ICEAA - IEEE APWC 26

International Conference on Electromagnetics in Advanced Applications

IEEE-APS Topical Conference on Antennas and Propagation in Wireless Communications

SEPTEMBER 14-18, 2026
TOYAMA, JAPAN


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ICEAA - IEEE APWC

SEPTEMBER 14-18, 2026
TOYAMA, JAPAN

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welcome to ICEAA – IEEE APWC 2026

On behalf of the Organizing, Steering, Scientific, and Technical Program Committees, we are delighted to invite you to the 2026 edition of ICEAA and IEEE-APWC, taking place in Toyama, Japan, from September 14–18, 2026.

Toyama was selected as the venue city of ICEAA – IEEE APWC 2026 for its exceptional charm: nestled between the Sea of Japan and the Northern Japanese Alps, it offers a stunning blend of alpine and coastal landscapes, where tradition meets modernity. The conference venue is located in the heart of Toyama City. Participants can enjoy nearby sightseeing attractions, including Toyama Castle Park, Fugan Canal Kansui Park, Fugan Canal Cruise, Toyama Prefectural Museum of Art & Design, and Toyama Glass Art Museum. There are also shopping areas and restaurants offering local food and drinks.

The New York Times selected Toyama City as one of the "52 Places to Go in 2025." The article highlights Toyama as a city where visitors can "Enjoy cultural wonders and culinary delights while skipping the crowds." You can also experience Toyama's history and culture through a visit of the UNESCO World Heritage Site, "The Historic Villages of Gokayama." We also invite you to enjoy a ride on the scenic trolley train through eastern Toyama's "Kurobe Gorge," the deepest gorge in Japan. Toyama deserves several days to take in all that it has to offer. We hope you fully enjoy Toyama's exceptionally beautiful nature and historical experiences that are truly worth visiting.

Only two hours by bullet train or one hour by airplane from Tokyo, and with easy access to Osaka, Nagoya and Kyoto, Toyama is located approximately in the center of Japan. With three daily direct domestic flights from Tokyo Haneda Airport to Toyama Takayama Sushi Airport – just a 20-minute drive from the venue – Toyama's compactness makes it convenient for conference participants.

With its magnificent September weather, Toyama provides the perfect setting to reconnect with old friends and welcome new colleagues.

Don't miss this opportunity to experience Japan, Toyama, and its breathtaking surroundings—we're sure you'll love it.

We look forward to seeing you in Toyama this September!

Roberto D. Graglia
Chair, ICEAA – IEEE APWC
Organizing Committee

Kazuya Kobayashi
Chair, ICEAA – IEEE APWC
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DATES AND LOCATION

The ICEAA – IEEE APWC 2026 will be held at Toyama International Conference Center (TICC) (1-2 Ote-machi, Toyama-city, Toyama 930-0084, Japan) on September 14-18, 2026. The details of the conference venue can be found from the website at **TICC**.

OFFICIAL LANGUAGE

The official language is English. No simultaneous translation will be provided.

PROCEEDINGS

Each registered participant will obtain access to an electronic version of the Conference Proceedings via the conference's online portal.

ON-SITE REGISTRATION

The registration fee includes (see the webpage at **registration information**):

- Conference Proceedings online
- Attendance to sessions
- Lunches Monday to Thursday
- Coffee breaks Monday to Friday morning
- Welcome Reception on Monday

The deadlines for online registration by credit card are the following (see the website at **registration & payment**)

- For presenting authors: June 15, 2026
- For all other participants: September 7, 2026 (after this date, participants can make registration only onsite during the conference.)

Since the deadline for online registration is September 7, 2026, we accept registration & payment only in cash and onsite during the conference.

REGISTRATION DESK

The registration desk is located in TICC and its working hours are the following:

Monday, September 14:	8:00-18:00 at TICC 1F-Entrance Hall
Tuesday, September 15:	8:00-18:00 at TICC 2F-Foyer
Wednesday, September 16:	8:00-18:00 at TICC 2F-Foyer
Thursday, September 17:	8:00-16:30 at TICC 2F-Foyer
Friday, September 18:	8:00-12:30 at TICC 2F-Foyer

LUNCHES AND REFRESHMENTS

Coffee and lunch breaks are scheduled as follows:

Morning and afternoon coffee breaks

Monday:	09:45-10:15 and 16:30-17:00
Tuesday to Thursday:	10:30-11:00 and 16:30-17:00
Friday:	10:30-11:00

Lunch break

Monday to Thursday:	13:00-14:30

Lunchboxes (from Monday to Thursday) and coffee breaks (from Monday to Friday morning) are included in the registration fee. Participants can pick up their lunchboxes in TICC and have lunch in session rooms at 2nd floor of TICC.

WELCOME RECEPTION

The Welcome Reception will be held 19:00-21:00 on Monday, September 14, 2026 in OTORI room on the 3rd floor of the conference hotel, **ANA Crowne Plaza Toyama**. The hotel details are found from the website at ANA. This event is included in the registration fee.

BANQUET

The Awards Presentation & Conference Dinner will take place 19:15-22:15 on Wednesday, September 16, 2026 in OTORI room on the 3rd floor of ANA Crowne Plaza Toyama. Since this is an event with a limited number of tickets, participants willing to join the banquet are strongly recommended to purchase tickets (JPY 15,000 per person) well in advance from the registration site at **registration & payment**. The winners of the 2025 ICEAA – IEEE APWC Awards will be announced at Awards Ceremony during the Banquet.

AUDIOVISUAL EQUIPMENT

Each oral session room is equipped with a notebook PC. Authors are not allowed to use their personal PC for presentation; only the computers of session rooms can be used. Authors' presentation files should be in either PPT or PDF format. You must make sure that your presentation contains all the fonts and any auxiliary or multimedia files needed, and that these files are copied onto the session computer. Please ensure that your presentation file be loaded to a session computer before the beginning of the first session for morning presentation or during lunch break for afternoon presentation.

INTERNET CONNECTION

Wi-Fi is available in the conference venue (TICC).

HOTEL ACCOMMODATIONS

It is strongly suggested that you make reservation for your hotel as early as possible. For convenience of participants, Nippon Travel Agency Hokkaido Co., Ltd., our official travel partner, has blocked a limited number of hotel rooms. You may go to their website at **hotel reservation** for booking hotel accommodation. The Local Organizing Committee has chosen **ANA Crowne Plaza Toyama** as the official conference hotel, located just opposite to the conference venue.

ONE-DAY TOUR TO WORLD HERITAGE SITE "GOKAYAMA"

For convenience of conference participants, the Local Organizing Committee (LOC) has arranged a one-day tour to the World Heritage Gassho Style Village of Gokayama on Wednesday, September 16, 2026. Since Gokayama is a very popular destination for lots of Japanese and foreign tourists, it is recommended that participants interested in exploring a historical and beautiful site in the vicinity of Toyama City join this tour. The following are some details.

- Event name: One-day Tour to World Heritage Site "Gokayama"
- Date and time: 09:00-15:45, Wednesday, September 16, 2026
- Itinerary:

09:00	Bus leaves Toyama International Conference Center
10:30	Bus arrives Gokayama-Ainokura Village https://www.japan-guide.com/e/e5955.html
10:30-11:40	Explore beautiful Gassho-style houses
11:40	Bus leaves Gokayama-Ainokura Village
12:20	Bus arrives Inami Kibori no Sato Soyukan https://visit-toyama-japan.com/en/shops/41068
12:20-14:45	Enjoy a delicious Japanese style lunch at a local restaurant; Experience woodcarving plate making (traditional local craft); Shopping for local souvenirs
14:45	Bus leaves Inami Kibori no Sato Soyukan
15:45	Bus arrives Toyama International Conference Center

- Description:
  In December 1995, Shirakawa-go's Ogi-machi Village in Gifu Prefecture as well as both Ainokura and Suganuma Villages in Toyama Prefecture's Gokayama were included in the catalog of World Heritage Sites under the name of "The Historic Villages of Shirakawa-go and Gokayama -Traditional Houses in the Gassho Style-" at the 19th UNESCO World Heritage Committee in Berlin, Germany. Of the six conditions necessary for recognition as a World Heritage Site, the Gassho Style villages were deemed especially consistent with "iv) having structure, architecture, and/or scenery representative of a period of historical importance" and "v) a traditional village or region exhibiting a particular culture that is at risk of disappearing".
- Tour Fees and Payments:
  The fee for this one-day tour is JPY 13,500. As of August 5, 2026, we are in the process of updating the payment system, that will be ready for your booking on August 7, 2026. For those of you interested in joining the Gokayama tour, please go to the registration & payment site (deadline: August 16, 2026). We will confirm reservation on a first-come, first-serve basis. Since Gokayama is very popular for lots of Japanese and foreign tourists, it is strongly recommended that you book at your earliest convenience.
- Notes:
  On the same day (Wednesday, September 16, 2026), the Awards Presentation & Conference Dinner will be held 19:15-22:15 at ANA Crowne Plaza Toyama.

ACCOMPANYING PERSON'S PROGRAM

The LOC has arranged an attractive program for accompanying persons, which contains a one-day tour to Gokayama on Wednesday, September 16, 2026 (see the above description). In order to join the accompanying person's program, it is necessary to complete accompanying person's registration. This can be done by visiting the website at registration & payment and pay the accompanying person registration fee (JPY 18,500 per person). The fee includes welcome reception, coffee breaks, and Gokayama tour. Due to a limited number of tickets, it is suggested to register as early as possible.

USEFUL CONTACTS

For logistics aspects:
Convention Linkage, Inc.
iceaa2026_secretariat@c-linkage.co.jp
It is suggested to contact directly the staff at the registration desk.

For technical and scientific aspects:
Politecnico di Torino (Prof. Guido Lombardi)
ICEAA26@polito.it

For Visa inquiries:
Visa Support Committee
iceaa2026_visa-support@ml.pu-toyama.ac.jp

ICEAA – IEEE APWC 2026
Special Issue In Radio Science

The ICEAA – IEEE APWC 2026 Special Issue is planned to be published in the peer-reviewed, AGU journal "Radio Science". Papers are subject to the regular review process by the Radio Science Editorial Board. This special issue provides a collection of papers presented at the ICEAA – IEEE APWC 2026, and will include invited papers (original and review articles) and contributed papers (original articles). All the participants at ICEAA – IEEE APWC 2026 who presented papers are eligible for submitting papers to this Special Issue. It is to be noted that invited papers in the Special Issue are based on invitations by the Guest Editors. The details will be distributed onsite during the conference.

Short Courses

The Short Courses will be given by internationally renowned scientists in the electromagnetics and antennas & propagation community. All the short courses will be held in Conference Room, 2F, Toyama International Conference Center. The participants who have paid the registration fees are invited to join the short courses by free of additional charges.

Please register in advance by sending an email to:

ICEAA-IEEE APWC 2026 Conference Secretariat iceaa2026_secretariat@c-linkage.co.jp

Subject: short-course registration – specify the course/courses

ICEAA - IEEE APWC 2026 Young Scientist Award

A certificate and a prize of JPY 150,000 will be awarded to the young scientist who presents and has authored the best ICEAA or IEEE APWC paper in terms of content and impact on electromagnetics. The ICEAA – IEEE APWC Scientific Committee reserves the right to make no award if there are no papers of sufficient quality. In case of eligible coauthors who are registered participants at ICEAA - IEEE APWC, each awardee will receive a certificate and the cash award will be shared equally among them. The winner(s) of the ICEAA – IEEE APWC 2026 Young Scientist Award will be announced at the Banquet on Wednesday, 16 September 16, 2026. Since the award announcement and presentation are made at the Banquet, all candidates are expected to attend it.

ICEAA 2026 Industrial Engineering Paper Award

A certificate and a prize of JPY 100,000 will be awarded to the authors of the most innovative paper in terms of practical, industrial engineering related to the fields of antennas, electromagnetics and propagation. In case of eligible co-authors who are registered participants at ICEAA, each awardee will receive a certificate, and the cash award will be shared equally among them. Since the award announcement and presentation are made at the banquet, all candidates are expected to attend it.

Special Poster Session for the 2026 Award Finalists

The finalists of the ICEAA – IEEE APWC 2026 Award and the ICEAA 2026 Industrial Engineering Paper Award must present their papers also in the special poster session:
Date and time: Monday, September 14, 2026 - H 12:15-13:15
Venue: Foyer, 3&4F, Toyama International Conference Center

All the finalists must be present at their poster station for discussion.
Please note that lunch break for award finalists is 13:15-14:30.
Conference participants are also invited to join this poster session.

Post-Conference Event

Date and time: 14:00-17:00, Friday, September 18 (including coffee break)
Venue: Conference Room, 2F, Toyama International Conference Center
Program: IEEE AP-S Workshop
Organizer: Prof. Karu Esselle, University of Technology Sydney, Australia
Participants at ICEAA – IEEE APWC 2026 are invited to attend this event by free of charge.

plenary lectures / 1

Monday, September 14 - H 10:15-11:15
Main Hall, 3&4F, Toyama International Conference Center

Design of millimeter wave passive and planar waveguide arrays for civil use and applications toward 5G and beyond

Abstract

In 5G and beyond, millimeter and even terahertz frequency will be utilized in wireless systems. The planar arrays are promising for enhanced wireless systems in these bands.

The first part of this talk reviews high gain and high efficiency waveguide arrays developed by the authors. Simple, cost-effective, lightweight and passive planar antennas were pioneered in single-layer traveling wave arrays for the civil use. Typical and initial use cases for higher gain have been, DBS reception, fixed wireless access (FWA), on-board antennas for SAR imaging and planetary exploration. Then wider bandwidth request beyond 5G stimulated the design of multi-layer cooporate-feed waveguide arrays.

The second part introduces various PoC demonstration of networks in 5G and beyond utilizing millimeterwave arrays. These include the mobile networks with the Compact range and High-Rate Close Proximity (HRCP) communications dispensing with beam scanning of arrays, while repeater technologies for enhancing the millimeterwave coverage are tested. XGMF Japan activities for 5G and beyond are also mentioned.

For 5G and beyond, aforementioned achievements will contribute to the design of the heterogeneous networking utilizing millimeter wave; these passive arrays would be enhanced active functions such as beam scanning, power combining and signal processing capability such as MIMO and AI support, for compensating the difficulties of higher frequencies in communication networks.

Makoto Ando
Professor emeritus,
past Executive Vice President,
Tokyo Institute of Technology
Japan

Biography

Makoto Ando received his doctorate of engineering in electrical engineering from Tokyo Institute of Technology in 1979. He subsequently joined NTT and was engaged in the development of antennas for satellite communication. He moved to Tokyo Institute of Technology in 1982 and served as a Professor and 2015-2018 Executive Vice President for Research. In 2018, he moved to National Institute of Technology (KOSEN) and served as the senior executive director. Now he is the outside director of KDDI Corp.

His main interests have been field and waves in radio science, especially high frequency diffraction theory, the design of waveguide planar arrays, and millimeter-wave antennas for future wireless communication. He plays a leading role in the promotion of a wide range of applications of millimeter-wave wireless communications in Japan. He was the founding President of Teraherts Systems Consortium and Japan Coordinating Council for Wireless Power Transfer (JWPT). He is the Program Director of Strategic Information and Communications R&D Promotion Programme (SCOPE) and Fundamental Technologies for Sustainable Efficient Radio Wave Use R&D Project (FORWARD), both of Ministry of Internal Affairs and Communications(MIC), Japan. He is also a member of XG Mobile Communications Promotion Forum (XGMF).

His international activities have included service as 2009 president of the IEEE Antennas and Propagation Society, 2018-2019 President of The Institute of Electronics, Information and Communication Engineers (IEICE), Japan and 2017-2021 president of the International Union of Radio Science (URSI).

Professor Ando is a fellow of IEEE, URSI and IEICE.

plenary lectures / 2

Monday, September 14 - H 11:15-12:15
Main Hall, 3&4F, Toyama International Conference Center

Propagation models in international standards

Abstract

The World Radiocommunications Conference, WRC, is held once every four years. In the WRC 2017 several bands in the frequency range from 24 GHz to 86 GHz were identified for 5G applications with bandwidths from 1.6 GHz to 10 GHz to enable high data rate transmission with low latency. This led to the development of propagation models in various standards. Some of these bands were subsequently approved in WRC in 2019 with 14.75 GHz harmonized worldwide, ~ 85% of global harmonization.

In WRC 2023 frequency bands in the sub-THz band from 100 GHz up to 275 GHz, have been identified for 6G high data rate applications in addition to the upper 6 GHz frequency band in the range of 6.425 to 7.125 GHz. Due to the highly congested spectrum in the lower frequency bands, the upper 6 GHz band has been the subject of investigation for potential spectrum sharing between mobile and other applications such as WiFi, astronomy, Ultra-Wideband (UWB) and fixed links amongst other applications.

To update the models for the sub-THz band, several measurements were conducted in typical deployment scenarios indoor and outdoor to generate suitable propagation models in several standards which include the International Telecommunication Union, ITU, and the European Telecommunications Standards Institute, ETSI, working group on THz.

In this talk, various propagation measurements in indoor and outdoor scenarios are presented with the updated ITU models ITU-R P. 1411-13 and ITU-R P. 1238-13 across a wide frequency range and ETSI's models which are currently under development for the sub-THz band. Effects such as human

Sana Salous
Department of Engineering,
Durham University, UK

blockage investigation, the impact of precipitation on fixed links, building entry loss and clutter loss are discussed. In addition, the potential of spectrum sharing in the upper 6 GHz band for WiFi indoor and mobile outdoor is presented with the need for protection of radio astronomy.

Biography

Sana Salous joined Durham University in 2003 where she holds the Chair in Communication Engineering and is the Director of the Centre for Communication Systems.

Professor Salous radio propagation research covers HF for sky wave propagation for long range communication and UHF to the millimetre wave band for 5G and 6G mobile communications. In this area she introduced the digital frequency sweep technique for high bandwidth channel sounders for radio propagation studies. She is an active member various COST actions, a member of the UK delegation to the International Union of Telecommunications, ITU, and is currently Vice Chair of the ETSI THz working group and Vice president of URSI.

short course / 1

Tuesday, September 15 - Part 1: H 09:00-10:30, Part 2: H 11:00-13:00
Conference Room, 2F, Toyama International Conference Center

Advanced Antenna Modeling and Simulation Techniques

Abstract

Now-a-days antennas have become an integral and important part of almost any wireless communication system. In the field of antenna engineering, theoretical analysis is of paramount importance in understanding the basics of the antenna radiation characteristics. While the basic concept of antennas is well known, closed form, exact analytical solutions to many antenna problems are not practical and impossible in many cases.

Advances in electromagnetic (EM) simulations have significantly impacted the antenna design process by providing exact solutions by solving Maxwell's equations using numerical methods. It is a common practice now in academia and industry to use various commercially available EM simulation tools for antenna design process. In this short course, we will introduce basics of antenna modeling and simulation process with pros and cons of various numerical methods, such as Method of Moments (MoM), Multilevel Fast Multipole Method (MLFMM), Finite Element Method (FEM), Finite Difference Time Domain (FDTD), Physical Optics (PO), Ray Lunching Geometrical Optics (RL-GO), and Uniform Theory of Diffraction (UTD).

We will then discuss modeling and simulation of various antenna types, starting from simple configurations such as dipoles and loops and eventually leading to more complicated and practical designs such as microstrip patches and high-gain reflector antennas.

Dr. C. J. Reddy
Fellow IEEE
Fellow, Siemens, USA
2026 IEEE AP-S President

Biography

Dr. C.J. Reddy is Siemens Fellow at Siemens Digital Industries Software. Dr. Reddy was awarded the Natural Sciences and Engineering Research Council (NSERC) of Canada Visiting Fellowship to work at Communications Research Center in Ottawa during 1991-1993 and was awarded the US National Research Council (NRC) Resident Research Associateship in 1993 to work at NASA Langley Research Center in Hampton, Virginia.

While conducting research at NASA Langley, he developed various computational codes for electromagnetics and received a Certificate of Recognition from NASA for development of a hybrid Finite Element Method/Method of Moments/Geometrical Theory of Diffraction code for cavity backed aperture antenna analysis. He also worked as Research Professor at Hampton University from 1995 to 2000.

Dr. Reddy was the President of Applied EM, Inc (2000-2017) where he led several Phase I and Phase II SBIR projects for the DoD and NASA.

He was also the President of EM Software & Systems (USA) Inc (2002-2014) and led the marketing of the EM Simulation tool, Feko in North America. EM Software & Systems (USA) Inc was acquired by Altair in 2014.

Dr. Reddy served as the Vice President of Business Development (Electromagnetics)-Americas, at Altair. Siemens acquired Altair in 2025.

