UCMMT 2021

UK-Europe-China Workshop on Millimetre-Waves and Terahertz Technologies
13 - 15 September 2021 - Virtual

Conference Programme

Virtual
Lancaster University, Lancaster, UK
13 – 15 September 2021
wp.lancs.ac.uk/ucmmt2021

Welcome

Dear Colleagues,

On behalf of the Organizing Committee, it is our great pleasure to welcome you to the 14th UK, Europe, China Millimetre Waves and Terahertz Technology Workshop, organized by Lancaster University, UK, with the technical sponsorship of the IEEE Microwave Theory and Techniques Society (MTT-S) and Electron Device Society (EDS).
Following the successful hybrid edition of UCMMT 2020 and the uncertainty of circumstances due to the Covid-19 pandemic, a decision was made earlier this year to hold UCMMT 2021 online. We hope that although virtual, this event will continue the UCMMT well established tradition in bringing together leading scientists from across the world in millimeter waves and Terahertz (THz) technology to foster mutual collaboration and friendship.

The technical program is rich and exciting, including eight renowned scientists as Plenary Speakers from several pivotal areas in millimeter waves and THz technology and a special session on 'Terahertz communications beyond 5G'. Eleven regular sessions and one poster session covering the main themes of millimeter-wave and THz science, from components to sources, antennas, vacuum electronics, instruments and applications, will be the scientific core of the UCMMT 2021. The recipients of the Best Student Paper Awards and Best Student Paper in vacuum electronics Award, kindly sponsored by the IEEE Electron Device Society, will be announced on 15th September, during the closing ceremony.

We are profoundly grateful to all our colleagues that have contributed to the UCMMT 2021 organization, with a special mention for the Technical Programme Committee that did an incredible job in putting together this programme and the International Advisory Board for supporting the event. We wish to thank our Plenary Speakers, all our sponsors and exhibitors for the support and everyone who contributed with their scientific work to the technical quality of this event.

We warmly wish you all an enjoyable and fruitful participation to UCMMT 2021 and to see you all in person in the very next future.

Sincerely,

Rosa Letizia
General Chair
Lancaster University, UK

Steven Gao
General Co-Chair
University of Kent, UK

Organizing Committee

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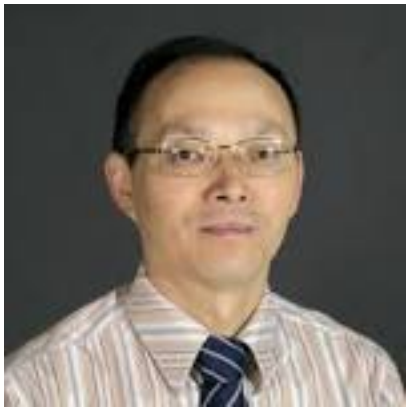
Rosa Letizia
Lancaster University, UK

General Co-Chairs



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Shuang Zhang
University of Hong Kong, HK

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Adrian Cross
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Jinjun Feng
Beijing Vacuum Electronics Research Institute (BVERI), China.

Track C – Solid state technology

Viktor Krozer
Goethe University Frankfurt, Germany

Yong Fan
University of Electronic Science and Technology of China, China

Track D – Astronomy, Earth observation and Satellite applications

Peter Hargrave
Cardiff University, UK

Richard Wylde
Terahertz, UK

Track E – Wireless Communications

Angeliki Alexiou
University of Piraeus, Greece

Kai-Kit Wong
University College London

Track F – Antennas

Akram Alomainy
Queen Mary University of London, UK.

Xiu Yin Zhang
South China University of Technology, Guangzhou, China

Track G – Advanced manufacturing technologies and measurements

Track H – Applications

Xiaobang Shang
NPL, UK.

Hui Wang
STFC, UK

Xuyuan Chen
Vestfold University, Norway

Track I – Imaging

Emma MacPherson
University of Warwick, UK

Deng Bin
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Exhibitors

SILVER

Virginia Diodes Inc. manufactures state-of-the-art test and measurement equipment for mm-wave and THz applications. These products include Vector Network Analyzer, Spectrum Analyzer and Signal Generator Extension Modules that extend the capability of high-performance microwave measurement tools to higher frequencies. VDI's component products include detectors, mixers, frequency multipliers and custom systems for reliable operation at frequencies between 50 GHz and 3 THz. VDI components include in-house fabricated GaAs Schottky diodes and Microelectronic devices;
Please, more info at www.vadiodes.com.

MRK is a private company, founded in 2010 in Chengdu, PRC.
The key mission is the development of Terahertz technology and solutions.
Now we have two biz lines
One is the distribution product. Our partners include Anteral, Menlo System, Thomas Keating, Swissto12 and many others.
The other one is mmW&THz MMICs/Modules, which 100% China Made.
Please, more info at www.mkr-r.com

SILVER

SC THz Communication LTD

ChengDu FES electronics technology ltd. (FES) focus on high-end testing and services, providing high-performance test services and system solutions. Since its inception, has been focused on electronic test equipment import and export agents, application promotion, as well as radio equipment solutions and related test system integration.
Company's standard products include:
R&S electronic testing instruments;
VIAVI Optical Laboratory and Manufacturing Test Platform ;
Wideband signal generation with independent intellectual property rights and electromagnetic environment simulation signal generator and system;
Company's system products include:
Imaging, remote sensing, communications and test-based terahertz millimeter wave applications;
Near field, far field, tightening field millimeter wave antenna test;
Chip and material characteristic testing and detection systems;
Company’s service products include: High-end test equipment repair services ; Training services for electronic test instruments ; Testing solutions and testing services for R&D
FES’s vision is to establish a first-class of a full range of partners in the domestic electronic measurement field . With a number of manufacturers in Europe and the United States working closely together, FES actively carries out independent development and test integration in the field of electronic measurement, provides domestic customers with "high-quality, efficient, highly professional" products and services.
Please, more info at http://www.fes-tech.com

