of Electronic Science and Technology of China); Liandi Han (University of Electronic Science and Technology of China); Fengxia Li (University of Electronic Science and Technology of China); Li Zhang (University of Electronic Science and Technology of China); Jianliang Xie (University of Electronic Science and Technology of China); Long-Jiang Deng (University of Electronic Science and Technology of China);*

17:00 Ultra-wideband RCS Reduction Based on Chessboard Parabolic-phased Metasurface

*Fang Yuan (National University of Defense Technology);*

17:20 Criteria for Activity and Dissipativity of Generalized Soft-and-Hard Surface in Electromagnetics

*Ari Sihvola (Aalto University); Beibei Kong (Aalto University); Pasi Ylä-Oijala (Aalto University);*

17:40 Multifunctional Plasmomechanical Devices Using Invited NEMS Technology

*Kenzo Yamaguchi (Tokushima University);*

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**Session 4P2**
**SC2: Optical Metamaterial and Metasurface:  
Fundamentals and Applications**


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**Friday PM, December 20, 2019**
**Room 2 - Ballroom 2**

Organized by Shumin Xiao, Dangyuan Lei

 Chaired by Shumin Xiao, Dangyuan Lei
 

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- 13:10 Crystalline Silicon Metasurfaces at Visible Wavelengths  
*Juntao Li (Sun Yat-Sen University); Qian Sun (Sun Yat-Sen University); Jianchao Zhang (Sun Yat-Sen University); Haowen Liang (Sun Yat-Sen University);*
- 13:30 Broad-band Modulation Based on TCOs/Silicon Nanotrench Capacitor with Dual Epsilon-near-zero Modes  
*Qin Chen (Jinan University);*
- 13:50 Dynamically-tunable Plasmonic Devices Based on Phase Transition of Vanadium Dioxide  
*Ru-Wen Peng (Nanjing University); Fangzhou Shu (Nanjing University); Jia-Nan Wang (Nanjing University); Mu Wang (Nanjing University);*
- 14:10 Asymmetric Polarization Encryption by Cascaded Metasurfaces  
*Lingling Huang (Beijing Institute of Technology);*
- 14:30 Extreme Nonlinear Optics in Epsilon-Near-Zero Materials  
*Yuanmu Yang (Tsinghua University);*
- 14:50 Dirac-cone Zero Reflective Index Waveguides with Arbitrary Pattern and Variable Height  
*Yijie Gu (Zhejiang University); Er Ping Li (Zhejiang University — UIUC Institute);*
- 15:10 Nonlinear Meta-photonics with Monolayer Semiconductors  
*Guangwei Hu (National University of Singapore); X. Hong (Huazhong University of Science and Technology); K. Wang (Huazhong University of Science and Technology); S. Zhang (University of Birmingham); F. Garcia-Vidal (Universidad Autónoma de Madrid); A. Alù (City University of New York); P. Lu (Huazhong University of Science and Technology); Cheng-Wei Qiu (National University of Singapore);*
- 15:30 **Coffee Break**
- 16:00 Dielectric Nano-antennas Based Metalens  
*Ye Feng Yu (Nanjing University of Science and Technology);*

- 16:20 Separation of Enantiomers Using Metasurfaces in the Visible Region  
*Rong Zi Wang (Dalian University of Technology); Tong Tong Zhu (Dalian University of Technology); Tun Cao (Dalian University of Technology);*
- 16:40 Optical Ising Machine Based on Spatial Multiplexing Metasurface  
*Geyang Qu (Harbin Institute of Technology); Wenhong Yang (Harbin Institute of Technology); Shumin Xiao (Harbin Institute of Technology); Qinghai Song (Harbin Institute of Technology);*
- 17:00 Metalenses at Visible and Infrared Wavelengths  
*Yujie Wang (Harbin Institute of Technology); Qinghai Song (Harbin Institute of Technology); Shumin Xiao (Harbin Institute of Technology);*
- 17:20 Metallic and Dielectric Nanostructural Optical Antennas  
*Zhaogang Dong (Institute of Materials Research and Engineering, A\*STAR (Agency for Science, Technology and Research));*
- 17:40 Theory for Plasmonic Open Systems Derived from First Principles  
*Shiyi Xiao (Shanghai University); Jing Lin (Fudan University); Meng Qiu (Fudan University); Lei Zhou (Fudan University);*
- 18:00 Superresolution Imaging via Superoscillation Focusing of a Geometric Metasurface  
*Yanwen Hu (Jinan University); Shenhe Fu (Jinan University); Hao Yin (Guangdong Higher Educ. Inst.); Zhen Li (Jinan University); Zhenqiang Chen (Jinan University);*

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**Session 4P3a**
**SC5: Remote Sensing Using Global  
Navigation Satellite System Reflectometry  
(GNSS-R) and other Signals of Opportunity  
(SoOp)**


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**Friday PM, December 20, 2019**
**Room 3 - Ballroom 3**

Organized by Rashmi Shah, James L. Garrison

 Chaired by Rashmi Shah
 

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- 13:10 Intercomparison of CYGNSS and SMAP Soil Moisture Retrieval  
*Simon H. Yueh (California Institute of Technology); Rashmi Shah (California Institute of Technology); Xiaolan Xu (California Institute of Technology); Andreas Colliander (California Institute of Technology); Akiko Hayashi (California Institute of Technology); Mario Julian Chaubell (California Institute of Technology);*
- 13:30 A Patch Model for Land Surfaces in GNSS-R Including Topography of Slopes and Elevations  
*Jiyue Zhu (University of Michigan); Haokui Xu (University of Michigan); Leung Tsang (University of Michigan); Seung-Bum Kim (California Institute of Technology);*
- 13:50 Signal Processing and Modeling for SigNals Of Opportunity: P-band Investigation (SNOOPI)  
*James L. Garrison (Purdue University); Rashmi Shah (California Institute of Technology); Jeffrey R. Piepmeier (NASA Goddard Space Flight Center); Manuel A. Vega (NASA Goddard Space Flight Center); Rajat Bindlish (NASA Goddard Space Flight Center); Benjamin Nold (Purdue University);*
- 14:10 Sea Surface Height Estimation by BDS GEO Satellite Reflectometry  
*Jianming Wu (Shanghai Astronomical Observatory, Chinese Academy of Sciences); Yanling Chen (Shanghai Astronomical Observatory, Chinese Academy of Sciences); Fan Gao (Shandong University); Peng Guo (Shanghai Astronomical Observatory, Chinese Academy of Sciences); Xiaoya Wang (Shanghai Astronomical Observatory, Chinese Academy of Sciences);*
- 15:10 Applying Deep Convolutional Neural Networks to Snow Parameters Inversion Based on Passive Microwave Remote Sensing Measurements  
*He Ming Yao (The University of Hong Kong); Yanming Zhang (The University of Hong Kong); Hong Tat Ewe (Universiti Tunku Abdul Rahman); Li Jun Jiang (The University of Hong Kong);*
- 15:30 **Coffee Break**
- 16:00 Effects of Ocean Surface Winds Estimation Errors on Ocean Surface Currents Retrieval for a Doppler Scatterometer  
*Yuanjing Miao (National Space Science Center, Chinese Academy of Sciences); Xiaolong Dong (National Space Science Center, Chinese Academy of Sciences); Xingou Xu (National Space Science Center, Chinese Academy of Sciences); Di Zhu (National Space Science Center, Chinese Academy of Sciences);*
- 16:20 Predicting Solar Irradiance in Singapore  
*T. A. Fathima (ADAPT SFI Research Centre); Vasudevan Nedumpozhimana (ADAPT SFI Research Centre); Yee Hui Lee (Nanyang Technological University Singapore); Stefan Winkler (Advanced Digital Sciences Center (ADSC)); Soumyabrata Dev (University College Dublin);*
- 16:40 Subjective Quality Assessment of Ground-based Camera Images  
*Lucie Lévêque (Xi'an Jiaotong-Liverpool University); Soumyabrata Dev (University College Dublin); Murhaf Hossari (ADAPT SFI Research Centre); Yee Hui Lee (Nanyang Technological University Singapore); Stefan Winkler (Advanced Digital Sciences Center (ADSC));*
- 17:00 Study of SAR Ocean Wave Image Simulation and Ocean Wave Spectrum Inversion  
*Yanmin Zhang (Ocean University of China); Yunhua Wang (Ocean University of China);*
- 17:20 On the Nonlinear Mapping of an Ocean Wave Spectrum into a New Polarimetric SAR Image Spectrum  
*Yanmin Zhang (Ocean University of China); Yunhua Wang (Ocean University of China);*

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**Session 4P3b**

**Microwave Remote Sensing and Polarimetry, SAR**

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**Friday PM, December 20, 2019**

**Room 3 - Ballroom 3**

Chaired by Bo O. Zhu

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- 14:30 Water Level and Morphological Changes of Wetlands in the Poyang Lake Using Sentinel-1 Data  
*Minmin Huang (Nanjing University of Information Science and Technology); Shuanggen Jin (Nanjing University of Information Science and Technology);*
- 14:50 Solving the Electromagnetic Problem of a Moving Charge between the Earth and the Ionosphere Using the Spherically Layered Medium Theory  
*Bo O. Zhu (Nanjing University);*



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**Session 4P4a**
**SC1: Fast Computational Methods in  
Electromagnetic Theory and Their  
Applications**


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**Friday PM, December 20, 2019**
**Room 4 - Ginkgo**

Organized by Yuan Guo Zhou

 Chaired by Kuisong Zheng, Bingyang Liang
 

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- 13:10 Analysis of the Effect of Obstacle on the Fields in Vertically Polarized Bounded Wave EMP Simulator  
*Xiang-Qin Zhu (Northwest Institute of Nuclear Technology); Wei Wu (Northwest Institute of Nuclear Technology); Liang Ma (Northwest Institute of Nuclear Technology);*
- 13:30 A Krylov-Subspace-Exponential-Based DGTD Method for Transient Multiscale Electromagnetic Simulations  
*Jiawei Wang (Xi'an Jiaotong University); Feng Chen (Xi'an Jiaotong University); Xi-Kui Ma (Xi'an Jiaotong University); Jinghui Shao (Xi'an Jiaotong University); Qing Huo Liu (Duke University);*
- 13:50 Study on Micro-motion Characteristics from Moving Metallic Targets with Lorentz-FDTD  
*Kuisong Zheng (Northwestern Polytechnical University); Shuting Qin (Northwestern Polytechnical University); Kang An (Northwestern Polytechnical University);*
- 14:10 Comparison of the Field in Two Types of Bounded Wave Electromagnetic Pulse Simulators  
*Linshen Xie (Northwest Institute of Nuclear Technology); Wei Wu (Northwest Institute of Nuclear Technology); Xiang-Qin Zhu (Northwest Institute of Nuclear Technology);*
- 14:30 A New Inversion Method Based on the Distorted Born Iterative Method for Ground Penetrating Radar  
*Bingyang Liang (Xi'an University of Science and Technology); Xiamen University); Chen Qiu (Xiamen University); Feng Han (Xiamen University); Mingwei Zhuang (Xiamen University); Qing Huo Liu (Duke University); Yuan Guo Zhou (Xi'an University of Science and Technology);*
- 14:50 Analysis of Modeling Scale for Multi-physics Simulation of Charge Collection Process in Diamond  
*Yong Li (Northwest Institute of Nuclear Technology); Haiyan Xie (Northwest Institute of Nuclear Technology); Jianguo Wang (Northwest Institute of Nuclear Technology);*

- 15:10 Field-splitting Matrix Exponential Method for Solving Electromagnetic Response of the Rotating Medium  
*Jinghui Shao (Xi'an Jiaotong University); Xi-Kui Ma (Xi'an Jiaotong University); Zhen Kang (Northwestern Polytechnical University); Jiawei Wang (Xi'an Jiaotong University);*