Dr. Reddy is a Fellow of IEEE, Fellow of ACES (Applied Computational Electromagnetics Society) and a Fellow of AMTA (Antenna Measurement Techniques Association). Dr. Reddy is a co-author of the book, "Antenna Analysis and Design Using FEKO Electromagnetic Simulation Software," published in June 2014 by SciTech Publishing (now part of IET).

Dr. Reddy is elected as a member of AMTA Board of Directors for a three-year term starting Jan 2020 and served as the Technical Coordinator for AMTA 2020 and AMTA 2021 Conferences as well as the President in 2022 as well as the immediate Past President of AMTA in 2023.

Dr. Reddy is also serving on the ACES Board of Directors for the term 2023-2026 and served as the Vice President of ACES. Dr. Reddy served as an Associate Editor for IEEE Open Journal of Antennas of Propagation and IEEE Transactions on Antennas and Propagation. He served as the Chair of IEEE Antennas and Propagation Society (AP-S) Young Professionals Committee during 2021-2024 and served on the AP-S AdCom during 2023-2024.

Dr. Reddy is appointed to IEEE Fellows Committee by IEEE Board of Directors for the terms 2020-2021 and 2022-2023. Currently, Dr. Reddy is serving as the 2026 IEEE AP-S President.

Dr. Reddy is inducted into IEEE Heritage Circle by the IEEE Foundation for establishing the "IEEE AP-S CJ Reddy Travel Grant for Graduate Students."

short course / 2

Thursday, September 17 - Part 1: H 09:00-10:30, Part 2: H 11:00-13:00
Conference Room, 2F, Toyama International Conference Center

The concept and the design process of Near-Field Meta-Steering: A Low-Profile Method to Steer the Beam of Any Antenna

Abstract

In the history of Antenna Engineering, there has been only one universal method to steer the beam of any fixed-beam antenna. That's physically tilting the antenna. This method has been implemented in many commercial antenna systems using motorised mechanical tilting and rotating systems. Now there is another way: Near-Field Meta-Steering, in which two flat phase-gradient metasurfaces (MS) are placed very close to the fixed-beam "base" antenna, in its near field, and are rotated independently. This way, the beam of the antenna can be steered over a large range of zenith angles and the complete azimuth range of 360° without tilting or rotating the antenna. In fact, no part of the system is tilted.

A Meta-Steering antenna system is only slightly taller than the base antenna itself. Lack of tilting means it is much shorter than conventional tilting antennas. In the future, one electronically reconfigurable near-field metasurface may provide 2D beam steering without any mechanical rotation.

Since this method was introduced in the seminal paper in 2017, together with the concept of Near-Field Phase Transformation, it has been applied by many industry and academic researchers across the globe (e.g. Thales in France, WaveUp in Italy, TICRA in Denmark, UCLA, University of Wisconsin-Madison, San Diego State University, all in USA) to develop novel antenna systems, and to steer the beam of nearly all types of fixed-beam antennas, e.g. Fabry-Perot/resonant cavity antennas, reflector (dish) antennas, metasurface antennas, slot arrays, holographic antennas, and even some end-fire antennas, to name a few.

The method is also known in several names including Risley Prism Method and Near-Field Phase Transformation. The surfaces are also known in different names, e.g. meta lenses, flat lenses, transmitarrays, deflectors.

Several different types of metasurfaces have been developed, e.g. standard printed-circuit-board type, all dielectric, all metal, hybrid and 3D-printed, and some research outcomes have led to national prizes and awards. This

Karu Esselle
Distinguished Professor in Electromagnetic and Antenna Engineering at University of Technology Sydney, Australia

short course will review the research conducted by the instructor's team as well as others in this modern and growing area of research, provide an insight into the concept of Meta-Steering, and describe some ways of reducing metasurface development efforts.

The short course attendees are expected to have a basic understanding of antennas and electromagnetics but does not require expertise in these fields. It is suitable for PhD/master's students, postdoctoral researchers, industry engineers and academics.

Biography

Karu Esselle, FRSN, FIEEE, FIEAust, is Distinguished Professor in Electromagnetic and Antenna Engineering at University of Technology Sydney. A large collection of awards Karu recently received include Academic Research Team of the Year (Team Leader) at 2025 Australian Space Awards, 2024 Premier's Prize for Leadership in Innovation in New South Wales, Australia's national 2023 Eureka Prize for Outstanding Science in Safeguarding Australia (Team Leader), Australia's national 2022 Professional Engineer of the Year, both the most prestigious space award in Australia – the "Winner of Winners" Excellence Award – as well as the Academic of Year Award at the 2022 Australian Space Awards, 2022 UTS Chancellor's Medal, both the Excellence Award and the Academic of the Year Award at 2021 Australian Defence Industry Awards, and 2019 Motohisa Kanda Award (from IEEE USA) for the most cited paper in IEEE Transactions on EMC in the past five years.

Karu is a Fellow of the Royal Society of New South Wales, IEEE and Engineers Australia. He has authored over 750 research publications, and his papers have been cited over 18,000 times. His h-index is 66. Karu is among the top 0.3% of active researchers in the world in the research area of Networking and Telecommunications, according to an analysis published in Elsevier, which considered only actively publishing researchers in this field.

Since 2002, his research income is over 35 million dollars. Karu has provided expert assistance to more than a dozen companies in USA, Europe and Australia. Among Karu's many invited presentations are keynote speeches at 2026 IEEE IMWS-AMP, 2026 IEEE LACAP, 2025 IEEE MAPCON and 2024 IEEE CAMA. He was appointed as a Distinguished Lecturer of IEEE AP Society in 2017 and has given 68 distinguished lectures in 23 countries around the world.

At present, Karu is the Representative of the IEEE Antennas & Propagation Society (AP-S) for all Asia-Pacific countries excluding China and India. From 2018 to 2020, Karu chaired the prestigious Distinguished Lecturer Program Committee of the IEEE AP-S for 3+ years. He has served or is serving in 8 global committees of this IEEE society, including AdCom and Awards. In addition, Karu has been a Senior Editor of IEEE Access and has served as an Associate Editor for nearly all major journals in his fields including IEEE Transactions on Antennas Propagation, IEEE Antennas and Propagation Magazine, IEEE Access and IET MAP. He is a Director of Innovations for Humanity Pty Ltd.

Karu was in the College of Expert Reviewers of the European Science Foundation. He has been invited to serve as an international expert/research grant assessor by many research funding bodies around the globe, and as an Assessor for professorial promotions by prestigious universities.

Previously Karu was a Director of WiMed Research Centre and Associate Dean – Higher Degree Research (HDR) at Macquarie University. He has also served as a member of the Dean's Advisory Council and the Division Executive. Karu is also the Chair of the Board of management of Australian Antenna Measurement Facility, and was the elected Chair of both IEEE New South Wales (NSW), and IEEE NSW AP/MTT Chapter, in 2016 and 2017.

His research activities are posted in the web at https://www.uts.edu.au/staff/karu.esselle and https://en.wikipedia.org/wiki/Karu_Esselle.

short course / 3

Friday, September 18 - Part 1: H 09:00-10:30, Part 2: H 11:00-13:00
Conference Room, 2F, Toyama International Conference Center

Quantum Electromagnetics: Principles, Modelling and Applications

Abstract

Quantum technologies are increasingly influencing how electromagnetic systems are modelled, controlled and designed, from qubit devices and quantum sensors to programmable environments, wave-based computation and quantum-assisted optimisation. This short expert course introduces the emerging field of quantum electromagnetics from the perspective of applied electromagnetics, antenna theory, propagation, wave physics and computational modelling.

The course begins with a compact introduction to the quantum-mechanical principles most relevant to electromagnetics: states, observables, superposition, entanglement, measurement, open systems and dissipation. These concepts are then connected to electromagnetic wave phenomena through analogies with quantum evolution, modal expansions, scattering and resonances in both random media and coupled cavities. Particular attention is given to how qubits and quantum devices can be described using electromagnetic models, including circuit-QED, cavity-QED, radiative coupling, decoherence, noise and environmental interactions.

The course will then discuss the physical meaning of entanglement and its relevance to emerging applications in communication and sensing. Examples will include quantum-secure communications, quantum key distribution, quantum radar and quantum sensing, where non-classical correlations provide new ways of thinking about security, detection, information transfer and measurement under noise and uncertainty.

Quantum-mechanical effects with useful electromagnetic counterparts will also be introduced. One example is quantum tunnelling, which can be related to evanescent waves, sub-cutoff propagation, near-field coupling and the geometrical structure of wave information. This connection offers a bridge between quantum intuition and electromagnetic information theory, especially in understanding how spatial information is stored, transported, attenuated or recovered by wave fields.

Gabriele Gradoni
Full Professor and Chair of Wireless Communications, 6G Innovation Centre, Institute for Communication Systems, University of Surrey, Guildford, UK

The final part of the course will introduce quantum-assisted electromagnetic design, including quantum-inspired optimisation, hybrid quantum–classical frameworks and their possible use in large, complex, stochastic or reconfigurable electromagnetic systems.

The emphasis throughout the course will be on physical insight, modelling principles and emerging opportunities. The course is intended for researchers and engineers in antennas, propagation, scattering, computational electromagnetics, metamaterials and wireless systems who wish to understand how quantum concepts can enrich electromagnetic modelling and future design methodologies. No prior expertise in quantum computing is assumed.

Biography

Gabriele Gradoni earned his Ph.D. in electromagnetics from Università Politecnica delle Marche, Ancona, Italy, in 2010. He was a Visiting Researcher with the Time, Quantum, and Electromagnetics Team at the National Physical Laboratory, Teddington, U.K., in 2008. In the period from 2010 to 2013 he was a Research Associate at the Institute for Research in Electronics and Applied Physics, University of Maryland, College Park, MD, USA. From 2013 to 2016, he was a Research Fellow at the School of Mathematical Sciences, University of Nottingham, U.K., where he became a Full Professor of Applied Mathematics and Electromagnetics Engineering in 2023.

From May 2023, he has been a Full Professor and Chair of Wireless Communications at the 6G Innovation Centre, Institute for Communication Systems, University of Surrey, Guildford, U.K. In Surrey, he leads the work area on Quantum Electromagnetics Theory and Practice. He was a Royal Society Industry Fellow from 2020 to 2024 at British Telecom, U.K. Since December 2022, he has held positions as a Visiting Fellow at the Department of Computer Science and Technology, University of Cambridge, U.K., and as an Adjunct Professor at the Department of Electrical and Computer Engineering, University of Illinois at Urbana–Champaign, USA. His research spans probabilistic and asymptotic methods for wave propagation in complex systems, metasurface modelling, wave chaos, and quantum computational electromagnetics, with applications in electromagnetic compatibility and modern wireless communication systems.

Prof. Gradoni is a member of the IEEE, URSI, and the Italian Electromagnetics Society. His work has been recognized with several international awards, including the URSI Commission B. Young Scientist Award in 2010 and 2016, the Italian Electromagnetics Society Gaetano Latmiral Prize in 2015, and an Honourable Mention for the IEEE TEMC Richard B. Schulz Transactions Prize Paper Award in 2020. Furthermore, he received multiple Best Paper awards at international conferences, including the Best Electromagnetics Award at EuCAP 2022.

Monday 14

MAIN HALL

09:00-09:45
FORMAL OPENING

PLENARY LECTURES

10:15-11:15
Design of millimeter wave passive and planar waveguide arrays for civil use and applications toward 5G and beyond
Makoto Ando, Jiro Hirokawa, and Kei Sakaguchi

11:15-12:15
Propagation models in international standards
Sana Salous

ROOM 201

14:30-17:40
SESSION 01 ICEAA
Scattering Methods in Complex Environments
Organized by G. Schettini, K. Watanabe
Chairs: G. Schettini, K. Watanabe

17:40-18:40
SESSION 02 ICEAA
EMC/EMI/EMP
Chairs: T. Onishi, G. Schettini

ROOM 202

14:30-18:40
SESSION 03 ICEAA
Antenna theory and design
Chairs: C. Hynes, T.-Y. Lin

ROOM 203

SESSION 04 APWC
14:30-15:50
Propagation models
Chairs: J. Honda, A. Papatsoris

15:50-18:40
SESSION 05 ICEAA
Electromagnetic theory
Chairs: G.N. Georgiev, T. Melamed

Award Finalists Special Poster Session

FOYER 12:15-13:15

Coffee breaks

09:45-10:15
16:30-17:00

Lunch break

13:00-14:30

ROOM 204

14:30-16:30

SESSION 06 ICEAA
Multiscale and Multiphysics Computational Techniques

Organized by S. Adrian, Y. Brick
Chairs: S. Adrian, Y. Brick

17:00-18:20

SESSION 07 ICEAA
Fast and Efficient Solvers and Stable Discretizations

Organized by F. Andriulli
Chairs: F. Andriulli

Tuesday 15

ROOM 201

8:30-13:00

SESSION 08 ICEAA

Recent advancement of electromagnetic theory

Organized by H. Shirai
Chairs: H. Shirai

14:30-16:30

SESSION 09 ICEAA

Advances in RF and Microwave Circuits, Antennas, and Applications

Organized by H.A. Ulku, T.H. Ergin
Chairs: T.H. Ergin, H.A. Ulku

17:00-18:40

SESSION 10 ICEAA

Electromagnetic models,geophysical products for microwave signal-of-opportunity reflectometry

Organized J. Campbell, D. Comite, M. Moghaddam
Chairs: J. Campbell, D. Comite, M. Moghaddam

ROOM 202

8:30-13:00

SESSION 11 APWC

Antenna Technologies

Chairs: J. Kelly, L. Kulas

14:30-16:10

SESSION 12 ICEAA

Recent advances in electromagnetics for MRI

Organized by G. Carluccio, D. Erricolo, R. Lattanzi
Chairs: G. Carluccio, D. Erricolo, R. Lattanzi

17:00-18:40

SESSION 13 ICEAA

Electromagnetics in biology and medicine

Chairs: G. Carluccio, C. Ramos Flores

ROOM 203

8:30-10:30

SESSION 14 ICEAA

Modulated and Reconfigurable RF Metasurfaces

Organized by U. Khankhoje
Chairs: U. Khankhoje

11:00-13:00

SESSION 15 ICEAA

Scattering Modelling for Wave Propagation Problems

Organized by X. Du
Chairs: X. Du

14:30-18:20

SESSION 16 ICEAA

Simulation and diagnostics of space plasma phenomena in the laboratory

Organized by W.E. Amatucci, E. Scime
Chairs: W.E. Amatucci, E. Scime

ROOM 204

8:30-13:00

SESSION 17 ICEAA

Antenna and Wireless Technologies for 6G

Organized by J. Guo, P. Qin
Chairs: J. Guo, P. Qin

14:30-17:40

SESSION 18 ICEAA

Advancements in the Modelling of Transient Fields

Organized by K. Cools
Chairs: K. Cools

CONFERENCE ROOM

09:00-10:30

SHORT COURSE / 1

Advanced Antenna Modeling and Simulation Techniques - Part 1

C.J. Reddy

11:00-13:00

SHORT COURSE / 1

Advanced Antenna Modeling and Simulation Techniques - Part 2

C.J. Reddy

14:30-18:40

SESSION 19A APWC

Wideband/Multiband Antennas and Emerging Antenna Technology

Organized by H. Nakano
Chairs: H. Nakano, M. Matsunaga

Coffee breaks

10:30-11:00
16:30-17:00

Lunch break

13:00-14:30

Wednesday 16

ROOM 201

8:30-15:10
SESSION 19B APWC
Wideband/Multiband Antennas and Emerging Antenna Technology
Organized by H. Nakano
Chairs: H. Nakano, M. Matsunaga

15:30-17:40
SESSION 20 ICEAA
Antennas and Arrays Technologies
Chairs: G. Martinez, S. Dacuycuy

17:40-18:40
SESSION 21 ICEAA
Quantum technologies in Electromagnetics
Organized by G. Martinez, E. Zich
Chairs: G. Martinez, E. Zich

ROOM 202

8:30-15:50
SESSION 22 ICEAA
Natural and stimulated emissions and related phenomena in space and astrophysical plasmas
Organized by G. Ganguli
Chairs: G. Ganguli

15:50-18:40
SESSION 23 ICEAA
Wavefront Control and Radiation Engineering using Metasurfaces and Metamaterials
Organized by S. Arslanagic, A. Monti, H. Wakatsuchi
Chairs: S. Arslanagic, A. Monti, H. Wakatsuchi

ROOM 203

8:30-12:40
SESSION 24 ICEAA
Novel Mathematical Methods in Electromagnetics
Organized by K. Kobayashi, G. Lombardi, Y. Shestopalov
Chairs: K. Kobayashi, G. Lombardi, Y. Shestopalov

14:30-18:20
SESSION 25 ICEAA
Dedicated Communication Technologys
Organized by Y. Wen
Chairs: Y. Wen

ROOM 204

8:30-10:30

SESSION 26 ICEAA

Antennas, Guiding Systems Inspired by Periodicity

Organized by K. Esselle, L. Matekovits
Chairs: K. Esselle, L. Matekovits

11:00-14:50

SESSION 27 ICEAA

Electromagnetic Modeling, Analysis in Advanced Electronic Packaging

Organized by J.-M. Jin, H. Ma
Chairs: J.-M. Jin, H. Ma

14:50-16:10

SESSION 28 ICEAA

Numerical methods in electromagnetics

Organized by R.D. Graglia, D.R. Wilton
Chairs: R.D.Graglia, D.R. Wilton

17:00-18:20

SESSION 29 ICEAA

Computational Techniques in Electromagnetics and Applications

Organized by R. Ozaki, T. Yamasaki
Chairs: R. Ozaki, T. Yamasaki

Coffee breaks

10:30-11:00
16:30-17:00

Lunch break

13:00-14:30

Thursday 17

ROOM 201

8:30-11:20

SESSION 30 ICEAA

Numerical analysis of electromagnetic problems and devices

Organized by J. Shibayama, K. Fujita
Chairs: J. Shibayama, K. Fujita

11:20-13:00

SESSION 31 ICEAA

Quantum Electromagnetics: Theory, Technology and Applications

Organized by A. Boag, G. Gradoni
Chairs: A. Boag, G. Gradoni

14:30-16:30

SESSION 32 ICEAA

Artificial Intelligence and Optimization Techniques in Computational Electromagnetics

Organized by F. De Flaviis
Chair: F. De Flaviis

ROOM 202

8:30-12:00

SESSION 33 ICEAA

Leaky-Wave and Quasi-Optical Approaches for mm-Wave Systems Based on Periodic Structures

Organized by D. Comite, G. Valerio
Chairs: D. Comite, G. Valerio

12:00-16:30

SESSION 34 ICEAA

Metamaterials and metasurfaces

Chair: D. Comite, N. Bunke

ROOM 203

8:30-12:00

SESSION 35 ICEAA

Advanced modeling techniques for the space plasma electromagnetic environment

Organized by W. Scales and D. Lin
Chairs: W. Scales, D. Lin

12:00-16:30

SESSION 36 ICEAA

RCS, Remote Sensing and EM Characterization

Chairs: J. Shibayama, Y. Suzuki

ROOM 204

8:30-12:20
SESSION 37 APWC
Wireless Technologies
Chairs: J. Jianwei, Q.-P. Soo

12:20-16:30
SESSION 38 ICEAA
Antennas and Arrays
Chairs: Z. Cui, M. Johnston

CONFERENCE ROOM

09:00-10:30
SHORT COURSE / 2
The concept and the design process of Near-Field Meta-Steering: A Low-Profile Method to Steer the Beam of Any Antenna - Part 1
Karu Esselle

11:00-13:00
SHORT COURSE / 2
The concept and the design process of Near-Field Meta-Steering: A Low-Profile Method to Steer the Beam of Any Antenna - Part 2
Karu Esselle

Coffee breaks
10:30-11:00
16:30-17:00

Lunch break
13:00-14:30

Friday 18

ROOM 201

8:30-11:20

SESSION 39 ICEAA

Mathematical advances in electromagnetics

Organized by P. Smith, E. Vinogradova
Chairs: P. Smith, E. Vinogradova

11:20-12:40

SESSION 40 ICEAA

Recent Developments in Computational Electromagnetic Techniques and Engineering Applications

Organized by A.A. Ergin, H.A. Ulku
Chairs: A.A. Ergin, H.A. Ulku, A.A. Ergin, H.A. Ulku