BRONZE

Teratech® Components Ltd

http://www.teratechcomponents.com/TTC/

众为创通

Sichuan ALLWIN Technology Co., Ltd. was established in July 2016 with registered capital of 10 million yuan. It is located in No. 898 Baicao Road, Chengdu High-tech Zone with an official area more than 2000 square meters. The company specializes in the development, production and technical services of terahertz (THz) core chips and modules, terahertz high-speed wireless communication system and scattering communication system.

The company has independently applied for 41 Chinese patents in terahertz and millimeter wave fields. Till now, 18 national invention patents and 10 utility model patents has authorized in China. In addition, the company jointly established the Terahertz-millimeter wave technology and application laboratory with the University of Electronic Science and Technology of China (UESTC).

The company has a professional technical and marketing team, with 25% of master's and doctoral degrees, 70% of undergraduates and above. The core staff of the management team have the experience of senior managers. The company is equipped with advanced R&D, production and testing equipment. The company products, frequency range covers DC-330GHz, focusing on terahertz core chip technology, over-the-horizon scattering emergency communication technology, 5G and 6G communication technology.
Please, more info at http://www.allwinsc.com

No-Profit Research

UKRI/EPSRC Research Cluster on "RF, Microwave and Millimetre Wave Device Engineering for Wireless Connectivity toward 6G" includes the grant holders from leading UK universities of the Radio Frequency (RF) and Microwave (MW) Device Engineering for a Prosperous Nation call funded by Engineering and Physical Science Research Council (UK) call. EPSRC invested £5 million towards cutting edge research in RF devices and systems from microwave to sub-THz frequencies to build a community network for future co-created collaborations with the industrial research community.

Members of the cluster

University of Sheffield
Queens University Belfast
University of Lancaster
University of Glasgow
University of Birmingham
University of Strathclyde
University of Liverpool
Queen Mary University of London
University of Kent
University of Manchester

http://wp.lancs.ac.uk/epsrcrffor6gcluster/

BEST STUDENT PAPER AWARDS

Best student paper awards will be awarded in two categories, oral and poster.

The awards recognize the best papers authored primarily by a student, first author, and presented by the student at the UCMMT 2021.

Two awards (first and second) to students first-author of oral papers and certificates for all individual authors will be given.
One award student first-author of best poster and certificates for all individual authors will be given.

All student papers submitted to the UCMMT2021 are eligible.

The award is open to Bachelor, Master, or PhD students in March 2021.

Students must be registered to UCMMT 2021

The Awards Committee will judge the papers primarily on originality, significance, technical soundness, presentation.

Best student paper awards
Best oral
Runner-up best oral
Best poster

Special EDS Best Student Paper Award in vacuum electronics

A special best student paper award offered by IEEE Electron Devices Society will be selected among the papers in the Track Vacuum Electronics.
The award is £300.

INFORMATION FOR ATTENDEES – HOW TO ACCESS UCMMT 2021 ON WHOVA

Every registered attendee should receive an invitation letter from the Whova conference platform. For the first visit, please click "Sign up". You will have to sign up for a Whova profile if you do not have one. To sign-in, please use the same email address that you used for your registration.
Then, start filling your profile with the information you are happy to share. You should at this point be able to view the UCMMT 2021 event. If you have issues in finding the right event page, you can use the search event bar and type 'UCMMT 2021'. This will take you to the conference page where you need to insert the event code emailed to you to gain access.

We suggest you use the Desktop Whova app for a better experience, however all the Whova features are also available on the mobile app.
To pose questions during the sessions, please use the Q&A chat feature of Whova. Alternatively, please use the 'Raise your hand' feature in Zoom and the webinar Host will allow you to unmute yourself. Please, do not use the chat feature of Zoom.
Please, see further useful information at the links below:

- Guide for Whova attendees – https://whova.com/pages/whova-app-user-guide/
- Frequently Asked Questions

Instructions for Oral Presenters, Panellists and Session Chairs

UCMMT 2021 on Whova will use Zoom as streaming platform and presentations will be delivered as webinars. If you are a speaker of a regular or special session and you are not familiar with Zoom, please sign up to Zoom and familiarise with the software beforehand. You will receive an invitation via e-mail which gives you access as a 'Panelist' to the relevant session. As 'Panellists' in Zoom you will be able to share your screen, mute/unmute yourself and turn on/off your camera. Please so not use the link shown on the Whova agenda. The link on Whova is only for attendees.
Please note, in the case of consecutive sessions, where no break is scheduled due to time constraints, there will be one single webinar link carrying on from one session to the other. We encourage Oral Presenters, Panellists and Session Chairs to connect 10 minutes before the start of the streaming.

