PIERS 2022 Hangzhou

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Program

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Weijie Wang
Meng Wang
Liang Wang
Xiang-Hua Wang
Xianpeng Wang
Jian Wang
Keping Wang
Xuewen Wang
Wei Wang
Fan Wang
Zeyong Wei
Zhun Wei
Feng Wen
Ulrike Willer
Bian Wu
Jiang Wu
Haibin Wu
Shengnan Wu
Lixin Wu
Xiaojun Wu
Yiwei Xie
Xiaobo Xing
Qihua Xiong
Jiang Xiong
He-Xiu Xu
Xiulai Xu
Lin Xu
KuiwenXu
Wen Xu
Gang Xu
Su Xu
Wensheng Yan
Yihao Yang
Zhaoju Yang
Yuanmu Yang
Xiaofeng Yang
Chunxia Yang
Liu Yang
Da Yi
Zhangqi Yin
Jianwei You
Nathan Youngblood
Zejie Yu
Luqi Yuan
Remo Proietti Zaccaria
Qingsheng Zeng
Qiwen Zhan
Cheng Zhang
Kuang Zhang
Ruo-Yang Zhang
Xiujuan Zhang
Qing Zhang
Zhaoyang Zhang
Yupeng Zhang
Yuxian Zhang
Dan Zhang
Delong Zhang
Yao Zhang
Yunjing Zhang
Xuanru Zhang
Shuai Zhang
Fangzheng Zhang
Ming Zhang
Ke Zhang
Qian Zhao
Junming Zhao
Yanpu Zhao
Ziran Zhao
Yu Zhao
Sihan Zhao
Gang Zheng
Hong-Xing Zheng
Chuantao Zheng
Guoxing Zheng
Yong Jin Zhou
Xinjian Zhou
Zhang-Kai Zhou
Mingwei Zhuang
Yi Zou

IMPORTANT NOTICE

Due to the recent domestic outbreaks of COVID-19 that have spread to many provinces in China, the organizing committee of PIERS 2021 has decided to split this event into 2 parts.

Part 1: Totally Virtual

This virtual part will be on November 22, the original start date of PIERS 2021.

1) All poster sessions will be switched to online. Poster Presenters are requested to upload the presentation files in PDF format by November 15. A ZOOM conference on November 22 will be arranged for all poster presenting authors to discuss the details interactively. The poster presenting author is encouraged to upload a 3–5 mins pre-recorded video to introduce the poster. All onsite registered presenting authors in this online poster session can still attend the future hybrid part of PIERS.

2) In total there will be 5 virtual oral sessions (1 oral session for each subcommittee) to accept a few oral talks online, in case some presenting authors strongly hope to join the virtual conference without delay.

3) This virtual PIERS will use ZOOM as supporting software. There will be an online help center via ZOOM during the conference week. The ZOOM access information and linkages will be available on the Online Program.

4) The final program for this virtual PIERS 2021 will be available online by November 18.

Part 2: Hybrid PIERS

This hybrid part will be postponed to April 25–27, 2022. The conference site remains unchanged.

1) All oral sessions will be postponed to April 25–27, 2022 by default.

2) If a presenting author strongly hopes to join the virtual oral session, please kindly contact PIERS OFFICE to apply for the virtual oral slot before November 15.

3) This hybrid PIERS can accept a few submissions of new abstracts. The deadline for new abstract submission is January 10. The registration deadline is January 30. The Advance Program will be available by March 5. The final program will be available by March 20.

SYMPOSIUM VENUE

The 2022 PhotonIcs & Electromagnetics Research Symposium, will be held in Hangzhou from 25 to 27 April 2022, at the Grand New Century Hotel Hangzhou (Address: No. 818, Middle Shixin Road, Xiaoshan, Hangzhou 311202, China).

REGISTRATION

The PIERS technical sessions will begin at 8:00 on Monday, April 25, 2022. You may come to register during 9:30–18:30 on Sunday, April 24, 2022, at the registration desks at the Grand New Century Hotel Hangzhou, China. Registration is also available from 7:30 to 18:00 on Monday, April 25, 2022 and from 8:00 to 18:00 on April 26–27, 2022.

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 Monday evening, April 25, 2022, 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 April 1, 2022.

Symposium Banquet

On Wednesday evening, April 27, 2022, symposium banquet is planned for PIERS participants and their guests at the conference hotel. A limited number of banquet tickets will be available. For all participants, the price is USD 60/RMB 400 per person. Please make reservation and pay in advance for the banquet by April 1, 2022.

PIERS ONLINE

Information on PIERS 2022 Hangzhou and future PIERS is posted at www.piers.org.

GUIDELINE FOR PRESENTERS

Onsite Oral Presentations

- **Load and TEST Presentation Files in Advance:**
  Onsite Oral Presenters must upload and test presentation files in the onsite PIERS OFFICE no later than April 20. Presenters are not allowed to detach the session computer and attach their own notebook/laptop to the LCD projector in session room. You can either upload your presentation file in PIERS author center, or please upload you files onto onsite PIERS OFFICE.
- **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.
- **USB Disk:**
  Presentation files in USB disk are acceptable by onsite PIERS Computer.
- **Report to Session Chair:**
  Onsite Presenters are required to report to their session chairs at least 10 minutes prior to the start of their session.
- **Talk Limit: 15 Minutes (Onsite Oral Talk):**
  All oral presentations, including questions and answers, should be less than the given minutes.
- **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.

Web Oral Presentations

- **Upload Pre-recorded Video by April 15:**
  Web Oral Presenters must upload a pre-recorded video by April 15. Please upload your presentation file in PIERS author center. Each uploaded video will be checked by PIERS OFFICE. Once it is checked, you can view a "confirmed" status in PIERS Author Center. Please wait 1–2 working days to check this video confirmed status especially during the uploading peak.
- **Video File Format:**
  Your final video file should be in the MP4 format.
  There are several tools you can use to make a MP4 video file.
  1) Create a Voice Over PowerPoint presentation and convert it to MP4.
  2) Use some meeting softwares to directly have a final MP4 video file. Please visit these instructions on how to record a video on web page of PIERS Guidelines for Presenters.
- **Web Talk Limit and Video Duration:**
  Please find the following suggested time to record your video.
  Web Keynote Talk: Total 25 mins — including (20 mins video + 5 mins Q&A)
  Web Invited Talk: Total 15 mins — including (13 mins video + 2 mins Q&A)
  Web Contributed Talk: Total 10 mins — including (9 mins video + 1 mins Q&A)

Web Poster Presentations

- The web poster presentation file should be in the PDF format.
- This PDF poster presentation file will be available on online PIERS Program during the whole conference week.
- All presenters are suggested to update your PIERS profile with a personal image in order for the attendees to establish a connection or know you better.

PIERS 2022 HANGZHOU SPONSORS

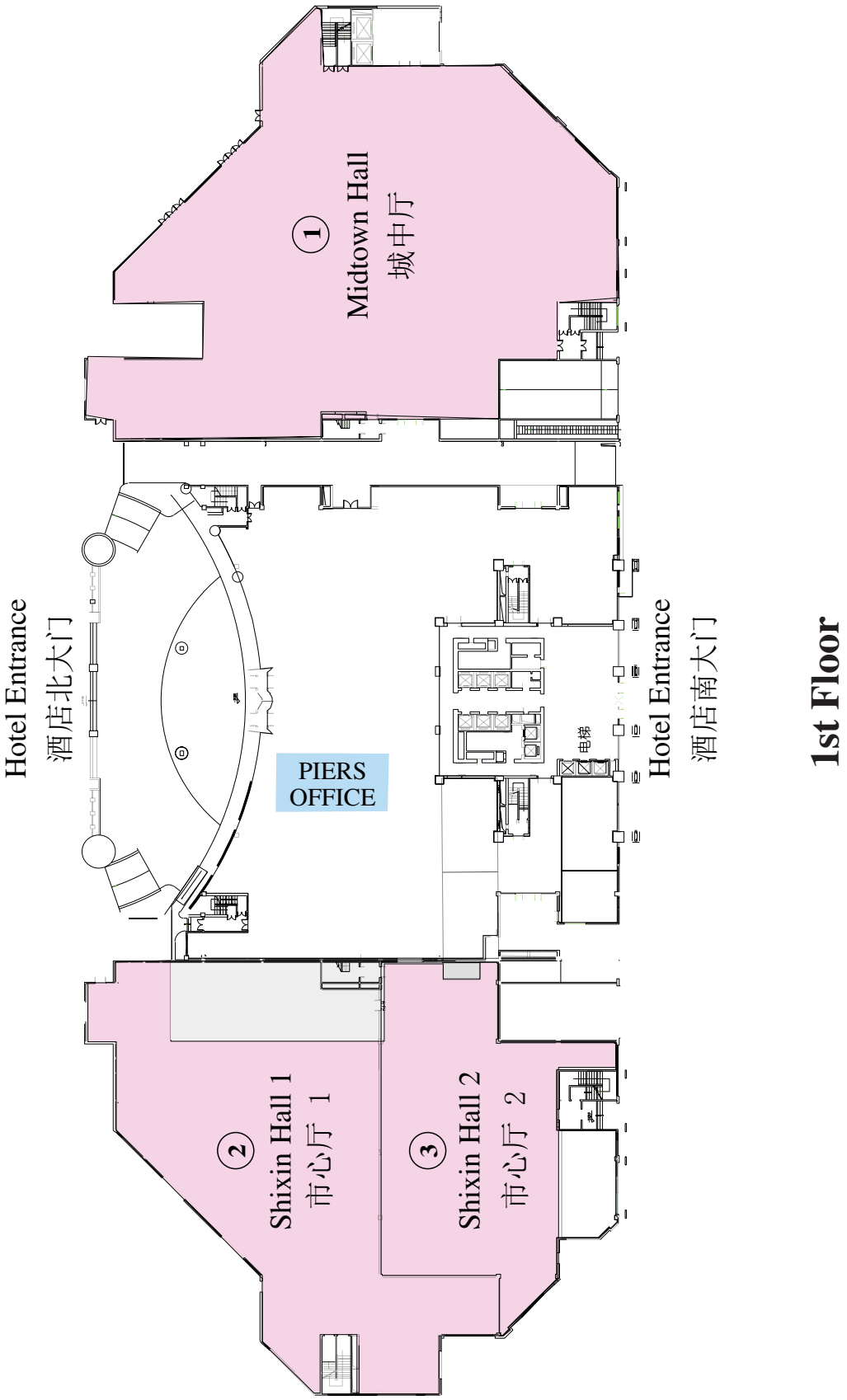
Sponsored by:

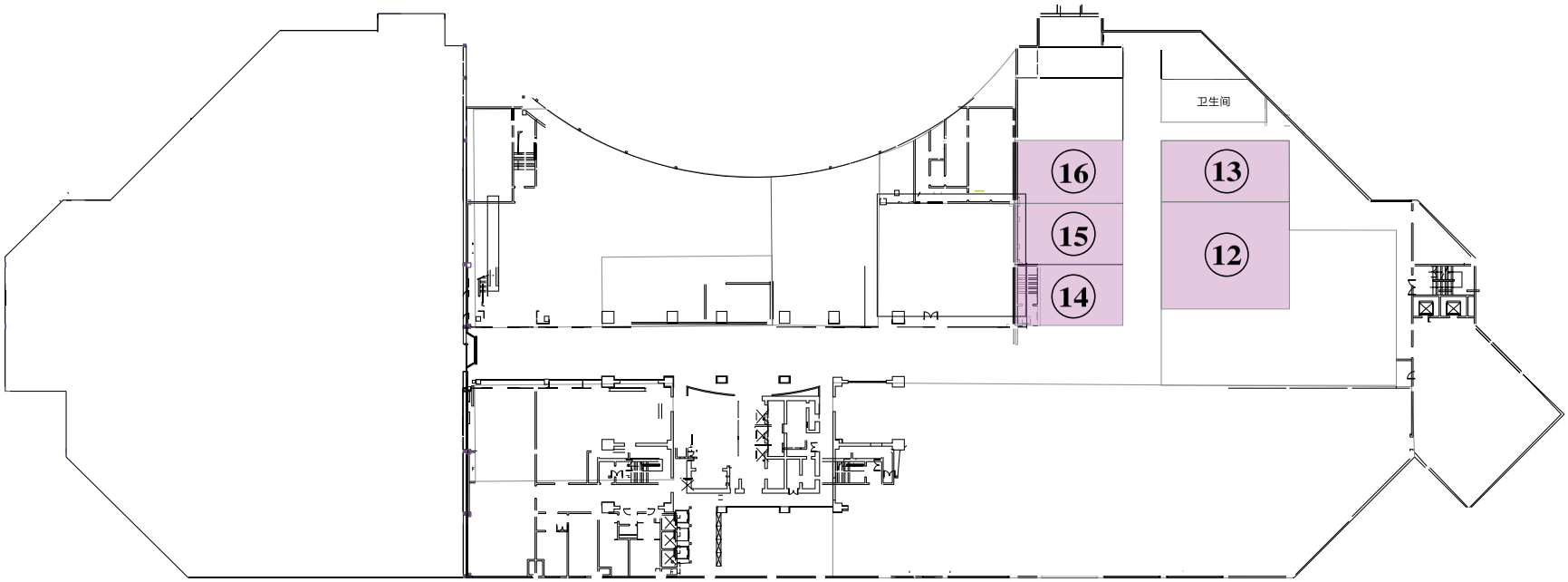
- Zhejiang University
- The Electromagnetics Academy at Zhejiang University
- College of Information Science & Electronic Engineering
- Zhejiang Key Laboratory for Advanced Microelectronic Intelligent Systems and Applications
- The Zhejiang University/University of Illinois at Urbana-Champaign Institute (the ZJU-UIUC Institute)
- National Engineering Research Center for Optical Instruments
- Shanghai Ideaoptics Corp., Ltd.

Technically co-sponsored by:

- IEEE Geoscience and Remote Sensing Society (IEEE GRSS)
- IEEE Antennas and Propagation Society (IEEE AP-S)
- IEEE Photonics Society
- The Electromagnetics Academy

MAP OF CONFERENCE SITE





⑫ Mingdu Hall 2 名都2号厅

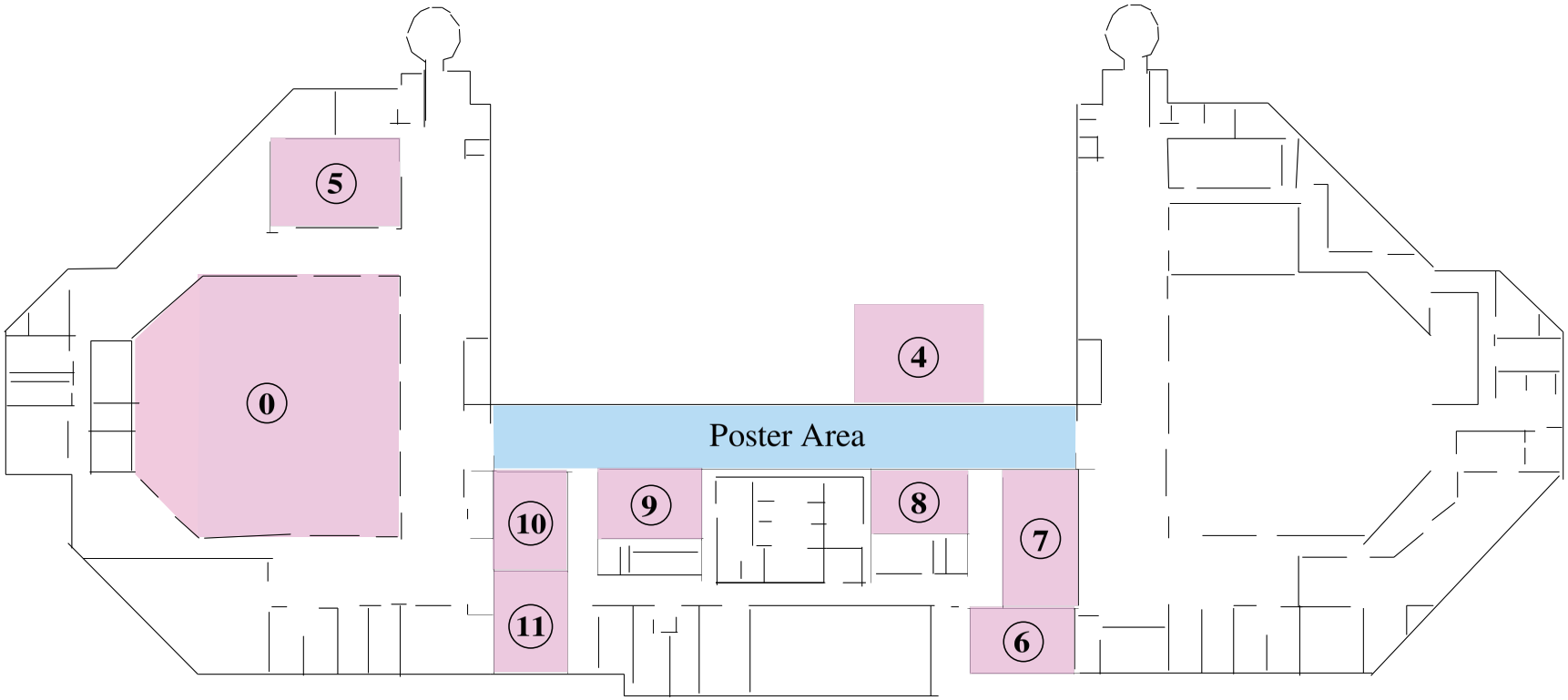
⑬ Mingdu Hall 3 名都3号厅

⑭ Mingdu Hall 5 名都5号厅

⑮ Mingdu Hall 6 名都6号厅

⑯ Mingdu Hall 7 名都7号厅

3rd Floor



0 Jingchao Hall 竞潮厅
4 Mingyi Hall 名艺厅
5 Gui Hall 贵厅
6 Mingrui Hall 名睿厅
7 Mingsi/Mingde Hall 名思名德厅
8 Minghou Hall 名厚厅
9 Tianren Hall 天仁厅
10 Tianhong Hall 天弘厅
11 Tianhe Hall 天和厅

4th Floor

PIERS 2022 HANGZHOU TECHNICAL PROGRAM

Session 1A0
Hot Topics in Photonics and Electromagnetics

Monday AM, April 25, 2022

Room Online ROOM 0

Organized by Sailing He

Chaired by Sailing He

11:00 Hot — Laser Particles for Single-cell Analysis
Seok Hyun Andy Yun (*Harvard Medical School and Massachusetts General Hospital*);

11:10 Hot — Electromagnetic Power Transfer and Photonic Voltage Transformation
Shanhui Fan (*Stanford University*);

11:20 Hot — The Frontiers of Plasmonic Nanocavity
Hongxing Xu (*Wuhan University*);

11:30 Hot — Information Metamaterials and Intelligent Metamaterials
Tie Jun Cui (*Southeast University*);

11:40 Hot — Liquid Light Based Platform for Quantum Computation
Alexey V. Kavokin (*Westlake University*);

11:50 Hot — Quantum Advantage and Beyond
Chao-Yang Lu (*University of Science and Technology of China*);

12:00 Hot — Perovskite Materials for Large-area Photovoltaic Modules and Flat-panel X-ray Imagers
Yang Yang (*Zhejiang University*);

12:10 Hot — Optical Interfaces from Metasurface Optics to Topological Polaritons: Le Voyage Rétro
Cheng-Wei Qiu (*National University of Singapore*);

12:20 Hot — Picophotonics
Nikolay I. Zheludev (*University of Southampton & Nanyang Technological University*);

Session 1A1
SC2: Topological Phenomena in Classical Optics and Quantum Optics 1

Monday AM, April 25, 2022

Room Online ROOM 1

Organized by Luqi Yuan, Da-Wei Wang, Zhaoju Yang

Chaired by Luqi Yuan, Zhaoju Yang

08:00 Keynote — Explore Topological Physics in Synthetic Dimensions
Shanhui Fan (*Stanford University*);

08:25 Invited — Non-Bloch Parity-time Symmetry and Exceptional Points
Peng Xue (*Beijing Computational Science Research Center*);

08:45 Invited — Silicon Photonics Quantum Devices and Circuits
Jianwei Wang (*Peking University*);

09:05 Invited — Topological Behaviors of Ultracold Atoms in the Momentum Space
Bo Yan (*Zhejiang University*);

09:25 Invited — Spin Angular Momentum and Applications in Topological Waves
Jie Ren (*Tongji University*);

09:45 Invited — Parity Time Symmetry for Stable and Efficient Wireless Power Transfer
Chao Zeng (*Tongji University*); *Yong Sun* (*Tongji University*); *Kejia Zhu* (*Tongji University*); *Zhiwei Guo* (*Tongji University*); *Yunhui Li* (*Tongji University*); *Hong Chen* (*Tongji University*);

10:05 Dynamic Band Structure Measurement in the Synthetic Space
Guangzhen Li (*Shanghai Jiao Tong University*); *Luqi Yuan* (*Shanghai Jiao Tong University*); *Xianfeng Chen* (*Shanghai Jiao Tong University*);

10:20 Iterative Green's Function for Photonic and Acoustic Topological Surface States Analysis
Yi-Xin Sha (*Peking University*); *Mingyao Xia* (*Peking University*); *Ling Lu* (*Institute of Physics, Chinese Academy of Sciences*);

10:35 **Coffee Break**

Session 1A2a
SC3: Reconfigurable Photonic Circuits for Computing and Switching 1

Monday AM, April 25, 2022

Room Online ROOM 2

Organized by Huan Li, Nathan Youngblood, Ming Zhang

Chaired by Huan Li, Nathan Youngblood

08:00 Designing Fast and Efficient Electrically Driven Phase Change Photonics through Multiphysics Simulation Framework
John R. Erickson (*University of Pittsburgh*); *Vivswan Shah* (*University of Pittsburgh*); *Qingzhou Wan* (*University of Pittsburgh*); *Nathan Youngblood* (*University of Pittsburgh*); *Feng Xiong* (*University of Pittsburgh*);

08:10 Invited Low-loss Phase-change Materials for Nonvolatile Reconfigurable Photonic Circuits
Carlos Ríos (*University of Maryland*);

08:25 Invited Silicon Photonics for Neuromorphic Computing and Artificial Intelligence: Applications and Roadmap
Bhavin J. Shastri (*Queen's University*); *C. Huang* (*Princeton University*); *A. N. Tait* (*Princeton University*); *T. Ferreira De Lima* (*Princeton University*); *P. R. Prucnal* (*Princeton University*);

08:40 Invited Phase Change Material Integrated Silicon Photonics: GST and Beyond
Arka Majumdar (*University of Washington*);

08:55 Photonic Generative Adversarial Network (GAN) with Noise-aware Training
Changming Wu (*University of Washington*); *Xiaoxuan Yang* (*Duke University*); *Heshan Yu* (*University of Maryland*); *Ruoming Peng* (*University of Washington*); *Ichiro Takeuchi* (*University of Maryland*); *Yiran Chen* (*Duke University*); *Mo Li* (*University of Washington*);

09:25 Online Traffic Classification Scheme Based on Bidirectional Long-short Term Memory and Attention in Edge Computing Oriented Optical Networks
Zhengjie Sun (*Beijing University of Posts and Telecommunication*); *Hui Yang* (*Beijing University of Posts and Telecommunications*); *Chao Li* (*Beijing University of Posts and Telecommunication*); *Qiuyan Yao* (*Beijing University of Posts and Telecommunication*); *Bowen Bao* (*Beijing University of Posts and Telecommunication*); *Jie Zhang* (*Beijing University of Posts and Telecommunications*); *Yunbo Li* (*China Mobile Research Institute*); *Dechao Zhang* (*China Mobile Research Institute*); *Dong Wang* (*China Mobile Research Institute*);

09:40 Survivable Service Chain with Adaptive Reconfiguration for Elastic Optical Network
Jiashun Ma (*Beijing University of Posts and Telecommunications*); *Hui Yang* (*Beijing University of Posts and Telecommunications*); *Bowen Bao* (*Beijing University of Posts and Telecommunication*); *Qiuyan Yao* (*Beijing University of Posts and Telecommunication*); *Zhengjie Sun* (*Beijing University of Posts and Telecommunication*); *Jie Zhang* (*Beijing University of Posts and Telecommunications*);

09:55 Miniaturized Online pH Detection System Based on a Microfluidic Chip
Li Zhu (*Southeast University*); *Anqi Yang* (*Southeast University*); *Yu Lu* (*Southeast University*); *Qianru Feng* (*Southeast University*); *Yiping Cui* (*Southeast University*);

10:10 Peptide-conjugated Luminescent Iridium(III) Complexes as Biocompatible Theranostic Probes for Cancer and Immune Systems
Wanhe Wang (*Northwestern Polytechnical University*); *Jing Wang* (*Northwestern Polytechnical University*); *Chung-Hang Leung* (*University of Macau*); *Dik-Lung Ma* (*Hong Kong Baptist University*);

10:30 **Coffee Break**

Session 1A2b
Optics Sensor, Optical Network and Others 1

Monday AM, April 25, 2022

Room Online ROOM 2

Chaired by Ergun Simsek

09:15 A Robust Drift-diffusion Equations Solver Enabling Accurate Simulation of Photodetectors
Ergun Simsek (*University of Maryland Baltimore County*); *Seyed Ehsan Jamali Mahabadi* (*University of Maryland Baltimore County*); *Ishraq Md Anjum* (*University of Maryland Baltimore County*); *Curtis R. Menyuk* (*University of Maryland Baltimore County*);

Session 1A3a
SC2&SC3: Photonics Empowered by Artificial Intelligence 1

Monday AM, April 25, 2022

Room Online ROOM 3

Organized by Yongmin Liu, Junsuk Rho, Wei Ma

Chaired by Junsuk Rho, Wei Ma

08:00 Invited Dynamically-tuned Active Metasurfaces and Plasmonic Devices Based on Phase Change Materials
Ru-Wen Peng (*Nanjing University*); *Jia-Nan Wang* (*Nanjing University*); *Fang-Zhou Shu* (*Nanjing University*); *Bo Xiong* (*Nanjing University*); *Ben-Qi Hou* (*Nanjing University*); *Ren-Hao Fan* (*Nanjing University*); *Dong-Xiang Qi* (*Nanjing University*); *Yongmin Liu* (*Northeastern University*); *Mu Wang* (*Nanjing University*);

08:20 Invited Smart Design of Plasmonic Stack Metamaterials by Artificial Intelligence
Jinfeng Zhu (*Xiamen University*); *Jiankai Xiong* (*Xiamen University*);

08:40 Realizing Colorful Holographic Mimicry by Metasurfaces
Bo Xiong (*Nanjing University*); *Yihao Xu* (*Northeastern University*); *Jianan Wang* (*Nanjing University*); *Ru-Wen Peng* (*Nanjing University*); *Mu Wang* (*Nanjing University*); *Yongmin Liu* (*Northeastern University*);

08:55 Deep Learning Accelerated Dielectric Metasurface Design
Yijie Gu (*Zhejiang University*); *Ran Hao* (*China Jiliang University*); *Er Ping Li* (*Zhejiang University — UIUC Institute*);

09:10 On-chip Cascaded Devices with an Intelligent Algorithm
Hongyi Yuan (*Beijing Institute of Technology*); *Cuicui Lu* (*Beijing Institute of Technology*);

Session 1A3b
SC3: Low-dimensional Semiconductor Optoelectronics and Integration 1

Monday AM, April 25, 2022

Room Online ROOM 3

Organized by Anlian Pan, Xiao Wang

Chaired by Xiao Wang

09:20 Invited Exciton Management for High Performance Perovskite Emitting Devices
Chuanjiang Qin (*Changchun Institute of Applied Chemistry, Chinese Academy of Science*);

09:40 Invited Multifunctional Information Devices Based on Ambipolar Two-dimensional Semiconductors
Dong Li (*Hunan University*);

10:00 Invited Electrochemical Delamination of Ultra-large Few-layer Black Phosphorus with a Hydrogen-free Intercalation Mechanism
Ning Wang (*Northwestern Polytechnical University*); *Xue Yang* (*Northwestern Polytechnical University*); *Qingliang Feng* (*Northwestern Polytechnical University*);

10:20 Invited Epitaxial Growth of Nanosheet Arrays and Its Application in Infrared Detection
Xiaoming Yuan (*Central South University*);

10:40 The Carrier Spin Polarization in 2D van der Waals Heterostructures
Danliang Zhang (*Hunan University*); *Xiao Wang* (*Hunan University*); *Anlian Pan* (*Hunan University*);

Session 1A4
SC2: Flexible Metamaterials and Smart Metadevices

Monday AM, April 25, 2022

Room Online ROOM 4

Organized by Jiafang Li, Zuojia Wang

Chaired by Zuojia Wang

08:20 Invited Adaptable Invisibility Management Using Kiragami-inspired Transformable Metamaterials
He-Xiu Xu (*Air Force Engineering University*); *Mingzhao Wang* (*Air Force Engineering University*); *Guangwei Hu* (*National University of Singapore*); *Shaojie Wang* (*Air Force Engineering University*); *Yanzhao Wang* (*Air Force Engineering University*); *Chaohui Wang* (*Air force Engineering University*); *Yixuan Zeng* (*National University of Singapore*); *Jiafang Li* (*Beijing Institute of Technology*); *Shuang Zhang* (*University of Hong Kong*); *Wei Huang* (*Northwestern Polytechnical University*);

08:40 Invited Hyperbolic Metamaterials for Optical Functional Devices
Lin Chen (*Huazhong University of Science and Technology*);

09:00 Focused-ion-beam-based Nano-kirigami for Cascaded Multilayer 3D Nanoarchitecture and Wavefront Modulation
Yu Han (*Beijing Instituteof Technology*); *Juan Liu* (*Beijing Institute of Technology*); *Jiafang Li* (*Beijing Institute of Technology*);

09:15 Keynote Intelligent Metamaterials and Metasurfaces
Tie Jun Cui (*Southeast University*); *Che Liu* (*Southeast University*);

09:45 Broadband Janus Scattering from Tilted Dipolar Metagratings
Xuan Chen (*Zhejiang University*); *Min Li* (*Zhejiang University*); *Zuojia Wang* (*Zhejiang University*);

10:00 Spoof Surface Plasmon Polariton Enhances Radiation Efficiency of Terahertz Photoconductive Antenna
Chi Wang (*Zhejiang University*); *Hongsheng Chen* (*Zhejiang University*); *Fei Gao* (*Zhejiang University*);

10:30 **Coffee Break**

Session 1A5
SC2: Recent Advances of Metasurfaces and Metagratings

Monday AM, April 25, 2022

Room Online ROOM 5

Organized by Hongyu Shi, Kuang Zhang

Chaired by Jianjia Yi, Hongyu Shi

08:00 Invited — Interleaved Metasurface for Multi-beam Generation with Arbitrary Polarization Control
Linda Shao (*Shanghai Jiao Tong University*); *Weiren Zhu* (*Shanghai Jiao Tong University*);

08:20 Invited — Chirality-assisted Metasurface for Spin-symmetry Breaking
Yuxiang Wang (*Harbin Institute of Technology*); *Kuang Zhang* (*Harbin Institute of Technology*); *Qun Wu* (*Harbin Institute of Technology*);

08:40 Invited — An Efficient Reconfigurable Metagrating
Jing Wang (*Xidian University*); *Lina Zhu* (*Xidian University*); *Jianjia Yi* (*Xi'an Jiaotong University*);

09:00 Polarization Converter with Asymmetric Jones Matrix Using Metasurface
Yidan Wang (*Xi'an Jiaotong University*); *Hongyu Shi* (*Xi'an Jiaotong University*); *Juan Chen* (*Xi'an Jiaotong University*); *Anxue Zhang* (*Xi'an Jiaotong University*); *Zhuo Xu* (*Xi'an Jiaotong University*);

09:15 Structured Light Illumination over 120° Field of View Based on Metasurfaces
Yibo Ni (*Tsinghua University*); *Sai Chen* (*Tsinghua University*); *Yujie Wang* (*Harbin Institute of Technology*); *Qiaofeng Tan* (*Tsinghua University*); *Shumin Xiao* (*Harbin Institute of Technology*); *Yuanmu Yang* (*Tsinghua University*);

09:30 Invited — A Reconfigurable Metagrating for Regulating Wavefront with PIN Diode
Ruoyu Dai (*Xidian University*); *Lina Zhu* (*Xidian University*); *Jianjia Yi* (*Xi'an Jiaotong University*);

09:50 Metamaterial Aperture for Frequency-diverse Dual-mode OAM Beams
Ningning Zhou (*Xi'an Jiaotong University*); *Mengran Zhao* (*Xi'an Jiaotong University*); *Shitao Zhu* (*Xi'an Jiaotong University*);

10:05 Waveguide Coupler in Designer Surface Plasmon Using Topological Edge States
Li Bolin (*Xi'an Jiaotong University*); *Hongyu Shi* (*Xi'an Jiaotong University*); *Juan Chen* (*Xi'an Jiaotong University*); *Anxue Zhang* (*Xi'an Jiaotong University*); *Zhuo Xu* (*Xi'an Jiaotong University*);

10:30 **Coffee Break**

Session 1A6
SC2: Emerging Physical Properties in 1D and 2D van der Waals Materials and Their Heterostructures

Monday AM, April 25, 2022

Room Online ROOM 6

Organized by Sihan Zhao, M. Iqbal Bakti Utama

Chaired by Sihan Zhao, M. Iqbal Bakti Utama

08:00 Invited — Tunable Correlated and Topological Phenomena in ABC Trilayer Graphene on Boron Nitride Moiré Superlattice
Guorui Chen (*Shanghai Jiao Tong University*);

08:15 Invited — Probing Moiré Superlattices with Optical Spectroscopy
Chenhao Jin (*University of California, Santa Barbara*);

08:30 Invited — Theory of Excitons in 2D Magnet Materials — Interlayer Interactions and Entanglement
Ting Cao (*University of Washington*);

08:45 Invited — Real-space Visualization of Correlated States in Tunable Moiré Superlattices
Shaowei Li (*University of California, San Diego*);

09:00 Invited — Nonreciprocal Magneto-optical Scattering Effect in Two-dimensional Ferromagnetism
Bo Peng (*University of Electronic Science and Technology of China*);

09:15 Invited — Synthesis and Optical Characterizations of 1D van der Waals Hetero-structures Based on Single-walled Carbon Nanotubes
Ming Liu (*The University of Tokyo*); *Ya Feng* (*The University of Tokyo*); *Yongjia Zheng* (*The University of Tokyo*); *Shohei Chiashi* (*The University of Tokyo*); *Keigo Otsuka* (*The University of Tokyo*); *Rong Xiang* (*The University of Tokyo*); *Shigeo Maruyama* (*The University of Tokyo*);

09:30 Invited — Quasicrystals in Twisted 2D Systems
Mikito Koshino (*Osaka University*);

09:45 Optical Interfaces with a Magnetic Surface Conductivity
Yuhan Zhong (*Zhejiang University*); *Tong Cai* (*Zhejiang University*); *Tony Low* (*University of Minnesota*); *Hongsheng Chen* (*Zhejiang University*); *Xiao Lin* (*Zhejiang University*);

10:00 Invited — Probing the Emerging Physics in van der Waals Materials with Combined Optical and Electrical Probes
Sihan Zhao (*Zhejiang University*);

10:20 Electronic Correlation and Excitons in 2D Moiré Superlattices
Yanhao Tang (*Zhejiang University*);

10:35 **Coffee Break**

Session 1A7
SC2: Light-matter Interaction and Optical Field Manipulation in Metasurfaces and Metamaterials 1

Monday AM, April 25, 2022

Room Online ROOM 7

Organized by Lin Chen, Zhang-Kai Zhou

Chaired by Lin Chen, Zhang-Kai Zhou

08:00 Invited — Coupling Theory of Quasinormal Modes for Coupled Lossy and Dispersive Plasmonic Nanoresonators
Haitao Liu (*Nankai University*); *Can Tao* (*Nankai University*); *Junda Zhu* (*Nankai University*); *Ying Zhong* (*Tianjin University*);

08:20 Quantum Photonic Sources Based on Nanophotonic Structures
Xi-Feng Ren (*University of Science and Technology of China*);

08:35 All-dielectric Nanoresonators of Ultrahigh Near-field Enhancements and Their Couplings with Quantum Emitters
Zhong-Jian Yang (*Central South University*);

08:50 Light Manipulation by Jones Matrix Metasurface with Different Degrees of Freedom
Yanjun Bao (*Jinan University*);

09:05 Metasurface-based Quantum Source
Lin Li (*East China Normal University*);

09:20 Scattering Enhancement of Light in Refractive-index Near-zero Environments
Chan Wang (*Zhejiang University*); *Chao Qian* (*Zhejiang University*); *Tong Cai* (*Zhejiang University*); *Hao Hu* (*Nanyang Technological University*); *Lian Shen* (*Zhejiang University*); *Zuojia Wang* (*Zhejiang University*); *Huaping Wang* (*Zhejiang University*); *Zhiwei Xu* (*Zhejiang University*); *Baile Zhang* (*Nanyang Technological University*); *Hongsheng Chen* (*Zhejiang University*); *Xiao Lin* (*Zhejiang University*);

09:35 Alkali Metals for Plasmonics
Lin Zhou (*Nanjing University*);

09:50 Circular Metagratings for Optical Field Manipulation
Fengjun Li (*Jinan University*); *Xiangping Li* (*Jinan University*); *Zi-Lan Deng* (*Jinan University*);

10:05 Anapole Modes Generated with Plasmonic Nanoparticle Clusters
Ying Yu (*Taiyuan University of Technology*); *Peng Yue* (*Taiyuan University of Technology*); *Shao-Ding Liu* (*Taiyuan University of Technology*);

10:20 Subwavelength Generation and Manipulation of Structured Light Fields
Shenhe Fu (*Jinan University*);

10:35 **Coffee Break**

Session 1A8a
SC3: Optical Sensing and Detection 1

Monday AM, April 25, 2022

Room Online ROOM 8

Organized by Jiang Wu

Chaired by Jun Wang

08:00 Optical Sensors Based on Quantum Dots Nanocomposite Film
Xiaobo Xing (*South China Normal University*); *Pengfei Xia* (*South China Normal University*); *Zongbao Li* (*Tongren University*); *Haiyan Wang* (*Guangdong Industry Technical College*); *Jianlin Huang* (*Guangzhou Institute of Measurement and Testing Technology*);

08:15 Bionic Intelligent Photodetectors Based on TMDs
Wen Du (*University of Electronic Science and Technology of China*); *Caihong Li* (*University of Electronic Science and Technology of China*); *Jiang Wu* (*University of Electronic Science & Technology of China*);

08:30 Keynote — Innovative Path of Antimonide-based Gap-engineered Type-II Superlattices Imagers
Manijeh Razeghi (*Northeastern University*);

Session 1A8b
SC3: Optoelectronic Sensors for Chemical and Biological Applications 1

Monday AM, April 25, 2022

Room Online ROOM 8

Organized by Xiaoyu Cheng, Fan Wang

Chaired by Fan Wang, Xiaoyu Cheng

09:00 Invited — Rotational Dynamics of Cargo during Clathrin-mediated Endocytosis Revealed by Multi-dimensional Single Particle Tracking
Ning Fang (*Xiamen University*);

09:15 Invited — Aptamer-based Optical Manipulation of Protein Subcellular Localization in Cells
Sitao Xie (*Hunan University*); *Yulin Du* (*Hunan University*); *Yu Zhang* (*Hunan University*); *Zhimin Wang* (*Hunan University*); *Dailiang Zhang* (*Hunan University*); *Lei He* (*Hunan University*); *Liping Qiu* (*Hunan University*); *Jianhui Jiang* (*Hunan University*); *Weihong Tan* (*Hunan University*);

09:30 Invited — Paper-based Microfluidic Sensor Chip for the Detection of Food Contaminants
Rui Wang (*Tianjin University of Science and Technology*); *Qian Wang* (*Tianjin University of Science and Technology*); *Yang Lu* (*Tianjin University of Science and Technology*);

09:45 Invited — The Nonlinearity of Lanthnoid Ions Doped Nanocrystals for Nanoscale Biomedical Sensing
Fan Wang (*University of Technology Sydney*);

10:05 Ultra-high Density Single Molecules Interactions Detections in Breast Cancer
Yixiao Li (*Zhejiang University of Technology*); *Zhi Kang Peng* (*Zhejiang University of Technology*); *Kan Li* (*Zhejiang University of Technology*); *Dongmei Li* (*Zhejiang University of Technology*); *Yi Ruan* (*Zhejiang University of Technology*);

10:20 Invited Direct Observation of Nanoentities by an Electro-optical Nanopore and Scanning Electrochemical Cell Microscopy
Rui Gao (*University of Utah*);

10:35 **Coffee Break**

Session 1A9
SC3: Long-wavelength Integrated Photonic Devices and Applications

Monday AM, April 25, 2022

Room Online ROOM 9

Organized by Zhenzhou Cheng, Yi Zou

Chaired by Zhenzhou Cheng, Yi Zou

08:00 Invited Mid-infrared Chemical Sensing with the Topological Protection
Binbin Weng (*University of Oklahoma*); *Kiernan E. Arledge* (*University of Oklahoma*); *Bruno Uchoa* (*University of Oklahoma*); *Yi Zou* (*ShanghaiTech University*);

08:15 Invited Mid-infrared Germanium Photonic Devices and Beyond
Tinghui Xiao (*The University of Tokyo*); *Zhenzhou Cheng* (*Tianjin University*); *Keisuke Goda* (*University of California*);

09:10 Invited Infrared Integrated Chalcogenide Nonlinear Photonics
Bin Zhang (*Sun Yat-sen University*);

10:30 **Coffee Break**

Session 1A10a
SC2: Metalens and Random-structured Metamaterials

Monday AM, April 25, 2022

Room Online ROOM 10

Organized by Yaoguang Ma

Chaired by Yaoguang Ma

08:15 Invited Steering the Optical Loss of Random Plasmonic Nanostructures
Lin Zhou (*Nanjing University*);

08:30 Hierarchical-morphology Structure for Daytime Radiative Cooling Metafabric
Sijie Pian (*Zhejiang University*); *Shaoning Zeng* (*Huazhong University of Science and Technology*); *Guangming Tao* (*Huazhong University of Science and Technology*); *Yaoguang Ma* (*Zhejiang University*);

08:45 Multi-optical Effects in Two-dimensional Photonic Crystals of Metallic Pairs
Qilin Duan (*Xiamen University*); *Ying Chen* (*Huaqiao University*); *Huanyang Chen* (*Xiamen University*);

09:00 Constructing Achromatic Polarization-dependent Bifocal Metalens with Stereo-metastructures
Xiang Xiong (*Nanjing University*); *Zhenghan Wang* (*Nanjing University*); *Yajun Gao* (*Nanjing University*); *Ru-Wen Peng* (*Nanjing University*); *Mu Wang* (*Nanjing University*);

09:15 Metamaterial Hourglass Lens Design for Enhanced Magnetic Shielding
Dyuti Sengupta (*Oregon State University*); *Andreas Weisshaar* (*Oregon State University*);

09:25 Achromatic Metalens in the Visible Wavelength
Qikai Chen (*Zhejiang University*); *Yitian Liu* (*Zhejiang University*); *Yaoguang Ma* (*Zhejiang University*);

09:40 Chromatic Aberration Correction for Large-diameter Metalenses in the Long-wave Infrared Region
Yitian Liu (*Zhejiang University*); *Qikai Chen* (*Zhejiang University*); *Yaoguang Ma* (*Zhejiang University*);

Session 1A10b
SC3: Integrated Quantum Photonics 1

Monday AM, April 25, 2022

Room Online ROOM 10

Organized by Chaoyuan Jin, Feng Liu

Chaired by Chaoyuan Jin, Feng Liu

10:00 Invited Deterministic Single-photon Optical Nonlinearity Enabled by a Quantum Dot Spin
Shuo Sun (*University of Colorado Boulder*);

10:15 Invited Quantum Photonic Sources with Silicon Chip
Xi-Feng Ren (*University of Science and Technology of China*);

10:35 Invited Generation and Manipulation of Photonic Quantum States on Silicon Quantum Photonic Circuits
Wei Zhang (*Tsinghua University*);

Session 1A11a
SC2: Curved Space and Transformation Optics

Monday AM, April 25, 2022

Room Online ROOM 11

Organized by Chong Sheng, Lin Xu

Chaired by Chong Sheng, Lin Xu

08:00 Vortex Bound States by Emulating Gauge Fields of Topological Cosmic Strings
Chong Sheng (*Nanjing University*); *Yao Wang* (*Shanghai Jiao Tong University*); *S. N. Zhu* (*Nanjing University*); *Xian-Min Jin* (*Shanghai Jiao Tong University*); *H. Liu* (*Nanjing University*);

08:15 Light Rays and Waves on Curved Surfaces
Lin Xu (*Anhui University*);

08:30 Simulating a 2-D Wormhole and Its Giant Tidal Force with a Curved Waveguide
Runqiu He (*Nanjing University*);

08:45 Multiple Drains Imaging in Generalized Maxwell's Fish-eye Lenses
Yuhang Yin (*Xiamen University*); *Jing Li* (*Xiamen University*); *Huanyang Chen* (*Xiamen University*);

08:55 Controlling Wave Phases in Curved Space for Light
Yangjie Liu (*Hubei University*); *B. Vial* (*Queen Mary University of London*); *Zhu Mao* (*Hubei University*); *Kuang Peng* (*Hubei University*); *Bin Zhou* (*Hubei University*);

09:10 Pseudo-Hermitian Systems Constructed by Transformation Optics with Robustly Balanced Loss and Gain
Jie Luo (*Soochow University*); *Liyou Luo* (*Nanjing University*); *Hong Chen Chu* (*Nanjing University*); *Yun Lai* (*Nanjing University*);

09:25 The Geometric Optical Characteristics of Morse Lens
Shuwen Xue (*Xiamen University*); *Huanyang Chen* (*Xiamen University*);

09:40 Manipulating Local Photonic Density of States via Hyperbolic Metasurfaces
Songsong Li (*Soochow University*); *Lei Gao* (*Soochow University*); *Yadong Xu* (*Soochow University*);

Session 1A11b
SC2: Hyperbolic Polaritons in the Emerging Layered Materials 1

Monday AM, April 25, 2022

Room Online ROOM 11

Organized by Peining Li, Zhigao Dai

Chaired by Peining Li, Zhigao Dai

10:10 Invited Nano-optical Studies of Exciton Polaritons in Van Der Waals Semiconductors
Zhe Fei (*Iowa State University*);

10:25 Invited Nano-polaritonics in Graphene/hBN Heterostructures
Guangxin Ni (*Florida State University*);

10:40 **Coffee Break**

Session 1A12
FocusSession.SC5: Machine Learning for Electromagnetic Inverse Problems 1

Monday AM, April 25, 2022

Room Online ROOM 12

Organized by Zhun Wei, Xudong Chen

Chaired by Zhun Wei, Xudong Chen

08:00 Keynote Advances in Artificial Neural Network Techniques for Inverse Modeling of Microwave Components
Jing Jin (*Tianjin University*); *Qi-Jun Zhang* (*Carleton University*);

08:30 Machine-learning-accelerated Calibration of Electromagnetic Grain Monitoring Systems
Keeley Edwards (*University of Manitoba*); *Eungjoo Kim* (*University of Manitoba*); *Joe LoVetri* (*University of Manitoba*); *Ian Jeffrey* (*University of Manitoba*); *Colin Gilmore* (*University of Manitoba*);

08:40 Keynote Scalable Semiconductor Classical and Quantum Photonic Systems
Jelena Vuckovic (*Stanford University*);

09:10 Keynote Latest Advances in Learning-assisted Information Retrieval from Microwave Observations in Biomedical Inverse Scattering and Environmental Sensing
Mahta Moghaddam (*University of Southern California*);

09:40 A Tailored Semi-physics-driven Artificial Neural Network for Electromagnetic Full-wave Inversion
Feng Han (*Xiamen University*); *Yanjin Chen* (*Xiamen University*); *Miao Zhong* (*Xiamen University*); *Zhen Guan* (*Xiamen University*);

09:55 Focus Shaping Using Untrained Artificial Neural Network
Ze-Yang Chen (*Sun Yat-sen University*); *Zhun Wei* (*Zhejiang University*); *Rui Chen* (*Sun Yat-Sen University*);

10:30 **Coffee Break**

Session 1A13
SC5: Electromagnetic/Acoustic and Machine Learning Techniques in Oil & Gas Exploration: Modeling, Inversion, and Interpretations 1

Monday AM, April 25, 2022

Room Online ROOM 13

Organized by Decheng Hong, Jiefu Chen

Chaired by Guozhong Gao, Decheng Hong

08:00 A Novel Intelligent Inversion Method for DC Laterolog Measurements in Deviated Formation
Yizhi Wu (*China University of Petroleum (East China)*); *Yiren Fan* (*China University of Petroleum (East China)*); *Pan Zhang* (*China University of Petroleum (East China)*); *Lianyun Cai* (*China University of Petroleum (East China)*);

08:10 Solving Bubbly Flow Inverse Problem of an Electromagnetic Measurement Device
Yu Ke Lim (*National University of Singapore*); *Cheng-Gang Xie* (*Schlumberger Oilfield (S) Pte Ltd*); *Xudong Chen* (*National University of Singapore*);

08:20 Investigation of Formation Structure Effects on Electromagnetic LWD Tools Using 2.5D Finite Difference Method
Zhenguan Wu (*Southwest Petroleum University*); *Jun Zhao* (*Southwest Petroleum University*); *Yiren Fan* (*China University of Petroleum (East China)*); *Lei Wang* (*China University of Petroleum (East China)*); *Qiang Lai* (*PetroChina Southwest Oil and Gas Company*);

08:35 2D Pixel Based Inversion of Ultra-deep Electromagnetic Logging Data for Look-ahead Applications
Li Yan (*University of Houston*); *Hanming Wang* (*Chevron Energy Technology Company*); *Jiefu Chen* (*University of Houston*);

08:45 Keynote Present and Future of Borehole Electromagnetic Measurements and Their Interpretation
Carlos Torres-Verdin (*The University of Texas at Austin*);

09:10 Keynote Looking for New LWD Tools That Can Look Farther Ahead
Teruhiko Hagiwara (*Aramco Service Company*);

09:35 Keynote Dielectric Dispersion Logging: The Why, the How and Open Challenges
Laurent Mosse (*Schlumberger-Doll Research*);

10:30 **Coffee Break**

Session 1A14
SC2&SC4: 5G/B5G Enabling Antenna Systems and Associated Testing Methodology

Monday AM, April 25, 2022

Room Online ROOM 14

Organized by Xiaoming Chen, Hui Li

Chaired by Xiaoming Chen, Hui Li

08:00 Mutual Coupling Reduction for Base Station Arrays
Xiaoming Chen (*Xi'an Jiaotong University*); *Yiran Da* (*Xi'an Jiaotong University*);

08:15 Yet Another Defected Ground Structure for Decoupling of Microstrip Antennas
Bingyi Qian (*Xi'an Jiaotong University*); *Xiaoming Chen* (*Xi'an Jiaotong University*); *Ahmed A. Kishk* (*Concordia University*);

08:30 A SIW Leaky-wave Antenna Featuring Wide Beam-scanning Range and Rapid Scanning Rate for 5G Applications
Qinwei Ji (*Shenzhen University*); *Long Zhang* (*Shenzhen University*); *Jinfeng Zhang* (*Shenzhen University*); *Xianting Xie* (*Shenzhen University*); *Minqing Wang* (*Shenzhen University*); *Yejun He* (*Shenzhen University*);

08:45 Shifted Base Mode Character of Array Antenna with Failed Elements
Zhiping Li (*Beijing University of Aeronautics and Astronautics*); *Peng Huo* (*Beijing University of Aeronautics and Astronautics*);

09:00 Wideband Direction-of-Arrival Estimation and Phase Noise Compensation
Rui Lu (*Xi'an Jiaotong University*); *Jiali Kang* (*Xi'an Jiaotong University*); *Xiaoming Chen* (*Xi'an Jiaotong University*);

09:15 A Multi-feed Arrangement Algorithm for Electrically Small Antennas of Best Performance
Jiang Xiong (*University of Electronic Science and Technology of China*); *Weiquan Zhang* (*Tsinghua University*);

09:30 Wide Beam Scanning Antenna Array and Near Field Testing System for 5G Millimeter-wave Communications
Yuqi He (*Xidian University*); *Mengkai Xi* (*Xidian University*); *Sihan Lv* (*Xidian University*); *Ge Zhao* (*Xidian University*); *Luyu Zhao* (*Xidian University*);

09:45 A Novel Circularly Polarized Filtering Patch Antenna
Zhi Jing Xiao (*South China University of Technology*); *Jia Sheng Lin* (*South China University of Technology*); *Yunfei Cao* (*South China University of Technology*);

10:00 A Methodology for Designing Un-correlated MIMO Antennas
Hui Li (*Dalian University of Technology*); *Yunze Diao* (*Dalian University of Technology*);

10:30 **Coffee Break**

Session 1A15a
SC1: AI/ML for Inversion, Imaging and Design/Optimization

Monday AM, April 25, 2022

Room Online ROOM 15

Organized by Qiang Ren, Jiefu Chen

Chaired by Qiang Ren, Jiefu Chen

08:00 Wideband Schiffman Phase Shifters Designed with Deep Neural Networks
Sensong An (*University of Massachusetts Lowell*); *Bowen Zheng* (*University of Massachusetts Lowell*); *Hong Tang* (*University of Massachusetts Lowell*); *Hang Li* (*University of Massachusetts Lowell*); *Li Zhou* (*University of Massachusetts Lowell*); *Yunxi Dong* (*University of Massachusetts Lowell*); *Mohammad Haerinia* (*University of Massachusetts Lowell*); *Hualiang Zhang* (*University of Massachusetts Lowell*);

08:10 An Efficient Self-supervised Learning Approach for Enhancing the Undetermined Inversion of Multi-frequency Data
Yuchen Jin (*University of Houston*); *Wenyi Hu* (*Advanced Geophysical Technology*); *Xuqing Wu* (*University of Houston*); *Jiefu Chen* (*University of Houston*);

08:20 Physics-embedded Deep Learning for Electromagnetic Modeling and Inversion
Invited
Maokun Li (*Tsinghua University*); *Rui Guo* (*Tsinghua University*); *Tao Shan* (*Tsinghua University*); *Ke Zhang* (*Tsinghua University*); *Xiaoqian Song* (*Tsinghua University*); *Liangshuai Guo* (*Tsinghua University*); *Zekui Jia* (*Tsinghua University*); *Zhichao Lin* (*Tsinghua University*); *Hongyu Zhou* (*Tsinghua University*); *Heming Yao* (*Hong Kong University*); *Fan Yang* (*Tsinghua University*); *Shenheng Xu* (*Tsinghua University*); *Aria Abubakar* (*Schlumberger Houston Formation Evaluation*);

08:40 Inversion of Sophisticated Thermal Conductivity via Deep Learning
Yinpeng Wang (*Beihang University*); *Nianru Wang* (*Beihang University*); *Qiang Ren* (*Beihang University*);

08:55 Fast 3-D Microwave Imaging of Arbitrary Anisotropic Objects Based on Residual Network Enhanced by Variational Born Iterative Method
Junjie Fei (*Xiamen University*); *Yanjin Chen* (*Xiamen University*); *Miao Zhong* (*Xiamen University*); *Feng Han* (*Xiamen University*);

09:10 Deep Learning for the Design of Hybrid Guided Mode Resonance Optical Filters Using Forward Neural Network Combined with Matching Method
Ruoyu Shen (*Fudan University*); *Rong He* (*Fudan University*); *Junpeng Guo* (*University of Alabama in Huntsville*);

09:25 Effects of Attachment Structure of Feed Source on Radiated Field of Conical Antenna
Xiang-Qin Zhu (*Northwest Institute of Nuclear Technology*); *Wei Chen* (*Northwest Institute of Nuclear Technology*); *Gang Wu* (*Northwest Institute of Nuclear Technology*);

Session 1A15b
SC1: The Electrodynamics-quantum Mechanics and Numerical Modeling 1

Monday AM, April 25, 2022

Room Online ROOM 15

Organized by Jianwei You, Zheng-Yu Huang

Chaired by Jianwei You

09:50 Field-based Description of the Coupling between a Transmon Qubit and a Transmission Line Geometry
Thomas E. Roth (*Purdue University*); *Weng Cho Chew* (*Purdue University*);

10:00 Modelling Studies of Magnetostatic Modes in Hybrid MW-YIG Structures
Maksut Maksutoğlu (*Gebze Technical University*); *Alberto Ghirri* (*Istituto Nanoscienze-CNR*); *S. Çiğdem Yorulmaz* (*Gebze Technical University*); *Fikret Yildiz* (*Gebze Technical University*); *Marco Affronte* (*Università di Modena e Reggio Emilia*); *Bulat Rameev* (*Gebze Technical University*);

10:10 Hybrid High-bandwidth Microwave-magnon Systems for Quantum Communications and Sensing
Morteza Vafadar Yengejeh (*Gebze Technical University*); *Fikret Yildiz* (*Gebze Technical University*); *S. Çiğdem Yorulmaz* (*Gebze Technical University*); *Bulat Rameev* (*Gebze Technical University*);

10:30 **Coffee Break**

Session 1A16
SC1: Analyzing, Modelling and Suppression of Complex Electromagnetic Interference

Monday AM, April 25, 2022

Room Online ROOM 16

Organized by Yan Li, Da Yi

Chaired by Yan Li, Da Yi

08:00 A Simple Method for Calculating the Sensitivity of Near-field Scanning System Based on Transfer Function
Xin He (*Shanghai Jiao Tong University*); *Xiao-Chun Li* (*Shanghai Jiaotong University*); *Yu-Xu Liu* (*Shanghai Jiao Tong University*); *Jun-Fa Mao* (*Shanghai Jiao Tong University*);

08:15 A Circuit Model for Electromagnetic Suppressing Spurious Noise of Synchronous DC-DC Buck Convertor
Xinke Li (*Zhejiang University*); *Kaining Wang* (*Zhejiang University-University of Illinois at Urbana-Champaign Institute*); *Er Ping Li* (*Zhejiang University — UIUC Institute*);

08:30 Recent Advances in Novel Training Approaches for Microwave Parametric Modeling Using Padé via Lanczos and EM Sensitivities
Wei Liu (*Tianjin University*); *Jianan Zhang* (*Carleton University*); *Feng Feng* (*Tianjin University*); *Qi-Jun Zhang* (*Carleton University*);

08:45 Near-field Interference Suppression Techniques for Miniaturized Microwave Circuits and Compact MIMO Antenna Arrays
Da Yi (*Chongqing University*); *Ming-Chun Tang* (*Chongqing University*);

09:00 Transmission Line Model of Field-to-wire Coupling with Shielded TWP/Twinax Cables with line Apertures
Oussama Gassab (*Zhejiang University*); *Jingxiao Li* (*Zhejiang University*); *Dongdong Wang* (*Ship Development and Design Center*); *Fang He* (*Zhejiang Zhaolong Interconnect Technology Co. Ltd.*); *Qiwei Zhan* (*Zhejiang University*); *Ruilong Chen* (*Shanghai Aerospace Electronic Technology Institute*); *Wen-Yan Yin* (*Zhejiang University*);