ROOM 202

8:30-12:20

SESSION 41 ICEAA

Metamaterials with Symmetry Properties

Organized by R. Kastner
Chairs: R. Kastner

ROOM 203

8:30-9:30

SESSION 42 ICEAA

Visualization and Imaging of Electromagnetic Fields and Waves

Organized by S. Yagitani
Chairs: S. Yagitani

9:30-12:20

SESSION 43 ICEAA

Technologies and Measurement Methods for Antennas

Chairs: M. de Villiers, H. Maune

ROOM 204

8:30-9:50

SESSION 44 APWC

Microwave antennas, components, and devices

Chairs: W.C. Lai, G. Martinez

9:50-12:40

SESSION 45 ICEAA

Advances in Computational electromagnetics and Optimization

Chairs: G. Martinez, Y. Wada

CONFERENCE ROOM

09:00-10:30

SHORT COURSE / 3

Quantum Electromagnetics: Principles, Modelling and Applications - Part 1

Gabriele Gradoni

11:00-13:00

SHORT COURSE / 3

Quantum Electromagnetics: Principles, Modelling and Applications - Part 2

Gabriele Gradoni

Coffee break

10:30-11:00

MONDAY 14

Monday, September 14 - main hall

09:00-09:45

Formal Opening

Plenary lectures

10:15-11:15

Design of millimeter wave passive and planar waveguide arrays for civil use and applications toward 5G and beyond

Makoto Ando, Jiro Hirokawa, and Kei Sakaguchi
Institute of Science Tokyo (formerly Tokyo Institute of Technology)

11:15-12:15

Propagation models in international standards

Sana Salous
Department of Engineering, Durham University, UK

Monday, September 14 - H 14:30-17:40 - room 201

session 01 **ICEAA**

Scattering Methods in Complex Environments

Organized by G. Schettini, K. Watanabe
Chairs G. Schettini, K. Watanabe

14:30-14:50

DETECTION OF VOID IN REINFORCED CONCRETE USING A NEURAL NETWORK
T. Tsuburaya, Fukuoka University, Japan; Z. Meng, Fukuoka University, Japan

14:50-15:10

FUNDAMENTAL STUDY ON SCATTERING BY A THICK SLIT AND A RECTANGULAR TROUGH ON THE BACK SIDE OF A CONDUCTING PLATE -- E-POLARIZATION CASE
R. Sato, Niigata University, Japan; H. Shirai, Chuo University, Japan

15:10-15:30

A PHYSICS-INFORMED NEURAL NETWORK APPROACH TO TM-POLARIZED PLANE WAVE SCATTERING BY A DIELECTRIC CYLINDER
K. Ishida, Kyushu Sangyo University, Japan; T. Matsuoka, Kyushu Sangyo University, Japan

15:30-15:50

INCOHERENT OPTICAL DIFFRACTION SIMULATION BY MICROMIRROR STRUCTURES FOR DESIGN OF OPTICAL COMPUTING SYSTEM

H. Nishikawa, Kitami Institute of Technology, Japan; J. Sugisaka, Kitami Institute of Technology, Japan; K. Hirayama, Kitami Institute of Technology, Japan

15:50-16:10

DUAL-BAND REFLECTARRAY WITH FREQUENCY-DEPENDENT POLARIZATION RESPONSE COMBINING CROSS-TYPE POLARIZATION CONVERSION ELEMENTS AND OMEGA-TYPE RESONANT ELEMENTS

Y. Murayama, Doshisha University, Japan; K. Hamada, Doshisha University, Japan; M. Ohira, Doshisha University, Japan; H. Deguchi, Doshisha University, Japan; M. Tsuji, Doshisha University, Japan

16:10-16:30

A STUDY ON SPECTRAL-DOMAIN APPROACH TO ELECTROMAGNETIC SCATTERING PROBLEM OF MANY CONDUCTING STRIPS ARRANGED AT EQUAL INTERVALS

K. Watanabe, Fukuoka Institute of Technology, Japan

17:00-17:20

SYMMETRY PROPERTIES OF RECIPROCITY FOR REFLECTION IN ANISOTROPIC PERIODIC STRUCTURES

H. Wakabayashi, Faculty of Computer Science and Systems Engineering, Okayama Prefectural University, Japan; J. Yamakita, Okayama Prefectural University, Japan

17:20-17:40

FDTD ANALYSIS OF A STEPPED PLASMONIC GRATING COUPLER

M. Yoshizawa, Hosei University, Japan; J. Shibayama, Hosei University, Japan

Monday, September 14 - H 17:40-18:40 - room 201

session 02 **ICEAA**

EMC/EMI/EMP

Chairs T. Onishi, G. Schettini

17:40-18:00

LONG-TERM MONITORING OF ELECTROMAGNETIC FIELD LEVELS IN JAPAN

T. Onishi, National Institute of Information and Communications Technology, Japan; K. Tobita, National Institute of Information and Communications Technology, Japan; M. Taki, National Institute of Information and Communications Technology, Japan

18:00-18:20

STUDY ON CAPACITIVE COUPLING IN STRIPLINE STRUCTURES WITH DIFFERENT WAVEFORMS FOR CROSSTALK ANALYSIS

N. Rahayu, Institut Teknologi Bandung, Indonesia; T.D. Rachmildha, Institut Teknologi Bandung, Indonesia; L.O. Nur, Telkom University, Indonesia; A. Munir, Institut Teknologi Bandung, Indonesia

18:20-18:40

CONSISTENT VS. HIGH-IMPACT IEMI EXCITATIONS UNDER INCREASING SYSTEM UNCERTAINTY

M. A. Echeverri Bautista, TNO, Netherlands

Monday, September 14 - H 14:30-18:40 - room 202

session 03 **ICEAA**

Antenna theory and design

Chairs C. Hynes, T.-Y. Lin

14:30-14:50

DESIGN OF A DUAL-PORT EFFICIENT RECTANGULAR SLOT ANTENNA USING A CAPACITIVE DECOUPLING TECHNIQUE FOR SWIPT APPLICATIONS

J.T. Kubwimana, University of Rouen Normandy, ESIGELEC, IRSEEM, France; C.M.A. Niamien, University of Rouen Normandy, ESIGELEC, IRSEEM, France; R. Khalifeh, University of Rouen Normandy, ESIGELEC, IRSEEM, France

14:50-15:10

DESIGN ATTEMPT OF A DUAL-PORT SINGLE-BAND RECTANGULAR SLOT ANTENNA FOR SWIPT APPLICATIONS

J.T. Kubwimana, University of Rouen Normandy, ESIGELEC, IRSEEM, France; C.M.A. Niamien, University of Rouen Normandy, ESIGELEC, IRSEEM, France; R. Khalifeh, University of Rouen Normandy, ESIGELEC, IRSEEM, France

15:10- 15:30

SCANNING PERFORMANCE OF CIRCULARLY POLARIZED TRANSMITARRAYS USING LINEARLY POLARIZED CELLS: THE ROLE OF PERIODICITY

R. T. Horst, CEA-Leti, Univ. Grenoble Alpes, France; F. Foglia Manzillo, CEA-Leti, Univ. Grenoble Alpes, France; R. Sauleau, University of Rennes, CNRS, IETR - UMR CNRS 6164, France; A. Clemente, CEA-Leti, Univ. Grenoble Alpes, France

15:30 - 15:50

A 150-GHZ HIGH-GAIN LTCC ANTENNA WITH DIELECTRIC-ENHANCED SIW TRANSITION

T.Y. Lin, S.G. Lin, Y.C. Chang, C. Hsieh, P.Y. Yin, D.C. Chang, Taiwan Semiconductor Research Institute, Taiwan

15:50-16:10

LOW-PROFILE HUYGENS SOURCE DIELECTRIC RESONATOR ANTENNA DESIGN USING CHARACTERISTIC MODES

A. Boiteau, ENAC, France; C. Morlaas, ENAC, France; R. Pascaud, ISAE-SUPAERO, France; A. Chabory, ENAC, France; V. Laquerbe, CNES, France; P. Pouliguen, AID/DGA, France

16:10-16:30

A NEW HELIX ANTENNA OPERATIONAL MODE WITH SUPERDIRECTIVITY

C.G. Hynes, Simon Fraser University, Canada; R.G. Vaughan, Simon Fraser University, Canada

17:00-17:20

WIDE-STOPBAND MILLIMETER-WAVE FILTERING MAGNETOELECTRIC DIPOLE ANTENNA AND ITS APPLICATION IN AN E-PLANE PHASED ARRAY

C.K. Hu, Beijing Jiaotong University, China; Y.J. Li, Beijing Jiaotong University, China; J.Y. Tan, Beijing Jiaotong University, China; J.H. Wang, Beijing Jiaotong University, China

17:20-17:40

SUPERDIRECTIVE LINEARLY POLARIZED AXIAL-MODE HELICAL SLOT ANTENNA

C.G. Hynes, Simon Fraser University, Canada; R.G. Vaughan, Simon Fraser University, Canada

17:40-18:00

DESIGN AND ANALYSIS VIA CIRCUIT MODELING OF MULTI-BAND PATCH ANTENNA WITH SINGLE I-SHAPED SLOT FOR MMWAVE 5G AND SENSING APPLICATIONS

B.J. Mugiraneza, University of the Ryukyus, Japan; M. Saito, University of the Ryukyus, Japan

18:00-18:20

DUAL-BAND HORIZONTALLY ORIENTED CDRA ARRAY

J. Žemgulyte, P. Ragulis, R. Simniškis, M. Sadauskas, Center for Physical Sciences and Technology, Lithuania; A.G. Belous, O.I. V'yunov, V. I. Vernadsky Institute of General and Inorganic Chemistry, National Academy of Sciences of Ukraine, Ukraine; Z.A. Kancleris, Center for Physical Sciences and Technology, Lithuania

18:20-18:40

PERFORMANCE ANALYSIS OF DUAL-POLARIZED RECTANGULAR PANEL ANTENNA ARRAYS FOR 5G NR BASE STATIONS

A. Shastri, Banasthali Vidyapith, India; S. Bandopadhaya, Banasthali Vidyapith, India; A. Shingh, Banasthali Vidyapith, India; M. G. Siddiqui, Banasthali Vidyapith, India; Y. S. Naruka, Banasthali Vidyapith, India; L. F. Guerrero-Vasquez, Universidad Politecnica Salesiana, Ecuador

Monday, September 14 - H 14:30-15:50 - room 203

session 04 **APWC**

Propagation models

Chairs J. Honda, A. Papatsoris

14:30-14:50

STATISTICAL ANALYSIS OF AIRCRAFT POSITION ESTIMATES ON AIRPORT SURFACE DURING STATIONARY CONDITIONS

J. Honda, Electronic Navigation Research Institute, Japan; T. Otsuyama, Electronic Navigation Research Institute, Japan; Y. Kakubari, Electronic Navigation Research Institute, Japan; K. Matsunaga, Electronic Navigation Research Institute, Japan

14:50-15:10

DERIVING RAINFALL STATISTICS FOR RADIOWAVE PROPAGATION STUDIES IN GREECE

A.D. Papatsoris, International Hellenic University, Greece; C. Houli, International Hellenic University, Greece; K. Giantsidou, International Hellenic University, Greece

15:10-15:30

LEARNING EXCESS PATH LOSS OVER IRREGULAR TERRAIN: CNN TO ATTENTION WITH PHYSICS-INFORMED SCALARS

E. Greenberg, University of Haifa, Israel; I. Klein, University of Haifa, Israel

15:30-15:50

CIRCULARLY POLARIZED UHF RFID PROPAGATION SIMULATION IN A TUNNEL USING UNREAL ENGINE 5 AND MATLAB

Z.X. Boey, Universiti Tunku Abdul Rahman, Malaysia; Q.P. Soo, Universiti Tunku Abdul Rahman, Malaysia; S.Y. Lim, University of Nottingham Malaysia Campus, Malaysia; E.H. Lim, Universiti Tunku Abdul Rahman, Malaysia; P.L. Toh, Universiti Tunku Abdul Rahman, Malaysia; K.H. Yeap, Universiti Tunku Abdul Rahman, Malaysia

Monday, September 14 - H 15:50-18:40 - room 203

session 05 **ICEAA**

Electromagnetic theory

Chairs G.N. Georgiev, T. Melamed

15:50-16:10

DIFFRACTION BY A SEMI-INFINITE PARALLEL-PLATE WAVEGUIDE WITH FRACTIONAL BOUNDARY CONDITIONS

T. Nagasaka, Ashikaga University, Japan; K. Kobayashi, Chuo University, Japan

16:10-16:30

PHASE-SPACE DESIGN OF ELECTROMAGNETIC (LIGHT) STRUCTURES IN THE FREQUENCY AND TIME DOMAINS

T. Melamed, Ben Gurion University of the Negev, Beer Sheva, Israel

17:00-17:20

DR. MARIANA N. GEORGIEVA'S COMPLEX NUMBERS: EVOLUTION FROM $M\text{-}_{1,r}(\theta_{1,r})$ TO THE INVARIANT LIMITS $M\text{-}_{1,א}(\theta_{1,א})$ OF SEQUENCES OF TRANSCENDENTAL KUMMER FUNCTION ZEROS AND THEIR UNIVERSAL PROPERTIES IN ELECTROMAGNETIC THEORY

G.N. Georgiev, Consulting and Researcher in Physics, Mathematics and Computer Sciences, Bulgaria; M.N. Georgieva-Grosse, Consulting and Researcher in Physics, Mathematics and Computer Sciences, Bulgaria

17:20-17:40

DEVELOPMENT OF A TRANSPARENT FLAT GLASS MICROWAVE ABSORBER FOR ELECTRONIC TOLL COLLECTION SYSTEMS

F.F. Furuya, Tokyo City University, Japan; Y.O. Okano, Tokyo City University, Japan

17:40-18:00

DEVELOPMENT OF A THREE-DIMENSIONAL UHF RF-ID READER/WRITER ANTENNA FOR AUTOMATED CASH REGISTERS

N.M. Matsumoto, Tokyo City University, Japan; Y.O. Okano, Tokyo City University, Japan

18:00-18:20

OBLIQUE-INCIDENCE SCATTERING OF A BIANISOTROPIC SLAB

M.J. Havrilla, Air Force Institute of Technology, United States

18:20-18:40

A UNIFYING LOCAL PROPAGATION CONDITION (ULPC) TRANSITION INDEX: MULTI-BAND RESONANCE LOCALIZATION IN FULL-WAVE ELECTROMAGNETIC ANALYSIS

A. Pirisi, Politecnico di Milano, Italy; G.F. Martinez, Politecnico di Milano, Italy; R.E. Zich, Politecnico di Milano, Italy

Monday, September 14 - 14:30-16:30 - room 204

session 06 **ICEAA**

Multiscale and Multiphysics Computational Techniques

Organized by S. Adrian, Y. Brick
Chairs S. Adrian, Y. Brick

14:30-14:50

MULTIPHYSICS SIMULATION FOR INVESTIGATING INTERACTIONS BETWEEN ELECTROMAGNETIC FIELDS AND ANTIFERROMAGNETS

S. Kobayashi, Nihon University, Japan; T. Mukita, Nihon University, Japan; S. Kishimoto, Nihon University, Japan; K. Nakagawa, Nihon University, Japan; S. Ohnuki, Nihon University, Japan

14:50-15:10

PHYSICS-ENCODED GRAPH ELEMENT NETWORKS FOR THERMAL SURROGATE MODELING AND HEAT SOURCE LOCALIZATION ON IRREGULAR FEM MESHES

N. Hosen, Howard University, United States; M. Anee, Howard University, United States; S. Yan, Howard University, United States

15:10-15:30

A CYLINDRICAL-WAVE SPECTRAL-DOMAIN MOM FORMULATION FOR PLANAR CURRENTS ON A LAYERED SUBSTRATE

C. Renard, UCLouvain, Belgium; J. Cavillot, UCLouvain, Belgium; D. Lederer, UCLouvain, Belgium; C. Craeye, UCLouvain, Belgium

15:30-15:50

TOWARD MORE COMPRESSIBLE DOMAIN DECOMPOSITION INTEGRAL EQUATION FORMULATIONS FOR HOMOGENEOUS PENETRABLE SCATTERERS

B. Diner, Ben-Gurion University of the Negev, Israel; Y. Dahan, Ben-Gurion University of the Negev, Israel; Y. Brick, Ben-Gurion University of the Negev, Israel

15:50-16:10

A STUDY ON GRAPH COLORING FOR RACE-FREE PARALLEL CONSTRUCTION OF SYSTEM MATRICES IN INTEGRAL EQUATION DISCRETIZATIONS

D. Jukic, Universität Rostock, Germany; B. Hofmann, Stanford University, United States; S.B. Adrian, Universität Rostock, Germany

16:10-16:30

A BOUNDARY ELEMENT--CABLE METHOD FOR MODELING NEURONAL RESPONSES TO EXTERNAL ELECTRIC FIELDS

V. Sabino, Purdue University, United States; L. Gomez, Purdue University, United States

Monday, September 14 - H 17:00-18:20 - room 204

session 07 **ICEAA**

Fast and Efficient Solvers and Stable Discretizations

Organized by F. Andriulli
Chair F. Andriulli

17:00-17:20

HIGH-CONTRAST STABLE POTENTIAL-BASED VIE

M. Nekoie, Purdue University, United States; S. S. Vaezi, Purdue University, United States; L. J. Gomez, Purdue University, United States

17:20-17:40

REFLECTIVE-SHIELD MIMICKING MULTIPOLE-BASED GENERALIZED SOURCE INTEGRAL EQUATION KERNELS FOR WELL-CONDITIONING AND COMPRESSIBILITY

Y. Dahan, Ben-Gurion University of the Negev, Israel; S. B. Adrian, Universität Rostock, Germany; L. B. Klinkenbusch, Christian-Albrechts-Universität zu Kiel, Germany; A. Boag, Tel Aviv University, Israel; Y. Brick, Ben-Gurion University of the Negev, Israel

17:40-18:00

ASYMPTOTIC SPECTRAL INSIGHTS BEHIND FAST DIRECT SOLVERS FOR HIGH-FREQUENCY ELECTROMAGNETIC INTEGRAL EQUATIONS ON NON-CANONICAL GEOMETRIES

V. Giunzioni, Politecnico di Torino, Italy; C. Henry, IMT Atlantique, France; A. Merlini, IMT Atlantique, France; F. P. Andriulli, Politecnico di Torino, Italy

18:00-18:20

MULTIRESOLUTION PRECONDITIONING WITH ORIGAMI BASIS FUNCTIONS FOR CURVATURE-AWARE ADAPTIVE H-REFINEMENT IN METHOD OF MOMENTS

V.F. Martin, Universidad Rey Juan Carlos, Spain; L. Landesa, University of Extremadura, Spain; J.M. Taboada, University of Extremadura, Spain; F. Vipiana, Politecnico di Torino, Italy

TUESDAY 15

Tuesday, September 15 - H 08:30-13:00 - room 201

session 08 **ICEAA**

Recent advancement of electromagnetic theory

Organized by H. Shirai
Chair H. Shirai

08:30-08:50

LATERAL WAVE EXCITATION FOR DIELECTRIC WEDGE DIFFRACTION PROBLEMS

H. Shirai, Chuo University, Japan

08:50-09:10

CONVERGENCE ANALYSIS OF SLIT DIFFRACTION FOR H-POLARIZED WAVES

H. Serizawa, NIT, Numazu College, Japan

09:10-09:30

DESIGN OF SCHWARZSCHILD TYPE LENS FOR FOCUSING OF OPTICAL VORTEX BEAM BY USING MOM ANALYSIS

H. Kawaguchi, Muroran Institute of Technology, Japan; K. Matsuo, Hiroshima University, Japan; M. Katoh, Hiroshima University, Japan; C. Wang, National Institute for Fusion Science, Japan; H. Nakamura, National Institute for Fusion Science, Japan

09:30-09:50

X/KA-BAND GROOVE-LOADED HORN ANTENNA WITH LOW CROSS-POLARIZATION

H. Nishida, Doshisha University, Japan; K. Nishida, Doshisha University, Japan; M. Ohira, Doshisha University, Japan; H. Deguchi, Doshisha University, Japan

09:50-10:10

BOUNDARY INTEGRAL EQUATION FORMULATION FOR ANALYSIS OF TWO-DIMENSIONAL PHOTONIC CRYSTAL WAVEGUIDES WITH RESONATORS UNDER TE INCIDENCE