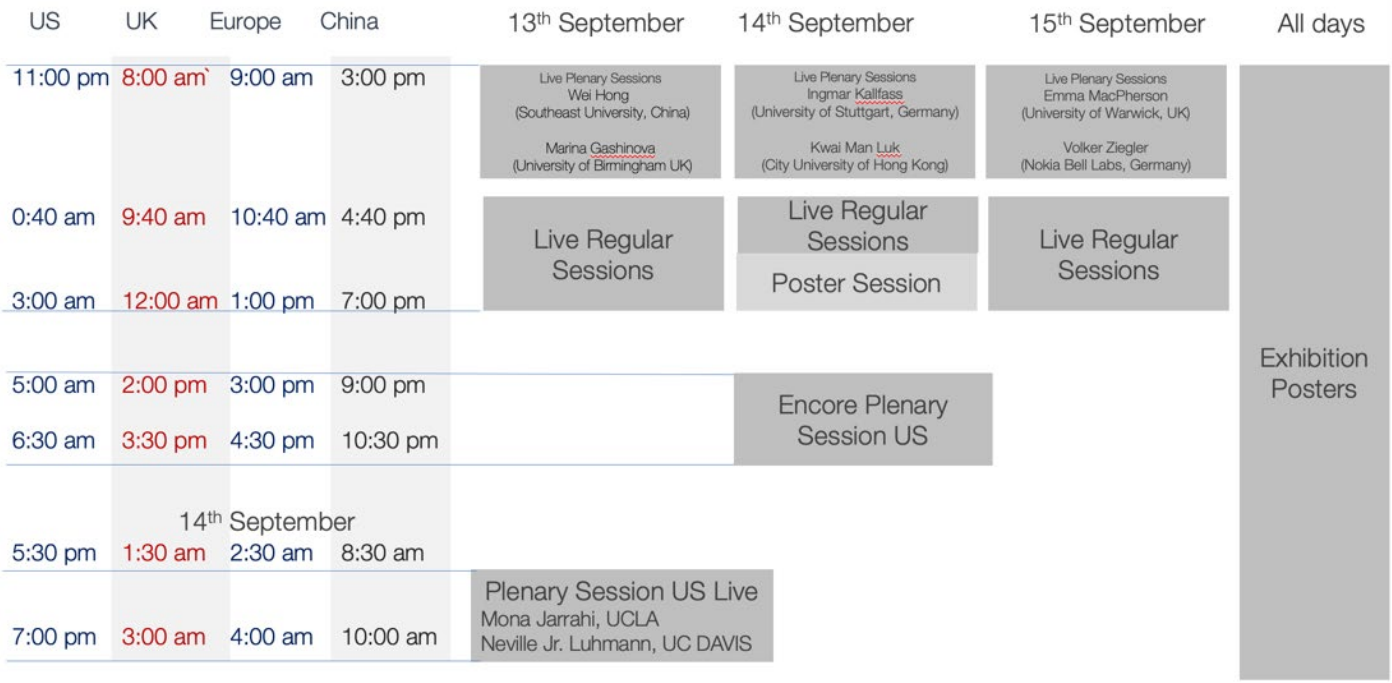
- **Presenters, panellists and Session Chairs will receive an invitation link from Zoom to the relevant session. Please join directly via this link.**
- Presenters should arrive and be ready 10 minutes before the start of the session and notify the Session Chair.

- Presenters will be presenting their work through "Screen share" of their slides in Zoom.
- Session Chairs will introduce the speakers and moderate the questions & answers session after each talk. Please refer to the Agenda for the timetable of your session. The duration of invited oral presentations is 25 minutes, including 20-minute presentation and 5 minutes for questions and answers. For regular oral presentations, the duration is 15 minutes, including a 12-minute presentation and 3 minutes for questions and answers.
- The Session Chair will invite questions through the Q&A feature of Whova (please discourage the use of the chat in Zoom for this purpose) or the 'Raise hand' feature of Zoom. In the latter case, the Host will be able to unmute the attendee.

As a speaker, you will likely have your presentation in full screen mode. You may find useful to download the Whova app on your mobile phone to have a view of the chat during the Q&A part of your presentation. In all cases, the Session Chair will act as a moderator and will be able to read the questions to you. The Q&A area in Whova will be saved for each session to allow speakers to answer questions even after the meeting has ended.
Please see further useful information at the links below:
Guide for speakers – https://whova.com/pages/whova-speaker-guide/

Instructions for Poster Presenters
Poster presenters have received their personal poster profile link to upload their poster presentation on Whova. Poster presenters are expected to be online ready to interact with the audience for the whole duration of the poster session on 14th September.

PROGRAMME AT A GLANCE



13 September 2021

8:00 - 8:10 am / 15:00 – 15:10 *

OPENING SESSION

Chairs

Rosa Letizia (Lancaster University)

Steven Gao (University of Kent)

8:10 - 9:40 am / 15:10 – 16:40

PLENARY Session 1

Chair Rosa Letizia (Lancaster University)

Wei Hong

(Southeast University, Nanjing, China)

Millimeter Wave ICs and Systems for 5G and Beyond Wireless Communications

Marina Gashinova

(University of Birmingham UK)

Sub-THz automotive radar research and trends

*(all time UK GMT+1/China (GMT+8)

13 September 2021

9:50 - 11:00 am / 16:50 - 18:00

ORAL Session: Session 3A

Novel Millimeter wave and THz Antenna Solutions

Chair Kaixue Ma (Tianjin University, China)

09:50 - 10:15
16:50 - 17:15

A Dual-polarized Fabry-Pérot Antenna for millimeter-wave application - Invited

Qingyi Guo, Wenlong He (College of Electronics and Information Engineering, Shenzhen University, Shenzhen 518060, China)

Hang Wong (State Key Laboratory of Terahertz and Millimeter Waves, City University of Hong Kong, Hong Kong, China)