**15:30 Coffee Break**

- 16:00 Constrained Tree-cotree Splitting in the Spectral Element Method to Remove the Spurious DC Modes  
*Ke Chen (Xiamen University); Ronghan Hong (Xiamen University); Jie Liu (Xiamen University); Mingwei Zhuang (Xiamen University); Na Liu (Xiamen University); Qing Huo Liu (Duke University);*
- 16:20 Analysis of Radiation Field of a New Wire-grid TEM Horn  
*Xiang-Qin Zhu (Northwest Institute of Nuclear Technology); Wei Wu (Northwest Institute of Nuclear Technology); Guowei Zhang (Northwest Institute of Nuclear Technology); Libing Cai (Northwest Institute of Nuclear Technology);*

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**Session 4P4b**
**SC1: Emerging Numerical Methods and Their  
Applications**


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**Friday PM, December 20, 2019**
**Room 4 - Ginkgo**

Organized by Shunchuan Yang, Zhizhang (David) Chen

 Chaired by Shunchuan Yang
 

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- 16:40 Circuit Modeling and Performance Analysis of Invited Through-Silicon Vias for 3-D ICs  
*Wen-Sheng Zhao (Hangzhou Dianzi University);*
- 17:00 The Time-reversal Reconstruction of Sources of Different Times  
*Xiaoyao Feng (Dalhousie University); Zhizhang (David) Chen (University of Electronic Science and Technology of China); Jingcheng Liang (Southeast University);*
- 17:20 An Accurate and Efficient Single Source Surface Integral Equation for Multilayer Coated Conductor Modeling  
*Xiaochao Zhou (Beihang University); Zekun Zhu (Beihang University); Shunchuan Yang (Beihang University);*

- 17:40 FDTD(2,4) Method on Face-centered Cubic Grid  
*Guangzhi Chen (Beihang University); Shunchuan Yang (Beihang University); Donglin Su (Beihang University);*
- 18:00 Study on Multi-radiation Source Equivalence and Prediction  
*Jing Nie (Beihang University); Shunchuan Yang (Beihang University); Lilin Li (Beihang University); Hui Xu (Beihang University); Fan Zhang (Beihang University); Zihua Zhao (Beihang University); Jianghui Zhu (Chinese Flight Test Establishment); Donglin Su (Beihang University);*
- 14:50 Multiphysics (MP) Methods for Modeling and Simulating RF Devices/Circuits Breakdown under Intentional Electromagnetic Interference (IEMI)  
*Liang Zhou (Shanghai Jiao Tong University);*
- 15:10 Fast Computational ISAR Imaging Method for Electrically Large and Complex Objects  
*Chao-Fu Wang (National University of Singapore); Chun Yun Kee (National University of Singapore); Zi-Liang Liu (National University of Singapore);*
- 15:30 **Coffee Break**
- 16:00 Sparse Equivalent Electromagnetic Models for Predicting Installed Performance of Antennas  
*Huapeng Zhao (University of Electronic Science and Technology of China); Chaofeng Li (University of Electronic Science and Technology of China);*
- 16:20 Research on Space-time Anti Jam Filtering Technology for GPS Receiver  
*Wenwu Song (Science and Technology on Electromagnetic Compatibility Laboratory); Chen Huang (Science and Technology on Electromagnetic Compatibility Laboratory); Chengchao Hua (Science and Technology on Electromagnetic Compatibility Laboratory); Yi Liu (Science and Technology on Electromagnetic Compatibility Laboratory);*

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**Session 4P5**

**Computational Electromagnetics, Hybrid Methods**

**Friday PM, December 20, 2019**

**Room 5 - Banyan 1**

Chaired by Amedeo Capozzoli, Chao-Fu Wang

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- 13:10 Iterative Hybrid EFIE-MFIE-PO Algorithm for Efficiently Modeling Antenna/Platform Structure  
*Zi-Liang Liu (National University of Singapore); Chao-Fu Wang (National University of Singapore);*
- 13:30 Non-uniform FFT (NUFFT) Algorithms for Electromagnetic Applications  
*Amedeo Capozzoli (Università di Napoli Federico II); C. Curcio (Università di Napoli Federico II); A. Liseno (Università di Napoli Federico II);*
- 13:50 An MPI-based Parallel Multiphysics Discontinuous Galerkin Framework for Photoconductive Devices  
*Liang Chen (King Abdullah University of Science and Technology (KAUST)); Hakan Bagci (King Abdullah University of Science and Technology (KAUST));*
- 14:10 Electromagnetic Modeling of Multiple Objects with Near Couplings by an Effective Domain Decomposition Method  
*Mengmeng Li (Nanjing University of Science and Technology); Liben Wang (Nanjing University of Science and Technology); Xiaojie Zhang (Nanjing University of Science and Technology); Jie Zhang (Nanjing University of Science and Technology); Rushan Chen (Nanjing University of Science and Technology); Giuseppe Vecchi (Polytechnic of Turin);*
- 14:30 Transient Electromagnetic-thermal Co-simulation Based on DGTD Method  
*Pei Yu Chen (Xidian University); Huan Huan Zhang (Xidian University); Wei E. I. Sha (Zhejiang University);*
- 17:00 A New Method to Calculate the Propagation of an Arbitrary Plane Wave into a Multi-layer Structure  
*Zheng Zhu (Delft University of Technology); Adam J. L. Aurèle (Delft University of Technology); Yu Quan Zhang (Shenzhen University); Changjun Min (Shenzhen University); H. Paul Urbach (Delft University of Technology); Xiao-Cong Yuan (Shenzhen University);*
- 17:20 Radar Echo Simulation of Large Scenes Using Domain Decomposition Method  
*Xunwang Dang (Science and Technology on Electromagnetic Scattering Laboratory); Xiaosheng Han (Science and Technology on Electromagnetic Scattering Laboratory); Chao Wang (Science and Technology on Electromagnetic Scattering Laboratory); Hong-Cheng Yin (Science and Technology on Electromagnetic Scattering Laboratory); Yong-Qiang Liu (Science and Technology on Electromagnetic Scattering Laboratory);*

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**Session 4P6a**
**SC5: Tropical Cyclones Remote Sensing and Data Assimilation 2**


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**Friday PM, December 20, 2019**
**Room 6 - Banyan 2**

Organized by Xiaofeng Yang, Biao Zhang

 Chaired by Xiaofeng Yang
 

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- 13:10 Typhoon Observation and Flood Assessment by Using GNSS-R Example of China  
*Cheng Jing (Space Research Institute of Electronics and Information Technology);*
- 13:30 A Comparison of the Retrieval of Tropical Cyclone Surface Pressure Fields Using 60 GHz and 118.75 GHz Passive Microwave Observations  
*Zijin Zhang (National Space Science Center, Chinese Academy of Sciences); Xiaolong Dong (National Space Science Center, Chinese Academy of Sciences);*
- 13:50 Assimilation of ASCAT Sea Surface Wind Components with Correlated Observation Errors  
*Boheng Duan (National University of Defense Technology);*
- 14:10 Tropical Cyclone Forecasts with an Advanced Assimilation Scheme and Remote Sensing Data  
*Hong Li (Shanghai Typhoon Institute of CMA); Jingyao Luo (Shanghai Typhoon Institute of CMA); Mengting Xu (Shanghai Typhoon Institute of CMA);*
- 14:30 Deep Learning-based Fully Automatic Mapping of Hurricane-caused Coastal Flooding in SAR Imagery  
*Bin Liu (Shanghai Ocean University); Xiaofeng Li (Institute of Oceanography, Chinese Academy of Sciences); Gang Zheng (Second Institute of Oceanography, State Oceanic Administration);*
- 14:50 A Dynamical Observation Error Strategy for Assimilation of Sea Surface Wind Field  
*Yanlai Zhao (National University of Defense); Weimin Zhang (National University of Defense Technology); Kaijun Ren (National University of Defense); Boheng Duan (National University of Defense Technology);*
- 15:10 An Objective Technique for Typhoon Monitoring with Satellite Infrared Imagery  
*Chong Wang (Hohai University); Qing Xu (Hohai University); Xiaofeng Li (Institute of Oceanography, Chinese Academy of Sciences); Gang Zheng (Second Institute of Oceanography, State Oceanic Administration); Bin Liu (Shanghai Ocean University);*

 15:30 **Coffee Break**


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**Session 4P6b**
**SC5: Remote Sensing of Water and Energy Cycles**


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**Friday PM, December 20, 2019**
**Room 6 - Banyan 2**

Organized by Jian-Cheng Shi, Hui Lu

 Chaired by Hui Lu
 

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- 16:00 A Downscaling Approach for High-resolution Near-surface Freeze/Thaw State over the Tibetan Plateau  
*Ziqian Zhang (Aerospace Information research Institute, Chinese Academy of Sciences); Tianjie Zhao (Aerospace Information research Institute, Chinese Academy of Sciences); Jian-Cheng Shi (Institute of Remote Sensing Applications, Chinese Academy of Sciences);*
- 16:20 Temporal-spatial Study on Water Distribution in Beijing with Long-term Landsat Time Series  
*Chang Liu (Institute of Electronics, Chinese Academy of Sciences); Luyan Ji (Tsinghua University); Hairong Tang (Institute of Electronics, Chinese Academy of Sciences); Yongchao Zhao (Institute of Electronics, Chinese Academy of Sciences);*
- 16:40 Arctic Hydrological Cycles Revealed by Satellite Remote Sensing of Active-passive Synergy  
*Shiming Xu (Tsinghua University); Lu Zhou (Tsinghua University); Weixin Zhu (Tsinghua University); Jiping Liu (Institute of Atmospheric Physics, Chinese Academy of Sciences);*
- 17:00 Development of a Long Term Soil Moisture Product from Multisource Remote Sensing Data  
*Hui Lu (Tsinghua University); Panpan Yao (Tsinghua University); Kun Yang (Institute of Tibetan Plateau Research, Chinese Academy of Sciences);*
- 17:20 Soil Moisture Retrieval Based on FengYun-3D MicroWave Radiometer Imager  
*Chuen Siang Kang (Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences); Tianjie Zhao (Jointly Sponsored by Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences); Jian-Cheng Shi (Institute of Remote Sensing Applications, Chinese Academy of Sciences); Xiang Ji (Guizhou University);*

- 17:40 Comparative Analysis to the Lake Ice Phenology Changes of Mongolian Plateau, Tibetan Plateau and Northern Europe through Passive Microwave Remote Sensing  
*Xingxing Wang (Aerospace Information Research Institute, Chinese Academy of Sciences); Yubao Qiu (Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences); Pengfei Xie (Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences); Juha Lemmetyinen (Finnish Meteorological Institute and Aerospace Information Research Institute, Chinese Academy of Sciences); Wenshan Liang (Aerospace Information Research Institute, Chinese Academy of Sciences); Bin Cheng (Finnish Meteorological Institute and Aerospace Information Research Institute, Chinese Academy of Sciences);*
- 18:00 Atmospheric Correction to Passive Microwave Brightness Temperature in Snow-cover Mapping  
*Lijuan Shi (Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences); Yubao Qiu (Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences); Juha Lemmetyinen (Finnish Meteorological Institute (FMI)); Jian-Cheng Shi (Institute of Remote Sensing Applications, Chinese Academy of Sciences); Pengfei Xie (Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences);*
- 14:10 2D Light Emitting Devices for Silicon Photonics  
*Yue Wang (University of York); Thomas F. Krauss (University of York); Hanlin Fang (Sun Yat-Sen University); Juntao Li (Sun Yat-Sen University);*
- 14:30 Integration of Ge PD and Ge LED on the Same Active Layer  
*Yichi Zhang (Xidian University); Liming Wang (Xidian University); Tao Liu (Fudan University); Bin Shu (Xidian University); Rongxi Xuan (Xidian University); Changmin Zhang (Xidian University); Huiyong Hu (Xidian University);*
- 14:50 Amplified Spontaneous Emission from Silicon Nanocrystals in a Slab Waveguide Structure  
*Wenjie Zhou (Fudan University); Ming Lu (Fudan University); Chi Zhang (Fudan University); Yu-Cheng Zhang (Fudan University); Xiang Wu (Fudan University); Shuyu Zhang (Fudan University);*
- 15:10 All-silicon Distributed Feedback Lasers with a Wide Gain Range  
*Chi Zhang (Fudan University); Wenjie Zhou (Fudan University); Yu-Chen Zhang (Fudan University); Shu-Yu Zhang (Fudan University); Xiang Wu (Fudan University); Ming Lu (Fudan University);*
- 15:30 **Coffee Break**
- 16:00 High-performance III-V Lasers Monolithically Grown on Si Substrate  
*Invited Junjie Yang (University College London); Zizhuo Liu (University College London); Mingchu Tang (University College London); Ying Lu (University College London); Mengya Liao (University College London); Mickael Martin (Université Grenoble Alpes, CNRS, CEA-LETI, MINATEC, LTM); Thierry Baron (Université Grenoble Alpes, CNRS, CEA-LETI, MINATEC, LTM); Siming Chen (University College London); Alwyn J. Seeds (University College London); Huiyun Liu (University College London);*