09:15 Signal Integrity of Neuromorphic Spiking Signals on Memristor Crossbars
Can Wang (*Zhejiang University/University of Illinois at Urbana-Champaign Institute*); *Zhaoyang Feng* (*Zhejiang University*); *Shurun Tan* (*Zhejiang University/University of Illinois at Urbana-Champaign Institute*); *Tuomin Tao* (*Zhejiang University*); *En-Xiao Liu* (*A*STAR Institute of High Performance Computing*); *Shao Ying Huang* (*Singapore University of Technology and Design*); *Er Ping Li* (*Zhejiang University — UIUC Institute*);

09:30 A Novel Miniaturized Dual-band Frequency Selective Surface
Shaojie Xu (*China Jiliang University*); *Yan Li* (*China Jiliang University*); *Lidan Fang* (*China Jiliang University*); *Ning Jin* (*China Jiliang University*); *Erping Li* (*Zhejiang University*);

09:45 Electromagnetic Coupling between Power Distribution Network and On-chip Inductors in Package
Bing-Heng Li (*Zhejiang University*); *Yan Li* (*China Jiliang University*); *Er Ping Li* (*Zhejiang University — UIUC Institute*);

10:00 Study on Field Uniformity of Reverberation Chamber in Finite Space
Qinhao Sun (*Zhejiang University — University of Illinois at Urbana-Champaign Institute, ZJUI*); *Er Ping Li* (*Zhejiang University — UIUC Institute*);

10:30 **Coffee Break**

Session 1P1
SC3: Crystalline Silicon Photovoltaics

Monday PM, April 25, 2022

Room Online ROOM 1

Organized by Wensheng Yan, Liu Yang

Chaired by Wensheng Yan, Liu Yang

13:00 Invited Conductive Passivating Contact Silicon Solar Cells Based on Organic Passivation Schemes
Jun Yan (*Hebei University*); *Cuili Zhang* (*Hebei University*); *Lu Wan* (*Hebei University*); *Jianxin Guo* (*Hebei University*); *Dengyuan Song* (*Hebei University*); *Jianhui Chen* (*Hebei University*);

13:20 Effect of Atomic Configuration on Band Gap Behavior in $CH_3NH_3Sn_xPb_{1-x}I_3$ Perovskite
Li Guan (*Hebei University*); *Xiaofang Xu* (*Hebei University*); *Shichuang Han* (*Hebei University*);

13:35 Defect Engineering in N-type Cz Silicon Wafers
Chunlan Zhou (*Institute of Electrical Engineering, Chinese Academy of Sciences*); *Lei Zhao* (*Institute of Electrical Engineering, Chinese Academy of Sciences*); *Wenjing Wang* (*Institute of Electrical Engineering, Chinese Academy of Sciences*);

13:50 Invited Energy Tracing and Device Simulation of Photovoltaic Cells
Yidan An (*Soochow University*); *Tianshu Ma* (*Soochow University*); *Xiaofeng Li* (*Soochow University*);

14:10 Efficiency Addressing of the Thinned Crystalline Silicon Solar Cells towards Next PV Phase
Wensheng Yan (*Hangzhou Dianzi University*);

14:25 Device Engineering towards High-performance Large-area Organic Solar Cells
Yue Zang (*Hangzhou Dianzi University*); *Lingfeng Chen* (*Hangzhou Dianzi University*); *Jintao Zhou* (*Hangzhou Dianzi University*); *Wensheng Yan* (*Hangzhou Dianzi University*);

14:40 Invited Efficient Crystalline Silicon Solar Cells with Dopant-free Carrier-selective Heterocontacts
Jian He (*Sun Yat-sen University*); *Pingqi Gao* (*Sun Yat-sen University*);

15:00 Invited Recent Progress in High-efficiency TOPCon Solar Cells Conducted by PECVD Technical Route
Jichun Ye (*Ningbo Institute of Material Technology and Engineering, Chinese Academy of Sciences*); *Yuheng Zeng* (*Ningbo Institute of Material Technology and Engineering, Chinese Academy of Sciences*); *Haizhen Yang* (*Ningbo Institute of Material Technology and Engineering, Chinese Academy of Sciences*); *Baojie Yan* (*Ningbo Institute of Material Technology and Engineering, Chinese Academy of Sciences*);

15:30 **Coffee Break**

16:00 Flexible Crystalline Silicon Heterojunction Solar Cells with Dopant-free Carrier-selective Contacts
Liu Yang (*Zhejiang University*); *Nan Lu* (*Zhejiang University*); *Qiyun Lei* (*Zhejiang University*);

16:15 Invited Stability and Carrier Selectivity Studies of Metal Oxide-based Passivated Contact Crystalline Silicon Solar Cells
Guanlin Du (*Shanghai Advanced Research Institute, Chinese Academy of Sciences*); *Le Li* (*Shanghai Advanced Research Institute, Chinese Academy of Sciences*); *Linfeng Lu* (*Shanghai Advanced Research Institute, Chinese Academy of Sciences*); *Shan-Ting Zhang* (*Shanghai Advanced Research Institute, Chinese Academy of Sciences*); *Yinyue Lin* (*Shanghai Advanced Research Institute, Chinese Academy of Sciences*); *Dongdong Li* (*Shanghai Advanced Research Institute, Chinese Academy of Sciences*);

16:35 Invited Broadband SiNW Design for Application in Solar Cells
Zhongliang Gao (*North China Electric Power University*); *Qi Geng* (*North China Electric Power University*); *Ting Gao* (*North China Electric Power University*); *Yingfeng Li* (*North China Electric Power University*); *Lei Chen* (*North China Electric Power University*); *Meicheng Li* (*North China Electric Power University*);

18:10 Invited Hydrogenation Engineering in Crystalline Silicon Solar Cells
Lihui Song (*Hangzhou Dianzi University*);

Session 1P2a
SC3: Reconfigurable Photonic Circuits for Computing and Switching 2

Monday PM, April 25, 2022

Room Online ROOM 2

Organized by Huan Li, Nathan Youngblood, Ming Zhang

Chaired by Ming Zhang, Huan Li

13:00 Invited — Chalcogenide Phase-change Materials for Photonic Memories and Computing
Zengguang Cheng (*Fudan University*); *Harish Bhaskaran* (*University of Oxford*);

13:20 Invited — Integrated Optical Switches Realized on Silicon-Silicon Nitride Multi-layer Waveguide Platform
Linjie Zhou (*Shanghai Jiao Tong University*); *Liangjun Lu* (*Shanghai Jiao Tong University*); *Wei Gao* (*Shanghai Jiao Tong University*); *Xin Li* (*Shanghai Jiao Tong University*); *Jianping Chen* (*Shanghai Jiao Tong University*);

13:40 Invited — An Optical Computing Chip for Executing Complex-valued Neural Network and Its On-chip Training
Hui Zhang (*Nanyang Technological University*); *Ai Qun Liu* (*Nanyang Technological University*);

Session 1P2b
SC3: Artificial Intelligence Optics

Monday PM, April 25, 2022

Room Online ROOM 2

Organized by Jianji Dong, Junbo Feng

Chaired by Qiming Zhang

14:15 Invited — Artificial Intelligence Enabled Inverse Design for Nanophotonics
Qiming Zhang (*University of Shanghai for Science and Technology*); *Min Gu* (*University of Shanghai for Science and Technology*);

14:35 Optical Logic Gate Operations with Single-pixel Imaging
Shuming Jiao (*Peng Cheng Laboratory*); *Jun Feng* (*Shenzhen University*);

14:45 Invited — Photonic Spiking Neural Network: Theory, Devices, and Algorithms
Shui Ying Xiang (*Xidian University*); *Ziwei Song* (*Xidian University*); *Yanan Han* (*Xidian University*); *Yahui Zhang* (*Xidian University*); *Xingxing Guo* (*Xidian University*); *Yue Hao* (*Xidian University*);

15:05 Invited — Intelligent Optofluidic Time-stretch Microscopy for Precision Medicine
Cheng Lei (*Tsinghua University*); *Yueyun Weng* (*Tsinghua University*); *Liye Mei* (*Wuhan University*); *Du Wang* (*Wuhan University*);

15:30 **Coffee Break**

Session 1P2c
SC3: X-ray Computed Tomography and Advance Manufacturing

Monday PM, April 25, 2022

Room Online ROOM 2

Organized by Wenjuan Sun, Yushu Shi

Chaired by Wenjuan Sun

16:00 Invited — The Recent Development of X-ray Computed Tomography for Advanced Manufacturing at the National Physical Laboratory
Wenjuan Sun (*National Physical Laboratory*);

16:15 Invited — Fast Hyperparameter Calibration of Sparsity Enforcing Penalties in Total Generalised Variation Penalised Reconstruction Methods for XCT Using a Planted Virtual Reference Image
Stephane Chretien (*Universite Lyon 2*); *Camille Giampiccolo* (*Universite Bourgone-Franche-Comte*); *Wenjuan Sun* (*National Physical Laboratory*); *Jessica Talbott* (*National Physical Laboratory*);

16:30 Invited — Application of Industrial CT Technology in Additive Manufacturing Field
Jack Zuo (*YXLON (Beijing) X-ray Equipment Trading Co., Ltd.*); *Tao Sun* (*YXLON (Beijing) X-ray Equipment Trading Co., Ltd.*);

16:45 Invited — Surface Texture Traceability for XCT
Claudiu L. Giusca (*Cranfield University*);

17:00 Invited — Metrology Extension for X-ray Microscopy
Dingzhong Han (*Carl Zeiss (Shanghai) Co., Ltd.*);

17:20 Invited — The Art of the Iterative XCT Image Reconstruction
Manuchehr Soleimani (*University of Bath*);

17:35 The Application of Watershed Surface Determination Algorithm in X-ray Computed Tomography for Dimensional Metrology
Xiuyuan Yang (*Cranfield University*); *Wenjuan Sun* (*National Physical Laboratory*); *Claudiu L. Giusca* (*Cranfield University*);

17:45 Design and Application of a Novel X-ray 3D Microscope
Ying Xu (*Sanying Precision Instruments Co., Ltd*);

Session 1P3a
SC3&SC4: Industry Forum in Photonics, Electronics and Opto-electronics

Monday PM, April 25, 2022

Room Online ROOM 3

Organized by Xiaojun Wu, Xinjian Zhou

Chaired by Xiaojun Wu, Sailing He

13:00 Metasurface for Multidimensional Light Sensing
Invited
Yuanmu Yang (*Tsinghua University*);

13:20 Unlocking the Full Potential of Thin-metal-film-based
Invited Optoelectronics with Doped Silver
Cheng Zhang (*Huazhong University of Science and Technology*); *L. Jay Guo* (*The University of Michigan*);

13:40 Ultrasensing Optical Spectroscopy of Plasmonic
Keynote Nanocavity
Hongxing Xu (*Wuhan University*);

14:10 Near-field Microwave Microscopy: Application to Nondestructive Testing of Integrated Circuit
Hao Xu (*National Institute of Metrology*); *Wen Guo* (*National Institute of Metrology*); *Weijun Liang* (*National Institute of Metrology*); *Qiulai Gao* (*National Institute of Metrology*);

14:45 Silicon Nitride PICs for a Broad Application Range
Invited
Arne Leinse (*LioniX International BV*); *René Heideman* (*LioniX International*); *Tom Horner* (*LioniX International*); *Douwe Geuzebroek* (*LioniX International*); *Ronald Dekker* (*LioniX International BV*); *Erik Schreuder* (*LioniX International*); *Chris G. H. Roeloffzen* (*LioniX International BV*);

15:00 Recent Advances in Hollow-core Optical Fibre Technol-
Invited ogy
Eric Numkam Fokoua (*University of Southampton*); *Gregory T. Jasion* (*University of Southampton*); *Thomas D. Bradley* (*University of Southampton*); *Hesham Sakr* (*University of Southampton*); *Yong Chen* (*University of Southampton*); *Ian A. Davidson* (*University of Southampton*); *Kerrianne Harington* (*University of Southampton*); *Austin Taranta* (*University of Southampton*); *Gianluca Guerra* (*University of Southampton*); *John R. Hayes* (*University of Southampton*); *David J. Richardson* (*University of Southampton*); *Francesco Poletti* (*University of Southampton*);

15:15 Transforming Medical Needles with Light and Sound
Invited
Wenfeng Xia (*King's College London*);

15:30 **Coffee Break**

16:00 Terahertz Semiconductor Dual-comb Spectrometers
Invited
Hua Li (*Shanghai Institute of Microsystem & Information Technology, Chinese Academy of Sciences*); *Ziping Li* (*Shanghai Institute of Microsystem & Information Technology, Chinese Academy of Sciences*); *Yiran Zhao* (*Shanghai Institute of Microsystem & Information Technology, Chinese Academy of Sciences*); *Kang Zhou* (*Shanghai Institute of Microsystem & Information Technology, Chinese Academy of Sciences*); *J. C. Cao* (*Shanghai Institute of Microsystem & Information Technology, Chinese Academy of Sciences*);

Session 1P3b
SC2&SC3: Organic and Hybrid Optoelectronics 1

Monday PM, April 25, 2022

Room Online ROOM 3

Organized by Yuyi Feng, Dawei Di

Chaired by Yuyi Feng, Dawei Di

16:20 Structure Design and Stability Study of Perovskite Solar
Invited Cells
Peng Cui (*North China Electric Power University*); *Jun Ji* (*North China Electric Power University*); *Hao Huang* (*North China Electric Power University*); *Xinxin Wang* (*North China Electric Power University*); *Luyao Yan* (*North China Electric Power University*); *Haoran Jiang* (*North China Electric Power University*); *Xin Liu* (*North China Electric Power University*); *Mingjun Duan* (*North China Electric Power University*); *Benyu Liu* (*North China Electric Power University*); *Shujie Qu* (*North China Electric Power University*); *Shuailin Qu* (*North China Electric Power University*); *Qiang Zhang* (*North China Electric Power University*); *Meicheng Li* (*North China Electric Power University*);

16:40 Real-time Observation of Ion Migration in Perovskite
Invited and Its Influence on Device Stability
Cheng Li (*Xiamen University*);

17:00 Perovskite Ion Migration and Its Impact on Device Per-
Invited formance and Characterisation
Dongchen Lan (*Zhejiang University*);

17:20 A Rapid and Robust Light-and-solution-triggered in-situ
Invited Crafting of Organic Passivating Membrane over Metal Halide Perovskites for Markedly Improved Stability and Photocatalysis
Mengye Wang (*Sun Yat-sen University*);

Session 1P4a
SC2: Plasmonic Metamaterials and Their Emerging Applications

Monday PM, April 25, 2022

Room Online ROOM 4

Organized by Yong Jin Zhou, Wen Xuan Tang

Chaired by Yong Jin Zhou, Wen Xuan Tang

13:00 Invited — High-rate Beam Scanning Antenna Based on Coupled Resonators
Qingfeng Zhang (*South University of Science and Technology of China*); *Hongxin Zhou* (*South University of Science and Technology of China*);

13:20 — Optically and Voltage Reconfigurable Metamaterials
Kanglong Chen (*Beihang University*); *Cun-Jun Ruan* (*Beihang University*);

13:35 — Millimeter-wave Transmission Lines of Spoof Surface Plasmon Polaritons
Xiaotian Yan (*Southeast University*); *Wen Xuan Tang* (*Southeast University*); *Tie Jun Cui* (*Southeast University*);

13:50 — Optical Brewster Absorbers Exhibiting Ultra-broadband Reflectionless Absorption and Extreme Angular-asymmetry
Huiying Fan (*Soochow University*); *Jensen Li* (*Hong Kong University of Science and Technology*); *Yun Lai* (*Nanjing University*); *Jie Luo* (*Soochow University*);

14:05 Invited — Enhanced Radiation Characteristics for Vivaldi Antenna Using Spoof Surface Plasmon Polaritons
Yan Ziyi Che (*Hangzhou Dianzi University*); *Zhen Liao* (*Hangzhou Dianzi University*);

14:25 — Theoretical Investigation of Dielectric Breakdown and Laser Induced Periodic Surface Structure Formation on Silicon Surfaces
Tzveta Apostolova (*Institute for Nuclear Research and Nuclear Energy, Bulgarian Academy of Sciences*);

Session 1P4b
SC2: Metamaterial Polarization Optics and Applications

Monday PM, April 25, 2022

Room Online ROOM 4

Organized by Jin Hui Shi, Zeyong Wei

Chaired by Jin Hui Shi, Jianfa Zhang

14:35 Invited — Temporal Loss Boundary Engineered Dielectric Metamaterials
Longqing Cong (*Southern University of Science and Technology*);

14:55 Invited — Broadband Subwavelength Wave Manipulation in a Surface-wave Photonic Crystal
Zhen Gao (*Southern University of Science and Technology*);

15:15 — Ge2Sb2Te5-based Nanocavity Metasurface for Enhancement of Third Harmonic Generation
Yang Li (*Southern University of Science and Technology*); *Xuecai Zhang* (*Southern University of Science and Technology*); *Yutao Tang* (*Southern University of Science and Technology*); *Wenfeng Cai* (*Southern University of Science and Technology*); *Kuan Liu* (*Dalian University of Technology*); *Ningbin Mao* (*Southern University of Science and Technology*); *Kingfai Li* (*Southern University of Science and Technology*); *Junhong Deng* (*Southern University of Science and Technology*); *Yanjun Liu* (*Southern University of Science and Technology*); *Tun Cao* (*Dalian University of Technology*); *Guixin Li* (*Southern University of Science and Technology*);

15:30 **Coffee Break**

16:00 Invited — High Q Resonant Metasurfaces with Two-dimensional Materials, Phase Change Materials and Beyond
Xingqiao Chen (*National University of Defense Technology*); *Qi Meng* (*National University of Defense Technology*); *Qilin Hong* (*National University of Defense Technology*); *Zhihong Zhu* (*National University of Defense Technology*); *Xiao-Dong Yuan* (*National University of Defense Technology*); *Shiqiao Qin* (*National University of Defense Technology*); *Jianfa Zhang* (*National University of Defense Technology*);

16:20 Invited — Dual-band Independent Phase Control Based on High Efficiency Metasurface
Jinxing Li (*Harbin Institute of Technology*); *Yueyi Yuan* (*Harbin Institute of Technology*); *Qun Wu* (*Harbin Institute of Technology*); *Shah Nawaz Burokur* (*Univ Paris Nanterre*); *Kuang Zhang* (*Harbin Institute of Technology*);

16:40 Invited — Polarization Manipulation by Polarized Laser-induced Nanogratings: Can Metamaterials Work for Cloud Data Storage in Data Era?
Lei Wang (*Jilin University*); *Hua Fan* (*Tsinghua University*); *Zhen-Ze Li* (*Jilin University*); *Lin Wang* (*Jilin University*); *Yi Wang* (*Tsinghua University*); *Qi-Dai Chen* (*Jilin University*); *Hong-Bo Sun* (*Tsinghua University*);

17:00 Invited — Active Control of Polarization State Near an Exceptional Point of Non-Hermitian Graphene Metasurfaces
Teun-Teun Kim (*University of Ulsan*);

17:15 Keynote — The Metamaterials Driven by Light, Electromagnetic Forces, Sound and Heat
Nikolay I. Zheludev (*University of Southampton*);

17:40 Invited — Harnessing the Fabrication Imperfection in Nanophotonics-disordered Metasurfaces for Structural Colour Generation and Efficient Light Extraction
Changxu Liu (*University of Northumbria*);

17:55 Chiral Responses of Multilayered Metamaterial with Black Phosphorus
Hui Hu (*Harbin Engineering University*); *Zheng Zhu* (*Harbin Engineering University*); *Hao Zhang* (*Harbin Engineering University*); *Chunying Guan* (*Harbin Engineering University*); *Jin Hui Shi* (*Harbin Engineering University*);

Session 1P5
SC2: Nonlinear Plasmonics and Metasurfaces

Monday PM, April 25, 2022
Room Online ROOM 5
Organized by Guixin Li, Yuanmu Yang
Chaired by Guixin Li, Yuanmu Yang

13:00 Invited Metasurfaces Integrated in Fiber Lasers for Linear and Nonlinear Applications
Lili Gui (*Beijing University of Posts and Telecommunications*);

13:15 Invited Holographic Key Combination Method Based on Cascaded Metasurface
Lingling Huang (*Beijing Institute of Technology*);

13:35 Invited Hybrid Nonlinear Optical Metasurfaces: A Versatile Platform for Full Wavefront Control
Kai Wang (*Huazhong University of Science and Technology*);

13:55 Invited Nonlinear THz-nano Metasurface
Xiaojun Wu (*Beihang University*);

14:35 Keynote Engineering Ultrafast Nonlinearities in Plasmonic Nanostructures
Anatoly V. Zayats (*King's College London*);

15:00 Invited Bound State for the Continuum Modes Supported by Dielectric Nanostructures for Nonlinear Optical Applications
Zhanghua Han (*Shandong Normal University*);

15:30 **Coffee Break**

16:00 Invited Ultrafast Plasmon-exciton Coupling: From Enhanced Optical Nonlinear Emission to Rabi Oscillation
Jinhui Zhong (*University of Oldenburg*); *Jue-Min Yi* (*University of Oldenburg*); *Dong Wang* (*Technische Universität Ilmenau*); *Anke Korte* (*University of Oldenburg*); *Abbas Chimeh* (*University of Oldenburg*); *Daniel Timmer* (*University of Oldenburg*); *Thomas Quenzel* (*University of Oldenburg*); *Moritz Gittinger* (*University of Oldenburg*); *Martin Silies* (*University of Oldenburg*); *Antonietta De Sio* (*University of Oldenburg*); *Peter Schaaf* (*Technische Universität Ilmenau*); *Erich Runge* (*Technische Universitat Ilmenau*); *Christoph Lienau* (*Carl von Ossietzky Universitat Oldenburg*);

16:15 Second Harmonic Generation Based on Surface Plasmon Polaritons
Junjun Shi (*Shandong Normal University*); *Shunping Zhang* (*Wuhan University*); *Hongxing Xu* (*Wuhan University*);

16:30 Tunable Quantum Behavior and Enhanced Nonlinear Optical Response in Plasmonic Hybrids with Controlled Morphology Symmetry
Li Zhou (*Wuhan University*);

16:45 Local Field Enhancement in Hybrid Metasurfaces and Their Efficient Third Harmonic Generations
Guoxiong Cai (*Xiamen University*); *Jin Yao* (*Xiamen University*); *Na Liu* (*Xiamen University*); *Qing Huo Liu* (*Duke University*);

17:00 Giant Enhancement of Second-order Nonlinearity of Epsilon-near-zero Medium by a Plasmonic Metasurface
Junhong Deng (*Southern University of Science and Technology*); *Yutao Tang* (*Southern University of Science and Technology*); *Shumei Chen* (*School of Science, Harbin Institute of Technology (Shenzhen)*); *Kingfai Li* (*Southern University of Science and Technology*); *Anatoly V. Zayats* (*King's College London*); *Guixin Li* (*Southern University of Science and Technology*);

17:15 Harmonic Spin-orbit Angular Momentum Cascade in Nonlinear Optical Crystals
Yutao Tang (*Southern University of Science and Technology*); *Kingfai Li* (*Southern University of Science and Technology*); *Xuecai Zhang* (*Southern University of Science and Technology*); *Junhong Deng* (*Southern University of Science and Technology*); *Guixin Li* (*Southern University of Science and Technology*); *Etienne Brasselet* (*Université de Bordeaux, CNRS*);

17:30 Optically and Chemically Controllable Light Flow in Topological Plasmonic Waveguides Based on Graphene Metasurfaces
Yupei Wang (*University College London*); *Jianwei You* (*Southeast University*); *Zhihao Lan* (*University College London*); *Nicolae-Coriolan Panoiu* (*University College London*);

Session 1P6a
SC2: Infrared Materials, Devices and Applications

Monday PM, April 25, 2022
Room Online ROOM 6
Organized by Chuantao Zheng, Su Xu
Chaired by Chuantao Zheng, Su Xu

13:00 Invited Asymmetric Transmission and Polarization Manipulation in Bilayered Metamaterials
Jin Hui Shi (*Harbin Engineering University*); *Tingting Lv* (*Harbin Engineering University*); *Guohua Dong* (*Harbin Engineering University*); *Chunying Guan* (*Harbin Engineering University*);

13:20 Integrated on-chip Terahertz Plasmonic Devices
Invited
Yanfeng Li (*Tianjin University*);

13:40 A Widely Tunable InGaAs/InGaAsP DBR Laser for Gas
Invited Detection
Hongyan Yu (*Institute of Semiconductor, Chinese Academy of Science*); *Mengqi Wang* (*Institute of Semiconductor, Chinese Academy of Science*); *Daibing Zhou* (*Institute of Semiconductor, Chinese Academy of Science*); *Xuliang Zhou* (*Institute of Semiconductor, Chinese Academy of Science*); *Pengfei Wang* (*Institute of Semiconductor, Chinese Academy of Science*); *Yejin Zhang* (*Institute of Semiconductors, Chinese Academy of Science*); *Jiaoqing Pan* (*Institute of Semiconductors, Chinese Academy of Science*); *Wei Wang* (*University of Chinese Academy of Sciences*);

14:00 Mid-infrared Chalcogenide Waveguide CH_4 Sensor
Invited Based on Surface-enhanced Infrared Absorption Spectroscopy
Mingquan Pi (*Jilin University*); *Chuantao Zheng* (*Jilin University*); *Jialin Ji* (*Jilin University*); *Huan Zhao* (*Jilin University*); *Zihang Peng* (*Jilin University*); *Jiaming Lang* (*Jilin University*); *Lei Liang* (*Changchun Institute of Optics Fine Mechanics and Physics, Chinese Academy of Sciences*); *Yu Zhang* (*Jilin University*); *Yiding Wang* (*Jilin University*); *Frank K. Tittel* (*Rice University*);

14:20 Adaptive Infrared Stealth Based on Flexible Carbon Ma-
Invited terials
Huicong Chang (*Qian Xuesen Laboratory of Space Technology, China Academy of Space Technology*); *Lin Xiao* (*Qian Xuesen Laboratory of Space Technology, China Academy of Space Technology*);

14:40 Laser Processing of Infrared Materials for Anti-reflection
Invited Applications
Xue-Qing Liu (*Jilin University*);

15:00 Study of Multi-parameter in TDLAS Detection System
Invited Based on LabVIEW
Weilin Ye (*Shantou University*); *Weihao Liu* (*Shantou University*); *Zikun Xia* (*Shantou University*); *Xupeng Xiao* (*Shantou University*); *Xiaohuan Xu* (*Shantou University*); *Tao Wu* (*Shantou University*); *Fupei Wu* (*Shantou University*);

15:30 **Coffee Break**

16:00 High-efficiency Anomalous Refraction in Huygens' Metasurface
Yicheng Li (*Harbin Engineering University*); *Ruiqiang Zhao* (*Harbin Engineering University*); *Chunying Guan* (*Harbin Engineering University*); *Zheng Zhu* (*Harbin Engineering University*); *Jin Hui Shi* (*Harbin Engineering University*);

16:15 Mid-infrared Supercontinuum Laser Sources Based on Fluorotellurite Glass Fibers
Zhixu Jia (*Jilin University*); *Guanshi Qin* (*Jilin University*);

16:45 Study of Two-dimensional Plasmon Resonance of a Grating Gate HEMT
Hongyang Guo (*University of Electronic Science and Technology of China*); *Ping Zhang* (*University of Electronic Science and Technology of China*); *Shaomeng Wang* (*University of Electronic Science and Technology of China*); *Shengpeng Yang* (*University of Electronic Science and Technology of China*); *Yu-Bin Gong* (*University of Electronic Science and Technology of China*);

Session 1P6b
Metamaterials, Plasmonics and Complex Media

Monday PM, April 25, 2022

Room Online ROOM 6

Chaired by Kai Wang

17:10 Anomalous Electromagnetic Scattering in Purely Imaginary Metamaterials beyond the Critical Angle
Jiaqi Tao (*Nanjing University of Aeronautics and Astronautics*); *Jiaqing Liu* (*Nanjing University of Aeronautics and Astronautics*); *Daxing Dong* (*Nanjing University of Aeronautics and Astronautics*); *Youwen Liu* (*Nanjing University of Aeronautics and Astronautics*); *Yangyang Fu* (*Nanjing University of Aeronautics and Astronautics*);

17:25 Analysis of Extrinsic Chirality in Layer by Layer Structures Distributed in Non-planar Unit-cell Arrangements at Microwave Frequencies
Oscar Fernandez (*University of Cantabria*); *J. Ben Yamoun* (*University Abdelmalek Essaadi*); *Alvaro Gomez* (*University of Cantabria*);

17:35 Efficient Conversion from Spoof Surface Plasmon Polaritons to Radiation Mode
Jia-Yuan Yin (*Xidian University*); *Jing-Ya Deng* (*Xidian University*); *Li-Xin Guo* (*Xidian University*);

17:45 Second-harmonic Phase and Amplitude Modulations by Use of V-shaped Au/WS_2 Synthetic Metasurface
Bingxia Wang (*Ningbo University*); *Kai Wang* (*Huazhong University of Science and Technology*); *Xuanmiao Hong* (*Huazhong University of Science and Technology*); *Yan Sheng* (*Ningbo University*); *Peixiang Lu* (*Huazhong University of Science and Technology*);

Session 1P7
Light Manipulation, Propagation and Applications

Monday PM, April 25, 2022

Room Online ROOM 7

Organized by Yangjian Cai

Chaired by Yangjian Cai

13:00 Perfect Optical Coherence Lattices
Chunhao Liang (*Shandong Normal University*); *Xin Liu* (*Shandong Normal University*); *Fei Wang* (*Soochow University*); *Yangjian Cai* (*Shandong Normal University & Soochow University*);

13:15 Application of Ultrasonic Chirp-wave to Time-reversed Optical Focusing in Turbid Medium Using Phase-conjugate Light
Shaohao Tang (*Waseda University*); *Koichi Shimizu* (*Waseda University*);

13:25 Self-reconstruction of a Twisted Partially Coherent LG Beam
Haiyun Wang (*Soochow University*); *Lin Liu* (*Soochow University*); *Fei Wang* (*Soochow University*); *Yangjian Cai* (*Shandong Normal University & Soochow University*);

13:40 Self-healing of Space-time Nonseparable Flying Electromagnetic Doughnut
Ren Wang (*University of Electronic Science and Technology of China*); *Sheng Liu* (*University of Electronic Science and Technology of China*); *Mo-Ran Zhang* (*University of Electronic Science and Technology of China*); *Zhi-Qiang Hu* (*University of Electronic Science and Technology of China*); *Bing-Zhong Wang* (*University of Electronic Science and Technology of China*);

13:55 Construction and Generation of Anomalous Multi-ramp Jumping Fractional Vortex Beams
Hao Zhang (*Soochow University*); *Lin Liu* (*Soochow University*); *Fei Wang* (*Soochow University*); *Chengliang Zhao* (*Soochow University*); *Yangjian Cai* (*Shandong Normal University & Soochow University*);

14:10 Structure of Transverse Spin in Focused Random Light
Yahong Chen (*Soochow University*); *Fei Wang* (*Soochow University*); *Zhen Dong* (*Soochow University*); *Yangjian Cai* (*Shandong Normal University & Soochow University*); *Andreas Norrman* (*ETH Zurich*); *Jose J. Gil* (*University of Zaragoza*); *Ari T. Friberg* (*University of Eastern Finland*); *Tero Setala* (*University of Eastern Finland*);

14:25 Generation of Partially Coherent Beams with Non-uniformly Correlation Structure
Xinlei Zhu (*Soochow University*); *Lin Liu* (*Soochow University*); *Fei Wang* (*Soochow University*); *Yangjian Cai* (*Shandong Normal University & Soochow University*);

14:40 Propagation of Radially Polarized Hermite Non-uniformly Correlated Beams in a Turbulent Atmosphere
Shuqin Lin (*Shandong Normal University*); *Yangjian Cai* (*Shandong Normal University & Soochow University*); *Jiayi Yu* (*Shandong Normal University*);

14:55 Direct Measurement of Complex Wave Field by Exposure Lens
Yun-Yun Lai (*Beijing Institute of Technology*); *Wen-Xiu Dong* (*Beijing Institute of Technology*); *Ya-Tong He* (*Beijing Institute of Technology*); *Jin Hu* (*Beijing Institute of Technology*);

15:10 Robust Far-field Imaging by Spatial Coherence Engineering
Yonglei Liu (*Shandong Normal University*); *Yangjian Cai* (*Shandong Normal University & Soochow University*); *Chunhao Liang* (*Shandong Normal University*);

15:30 **Coffee Break**

16:00 Flexible Autofocusing Properties of AAF Beams by Means of a Cross Phase
Xin Liu (*Shandong Normal University*); *Yashar E. Monfared* (*Dalhousie University*); *Chunhao Liang* (*Shandong Normal University*); *Fei Wang* (*Soochow University*); *Bernhard J. Hoenders* (*University of Groningen*); *Yangjian Cai* (*Shandong Normal University & Soochow University*); *Pujuan Ma* (*Shandong Normal University*);

16:15 Reducing Orbital Angular Momentum Crosstalk of the Bessel-Gaussian Beam for Underwater Optical Communications
Hui Zhang (*Shandong Normal University*); *Jiayi Yu* (*Shandong Normal University*); *Yangjian Cai* (*Shandong Normal University & Soochow University*);

16:30 Optical Coherence Encryption with Structured Random Light
Deming Peng (*Soochow University*); *Yonglei Liu* (*Shandong Normal University*); *Yahong Chen* (*Soochow University*); *Fei Wang* (*Soochow University*); *Yangjian Cai* (*Shandong Normal University & Soochow University*);

16:45 Measuring Complex Correlation Matrix of Partially Coherent Vector Light via a Generalized Hanbury Brown-Twiss Experiment
Zhen Dong (*Soochow University*); *Yahong Chen* (*Soochow University*); *Fei Wang* (*Soochow University*); *Yangjian Cai* (*Shandong Normal University & Soochow University*);

17:00 The Evolution of Spectral Intensity and Orbital Angular Momentum of Twisted Hermite Gaussian Schell Model Beams in Turbulence
Rong Lin (*Shandong Normal University*); *Jiayi Yu* (*Shandong Normal University*); *Yangjian Cai* (*Shandong Normal University & Soochow University*);

17:15 Nanoparticle-doped Polymer 1D Photonic Crystals for Nonlinear Optical Applications
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*);

17:30 Single-wall Carbon Nanotubes in Water-organic Milieu as Spectral Selective Laser Intensity Filters
Ivan M. Kislyakov (*Shanghai Institute of Optics and Fine Mechanics, Chinese Academy of Sciences*); *Pavel V. Ivanov* (*Shanghai Institute of Optics and Fine Mechanics, Chinese Academy of Sciences*); *Anastasia V. Venediktova* (*St. Petersburg State University*); *Tianju Zhang* (*Shanghai Institute of Optics and Fine Mechanics, Chinese Academy of Sciences*); *Jun Wang* (*Shanghai Institute of Optics and Fine Mechanics, Chinese Academy of Sciences*); *Andrey Yu. Vlasov* (*St. Petersburg State University*);

17:45 Angular Phase Accuracy Enhancement Based on Conformal Transform
Runnan Qi (*Tongji University*); *Junhe Zhou* (*Tongji University*);

18:00 Wavelength-controlled Chirp Signal Detection Using Flat Luneburg Lens
Wen-Xiu Dong (*Beijing Institute of Technology*); *Yun-Yun Lai* (*Beijing Institute of Technology*); *Jin Hu* (*Beijing Institute of Technology*);

Session 1P8a
SC3: Optoelectronic Sensors for Chemical and Biological Applications 2

Monday PM, April 25, 2022

Room Online ROOM 8

Organized by Xiaoyu Cheng, Fan Wang

Chaired by Fan Wang, Xiaoyu Cheng

13:00 Invited Time-resolved Imaging Method for in vivo Detection
Wei Feng (*Fudan University*);

13:15 Invited Optical Detection and Regulation of Mitochondrion
Lin Li (*Northwestern Polytechnical University*);

13:30 Invited Metabolic Marker for Anti-cancer Drug Resistance Revealed by Raman-tagged Single-cell Chemical Microscopy
Shuhua Yue (*Beihang University*);

13:50 Invited Noninvasive Technique to Evaluate Turbidity in Blood Vessel from Skin Surface Using Backscattered NIR Light
Shiyang Liang (*Waseda University*); *Hiroshi Inujima* (*Waseda University*); *Koichi Shimizu* (*Waseda University*);

14:05 Invited Liquid-interfacial Ordered Orientation of Glyceride Isomers Lights Up High-resolution Raman Spectroscopy Fingerprints at Room Temperature
Shanshan Du (*Hefei University of Technology*); *Mengke Su* (*Hefei University of Technology*); *Chao Wang* (*University of Science and Technology of China*); *Zhongxiang Ding* (*University of Science and Technology of China*); *Yifan Jiang* (*University of Science and Technology of China*); *Lingling Liao* (*University of Science and Technology of China*); *Honglin Liu* (*Hefei University of Technology*);

14:20 Invited Heterodyne Brillouin Microscopy for Biomechanical Imaging
Michael Taylor A. (*The University of Queensland*); *Amanda W. Kijas* (*The University of Queensland*); *Zhao Wang* (*The University of Queensland*); *Jan Lauko* (*The University of Queensland*); *Alan E. Rowan* (*The University of Queensland*);

14:35 Invited Digital Virus Manipulation Chip with a Large Array of All-dielectric Nanocavities
Yuzhi Shi (*Nanyang Technological University*); *Che Ting Chan* (*The Hong Kong University of Science and Technology*); *Yuri Kivshar* (*The Hong Kong Polytechnic University*); *Din Ping Tsai* (*The Hong Kong Polytechnic University*); *Ai Qun Liu* (*Nanyang Technological University*);

15:05 Invited Carbon Dots with Tunable Optical Properties for Biosensing and Theranostics
Zhiming Liu (*South China Normal University*); *Luoqi Mo* (*South China Normal University*); *Hao Liu* (*South China Normal University*); *Ao Liu* (*South China Normal University*); *Yiqiao Chen* (*South China Normal University*);

15:30 **Coffee Break**

Session 1P8b
SC3: Optical Sensing and Detection 2

Monday PM, April 25, 2022

Room Online ROOM 8

Organized by Jiang Wu

Chaired by Jiang Wu

16:00 Invited 2D Materials for Mid-infrared Photonics and Optoelectronics
Qi Jie Wang (*Nanyang Technological University*);

16:15 Invited Enhancing Detection Performance of Graphene Detector with Organic Heterojunction Localized Field
Jun Wang (*University of Electronic Science and Technology of China*);

16:35 Invited Controllable Construction of On-chip Plasmonic Optical Information Devices
Zhiqiang Guan (*Wuhan University*); *Wei Dai* (*Wuhan University*); *Fuping Zhang* (*Wuhan University*); *Xiangyu Ruan* (*Wuhan University*); *Hongxing Xu* (*Wuhan University*);

16:55 Invited Plasmonic Waveguides for Remote Excitation of Surface-enhanced Spectroscopy
Yang Li (*Shenzhen University*); *Junjun Shi* (*Wuhan University*); *Meng Kang* (*Wuhan University*); *Huatian Hu* (*Wuhan University*); *Jiawei Sun* (*Shenzhen University*); *Shunping Zhang* (*Wuhan University*); *Hongxing Xu* (*Wuhan University*);

17:15 Subwavelength Diffraction Gratings for Refractometric Sensing and Narrowband Filter in the NIR Range
Hezhuang Liu (*University of Electronic Science and Technology of China*); *Wenhao Wang* (*University of Electronic Science and Technology of China*); *Jiang Wu* (*University of Electronic Science and Technology of China*);

17:30 High-performance Direct Conversion X-ray Detector Based on Liquid Diffused Separation Induced $Cs_3Bi_2I_9$ Single Crystal
Shunyong Wei (*University of Electronic Science and Technology of China*); *Aobo Ren* (*University of Electronic Science and Technology of China*); *Jiang Wu* (*University of Electronic Science & Technology of China*);

17:45 Plasmonic MXene Nanoparticles Enabled High-performance Two-dimensional MoS_2 Photodetectors
Jihua Zou (*University of Electron and Science Technology of China*); *Yixuan Huang* (*University of Electron and Science Technology of China*); *Jiang Wu* (*University of Electronic Science & Technology of China*);

18:00 Disordered Surface Plasmon Sensor for Multiple Scattering Enhanced Single Particle Detection
Joel Berk (*Imperial College London*); *Hongki Lee* (*Imperial College London*); *Donghyun Kim* (*Yonsei University*); *Matthew R. Foreman* (*Imperial College London*);

Session 1P9a
SC3: Photonic Crystals and Subwavelength Structures

Monday PM, April 25, 2022

Room Online ROOM 9

Organized by Dingshan Gao, Dan Zhang

Chaired by Dingshan Gao, Dan Zhang

13:00 A Switchable Multifunctional Modulator Realized by the Stacked Graphene-based Hyperbolic Metamaterial
Yu Ma (*Nanjing University of Posts and Telecommunications*); *Hai Feng Zhang* (*Nanjing University of Posts and Telecommunications*);

13:15 Thermally Tunable Polarization-insensitive Ultra-broadband Absorber in a Terahertz Metamaterial Sustained by the Coupled Toroidal Dipole Modes
Hao Pan (*Nanjing University of Posts and Telecommunications*); *Hai Feng Zhang* (*Nanjing University of Posts and Telecommunications*);

13:30 Realizing Ultra-bandwidth Cross-polarization Conversion by a Double-layer Metasurface
Yu-Peng Li (*Nanjing University of Posts and Telecommunications*); *Hai Feng Zhang* (*Nanjing University of Posts and Telecommunications*); *Hao Pan* (*Nanjing University of Posts and Telecommunications*); *Li Zeng* (*Nanjing University of Posts and Telecommunications*);

13:45 A Gravity Tailored Ultra-broadband Absorber Based on High-impedance Surface
Hao Zhang (*Nanjing University of Posts and Telecommunications*); *Hao Pan* (*Nanjing University of Posts and Telecommunications*); *Hai Feng Zhang* (*Nanjing University of Posts and Telecommunications*);

14:00 Optical Bistability of One-dimensional Photonic Crystals Containing of Nonlinear Plasma
Si-Si Rao (*Nanjing University of Posts and Telecommunications*); *Yu Ma* (*Nanjing University of Posts and Telecommunications*); *Hai Feng Zhang* (*Nanjing University of Posts and Telecommunications*);

14:15 Deterministic Design of Focusing Apodized Subwavelength Grating Coupler
Shuyi Li (*Huazhong University of Science and Technology*); *Lifeng Cai* (*Huazhong University of Science and Technology*); *Dingshan Gao* (*Huazhong University of Science and Technology*); *Jianji Dong* (*Huazhong University of Science and Technology*); *Xinliang Zhang* (*Huazhong University of Science and Technology*);

14:30 Dislocation Induced Higher-order Topological Corner States in Triangular Photonic Crystals
Zhihua Deng (*Huazhong University of Science and Technology*); *Dingshan Gao* (*Huazhong University of Science and Technology*);

14:45 Broadband Light Absorbers Based on Low-cost Metallic Metasurfaces
Tian Sang (*Jiangnan University*);

15:00 Theoretical Investigation of a Sensor Based on One-dimensional Photonic Crystals to Measure Four Physical Quantities
Bao-Fei Wan (*Nanjing University of Posts and Telecommunications*); *Yu Ma* (*Nanjing University of Posts and Telecommunications*); *Hai Feng Zhang* (*Nanjing University of Posts and Telecommunications*);

15:15 Dual Dielectric Cap Gold Nanoslits Array Optical Resonance Filter with Large Figure-of-merit
Rong He (*Fudan University*); *Cheng Chen* (*Fudan University*); *Rongjun Zhang* (*Fudan University*); *Liangyao Chen* (*Fudan University*); *Junpeng Guo* (*University of Alabama in Huntsville*);

15:30 **Coffee Break**

16:00 Design of Miniature Bandpass Filters Using Photonic-Crystal-Cavity in THz Band
Hao Wu (*Kanagawa University*); *Chun-Ping Chen* (*Kanagawa University*); *Liangchao Jiang* (*Kanagawa University*); *Jiaxing Fan* (*Kanagawa University*); *Tetsuo Anada* (*Kanagawa University*);

16:10 Photon-magnon Coupling in the Planar Photonic Crystal with Magnetic Defect
Aleksey A. Girich (*Usikov Institute for Radiophysics and Electronics of NAS of Ukraine*); *Sergey V. Nedukh* (*Usikov Institute for Radiophysics and Electronics of NAS of Ukraine*); *Sergey Yu. Polevoy* (*Usikov Institute for Radiophysics and Electronics of NAS of Ukraine*); *K. Yu. Sova* (*Usikov Institute for Radiophysics and Electronics of NAS of Ukraine*); *A. S. Vakula* (*Usikov Institute for Radiophysics and Electronics of NAS of Ukraine*); *Sergey I. Tarapov* (*Usikov Institute for Radiophysics and Electronics of NAS of Ukraine*);

16:20 Model Analysis of the Propagation Characteristic of Periodic Chain of Double Layer Circular Rods
Huiwen Chen (*Nanjing Forestry University*); *Dan Zhang* (*Nanjing Forestry University*); *Yang Bai* (*Nanjing Forestry University*); *Jin He* (*Nanjing Forestry University*); *Shuo Wang* (*Nanjing Forestry University*); *Hanhan Guo* (*Nanjing Forestry University*);

Session 1P9b
SC2: Active and Reconfigurable Metasurfaces: Fundamentals and Applications 1

Monday PM, April 25, 2022

Room Online ROOM 9

Organized by Yuancheng Fan, Qian Zhao, Jin Hui Shi

Chaired by Qian Zhao, Jin Hui Shi

16:45 Invited Artificial Optical Nonlinearity Generated by Metamaterial
Yongzheng Wen (*Tsinghua University*);

17:05 Invited Dyakonov Surface Waves at the Interfaces of Strong Anisotropy
Jingbo Sun (*Tsinghua University*); *Yan Li* (*Tsinghua University*); *Yongzheng Wen* (*Tsinghua University*); *Ji Zhou* (*Tsinghua University*);

17:25 Invited Application of Two-dimensional Photonic-crystal Array for Optical Switches
Guoyan Dong (*University of Chinese Academy of Sciences*);

17:45 Invited Dispersion Engineering of Spoof Surface Plasmon Polaritons
Jiafu Wang (*Air Force Engineering University*);

Session 1P10a
SC3: Integrated Quantum Photonics 2

Monday PM, April 25, 2022

Room Online ROOM 10

Organized by Chaoyuan Jin, Feng Liu

Chaired by Chaoyuan Jin, Feng Liu

13:00 Invited Superconducting Nanowire Single Photon Detectors for Quantum Information
Lixing You (*Shanghai Institute of Microsystem and Information Technology (SIMIT), Chinese Academy of Sciences*);

13:20 Invited A Single Quantum Dot in an Open Microcavity
Richard J. Warburton (*University of Basel*);

13:35 Invited Integrated Quantum Photonics with Quantum Dots
Anthony Mark Fox (*University of Sheffield*);

13:50 Solid-state Sources for Single Photons with Orbital Angular Momentum on a Semiconductor Chip
Bo Chen (*Sun Yat-sen University*); *Jin Liu* (*Sun Yat-Sen University*); *Xue-Hua Wang* (*Sun Yat-Sen University*);

Session 1P10b
SC3: Quantum Information Processing and Devices 1

Monday PM, April 25, 2022

Room Online ROOM 10

Organized by Hai-Zhi Song, Guangwei Deng

Chaired by Hai-Zhi Song, Guangwei Deng

14:10 Invited Fully Connected Quantum Network Based on Spontaneous Four-wave-mixing Quantum Light Source
Wei Zhang (*Tsinghua University*);

14:30 Bright Room Temperature Near Infrared Single Photon Emission of AlGaN Film with Single Point Defects
Yingxian Xue (*East China Normal University*); *Feiliang Chen* (*University of Electronic Science and Technology of China*); *Zhiyun Fang* (*East China Normal University*); *Shiyu Zhang* (*East China Normal University*); *Qian Li* (*Microsystem and Terahertz Research Center, China Academy of Engineering Physics*); *Mo Li* (*University of Electronic Science and Technology of China*); *Jianbin Kang* (*Microsystem and Terahertz Research Center, China Academy of Engineering Physics*); *Jian Zhang* (*University of Electronic Science and Technology of China*); *Si Shen* (*East China Normal University*); *Botao Wu* (*East China Normal University*); *E Wu* (*East China Normal University*);

14:40 Heralded Entanglement Distribution between Two Absorptive Quantum Memories
Xiao Liu (*University of Science and Technology of China*); *Jun Hu* (*University of Science and Technology of China*); *Zong-Quan Zhou* (*University of Science and Technology of China*); *Chuan-Feng Li* (*University of Science and Technology of China, CAS*); *Guang-Can Guo* (*University of Science and Technology of China, CAS*);

14:55 Invited Simultaneous Ground-state Cooling of Multiple Mechanical Resonators
Jie-Qiao Liao (*Hunan Normal University*);

15:15 Interaction-free Quantum Spectroscopy
Yu Chen (*East China Normal University*); *Yu-Jie Cai* (*East China Normal University*); *Xing-Tong Li* (*East China Normal University*); *Kun Huang* (*East China Normal Unversity*); *Jin-Ming Liu* (*East China Normal University*); *E Wu* (*East China Normal University*);

15:30 **Coffee Break**

16:00 Topological Hybrid Nano-cavity for Coupling Transition
Invited
Cuicui Lu (*Beijing Institute of Technology*);

16:20 Quantum Calibration and Applications of Multi-pixelphoton Counter
E Wu (*East China Normal University*);

16:30 Spectro-temporal Manipulation of Biphoton States at Telecom Wavelength
Rui-Bo Jin (*Wuhan Institute of Technology*); *Ryosuke Shimizu* (*University of Electro-Communications*);

16:45 Boosting the Performance of Reference-frame-independent Measurement-device-independent Quantum Key Distribution
J. Y. Liu (*Nanjing University of Posts and Telecommunications*); *X. Y. Zhou* (*Nanjing University of Posts and Telecommunications*); *Qin Wang* (*Nanjing University of Posts and Telecommunications*);

17:00 Quantum Control of Room Temperature Mechanical
Invited Resonators
Chao Meng (*The University of Queensland*); *Amy Van der Hel* (*The University of Queensland*); *Soroush Khamedi* (*The University of Queensland*); *George A. Brawley* (*The University of Queensland*); *James S. Bennett* (*The University of Queensland*); *Elizabeth Bridge* (*The University of Queensland*); *Michael Vanner* (*Imperial College London*); *Warwick P. Bowen* (*University of Queensland*);

17:15 Quantifying Quantum Coherence of Gaussian States and
Invited Optical Cat States
Xiaolong Su (*Shanxi University*); *Haijun Kang* (*Shanxi University*); *Miao Zhang* (*Shanxi University*); *Meihong Wang* (*Shanxi University*);

Session 1P11a
SC2: Hyperbolic Polaritons in the Emerging Layered Materials 2

Monday PM, April 25, 2022

Room Online ROOM 11

Organized by Peining Li, Zhigao Dai

Chaired by Peining Li, Zhigao Dai

13:00 Nanophotonics with Phonon Polaritons in 2D Materials
Keynote
Rainer Hillenbrand (*CIC nanoGUNE*);

13:25 Natural Hyperbolic Plasmons in WTe_2 Thin Films
Invited
Hugen Yan (*Fudan University*);

13:45 Manipulation of Mid-infrared Electromagnetic Fields
Invited with Biaxial Hyperbolic Phonon Polaritons
Huanjun Chen (*Sun Yat-sen University*); *Zebo Zheng* (*Sun Yat-sen University*); *Fengsheng Sun* (*Sun Yat-sen University*); *Wuchao Huang* (*Sun Yat-sen University*); *Shaozhi Deng* (*Sun Yat-sen University*); *Ningsheng Xu* (*Sun Yat-sen University*);

14:25 Infrared Nano-imaging of Local Strain in Hexagonal
Invited Boron Nitride and Bilayer Graphene
Zhiwen Shi (*Shanghai Jiao Tong University*);

14:45 Near-field Thermal Radiation between Hyperbolic Materials
Xianglei Liu (*Nanjing University of Aeronautics and Astronautics*); *Chunzhuo Dang* (*Nanjing University of Aeronautics and Astronautics*);

15:30 **Coffee Break**

Session 1P11b
SC2: Advances in Terahertz Metasurfaces

Monday PM, April 25, 2022

Room Online ROOM 11

Organized by Shulin Sun, Qiong He

Chaired by Shulin Sun

16:00 Metasuface for Terahertz Special Beams Generation
Invited
Yan Zhang (*Capital Normal University*); *Huan Zhao* (*Capital Normal University*); *Xinke Wang* (*Capital Normal University*);

16:20 Reconfigurable and Programmable Terahertz Metasur-
Invited faces Based on Liquid Crystal and Vanadium Dioxide
Jingbo Wu (*Nanjing University*); *Benwen Chen* (*Nanjing University*); *Weili Li* (*Nanjing University*); *Caihong Zhang* (*Nanjing University*); *Kebin Fan* (*Nanjing University*); *Biaobing Jin* (*Nanjing University*); *Jian Chen* (*Nanjing University*); *Peiheng Wu* (*Nanjing University*);

16:40 Dynamical Control of Terahertz Wavefronts with Cas-
Invited caded Metasurfaces
Shiyi Xiao (*Shanghai University*);

17:00 ENZ-enhanced Integrated Terahertz Generator-
Invited manipulators Using Nonlinear Metasurfaces
Xueqian Zhang (*Tianjin University*); *Yongchang Lu* (*Tianjin University*); *Xi Feng* (*Tianjin University*); *Qingwei Wang* (*Tianjin University*); *Li Niu* (*Tianjin University*); *Quan Xu* (*Tianjin University*); *Jiaguang Han* (*Tianjin University*);

17:15 Helicity-delinked Surface Wave Manipulations with Metasurfaces
Shiqing Li (*Fudan University*); *Zhuo Wang* (*Fudan University*); *Xueqian Zhang* (*Tianjin University*); *Shaohua Dong* (*Fudan University*); *Weili Zhang* (*Tianjin University*); *Qiong He* (*Fudan University*); *Shulin Sun* (*Fudan University*); *Lei Zhou* (*Fudan University*);

17:30 Dynamical Control of Terahertz Wavefronts with Graphene Metasurfaces
Xiaodong Cai (*Shanghai University*); *Shiyi Xiao* (*Shanghai University*);

17:45 A Coupled Theory for Analyzing the Coupled Metal Spiral Structure
Yu Chen (*Guilin University of Electronic Technology*); *Tao Fu* (*Guilin University of Electronic Technology*); *Runze Zhu* (*Guilin University of Electronic Technology*); *Ziyan Wang* (*Guilin University of Electronic Technology*); *Yongkang Bai* (*Guilin University of Electronic Technology*);

Session 1P12a
FocusSession.SC5: Machine Learning for Electromagnetic Inverse Problems 2

Monday PM, April 25, 2022

Room Online ROOM 12

Organized by Zhun Wei, Xudong Chen

Chaired by Zhun Wei, Xudong Chen

13:00 Inverse-design of a Wideband FSS with Dual-band Absorption Performance Based on Target-driven Deep Neural Network
Jiayi Wang (*Zhejiang University*); *Bin Zheng* (*Zhejiang University*); *Jiangtao Huangfu* (*Zhejiang University*); *Rui Xi* (*Zhejiang University*); *Hongsheng Chen* (*Zhejiang University*);

13:15 Investigation on the Generalization Ability of Electric Flux Density Learning Method
Tiantian Yin (*National University of Singapore*); *Xudong Chen* (*National University of Singapore*);

13:25 Invited Study on Non-linear Multiphysics Joint Inversion Algorithms
Maokun Li (*Tsinghua University*); *Xiaoqian Song* (*Tsinghua University*); *Rui Guo* (*Tsinghua University*); *Hongyu Zhou* (*Tsinghua University*); *Fan Yang* (*Tsinghua University*); *Shenheng Xu* (*Tsinghua University*); *Aria Abubakar* (*Schlumberger Houston Formation Evaluation*);

13:45 Recent Advances in Neuro-transfer Function Techniques for EM Parametric Modeling and Optimization
Feng Feng (*Tianjin University*); *Jianan Zhang* (*Carleton University*); *Qi-Jun Zhang* (*Carleton University*);

14:00 Invited Application of Generative Adversarial Network-based Inversion Algorithm in Imaging Two-dimensional Lossy Biaxial Anisotropic Scatterer
Daohan Yang (*Beihang University*); *Xiuzhu Ye* (*Beijing Institute of Technology*);

14:20 Towards a Calibration-free Approach to Deep Learning based Single-incidence Inverse Scattering
Girija Ramesan Karthik (*Indian Institute of Science*); *Prasanta Kumar Ghosh* (*Indian Institute of Science*);

14:30 Invited Machine Learning-incorporated Electromagnetic Modeling and Imaging
Kuiwen Xu (*Hangzhou Dianzi University*); *Zeming Qian* (*Hangzhou Dianzi University*); *Cheng Zhang* (*Hangzhou Dianzi University*);

14:50 SAR Open Set Recognition Based on Counterfactual Framework
Xiaoyan Zhou (*National University of Defense Technology*); *Tao Tang* (*National University of Defense Technology*); *Yuting Cui* (*National University of Defense Technology*); *Gangyao Kuang* (*National University of Defense Technology*);

15:05 A Robust Bypass Detection Method for LED Operating States Based on PWM Interference
Xinyu Hong (*Zhejiang University*); *Yinger Zhang* (*Zhejiang University*); *Tingjun Lai* (*Zhejiang University*); *Hengjian Ma* (*Zhejiang University*); *Jiangtao Huangfu* (*Zhejiang University*);

15:30 **Coffee Break**

Session 1P12b
FocusSession.SC5: Microwave Remote Sensing of Coastal and Marine Environments 1

Monday PM, April 25, 2022

Room Online ROOM 12

Organized by Xiaofeng Yang, Gang Zheng

Chaired by Xiaofeng Yang, Gang Zheng

16:00 Coastal Wind Retrieval from the Rotating Fan-beam Scatterometer Onboard CFOSAT
Wenming Lin (*Nanjing University of Information Science and Technology*); *Shuyan Lang* (*National Satellite Ocean Application Service*);

16:15 A Deep Learning-based Model for Cold Anticyclonic Eddies and Warm Cyclonic Eddies Detection in the Kuroshio Extension
Yingjie Liu (*Institute of Oceanology, Chinese Academy of Sciences*); *Qian Liu* (*Institute of Oceanology, Chinese Academy of Sciences*); *Xiaofeng Li* (*Institute of Oceanography, Chinese Academy of Sciences*);

16:30 Using the 50–60 GHz and 118 GHz Passive Microwave Measurements for Surface Pressure Joint Retrieval over the Oceans
Zijin Zhang (*National Space Science Center, Chinese Academy of Sciences*); *Xiaolong Dong* (*National Space Science Center, Chinese Academy of Sciences*);

16:45 Estimating Tropical Cyclone Wind Speed with Bayesian Nonparametric General Regression
Sheng Wang (*University of Macau*); *Xiaofeng Yang* (*Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences*); *Ka-Veng Yuen* (*University of Macau*);

17:00 Precipitation Inversion from MWHTS Data Using Tensorflow Framework
Kangwen Liu (*National Space Science Center, Chinese Academy of Sciences*); *Jieying He* (*National Space Science Center, Chinese Academy of Sciences*); *Haonan Chen* (*Colorado State University*);