10:15 - 10:30
17:15 - 17:30

Gain and Radiation Efficiency Enhance Terahertz On-Chip Antenna Based on 0.13-µm SiGe BiCMOS

Yuyuan Fan (School of Microelectronics,Tianjin University, China)

Sheng Xie, Yu Luo, Kaixue Ma (Tianjin Key Laboratory of Imaging and Sensing Microelectronic Technology, School of Microelectronics, China)

10:30 - 10:45
17:30 - 17:15

A Millimeter-Wave Circulary Polarized Antenna for 5G Applications

Xue Ren, Qing-Yi Guo, Wenlong He (College of Electronics and Information Engineering, Shenzhen University, China)

Shaowei Liao, Quan Xue (School of Electronic and Information Engineering, South China University of Technology, China)

Hang Wong (State Key Laboratory of Terahertz and Millimeter Waves, City Univerisity of Hong Kong, China)

10:45 - 11:00
17:45 - 18:00

A W-band Broadband Cassegrain Antenna with Polarisation and OAM Multiplexing

Weihao Qi, Xianling Liang, Lei Xiang, Yanchang Gao (Shanghai Jiao Tong University, China)

13 September 2021

9:50 - 11:00 am / 16:50 - 18:00

ORAL Session: Session 3B

Broadband Solid state device

Chair Viktor Krozer (Goethe University of Frankfurt, Germany)

09:50 - 10:15
16:50 - 17:15

Broadband On-Board Impedance Matching Method for Ka- band Amplifier Circuit - Invited

Xiaoning Huang, Jincai Wen (Hangzhou Dianzi University, China)

10:15 - 10:30
17:15 - 17:30

Design of Broadband Low-Noise Amplifier in 45-nm SOI Technology

Guanqin Guo, Cheng Zhang, Wenlong He (College of Electronics and Information Engineering, Shenzhen University, China)

Xi Zhu (School of Electrical and Data Engineering, FEIT, University of Technology Sydney, Australia)

10:30 - 10:45
17:30 - 17:15

Design of 220GHz bandpass filter based on waveguide resonator

Tao Zhang, Zhongqian Niu, Bo Zhang(University of Electronic Science and Technology of China, China China)

10:45 - 11:00
17:45 - 18:00

Recent Advance in Adjoint EM Sensitivity Analysis for Fast Frequency Sweep

Wei Liu, Feng (Tianjin University, China)

Jianan Zhang, Qi-Jun Zhang (Carleton University, Canada)

13 September 2021

9:50 - 11:00 am / 16:50 - 18:00

ORAL Session: Session 3C

Slow Wave Structures For Vacuum Electronics Devices

Chair Jinjun Feng (Beijing Vacuum Electronics Research Institute (BVERI), China)

09:50 - 10:15
16:50 - 17:15

Design and Fabrication of Self-Assembled Metal Helices for Millimeter-through-THz Traveling Wave Tube Amplifiers - Invited

Divya Prakash, Francesca Cavallo (University of New Mexico, United States)
Marcos Martinez Argudo, Daniel W. van der Weide (University of Wisconsin-Madison, United States)

10:15 - 10:30
17:15 - 17:30

Modeling of Self-Winding Helices for Sub-Millimeter Traveling Wave Tube Amplifiers

Marcos Martinez (UW Madison, United States)
Divya Prakash, Francesca Cavallo (University of New Mexico, United States)
Daniel van der Weide (University of Wisconsin-Madison, United States)

10:30 - 10:45
17:30 - 17:15

The Planar Microstrip Slow-Wave Structure for a V-band Dual-Sheet-Beam Traveling-Wave Tube

Roman Torgashov, Nikita Ryskin (Saratov Branch of Kotel'nikov Institute of Radio-engineering and Electronics, Russia)

10:45 - 11:00
17:45 - 18:00

Tolerance Analysis of Double Corrugated Waveguide for D- band TWT

Jeevan M. Rao, Rupa Basu, Rosa Letizia, Claudio Paoloni (Lancaster University, UK)

13 September 2021

11:00 - 12:00 am/ 18:00 - 19:00

ORAL Session: Session 4A

Solid State Devices

Chair Nuno Borges Carvalho (Universidade de Aveiro, Portugal)

11:00 - 11:15
18:00 - 18:15

Modeling Techniques for GaN FinFET

Haiyan Lu (Southeast university, China)

11:15 - 11:30
18:15 - 18:30

A Broadband 3 dB Directional Coupler With Ultra-Low Amplitude Imbalance

Ming Guan, Bo Zhang (University of Electronic Science and Technology of China, China)

11:30 - 11:45
18:30 - 18:45

Recent advances in space mapping technique modeling GaN HEMT

Jinyuan Cui, Feng (Tianjin University, China) Zhihao Zhao (NXP Semiconductors, Canada) Wenyuan Liu (Shaanxi University of Sci& Tec, China) Weicong Na (Beijing University of Technology, China) Qi-Jun Zhang (Carleton University, Canada)

11:45 - 12:00
18:45 - 19:00

The Design of 220GHz Four-way Power Divider Based on E-plane Directional Waveguide Hybrid

Yang Liu, Bo Zhang (University of Electronic Science and Technology of China, China)

13 September 2021

11:00 - 12:00 am/ 18:00 - 19:00

ORAL Session: Session 4B

Imaging

Chair Giorgio Savini (UCL, UK)