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**Session 4P7**

**SC3: Silicon Lasers and Integrated Silicon Photonics**

**Friday PM, December 20, 2019**

**Room 7 - Banyan 3**

Organized by Xiang Wu, Shuyu Zhang

Chaired by Shuyu Zhang

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- 13:10 Er Silicate Amplifier and Laser for Silicon Photonics  
*Invited Xingjun Wang (Peking University);*
- 13:30 Multi-wavelength DFB Laser Array in InAs/GaAs  
*Invited Quantum Dot Materials Epitaxially Grown on Silicon Siyuan Yu (University of Bristol); Huiyun Liu (University College London); Ying Yu (Sun Yat-sen University); Yi Wang (Sun Yat-sen University);*
- 13:50 Efficient Light Emission from Er/O Doped Single-crystalline Silicon by Controlled Phase Transformation  
*Invited Yaping Dan (Shanghai Jiao Tong University);*

16:20 The Hybrid III-V on Si Photonic Platform Revisited:  
Invited Achievements and Challenges

*Joan Manel Ramirez (III-V Lab, a Joint Lab from Nokia, Thales and CEA); Alexandre Shen (III-V Lab, a Joint Lab from Nokia, Thales and CEA); Hajar Elfaiki (III-V lab, a Joint Lab from Nokia); Théo Verolet (III-V Lab, a Joint Lab from Nokia, Thales and CEA); C. Besançon (III-V Lab, a Joint Lab from Nokia, Thales and CEA); Delphine Néel (III-V Lab, a Joint Lab from Nokia, Thales and CEA); Karim Hassan (CEA LETI); Christophe Jany (CEA LETI); Stéphane Malhouître (CEA LETI); Christophe Caillaud (III-V Lab, a Joint Lab from Nokia, Thales and CEA); Dalila Make (III-V Lab, a Joint Lab from Nokia, Thales and CEA); Harry Gariah (III-V Lab, a Joint Lab from Nokia, Thales and CEA); Jean Decobert (III-V Lab, a Joint Lab from Nokia, Thales and CEA); Mohand Achouche (III-V Lab, a Joint Lab from Nokia, Thales and CEA);*

16:40 Laser Interference for Nano-material Growth and Microcavity Lasers  
Invited

*Chaoyuan Jin (Zhejiang University); Yunran Wang (University of Sheffield); Lingfang Wang (Zhejiang University); Im-Sik Han (University of Sheffield); Saraswati Behera (University of Sheffield); Si Chen (University of Sheffield); Henry Francis (University of Sheffield); Ri Lu (Zhejiang University); Mark Hopkinson (The University of Sheffield);*

17:00 Exploring Host Materials Doped with Rare-earth Ions  
Invited for Infrared Broadband Emission on Integrated Silicon Photonics

*Fei Xu (Shanghai University); Zuoru Dong (Fudan University); Beng Jiang (Shanghai University); Zit-ing Hu (Shanghai University); Zuimin Jiang (Fudan University); Run Xu (Shanghai University); Feng Hong (Shanghai University); Zhongquan Ma (Shanghai University);*

17:20 Edge-emitting First Order Distributed Feedback Si Nanocrystal Laser on Ridge Waveguide for Integrated Photonic Circuit

*Pan Zeng (Fudan University); Wenjie Zhou (Fudan University); Yu-Chen Zhang (Fudan University); Ming Lu (Fudan University); Xiang Wu (Fudan University); Shuyu Zhang (Fudan University);*

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### Session 4P8

#### SC2: Non-Hermitian Wave and Diffusive Systems

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Friday PM, December 20, 2019

Room 8 - Peony 1

Organized by Xuefeng Zhu, Jie Zhu

Chaired by Xuefeng Zhu

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13:10 An Anisotropic Order-3 Exceptional Point and Its Realization in an Acoustic System  
*Guancong Ma (Hong Kong Baptist University);*

13:30 Extremely Asymmetrical Acoustic Metasurface Mirror at the Exceptional Point  
*Yun Jing (North Carolina State University); Xu Wang (Tongji University); Xinsheng Fang (Tongji University); Dongxing Mao (Tongji University); Yong Li (Tongji University);*

13:50 Chiral Mode Conversion by Encircling Movable Exceptional Points  
*Qingjie Liu (Huazhong University of Science and Technology); Bing Wang (Huazhong University of Science and Technology);*

14:10 Spectrum Bloch Oscillation and One-way Localization in Time-varying Acoustic Systems  
*Xuefeng Zhu (Huazhong University of Science and Technology);*

14:30 Sonic Valley-Hall Topological Antennas and Non-Hermitian Second-order Topological Insulator  
*Zhiwang Zhang (Nanjing University); María Rosendo López (Universidad Carlos III de Madrid); Ying Cheng (Nanjing University); Xiao-Jun Liu (Nanjing University); Johan Christensen (Universidad Carlos III de Madrid);*

14:50 Topological Interface State and Valley-projected Edge State in Subwavelength Acoustic Systems  
*Zhiwang Zhang (Nanjing University); Ying Cheng (Nanjing University); Xiao-Jun Liu (Nanjing University); Johan Christensen (Universidad Carlos III de Madrid);*

15:10 Parity-time-symmetric Acoustic Beam Splitter  
*Tuo Liu (The Hong Kong Polytechnic University); Jie Zhu (The Hong Kong Polytechnic University);*

15:30 **Coffee Break**

- 16:00 Low-frequency Sound Absorbers via Spiral Metasurfaces with Recessed Necks  
*Yong Li (Tongji University); Sibó Huang (Tongji University); Zhiling Zhou (Tongji University); Dongting Li (Tongji University); Tuo Liu (The Hong Kong Polytechnic University); Xu Wang (Tongji University); Jie Zhu (The Hong Kong Polytechnic University);*
- 16:20 Anisotropic Exceptional Points of Arbitrary Order  
*Yi-Xin Xiao (Soochow University); Zhao-Qing Zhang (The Hong Kong University of Science and Technology); Zhi Hong Hang (Soochow University); Che Ting Chan (The Hong Kong University of Science and Technology);*
- 16:40 Chiral-reversing Single Emitter Radiation by Eigenstates Phase Locking  
*Renmin Ma (Peking University);*
- 17:00 Soft Metasurface with Gradient Acoustic Index  
*Yabin Jin (Tongji University); Raj Kumar (Université de Bordeaux); Olivier Poncelet (Université de Bordeaux); Olivier Mondain-Monval (Université de Bordeaux); Thomas Brunet (Université de Bordeaux);*
- 17:20 Scattering Manipulation in Non-hermitian Acoustic Systems  
*Bin Liang (Nanjing University);*
- 17:40 Quantum Description of Passive  $\mathcal{PT}$ -symmetric Waveguide Systems  
*Lucas Teuber (University of Rostock); Stefan Scheel (University of Rostock);*
- 18:00 Towards Topological Opto-phononics at the Nanoscale  
*Norberto Daniel Lanzillotti-Kimura (Université Paris Saclay); M. Esmann (Université Paris Saclay); G. Arregui (Catalan Institute of Nanoscience and Nanotechnology (ICN2), CSIC and BIST, Campus UAB); O. Ortiz (Université Paris Saclay); F. Lamberti (Université Paris Saclay); A. Rodriguez (Université Paris Saclay); D. Garcia-Fernandez (Catalan Institute of Nanoscience and Nanotechnology (ICN2), CSIC and BIST, Campus UAB); A. Lemaitre (Université Paris Saclay);*

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**Session 4P9a**
**SC4: Advanced MM-Wave and THz Integrated Circuits and Antennas 2**


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**Friday PM, December 20, 2019**
**Room 9 - Peony 2**

Organized by Ying-Jiang Guo, Kai-Da Xu

 Chaired by Ying-Jiang Guo
 

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- 13:10 Gain and Bandwidth Enhancement of THz CMOS On-chip Antenna  
*Changmin Lee (Sogang University); Jinwoo Shin (Agency for Defense Development); Jinho Jeong (Sogang University);*
- 13:30 A CMOS Millimeter-wave Power Amplifier Using a Back-off Efficiency Enhancement Technique  
*Seungwon Park (Korea University); Hyunkyoo Lee (Korea University); Sanggeun Jeon (Korea University);*
- 13:50 A Q-band Direct Injection-locked Frequency Divider for Wireless Communications Using a 65-nm Bulk CMOS Process  
*Hyunkyoo Lee (Korea University); Seungwon Park (Korea University); Eunjung Kim (Korea University); Taehoon Kim (Agency for Defense Development); Sanggeun Jeon (Korea University);*

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**Session 4P9b**
**THz Technology**


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**Friday PM, December 20, 2019**
**Room 9 - Peony 2**

 Chaired by Ying-Jiang Guo, Xiaojun Wu
 

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- 14:10 Broadband and High-efficiency Circular-polarized Terahertz Frequency Scanning Metasurface  
*Binglian Xiao (University of Electronic Science and Technology of China); Feng Lan (University of Electronic Science and Technology of China); Ziqiang Yang (University of Electronic Science and Technology of China); Pinaki Mazumder (University of Michigan); Zongjun Shi (University of Electronic Science and Technology of China); Yihui Xu (University of Electronic Science and Technology of China); Hongxin Zeng (University of Electronic Science and Technology of China); Jin Yin (University of Electronic Science and Technology of China);*

- 14:30 Electrically Discretized Sub-terahertz Phase Shifter Based on Novel Independent Phase Delay Meta-atoms  
*Ziqi Zhang (University of Electronic Science and Technology of China); Feng Lan (University of Electronic Science and Technology of China); Pinaki Mazumder (University of Michigan); Luyang Wang (University of Electronic Science and Technology of China); Hongxin Zeng (University of Electronic Science and Technology of China); Ziqiang Yang (University of Electronic Science and Technology of China); Tianyang Song (University of Electronic Science and Technology of China); Jing Yin (University of Electronic Science and Technology of China); Zongjun Shi (University of Electronic Science and Technology of China); Binglian Xiao (University of Electronic Science and Technology of China);*
- 14:50 Terahertz Surface Emission Spectroscopy and Its Applications  
*Xinlong Xu (Northwest University); Li Wang (Institute of Physics, Chinese Academy of Sciences); Jintao Bai (Northwest University); Yuanyuan Huang (Northwest University); Lipeng Zhu (Northwest University);*
- 15:10 Generation of mJ-Level Terahertz Pulses and Its Applications  
*Xiaojun Wu (Beihang University);*
- 15:30 **Coffee Break**

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**Session 4P9c**

**Microstrip Antennas, Array Antennas, Theory and Radiation**

**Friday PM, December 20, 2019**

**Room 9 - Peony 2**

Chaired by Yanhui Liu, Yingsong Li

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- 16:00 Time-modulated Antenna Array Pattern Synthesis by Using the Least-square Active Element Pattern Expansion Method  
*Jinxiang Zheng (Xiamen University); Yanhui Liu (Xiamen University); Dingzhao Chen (Xiamen University); Qing Huo Liu (Duke University);*