17:15 A Machine-learning-based Model to Inverse Internal Solitary Wave Amplitude from Satellite Image
Xudong Zhang (*Institute of Oceanology, Chinese Academy of Sciences*); *Haoyu Wang* (*Institute of Oceanology, Chinese Academy of Sciences*); *Shuo Wang* (*The University of Birmingham*); *Yanliang Liu* (*First Institute of Oceanography, Ministry of Natural Resources*); *Weidong Yu* (*Sun Yat-Sen University*); *Xiaofeng Li* (*Institute of Oceanography, Chinese Academy of Sciences*);

17:30 Multi-satellite Observation of a Harmful Algal Bloom in the Beibu Gulf, South China Sea
Shaoqiong Fu (*Second Institute of Oceanography, Ministry of Natural Resources*); *Xiulin Lou* (*Second Institute of Oceanography, Ministry of Natural Resources*); *Jingsong Yang* (*Second Institute of Oceanography, State Oceanic Administration*); *Pengbin Wang* (*Second Institute of Oceanography, Ministry of Natural Resources*); *Weibing Guan* (*Second Institute of Oceanography, State Oceanic Administration*); *Dingtian Fu* (*Second Institute of Oceanography, Ministry of Natural Resources*);

17:45 Automatic Waterline Extraction of Tidal Flats from SAR Images Based on Deep Convolutional Neural Networks
Shuangshang Zhang (*Institute of Oceanology, Chinese Academy of Sciences*); *Qing Xu* (*Ocean University of China*); *Xiaofeng Li* (*Institute of Oceanography, Chinese Academy of Sciences*);

18:00 Radar Backscattering Simulation of Oil Emulsions on Sea Surface
Tingyu Meng (*Aerospace Information Research Institute, Chinese Academy of Sciences*); *Xiaofeng Yang* (*Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences*); *Kun-Shan Chen* (*Guilin University of Technology*);

Session 1P13a
SC5: Electromagnetic/Acoustic and Machine Learning Techniques in Oil & Gas Exploration: Modeling, Inversion, and Interpretations 2

Monday PM, April 25, 2022

Room Online ROOM 13

Organized by Decheng Hong, Hu Li

Chaired by Decheng Hong, Xizhou Yue

13:20 A Novel Method for Extracting Resistivity Anisotropy from EM Resistivity Logging While Drilling
Peng Kang (*China University of Petroleum (Beijing)*); *Jie Gao* (*China University of Petroleum (Beijing)*); *Hang Chen* (*China University of Petroleum (Beijing)*);

13:35 Resistivity Optimization in Different Electrical Logs of Tight Gas Reservoirs: A Case Study in the Northern Ordos
Zehou Xiang (*Chengdu University of Technology*); *Kesai Li* (*Chengdu University of Technology*); *Hucheng Deng* (*Chengdu University of Technology*); *Bin Yang* (*Chengdu University of Technology*); *Yan Liu* (*Chengdu University of Technology*);

13:45 Study on the Responses of Multi-component Electromagnetic Logging-while-drilling Based on Frequency Domain Finite Difference Method in Cylindrical Coordinate System
Jiarong Zhang (*China University of Petroleum(East China)*); *Shaogui Deng* (*China University of Petroleum (East China)*); *Pan Zhang* (*China University of Petroleum (East China)*); *Lianyun Cai* (*China University of Petroleum (East China)*);

13:55 Study on Inversion of Logging-while-drilling Extra-deep Azimuthal Resistivity Measurement Using Markov Chain Monte Carlo Algorithm
Zhongxu Yin (*China University of Petroleum (East China)*); *Lei Wang* (*China University of Petroleum (East China)*); *Yiren Fan* (*China University of Petroleum (East China)*); *Zhen Yang* (*Sinopec Matrix Corporation*); *Yizhi Wu* (*China University of Petroleum (East China)*);

14:10 Invited 3-D Generalized Born Nonlinear Approximation and Pixel-based Inversion of Multi-component Ultra-deep EM Looking Ahead Measurement While Drilling
Hongnian Wang (*Jilin University*); *Haosen Wang* (*Hebei Institute of Architecture and Civil Engineering*); *Shihan Shen* (*Jilin University*); *Changchun Yin* (*Jilin University*);

14:30 Robust Integrated Computation of Tensor Green's Functions for General Homogeneous Anisotropic Media with an Equivalent Boundary Approach
Tinlong Liu (*Yanshan University*); *Peng Zhang* (*Yanshan University*); *Yan Bai* (*China Petroleum Logging Co.*); *Qingshan Song* (*China Petroleum Logging Co.*); *Guanglong Xing* (*Yanshan University*);

14:45 Development and Application of New Directional Electromagnetic Resistivity Logging Tool While Drilling
Xizhou Yue (*Well-tech R&D Institute, China Oilfield Services Limited*); *Mingxue Ma* (*Well-tech R&D Institute, China Oilfield Services Limited*); *Guoyu Li* (*Well-tech R&D Institute, China Oilfield Services Limited*); *Tianlin Liu* (*Well-tech R&D Institute, China Oilfield Services Limited*);

15:00 A Novel Hybrid Simulation Algorithm of Transient Electromagnetic Logging Response for Hydraulic Fracturing Network
Lianyun Cai (*China University of Petroleum (East China)*); *Shaogui Deng* (*China University of Petroleum (East China)*); *Xiyong Yuan* (*China University of Petroleum*); *Yizhi Wu* (*China University of Petroleum (East China)*);

15:30 **Coffee Break**

16:00 Reconstruction of Subsurface Objects by LSM and FWI from Limited-aperture Electromagnetic Data
Miao Zhong (*Xiamen University*); *Yanjin Chen* (*Xiamen University*); *Jiawen Li* (*Xiamen University*); *Feng Han* (*Xiamen University*);

16:15 Single-channel Speech Enhancement Based on Priori SNR Estimation in DCCRN Networks
Liheng Cui (*Chongqing University of Posts and Telecommunications*); *Yufan Chen* (*Chongqing University of Posts and Telecommunications*); *Yi Zhou* (*Chongqing University of Posts and Telecommunications*); *Yu Zhao* (*Chongqing University of Posts and Telecommunications*);

Session 1P13b
Remote Sensing, Inverse Problems, Imaging, Radar and Sensing 2

Monday PM, April 25, 2022

Room Online ROOM 13

Chaired by Jing-Hui Qiu

16:30 MEO-SAR in-orbit Elevation Antenna Pattern Determination Using Nano Calibration Satellite
Tian Qiu (*Aerospace Information Research Institute, Chinese Academy of Science*); *Jun Hong* (*Aerospace Information Research Institute, Chinese Academy of Science*); *Yu Wang* (*Aerospace Information Research Institute, Chinese Academy of Science*); *Kaichu Xing* (*Aerospace Information Research Institute, Chinese Academy of Science*); *Shaoyan Du* (*Aerospace Information Research Institute, Chinese Academy of Science*); *Yang Qi* (*Aerospace Information Research Institute, Chinese Academy of Science*);

16:45 Study of Chirp-mismatch SAR Echo Imaging and Application Based on Active Radar Transponder
Guikun Liu (*University of Chinese Academy of Sciences*); *Liang Li* (*University of Chinese Academy of Sciences*); *Jun Hong* (*Institute of Electronics, Chinese Academy of Science*); *Feng Ming* (*Aerospace Information Research Institute, Chinese Academy of Sciences*);

17:00 A Neural Network Approach to Direction-of-Arrival Estimation Over Sea Surface from Bistatic Radar Scattering
Xiuyi Zhao (*Aerospace Information Research Institute, Chinese Academy of Sciences*); *Ying Yang* (*Nanjing University of Science and Technology*); *Kun-Shan Chen* (*Guilin University of Technology*);

17:15 Effect Analysis of the Core Algorithm in Fast Fourier Transform Spectrometer (FFTS)
Haowen Xu (*National Space Science Center, Chinese Academy of Sciences*); *Hao Lu* (*National Space Science Center, Chinese Academy of Sciences*); *Zhenzhan Wang* (*National Space Science Center/Center for Space Science and Applied Research, Chinese Academy of Sciences*);

17:30 Improving Training Efficiency of LSTMs While Forecasting Precipitable Water Vapours
Mayank Jain (*University College Dublin Belfield*); *Piyush Yadav* (*University of Delhi*); *Yee Hui Lee* (*Nanyang Technological University Singapore*); *Soumyabrata Dev* (*The ADAPT SFI Research Centre*);

17:40 Stability Estimates of LIDAR Range Profile Feature Extraction Techniques under Random Time Shifts
Fedor Borisovich Baulin (*Bauman Moscow State Technical University*); *Evgeny Vladlenovich Buryi* (*Bauman Moscow State Technical University*);

17:50 Design of a Health-monitoring Device for Surveillance of Power Modules Based on Fluctuations of the Local Magnetic Field
Haosu Huai (*Albert-Ludwigs-University Freiburg*); *N. Steiner* (*Albert-Ludwigs-University Freiburg*); *R. Ruiz* (*Albert-Ludwigs-University Freiburg*); *A. Schiffmacher* (*University of Freiburg*); *Juergen Wilde* (*University of Freiburg*);

18:05 Radiometer Can Be Used for Disclosing Stealth
Jing-Hui Qiu (*Harbin Institute of Technology*); *Hao Liu* (*Harbin Institute of Technology*); *Chao Wu* (*Harbin Institute of Technology*); *Oleksandr Denisov* (*Harbin Institute of Technology*); *Hongmei Li* (*Harbin Institute of Technology*);

Session 1P14a
SC2&SC4: Antennas and Radomes Based on Metamaterials/Metasurfaces

Monday PM, April 25, 2022

Room Online ROOM 14

Organized by Jiafu Wang, Cheng Jin

Chaired by Jiafu Wang

13:00 Multi-domain Joint Designed W-band Transmission-reflection Cavity Metasurface Antenna for Coincidence Imaging
Mengran Zhao (*Xi'an Jiaotong University*); *Shitao Zhu* (*Xi'an Jiaotong University*); *Mengyao Tao* (*Xi'an Jiaotong University*); *Juan Chen* (*Xi'an Jiaotong University*); *Anxue Zhang* (*Xi'an Jiaotong University*);

13:15 W-band Frequency-Polarization-Diverse Metasurface Antenna for Coincidence Imaging
Mengyao Tao (*Xi'an Jiaotong University*); *Mengran Zhao* (*Xi'an Jiaotong University*); *Ningning Zhou* (*Xi'an Jiaotong University*); *Shitao Zhu* (*Xi'an Jiaotong University*);

13:30 Single-layer Efficient Broadband Polarization Conversion Metasurface Based on Multiple Plasmon Resonances
Zhongtao Zhang (*Air Force Engineering University*); *Jiafu Wang* (*Air Force Engineering University*); *Yuxiang Jia* (*Air Force Engineering University*); *Hongya Chen* (*Air Force Engineering University*); *Mingde Feng* (*Air Force Engineering University*); *Ruichao Zhu* (*Air Force Engineering University*); *Shaobo Qu* (*Air Force Engineering University*);

13:45 Dynamically Tunable Electromagnetic Stealth Metasurface
Hong Xin Xu (*Shanghai University*); *Yanrui Chen* (*Shanghai University*); *Yong Jin Zhou* (*Shanghai University*); *Shiyi Xiao* (*Shanghai University*);

14:00 Coding Metasurface Design via Intelligence Algorithm
Ruichao Zhu (*Air Force Engineering University*); *Jiafu Wang* (*Air Force Engineering University*); *Sai Sui* (*Air Force Engineering University*); *Tianshuo Qiu* (*Air Force Engineering University*); *Xinmin Fu* (*Air Force Engineering University*); *Tonghao Liu* (*Air Force Engineering University*); *Zhenxu Wang* (*Air Force Engineering University*); *Xiaofeng Wang* (*Air Force Engineering University*); *Shaobo Qu* (*Air Force Engineering University*);

14:15 Linear Polarization Independent Planar Retro-reflectors Based on Anisotropic Binary Coding Theory
Yuxiang Jia (*Air Force Engineering University*); *Jiafu Wang* (*Air Force Engineering University*); *Meng Ding* (*Space Engineering University*); *Ruichao Zhu* (*Air Force Engineering University*); *Yajuan Han* (*Air Force Engineering University*); *Xinmin Fu* (*Air Force Engineering University*); *Hong Zhang* (*Air Force Engineering University*); *Tiefu Li* (*Air Force Engineering University*); *Shaobo Qu* (*Air Force Engineering University*);

14:30 Compact Multi-beam Antennas for Full-azimuth and Hemispherical Scan Coverage
Yury Gennadievich Pasternak (*Voronezh State Technical University*); *V. A. Pendyurin* (*Voronezh State Technical University*); *Sergey Mihajlovich Fedorov* (*Voronezh State Technical University*);

Session 1P14b
SC4: Radiation Pattern Optimization and Synthesis Techniques for Antenna Elements and Arrays

Monday PM, April 25, 2022

Room Online ROOM 14

Organized by Jiang Xiong, You-Feng Cheng

Chaired by Jiang Xiong, You-Feng Cheng

14:40 System and Design Solutions for Ground-based Deep Space Infrastructure: Optimization of the Small-base Radio Interferometer
Maxim A. Dubovitskiy (*National Research University "Moscow Power Engineering Institute"*);

14:50 Pattern Synthesis of Linear Phased Arrays with Artificial Neural Network
Yang Hong (*University of Electronic Science and Technology of China*); *Wei Shao* (*University of Electronic Science and Technology of China*);

15:00 Radiation Property Optimization and Enhancement for Omnidirectional Antennas
Jiang Xiong (*University of Electronic Science and Technology of China*); *Lidong Huang* (*University of Electronic Science and Technology of China*); *Yifan Xiong* (*University of Electronic Science and Technology of China*); *Yali Hu* (*University of Electronic Science and Technology of China*); *Haoliang Chen* (*University of Electronic Science and Technology of China*);

15:15 Work-in-Progress: Fast Synthesis, Detection and Correction of Large Planar Array
You-Feng Cheng (*Southwest Jiaotong University*); *G. Bai* (*Southwest Jiaotong University*); *F. Peng* (*Southwest Jiaotong University*); *C. Liao* (*Southwest Jiaotong University*);

15:30 **Coffee Break**

16:00 Making Small Antennas Look Big: Modifying the Local Environment
Leanne Dawn Stanfield (*University of Exeter*); *Alastair P. Hibbins* (*University of Exeter*); *J. Roy Sambles* (*University of Exeter*); *A. W. Powell* (*University of Exeter*); *Simon A. R. Horsley* (*University of Exeter*);

16:10 User-effect Alleviation for Handset Antennas Using Pattern Synthesis
Hui Li (*Dalian University of Technology*);

16:25 An Efficient Approach to the Synthesis of Sum and Difference Beam Patterns for Subarrayed Monopulse Radar Arrays
Xiaowen Zhao (*National Space Science Center, Chinese Academy of Sciences*); *Yunhua Zhang* (*National Space Science Center, Chinese Academy of Sciences*);

16:40 Low Cost Reconfigurable One-bit Phased Array Antenna for Mobile Communication
Yan Wang (*Fudan University*); *Feng Xu* (*Fudan University*);

16:55 Modified Null Broadening Beamforming Approach of Virtual Array Transformation
Yu Zhao (*Chongqing University of Posts and Telecommunications*); *Liheng Cui* (*Chongqing University of Posts and Telecommunications*); *Xuyang Sui* (*Chongqing University of Posts and Telecommunications*);

Session 1P14c
SC4: Multi-mode Antennas for Modern Communication Systems

Monday PM, April 25, 2022

Room Online ROOM 14

Organized by Neng-Wu Liu, Sheng Sun

Chaired by Neng-Wu Liu, Sheng Sun

17:10 Invited A Low-profile Wideband Dielectric Resonant Antenna under Multi-resonant Modes
Tian-Kun Sun (*Xidian University*); *Neng-Wu Liu* (*Xidian University*); *Lei Zhu* (*University of Macau*); *Guang Fu* (*Xidian University*);

17:30 Invited Multi-resonant Antennas: Design Approach and Applications
Wen-Jun Lu (*Nanjing University of Posts and Telecommunications*);

17:45 UWB-MIMO Antenna with Band-notched Structure
Baoqing Huang (*Auhui University*); *G. S. Cheng* (*Auhui University*);

18:00 The Pattern Reconfigurable Array Design for Lens Feeding
Juan Lei (*Xidian University*); *Chunbin Zhong* (*Xidian University*); *Yu Kong* (*Beijing Electro-mechanical Engineering Institute*); *Shiju Chen* (*Beijing Electro-mechanical Engineering Institute*);

18:10 Wideband Crossover Design with Its Application in Butler Matrix
Shiyuan Zhang (*University of Electronic Science and Technology of China*); *Yating Li* (*University of Electronic Science and Technology of China*); *Xiaohan Xue* (*University of Electronic Science and Technology of China*); *Sheng Sun* (*University of Electronic Science and Technology of China*);

Session 1P15a
SC1: The Electrodynamics-quantum Mechanics and Numerical Modeling 2

Monday PM, April 25, 2022

Room Online ROOM 15

Organized by Jianwei You, Zheng-Yu Huang

Chaired by Jianwei You

13:00 Manipulation of the Nonlinear Plasmonic Bound State in the Continuum of Metasurfaces with a Quantum Oscillator
Qun Ren (*Tianjin University*); *Jianwei You* (*Southeast University*);

13:15 Large-scale Real-time Lattice Simulations of Strong-field Quantum Electrodynamics on Heterogeneous Clusters
Qiang Chen (*Zhengzhou University*);

13:30 Theoretical Models and Simulation Methods for Quantum Plasmonics
Zhihao Lan (*University College London*); *Jianwei You* (*Southeast University*);

13:45 Entanglement Decay of Microwave Photon Pairs in Atmosphere in a Quantum Illumination Radar Scheme
Sylvain Borderieux (*ENSTA Bretagne*); *Arnaud Coatanhay* (*ENSTA Bretagne*); *Ali Khenchaf* (*ENSTA Bretagne*);

Session 1P15b
SC1: Advanced Multiphysics in the Emerging Electromagnetics and Optoelectronics: Theory, Modeling and Application

Monday PM, April 25, 2022

Room Online ROOM 15

Organized by Ming Fang, Kaikun Niu

Chaired by Ming Fang, Kaikun Niu

14:05 Steady-state Analysis of Bipolar Transistor
Yeqiang Yan (*Anhui Province Key Laboratory of Target Recognition and Feature Extraction*); *Xingang Ren* (*Anhui Province Key Laboratory of Target Recognition and Feature Extraction*); *Shuping He* (*Anhui University*); *Xiaotao Huang* (*Lingnan Normal University*); *Zhixiang Huang* (*Anhui Province Key Laboratory of Target Recognition and Feature Extraction*);

14:20 An Octagonal Iterative Fractal Antenna with Notch Band and UWB Characteristics
Yong Cai (*Anhui University*); *Shuping He* (*Anhui University*); *Xingang Ren* (*Anhui University*); *Zhi-Xiang Huang* (*Anhui University*);

14:35 The Hybrid Metamaterial for Improved Efficiency in Wireless Power Transfer Systems
Jian Feng (*Anhui University*); *Ming Fang* (*Anhui University*); *Ke Xu* (*Anhui University*); *Zhi-Xiang Huang* (*Anhui University*); *Xianliang Wu* (*Anhui University*);

14:50 Quantifying Efficiency Loss of Perovskite Solar Cells with an Equivalent Circuit Model
Wei E. I. Sha (*Zhejiang University*);

15:05 Design of Miniaturized UWB Low Noise Amplifier Based on 65 nm CMOS Technology
Qing Guo (*Anhui University*); *Yuting Chen* (*Anhui University*); *Xianliang Wu* (*Anhui University*);

15:30 **Coffee Break**

Session 1P15c
SC1: Efficient Modeling of Electromagnetic Fields in Complex Structures/Materials/Media

Monday PM, April 25, 2022

Room Online ROOM 15

Organized by Yongpin Chen, Yi Ren

Chaired by Yi Ren

16:00 Using Electric Field to Monitor the Continuous Casting
Rongshan Qin (*The Open University*);

16:10 The Derivation and Application of a Symmetry Relationship in Layered Medium Green's Function for Surface Integral Equation
Shuo Wang (*Beihang University*); *Qiang Ren* (*Beihang University*); *Xunwang Dang* (*Science and Technology on Electromagnetic Scattering Laboratory*); *Zhaoguo Hou* (*Science and Technology on Electromagnetic Scattering Laboratory*);

16:25 An Efficient and Accurate Nystrom Method for Calculating Scattering Properties of 2D Gratings with 1D Periodicity
Xuyang Bai (*Zhejiang University*); *Shurun Tan* (*Zhejiang University/University of Illinois at Urbana-Champaign Institute*);

16:40 1-D Inversion of Vortex Electromagnetic Wave in the Stratified Media for Thermal Barrier Coatings
Bingyang Liang (*Dongguan University of Technology*); *Yuanguo Zhou* (*Xi'an University of Science and Technology*); *Kaiyang Cheng* (*Dongguan University of Technology*); *Yang Yang* (*University of Electronic Science and Technology of China*); *Fei Shen* (*Dongguan University of Technology*); *Yu-Bin Gong* (*University of Electronic Science and Technology of China*);

16:55 An Efficient Radiation Analysis of Finite-sized Antenna Array by DGFM-MoM-CMT
Xuefeng Cheng (*Chongqing University of Posts and Telecommunications*); *Yi Ren* (*Chongqing University of Posts and Telecommunications*);

17:05 A Novel Framework of Singularity Cancellation Transformations for Strongly Near-singular Integrals
Ming-Da Zhu (*Xidian University*);

17:15 On Hybrid Approach in Microwave Scattering Theory for Wire-filled Composites
Azim Uddin (*Zhejiang University*); *Yujie Zhao* (*Zhejiang Key Research Lab of Fiber-optic Communication Technology*); *Faxiang Qin* (*Zhejiang University*);

17:30 Model of a 4-waveguide Regional Applicator for Microwave Hyperthermia
Milan Babak (*Czech Technical University in Prague*); *Jan Vrba* (*Czech Technical University in Prague*);

17:40 Sensor for Microwave Medical Diagnostics Based on Array of 8 Waveguides
Milan Babak (*Czech Technical University in Prague*); *Jan Vrba* (*Czech Technical University in Prague*);

Session 1P16a
SC1: Advances in Modeling and Optimization Methods for Realistic Applications

Monday PM, April 25, 2022

Room Online ROOM 16

Organized by Mengmeng Li, Ming Jiang

Chaired by Ming Jiang, Mengmeng Li

13:00 Artificial Doppler and Micro-Doppler Effect Induced by Time-modulated Metasurface
Ziyang Lai (*Nanjing University of Science and Technology*); *Xinyu Fang* (*Nanjing University of Science and Technology*); *Mengmeng Li* (*Nanjing University of Science and Technology*); *Da-Zhi Ding* (*Nanjing University of Science and Technology*); *Rushan Chen* (*Nanjing University of Science and Technology*);

13:15 A Hybrid Domain Decomposition Method to Accelerate the Scattering Analysis from Multiple Moving Objects
Xiong Yang (*University of Electronic Science and Technology of China*); *Jun Hu* (*University of Electronic Science and Technology of China*);

13:30 An Efficient Hybrid Method for Analysis of Large Antenna Arrays
Haifeng Liang (*Ningbo University*); *Hanru Shao* (*Ningbo University*);

13:45 A Novel Approach to Analyse the Band Gap of Mushroom-like Electromagnetic Band Gap Structure
Guanya Li (*University of Electronic Science and Technology of China*); *Hai-Yan Chen* (*University of Electronic Science and Technology of China*); *Qingting He* (*University of Electronic Science and Technology of China*); *Yunqiang Huang* (*University of Electronic Science and Technology of China*); *Li Zhang* (*University of Electronic Science and Technology of China*); *Linbo Zhang* (*University of Electronic Science and Technology of China*); *Xiao Long Weng* (*University of Electronic Science and Technology of China*); *Jianliang Xie* (*University of Electronic Science and Technology of China*); *Difei Liang* (*University of Electronic Science and Technology of China*); *Long-Jiang Deng* (*University of Electronic Science and Technology of China*);

14:00 Passive Monopulse Amplitude-comparison Three-dimensional Direction-finding Based on Six-element Antenna Array
Qilun Yang (*Science and Technology on Electronic Information Control Laboratory*); *Longbiao Hu* (*Science and Technology on Electronic Information Control Laboratory*); *Xuying Zhang* (*Science and Technology on Electronic Information Control Laboratory*); *Yanfei Li* (*Science and Technology on Electronic Information Control Laboratory*);

14:15 Keynote Beyond-5G Wireless Systems: An Opportunity for Applied Electromagnetics and Metamaterials Communities
Filiberto Bilotti (*"Roma Tre" University*); *Mirko Barbuto* (*"Niccolò Cusano" University*); *Michela Longhi* (*Niccolò Cusano University*); *Angelica Viola Marini* (*"Roma Tre" University*); *Alessio Monti* (*Niccolò Cusano University*); *Davide Ramaccia* (*"Roma Tre" University*); *Luca Stefanini* (*"Roma Tre" University*); *Alessandro Toscano* (*"Roma Tre" University*); *Stefano Vellucci* (*"Roma Tre" University*);

14:40 Optical Properties of Nanoporous Gold Sponges Using Model Structures Obtained from Three-dimensional Phase-field Simulation
Sebastian Bohm (*Technische Universität Ilmenau/Institute of Physics and Institute of Micro- and Nanotechnologies*); *Malte Grunert* (*Technische Universität Ilmenau*); *Hauke Lars Honig* (*Technische Universität Ilmenau*); *Dong Wang* (*Technische Universität Ilmenau*); *Peter Schaaf* (*Technische Universität Ilmenau*); *Erich Runge* (*Technische Universitat Ilmenau*); *Jinhui Zhong* (*University of Oldenburg*); *Christoph Lienau* (*Carl von Ossietzky Universitat Oldenburg*);

14:50 Realistic 3D Channel Model for Chipless RFID System Considering RFID Tag RCS and Multipath Components
Mohamed El-Hadidy (*The University of Duisburg-Essen*); *T. Ould Mohamed* (*IMST GmbH*);

15:30 **Coffee Break**

Session 1P16b
SC4: Microwave/Millimeter Wave Circuits and Systems for Emerging Applications

Monday PM, April 25, 2022
Room Online ROOM 16
Organized by Yongchae Jeong, Girdhari Chaudhary
Chaired by Yongchae Jeong, Girdhari Chaudhary

16:00 Compressive Direction of Arrival Estimation with Wave-chaotic Antennas
Okan Yurduseven (*Queen's University Belfast*); *T. V. Hoang* (*Queen's University Belfast*); *M. A. B. Abbasi* (*Queen's University Belfast*); *V. Fusco* (*Queen's University Belfast*);

16:10 The Design of Class-F Power Amplifier by Using Asymmetrical Composite Right-/Left-handed Transmission Line
Phanam Pech (*Jeonbuk National University*); *Suyeon Kim* (*Jeonbuk National University*); *Daehan Lee* (*Jeonbuk National University*); *Muhammad A. Chaudhary* (*Ajman University*); *Yongchae Jeong* (*Jeonbuk National University*);

16:20 Design of Matching Networks with Bandpass Filtering Response Using Stepped Impedance Resonator
Jaehun Lee (*Jeonbuk National University*); *Phanam Pech* (*Jeonbuk National University*); *Girdhari Chaudhary* (*Jeonbuk National University*); *Jongsik Lim* (*Sooncheonhyang University*); *Yongchae Jeong* (*Jeonbuk National University*);

16:30 Low Profile Patch Antenna Surrounded by Mushroom-type Resonators for Highly Integrated Wireless Devices at 60 GHz
I. Kaid Omar (*Université Paris-Saclay*); *Frederic Aniel* (*Univ. Paris-Sud*); *Nicolas Zerounian* (*Univ. Paris 11*); *Badreddine Ratni* (*Univ. Paris 11*);

Session 1P16c
Waveguide, Circuit and Microwave Technologies

Monday PM, April 25, 2022
Room Online ROOM 16
Chaired by Er Ping Li

17:00 A Compact Bandpass Filter Using 2.5-D Spoof Surface Plasmon Polaritons with Wide Out-of-band Suppression
Hong-Bin Zhu (*Shanghai Jiao Tong University*); *Lei Ji* (*Shanghai Jiao Tong University*); *Xiao-Chun Li* (*Shanghai Jiaotong University*); *Jun-Fa Mao* (*Shanghai Jiao Tong University*);

17:15 WR15 Six-port Interferometric Set-up for Millimeter-wave Characterization for Harsh Environments
Nawal Alsaleh (*University of Lille*); *Denis Pomorski* (*University of Lille*); *Mohamed Sebbache* (*University of Lille*); *Clément Lenoir* (*University of Lille*); *Kamel Haddadi* (*University of Lille*);

17:25 Filter-free Band-limited Digital Predistortion of Power Amplifiers for 5G Wireless Transmitters
Kang Han (*Beijing University of Posts and Telecommunications*); *Zhijun Liu* (*Beijing University of Posts and Telecommunications*); *Xin Hu* (*Beijing University of Posts and Telecommunications*); *Weidong Wang* (*Beijing University of Posts and Telecommunications*);

17:40 A Novel Dynamic Neuro-space Mapping Network Model for SOIFET Radio Frequency Switchs
Sichen Yang (*Zhejiang University*); *Jiefeng Zhou* (*Zhejiang University*); *Chenghan Wu* (*Zhejiang University*); *Er Ping Li* (*Zhejiang University — UIUC Institute*);

17:55 Design and Fabrication of Compact Waveguide Filter with Complementary Split-ring Resonators (CSRR)
Sergey V. Krutiev (*Southern Federal University*); *Daria V. Lonkina* (*Southern Federal University*); *P. V. Makhno* (*Southern Federal University*); *A. B. Kleshchenkov* (*Southern Federal University*); *V. V. Makhno* (*Southern Federal University*);

18:05 A Method to Obtain Initial Solution of Electromagnetic Power Divider for Inverse Design Based on Time-reversal Technique
Jin-Pin Liu (*University of Electronic Science and Technology of China*); *Ren Wang* (*University of Electronic Science and Technology of China*); *Bing-Zhong Wang* (*University of Electronic Science and Technology of China*);

18:20 Entanglement-interference Complementarity and Experimental Demonstration in a Superconducting Circuit
Peirong Han (*Fuzhou University*); *Xin-Jie Huang* (*Fuzhou University*); *Wen Ning* (*Fuzhou University*); *Shou-Bang Yang* (*Fuzhou University*); *Xin Zhu* (*Fuzhou University*); *Jia-Hao Lü* (*Fuzhou University*); *Ri-Hua Zheng* (*Fuzhou University*); *He Kang Li* (*Fuzhou University*); *Zhen-Biao Yang* (*Fuzhou University*); *Kai Xu* (*Institute of Physics, Chinese Academy of Sciences*); *Dongning Zheng* (*Fuzhou University*); *Heng Fan* (*Institute of Physics, Chinese Academy of Sciences*); *Shi-Biao Zheng* (*Fuzhou University*);

Session 1P0
Online Poster Session

Monday PM, April 25, 2022
Room Online ROOM 0

1 Minimal State Space Realization on Delay Rational Green's Function-based Macromodel
Xing Yu Wang (*Tongji University*); *Pei Si Xu* (*Tongji University*); *Mei Song Tong* (*Tongji University*);

2 Spatio-Temporal Data Prediction of Braking System Based on Residual Error
Ji Xuan Wan (*Tongji University*); *Kai Ting Zhou* (*Tongji University*); *Pei Si Xu* (*Tongji University*); *Mei Song Tong* (*Tongji University*);

3 On-chip Current Sensing Technique for H-bridge Driver System
Pei Si Xu (*Tongji University*); *Mei Song Tong* (*Tongji University*);

4 Range Migration Correction Method Based on Improved Keystone Transform for GPS-based Passive Radar
Jiahao Lu (*Naval University of Engineering*); *Binbin Wang* (*Naval University of Engineering*); *Hao Cha* (*Naval University of Engineering*); *Qiyue Liu* (*Unit 43, Peoples Liberation Army 92941*);

5 A Novel Target Detection Method for GNSS_based Bistatic Radar
Binbin Wang (*Naval University of Engineering*); *Hao Cha* (*Naval University of Engineering*); *Zibo Zhou* (*Air Force Early Warning Academy*); *Jiahao Lu* (*Naval University of Engineering*);

6 Least Mean Square Adaptive Filter Detection Based on Wavelet Transform in Spectrum Monitoring
Xin He (*Hainan University*); *Yonghui Zhang* (*Hainan University*); *Zhenjia Chen* (*Hainan University*); *Lihui Wang* (*Hainan University*);

7 Radio Frequency Fingerprint Feature Extraction Based on I/Q Data Distribution Features
Po Shao (*Hainan University*); *Zhenjia Chen* (*Hainan University*);

8 An RF I/Q Sample Data Set Acquisition Method Based on Environmental Characteristic Parameters
Ran Chen (*Hainan Unitersity*); *Zhenjia Chen* (*Hainan University*);

9 An X-band Power Amplifier Using IPD Technology on a Glass Substrate
Minsoo Park (*Korea Electronics Technology Institute*); *Hongsun Yoon* (*Korea Electronics Technology Institute*); *Jong Min Yook* (*Korea Electronics Technology Institute*); *Jein Yu* (*Korea Electronics Technology Institute*); *Jong-Gwan Yook* (*Yonsei University*); *Dongsu Kim* (*Korea Electronics Technology Institute*);

10 Study on Electromagnetic Scattering Characteristics of Complex Ground Background
Xiyu Zhang (*Xidian University*); *Li-Xin Guo* (*Xidian University*); *Chunlei Dong* (*Xidian University*); *Xiao Meng* (*Xidian University*);

11 Offshore Electromagnetic Wave Propagation Loss Model Based on Ray Tracing Method
Zhenjia Chen (*Hainan University*); *Lihui Wang* (*Hainan University*); *Ran Chen* (*Hainan University*);

12 Pre-earthquake Prediction Method Based on Electromagnetic Wave Abnormal Signal Detection
Zhenjia Chen (*Hainan University*); *Yupei Fan* (*Hainan Earthquake Agency*); *Xuanfeng Chen* (*Hainan University*);

13 Offshore Electromagnetic Environment Model Analysis and Construction
Lihui Wang (*Hainan University*); *Yonghui Zhang* (*Hainan University*); *Zhenjia Chen* (*Hainan University*); *Xuanfeng Chen* (*Hainan University*); *Xin He* (*Hainan University*);

14 A Method to Stabilize the Output Voltage of a Wireless Power Transfer System Using Variable Capacitance
Zhong-Wei Zhao (*University of Electronic Science and Technology of China*); *Zhizhang (David) Chen* (*Dalhousie University*); *Peng Cheng* (*University of Electronic Science and Technology of China*);

15 Visualization of Electromagnetic Spectrum Based on Distributed Database
Xuanfeng Chen (*Hainan University*); *Yonghui Zhang* (*Hainan University*); *Zhenjia Chen* (*Hainan University*); *Lihui Wang* (*Hainan University*);

Session 2A1
SC2&SC3: Ultrafast Laser-matter Interactions and Nanofabrications 1

Tuesday AM, April 26, 2022

Room Online ROOM 1

Organized by Xuewen Wang, Yanlei Hu

Chaired by Xuewen Wang, Yanlei Hu

08:00 Invited Femtosecond Laser Induced In-volume Nanostructures and Their Applications
Jingyu Zhang (*Huazhong University of Science and Technology*); *Qiang Cao* (*Huazhong University of Science and Technology*); *Jichao Gao* (*Huazhong University of Science and Technology*); *Zhi Yan* (*Huazhong University of Science and Technology*); *Jie Tian* (*Huazhong University of Science and Technology*); *Peiyao Li* (*Huazhong University of Science and Technology*); *Siyuan Liu* (*Huazhong University of Science and Technology*); *Qianya Xie* (*Huazhong University of Science and Technology*); *Weiliang Chen* (*Huazhong University of Science and Technology*);

08:20 Invited Femtosecond Laser Ablation: Fundamentals and Applications
Dongshi Zhang (*Shanghai Jiao Tong University*); *Zhuguo Li* (*Shanghai Jiao Tong University*);

08:40 Invited Visualizing Carrier Transport in Perovskites
Ti Wang (*Wuhan University*);

09:00 Invited Femtosecond Laser Induced Synthesis, Assembly and 3D Structuring of Functional Nanomaterials
Wei Xiong (*Huazhong University of Science and Technology*);

09:20 Invited Three Dimensional Laser Nanolithography and Its Applications in Nanophotonics
Yaoyu Cao (*Jinan University*);

09:40 Invited Nanophotonic Data Storage Enabled by Laser Interactions with Nanomaterials
Qiming Zhang (*University of Shanghai for Science and Technology*); *Min Gu* (*University of Shanghai for Science and Technology*);

10:00 **Coffee Break**

10:30 3D Waveguide Preparation by Femtosecond Laser Direct Writing
Zhen-Nan Tian (*Jilin University*); *Ze-Zheng Li* (*Jilin University*); *Zong-Da Zhang* (*Jilin University*); *Qi-Dai Chen* (*Jilin University*);

10:45 Two-photon Lithography for Achieving Cross-scale Micronano Structures with High Resolution
Mei-Ling Zheng (*Technical Institute of Physics and Chemistry, Chinese Academy of Sciences*);

11:00 Ultrafast Laser Direct Writing: From Chemistry to Photonics
Dezhi Tan (*Zhejiang Lab*);

11:15 Fabrication of Lasing Regimes Switchable Distributed Bragg Reflector Fiber Laser by Using Femtosecond Laser
Tao Chen (*Xi'an Jiaotong University*); *Ruidong Lv* (*Xi'an Jiaotong University*); *Jinhai Si* (*Xi'an Jiaotong University*); *Yuxing Hou* (*Xi'an Jiaotong University*); *Jin Huang* (*Xi'an Jiaotong University*); *Xun Hou* (*Xi'an Jiaotong University*);

11:30 Self-aligned Laser-induced Periodic Surface Structure for Large-area Controllable Nanopatterning
Jiaxu Huang (*Southern University of Science and Technology*); *Kang Xu* (*Southern University of Science and Technology*); *Shaolin Xu* (*Southern University of Science and Technology*);

Session 2A2a
SC3: Molecular Vibrational Spectroscopy and Imaging

Tuesday AM, April 26, 2022

Room Online ROOM 2

Organized by Delong Zhang, Minbiao Ji

Chaired by Delong Zhang

08:00 Optical-based Dual-frequency Intravascular Ultrasound
Lei Wang (*Beihang University*); *Pu Wang* (*Beihang University*);

08:15 Keynote Watching Life at Molecule Level by Advanced Chemical Microscopy
Ji-Xin Cheng (*Boston University*);

08:40 AI-based Stimulated Raman Scattering Microscopy Enables Rapid and Accurate Cancer Diagnosis
Shuhua Yue (*Beihang University*);

08:55 Spectroscopic Imaging for Membrane Potential Measurement
Hyeon Jeong Lee (*Zhejiang University*);

09:10 Bringing Molecular Vibrational Spectroscopy to Phase Microscopy
Delong Zhang (*Zhejiang University*);

09:25 Probing a Local Bio-nano-environment with Coherent Anti-stokes Raman Scattering Microspectroscopy
Invited
Vladislav V. Yakovlev (*Texas A&M University*); *J. T. Harrington* (*Texas A&M University*); *A. D. Shutov* (*Texas A&M University*); *H. Zhu* (*Zhejiang University*); *D. Wang* (*Zhejiang University*); *D. Zhang* (*Zhejiang University*);

09:40 Label-free Volumetric Imaging by Dual-modality Optical-Raman Projection Tomography
Nan Wang (*Xidian University*); *Xinyu Wang* (*Xidian University*); *Tianyu Yan* (*Xidian University*); *Hui Xie* (*Xidian University*); *Shouping Zhu* (*Xidian University*); *Xueli Chen* (*Xidian University*);

10:00 **Coffee Break**

Session 2A2b
SC3: Programmable Optical Devices and Circuits 1

Tuesday AM, April 26, 2022

Room Online ROOM 2

Organized by Yiwei Xie, Rajesh Kumar

Chaired by Yiwei Xie, Rajesh Kumar

10:30 Phase-change Materials for Dynamically Reconfigurable Integrated Nanophotonic and Metaphotonic Devices
Invited
Ali Adibi (*Georgia Institute of Technology*);

10:45 Photonic Integrated Circuits for Programmable Microwave Signal Generation and Processing
Keynote
Jianping Yao (*University of Ottawa*);

11:10 New Frontiers in Hybrid Photonic Integration for Advanced Microwave Photonics
Keynote
Benjamin J. Eggleton (*University of Sydney*);

11:35 Tailoring Light Using Programmable Optical Devices
Invited
Jian Wang (*Huazhong University of Science and Technology*);

Session 2A3
SC2&SC3: Photonics Empowered by Artificial Intelligence 2

Tuesday AM, April 26, 2022

Room Online ROOM 3

Organized by Yongmin Liu, Junsuk Rho, Wei Ma

Chaired by Junsuk Rho, Wei Ma

08:00 Inverse Design of Large-scale Aperiodic Meta-optics
Keynote
Zhaoyi Li (*Harvard University*); *Raphaël Pestourie* (*Massachusetts Institute of Technology*); *Joon-Suh Park* (*Korea Institute of Science and Technology*); *Steven G. Johnson* (*Massachusetts Institute of Technology*); *Federico Capasso* (*Harvard University*);

08:25 Integrated Metasystem for Fourier Optics and Machine Learning
Invited
Zi Wang (*University of Delaware*); *Lorry Chang* (*University of Delaware*); *Tingyi Gu* (*University of Delaware*);

08:40 Neural Networks for Photonics and Photonics for Neural Networks
Keynote
Marin Soljačić (*Massachusetts Institute of Technology*);

09:05 Inverse Design and Forward Modelling in Nanophotonics Using Deep-learning
Invited
Junsuk Rho (*Pohang University of Science and Technology (POSTECH)*);

09:20 The Application of Deep Neural Network for Nanophotonic Design
Invited
Li Gao (*Nanjing University of Posts and Telecommunications*);

09:40 Topology Optimization for Micro/Nano Optics
Invited
Yongbo Deng (*Changchun Institute of Optics, Fine Mechanics and Physics (CIOMP), Chinese Academy of Sciences*);

10:00 **Coffee Break**

10:30 Efficient Design of 3D Chiral Plasmonic Metasurfaces Assisted by Intelligent Algorithms
Xianglai Liao (*Beijing University of Posts and Telecommunications*); *Lili Gui* (*Beijing University of Posts and Telecommunications*); *Chuanshuo Wang* (*Beijing University of Posts and Telecommunications*); *Maoyu Feng* (*Beijing University of Posts and Telecommunications*); *Zhenming Yu* (*Beijing University of Posts and Telecommunications*); *Tian Zhang* (*Beijing University of Posts and Telecommunications*); *Kun Xu* (*Beijing University of Posts and Telecommunications*);

10:40 Accelerating the Innovation Cycle of Nanophotonic Systems Design
Invited
Jonathan A. Fan (*Stanford University*);

10:55 Deep Learning Based Modeling of Photonic Crystal Nanocavities
Renjie Li (*The Chinese University of Hong Kong*); *Xiaozhe Gu* (*The Chinese University of Hong Kong*); *Ke Li* (*The Chinese University of Hong Kong*); *Zhaoyu Zhang* (*The Chinese University of Hong Kong*);

11:10 Tactile Sensor Using a Single Optical Fiber Path and AI-based Image Recognition
Invited
Zhenming Ding (*Westlake University*); *Ziyang Zhang* (*Westlake University*);

11:30 Invited A Brewster Route to Nanophotonic Cherenkov Detectors
Xiao Lin (*Zhejiang University*); *Hao Hu* (*Nanyang Technological University*); *Sajan Easo* (*Rutherford-Appleton Laboratory (STFC)*); *Yi Yang* (*Massachusetts Institute of Technology*); *Yichen Shen* (*Massachusetts Institute of Technology*); *Kezhen Yin* (*Mantaline Corporation*); *Michele Piero Blago* (*European Organization for Nuclear Research (CERN)*); *Ido Kaminer* (*Technion, Israel Institute of Technology*); *Baile Zhang* (*Nanyang Technological University*); *Hongsheng Chen* (*Zhejiang University*); *John D. Joannopoulos* (*Massachusetts Institute of Technology*); *Marin Soljačić* (*Massachusetts Institute of Technology*); *Yu Luo* (*Nanyang Technological University*);

Session 2A4
SC2: Topological Metamaterials for Photons, Phonons and Polaritons 1

Tuesday AM, April 26, 2022

Room Online ROOM 4

Organized by Jian-Hua Jiang, Yihao Yang

Chaired by Jian-Hua Jiang, Yihao Yang

08:00 Invited Observation of Topological $\boldsymbol{Z_2}$ Exciton-polaritons in Transition Metal Dichalcogenide Monolayers
Mengyao Li (*City College of New York*); *Ivan S. Sinev* (*ITMO University*); *Fedor Benimetskiy* (*ITMO University*); *Tatyana Ivanova* (*ITMO University*); *Ekaterina Khestanova* (*ITMO University*); *Svetlana Kiriushechkina* (*City College of New York*); *Anton Vakulenko* (*City College of New York*); *Sriram Guddala* (*City College of New York*); *Maurice S. Skolnick* (*University of Sheffield*); *Vinod M. Menon* (*City University of New York*); *Dmitry N. Krizhanovskii* (*University of Sheffield*); *Andrea Alù* (*City University of New York*); *Anton K. Samusev* (*ITMO University*); *Alexander B. Khanikaev* (*Graduate Center of City University of New York*);

08:15 Invited Topological Optical Frequency Combs and Dissipative Kerr Super-solitons
Sunil Mittal (*University of Maryland*); *Gregory Moille* (*National Institute of Standards and Technology*); *Kartik Srinivasan* (*National Institute of Standards and Technology*); *Yanne K. Chembo* (*University of Maryland*); *Mohammad Hafezi* (*University of Maryland*);

08:30 Invited Gyromagnetic Topological Photonic Crystals
Baile Zhang (*Nanyang Technological University*);

08:45 Invited Experimental Discovery of Topological Wannier Cycles
Jian-Hua Jiang (*Soochow University*);

09:05 Invited Lasing in Nanostructured Lattices
Renmin Ma (*Peking University*);

09:25 Invited Manipulate Light in Artificial Lattice with Synthetic Dimensions
Luqi Yuan (*Shanghai Jiao Tong University*);

09:45 Photonic Type-III Nodal Loop and Topological Phase Transitions at Bilayer Metasurfaces
Haitao Li (*Soochow University*); *Bo Hou* (*Soochow University*); *Chuandeng Hu* (*Shenzhen Fantwave Tech. Co., Ltd*);

10:00 **Coffee Break**

10:30 Invited Chiral Mode Conversion by Encircling the Exceptional Points in Dissipative Thermal Systems
Wen-Xi Huang (*Huazhong University of Science and Technology*); *Pei-Chao Cao* (*Huazhong University of Science and Technology*); *Ying Li* (*Zhejiang University*); *Xuefeng Zhu* (*Nanjing University*);

10:50 Invited Topological Fractal Photonics
Zhaoju Yang (*Zhejiang University*);

11:10 Higher-order Topological Phases in Tunable C_3-symmetric Photonic Crystals
Hai-Xiao Wang (*Guangxi Normal University*); *Li Liang* (*Guangxi Normal University*); *Bin Jiang* (*Soochow University*); *Jian-Hua Jiang* (*Soochow University*);

11:25 Floquet Quadrupole Photonic Crystals Protected by Space-time Symmetry
Jicheng Jin (*University of Pennsylvania*); *Li He* (*University of Pennsylvania*); *Jian Lu* (*University of Pennsylvania*); *Eugene J. Mele* (*University of Pennsylvania*); *Bo Zhen* (*University of Pennsylvania*);

11:35 Optical Signal Multiplexing and Selective Localization in Dual-band Valley Topological Photonic Crystal
Guochao Wei (*Harbin Institute of Technology (Shenzhen)*); *Jun Jun Xiao* (*Harbin Institute of Technology*);

11:50 Vortex States in an Acoustic Weyl Crystal with a Topological Lattice Defect
Qiang Wang (*Nanyang Technological University*); *Yong Ge* (*Jiangsu University*); *Hong-Xiang Sun* (*Jiangsu University*); *Haoran Xue* (*Nanyang Technological University*); *Ding Jia* (*Jiangsu University*); *Yi-Jun Guan* (*Jiangsu University*); *Shou-Qi Yuan* (*Jiangsu University*); *Baile Zhang* (*Nanyang Technological University*); *Y. D. Chong* (*Nanyang Technological University*);

Session 2A5a
SC2: Acoustic Metasurfaces and Their Applications

Tuesday AM, April 26, 2022

Room Online ROOM 5

Organized by Yun Jing, Yong Li

Chaired by Yun Jing

08:00 Acoustic Metamaterials for Sound Manipulation and Beyond
Invited
Bin Liang (*Nanjing University*);

08:20 Reconfigurable Surface Acoustic Wave Devices by Gate Tunable Thin-film Transistors
Invited
Chen Shen (*Rowan University*); *Shiheng Lu* (*Duke University*); *Zhenhua Tian* (*Mississippi State University*); *Tony Jun Huang* (*Duke University*); *Aaron D. Franklin* (*Duke University*); *Steven A. Cummer* (*Duke University*);

08:35 Pillared Metasurface for Manipulating Flexural Waves
Invited
Yabin Jin (*Tongji University*); *Wan Wang* (*Tongji University*); *Julio Iglesias* (*Institut FEMTO-ST, CNRS, Université de Bourgogne Franche-Comté 15B Avenue des Montboucons*); *Abdelkrim Khelif* (*Georgia Institute of Technology*); *Bahram Djafari-Rouhani* (*IEMN-DHS, Institut d'Electronique*);

08:55 Efficient Mode Converter and Orbital-angular-momentum Generator via Gradient-index Metamaterials
Chuan Jie Hu (*Xiamen University*); *Huanyang Chen* (*Xiamen University*);

09:05 Design Method of Broadband Acoustic Metasurfaces Based on the Transmission-line Theory
Tsutomu Nagayama (*Kagoshima University*);

09:15 Acoustic Vortex Diffraction and Manipulation Using Phase Gradient Metasurfaces
Xiao Li (*Nanjing University of Aeronautics and Astronautics*); *Daxing Dong* (*Nanjing University of Aeronautics and Astronautics*); *Youwen Liu* (*Nanjing University of Aeronautics and Astronautics*); *Yadong Xu* (*Soochow University*); *Yangyang Fu* (*Nanjing University of Aeronautics and Astronautics*);

09:30 Broadband Acoustic Ventilation Barriers
Xu Wang (*Tongji University*); *Dongxing Mao* (*Tongji University*); *Yong Li* (*Tongji University*);

09:45 Acoustic Field Manipulations with Geometric-phase Meta-atoms
Bingyi Liu (*Beijing Institute of Technology*); *Lingling Huang* (*Beijing Institute of Technology*);

10:00 **Coffee Break**

10:30 High Performance Transparent Conductors for Low-RCS and Low-ECC MIMO Antenna Applications
Liang Zhu (*University of Illinois*); *Dung Ha* (*University of Illinois*); *Cheng Zhang* (*University of Illinois*); *Pai-Yen Chen* (*University of Illinois at Chicago*); *L. Jay Guo* (*The University of Michigan*);

10:40 Inverse Design of Large-scale Functional Metasurfaces
Dasen Zhang (*Harbin Institute of Technology (Shenzhen)*); *Zhenzhen Liu* (*Harbin Institute of Technology (Shenzhen)*); *Jun Jun Xiao* (*Harbin Institute of Technology*);

10:55 Selective Multi-wavelength and Narrowband Infrared Thermal Emitters
Invited
Hui-Hsin Hsiao (*National Taiwan Normal University*); *Bo-Ting Xu* (*National Taiwan Normal University*); *Chu-Han Huang* (*National Taiwan Normal University*); *Po-Wei Ho* (*National Taiwan Normal University*); *Guan-Ting Chen* (*National Taiwan Normal University*);

11:10 Multifunctional Devices Based on Spin-decoupled Pancharatnam-Berry Metasurfaces
Invited
Shiwei Tang (*Ningbo University*); *Fei Ding* (*University of Southern Denmark*); *Tong Cai* (*Airforce Engineering University*); *He-Xiu Xu* (*Air Force Engineering University*);

11:30 Giant Enhancement of Second Harmonic Generation from a Nanocavity Metasurface
Xuecai Zhang (*Southern University of Science and Technology*); *Junhong Deng* (*Southern University of Science and Technology*); *Mingke Jin* (*Southern University of Science and Technology*); *Yang Li* (*Southern University of Science and Technology*); *Ningbin Mao* (*Southern University of Science and Technology*); *Yutao Tang* (*Southern University of Science and Technology*); *Xuan Liu* (*Southern University of Science and Technology*); *Wenfeng Cai* (*Southern University of Science and Technology*); *Yao Wang* (*Southern University of Science and Technology*); *Kingfai Li* (*Southern University of Science and Technology*); *Yanjun Liu* (*Southern University of Science and Technology*); *Guixin Li* (*Southern University of Science and Technology*);

11:45 Optical Metasurface-based Masquerade
Invited
Kun Huang (*University of Science and Technology of China*);

Session 2A5b
Recent Advances in Optical Metasurfaces 1

Tuesday AM, April 26, 2022
Room Online ROOM 5
Organized by Cheng Zhang, Fei Ding
Chaired by Cheng Zhang, Fei Ding

Session 2A6a
SC2: Twist-controlled Electromagnetic, Acoustic and Thermal Phenomena

Tuesday AM, April 26, 2022
Room Online ROOM 6
Organized by Qingdong Ou, Guangwei Hu
Chaired by Guangwei Hu, Ying Chen

08:00 Moiré Chiral Metamaterials: Fundamentals and Applications
Invited
Zilong Wu (*The University of Texas at Austin*); *Yaoran Liu* (*The University of Texas at Austin*); *Yuebing Zheng* (*The University of Texas at Austin*);

08:15 Twist Degree of Freedom — From 2D Material Growth to Photonic Crystals
Invited
Jie Yao (*University of California*);

08:30 Phononic Analog of Bilayer Graphene
Invited
Yun Jing (*The Pennsylvania State University*);

08:45 On-demand Field Shaping for Enhanced Magnetic Resonance Imaging Using an Ultrathin Reconfigurable Metasurface
Invited
Yang Zhao (*University of Illinois at Urbana-Champaign*); *Hanwei Wang* (*University of Illinois at Urbana-Champaign*); *Yun-Sheng Chen* (*University of Illinois at Urbana-Champaign*);

09:00 Observation of Ideal Type-II Weyl Points in Twisted One-dimensional Dielectric Photonic Crystals
Ying Chen (*Huaqiao University*); *Hai-Xiao Wang* (*Guangxi Normal University*); *Qiaoliang Bao* (*The Hong Kong Polytechnical University*); *Jian-Hua Jiang* (*Soochow University*); *Huanyang Chen* (*Xiamen University*);

09:15 Twisted Polaritonics
Keynote
Andrea Alù (*City University of New York*);

09:40 Cavity Control of Excitons in Twisted Heterobilayers
Invited
Long Zhang (*Xiamen University*); *Eunice Paik* (*University of Michigan*); *Fengcheng Wu* (*University of Maryland*); *Shaocong Hou* (*University of Michigan*); *G. William Burg* (*University of Texas at Austin*); *Emmanuel Tutuc* (*University of Texas at Austin*); *Stephen R. Forrest* (*University of Michigan*); *Hui Deng* (*University of Michigan*);

10:00 **Coffee Break**

10:30 Light Localization and Steering in Photonic Moiré Lattices
Invited
Fangwei Ye (*Shanghai Jiao Tong University*);

10:50 The Near-field Radiative Heat Transfer of Hyperbolic Materials
Invited
Xiaohu Wu (*Shandong Institute of Advanced Technology*);

11:15 Observation of Higher-order Non-Hermitian Skin Effect
Xiujuan Zhang (*Nanjing University*); *Yuan Tian* (*Nanjing University*); *Jian-Hua Jiang* (*Soochow University*); *Ming-Hui Lu* (*Nanjing University*); *Yan-Feng Chen* (*Nanjing University*);

11:30 Non-Hermiticity Induced Topological Orders in Photonics
Xi-Wang Luo (*The University of Texas at Dallas*); *Chuanwei Zhang* (*The University of Texas at Dallas*);

11:40 Non-Hermitian Acoustic Ring Cavity and Its Application in Chiral Sound Manipulation
Tuo Liu (*The Hong Kong Polytechnic University*); *Jie Zhu* (*The Hong Kong Polytechnic University*);

11:50 Symmetry-protected Topological Exceptional Chains
Xiaohan Cui (*The Hong Kong University of Science and Technology*); *Ruo-Yang Zhang* (*The Hong Kong University of Science and Technology*); *Che Ting Chan* (*The Hong Kong University of Science and Technology*);

Session 2A6b
SC2: Non-Hermitian Physics and Its Applications in Light and Sound 1

Tuesday AM, April 26, 2022
Room Online ROOM 6
Organized by Guancong Ma, Kun Ding
Chaired by Guancong Ma

Session 2A7a
SC2&SC3: Cavity Optomechanics 1

Tuesday AM, April 26, 2022
Room Online ROOM 7
Organized by Yong-Chun Liu, Zhangqi Yin
Chaired by Yong-Chun Liu, Zhangqi Yin

08:00 Quantum Optomechanics with Virtual Photons
Invited
Tongcang Li (*Purdue University*);

08:15 Measurement of High-order Phonon Correlations in a Superfluid Optomechanical Resonator
Invited
Yogesh Patil (*Yale University*);

08:30 Quantum Simulation of Cavity Optomechanics
Invited
Jie-Qiao Liao (*Hunan Normal University*);

08:50 Phonon Lasing and Mode Squeezing with Mechanical Resonators
Invited
Guangwei Deng (*University of Electronic Science and Technology of China*);

09:10 Multi-mode Interactions and Synchronizations in the Si-PhC Cavity Optomechanics
Invited
Yongjun Huang (*University of Electronic Science and Technology of China*);

Session 2A7b
SC3: Supercontinuum and Frequency Combs: Fundamental Physics and Applications 1

Tuesday AM, April 26, 2022
Room Online ROOM 7
Organized by Feng Li, Zhe Kang
Chaired by Feng Li, Zhe Kang

09:30 Invited Dynamical Methods for Studying Stability and Noise in Frequency Comb Sources
Curtis R. Menyuk (*University of Maryland Baltimore County*); *Logan Courtright* (*University of Maryland Baltimore County*); *Zhen Qi* (*University of Maryland Baltimore County*); *Shaokang Wang* (*University of Maryland Baltimore County*); *Thomas F. Carruthers* (*University of Maryland Baltimore County*);

09:45 Invited Integrated Lithium-niobate Electro-optic Devices
Mengjie Yu (*Harvard University*);

10:00 **Coffee Break**

10:30 Keynote Supercontinuum and Frequency Combs: Fundamental Physics and Applications
John E. Bowers (*University of California, Santa Barbara*); *Lin Chang* (*University of California, Santa Barbara*); *Chao Xiang* (*University of California, Santa Barbara*);

10:55 Invited Soliton Microcombs: Integrated Photonics Powering Metrology
Qi-Fan Yang (*Peking Universiy*);