11:00 - 11:15
18:00 - 18:15

Advanced Image Processing for Rapid Threat Object Identification in Terahertz Images

Ashlesha Jagdale (BITS, Goa, India)

Nirmala Devi (CSIR, India)

A Mercy Latha (CSIR-CEERI, India)

11:15 - 11:30
18:15 - 18:30

Motion Compensation Algorithm Based on Entropy- Minimization for Terahertz SAR

Jin Li, Qianrong Ye, Junchuan Guo,Rui Min, Yuliang Li (University of Electronic Science and Technology of China, China)

11:30 - 11:45
18:30 - 18:45

Concealed Object Detection For Active Millimeter Wave Imaging Based CGAN Data Augmentation

Lei Fan, Qi Yang, Bin Deng, Yang Zeng, Wang Hongqiang (the College of Electronic Science, National University of Defense Technology, China)

11:45 - 12:00
18:45 - 19:00

Lunar surface radiation brightness temperature simulation for FY-4 lunar calibration

Siyuan Zhou (Beijing Institute of Technology, China)

Hongyu Xu (China North Industries Corporation, China)

Xianchen Zhang (Beijing Institute of Technology, China)

Weidong Hu (Beijing Institute of Technology, China)

13 September 2021

11:00 - 12:00 am / 18:00 - 19:00

ORAL Session: Session 4C

Millimeter-wave Traveling Wave Tubes

Chair Yubin Gong (UESTC, China)

11:00 - 11:15
18:00 - 18:15

Simulations of pseudospark discharge and its generated beam to drive a THz EIO

Liang Zhang, Alan Phelps, Kevin Ronald, Adrian Cross (University of Strathclyde, UK)

Jin Zhang, Xiaodong Chen (Queen Mary University of London, UK)

Jie Xie (University of Electronic Science & Technology of China, China)

11:15 - 11:30
18:15 - 18:30

Design Study of a Sub-THz Traveling Wave Tube With a Converging Sheet Electron Beam

Andrey Ploskikh, Vladimir Titov (Saratov State University, Russia)

Nikita Ryskin (Saratov Branch, Kotelnikov Institute of Radio Engineering and Electronics RAS, Russia)

11:30 - 11:45
18:30 - 18:45

Beam-Wave Resynchronization Method of the Non-Periodic Slow-Wave Structure for TWTs

Zheng Wen, Jirun Luo (Aerospace Information Research Institute, Chinese Academy Of Sciences, China)

11:45 - 12:00
18:45 - 19:00

Analysis of the Bottom Metal/Dielectric Supporting Plane in Meander Line Slow Wave Structures for Millimetre Wave Traveling Wave Tubes

Juan Socuellamos, Rosa Letizia, Claudio Paoloni (Lancaster University, UK) Roberto Dionisio (European Space Agency (ESA), Netherlands)

14 September 2021

8:30 – 10:00 am China Time (GMT+8)

SPECIAL PLENARY SESSION US

Chair Claudio Paoloni (Lancaster University)

Mona Jarrahi

(UCLA (University California Los Angeles), US)

Enhanced Terahertz Emission and Detection through Plasmonic Nanocavities

Neville C. Luhmann Jr

(University of California Davis, US)

Frontiers in Millimeter-Wave to THz Technology

The Special Plenary Session will be broadcasted at 14:00 UK (GMT+1) / 15:00 EU (GMT+2)

14 September 2021

8:00 - 9:45 am / 15:00 - 16:45

PLENARY Session 2

Steven Gao (University of Kent)

Ingmar Kallfass

(University of Stuttgart, Germany)

A Cubesat Payload for the In-Orbit Verification of an E/W-Band Satellite Communication Link

Kwai Man Luk

(City University of Hong Kong)

Designs of Arrays, Reflectarrays and Transmitarrays based on ME Dipole

14 September 2021

9:50 - 11:00 am / 16:50 - 18:00

ORAL Session: Session 7A

Metamaterials

Chair Shuang Zhang (University of Hong Kong, HK)

09:40 - 10:05
16:40 - 17:05

METATEL: Ongoing work on a meta-material sub-THz telescope for earth observing - Invited

Giorgio Savini (UCL (University College London), UK)
Pete Hargrave, Peter Ade, Alexey Shitvov, Carole Tucker, Ian Walker (Cardiff University, UK)
Jin Zhang (Anglia Ruskin University, UK)
Giampaolo Pisano (University of Rome "La Sapienza", Italy)
Janet Charlton (JCR Systems, UK)

10:05 - 10:20
17:05 - 17:20

Design of WR5 Waveguide Bandpass Filter using Oversized Spherical Resonators

Yi Zhang, Jun Xu (University of Electronic Science and Technology of China, China) Xiaobang Shang (National Physical Laboratory, UK)

10:20 - 10:35
17:20 - 17:35

Inverse Design of a Terahertz Metasurface with Split Ring Resonator Based on Deep Learning

Jun Zhou, Jiajia Qian, Zhenzhen Ge, Shuting Wu (University of Science and Technology of China, China)

10:35 - 10:50
17:35 - 17:50

Broadband Characterisation of Interior Materials and Surface Scattering using Terahertz Time-Domain Spectroscopy

Emily Adams, Toby Attwood, Suzanna Freer, Stephen M. Hanham, Costas Constantinou, Miguel Navarro-Cia (University of Birmingham, UK)
Fangjing Hu (Huazhong University of Science and Technology, China) Leyre Azpilicueta (Tecnologico de Monterrey, Mexico)