M. Tanaka, Gifu University, Japan

10:10-10:30

ANALYSIS OF THE HEATING CHARACTERISTICS OF A DEFROSTING DEVICE UTILIZING ELECTROMAGNETIC RESONANCE

K. Kikuchi, Graduate School of Toyo University, Japan; Y. Shindo, Toyo University, Japan

11:00-11:20

DEEP TAWING SYSTEM USING ELECTROMAGNETIC RESONANT MODE

K. Shimegi, Graduate School of Toyo University, Japan; Y. Shindo, Toyo University, Japan

11:20-11:40

HEATING EXPERIMENT OF THERMAL REHABILITATION SYSTEM FOR KNEE OA USING AGAR PHANTOM INCLUDING SIMULATED BONE

N. Matsumura, Graduate School of Toyo University, Japan; Y. Shindo, Toyo University, Japan

11:40-12:00

IMAGING RADAR SIMULATION USING COMPRESSED SENSING AND FDTD METHOD

Y. Kato, Nihon University, Japan; S. Kishimoto, Nihon University, Japan; S. Ohnuki, Nihon University, Japan

12:00-12:20

FUNDAMENTAL STUDY ON CHANGE DETECTION IN NON-PRIMARY SCATTERING MECHANISM USING TIME-SERIES DUAL POLARIMETRIC DATA

R. Sato, Niigata University, Japan; H. Niwa, Niigata University, Japan; H. Yamada, Niigata University, Japan; Y. Yamaguchi, Niigata University, Japan

12:20-12:40

POSITIONING PERFORMANCE EVALUATION OF COMPACT HIGH-PERFORMANCE ANTENNAS WITH LOW GROUND-PLANE DEPENDENCY

D. Izawa, Chuo University, Japan; H. Sakamoto, Mitsubishi Electric Corporation, Japan; D. Yamamoto, Chuo University, Japan; Y. Suwabe, Chuo University, Japan; Y. Inasawa, Chuo University, Japan; S. Yamaguchi, Mitsubishi Electric Corporation, Japan; T. Takahashi, Mitsubishi Electric Corporation, Japan

12:40-13:00

A NUMERICAL ANALYSIS OF ELECTROMEGNETIC WAVE SCATTERING FROM SEA SURFACE BASED ON THE PHYSICAL OPTICS

K. Niino, Mitsubishi Electric Corporation, Japan; H. Suenobu, Mitsubishi Electric Corporation, Japan; K. Nishimoto, Mitsubishi Electric Corporation, Japan; T. Takahashi, Mitsubishi Electric Corporation, Japan

Tuesday, September 15 - H 14:30-16:30 - room 201

session 09 **ICEAA**

Advances in RF and Microwave Circuits, Antennas, and Applications

Organized by H.A. Ulku, T.H. Ergin
Chairs T.H. Ergin, H.A. Ulku

14:30-14:50

DESIGN AND SIMULATION OF A 25-27 GHZ LOW-PHASE-NOISE LC-VCO IN 65 NM CMOS TECHNOLOGY FOR MM-WAVE COMMUNICATION APPLICATIONS

M.C. Ögütveren, Yeditepe University, Turkey; I. Sisman, Profen Technologies, Turkey; T.H. Ergin, Yeditepe University, Turkey

14:50-15:10

DESIGN OF A HIGH-GAIN AND LOW-NOISE FOUR-STAGE X-BAND LNA FOR MICROWAVE RECEIVER APPLICATIONS

S. Sarikazal, Yeditepe University, Turkey; I. Sisman, Profen Technologies, Turkey; T.H. Ergin, Yeditepe University, Turkey

15:10-15:30

AN ADAPTIVE OTA-BASED GM-C FILTER FOR IF/BASEBAND SIGNAL CONDITIONING IN RF RECEIVERS IN 65NM CMOS

T.H. Ergin, Yeditepe University, Turkey; B. Ilgaz, Profen Technologies, Turkey; I. Sisman, Profen Technologies, Turkey

15:30-15:50

A COMPACT DUAL-BAND KA/L ROTARY JOINT FOR RELIABLE CONNECTIVITY IN MOBILE SENSING AND COMMUNICATION SYSTEMS

B. Ilgaz, Profen Technologies, Turkey; I. Sisman, Profen Technologies, Turkey; T.H. Ergin, Yeditepe University, Turkey

15:50-16:10

COMPACT TRIPLE-BAND MICROSTRIP PATCH ANTENNA FOR GSM AND WI-FI APPLICATIONS

T.H. Ergin, A. Keskin,H.A. Ülkü, Yeditepe University, Turkey

16:10-16:30

BANDWIDTH ENHANCEMENT OF A CRESCENT-SHAPED MICROSTRIP PATCH ANTENNA USING ETCHED INNER CRESCENT SLOTS

E. Ficici, Yeditepe University, Turkey; S. Cakmak, Yeditepe University, Turkey; G. Koncel, Yeditepe University, Turkey; H.A. Ulku, Yeditepe University, Turkey

Tuesday, September 15 - H 17:00-18:40 - room 201

session 10 **ICEAA**

Electromagnetic models,geophysical products for microwave signal-of-opportunity reflectometry

Organized J.Campbell, D.Comite, M. Moghaddam
Chairs J. Campbell, D. Comite, M. Moghaddam

17:00-17:20

CROSS-VALIDATING THE WEATHER SYSTEM FOLLOW-ON MICROWAVE SOIL MOISTURE PRODUCT USING CYCLONE GLOBAL NAVIGATION SATELLITE SYSTEM DATA

J.D. Ouellette, US Naval Research Laboratory, United States; C.M. Selman, US Naval Research Laboratory, United States; E.M. Twarog, US Naval Research Laboratory, United States; J.P. Bobak, US Naval Research Laboratory, United States; M.H. Bettenhausen, US Naval Research Laboratory, United States; M.M. Al-Khaldi, The Ohio State University, United States; J.T. Johnson, The Ohio State University, United States

17:20-17:40

PERFORMANCE OF CHINA'S TIANMU-1 GNSS-R SATELLITE CONSTELLATION OBSERVATIONS IN LAND AND OCEAN REMOTE SENSING APPLICATIONS

F. Guo, Wuhan University, China; W.T. Yang, Wuhan University, China; Z.Y. Zhang, Wuhan University, China; G.J. Hu, Wuhan University, China; X.H. Zhang, Wuhan University, China

17:40-18:00

TEXTURE ANALYSIS OF GNSS-REFLECTOMETRY DELAY-DOPPLER MAPS USING ELECTROMAGNETIC SCATTERING MODEL

A. Kannan, University of Southern California, United States; A. Melebari, King Abdulaziz City for Science and Technology (KACST), Saudi Arabia; J.D. Campbell, University of Southern California, United States; M. Moghaddam, University of Southern California, United States

18:00-18:20

CYGNSS LEVEL 1 (L1) DATA ANALYSIS IN THE GODDARD EARTH OBSERVING SYSTEM (GEOS) LAND DATA ASSIMILATION SYSTEM (LDAS)

J. D. Campbell, University of Southern California, United States; A. Kannan, University of Southern California, United States; M. Moghaddam, University of Southern California, United States

18:20-18:40

SPECTRAL GEOMETRY-INFORMED NEURAL INTERPOLATION FOR GNSS-R SOIL MOISTURE RETRIEVAL

G. Ciabatti, Sapienza, University of Rome, Italy; S. Daftry, Jet Propulsion Laboratory, California Institute of Technology, United States; D.D. Bloisi, International University of Rome, Italy; D. Comite, Sapienza, University of Rome, Italy; V. Suriani, Sapienza, University of Rome, Italy;

Tuesday, September 15 - H 08:30-13:00 - room 202

session 11 **APWC**

Antenna Technologies

Chairs J. Kelly, L. Kulas

08:30-08:50

POWER AMPLIFIER–ANTENNA CO-DESIGN IN ACTIVE ARRAYS USING NEWTON'S METHOD AND MATCHING-CIRCUIT EMBEDDING

I. Shilinkov, Chalmers University of Technology, Sweden; R. Maaskant, Chalmers University of Technology, Sweden; G. Lasser, Chalmers University of Technology, Sweden

08:50-09:10

ENHANCING RADIATION COVERAGE FOR WI-FI 7 MIMO SYSTEMS VIA PATTERN RECONFIGURABLE ANTENNAS

D.L. Huang, Pegatron Corporation, Taiwan; M. J. Chang, Pegatron Corporation, Taiwan

09:10-09:30

DESIGN OF PLANAR SWITCHED BEAM ANTENNA WITH BUTLER MATRIX FEEDING NETWORK

M. Daud, Malikussaleh University, Indonesia; F.A. Nasution, Institut Teknologi Bandung, Indonesia; Z. Zulfi, Telkom University, Indonesia; N.M. Adriansyah, Telkom University, Indonesia; M.R. Effendi, Institut Teknologi Bandung, Indonesia; A. Munir, Institut Teknologi Bandung, Indonesia

09:30-09:50

TOWARDS JAMMING MITIGATION USING LOW-COST ENERGY EFFICIENT ESPAR ANTENNA

R. Baranowski, Gdansk University of Technology, Poland; M. Groth, Gdansk University of Technology, Poland; K. Nyka, Gdansk University of Technology, Poland; L. Kulas, Gdansk University of Technology, Poland

09:50-10:10

A LOW-PROFILE WIDEBAND DIPOLE ANTENNA LOADED WITH FOUR SYMMETRIC STEPPED DIELECTRIC SECTORS FOR SUB-6 GHZ APPLICATIONS

Y. Sun, Aalborg University, Denmark

10:10-10:30

LOW-PROFILE META-LENS SUPERSTRATE FOR PATCH ANTENNA GAIN ENHANCEMENT

S. Meerabeab, Electrical, Kanazawa University, Japan; T. Imachi, Electrical, Kanazawa University, Japan; S. Yagitani, Electrical, Kanazawa University, Japan

11:00-11:20

MICROSTRIP PATCH ANTENNA UTILISING GROUND PLANE CONTROL TO ACHIEVE BEAM SWITCHING

J. R. Kelly, Queen Mary University of London, United Kingdom

11:20-11:40

ANCHOR NODE ANTENNA ARRAY CONFIGURATIONS FOR DUAL PLANE PDOA/AOA IN UWB INDOOR LOCALIZATION

H. Raghib Hokmabadi, Technological University Dublin (TuDublin), Ireland; W. U. R. Khan, Technological University Dublin (TuDublin), Ireland; P. McEvoy, Technological University Dublin (TuDublin), Ireland; M. J. Ammann, Technological University Dublin (TuDublin), Ireland

11:40-12:00

EXPERIMENTAL CHARACTERIZATION OF DW3000 UWB TRANSCEIVERS FOR AOA-BASED INDOOR LOCALIZATION

H. Raghib Hokmabadi, Technological University Dublin (TuDublin), Ireland; W. U. R. Khan, Technological University Dublin (TuDublin), Ireland; P. McEvoy, Ireland; M. J. Ammann, Technological University Dublin (TuDublin), Ireland

12:00-12:20

ELECTROMAGNETIC COEXISTENCE OF A COMMUNICATION ANTENNA AND A WPT COIL IN A SMART CONTACT LENS

A.W. Essa, XPANCEO, United Arab Emirates; D.A. Dobrykh, XPANCEO, United Arab Emirates; V.A. Lenets, XPANCEO, United Arab Emirates; A.P. Slobozhanyuk, XPANCEO, United Arab Emirates; A.V. Arsenin, XPANCEO, United Arab Emirates; V.S. Volkov, XPANCEO, United Arab Emirates; P.B. Ginzburg, School of Electrical Engineering, Tel Aviv University, Tel Aviv 69978, Israel, Israel; S.A. Tretyakov, Aalto University, Espoo, Finland, Finland; A.R. Vilenskiy, XPANCEO, United Arab Emirates

12:20-12:40

RECENT DEVELOPMENTS OF SMARTWATCH ANTENNAS: A REVIEW

A.T. Zhang, Xidian University, China; J.Q. Zhu, Xidian University, China; Y. Liu, Xidian University, China

12:40-13:00

BEAM-STEERABLE 300-GHZ-WAVE RADIATION ENABLED BY 3D-PRINTED FRESNEL ZONE-PLATE INTEGRATION

M. Che, Kyushu University, Japan; B. Li, Kyushu University, Japan; S. Ye, Kyushu University, Japan; H. Ssali, Kyushu University, Japan; K. Kato, Kyushu University, Japan

Tuesday, September 15 - H 14:30-16:10 - room 202

session 12 **ICEAA**

Recent advances in electromagnetics for MRI

Organized by G. Carluccio, D. Erricolo, R. Lattanzi
Chairs G. Carluccio, D. Erricolo, R. Lattanzi

14:30-14:50

MODELLING BEAT PILOT TONE PATTERNS IN 3T MRI SCANNER LOADED BY DIFFERENT HUMAN MODELS

M. Kozlov, Max Planck Institute for Human Cognitive and Brain Sciences, Germany; K.J. Pine, Max Planck Institute for Human Cognitive and Brain Sciences, Germany; H.E. Möller, Max Planck Institute for Human Cognitive and Brain Sciences, Germany; N. Weiskopf, Max Planck Institute for Human Cognitive and Brain Sciences, Germany

14:50-15:10

A 2D ANALYTICAL SOLUTION TO DETERMINE THE PROPERTIES OF HIGH-PERMITTIVITY PADS FOR CARDIAC APPLICATIONS IN MRI

G. Carluccio, Università degli studi di Napoli Federico II, Italy; V. Miranda, National Inter-University Consortium for Telecommunications, Italy; C. Collins, New York University, United States; D. Riccio, Università degli studi di Napoli Federico II, Italy; G. Ruello, Università degli studi di Napoli Federico II, Italy

15:10-15:30

EVALUATION OF THE SNR IN SPHERICAL GEOMETRIES WHEN RECEIVE ARRAYS ARE USED WITH HIGH-PERMITTIVITY MATERIALS

G. Carluccio, University of Napoli Federico II, Italy; V. Miranda, National Inter-University Consortium for Telecommunications, Italy; C. M. Collins, New York University, United States; D. Riccio, University of Napoli Federico II, Italy; G. Ruello, University of Napoli Federico II, Italy

15:30-15:50

NUMERICAL COMPARISON OF 5 APPROACHES TO IMPROVE MRI PERFORMANCE FOR MR-GUIDED TRANSCRANIAL FOCUSED ULTRASOUND AT 3T

G. Carluccio, University of Napoli Federico II, Italy; C. M. Collins, NYU Grossman School of Medicine, United States

15:50-16:10

HELMHOLTZ WIRELESS COIL LOAD SENSITIVITY STUDY AT 1.5T MRI

P. Tikhonov, ITMO University, Russian Federation; M. Kozhenkov, ITMO University, Russian Federation; T. Kislova, ITMO University, Russian Federation;Fedotov, ITMO University, Russian Federation; A. Hurshkainen, ITMO University, Russian Federation

Tuesday, September 15 - H 17:00-18:40 - room 202

session 13 **ICEAA**

Electromagnetics in biology and medicine

Chairs G. Carluccio, C. Ramos Flores

17:00-17:20

A COMPACT SLOTTED PATCH UWB MONOPOLE ANTENNA SENSOR FOR NON-INVASIVE BREAST TUMOR DETECTION

B. Tlili, Rochester Institute of Technology|(RIT Dubai), United Arab Emirates; Y. Benchoubane, Rochester Institute of Technology|(RIT Dubai), United Arab Emirates; M. Alhomsi, Rochester Institute of Technology|(RIT Dubai), United Arab Emirates; A. Abdi, Rochester Institute of Technology|(RIT Dubai), United Arab Emirates; M. Keshkar, Rochester Institute of Technology|(RIT Dubai), United Arab Emirates

17:20-17:40

A METASURFACE DETECTOR FOR BREAST CANCER DETECTION

M. Hernandez, University of Waterloo, Canada; O. Ramahi, University of Waterloo, Canada

17:40-18:00

EXPOSURE ASSESSMENT OF THE GESTATIONAL BREAST AT 6 GHZ

A. Hadi, Université de Rennes, CNRS, CentraleSupélec, Nantes Université, IETR UMR 6164, France; R. Rizzo, Université de Rennes, CNRS, CentraleSupélec, Nantes Université, IETR UMR 6164, France; M. Zhadobov, Université de Rennes, CNRS, CentraleSupélec, Nantes Université, IETR UMR 6164, France; G. Sacco, Université de Rennes, CNRS, CentraleSupélec, Nantes Université, IETR UMR 6164, France

18:00-18:20

QUANTITATIVE ANALYSIS OF ADDITIVE NOISE EFFECTS ON MICROWAVE IMAGE QUALITY

A. Ramos Flores, McGill University, Canada; A. Poisot Palacios, McGill University, Canada; C. Jeffery, McGill University, Canada; E. Razzicchia, McGill University, Canada; E. Porter, McGill University, Canada

18:20-18:40

NEAR-FIELD COUPLING CONNECTORS FOR MMWAVE ON-BODY SYSTEMS ON FLEXIBLE SUBSTRATES

E. Binot, IETR, France; D. Nikolayev, IETR, France; G. Sacco, IETR, France

Tuesday, September 15 - H 08:30-10:30 - room 203

session 14 **ICEAA**

Modulated and Reconfigurable RF Metasurfaces

Organized by U. Khankhoje
Chair U. Khankhoje

08:30-08:50

ENHANCED OAM BEAM GENERATION USING OPTIMIZED MODULATED METASURFACE ANTENNAS

U.K. Khankhoje, Indian Institute of Technology Madras, India

08:50-09:10

DISTANCE LIMITS OF METASURFACE OAM MULTIPLEXING

A. Gupta, IIT Madras, India; K.P. Bilichod, IIT Madras, India; U.K. Khankhoje, IIT Madras, India

09:10-09:30

ELECTROMAGNETIC RECIPROCITY OF RECONFIGURABLE INTELLIGENT SURFACES

U.K. Khankhoje, Indian Institute of Technology Madras, India; D. Kundu, Indian Institute of Technology Delhi, India

09:30-09:50

TILE-BASED DIGITALLY CODED RECONFIGURABLE INTELLIGENT SURFACE FOR 3.5GHZ BEAM STEERING

R. Malleboina, Indian Institute of Science (IISc), India; D. Sarkar, Indian Institute of Science (IISc), India

09:50-10:10

ULTRALOW-POWER IMPLEMENTATION OF RECONFIGURABLE INTELLIGENT SURFACE UTILISING RF CMOS SWITCHES FOR 6G WIRELESS APPLICATIONS

M.S. Shukoor, Indian Institute of Technology Roorkee, India; S. Dey, Indian Institute of Technology Palakkad, India; K. Rawat, Indian Institute of Technology Roorkee, India

10:10-10:30

HARMONIC BEAM SUPPRESSION AT GRATING LOBE LOCATIONS USING SPACE-DOMAIN PREPHASING ON 1-BIT STC METASURFACE

K. Sahoo, Indian Institute of Technology Roorkee, India; D. Kundu, Indian Institute of Technology Delhi, India; U. Khankhoje, Indian Institute of Technology Madras, India; A. Patnaik, Indian Institute of Technology Roorkee, India

Tuesday, September 15 - H 11:00-13:00 - room 203

session 15 **ICEAA**

Scattering Modelling for Wave Propagation Problems

Organized by X. Du
Chairs X. Du

11:00-11:20

COMPARATIVE EVALUATION OF ELLIPSOIDAL BISTATIC RADAR CROSS SECTION BETWEEN PHYSICAL OPTICS FORMULATION AND GEOMETRICAL OPTICS APPROXIMATION

N. Keerativoranan, Institute of Science Tokyo, Japan; J. Takada, Institute of Science Tokyo, Japan

11:20-11:40

IMPROVED PATH GAIN MODELING FOR RIS CHANNELS INCORPORATING SPECULAR REFLECTION AND WRAPPED-PHASE BRAGG DIFFRACTION

Y. Ding, Niigata University, Japan; M. Kim, Niigata University, Japan

11:40-12:00

TWO TYPES OF RHOMBIC UNIT CELL STRUCTURES WITH A TOP-GAPPED METALLIC PILLAR FOR ELECTROMAGNETIC TOPOLOGICAL WAVEGUIDES

T. Nagayama, Kagoshima University, Japan

12:00-12:20

E-POLARIZED WAVE SCATTERING BY FINITE PARALLEL-PLATE WAVEGUIDES TERMINATED WITH PEC BOUNDARIES

T. Zhang, Chuo University, Japan; K. Kobayashi, Chuo University, Japan

12:20-12:40

RELATIONSHIPS AMONG UNIFORM THEORY OF DIFFRACTION, PHYSICAL OPTICS, KNIFE-EDGE DIFFRACTION METHOD, AND SPLIT-STEP PARABOLIC EQUATION

X. Du, Kagoshima University, Japan

12:40-13:00

PROPAGATION SHADOWING MODEL INCORPORATING LOW-COST FRESNEL REFLECTOR

X. Du, Kagoshima University, Japan

Tuesday, September 15 - H 14:30-18:20 - room 203

session 16 **ICEAA**

Simulation and diagnostics of space plasma phenomena in the laboratory

Organized by W.E. Amatucci, E. Scime
Chairs W.E. Amatucci, E. Scime

14:30-14:50

WAVE-DRIVEN ELECTRON INWARD TRANSPORT IN A MAGNETIC NOZZLE LABORATORY EXPERIMENT

C. Charles, The Australian National University, Australia; K. Takahashi, Tohoku University, Japan; A. Caldarelli, CNRS, France; R.W. Boswell, The Australian National University, Australia