11:15 Invited Microresonator Frequency Combs Generated by MgF_2 Crystalline Microresonator and SiN Microring for Telecom Applications
Takasumi Tanabe (*Keio University*); *Shun Fujii* (*Keio University*); *Soma Kogure* (*Keio University*); *Satoki Kawanishi* (*Keio University*);

Session 2A8
SC3: Organic Photonics 1

Tuesday AM, April 26, 2022
Room Online ROOM 8
Organized by Qing Liao, Hongbing Fu
Chaired by Hongbing Fu, Qing Liao

08:00 Invited Lasing from an Organic Micro-helix
Hao-Li Zhang (*Lanzhou University*);

08:20 Invited Difluoroboron Diketonate-based Luminescent Materials
Qing Zheng Yang (*Beijing Normal University*);

09:00 Invited Regulation of Polarized Emissions of Organic Nano/Microstructures
Yu Wu Zhong (*Institute of Chemistry, Chinese Academy of Sciences*);

09:20 Invited High Mobility Emissive Organic Semiconductors and Devices
Huanli Dong (*Institute of Chemistry, Chinese Academy of Science*);

10:00 **Coffee Break**

10:30 Invited Two-dimensional Crystals of Organic Semiconductors
Wenping Hu (*Tianjin University*);

10:45 Controlled Synthesis of Organic Low-dimensional Photonic Structures: From Single to Multistage
Xue-Dong Wang (*Soochow University*);

11:00 Low-dimensional Lead Halide Perovskite Laser for Multi-color Displays
Haihua Zhang (*Tianjin University*);

11:15 Rational Design of Conductive Polymers for Flexible Thermoelectric Device
Hui Li (*Institute of Ceramics, Chinese Academy of Sciences*);

11:30 Efficient Singlet Fission via a High-lying 3^1A_g Dark Intermediate State
Long Wang (*Taiyuan University of Technology*); *Hongbing Fu* (*Capital Normal University*); *Jiannian Yao* (*Institute of Chemistry, Chinese Academy of Sciences*);

Session 2A9a
SC3: Room Temperature Exciton-polariton and Polaritonic Devices

Tuesday AM, April 26, 2022
Room Online ROOM 9
Organized by Qing Zhang, Xinfeng Liu
Chaired by Qing Zhang, Xinfeng Liu

08:00 Invited Self-assembled Organic Solid-state Lasers
Hongbing Fu (*Capital Normal University*);

08:20 Invited Exciton-polariton in One-dimensional Perovskite Nanowires
Qing Zhang (*Peking University*);

08:40 Invited The Enhancements of Light-matter Interactions in Arrayed Plasmonic Nanostructures
Zhang-Kai Zhou (*Sun Yat-Sen University*);

09:00 Invited Direct Measurement of Berry Curvature and Quantum Metric Tensor in an Organic Optical Microcavity
Feng Li (*Xi'an Jiaotong University*);

09:20 Invited Tunable Single-mode Lasing from Exciton-polaritons in Symmetry Broken Traps
Chuan Tian (*Huazhong University of Science & Technology*); *Linqi Chen* (*Shanghai Institute of Optics and Fine Mechanics*); *Hongxing Dong* (*Shanghai Institute of Optics and Fine Mechanics, Chinese Academy of Science*); *Weihang Zhou* (*Huazhong University of Science and Technology*);

09:40 Invited Exploring the Strong Coupling Regime in Two-dimensional Semiconductors
Xiaoze Liu (*Wuhan University*);

10:00 **Coffee Break**

Session 2A9b
Optics Sensor, Optical Network and Others 2

Tuesday AM, April 26, 2022

Room Online ROOM 9

Chaired by John Alexander Crosse, Dengwei Zhang

11:00 Faraday Rotations, Ellipticity and Circular Dichroism in Van der Waals Heterostructures
John Alexander Crosse (*New York University Shanghai*); *P. Moon* (*New York University Shanghai & New York University*);

11:15 Electrically Pumped Topological Laser
Yongquan Zeng (*Wuhan University*);

11:30 Atmospheric Humidity Analysis over Tibetan Plateau Based on FY-3C/D MWHTS Observations
Jieying He (*National Space Science Center, Chinese Academy of Sciences*); *Guo Yang* (*National Satellite Meteorological Center China Meteorological Administration*); *Shengwei Zhang* (*National Space Science Center, Chinese Academy of Sciences*); *Na Li* (*National Space Science Center, Chinese Academy of Sciences*);

11:45 Investigation on Calibration and Validation for FY-3 Series Microwave Humidity Sounders
Jieying He (*National Space Science Center, Chinese Academy of Sciences*); *Guo Yang* (*National Satellite Meteorological Center China Meteorological Administration*); *Shengwei Zhang* (*National Space Science Center, Chinese Academy of Sciences*); *Na Li* (*National Space Science Center, Chinese Academy of Sciences*);

Session 2A10a
SC3: Quantum Information Processing and Devices 2

Tuesday AM, April 26, 2022

Room Online ROOM 10

Organized by Hai-Zhi Song, Guangwei Deng

Chaired by Hai-Zhi Song, Guangwei Deng

08:00 Invited Superconducting Nanowire Single-photon Detectors and Multi-photon Detectors
Xiaolong Hu (*Tianjin University*);

08:20 Invited Quantum Teleportation System through Fiber Networks on Campus
Qiang Zhou (*University of Electronic Science and Technology of China*); *Si Shen* (*University of Electronic Science and Technology*); *Chenzhi Yuan* (*University of Electronic Science and Technology*); *Zichang Zhang* (*University of Electronic Science and Technology of China*); *Ruiming Zhang* (*University of Electronic Science and Technology of China*); *Yunru Fan* (*University of Electronic Science and Technology of China*); *Guangwei Deng* (*University of Electronic Science and Technology of China*); *You Wang* (*University of Electronic Science and Technology of China*); *Hai-Zhi Song* (*Southwest Institute of Technical Physics*);

08:40 Invited High-performance Optical Nonreciprocity Using Atomic Ensembles
Yong-Chun Liu (*Tsinghua University*);

09:00 Unidirectional and Chiral Energy Transfer by Phase-matching of the PT- and Anti-PT-symmetric Couplings
Yu-Long Liu (*Beijing Academic of Quantum Information and Science*); *Tie-Fu Li* (*Tsinghua University*);

09:10 Invited Plasmonic-enhanced Spin Defects in Hexagonal Boron Nitride for Quantum Sensing
Tongcang Li (*Purdue University*);

09:25 "BAMA" Formulation: Efficient Quantization of Electromagnetic Fields in Finite-sized Absorbing, Dispersive, and Inhomogeneous Media
Dong-Yeop Na (*Purdue University*); *Weng Cho Chew* (*Purdue University*);

10:00 **Coffee Break**

Session 2A10b
SC2: Bound States in the Continuum and Singular Optics 1

Tuesday AM, April 26, 2022

Room Online ROOM 10

Organized by Dezhuan Han, Lei Shi, Chao Peng

Chaired by Dezhuan Han

10:30 Evolution and Interconversion of Polarization Singularities in the Momentum Space of Photonic Crystal Slabs
Jianlong Liu (*Harbin Engineering University*); *Wei-Min Ye* (*National University of Defense Technology*);

10:45 Bound States in the Continuum and Lasing Modes in Non-Hermitian Systems
Qianju Song (*Sichuan/Southwest University of Science and Technology*); *Dezhuan Han* (*Chongqing University*);

11:00 Topologically Enabled Intensity Flattened Phase Shifting in Photonic Crystal Slab
Zixuan Zhang (*Peking University*); *Xuefan Yin* (*Kyoto University*); *Zihao Chen* (*Peking University*); *Feifan Wang* (*Peking University*); *Weiwei Hu* (*Peking University*); *Chao Peng* (*Peking University*);

11:15 Polarization Singularities of Photonic Quasicrystals in Momentum Space
Zhiyuan Che (*Fudan University*); *Yanbin Zhang* (*Fudan University*); *Wenzhe Liu* (*Fudan University*); *Maoxiong Zhao* (*Fudan University*); *Jiajun Wang* (*Fudan University*); *Wenjie Zhang* (*Fudan University*); *Fang Guan* (*Fudan University*); *Xiaohan Liu* (*Fudan University*); *Wei Liu* (*National University of Defense Technology*); *Lei Shi* (*Fudan University*); *Jian Zi* (*Fudan University*);

11:30 Polarization Singularities in Light Scattering by Small Particles
Jie Peng (*City University of Hong Kong*); *Wei Liu* (*National University of Defense Technology*); *Shubo Wang* (*City University of Hong Kong*);

11:40 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*);

Session 2A11a
SC2&SC3: Intelligent Photonics

Tuesday AM, April 26, 2022
Room Online ROOM 11
Organized by Cuicui Lu, Lili Gui
Chaired by Cuicui Lu, Lili Gui

08:00 Invited Computing with Natural Waves
Zongfu Yu (*University of Wisconsin-Madison*);

08:15 Invited Intelligent Signal Processing by Neuromorphic Silicon Photonics
Chaoran Huang (*The Chinese University of Hong Kong*); *Thomas Ferreira De Lima* (*Princeton University*); *Simon Bilodeau* (*Princeton University*); *Weipeng Zhang* (*Princeton University*); *Hsuan-Tung Peng* (*Princeton University*); *Bhavin J. Shastri* (*Queen's University*); *Paul Prucnal* (*Princeton University*);

08:30 Invited Tunable and Transient Plasmonic Structures
Li Gao (*Nanjing University of Posts and Telecommunications*);

08:50 Invited Photonic Integrated Circuits with Inverse Design
Kiyoul Yang (*Stanford University*);

09:05 Invited Data-driven Models for the Inverse Design of Complex Multi-functional Metasurfaces
Wei Ma (*Zhejiang University*);

09:25 Invited Flat Optics for Optical Image Processing
You Zhou (*Vanderbilt University*); *Jason G. Valentine* (*Vanderbilt University*);

09:40 A Deep Mixture Density Network Model for Inverse Design of Photonic Structures
Rohit Unni (*University of Texas at Austin*); *Kan Yao* (*University of Texas at Austin*); *Yuebing Zheng* (*The University of Texas at Austin*);

09:50 Nanophotonic Devices Based on Intelligent Algorithm
Hongyi Yuan (*Beijing Institute of Technology*); *Cuicui Lu* (*Beijing Institute of Technology*);

10:00 **Coffee Break**

Session 2A11b
SC3&SC2: Nanoscale Meta-optics 1

Tuesday AM, April 26, 2022
Room Online ROOM 11
Organized by Renmin Ma, Haoliang Qian
Chaired by Renmin Ma, Haoliang Qian

10:30 Invited Thermal Emission: Ultrafast Control and Planck Spectroscopy
Yuzhe Xiao (*University of Wisconsin*);

10:45 Invited Plasmonic Nanostructures and Their Application in Optoelectronics
Pierre Berini (*University of Ottawa*);

11:00 Invited High-performance Optical Sensors Enabled by Active Plasmon Lasers
Tao Wang (*Hangzhou Dianzi University*); *H. Zhang* (*Hangzhou Dianzi University*); *J. Sun* (*Hangzhou Dianzi University*); *I. De Leon* (*Tecnológico de Monterrey*); *R. P. Zaccaria* (*Cixi Institute of Biomedical Engineering, Ningbo Institute of Materials Technology and Engineering, Chinese Academy of Sciences*); *H. Chen* (*Zhejiang University*); *G. Wang* (*Hangzhou Dianzi University*);

11:20 Invited Sodium-based Plasmonic Nanolaser with a Record-low Threshold at Near-infrared
Yi-Fei Mao (*Peking University*); *Renmin Ma* (*Peking University*);

Session 2A12a
FocusSession.SC5: Microwave Remote Sensing of Coastal and Marine Environments 2

Tuesday AM, April 26, 2022
Room Online ROOM 12
Organized by Xiaofeng Yang, Gang Zheng
Chaired by Xiaofeng Yang, Gang Zheng

08:00 The Preliminary Airborne Flight Experiment Results of Doppler Scatterometer
Qingliu Bao (*Beijing PIESAT Information Technology Co., Ltd*); *Di Zhu* (*National Space Science Center, Chinese Academy of Sciences*); *Xiaolong Dong* (*National Space Science Center, Chinese Academy of Sciences*);

08:15 Estimation of Wind Induced Ocean Microwave Emission at C- and X-band Frequencies from the AMSR2 Measurements over the Arctic Waters
Elizaveta V. Zabolotskikh (*Russian State Hydrometeorological University*); *B. Chapron* (*Russian State Hydrometeorological University*);

08:25 Qualifying Ocean Surface Wave Signatures in the Return Vectors of a Space-borne Scatterometer in Simulations
Xingou Xu (*National Space Science Center, Chinese Academy of Sciences*); *Xiaolong Dong* (*National Space Science Center, Chinese Academy of Sciences*); *Saibun Tjuatja* (*University of Texas at Arlington*);

08:40 Variability of Wind Energy in the South China Sea
Yisheng Zhang (*Beijing Applied Meteorology Institute*); *Yongcun Cheng* (*PIESAT Information Technology Co., Ltd.*); *Yizhi Li* (*Zhejiang Huadong Surveying and Engineering Safety Technology Co., Ltd*);

08:55 Wind Speed Estimation for Tropical Cyclone from Combined Active and Passive Measurements
Kunsheng Xiang (*Piesat Information Technology Co., Ltd.*); *Xiaobin Yin* (*Ocean University of China*);

09:10 Classifying Sea Ice Types with a U-Net Model from Dual-polarized Sentinel-1 Images and GLCM Texture Feature
Yan Huang (*Chinese Academy of Sciences and Center for Ocean Mega-Science, Chinese Academy of Sciences*); *Yibin Ren* (*Institute of Oceanology, Chinese Academy of Sciences*); *Xiaofeng Li* (*Institute of Oceanography, Chinese Academy of Sciences*);

10:00 **Coffee Break**

Session 2A12b
Remote Sensing, Inverse Problems, Imaging, GPR, Radar and Sensing 1

Tuesday AM, April 26, 2022

Room Online ROOM 12

Chaired by Shurun Tan

10:30 ODEMI: One Dimensional Electromagnetic Inversion Dataset to Study Machine Learning and Lessons Learned
Ergun Simsek (*George Washington University*);

10:40 A Method of Painting Arbitrary Electromagnetic Images Based on Time-reversal Technique
Chuan-Sheng Chen (*University of Electronic Science and Technology of China*); *Ren Wang* (*University of Electronic Science and Technology of China*); *Bing-Zhong Wang* (*University of Electronic Science and Technology of China*);

10:55 Real-time Interferometric Processing Techniques and Acceleration Methods for UAV SAR
Shengyiliu Zhong (*Aerospace Information Research Institute, Chinese Academy of Sciences*); *Ming Qiao* (*Aerospace Information Research Institute, Chinese Academy of Sciences*); *Xiangwei Dang* (*Aerospace Information Research Institute, Chinese Academy of Sciences*); *Yunlong Liu* (*Aerospace Information Research Institute, Chinese Academy of Sciences*);

11:10 A Design of a New Strong Electromagnetic Pulse Ground-penetrating Radar System
Guoqing Zhou (*Shanghai Jiao Tong University*); *Bin Yuan* (*Shanghai Jiao Tong University*); *Yexiao Gu* (*Suzhou Kezhongfangyuan Electronics Technology Co., Ltd*); *Xuchun Shang* (*Shanghai Jiao Tong University*); *Jiamin Qi* (*Shanghai Jiao Tong University*);

11:25 An Image Inspection Method for Power Equipment Based on a Multimodal Algorithm
Shu Jia Yan (*Shanghai University of Engineering Science*); *Yuan Li Liu* (*HiSilicon (Shanghai) Technologies CO. Ltd.*); *Xinbo Liu* (*Shanghai University of Engineering Science*); *Mei Song Tong* (*Tongji University*);

11:40 Absorption of Electromagnetic Wave by Dielectric Plate with Diffraction Grating on the Surface
Andrey M. Lebedev (*Institute for Theoretical and Applied Electromagnetics, Russian Academy of Sciences*); *M. L. Obuhov* (*Moscow Institute of Physics and Technology*);

Session 2A13a
FocusSession.SC5: Physical Modeling and Applications in GNSS Reflectometry and other SoOp Observables 2

Tuesday AM, April 26, 2022

Room Online ROOM 13

Organized by Rashmi Shah, Mehmet Kurum

Chaired by Mehmet Kurum, Rashmi Shah

08:00 GNSS-R for High Precision Altimetry Applications
Invited
Y. Jade Morton (*University of Colorado*); *Carolyn Roesler* (*University of Colorado*); *Yang Wang* (*University of Colorado*); *Brian Breitsch* (*University of Colorado*); *Margaret Scott* (*University of Colorado*); *R. Steve Nerem* (*University of Colorado*);

08:10 Keynote Signals of Opportunity Synthetic Aperture Radar for High Resolution Remote Sensing of Land Surfaces
Simon H. Yueh (*California Institute of Technology*); *Rashmi Shah* (*NASA JPL/California Institute of Technology*); *Xiaolan Xu* (*California Institute of Technology*); *Bryan W. Stiles* (*California Institute of Technology*); *Javier Bosch-Lluis* (*California Institute of Technology*); *Garth Franklin* (*California Institute of Technology*); *Devin Cody* (*California Institute of Technology*); *Mehmet Ogut* (*California Institute of Technology*); *Chi-Chih Chen* (*California Institute of Technology*);

08:35 Retrieve Vegetation Optical Depth from CYGNSS Data Using the Physical Model
Xiaolan Xu (*California Institute of Technology*); *Simon H. Yueh* (*California Institute of Technology*); *Rashmi Shah* (*NASA JPL/California Institute of Technology*); *Akiko Hayashi* (*California Institute of Technology*);

08:45 An Attempt to Resolve Some of the Ambiguity in the Interpretation of GNSS-R Surface Reflectivity Observations over Land
Clara Chew (*University Corporation for Atmospheric Research*);

08:55 A Comprehensive Change Detection Algorithm for Spaceborne GNSS-R Soil Moisture Retrievals over Complex Terrain
Mohammad Al-Khaldi (*University Corporation for Atmospheric Research*); *Joel T. Johnson* (*The Ohio State University*); *Scott Gleason* (*University Corporation for Atmospheric Research*);

09:05 Preliminary Complex DDM Simulations of SMAP Cal/Val Sites Using the SoOp Coherent Bistatic Model (SCoBi)
Dylan Ray Boyd (*Mississippi State University*); *Mehmet Kurum* (*Mississippi State University*);

09:15 Calculations of Coherent Waves and Incoherent Waves Using Analytical Kirchhoff Solutions (AKS) with Land Surface Spectrum from Lidar Measurements
Haokui Xu (*University of Michigan*); *Jiyue Zhu* (*University of Michigan*); *Leung Tsang* (*University of Michigan*); *Bowen Ren* (*University of Michigan*); *Alexandra Bringer* (*The Ohio State University*); *Joel T. Johnson* (*The Ohio State University*);

09:25 Application of LIDAR Digital Elevation Models to CYGNSS Land Modeling
Erik Hodges (*University of Southern California*); *James Campbell* (*University of Southern California*); *Amer Melebari* (*University of Southern California*); *Alexandra Bringer* (*The Ohio State University*); *Joel T. Johnson* (*The Ohio State University*); *Mahta Moghaddam* (*University of Illinois at Urbana-Champaign*);

09:35 Understanding the Impact of Surface Roughness on GPS Land Reflected Signals
Alexandra Bringer (*The Ohio State University*); *J. T. Johnson* (*The Ohio State University*); *T. Wang* (*The Ohio State University*);

10:00 **Coffee Break**

Session 2A13b
SC5: Remote Sensing of Water and Energy Cycles 1

Tuesday AM, April 26, 2022

Room Online ROOM 13

Organized by Hui Lu, Jiancheng Shi

Chaired by Hui Lu, Jiancheng Shi

10:30 Keynote Observations of the Water Cycle from Imaging Spectroscopy
Jeff Dozier (*University of California*);

10:55 Remote Sensing of Snow Water Equivalent Based on X and Ku Band Radar Observations: Data Analysis and Retrieval
Jiyue Zhu (*University of Michigan*); *Leung Tsang* (*University of Michigan*); *Do Hyuk Kang* (*NASA Goddard Space Flight Center*); *Edward J. Kim* (*NASA Goddard Space Flight Center*);

11:05 Multi-frequency NMM3D Simulations of Vegetation Effects Using a Hybrid Method for Remote Sensing of Soil Moisture
Weihui Gu (*University of Michigan*); *Leung Tsang* (*University of Michigan*); *Andreas Colliander* (*California Institute of Technology*); *Simon H. Yueh* (*California Institute of Technology*);

11:15 Leveraging Artificial Intelligence for Enhanced Satellite Retrievals of Orographic Precipitation
Haonan Chen (*Colorado State University*); *Robert Cifelli* (*NOAA Physical Sciences Laboratory*); *Pingping Xie* (*NOAA Climate Prediction Center*);

11:25 Quantifying the Hydrometeorological Impacts of Lowering Operational Weather Radar Scan Elevation Angle
Liangwei Wang (*Colorado State University*); *Haonan Chen* (*Colorado State University*);

11:35 Tomography Imaging of Terrestrial Snow for SWE Retrieval Using Frequency-angular Correlation Functions and Asymmetrical Distorted Born's Approximation
Haokui Xu (*University of Michigan*); *Leung Tsang* (*University of Michigan*); *Xiaolan Xu* (*California Institute of Technology*);

Session 2A14a
SC4: Wide Aperture Antenna/Array

Tuesday AM, April 26, 2022

Room Online ROOM 14

Organized by Wei Wang, Qingsheng Zeng

Chaired by Wei Wang, Yanbin Luo

08:00 Design of a Wide-beam Waveguide Slot Antenna for Anti-interference Applications
Hongji Li (*Shanghai Jiao Tong University*); *Xiaohan Zhang* (*Shanghai Jiao Tong University*); *Xuemeng Chen* (*Shanghai Jiao Tong University*); *Rong-Hong Jin* (*Shanghai Jiaotong University*); *Jun-Ping Geng* (*Shanghai Jiao Tong University*); *Xianling Liang* (*Shanghai Jiao Tong University*);

08:10 Design of the Share-aperture Dual Circularly Polarization Waveguide Antenna Array
Hongtao Zhang (*East China Research Institute of Electronic Engineering*); *Guilin Sun* (*The 38th Research Institute of China Electronics Technology Group Corporation*); *Yuru Rao* (*The 38th Research Institute of China Electronics Technology Group Corporation*); *Wei Wang* (*East China Research Institute of Electronic Engineering*);

08:25 A Ka Full Band Dual Circularly Polarized Antenna for Satellite Applications
Yanbin Luo (*The 38th Research Institute of China Electronics Technology Group Corporation*); *Wei Wang* (*The 38th Research Institute of China Electronics Technology Group Corporation*); *Qingsheng Zeng* (*Nanjing University of Aeronautics and Astronautics*); *M. Chen* (*The 38th Research Institute of China Electronics Technology Group Corporation*); *Hongtao Zhang* (*East China Research Institute of Electronic Engineering*); *Z. Zheng* (*The 38th Research Institute of China Electronics Technology Group Corporation*); *Y. Wei* (*Xi'an Satellite Control Center*); *Tayeb Ahmed Denidni* (*University of Quebec*);

08:40 A Compact Polarization and Pattern Reconfigurable Patch Antenna with Frequency Tailored by Digital Coding Method
Jie Wu (*Anhui University*); *Wei Wang* (*East China Research Institute of Electronic Engineering*); *Zhi-Xiang Huang* (*Anhui University*);

08:55 A Transmitting and Receiving Coplanar Distribution Design for Limited Scan Phased Array
Zhi Zheng (*The 38th Research Institute of China Electronics Technology Group Corporation*); *Wei Wang* (*East China Research Institute of Electronic Engineering*); *Yanbin Luo* (*The 38th Research Institute of China Electronics Technology Group Corporation*); *M. Chen* (*The 38th Research Institute of China Electronics Technology Group Corporation*); *Hongtao Zhang* (*East China Research Institute of Electronic Engineering*); *Qingsheng Zeng* (*Nanjing University of Aeronautics and Astronautics*);

09:10 An Overview of Investigations on Non-foster Electrical Small Antennas with Negative Impedance Matching Circuits
Tian Qiu (*Nanjing University of Aeronautics and Astronautics*); *Qingsheng Zeng* (*Nanjing University of Aeronautics and Astronautics*); *Yandong Zhang* (*Nanjing University of Aeronautics and Astronautics*); *Yuan Shi* (*Nanjing University of Aeronautics and Astronautics*); *Qingqing Si* (*Nanjing University of Aeronautics and Astronautics*); *Yuqiu Shang* (*Nanjing University of Aeronautics and Astronautics*); *Yong Wu* (*Nanjing University of Aeronautics and Astronautics*); *Jiangmei Tang* (*Nanjing University of Aeronautics and Astronautics*);

09:20 Comparative Studies of Fabry-Perot Resonator Antennas in Microwave and Terahertz Bands
Hongjiang Zhang (*China Academy of Launch Vehicle Technology*); *Qingsheng Zeng* (*Nanjing University of Aeronautics and Astronautics*); *Yuqiu Shang* (*Nanjing University of Aeronautics and Astronautics*); *Yong Wu* (*Nanjing University of Aeronautics and Astronautics*); *Jiangmei Tang* (*Nanjing University of Aeronautics and Astronautics*);

09:30 Dual-Polarized Frequency-Selective Transmission Structure with Two-sided Absorption Bands
Zhefei Wang (*Nanjing University of Information Science and Technology*); *Qingsheng Zeng* (*Nanjing University of Aeronautics and Astronautics*); *Tian Qiu* (*Nanjing University of Aeronautics and Astronautics*); *Zhenjiang Zhao* (*Université du Quebec*); *Tayeb Ahmed Denidni* (*University of Quebec*);

10:00 **Coffee Break**

Session 2A14b
SC1: Advances on Applications of Characteristic Modes to Antenna Analysis and Design

Tuesday AM, April 26, 2022

Room Online ROOM 14

Organized by Shaode Huang, Jihong Gu

Chaired by Shaode Huang, Jihong Gu

10:30 Invited Analysis of Antennas with Composite Structure Using Theory of Characteristic Modes
Chao-Fu Wang (*National University of Singapore*);

10:45 A Metasurface Omnidirectional Antenna Design Using CMA
Fangzheng Ji (*Hefei University of Technology*); *Zhixin Wang* (*Hefei University of Technology*); *Li Ying Nie* (*University of Electronic Science and Technology of China*); *Zhaoneng Jiang* (*Hefei University of Technology*);

11:00 Electromagnetic Behavior Study of Conformal Cylindrical Stratified Structures with Theory of Characteristic Modes
Jihong Gu (*National University of Singapore*); *Chao-Fu Wang* (*National University of Singapore*);

11:10 Design of Near-omnidirectional Wideband Metamaterial Absorber Based on Characteristic Mode Analysis
Ting Shi (*University of Electronic Science and Technology of China*); *Ming-Chun Tang* (*Chongqing University*); *Xuesong Yuan* (*University of Electronic Science and Technology of China*);

11:25 Design of Band-notched UWB Antenna Based on Characteristic Mode Theory
Baitong Chu (*Auhui University*); *G. S. Cheng* (*Auhui University*);

11:40 Generalized Sub-structure Characteristic Mode Solution to Antenna Problems
Shaode Huang (*Chongqing University*); *Chao-Fu Wang* (*National University of Singapore*); *Ming-Chun Tang* (*Chongqing University*);

11:55 Design of Dielectric Resonator Antennas Using Substructure Surface Integral Equation-based Characteristic Mode Analysis
Boyuan Ma (*University of Electronic and Science and Technology of China*); *Shaode Huang* (*Chongqing University*); *Jin Pan* (*University of Electronic Science and Technology of China*);

Session 2A15a
SC1: Multiphysics Modeling and Simulation of Advanced Electronic Devices and Integrated Circuits/Structures

Tuesday AM, April 26, 2022

Room Online ROOM 15

Organized by Wenchao Chen, Min Tang

Chaired by Min Tang, Wenchao Chen

08:00 Transient Thermal Simulation of 3-D ICs with Integrated Microchannel Cooling Using Laguerre Polynomials
Jie Li (*Shanghai Jiao Tong University*); *Min Tang* (*Shanghai Jiaotong University*);

08:15 Quantum Modified Diffusive Transport Simulation for Double Barrier Ferroelectric Tunnel Junction Memristor
Huali Duan (*Zhejiang University*); *Er Ping Li* (*Zhejiang University — UIUC Institute*); *Wenchao Chen* (*Zhejiang University*);

08:30 Transient Thermal Simulation of Integrated Circuits and Packages with Layered Finite Element Method
Bo Li (*Shanghai Jiao Tong University*); *Min Tang* (*Shanghai Jiaotong University*);

08:45 Theoretical Study of Electric Contact Nonlinearity Harmonics in Asymmetric Metal Connection
Xuan Chen (*Zhejiang University*); *Er Ping Li* (*Zhejiang University — UIUC Institute*); *Wenchao Chen* (*Zhejiang University*);

09:00 A Finite Volume Scheme for Thermal Simulation Using Locally Refined Semi-structured Grids
Zhaoquan Huang (*Shanghai Jiao Tong University*); *Min Tang* (*Shanghai Jiaotong University*);

09:15 A Physics-based Compact Model for Set Process of Resistive Random Access Memory (RRAM) with Graphene Electrode
Xingyu Zhai (*Zhejiang University*); *Wen-Yan Yin* (*Zhejiang University*); *Yanbin Yang* (*The Zhijiang Intelligence Institute in Chengdu Tianfu District*); *Wenchao Chen* (*Zhejiang University*);

09:30 Keynote New Multiphysics Methods for Integrated Circuits and Systems
Qing Huo Liu (*Duke University*); *Ke Chen* (*Xiamen University*); *Yu Jia* (*Duke University*); *Jie Liu* (*Xiamen University*); *Na Liu* (*Xiamen University*); *Qi Qiang Liu* (*Xiamen University*); *Shi Jie Wang* (*Xiamen University*); *Mingwei Zhuang* (*Xiamen University*);

10:00 **Coffee Break**

Session 2A15b
SC1: Advanced Techniques in Multiphysics Modeling

Tuesday AM, April 26, 2022

Room Online ROOM 15

Organized by Weijie Wang, Mingwei Zhuang

Chaired by Qiwei Zhan, Weijie Wang

10:30 Keynote Quantum Maxwell's Equations Made Simple
Weng Cho Chew (*Purdue University*); *Dong-Yeop Na* (*Purdue University*); *Peter Bermel* (*Purdue University*); *Thomas E. Roth* (*Purdue University*); *Christopher Jayun Ryu* (*University of Illinois*); *Kudeki Erhan* (*University of Illinois*);

10:55 Next-generation Multi-frequency Microwave Imaging System for Real-time Thermal Therapy Monitoring
Yuan Fang (*University of Southern California*); *Kazem Bakian-Dogaheh* (*University of Southern California*); *Mahta Moghaddam* (*University of Southern California*);

11:05 Parallel Multiphysics Simulation of System-in-Package on High-performance Computing Architectures
Weijie Wang (*Institute of Applied Physics and Computational Mathematics*); *Yannan Liu* (*Institute of Applied Physics and Computational Mathematics*); *Shaoliang Hu* (*Institute of Applied Physics and Computational Mathematics*); *Zhenguo Zhao* (*Institute of Applied Physics and Computational Mathematics*); *Haijing Zhou* (*Institute of Applied Physics and Computational Mathematics*);

11:20 Thermo-mechanical Reliability Analyses Based on the SETD Method for Electronic Devices
Qi Qiang Liu (*Xiamen University*); *Mingwei Zhuang* (*Xiamen University*); *Weichen Zhan* (*Xiamen University*); *Na Liu* (*Xiamen University*); *Qing Huo Liu* (*Duke University*);

11:35 A Parallel Multiphysics Simulation of Phased Array Antennas Based on Finite Element Frastructure
Yan-Nan Liu (*CAEP Software Center for High Performance Numerical Simulation*); *Wei-Jie Wang* (*CAEP Software Center for High Performance Numerical Simulation*); *Shao-Liang Hu* (*CAEP Software Center for High Performance Numerical Simulation*); *Zhen-Guo Zhao* (*CAEP Software Center for High Performance Numerical Simulation*); *Hai-Jing Zhou* (*Institute of Applied Physics and Computational Mathematics*);

11:50 Geometric Diode Modeling for Energy Harvesting Applications
Nicola Pelagalli (*Marche Polytechnin University*); *Martino Aldrigo* (*IMT Bucharest*); *Mircea Dragoman* (*IMT Bucharest*); *Mircea Modreanu* (*Tyndall National Institute*); *Davide Mencarelli* (*Marche Polytechnin University*); *Luca Pierantoni* (*Marche Polytechnin University*);

Session 2A16
SC4: Millimeter-Terahertz Wave Sources Technologies and Imaging Applications

Tuesday AM, April 26, 2022

Room Online ROOM 16

Organized by Wenxin Liu, Ziran Zhao

Chaired by Wenxin Liu, Ziran Zhao

08:00 High Sensitivity Receiver Using Radiometer
Invited
Nan-Nan Wang (*Harbin Institute of Technology*); *Wei Li* (*Harbin Institute of Technology*); *Jing-Hui Qiu* (*Harbin Institute of Technology*);

08:20 Terahertz Digital Beam Steering via Modularly Reconfigurable HEMT-embedded Metasurfaces
Invited
Feng Lan (*University of Electronic Science and Technology of China*); *Guiju He* (*University of Electronic Science and Technology of China*); *Yibo Pan* (*University of Electronic Science and Technology of China*); *Mulan Yang* (*University of Electronic Science and Technology of China*); *Jing Yin* (*University of Electronic Science and Technology of China*); *Yaxin Zhang* (*University of Electronic Science and Technology of China*); *Ziqiang Yang* (*University of Electronic Science and Technology of China*);

08:40 Imaging Using Two-beam Self-mixing Interferometry with a Terahertz Quantum Cascade Laser
Yan Xie (*Tsinghua University*); *Weidong Chu* (*Institute of Applied Physics and Computational Mathematics*); *Yingxin Wang* (*Tsinghua University*); *Ziran Zhao* (*Tsinghua University*);

08:55 Dual-electron-beams Steering Direction Tunable THz Radiation Waves at a Fixed Frequency
Daofan Wang (*Guilin University of Electronic Technology*); *Tao Fu* (*Guilin University of Electronic Technology*); *Ziquan Zhou* (*Guilin University of Electronic Technology*);

09:10 Broadband Terahertz Diffuse Scattering on Convolutional Coding Metasurfaces
Guiju He (*University of Electronic Science and Technology of China*); *Feng Lan* (*University of Electronic Science and Technology of China*); *Yibo Pan* (*University of Electronic Science and Technology of China*); *Yaxin Zhang* (*University of Electronic Science and Technology of China*); *Tianyang Song* (*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*);

09:25 Dual-band Trifunctional Coding Metasurfaces Based on Independent Control of Transmission and Reflection
Yibo Pan (*University of Electronic Science and Technology of China*); *Feng Lan* (*University of Electronic Science and Technology of China*); *Yaxin Zhang* (*University of Electronic Science and Technology of China*); *Guiju He* (*University of Electronic Science and Technology of China*); *Luyang Wang* (*University of Electronic Science and Technology of China*); *Ziqiang Yang* (*University of Electronic Science and Technology of China*);

10:00 **Coffee Break**

10:30 Polarimetric Imaging of Ship Using Passive Millimeter-wave
Yayun Cheng (*Harbin Institute of Technology*); *Jiaran Qi* (*Harbin Institute of Technology*); *Jing-Hui Qiu* (*Harbin Institute of Technology*);

10:40 Reflective Terahertz Pulsed Imaging with Compressed Sensing
Xinke Wang (*Capital Normal University*); *Yan Zhang* (*Capital Normal University*);

10:55 Ultra-wideband Linear Polarization Expansions on Collectively Zigzag-like Inter-coupling Metasurfaces
Munan Yang (*University of Electronic Science and Technology of China*); *Feng Lan* (*University of Electronic Science and Technology of China*); *Tianyang Song* (*University of Electronic Science and Technology of China*); *Guiju He* (*University of Electronic Science and Technology of China*); *Yibo Pan* (*University of Electronic Science and Technology of China*); *Yaxin Zhang* (*University of Electronic Science and Technology of China*); *Ziqiang Yang* (*University of Electronic Science and Technology of China*);

11:10 Reduction of the Port Reflection Coefficient on SSPP through Quadratic Polynomial Sinusoidal Transition
Yujian Wang (*University of Electronic Science and Technology of China*); *Feng Lan* (*University of Electronic Science and Technology of China*); *Yufeng Deng* (*University of Electronic Science and Technology of China*); *Luyang Wang* (*University of Electronic Science and Technology of China*); *Tianyang Song* (*University of Electronic Science and Technology of China*); *Yaxin Zhang* (*University of Electronic Science and Technology of China*); *Ziqiang Yang* (*University of Electronic Science and Technology of China*);

Session 2P1a
SC3: Distributed Optical Fiber Sensing Systems and Sensor Devices

Tuesday PM, April 26, 2022

Room Online ROOM 1

Organized by Liang Wang, Zhengyong Liu

Chaired by Changyu Shen

13:00 Invited Microfluidic Flow Direction and Rate Vector Sensor Based on a Partially Gold-coated TFBG
Changyu Shen (*China Jiliang University*);

13:20 Invited Distributed Optical Fiber Sensing Based on Chaotic Brillouin Dynamic Grating
Jianzhong Zhang (*Taiyuan University of Technology*); *Yicheng Zhu* (*Taiyuan University of Technology*); *Kangbo Wang* (*Taiyuan University of Technology*); *Zhe Ma* (*Taiyuan University of Technology*); *Mingjiang Zhang* (*Taiyuan University of Technology*);

14:00 Invited Distributed Acoustic Sensor Based on Optical Frequency Domain Reflectometry
Qingwen Liu (*Shanghai Jiao Tong University*); *He Li* (*Shanghai Jiao Tong University*); *Zuyuan He* (*Shanghai Jiao Tong University*);

14:20 Invited Advances in Material Discrimination Sensing Based on Forward Stimulated Brillouin Scattering
Dengwang Zhou (*Harbin Institute of Technology*);

14:40 Invited Femtosecond Laser Fabrication and Applications of Optical Fiber Microstructured Devices
Changrui Liao (*Shenzhen University*);

15:30 **Coffee Break**

16:00 Invited Space-division Multiplexed Distributed Fiber Sensing
Zhiyong Zhao (*Huazhong University of Science and Technology (HUST)*);

16:15 Spectral Shadowing Compensation in Double-pulse FBG-assisted φ-OTDR
Fourier Sandah (*University of Mons*); *Michel Dossou* (*University of Abomey-Calavi*); *Marc Wuilpart* (*University of Mons*);

Session 2P1b
SC2&SC3: Ultrafast Laser-matter Interactions and Nanofabrications 2

Tuesday PM, April 26, 2022

Room Online ROOM 1

Organized by Xuewen Wang, Yanlei Hu

Chaired by Xuewen Wang, Yanlei Hu

16:25 Invited Characterization of Acoustic Deformation Potential of Mg_3Sb_2 via Coherent Acoustic Phonon Dynamics
Liang Guo (*Southern University of Science and Technology*);

16:40 A New Method to Pattern Liquid Metal Based on Femtosecond Laser for Flexible Electronic Devices
Hao Wu (*University of Science and Technology of China*);

16:50 High-performance and Multifunctional Magnetically Responsive Liquid Manipulator
Shaojun Jiang (*University of Science and Technology of China*);

17:00 Smart Microactuator Fabricated by Asymmetric Femtosecond Bessel Beam for Microparticles/Cells Manipulation
Rui Li (*University of Science and Technology of China*); *Jiawen Li* (*University of Science and Technology of China*); *Dong Wu* (*University of Science and Technology of China*);

Session 2P1c
SC3: Optical Fiber Based Lasers: Dynamics and Applications

Tuesday PM, April 26, 2022

Room Online ROOM 1

Organized by Chengbo Mou, Hongyan Fu

Chaired by Chengbo Mou

17:10 Invited Random Fiber Grating Based Lasers
Xuewen Shu (*Huazhong University of Science and Technology*);

17:30 Invited Ultrashort Pulse Generation from a Tm-doped Fiber Laser
Jin Zhang Wang (*Shenzhen University*);

17:45 Diverse Pulsating Solitons in Spatiotemporal Mode-locked Fiber Laser
Guang-Xin Liu (*South China Normal University*); *Jin-Gan Long* (*South China Normal University*); *Jia-Wen Wu* (*South China Normal University*); *Zhi-Chao Luo* (*South China Normal University*); *Wen-Cheng Xu* (*South China Normal University*); *Aiping Luo* (*South China Normal University*);

17:50 Wavelength-tunable ***Q***-switched Mode-locked Multimode Fiber Laser
Jia-Wen Wu (*South China Normal University*); *Guang-Xin Liu* (*South China Normal University*); *Zhi-Chao Luo* (*South China Normal University*); *Wen-Cheng Xu* (*South China Normal University*); *Aiping Luo* (*South China Normal University*);

18:05 A Multi-wavelength Fiber Ring Laser Based on Hybrid Gain Medium and Sagnac Interferometer Used for Temperature Sensing
Xun Cai (*Xiamen University*); *Haoran Wang* (*Xiamen University*); *Jian Luo* (*Xiamen University*); *Hongyan Fu* (*Xiamen University*);

Session 2P2a
SC3: Programmable Optical Devices and Circuits 2

Tuesday PM, April 26, 2022

Room Online ROOM 2

Organized by Yiwei Xie, Rajesh Kumar

Chaired by Yiwei Xie, Rajesh Kumar

13:00 Invited Towards Non-volatile Programmable Photonics
Oded Raz (*Eindhoven University of Technology*); *Jimmy Melskens* (*Eindhoven University of Technology*); *Ripalta Stabile* (*Eindhoven University of Technology*); *Francesco Pagliano* (*Eindhoven University of Technology*); *Chenhui Li* (*Eindhoven University of Technology*); *Christian C. M. Sproncken* (*TU/E*); *Berta Gumí-Audenis* (*TU/E*); *Emilija Lazdanaité* (*Eindhoven University of Technology*); *Wilhelmus M. M. Kessels* (*Eindhoven University of Technology*); *Ilja K. Voets* (*TU/E*); *Mahir Asif Mohammed* (*Eindhoven University of Technology*);

13:15 Invited Technologies for Large-scale Programmable Photonic Circuits
Wim Bogaerts (*Ghent University — IMEC*); *Lukas Van Iseghem* (*Ghent University — IMEC*); *Xiangfeng Chen* (*Ghent University — IMEC*); *Iman Zand* (*Ghent University — IMEC*); *Hong Deng* (*Ghent University — IMEC*); *Mi Wang* (*Ghent University — IMEC*); *Katta Pradeep Nagarjun* (*Ghent University — IMEC*); *Muhammad Umar Khan* (*Ghent University — IMEC*);

Session 2P2b
Optical Signal Processing in Advanced Optical Transmission Networks

Tuesday PM, April 26, 2022

Room Online ROOM 2

Organized by Feng Wen, Mingming Tan

Chaired by Feng Wen, Mingming Tan

13:30 Invited Challenges and Advances of High Speed Intra-data Center Optical Interconnects
Jinlong Wei (*ADVA Optical Networking SE*);

13:45 Invited Polymer Optical Fiber Random Lasers
Zhijia Hu (*Anhui University*); *Wenyu Du* (*Anhui University*); *Chao Li* (*Anhui University*);

14:05 Invited High-capacity Two-dimensional Indoor Optical Wireless Communication Enabled by Steered Infrared Beams
Chao Li (*Anhui University*); *Zhijia Hu* (*Anhui University*);

14:25 Using Volterra Nonlinear Equalizer and Probabilistic Shaping in an IM/DD System
Tengyuan Liu (*Tongji University*); *Yuheng Wang* (*Tongji University*); *Junhe Zhou* (*Tongji University*);

14:40 Invited Raman Amplification Optimization in Short-reach High Data Rate Coherent Transmission Systems
Mingming Tan (*Aston Institute of Photonics Technology*); *Md Asif Iqbal* (*Aston University*); *Lukasz Krzczanowicz* (*Aston University*); *Ian. D. Phillips* (*Aston University*); *Paul Harper* (*Aston University*); *Wladek Forysiak* (*Aston University*);

14:55 Carrier Phase Recovery for Synthesized 16-QAM Signals with Hierarchical Blind Phase Search Algorithm
Hong-Bo Zhang (*Chengdu University of Information Technology*); *Guo-Wei Lu* (*Tokai University*); *Qianwu Zhang* (*Shanghai University*);

15:05 Simulation of Laser-excited Optical Pulse Propagation over New Silica 100-μm-core Multimode Optical Fiber with Reduced Differential Mode Delay
Anton V. Bourdine (*Povolzhskiy State University of Telecommunications and Informatics (PSUTI)*); *Vladimir A. Burdin* (*Povolzhskiy State University of Telecommunications and Informatics (PSUTI)*); *Alexander E. Zhukov* (*JSC "Scientific Production Association State Optical Institute Named after Vavilov S.I."*);

15:15 Experimentally Research on 6-mode Division Multiplexing Optical Transmission System
Jue Wang (*Beijing University of Posts and Telecommunications*); *Feng Tian* (*Beijing University of Posts and Telecommunications*); *Tianze Wu* (*Beijing University of Posts and Telecommunications*); *Chuxuan Wang* (*Beijing University of Posts and Telecommunications*);

15:30 **Coffee Break**

16:00 Spectral Features with the Temporal and Spatial Mode-coupling Dynamic in a Few-mode System
Tianfeng Zhao (*University of Electronic Science and Technology of China*); *Feng Wen* (*University of Electronic Science and Technology of China*); *Kun Qiu* (*University of Electronic Science and Technology of China*);

16:15 Mode Decomposition with the Mode Selective Time-resolved Algorithm
Pavel S. Anisimov (*Huawei Technologies Co., Ltd.*); *Viacheslav V. Zemlyakov* (*Huawei Technologies Co., Ltd.*); *Jiexing Gao* (*Huawei Technologies Co., Ltd.*);

16:25 Design of Few-mode Erbium-doped Fiber Amplifiers with Tunable Differential Mode Gain
Yan Xu (*University of Electronic Science and Technology*); *Bao-Jian Wu* (*University of Electronic Science and Technology of China*); *Xinrui Jiang* (*University of Electronic Science and Technology*); *Haomiao Guo* (*University of Electronic Science and Technology*);

16:40 Tuning Thermal Coefficient of Delay of Photonic-bandgap Hollow-core Fiber by Surface-mode Coupling
Fei Yu (*Shanghai Institute of Optics and Fine Mechanics, Chinese Academy of Sciences*); *Yazhou Wang* (*Shanghai Institute of Optics and Fine Mechanics, Chinese Academy of Sciences*); *Zhengran Li* (*Shanghai Institute of Optics and Fine Mechanics, Chinese Academy of Sciences*); *Ying Han* (*Yanshan University*); *Lili Hu* (*Shanghai Institute of Optics and Fine Mechanics, Chinese Academy of Sciences*);

16:55 Optical Dispersion Compensation through a Nonlinear-optical Loop Mirror (NOLM)-based Optical Reservoir
Yinke Yang (*University of Electronic Science and Technology of China*); *Feng Wen* (*University of Electronic Science and Technology of China*); *Feng Yang* (*Lab of Holographic Optical Sensing, Marolabs Co., Ltd.*); *Kun Qiu* (*University of Electronic Science and Technology of China*);

Session 2P2c
SC4: Researches and Applications of Reconfigurable Intelligent Metasurfaces (RIS)

Tuesday PM, April 26, 2022

Room Online ROOM 2

Organized by Jiaqi Han, Yu Zhao

Chaired by Yu Zhao

17:10 A Double-layer 1-bit Reconfigurable Intelligent Surface
Jiaqi Han (*Xidian University*); *Long Li* (*Xidian University*); *Xiangjin Ma* (*Xidian University*); *Silong Chen* (*Xidian University*); *Tong Wang* (*Xidian University*);

17:25 Vortex Beam with Direction Control Based on Coding Chiral Metamirrors
Wenhao Li (*Zhejiang University*); *Rui Xi* (*Zhejiang University*); *Yudong Ren* (*Zhejiang University*); *Xinyu Wu* (*Zhejiang University*); *Yihao Yang* (*Zhejiang University*); *Jiangtao Huangfu* (*Zhejiang University*); *Zuojia Wang* (*Zhejiang University*); *Hongsheng Chen* (*Zhejiang University*);

17:40 Linear and Nonlinear Homogenization of Plasmonic and All-dielectric Metasurfaces
Qun Ren (*Tianjin University*); *Jiaqi Han* (*Xidian University*);

17:55 Digital Coding Metasurface Based on the Liquid Metal
Siran Wang (*Southeast University*); *Qiang Cheng* (*Southeast University*); *Tie Jun Cui* (*Southeast University*);

18:10 A Dual-polarized 2-bit Digital Coding Reconfigurable Metasurface
Jingcheng Liang (*Southeast University*); *Qiang Cheng* (*Southeast University*); *Tie Jun Cui* (*Southeast University*);

18:25 A Single-layered Wideband Dual-polarized Transparent Metasurface for Transmission Enhancement in Sub-6G Band
Ruizhe Jiang (*Southeast University*); *Qiang Cheng* (*Southeast University*); *Tie Jun Cui* (*Southeast University*);

Session 2P3
SC3: Low-dimensional Semiconductor Optoelectronics and Integration 2

Tuesday PM, April 26, 2022

Room Online ROOM 3

Organized by Anlian Pan, Xiao Wang

Chaired by Xiao Wang

13:00 Invited Tailoring Photocarrier Dynamics in Low-dimensional Materials for Photonic Devices
Fengqiu Wang (*Nanjing University*);

13:20 Invited Deterministic Assembly of Functional Nanomaterial for Heterogeneously Integrated Nanophotonic Structures
Jie Bian (*Nanjing University*); *Zaiqin Man* (*Nanjing University*); *Weihua Zhang* (*Nanjing University*);

13:40 Invited Coherent Emitter and Spin-photon Interface Based on Semiconductor Nanowires
Shu La Chen (*Hunan University*); *Xiao Wang* (*Hunan University*); *Anlian Pan* (*Hunan University*);

14:00 Invited Light Generation by Plasmonic Hexagonal Boron Nitride Tunnel Junctions
Kai Braun (*Eberhard Karls University Tuebingen*); *Lukas Jakob* (*University of Tuebingen*); *Florian Laible* (*University of Tuebingen*); *Monika Fleischer* (*University of Tuebingen*); *Alfred J. Meixner* (*Eberhard-Karls-University Tuebingen*);

14:15 Memristive Two-dimensional Materials for In-memory Computing
Invited
Linfeng Sun (*Beijing Institute of Technology*);

14:35 Energy Funnel and Interlayer Exciton Tuning in Low-dimensional Semiconductors
Invited
Lihui Li (*Hunan University*); *Weihao Zheng* (*Hunan University*); *Xiujuan Zhuang* (*Hunan University*);

14:55 Strong Coupling between Exciton and Plasmon in a Monolayer WS_2/Ag Nanocavity
Invited
Kai Wang (*Huazhong University of Science and Technology*);

15:15 Low-dimensional Antimonide and Photoelectronic Devices
Invited
Zaixing Yang (*Shandong University*);

15:35 **Coffee Break**

16:40 On-chip Integrated 3D Microcavities
Keynote
Oliver G. Schmidt (*TU Chemnitz*);

17:05 Theoretical Study of Two-dimensional Electronic Materials and Devices
Invited
Shengli Zhang (*Nanjing University of Science and Technology*);

17:25 Ultrafast Photo-response Studies in 2D-material Based Photodetectors by Time-resolved Photocurrent Technique
Zhouxiaosong Zeng (*Hunan University*); *Kai Braun* (*Eberhard Karls University Tuebingen*); *Xiao Wang* (*Hunan University*);

Session 2P4a
SC2: Topological Phenomena in Classical Optics and Quantum Optics 2

Tuesday PM, April 26, 2022

Room Online ROOM 4

Organized by Luqi Yuan, Da-Wei Wang, Zhaoju Yang

Chaired by Luqi Yuan, Zhaoju Yang

13:00 Topological Photonics
Keynote
Mordechai (Moti) Segev (*Technion — Israel Institute of Technology*);

13:25 Probing Rotated Weyl Physics on Nonlinear Lithium Niobate-on-insulator Chips
Invited
Zhiwei Yan (*Nanjing University*); *Qiang Wang* (*Nanyang Technological University*); *Meng Xiao* (*Wuhan University*); *Yu-Le Zhao* (*Nanjing University*); *Shi-Ning Zhu* (*Nanjing University*); *Hui Liu* (*Nanjing University*);

13:45 Fractional Mode Charge and Bulk-disclination Correspondence
Invited
Jian-Hua Jiang (*Soochow University*);

14:05 Topological Lasers
Invited
Renmin Ma (*Peking University*);

14:25 Selecting Plasmonic Higher-order Topological States with Far-field Polarizations
Invited
Yuan-Zhen Li (*Zhejiang University*); *Su Xu* (*Jilin University*); *Hongsheng Chen* (*Zhejiang University*); *Fei Gao* (*Zhejiang University*);

14:45 Acoutic Topological Dislocation Modes
Invited
Liping Ye (*Wuhan University*); *Chunyin Qiu* (*Wuhan University*); *Meng Xiao* (*Wuhan University*); *Tianzi Li* (*Wuhan University*); *Juan Du* (*Wuhan University*); *Manzhu Ke* (*Wuhan University*); *Zhengyou Liu* (*Wuhan University*);

15:05 Experimental Observation of Multiple Topological Edge States
Yanan Wang (*Nanjing University*); *Shuwai Leung* (*Nanjing University*); *Feifei Li* (*Nanjing University*); *Hai-Xiao Wang* (*Guangxi Normal University*); *Yin Poo* (*Nanjing University*);

15:30 **Coffee Break**

16:00 Quantum Simulation in Room-temperature Flying Atoms
Han Cai (*Zhejiang University*); *Ruosong Mao* (*Zhejiang University*); *Jiefei Wang* (*Zhejiang University*); *Xingqi Xu* (*Zhejiang University*); *Shiyao Zhu* (*Zhejiang University*); *Da-Wei Wang* (*Zhejiang University*);

16:15 Nonlinear Control of PT-symmetry and Topological States
Shiqi Xia (*Nankai University*); *Dimitrios Kaltsas* (*University of Crete*); *Daohong Song* (*Nankai University*); *Ioannis Komis* (*University of Crete*); *Jingjun Xu* (*Nankai University*); *Alexander Szameit* (*University of Rostock*); *Hrvoje Buljan* (*University of Zagreb*); *Konstantinos G. Makris* (*University of Crete*); *Zhigang Chen* (*Nankai University*);

16:30 Bloch Oscillations in One-dimensional Subwavelength Atomic Chains
Luojia Wang (*Shanghai Jiao Tong University*); *Xianfeng Chen* (*Shanghai Jiao Tong University*); *Luqi Yuan* (*Shanghai Jiao Tong University*);

Session 2P4b
SC2: Topological Metamaterials for Photons, Phonons and Polaritons 2

Tuesday PM, April 26, 2022

Room Online ROOM 4

Organized by Jian-Hua Jiang, Yihao Yang

Chaired by Jian-Hua Jiang, Yihao Yang

16:45 Momentum Space Toroidal Moment in Photonics
Invited
Biao Yang (*Hong Kong University of Science and Technology*);

17:00 Far-field Polarizations Selection of Plasmonic Higher-order Topological States
Invited
Yuanzhen Li (*Zhejiang University*); *Su Xu* (*Jilin University*); *Hongsheng Chen* (*Zhejiang University*); *Fei Gao* (*Zhejiang University*);

17:20 Photonic Crystals and Metamaterials towards 2D and 3D Topological Phases
Invited
Minkyung Kim (*Pohang University of Science and Technology (POSTECH)*); *Junsuk Rho* (*Pohang University of Science and Technology (POSTECH)*);

17:35 Second-order Topological Modes in All-dielectric Systems
Jan Kosata (*ETH Zürich*); *Oded Zilberberg* (*ETH Zürich*);

17:45 Surface-acoustic-wave Computing of the Grover Quantum Search Algorithm with Metasurfaces
Invited
Jie Ren (*Tongji University*);

18:05 Double-bowl State in Photonic Dirac Nodal Line Semimetal
Invited
Hui Liu (*Nanjing University*);

Session 2P5
Recent Advances in Optical Metasurfaces 2

Tuesday PM, April 26, 2022

Room Online ROOM 5

Organized by Cheng Zhang, Fei Ding

Chaired by Cheng Zhang, Fei Ding

13:00 Polarization Shaping of Free-electron Radiation by Bianisotropic Metasurface Waveplates
Invited
Zuojia Wang (*Zhejiang University*); *Liqiao Jing* (*Zhejiang University*);

13:20 Topological Rainbow Based on Topological Photonic Crystals
Invited
Cuicui Lu (*Beijing Institute of Technology*);

13:40 Nonlinear Light Tuning Using Nanostructures
Invited
Lei Zhang (*Xi'an Jiaotong University*);

14:00 Full-stokes Vectorial Holography Based on Complex Amplitude Metasurface
Invited
Lingling Huang (*Beijing Institute of Technology*);

14:20 Highly Transparent Coding Metasurface for Microwave Scattering Reduction
Heyan Wang (*Harbin Institute of Technology*); *Yujia Sun* (*Harbin Institute of Technology*); *Yilei Zhang* (*Harbin Institute of Technology*); *Bowen Luo* (*Harbin Institute of Technology*); *Yunfei Liu* (*Harbin Institute of Technology*); *Zhengang Lu* (*Harbin Institute of Technology*); *Jiubin Tan* (*Harbin Institute of Technology*);

14:35 Manipulating Nonclassical Light with Quantum Metasurfaces
Invited
Fei Ding (*University of Southern Denmark*);

14:50 Simultaneous Generation of Image Concealment and Hybrid Hologram with Geometric Metasurfaces
Yuttana Intaravanne (*Heriot-Watt University*); *Xianzhong Chen* (*Heriot-Watt University*);

15:00 Metasurfaces for Controlling Structured Light
Keynote
Lei Zhou (*Fudan University*);

15:30 **Coffee Break**

16:00 Nonvolatile Optically Reconfigurable Radiative Metasurface
Invited
Qiang Li (*Zhejiang University*);

16:20 The Vortex Beam Generator Based on Bound States in the Continuum and Split-ring Metasurfaces
Invited
Kaixiang Cheng (*Jiangnan University*); *Tairong Bai* (*Jiangnan University*); *Jicheng Wang* (*Jiangnan University*);

16:40 Metalens Imaging: From Design to Prototype
Invited
Beibei Xu (*Nanjing University*); *Yunwei Zhao* (*Nanjing University*); *Xin Ye* (*Nanjing University*); *Xiao Qian* (*Nanjing University*); *Chen Chen* (*Nanjing University*); *Shi-Ning Zhu* (*Nanjing University*); *Tao Li* (*Nanjing University*);

17:00 Vectorial Metasurface from Hologram to Image Prints
Invited
Zilan Deng (*Jinan University*); *Xiangping Li* (*Jinan University*);

17:20 Immersion Silicon Metasurfaces for Versatile Applications of Photonics Devices
Invited
Haowen Liang (*Sun Yat-Sen University*);