14 September 2021

9:50 - 11:00 am / 16:50 - 18:00

ORAL Session: Session 7B

Multiband and High Gain Antennas for 5G & Beyond

Chair Akram Alomainy (Queen Mary University of London, UK)

09:40 - 10:05
16:40 - 17:05

A Wideband Dual-Polarized Filtering Antenna for Base Station Applications - Invited

Lehu Wen, Steven Gao (University of Kent, UK)
Xue-Xia Yang (Shanghai University, China) Wei
Hu (Xidian University, China)

10:05 - 10:20
17:05 - 17:20

A Dielectric Resonator Antenna Based on SISL With High Gain for Millimeter-Wave Applications

Doudou Song, Ningning Yan, Yu Luo, Kaixue Ma (Tianjin University,School of Microelectronics, China)

10:20 - 10:35
17:20 - 17:35

A Lightweight Circularly-Polarized Waveguide Slot Antenna for K Band Satellite Communications

Yanbin Luo, Wei Wang , Ming Chen , Zhi Zheng, Yuyang Zheng, Zhijian Yang (The 38th Research Institute of China Electronics Technology Group Corporation, China)

10:35 - 10:50
17:35 - 17:50

Ku/K/Ka Tri-Band Shared-Aperture Continuous Transverse Stub Array Antenna

Qingchun You, Yi Wang (University of Birmingham, UK)
Jifu Huang (Ningbo University, China)

14 September 2021

9:50 - 11:00 am / 16:50 - 18:00

ORAL Session: Session 7C

High power vacuum electronic devices

Chair Liang Zhang (Strathclyde University, UK)

09:40 - 9:55
16:40 - 16:55

Computational study of overmoded, with diameter to wavelength ratio ≈ 8, slow-wave structure (SWS) of relativistic backward-wave oscillator (BWO) operating in E-band frequency range

Andrey Andreev (University of New Mexico, United States)

Liangjie Bi (University of Electronic Science and Technology of China, China)

Ahmed Elfrgani, Edl Schamiloglu (University of New Mexico, United States)

09:55 - 10:10
16:55 - 17:10

Mode Competition and Radial Spread Analysis for Novel Double Beam Universal Electron Gun in in Terahertz Gyrotron

Anshu Singh (IIT BHU, Varanasi, India)

10:10 - 10:25
17:10 - 17:25

Design of Dual-Band High-Power Backward Wave Oscillator using Double Staggered Grating and Pseudospark-Sourced Sheet Beam

Jin Zhang, Yasir Alfadhl, Xiaodong Chen (Queen Mary University of London, UK)

Liang Zhang, Adrian Cross (University of Strathclyde, UK)

10:25 - 10:50
17:25 - 17:50

Updates on the Development of MW-level Ka-band Gyroklystron - Invited

Liang Zhang (University of Strathclyde, UK)

Li Wang (University of Electronic Science & Technology of China, China)

Laurence Nix (University of Strathclyde, UK)

Wenlong He (Shenzhen University, China)

Adrian Cross (University of Strathclyde, UK)

14 September 2021

10:50 - 12:00 am / 17:50 - 19:00

Poster session: Session 8

Chairs Chao Shu (Queen Mary University of London, UK)
Purushothaman Narasimhan (Lancaster University, UK)

Mutual Coupling on Axial Ratio of Circularly Polarized Antenna with Broadband Feed Network

Bo Liu, Simin Song, Xiaoming Chen (Xi'an Jiaotong University, China)

A Novel Slow-wave Structure for 0.22THz TWT

Yi Jiang, Wenqiang Lei (IAE, CAEP, China)

Synthesis Technology of Shaped Reflector

Shang Yang, Tianyang Chen, Junsheng Yu, Yuan Yao(Beijing University of Posts and Telecommunications, China); Xiaodong Chen (Queen Marry University of London, UK)

Pattern Synthesis Method Based on Gaussian Beam Mode Analysis

Zhuhang Gong, Tianyang Chen, Junsheng Yu, Yuan Yao(Beijing University of Posts and Telecommunications, China); Xiaodong Chen (Queen Marry University of London, UK)

Ka-band Rectenna With Enhanced Power Handling Capability Using Double-port Horn Antenna

Fei Cheng (Sichuan University, China);Chao Gu (Queens University of Belfast, China);Kama Huang (Sichuan University, China)

A Diplexer for Terahertz Full-Duplex Communication Systems

Chuanqi Qiao, Dingchengying Xin, Zhongqian Niu, Bo Zhang (University Of Electronic Science And Technology Of China, China)

Triple-band Millimeter Wave MIMO Antenna with High Isolation Based on Liquid Crystal Polymer

Chengzhu Du, Ruohui Wang (Shanghai University of Electric Power, China

A Bandpass Substrate Integrated Waveguide Filter Mix-loaded with Multiple DGS

Yihang Hu, Jiayin Lou, Chen, Wenkai Cai, Jincai Wen (Hangzhou Dianzi university, China)

Preliminary Design of Reentrant Square Cavity for EIK Application

Che Xu (University of Electronic Science and Technology of China, China); Claudio Paoloni (Lancaster University, UK);Lin Meng (University of Electronic Science and Technology of China, China)

0.395 THz Surface Wave Oscillator for DNP-NMR Applications

Amy Maclachlan, Craig Robertson, Adrian Cross, Alan Phelps (University of Strathclyde, UK)

Wideband Dual-Circular-Polarization Antenna based on the Grooved- Wall Horn Antenna for Millimeter-Wave Wireless Communications