- 16:20 Secure Digital Wireless Communication Based on Time Modulated Antenna Array with Random Time Sequence  
*Q. W. Zeng (University of Electronic Science and Technology of China); R. Zhao (University of Electronic Science and Technology of China); Peng Yang (University of Electronic Science and Technology of China); Shiwen Yang (University of Electronic Science and Technology of China);*
- 16:40 Antenna Selection Technique for Constructing Arrays Applied in Spatial Channel Characterization  
*Min Hui Song (Tongji University); Zepeng Zhao (Tongji University); Xuefeng Yin (Tongji University); Lin Jian Zhang (Huawei Technologies Corporation);*
- 17:00 Spectral Energy Efficiency Analysis for Massive MIMO under Imperfect Channel State Information  
*Lusekelo Kibona (Huazhong University of Science and Technology (HUST)); Jian Liu (Huazhong University of Science and Technology (HUST)); Yingzhuang Liu (Huazhong University of Science and Technology (HUST));*
- 17:20 Low Frequency Wide Bandwidth Antenna Design Using the Concept of Lumped Elements Integration  
*Yingsong Li (Harbin Engineering University); Yinfeng Xia (Harbin Engineering University); Jialin Shi (Naval Research Academy); Ping Xu (Harbin Engineering University); Tao Jiang (Harbin Engineering University);*
- 17:40 Efficient Near Field Antenna Characterization by SVO  
*Amedeo Capozzoli (Università di Napoli Federico II); Claudio Curcio (Università di Napoli Federico II); Angelo Liseno (Università di Napoli Federico II);*
- 18:00 Omnidirectional Dual-polarized Antenna for Space-limited Systems  
*Yue Li (Tsinghua University); Peiqin Liu (Tsinghua University); Zhijun Zhang (Tsinghua University);*

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**Session 4P10**

**Filters, Interconnect, Microwave and Millimeter Wave Circuits and Device**

**Friday PM, December 20, 2019**

**Room 10 - Jasmine**

Chaired by Zhewang Ma, Chenming (Jim) Zhou

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- 13:10 Design of Compact Ka-band Microstrip BPF Using Mode Exciting Technology  
*Amjad Altaf (Beihang University); Xi Chen (Beihang University); Umar Dilshad (Beihang University); Jungang Miao (Beihang University);*

- 13:30 Tri-band Superconducting Differential Bandpass Filter Using Shunted-line Stub-loaded Multimode Resonator  
*Baoping Ren (East China Jiaotong University); Zhe-wang Ma (Saitama University); Xuehui Guan (East China Jiaotong University); Haiwen Liu (Xi'an Jiao-tong University);*
- 13:50 The Design of Interconnection for High Speed Hybrid PCB  
*Chenggang Zhang (Nanjing Research Institute of Electronic Technology); Weitao Lin (Nanjing Research Institute of Electronic Technology);*
- 14:10 Influence of Fractal Form on Electromagnetic Characteristics of Flexible Chip's L-shaped Interconnect Structures  
*Ruijie Fang (Hebei University of Technology); Xia Wang (Hebei University of Technology); Yuming Zhang (Hebei University of Technology); Longfei Zheng (Hebei University of Technology); Meng Jun Wang (Hebei University of Technology);*
- 14:30 A V-band Quadrupler Gaas MMIC with Effective Harmonics Rejection in 0.15  $\mu\text{m}$  pHEMT Process  
*Amjad Altaf (Beihang University); Xi Chen (Beihang University); He Wang Dong (Beihang University); Umar Dilshad (Beihang University); Jungang Miao (Beihang University);*
- 14:50 High Performance GaN Based Switching and Linear Power Amplifier for Airborne Application  
*Hamid Raza Dhanyal (Beijing Institute of Technology); Weidong Hu (Beijing Institute of Technology); Ali Ahmed (CESAT); Hamza Nawaz (Comsats Institute of Information Technology (CIIT)); Waseem Shahzad (Beijing Institute of Technology);*
- 15:10 High Efficiency GaN HEMT Class F Power Amplifier for S-band Telemetry Application  
*Hamid Raza Dhanyal (Beijing Institute of Technology); Weidong Hu (Beijing Institute of Technology); Ali Ahmed (CESAT); Hamza Nawaz (Shanghai Jiao-Tong University); M. Waseem (Beijing Institute of Technology);*
- 15:30 **Coffee Break**
- 16:00 Class F-C Power Amplifier with 2nd Harmonic Control at the Input  
*Xiaoxiao Li (China Academy of Science and Technology); Paolo Colantonio (University of Rome Tor Vergata); Giannini Franco (Universita degli Studi di Roma "Tor Vergata"); Hongxi Yu (China Academy of Space Technology (CAST));*
- 16:20 Digital Predistortion for Wideband Wireless Power Amplifiers Using Real-value Neural Network with Attention Mechanism  
*Zhijun Liu (Beijing University of Posts and Telecommunications); Xin Hu (Beijing University of Posts and Telecommunications); Ting Liu (Beijing University of Posts and Telecommunications); Weidong Wang (Beijing University of Posts and Telecommunications);*
- 16:40 Development of Active Power Filter Based on On-line Identification Technology  
*Chen Huang (Science and Technology on Electromagnetic Compatibility Laboratory); Chengchao Hua (Science and Technology on Electromagnetic Compatibility Laboratory); Wenwu Song (Science and Technology on Electromagnetic Compatibility Laboratory); Yi Liu (Science and Technology on Electromagnetic Compatibility Laboratory);*
- 17:00 Higher-order Topological States in a Spatio-temporal Topoelectrical Circuit  
*Xiang Ni (City College of the City University of New York); Zhicheng Xiao (University of Texas at Austin); Andrea Alù (City University of New York);*

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**Session 4P11**
**Photonics and Integrated Optics**
**Friday PM, December 20, 2019**
**Room 11 - Lotus 1**

 Chaired by Guoyan Dong, Shiming Gao
 

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- 13:10 Inverse Design of On-chip Ultracompact Multimode Silicon Photonic Devices  
*Weijie Chang (Huazhong University of Science and Technology); Yuexing Su (Huazhong University of Science and Technology); Minming Zhang (Huazhong University of Science and Technology);*
- 13:30 Precise Distance Measurement via Single-beam Interferometry of Photonic Crystal  
*Pengwu Qiao (University of Chinese Academy of Sciences); Guoyan Dong (University of Chinese Academy of Sciences);*
- 13:50 High Quality LiNbO<sub>3</sub> Photonic Crystal Nanocavities and Photorefractive Quenching Effect  
*Hanxiao Liang (Suzhou Lycore Technologies Co., Ltd.); Mingxiao Li (University of Rochester); Yang He (University of Rochester); Qiang Lin (University of Rochester);*



- 14:10 90° Bending Optical Switch Based on Dielectric Meta-resonator  
*Shuhui Zheng (University of Chinese Academy of Sciences); Guoyan Dong (University of Chinese Academy of Sciences);*
- 14:30 Optical Ranging Using Lithium Niobate Electro-optic Frequency Combs  
*Yifan Qi (Tsinghua University);*
- 14:50 Design and Characterization of Titanium Dioxide Waveguides and Microring Resonators at 2  $\mu\text{m}$  Wavelengths  
*Zhihua Tu (Zhejiang University); Taoce Yin (Zhejiang University); Daru Chen (The Hong Kong Polytechnic University); Shiming Gao (Zhejiang University); Xi-aowei Guan (Technical University of Denmark);*
- 15:30 **Coffee Break**
- 16:00 Classified Segmentation Method of Carbon Fiber Composites Based on Electrical Impedance Tomography  
*Wenru Fan (Civil Aviation University of China); Chi Wang (Civil Aviation University of China);*
- 16:20 Blue and Orange Two-color CW Laser Based on Single-pass Second-Harmonic and Sum-frequency Generation in MgO:PPLN  
*Dismas K. Choge (Fujian Institute of Research on the Structure of Matter, Chinese Academy of Sciences); Huaixi Chen (Fujian Institute of Research on the Structure of Matter, Chinese Academy of Sciences); Yi-Bin Xu (Fujian Institute of Research on the Structure of Matter, Chinese Academy of Sciences); Lei Guo (Fujian Institute of Research on the Structure of Matter, Chinese Academy of Sciences); Guang-Wei Li (Fujian Institute of Research on the Structure of Matter, Chinese Academy of Sciences); Wanguo Liang (Fujian Institute of Research on the Structure of Matter, Chinese Academy of Sciences);*
- 16:40 Ion Slicing and Layer Transferring for the Heterogeneous Integration  
*Xin Ou (Shanghai Institute of Microsystem and Information Technology, CAS);*

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**Session 4P12**  
**SC2: Curved Space and Transformation Optics**

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**Friday PM, December 20, 2019**

**Room 12 - Lotus 2**

Organized by Huanyang Chen, Jensen Li

Chaired by Huanyang Chen, Jensen Li

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- 13:10 Singular Transformation Optics for Panoramic Lens  
Invited  
*Qingze Tan (Zhejiang University); Rongrong Zhu (Zhejiang University); Bin Zheng (Zhejiang University); Huaping Wang (Zhejiang University); Hongsheng Chen (Zhejiang University);*
- 13:30 Universal Integrated Multimode Photonic Devices  
Invited Based on Transformation Optics  
*Dingshan Gao (Huazhong University of Science and Technology); Shuyi Li (Huazhong University of Science and Technology); Yangyang Zhou (Xiamen University); Huanyang Chen (Xiamen University);*
- 13:50 Transformation Optics Based on Metasurface  
Invited  
*Chong Sheng (Nanjing University); Hui Liu (Nanjing University); Shi-Ning Zhu (Nanjing University);*
- 14:10 Image Processing with a Photonic Crystal Slab Device  
Invited  
*Cheng Guo (Stanford University); Meng Xiao (Wuhan University); Shanhui Fan (Stanford University);*
- 14:30 Manipulating Light Rays in Two Dimensional Space  
*Lin Xu (Anhui University); Huanyang Chen (Xiamen University);*
- 14:50 Changing the Appearance of Sources  
*Pengfei Zhao (Xiamen University); Huanyang Chen (Xiamen University);*
- 15:10 Self-focusing Effect of a Square Maxwell's Fish-eye Lens  
*Sicen Tao (Xiamen University); Yangyang Zhou (Xiamen University); Huanyang Chen (Xiamen University);*
- 15:30 **Coffee Break**
- 16:00 Mimicking Wormhole with Curved Space  
Invited  
*Hui Liu (Nanjing University); Run Qiu He (Nanjing University);*
- 16:20 Pseudo-local Photonic Media and Transformation Optics  
Invited  
*Tongtong Song (Nanjing University); Jie Luo (Nanjing University); Hongchen Chu (Nanjing University); Yun Lai (Nanjing University);*