17:40 Versatile Optical Field Manipulation Using Dielectric Metasurfaces
Invited
Cheng Zhang (*Huazhong University of Science and Technology*);

18:00 Nonlinear Diatomic Metasurface for Real and Fourier Space Image Encoding
Ningbin Mao (*Southern University of Science and Technology*); *Junhong Deng* (*Southern University of Science and Technology*); *Xuecai Zhang* (*Southern University of Science and Technology*); *Yutao Tang* (*Southern University of Science and Technology*); *Mingke Jin* (*Southern University of Science and Technology*); *Yang Li* (*Southern University of Science and Technology*); *Xuan Liu* (*Southern University of Science and Technology*); *Kingfai Li* (*Southern University of Science and Technology*); *Tun Cao* (*Dalian University of Technology*); *Kok Wai Cheah* (*Hong Kong Baptist University*); *Hong Wang* (*Southern University of Science and Technology*); *Jack Ng* (*Southern University of Science and Technology*); *Guixin Li* (*Southern University of Science and Technology*);

18:15 Compact Stereo Waveguide Display Enabled by a Polarization-multiplexed In-coupling Metagrating
Zeyang Liu (*Huazhong University of Science and Technology*); *Cheng Zhang* (*Huazhong University of Science and Technology*); *Wenqi Zhu* (*National Institute of Standards and Technology*); *Henri J. Lezec* (*National Institute of Standards and Technology*); *Amit K. Agrawal* (*National Institute of Standards and Technology*); *L. Jay Guo* (*The University of Michigan*);

Session 2P6a
SC2: Non-Hermitian Physics and Its Applications in Light and Sound 2

Tuesday PM, April 26, 2022

Room Online ROOM 6

Organized by Guancong Ma, Kun Ding

Chaired by Guancong Ma

13:00 Invited Willis Water-wave Metamaterial
Yan Meng (*The Hong Kong University of Science and Technology*); *Yiran Hao* (*The Hong Kong University of Science and Technology*); *Sébastien Guenneau* (*Imperial College London*); *Shubo Wang* (*City University of Hong Kong*); *Jensen Li* (*Hong Kong University of Science and Technology*);

13:20 Invited Non-Hermitian Mechanics
Corentin Coulais (*University of Amsterdam*);

13:35 Invited Revealing the Missing Dimension at an Exceptional Point
Renmin Ma (*Peking University*);

13:55 Keynote Topological Properties of Boundary Condition-sensitive Systems
Yixin Xiao (*The Hong Kong University of Science and Technology*); *Che Ting Chan* (*The Hong Kong University of Science and Technology*);

14:20 Keynote Wave Control and Suppression of Scattering by Non-Hermitian Index Tailoring
Stefan Rotter (*Vienna University of Technology (TU Wien)*);

14:45 Invited Probing Non-Hermitian Bound States with Angle-resolved Thermal Emission
Fan Zhong (*Southeast University*); *Kun Ding* (*Fudan University*); *Ye Zhang* (*Nanjing University*); *Shi-Ning Zhu* (*Nanjing University*); *Che Ting Chan* (*The Hong Kong University of Science and Technology*); *Hui Liu* (*Nanjing University*);

15:05 Invited Encircling Exceptional Points in Quantum Non-Hermitian Systems
Xu-Lin Zhang (*Jilin University*);

15:30 **Coffee Break**

Session 2P6b
SC3: Excitation, Propagation, and Manipulation of Polaritons in 2D Materials

Tuesday PM, April 26, 2022

Room Online ROOM 6

Organized by Qing Dai

Chaired by Qing Dai

16:00 Enhancing Energy Conversion of Near-field Thermophotovoltaic System with Multi-junction Cells and Multilayer Emitter
Wenbin Zhang (*Shanghai Jiao Tong University*); *Boxiang Wang* (*Shanghai Jiao Tong University*); *Changying Zhao* (*Shanghai Jiao Tong University*);

16:15 Invited Three-dimensional Near-field Analysis through Peak Force Scattering-type Near Field Optical Microscopy
Xiaoji Xu (*Lehigh University*); *Haomin Wang* (*Lehigh University*);

16:30 Invited Near-field Probing of Image Polaritons in van der Waals Crystals
Min Seok Jang (*Korea Advanced Institute of Science and Technology*);

16:45 Tunable Plasmonic Resonances in Graphene Origami on W-shaped Silicon
Tingting Zhai (*Universite de Technologie de Troyes*); *Shijian Wang* (*Universite de Technologie de Troyes*); *Kuan-Ting Wu* (*Universite de Technologie de Troyes*); *Wei Yen Woon* (*National Central University*); *Rafael Salas-Montiel* (*Institut Charles Delaunay/L2N CNRS, Université de Technologie de Troyes*); *Remi Vincent* (*Universite de Technologie de Troyes*);

Session 2P6c
SC2: Light-matter Interaction and Optical Field Manipulation in Metasurfaces and Metamaterials 2

Tuesday PM, April 26, 2022

Room Online ROOM 6

Organized by Lin Chen, Zhang-Kai Zhou

Chaired by Lin Chen, Zhang-Kai Zhou

17:20 Manipulating the Light Scattering of a Metallic Metacylinder with Engineered Topological Charge
Yanyan Cao (*Soochow University*); *Yangyang Fu* (*Nanjing University of Aeronautics and Astronautics*); *Jian-Hua Jiang* (*Soochow University*); *Lei Gao* (*Soochow University*); *Yadong Xu* (*Soochow University*);

17:35 Freely Tailoring Far-field Scattering of Surface Plasmons
Shulin Sun (*Fudan University*); *Weikang Pan* (*Fudan University*); *Fuxin Guan* (*Fudan University*); *Zhuo Wang* (*Fudan University*); *Qiong He* (*Fudan University*); *Lei Zhou* (*Fudan University*);

Session 2P7a
SC3: Supercontinuum and Frequency Combs: Fundamental Physics and Applications 2

Tuesday PM, April 26, 2022

Room Online ROOM 7

Organized by Feng Li, Zhe Kang

Chaired by Feng Li, Zhe Kang

13:00 Invited — Supercontinuum Generation in Fibers and Chip-scale Devices
Qian Li (*Peking University Shenzhen Graduate School*); *Feng Ye* (*Peking University Shenzhen Graduate School*); *Kaibin Lin* (*Peking University Shenzhen Graduate School*);

13:20 Invited — Nyquist Soliton Kerr Comb with Ultra-smooth Spectrum
Xiaoxiao Xue (*Tsinghua University*);

13:35 — Programmable Photonic RF Filter Based on Two-soliton Microcombs
Huashan Yang (*Nanjing University of Aeronautics and Astronautics*); *Hao Zhang* (*Nanjing University of Aeronautics and Astronautics*); *Zongxin Ju* (*Nanjing University of Aeronautics and Astronautics*); *Yifan Wu* (*Nanjing University of Aeronautics and Astronautics*); *Jijun He* (*Nanjing University of Aeronautics and Astronautics*); *Shilong Pan* (*Nanjing University of Aeronautics and Astronautics*);

13:45 — Integrated Frequency Combs for Microwave Photonics
Jijun He (*Swiss Federal Institute of Technology Lausanne (EPFL)*);

13:55 Invited — Recent Progresses in Dispersion Engineering for Broadband Nonlinear Applications
Yushuo Guo (*Tianjin University*); *Lijuan Xu* (*Tianjin University*); *Yuhao Guo* (*Tianjin University*); *Yuke Zhai* (*Tianjin University*); *Lin Zhang* (*Tianjin University*);

14:15 Invited — Vector Supercontinuum Process in Photonic Waveguides
Yongyuan Chu (*Shanghai University*); *Tuo Liu* (*Shanghai University*); *Hairun Guo* (*Shanghai University*);

14:55 Keynote — Wavelength Conversion in Photonic Crystal Fibres
Philip St. John Russell (*Max Planck Institute for the Science of Light*);

15:30 **Coffee Break**

Session 2P7b
SC2&SC3: Cavity Optomechanics 2

Tuesday PM, April 26, 2022

Room Online ROOM 7

Organized by Yong-Chun Liu, Zhangqi Yin

Chaired by Yong-Chun Liu, Zhangqi Yin

16:00 Invited — Accurate Measurement of the Single-photon Optomechanical Coupling Rate via a Hopf Bifurcation
P. Piergentili (*University of Camerino*); *W. Li* (*University of Camerino*); *R. Natali* (*University of Camerino*); *David Vitali* (*University of Camerino*); *Giovanni Di Giuseppe* (*University of Camerino*);

16:15 Invited — Generating Entanglement between Distant Optically Levitated Nanoparticles
Guoyao Li (*Beijing Institute of Technology*); *Zhangqi Yin* (*Beijing Institute of Technology*);

16:35 Invited — Research on Lithium Niobate-based Photonic Crystal with Wide Bandgap
Dingwei Chen (*University of Electronic Science and Technology of China*); *Jiangbo Wu* (*University of Electronic Science and Technology of China*); *Xiang Zheng* (*University of Electronic Science and Technology of China*); *Xing Yan* (*University of Electronic Science and Technology of China*); *Changjin Hu* (*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*);

16:55 — Sympathetic Cooling of a Radio-frequency LC Circuit Using an Optoelectromechanical System at the Quantum Limit
Nicola Malossi (*University of Camerino*); *P. Piergentili* (*University of Camerino*); *J. Li* (*Zhejiang University*); *E. Serra* (*6INFN, Trento Institute for Fundamental Physics and Application*); *R. Natali* (*University of Camerino*); *Giovanni Di Giuseppe* (*University of Camerino*); *David Vitali* (*University of Camerino*);

17:05 Invited — Quantum States Generation in Cavity Magnomechanics and Optomagnonics
Jie Li (*Zhejiang University*);

17:25 — Magnetic Field Sensor Based on Centimeter-scale Resonator Embedded with Terfenol-D
Changqiu Yu (*Hangzhou Dianzi University*); *Shichang Ma* (*Hangzhou Dianzi University*); *Z. Y. Chen* (*Hangzhou Dianzi University*);

17:40 — Design of Optical Gyroscope Based on the Cavity Optomechanics Structure
Jamal Nassir Ahmed Hassan (*University of Electronic Science and Technology of China*); *Xing Yan* (*University of Electronic Science and Technology of China*); *Jiangbo Wu* (*University of Electronic Science and Technology of China*); *Dingwei Chen* (*University of Electronic Science and Technology of China*); *Sohail Muhammad* (*University of Electronic Science and Technology of China*); *Abalo E. Eyouemou* (*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*);

17:50 Invited Cavity Optomechanical Cooling beyond the Thermal Decoherence Limit
Yong-Chun Liu (*Tsinghua University*);

Session 2P8a
SC3: Organic Photonics 2

Tuesday PM, April 26, 2022
Room Online ROOM 8
Organized by Qing Liao, Hongbing Fu
Chaired by Hongbing Fu, Qing Liao

13:00 Invited Nonfused Ring Electron Acceptors for Organic Solar Cells
Hui Huang (*University of Chinese Academy of Sciences*);

13:20 Invited Assembling-induced Organic Room-temperature Phosphorescence
Xiang Ma (*East China University of Science and Technology*);

13:40 Invited The Domain Distribution Control of Quasi-2D Perovskite toward Enhanced Blue Light Emissions
C. H. Wang (*Beijing Institute of Technology*); *D. B. Han* (*Beijing Institute of Technology*); *G. Dai* (*Beijing Institute of Technology*); *S. Chang* (*Beijing Institute of Technology*); *Haizheng Zhong* (*Beijing Institute of Technology*);

14:00 Invited Photofunctional Molecular Cocrystals: Design, Assembly, and Applications
Dong Peng Yan (*Beijing Normal University*);

14:20 Photoactivatable Chemiluminescent Probes Enabling Bright Duplex Optical Imaging
Zhiqian Guo (*East China University of Science and Technology*);

14:35 Rational Construction of Highly Tunable Crystalline Donor-acceptor Materials Based on Coordination Polymer Platform
Xiao-Ting Liu (*Nankai University*); *Bin-Bin Qian* (*Nankai University*); *Hong-Xiang Nie* (*Nankai University*); *Bo Zhang* (*Nankai University*); *Ze Chang* (*Nankai University*); *Xian-He Bu* (*Nankai University*);

14:50 Polariton Transport and Lasing in Organic Disordered Microcavities
Shaocong Hou (*Wuhan University*);

15:05 Organic and Organic/Inorganic Hybrid Nonlinear Optical Molecular Materials
Jialiang Xu (*Nankai University*);

15:30 **Coffee Break**

16:00 Polariton Luminescence in Organic Molecular Systems
Boris D. Fainberg (*Holon Institute of Technology*); *V. A. Osipov* (*Holon Institute of Technology*);

16:10 Optical Spin-orbit Interaction in an Organic Semiconductor Microcavity
Xuekai Ma (*Paderborn University*); *Jiahuan Ren* (*Capital Normal University*); *Qing Liao* (*Capital Normal University*); *Hongbing Fu* (*Capital Normal University*); *Stefan Schumacher* (*Universität Paderborn*);

16:20 Carrier Recombination Dynamicsin Group III–V Semiconductor Nanowires
Xianshao Zou (*Guangzhou University*); *Wei Zhang* (*Guangzhou University*);

Session 2P8b
Nanophotonics, Biophotonics and Advanced Photonic Materials 2

Tuesday PM, April 26, 2022
Room Online ROOM 8
Chaired by Liqiang Wang

17:10 Tunneling Loss Inhibition with a Black-hole Index Cavity
Qingtao Ba (*Xiamen University*); *Yangyang Zhou* (*Xiamen University*); *Jinhui Chen* (*Xiamen University*); *Huanyang Chen* (*Xiamen University*);

17:25 Correlation of Sleepiness Scale with Hemoglobin Concentration Variation: Experimental fNIRS Validation
Yun-Hsuan Chen (*Westlake University*); *Chaoming Fang* (*Westlake University*); *Emma Z. Chen* (*Westlake University*); *Leixu Huang* (*Westlake University*); *Mohamad Sawan* (*Westlake University*);

17:40 Self-learning Plasmon Structures Design via a Deep Neural Network
Zhengchang Liu (*Peking University*); *Yu Li* (*Peking University*); *Zheyu Fang* (*Peking University*);

17:55 Controlling Electromagnetic Wave by Optic-null Medium
Fei Sun (*Taiyuan University of Technology*); *Yichao Liu* (*Taiyuan University of Technology*); *Yibiao Yang* (*Taiyuan University of Technology*); *Zhihui Chen* (*Taiyuan University of Technology*); *Sailing He* (*Royal Institute of Technology & Zhejiang University*);

18:10 Microcavity Phonon Polaritons — from Weak to Ultrastrong Phonon-photon Coupling
María Barra-Burillo (*CIC nanoGUNE BRTA*); *Unai Muniain* (*Donostia International Physics Center*); *Sara Catalano* (*CIC nanoGUNE BRTA*); *Marta Autore* (*CIC nanoGUNE BRTA*); *Felix Casanova* (*CIC nanoGUNE*); *Luis E. Hueso* (*CIC nanoGUNE BRTA*); *Javier Aizpurua* (*Donostia International Physics Center (DIPC)*); *Ruben Esteban* (*Donostia International Physics Center*); *Rainer Hillenbrand* (*CIC nanoGUNE*);

18:20 Plasmon-induced Trap State Emission from Single Quantum Dots
Junyang Huang (*University of Cambridge*); *Oluwafemi S. Ojambati* (*University of Cambridge*); *Rohit Chikkaraddy* (*University of Cambridge*); *Kamil Sokołowski* (*University of Cambridge*); *Qifang Wan* (*University of Cambridge*); *Colm Durkan* (*University of Cambridge*); *Oren A. Scherman* (*University of Cambridge*); *Jeremy J. Baumberg* (*University of Cambridge*);

18:30 Comparison of the Bifurcation Scenarios Predicted by the Deterministic Rate Equations and Stochastic Simulator
Tao Wang (*Hangzhou Dianzi University*); *C. Jiang* (*Hangzhou Dianzi University*); *J. Zou* (*Hangzhou Dianzi University*); *H. Zhou* (*Hangzhou Dianzi University*); *G. P. Puccioni* (*Istituto Sistemi Complessi, CNR*); *G. F. Wang* (*Hangzhou Dianzi University*); *Gian Luca Lippi* (*Université Cote d'Azur*);

Session 2P9a
FocusSession.SC3: Advanced Photonic Technologies for Spectroscopic Applications 1 & 2

Tuesday PM, April 26, 2022

Room Online ROOM 9

Organized by Wei Dong Chen, Vincenzo Spagnolo, Ulrike Willer
Chaired by Ulrike Willer, Lei Dong

13:00 In Situ Monitoring of Trace Gases and Aerosol Extinction in Chamber Using Near-UV Broadband Cavity-enhanced Absorption Spectroscopy
Meng Wang (*University of Shanghai for Science and Technology*); *Jun Chen* (*University of Shanghai for Science and Technology*);

13:15 Measurement of HONO Using Mobile Monitoring
W. Y. Liu (*University of Shanghai for Science and Technology*); *Jun Chen* (*University of Shanghai for Science and Technology*); *Shengrong Lou* (*Shanghai Academy of Environmental Science*);

13:30 Invited Carbon Monoxide Detection in SF_6 Matrix for Partial Discharge Recognition with Quartz-enhanced Photoacoustic Spectroscopy
Pietro Patimisco (*Universita degli Studi di Bari and Politecnico di Bari*); *Stefano Dello Russo* (*Universita degli Studi di Bari and Politecnico di Bari*); *Andrea Zifarelli* (*Universita degli Studi di Bari and Politecnico di Bari*); *Angelo Sampaolo* (*University and Politecnico of Bari*); *Marilena Giglio* (*University and Politecnico of Bari*); *Bo Sun* (*Shanxi University*); *Lei Dong* (*Shanxi University*); *Vincenzo Spagnolo* (*University and Politecnico of Bari*);

13:45 Invited Design and Application of Mini-multi-pass Cells Based on Aberration Theory
Lei Dong (*Shanxi University*); *Ruyue Cui* (*Shanxi University*); *Hongpeng Wu* (*Shanxi University*); *Weidong Chen* (*Université du Littoral Côte d'Opale*); *Vincenzo Spagnolo* (*University and Politecnico of Bari*); *Liantuan Xiao* (*Shanxi University*); *Suotang Jia* (*Shanxi University*);

14:05 Invited Ultra-sensitive Optical Gas Sensors with Photoacoustic Spectroscopy
Wei Ren (*The Chinese University of Hong Kong*);

14:20 Invited TDLAS Sensors Based on Quartz Tuning Forks Employed as Photodetectors
Angelo Sampaolo (*University and Politecnico of Bari*); *Stefano Dello Russo* (*Universita degli Studi di Bari and Politecnico di Bari*); *Andrea Zifarelli* (*Universita degli Studi di Bari and Politecnico di Bari*); *Tingting Wei* (*Shanxi University*); *Hongpeng Wu* (*Shanxi University*); *Lei Dong* (*Shanxi University*); *Pietro Patimisco* (*Universita degli Studi di Bari and Politecnico di Bari*); *Frank K. Tittel* (*Rice University*); *Vincenzo Spagnolo* (*University and Politecnico of Bari*);

14:35 Methane Isotopologues Detection Using Quartz-enhanced Photoacoustic Spectroscopy
Marilena Giglio (*University and Politecnico of Bari*); *Angelo Sampaolo* (*University and Politecnico of Bari*); *Pietro Patimisco* (*Universita degli Studi di Bari and Politecnico di Bari*); *Stefano dello Russo* (*Universita degli Studi di Bari and Politecnico di Bari*); *Mariagrazia Olivieri* (*University and Politecnico of Bari*); *Vincenzo Spagnolo* (*University and Politecnico of Bari*);

14:45 Invited Use of Infrared Excitation for the Detection of Cercospora in Sugar Beets
Ulrike Willer (*Clausthal University of Technology*);

15:00 Etched Fiber Bragg Gratings for the Detection of Volatile Organic Compounds
Maryam Maleki (*Clausthal University of Technology*); *Ludmila Eisner* (*Clausthal University of Technology*); *Eike G. Hübner* (*Fraunhofer Heinrich Hertz Institute*); *Günter Flachenecker* (*Fraunhofer Heinrich Hertz Institute*); *Wolfgang Schade* (*Clausthal University of Technology*); *Ulrike Willer* (*Clausthal University of Technology*);

15:30 **Coffee Break**

16:00 3-wavelength Photoacoustic Spectrophone for Filter-free Measurement of Aerosol Particle Light Absorption
Gaoxuan Wang (*Zhejiang University*); *Pierre Kulinski* (*Université du Littoral Côte d'Opale*); *Hongming Yi* (*Universite du Littoral Cote d'Opale*); *Patrice Hubert* (*Université de Lille 1*); *Alexandre Deguine* (*Université de Lille 1*); *Denis Petitprez* (*Université de Lille 1*); *Eric Fertein* (*University of the Littoral Opal Coast*); *Marc Fourmentin* (*Universite du Littoral Cote d'Opale*); *Karine Deboudt* (*Université du Littoral Côte d'Opale*); *Pascal Flament* (*Université du Littoral Côte d'Opale*); *Julien M. Rey* (*IQE-ETH Zurich*); *Markus W. Sigrist* (*ETH Zurich*); *Dean S. Venables* (*University College Cork*); *Wei Dong Chen* (*Universite du Littoral Cote d'Opale*);

16:15 Development and Deployment of an Incoherent Broadband Cavity-enhanced Absorption Spectroscopy Instrument for Autonomous Field Measurements of HONO and NO_2 in a Rural Area
Lingshuo Meng (*Université du Littoral Côte d'Opale*); *Gaoxuan Wang* (*Zhejiang University*); *Cécile Coeur* (*Universite du Littoral Cote d'Opale*); *Alexandre Tomas* (*IMT Lille Douai, Univ. Lille*); *Wei Dong Chen* (*Universite du Littoral Cote d'Opale*);

Session 2P9b
SC3: Optofluidics: Fundamentals, Devices, and Applications

Tuesday PM, April 26, 2022

Room Online ROOM 9

Organized by Aaron Ho-Pui Ho, Xiaobo Xing

Chaired by Xiaobo Xing, Jiajie Chen

16:30 Invited Single Cell Optical Manipulation and Molecular Detection
Hongbao Xin (*Jinan University*); *Baojun Li* (*Jinan University*);

16:50 Pulling Biological Cells with NIR Laser Mediated Photonic Nanojet
Yuxuan Ren (*Fudan University*);

17:05 Fluid and Particles Manipulation Based on Photothermal Waveguides
Xiaobo Xing (*South China Normal University*); *Fangjing Luo* (*South China Normal University*); *Zongbao Li* (*Tongren University*); *Haiyan Wang* (*Guangdong Industry Technical College*); *Jianlin Huang* (*Guangzhou Institute of Measurement and Testing Technology*);

17:20 An Integrated Lab-on-a-Disc Platform for Droplet-based Bioassays
Wanyi Zhang (*The Chinese University of Hong Kong*); *Yuye Wang* (*The Chinese University of Hong Kong*); *Yuanyuan Wei* (*The Chinese University of Hong Kong*); *Shiyue Liu* (*The Chinese University of Hong Kong*); *Zhenming Xie* (*The Chinese University of Hong Kong*); *Siu-Kai Kong* (*The Chinese University of Hong Kong*); *Aaron Ho-Pui Ho* (*The Chinese University of Hong Kong*);

17:35 Fabrication and Applications of LOC-SERS Chip with Tunable "Hot Spots"
Li Zhu (*Southeast University*); *Yu Lu* (*Southeast University*); *Zhuyuan Wang* (*Southeast University*); *Yiping Cui* (*Southeast University*);

17:50 A New Method for Single-molecule Nanopore Sequencing Based on Ultra-centrifugation
Jianxin Yang (*The Chinese University of Hong Kong*); *Aaron Ho-Pui Ho* (*The Chinese University of Hong Kong*);

18:00 Characteristics of the Large, Dye-doped Droplet Lasers Emission: Wavelength Shift, Lasing Delay, and Inelastic Scattering Resonances
Ionut-Relu Andrei (*National Institute for Laser, Plasma and Radiation Physics*); *Mihai Boni* (*National Institute for Laser, Plasma and Radiation Physics*); *Angela Staicu* (*National Institute for Laser, Plasma and Radiation Physics*); *Mihail Lucian Pascu* (*National Institute for Laser, Plasma and Radiation Physics*);

Session 2P10
SC3: Quantum Entanglement and Quantum Technologies

Tuesday PM, April 26, 2022

Room Online ROOM 10

Organized by Qiong Yi He, Yin Cai

Chaired by Yin Cai, Qiong Yi He

13:00 Invited Coherent Frequency Upconverter for Mid-infrared Single-photon Detection and Imaging
Jianan Fang (*East China Normal University*); *Yinqi Wang* (*East China Normal University*); *E Wu* (*East China Normal University*); *Ming Yan* (*East China Normal University*); *Kun Huang* (*East China Normal University*); *Heping Zeng* (*East China Normal University*);

13:20 Invited Quantification of Wigner Negativity Remotely Generated via Einstein-Podolsky-Rosen Steering
Yu Xiang (*Peking University*); *Shuheng Liu* (*Peking University*); *Jiajie Guo* (*Peking University*); *Qihuang Gong* (*Peking University*); *Nicolas Treps* (*Sorbonne Université*); *Qiong Yi He* (*Peking University*); *Mattia Walschaers* (*Sorbonne Université*);

13:40 Implementation of Quantum Synchronization over a 20-
Invited km Fiber Distance Based on Frequency-correlated Photon Pairs and HOM Interference
Yuting Liu (*National Time Service Center, Chinese Academy of Sciences*); *Runai Quan* (*National Time Service Center, Chinese Academy of Sciences*); *Xiao Xiang* (*National Time Service Center, Chinese Academy of Sciences*); *Huibo Hong* (*National Time Service Center, Chinese Academy of Sciences*); *Tao Liu* (*National Time Service Center, Chinese Academy of Sciences*); *Ruifang Dong* (*National Time Service Center, Chinese Academy of Sciences*); *Shou-Gang Zhang* (*National Time Service Center, Chinese Academy of Sciences*);

14:00 Optical Metrology with Electro-optical Frequency
Invited Combs and Single-photon Detectors
Ming Yan (*East China Normal University*); *Xinyi Ren* (*East China Normal University*); *Heping Zeng* (*East China Normal University*);

14:15 Generation and Manipulation of Continuous Variable
Invited Non-classical States
Xiaojun Jia (*Shanxi University*); *Zhihui Yan* (*Shanxi University*); *Kunchi Peng* (*Shanxi University*);

14:35 Solid-state Quantum Memory Based on Erbium Doped
Invited Fibre
Qiang Zhou (*University of Electronic Science and Technology of China*); *Shihai Wei* (*University of Electronic Science and Technology of China*); *Bo Jing* (*University of Electronic Science and Technology of China*); *Xueying Zhang* (*University of Electronic Science and Technology of China*); *Jinyu Liao* (*University of Electronic Science and Technology of China*); *Guangwei Deng* (*University of Electronic Science and Technology of China*); *You Wang* (*Southwest Institute of Technical Physics*); *Hai-Zhi Song* (*Southwest Institute of Technical Physics*); *Daniel Oblak* (*University of Calgary*);

14:55 Measuring the Quantum Measurement
Invited
Li-Jian Zhang (*Nanjing University*);

15:15 High Dimensional and Multi-mode Optical Quantum
Invited Simulation
Jin-Shi Xu (*University of Science and Technology of China*);

15:30 **Coffee Break**

16:00 Experimental Investigation of Einstein-Podolsky-Rosen
Invited Steering
Kai Sun (*University of Science and Technology of China*);

16:20 Demonstration of Generalised Multipath Wave-particle Duality on a Quantum Nanophotonic Chip
Yaohao Deng (*Peking University*); *Xiaojiong Chen* (*Peking University*); *Shuheng Liu* (*Peking University*); *Tanumoy Pramanik* (*Peking University*); *Jun Mao* (*Peking University*); *Jueming Bao* (*Peking University*); *Chonghao Zhai* (*Peking University*); *Tianxiang Dai* (*Peking University*); *Huihong Yuan* (*Peking University*); *Jiajie Guo* (*Peking University*); *Shao-Ming Fei* (*Capital Normal University*); *Marcus Huber* (*Institute for Quantum Optics and Quantum Information — IQOQI Vienna, Austrian Academy of Sciences*); *Bo Tang* (*Institute of Microelectronics, Chinese Academy of Sciences*); *Yan Yang* (*Institute of Microelectronics, Chinese Academy of Sciences*); *Zhihua Li* (*Institute of Microelectronics, Chinese Academy of Sciences*); *Qiong Yi He* (*Peking University*); *Qihuang Gong* (*Peking University*); *Jianwei Wang* (*Peking University*);

17:15 Sudden Death and Distillation of Gaussian Quantum
Invited Steering
Xiaolong Su (*Shanxi University*);

17:35 Continuous Variable Multipartite Entanglement: From
Invited Triple Photons to Nonlinear Waveguide Arrays
David Barral (*Universite Paris-Saclay*); *A. Henry* (*Universite Paris-Saclay*); *Ariel Levenson* (*Laboratoire de Photonique et de Nanostructures (CNRS UPR20)*); *Nadia Belabas* (*Universite Paris-Saclay*); *Kamel Bencheikh* (*Universite Paris-Saclay*);

17:50 Self-avoiding Quantum Walk in Fast Protein Folding
Christopher Um (*Cornell University*);

Session 2P11a
SC3&SC2: Nanoscale Meta-optics 2

Tuesday PM, April 26, 2022

Room Online ROOM 11

Organized by Renmin Ma, Haoliang Qian

Chaired by Renmin Ma, Haoliang Qian

13:00 Graphene-insulator-metal Platform for Current Modu-
Invited lation of SPP Nanolasers
Tien-Chang Lu (*National Yang Ming Chiao Tung University*);

13:15 Enhanced Light Matter Interaction in Waveguides with
Invited Extreme Nanofocussing
Ming Fu (*Imperial College London*); *Nicholas A. Güsken* (*Imperial College London*); *Michael P. Nielsen* (*Imperial College London*); *Andrea Jacassi* (*Imperial College London*); *Mónica Mota* (*Imperial College London*); *Xingyuan Shi* (*Imperial College London*); *Paul Dichtl* (*Imperial College London*); *Xiaofei Xiao* (*Imperial College London*); *Stefan Alexander Maier* (*Imperial College London*); *Rupert Francis Oulton* (*Imperial College London*);

13:30 Structural Optimization for High-quality Chiral Optical Tamm State
Natalya Victorovna Rudakova (*Siberian Federal University*); *Rashid Gelmedinovich Bikbaev* (*Kirensky Institute of Physics, Federal Research Center-Krasnoyarsk Scientific Center, Siberian Branch Russian Academy of Science*); *Stepan Yakovlevich Vetrov* (*Siberian Federal University*); *Kuo-Ping Chen* (*National Chiao-Tung University*); *Wei Lee* (*National Chiao Tung University*); *Ivan Vladimirovich Timofeev* (*Kirensky Institute of Physics, Federal Research Center KSC SB RAS*);

Session 2P11b
SC2: Chiral Photonics and Spin Photonics

Tuesday PM, April 26, 2022

Room Online ROOM 11

Organized by Yuntian Chen, Hailu Luo

Chaired by Shubo Wang, Haoliang Qian

13:50 Invited Nonreciprocity and Non-Hermiticity in Spinning Resonators
Shubo Wang (*City University of Hong Kong*); *Hongkang Shi* (*Huazhong University of Science and Technology*); *Zheng Yang* (*City University of Hong Kong*); *Yuntian Chen* (*Huazhong University of Science and Technology*);

14:05 Highly Degenerate Photonic Waveguide Structures Generating Non-Abelian Geometric Phases
Julien Pinske (*University of Rostock*); *Vera Neef* (*University of Rostock*); *Alexander Szameit* (*University of Rostock*); *Stefan Scheel* (*University of Rostock*);

14:15 Photonic Band Structure and Field Response of Nonlocal Metamaterials
Yachao Liu (*Shenzhen University*); *Guo Ping Wang* (*Shenzhen University*);

14:30 Gap Opening Induced by Rotation Operation in Two-dimensional Photonic Crystals
Zihao Yu (*Central China Normal University*); *Rui Zhou* (*Central China Normal University*); *Yangjie Liu* (*Hubei University*); *Hai Lin* (*Central China Normal University*);

14:45 Photonic Spin Hall Effect in a S_4-symmetry Metasurface
Jiaqing Liu (*Nanjing University of Aeronautics and Astronautics*); *Xiao Li* (*Nanjing University of Aeronautics and Astronautics*); *Jiaqi Tao* (*Nanjing University of Aeronautics and Astronautics*); *Daxing Dong* (*Nanjing University of Aeronautics and Astronautics*); *Youwen Liu* (*Nanjing University of Aeronautics and Astronautics*); *Yangyang Fu* (*Nanjing University of Aeronautics and Astronautics*);

15:30 **Coffee Break**

Session 2P11c
SC2: Theory and Applications of Spinning Electromagnetic Fields

Tuesday PM, April 26, 2022

Room Online ROOM 11

Organized by Liang Peng, Zhen Liao

Chaired by Liang Peng, Zhen Liao

16:00 Invited Radiation-type Metasurfaces for Advanced Electromagnetic-wave Manipulation
Wei Xiang Jiang (*Southeast University*); *Han Wei Tian* (*Southeast University*);

16:20 Confined and Radiative Orbital Angular Momenta in a Microwave Plasmonic Resonator for Dichroism Detection
Xuanru Zhang (*Southeast University*); *Tie Jun Cui* (*Southeast University*);

16:35 Type-I Weyl Points Induced by Negative Coupling in Photonic Crystal
Zhaoxian Su (*Beijing Institute of Technology*);

16:50 Toggling Near-field Directionality via Polarization Control of Surface Waves
Yuhan Zhong (*Zhejiang University*); *Xiao Lin* (*Zhejiang University*); *Jing Jiang* (*Beijing Information Science and Technology University*); *Yi Yang* (*Massachusetts Institute of Technology*); *Gui-Geng Liu* (*Nanyang Technological University*); *Haoran Xue* (*Nanyang Technological University*); *Tony Low* (*University of Minnesota*); *Hongsheng Chen* (*Zhejiang University*); *Baile Zhang* (*Nanyang Technological University*);

17:05 Microwave Vortex Beam Generation Based on Spoof Plasmon Ring Resonators
Zhen Liao (*Hangzhou Dianzi University*); *Xin Zhang* (*Hangzhou Dianzi University*); *Yongmin Liu* (*Northeastern University*);

17:20 Spin Hall Effect of Transversely Spinning Light
Liang Peng (*Hangzhou Dianzi University*); *Su Xu* (*Jilin University*); *Shuang Zhang* (*University of Hong Kong*);

17:35 High-Q Sensors Based on Spoof Localized Surface Plasmons
Di Bao (*Southeast University*); *Tie Jun Cui* (*Southeast University*);

Session 2P12a
SC5: Electromagnetic Sensing and Imaging for Biomedical Applications

Tuesday PM, April 26, 2022

Room Online ROOM 12

Organized by Maokun Li, Ke Zhang

Chaired by Maokun Li

13:00 Imaging Human Thorax Using Acoustic Wave through First Arrival Traveltime Tomography with Supervised Descent Learning Technique
Tong Zhang (*Tsinghua University*); *Rui Guo* (*Tsinghua University*); *Haolin Zhang* (*Tsinghua University*); *Hongyu Zhou* (*Tsinghua University*); *Maokun Li* (*Tsinghua University*); *Fan Yang* (*Tsinghua University*); *Shenheng Xu* (*Tsinghua University*);

13:15 Human Arm Imaging System Based on Machine Learning Inverse Scattering Approach
Naike Du (*Beijing Institute of Technology*); *Daohan Yang* (*Beihang University*); *Xiuzhu Ye* (*Beijing Institute of Technology*);

13:30 Deep Learning-based Cardiac-related Signal Separation 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*);

13:45 An Advanced Magnetic Induction Tomography Setup for Biomedical 3D-imaging throughout the Depth of a Voluminous Body
Martin Klein (*University of Applied Sciences Ruhr West*); *Daniel Erni* (*University of Duisburg-Essen, Campus Duisburg*); *Dirk Rueter* (*University of Applied Sciences Ruhr West*);

13:55 A Preliminary Approach on Osteoporosis Diagnostic
Bruno Basile (*B. & B. Sas*); *Angela Dell'Aversano* (*TTC Medical S.r.l.*); *Antonio Cuccaro* (*TTC Medical S.r.l.*);

14:05 A Method of Moments Based Methodology for the Prediction of Entomological Targets' Radar Cross Section from C-band to K-band
Omar Alzaabi (*Khalifa University*); *Mohammad M. Al-Khaldi* (*University Corporation for Atmospheric Research*); *Mohamed Alkhatib* (*Pennsylvania State University*); *Diego Peñaloza* (*Pennsylvania State University*); *Julio Urbina* (*Pennsylvania State University*);

Session 2P12b
Inverse Scattering and Imaging

Tuesday PM, April 26, 2022

Room Online ROOM 12

Organized by Rocco Pierri, Maokun Li

Chaired by Maokun Li

14:25 A Value Piking Method for Mixed Boundary Conditions in Inverse Scattering Problems
Fan Yin (*University of Science and Technology of China*); *Chang Chen* (*University of Science and Technology of China*); *Weidong Chen* (*University of Science and Technology of China*);

14:35 Magnetotelluric Inversion Enhanced by Seismic Post-stack Data Based on Deep Learning
Hongyu Zhou (*Tsinghua University*); *Rui Guo* (*Tsinghua University*); *Maokun Li* (*Tsinghua University*); *Fan Yang* (*Tsinghua University*); *Shenheng Xu* (*Tsinghua University*); *Aria Abubakar* (*Schlumberger Houston Formation Evaluation*);

15:30 **Coffee Break**

Session 2P12c
SC5: Machine Learning and Deep Learning for Radar Signal Processing and Imaging

Tuesday PM, April 26, 2022

Room Online ROOM 12

Organized by Xianpeng Wang, Gang Xu

Chaired by Xianpeng Wang, Guang-Cai Sun

16:00 Self-supervised Human Pose Recovery for Through-wall Radar Based on Convolutional Neural Networks
Zhijie Zheng (*Aerospace Information Research Institute, Chinese Academy of Sciences*); *Shengbo Ye* (*Aerospace Information Research Institute, Chinese Academy of Sciences*); *Guangyou Fang* (*Aerospace Information Research Institute, Chinese Academy of Sciences*);

16:15 Utilization of Simulated SAR Data for Data Augmentation Based on the Adversarial Encoding Network
Shaoyan Du (*Aerospace Information Research Institute, Chinese Academy of Science*); *Jun Hong* (*Aerospace Information Research Institute, Chinese Academy of Science*); *Yu Wang* (*Aerospace Information Research Institute, Chinese Academy of Science*); *Kaichu Xing* (*Aerospace Information Research Institute, Chinese Academy of Science*); *Tian Qiu* (*Aerospace Information Research Institute, Chinese Academy of Science*);

16:30 Robust Phase Error Correction and Coherent Processing for Automotive TDMA-MIMO Radar
Yuzhi Chen (*Southeast University*); *Gang Xu* (*Southeast University*); *Mengjie Jiang* (*Nanjing Hawkeye Electronic Technology Co. Ltd.*); *Hui Zhang* (*Southeast University*);

16:45 High-resolution Automotive Radar Point Cloud Imaging and Processing
Mengjie Jiang (*Nanjing Hawkeye Electronic Technology Co. Ltd*); *Gang Xu* (*Southeast University*); *Hao Pei* (*Southeast University*); *Hui Zhang* (*Southeast University*); *Kunpeng Guo* (*Nanjing Hawkeye Electronic Technology Co. Ltd*);

17:00 Off-grid DOA Estimation for Temporally Correlated Source via Robust Block-SBL in Mutual Coupling
Huafei Wang (*Hainan University*); *Xianpeng Wang* (*Hainan University*); *Mengxing Huang* (*Hainan University*); *Xiang Lan* (*Hainan University*); *Liangtian Wan* (*Dalian University of Technology*);

17:15 Discrimination of Single-channel Radar Micro-doppler of Human Joints Based on Kinect Sensor
Xianxian He (*National Space Science Center, Chinese Academy of Sciences*); *Yunhua Zhang* (*National Space Science Center, Chinese Academy of Sciences*); *Xiao Dong* (*Center for Space Science and Applied Research, Chinese Academy of Sciences*); *Jiefang Yang* (*National Space Science Center, Chinese Academy of Sciences*); *Dong Li* (*National Space Science Center, Chinese Academy of Sciences*); *Xiaojin Shi* (*National Space Science Center, Chinese Academy of Sciences*);

17:30 An Improved Oriented Ship Detection Method in High-resolution SAR Image Based on YOLOv5
Zhongzhen Sun (*National University of Defense Technology*); *Yu Lei* (*National University of Defense Technology*); *Xiangguang Leng* (*National University of Defense Technology*); *Boli Xiong* (*National University of Defense Technology*); *Kefeng Ji* (*National University of Defense Technology*);

17:45 Human Behavior Recognition Method Based on LLE and SVM with the WIFI Signal
Chengwen Huang (*Tongji University*); *Junhe Zhou* (*Tongji University*);

Session 2P13a
FocusSession.SC5: Physical Modeling and Applications in GNSS Reflectometry and other SoOp Observables 1

Tuesday PM, April 26, 2022

Room Online ROOM 13

Organized by Davide Comite, James D. Campbell

Chaired by Davide Comite, James D. Campbell

13:00 GNSS-R Models for Electromagnetic Scattering from Land Surfaces with Topography
James D. Campbell (*University of Southern California*); *Ruzbeh Akbar* (*MIT*); *Alexandra Bringer* (*The Ohio State University*); *Davide Comite* (*"Sapienza" University of Rome*); *Laura Dente* (*Tor Vergata University*); *Scott T. Gleason* (*University Corporation for Atmospheric Research*); *Leila Guerriero* (*Tor Vergata University of Rome*); *Erik Hodges* (*University of Southern California*); *Joel T. Johnson* (*The Ohio State University*); *Seung Bum Kim* (*California Institute of Technology*); *Amer Melebari* (*University of Southern California*); *Nazzareno Pierdicca* (*Sapienza University of Rome*); *Christopher S. Ruf* (*University of Michigan*); *Leung Tsang* (*University of Michigan*); *Tianlin Wang* (*The Ohio State University*); *Haokui Xu* (*University of Michigan*); *Jiyue Zhu* (*University of Michigan*); *Mahta Moghaddam* (*University of Illinois at Urbana-Champaign*);

13:10 Decorrelation of Scattered Signals of Opportunity
Keynote
Davide Comite (*Sapienza University of Rome*); *Nazzareno Pierdicca* (*Sapienza University of Rome*);

13:35 Detecting the Forest Disturbances due to Fires by Using CyGNSS and Machine Learning Techniques
Emanuele Santi (*Consiglio Nazionale delle Ricerche*); *Maria Paola Clarizia* (*Deimos Space UK*); *Davide Comite* (*"Sapienza" University of Rome*); *Laura Dente* (*Tor Vergata University*); *Leila Guerriero* (*Tor Vergata University of Rome*); *Nazzareno Pierdicca* (*Sapienza University of Rome*);

13:45 Simulations of GNSS-R Signal and Validation over Vegetated Surfaces
Laura Dente (*University of Rome Tor Vergata*); *Leila Guerriero* (*University of Rome Tor Vergata*); *Davide Comite* (*Sapienza University of Rome*); *Nazzareno Pierdicca* (*Sapienza University of Rome*);

13:55 A Semi-empirical Model on the Standard Deviation of Spaceborne GNSS-R Wind Speed Measurements
Weiqiang Li (*Institute of Space Sciences (ICE, CSIC)*); *Yang Nan* (*Wuhan University*); *Estel Cardellach* (*Institute of Space Studies (ICE, CSIC)*); *Antonio Rius* (*Institute of Space Studies (ICE, CSIC)*); *Shirong Ye* (*Wuhan University*); *Jingnan Liu* (*Wuhan University*);

14:10 Significant Wave Height Estimation from CYGNSS Delay-doppler Map Average Observations
Shuanggen Jin (*Nanjing University of Information Science and Technology*); *Shuai Yang* (*Shanghai Astronomical Observatory, Chinese Academy of Sciences*); *Qingyun Yan* (*Nanjing University of Information Science and Technology*); *Yan Jia* (*Nanjing University of Posts and Telecommunications*);

14:25 Use of GNSS-R CYGNSS Measurements in Arid Zones
Mehrez Zribi (*CESBIO (CNRS/IRD/CNES/UPS)*); *Nazzareno Pierdicca* (*Sapienza University of Rome*);

15:30 **Coffee Break**

Session 2P13b
SC5: Remote Sensing of Water and Energy Cycles 2

Tuesday PM, April 26, 2022

Room Online ROOM 13

Organized by Hui Lu, Jiancheng Shi

Chaired by Hui Lu, Jiancheng Shi

16:00 Time Series Remote Sensing of Land Use Changes and Influences on Runoff and Sediment Yield in Dongjiang River Basin, China
Hongyan Ma (*Guangzhou Institute of Geochemistry*); *Jizhong Qiu* (*Chongzuo Natural Resources Bureau*); *Yunpeng Wang* (*Guangzhou Institute of Geochemistry, Chinese Academy of Sciences*);

16:25 Satellite Constellations for Water Cycle and Global Change Studies (Invited)
Jian-Cheng Shi (*Institute of Remote Sensing Applications, CAS*);

16:45 Soil Moisture Retrievals Using a Multi-Channel Collaborative Algorithm (MCCA)
Tianjie Zhao (*Aerospace Information research Institute, Chinese Academy of Sciences*); *Jiancheng Shi* (*National Space Science Center, Chinese Academy of Sciences*); *Zhiqing Peng* (*Aerospace Information Research Institute, Chinese Academy of Sciences*); *Panpan Yao* (*Aerospace Information research Institute, Chinese Academy of Sciences*);

17:00 A Long-term Total Precipitable Water Product Based on Microwave Radiometer
Dabin Ji (*Aerospace Information Research Institute, Chinese Academy of Sciences*); *Jiancheng Shi* (*National Space Science Center, Chinese Academy of Sciences*); *Husi Letu* (*Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences (CAS)*); *Qixiang Sun* (*Aerospace Information Research Institute, Chinese Academy of Sciences*);

17:15 Detecting Rainfall Events Leveraging Climate Knowledge Graphs
Jiantao Wu (*University College Dublin*); *Fabrizio Orlandi* (*The ADAPT SFI Research Centre*); *Declan O'Sullivan* (*Trinity College Dublin*); *Soumyabrata Dev* (*Beijing-Dublin International College*);

17:25 Role of Temporal Information for Multi-step Ahead Forecasting of Solar Irradiance
T. A. Fathima (*Indian Institute of Technology Bombay*); *Vasudevan Nedumpozhimana* (*ADAPT SFI Research Centre*); *Jiantao Wu* (*University College Dublin*); *Yee Hui Lee* (*Nanyang Technological University Singapore*); *Soumyabrata Dev* (*Beijing-Dublin International College*);

16:10 Improving Terrestrial Energy and Water Cycle Simulation Using Remote Sensing
Hui Lu (*Tsinghua University*);

Session 2P14a
Antenna Designs, Solutions, Measurements, and Trends for 5G and Beyond

Tuesday PM, April 26, 2022

Room Online ROOM 14

Organized by Huan-Chu Huang, Siyang Sun

Chaired by Huan-Chu Huang, Siyang Sun

13:00 The mm-wave Active Phased-array Antenna Module Design for 5G Applications (Invited)
Cheng-Nan Hu (*Oriental Institute of Technology*); *Pin-Xiang Wang* (*Oriental Institute of Technology*); *Xin-Zhi Chen* (*Oriental Institute of Technology*); *Chia-Chuan Wu* (*Oriental Institute of Technology*);

13:15 Status and Analysis of RF Conformance Test for Millimeter-wave Devices
Xiangqian Sun (*China Academy of Information and Communications Technology*); *Yuanyuan Liu* (*China Academy of Information and Communications Technology*); *Yu Zhou* (*China Academy of Information and Communications Technology*);

13:30 LTCC Dual-polarization Array Antenna with Scalability by Tiling Based on $\mathbf{4 \times 4}$ Elements for 5G (28 GHz) Base Station and CPE
Daisuke Yamashita (*NGK Spark Plug Co., Ltd.*);

13:40 Demystifying Self-healing Property of Accelerating Beams for Obstacles Circumvention in Communication Applications
Daniele Inserra (*University of Electronic Science and Technology of China*); *Guangjun Wen* (*University of Electronic Science and Technology of China*);

13:50 A Novel Test Scheme for Crossly-polarized Electromagnetic Wave Based on Pseudo-random Codes
Renzhou Gui (*Tongji University*); *Han Nie* (*Tongji University*); *Hao Liang* (*Tongji University*); *Mei Song Tong* (*Tongji University*);

14:00 Miniaturized Three-in-one Module of Wideband Dual-polarized Millimeter-wave Antennas-in-Package as Non-millimeter-wave Antennas (AiPaA) for Mobile Phones (Invited)
Huan-Chu Huang (*Etheta Communication Technology Co., Ltd.*); *Zhixing Qi* (*Etheta Communication Technology Co., Ltd.*); *Dasong Gao* (*Etheta Communication Technology Co., Ltd.*); *Junyong Liu* (*East China Research Institute of Microelectronics*); *Jingwei Li* (*East China Research Institute of Microelectronics*); *Hong Lin* (*Etheta Communication Technology Co., Ltd.*);

14:15 Ray-tracing Based 28 GHz Channel Characterization for Outdoor Millimeter Wave Communications
Yu Zhou (*China Academy of Information and Communications Technology*); *Yuan Dong* (*China Academy of Information and Communications Technology*); *Yuanyuan Liu* (*China Academy of Information and Communications Technology*); *Xiangqian Sun* (*China Academy of Information and Communications Technology*);

14:30 Dual-band Antenna Integrated with Solar Cells for WLAN and 5G Wi-Fi Applications
Hui Wang (*Tianjin University*); *Wenxing An* (*Tianjin University*);

14:40 Machine Learning Based MIMO Antenna Arrays Optimization for 5G/6G
Maxim A. Dubovitskiy (*National Research University "Moscow Power Engineering Institute"*);

14:50 Analysis of EIRP Measurement Grid for 5G Millimeter Wave User Equipment
Yuanyuan Liu (*China Academy of Information and Communications Technology*); *Rui Zhang* (*China Academy of Information and Communications Technology*); *Yu Zhou* (*China Academy of Information and Communications Technology*);

15:30 **Coffee Break**

Session 2P14b
Recent Advances in Flexible and Reconfigurable Antennas

Tuesday PM, April 26, 2022

Room Online ROOM 14

Organized by Lingnan Song, Meng Wang

Chaired by Lingnan Song

16:00 A Textile-tailored Surrogate-based Antenna Optimization Technique with High Accuracy and Efficiency
Botian Zhang (*University of California*); *Lingnan Song* (*Beihang University*); *Yahya Rahmat-Samii* (*University of California*);

16:15 A W-band Circularly Polarized Antenna
Zhenjie Yan (*Jimei University*); *Jun Xiao* (*University of California*); *Tongyu Ding* (*Jimei University*); *Honglin Lan* (*Jimei University*); *Qiubo Ye* (*Jimei University*);

16:30 A Tunable Dipole Antenna Controlled by Motor
Tingjun Lai (*Zhejiang University*); *Xinyu Hong* (*Zhejiang University*); *Yinger Zhang* (*Zhejiang University*); *Zhengjie Huang* (*Zhejiang University*); *Hengjian Ma* (*Zhejiang University*); *Jiangtao Huangfu* (*Zhejiang University*);

16:45 A Low-profile Slot Antenna with Frequency and Pattern Reconfigurability
Ge Zhao (*Tongji University*); *Yi Zhou* (*Tongji University*); *Yunjing Zhang* (*Soochow University*); *Mei Song Tong* (*Tongji University*);

17:00 A Ka-band Phased-array Antenna Based on Liquid Crystal Phase Shifter
Xiao Yu Li (*Tongji University*); *Di Jiang* (*University of Electronic Science and Technology of China*); *Juan Liu* (*Beijing Institute of Remote Sensing Equipment*); *Mei Song Tong* (*Tongji University*);

17:15 A Polarization and Frequency Reconfigurable Antenna Based on Liquid Metal
Zhaojie Min (*Beihang University*); *Min Wang* (*Beihang University*); *Zhe Zhang* (*Beihang University*); *Aixin Chen* (*Beihang University*);

17:30 A Dual-band Pattern Reconfigurable Antenna Based on Liquid Metal
Min Wang (*Beihang University*); *Xuedong Fu* (*Beihang University*); *Zhaojie Min* (*Beihang University*); *Zhe Zhang* (*Beihang University*); *Aixin Chen* (*Beihang University*);

17:45 Liquid Metal Antenna: Application and Fabrication
Zhifu Liu (*Central South University*); *Yuanyuan Zhu* (*Central South University*); *Yan Ma* (*Central South University*); *Meng Wang* (*Central South University*); *Jian Dong* (*Central South University*);

Session 2P15a
SC1: Advanced Numerical Approches in Computational Electromagnetics

Tuesday PM, April 26, 2022

Room Online ROOM 15

Organized by Yuxian Zhang, Changyou Li

Chaired by Changyou Li

13:00 A Wideband Irregular Circular Polarization Antenna Analyzed by Characteristic Mode Theory
Qiubo Ye (*Jimei University*); *Ping Chen* (*Jimei University*); *Jun Xiao* (*Jimei University*); *Zhuo Yang* (*Jimei University*);

13:15 Learning-based Electromagnetic Inverse Scattering with Mixed Boundaries
Youyou Huang (*Hefei University of Technology*); *Rencheng Song* (*Hefei University of Technolog*);

13:30 Application of Microwave-induced Thermal Acoustic Tomography on Composites Detection
Kang An (*Northwestern Polytechnical University*); *Changyou Li* (*Northwestern Polytechnical University*); *Jun Ding* (*Northwestern Polytechnical University*);

13:45 Characterization of One-way Edge Modes at the Interface of Topological Photonic Crystals and a PEC Wall Using the Coupled Integral Equation — Foldy-Lax Multiple Scattering Method
Zhaoyang Feng (*Zhejiang University*); *Shurun Tan* (*Zhejiang University/University of Illinois at Urbana-Champaign Institute*);

14:00 Electromagnetic Imaging of Damages in Fiber-reinforced Laminates Based on Deep Learning Techniques
Zicheng Liu (*Northwestern Polytechnical University*); *Changyou Li* (*Northwestern Polytechnical University*); *Yu Zhong* (*FINIAC Pte. Ltd.*);

14:15 The Electromagnetic Wave Propagation Property in Rectangular Waveguide Filled with Biaxial Anisotropic Material
Kai Sun (*Northwestern Polytechnical University*); *Changyou Li* (*Northwestern Polytechnical University*);

14:30 3-D Microwave Imaging of Inhomogeneous Objects Using LSM and BIM Enhanced by a CNN
Yanjin Chen (*Xiamen University*); *Jiawen Li* (*Xiamen University*); *Feng Han* (*Xiamen University*); *Na Liu* (*Xiamen University*);

15:30 **Coffee Break**

Session 2P15b
SC1&SC3: Modeling, Numerical Simulation and Theory in Optics and Photonics

Tuesday PM, April 26, 2022

Room Online ROOM 15

Organized by Yasuhide Tsuji, Jun Shibayama

Chaired by Yasuhide Tsuji, Jun Shibayama

16:00 A Theoretical Model for Nonlinear Waves Observed in Space Plasmas
Jiankui Shi (*Center for Space Science and Applied Research, CAS*); *Z. Wang* (*Center for Space Science and Applied Research, CAS*); *Z. W. Cheng* (*Center for Space Science and Applied Research, CAS*); *M. N. S. Qureshi* (*Government College University*); *Klaus Torkar* (*Space Research Institute, AAS*);

16:15 Polarized Light Scattering in Random Media: A Random Matrix Model
Niall Byrnes (*Imperial College London*); *Matthew R. Foreman* (*Imperial College London*);

16:25 Topology Optimal Design of NRD Guide Devices Using Simulated Annealing Like Scheme
Naoya Hieda (*Muroran Institute of Technology*); *A. Iguchi* (*Muroran Institute of Technology*); *Y. Tsuji* (*Muroran Institute of Technology*); *T. Kashiwa* (*Kitami Institute of Technology*);

16:35 Bayesian Optimization of Three-dimensional Plasmonic Devices
Hiroki Maruyama (*Muroran Institute of Technology*); *A. Iguchi* (*Muroran Institute of Technology*); *Y. Tsuji* (*Muroran Institute of Technology*); *T. Kashiwa* (*Kitami Institute of Technology*);

16:45 On the Correlation between Near Infrared Spectrum from the Sky and Weather Parameters
Yasuo Ohtera (*Toyama Prefectural University*); *Haruyasu Tanaka* (*Toyama Prefectural University*); *Tomohisa Takaya* (*Toyama Prefectural University*); *Yuki Okura* (*Toyama Prefectural University*);

16:55 Comparative Study of Optimization Method for Design of NRD Guide Devices with Mosaic-like Structure
T. Bashir (*Muroran Institute of Technology*); *K. Morimoto* (*Muroran Institute of Technology*); *A. Iguchi* (*Muroran Institute of Technology*); *Yasuhide Tsuji* (*Muroran Institute of Technology*); *T. Kashiwa* (*Kitami Institute of Technology*);

17:05 Temperature Sensing Characteristics of Surface Acoustic Wave Brillouin Scattering in Optical Microfibers
Yi Liu (*Taiyuan University of Technology*); *Yuanqi Gu* (*Taiyuan University of Technology*); *Pengfei Chen* (*Taiyuan University of Technology*); *Rongrong Guo* (*Taiyuan University of Technology*); *Yao Yao* (*Taiyuan University of Technology*); *Yajun You* (*North University of China*); *Wenjun He* (*North University of China*); *Xiu-Jian Chou* (*North University of China*);

17:15 A Spectral Galerkin Modal Method for Applications in Photonics
Nan Zhang (*City University of Hong Kong*); *Ya Yan Lu* (*City University of Hong Kong*);

Session 2P16a
Millimeter-wave and Terahertz Source and Device

Tuesday PM, April 26, 2022

Room Online ROOM 16

Organized by Cun-Jun Ruan

Chaired by Cun-Jun Ruan

13:00 Invited Matching and Stability Analyses of Planar Distributed Three-beam Electron Optics System
Pengpeng Wang (*Beihang University*); *Cun-Jun Ruan* (*Beihang University*);

13:20 Invited Free-electron-driven Vortex Smith-Purcell Radiation with Higher-order Topological Charge
Zi-Wen Zhang (*Peking University*); *Chao-Hai Du* (*Peking University*); *Zi-Chao Gao* (*Peking University*); *Fan-Hong Li* (*Peking University*); *Juan-Feng Zhu* (*Peking University*); *Liang Zhang* (*University of Strathclyde*); *Adrian W. Cross* (*Strathclyde University*); *Pu-Kun Liu* (*Peking University*);

13:40 Invited Investigation of G-band Extended Interaction Klystron Broadband Beam-wave Interaction
Longlong Yang (*Aerospace Information of Research Institute, Chinese Academy of Sciences*); *Wenxin Liu* (*Aerospace Information of Research Institute, Chinese Academy of Sciences*); *Yue Ou* (*Aerospace Information of Research Institute, Chinese Academy of Sciences*); *Zhengyuan Zhao* (*Aerospace Information of Research Institute, Chinese Academy of Sciences*);