Chao Shu (Queen Mary University of London, UK);Yuan Yao (Beijing University of Posts and Telecommunications, China);Yasir Alfadhl, Xiaodong Chen (Queen Mary University of London, UK)

Design of High Performance Terahertz Tri-reflector CATR with Ultra- Large Aperture

Zhi Li, Yuan Yao, Tianyang Chen, Xiaohe Cheng,Junsheng Yu(School of Electronic Engineering, Beijing University of Posts and Telecommunications, China); Xiaodong Chen (School of Electronic Engineering and Computer Science, Queen Mary, University of London, UK)

A 32-GHz Broadband Mm-wave Power Amplifier in 45-nm SOI Technology

Cheng Zhang, Guanqin Guo, Wenlong He(College of Electronics and Information Engineering, Shenzhen University, China); Xi Zhu (School of Electrical and Data Engineering, FEIT, University of Technology Sydney, Australia)

Design And Research Of 0.104THz Sheet-Beam Extended Interaction Oscillator

Tianzhong Zhang,Jie Qing (the Cooperative Innovation Center of Terahertz Science University of Electronic Science and Technology of China, China)

A Novel Mode Composite Transmission Line based on SSPPs and HMCSIW

Yedi Zhou, Kaijun Song, Qian Li, Yujian Cheng,Yong Fan (University of Electronic Science and Technology of China, China)

Design of Cylindrical Conformal Liquid Crystal Phased Array Antenna

Chao Tianming Bai, Di J i ang, Kai Zhu, Yuxin L i u , Tianliang Zhang (University of Electronic Science and Technology of China, China)

Investigation of Gap Waveguide-based Slow Wave Structure for Millimeter Wave Travelling Wave Tubes

Amira Zied Abozied, Rosa Letizia (Lancaster University, UK)

Preliminary Analysis of a Folded Waveguide Slow-Wave Structure for 160GHz Traveling Wave Tube Amplifier

Surya Prasath C, Ipsit Ray, Matheshwara A. S . , Richards Joe Stanislaus (Vellore Institute of Technology Chennai, India)

Electrically Triggered Tunable Terahertz Modulator Based on VO2 Hybrid Metasurface

Jiajia Qian, Jun Zhou, Zhenzhen Ge,Shuting Wu (University of Science and Technology of China, China)

Miniaturized Folded Antenna with Improved Matching Characteristic for mm-wave Detections

Saad Muttlak (The University of Manchester, UK);Mohammad Reza Sadeghi (Advanced Hall Sensor Ltd, UK);Kawa Ian (Integrated Compound Semiconductor Ltd, UK);Mohamed Missous (The University of Manchester, UK)

Study of Injection Locking of a Gyrotron by Using the Modified Quasilinear Theory

Nataliia Grigorieva (Saratov State University, Russia);Nikita Ryskin (Saratov Branch, Institute of Radio Engineering and Electronics RAS, Russia)

Design of Broadband Circularly Polarized Metasurface Antenna Based on Dual-pentagonal Units

Qiang Peng, Zhongliang Lu, Miao Liu, Chao Liao, Xiangjun Tan, Qian Song (Jiangxi University of Science and Technology, China)

Design Of A Terahertz Phase Shifter Based On Liquid Crystal

Kai Zhu, Di Jiang Tianming Bai, Weiyi Zhang, Tianliang Zhang (University of Electronic Science and Technology of China, China)

CMOS Integrated FET-based Detectors for Radiation from 0.7-3.6THz

Min Liu, Li-Yuan Liu, Jian Liu, Nan-Jian Wu, (Institute of Semiconductors, Chinese Academy of Sciences, China)

Research on electronically controlled planar reflectarray antenna based on liquid crystal material

Yuan Du, Tianliang Zhang, Di Jiang, Yin Jin, Yiheng Zhang, Lijun Feng (University of Electronic Science and Technology of China, China)

A Dual-frequency Dual-beam Antenna Based on Metasurface

Jie Luo, Liping Han, Zhen Zhao, Wenmei Zhang (School of Physics and Electronic Engineering, Shanxi University, China)

A High Gain Differential-Feed Stacked-Patch Antenna Based on SISL for 5G Millimeter-Wave Applications

Jiaming Hao, Ningning Yan, Yu Luo, Kaixue Ma (School of Microelectronics, Tianjin University, China)

High-Speed Terahertz Modulation Based on the Control of Metamaterial Mode to Waveguide Mode

Yuncheng Zhao (The 54th Research Institute of China Electronics Technology Group Corporation, China); Yaxin Zhang (Terahertz Science Cooperative Innovation Center, University of Electronic Science and Technology of China, China); Shixiong Liang (National Key Laboratory of Application Specific Integrated Circuit, Hebei Semiconductor Research Institute, China);Shen Qiao, Ziqiang Yang (Terahertz Science Cooperative Innovation Center, University of Electronic Science and Technology of China, China);Zhisong Hao, Libin Jiao (The 54th Research Institute of China Electronics Technology Group Corporation, China)

15 September 2021

8:00 - 9:30 am / 15:00 - 16:30

PLENARY Session 3

Chair Bo Zhang (UESTC, China)

Emma MacPherson

(University of Warwick, UK)

Advancing in vivo THz imaging

Volker Ziegler

(6G Flagship Nokia Bell Labs, Germany)

6G technologies and architecture

15 September 2021

9:40 - 10:50 am / 16:40 - 17:50

ORAL Session: Session 10A

Advanced Materials and Fabrication Techniques for Mm-wave Antennas

Chair Xiaobang Shang (NPL, UK)