- 16:40 Photonic Doping and Ideal Transformation Optical  
Invited Devices  
*Yu Luo (Nanyang Technological University); Baile Zhang (Nanyang Technological University); Youming Zhang (Nanyang Technological University); John B. Pendry (Imperial College London);*
- 17:00 The Study of Singular Plasmonic Metasurfaces with  
Transformation Optics  
*Fan Yang (Imperial College London); Yao-Ting Wang (Imperial College London); Paloma Arroyo Huidobro (Imperial College London); John B. Pendry (Imperial College London);*
- 17:20 Illusion Elastics Based on a Perfect Undetectable  
Acoustic Device  
*Yali Zeng (Xiamen University); Yangyang Zhou (Xiamen University); Huanyang Chen (Xiamen University);*
- 17:40 Transforming Wavefront with Exceptional Point-  
Invited based Metasurfaces  
*Ho Ming Leung (The Hong Kong University of Science and Technology); Wensheng Gao (The Hong Kong University of Science and Technology); Ranran Zhang (Qingdao University of Science and Technology); Qiling Zhao (Qingdao University of Science and Technology); Xia Wang (Qingdao University of Science and Technology); Che Ting Chan (The Hong Kong University of Science and Technology); Jensen Li (Hong Kong University of Science and Technology); Wing Yim Tam (Hong Kong University of Science and Technology);*
- 13:50 Visual Measurement of Terahertz Power Based on  
Invited Graphene and Cholesteric Liquid Crystal Microcapsule  
*Ruiwen Xiao (Nanjing University of Posts and Telecommunications); Lei Wang (Nanjing University of Posts and Telecommunications);*
- 14:10 Chiral Optical Tamm States at the Interface be-  
Invited tween a Cholesteric and a Multilayer Polarization-Preserving Anisotropic Mirror  
*Natalya Victorovna Rudakova (Federal Research Center-Krasnoyarsk Scientific Center Siberian Branch Russian Academy of Science); Rashid Gelmedinovich Bikbaev (Federal Research Center-Krasnoyarsk Scientific Center Siberian Branch Russian Academy of Science); Ivan Vladimirovich Timofeev (Federal Research Center-Krasnoyarsk Scientific Center Siberian Branch Russian Academy of Science); Maxim Vladimirovich Pyatnov (Federal Research Center-Krasnoyarsk Scientific Center Siberian Branch Russian Academy of Science); Stepan Yakovlevich Vetrov (Siberian Federal University); Wei Lee (National Chiao Tung University);*
- 14:30 Ferroelectric Liquid Crystal Pancharatnam-Berry  
Invited Lens  
*Ying Ma (Northwestern Polytechnical University); Alwin M. W. Tam (Hong Kong University of Science and Technology); Liangyu Shi (Hong Kong University of Science and Technology); Vladimir G. Chigrinov (Hong Kong University of Science and Technology); Hoi Sing Kwok (Hong Kong University of Science and Technology); Jian-Lin Zhao (Northwestern Polytechnical University);*

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**Session 4P13a**

**SC3: Liquid Crystals for Advanced Photonics  
2**

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**Friday PM, December 20, 2019**

**Room 13 - Lotus 3**

Organized by Lujian Chen, Zhigang Zheng

Chaired by Lujian Chen, Zhigang Zheng

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- 13:10 Three-dimensional Solitons as Director Bullets in Ne-  
Invited matics  
*Bing-Xiang Li (Kent State University); Rui-Lin Xiao (Kent State University); Sathyanarayana Paladugu (Kent State University); Sergij V. Shiyonovskii (Kent State University); Oleg D. Laurentovich (Kent State University);*
- 13:30 Auto-transition of Vortex- to Vector-Airy Beams via  
Invited Liquid Crystal q-Airy-plates  
*Bing-Yan Wei (Northwestern Polytechnical University);*
- 14:50 Electrically Tunable-focusing Liquid Crystal Mi-  
crolens Array with Simple Electrode  
*Li-Lan Tian (Sichuan University); Fan Chu (Beihang University); Rui Li (Sichuan University); Wei Duan (Beihang University); Qiong-Hua Wang (Beihang University);*
- 15:10 In Situ Self-assembled Vertical Alignment of Nematic  
Liquid Crystals and Tilt State Stabilization Using  
Azo-dye and RM Additives  
*Vineet Kumar (Southern University of Science and Technology); Yanjun Liu (Southern University of Science and Technology);*
- 15:30 **Coffee Break**

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**Session 4P13b**
**SC3: Advanced Materials and Devices for  
Optical Applications**


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**Friday PM, December 20, 2019**
**Room 13 - Lotus 3**

 Organized by Zhongzhu Liang, Tarik Bourouina  
 Chaired by Zhongzhu Liang
 

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- 16:00 Highly Focused Fluorescence Emission Generated by  
Invited a Cylinder on Sharp Convex Gold Groove  
*Zhihui Chen (Taiyuan University of Technology);  
 Linwei Li (Taiyuan University of Technology);  
 Guang Feng (Taiyuan University of Technology);  
 Hua Shi (Taiyuan University of Technology);  
 Yang Wang (Shanxi University); Yibiao Yang  
 (Taiyuan University of Technology);*
- 16:20 Small-period Ultra-broadband Long-wavelength In-  
 frared Metamaterial Absorber  
*Zheng Qin (Changchun Institute of Optics, Fine Me-  
 chanics and Physics, Chinese Academy of Sciences);  
 Dejia Meng (Changchun Institute of Optics, Fine Me-  
 chanics and Physics, Chinese Academy of Sciences);  
 Ying Xiong (Changchun Institute of Optics, Fine Me-  
 chanics and Physics, Chinese Academy of Sciences);  
 Yinhui Tang (Changchun Institute of Optics, Fine  
 Mechanics and Physics, Chinese Academy of Sci-  
 ences); Yu Zhou (Changchun Institute of Optics, Fine  
 Mechanics and Physics, Chinese Academy of Sci-  
 ences); Xiaoyan Shi (Changchun Institute of Optics,  
 Fine Mechanics and Physics, Chinese Academy of Sci-  
 ences); Yuhao Zhang (Changchun Institute of Optics,  
 Fine Mechanics and Physics, Chinese Academy of Sci-  
 ences); Enzhu Hou (Changchun Institute of Optics,  
 Fine Mechanics and Physics, Chinese Academy of Sci-  
 ences); Zhongzhu Liang (Changchun Institute of Op-  
 tics, Fine Mechanics and Physics, Chinese Academy  
 of Sciences);*
- 16:40 Dilute Nitride-based Resonant Cavity Light Emitter  
 for Optical Communication  
*Fahrettin Sarcan (Istanbul University); Yue Wang  
 (University of York); Thomas F. Krauss (Univer-  
 sity of York); Tulin Erucar (Istanbul University);  
 Ayşe Erol (Istanbul University);*
- 17:00 All-optical Mach-Zehnder Switch on a Graphene-on-  
 silicon Nitride Chip  
*Can Zhang (Shanghai Jiao Tong University); Tao Guo  
 (Shanghai Jiao Tong University); Ciyuan Qiu (Shang-  
 hai Jiao Tong University);*

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**Session 4P14a**
**SC3: Advanced Long Wave Photonic  
Platforms & Applications 2**


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**Friday PM, December 20, 2019**
**Room 14 - Lily**

 Organized by Xin Gai, Rongping Wang, Wen Lei  
 Chaired by Xin Gai, Rongping Wang
 

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- 13:10 III-V Semiconductor Based Mid-IR Spectrometer on  
Invited Chip  
*Senthil Murugan Ganapathy (University of Southamp-  
 ton); Vasileios Mourgelas (University of Southamp-  
 ton); James S. Wilkinson (University of Southamp-  
 ton);*
- 13:30 Silicon Photonic Components for 2- $\mu$ m Band Optical  
Invited Communications  
*Ke Xu (Harbin Institute of Technology);*
- 13:50 Mid-Infrared On-chip Fourier Transform Spectrome-  
Invited ter  
*Yi Zou (ShanghaiTech University);*
- 14:10 Large Nonlinearity, Low Loss Chalcogenide Glass  
Waveguide and Resonator in Near Infrared  
*Wei Zhang (Ningbo University); Yang Zhao (Ningbo  
 University); Chengdong Li (Ningbo University);  
 Jie Zhou (Ningbo University); Peipeng Xu (Ningbo  
 University);*
- 14:30 All-infrared Supercontinuum Generation in a Single-  
Invited mode Se-based Novel Chalcohalide Glass Fiber  
*Xunsi Wang (Ningbo University); Kai Jiao (Ningbo  
 University); Zheming Zhao (Ningbo University);  
 Rongping Wang (Ningbo University); Qihua Nie  
 (Ningbo University);*
- 14:50 Non-volatile Integrated Silicon Photonic Switches Us-  
Invited ing Phase-change Materials  
*Peipeng Xu (Ningbo University); Jiajiu Zheng (Uni-  
 versity of Washington); Jonathan Doyle (Silicon  
 Photonic Products Division); Arka Majumdar (Uni-  
 versity of Washington);*
- 15:10 High **Q**-factor and Low Mode Volume Bowtie Pho-  
 tonic Crystal Nanobeam Cavity in Silicon  
*Jun Zhou (Ningbo University); Jiajiu Zheng (Uni-  
 versity of Washington); Zhuoran Fang (University  
 of Washington); Peipeng Xu (Ningbo University);  
 Arka Majumdar (University of Washington);*
- 15:30 **Coffee Break**

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**Session 4P14b**  
**SC1&SC3: Advanced Computational**  
**Electromagnetic Methods for Nanophotonics**

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**Friday PM, December 20, 2019**

**Room 14 - Lily**

Organized by Na Liu, Jiefu Chen, Guoxiong Cai

Chaired by Na Liu, Jiefu Chen

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- 16:00 A Method for Calculating Fourier Expansion Coefficients in RCWA  
*Tianjuan Yang (Huazhong University of Science and Technology); Xiuguo Chen (Huazhong University of Science and Technology); Yating Shi (Huazhong University of Science and Technology); Yaoming Shi (Shanghai Precision Measurement Semiconductor Technology, Inc); Shiyuan Liu (Huazhong University of Science and Technology);*
- 16:20 Full-vectorial Mixed Spectral Element Method for the Analysis of 2D Photonic Crystals with Arbitrary 3D Anisotropy  
*Yina Wu (Xiamen University); Na Liu (Xiamen University);*
- 16:40 The Pure TE and TM Modes in the Closed Waveguide Filled with a Homogenous, Anisotropic and Lossless Medium  
*Wei Jiang (Institution of Electromagnetics and Acoustics); Na Liu (Xiamen University); Jie Liu (Xiamen University); Qing Huo Liu (Duke University);*
- 17:00 The Efficient Mixed SEM with the Surface Current Boundary Condition (SCBC) for Plasmonic Waveguides  
*Xiaoyu Lin (Xiamen University); Na Liu (Xiamen University);*
- 17:20 The Discontinuous Galerkin Time Domain Method for Computational Plasmonics  
*Qiang Ren (Beihang University);*
- 17:40 Finite Element Numerical Mode Matching Method for Microscopic Metasurfaces  
*Jie Liu (Xiamen University); Na Liu (Xiamen University); Qing Huo Liu (Duke University);*
- 18:00 Self-consistent Simulation of Nonlinear Photonics in Metamaterials and Metasurfaces  
*Guoxiong Cai (Xiamen University); Jin Yao (Xiamen University); Huiqing Hong (Xiamen University); Qing Huo Liu (Duke University);*

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**Session 4P0**  
**Poster Session 6**

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**Friday PM, December 20, 2019**

**14:00 PM - 18:00 PM**

**Room Corridor**

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- 1 Spatial Dispersion Relation in the Application of Super-resolution Testing and Imaging  
*Qiang Gao (Science and Technology on Antenna Microwave Laboratory); Bao Jun Niu (Nanjing Research Institute of Electronic Technology);*
- 2 Low-RCS and High Gain Fabry-Perot Patch Antenna Based on the Nonreciprocity of Spoof Surface Plasmon Polariton Structure  
*Jiaheng Yang (Air Force Engineering University); Jiafu Wang (Air Force Engineering University); Jieqiu Zhang (Air Force Engineering University); Wei Jiang (Air Force Engineering University); Xinghua Li (Air Force Engineering University); Weihan Li (Air Force Engineering University);*
- 3 1-bit Reconfigurable Unit Cell for Direct-radiating Programmable Metasurfaces  
*Xudong Bai (Shanghai Scientific Instrument Factory); Mengmeng Sun (Shanghai Aerospace Electronics Co., Ltd.); Yanting Lv (Shanghai Aerospace Electronics Co., Ltd.); Anjie Cao (Shanghai Institute of Satellite Engineering); Chong He (Shanghai Jiao Tong University); Weiren Zhu (Shanghai Jiao Tong University);*
- 4 Research on Wide Spectrum Terahertz Quantum Well Detector  
*Ruizhi Li (Key Laboratory of Terahertz Solid-State Technology); Z. L. Fu (Key Laboratory of Terahertz Solid-State Technology); D. X. Shao (University of Shanghai for Science and Technology); L. L. Gu (University of Shanghai for Science and Technology); Z. Y. Tan (Key Laboratory of Terahertz Solid-State Technology); J. C. Cao (Key Laboratory of Terahertz Solid-State Technology);*
- 5 Sensitivity Enhancement of Microstrip Patch Sensor Antenna Using Radiating-edge Slot  
*Junho Yeo (Daegu University); Jong-Ig Lee (Dongseo University);*
- 6 Integration of FEC Channel-coding Schemes Based on the Bose-Chaudhuri-Hocquenghem (BCH) Code for WDM Fiber Optical Communication Systems  
*Svitlana Matsenko (Riga Technical University); Sandis Spolitis (Riga Technical University); Vjaceslavs Bobrovs (Riga Technical University);*