14:50-15:10

FORMATION OF HIGH-POWER HELICON PLASMA AND EMERGENCE OF CENTRIFUGAL INSTABILITY IN THE MADISON AWAKE PROTOTYPE

J. Herbelot, University of Wisconsin–Madison, United States; M. Zepp, University of Wisconsin–Madison, United States; F. Sharmin, University of Wisconsin–Madison, United States; B. Elward, University of Wisconsin–Madison, United States; O. Schmitz, University of Wisconsin–Madison, United States

15:10-15:30

LABORATORY STUDIES OF THE MODIFICATION OF ELECTROMAGNETIC WAVE PROPAGATION UNDER SIMULATED REENTRY CONDITIONS

E. Thomas, Auburn University, United States; J. Powell, Auburn University, United States; M. Steurer, Auburn University, United States; W. J. D. Johnson, Auburn University, United States; S. Chakraborty Thakur, Auburn University, United States

15:30-15:50

INVESTIGATING TURBULENT SPATIOTEMPORAL FEATURES OF MAGNETIC FIELD ALIGNED FILAMENTARY STRUCTURES IN THE MAGNETIZED DUSTY PLASMA EXPERIMENT (MDPX)

S. Chakraborty Thakur, Auburn University, United States; A. Coleman, Auburn University, United States; S. Bachoti, Auburn University, United States; B. Koford, Auburn University, United States; E. Thomas, Auburn University, United States

15:50-16:10

DIELECTRIC SCATTERING MODELS FOR DUSTY PLASMAS BASED ON EMPIRICAL DATA

A. Hodges, MIT Lincoln Laboratory, United States; T. Canny, MIT Lincoln Laboratory, United States; E. Tejero, Naval Research Laboratory, United States; C. Enloe, Naval Research Laboratory, United States; A. Wilber, MIT Lincoln Laboratory, United States; A. Hyde, Naval Research Laboratory, United States; C. Holtsberg, MIT Lincoln Laboratory, United States; B. Amatucci, Naval Research Laboratory, United States

16:10-16:30

MATERIAL EFFECTS ON PRECURSOR SOLITON EXCITATION IN FLOWING ARGON PLASMA

C. Nasr, Orion Space Solutions (an Arcfield Company), United States; I. Collett, Orion Space Solutions (an Arcfield Company), United States; S. Thaller, Orion Space Solutions (an Arcfield Company), United States; M. Cooper, Orion Space Solutions (an Arcfield Company), United States; E. Tejero, Naval Research Laboratory, United States; B. Amatucci, Naval Research Laboratory, United States; E. Scime, West Virginia University, United States; K. Kumar, West Virginia University, United States

17:00-17:20

REMOTE SENSING OF PLASMA SIGNATURES OF SMALL ORBITAL DEBRIS IN LEO

G.L. Delzanno, Los Alamos National Laboratory, United States; F. Bagheri, Los Alamos National Laboratory, United States; V. Roytershteyn, Los Alamos National Laboratory, United States; P.A. Resendiz Lira, Los Alamos National Laboratory, United States; C. Lao, Los Alamos National Laboratory, United States; J. Holmes, Los Alamos National Laboratory, United States

17:20-17:40

THE ORIGIN OF NON-GYROTROPIC DISTRIBUTION FUNCTIONS IN COMPRESSED MAGNETOTAIL CURRENT SHEETS

A.M. DuBois, U.S. Naval Research Laboratory, United States; C. Crabtree, U.S. Naval Research Laboratory, United States; E. Lichko, U.S. Naval Research Laboratory, United States; G. Ganguli, U.S. Naval Research Laboratory, United States

17:40-18:00

FREQUENCY-RESOLVED LOCAL MEASUREMENTS OF PHASE-SPACE ENERGIZATION

E. Lichko, U.S. Naval Research Laboratory, United States; J. Juno, Princeton Plasma Physics Laboratory, United States; S. Conley, Bates College, United States; G.G. Howes, University of Iowa, United States; M. Abler, Space Science Institute, United States; K. Klein, University of Arizona, United States

18:00-18:20

EXPERIMENTAL INVESTIGATIONS OF ELECTROSTATIC AND ELECTROMAGNETIC ORBITAL DEBRIS SOLITON GENERATION

B. Amatucci, Naval Research Laboratory, United States; E. Tejero, Naval Research Laboratory, United States; A. DuBois, Naval Research Laboratory, United States; C. L. Enloe, Naval Research Laboratory, United States; A. Hyde, Naval Research Laboratory, United States; D. Blackwell, Naval Research Laboratory, United States; C. Crabtree, Naval Research Laboratory, United States; G. Ganguli, Naval Research Laboratory, United States

Tuesday, September 15 - H 08:30-13:00 - room 204

session 17 **ICEAA**

Antenna and Wireless Technologies for 6G

Organized by J. Guo, P. Qin
Chairs J. Guo, P. Qin

08:30-08:50

CONCEPT AND PERFORMANCE EVALUATION OF FEEDERLESS ACTIVE PHASED ARRAY FOR SATELLITE FORMATION FLYING

N. Honma, Iwate University, Japan; K. Saito, Iwate University, Japan; R. Miura, Iwate University, Japan;

Y. Ozawa, Iwate University, Japan; S. Arai, Iwate University, Japan; K. Murata, Iwate University, Japan; A. Shirane, Institute of Science Tokyo, Japan; S. Morioka, Interstellar Technologies Inc., Osaka University, Japan

08:50-09:10

ANTENNA-ON-CAMERA (AOC) FOR CAMERA-CONSTRAINED MILLIMETER-WAVE BEAM STEERING TOWARD 6G MOBILE ISAC PLATFORMS

D. Lee, Pohang University of Science and Technology, Republic of Korea; K. Iimura, Dai Nippon Printing, Japan; M. Fukushima, Dai Nippon Printing, Japan; W. Hong, Pohang University of Science and Technology, Republic of Korea

09:10-09:30

ADVANCES IN LOW COST AND ENERGY EFFICIENT MULTIPLE BEAMFORMING ANTENNAS FOR 6G

Y. J. Guo, University of Technology Sydney, Australia; M. Li, University of Technology Sydney, Australia

09:30-09:50

DESIGN OF A SELF-RESONANT AND SELF-MATCHED COMPACT FLEXIBLE ANTENNA

Q.W. Yuan, Y. Tang, T. Matsumoto, Tohoku Institute of Technology, Japan

09:50-10:10

BESSEL-BEAM DEPTH OF FIELD CONTROL FOR WIRELESS POWER TRANSFER

G. Liu, University of Technology Sydney, Australia; L.Z. Song, University of Technology Sydney, Australia; A. Narbudowicz, Technical University of Denmark, Denmark; C. Ding, University of Technology Sydney, Australia

10:10-10:30

DEEP GENERATIVE MODEL-DRIVEN AUTOMATED DESIGN OF ANTENNA-IN-PACKAGE FOR 6G APPLICATIONS

H.S. Eun, UNIST, Republic of Korea; G. Byun, UNIST, Republic of Korea

11:00-11:20

SHARED-APERTURE METASURFACE-ANTENNA-IN-PACKAGE INTEGRATING X-BAND PHASED ARRAY AND KA-BAND FOLDED REFLECTARRAY

Y. Zhang, City University of Hong Kong, Hong Kong; Y.S. To, City University of Hong Kong, Hong Kong; H. Wong, City University of Hong Kong, Hong Kong

11:20-11:40

DESIGN OF ONE-BODY TWO-DIMENSIONAL SWITCHING MATRIX WITH A 4×4 TRIANGULAR LATTICE OF BEAMS

S. Wu, Institute of Science Tokyo, Japan; J. Hirokawa, Institute of Science Tokyo, Japan; T. Tomura, Institute of Science Tokyo, Japan; N. J. G. Fonseca, Anywaves, France

11:40-12:00

A LOW-PROFILE RECONFIGURABLE FOLDED REFLECTARRAY ANTENNA FOR WIDE-ANGLE BEAM SCANNING

S. Yu, Communication University of China, China; Z. Li, Communication University of China, China; Q. Guo, Communication University of China, China; J. Liu, Communication University of China, China

12:00-12:20

DESIGN OF A CHESSBOARD POLARIZATION CONVERSION METASURFACE FOR WIDEBAND RCS REDUCTION

J. Zhu, Communication University of China, China; Z. Li, Communication University of China, China; Q. Guo, Communication University of China, China; J. Liu, Communication University of China, China

12:20-12:40

LOW-PROFILE CIRCULARLY POLARIZED FOLDED TRANSMITARRAY ANTENNA WITH ULTRA-HIGH EFFICIENCY FOR KU-BAND APPLICATIONS

X. Wei, Communication University of China, China; Q. Guo, Communication University of China, China; J. Liu, Communication University of China, China; Z. Li, Communication University of China, China

12:40- 13:00

ADVANCED BEAMFORMING ARCHITECTURES: MODULAR AIP/AIM SCALING FOR RESILIENT 6G SATCOM, NTN, AND DYNAMIC RIS

S.W. Chang, TMY Technology Inc., Taiwan

Tuesday, September 15 - H 14:30-17:40 - room 204

session 18 **ICEAA**

Advancements in the Modelling of Transient Fields

Organized by K. Cools
Chair K. Cools,

14:30-14:50

A GEOMETRIC ALGEBRA SCHRÖDINGER BRIDGE FOR ELECTROMAGNETIC INVERSE SCATTERING

G. Yu, University of Surrey, United Kingdom; M. Kamoun, Huawei Paris Research Center, France; M. Hamad, Huawei Paris Research Center, France; G. Gradoni, University of Surrey, United Kingdom

14:50-15:10

A LATE-TIME STABLE SCALAR-ONLY INTEGRAL EQUATION FOR THE MODELLING OF TRANSIENT SCATTERING BY PERFECT CONDUCTORS

K. Cools, Ghent University, Belgium

15:10-15:30

MODELLING OF TIME-INVARIANT AND TIME-VARYING META SURFACES USING A 2D FDTD-TF/SF FRAMEWORK

A. Mallahzadeh, Institute for Communication Systems (ICS),University of Surrey, United Kingdom; G. Yu, University of Surrey, United Kingdom; G. Gradoni, University of Surrey, United Kingdom; M. Khalily, University of Surrey, United Kingdom; R. Tafazolli, University of Surrey, United Kingdom

15:30-15:50

THE CRITICAL LOAD RESISTANCE OF A DUAL-LOADED LOOP ANTENNA: A TIME-DOMAIN STUDY BASED ON THE PEEC METHOD

E. Mattucci, Brno University of Technology, Czech Republic; M. Štumpf, Brno University of Technology, Czech Republic; P. Kadlec, Brno University of Technology, Czech Republic; G. Antonini, University of L'Aquila, Italy

15:50-16:10

NUMERICAL MODELLING OF WAVE PROPAGATION IN MEDIA WITH TIME-FRACTIONAL CONSTITUTIVE RELATIONS

T.P. Stefanski, Gdansk University of Technology, Poland; D. Trofimowicz, Gdansk University of Technology, Poland; J. Gulgowski, University of Gdansk, Poland

16:10-16:30

MULTI-GPU FDTD FOR FREQUENCY- AND TEMPERATURE-DEPENDENT ELECTROMAGNETIC MEDIA

W.C. Snider, Auburn University, United States

17:00-17:20

MULTI-CORE CPU ACCELERATION OF TIME-DOMAIN GREEN-FUNCTION ASSEMBLY IN MOT-JVIE

S. Kumar, Eindhoven University of Technology, Netherlands; W. van der Hert, Eindhoven University of Technology, Netherlands; S. Eijsvogel, Eindhoven University of Technology, Netherlands; G. Gerini, Eindhoven University of Technology, Netherlands; M.C. Beurden, Eindhoven University fo Technology, Netherlands

17:20-17:40

RESONANCE-FREE CALDERÓN PRECONDITIONED GLOBAL-MULTI-TRACE VECTOR-POTENTIAL INTEGRAL EQUATION FOR COMPOSITE DIELECTRIC-PEC SCATTERING

P. Olyslager, Ghent university, Belgium; H. Rogier, Ghent university, Belgium; K. Cools, Ghent university, Belgium

Tuesday, September 15 - H 14:30-18:40 - conference room

session 19a **APWC**

Wideband/Multiband Antennas and Emerging Antenna Technology

Organized by H. Nakano
Chairs H. Nakano, M. Matsunaga

14:30-14:50

WIDEBAND BEHAVIOR IN METAMATERIAL BENT-LINE ANTENNA FRAMEWORKS

H. Nakano, Hosei University, Japan; T. Abe, Hosei University, Japan; J. Shibayama, Hosei University, Japan; A. Mehta, Swansea University, United Kingdom

14:50-15:10

GAIN ENHANCEMENT OF A CIRCULARLY POLARIZED PRINTED MONOPOLE ANTENNA FOR UWB HIGH BAND USING A CAVITY REFLECTOR

T. Fujimoto, Nagasaki University, Japan; C.E. Guan, Nagasaki University, Japan

15:10-15:30

WIDEBAND DESIGN OF A DUAL-BAND MICROSTRIP ANTENNA FED BY AN L-PROBE USING A SINGLE-LAYER SUBSTRATE WITH A RELATIVE DIELECTRIC CONSTANT OF 3.3

Y. Kimura, Saitama University, Japan; T. Obinata, Saitama University, Japan; T. Matsushima, Saitama University, Japan; T. Arima, Tokyo University of Agriculture and Technology, Japan

15:30-15:50

A WIDEBAND SINGLE-PORT PATCH ANTENNA FED THROUGH A SYMMETRIC CPW SIDE-SLOT APERTURE

M. Matsunaga, Shizuoka University, Japan; T. Kurokawa, Shizuoka University, Japan

15:50-16:10

COMPARATIVE EVALUATION ON FEEDING TECHNIQUE CONFIGURATION FOR IMPROVING RADIATION PERFORMANCES OF PLANAR ARRAY MICROSTRIP ANTENNA

M.R. Effendi, Institut Teknologi Bandung, Indonesia; M.F. Maulana, Telkom University, Indonesia; F.A. Nasution, Institut Teknologi Bandung, Indonesia;, H. Mistialustina, Universitas Sangga Buana, Indonesia; A. Munir, Institut Teknologi Bandung, Indonesia

16:10-16:30

LOW AXIAL RATIO WIDE-ANGLE SCANNING PHASED ARRAY ANTENNA VIA LOW DIELECTRIC MATCHING LAYER

T. Uesaka, Mitsubishi Electric Corporation, Japan; H. Watanabe, Mitsubishi Electric Corporation, Japan; T. Tanaka, Mitsubishi Electric Corporation, Japan; T. Takahashi, Mitsubishi Electric Corporation, Japan

17:00-17:20

DUAL-BAND DUAL-POLARIZED SHARED-APERTURE WIDE-BAND ANTENNA ARRAY

Y. Luo, Beijing Institute of Technology, China; Z. Shen, The Yangtze Delta Region Academy, Beijing Institute of Technology, China

17:20-17:40

COMPACT DUAL BAND ANTENNA COMPOSED OF METAL CASE WITH SLOT AND INNER FOLDED DIPOLE ELEMENT

H. Hashiguchi, National Defense Academy, Japan; N. Michishita, National Defense Academy, Japan; H. Morhishita, National Defense Academy, Japan; Q.Q. Phung, Le Quy Don Technical University, Viet Nam; A. Takei, Panasonic Electric Works Co., Ltd., Japan; M. Takeda, Panasonic Electric Works Co., Ltd., Japan; A. Yamamoto, Panasonic Electric Works Co., Ltd., Japan; H. Ide, Panasonic Electric Works Co., Ltd., Japan; Y. Seki, Panasonic Electric Works Co., Ltd., Japan; Y. Koyanagi, Panasonic System Networks R&D, Japan; H. Sato, Panasonic System Networks R&D, Japan

17:40-18:00

FAN-SHAPED DIELECTRIC ANTENNA ON FINITE GROUND PLANE

K. Sato, DKK Co., Ltd., Japan; H. Nakano, Hosei Univ., Japan

18:00-18:20

ON THE USE OF THE DOUBLE CORNU SPIRAL ANTENNA IN MIMO SYSTEMS

D. Pouhè, Reutlingen University of Applied Sciences, Germany

18:20-18:40

A DESIGN OF VARIABLE MULTI-BAND CONFORMAL RIS WITH FLEXIBLE PRINTED CIRCUIT

T. Urakami, National Institute of Technology, Kagawa College, Japan; K. Okada, National Institute of Technology, Kagawa College, Japan; T. Maruyama, Hiroshima Institute of Technology, Japan; A. Ono, National Institute of Technology, Kagawa College, Japan; N. Chen, University of Science and Technology Beijing, China; M. Okada, Nara Institute of Science and Technology, Japan

WEDNESDAY 16

Wednesday, September 16 - 08:30-15:10 - room 201

session 19b **APWC**

Wideband/Multiband Antennas and Emerging Antenna Technology

Organized by H. Nakano
Chairs H. Nakano, M. Matsunaga

08:30-08:50

AN ULTRA-WIDEBAND BOR-SPR ANTENNA WITH A TWO-STEP BENDING CONICAL GROUND PLANE

Y. Oishi, Toshiba Corporation, Japan; Y. Masuda, Toshiba Corporation, Japan; M. Tanabe, Toshiba Corporation, Japan; H. Nakano, Hosei University, Japan

08:50-09:10

BANDWIDTH OF RADIATION EFFICIENCY FOR ELECTRICALLY SMALL ANTENNAS EXCITED BY A FOLDED STRUCTURE

K.N. Keisuke, Kanazawa Institute of Technology, Japan; D.M. Daiki, Kanazawa Institute of Technology, Japan; K.F. Keisuke, Maebashi Institute of Technology, Japan

09:10-09:30

A NOVEL MULTI-BAND MIMO ANTENNA WITH BENT SECTION FOR IN-VEHICLE DEVICES

Y. Koga, AutoNetworks Technologies, Ltd., Japan; K. Kikuchi, AutoNetworks Technologies, Ltd., Japan; Y. Miki, AutoNetworks Technologies, Ltd., Japan; S. Yamagishi, AutoNetworks Technologies, Ltd., Japan; I. Kuwayama, AutoNetworks Technologies, Ltd., Japan; K. Noguchi, Kanazawa Institute of Technology, Japan; H. Iwai, Doshisha University, Japan

09:30-09:50

PLANAR ARRAY FRACTAL MICROSTRIP ANTENNA WITH SWITCHABLE RADIATION PATTERNS FOR WIRELESS COMMUNICATION SYSTEMS

S. Suprayogi, Telkom University, Indonesia; B. Sumajudin, Telkom University, Indonesia; C. Chairunnisa, Institut Teknologi Bandung, Indonesia; N. Rahayu, Institut Teknologi Bandung, Indonesia; A.R. Oktaviani, Telkom University, Indonesia; R. Khairany, Telkom University, Indonesia; P.O.Y. Sihombing, Telkom University, Indonesia; A. Munir, Institut Teknologi Bandung, Indonesia

09:50-10:10

A STUDY ON LEAKY-WAVE ANTENNAS USING DIELECTRIC WAVEGUIDES

Y. Rikuta, Nihon Dengyo Kosaku Co., Ltd., Japan; U. Azuma, Nihon Dengyo Kosaku Co., Ltd., Japan; H. Hagiwara, Nihon Dengyo Kosaku Co., Ltd., Japan

10:10-10:30

BEAM TILT REALIZATION USING AN ARTIFICIAL DIELECTRIC MATERIAL

Y. Zhang, Ryukoku University, Japan; Y. Toda, Ryukoku University, Japan; Y. Inoua, Ryukoku University, Japan; H. Hirota, Ryukoku University, Japan

11:00-11:20

BEAM SQUINT SUPPRESSION IN BROADBAND ANTENNAS USING TRANSMISSION-TYPE METASURFACES

M. Yonehara, Kyocera corporation, Japan; H. Yoshikawa, Kyocera corporation, Japan; H. Nakano, Hosei University, Japan

11:20-11:40

ENGINEERED DIELECTRIC RESONATOR ANTENNA FOR BROADBAND OPERATION WITH ADVANCED FUNCTIONAL FEATURES

S. Basak, Universitry of Calcutta, India; D. Guha, Universitry of Calcutta, India

11:40-12:00

DUAL-SENSE CIRCULARLY POLARIZED WAVEGUIDE ANTENNA USING TWO L-SHAPED PROBES AND PERTURBATION ELEMENTS

T. Fukusako, Kumamoto University, Japan; K. Nishio, Kumamoto University, Japan; R. Kuse, Kumamoto University, Japan

12:00-12:20

EXPERIMENTAL INDOOR WLAN DEMONSTRATION OF A 12-BIT PIXEL-BASED FLUID ANTENNA SYSTEM

B. Liu, Hong Kong Metropolitan University, Hong Kong; K.F. Tong, Hong Kong Metropolitan University, Hong Kong

12:20-12:40

A COMPACT WIDEBAND SUB-THZ HORN FEED ENABLING METASURFACE-BASED ISAC SYSTEMS IN 6G NETWORKS

Y.S. To, City University of Hong Kong, Hong Kong; H. Wong, City University of Hong Kong, Hong Kong