14:00 Invited Study of Terahertz-band Sheet Electron Beam Extended Interaction Oscillators
Guoxiang Shu (*Shenzhen University*); *Jiacai Liao* (*Shenzhen University*); *Jingcong He* (*Shenzhen University*); *Junchen Ren* (*Shenzhen University*); *Junzhe Deng* (*Shenzhen University*); *Wenlong He* (*Shenzhen University*);

14:15 Design and Optimize of a G-band High-power Traveling Wave Tube
Wenbo Wang (*Beihang University*); *Cun-Jun Ruan* (*Beihang University*); *Zheng Zhang* (*Beihang University*); *Feng Zhang* (*Beihang University*);

14:30 Cherenkov Radiation Based on Effective Surface Plasmon Polaritons
Juan-Feng Zhu (*Peking University*); *Chao-Hai Du* (*Peking University*); *Zi-Wen Zhang* (*Peking University*); *Zi-Chao Gao* (*Peking University*); *Fan-Hong Li* (*Peking University*); *Si-Qi Li* (*Peking University*); *Pu-Kun Liu* (*Peking University*);

14:45 Improvement of Output Power and Bandwidth for Extended Interaction Klystron in G-band
Feng Zhang (*Beihang University*); *Wenbo Wang* (*Beihang University*); *Cun-Jun Ruan* (*Beihang University*);

15:00 Technologies of Frequency Selective Surfaces and Metasurfaces for Highly Effective Spectral Discrimination in the Terahertz Band
Sergei A. Kuznetsov (*Institute of Semiconductor Physics SB RAS*); *Alexander V. Gelfand* (*Institute of Semiconductor Physics SB RAS*); *Pavel Alexandrovich Lazorskiy* (*Institute of Semiconductor Physics SB RAS*); *Victor N. Fedorinin* (*Institute of Semiconductor Physics SB RAS*); *Andrey V. Arzhannikov* (*Novosibirsk State University*); *Nazar A. Nikolaev* (*Novosibirsk State University*); *Alexander A. Mamrashev* (*Institute of Automation and Electrometry SB RAS*); *Alina A. Rybak* (*Novosibirsk State University*); *Alexander N. Gentselev* (*Budker Institute of Nuclear Physics SB RAS*); *Victor P. Bessmeltsev* (*Budker Institute of Nuclear Physics SB RAS*);

15:30 **Coffee Break**

Session 2P16b
THz Technology

Tuesday PM, April 26, 2022

Room Online ROOM 16

Chaired by Xinlong Xu, Junichi Hamazaki

16:00 Electromagnetic Mode Interaction and Its Related Effects in Terahertz Metamaterials
Xinlong Xu (*Northwest University*); *Yanping Jin* (*Northwest University*); *Changjiang Liu* (*Northwest University*); *Yuanyuan Huang* (*Northwest University*);

16:15 Terahertz Sensors for Fingerprint Detection of Saccharides with High Specificity and Sensitivity
Baojuan Han (*China Jiliang University*); *Wei Cheng* (*China Jiliang University*); *Jianyuan Qin* (*China Jiliang University*);

16:25 3D THz Imaging for Anomaly Detection of Fiber Reinforced Thermoplastics
Aya Souliman (*University of Siegen*); *Matthias Kahl* (*University of Siegen*); *Michael Möller* (*University of Siegen*); *Bernd Engel* (*University of Siegen*); *Peter Haring Bolivar* (*University of Siegen*);

16:35 Parameter Analysis of Two-color Laser Sources for Terahertz Wave Radiation from Liquid Water
Tao Shen (*Kunming University of Science and Technology*); *Zezhong Tian* (*Kunming University of Science and Technology*); *Haoyang Wang* (*Kunming University of Science and Technology*); *J. Zhang* (*Kunming University of Science and Technology*); *J. Liu* (*Kunming University of Science and Technology*);

Session 2P16c
SC4: Emerging RF and mm-wave ICs for Wireless Sensing and Communication

Tuesday PM, April 26, 2022

Room Online ROOM 16

Organized by Keping Wang, Kaixue Ma

Chaired by Bin Zheng

17:00 A RF Frequency Tripler with High Output Power in 180 nm CMOS
Xinke Zhao (*Jiangsu University*); *Leijun Xu* (*Jiangsu University*);

17:10 100 mW G-band MMIC Power Amplifier Based on 50 nm GaN HEMT Technology
Fangjin Guo (*University of Electronic Science and Technology of China*); *Yuehang Xu* (*University of Electronic Science and Technology of China*); *Shaobing Wu* (*Nanjing Electronic Devices Institute*); *Hongqi Tao* (*Nanjing Electronic Devices Institute*); *Erchen Ma* (*Nanjing Electronic Devices Institute*); *Tangsheng Chen* (*Nanjing Electronic Device Institute*); *Weibo Wang* (*Southeast University*);

17:25 A D Band Zero Bias Detector Chip Using Schottky Diode
Dongfeng Ji (*Nanjing Electronic Devices Institute*); *Bin Niu* (*Science and Technology on Monolithic Integrated Circuits and Modules Laboratory*); *Hong-Qi Tao* (*Science and Technology on Monolithic Integrated Circuits and Modules Laboratory*); *Tangsheng Chen* (*Science and Technology on Monolithic Integrated Circuits and Modules Laboratory*); *Weibo Wang* (*Southeast University*);

Session 3A1a
SC3: Superresolution Optical Devices and Systems

Wednesday AM, April 27, 2022

Room Online ROOM 1

Organized by Gang Chen

Chaired by Gang Chen

08:00 Super-resolution Microscopy and Instrument
Invited
Cuifang Kuang (*Zhejiang University*);

08:20 Label-free Subdiffraction Bioimaging Using Optical Superoscillations
Invited
Guanghui Yuan (*University of Science and Technology of China*);

08:35 Monolayer Supercritical Lens with Sub-diffraction Limited Focusing Property
Fei Qin (*Jinan University*);

09:05 Flat Field Super-resolution Metalenses
Gang Chen (*Chongqing University*);

Session 3A1b
SC3: Integrated Lithium Niobate Photonics

Wednesday AM, April 27, 2022

Room Online ROOM 1

Organized by Zejie Yu, Xiankai Sun

Chaired by Zejie Yu

09:55 Invited — Nonlinear Photonics on the Integrated Lithium Niobate Platform
Qiang Lin (*Zhejiang University*);

10:30 Invited — High-performance Integrated Photonic Devices on thin-film Lithium Niobate
Sasan Fathpour (*University of Central Florida*);

10:45 Invited — Thin-film Lithium Niobate Photonics for Millimeter-wave Applications
Cheng Wang (*City University of Hong Kong*);

11:20 Invited — Integrated Acousto-optics on Thin-film Lithium Niobate
Bingcheng Pan (*Zhejiang University, Zijingang Campus*); *Huan Li* (*Zhejiang University*); *Daoxin Dai* (*Zhejiang University*);

Session 3A2a
SC3: Structural Colors

Wednesday AM, April 27, 2022

Room Online ROOM 2

Organized by L. Jay Guo, Chengang Ji

Chaired by L. Jay Guo, Chengang Ji

08:00 Invited — Using Dynamic Plasmonic Colors for High Density Data Storage and Kaleidoscopic Cryptography
Maowen Song (*Nanjing University*); *Ting Xu* (*Nanjing University*);

08:20 Invited — Harnessing Microstructures for Tunable Structural Color
Lauren Zarzar (*Penn State Universit*);

08:35 Invited — Lightfield Modulation Based on Nanostructures for 3D Display
Linsen Chen (*Soochow University*);

08:55 Nanoscale 3D Printing Based Structural Colors
Hao Wang (*Singapore University of Technology and Design*); *Joel K. W. Yang* (*Singapore University of Technology and Design*);

09:05 Invited — Structural Color Device as Decorative Element in Consuming Products
Gangyao Zhan (*Soochow University*); *Hao Zhong* (*Soochow University*); *Su Shen* (*Soochow University*);

09:25 Controllable Generation of Large-scale Highly-regular Gratings for Structural Coloring Applications
Jiao Geng (*Westlake University*); *Xiaoguo Fang* (*Westlake University*); *Lei Zhang* (*Westlake University*); *Guangnan Yao* (*Westlake University*); *Liye Xu* (*Westlake University*); *Fengjiang Liu* (*Westlake University*); *Weiwei Tang* (*Westlake University*); *Liping Shi* (*Westlake University*); *Min Qiu* (*Westlake University*);

09:40 Design of Multilayered Reflective Structural Colors Assisted by Particle Swarm Optimization
Danyan Wang (*Huazhong University of Science and Technology*); *Cheng Zhang* (*Huazhong University of Science and Technology*);

10:00 **Coffee Break**

Session 3A2b
SC3: Optical Interconnect Technologies for Datacom and Computercom 1

Wednesday AM, April 27, 2022

Room Online ROOM 2

Organized by Binhao Wang, Stanley Cheung

Chaired by Binhao Wang, Stanley Cheung

10:30 Invited — High Speed Silicon Photonic Modulation for Datacenter Interconnect
Fan Zhang (*Peking University*);

10:45 Invited — Quantum Dot Lasers and Integration with Si Photonic Integrated Circuits
Yating Wan (*University of California Santa Barbara*); *Chen Shang* (*University of California Santa Barbara*); *Rosalyn Koscica* (*University of California Santa Barbara*); *Chao Xiang* (*University of California Santa Barbara*); *Arthur C. Gossard* (*University of California Santa Barbara*); *John E. Bowers* (*University of California Santa Barbara*);

11:00 Invited — Photonic Devices on Thin Film Lithium Niobate
Liu Liu (*International Research Center for Advanced Photonics*);

Session 3A3
SC2&SC3: Organic and Hybrid Optoelectronics 2

Wednesday AM, April 27, 2022

Room Online ROOM 3

Organized by Yuyi Feng, Dawei Di

Chaired by Yuyi Feng, Dawei Di

08:00 Invited — In-Situ Cross-linking and Chemical Anti-corrosion Strategy for Efficient and Operationally Stable Perovskite Solar Cells
Junfeng Fang (*East China Normal University*); *Xiaodong Li* (*East China Normal University*);

08:20 Invited Suppressing Interfacial Nonradiative Losses for Perovskite Light-emitting Diodes
Baodan Zhao (*Zhejiang University*);

08:40 Invited Electrical Degradation of Polymer Light-emitting Diodes
Quan Niu (*South China University of Technology*);

09:00 Invited Extremely Low Driving Voltage Organic Light-emitting Devices and Their Applications
Yuan Liu (*Beijing Information Science & Technology University*);

09:20 Invited Ultrafast Dynamics of Organic and Organic-inorganic Hybrid Materials and Devices
Jiangbin Zhang (*National University of Defense Technology*);

09:40 Invited Environmental Effects on the Photophysics of Hybrid Perovskites
Hong-Hua Fang (*Tsinghua University*);

10:00 **Coffee Break**

10:30 Invited Acousto-activated Liquid Marble-based Micro-reactor for Quantitative SERS Detection of ALP
Zufang Huang (*Fujian Normal University*); *Weiming Lin* (*Fujian Normal University*);

10:50 Invited Engineering Two-dimensional Layered Perovskites for Efficient and Stable Solar Cells
Wenhui Li (*Southern University of Science and Technology*); *Lai Xue* (*Southern University of Science and Technology*); *Xiaoyu Gu* (*Southern University of Science and Technology*); *Yuniu Zhang* (*Southern University of Science and Technology*); *Dongyu Fan* (*Southern University of Science and Technology*); *Gongqiang Li* (*Nanjing Tech University (NanjingTech)*); *Aung Ko Ko Kyaw* (*Southern University of Science and Technology*);

11:10 Invited Theory and Experiments of Integrating Transistors with Various Photoelectric Devices
Chuan Liu (*Sun Yat-sen University*);

11:30 Invited Efficient Doping of Organic Semiconductors for High-performance Devices
Yuanyuan Hu (*Hunan University*);

Session 3A4a
SC2: Topological Acoustics and Phononics — Fundamental Concepts and Advanced Developments 1

Wednesday AM, April 27, 2022

Room Online ROOM 4

Organized by Ming-Hui Lu, Xueqin Huang, Xiujuan Zhang

Chaired by Xiujuan Zhang

08:15 Invited Steering Sound with Synthetic Pseudo-spin-hall Effect in Acoustic Metamaterials
Matthew Weiner (*City College of the City University of New York*); *Xiang Ni* (*City College of the City University of New York*); *Andrea Alù* (*City University of New York*); *Alexander B. Khanikaev* (*Graduate Center of City University of New York*);

08:30 Invited Some Novel Topological Acoustic Phenomena Utilizing the Third Dimension
Baile Zhang (*Nanyang Technological University*);

08:45 Invited Topological States in Bilayer Phononic Crystals
Weiyin Deng (*South China University of Technology*); *Xueqin Huang* (*South China University of Technology*); *Jiuyang Lu* (*South China University of Technology*); *Gang Chen* (*Shanxi University*); *Zhengyou Liu* (*Wuhan University*);

09:00 Inducing Topological Corner Modes in Arbitrary Geometry through Dirac Vortices
Xiaoxiao Wu (*The University of Hong Kong*); *Yan Meng* (*The Hong Kong University of Science and Technology*); *Yiran Hao* (*The Hong Kong University of Science and Technology*); *Ruo-Yang Zhang* (*The Hong Kong University of Science and Technology*); *Jensen Li* (*Hong Kong University of Science and Technology*); *Xiang Zhang* (*University of Hong Kong*);

Session 3A4b
SC2: Topological Metamaterials/Electric Circuits

Wednesday AM, April 27, 2022

Room Online ROOM 4

Organized by Yuntian Chen, Ruo-Yang Zhang

Chaired by Lingbo Xia, Ruo-Yang Zhang

09:10 Invited Fractional Charges and Defects in High-order Microwave Topological Insulators
Christopher W. Peterson (*University of Illinois at Urbana-Champaign*); *Sasha Yamada* (*University of Illinois at Urbana-Champaign*); *Tianhe Li* (*University of Illinois at Urbana-Champaign*); *Mao Lin* (*University of Illinois at Urbana-Champaign*); *Wentao Jiang* (*University of Illinois at Urbana-Champaign*); *Wladimir A. Benalcazar* (*University of Illinois at Urbana-Champaign*); *Taylor L. Hughes* (*University of Illinois at Urbana-Champaign*); *Gaurav Bahl* (*University of Illinois*);

09:25 Invited Experimental Observation of Non-Abelian Topological Charges and Bulk-edge Correspondence
Biao Yang (*Hong Kong University of Science and Technology*);

09:40 Photonic Dirac Nodal Line Semimetal
Invited
Mengying Hu (*Nanjing University*); *Ye Zhang* (*Nanjing University*); *Xi Jiang* (*Nanjing University*); *Tong Qiao* (*Nanjing University*); *Qiang Wang* (*Nanyang Technological University*); *Shining Zhu* (*Nanjing University*); *Meng Xiao* (*Wuhan University*); *Hui Liu* (*Nanjing University*);

10:00 **Coffee Break**

10:30 Novel Topological Phononic Crystals Using Synthetic
Invited Dimensions
Guancong Ma (*Hong Kong Baptist University*);

10:45 Topological Properties of Polarization Singularities in
Invited Scattering Systems
Shubo Wang (*City University of Hong Kong*); *Jie Peng* (*City University of Hong Kong*); *Ruo-Yang Zhang* (*The Hong Kong University of Science and Technology*);

11:00 Riemannian Geometry in Momentum Space for Pseudo-Hermitian Systems
Hongwei Jia (*Hong Kong University of Science and Technology*); *Ruo-Yang Zhang* (*Hong Kong University of Science and Technology*); *Jing Hu* (*Hong Kong University of Science and Technology*); *C. T. Chan* (*Hong Kong University of Science and Technology*);

11:10 The Topological Edge Modes and Tamm Modes in Su-
Invited Schrieffer-Heeger LC-resonator Circuits
Hai-Xiao Wang (*Guangxi Normal University*); *Pi-Gang Luan* (*National Central University*);

11:30 Bound States at Partial Dislocation Defects in 2D and 3D High-order Topological Insulator Metamaterials
Sasha S. Yamada (*University of Illinois at Urbana-Champaign*); *Tianhe Li* (*University of Illinois at Urbana-Champaign*); *Mao Lin* (*University of Illinois at Urbana-Champaign*); *Christopher W. Peterson* (*University of Illinois at Urbana-Champaign*); *Taylor L. Hughes* (*University of Illinois at Urbana-Champaign*); *Gaurav Bahl* (*University of Illinois*);

11:40 Tamm State Mimicking Topological Behavior in a One-
Invited dimensional Electrical Circuit
Shuo Liu (*University of Birmingham*); *Shaojie Ma* (*The University of Hong Kong*); *Ruiwen Shao* (*Southeast University*); *Lei Zhang* (*Southeast University*); *Biao Yang* (*The Hong Kong University of Science and Technology*); *Miguel Navarro-Cia* (*University of Birmingham*); *Tie Jun Cui* (*Southeast University*); *Shuang Zhang* (*University of Birmingham*);

08:00 Active Tuning of Asymmetric Transmission and Circular Dichroism in Symmetry Broken Chiral Metamaterial
Guohua Dong (*Harbin Engineering University*); *Chunhua Qin* (*Harbin Engineering University*); *Yuxiang Li* (*Harbin Engineering University*); *Chunying Guan* (*Harbin Engineering University*); *Jin Hui Shi* (*Harbin Engineering University*);

08:15 Graphene-based Optically Transparent and Dynamically Tunable Metasurface with Anisotropic Modulations
Jin Zhang (*Shanghai Jiao Tong University*); *Weiren Zhu* (*Shanghai Jiao Tong University*);

08:30 Switched Ultra-broadband Metamaterials Absorber and Polarization Converter with Vanadium Dioxide
Buxiong Qi (*Lanzhou University*); *Yinrui Zhao* (*Lanzhou University*); *Wenqiong Chen* (*Lanzhou University*); *Jingwei Zhang* (*Lanzhou University*); *Tiao Ming Niu* (*Lanzhou University*); *Zhong-Lei Mei* (*Lanzhou University*);

08:45 Thermally Reconfigurable Fano Resonance in Water Brick Pair Metamaterial
Jing Xu (*Northwestern Polytechnical University*); *Yuancheng Fan* (*Northwestern Polytechnical University*); *Quanhong Fu* (*Northwestern Polytechnical University*); *Fuli Zhang* (*Northwestern Polytechnical University*);

09:00 Excitation of Pure Toroidal Dipole Based on a Single Dielectric Disk
Ruiguang Peng (*Tsinghua University*); *Qian Zhao* (*Tsinghua University*); *Yonggang Meng* (*Tsinghua University*); *Shizhu Wen* (*Tsinghua University*);

09:15 Active Control of Terahertz Toroidal Excitations in a Hybrid Metasurface with Electrically Biased Silicon Layer
Ruisheng Yang (*Northwestern Polytechnical University*); *Quanhong Fu* (*Northwestern Polytechnical University*); *Fuli Zhang* (*Northwestern Polytechnical University*); *Yuancheng Fan* (*Northwestern Polytechnical University*);

09:30 Broadband High-reflective Omnidirectional Mixed-quasi-periodic Multilayer
Huanhuan Wang (*University of Chinese Academy of Sciences*); *Guoyan Dong* (*University of Chinese Academy of Sciences*);

10:00 **Coffee Break**

Session 3A5a
SC2: Active and Reconfigurable Metasurfaces: Fundamentals and Applications 2

Wednesday AM, April 27, 2022
Room Online ROOM 5
Organized by Yuancheng Fan, Qian Zhao, Jin Hui Shi
Chaired by Qian Zhao, Jin Hui Shi

Session 3A5b
SC2: Light-matter Interaction in Photonic/Plasmonic Metastructures 1

Wednesday AM, April 27, 2022
Room Online ROOM 5
Organized by Alexander V. Kildishev, Lian Shen
Chaired by Lian Shen, Ludmila J. Prokopeva

10:30 Invited High-order Accuorate Schemes for Dispersive Maxwell Equations on Complex Geometries Using Overset Grids
William D. Henshaw (*Rensselaer Polytechnic Institute*);

10:45 Integrating Single-photon Sources On-a-chip
Omer Yesilyurt (*Purdue University*); *Zhaxylyk A. Kudyshev* (*Purdue University*); *Alexandra Boltasseva* (*Purdue University*); *Vladimir M. Shalaev* (*Purdue University*); *Alexander V. Kildishev* (*Purdue University*);

10:55 Suppressing Meta-holographic Artifacts by Laser Coherence Tuning
Yaniv Eliezer (*Yale University*); *Geyang Qu* (*Harbin Institute of Technology (Shenzhen)*); *Wenhong Yang* (*Harbin Institute of Technology*); *Yujie Wang* (*Harbin Institute of Technology*); *Hasan Yilmaz* (*Yale University*); *Shumin Xiao* (*Harbin Institute of Technology*); *Qinghai Song* (*Harbin Institute of Technology*); *Hui Cao* (*Yale University*);

11:05 Invited Time Domain Implementation of Lorentz-convoluted Models for Optical Materials with Disorder
Ludmila J. Prokopeva (*Purdue University*); *Sam Peana* (*Purdue University*); *Sarah Chowdhury* (*Purdue University*); *Alexander V. Kildishev* (*Purdue University*);

Session 3A6a
SC2: Thermal Metamaterials and Devices 1

Wednesday AM, April 27, 2022

Room Online ROOM 6

Organized by Ying Li, Wei Li

Chaired by Qiang Li, Ying Li

08:00 Invited Temperature-adaptive Radiative Coating for All-season Household Thermal Regulation by VO_2 Based Metamaterials
Kechao Tang (*Peking University*); *Kaichen Dong* (*University of California*); *Jiachen Li* (*University of California*); *Madeleine P. Gordon* (*University of California*); *Finnegan G. Reichertz* (*East Bay Innovation Academy*); *Hyungjin Kim* (*Lawrence Berkeley National Laboratory*); *Yoonsoo Rho* (*University of California*); *Qingjun Wang* (*University of California*); *Chang-Yu Lin* (*University of California*); *Costas P. Grigoropoulos* (*University of California*); *Ali Javey* (*University of California*); *Jeffrey J. Urban* (*Lawrence Berkeley National Laboratory*); *Jie Yao* (*University of California*); *Ronnen Levinson* (*Lawrence Berkeley National Laboratory*); *Junqiao Wu* (*University of California*);

08:20 Invited Thermal Manipulation and Thermal Rectification in One-dimensional Heterostructures
Xiangfan Xu (*Tongji University*);

08:40 Invited Near-field Radiation Assisted Smart Skin for Spacecraft Thermal Control
Deyu Xu (*Harbin Institute of Technology*); *Junming Zhao* (*Harbin Institute of Technology*); *Linhua Liu* (*Harbin Institute of Technology*);

09:00 Invited Ballistic Heat Conduction vs. Nanophotonic Control of Thermal Radiation: From Boltzmann to Maxwell
Zhen Chen (*Southeast University*);

09:20 Invited Control over Emissivity for Infrared Camouflage
Qiang Li (*Zhejiang University*);

09:40 Invited Thermal Metamaterials Design via Machine Learning
Run Hu (*Huazhong University of Science and Technology*);

10:00 **Coffee Break**

10:30 Enabling Photovoltaic Technologies in Harsh Climates with Pulse Electro-thermal Desnowing, Defrosting, and Deicing
Longnan Li (*University of Illinois at Urbana-Champaign*); *Siavash Khodakarami* (*University of Illinois at Urbana-Champaign*); *Xiao Yan* (*University of Illinois at Urbana-Champaign*); *Kazi Fazle Rabbi* (*University of Illinois at Urbana-Champaign*); *Alperen Gunay* (*University of Illinois at Urbana-Champaign*); *Andrew Stillwell* (*University of Illinois at Urbana-Champaign*); *Nenad Miljkovic* (*University of Illinois at Urbana-Champaign*); *Wei Li* (*University of Chinese Academy of Sciences*);

10:45 Inverse Design and Fundamental Limits of Near-field Thermal Radiation
Weiliang Jin (*Stanford University*); *Sean Molesky* (*Princeton University*); *Prashanth S. Venkataram* (*Princeton University*); *Alejandro W. Rodriguez* (*Princeton University*); *Shanhui Fan* (*Stanford University*);

10:55 A Simple Mushroom-like Ultra-broadband Metamaterial Absorber with Multi Resonance Modes
Yanning Liu (*University of Electronic Science and Technology of China*); *Wenxin Li* (*University of Electronic Science and Technology of China*); *Xiaolong Weng* (*University of Electronic Science and Technology of China*); *Peng Zhang* (*Shenyang Aircraft Design and Research Institute*); *Yu Gong* (*Shenyang Aircraft Design and Research Institute*); *Li Zhang* (*University of Electronic Science and Technology of China*); *Peiheng Zhou* (*University of Electronic Science and Technology of China*); *Long-Jiang Deng* (*University of Electronic Science and Technology of China*);

11:10 Dynamic Thermal Material and Thermal Topology
Guoqiang Xu (*National University of Singapore*); *Cheng-Wei Qiu* (*National University of Singapore*);

Session 3A6b
SC2: Space and Time Varying Metamaterials 1

Wednesday AM, April 27, 2022

Room Online ROOM 6

Organized by Fu Liu, Sergei A. Tretyakov

Chaired by Fu Liu, Sergei A. Tretyakov

11:25 Time and Space-time Metasurfaces
Invited
Andrea Alù (*City University of New York*);

11:40 Pseudo-Random Sequence (PRS) Space-time-modulated Metasurfaces: General Concept and Fundamental Operations
Xiaoyi Wang (*Polytechnique*); *Christophe Caloz* (*Ecole Polytechnique de Montreal*);

11:50 Electromagnetic Waves in Time-modulated Material Media and Transmission Lines
José Gabriel Gaxiola-Luna (*National Institute of Astrophysics, Optics and Electronics*); *Peter Halevi* (*Instituto Nacional de Astrofisica Optica y Electronica*);

Session 3A7a
SC3: Light Propagation, Transformations and Manipulations

Wednesday AM, April 27, 2022

Room Online ROOM 7

Organized by Xinzhong Li, Zhili Lin

Chaired by Xinzhong Li, Zhili Lin

08:00 Optical Vortex Lattice: A Rediscovery of Orbital Angular Momentum
Xinzhong Li (*Henan University of Science and Technology*);

08:15 Evolution of Spatiotemporal Intensity of Partially Coherent Pulsed Beams with Spatial Cosine-Gaussian and Temporal Laguerre-Gaussian Correlations in Still, Pure Water
Chaoliang Ding (*Luoyang Normal University*); *Olga Korotkova* (*University of Miami*); *Dmitri Horoshko* (*B. I. Stepanov Institute of Physics, NASB*);

08:25 Correlation Induced Orbital Angular Momentum Changes
Yongtao Zhang (*Minnan Normal University*); *Olga Korotkova* (*University of Miami*); *Yangjian Cai* (*Shandong Normal University & Soochow University*); *Greg Gbur* (*University of North Carolina at Charlotte*);

08:40 Photoacoustic Generation in Human Brain with Embedded Blood Vessel: Modeling and Simulation
Xi Yang (*Westlake University*); *Yun-Hsuan Chen* (*Westlake University*); *Mohamad Sawan* (*Westlake University*);

08:55 Light Beam Scanner Based on Optical Metasurface Lens
Yuehe Ge (*Fuzhou University*); *Jingru Wang* (*Huaqiao University*); *Zhizhang (David) Chen* (*Dalhousie University*);

09:10 Focal Field Modulation Based on Polarization Rotation of Vector Beams
Hehe Li (*Henan University of Science and Technology*); *C. H. Ma* (*Henan University of Science and Technology*); *M. M. Tang* (*Henan University of Science and Technology*); *X. Z. Li* (*Henan University of Science and Technology*);

09:25 Controllable Manipulation of Composite Multi-singularity Vortex Array
Yagang Zhang (*Henan University*); *Zhenkun Wu* (*Henan University*); *Guanchen Wu* (*Xi'an Jiaotong University*); *Peng Li* (*Henan University*); *Feng Wen* (*Xi'an Jiaotong University*); *Yuzong Gu* (*Henan University*);

09:40 Numerical Simulations of High Intensity Laser-Plasma Interactions by the FDTD Method
Zhili Lin (*Huaqiao University*); *Xudong Chen* (*Huaqiao University*); *Xiangyu Zhu* (*Huaqiao University*); *Xiaoxue Zhang* (*Huaqiao University*);

10:00 **Coffee Break**

Session 3A7b
SC2: Optics with Twistronics and Polaritonic Nano-optics 1

Wednesday AM, April 27, 2022

Room Online ROOM 7

Organized by Xiao Lin, Huanjun Chen

Chaired by Xiao Lin, Huanjun Chen

10:30 Live form New York: Programmable Quantum Materials
Keynote
Dmitri N. Basov (*Columbia University*);

10:55 Hot-electron Photocatalytic Reactions Involving Col-
Invited loidal Plasmonic Nanocrystals
Weihai Ni (*Soochow University*);

11:15 Enhanced Chiroptical Properties of Chiral Plasmonic
Invited Nanocrystals by Symmetry Breaking
Lei Shao (*The Chinese University of Hong Kong*); *Jing Wang* (*Beijing Computational Science Research Center*);

11:35 Emerging Chiral Optics from Chiral Interfaces
Xinyan Zhang (*Zhejiang University*); *Yuhan Zhong* (*Zhejiang University*); *Tony Low* (*University of Minnesota*); *Hongsheng Chen* (*Zhejiang University*); *Xiao Lin* (*Zhejiang University*);

11:50 Manipulating the Mid-infrared Phonon Polaritons with Twisted Stacking of van der Waals Hyperbolic Crystals
Zebo Zheng (*Sun Yat-sen University*); *Huanjun Chen* (*Sun Yat-sen University*);

Session 3A8a
SC2&SC3: Perovskite Photonics and Optoelectronics

Wednesday AM, April 27, 2022

Room Online ROOM 8

Organized by Dehui Li, Yupeng Zhang

Chaired by Dehui Li

08:00 2D Perovskite/Transition Metal Dichalcogenides Heterostructures for Optoelectronic Applications
Yingying Chen (*Huazhong University of Science and Technology*); *Zeyi Liu* (*Huazhong University of Science and Technology*); *Jiaqi Ma* (*Huazhong University of Science and Technology*); *Junze Li* (*Huazhong University of Science and Technology*); *Xue Cheng* (*Huazhong University of Science and Technology*); *Dehui Li* (*Huazhong University of Science and Technology*);

08:15 Doping Effect on Ferroelectric Soft Optic Mode of $SrTiO_3$ Crystals with Cubic Perovskite Structure
Seiji Kojima (*University of Tsukuba*);

08:25 Invited Organic-Perovskite Hybrid Quantum Wells for Light-emitting Devices
Letian Dou (*Purdue University*);

08:40 Keynote Addressing the Key Issues in Perovskite Module Fabrication
Jinsong Huang (*University of North Carolina, Chapel Hill*);

09:05 Single-crystal Metal Halide Perovskite Devices: Growth, Fabrication, and Applications
Yimu Chen (*Harbin Institute of Technology Shenzhen*);

09:20 Electrically Controllable Emission from Lead Halide Perovskite Microplates
Kaiyang Wang (*Harbin Institute of Technology*); *Guichuan Xing* (*University of Macau*); *Qinghai Song* (*Harbin Institute of Technology*);

10:00 **Coffee Break**

Session 3A8b
SC3: Engineering of the Electrical and Optical Properties of Emerging Optoelectronics

Wednesday AM, April 27, 2022

Room Online ROOM 8

Organized by Wallace C. H. Choy, Xingang Ren

Chaired by Xingang Ren

10:30 High Performance Single β-Ga_2O_3 Nanowire Back-gate Solar-blind Phototransistor
Guangming Qu (*Institute of Semiconductors, Chinese Academy of Sciences*); *Siyuan Xu* (*Institute of Semiconductors, Chinese Academy of Sciences*); *Yiyun Zhang* (*Institute of Semiconductors, Chinese Academy of Sciences*); *Xiaoyan Yi* (*Institute of Semiconductors, Chinese Academy of Sciences*); *Jinmin Li* (*Institute of Semiconductors, Chinese Academy of Sciences*);

10:45 High-efficiency Narrow-bandgap Sn-Pb Mixed Perovskite-based Near-infrared Photodiodes
Hugh Lu Zhu (*Sun Yat-sen University*); *Hui Liu* (*University of Hong Kong*); *Zi Shuai Wang* (*The University of Hong Kong*); *Wallace C. H. Choy* (*The University of Hong Kong*);

11:00 Stability Study of Silver Electrode in Organic-inorganic Perovskite Solar Cells
Zhen Yan (*Wuhan University of Technology*); *Hongye Chen* (*Wuhan University of Technology*); *Min Li* (*Wuhan University of Technology*); *Mingyu Li* (*Wuhan University of Technology*); *Wallace C. H. Choy* (*The University of Hong Kong*); *Haifei Lu* (*Wuhan University of Technology*);

11:15 Room-temperature Solution-processed Hole Transport Layer for Realizing High-performance Perovskite Solar Cells
Dan Ouyang (*Qingdao University*); *Wallace C. H. Choy* (*The University of Hong Kong*);

11:25 Light Manipulations in Perovskite Based Optoelectronics
Qing Ci (*Anhui University*); *Xingang Ren* (*Anhui University*);

Session 3A9
SC3: Nonlinear Optics in 2D Materials

Wednesday AM, April 27, 2022

Room Online ROOM 9

Organized by Weitao Liu, Tao Jiang

Chaired by Weitao Liu, Tao Jiang

08:00 Invited Ultrafast Carrier Relaxation of Monolayer WS_2
Xiaoyong Hu (*Peking University*); *Qiuchen Yan* (*Peking University*); *Huixin Qi* (*Peking University*); *Xiaoxiao Wang* (*Peking University*);

09:35 Invited Third Order Optical Nonlinearity of Massless Dirac Fermions
Jin Luo Cheng (*Changchun Institude of Optics, Fine Mechanics and Physics, Chinese Academy of Sciences*);

10:00 **Coffee Break**

10:30 Nonlinear All-optical Switch Based on Inverse Design Method
Huixin Qi (*Peking University*); *Xiaoyong Hu* (*Peking University*);

10:45 Tuning Quantum Coherence in Transition Metal Dichalcogenides
Di Huang (*The University of Texas at Austin*); *Kevin Sampson* (*The University of Texas at Austin*); *Jiamin Quan* (*The University of Texas at Austin*); *Yue Ni* (*The University of Texas at Austin*); *Takashi Taniguchi* (*National Institute for Materials Science*); *Kenji Watanabe* (*National Institute for Materials Science*); *Xiaoqin Li* (*The University of Texas at Austin*);

10:55 Giant and Nonreciprocal Second Harmonic Generation from Layered Antiferromagnetism in Bilayer CrI_3
Zeyuan Sun (*Fudan University*); *Shiwei Wu* (*Fudan University*);

11:10 Near-field Mapping and Time-domain Dynamics of Photonic Topological States in Plasmonic Nanochains
Qiuchen Yan (*Peking University*); *Xiaoyong Hu* (*Peking University*);

11:25 Invited 2D Materials for Nonlinear Quantum Photonics
Zhipei Sun (*Aalto University*);

Session 3A10
SC3: Nonlinear Optics: Fundamentals and Its Applications 1

Wednesday AM, April 27, 2022

Room Online ROOM 10

Organized by Haibin Wu, Zhaoyang Zhang

Chaired by Zhaoyang Zhang

08:20 Invited Towards On-demand Heralded Single-photon Sources via Photon Blockade
Jiangshan Tang (*Nanjing University*); *Lei Tang* (*Nanjing University*); *Haodong Wu* (*Nanjing University*); *Keyu Xia* (*Nanjing University*);

08:40 Invited Phase Diagram and Self-Organizing Dynamics in a Thermal Ensemble of Strongly Interacting Rydberg Atoms
Dong-Sheng Ding (*University of Science and Technology of China*); *Hannes Busche* (*Durham University*); *Baosen Shi* (*University of Science and Technology of China*); *Guang-Can Guo* (*University of Science and Technology of China, CAS*); *Charles S. Adams* (*Durham University*);

09:20 All-optical Devices in Electromagnetically Induced Atomic Lattice
Jinpeng Yuan (*Shanxi University*); *Hengfei Zhang* (*Shanxi University*); *Lirong Wang* (*Shanxi University*); *Liantuan Xiao* (*Shanxi University*); *Suotang Jia* (*Shanxi University*);

10:00 **Coffee Break**

10:30 Coherent Control Rydberg Multi-wave Mixing
Junling Che (*Xi'an University of Posts and Telecommunications*);

11:00 Invited Quantum Phase Transition and Novel Quantum States of Ultra-cold Atoms in Optical Lattices
Xiaoji Zhou (*Peking University*); *Shengjie Jin* (*Peking University*);

Session 3A11a
Nanophotonics, Biophotonics and Advanced Photonic Materials 1

Wednesday AM, April 27, 2022

Room Online ROOM 11

Chaired by Koichi Shimizu, Julian Samuel Goodwin Evans

08:20 Full Control of Far-field Thermal Radiative Properties with Nonreciprocal Materials and Nanophotonic Designs
Bo Zhao (*University of Houston*);

08:30 Prediction of Quality Attributes of Fresh Unpasteurized Milk Using Dielectric Spectroscopy Coupled to Chemometric Tools
T. Chuquizuta (*Universidad Nacional Autónoma de Chota*); *Y. Colunche* (*Universidad Nacional Autónoma de Chota*); *M. Rubio* (*Universidad Nacional Autónoma de Chota*); *J. Oblitas* (*Universidad Privada del Norte*); *H. Arteaga* (*Universidad Nacional Autónoma de Chota*); *W. Castro* (*Universidad Nacional de Frontera*);

08:40 Elimination of Scattering Blur by Deep Learning in Optical Transillumination Imaging of Human Body
Ni Phan Van (*Waseda University*); *Trung Nghia Tran* (*Ho Chi Minh City University of Technology*); *Hiroshi Inujima* (*Waseda University*); *Koichi Shimizu* (*Waseda University*);

08:50 Infrared Detectors Enhanced by Integrated Photonic Structures
Jing Zhou (*Shanghai Institute of Technical Physics, Chinese Academy of Sciences*); *Shangkun Guo* (*Shanghai Institute of Technical Physics, Chinese Academy of Sciences*); *Zeshi Chu* (*Shanghai Institute of Technical Physics, Chinese Academy of Sciences*); *Jie Deng* (*Shanghai Institute of Technical Physics, Chinese Academy of Sciences*); *Xiaoshuang Chen* (*Shanghai Institute of Technical Physics, Chinese Academy of Sciences*); *Wei Lu* (*Shanghai Institute of Technical Physics, Chinese Academy of Sciences*);

09:05 TiN-based Tamm-FP Coupling Infrared Perfect Absorber with a Narrowed Linewidth
Simeng Liu (*China Jiliang University*); *Jinghao Wu* (*China Jiliang University*); *Yan-Long Meng* (*China Jiliang University*); *Yi Li* (*China Jiliang University*); *Shangzhong Jin* (*China Jiliang University*);

09:20 Second Order Central Moment Estimation of Single and Multiple Scattering Intensities in Full-field Reflective Tissue Imaging under Coherent Illumination
Peng Miao (*Shanghai Jiao Tong University*); *Cheng Wang* (*Shanghai Jiao Tong University*);

09:35 Self-assembled Photonic Materials from Liquid Crystalline Biomaterials
Julian Samuel Goodwin Evans (*Zhejiang University*);

10:00 **Coffee Break**

Session 3A11b
SC3: Luminescent/Optoelectronic Materials and Devices 1

Wednesday AM, April 27, 2022

Room Online ROOM 11

Organized by Hongwei Song, Wen Xu

Chaired by Hongwei Song, Wen Xu

10:30 Invited Stable Red-emitting Perovskite Quantum Dots and Their Applications in QLEDs
Rongjun Xie (*Xiamen University*);

10:50 Invited Efficient Quantum Dot Light-emitting Diodes Based on $CsPbX_3$
Jizhong Song (*Zhengzhou University*);

11:10 Invited Energy Management of Organic Molecules Using Lanthanide-doped Nanocrystals
Renren Deng (*Zhejiang University*);

11:30 Highly Thermotolerant Metal Halide Perovskite Solids
Yang Li (*Guangzhou Medical University*);

Session 3A12a
Remote Sensing of Atmosphere, Ocean and Land Using GNSS and Other Sensors 1

Wednesday AM, April 27, 2022

Room Online ROOM 12

Organized by Shuanggen Jin

Chaired by Shuanggen Jin

08:00 Development and Assessment of CYGNSS Characterization of Tropical Cyclones Using Matched Filter Retrievals
Mohammad Al-Khaldi (*University Corporation for Atmospheric Research*); *Joel T. Johnson* (*The Ohio State University*); *Stephen J. Katzberg* (*NASA Langley Research Center*); *Younghun Kang* (*The Ohio State University*); *Ethan J. Kubatko* (*The Ohio State University*); *Scott Gleason* (*University Corporation for Atmospheric Research*);

08:10 A Schematic of Track-wisely Calibrating CyGNSS Data
Qingyun Yan (*Nanjing University of Information Science and Technology*); *Shuanggen Jin* (*Nanjing University of Information Science and Technology*); *Weimin Huang* (*Memorial University of Newfoundland*); *Ting Hu* (*Nanjing University of Information Science and Technology*); *Yan Jia* (*Nanjing University of Posts and Telecommunications*);

08:25 The Sensitivity Analysis on GNSS-R Soil Moisture Retrieval
Yan Jia (*Nanjing University of Posts and Telecommunications*); *Shuanggen Jin* (*Nanjing University of Information Science and Technology*); *Qingyun Yan* (*Nanjing University of Information Science and Technology*); *Patrizia Savi* (*Politecnico di Torino*);

08:40 Soil Moisture Retrieval from Spaceborne GNSS-R Data Using a Regression Model
Qingyun Yan (*Nanjing University of Information Science and Technology*); *Shuanggen Jin* (*Nanjing University of Information Science and Technology*); *Weimin Huang* (*Memorial University of Newfoundland*); *Yan Jia* (*Nanjing University of Posts and Telecommunications*); *Ting Hu* (*Nanjing University of Information Science and Technology*);

08:55 Arctic Sea-ice Type Recognition Based on the Surface Wave Investigation and Monitoring Instrument of the China-French Ocean Satellite
Meijie Liu (*Qingdao University*); *Xi Zhang* (*First Institute of Oceanography, Ministry of Natural Resources of China*); *Ping Chen* (*Huazhong University of Science and Technology*); *Jin Wang* (*Qingdao University*); *Shilei Zhong* (*Qingdao University*);

09:10 Satellite Passive Microwave Sea Ice Concentration Retrieval Errors over the Russian Arctic Seas
Elizaveta V. Zabolotskikh (*Russian State Hydrometeorological University*); *Margarita Andreevna Zhivotovskaya* (*Russian State Hydrometeorological University (RSHU)*); *E. Balashova* (*Russian State Hydrometeorological University*); *E. V. Lvova* (*Russian State Hydrometeorological University*); *B. Chapron* (*Russian State Hydrometeorological University*);

09:20 Uplifting Air Quality Data Using Knowledge Graph
Jiantao Wu (*University College Dublin*); *Fabrizio Orlandi* (*The ADAPT SFI Research Centre*); *Isabella Gollini* (*University College Dublin*); *Enrico Pisoni* (*European Commission, Joint Research Centre (JRC)*); *Soumyabrata Dev* (*Beijing-Dublin International College*);

09:30 Extraction of Nondirectional Wave Spectrum from Wide-beam HF Radar Sea Echo for Low Current Case
Min Deng (*Wuhan University*); *Chen Zhao* (*Wuhan University*); *Zezong Chen* (*Wuhan University*); *Fan Ding* (*Wuhan University*);

10:00 **Coffee Break**

Session 3A12b
SC5: Microwave and Infrared Brightness Temperature of Earth Surface

Wednesday AM, April 27, 2022

Room Online ROOM 12

Organized by Lixin Wu, Ramesh P. Singh

Chaired by Lixin Wu

10:30 An Assessment of MWHTS Onboard FY-3C/D Over Quasi-Stable Scenes
Jieying He (*National Space Science Center, Chinese Academy of Sciences*); *Yang Guo* (*National Satellite Meteorological Center China Meteorological Administration*); *Shengwei Zhang* (*National Space Science Center, Chinese Academy of Sciences*);

10:45 Comparative Analysis of Regional MBT Background Field and Anomaly Information of Two Earthquakes Occurring in Bayan Har Block
Yuan Qi (*Central South University*); *Lixin Wu* (*Central South University*); *Wenfei Mao* (*Central South University*); *Yifan Ding* (*Central South University*); *Yingjia Liu* (*Central South University*);

11:00 Seismic Thermal Anomaly Analysis Using Multi-source Satellite Data: A Case Study of Ms 6.2 Zhangbei Earthquake in 1998
Yingjia Liu (*Central South University*); *Lixin Wu* (*Central South University*); *Yuan Qi* (*Central South University*); *Wenfei Mao* (*Central South University*); *Yifan Ding* (*Central South University*);

11:15 Application of a New Two-step Method in the Extraction of Seismic Microwave Anomaly
Meiyi Ji (*Northeastern University*); *Shanjun Liu* (*Northeastern University*); *Limei Song* (*Tianjin Research Center of Surveying*);

11:30 Exploring the Characteristics of Multi-frequency Microwave Brightness Temperature Anomaly in Lake: A Case Study of the Mw 7.3 Sarpol Zahab Earthquake in 2017
Yifan Ding (*Central South University*); *Lixin Wu* (*Central South University*); *Yuan Qi* (*Central South University*); *Wenfei Mao* (*Central South University*); *Yingjia Liu* (*Central South University*);

11:45 The Urban Thermal Environment Based on Long Time Series: A Case Study of Qingdao, China
Zhijun Jiao (*China University of Petroleum (East China)*); *Jinyan Dingsun* (*China University of Petroleum (East China)*); *Genyun Sun* (*China University of Petroleum (East China)*); *Zhimei Zhang* (*China University of Petroleum (East China)*);

Session 3A13a
SC5: Advances in Random Medium Scattering Theory and Microwave Remote Sensing 1

Wednesday AM, April 27, 2022

Room Online ROOM 13

Organized by Shurun Tan, Yanlei Du

Chaired by Shurun Tan, Yanlei Du

08:00 Keynote Microwave Remote Sensing: Rough Surface Scattering, Effects of Vegetation and Forests, Dense Media Scattering and Bistatic Scattering in Signals of Opportunities
Leung Tsang (*University of Michigan*); *Jiyue Zhu* (*University of Michigan*); *Weihui Gu* (*University of Michigan*); *Bowen Ren* (*University of Michigan*); *Haokui Xu* (*University of Michigan*);

08:25 Scattering from Random Rough Surfaces from C to Ku Band with $\boldsymbol{kh}$ up to 15 for Remote Sensing of Snow Water Equivalent and Soil Moisture
Jiyue Zhu (*University of Michigan*); *Leung Tsang* (*University of Michigan*); *Tien-Hao Liao* (*California Institute of Technology*);

08:35 A Comprehensive Bistatic Scattering Model for Layered Irregular and Inhomogeneous Medium
Dongjin Bai (*National Space Science Center, Chinese Academy of Sciences*); *Xiaolong Dong* (*National Space Science Center, Chinese Academy of Sciences*); *Saibun Tjuatja* (*University of Texas at Arlington*); *Di Zhu* (*National Space Science Center, Chinese Academy of Sciences*);

08:50 On the Color Visualization of Three-component Model-based Decomposition for Polarimetric SAR Data
Xun Wang (*National Space Science Center, Chinese Academy of Sciences*); *Dong Li* (*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*); *Liting Liang* (*National Space Science Center, Chinese Academy of Sciences*);

09:05 An Unsupervised Classification of PolSAR Image Based on Polarimetric Scattering Similarity and Complex Wishart Classifier
Jiatong Li (*National Space Science Center, Chinese Academy of Sciences*); *Dong Li* (*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*); *Liting Liang* (*National Space Science Center, Chinese Academy of Sciences*);

09:20 Simulation on SRAL Echo over Complex Terrain Surfaces Using Hybrid Scattering Modeling Method
Zhanyu Zhu (*Soochow University*); *Hai Zhang* (*Institute of Electronic Engineering, China Academy of Engineering Physics*); *Feng Xu* (*Fudan University*);

09:35 A Comparative Study of Dense Random Media Scattering Using Discrete Dipole Approximation and Improved Born Approximation in Snow Remote Sensing
Chunzeng Luo (*Zhejiang University/University of Illinois at Urbana-Champaign Institute*); *Shurun Tan* (*Zhejiang University/University of Illinois at Urbana-Champaign Institute*);

10:00 **Coffee Break**

Session 3A13b
SC5: Microwave Remote Sensing of the Water Cycle 1

Wednesday AM, April 27, 2022
Room Online ROOM 13
Organized by Emmanuel P. Dinnat, Jacqueline Boutin
Chaired by Emmanuel P. Dinnat, Jacqueline Boutin

10:30 A Reference Ocean Surface Emission and Backscatter Model from Microwaves to Infrared
Emmanuel P. Dinnat (*NASA Goddard Space Flight Center and Chapman University*); *Stephen English* (*European Centre for Medium-Range Weather Forecasts*); *Catherine Prigent* (*Centre National de la Recherche Scientifique*); *Magdalena D. Anguelova* (*Naval Research Laboratory*); *Thomas Meissner* (*Remote Sensing Systems*); *Lise Kilic* (*Centre National de la Recherche Scientifique*); *Jacqueline Boutin* (*LOCEAN/CNRS/Sorbonne Université*); *Stuart Newman* (*Met Office*); *Benjamin Johnson* (*NOAA Center for Weather and Climate Prediction*); *Simon H. Yueh* (*California Institute of Technology*); *Masahiro Kazumori* (*Japan Meteorological Agency*); *Fuzhong Weng* (*Chinese Academy of Meteorological Sciences, China Meteorological Administration*); *Michael H. Bettenhausen* (*Naval Research Laboratory*); *Ad Stoffelen* (*Royal Netherlands Meteorological Institute (KNMI)*); *Christophe Accadia* (*EUMETSAT*);

10:40 Seawater Dielectric Measurements at 700 MHz
Invited
Roger H. Lang (*The George Washington University*); *Y. Zhou* (*Lincoln Agritech Ltd., Lincoln University*); *David M. Le Vine* (*NASA Goddard Space Flight Center*);

10:55 Preliminary Tropical Cyclone Monitoring Using HY-2B
Invited Satellite
Xiaobin Yin (*Ocean University of China*); *Mingyao He* (*Ocean University of China*); *Kunsheng Xiang* (*Piesat Information Technology Co., Ltd.*); *Yan Li* (*Piesat Information Technology Co., Ltd.*);

11:15 The Chinese Ocean Salinity Satellite: Present and Performacne Simulation
Yan Li (*Piesat Information Technology Co., Ltd.*); *Xiaobin Yin* (*Ocean University of China*); *Wu Zhou* (*National Satellite Ocean Application Service*); *Mingsen Lin* (*National Satellite Ocean Application Service*); *Hao Liu* (*National Space Science Center, Chinese Academy of Sciences*); *Yinan Li* (*China Academy of Space Technology (Xi'an)*);

11:30 Toward Satellite SSS Products Validation Based on Extended Collocation Analysis
Jin Wang (*Qingdao University*); *Meijie Liu* (*Qingdao University*); *Weifu Sun* (*The First Institute of Oceanography of the Ministry of Natural Resources of China*);

11:45 Direction Dependence of the Fully Polarimetric Wind-induced Ocean Emissivity at L-band: Modeling and Anisotropy Analyses
Yanlei Du (*Tsinghua University*); *Wentao Ma* (*Aerospace Information Research Institute, Chinese Academy of Sciences*); *Xiaofeng Yang* (*Aerospace Information Research Institute, Chinese Academy of Sciences*); *Jian Yang* (*Tsinghua University*);

Session 3A14a
SC4: Wideband High Gain Lens Antenna

Wednesday AM, April 27, 2022
Room Online ROOM 14
Organized by Qingyi Guo, Yao Zhang
Chaired by Qingyi Guo, Yao Zhang

08:00 A Wideband C-shaped Open Slot Array for Millimeterwave Applications
Guang-Hua Sun (*City University of Hong Kong*); *Hang Wong* (*City University of Hong Kong*);

08:10 Ultra-thin, Beam Steerable, Electrically Small Huygens
Invited Dipole Antenna and Arrays
Wei Lin (*University of Technology Sydney*); *Richard W. Ziolkowski* (*University of Technology Sydney*);

08:25 A Dual-polarized Lens Antenna Using LTCC Based Phase-shifting Surface for D Band Applications
Qing-Yi Guo (*Shenzhen University*); *Xue Ren* (*Shenzhen University*); *Wenlong He* (*Shenzhen University*);

08:40 A Broadband Low Profile Transmitarray Based on SIW Structures
Ye Dong (*Zhejiang University*); *Xinyu Wu* (*Zhejiang University*); *Wenhao Li* (*Zhejiang University*); *Yudong Ren* (*Zhejiang University*); *Yihao Yang* (*Zhejiang University*); *Jiangtao Huangfu* (*Zhejiang University*); *Long Li* (*Xidian University*); *Rui Xi* (*Zhejiang University*); *Hongsheng Chen* (*Zhejiang University*); *Bin Zheng* (*Zhejiang University*);

08:55 3D Printed Ultrabroadband Dual Linear Polarized High Gain Flat Lens Antenna Based on Impedance Matching Metamaterials
Jin Chen (*Beijing Institute of Technology*);

09:10 A Wideband High Gain Taper Slot Antenna for 5G Millimeter-wave Imaging System Application
Yao Zhang (*Xiamen University*); *Kai Huang* (*Xiamen University*); *Li Gao* (*Mediatek*);

09:25 A Ka-band Wideband Linearly-polarized Magneto-electric Dipole Antenna
Shanqing Mao (*Harbin Institute of Technology*); *Kai Xu Wang* (*Harbin Institute of Technology*); *Hang Wong* (*City University of Hong Kong*);

10:00 **Coffee Break**

Session 3A14b
SC4: Novel Beam Steering Antennas and Their Applications

Wednesday AM, April 27, 2022

Room Online ROOM 14

Organized by Liang Peng, Kuiwen Xu

Chaired by Liang Peng, Qingfeng Zhang

10:30 Invited Reconfigurable Invisible Metamaterial and Its Applications on Wave Manipulation
Dexin Ye (*Zhejiang University*);

10:50 Invited Multi-band Mode-composite Antennas with a Large Frequency Ratio for Millimeter-wave and Sub-6-GHz Applications
Yujian Li (*Beijing Jiaotong University*);

11:10 Invited Reconfigurable Reflectarray Antenna for Multi-beam Applications Based on Programmable Metasurface
Na Zhang (*Nanjing University*); *Jianmin Zhao* (*Nanjing University*); *Ke Chen* (*Nanjing University*); *Junming Zhao* (*Nanjing University*); *Tian Jiang* (*Nanjing University*); *Yijun Feng* (*Nanjing University*);

11:30 High-scanning Rate Leaky-wave Antenna for Millimeter Wave Application
Kuiwen Xu (*Hangzhou Dianzi University*); *Quan Wang* (*Hangzhou Dianzi University*);

11:45 Invited Fixed Frequency Beam Steering Antenna Array Based on Plasmonic Metamaterials for 5G Communication
Yong Jin Zhou (*Shanghai University*); *Hao Xiang Li* (*Shanghai University*);

Session 3A15a
SC1&SC5: Electromagnetic Theory in Geophysics and Interdisciplines

Wednesday AM, April 27, 2022

Room Online ROOM 15

Organized by Naixing Feng, Qingtao Sun

Chaired by Naixing Feng, Jinghe Li

08:00 A New Solution of DC Potential Field for Charged Lossy Dielectric Media
Tong Mu (*Guilin University of Technology*); *Jinghe Li* (*Guilin University of Technology*); *Chenglong Wu* (*Guilin University of Technology*); *Naixing Feng* (*Anhui University*);

08:15 NMM Simulation of Electromagnetic Waves in Cylindrical Geometries with an Extremely Thin Vertical Layer
Dezhi Wang (*Duke University*); *Qing Huo Liu* (*Duke University*);

08:25 Modeling Thin Material Surfaces with a Mesh-split Impedance Transition Boundary Condition
Yiqian Mao (*Duke University*); *Qiwei Zhan* (*Zhejiang University*); *Dezhi Wang* (*Duke University*); *Runren Zhang* (*Duke University*); *Qing Huo Liu* (*Duke University*);

08:35 Efficient ME-PML-based SC-ADI-FDTD Method and Its Applications in 3D VLF Subsurface Sensing Problems
Juan Shen (*Shenzhen University*); *Yuxian Zhang* (*Shenzhen University*); *Naixing Feng* (*Anhui University*); *William Thomas Joines* (*Duke University*);

08:50 Efficient Electromagnetic Modeling for Characterizing Hydraulic Fractures Using Coated Energized Casing
Chaoxian Qi (*University of Houston*); *Donald R. Wilton* (*University of Houston*); *Jiefu Chen* (*University of Houston*);

09:00 Sensitivity Function of LWD Azimuth Electromagnetic Tool with Annular Antenna Recesses
Lei Yu (*Jilin University*); *Hongnian Wang* (*Jilin University*);

09:15 Efficient Finite-volume Modeling of the Three-dimensional Responses of the Ultra-deep Look ahead Multi-component Resistivity Measurement While Drilling Using Scattered Potentials
Yazhou Wang (*Jilin University*); *Hongnian Wang* (*Jilin University*); *Zhuangzhuang Kang* (*Jilin University*);

09:30 A Novel Method for Detecting the Freezing Wall Extending State Based on Focused DC Principle
Qiangang Liu (*China University of Petroleum (East China)*); *Shaogui Deng* (*China University of Petroleum (East China)*); *Xiyong Yuan* (*China University of Petroleum*);

10:00 **Coffee Break**

10:30 Numerical Simulation and Response Analysis of Transient Electromagnetic Logging through Casing
Shiyu Chen (*China University of Petroleum (East China)*); *Yiren Fan* (*China University of Petroleum (East China)*); *Lei Wang* (*China University of Petroleum (East China)*); *Yizhi Wu* (*China University of Petroleum (East China)*);

10:40 Fast Physics-data Driven Modelling of Array Laterolog Responses in Horizontal Well Using Deep Neural Network
Zhou Fang (*China University of Petroleum (East China)*); *Yiren Fan* (*China University of Petroleum (East China)*); *Lei Wang* (*China University of Petroleum (East China)*); *Yizhi Wu* (*China University of Petroleum (East China)*); *Zhen Yang* (*Sinopec Matrix Corporation*);

Session 3A15b
SC1: Advances of Numerical Techniques in Computational Electromagnetics 1

Wednesday AM, April 27, 2022

Room Online ROOM 15

Organized by Mei Song Tong, Yunjing Zhang, Chunxia Yang

Chaired by Mei Song Tong, Chunxia Yang

11:00 Broadband Green's Function-KKR-Multiple Scattering Method for Calculations of Bands and Band Field in Topological Photonics and Acoustics
Tien-Hao Liao (*California Institute of Technology*); *Rouxing Gao* (*University of Michigan*); *Leung Tsang* (*University of Michigan*); *Shurun Tan* (*Zhejiang University/University of Illinois at Urbana-Champaign Institute*);