- 7 The Design of a High Precision Capacitive Pressure Sensor Based on Comb Electrode  
*Xuejiao Li (Xi'an Jiaotong University); Libo Zhao (Xi'an Jiaotong University); Xiangguang Han (Xi'an Jiaotong University); Ping Yang (Xi'an Jiaotong University); Guozi Luo (Xi'an Jiaotong University); Nan Zhu (Xi'an Jiaotong University); Zhikang Li (Xi'an Jiaotong University); Songli Wang (Flight Automatic and Control Institute); Xin Yan (Flight Automatic and Control Institute); Zhuangde Jiang (Xi'an Jiaotong University);*
- 8 The Analysis of the Impact of Measurement Reference Points in the Assessment of Internet Access Service Quality  
*Inga Smirnova (Public Utilities Commission); Elmars Lipenbergs (Riga Technical University); Vjaceslavs Bobrovs (Riga Technical University); Girts Ivanovs (Riga Technical University);*
- 9 On-chip Electro-optic Modulator and Optical Delay Line Based on Active Microring Resonator  
*Dapeng Liu (Institute of Semiconductors, Chinese Academy of Sciences); Jian Tang (Institute of Semiconductors, Chinese Academy of Sciences); Nuan Nuan Shi (Institute of Semiconductors, Chinese Academy of Sciences); Yao Meng (Institute of Semiconductors, Chinese Academy of Sciences); Ming Li (Institute of Semiconductors, Chinese Academy of Sciences);*
- 10 A 220 GHz GaN HEMT Power Amplifier  
*Yan Sun (Nanjing Electronic Devices Institute); Shaobing Wu (Nanjing Electronic Devices Institute); Haiyan Lu (Nanjing Electronic Devices Institute); Yuechan Kong (Nanjing Electronic Devices Institute); Tangsheng Chen (Nanjing Electronic Devices Institute); Zhonghui Li (Nanjing Electronic Devices Institute); Qingsheng Zeng (Nanjing University of Aeronautics and Astronautics);*
- 11 Study on Polarization Detection Strain Sensor System Using Neural Networks When Light Path Changes  
*Yao Zhao (Henan Polytechnic University); Lili Yuan (Henan Polytechnic University); Shinya Sato (Muran Institute of Technology);*
- 12 Design of W-band Novel Mode Transducer Based on Circularly Polarized TE<sub>11</sub> Mode  
*Jie Zhan (University of Electronic Science and Technology of China); Ming Zhou Zhan (University of Electronics Science and Technology of China);*
- 13 A Wideband Differential Slot Antenna with a Notched Band  
*Xinyi Wang (China Ship Development and Design Center); Ming Zhang (China Ship Development and Design Center); Mingliang Huang (China Ship Development and Design Center);*
- 14 An 8-element Multi-band MIMO Antenna with High Isolation for 5G Smartphone Application  
*Zhipeng Zhao (Xidian University); Feng Liu (Xidian University); Jian Ren (Xidian University); Ying Zeng Yin (Xidian University);*
- 15 A High-gain High-precision Dynamic Comparator with Dynamic Cascading Technique  
*Min Jun Li (Tongji University); Si Ce Wang (Tongji University); Bing Bing Yao (Tongji University); Jun Li (Tongji University); Lei Qiu (Tongji University);*
- 16 An ACS-fed Multi-band Antenna for 5G and WLAN Applications  
*Peilin Li (China Academy of Electronics and Information Technology); Xiuling Ding (Beijing Institute of Aerospace Systems Engineering); Chengyuan Liu (China Academy of Electronics and Information Technology); Yingsong Li (Harbin Engineering University);*
- 17 Creation of Multi-segmented Optical Tunnel  
*Xuehua Lin (Quanzhou Normal University); Yan-Zhong Yu (Quanzhou Normal University); Qi Cao (Quanzhou Normal University);*
- 18 Electron Motion of an Annular Relativistic Beam in Coaxial Smooth Waveguide under Coaxial Periodic Permanent Magnet  
*Xiaoling Wu (Tsinghua University); Changhua Chen (Northwest Institute of Nuclear Technology); Yan Teng (Northwest Institute of Nuclear Technology); Ping Wu (Northwest Institute of Nuclear Technology); Dewen Yang (Northwest Institute of Nuclear Technology); Shuang Li (Northwest Institute of Nuclear Technology); Dongyang Wang (Northwest Institute of Nuclear Technology);*
- 19 1–6 GHz Microwave Computer Tomography for Brain Imaging  
*Kazuki Fukushima (Kansai University); Kansei Terashima (Kansai University); Makoto R. Asakawa (Kansai University); Soichiro Yamaguchi (Nihon University);*
- 20 A 204–234.5-GHz Wideband Amplifier in 65-nm CMOS  
*Hao Qi (Hangzhou Dianzi University); Jincui Wen (Hangzhou Dianzi University); Donggang An (Hangzhou Dianzi University); Xun Wang (Hangzhou Dianzi University);*

- 21 8–12 GHz Microwave Computer Tomography System for Detecting Foreign Bodies in Food Inspection  
*Misato Hasegawa (Kansai University); Makoto R. Asakawa (Kansai University); Soichiro Yamaguchi (Nihon University);*
- 22 Compact Dual-wideband Antenna Array for the 5G N77/N78/N79  $8 \times 8$  MIMO Operation in the 5G Mobile Terminals  
*Hongwei Wang (Shanghai University); Guangli Yang (Shanghai University);*
- 23 A New Dual-band FSS with Stable Frequency Responses  
*Jingjing Fan (State Grid Shanxi Electric Power Research Institute); Tao Jin (State Grid Shanxi Electric Power Research Institute); Ji Chong Liang (State Grid Shanxi Electric Power Research Institute);*
- 24 A Novel Low-profile Tightly-coupled Antenna Array  
*Xiao Jia Huang (Tongji University); Feng Xie (Tongji University); Mei Song Tong (Tongji University);*
- 25 A Circular Waveguide Sensor for Concentration Detection of Liquid Compounds  
*Yun Jie Mao (Tongji University); Zi Ruo Chen (Tongji University); Mei Song Tong (Tongji University);*
- 26 Development of Tunable Quasi-Yagi Antenna Using Reconfigurable Balun Structure  
*Nan-Wei Chen (Yuan Ze University);*
- 27 Printed Graphene Film with High Conductivity for Antenna Application  
*Bangqi Huang (Wuhan University of Technology); Daping He (Wuhan University of Technology);*
- 28 A Low-profile Magneto-electric Dipole Antenna with Parasitic Patches for Millimeter-wave Antenna-in-package Applications  
*Wei Wang (Shanghai Jiao Tong University); Min Tang (Shanghai Jiaotong University); Zi-Jian Shao (Shanghai Jiao Tong University); Yueping Zhang (Shanghai Jiao Tong University);*
- 29 Routing Algorithm for Wireless Sensor Network Considering Propagation Losses  
*Romualds Beļinskis (Riga Technical University); Nikolajs Bogdanovs (Riga Technical University); Ernests Pētersons (Riga Technical University); Aleksandrs Ipatovs (Riga Technical University); Toms Salgals (Riga Technical University);*
- 30 A Printed Log Periodic Dipole Antenna with Broad-band Application from 0.5 to 15 GHz  
*Min Zhang (No. 36 Research Institute of CETC); Lianyan Zhu (No. 36 Research Institute of CETC); Yi Wang (The 36th Research Institute of China Electronics Technology Group Corporation); Jingbo Cui (No. 36 Research Institute of CETC);*
- 31 Design of an Improved Miniaturized Ultra-wideband Antenna  
*Mengmeng Sun (Shanghai Aerospace Electronics Co., Ltd.); Fanwei Kong (Shanghai Aerospace Electronics Co., Ltd.); Yanting Lv (Shanghai Aerospace Electronics Co., Ltd.); Jingyi Qian (Shanghai Aerospace Electronics Co., Ltd.); Weizhong Yan (Shanghai Aerospace Electronics Co., Ltd.); Xudong Bai (Shanghai Aerospace Electronics Co., Ltd.);*
- 32 Design and Development of Horn Antennas for Wireless Power Transmission  
*Hao Zhang (Hanyang University); Kaviya Aranganadin (Hanyang University); Hua-Yi Hsu (National Taipei University of Technology); Ming-Chieh Lin (Hanyang University);*
- 33 Effect of Temperature on RCS Measure and Calibration of Standard Metal Ball up to 800°C  
*Yan Wang (Science and Technology on Electromagnetic Scattering Laboratory); Yongfeng Wang (Science and Technology on Electromagnetic Scattering Laboratory); Ming Lyu (Science and Technology on Electromagnetic Scattering Laboratory); Yilun Zhao (Science and Technology on Electromagnetic Scattering Laboratory); Jinchun Li (Science and Technology on Electromagnetic Scattering Laboratory); Kainan Qi (Science and Technology on Electromagnetic Scattering Laboratory); Xiao-Feng Yuan (Science and Technology on Electromagnetic Scattering Laboratory);*
- 34 A New Method for Parameter Estimation of Cross-channel Ultra-wideband LFM Signal  
*Xiaolei Fan (National University of Defense Technology); Xinqun Liu (National University of Defense Technology); Bing Li (National University of Defense Technology);*
- 35 Study of Data Mining Algorithms for Retail Sales Management  
*Dmitry M. Klionskiy (Saint Petersburg Electrotechnical University “LETI”); Natalya V. Razmochaeva (Saint Petersburg Electrotechnical University “LETI”); Vladimir V. Geppener (Saint Petersburg Electrotechnical University “LETI”); Nikita V. Popov (Saint Petersburg Electrotechnical University “LETI”);*