12:40-13:00

COMPREHENSIVE MULTIPHYSICS SIMULATION OF A TERAHERTZ PHOTOCONDUCTIVE ANTENNA

J. Shibayama, Hosei University, Japan; Y. Muraosa, Hosei University, Japan; Y. Akimoto, Hosei University, Japan; H. Nakano, Hosei University, Japan

14:30-14:50

BROADBAND APERTURE ANTENNA-IN-PACKAGE TECHNIQUES IN 300GHZ BAND

K. Sakakibara, Nagoya Institute of Technology, Japan; T. Uemura, Nagoya Institute of Technology, Japan; H. Mori, Nagoya Institute of Technology, Japan; T. Narita, Nagoya Institute of Technology, Japan; Y. Sugimoto, Nagoya Institute of Technology, Japan; Y. Tanaka, Nagoya Institute of Technology, Japan; N. Kikuma, Nagoya Institute of Technology, Japan

14:50-15:10

EFFICIENCY ENHANCEMENT OF 10-GHZ WIRELESS POWER TRANSFER USING A PLANAR LENS AND PATCH ANTENNAS

T. Maruyama, Hiroshima Institute of Technology, Japan; H. Abe, Hiroshima Institute of Technology, Japan; I. Awai, Department of Yamaguchi Laboratories, Mt. Fuji GX Holdings Inc, Japan

Wednesday, September 16 - 15:30-17:40 - room 201

session 20 **APWC**

Antennas and Arrays Technologies

Chairs G. Martinez, S. Dacuycuy

15:30-15:50

COMPACT MULTIRESONANCE CUBIC ANTENNA COMBINING COMPLEMENTARY SERIES- AND PARALLEL-RESONANT ELEMENTS

T. Kaneda, Maebashi Institute of Technology, Japan; H. Hayashi, Kanazawa Institute of Technology, Japan; K. Noguchi, Kanazawa Institute of Technology, Japan; K. Fujita, Maebashi Institute of Technology, Japan

15:50-16:10

A COPLANAR L-PROBE FED PATCH ANTENNA FOR WIDEBAND WIDE-SCANNING PHASED ARRAYS

Y. Sheng, Southeast University, Nanjing, China; Z. Cao, Southeast University, Nanjing, China

16:10-16:30

A RECONFIGURABLE REFLECTARRAY USING ELECTRICALLY ACTUATED LIQUID-METAL ELEMENTS

S.J. Dacuycuy, University of Hawaii at Manoa, United States; G.A.V. Manio, University of Hawaii at Manoa, United States; K.I. Maki, University of Hawaii at Manoa, United States; M.T. Kouchi, University of Hawaii at Manoa, United States; R.C. Ordonez, Naval Information Warfare Center Pacific, United States; C.I. Alizar, Naval Information Warfare Center Pacific, United States; C.K. Hayashi, Naval Information Warfare Center Pacific, United States; A.T. Ohta, University of Hawaii at Manoa, United States; W.A. Shiroma, University of Hawaii at Manoa, United States

17:00-17:20

DESIGN OF A 1-BIT, 28-GHZ LIQUID-METAL REFLECTIVE METASURFACE FOR ANOMALOUS BEAM STEERING

M.T. Kouchi, University of Hawaii at Manoa, United States; K.I. Maki, University of Hawaii at Manoa, United States; G.A.V. Manio, University of Hawaii at Manoa, United States; S.J. Dacuycuy, University of Hawaii at Manoa, United States; R.C. Ordonez, Naval Information Warfare Center Pacific, United States; C.I. Alizar, Naval Information Warfare Center Pacific, United States; C.K. Hayashi, Naval Information Warfare Center Pacific, United States; W.A. Shiroma, University of Hawaii at Manoa, United States; A.T. Ohta, University of Hawaii at Manoa, United States

17:20-17:40

BEAM-TILTING YAGI-UDA ANTENNA WITH SUPPRESSED SYMMETRICAL RADIATION VIA PARASITIC STRIPLINES

R. Jaafar, IETR-University of Rennes, France; S. Collardey, IETR-University of Rennes, France; A. Sharaiha, IETR-University of Rennes, France

Wednesday, September 16 - 17:40-18:40 - room 201

session 21 **ICEAA**

Quantum technologies in Electromagnetics

Organized by G. Martinez, E. Zich
Chairs G. Martinez, E. Zich

17:40-18:00

HYBRID QUANTUM-CLASSICAL DEEP LEARNING FOR LOW SNR RADAR SIGNAL CLASSIFICATION AND OOD DETECTION

G. F. Martinez, Politecnico di Milano, Italy; A. Niccolai, Politecnico di Milano, Italy; R. E. Zich, Politecnico di Milano, Italy

18:00-18:20

STATISTICAL MODELING AND SENSOR FUSION FOR SPAD-BASED TIME-OF-FLIGHT LIDAR

E.L. Zich, Politecnico di Milano, Italy; F. Pace Napoleone, Université de Toulouse - France; G.F. Martinez, Politecnico di Milano, Italy; R.E. Zich, Politecnico di Milano, Italy

18:20-18:40

QUANTUM SUPPORT VECTOR FOR ACCELEROMETER-BASED INTRUSION DETECTION

F. Pace Napoleone, Université de Toulouse - Paul Sabatier, France; N. Simonov, Università di Pisa, Italy; E.L. Zich, Politecnico di Milano, Italy; F. Chiaudani, Politecnico di Milano, Italy; S. Copelli, Politecnico di Milano, Italy; Y. Amigoni, Politecnico di Milano, Italy; R.E. Zich, Politecnico di Milano, Italy

Wednesday, September 16 - 08:30-15:50 - room 202

session 22 **ICEAA**

Natural and stimulated emissions and related phenomena in space and astrophysical plasmas

Organized by G. Ganguli
Chairs G. Ganguli

08:30-08:50

PRELIMINARY THEORETICAL INTERPRETATION OF WAVE OBSERVATIONS FROM THE SMART EXPERIMENT

C. Crabtree, G. Ganguli, C. Siefring, E. Lichko, A.R.Sot-Chavez, G. Gatling, US Naval Research Laboratory, United States

08:50-09:10

SPACE MEASUREMENT OF A ROCKET-RELEASED TURBULENCE (SMART) FROM WAKE ISLAND

C. Netwall, US Naval Research Laboratory, United States

09:10-09:30

PLASMA WAVE OBSERVATIONS DURING THE SPACE MEASUREMENTS OF A ROCKET-RELEASED TURBULENCE (SMART) EXPERIMENT

C.L. Siefring, C.E. Crabtree, G.I. Ganguli, G.R. Gatling, J.M. Coombs, W.E. Amaucci, E.R. Lichko, A. Soto-Chavez, US Naval Research Laboratory, United States; J.L. McLain, NASA Goddard Space Flight Center, United States; M. McCarthy, R. Holzworth, University of Washington, United States; W. Farrell, Space

Sciences Institute, United States; D. Hampton, University of Alaska Fairbanks, United States

09:30-09:50

ELECTRIC FIELD MEASUREMENTS FROM AN IONOSPHERIC BARIUM RELEASE

M. P. McCarthy, University of Washington, Seattle, United States; R. H. Holzworth, University of Washington, Seattle, United States; C. L. Siefring, Naval Research Laboratory, United States; G. I. Ganguli, Naval Research Laboratory, United States; C. E. Crabtree, Naval Research Laboratory, United States

09:50-10:10

DOWNWARD PROPAGATING WHISTLER WAVE REFLECTION AND TRANSMISSION FROM BELOW THE F-LAYER GENERATED BY THE SMART EXPERIMENT

J.M. TenBarge, Princeton University, United States; C.E. Crabtree, US Naval Research Laboratory, United States; C.R. Brown, US Naval Research Laboratory, United States; E. Lichko, US Naval Research Laboratory, United States; A.R. Sato, US Naval Research Laboratory, United States; G. Ganguli, US Naval Research Laboratory, United States; J. Juno, Princeton Plasma Physics Laboratory, United States

10:10-10:30

THREATS TO A SUSTAINABLE FUTURE IN LOW EARTH ORBIT

D.N. Baker, CSPC, University of Colorado Boulder, United States

11:00-11:20

PRECURSOR SOLITONS IN A MAGNETIZED PLASMA

A. Sen, Institute for Plasma Research, India; A. Mir, Udaipur Solar Observatory, Physical Research Laboratory, India; S. Tiwari, Indian Institute of Technology Jammu, India; P. Bandyopadhyay, Institute for Plasma Research, India; C. Crabtree, Naval Research Laboratory, United States; G. Ganguli, Naval Research Laboratory, United States

11:20-11:40

PLASMA SIGNATURES OF SMALL ORBITAL DEBRIS IN LEO: MAGNETIC FIELD EFFECTS

G.L. Delzanno, Los Alamos National Laboratory, United States; V. Roytershteyn, Los Alamos National Laboratory, United States; P. A. Resendiz Lira, Los Alamos National Laboratory, United States; C. Lao, Los Alamos National Laboratory, United States; F. Bagheri, Los Alamos National Laboratory, United States; J. Holmes, Los Alamos National Laboratory, United States

11:40-12:00

TOWARDS STATE ESTIMATION OF SPACE OBJECTS FROM PLASMA WAVE OBSERVATIONS

I.W. Collett, Orion Space Solutions, United States; E. McAleavy, Orion Space Solutions, United States; S. Thaller, Orion Space Solutions, United States; R. Patel, Orion Space Solutions, United States; C. Nasr, Orion Space Solutions, United States; F. Gasperini, Orion Space Solutions, United States; J. Wilson, Orion Space Solutions, United States; N. Re, Advanced Space, United States; B. Tatman, Advanced Space, United States

12:00-12:20

PLASMA STRUCTURES IN THE LOWER HYBRID FREQUENCY RANGE PRODUCED BY CHARGED SPACE OBJECTS

W. Scales, Virginia Tech, United States; M. Idso, University of California, United States; B. Srinivasan, University of Washington, United States

12:20-12:40

REAL CUBESAT OBSERVATIONS OF ELECTRON MICROBURSTS

R.M. Millan, Dept. of Physics and Astronomy, Dartmouth, United States

12:40-13:00

CROSS-SCALE RADIATION BELT MODELING DURING GEOMAGNETIC STORMS

A. T. Michael, JHU/APL, United States; A. Ukhorskiy, JHU/APL, United States; K. Sorathia, JHU/APL, United States; V. Merkin, JHU/APL, United States; J. Albert, AFRL, United States; X. Shen, W. Li, Boston University, United States

14:30-14:50

ENERGETIC PARTICLE TRANSPORT, ACCELERATION, AND SCATTERING BY MESOSCALE CONVECTION IN EARTH'S MAGNETOTAIL

A. Ukhorskiy, JHU/APL, United States; A.T. Michael, JHU/APL, United States; K. Sorathia, JHU/APL, United States; V.G. Merkin, JHU/APL, United States; R.M. Millan, Dartmouth College, United States

14:50-15:10

PENETRATION OF SOLAR ENERGETIC HELIUM INTO THE EARTH'S MAGNETOSPHERE: SEP EVENTS OF SEPTEMBER 2017

S.G. Kanekal, NASA, United States; F. Gautier, D.N. Baker, George Mason University, Fairfax, United States; A.Greeley, NASA, United States; Q. Schiller, George Mason University, Fairfax, United States

15:10-15:30

ELECTROJET ZEEMAN IMAGING EXPLORER (EZIE) MISSION: REDEFINING HOW WE STUDY MAGNETOSPHERE–IONOSPHERE COUPLING

V. G. Merkin, JHU/APL, United States; R. Mesquita, JHU/APL, United States; W. Swartz, JHU/APL, United States; J.H. Yee, JHU/APL, United States; J. Garretson, JHU/APL, United States; G. Starr, JHU/APL, United States; D. Stephens, JHU/APL, United States; F. Werner, JPL, United States; M. Schwartz, JPL, United States; S. Misra, JPL, United States

15:30-15:50

FLIGHT TEST METHODS FOR NATURAL AND STIMULATED EMISSIONS

B.J. Pokines, AFRL, United States; C. Crabtree, AFRL, United States

Wednesday, September 16 - 15:50-18:40 - room 202

session 23 **ICEAA**

Wavefront Control and Radiation Engineering using Metasurfaces and Metamaterials

Organized by S. Arslanagic, A. Monti, H. Wakatsuchi
Chairs S. Arslanagic, A. Monti, H. Wakatsuchi

15:50-16:10

REALISTIC SUPERDIRECTIVE SPHERICAL DIELECTRIC LENS ANTENNAS

S. Arslanagic, R. W. Ziolkowski, University of Arizona, United States

16:10-16:30

DESIGN METHOD FOR APERIODIC ASYMMETRIC METASURFACES

Y. Otsuka, Nagoya Institute of Technology, Japan; H. Wakatsuchi, Nagoya Institute of Technology, Japan

17:00-17:20

DRILLING METAL PLATES OPENS DIVERSITY OF ELECTROMAGNETIC WAVE MODES

O. Sakai, The University of Shiga Prefecture, Japan; G. Itami, The University of Shiga Prefecture, Japan; F. Pizarro, Pontificia Universidad Católica de Valparaíso, Chile; T. Nakanishi, The University of Shiga Prefecture, Japan

17:20-17:40

DIGITALLY CODED PROGRAMMABLE CRLH METAMATERIAL ANTENNA FOR RECONFIGURABLE BEAMFORMING

Y. E. Kao, M. Q. Nguyen, C. T. M. Wu, National Taiwan Univeristy, Taiwan

17:40-18:00

AIR GAP IN WIDEBAND, WIDE-SCANNING CONNECTED SLOT ARRAYS LOADED WITH ARTIFICIAL DIELECTRICS

D. Choi, Ulsan National Institute of Science and Technology, Republic of Korea; G. Byun, Ulsan National Institute of Science and Technology, Republic of Korea

18:00-18:20

A COMPACT 2D POLARIZATION-MIXING BEAMFORMING ANTENNA ARRAY WITH CONTROLLABLE BEAMWIDTH

C. Zeng, University of Technology Sydney (UTS), Australia; C. Ding, University of Technology Sydney (UTS), Australia; Y.J. Guo, University of Technology Sydney (UTS), Australia

18:20-18:40

METASURFACES FOR SPATIALLY SEPARATING OPTICAL ANGULAR MOMENTUM BEAMS TO OBTAIN GAUSSIAN WAVEFORMS

J. D. Tran, Technical University of Denmark, Denmark; A. Lavrinenko, Technical University of Denmark, Denmark; T. Morioka, Technical University of Denmark, Denmark; L.K. Oxenløwe, Technical University of Denmark, Denmark; R. Malureanu, Technical University of Denmark, Denmark

Wednesday, September 16 - 08:30-12:40 - room 203

session 24 **ICEAA**

Novel Mathematical Methods in Electromagnetics

Organized by K. Kobayashi, G. Lombardi, Y. Shestopalov
Chairs K. Kobayashi, G. Lombardi, Y. Shestopalov

08:30-08:50

3-D PML-FDTD IMPLEMENTATION USING DIMENSIONALLY ALIGNED MAXWELL'S EQUATIONS

A. A. Cosan, National Defence University - Turkish Naval Academy, Turkey; F. Erden, Turkish Navy - Office of Navigation, Hydrography and Oceanography, National Defence University - Turkish Naval Academy, Turkey; M. E. Alaca, National Defence University, Graduate Institute, Turkey

08:50-09:10

GRADIENT-BASED OPTIMIZATION OF MMWAVE REFLECTORS FOR DESIGNATED-REGION COVERAGE

C.M.H. Le, Institute of Science Tokyo, Japan; N. Keerativoranan, Institute of Science Tokyo, Japan; H. Song, Hiroshima University, Japan; A.S. Andrenko, Institute of Science Tokyo, Japan; J. Takada, Institute of Science Tokyo, Japan

09:10-09:30

IMPEDANCE MODEL OF A BLACK BODY OF ROTATION OF ARBITRARY POLARIZATION

Y. V. Yukhanov, Southern federal university, Russian Federation; T. Y. Privalova, Southern federal university, Russian Federation

09:30-09:50

CONTROL THE PANCHARATNAM-BERRY PHASE OF BISTATIC SCATTERING FROM CYLINDRICAL SECTORIAL METASURFACES

A.I. Semenikhin, Southern federal university, Russian Federation; D. V. Semenikhina, Southern federal university, Russian Federation; A. N. Savitskiy, Southern federal university, Russian Federation; T.Y. Privalova, Southern federal university, Russian Federation

09:50-10:10

PLANE WAVE DIFFRACTION BY A PERFECTLY CONDUCTING RECTANGULAR CYLINDER: A WIENER–HOPF ANALYSIS

K.W. He, Hunan University of Science and Technology, China; K. Kobayashi, Chuo University, Japan

10:10-10:30

A POSTERIORI ERROR ESTIMATES AND ADAPTIVE ALGORITHM FOR THE RECONSTRUCTION OF DIELECTRIC PROPERTIES IN CONDUCTIVE OBJECTS

G. Kyhn, University of Gothenburg, Chalmers University of Technology, Sweden; E. Lindström, University of Gothenburg, Chalmers University of Technology, Sweden; L. Beilina, University of Gothenburg, Chalmers University of Technology, Sweden

11:00-11:20

ELECTROMAGNETIC SCATTERING BY THE MAGNETIZATION STRUCTURE OF A BLOCH POINT

V. Jandieri, Nagoya Institute of Technology, Japan; R. Khomeriki, Tbilisi State University, Georgia; D. Erni, University of Duisburg-Essen, Germany; N. Tsagareli, Binghamton University, United States; Q. Li, Tsinghua University, China; P.L. Werner, The Pennsylvania State University, United States; D.H. Werner, The Pennsylvania State University, United States; J. Berakdar, Martin-Luther Universität Halle-Wittenberg, Germany

11:20-11:40

THE THERMODYNAMICAL ELECTROMAGNETISM WITH AN INTRODUCTION TO THE INFLECTIVE MAGNETISM

T. Sengör, Yildiz Technical University (Retired), Turkey

11:40-12:00

MAGNETIC CONTROL OF QUANTUM ČERENKOV EMISSION IN CONFINED GRAPHENE

M. Longhi, Niccolò Cusano University, Italy; D. Mencarelli, Marche Polytechnic University, Italy; A. Toscano, Roma Tre University, Italy; L. Pierantoni, Marche Polytechnic University, Italy

12:00-12:20

ASYMPTOTIC ANALYSIS OF THE SOMMERFELD PROBLEM FOR MAGNETIC MEDIA

S. Sautbekov, G.Alkina, Al-Farabi Kazakh National University, Kazakhstan

12:20-12:40

A SELF-CONSISTENT QUANTUM-CLASSICAL ALGORITHM FOR HOT-ELECTRON GENERATION IN COMPLEX PLASMONIC NANOSTRUCTURES

P. Li, Tsinghua University, China; Y. Li, Tsinghua University, China

12:40-13:00

WIENER-HOPF MODELING OF CYLINDRICAL STRUCTURES WITH POLYGONAL CROSS SECTIONS

V. Daniele, Politecnico di Torino, Italy; G. Lombardi, Politecnico di Torino, Italy

Wednesday, September 16 - 14:30-18:20 - room 203

session 25 **ICEAA**

Dedicated Communication Technologies

Organized by Y. Wen
Chairs Y. Wen,

14:30-14:50

ELECTROMAGNETIC INTERFERENCE CHARACTERISTICS OF MAGLEV TRAINS IN THE 30 - 200 MHZ BAND

Y. Xu, Z. Zhang, X. Liu, G. Deng, H. Wang, State Key Laboratory of High-speed Maglev Transportation Technology, China; J. Zhang, Beijing Jiaotong University, China

14:50-15:10

RESEARCH ON THE MEASUREMENT METHOD OF SURFACE CURRENT AND SURFACE POTENTIAL OF MAGLEV TRAIN

Y. Xu, Z. Zhang, X. Liu, G. Deng, H. W, State Key Laboratory of High-speed Maglev Transportation Technology, China; J. Zhang, Beijing Jiaotong University, China