09:40 - 10:05
16:40 - 17:05

Millimetre wave Filtering Antenna Using Gap Waveguide with Half-Wall Half-Pin Structures – Invited

Jiafeng Zhou (University of Liverpool, UK)

10:05 - 10:20
17:05 - 17:20

D-Band Antenna-Filter Integration Using Metal 3D Printing

Chao Gu (Queen's University Belfast, UK)Fei Cheng (Sichuan University, China)Steven Gao (University of Kent, UK)

10:20 - 10:35
17:20 - 17:35

Miniaturized reflective phase shifter based on liquid crystal

Jin Zhang, Yin Jin, Tianliang Zhang, Di Jiang, Yuan Du, Xuan Shao, Lijun Feng (University of Electronic Science and Technology of China, China)

10:35 - 10:50
17:35 - 17:50

A High-Efficiency 35 GHz Circular-Polarized Rectenna with Rotating

Yuheng Yan, Xianqi Lin, Zhang Wen

(UESTC, China

15 September 2021

9:40 - 10:50 am / 16:40 - 17:50

ORAL Session: Session 10B

Wireless Communications

Chair Angeliki Alexiou (University of Piraeus, Greece)

09:40 - 10:05
16:40 - 17:05

3D Imaging Algorithm for Non-Uniform Scanning 1D MIMO Array

Guilin Deng, Yang Zeng, Qi Yang, Zhaoyang Ma, Bin Deng (National University of Defense Technology, China)

10:05 - 10:20
17:05 - 17:20

A 220-GHz-Band 31.2-Gbps Dual-Carrier Real-Time Wireless Link Using 64-QAM Modulation

Feng Yinian, Zhang Bo, Qiao Chuanqi, Dai Bingli (UESTC, China)

10:20 - 10:35
17:20 - 17:35

Graphene-based External Optoelectronic Terahertz Modulators for High Speed Wireless Communications

Abdullah Zaman (Lancaster University, UK)
Nikita W. Almond (University of Cambridge, UK)
Yuezhen Lu, Xavier Romain Decio Alves de Lima, Hungyen Lin (University of Lancaster, UK)
Oliver Burton, Jack Alexander-Webber, Stephan Hofmann,Thomas Mitchell, Jonathan D P. Griffiths, Harvey E Beere, David A Ritchie (University of Cambridge, UK)
Riccardo Degl'innocenti (University of Lancaster, UK)

10:35 - 10:50
17:35 - 17:50

1080P HD Video Transmission using RTD Transmitter - Invited

Jue Wang, Abdullah Al-Khalidi (University of Glasgow, UK) Sean Ahearne (Dell EMC, Ireland)
Edward Wasige (University of Glasgow, UK)

15 September 2021

9:40 - 10:50 am / 16:40 - 17:50

Special Session Terahertz communications beyond 5G

Chair Claudio Paoloni (Lancaster University, UK)

10:50	17:50	Viktor Krozer H2020 ULTRAWAVE Goethe University of Frankfurt, Germany
11:00	18:00	Angeliki Alexiou ARIADNE- A Synthesis of 3 Critical 6G Enablers University of Piraeus, Greece
11:10	18:10	Joachim Oberhammer H2020 CartTera2 KTH Royal Institute of Technology, Sweden
11:20	18:20	Haiming Wang 6G in China Southeast University, China
11:30	18:30	Panel Session

Moderator Claudio Paoloni (Lancaster University)

Panelists

Viktor Krozer Goethe University Frankfurt, Germany

Angeliki Alexiou University of Piraeus, Greece

Joachim Oberhammer, KHT, Sweden

Haiming Wang, Southeast University, China

Maziar Nekovee, University of Sussex, UK

Volker Ziegler, 6G Flagship Nokia Bell Labs, Germany

15 September 2021

10:50 - 11:50 am / 17:50 - 18:50

ORAL Session: Session 11

Solid State Devices 2

Chair Byron Alderman (Rutherford Appleton Laboratory, UK)

10:50 - 11:15
17:50 - 18:15

170 GHz Passive Tripler Based on Schottky Barrier Diodes Zhongqian Niu, Bingli Dai, Bo Zhang, Yong Fan (University of Electronic Science and Technology of China, China)

11:15 - 11:30
18:15 - 18:30

A Ka-band 2-Stage Transformer Coupled Power Amplifier in 0.13µm SiGe BiCMOS Technology
Ling Li (Southeast University, China) Kenan Xie (Tianjin University, China)
Tongxuan Zhou (Southeast University, China) Haitang Dong (Tianjin University, China)
Hao Zhang (Nanjing Research Institute of Electronics Technology, China)
Keping Wang (Tianjin University, China)

11:30 - 11:50
18:30 -18:50

A 108 GHz terahertz Modulator Based on an L-shaped metal strip
Dianyuan Ping, Sen Gong, Yaxin Zhang (University of Electronic Science and Technology of China, China)
Shixiong Liang (Hebei Semiconductor Research Institute Shijiazhuang, China)

15 September 2021

11:50 - 12:00 am / 18:50 - 19:00

Best student paper award ceremony

Chairs

Alan Phelps
Strathclyde University, UK

Xue-Xia Yang
Shangai University, China

UCMMT2022 announcement and final remarks

Chair Rosa Letizia (Lancaster University, UK)

Have a great UCMMT 2021!

The UCMMT 2021 Organizing Committee