- 36 A Reliable and Disposable Optical Fiber SERS Substrate  
*Jinyu Wang (Qilu University of Technology, Shandong Academy of Sciences); Yuan Liu (Qilu University of Technology, Shandong Academy of Sciences); Zhen Li (Qilu University of Technology, Shandong Academy of Sciences); Guofeng Dong (Qilu University of Technology, Shandong Academy of Sciences); Jiqiang Wang (Qilu University of Technology, Shandong Academy of Sciences); Tongyu Liu (Laser Institute, Shandong Academy of Science);*
- 37 Solving Inverse Scattering Problems through BA-based Optimization  
*Chunxia Yang (Shanghai Normal University); Jian Zhang (Tongji University); Mei Song Tong (Tongji University);*
- 38 An IAA-based DOA Estimation Method for PBR in Coherent Environment  
*Yupeng Sun (National University of Defense Technology); Panhe Hu (National University of Defense Technology); Jiameng Pan (National University of Defense Technology); Qinglong Bao (National University of Defense Technology);*
- 39 Snow Covered Area Estimation for Forest Area in Northeastern China Based on Multi-temporal Sentinel-1 SAR Data  
*Xiaoxin Zhu (Jilin University); Lingjia Gu (Jilin University); Ruizhi Ren (Jilin University);*
- 40 Forest Canopy Volume Density Index Inversion Method Using Polarization Decomposition  
*Xiujuan Li (Inner Mongolia University); Yongxin Liu (Inner Mongolia University); Wei Xu (Inner Mongolia Key Laboratory of Radar Technology and Application); Pingping Huang (Inner Mongolia University of Technology); Wenxue Fu (Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences);*
- 41 Comparison of Soil Moisture Retrievals Using Ground Based Multi-frequency Microwave Observation over a Corn Field  
*Lu Hu (Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences); Tianjie Zhao (Jointly Sponsored by Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences); Jian-Cheng Shi (Institute of Remote Sensing Applications, Chinese Academy of Sciences); Shannan Li (93920 Troops); Dong Fang (University of Chinese Academy of Sciences); Pingkai Wang (Institute of Aerospace Electronic Communication Equipment); Deyuan Geng (Institute of Remote Sensing and Digital Earth, Chinese Academy of Science); C. S. Kang (Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences);*
- 42 SIW Bandpass Filters with Frequency-dependent Coupling for Power Wireless Private Network Communication  
*Jun Jia (State Grid Jiangsu Electric Power Co., Ltd., Electric Power Research Institute); Zhaohui Zhang (State Grid Jiangsu Electric Power Co., Ltd., Electric Power Research Institute); Chengbo Hu (State Grid Jiangsu Electric Power Co., Ltd., Electric Power Research Institute); Ziquan Liu (State Grid Jiangsu Electric Power Co., Ltd., Electric Power Research Institute); Jinggang Yang (State Grid Jiangsu Electric Power Co., Ltd., Electric Power Research Institute); Zhiwei Shi (Shanghai University);*
- 43 Compact Dual-band UWB Filters for Wireless Private Network Communication  
*Zhaohui Zhang (State Grid Jiangsu Electric Power Co., Ltd., Electric Power Research Institute); Jun Jia (State Grid Jiangsu Electric Power Co., Ltd., Electric Power Research Institute); Ziquan Liu (State Grid Jiangsu Electric Power Co., Ltd., Electric Power Research Institute); Chengbo Hu (State Grid Jiangsu Electric Power Co., Ltd., Electric Power Research Institute); Fengbo Tao (State Grid Jiangsu Electric Power Co., Ltd., Electric Power Research Institute); Xiu-Guang Chen (Shanghai University);*

- 44 Flexible Multi-band Antenna for Body Area Wireless Sensor Networks  
Zhaohui Zhang (State Grid Jiangsu Electric Power Co., Ltd., Electric Power Research Institute); Jing-gang Yang (State Grid Jiangsu Electric Power Co., Ltd., Electric Power Research Institute); Jun Jia (State Grid Jiangsu Electric Power Co., Ltd., Electric Power Research Institute); Jiangtao Xu (State Grid Jiangsu Electric Power Co., Ltd., Electric Power Research Institute); Ziquan Liu (State Grid Jiangsu Electric Power Co., Ltd., Electric Power Research Institute); Fengbo Tao (State Grid Jiangsu Electric Power Co., Ltd., Electric Power Research Institute); Yong Jin Zhou (Shanghai University);
- 45 Ultra-wideband Low Frequency Antenna for Cellular Communication in High-speed Rail Scenario  
Jiangtao Xu (State Grid Jiangsu Electric Power Co., Ltd., Electric Power Research Institute); Jing-gang Yang (State Grid Jiangsu Electric Power Co., Ltd., Electric Power Research Institute); Jun Jia (State Grid Jiangsu Electric Power Co., Ltd., Electric Power Research Institute); Zhaohui Zhang (State Grid Jiangsu Electric Power Co., Ltd., Electric Power Research Institute); Ziquan Liu (State Grid Jiangsu Electric Power Co., Ltd., Electric Power Research Institute); Fengbo Tao (State Grid Jiangsu Electric Power Co., Ltd., Electric Power Research Institute); Yong Jin Zhou (Shanghai University);
- 46 Flexible Spoof Plasmonic Microfluidic Sensor for Detecting Liquid Solutions  
Weizhong Zhang (State Grid Xinjiang Electric Power Co., Ltd., Changji Power Supply Company); Fei Gao (Beijing Smartchip Microelectronics Co., Ltd.); Buchen Xu (State Grid Xinjiang Electric Power Co., Ltd., Changji Power Supply Company); Yong Jin Zhou (Shanghai University);
- 47 All-in-fiber Mach-Zender Interferometer Based Optical Differentiator  
Zuowei Xu (Huazhong University of Science and Technology); Xuewen Shu (Huazhong University of Science and Technology);
- 48 An Terahertz Linear-to-linear Polarization Converter Based on Symmetric Semi-circle Rings  
Tang-Yi Sun (Nanjing University of Posts and Telecommunications); Hai Feng Zhang (Nanjing University of Posts and Telecommunications); Yu-Peng Li (Nanjing University of Posts and Telecommunications); Tong Yang (Nanjing University of Posts and Telecommunications);
- 49 Double-layer Terahertz Absorber Based on the Vanadium Dioxide and Cavity Resonance  
Tong Yang (Nanjing University of Posts and Telecommunications); Hai Feng Zhang (Nanjing University of Posts and Telecommunications); Yu-Peng Li (Nanjing University of Posts and Telecommunications); Yang-Yi Sun (Nanjing University of Posts and Telecommunications);
- 50 A Solid State Plasma Multifunctional Metamaterial and Its Application for Absorber and Linear Polarization Converter  
Li Zeng (Nanjing University of Posts and Telecommunications); Hai Feng Zhang (Nanjing University of Posts and Telecommunications); Xing-Liang Tian (Nanjing University of Posts and Telecommunications); Zhen-Hua Zhao (Nanjing University of Posts and Telecommunications);
- 51 Optically Tunable Microwave Photonic Filter Based on Pumped Chirped Fiber Bragg Grating  
Zuowei Xu (Xiamen University); Xuewen Shu (Huazhong University of Science and Technology);
- 52 Artificial Neural Network for Fast Optical Critical Dimension Metrology  
Kuangyi Li (Huazhong University of Science and Technology); Yating Shi (Huazhong University of Science and Technology); Xiuguo Chen (Huazhong University of Science and Technology); Shiyuan Liu (Huazhong University of Science and Technology);
- 53 Ergodic Sum-rate Analysis for Massive MIMO under Imperfect Channel State Information  
Lusekelo Kibona (Huazhong University of Science and Technology (HUST)); Jian Liu (Huazhong University of Science and Technology (HUST)); Yingzhuang Liu (Huazhong University of Science and Technology (HUST));
- 54 Wander of the Lommel Gaussian-Schell Beam in Turbulent Ocean  
Dongyu Yang (Jiangnan University); Yixin Zhang (Jiangnan University); Qiyong Liang (Jiangnan University); Yun Zhu (Jiangnan University); Lin Yu (Jiangnan University); Shibao Deng (Jiangnan University);
- 55 Latest Progress in Graphene-on-silicon Photonic Integrated Circuits  
Zhengkun Xing (Tianjin University); Jiaqi Wang (Shenzhen University); Guo-Wei Lu (Tokai University); Zhenzhou Cheng (Tianjin University); Tiegeng Liu (Tianjin University);



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- 56 Beam Squint and Pointing Correction for Shaped Dual-reflector Antennas  
*Binbin Xiang (Xinjiang Astronomical Observatory, Chinese Academy of Sciences); Na Wang (Xinjiang Astronomical Observatory, Chinese Academy of Sciences); Kai Wang (Xinjiang Astronomical Observatory, Chinese Academy of Sciences); Peiyuan Lian (Xidian University); Naigang Hu (Xidian University); Congsi Wang (Xidian University); Wei Wang (Xidian University);*
- 57 Target Dynamic Radar Echo Simulation Based on Sensor  
*Man Liang (Science and Technology on Electromagnetic Scattering Laboratory); Chaoying Huo (Science and Technology on Electromagnetic Scattering Laboratory); Yanjie Cui (Science and Technology on Electromagnetic Scattering Laboratory);*
- 58 A Dual Circularly Polarized Patch Antenna Array for S-band  
*Zimeng Li (Guangzhou Compass Antenna Design Institute Co., Ltd.); Victor Sledkov (Guangzhou Compass Antenna Design Institute Co., Ltd.); Rudakov Viacheslav (Guangzhou Compass Antenna Design Institute Co., Ltd.); Taranenko Vladimir (Guangzhou Compass Antenna Design Institute Co., Ltd.); Xianfeng Liang (National Space Science Center, Chinese Academy of Sciences);*
- 59 The Compact Bandpass Cavity Filter on Multicylinder Coaxial Resonators  
*Zimeng Li (Guangzhou Compass Antenna Design Institute Co., Ltd.); Victor Sledkov (Guangzhou Compass Antenna Design Institute Co., Ltd.); Viacheslav V. Zemlyakov (Southern Federal University);*
- 60 Analysis of Effective Medium Parameters on Polarizability of Homogeneous Chiral Sphere  
*Syed Agha Hassnain Mohsan (Comsats Institute of Information Technology); Muhammad Junaid Mughal (Comsats Institute of Information Technology); Qaisar Abbas Naqvi (Quaid-i-Azam University);*

	<b>TUESDAY AM</b> <b>8:00 December 17</b>	<b>TUESDAY PM</b> <b>13:00 December 17</b>		<b>WEDNESDAY AM</b> <b>8:00 December 18</b>	<b>WEDNESDAY PM</b> <b>13:00 December 18</b>	
<b>ROOM 1 - Ballroom 1</b>	1A1 - Photosensitive Materials and Nanostructures for Optical Switching, Sensing and Processing Applications 1			2A1 - Graphene Photonics, Electromagnetics Science and Applications	2P1 - Structured Light-matter Interaction 1	
<b>ROOM 2 - Ballroom 2</b>	1A2 - Microwave Metamaterial and Metasurface 1			2A2 - Dielectric Metasurfaces: Fundamentals and Applications 1	2P2a - Microwave Metamaterial and Metasurface 2	2P2b - Reconfigurable Metamaterials, Metasurfaces, and FSS
<b>ROOM 3 - Ballroom 3</b>	1A3 - Electromagnetic Devices, Sensing, Imaging and Applications 1			2A3 - Machine Learning for Inversion and Imaging 1	2P3a - Machine Learning for Inversion and Imaging 2	2P3b - Deep Learning Approaches for Electromagnetic Forward and Inverse Problems
<b>ROOM 4 - Ginkgo</b>	1A4 - Novel Mathematical Methods in Electromagnetics	1P4a - Fast and Efficient Algorithms of CEM	1P4b - Advances in Numerical Modeling and Design	2A4 - Computational Techniques in Electromagnetics and Applications	2P4 - Advanced Numerical Techniques in Computational Electromagnetics	
<b>ROOM 5 - Banyan 1</b>	1A5 - Design and Simulation of Electromagnetic and Optical Devices 1	1P5 - Design and Simulation of Electromagnetic and Optical Devices 2		2A5 - Efficient Computational Electromagnetics Methods and Their Applications in Geophysical and Remote Sensing	2P5 - Bound States in the Continuum: Physics and Applications	
<b>ROOM 6 - Banyan 2</b>	1A6 - Advances in Radar Systems and Signal Processing for Remote Sensing	1P6a - Applications of Microwave Remote Sensing in Terrestrial Hydrology	1P6b - Medical Electromagnetics, Biological Effects, Bioimaging	2A6 - Single and Multiple Scattering in the Earth System: Theory and Applications 2	2P6a - Electromagnetic Devices, Sensing, Imaging and Applications 2	2P6b - Single and Multiple Scattering in the Earth System: Theory and Applications 1
<b>ROOM 7 - Banyan 3</b>	1A7 - Subsurface Sensing and Imaging	1P7 - Inverse Problems in Microwave and Optics		2A7 - Electromagnetic Well Logging	2P7 - Emerging New Techniques, Theory, and Data in Microwave Remote Sensing	
<b>ROOM 8 - Peony 1</b>	1A8 - Microwave Photonics for Advanced Radar Systems and Applications	1P8a - Advances in Metasurfaces	1P8b - Advanced Metasurface Designs and Optoelectronic Devices	2A8 - Recent Advances in Metasurfaces and Their Application to Antennas	2P8a - Advanced Phased Array Theory and Technology	2P8b - Advances in EM Modeling and Simulations for Biophotonics
<b>ROOM 9 - Peony 2</b>	1A9 - Quantum Information Processing and Devices 1	1P9 - New Synergies among Machine Learning, Artificial Intelligence, Photonics and Electromagnetics: From Data Processing to Hardware Implementations		2A9 - Quantum Information Processing and Devices 2	2P9 - Quantum Information Processing and Devices 3	