15:10-15:30

RESEARCH ON THE INFLUENCE OF CARBON FIBER TRAIN BODY ON RADIATION EMISSION

Y. Li, S. Fu, D. Wu, Q. Xu, State Key Laboratory of High-speed Maglev Transportation Technology, China; Z. Liu, J. Zhang, Beijing Jiaotong University, China

15:30-15:50

RADIO WAVE PROPAGATION PREDICTION IN TUNNEL BASED ON RESIDUAL LEARNING

Z.L. Yue, Y. Wen, Beijing Jiaotong University, China

15:50-16:10

TERAHERTZ WAVE PROPAGATION IN IRON FILINGS DUST CLOUDS BASED ON MIE SCATTERING THEORY AND MONTE CARLO METHOD

Y. Xiong, Beijing Jiaotong University, China; Y. Wu, Beijing Jiaotong University, China; X. Jia, Beijing Jiaotong University, China; Y. Wen, Beijing Jiaotong University, China

16:10-16:30

INTERPRETABLE TRANSFORMER-BASED HARDWARE HEALTH ASSESSMENT AND ANOMALY DETECTION FOR SERVERS IN LARGE-SCALE DATA CENTERS

Z.A. Zhang, College of Intelligence And Computing, Tianjin University, China; X.Y. Yang, China Telecom Co., Ltd, China; J. Yan, China Telecom Co., Ltd, China; X. Jia, China Telecom Co., Ltd, China; Q.W. Zhang, China Telecom Co., Ltd, China; H.M. Li, China Telecom Co., Ltd, China

17:00-17:20

PREDICTION-DRIVEN ACTIVE PROBING FOR FAULT DETECTION IN CLOUD NETWORKS

Y.T. Chen, University of Electronic Science and Technology of China, China; X.Y. He, China Mobile Communications Group Beijing Co.,Ltd., China; P. Hao, China Mobile Communications Group Beijing Co.,Ltd., China; G.D. Yang, China Mobile Communications Group Co., Ltd., China; Q.C. Shi, Beijing Jiaotong University, China; H. Zhao, China Mobile Communications Group Co., Ltd., China; Y. Xiao, China Mobile Communications Group Beijing Co.,Ltd., China

17:20-17:40

GEOMETRY-RESIDUAL FACTORIZATION FOR CALIBRATION-EFFICIENT CROSS-ENVIRONMENT UAV CHANNEL ESTIMATION

X. Wang, Beijing Jiaotong University, China; Z. Zhang, Beijing Jiaotong University, China; Q. Shi, Beijing Jiaotong University, China; Y. Wen, Beijing Jiaotong University, China

17:40-18:00

ADAPTIVE RELIABILITY-DRIVEN FUZZY FUSION FOR MULTI-RADAR TARGET TRACKING IN NON-STATIONARY ENVIRONMENTS

P. Zhao, School of Automation and Intelligence Beijing Jiaotong University, China; Y.H. Wen, School of Automation and Intelligence Beijing Jiaotong University, China; M.J. Wang, School of Automation and Intelligence Beijing Jiaotong University, China; J. Ren, School of Automation and Intelligence Beijing Jiaotong University, China; B.Y. Li, School of Automation and Intelligence Beijing Jiaotong University, China

18:00-18:20

MULTI-TECHNOLOGY CONVERGED NEXT-GENERATION RAILWAY MOBILE COMMUNICATION NETWORK

R. Yang, School of Automation and Intelligence, Beijing Jiaotong University, China

Wednesday, September 16 - 08:30-10:30 - room 204

session 26 **ICEAA**

Antennas, Guiding Systems Inspired by Periodicity

Organized by K. Esselle, L. Matekovits
Chairs K. Esselle, L. Matekovits

08:30-08:50

2D-STEERING OF THE BEAM OF A SHORT HIGH-GAIN HORN ANTENNA USING TWO NEAR-FIELD METASURFACES

P.B. Samal, University of Technology Sydney, Australia; M.I. Nabeel, University of Technology Sydney, Australia; K.P. Esselle, University of Technology Sydney, Australia; K. Singh, University of Technology Sydney, Australia; D.N. Thalakotuna, University of Technology Sydney, Australia

08:50-09:10

A COMPACT VO2-BASED RECONFIGURABLE INTELLIGENT SURFACE FOR MM-WAVE BEAM STEERING

U. Ali, Technical University of Denmark, Denmark; R.E. Jacobsen, Technical University of Denmark, Denmark; S. Arslanagic, Technical University of Denmark, Denmark

09:10-09:30

GAIN ENHANCEMENT OF PATCH ANTENNA USING FABRY-PEROT CAVITY WITH TWO-LAYER PARTIALLY ´ REFLECTING SURFACE

F. Goksel, Bahcesehir University, Turkey; L. Kouhalvandi, Dogus University, Turkey; Z. Hamzavi-Zarghani, Dogus University, Turkey; L. Matekovits, Politecnico di Torino, Italy; S. Karamzadeh, Silicon Austria Labs (SAL), Austria

09:30-09:50

ALL-DIELECTRIC 2-BIT TRANSMITARRAY ANTENNA FOR SUB-TERAHERTZ APPLICATIONS

Z. Hamzavi-Zarghani, Graz University of Technology, Austria; I. Matekovits, Politecnico di Torino, Italy; W. Bösch, Graz University of Technology, Austria

09:50-10:10

DESIGN AND ANALYSIS OF VO_2-BASED RECONFIGURABLE METASURFACE WITH FUNCTIONAL LAYERS

U. Ali, Technical University of Denmark, Denmark; R.E. Jacobsen, Technical University of Denmark, Denmark; R. Malureanu, Technical University of Denmark, Denmark; A. Laurynenka, Technical University of Denmark, Denmark; S. Arslanagic, Technical University of Denmark, Denmark

10:10-10:30

S/X-BAND SHARED-APERTURE ANTENNA USING HETEROGENEOUS RADIATING ELEMENTS

A. George, University of Technology, Sydney, Australia; D.N. Thalakotuna, University of Technology, Sydney, Australia; P.I. Theoharis, University of Technology, Sydney, Australia; K.P. Esselle, University of Technology, Sydney, Australia; F. Cure, Quasar Satellite Technologies, Sydney, Australia

Wednesday, September 16 - 11:00-14:50 - room 204

session 27 **ICEAA**

Electromagnetic Modeling, Analysis in Advanced Electronic Packaging

Organized by J.-M. Jin, H. Ma
Chairs J.-M. Jin, H. Ma

11:00-11:20

ON THE NATURE, ROOT-CAUSE,, SUPPRESSION OF UNDESIRED RESONANCES IN A MULTI-CHANNEL HIGH-SPEED CONNECTOR

N. Elahi, University of Illinois at Urbana-Champaign, United States; J.M. Jin, University of Illinois at Urbana-Champaign, United States

11:20-11:40

UCIE CHANNELS: EFFECT OF INTERPOSER VIA GEOMETRY ON THE ACCURACY OF SIGNAL INTEGRITY SURROGATE MODELS

R. Krishna, University of Illinois Urbana-Champaign, India; X. Chen, University of Illinois Urbana-Champaign, United States; E. Rosenbaum, University of Illinois Urbana-Champaign, United States

11:40-12:00

POWER NOISE SUPPRESSION STRUCTURE DESIGN BASED ON TRANSMISSION LINE MODELING, DISPERSION ANALYSIS IN GLASS PACKAGE PDNS

Y.W. Kim, Sejong University, Republic of Korea

12:00-12:20

MULTILAYER MESHED POWER/GROUND PLANE MODELING METHOD FOR INTERPOSER POWER DISTRIBUTION NETWORK (PDN) IN ADVANCED SYSTEM-IN-PACKAGE (SIP)

W. Kim, J.W. Lee, S.U. Lee, S.H. Lee, S.H. Ryu, J.H. Park, Korea Advanced Institute of Science, Technology, Republic of Korea; J.W. Kim, SK hynix, Republic of Korea; S.Y. Ahn, Korea Advanced Institute of Science, Technology, Republic of Korea

12:20-12:40

A PHYSICS-INFORMED LLM HYPER-HEURISTIC METHOD FOR DECAP OPTIMIZATION IN 2.5D PDNS

S. Zhang, Zhejiang University, China; H. Ma, Zhejiang University, China

12:40-13:00

MEASUREMENT-, OPTIMIZATION ALGORITHM-BASED INDUCTOR MODEL COUPLED TO CHASSIS

J. Song, Kyung Hee University, Republic of Korea; J. Park, Kyung Hee University, Republic of Korea

14:30-14:50

ELECTRIC FIELD PREDICTION OF MULTI-POLARIZED DIPOLES USING POTENTIAL-TO-FIELD NEURAL NETWORK

Y. Xu, Zhejiang University, China; H. Ma, Zhejiang University, China

Wednesday, September 16 - 14:50-16:10 - room 204

session 28 **ICEAA**

Numerical methods in electromagnetics

Organized by R.D. Graglia, D.R. Wilton
Chairs R.D. Graglia, D.R. Wilton

14:50-15:10

INTEGRAL-EQUATION MODELING OF METASURFACE PATCHES EMBEDDED IN LAYERED MEDIA

E.H. Bleszynski, M.K. Bleszynski, T. Jaroszewicz, monopole research, United States; W.A. Johnson, Consultant, Italy; J. Rivero, Istituto Superiore Mario Boella, Italy; F. Vipiana, Politecnico di Torino, Italy; D. Wilton, University of Houston, United States

15:10-15:30

A DIRECTIONALLY LOW-RANK COMPRESSED MULTILEVEL GREEN'S FUNCTION INTERPOLATION METHOD FOR METAL-DIELECTRIC COMPOSITE PROBLEMS

S. D. Jiang, Zhejiang University, China; H. C. Lan, Zhejiang University, China; H. G. Wang, Zhejiang University, China;

15:30-15:50

IMPACT OF GREEN'S FUNCTION DERIVATIVE INTEGRAL ACCURACY ON FREQUENCY-DOMAIN INTERPOLATION TECHNIQUES IN METHOD OF MOMENTS

V.F. Martin, Universidad Rey Juan Carlos, Spain; J. Rivero, Politecnico di Torino, Italy; D.R. Wilton, University of Houston, United States; W.A. Johnson, Consultant, United States; F. Vipiana, Politecnico di Torino, Italy

15:50-16:10

INVESTIGATIONS ON A HIGH-ORDER DISCRETIZATION OF THE ELECTRIC FIELD INTEGRAL EQUATION BASED ON PROLATE SPHEROIDAL WAVE FUNCTIONS

M. Mirmohammadsadeghi, Technical University of Munich, Germany; T.F. Eibert, Technical University of Munich, Germany

16:10-16:30

HIERARCHICAL AND INTERPOLATORY BASES FOR ARBITRARY-ORDER PYRAMIDAL ELEMENTS

R.D. Graglia, Politecnico di Torino, Italy; A.F. Peterson, Georgia Institute of Technology, United States

Wednesday, September 16 - 17:00-18:20 - room 204

session 29 **ICEAA**

Computational Techniques in Electromagnetics and Applications

Organized by R. Ozaki, T. Yamasaki
Chairs R. Ozaki, T. Yamasaki

17:00-17:20

PERFORMANCE EVALUATION OF LEAPFROG-RNN FOR A NONLINEAR ODE OF A SIMPLE PENDULUM

T. Sakai, Tokyo Metropolitan University, Japan; Y. Suzuki, Tokyo Metropolitan University, Japan

17:20-17:40

A STUDY ON THE ACCELERATION OF ACOUSTIC WAVE PROPAGATION ANALYSIS USING THE SYMPLECTIC INTEGRATOR METHOD

S. Osada, Nihon University, Japan; S. Kishimoto, Nihon University, Japan; S. Ohnuki, Nihon University, Japan

17:40-18:00

TRANSMISSION CHARACTERISTICS OF AN INHOMOGENEOUS STRUCTURE WITH FREQUENCY DEPENDENCE

Y. Wang, Nihon University, Japan; R. Ozaki, Nihon University, Japan; T. Yamasaki, College of Science and Technology, Nihon University, Japan

18:00-18:20

SCATTERING OF ELECTROMAGNETIC WAVES IN INHOMOGENEOUS DIELECTRIC GRATINGS CONSISTS OF CONDUCTING STRIPS

T. Yamasaki, Nihon University, Japan

THURSDAY 17

Thursday, September 17 - H 08:30-11:20 - room 201

session 30 **ICEAA**

Numerical analysis of electromagnetic problems and devices

Organized by J. Shibayama, K. Fujita
Chairs J. Shibayama, K. Fujita

08:30-08:50

PHYSICS-INFORMED NEURAL NETWORKS BASED ON THE MAGNETIC FIELD INTEGRAL EQUATION FOR MODELING PLASMONIC STRUCTURES
K. Fujita, Saitama Institute of Technology, Japan

08:50-09:10

A STUDY ON DISCRETE INVERSE LAPLACE TRANSFORM APPLIED TO TRANSIENT ANALYSES OF ELECTROMAGNETIC FIELDS WITH BANDPASS FREQUENCY SPECTRA
K. Watanabe, Fukuoka Institute of Technology, Japan

09:10-09:30

PLANAR METALLIC PHOTONIC CRYSTAL STRUCTURES WITH A DIELECTRIC LAYER INCLUSION
C. P. Chen, Kanagawa University, Japan; T. Hiraoka, Kanagawa University, Japan; T. Anada, Kanagawa University, Japan

09:30-09:50

DIRECTION-OF-ARRIVAL ESTIMATION USING WAVENUMBER-SPACE ANALYSIS IN A LOCAL REGION
G. Toyoda, Nihon University, Japan; S. Kishimoto, Nihon University, Japan; S. Ohnuki, Nihon University, Japan

09:50-10:10

SUPPRESSING RADIATION FROM NARROW GAP ON WAVEGUIDE USING SERRATED STRUCTURES
Y. Kusama, Toyo University, Japan; H.H. Chen, National Kaohsiung University of Science and Technology, Taiwan; Y.W. Hsu, National Kaohsiung University of Science and Technology, Taiwan

10:10-10:30

WAVEGUIDE-TO-NRD GUIDE TRANSITION USING HIGH-INDEX FIELD CONFINEMENT
T. Matsuzaki, Muroran Institute of Technology, Japan; J. Chakarothai, National Institute of Information and Communications Technology, Japan; A. Iguchi, Muroran Institute of Technology, Japan; K. Fujii, National Institute of Information and Communications Technology, Japan; N. Sekine, National Institute of Information and Communications Technology, Japan; Y. Tsuji, Muroran Institute of Technology, Japan

11:00-11:20

RECONSTRUCTION METHODS FOR OPTICAL SPECTRAL REFLECTIVITY FROM THE OUTPUTS OF FILTER-ARRAY TYPE MULTISPECTRAL SENSOR
Y. Ohtera, Toyama Prefectural University, Japan

Thursday, September 17 - H 11:20-13:00 - room 201

session 31 **ICEAA**

Quantum Electromagnetics: Theory, Technology and Applications

Organized by A. Boag, G. Gradoni
Chairs A. Boag, G. Gradoni

11:20-11:40

SPIN DYNAMICS IN OPEN QUANTUM SYSTEMS: A DLVN-TDDFT APPROACH

O. Hod, Tel Aviv University, Israel

11:40-12:00

FROM SPIN ANGULAR MOMENTUM TO ORBITAL ANGULAR MOMENTUM AT HIGH FREQUENCIES

U. Zanzuri, Tel Aviv University, Israel; S. Fliescher, Tel Aviv University, Israel; T. Seideman, Northwestern University, United States; A. Bahabad, Tel Aviv University, Israel; A. Natan, Tel Aviv University, Israel

12:00-12:20

RELATIVISTIC QUANTUM ANTENNA ARRAYS AND QUANTUM MIMO IN CURVED SPACETIME: AN APPROACH THROUGH ALGEBRAIC QUANTUM FIELD THEORY

S. Mikki, Zhejiang University-University of Illinois Urbana-Champaign (ZJUI) Institute, China

12:20-12:40

QUANTUM SIMULATION OF MAXWELL'S EQUATIONS

D. Kashyap, Delhi Technological University, India; G. Yu, University of Surrey, United Kingdom; G. Gradoni, University of Surrey, United Kingdom

12:40-13:00

WIGNER-SMITH TIME DELAY AND ITS VALIDITY FOR CHARACTERISTIC WAVE PACKETS

A. Boag, Tel Aviv University, Israel; G. Slepyan, Tel Aviv University, Israel

Thursday, September 17 - H 14:30-16:30 - room 201

session 32 **ICEAA**

Artificial Intelligence and Optimization Techniques in Computational Electromagnetics

Organized by F. De Flaviis
Chairs F. De Flaviis,

14:30-14:50

TOWARDS AGENT-DRIVEN MM-WAVE COMPUTATIONAL ELECTROMAGNETICS: A UNIFIED SURROGATE LIBRARY WITH CLOSED-LOOP FULL-WAVE VALIDATION

Y. Huang, University of California Irvine, United States; H. Aghasi, University of California Irvine, United States

14:50-15:10

OPTIMIZING BANDWIDTH BY REDISTRIBUTING CONTROL NODES ON SPLINE-BASED PATCH AND GROUNDPLANE OF CPW-FED PLANAR ANTENNA

A.D. Prasetyo, Institut Teknologi Bandung, Indonesia; D.A. Nurmantris, Institut Teknologi Bandung, Indonesia; Z. Zulfi, Telkom University, Indonesia; B.S. Nugroho, Telkom University, Indonesia; I. Surahmat, Universitas Muhammadiyah Yogyakarta, Indonesia; H.N.P. Wisudawan, Universitas Islam Indonesia, Indonesia; C. Chairunnisa, Institut Teknologi Bandung, Indonesia; A. Munir, Institut Teknologi Bandung, Indonesia

15:10-15:30

NGNET-BASED TOPOLOGY OPTIMIZATION OF A 1-BIT RECONFIGURABLE INTELLIGENT SURFACE (RIS) UNIT CELL

S. Bagherkhani, University of California, Irvine, United States; Y. Rahmat-Samii, University of California, Los Angeles, United States; F. De Flaviis, University of California, Irvine, United States

15:30-15:50

DOMINANCE VERSUS INDICATOR METHODS: MULTIOBJECTIVE OPTIMIZATION STRATEGIES FOR SPARSE ARRAY SYNTHESIS

N.M. Pena, Politecnico di Milano, Italy; A. Barbieri, Politecnico di Milano, Italy; G.F. Martinez, Politecnico di Milano, Italy; R.E. Zich, Politecnico di Milano, Italy

15:50-16:10

KERNEL-AIDED RATIONAL MACROMODELING VIA PHYSICS-INFORMED SZEGŐ KERNELS

T. Dhaene, Ghent University-imec, Belgium

16:10-16:30

SURROGATE-ASSISTED PARALLEL BI-OBJECTIVE ALGORITHM FOR ANTENNA MINIATURIZATION

S. J. Lu, Southeast University, China; Q. Wu, Southeast University, China; H. M. Wang, Southeast University, China

Thursday, September 17 - H 08:30-12:00 - room 202

session 33 **ICEAA**

Leaky-Wave and Quasi-Optical Approaches for mm-Wave Systems Based on Periodic Structures

Organized by D. Comite, G. Valerio
Chairs D. Comite, G. Valerio

08:30-08:50

PREDICTING THE MAXIMUM DIRECTIVITY OF METASURFACE ANTENNAS USING INFINITESIMAL DIPOLE MODEL

P.K. Mishra, IISc Bangalore, India; R. Malleboina, IISc Bangalore, India; D. Sarkar, IISc Bangalore, India

08:50-09:10

EFFECTIVENESS ANALYSIS OF EBG WAVEGUIDES FOR MICROWAVE SNOW MELTING TO PREVENT ELECTROMAGNETIC WAVE LEAKAGE

M. Nakatsugawa, National Institute of Technology, Hakodate College, Japan; K. Hatazawa, National

Institute of Technology, Hakodate College, Japan; T. Maruyama, Hiroshima Institute of Technology, Japan; M. Omiya, Hokkaido university, Japan; Y. Tamayama, Nagaoka University of Technology, Japan

09:10-09:30

SHARED-APERTURE LEAKY-WAVE RADIATION CONCEPT USING DUAL FLOQUET HARMONICS IN PERIODIC STRUCTURES

D. Lee, Pohang University of Science and Technology, Republic of Korea; W. Hong, Pohang University of Science and Technology, Republic of Korea

09:30-09:50

DESIGN OF A RADIAL LINE CURL ARRAY FOR NEAR-FIELD BEAM TYPE WIRELESS POWER TRANSFER

T. Tomura, Institute of Science Tokyo, Japan; Y. Kihara, Institute of Science Tokyo, Japan; G. Nakayama, Institute of Science Tokyo, Japan; T. Wada, Institute of Science Tokyo, Japan