11:10 $\boldsymbol{E}$-polarized Plane Wave Diffraction by a Slit in a Material Screen
Takashi Nagasaka (*Chuo University*); *Kazuya Kobayashi* (*Chuo University*);

11:20 Comparison of Different Series Expansions of Electromagnetic Fields in Radiowave Propagation Problems
Alican Uysal (*Istanbul Technical University*); *Funda Akleman* (*Istanbul Technical University*);

11:30 Removal of DC Spurious Modes for Maxwell's Eigenvalue Problem with Absorbing Boundary Condition
Shi Jie Wang (*Xiamen University*); *Jie Liu* (*Xiamen University*); *Mingwei Zhuang* (*Xiamen University*); *Ke Chen* (*Xiamen University*); *Qing Huo Liu* (*Duke University*);

11:45 Diffraction by a Semi-infinite Parallel-plate Waveguide with Five-layer Material Loading: The Case of $\boldsymbol{H}$ Polarization
Kewen He (*Chuo University*); *Dongtian Zhang* (*Chuo University*); *Kazuya Kobayashi* (*Chuo University*);

Session 3A16a
SC4: Microwave Integrated Passive Circuits and Devices

Wednesday AM, April 27, 2022

Room Online ROOM 16

Organized by Wenjie Feng, Guangxu Shen

Chaired by Yongrong Shi, Guangxu Shen

08:00 Invited Overview of Microwave/Millimeter-wave Forward-wave Directional Coupler Based on the Periodic Structure Concept
Yongrong Shi (*Nanjing Electronic Devices Institute*);

08:20 Invited Recent Advance of Integrated Passive Device Bandpass Filters Using Lumped and Distributed Elements
Guangxu Shen (*Nanjing University of Posts and Telecommunications*);

08:40 A Low-loss CPW-DWG-CPW Transition
Qi Sun (*Shanghai Jiao Tong University*); *Lei Ji* (*Shanghai Jiao Tong University*); *Xiao-Chun Li* (*Shanghai Jiaotong University*); *Jun-Fa Mao* (*Shanghai Jiao Tong University*);

08:55 A Low-loss Transition for Substrate Integrated Coaxial Line to Grounded Coplanar Waveguide Based on Bayesian Optimization Approach
Yu Zhu (*Shanghai Jiao Tong University*); *Xiao-Chun Li* (*Shanghai Jiaotong University*); *Jun-Fa Mao* (*Shanghai Jiao Tong University*);

09:10 A Miniaturized Low-loss, 3 GHz RF Filter Using BAW Resonators
Xiaotong Xu (*South China University of Technology*); *Haoshen Zhu* (*South China University of Technology*); *Wenjie Feng* (*Nanjing University of Science and Technology*); *Wenquan Che* (*South China University of Technology*); *Quan Xue* (*South China University of Technology*);

09:25 Development of Reconfigurable Band Stop Filter Using Metamaterial for WLAN Application
Khyati Dipsinh Chavda (*Shantilal Shah Engineering College*); *A. K. Sarvaiya* (*Government Engineering College*);

09:35 Design of a Compact Combline Filter Fabricated by Lithography-based Ceramic Manufacturing (LCM)
Zhenming Tian (*CENIDE — Center for Nanointegration Duisburg-Essen*); *Ran He* (*CENIDE — Center for Nanointegration Duisburg-Essen*); *Han Gao* (*CENIDE — Center for Nanointegration Duisburg-Essen*); *Masoud Sakaki* (*CENIDE — Center for Nanointegration Duisburg-Essen*); *Niels Benson* (*CENIDE — Center for Nanointegration Duisburg-Essen*); *Peter Hildenhagen* (*RF-Frontend GmbH*); *Daniel Erni* (*University of Duisburg-Essen, Campus Duisburg*); *Andreas Rennings* (*University of Duisburg-Essen*);

09:45 A Resonator-type Sensor with Enhanced Sensitivity for Noninvasively Detecting the Variation of Permittivity of Liquids
Yunjing Zhang (*Soochow University*); *Peng Li* (*Soochow University*); *Xingli He* (*Soochow University*); *Mei Song Tong* (*Tongji University*);

10:00 **Coffee Break**

Session 3A16b
SC4: Novel Frequency-Selective Structures

Wednesday AM, April 27, 2022

Room Online ROOM 16

Organized by Zhongxiang Shen, Bo Li

Chaired by Bo Li

10:30 Frequency Selective Rasorber Based on Hybrid Diffusion
Mengyao Li (*Nanyang Technological University*); *Zhongxiang Shen* (*Nanyang Technological University*);

10:40 Energy-selective Structures with Power-dependent Nonreciprocal Characteristics
Lin Zhou (*Nanyang Technological University*); *Zhongxiang Shen* (*Nanyang Technological University*);

10:50 A Novel Linear-polarization Rotator Based on Orthogonally Parallel-coupled Slotlines
Tao Wei (*Nanjing University of Posts and Telecommunications*); *Hanxuan Li* (*Nanjing University of Posts and Telecommunications*); *Bo Li* (*Nanjing University of Posts and Telecommunications*); *Chong-Hu Cheng* (*Nanjing University of Posts and Telecommunications*);

11:05 Antenna Gain Enhancement and RCS Reduction Based on Frequency Selective Rasorbers
Yufeng Yu (*Hangzhou Dianzi University*); *Yili Zhang* (*Hangzhou Dianzi University*); *Guotai Xie* (*Hangzhou Dianzi University*);

11:20 A Slot Antenna Array with Reconfigurable RCS Using Liquid Absorber
Yukun Zou (*Nanjing University of Aeronautics and Astronautics*); *Xiang-Kun Kong* (*Nanjing University of Aeronautics and Astronautics*);

11:35 A Reconfigurable Frequency-selective Rasorber with Wide Passband Design Using Characteristic Mode Analysis
He Wang (*Nanjing University of Aeronautics and Astronautics*); *Xiang-Kun Kong* (*Nanjing University of Aeronautics and Astronautics*);

11:50 Three-dimensional Bandpass FSS with High Selectivity Based on Circular Waveguide Structure
Wenqi Li (*Shenzhen University*); *Guowen Chen* (*Shenzhen University*); *Ruixiang Liao* (*South China University of Technology*); *Sai-Wai Wong* (*Shenzhen University*); *Yin Li* (*Shenzhen University*);

Session 3P1a
SC3: Fiber Sensing Technology and Fiber-based Devices

Wednesday PM, April 27, 2022

Room Online ROOM 1

Organized by Xuewen Shu, Shengnan Wu

Chaired by Xuewen Shu, Shengnan Wu

13:00 Raman Fiber Sensors for Monitoring of Bioprocesses
Invited
Yinlan Ruan (*University of Adelaide*); *Puyang Wu* (*Guilin University of Electronic Technology*); *Kai Lin* (*Guilin University of Electronic Technology*); *Shijie Deng* (*Guilin University of Electronic Technology*);

13:20 Direct Laser Writing Spiral Sagnac Waveguide for Sens-
Invited ing Magnetic Field with Ultrahigh Sensitivity
Dengwei Zhang (*Zhejiang University*); *Zhihang Zhang* (*Zhejiang University*); *Heming Wei* (*Shanghai University*); *Jianrong Qiu* (*Zhejiang University*); *Sridhar Krishnaswamy* (*Northwestern University*);

13:40 A High Sensitivity Surface Plasmon Resonance Biosensor Based on Photonic Crystal Fibers for Refractive Index Sensing
Haoran Wang (*Xiamen University*); *Sijie Chen* (*Xiamen University*); *Weiyu Dai* (*Xiamen University*); *Xun Cai* (*Xiamen University*); *Hongyan Fu* (*Xiamen University*);

13:55 Dynamic Self-assembly of Gold Nanoparticles for SERS Analysis Using an Au-coated Fiber Embedded Microfluidic Chip
Xiaobo Xing (*South China Normal University*); *Zhidong Zheng* (*South China Normal University*); *Zongbao Li* (*Tongren University*); *Haiyan Wang* (*Guangdong Industry Technical College*); *Jianlin Huang* (*Guangzhou Institute of Measurement and Testing Technology*);

14:10 Optical Fiber Sensor Strain Sensing Cable Characterization through Swept Wavelength Interferometry
Filippo Bastianini (*Sestosensor S.r.l.*); *Francesco Falcetelli* (*Università degli Studi di Bologna*); *Leonardo Rossi* (*IMM Institute*); *Paweł Bocheński* (*Fibrain Sp. z.o.o. Wspólna 4A*); *Raffaella Di Sante* (*Università degli Studi di Bologna*); *Gabriele Bolognini* (*Consiglio Nazionale delle Ricerche, IMM Institute*);

14:20 Rapid Biosensing SARS-CoV-2 Antibodies in Human Serum
Sumin Bian (*Westlake University*); *Mohamad Sawan* (*Westlake University*);

Session 3P1b
Electromagnetic Radiation Sources Based on Free-electron Beams

Wednesday PM, April 27, 2022

Room Online ROOM 1

Organized by Weihao Liu

Chaired by Weihao Liu, Min Hu

14:40 Invited — High-efficiency Threshold-less Terahertz Cherenkov Radiation in Graphene Hyperbolic Grating
Min Hu (*University of Electronic Science and Technology of China*); *Xiaoqiuyan Zhang* (*University of Electronic Science and Technology of China*); *Zhuocheng Zhang* (*University of Electronic Science and Technology of China*); *Yueying Wang* (*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*); *Tao Zhao* (*University of Electronic Science and Technology of China*); *Shenggang Liu* (*University of Electronic Science and Technology of China*);

15:00 Dielectric-supported Rhombus-shaped Meander-line Slow-wave Structure for a V-band Dual-sheet Beam Traveling Wave Tube
Yuxin Wang (*University of Electronic Science and Technology of China*); *Yang Dong* (*University of Electronic Science and Technology of China*); *Shaomeng Wang* (*University of Electronic Science and Technology of China*); *Yubing Gong* (*University of Electronic Science and Technology of China*);

15:15 Recent Results on Development of Sub-GW Long-pulse THz-band FEL
Nikolai Yu. Peskov (*Institute of Applied Physics, RAS*); *A. V. Arzhannikov* (*Budker Institute of Nuclear Physics RAS*); *P. A. Bak* (*Budker Institute of Nuclear Physics, RAS*); *V. I. Belousov* (*Institute of Applied Physics RAS*); *Naum S. Ginzburg* (*Institute of Applied Physics, RAS*); *D. A. Nikiforov* (*Institute of Applied Physics RAS*); *E. S. Sandalov* (*Budker Institute of Nuclear Physics RAS*); *S. L. Sinitsky* (*Budker Institute of Nuclear Physics RAS*); *D. I. Sobolev* (*Institute of Applied Physics RAS*); *A. A. Starostenko* (*Budker Institute of Nuclear Physics, RAS*); *Vladislav Yu. Zaslavsky* (*Institute of Applied Physics, RAS*); *K. I. Zhivankov* (*Institute of Applied Physics RAS*);

15:30 **Coffee Break**

16:00 Invited — A Microelectronic Terahertz Source Using an Array of Field Emitter Cathodes
Yucheng Liu (*University of Science and Technology of China*); *Weihao Liu* (*Nanjing University of Aeronautics and Astronautics*);

Session 3P1c
Integrated and Fiber-based Photonic Circuits and Devices

Wednesday PM, April 27, 2022

Room Online ROOM 1

Organized by Mikhail E. Belkin

Chaired by Mikhail E. Belkin

16:30 Investigation of Bistable Frequency Response of SOI Micro-ring Resonators
Ilya A. Ryabcev (*St. Petersburg Electrotechnical University "LETI"*); *Andrey A. Nikitin* (*Saint Petersburg Electrotechnical University "LETI"*); *Alexander V. Kondrashov* (*St. Petersburg Electrotechnical University "LETI"*); *Vitaliy V. Vitko* (*Saint Petersburg Electrotechnical University "LETI"*); *Dmitry A. Konkin* (*Tomsk State University of Control Systems and Radioelectronics*); *Andrey A. Kokolov* (*Tomsk State University of Control Systems and Radioelectronics "TUSUR"*); *Leonid I. Babak* (*Tomsk State University of Control Systems and Radioelectronics "TUSUR"*); *Alexey B. Ustinov* (*Saint Petersburg Electrotechnical University "LETI"*);

16:40 Influence of Carrier Screening on Exciton Absorption and Electro-optic Effect
Yuriy D. Sibirmovsky (*National Research Nuclear University MEPhI (Moscow Engineering Physics Institute)*); *Ivan S. Vasil'evskii* (*National Research Nuclear University MEPhI (Moscow Engineering Physics Institute)*); *Nikolay I. Kargin* (*National Research Nuclear University MEPhI (Moscow Engineering Physics Institute)*);

16:50 Numerical Simulation of a Beam Splitter on a Silicon Chip for the Terahertz Wavelength Range
Sergey Svyatodukh (*National Research University Higher School of Economics*); *F. Faizulina* (*Moscow State Pedagogical University*); *Aleksey Prokhodtsov* (*Research University Higher School of Economics*); *S. Seliverstov* (*Moscow State Pedagogical University*); *G. Chulkova* (*National Research University Higher School of Economics*); *G. Goltsman* (*National Research University Higher School of Economics*);

17:00 Microwave Photonics Distributed Architecture Enabling a Constellation of Coherent Multistatic Multiband SAR Satellites for Single-pass Imaging
Mirco Scaffardi (*CNIT*); *Giovanni Serafinio* (*Scuola Superiore Sant'Anna*); *Salvatore Maresca* (*Scuola Superiore Sant'Anna*); *Malik Muhammad Haris Amir* (*Scuola Superiore Sant'Anna*); *Gaurav Pandey* (*Scuola Superiore Sant'Anna*); *Paolo Ghelfi* (*TeCIP Institute*); *A. Bogoni* (*TeCIP Institute, CNIT*);

17:10 On-chip Photonic Crystal Cavity Integrated with Thermal Graphene Source
Aleksei Yu. Kuzin (*MPGU — Moscow Pedagogical State University*); *I. A. Elmanov* (*Moscow Pedagogical State University*); *A. V. Elmanova* (*Moscow Pedagogical State University*); *P. P. An* (*Moscow State Pedagogical University*); *V. V. Kovalyuk* (*Moscow State Pedagogical University*); *G. N. Goltsman* (*Moscow Institute of Electronics and Mathematics*);

17:20 Towards the Development of Ultrafast Photodetectors Based on Graphene for the Next-generation Telecommunication Systems
Igor A. Gayduchenko (*Moscow State University of Education (MSPU)*); *P. P. An* (*Moscow State Pedagogical University*); *V. Belosevich* (*Moscow State Pedagogical University*); *M. Rybin* (*Prokhorov General Physics Institute, RAS*); *N. Kaurova* (*Moscow Pedagogical State University*); *V. Kovalyuk* (*Moscow State University of Education (MSPU)*); *Mikhail E. Belkin* (*MIREA — Russian Technological University*); *G. N. Goltsman* (*Moscow Pedagogical State University*);

17:30 Thermo Optical Properties of 3D Photonic Wire Bonding Connecting Silicon Nitride Waveguides
Aleksey Prokhodtsov (*Research University Higher School of Economics*); *V. Kovalyuk* (*Moscow State Pedagogical University*); *P. P. An* (*Moscow State Pedagogical University*); *D. Chubich* (*Moscow Institute of Physics and Technology*); *D. Merkushev* (*Moscow Institute of Electronics and Mathematics*); *D. Kolymagin* (*Moscow Institute of Electronics and Mathematics*); *R. Ozhegov* (*Moscow Institute of Electronics and Mathematics*); *G. Chulkova* (*Moscow Institute of Electronics and Mathematics*); *A. Vitukhnovsky* (*Moscow Institute of Physics and Technology*); *G. N. Goltsman* (*Moscow Institute of Electronics and Mathematics*);

Session 3P2a
SC3: Optical Interconnect Technologies for Datacom and Computercom 2

Wednesday PM, April 27, 2022
Room Online ROOM 2
Organized by Binhao Wang, Stanley Cheung
Chaired by Binhao Wang, Stanley Cheung

13:00 Invited Mechanical Size Requirements and Electrical Interfaces for CPO Transceivers
Hideyuki Nasu (*Furukawa Electric Co., Ltd.*);

13:15 Invited Low Loss Silicon Nitride for Integrated Photonics
Michael Geiselmann (*LIGENTEC SA*);

13:30 Invited Photonic-integrated Circuits for FMCW-LiDAR Applications Based on Grating Couplers with Tilted Grating Teeth
Francisco M. Soares (*Soares Photonics*); *Yu Tian* (*University of Vigo*); *Vahram Voskerchyan* (*University of Vigo*); *Francisco Javier Diaz-Otero* (*Universidad de Vigo*);

13:45 A Compact 2D Polarization Splitting Grating Coupler with Lens Tapers
Jintao Xue (*Xi'an Institute of Optics and Precision Mechanics, Chinese Academy of Sciences*); *Binhao Wang* (*Xi'an Institute of Optics and Precision Mechanics, Chinese Academy of Sciences*);

14:00 Invited Co-design of Segmented Modulator and CMOS Driver for PAM4 Si-photonic Transceivers
Nan Qi (*Institute of Semiconductors, Chinese Academy of Sciences*); *Siyuan Ma* (*Institute of Semiconductors, Chinese Academy of Sciences*);

Session 3P2b
SC3: Optical Microcavities and Photonic Quasiparticles

Wednesday PM, April 27, 2022
Room Online ROOM 2
Organized by Qihua Xiong, Feng Li
Chaired by Feng Li, Qihua Xiong

14:30 Invited Manipulation of Strong Light-matter Interactions in Two-dimensional Transition-metal Dichagenides Coupled with Nanophotonic Structures
Huanjun Chen (*Sun Yat-sen University*); *Hao Wang* (*Sun Yat-sen University*); *Jinxiu Wen* (*Sun Yat-sen University*);

14:50 Invited Intuitive Azimuthally-propagating-mode Model of Exceptional Points in Optical Whispering Gallery Microcavity Perturbed by Nanoparticles
Haitao Liu (*Nankai University*); *Junda Zhu* (*Nankai University*); *Fang Bo* (*Nankai University*); *Can Tao* (*Nankai University*); *Guoquan Zhang* (*Nankai University*); *Jingjun Xu* (*Nankai University*);

15:10 Invited Manipulating the Light Emission of 2D Semiconductors by Different Stacking and Heterogeneous Integration
Xiao Wang (*Hunan University*);

15:30 **Coffee Break**

16:00 Invited Optical Nonreciprocity Using Cavity Losses
Yong-Chun Liu (*Tsinghua University*);

16:20 Invited In-situ Laser Interference for Site-controlled Quantum Dot Epitaxy and Microcavity Photonic Devices
Chaoyuan Jin (*Zhejiang University*); *Yunran Wang* (*University of Sheffield*); *Lingfang Wang* (*Zhejiang University*); *Jiawang Yu* (*Zhejiang University*); *Xiaotian Cheng* (*Zhejiang University*); *Xin Ling* (*Zhejiang University*); *Feng Liu* (*Zhejiang University*); *Mark Hopkinson* (*The University of Sheffield*);

17:00 Single Photon Sources Based on III-V Quantum Dot
Invited
Feng Liu (*Zhejiang University*);

17:20 Topological Effects Induced by Josephson Junction in
Invited Polariton Condensate
Yan Xue (*Jilin University*); *Gang Wang* (*Jilin University*); *Xuemei Sun* (*Jilin University*); *Weibin Li* (*University of Nottingham*); *Alexey V. Kavokin* (*Westlake University*);

17:55 Multi-wavelength Quantum Dot Lasing and Coupling in Two-dimensional Distributed Feedback Microcavity Comprising Holographic Photonic Quasicrystal
Anwer Hayat (*Zhejiang University*); *Tianrui Zhai* (*Beijing University of Technology*);

Session 3P3a
SC3: Singular Optics: Fundamentals and Applications

Wednesday PM, April 27, 2022

Room Online ROOM 3

Organized by Jian Wang, Qiwen Zhan

Chaired by Jian Wang

13:00 Simulation and Experimental Studies on New Optical Manipulation of Relativistic Vortex Cutter
Wenpeng Wang (*Shanghai Institute of Optics and Fine Mechanics, Chinese Academy of Sciences*); *Hongxing Dong* (*Shanghai Institute of Optics and Fine Mechanics, Chinese Academy of Science*); *C. Jiang* (*Shanghai Institute of Optics and Fine Mechanics, Chinese Academy of Sciences*); *X. M. Lu* (*Shanghai Institute of Optics and Fine Mechanics, Chinese Academy of Sciences*); *J. F. Li* (*Shanghai Institute of Optics and Fine Mechanics, Chinese Academy of Sciences*); *R. J. Xu* (*Shanghai Institute of Optics and Fine Mechanics, Chinese Academy of Sciences*); *Y. J. Sun* (*Shanghai Institute of Optics and Fine Mechanics, Chinese Academy of Sciences*); *L. H. Yu* (*Shanghai Institute of Optics and Fine Mechanics, Chinese Academy of Sciences*); *Z. Guo* (*Shanghai Institute of Optics and Fine Mechanics, Chinese Academy of Sciences*); *Xiaoyan Liang* (*Shanghai Institute of Optics and Fine Mechanics, Chinese Academy of Sciences*); *Yuxin Leng* (*Shanghai Institute of Optics and Fine Mechanics, Chinese Academy of Sciences*); *Ruxin Li* (*Shanghai Institute of Optics and Fine Mechanics, Chinese Academy of Sciences*); *Z. Z. Xu* (*Shanghai Institute of Optics and Fine Mechanics, Chinese Academy of Sciences*);

13:15 Three-dimensionally Oriented and Time-varying Orbital Angular Momentum of Light
Chenhao Wan (*Huazhong University of Science and Technology*);

13:30 Nano-optical Tweezers: For Optical Trapping and Be-
Invited yond
Yu Quan Zhang (*Shenzhen University*); *Xiao-Cong Yuan* (*Shenzhen University*);

13:50 Enhanced Chiral Mie-scattering by a Dielectric Sphere
Invited within Superchiral Light Field
Haifeng Hu (*University of Shanghai for Science and Technology*); *Qiwen Zhan* (*University of Shanghai for Science and Technology*);

14:10 Vectorial Optical Fields: Manipulation and Applications
Invited
Yongnan Li (*Nankai University*);

14:30 Detecting Optical Magnetism Using Structured-light
Invited Photo-induced Force Microscopy
Jinwei Zeng (*University of California Irvine*); *Mohammad Albooyeh* (*University of California Irvine*); *Mohsen Rajaei* (*University of California Irvine*); *Abid Anjum Sifat* (*University of California Irvine*); *Eric Olaf Potma* (*University of California Irvine*); *H. Kumar Wickramasinghe* (*University of California Irvine*); *Filippo Capolino* (*University of California-Irvine*);

14:50 Singular Light Pulse
Invited
Shaohui Yan (*Xi'an Institute of Optics and Precision Mechanics, Chinese Academy of Sciences*); *Baoli Yao* (*Xi'an Institute of Optics and Precision Mechanics, Chinese Academy of Sciences*);

15:30 **Coffee Break**

Session 3P3b
SC2: Bound States in the Continuum and Singular Optics 2

Wednesday PM, April 27, 2022

Room Online ROOM 3

Organized by Dezhuan Han, Lei Shi, Chao Peng

Chaired by Dezhuan Han

16:00 Continual Existence of Bound States in the Continuum
Invited under Structural Perturbations
Lijun Yuan (*Chongqing Technology and Business University*); *Ya Yan Lu* (*City University of Hong Kong*);

16:15 Ultra-high-$\boldsymbol{Q}$ Photonic Cavity Enabled by Constellation of Topological Charges
Zihao Chen (*Peking University*); *Xuefan Yin* (*Peking University*); *Jicheng Jin* (*University of Pennsylvania*); *Zhao Zheng* (*Peking University*); *Zixuan Zhang* (*Peking University*); *Feifan Wang* (*Peking University*); *Li He* (*University of Pennsylvania*); *Bo Zhen* (*University of Pennsylvania*); *Chao Peng* (*Peking University*);

16:30 Bound States in the Continuum Based on the Total Internal Reflection of Bloch Waves
Peng Hu (*Chongqing University*); *Chongwu Xie* (*Chongqing University*); *Dezhuan Han* (*Chongqing University*);

16:45 Flatness and Boundness of Photonic Drumhead Surface State in a Metallic Lattice
Xiaoxi Zhou (*Soochow University*); *Yu Wang* (*Soochow University*); *Shanshan Li* (*Soochow University*); *Weixin Lu* (*Wenzheng College of Soochow University*); *Bo Hou* (*Soochow University*);

17:00 Invited Merging Bound States in the Continuum at Off-high Symmetry Points
Meng Kang (*Wuhan University*); *Shunping Zhang* (*Wuhan University*); *Meng Xiao* (*Wuhan University*); *Hongxing Xu* (*Wuhan University*);

17:20 Enhanced Second-harmonic Generation in Photonic Crystal Slabs with Double-resonant Bound-states in the Continuum
Jitong Wang (*University College London*); *Feng Xia Li* (*University College London*); *Nicolae-Coriolan Panoiu* (*University College London*);

17:35 Invited Geometry Symmetry-free Robust Optical Bound States in the Continuum
Qingjia Zhou (*Soochow University*); *Yangyang Fu* (*Nanjing University of Aeronautics and Astronautics*); *Lei Gao* (*Soochow University*); *Yadong Xu* (*Soochow University*);

Session 3P4a
SC2: Topological Acoustics and Phononics — Fundamental Concepts and Advanced Developments 2

Wednesday PM, April 27, 2022

Room Online ROOM 4

Organized by Ming-Hui Lu, Xueqin Huang, Xiujuan Zhang

Chaired by Xiujuan Zhang

13:00 Invited Theory and Experiments of Higher-order Weyl Semimetals
Jian-Hua Jiang (*Soochow University*);

13:20 Acoustic Möbius Insulators from Projective Symmetry
Tianzi Li (*Wuhan University*); *Juan Du* (*Wuhan University*); *Qicheng Zhang* (*Wuhan University*); *Yitong Li* (*Wuhan University*); *Xiying Fan* (*Wuhan University*); *Fan Zhang* (*University of Texas at Dallas*); *Chunyin Qiu* (*Wuhan University*);

13:35 Invited Preserving Chiral Symmetry in Tight-binding Topological Phononic Crystals
Guancong Ma (*Hong Kong Baptist University*);

13:50 Invited Acoustic Non-Hermitian Skin Effect from Twisted Winding Topology
Yihao Yang (*Zhejiang University*);

14:10 Acoustic Spin-orbit Interactions
Shubo Wang (*City University of Hong Kong*); *Guanqing Zhang* (*Hong Kong Baptist University*); *Qing Tong* (*City University of Hong Kong*); *Guancong Ma* (*Hong Kong Baptist University*);

14:20 Pseudomagnetic Fields Enabled Manipulation of on-chip Elastic Waves
Mou Yan (*South China University of Technology*); *Weiyin Deng* (*South China University of Technology*); *Xueqin Huang* (*South China University of Technology*); *Ying Wu* (*South China University of Technology*); *Yating Yang* (*South China University of Technology*); *Jiuyang Lu* (*South China University of Technology*); *Feng Li* (*South China University of Technology*); *Zhengyou Liu* (*Wuhan University*);

14:35 Acoustic Skyrmion Lattice in Velocity Fields
Hao Ge (*Nanjing University*); *Jian-Hua Jiang* (*Soochow University*); *Ming-Hui Lu* (*Nanjing University*); *Yan-Feng Chen* (*Nanjing University*);

15:05 Invited Topological Waves for Robust Signal Processing Applications
Romain Fleury (*Ecole Polytechnique Federale de Lausanne (EPFL)*);

15:20 Valley-selective Topological Corner States in Sonic Crystals
Le Liu (*Nanjing University*); *Xiujuan Zhang* (*Nanjing University*); *Ming-Hui Lu* (*Nanjing University*); *Yan-Feng Chen* (*Nanjing University*);

15:35 **Coffee Break**

Session 3P4b
SC2&SC3: Topological Polaritons

Wednesday PM, April 27, 2022

Room Online ROOM 4

Organized by Cheng-Wei Qiu, Xiulai Xu

Chaired by Cheng-Wei Qiu

16:00 Invited Perovskite Semiconductor Microcavity Polariton Lattices: Progress and Outlook
Qihua Xiong (*Tsinghua University*);

16:20 Invited Nanophotonic Topological Waveguide and Cavity for Integrated Devices
Xin-Tao He (*Sun Yat-Sen University*); *Jian-Wen Dong* (*Sun Yat-Sen University*);

16:40 Invited Light-matter Interaction in Semiconductor Materials at Micro/Nanoscale
Xinfeng Liu (*National Center for Nanoscience and Technology*);

17:00 Invited Multidimensional Optical Multiplexing Mediated by Singular Beams
Yi Xu (*Guangdong University of Technology*);

17:20 Generation of Helical Topological Exciton Polaritons
Invited
Wenjing Liu (*Peking University*);

17:40 Chiral Plasmons with Twisted Bilayers
Invited
Xiao Lin (*Zhejiang University*);

18:00 Coupling between Topological Photonic Crystal Cavity and Quantum Dots
Xin Xie (*Institute of Physics, Chinese Academy of Science*); *Sai Yan* (*Institute of Physics, Chinese Academy of Science*); *Weixuan Zhang* (*Beijing Institute of Technology*); *Jianchen Dang* (*Institute of Physics, Chinese Academy of Science*); *Shan Xiao* (*Institute of Physics, Chinese Academy of Science*); *Shushu Shi* (*Institute of Physics, Chinese Academy of Science*); *Hai-Qiao Ni* (*Institute of Semiconductors, Chinese Academy of Sciences*); *Zhichuan Niu* (*Institute of Semiconductors, Chinese Academy of Sciences*); *Xiangdong Zhang* (*Beijing Computational Science Research Center*); *Xiulai Xu* (*Institute of Physics, Chinese Academy of Science*);

Session 3P5a
SC2: Light-matter Interaction in Photonic/Plasmonic Metastructures 2

Wednesday PM, April 27, 2022

Room Online ROOM 5

Organized by Alexander V. Kildishev, Lian Shen

Chaired by Alexander V. Kildishev, Lian Shen

13:00 Modeling of Microstrip Quantum Cascade Lasers
Invited
Christian Jirauschek (*Technical University of Munich*);

13:15 Photonic Transition Hyperbolic Metamaterials for Efficient Quantum Plasmonic Coupler
Zijian Qin (*Zhejiang University*); *Lian Shen* (*Zhejiang University*); *Xiao Lin* (*Zhejiang University*); *Huaping Wang* (*Zhejiang University*); *Hongsheng Chen* (*Zhejiang University*);

13:30 Efficient Field Amplifier via Interface-driven Active Hyperbolic Metamaterial
Lu Song (*Zhejiang University*); *Lian Shen* (*Zhejiang University*); *Zijian Qin* (*Ocean College, Zhejiang University*); *Huaping Wang* (*Zhejiang University*); *Hongsheng Chen* (*Zhejiang University*);

13:45 Polarization Beam Splitter Based on Subwavelength-grating Metamaterial Structures for 775 nm
Shan Gao (*Zhejiang University*); *Ming Zhang* (*Zhejiang University*); *Daoxin Dai* (*Zhejiang University*);

14:00 Beyond Absorptive Nonlinearities in Near-zero-index Transparent Conductive Oxides
Wallace Jaffray (*Heriot-Watt University*); *Enrico G. Carnemolla* (*Heriot-Watt University*); *Matteo Clerici* (*Glasgow University*); *Clayton DeVault* (*Harvard University*); *Vladimir M. Shalaev* (*Purdue University*); *Alexandra Boltasseva* (*Purdue University*); *Marcello Ferrera* (*INRS-EMT*);

14:10 Visible to Near-infrared Chip-integrated Tunable Optical Modulators Based on Niobium Plasmonic Nano-antenna and Nano-circuit Metasurface Arrays
Kaveh Delfanazari (*University of Glasgow*); *Otto L. Muskens* (*University of Southampton*);

Session 3P5b
SC2: Advances in Metasurface Holography and Structural-color Printing

Wednesday PM, April 27, 2022

Room Online ROOM 5

Organized by Junsuk Rho, Guoxing Zheng

Chaired by Junsuk Rho

14:30 Geometric Phase and Nonlinear Photonic Metasurfaces
Invited
Guixin Li (*Southern University of Science and Technology*);

14:50 Optical Metasurfaces for Polarization Detection and
Invited Generation
Xianzhong Chen (*Heriot-Watt University*); *Yuttana Intaravanne* (*Heriot-Watt University*);

15:05 Immersive Tunability for Meta-optics Display
Zhongyang Li (*Wuhan University*); *Chenjie Dai* (*Wuhan University*); *Chengwei Wan* (*Wuhan University*);

15:20 A Survey of Phase-only Hologram Calculation Methods
Shuming Jiao (*Peng Cheng Laboratory*);

15:30 **Coffee Break**

16:00 A New Degree of Freedom Imparting Metasurface Inspired by Malus's Law
Juan Deng (*Zhejiang University of Technology*);

16:15 Dynamic Structural Colour Enabled by Floating Thin
Invited Films
Zhiyuan Yan (*National University of Singapore*); *Cheng-Wei Qiu* (*National University of Singapore*);

16:30 Actively Switchable Phase and Imaging Control Enabled by Phase-change-dielectrics Hybridized Holographic Metasurface
Ruirui Song (*South China University of Technology*); *Shaolin Zhou* (*South China University of Technology*);

16:45 Analog Image Processor Using Huygens' Metasurface
Zhuochao Wang (*Harbin Institute of Technology*); *Xu Min Ding* (*Harbin Institute of Technology*);

16:55 Noninterleaved Metasurface for Multi-momentum Metaholograms
Lei Jin (*Hangzhou Dianzi University*);

17:10 Invited Direct Writing of Structural-color Graphics with Colloidal Inks
Shin-Hyun Kim (*Korea Advanced Institute of Science and Technology (KAIST)*);

17:25 Invited Covert Infrared Displays with Hybrid Planar-plasmonic Cavities
Young Min Song (*Gwangju Institute of Science and Technology*);

17:40 Chiral Transmission Metasurface for Independent Hologram Imaging with Circular Polarization Preserving Manipulation
Yueyi Yuan (*Harbin Institute of Technology*); *Kuang Zhang* (*Harbin Institute of Technology*); *Qun Wu* (*Harbin Institute of Technology*);

17:55 Dynamic Metaphotonics for Structural Colors and Holographic Displays
Junsuk Rho (*Pohang University of Science and Technology (POSTECH)*);

Session 3P6a
SC2: Thermal Metamaterials and Devices 2

Wednesday PM, April 27, 2022

Room Online ROOM 6

Organized by Ying Li, Wei Li

Chaired by Xiangfan Xu, Ying Li

13:00 Diffusive Skin Effect and Topological Heat Funneling
Pei-Chao Cao (*Huazhong University of Science and Technology*); *Ying Li* (*Zhejiang University*); *Yu-Gui Peng* (*Huazhong University of Science and Technology*); *Minghong Qi* (*Zhejiang University*); *Wen-Xi Huang* (*Huazhong University of Science and Technology*); *Peng-Qi Li* (*Huazhong University of Science and Technology*); *Xuefeng Zhu* (*Huazhong University of Science and Technology*);

13:15 Topology in One-dimensional Thermal Diffusion
Minghong Qi (*Zhejiang University*); *Dong Wang* (*Zhejiang University*); *Ying Li* (*Zhejiang University*); *Hongsheng Chen* (*Zhejiang University*);

13:30 Nanoscale Surface Dynamics Unveil Nanofluid Thermophysical Properties
Gopal Verma (*Université de Bordeaux*); *Gyanendra Yadav* (*University of Liverpool*); *Chaudry S. Saraj* (*Changchun Institute of Optics, Fine Mechanics and Physics, CAS*); *Jean-Pierre Delville* (*Université of Bordeaux*); *Wei Li* (*Changchun Institute of Optics, Fine Mechanics and Physics, CAS*);

13:45 Near-field Thermal Transport between Twisted Bilayer Graphene
Fuwei Yang (*Peking University*); *Bai Song* (*Peking University*);

14:00 Near-field Radiative Thermal Diode with Large Rectification Based on Thin Films
Qizhang Li (*Peking University*); *Haiyu He* (*Peking University*); *Qun Chen* (*Tsinghua University*); *Bai Song* (*Peking University*);

14:15 A Selective Emitter for Dew-harvesting in Dry Climates
Minghao Dong (*Southeast University*); *Zheng Zhang* (*Southeast University*); *Yu Shi* (*Stanford University*); *Xiaodong Zhao* (*Southeast University*); *Shanhui Fan* (*Stanford University*); *Zhen Chen* (*Southeast University*);

Session 3P6b
SC2: Digital Coding and Programmable Metamaterials

Wednesday PM, April 27, 2022

Room Online ROOM 6

Organized by Wei Xiang Jiang, Xuanru Zhang

Chaired by Wei Xiang Jiang, Xuanru Zhang

14:35 Invited Reconfigurable Full Color Display Using Anisotropic Black Phosphorus
Tun Cao (*Dalian University of Technology*);

14:55 Invited Multichannel-independent Tunable Metasurface for Dynamic Beam Control
Ke Chen (*Nanjing University*); *Qi Hu* (*Nanjing University*); *Na Zhang* (*Nanjing University*); *Junming Zhao* (*Nanjing University*); *Tian Jiang* (*Nanjing University*); *Yijun Feng* (*Nanjing University*);

15:15 Wireless Channel Design and Optimization Method for 1-bit Programmable Metasurface
Hanting Zhao (*Peking University*); *Menglin Wei* (*Peking University*); *Zhuo Wang* (*Peking University*); *Hongrui Zhang* (*Peking University*); *Ya Shuang* (*Peking University*); *Lianlin Li* (*Peking University*);

15:30 **Coffee Break**

16:00 An Active Metamaterial Antenna with Tunable Zero-order Resonances
Zhanheng Liu (*Shanghai University*); *Hongtao Liu* (*Shanghai University*); *Yong Luo* (*Shanghai University*);

16:15 Optically-driven Programmable Electromagnetic Metasurfaces
Xin Ge Zhang (*Southeast University*); *Wei Xiang Jiang* (*Southeast University*);

16:30 Metamaterials Based Intelligent Microwave Human Behavior Recognition
Hongrui Zhang (*Peking University*); *Zhuo Wang* (*Peking University*); *Hanting Zhao* (*Peking University*); *Menglin Wei* (*Peking University*); *Ya Shuang* (*Peking University*); *Lianlin Li* (*Peking University*);

Session 3P6c
SC2: Space and Time Varying Metamaterials 2

Wednesday PM, April 27, 2022

Room Online ROOM 6

Organized by Fu Liu, Sergei A. Tretyakov

Chaired by Fu Liu, Sergei A. Tretyakov

16:55 Spatiotemporal Effective Media for Acoustic Waves
Invited
Xinhua Wen (*Hong Kong University of Science and Technology*); *Xinghong Zhu* (*Hong Kong University of Science and Technology*); *Hong Wei Wu* (*Hong Kong University of Science and Technology*); *Jensen Li* (*Hong Kong University of Science and Technology*);

17:15 Nonlinear Time-Floquet System for Neuromorphic Ana-
Invited log Computing
Ali Momeni (*Swiss Federal Institute of Technology in Lausanne (EPFL)*); *Romain Fleury* (*Ecole Polytechnique Federale de Lausanne (EPFL)*);

17:30 Time-varying Components for Enhancing Wireless Transfer of Power and Information
P. Jayathurathnage (*Aalto University*); *Fu Liu* (*Xi'an Jiaotong University*); *Mohammad-Sajjad Mirmoosa* (*Aalto University*); *Xu-Chen Wang* (*Aalto University*); *Romain Fleury* (*Ecole Polytechnique Federale de Lausanne (EPFL)*); *Sergei A. Tretyakov* (*Aalto University*);

17:45 Adiabatic Transformation of Electromagnetic Waves in a Dynamic Lorentz Medium
Anastasiia V. Shirokova (*University of Nizhny Novgorod*); *Alexey V. Maslov* (*University of Nizhny Novgorod*); *Michael I. Bakunov* (*University of Nizhni Novgorod*);

17:55 Power Flow-conformal Reflectors for Creating Beams Converging to a Point
H. Taghvaee (*Aalto University*); *Fu Liu* (*Xi'an Jiaotong University*); *Ana Diaz-Rubio* (*Aalto University*); *Sergei A. Tretyakov* (*Aalto University*);

Session 3P7a
SC2: Electromagnetic Radiation with Charged Particles

Wednesday PM, April 27, 2022

Room Online ROOM 7

Organized by Zhaoyun Duan, Xiao Lin

Chaired by Xiao Lin, Zhaoyun Duan

13:00 Quantum Aspects of the Interaction between Free Elec-
Keynote tron, Light, and Photonic Nanostructures
F. Javier García de Abajo (*ICFO — Institut de Ciències Fotòniques, The Barcelona Institute of Science and Technology*);

13:25 Tunable Cherenkov Radiation of Phonon Polaritons in
Invited Silver Nanowire/Hexagonal Boron Nitride Heterostructures
Zhiwen Shi (*Shanghai Jiao Tong University*);

13:45 Ultrafast Electron Microscopy for Nanophotonics
Invited
Kangpeng Wang (*Technion-Israel Institute of Technology*); *Raphael Dahan* (*Technion-Israel Institute of Technology*); *Yuval Adiv* (*Technion-Israel Institute of Technology*); *Michael Yannai* (*Technion-Israel Institute of Technology*); *Ido Kaminer* (*Technion, Israel Institute of Technology*);

14:05 Low Velocity Favored Transition Radiation
Jialin Chen (*Zhejiang University*); *Hongsheng Chen* (*Zhejiang University*); *Xiao Lin* (*Zhejiang University*);

14:20 Plasma Frequency Reduction Factors of Sheet Electron Beam in Rectangular Waveguide
Hanwen Tian (*University of Electronic Science and Technology of China*); *Hongyang Guo* (*University of Electronic Science and Technology of China*); *Ningjie Shi* (*University of Electronic Science and Technology of China*); *Shaomeng Wang* (*University of Electronic Science and Technology of China*); *Zhan-Liang Wang* (*University of Electronic Science and Technology of China*); *Yu-Bin Gong* (*University of Electronic Science and Technology of China*);

14:35 Spatiotemporal Imaging of 2D Polariton Wavepacket
Invited Dynamics Using Free Electrons
Yaniv Kurman (*Technion-Israel Institute of Technology*); *Raphael Dahan* (*Technion-Israel Institute of Technology*); *Hanan Herzig Shenfux* (*ICFO-Institut de Ciències Fotòniques, The Barcelona Institute of Science and Technology*); *Kangpeng Wang* (*Technion-Israel Institute of Technology*); *Michael Yannai* (*Technion-Israel Institute of Technology*); *Yuval Adiv* (*Technion-Israel Institute of Technology*); *Ori Reinhardt* (*Technion-Israel Institute of Technology*); *Luiz Henrique Galvao Tizei* (*Université Paris-Saclay, CNRS*); *Steffi Y. Woo* (*Université Paris-Saclay, CNRS*); *Jiahan Li* (*Kansas State University*); *James H. Edgar* (*Kansas State University*); *Mathieu Kociak* (*Université Paris-Saclay, CNRS*); *Frank H. L. Koppens* (*ICFO-Institut de Ciències Fotòniques, The Barcelona Institute of Science and Technology*); *Ido Kaminer* (*Technion, Israel Institute of Technology*);

14:50 Nanostructure-tailored Free-electron Radiation in a
Invited Modified Scanning Electron Microscope
Yi Yang (*Massachusetts Institute of Technology*); *Charles Roques-Carmes* (*Massachusetts Institute of Technology*); *Steven E. Kooi* (*Massachusetts Institute of Technology*); *Haoning Tang* (*Harvard University*); *Justin Beroz* (*Massachusetts Institute of Technology*); *Eric Mazur* (*Harvard University*); *Ido Kaminer* (*Technion, Israel Institute of Technology*); *John D. Joannopoulos* (*Massachusetts Institute of Technology*); *Marin Soljačić* (*Massachusetts Institute of Technology*);

15:05 P-band High Efficiency Klystron Based on Metamaterial
Xuanming Zhang (*University of Electronic Science and Technology of China*); *Xin Wang* (*University of Electronic Science and Technology of China*); *Shengkun Jiang* (*University of Electronic Science and Technology of China*); *Zhan-Liang Wang* (*University of Electronic Science and Technology of China*); *Hua-Rong Gong* (*University of Electronic Science and Technology of China*); *Yu-Bin Gong* (*University of Electronic Science and Technology of China*); *Zhaoyun Duan* (*University of Electronic Science and Technology of China*);

15:30 **Coffee Break**

Session 3P7b
SC2: Optics with Twistronics and Polaritonic Nano-optics 2

Wednesday PM, April 27, 2022

Room Online ROOM 7

Organized by Peining Li, Jianing Chen

Chaired by Peining Li

16:20 Keynote Stacking and Twisting 2D Materials for Quantum Nano-optoelectronics: Fundamentals and Applications
Frank Koppens (*ICFO — The Institute of Photonics Sciences (Barcelona)*);

16:45 Invited Direct Imaging of Interlayer-coupled Symmetric and Antisymmetric Plasmon Modes in Graphene/hBN/Graphene Heterostructures
Zhiwen Shi (*Shanghai Jiao Tong University*);

17:05 Invited Imaging of Single Chemical Bond within a Molecule by Scanning Raman Picoscopy
Yao Zhang (*University of Science and Technology of China*);

17:25 Invited Nanoimaging of Anisotropic Phonon-polaritons in Artificial and Natural Materials
Peining Li (*Huazhong University of Science and Technology*);

Session 3P8a
SC2: Metamaterials/Metasurfaces for EM Wave Manipulations and Applications

Wednesday PM, April 27, 2022

Room Online ROOM 8

Organized by He-Xiu Xu, Yongjun Huang

Chaired by He-Xiu Xu, Yongjun Huang

13:00 Invited Wideband and Multi-band Dual-circularly-polarized Reflect-/Transmit-arrays
Zhihao Jiang (*Southeast University*); *X. F. Tong* (*Southeast University*); *Y. Li* (*Southeast University*);

13:20 Invited Breaking the Trade-off between Gain and Aperture Size via Zero-index Metamaterial-based Antenna
Yang Li (*Tsinghua University*);

13:40 All-dielectric Metamaterial Achromatic Gradient Solid Immersion Lens with Large Numerical Aperture for Terahertz Super Resolution Focusing and Magnified Far Field
Jin Chen (*Beijing Institute of Technology*);

13:55 Numerical Demonstrations of Beam Reconfigurable Reflective-type Opto-mechanical Metasurface
Yifeng Liu (*University of Electronic Science and Technology of China*); *Yuedan Zhou* (*University of Electronic Science and Technology of China*); *Wenxian Zheng* (*Shenzhen Graduate School of Tsinghua University*); *Xueming Wei* (*Guilin University of Electronic Technology*); *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*);

14:10 A Broadband High-efficiency Multifunctional Ultrathin Metasurfaces
Yufang Wang (*Huaqiao University*); *Yuehe Ge* (*Fuzhou University*); *Zhizhang (David) Chen* (*Dalhousie University*);

14:25 Modulation of Light with Orbital Angular Momentum by Cylindrical Metallic Grating
Zhanlei Hao (*Xiamen University*); *Yadong Xu* (*Soochow University*); *Huanyang Chen* (*Xiamen University*);

14:35 Anapole Observation in All-dielectric Trimer-based Metasurface
Anton S. Kupriianov (*Jilin University*); *Andrey B. Evlyukhin* (*Laser Zentrum Hannover e.V.*); *Vladimir R. Tuz* (*Institute of Radio Astronomy of National Academy of Sciences of Ukraine*);

15:30 **Coffee Break**

Session 3P8b
SC2: Applications of Terahertz Metamaterials in Electromagnetic Devices

Wednesday PM, April 27, 2022

Room Online ROOM 8

Organized by Ke Bi, Xiaojian Fu

Chaired by Xiaojian Fu

16:00 Rare Earth Orthoferrite Tuning of Transmitted Waves as Natural Metamaterials
Xinxi Zeng (*University of Science & Technology Beijing*);

16:15 Coding Metasurfaces for Terahertz Beam Manipulation
Xiaojian Fu (*Southeast University*);

16:30 Aluminum Based and Lithography-free Touching Nanoparticle Metamaterial
Xiaoming Liu (*Northeastern University*);

16:45 Spoof Localized Surface Plasmons (SLSPs) for Terahertz Sensing
Xuanru Zhang (*Southeast University*); *Tie Jun Cui* (*Southeast University*);

17:00 A CMOS Sub-terahertz Power Amplifier for Short-distance Data Center Communication
Jiang Luo (*Hangzhou Dianzi University*);

17:15 Terahertz Whispering-gallery Modes in Metal Structure on a Silicon Substrate
Hongya Wu (*Shijiazhuang Tiedao University*);

17:30 Generation and Steering of W-band OAM Beams Based on Liquid Crystal Metasurface with Pancharatnam-Berry Phase
Chen Xi Liu (*Southeast University*); *Fei Yang* (*Southeast University*); *Xiaojian Fu* (*Southeast University*); *Junwei Wu* (*Southeast University*); *Jun Yang* (*Hefei University of Technology*);

17:45 Active Terahertz Modulator and Slow Light Metamaterial Devices with Hybrid Graphene-superconductor Coupled Split-ring Resonator Arrays
Samane Kalhor (*University of Glasgow*); *Stephan J. Kindness* (*University of Cambridge*); *Robert Wallis* (*University of Cambridge*); *Harvey E. Beere* (*University of Cambridge*); *Majid Ghanaatshoar* (*Shahid Beheshti University*); *Riccardo Degl'Innocenti* (*University of Lancaster*); *Michael J. Kelly* (*University of Cambridge*); *Stephan Hofmann* (*University of Cambridge*); *Hannah J. Joyce* (*University of Cambridge*); *David A. Ritchie* (*University of Cambridge*); *Kaveh Delfanazari* (*University of Glasgow*);

Session 3P9a
Nonlinear Optics in Multimode Devices

Wednesday PM, April 27, 2022

Room Online ROOM 9

Organized by Cosimo Lacava

13:00 Self-organization of Counter-propagating Beams in Multimode Optical Fibers
Kunhao Ji (*University of Southampton*); *Saurabh Jain* (*University of Southampton*); *Martin Miguel Angel Núñez-Velázquez* (*University of Southampton*); *Ian Davidson* (*University of Southampton*); *Jayantha Sahu* (*University of Southampton*); *David J. Richardson* (*University of Southampton*); *Stefan Wabnitz* (*Sapienza University of Rome*); *Massimiliano Guasoni* (*University of Southampton*);

13:10 Intermodal Four Wave Mixing-based Frequency Conversion in Silicon Rich Silicon Nitride Waveguides
Valerio Vitali (*University of Southampton*); *Cosimo Lacava* (*University of Pavia*); *Hao Liu* (*University of Southampton*); *Thalia Dominguez Bucio* (*University of Southampton*); *Frederic Y. Gardes* (*University of Southampton*); *Periklis Petropoulos* (*University of Southampton*);

13:20 Modal Analysis and Propagation Properties of the Multilayered Circular Optical Fiber
Pavel S. Anisimov (*Huawei Technologies Co., Ltd.*); *Vasily S. Motolygin* (*Huawei Technologies Co., Ltd.*); *Viacheslav V. Zemlyakov* (*Huawei Technologies Co., Ltd.*); *Jiexing Gao* (*Huawei Technologies Co., Ltd.*);

13:30 Difference Frequency Generation in Multimode AlGaAs Waveguides
Jack Haines (*University of Southampton*); *Yohann Franz* (*University of Southampton*); *Marco Gandolfi* (*University of Brescia*); *Costantino De Angelis* (*Universita degli Studi di Brescia*); *Massimiliano Guasoni* (*University of Southampton*);

13:40 Invited Nonlinear Mode and Wavelength Conversion in a Highly Nonlinear Few-mode Fiber
Georg Rademacher (*National Institute of Information and Communications Technology*); *Ruben S. Luís* (*National Institute of Information and Communications Technology*); *Benjamin J. Puttnam* (*National Institute of Information and Communications Technology*); *Yoshinari Awaji* (*National Institute of Information and Communications Technology*); *Hideaki Furukawa* (*National Institute of Information and Communications Technology*);

Session 3P9b
SC3: Light in Space

Wednesday PM, April 27, 2022

Room Online ROOM 9

Organized by Remo Proietti Zaccaria, Saulius Juodkazis

Chaired by Remo Proietti Zaccaria, Saulius Juodkazis

14:00 Laser 3D Nano-printing of Inorganics for Free-form Micro-optics
Mangirdas Malinauskas (*Vilnius University*);

14:10 Photonics Technologies for Space: Overview of Italian Space Agency Activities
Marco Di Clemente (*Italian Space Agency*); *Roberto Formaro* (*Italian Space Agency*);

14:20 NICT Activities and Future Research Plan for Space Optical Communications Technology
Dimitar Radkov Kolev (*National Institute of Information and Communication Technology*); *Koichi Shiratama* (*National Institute of Information and Communication Technology*); *Alberto Carrasco-Casado* (*National Institute of Information and Communication Technology*); *Yoshihiko Saito* (*National Institute of Information and Communication Technology*); *Junichi Nakazono* (*National Institute of Information and Communication Technology*); *Phuc V. Trinh* (*National Institute of Information and Communication Technology*); *Morio Toyoshima* (*National Institute of Information and Communications Technology*);

14:30 ***Dark*** Optical Nano-spectroscopy
Invited
Antonio Ambrosio (*Istituto Italiano di Tecnologia*);

14:45 Sensing Quality of Nanophotonic Resonators Based on Two-dimensional Materials in Space
Karina Andrea Guerrero Becerra (*Istituto Italiano di Tecnologia*);

14:55 Sub-resolution Orientation Imaging Using Polarisation for Remote Sensing Applications
Soon Hock Ng (*Swinburne University of Technology*); *Blake Allan* (*Deakin University*); *Daniel Ierodiaconou* (*Deakin University*); *Vijayakumar Anand* (*Swinburne University of Technology*); *Alexander Babanin* (*The University of Melbourne*); *Saulius Juodkazis* (*Swinburne University of Technology*);

15:05 White Light Correlation Holography Using a Random Lens for Astronomical Imaging Applications
Vijayakumar Anand (*Swinburne University of Technology*); *Soon Hock Ng* (*Swinburne University of Technology*); *Tomas Katkus* (*Swinburne University of Technology*); *Saulius Juodkazis* (*Swinburne University of Technology*);

15:15 Simultaneous Detection of Modal Composition and Wavelength of OAM Fields Using a Hexagonal Vortex Filter
Andra Naresh Kumar Reddy (*Hee Photonic Labs*); *Vijayakumar Anand* (*Swinburne University of Technology*); *Vladimir V. Podlipnov* (*Samara National Research University*); *Svetlana Nikolaevna Khonina* (*Samara National Research University*); *Saulius Juodkazis* (*Swinburne University of Technology*);

15:25 Integrated Photonics for Space: State of the Art and Future Trends
Caterina Ciminelli (*Politecnico di Bari*); *G. Brunetti* (*Politecnico di Bari*); *Mario Nicola Armenise* (*Politecnico di Bari*);

15:35 **Coffee Break**

Session 3P9c
SC3: Optical Technologies for Characterization of Cells and Tissues

Wednesday PM, April 27, 2022

Room Online ROOM 9

Organized by Zhiyi Liu, Chunmei Li

Chaired by Zhiyi Liu

16:00 Mapping Cell Migration by Quantitative, Correlative
Invited Imaging of Microtubules at Nanoscale Resolution
Zhiyi Liu (*Zhejiang University*); *Wenjie Liu* (*Zhejiang University*); *Yushi Yao* (*Zhejiang University School of Medicine*); *Jia Meng* (*Zhejiang University*); *Shuhao Qian* (*Zhejiang University*); *Yubing Han* (*Zhejiang University*); *Tao Wang* (*Zhejiang University School of Medicine*); *Lingxi Zhou* (*Zhejiang University*); *Shenyi Jiang* (*Zhejiang University*); *Yifan Yuan* (*Zhejiang University*); *Youhua Chen* (*Zhejiang University*); *Liang Xu* (*Zhejiang University*); *Meng Zhang* (*Huazhong University of Science and Technology*); *Jianrong Qiu* (*Zhejiang University*); *Tao Han* (*Zhejiang University*); *Di Wang* (*Zhejiang University*); *Xu Liu* (*Zhejiang University*); *Cuifang Kuang* (*Zhejiang University*); *Zhihua Ding* (*Zhejiang University*);

16:20 Mapping Functions of Fiber-like Biological Tissues through Highly-quantitative Analysis of Morphological Remodeling
Shuhao Qian (*Zhejiang University*); *Jia Meng* (*Zhejiang University*); *Zhihua Ding* (*Zhejiang University*); *Jun Qian* (*Zhejiang University*); *Zhiyi Liu* (*Zhejiang University*);

16:35 Constrained Polynomial Fit Based k-domain Interpolation in Fourier Domain Optical Coherence Tomography
Tao Han (*Zhejiang University*); *Zhiyi Liu* (*Zhejiang University*); *Zhihua Ding* (*Zhejiang University*);

16:50 Research on the Difference between Patients with Inflammatory Bowel Diseases and Healthy Controls by Surface Enhanced Raman Spectroscopy
Bingyan Li (*University of Shanghai for Science and Technology*); *Yaling Wu* (*Tongji University*); *Zijie Wang* (*University of Shanghai for Science and Technology*); *Chao Luo* (*University of Shanghai for Science and Technology*); *Zhiyuan Liu* (*University of Shanghai for Science and Technology*); *Weimin Xu* (*Shanghai Jiaotong University School of Medicine*); *Yilian Zhu* (*Shanghai Jiaotong University School of Medicine*); *Peng Du* (*Shanghai Jiao Tong University School of Medicine*); *Xiaolei Wang* (*Tongji University*); *Huinan Yang* (*University of Shanghai for Science and Technology*);

17:05 Identify the Different Stages of Cervical Cancer Progression by Multiphoton Microscopy
Yulan Liu (*Fujian Normal University*); *Xiahui Han* (*Fujian Normal University*); *Liqin Zheng* (*Fujian Normal University*); *Lianhuang Li* (*Fujian Normal University*); *Zhenlin Zhan* (*Fujian Normal University*); *Jianhua Chen* (*Fujian Normal University*); *XiaoLong Wei* (*Cancer Hospital of Shantou University Medical College*); *Jianxin Chen* (*Fujian Normal University*);

17:15 Application of Second Harmonic Generation Imaging and Machine Learning to Human Borderline Ovarian Cancer Diagnosis
Huiling Zhan (*Jimei University*); *Guangxing Wang* (*Jimei University*); *Shuangmu Zhuo* (*Jimei University*);

17:25 Classification of Biliary Stricture with Choledochoscopic Images Based on Deep Multiple Instance Learning
Liqiang Wang (*Zhejiang University*); *Changjiang Zhou* (*Research Center for Intelligent Sensing, Zhejiang Lab*); *Daojian Gao* (*Eastern Hepatobiliary Surgery Hospital*);