	<b>TUESDAY AM</b> 8:00 December 17		<b>TUESDAY PM</b> 13:00 December 17		<b>WEDNESDAY AM</b> 8:00 December 18		<b>WEDNESDAY PM</b> 13:00 December 18	
<b>ROOM 10</b> - Jasmine	1A10 - Nonlinear Plasmonics and Metasurfaces 1		1P10a - Nonlinear Plasmonics and Metasurfaces 2	1P10b - Substrate Integrated and On-chip Metamaterials and Their Applications	2A10 - Plasmonic Nanoantennas and Metamaterials for the Design of New Nanophotonic Devices 1		2P10a - Plasmonic Nanoantennas & Metamaterials for Design of New Nanophotonic Devices 2	2P10b - Light-matter Interactions in Metamaterials and Plasmonics
<b>ROOM 11</b> - Lotus 1	1A11 - Advanced Topological Photonics and Acoustics toward Future Developments 1		1P11a - Advanced Topological Photonics and Acoustics toward Future Developments 2	1P11b - Topological Electromagnetics and Topological Acoustics 1	2A11 - Topological Metamaterials		2P11 - Topological Electromagnetics and Topological Acoustics 2	
<b>ROOM 12</b> - Lotus 2	1A12 - Spoof SPP and Its Applications: From Microwave to Optics		1P12 - Waves in Complex Medium		2A12 - Novel Methods for Sound Manipulation Based on Intriguing Physics		2P12 - Nanoplasmonics and Meta-optics	
<b>ROOM 13</b> - Lotus 3	1A13 - Light Propagation, Transformation and Applications 1		1P13a - Photosensitive Materials & Nanostructures for Optical Switching, Sensing & Applications 2	1P13b - EM and Optical Properties of Photonic Materials, Structures, and Crystal	2A13 - Organic and Perovskite Optoelectronics		2P13 - Micro/nano Structured Photonic and Optoelectronic Devices	
<b>ROOM 14</b> - Lily	1A14 - Advances in Antenna Theory and Techniques 1		1P14 - Advances in Antenna Theory and Techniques 2		2A14a - Designs & Measurements of Phased Array Antennas for 5G	2A14b - Metamaterial-engineered and Compact Antennas and Arrays	2P14 - Advanced Antennas for 5G Applications	
<b>ROOM 15</b> - Narcissus	1A15 - Nanophotonics for Integration, Communication, and Biomedicine Applications 1		1P15 - Functional Devices and Antennas Based on Metamaterials and Metasurfaces		2A15 - Nanophotonics for Integration, Communication, and Biomedicine Applications 2		2P15 - Spin Photonics and Chiral Photonics	
<b>ROOM 16</b> - Camellia 1	1A16 - Millimeter Wave and Terahertz Source Devices 1		1P16a - Novel Frequency Selective Structures and Antennas	1P16b - Millimeter Wave and Terahertz Source Devices 2	2A16 - Terahertz Wave Sensing and Imaging: From Novel Devices to Applications		2P16 - Fiber Sensing Technology and Fiber-based Devices 1	
<b>ROOM 17</b> - Camellia 2	1A17 - Design and Application of Optical Fiber and Waveguide for Functional Components and Sensors		1P17 - Photonic and Microwave Signal Processing		2A17 - New Materials for Electromagnetic Devices: Theory and Applications		2P17a - Si-based Light Emission Devices and Lasers	2P17b - Microcavity Lasers and Optical Frequency Combs
<b>ROOM 18</b> - Azalea	1A18a - Oral Presentations for Best Student Paper Awards -- Antennas & Microwave Technologies	1A18b - Oral Presentations for Best Student Paper Awards -- Metamaterials, Plasmonics & Complex Media	1P18a - Oral Presentations for Best Student Paper Awards -- Remote Sensing, etc.	1P18b - Oral Presentations for Best Student Paper Awards -- Optics and Photonics	2A18a - Education in Electromagnetics	2A18b - Oral Presentations for Best Student Paper Awards -- CEM, EMC, Scattering & EM Theory		
<b>Corridor</b>					2A0 - Poster Session 1		2P0 - Poster Session 2	

	<b>THURSDAY AM</b> <b>8:00 December 19</b>	<b>THURSDAY PM</b> <b>13:00 December 19</b>		<b>FRIDAY AM</b> <b>8:00 December 20</b>	<b>FRIDAY PM</b> <b>13:00 December 20</b>			
<b>ROOM 1 - Ballroom 1</b>	3A1 - Structured Light-matter Interaction 2			4A1 - Novel Ways to Control Light-matter Interactions 2	4P1a - Novel Ways to Control Light-matter Interactions 3	4P1b - Metasurface, Metamaterials and Plasmonics		
<b>ROOM 2 - Ballroom 2</b>	3A2 - Multidimensional Metaphotonics for Extraordinary Wave Manipulation			4A2 - Dielectric Metasurfaces: Fundamentals and Applications 2	4P2 - Optical Metamaterial and Metasurface: Fundamentals and Applications			
<b>ROOM 3 - Ballroom 3</b>	3A3 - Radar Scattering and Imaging: Theory and Application			4A3 - Recent Advances in Numerical Simulation and Application of Electromagnetic Scattering from Target/Rough Surface	4P3a - Remote Sensing Using GNSS-R and other SoOp	4P3b - Microwave Remote Sensing and Polarimetry, SAR		
<b>ROOM 4 - Ginkgo</b>	3A4 - Recent Advances on Electromagnetics Modelling and Simulation Methods	3P4a - FDTD Method in Multiphysics Simulation	3P4b - Discontinuous Galerkin Method and Domain Decomposition	4A4 - Advances in Integral Equation Methods and Applications	4P4a - Fast Computational Methods in EM Theory and Their Applications	4P4b - Emerging Numerical Methods and Their Applications		
<b>ROOM 5 - Banyan 1</b>	3A5 - Advanced Algorithms for Solving Electromagnetic and Electro-Thermal Problems	3P5 - Atmospheric Light Scattering, Radiative Transfer, and Remote Sensing		4A5a - Applications of Electromagnetic and Multiphysics Methods in Biomedical Imaging	4A5b - Advanced Antenna Designs and Computational Electromagnetics	4P5 - Computational Electromagnetics, Hybrid Methods		
<b>ROOM 6 - Banyan 2</b>	3A6 - Challenges in Experimental Wavefield Imaging: Calibration, Modelling Error, and Algorithms	3P6 - Inverse Problems in Electromagnetics: Emerging Tools and Applications in Imaging and Design Problems, Part 1 & 2		4A6 - Tropical Cyclones Remote Sensing and Data Assimilation 1		4P6a - Tropical Cyclones Remote Sensing and Data Assimilation 2	4P6b - Remote Sensing of Water and Energy Cycles	
<b>ROOM 7 - Banyan 3</b>	3A7 - Remote Sensing of the Atmosphere, Ocean, Hydrology and Cryosphere	3P7 - Electromagnetic and Acoustic/Seismic Technologies in Oilfield Applications: Sensing, Modeling, and Inversion 1		4A7 - Electromagnetic and Acoustic/Seismic Technologies in Oilfield Applications: Sensing, Modeling, and Inversion 2		4P7 - Silicon Lasers and Integrated Silicon Photonics		
<b>ROOM 8 - Peony 1</b>	3A8 - Applications of New Techniques in Antennas and Circuits 1	3P8a - Applications of New Techniques in Antennas and Circuits 2	3P8b - Frontiers, Challenges & Prospects of Wearable Antennas & Wireless Biosensors	4A8a - Wireless Power Transfer for Biomedicine and IoTs	4A8b - Wireless Power Transfer		4P8 - Non-Hermitian Wave and Diffusive Systems	
<b>ROOM 9 - Peony 2</b>	3A9 - Terahertz Systems and Bioapplications 1	3P9a - Terahertz Systems and Bioapplications 2	3P9b - Microwave and Terahertz Devices	4A9 - Advanced MM-Wave and THz Integrated Circuits and Antennas 1		4P9a - Advanced MM-Wave and THz Integrated Circuits and Antennas 2	4P9b - THz Technology	4P9c - Microstrip Antennas, Array Antennas, Theory and Radiation

	<b>THURSDAY AM</b> <b>8:00 December 19</b>		<b>THURSDAY PM</b> <b>13:00 December 19</b>		<b>FRIDAY AM</b> <b>8:00 December 20</b>		<b>FRIDAY PM</b> <b>13:00 December 20</b>	
<b>ROOM 10</b> <b>- Jasmine</b>	3A10 - Metamaterial-based Polarization Manipulation 1		3P10 - Metamaterials and Metasurfaces for Microwave Engineering		4A10a - Metamaterial-based Polarization Manipulation 2	4A10b - Recent Advances in Thermal Meta-devices	4P10 - Filters, Interconnect, Microwave and Millimeter Wave Circuits and Device	
<b>ROOM 11</b> <b>- Lotus 1</b>	3A11 - Plasmonic and Photonic Nanostructure Surfaces for Manipulations of Light		3P11 - Microwave and Terahertz Plasmonics		4A11 - Optical Wavefront Engineering: Inverse or Compensate Scattering in Complex Media		4P11 - Photonics and Integrated Optics	
<b>ROOM 12</b> <b>- Lotus 2</b>	3A12 - Silicon Photonic and Electronic Integration		3P12a - Novel Ways to Control Light-matter Interactions 1	3P12b - Optical, Electro-magnetic and Acoustic Manipulation in Biology	4A12 - Biophotonics		4P12 - Curved Space and Transformation Optics	
<b>ROOM 13</b> <b>- Lotus 3</b>	3A13 - Electro-optic Materials for Tunable Photonic Devices		3P13 - 2D Materials Photonics and Optics		4A13 - Liquid Crystals for Advanced Photonics 1		4P13a - Liquid Crystals for Advanced Photonics 2	4P13b - Advanced Materials and Devices for Optical Applications
<b>ROOM 14</b> <b>- Lily</b>	3A14 - Recent Progress in Millimeter and Sub-Millimeter Wave Array Antennas		3P14 - Spatial-Feeding Antennas and Arrays		4A14 - Advanced Long Wave Photonic Platforms & Applications 1		4P14a - Advanced Long Wave Photonic Platforms & Applications 2	4P14b - Advanced Computational EM Methods for Nanophotonics
<b>ROOM 15</b> <b>- Narcissus</b>	3A15 - Electromagnetic Analysis and Design in MRI		3P15 - Photonic Devices for Modulation, Detection and Signal Processing		4A15 - Ghost Imaging and Single Pixel Imaging			
<b>ROOM 16</b> <b>- Camellia 1</b>	3A16a - Interactions of Discharge Plasmas with Liquids: Fundamentals and Applications 1	3A16b - Fiber Sensing Technology and Fiber-based Devices 2	3P16 - Interactions of Discharge Plasmas with Liquids: Fundamentals and Applications 2		4A16 - Electromagnetic Compatibility, Electromagnetic Shielding			
<b>ROOM 17</b> <b>- Camellia 2</b>	3A17a - Ultrafast Lasers and Technologies	3A17b - Light Propagation, Transformation and Applications 2	3P17 - Cavity Optomechanics					
<b>ROOM 18</b> <b>- Azalea</b>								
<b>Corridor</b>	3A0 - Poster Session 3		3P0 - Poster Session 4		4A0 - Poster Session 5		4P0 - Poster Session 6	