17:40 Discrimination of Blood Species Using Raman Spectroscopy and Machine Learning Technology
Peng Wang (*Suzhou Institute of Biomedical Engineering and Technology*); *Jing Gao* (*Suzhou Institute of Biomedical Engineering and Technology*);

Session 3P10a
SC3: Nonlinear Optics: Fundamentals and Its Applications 2

Wednesday PM, April 27, 2022

Room Online ROOM 10

Organized by Haibin Wu, Zhaoyang Zhang

Chaired by Haibin Wu, Zhaoyang Zhang

13:20 Invited Controlling the Dynamic Behaviors of Light in Immediately Reconfigurable Honeycomb Photonic Lattices
Zhaoyang Zhang (*Xi'an Jiaotong University*); *Yiqi Zhang* (*Xi'an Jiaotong University*); *Feng Li* (*Xi'an Jiaotong University*); *Yanpeng Zhang* (*Xi'an Jiaotong University*); *Min Xiao* (*University of Arkansas*);

13:40 Invited Breather Lasers and Their Intelligent Control
Junsong Peng (*East China Normal University*);

14:00 Diamond Laser: An Approach Towards High Power and High Coherent Laser Source
Zhenxu Bai (*Hebei University of Technology*); *Yulei Wang* (*Hebei University of Technology*); *Zhiwei Lu* (*Hebei University of Technology*);

14:15 Quantum Dynamics of Interacting and Spinor Bose Gases
Jizhou Wu (*Shanxi University*); *Jie Ma* (*Shanxi University*); *Yuqing Li* (*Shanxi University*); *Wenliang Liu* (*Shanxi University*); *Liantuan Xiao* (*Shanxi University*); *Suotang Jia* (*Shanxi University*);

14:30 Producing Nonlinear Self-accelerating Beam in Atomic Ensembles
Zhenkun Wu (*Henan University*); *Kaibo Yang* (*Henan University*); *Yagang Zhang* (*Henan University*); *Junling Che* (*Xi'an University of Posts and Telecommunications*); *Peng Li* (*Henan University*);

15:30 **Coffee Break**

Session 3P10b
SC3: Microwave Photonic Technologies, Systems and Applications

Wednesday PM, April 27, 2022

Room Online ROOM 10

Organized by Fangzheng Zhang, Hao Chi

Chaired by Pei Zhou

16:00 Anti-chromatic Dispersion Transmission of Dual-chirp Waveform Based on a Single DPMZM
Chongyin Yi (*Zhejiang University*); *Shuna Yang* (*Hangzhou Dianzi University*); *Bo Yang* (*Hangzhou Dianzi University*); *Tao Jin* (*Zhejiang University*); *Hao Chi* (*Hangzhou Dianzi University*);

16:15 Optical All-pass Filter
Yuan Yu (*Huazhong University of Science and Technology*);

16:30 Review of Photonics-based Microwave Phase Noise Measurement Methods
Siying Hua (*Nanjing Normal University*); *Jingzhan Shi* (*Nanjing University of Aeronautics and Astronautics*); *Xiaozhong Tian* (*Nanjing Normal University*); *Yiping Wang* (*Nanjing Normal University*);

16:45 Large Dynamic Frequency Up-conversion by Using Parallel Dual-drive Mach-Zehnder Modulators and Balance Detection
W. H. Wang (*Dalian University of Technology*); *Y. Bai* (*Dalian University of Technology*); *S. L. Fu* (*Dalian University of Technology*); *X. X. Su* (*Dalian University of Technology*); *C. Wang* (*University of Kent*); *Y. Y. Gu* (*Dalian University of Technology*); *M. S. Zhao* (*Dalian University of Technology*); *Xiuyou Han* (*Dalian University of Technology*);

17:00 Broadband Signal Acquisition with Ultra-high Sampling Compression Ratio Based on Continuous-time Photonic Time Stretch and Compressive Sampling
Bo Yang (*Hangzhou Dianzi University*); *Qing Xu* (*Hangzhou Dianzi University*); *Shuna Yang* (*Hangzhou Dianzi University*); *Hao Chi* (*Hangzhou Dianzi University*);

17:15 A Magnetically Tunable Slow Light Waveguide
Shuwai Leung (*Nanjing University*); *Yanan Wang* (*Nanjing University*); *Chengpeng Liang* (*Nanjing University*); *Fei-Fei Li* (*Nanjing University*); *Yin Poo* (*Nanjing University*);

17:30 Approach of Frequency Doubling Digital Modulation Signal Generation Based on Optical Modulation Switch
Wei Jiang (*National Key Laboratory of Science and Technology on Space Microwave*); *Xiaojun Li* (*National Key Laboratory of Science and Technology on Space Microwave*); *Weize Qin* (*National Key Laboratory of Science and Technology on Space Microwave*); *Jinman Ge* (*National Key Laboratory of Science and Technology on Space Microwave*); *Qinggui Tan* (*National Key Laboratory of Science and Technology on Space Microwave*);

17:45 Optoelectronic Oscillator in Multimode Regime: Tunable Optical Frequency Comb Generation
Victor V. Kulagin (*Sternberg Astronomical Institute of Moscow State University*); *Victor V. Valuev* (*Kotel'nikov Institute of Radio-engineering and Electronics of RAS*); *Sergey M. Kontorov* (*Skolkovo Institute of Science and Technology*); *Vladimir N. Kornienko* (*Kotel'nikov Institute of Radio-engineering and Electronics of RAS*); *Denis A. Prokhorov* (*National Research Nuclear University MEPhI*); *Vladimir Alekseevich Cherepenin* (*Kotel'nikov Institute of Radio-engineering and Electronics of RAS*);

Session 3P11
SC3: Luminescent/Optoelectronic Materials and Devices 2

Wednesday PM, April 27, 2022
Room Online ROOM 11
Organized by Hongwei Song, Wen Xu
Chaired by Hongwei Song, Wen Xu

13:00 Invited Optically Controlling Upconversion Luminescence for Nanoscopic Imaging
Qiu Qiang Zhan (*South China Normal University*);

13:20 Invited Rational Interface Engineering for Efficient Blue Perovskite Light-emitting Diodes
Yang Shen (*Soochow University*); *Jianxin Tang* (*Soochow University*);

13:40 Invited The Synthesis of Cd/Pb-free InP and ZnSe Core-shell Quantum Dots and Application in QLEDs
Huaibin Shen (*Henan University*);

14:00 Invited Smart Control of Multi-photon Upconversion in Nanostructures
Bo Zhou (*South China University of Technology*);

14:20 Invited High Pressure Engineering of Luminescent Metal Halides
Zewei Quan (*Southern University of Science and Technology*);

14:40 Invited Photonic Inorganic Glasses Activated with Silver Quantum Clusters as Spectral Converting Layers to Improve Organic Solar Cells' Efficiencies
Xusheng Qiao (*Zhejiang University*); *Pengcheng Li* (*Zhejiang University*); *Wangchen Hao* (*Zhejiang University*); *Di Wang* (*Zhejiang University*); *Xianping Fan* (*Zhejiang University*); *Guodong Qian* (*Zhejiang University*);

15:00 Invited Interfacial Engineering for Improving the Device Performance of Cadmium-free Quantum Dot-based Electroluminescent Device
Aiwei Tang (*Beijing Jiaotong University*);

15:30 **Coffee Break**

16:00 Invited Theoretical Spectroscopy of Extrinsic and Intrinsic Defects in Phosphors
Chonggeng Ma (*Chongqing University of Posts and Telecommunications*);

16:20 Invited High-efficiency Blue Cadmium-free Quantum Dot and Perovskite Light-emitting Diodes
Kai Wang (*Southern University of Science and Technology*);

16:35 Invited Light-emitting Devices Based on Lead-free Halide Perovskites
Zhifeng Shi (*Zhengzhou University*);

16:55 Invited Carbonized Polymer Dots
Si Yu Lu (*Zhengzhou University*);

17:15 Invited Huge Upconversion Luminescence Enhancement by a Cascade Optical Field Modulation Strategy Facilitating Selective Multispectral Narrow-band Near-infrared Photodetection
Yanan Ji (*Jilin University*); *Wen Xu* (*Jilin University*); *Nan Ding* (*Jilin University*); *Haitao Yang* (*Jilin University*); *Hongwei Song* (*Jilin University*); *Qingyun Liu* (*KTH Royal Institute of Technology*); *Hans Ågren* (*KTH Royal Institute of Technology*); *Jerker Widengren* (*Royal Institute of Technology (KTH)*); *Haichun Liu* (*Royal Institute of Technology (KTH)*);

17:45 Rare Earth Doped Luminescent Nanomaterials and Their Photoelectric Applications
Donglei Zhou (*Jilin University*); *Hongwei Song* (*Jilin University*);

18:00 Indirect Temperature Measurement for Quasi-continuous-wavelength High Power Laser Diode Bars
A. N. Aparnikov (*Bauman Moscow State Technical University*); *Fedor Borisovich Baulin* (*Bauman Moscow State Technical University*); *Evgeny Vladlenovich Buryi* (*Bauman Moscow State Technical University*); *N. E. Orlov* (*Bauman Moscow State Technical University*); *V. D. Shashurin* (*Bauman Moscow State Technical University*);

Session 3P12a
Remote Sensing of Atmosphere, Ocean and Land Using GNSS and Other Sensors 2

Wednesday PM, April 27, 2022
Room Online ROOM 12
Organized by Shuanggen Jin
Chaired by Shuanggen Jin, Qingyun Yan

13:00 Inversion of Ocean Wavenumber Spectrum from the Bistatic High-frequency Radar Sea Echoes
Fan Ding (*Wuhan University*); *Chen Zhao* (*Wuhan University*); *Zezong Chen* (*Wuhan University*); *Min Deng* (*Wuhan University*);

13:15 A Novel Full-polarization SAR Image Ship Detector Based on Polarization Scattering Characteristics
Gui Gao (*National University of Defense Technology*); *Chuan Zhang* (*National University of Defense Technology*); *Linlin Zhang* (*National University of Defense Technology*);

13:25 Evaluation of Model Simulations of Polar Lows with Satellite Data
Kirill S. Khvorostovsky (*Russian State Hydrometeorological University*); *K. I. Yarusov* (*Russian State Hydrometeorological University*); *Elizaveta V. Zabolotskikh* (*Russian State Hydrometeorological University*);

13:35 Atmospheric Effects on the EM Wave Propagation of an AUV-borne Radar
Hamza Bounaceur (*UMR CNRS 6285*); *Ali Khenchaf* (*UMR CNRS 6285*); *Jean-Marc Le Caillec* (*IMT Atlantique*);

13:45 Multi-instrumental View of the Auroral Oval
Yury V. Yasukevich (*Institute of Solar-Terrestrial Physics, SB RAS*); *E. I. Astafyeva* (*Université de Paris*); *Alexey V. Oinats* (*Institute of Solar-Terrestrial Physics, SB RAS*); *Artem M. Vesnin* (*Institute of Solar-Terrestrial Physics, SB RAS*); *Anna S. Yasyukevich* (*Institute of Solar-Terrestrial Physics, SB RAS*); *A. Vasiliev* (*Irkutsk National Research Technical University*); *A. A. Garashchenko* (*Irkutsk National Research Technical University*); *D. N. Sidorov* (*Institute of Solar-Terrestrial Physics, SB RAS*);

13:55 Spatio-temporal Fluctuations in Downwelling K-band Radiation of Atmosphere in the Presence of Clouds
Dobroslav P. Egorov (*Kotel'nikov Institute of Radio Engineering and Electronics of RAS*); *Boris Georgievich Kutuza* (*Kotel'nikov Institute of Radio Engineering and Electronics of RAS*);

14:05 Mapping and Evaluation of the 2020 Catastrophic Floods in the Yangtze River Basin Using Sentinel-1 Imagery
Minmin Huang (*Nanjing University of Information Science and Technology*); *Shuanggen Jin* (*Nanjing University of Information Science and Technology*); *Xueqin Gao* (*Shouguang Meteorological Bureau*);

14:20 Assessing the Performance of Models for Ionospheric Correction for Single-frequency GNSS Positioning
Yury Vladimirovich Yasyukevich (*Institute of Solar-Terrestrial Physics (ISTP), Siberian Branch of Russian Academy of Sciences*); *Anna S. Yasyukevich* (*Institute of Solar-Terrestrial Physics, SB RAS*); *Dmitry A. Zatolokin* (*Institute of Solar-Terrestrial Physics (ISTP), Siberian Branch of Russian Academy of Sciences*);

14:30 Estimating Ground-level Nitrogen Dioxide Concentration from Satellite Data
Bibhash Pran Das (*National Institute of Technology Rourkela*); *Muhammad Salman Pathan* (*University College Dublin Belfield*); *Yee Hui Lee* (*Nanyang Technological University Singapore*); *Soumyabrata Dev* (*The ADAPT SFI Research Centre*);

14:40 Predicting Ground-based $PM_{2.5}$ Concentration in Queensland, Australia
Nicholas Danesi (*University College Dublin*); *Mayank Jain* (*University College Dublin Belfield*); *Yee Hui Lee* (*Nanyang Technological University Singapore*); *Soumyabrata Dev* (*The ADAPT SFI Research Centre*);

14:50 Analyzing Air Pollutant Concentrations in New Delhi, India
Bugra Alparslan (*Middle East Technical University (METU)*); *Mayank Jain* (*University College Dublin Belfield*); *Jiantao Wu* (*University College Dublin*); *Soumyabrata Dev* (*Beijing-Dublin International College*);

15:30 **Coffee Break**

Session 3P12b
SC2: RCS Reduction Techniques Based on Metamaterials/Metasurfaces

Wednesday PM, April 27, 2022

Room Online ROOM 12

Organized by Junming Zhao, Bian Wu

Chaired by Junming Zhao, Ke Chen

16:00 Ultra-miniaturized Narrow-band Metamaterial Absorber for L-band
Biao Chen (*Xi'an Key Laboratory of Millimeter Wave and Terahertz Technology*); *Shining Sun* (*The Aeronautical Science Key Lab for High Performance Electromagnetic Windows*); *Yu-Tong Zhao* (*Xidian University*); *Bian Wu* (*Xidian University*);

16:15 Optically Transparent Diffusion Metasurface for RCS Reduction
Ke Zhang (*Xidian University*); *Yaqi Wei* (*Xidian University*); *Yu-Tong Zhao* (*Xidian University*); *Jianzhong Chen* (*Xidian University*); *Bian Wu* (*Xidian University*); *Tao Su* (*Xidian University*);

16:30 An Electrically Controlled Tunable Absorber Design Based on Frequency Selective Surface
Yan Ma (*Central South University*); *Kexin Liao* (*Central South University*); *Zhifu Liu* (*Central South University*); *Meng Wang* (*Central South University*); *Jian Dong* (*Central South University*);

16:45 Graphene-based Reconfigurable Microwave Metasurfaces for Multi-domain Modulation of Electromagnetic Waves
Weiren Zhu (*Shanghai Jiao Tong University*);

17:00 Ultra-wideband Frequency-selective Rasorber Combining Diffusion Scattering and Absorption
Kun Duan (*Nanjing University*); *Ke Chen* (*Nanjing University*); *Yijun Feng* (*Nanjing University*); *Junming Zhao* (*Nanjing University*);

Session 3P13a
SC5: Microwave Remote Sensing of the Water Cycle 2

Wednesday PM, April 27, 2022

Room Online ROOM 13

Organized by Emmanuel P. Dinnat, Jacqueline Boutin

Chaired by Emmanuel P. Dinnat, Jacqueline Boutin

13:00 Multifractal Fusion of Brightness Temperatures to Reduce SMOS Level 2 Sea Surface Salinity Error
Estrella Olmedo (*Institute of Marine Science (ICM-CSIC-BEC)*); *Antonio Turiel* (*ICM — CMIMA (CSIC), Passeig Maritim de la Barceloneta*); *Veronica Gonzalez-Gambau* (*Institute of Marine Science (ICM-CSIC-BEC)*); *C. Gonzalez-Haro* (*Institute of Marine Science (ICM-CSIC-BEC)*); *A. Garcia-Espriu* (*Institute of Marine Science (ICM-CSIC-BEC)*);

13:10 Multivariate Convolutional LSTMs for Relative Humidity Forecasting
Zheng Yi Ho (*Nanyang Technological University*); *Mayank Jain* (*University College Dublin Belfield*); *Soumyabrata Dev* (*Beijing-Dublin International College*);

13:20 Efficient Forecasting of Precipitation Using LSTM
Muhammad Salman Pathan (*University College Dublin Belfield*); *Mayank Jain* (*University College Dublin Belfield*); *Yee Hui Lee* (*Nanyang Technological University Singapore*); *Tarek Al Skaif* (*Wageningen University and Research*); *Soumyabrata Dev* (*Beijing-Dublin International College*);

13:30 SMOS Salinity Retrieved from New Seawater Dielectric Constant Models at L-band
Jacqueline Boutin (*LOCEAN/CNRS/Sorbonne Université*); *J. L. Vergely* (*ACRI-st*); *Y. Zhou* (*GWU*); *E. Dinnat* (*Chapman University*); *R. Sabia* (*ESA*);

13:40 Invited SMOS-HR (High Resolution): A SMOS Follow-up for the Study of the Water Cycle
Nemesio Rodriguez-Fernandez (*CESBIO*); *Eric Anterrieu* (*CESBIO*); *Francois Cabot* (*CESBIO*); *Jaqueline Boutin* (*LOCEAN*); *Ghislain Picard* (*CESBIO*); *Thierry Pellarin* (*CNRS, LTHE*); *Jérome Vialard* (*CNRS-IRD-MNHN-Sorbonne Université*); *Frederic Vivier* (*LOCEAN*); *Ahmad Al Bitar* (*CESBIO*); *Philippe Richaume* (*CESBIO*); *Arnaud Mialon* (*CESBIO*); *Raquel Rodriguez-Suquet* (*CNES*); *Louise Yu* (*CNES*); *Thierry Amiot* (*CNES*); *Cecile Cheymole* (*CNES*); *Ali Khaazal* (*CESBIO*); *Yann H. Kerr* (*Centre d'Etudes Spatiales de la BIOsphere (CESBIO (CNRS/IRD/CNES/UPS))*);

14:10 Invited The Copernicus Imaging Microwave Radiometer (CIMR) Expansion Mission
Craig Donlon (*European Space Agency, ESTEC*); *Rolv Midthassel* (*European Space Agency, ESTEC*); *Marcello Sallusti* (*European Space Agency, ESTEC*); *Mariel Triganese* (*European Space Agency, ESTEC*); *Benedetta Fiorelli* (*European Space Agency, ESTEC*); *Martin Peccia* (*European Space Agency, ESTEC*); *Claudio Galeazzi* (*European Space Agency, ESTEC*);

15:30 **Coffee Break**

Session 3P13b
SC5: Advances in Random Medium Scattering Theory and Microwave Remote Sensing 2

Wednesday PM, April 27, 2022

Room Online ROOM 13

Organized by Shurun Tan, Yanlei Du

Chaired by Shurun Tan, Yanlei Du

16:00 Circularly Polarized Bistatic Scattering and Propagation over Terrain Profile with Random Roughness
Xue-Yuan Chen (*Hubei University of Technology*); *Peng Xu* (*Hubei University of Technology*);

16:15 Theoretical View on the Possibilities of Multi-frequency Remote Sensing of the Water Surface
Yuriy A. Titchenko (*Institute of Applied Physics, Russian Academy of Science*); *Vladimir Yurjevich Karaev* (*Institute of Applied Physics, Russian Academy of Sciences*); *Mariya S. Ryabkova* (*Institute of Applied Physics, Russian Academy of Sciences*); *Eugeny M. Meshkov* (*Institute of Applied Physics, Russian Academy of Sciences*); *Kiril A. Ponur* (*Institute of Applied Physics, Russian Academy of Sciences*); *Roman V. Belyaev* (*Institute of Applied Physics, Russian Academy of Sciences*);

16:25 Multiscale Roughness Influence on Microwave Scattering and Emission in Soil Moisture Response
Ying Yang (*Nanjing University of Science and Technology*); *Kun-Shan Chen* (*Guilin University of Technology*);

16:40 Analysis of Spatial Decorrelation of Rough Sea Surfaces in Radar Scattering
Mingde Guo (*Aerospace Information Research Institute, Chinese Academy of Sciences*); *Ying Yang* (*Nanjing University of Science and Technology*); *Rui Jiang* (*Jimei University*); *Kun-Shan Chen* (*Guilin University of Technology*);

16:55 Recent Activities of GNSS-R in CAST-XIAN
Cheng Jing (*Space Research Institute of Electronics and Information Technology*); *Xinliang Niu* (*China Academy of Space Technology-Xi'an (CAST-XIAN)*); *Feng Lu* (*National Satellite Meteorological Center (NSMC), China Meteorological Administration*); *Zhaoguang Bai* (*DFH Satellite Co. Ltd.*); *Wei Wan* (*Peking University*); *Weiqiang Li* (*Institut d'Estudis Espacials de Catalunya (IEEC)*); *Yanlei Du* (*Aerospace Information Research Institute, Chinese Academy of Sciences*);

17:10 Physical Characterizations of Scattering and Emissions from Sea Foams at Millimeter Waves — A Numerical Study
Rui Jiang (*Jimei University*); *Kun-Shan Chen* (*Guilin University of Technology*);

17:25 Simulation of SAR Imaging of Ship under Sea Clutter
Yuhua Guo (*Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences*); *Huanyin Yue* (*Institute of UAV Application Research, Tianjin and CAS*); *Huifeng Shi* (*Institute of Remote Sensing and Digital Earth, Chinese Academy of Sciences*);

17:35 Modeling of Spatial-temporal Sea Clutter with I/Q Components Based on the Data-driven Approximation of Koopman Theory
Yanming Zhang (*The University of Hong Kong*); *L. J. Jiang* (*The University of Hong Kong*);

17:45 Progress in Testing and Optimizing the Wide-band Array-shaped Microwave Calibration Target
Ming Jin (*Beijing University of Chemical Technology*); *Ming Bai* (*Beihang University*);

Session 3P14a
SC4: Antennas for Satellite and Cellular Communications

Wednesday PM, April 27, 2022

Room Online ROOM 14

Organized by Shuai Zhang, Qi Liu

Chaired by Peng Mei

13:00 Extrapolated Virtual Antenna Array for Enhancement of Resolution of Uniform Linear Array
Yury Gennadievich Pasternak (*Voronezh State Technical University*); *V. A. Pendyurin* (*Voronezh State Technical University*); *I. V. Popov* (*Voronezh State Technical University*); *Sergey Mihajlovich Fedorov* (*Voronezh State Technical University*);

13:10 A Novel Method for Decoupling and Broadening Beamwidth of Phased Array Antenna
Guang-Wei Yang (*Queen Mary University of London*);

13:25 A Broadband Planar Folded Patch Antenna with Omnidirectional Radiation
Wei Shi (*National University of Defense Technology*); *Shiyun Yu* (*Nanjing Telecommunication Technology Research Institute*); *Bin Liu* (*National University of Defense Technology*);

13:35 An Overview of Metamaterial Absorbers and Their Applications on Antennas
Peng Mei (*Aalborg University*); *Gert Frølund Pedersen* (*Aalborg University*); *Qi Liu* (*Hangzhou Dianzi University*); *Xian Qi Lin* (*University of Electronic Science and Technology of China*); *Shuai Zhang* (*Aalborg University*);

Session 3P14b
SC4: Advanced Antennas Based on Metamaterials and Metasurfaces

Wednesday PM, April 27, 2022

Room Online ROOM 14

Organized by Jun-Ping Geng, Mei Li

Chaired by Jun-Ping Geng

13:50 Generation of Directive Sub-THz Beams by Modulated Metasurfaces
David González-Ovejero (*Université de Rennes 1*); *Olivier de Sagazan* (*Université de Rennes 1*); *Xavier Morvan* (*Université de Rennes 1*); *Laurent Le Coq* (*Université de Rennes 1*);

14:00 High-gain Metasurface Antenna with Low Profile
Kang Wang (*Zhejiang University*); *Hao Gang Wang* (*Zhejiang University*);

14:15 A Wideband Circularly Polarized Leaky-wave Antenna
Jingzheng Lu (*Shanghai Jiao Tong University*); *Jun-Ping Geng* (*Shanghai Jiao Tong University*); *Weinan Gao* (*Shanghai Jiao Tong University*); *Da Su* (*Shanghai Jiao Tong University*); *Yangzhou Zhang* (*Shanghai Jiao Tong University*); *Jing Zhang* (*Shanghai Jiao Tong University*); *Chaofan Ren* (*Shanghai Jiao Tong University*); *Kun Wang* (*Shanghai Jiao Tong University*); *Han Zhou* (*Shanghai Jiao Tong University*); *Chong He* (*Shanghai Jiao Tong University*); *Xianling Liang* (*Shanghai Jiao Tong University*); *Ronghong Jin* (*Shanghai Jiao Tong University*);

14:30 A Wideband and High-gain Waveguide Slot Array Loaded with an Anisotropic Metamaterial Layer
Jiashuai Xu (*Xiamen University*); *Miao Zhang* (*Xiamen University*); *Christopher Pan* (*Yunshan Technologies Co., Ltd.*); *Qing Huo Liu* (*Duke University*);

14:45 Electrically Small Huygens Source Antennas and Arrays: From Theory to Practice
Ming-Chun Tang (*Chongqing University*); *Xiaoming Chen* (*Chongqing University*); *Zhentian Wu* (*Chongqing University*); *Ting Shi* (*Chongqing University*); *Richard W. Ziolkowski* (*University of Technology Sydney*);

15:00 Miniaturized Metamaterial-based Antenna and Its Wideband Wide-angle Scanning Phased Array
Yan Li (*Sun Yet-Sen university*); *Shaoqiu Xiao* (*Sun Yet-Sen university*);

15:15 A Versatile Slot Antenna Fed by a **2** × **2** Reconfigurable Network
Weinan Gao (*Shanghai Jiao Tong University*); *Jun-Ping Geng* (*Shanghai Jiao Tong University*); *Kun Wang* (*Shanghai Jiao Tong University*); *Jingzheng Lu* (*Shanghai Jiao Tong University*); *Nian Chen* (*Shanghai Jiao Tong University*); *Han Zhou* (*Shanghai Jiao Tong University*); *Chaofan Ren* (*Shanghai Jiao Tong University*); *Silei Yang* (*Shanghai Jiao Tong University*); *Rong-Hong Jin* (*Shanghai Jiaotong University*); *Xianling Liang* (*Shanghai Jiao Tong University*);

15:30 **Coffee Break**

Session 3P14c
Microstrip Antennas, Array Antennas, Theory and Radiation

Wednesday PM, April 27, 2022

Room Online ROOM 14

Chaired by Yingsong Li, Ren Wang

16:00 Antipodal Vivaldi Antenna for On-chip Millimeter-wave Wireless Communication
Ming-An Chung (*National Taipei University of Technology*); *Bing-Ruei Chuang* (*National Taipei University of Technology*);

16:10 Design of Element-rotated Linear, Planar and Conformal Arrays with Shaped Power Patterns
Yanhui Liu (*University of Electronic Science and Technology of China*); *Ming Li* (*University of Electronic Science and Technology of China*); *Shu-Lin Chen* (*University of Technology Sydney (UTS)*); *Jun Hu* (*University of Electronic Science and Technology of China*); *Y. Jay Guo* (*University of Technology Sydney (UTS)*);

16:25 Wide-beam Vivaldi Antenna
Jinjing Ren (*Southeast University*); *Zhongyuan Yu* (*Southeast University*); *Qi Tang* (*Science and Technology on Near-surface Detection Laboratory*);

16:40 A New Method for Improving Isolation of GPR Antenna
Xuchun Shang (*Shanghai Jiao Tong University*); *Bin Yuan* (*Shanghai Jiao Tong University*); *Yexiao Gu* (*Suzhou Kezhongfangyuan Electronics Technology Co., Ltd*); *Wenxuan Shi* (*Shanghai Jiao Tong University*); *Jiamin Qi* (*Shanghai Jiao Tong University*);

16:55 Wide-angle Scanning Tightly Coupled Dipole Array with a Wide Band from 4.72 GHz to 22.22 GHz
Tian-Qi Zhao (*University of Electronic Science and Technology of China*); *Bing-Zhong Wang* (*University of Electronic Science and Technology of China*); *Changhai Hu* (*Southwest Jiaotong University*); *Ren Wang* (*University of Electronic Science and Technology of China*);

17:10 Electronically Controlled Leaky-wave Antenna with Fixed-frequency Scanning Capability
Si-Yuan Gao (*University of Electronic Science and Technology of China*); *Bing-Zhong Wang* (*University of Electronic Science and Technology of China*); *Ren Wang* (*University of Electronic Science and Technology of China*);

17:25 GEO SAR Antenna Three-dimensional Pointing Error Calibration Method Based on Ground Receiver
Kaichu Xing (*Aerospace Information Research Institute, Chinese Academy of Science*); *Jun Hong* (*Institute of Electronics, Chinese Academy of Science*); *Yu Wang* (*Aerospace Information Research Institute, Chinese Academy of Science*); *Tian Qiu* (*Aerospace Information Research Institute, Chinese Academy of Science*); *Shaoyan Du* (*Aerospace Information Research Institute, Chinese Academy of Science*);

17:40 Millimeter-wave Slot Array Antenna with Low Sidelobe Levels for Foreign Object Debris
Jianhong Chen (*Beijing Institute of Technology*); *Cheng Jin* (*Beijing Institute of Technology*); *Lingwen Kong* (*Beijing Institute of Technology*); *Binchao Zhang* (*Beijing Institute of Technology*); *Qihao Lv* (*Beijing Institute of Technology*); *Pengyu Zhang* (*Beijing Zhongan Satcom Technology co., ltd*); *Buning Tian* (*Beijing Institute of Technology*); *Hangcheng Han* (*Beijing Institute of Technology*);

17:55 Non-periodic and Conformal Antenna Arrays Design Using Parallel Evolutionary Algorithm Based on GA and PSO
Maxim A. Dubovitskiy (*National Research University "Moscow Power Engineering Institute"*); *Mikhail S. Mikhailov* (*National Research University "Moscow Power Engineering Institute"*);

Session 3P15a
SC1: Advances of Numerical Techniques in Computational Electromagnetics 2

Wednesday PM, April 27, 2022

Room Online ROOM 15

Organized by Mei Song Tong, Yunjing Zhang, Chunxia Yang

Chaired by Mei Song Tong, Yunjing Zhang

13:00 A Quasi-Helmholtz Decomposition Method for Solving Surface Integral Equations Involved in Electromagnetic Scattering Problems
Ting Zang (*Shanghai Jiao Tong University*); *Gaobiao Xiao* (*Shanghai Jiao Tong University*); *Shifeng Huang* (*Shanghai Jiao Tong University*); *Rui Liu* (*Shanghai Jiao Tong University*);

13:15 A **6** × **24** Dual-polarized Low-sidelobe Corporate-fed Horn Array with Cross-type ***E***-plane Waveguide Power Dividers
Zewei Li (*Xiamen University*); *Yaxiang Wu* (*Xiamen University*); *Miao Zhang* (*Xiamen University*); *Jiro Hirokawa* (*Tokyo Institute of Technology*); *Qing Huo Liu* (*Duke University*);

13:30 An Elementwise Stability Estimation Algorithm for Explicit Discontinuous Galerkin Time Domain Method
Zhen Guo Ban (*Xidian University*); *Yan Shi* (*Xidian University*);

13:40 A Low-Memory DGTD and FETD Method for Electromagnetic-circuital-thermal Co-simulation
Pan Pan Wang (*Xidian University*); *X. Y. Liu* (*Xidian University*); *Z. S. Xue* (*Xidian University*); *Huan Huan Zhang* (*Xidian University*);

13:50 An Effective Extraction Method of Common Characteristic Basis Functions for 3D Rough Surfaces Scattering Computation
Jiaxin Wan (*Fudan University*); *Hongxia Ye* (*Fudan University*); *Mei Song Tong* (*Tongji University*);

14:05 Accurate Modeling and Analysis for Electromagnetic Problems with Changeable Geometries and Materials
Ze Yuan Lu (*Tongji University*); *Xiao Jiao Huang* (*Tongji University*); *Li Zhang* (*Tongji University*); *Mei Song Tong* (*Tongji University*);

14:20 Application of Equivalent Principle Algorithm in Modeling of Radio Wave Propagation
Liangshuai Guo (*Tsinghua University*); *Maokun Li* (*Tsinghua University*); *Fan Yang* (*Tsinghua University*); *Shenheng Xu* (*Tsinghua University*);

14:35 Simulation of 2-D Electromagnetic Scattering from Bloch (Floquet) Periodic Structures in Layered Media by Using the Spectral-element Spectral-integral Method
Jianwen Wang (*Xiamen University*); *Jie Liu* (*Xiamen University*); *Lixiao Wang* (*Xiamen University*); *Qing Huo Liu* (*Duke University*);

14:50 Higher Order Impedance Boundary Condition with Integral Method for the Scattering Problem in Electromagnetism
Christian Daveau (*University CY Cergy Paris*); *Molka Kacem* (*University CY Cergy Paris*); *Soumaya Oueslati* (*University CY Cergy Paris*); *Stefan Bornhofen* (*University CY Cergy Paris*); *Brice Naisseline* (*University of CY Cergy Paris*);

15:00 Fault Correction of Tunable Metasurfaces for Radar Cross Section Reduction
Jing Rui Wang (*Tongji University*); *Yun Jing Zhang* (*Soochow University*); *Mei Song Tong* (*Tongji University*);

15:15 A Novel Electromagnetic Reconstruction Algorithm for Dielectric Objects Using Neural Networks
Da Wang (*Shanghai Normal University*); *Chunxia Yang* (*Shanghai Normal University*); *Jian Zhang* (*Tongji University*); *Mei Song Tong* (*Tongji University*);

15:30 **Coffee Break**

Session 3P15b
New Constructive Methods for Solving Boundary Value Problems of Electrodynamics and Digital Signal Processing

Wednesday PM, April 27, 2022

Room Online ROOM 15

Organized by Alexander Nikolaevich Bogolyubov, Victor Filippovich Kravchenko

Chaired by Alexander Nikolaevich Bogolyubov

16:00 Fundamental Properties of Metamaterial Interface's Waves: Definitions, Classification, and Numerical Study
Yuriy K. Sirenko (*O. Ya. Usikov Institute for Radiophysics and Electronics of National Academy of Sciences of Ukraine & V. M. Karazin Kharkiv National University*); *Seil Seitenovich Sautbekov* (*Al-Farabi Kazakh National University*); *Merey S. Sautbekova* (*Al-Farabi Kazakh National University*); *Petro Nikolaevich Melezhik* (*O. Ya. Usikov Institute for Radiophysics and Electronics of National Academy of Sciences of Ukraine*); *Anotliy Ye. Poyedinchuck* (*O. Ya. Usikov Institute for Radiophysics and Electronics of National Academy of Sciences of Ukraine*); *Nataliya P. Yashina* (*O. Ya. Usikov Institute for Radiophysics and Electronics of National Academy of Sciences of Ukraine*);

16:10 Long-lived Bloch Wave in All-dielectric Photonic Crystal
Alexander Nikolaevich Bogolyubov (*M. V. Lomonosov Moscow State University*); *Zhanna O. Dombrovskaya* (*M. V. Lomonosov Moscow State University*); *A. D. Nikitchenko* (*M. V. Lomonosov Moscow State University*);

16:20 Influence of the Earth's Ionosphere on the Polarization Characteristics of Radio Waves in the Megahertz Range
Dobroslav P. Egorov (*Kotel'nikov Institute of Radio Engineering and Electronics of RAS*); *Andrew S. Kryukovsky* (*Russian New University*); *Boris Georgievich Kutuza* (*Kotel'nikov Institute of Radio Engineering and Electronics of RAS*); *Dmitry S. Lukin* (*Russian New University*); *Dmitry V. Rastyagaev* (*Russian New University*);

Session 3P15c
SC1: Progress of the Time-domain Methods and Applications

Wednesday PM, April 27, 2022

Room Online ROOM 15

Organized by Hong-Xing Zheng, Xiang-Hua Wang

Chaired by Hong-Xing Zheng

16:40 Extension of the LOD-FDTD Method to Accurately Investigate the Transmission Properties of the Magnetized Graphene-based Structures
Jian-Yun Gao (*Tianjin Vocational Institute*); *Xiang-Hua Wang* (*Tianjin University of Technology and Education*);

16:55 Circuit Modeling and Analysis of on Chip Interconnection Structure in RRAM-based Crossbar Array Based Using Neuron Spike Model
Lidan Fang (*China Jiliang University*); *Yan Li* (*China Jiliang University*); *Shaojie Xu* (*China Jiliang University*); *Ning Jin* (*China Jiliang University*); *Er Ping Li* (*Zhejiang University — UIUC Institute*);

17:10 A Soft Source Implementation Technique on Face-centered Cubic Grids for FDTD Method
Xinsong Wang (*Beihang University*); *Guangzhi Chen* (*Beihang University*); *Xiang-Hua Wang* (*Tianjin University of Technology and Education*); *Wanli Du* (*Beihang University*); *Donglin Su* (*Beihang University*);

17:25 Application of Fluctuation Analysis to Biomedical Signals Using Empirical Mode Decomposition
Dmitry M. Klionskiy (*Saint Petersburg Electrotechnical University "LETI"*);

Session 3P16a
SC1: Advanced Mutiscale and Multiphysics Computational Electromagnetic Methods

Wednesday PM, April 27, 2022

Room Online ROOM 16

Organized by Ping Li, Yanpu Zhao

Chaired by Ping Li, Yanpu Zhao

13:00 The Discontinuous Galerkin Time-domain Method with Adaptive Time Step for the Analysis of Heat Conduction of ICs
Na Liu (*Xiamen University*); *Chenyang Wang* (*Xiamen University*); *Mingwei Zhuang* (*Xiamen University*); *Guoxiong Cai* (*Xiamen University*); *Qing Huo Liu* (*Duke University*);

13:15 An Automatic Layer Mesh Generation Technique for Conductors in Electromagnetic Field Analysis
Yanpu Zhao (*Wuhan University*);

13:30 Analysis of Induced Current and Voltage of GIL Enclosure Based on Equivalent Circuit Model and Finite Element Computation
Shucan Cheng (*Wuhan University*); *Yanpu Zhao* (*Wuhan University*); *Chen Zhang* (*Wuhan University*);

13:40 Cylindrically Symmetric DC and AC Magnetic Field Computation and Implementation with FreeFem^{++}
Yanpu Zhao (*Wuhan University*);

Session 3P16b
SC1: Advances in Computational Methods for Electromagnetic Scattering and Inverse Scattering

Wednesday PM, April 27, 2022

Room Online ROOM 16

Organized by Xiao-Min Pan, Yang G. Liu

Chaired by Ping Li, Bo O. Zhu, Yang G. Liu

14:00 Numerically Stable Formulas of the Spherically Layered Media Theory for Small Arguments and Large Orders
Bo O. Zhu (*Nanjing University*);

14:15 Study on Near-field Electromagnetic Scattering Characteristics of Targets Irradiated by Antenna Beam
Ce Guo (*Xidian University*); *Lixin Guo* (*Xidian University*); *Chungang Jia* (*Xidian University*); *Guangbin Guo* (*Xidian University*);

14:30 Homogenization Based Fast Computation of Electromagnetic Scattering by Inhomogeneous Objects with Honeycomb Structures
Xiao-Wei Yuan (*Beijing Institute of Technology*); *Ming Jiang Gou* (*Beijing Institute of Technology*); *Zeng Yang* (*Beijing Institute of Technology*); *Ming-Lin Yang* (*Beijing Institute of Technology*); *Xin-Qing Sheng* (*Beijing Institute of Technology*);

14:45 Ionospheric Influence on Space-based Target Scattering Problems
De-Hua Kong (*Peking University*); *Shao-Xin Huang* (*Peking University*); *Xiao-Yang He* (*Peking University*); *Mingyao Xia* (*Peking University*);

15:00 An Efficient Hybrid Technique of FEBI and PO for Scattering from Inhomogeneous Structures with Large Platform
Yang G. Liu (*Institute of Applied Physics and Computational Mathematics*); *Chao-Fu Wang* (*National University of Singapore*); *Haijing Zhou* (*Institute of Applied Physics and Computational Mathematics*);

15:15 Terahertz Scattering Characteristics of Rough Metallic and Dielectric Corner Reflectors
Xiaoxiao Zhang (*Xi'an University of Post & Telecommunications*); *Xiang Su* (*China Academy of Space Technology*); *Jichao Yang* (*China Academy of Space Technology*);

15:30 **Coffee Break**

16:00 Invited A Hybrid Robin Transmission Condition and Discontinuous Galerkin Method in Solving Electromagnetic Wave Equation
Shi-Min Liu (*Shanghai Jiaotong University*); *Kaikun Niu* (*Anhui University*); *Zhi-Xiang Huang* (*Anhui University*); *Ping Li* (*Shanghai Jiao Tong University*);

16:20 Augmented Surface Integral Equations for Low-frequency Modeling of Composite Objects
Li Zhang (*Tongji University*); *Mei Song Tong* (*Tongji University*);

Session 3P16c
Computational Electromagnetics, EMC, and Hybrid Methods

Wednesday PM, April 27, 2022

Room Online ROOM 16

Chaired by Haitao Liu, Na Liu

16:35 Multi-scale Numerical Modeling of Nanosystems Based on Finite Element Method Analysis Applied to Near-field Microwave Impedance Microscopy
Diego Tami (*Universidade Federal de Minas Gerais*); *Douglas A. A. Ohlberg* (*Universidade Federal de Minas Gerais*); *Jhonattan C. Ramirez* (*Universidade Federal de Minas Gerais*); *Gilberto Medeiros-Ribeiro* (*Universidade Federal de Minas Gerais*); *Cássio Gonçalves do Rego* (*Universidade Federal de Minas Gerais*);

16:45 Coordinate Transformation Method for Modeling General Three-dimensional Photonic Structures with Curved Boundaries
Haitao Liu (*Nankai University*);

17:00 The Improvement of PML Absorption for Hyperbolic Media
Juntao Dong (*Xiamen University*); *Sicen Tao* (*Xiamen University*); *Chenyang Wang* (*Xiamen University*); *Guoxiong Cai* (*Xiamen University*); *Huanyang Chen* (*Xiamen University*); *Na Liu* (*Xiamen University*);

17:15 Development of High-$\boldsymbol{Q}$ Sensor for NQR Detection of Dangerous Materials
Sultonazar Mamadazizov (*Gebze Technical University*); *N. Gazale Çalicioğlu* (*Gebze Technical University*); *Rian Ryzhov* (*Gebze Technical University*); *Georgy Mozzhukhin* (*Gebze Technical University*); *Bulat Rameev* (*Gebze Technical University*);

17:25 Effect of the Arrangement Structure of Nickel Fibers in Electromagnetic Shielding Fabric on Its Wave Absorbing Performance
Yayun Li (*Zhongyuan University of Technology*); *Zhe Liu* (*Xi'an Polytechnic University*); *Jiajia Duan* (*Zhongyuan University of Technology*); *Sijia He* (*Xi'an Polytechnic University*); *Ying Wei* (*Xi'an Polytechnic University*); *Xiuchen Wang* (*Xi'an Polytechnic University*);

17:40 Simulator of UHF Signal of the Partial Discharge
Tomas Hejtmanek (*Brno University of Technology*); *Petr Drexler* (*Brno University of Technology*); *M. Skoda* (*Brno University of Technology*);

17:50 Electromagnetic-circuital-thermal Multiphysics Simulation of Microwave Amplifier
Zheng Lang Jia (*Xidian University*); *Z. S. Xue* (*Xidian University*); *X. Y. Liu* (*Xidian University*); *Huan Huan Zhang* (*Xidian University*);

18:00 Temporal Simulation of Arbitrarily Curved Metasurface with GSTCs Based DGTD Method
Qiang Ren (*Beihang University*); *Shaowen Tian* (*Beihang University*); *Kaiming Wu* (*Beihang University*);

	April 25 (Monday AM)	April 25 (Monday PM)
Online Room 0	1A0 - Hot Topics in Photonics and Electromagnetics	1P0 - Online Poster Session
Online Room 1	1A1 - SC2: Topological Phenomena in Classical Optics and Quantum Optics 1	1P1 - SC3: Crystalline Silicon Photovoltaics
Online Room 2	1A2a - SC3: Reconfigurable Photonic Circuits for Computing and Switching 1 1A2b - Optics Sensor, Optical Network and Others 1	1P2a - SC3: Reconfigurable Photonic Circuits for Computing and Switching 2 1P2b - SC3: Artificial Intelligence Optics 1P2c - SC3: X-ray Computed Tomography and Advance Manufacturing
Online Room 3	1A3a - SC2&SC3: Photonics Empowered by Artificial Intelligence 1 1A3b - SC3: Low-dimensional Semiconductor Optoelectronics and Integration 1	1P3a - SC3&SC4: Industry Forum in Photonics, Electronics and Opto-electronics 1P3b - SC2&SC3: Organic and Hybrid Optoelectronics 1
Online Room 4	1A4 - SC2: Flexible Metamaterials and Smart Metadevices	1P4a - SC2: Plasmonic Metamaterials and Their Emerging Applications 1P4b - SC2: Metamaterial Polarization Optics and Applications
Online Room 5	1A5 - SC2: Recent Advances of Metasurfaces and Metagratings	1P5 - SC2: Nonlinear Plasmonics and Metasurfaces
Online Room 6	1A6 - SC2: Emerging Physical Properties in 1D and 2D van der Waals Materials and Their Heterostructures	1P6a - SC2: Infrared Materials, Devices and Applications 1P6b - Metamaterials, Plasmonics and Complex Media
Online Room 7	1A7 - SC2: Light-matter Interaction and Optical Field Manipulation in Metasurfaces and Metamaterials 1	1P7 - Light Manipulation, Propagation and Applications
Online Room 8	1A8a - SC3: Optical Sensing and Detection 1 1A8b - SC3: Optoelectronic Sensors for Chemical and Biological Applications 1	1P8a - SC3: Optoelectronic Sensors for Chemical and Biological Applications 2 1P8b - SC3: Optical Sensing and Detection 2
Online Room 9	1A9 - SC3: Long-wavelength Integrated Photonic Devices and Applications	1P9a - SC3: Photonic Crystals and Subwavelength Structures 1P9b - SC2: Active and Reconfigurable Metasurfaces: Fundamentals and Applications 1
Online Room 10	1A10a - SC2: Metalens and Random-structured Metamaterials 1A10b - SC3: Integrated Quantum Photonics 1	1P10a - SC3: Integrated Quantum Photonics 2 1P10b - SC3: Quantum Information Processing and Devices 1
Online Room 11	1A11a - SC2: Curved Space and Transformation Optics 1A11b - SC2: Hyperbolic Polaritons in the Emerging Layered Materials 1	1P11a - SC2: Hyperbolic Polaritons in the Emerging Layered Materials 2 1P11b - SC2: Advances in Terahertz Metasurfaces
Online Room 12	1A12 - FocusSession.SC5: Machine Learning for Electromagnetic Inverse Problems 1	1P12a - FocusSession.SC5: Machine Learning for Electromagnetic Inverse Problems 2 1P12b - FocusSession.SC5: Microwave Remote Sensing of Coastal and Marine Environments 1
Online Room 13	1A13 - SC5: EM/Acoustic and Machine Learning Techniques in Oil & Gas Exploration: Modeling, Inversion, and Interpretations 1	1P13a - SC5: EM/Acoustic and Machine Learning Techniques in Oil & Gas Exploration: Modeling, Inversion, and Interpretations 2 1P13b - Remote Sensing, Inverse Problems, Imaging, Radar and Sensing 2
Online Room 14	1A14 - SC2&SC4: 5G/B5G Enabling Antenna Systems and Associated Testing Methodology	1P14a - SC2&SC4: Antennas and Radomes Based on Metamaterials/Metasurfaces 1P14b - SC4: Radiation Pattern Optimization and Synthesis Techniques for Antenna Elements and Arrays 1P14c - SC4: Multi-mode Antennas for Modern Communication Systems
Online Room 15	1A15a - SC1: AI/ML for Inversion, Imaging and Design/Optimization 1A15b - SC1: The Electrodynamics-quantum Mechanics and Numerical Modeling 1	1P15a - SC1: The Electrodynamics-quantum Mechanics and Numerical Modeling 2 1P15b - SC1: Advanced Multiphysics in the Emerging Electromagnetics and Optoelectronics: Theory, Modeling and Application 1P15c - SC1: Efficient Modeling of Electromagnetic Fields in Complex Structures/Materials/Media
Online Room 16	1A16 - SC1: Analyzing, Modelling and Suppression of Complex EMI	1P16a - SC1: Advances in Modeling and Optimization Methods for Realistic Applications 1P16b - SC4: Microwave/Millimeter Wave Circuits and Systems for Emerging Applications 1P16c - Waveguide, Circuit and Microwave Technologies

	April 26 (Tuesday AM)	April 26 (Tuesday PM)
Online Room 1	2A1 - SC2&SC3: Ultrafast Laser-matter Interactions and Nanofabrications 1	2P1a - SC3: Distributed Optical Fiber Sensing Systems and Sensor Devices 2P1b - SC2&SC3: Ultrafast Laser-matter Interactions and Nanofabrications 2 2P1c - SC3: Optical Fiber Based Lasers: Dynamics and Applications
Online Room 2	2A2a - SC3: Molecular Vibrational Spectroscopy and Imaging 2A2b - SC3: Programmable Optical Devices and Circuits 1	2P2a - SC3: Programmable Optical Devices and Circuits 2 2P2b - Optical Signal Processing in Advanced Optical Transmission Networks 2P2c - SC4: Researches and Applications of RIS
Online Room 3	2A3 - SC2&SC3: Photonics Empowered by Artificial Intelligence 2	2P3 - SC3: Low-dimensional Semiconductor Optoelectronics and Integration 2
Online Room 4	2A4 - SC2: Topological Metamaterials for Photons, Phonons and Polaritons 1	2P4a - SC2: Topological Phenomena in Classical Optics and Quantum Optics 2 2P4b - SC2: Topological Metamaterials for Photons, Phonons and Polaritons 2
Online Room 5	2A5a - SC2: Acoustic Metasurfaces and Their Applications 2A5b - Recent Advances in Optical Metasurfaces 1	2P5 - Recent Advances in Optical Metasurfaces 2
Online Room 6	2A6a - SC2: Twist-controlled Electromagnetic, Acoustic and Thermal Phenomena 2A6b - SC2: Non-Hermitian Physics and Its Applications in Light and Sound 1	2P6a - SC2: Non-Hermitian Physics and Its Applications in Light and Sound 2 2P6b - SC3: Excitation, Propagation, and Manipulation of Polaritons in 2D Materials 2P6c - SC2: Light-matter Interaction and Optical Field Manipulation in Metasurfaces and Metamaterials 2
Online Room 7	2A7a - SC2&SC3: Cavity Optomechanics 1 2A7b - SC3: Supercontinuum and Frequency Combs: Fundamental Physics and Applications 1	2P7a - SC3: Supercontinuum and Frequency Combs: Fundamental Physics and Applications 2 2P7b - SC2&SC3: Cavity Optomechanics 2
Online Room 8	2A8 - SC3: Organic Photonics 1	2P8a - SC3: Organic Photonics 2 2P8b - Nanophotonics, Biophotonics and Advanced Photonic Materials 2
Online Room 9	2A9a - SC3: Room Temperature Exciton-polariton and Polaritonic Devices 2A9b - Optics Sensor, Optical Network and Others 2	2P9a - FocusSession.SC3: Advanced Photonic Technologies for Spectroscopic Applications 1 & 2 2P9b - SC3: Optofluidics: Fundamentals, Devices, and Applications
Online Room 10	2A10a - SC3: Quantum Information Processing and Devices 2 2A10b - SC2: Bound States in the Continuum and Singular Optics 1	2P10 - SC3: Quantum Entanglement and Quantum Technologies
Online Room 11	2A11a - SC2&SC3: Intelligent Photonics 2A11b - SC3&SC2: Nanoscale Meta-optics 1	2P11a - SC3&SC2: Nanoscale Meta-optics 2 2P11b - SC2: Chiral Photonics and Spin Photonics 2P11c - SC2: Theory and Applications of Spinning Electromagnetic Fields
Online Room 12	2A12a - FocusSession.SC5: Microwave Remote Sensing of Coastal and Marine Environments 2 2A12b - Remote Sensing, Inverse Problems, Imaging, GPR, Radar and Sensing 1	2P12a - SC5: Electromagnetic Sensing and Imaging for Biomedical Applications 2P12b - Inverse Scattering and Imaging 2P12c - SC5: Machine Learning and Deep Learning for Radar Signal Processing and Imaging
Online Room 13	2A13a - FocusSession.SC5: Physical Modeling and Applications in GNSS Reflectometry and other SoOp Observables 2 2A13b - SC5: Remote Sensing of Water and Energy Cycles 1	2P13a - FocusSession.SC5: Physical Modeling and Applications in GNSS Reflectometry and other SoOp Observables 1 2P13b - SC5: Remote Sensing of Water and Energy Cycles 2
Online Room 14	2A14a - SC4: Wide Aperture Antenna/Array 2A14b - SC1: Advances on Applications of Characteristic Modes to Antenna Analysis and Design	2P14a - Antenna Designs, Solutions, Measurements, and Trends for 5G and Beyond 2P14b - Recent Advances in Flexible and Reconfigurable Antennas
Online Room 15	2A15a - SC1: Multiphysics Modeling and Simulation of Advanced Electronic Devices and Integrated Circuits/Structures 2A15b - SC1: Advanced Techniques in Multiphysics Modeling	2P15a - SC1: Advanced Numerical Approches in Computational Electromagnetics 2P15b - SC1&SC3: Modeling, Numerical Simulation and Theory in Optics and Photonics
Online Room 16	2A16 - SC4: Millimeter-Terahertz Wave Sources Technologies and Imaging Applications	2P16a - Millimeter-wave and Terahertz Source and Device 2P16b - THz Technology 2P16c - SC4: Emerging RF and mm-wave ICs for Wireless Sensing and Communication

	April 27 (Wednesday AM)	April 27 (Wednesday PM)
Online Room 1	3A1a - SC3: Superresolution Optical Devices and Systems 3A1b - Integrated Lithium Niobate Photonics	3P1a - SC3: Fiber Sensing Technology and Fiber-based Devices 3P1b - Electromagnetic Radiation Sources Based on Free-electron Beams 3P1c - Integrated and Fiber-based Photonic Circuits and Devices
Online Room 2	3A2a - SC3: Structural Colors 3A2b - SC3: Optical Interconnect Technologies for Datacom and Computercom 1	3P2a - SC3: Optical Interconnect Technologies for Datacom and Computercom 2 3P2b - SC3: Optical Microcavities and Photonic Quasiparticles
Online Room 3	3A3 - SC2&SC3: Organic and Hybrid Optoelectronics 2	3P3a - SC3: Singular Optics: Fundamentals and Applications 3P3b - SC2: Bound States in the Continuum and Singular Optics 2
Online Room 4	3A4a - SC2: Topological Acoustics and Phononics --- Fundamental Concepts and Advanced Developments 1 3A4b - SC2: Topological Metamaterials/Electric Circuits	3P4a - SC2: Topological Acoustics and Phononics --- Fundamental Concepts and Advanced Developments 2 3P4b - SC2&SC3: Topological Polaritons
Online Room 5	3A5a - SC2: Active and Reconfigurable Metasurfaces: Fundamentals and Applications 2 3A5b - SC2: Light-matter Interaction in Photonic/Plasmonic Metastructures 1	3P5a - SC2: Light-matter Interaction in Photonic/Plasmonic Metastructures 2 3P5b - SC2: Advances in Metasurface Holography and Structural-color Printing
Online Room 6	3A6a - SC2: Thermal Metamaterials and Devices 1 3A6b - SC2: Space and Time Varying Metamaterials 1	3P6a - SC2: Thermal Metamaterials and Devices 2 3P6b - SC2: Digital Coding and Programmable Metamaterials 3P6c - SC2: Space and Time Varying Metamaterials 2
Online Room 7	3A7a - SC3: Light Propagation, Transformations and Manipulations 3A7b - SC2: Optics with Twistronics and Polaritonic Nano-optics 1	3P7a - SC2: Electromagnetic Radiation with Charged Particles 3P7b - SC2: Optics with Twistronics and Polaritonic Nano-optics 2
Online Room 8	3A8a - SC2&SC3: Perovskite Photonics and Optoelectronics 3A8b - SC3: Engineering of the Electrical and Optical Properties of Emerging Optoelectronics	3P8a - SC2: Metamaterials/Metasurfaces for EM Wave Manipulations and Applications 3P8b - SC2: Applications of Terahertz Metamaterials in Electromagnetic Devices
Online Room 9	3A9 - SC3: Nonlinear Optics in 2D Materials	3P9a - Nonlinear Optics in Multimode Devices 3P9b - SC3: Light in Space 3P9c - SC3: Optical Technologies for Characterization of Cells and Tissues
Online Room 10	3A10 - SC3: Nonlinear Optics: Fundamentals and Its Applications 1	3P10a - SC3: Nonlinear Optics: Fundamentals and Its Applications 3P10b - SC3: Microwave Photonic Technologies, Systems and Applications
Online Room 11	3A11a - Nanophotonics, Biophotonics and Advanced Photonic Materials 1 3A11b - SC3: Luminescent/Optoelectronic Materials and Devices 1	3P11 - SC3: Luminescent/Optoelectronic Materials and Devices 2
Online Room 12	3A12a - Remote Sensing of Atmosphere, Ocean and Land Using GNSS and Other Sensors 1 3A12b - SC5: Microwave and Infrared Brightness Temperature of Earth Surface	3P12a - Remote Sensing of Atmosphere, Ocean and Land Using GNSS and Other Sensors 2 3P12b - SC2: RCS Reduction Techniques Based on Metamaterials/Metasurfaces
Online Room 13	3A13a - SC5: Advances in Random Medium Scattering Theory and Microwave Remote Sensing 1 3A13b - SC5: Microwave Remote Sensing of the Water Cycle 1	3P13a - SC5: Microwave Remote Sensing of the Water Cycle 2 3P13b - SC5: Advances in Random Medium Scattering Theory and Microwave Remote Sensing 2
Online Room 14	3A14a - SC4: Wideband High Gain Lens Antenna 3A14b - SC4: Novel Beam Steering Antennas and Their Applications	3P14a - SC4: Antennas for Satellite and Cellular Communications 3P14b - SC4: Advanced Antennas Based on Metamaterials and Metasurfaces 3P14c - Microstrip Antennas, Array Antennas, Theory and Radiation
Online Room 15	3A15a - SC1&SC5: Electromagnetic Theory in Geophysics and Interdisciplines 3A15b - SC1: Advances of Numerical Techniques in Computational Electromagnetics 1	3P15a - SC1: Advances of Numerical Techniques in Computational Electromagnetics 2 3P15b - New Constructive Methods for Solving Boundary Value Problems of Electrodynamics and Digital Signal Processing 3P15c - SC1: Progress of the Time-domain Methods and Applications
Online Room 16	3A16a - SC4: Microwave Integrated Passive Circuits and Devices 3A16b - SC4: Novel Frequency-Selective Structures	3P16a - SC1: Advanced Mutiscale and Multiphysics Computational EM Methods 3P16b - SC1: Advances in Computational Methods for EM Scattering and Inverse Scattering 3P16c - Computational Electromagnetics, EMC, and Hybrid Methods