09:50-10:10

SEMI-ANALYTICAL FORMALISM IN 3-D DIELECTRIC WOODPILE STRUCTURE: BOUND AND LEAKY-MODES

V. Jandieri, Nagoya Institute of Technology, Japan; A. Romano, Roma Tre University, Italy; G. Valerio, Sorbonne Université, France; L. Tognolatti, Roma Tre University, Italy; P. Baccarelli, Roma Tre University, Italy

10:10-10:30

ADVANCES IN MULTI-BEAM FLAT GRIN LENS ANTENNAS

L. Song, University of Technology Sydney, Australia; Y. Wen, University of Technology Sydney, Australia; P. Qin, University of Technology Sydney, Australia; Y. J. Guo, University of Technology Sydney, Australia

11:00-11:20

A COMPACT PHASE-GRADIENT METASURFACE DOME FOR ENHANCED SCANNING RANGE IN PHASED ARRAYS

M. Poveda-García, Defense University Center of San Javier, Spain; D. Comite, Sapienza University of Rome, Italy; J. Gómez-Tornero, Technical University of Cartagena, Spain; A. Algaba-Brazález, Technical University of Cartagena, Spain

11:20-11:40

NONLOCAL METASURFACE-ASSISTED LEAKY-WAVE AND CAVITY ANTENNAS

M. Kim, Hongik University, Republic of Korea; S. Jang, Hongik University, Republic of Korea; M. Cho, Hongik University, Republic of Korea; S. Kim, Hongik University, Republic of Korea; H. Ryu, Hongik University, Republic of Korea; E. Lee, Kyung Hee University, Republic of Korea; M. Kim, Hongik University, Republic of Korea

11:40-12:00

A DUAL-FREQUENCY BIDIRECTIONAL LEAKY-WAVE CORRUGATED ANTENNA

B. Ambrogi, Sapienza University of Rome, Italy; F. Foglia Manzillo, CEA-Leti, Université Grenoble Alpes, France; A. Clemente, CEA-Leti, Université Grenoble Alpes, France; G. Valerio, Sorbonne Universite, CNRS, Laboratoire GeePs, France; D. Comite, Sapienza University of Rome, Italy

Thursday, September 17 - H 12:00-16:30 - room 202

session 34 **ICEAA**

Metamaterials and metasurfaces

Chair D. Comite, N. Bunke

12:00-12:20

CWGAN-SYNTHESIZED UNIT CELLS FOR COMPACT NEAR-FIELD METASURFACE BEAM TILTING

B. Zhang, National University of Singapore, Singapore; Z. N. Chen, National University of Singapore, Singapore

12:20-12:40

EXPLORING THE FREQUENCY RESPONSE OF NONLOCAL METASURFACE ANTI-REFLECTIVE COATINGS FOR OPTICALLY THICK MATERIAL SLABS

A. Zhuravlev, ITMO University, Russian Federation; A. Shaham, Israel Institute of Technology, Israel; A. Epstein, Israel Institute of Technology, Israel; S. Glybovski, ITMO University, Russian Federation

12:40-13:00

DESIGN APPROACH OF PIN-DIODE DRIVEN RECONFIGURABLE REFLECTIVE ELECTROMAGNETIC SURFACE WITH ISOLATED BIASING NETWORK

D.A. Nurmantris, Institut Teknologi Bandung, Indonesia; R.E. Poetro, Institut Teknologi Bandung, Indonesia; N. Sutisna, Institut Teknologi Bandung, Indonesia; A. Munir, Institut Teknologi Bandung, Indonesia

14:30-14:50

ELECTRICALLY CONTROLLABLE ASYMMETRIC ABSORPTANCE OF A ONE-DIMENSIONAL PHOTONIC CRYSTAL WITH A CENTRAL THREE-LAYER DEFECT

R. Rubio-Noriega, Pontificia Universidad Catolica del Peru, Peru; M. Clemente-Arenas, Universidad Tecnologica de Lima Sur, Peru; J. Urbina, The Pennsylvania State University, United States; A. Lakhtakia, The Pennsylvania State University, United States

14:50-15:10

TIME-VARYING METASURFACES FOR HIGH-SPEED SUPER-RESOLUTION RF IMAGING

G. Ichikawa, Nagoya institute of technology, Japan; Y. Kunitomo, Nagoya Institute of Technology, Japan; Y. Kozawa, Tohoku University, Japan; K. Serita, Waseda University, Japan; H. Wakatsuchi, Nagoya institute of technology, Japan

15:10-15:30

CIRCUIT DESIGN OF PASSIVE HIGH-SPEED SWITCHING METASURFACES

H. Ito, Nagoya Institute of Techology, Japan; A. Nagata, Nagoya Institute of Techology, Japan; H. Wakatsuchi, Nagoya Institute of Techology, Japan

15:30-15:50

MILLIMETER-WAVE POWER TRANSFER VIA SURFACE-WAVE PROPAGATION ON FLEXIBLE METASURFACE TAPE

P. T. Dang, Nagoya Institute of Technology, Japan; K. Suzuki, Nagoya Institute of Technology, Japan; Y. Ashikaga, Teraoka Seisakusho Co., Ltd., Tokyo, Japan, Japan; Y. Tsuchiya, Teraoka Seisakusho Co., Ltd., Tokyo, Japan, Japan; S. Phang, George Green Institute for Electromagnetics Research, Faculty of Engineering, University of Nottingham, Nottingham, UK, United Kingdom; H. Wakatsuchi, Nagoya Institute of Technology, Japan

15:50-16:10

IMPACT OF THE EBG METAMATERIAL GRID SIZE ON DECOUPLING TWO ANTENNAS AT 60 GHZ

N. Bunke, Technische Universität Berlin, Germany; R. Schuhmann, Technische Universität Berlin, Germany; R. Stöcker, Brandenburgische Technische Universität, Germany

16:10-16:30

DUAL-PORT ALL-METAL CIRCULAR CORRUGATED LEAKY-WAVE ANTENNA FOR BIDIRECTIONAL SCANNING AND BROADSIDE RADIATION

G. Pomante, Sapienza University, Italy; G. Flaviani, Sapienza University, Italy; B. Ambrogi, Sapienza University, Italy; P. Burghignoli, Sapienza University, Italy; G. Valerio, Sorbonne Université, France; D. Comite, Sapienza University, Italy

Thursday, September 17 - H 08:30-12:00 - room 203

session 35 **ICEAA**

Advanced modeling techniques for the space plasma electromagnetic environment

Organized by W. Scales and D. Lin
Chairs W. Scales, D. Lin

08:30-09:10

THE STATE OF OPERATIONAL SPACE WEATHER OBSERVATIONS ENABLING MODELING OF THE SPACE PLASMA ENVIRONMENT

E. R. Talaat, Universities Space Research Association, United States

09:10-09:30

MODELING STORMTIME GEOSPACE AS A COMPLEX SYSTEM: RECENT PROGRESS FROM THE CENTER FOR GEOSPACE STORMS

K. Sorathia, V.G. Merkin, A. Sciola, A. Michael, The Johns Hopkins University Applied Physics Laboratory, United States; D. Lin, K. Pham, National Center for Atmospheric Research, United States; S. Bao, Rice University, United States; M. Wiltberger, National Center for Atmospheric Research, United States; R. Varney, S. Roy, University of California, Los Angeles, United States

09:30-09:50

CONSIDERATIONS FOR DAYSIDE RECONNECTION IN GLOBAL MAGNETOHYDRODYNAMICS

D. T. Welling, University of Michigan, United States; A. Rewoldt, University of Michigan, United States

09:50-10:10

INTRODUCTION OF REPPU -SIMULATION STUDY OF THE MAGNETOSPHERE-IONOSPHERE RESPONSE TO THE SOLAR WIND IMPULSE-

S. Fujita, Institute of Statistical Mathematics, Japan

10:10-10:30

3D TOPOLOGY OF PLASMOIDS AT SUBSTORM ONSET IN A GLOBAL MHD SIMULATION

D. Cai, Nagoya University of Commerce and Business, Japan; P. Bohla, Univ tsukuba, Japan; S. Fujita, ISM, Japan; M. Watanabe, Kyushu University, Japan

11:00-11:20

SPORADIC E LAYER AS AN INDICATOR FOR ATMOSPHERE-IONOSPHERE-MAGNETOSPHERE COUPLING

H. Liu, Kyushu University, Japan

11:20-11:40

ADVANCING SPACE WEATHER DATA-DRIVEN AND MACHINE LEARNING APPLICATIONS FOR OPERATIONS USING THE SPACE WEATHER ANALYST

A. Engell, NextGen Federal Systems, United States

11:40-12:00

WHOLE ATMOSPHERE DATA ASSIMILATION FOR SPACE WEATHER SPECIFICATION AND FORECASTING

N.M. Pedatella, NSF-National Center for Atmospheric Research, United States; C.T. Hsu, NSF-National Center for Atmospheric Research, United States; F. Laskar, University of Colorado, United States

Thursday, September 17 - H 12:00-16:30 - room 203

session 36 **ICEAA**

RCS, Remote Sensing and EM Characterization

Chairs J. Shibayama, Y. Suzuki

12:00-12:20

RADAR RESPONSE ANALYSIS FOR DISPERSIVE MEDIUM WITH PERIODICALLY ARRANGED METALLIC OBJECTS

Y. Masuda, Nihon University, Japan; R. Ozaki, Nihon University, Japan; T. Yamasaki, Nihon University, Japan

12:20-12:40

COMPARISON OF KRETSCHMANN AND OTTO CONFIGURATIONS FOR TERAHERTZ SPR SENSORS WITH A BINARY-MIXTURE DIELECTRIC

H. Yagi, Tokyo Metropolitan University, Japan; Y. Suzuki, Tokyo Metropolitan University, Japan; J. Shibayama, Hosei University, Japan; J. Chakarothai, National Institute of Information and Communications Technology, Japan

12:40-13:00

OBSERVATIONS OF AC ELECTRIC FIELDS AND ELECTRON DENSITY VARIATIONS IN THE IONOSPHERE BY S-520-27 SOUNDING ROCKET

M. Matsuyama, Toyama Prefectural University, Japan; K. Ishisaka, Toyama Prefectural University, Japan; M. Yamamoto, Kyoto University, Japan; A. Kumamoto, Tohoku University, Japan; S. Saito, Electronic Navigation Research Institute, Japan; T. Abe, JAXA/ISAS, Japan

14:30-14:50

BROADBAND-OPTIMIZATION-FLEXIBLE-MULTILAYER-ELECTROMAGNETIC-ABSORBER-PLANAR-ANALYTICAL-MODEL

O.L. Lamrini, IETR-University of Rennes, France; G.D. Danielou, IETR-University of Rennes, France; H.B. Breiss, IETR-University of Rennes, France; A.S. Sharaiha, IETR-University of Rennes, France; R.B. Benzerga, IETR-University of Rennes, France

14:50-15:10

EXPERIMENTAL CHARACTERIZATION OF BACKSCATTER SIGNATURES AND PERMITTIVITY USING MMWAVE RADAR FOR MEDICAL MATERIAL WASTE IDENTIFICATION

J. C. R. Cucchi Quispe, UNTELS, Peru; R. Kumar, SRM University AP, India; M. Clemente-Arenas, UNTELS, Peru

15:10-15:30

A LOW-RCS WIDEBAND CIRCULARLY POLARIZED SLOT ANTENNA ARRAY

Y. Wang, Communication University of China, China; J. Liu, Communication University of China, China; Q. Guo, Communication University of China, China; Z. Li, Communication University of China, China

15:30-15:50

A COMPACT MULTI-ANTENNA PASSIVE SYSTEM FOR DETECTION, DIRECTION FINDING AND CLASSIFICATION OF NAVAL RADAR EMITTERS IN S- AND X-BANDS

R. Simniskis, Center for Physical Sciences and Technology, Lithuania; J. Zemgulyte, Center for Physical Sciences and Technology, Lithuania; K. Stankevicius, Center for Physical Sciences and Technology, Lithuania; A. Drabavicius, Center for Physical Sciences and Technology, Lithuania; S. Rudys, Center for Physical Sciences and Technology, Lithuania; P. Ragulis, Center for Physical Sciences and Technology, Lithuania

15:50-16:10

FOUNDATION MODELS UNDER CLASS IMBALANCE IN SAR SHIP CLASSIFICATION: A FUSION-BASED EVALUATION

C.M. Awais, Institute of information science and technologies "Alessandro Faedo" (ISTI), CNR, Pisa, Italy; M. Reggiannini, Institute of information science and technologies "Alessandro Faedo" (ISTI), CNR, Pisa, Italy; D. Moroni, Institute of information science and technologies "Alessandro Faedo" (ISTI), CNR, Pisa, Italy

16:10-16:30

A 140-GHZ ANTENNA-IN-PACKAGE TRANSMIT-RECEIVE ARRAY USING STACKED PATCHES FOR HIGH-PRECISION RADAR APPLICATIONS

J.Y. Tan, Beijing Jiaotong University, China; Z. Li, Beijing Jiaotong University, China; Y.J. Li, Key Laboratory of All Optical Network and Advanced Telecommunication Network of MOE Beijing Jiaotong University, China; C.K. Hu, Beijing Jiaotong University, China; Z.R. Lu, Beijing Jiaotong University, China; X. Bu, Beijing Jiaotong University, China; J.H. Wang, Beijing Jiaotong University, China

Thursday, September 17 - H 08:30-12:20 - room 204

session 37 **APWC**

Wireless Technologies

Chairs J. Jianwei, Q.-P. Soo

08:30-08:50

SAGE-6G: TOWARDS A SOVEREIGN AI-GUIDED ELECTROMAGNETIC ECOSYSTEM FOR SIXTH-GENERATION WIRELESS NETWORKS

A. Shastri, Banasthali Vidyapith, India

08:50-09:10

DESIGN AND FABRICATION OF A SMALL LOOP ANTENNA FOR UNDERGROUND MAGNETIC COMMUNICATION

I.K. Cho, ETRI, Republic of Korea; J.Y. Kim, ETRI, Republic of Korea; H.J. Lee, ETRI, Republic of Korea; J.H. Oh, ETRI, Republic of Korea; S.W. Kim, ETRI, Republic of Korea; K.S. Yoon, ETRI, Republic of Korea

09:10-09:30

RAN-CENTRIC NETWORK SLICING: PRB ALLOCATION AND THROUGHPUT ASSESSMENT IN AN SDR-BASED 5G MOBILE NETWORK

J. J. Abularach Arnez, Sidia Institute of Science and Technology, Bolivia; W. Medeiros Silva, Sidia Institute of Science and Technology, Brazil; Y. Santos Barbosa, Sidia Institute of Science and Technology, Brazil; I. Da Silva Santos, Sidia Institute of Science and Technology, Brazil; C. A. Tavares Alves, Sidia Institute of Science and Technology, Brazil

09:30-09:50

FEASIBILITY OF SC-FDMA RE-ENCODING FOR PACKETIZED LTE-V2X MICRODOPPLER SENSING

M. Kihei, Kennesaw State University, United States

09:50-10:10

HARNR: HYBRID ATTENTION-RESIDUAL NEURAL RECEIVER FOR 5G NR AND BEYOND WIRELESS COMMUNICATIONS

P. Amutha, IIT Madras, India

10:10-10:30

A STUDY ON ELECTROMAGNETIC WAVE PROPAGATION DIFFERENCES BETWEEN RECTILINEAR AND ARCHED TUNNEL GEOMETRIES

Z.X. Boey, Universiti Tunku Abdul Rahman, Malaysia; Q.P. Soo, Universiti Tunku Abdul Rahman, Malaysia; S.Y. Lim, University of Nottingham Malaysia Campus, Malaysia; E.H. Lim, Universiti Tunku Abdul Rahman, Malaysia; P.L. Toh, Universiti Tunku Abdul Rahman, Malaysia; K.H. Yeap, Universiti Tunku Abdul Rahman, Malaysia

11:00-11:20

OTA CHARACTERIZATION OF DUAL-USER IEEE 802.11BE EHT-MU UNDER TRANSMIT-CHAIN IMBALANCE

M. Lodro, University of Bristol, United Kingdom; F. Raimondo, University of Bristol, United Kingdom; G. Hilton, University of Bristol, United Kingdom; M. Beach, University of Bristol, United Kingdom; A. Austin, University of Bristol, United Kingdom

11:20-11:40

A LIGHTWEIGHT FLEXIBLE DUAL-POLARIZED RECTENNA ARRAY FOR IOT ENERGY HARVESTING

J. Jing, Kyoto University, L. Yan, C. Liu, Sichuan University, China, N. Shinohara, Kyoto University, Japan

11:40-12:00

IMPLEMENTING AND TESTING INTEGRATED STIR/SHAKEN AND RICH CALL DATA SECURITY IN A MOBILE NETWORK TESTBED

L. Silva Araujo, Sidia Institute of Science and Technology, Brazil; R. S. Santos Furtado, Sidia Institute of Science and Technology, Brazil; M. G. Lima Damasceno, Sidia Institute of Science and Technology, Brazil; I. A. Barros Gomes, Sidia Institute of Science and Technology, Brazil; J. J. Abularach Arnez, Sidia Institute

of Science and Technology, Bolivia

12:00-12:20

POWERING LOW-POWER INTERNET OF THINGS DEVICES: RF ENERGY-HARVESTING OPPORTUNITIES AND TECHNICAL CHALLENGES

Z. Aasa, Ladoke Akintola University of Technology, Nigeria; F. Elias, Manchester Metropolitan University, United Kingdom; S. Ekpo, Manchester Metropolitan University, United Kingdom; C. Nwankwo, Manchester Metropolitan University, United Kingdom; I. Ubesiri-Narayana, Manchester Metropolitan University, United Kingdom

Thursday, September 17 - H 12:20-16:30 - room 204

session 38 **ICEAA**

Antennas and Arrays

Chairs Z. Cui, M. Johnston

12:20-12:40

TRANSPARENT VERTICAL-POLARIZATION GLASS ANTENNA WITH SWITCHED OMNIDIRECTIONAL AND FOCUSED BEAMS

Z.Q. Cui, University of Technology Sydney,GBDTC, Australia; S.L. Chen, University of Technology Sydney,GBDTC, Australia; P.Y. Qin, University of Technology Sydney,GBDTC, Australia; Y.J. Guo, University of Technology Sydney,GBDTC, Australia

12:40-13:00

COMPACT LTCC REALIZATION OF A 4×4 BUTLER MATRIX FOR KU-BAND

M.S. Akyul, Istanbul Technical University, Turkey; O. Ozdemir, Istanbul Technical University, Turkey

14:30-14:50

CONICAL REFLECTOR LEAKY-WAVE ANTENNA: PRELIMINARY DESIGN

C. Canale, Sapienza University of Rome, Italy; G. Pomante, Sapienza University of Rome, Italy; G. Flaviani, Sapienza University of Rome, Italy; P. Burghignoli, Sapienza University of Rome, Italy; D. Comite, Sapienza University of Rome, Italy

14:50-15:10

K-MEANS AMPLITUDE CLUSTERING FOR COMPACT SUBARRAY CONFIGURATION IN FDA RADAR

P.E. Alparslan Bozkurt, ASELSAN A.S., Turkey; O. Ozdemir, Istanbul Technical University, Turkey

15:10-15:30

A COMPOSITE FITNESS FUNCTION WITH MAIN-BEAM CONTROL FOR PHASE-ONLY NULL STEERING USING PSO

E.S. Ortak, ASELSAN A.S., Turkey; O. Ozdemir, Istanbul Technical University, Turkey

15:30-15:50

A COSY ANTENNA INCORPORATING A PATTERN COIL FOR DUAL-BAND 2.4/5 GHZ WLAN APPLICATIONS

S. Kojima, The University of Electro-Communications, Japan; R. Ishikawa, The University of Electro-Communications, Japan

15:50-16:10

DUAL-BAND DUAL-POLARIZED ULTRA-THIN FLEXIBLE ANTENNA ARRAY FOR MMWAVE WEARABLE APPLICATIONS

S. Alamdar, University of California, Irvine, United States; F. De Flaviis, University of California, Irvine, United States; S. Saadat, Mflex, United States

16:10-16:30

ELECTROMAGNETIC ANALYSIS OF THE GHANA RADIO TELESCOPE FOR K-BAND APPLICATIONS

M. A. Johnston, South African Radio Astronomy Observatory, South Africa

FRIDAY 18

Friday, September 18 - H 08:30-11:20 - room 201

session 39 **ICEAA**

Mathematical advances in electromagnetics

Organized by P. Smith, E. Vinogradova
Chairs P. Smith, E. Vinogradova

08:30-08:50

WAVE SCATTERING BY RANDOM INHOMOGENEITIES OF THE MEDIUM
B.V. Budaev, University of California at Berkeley, United States

08:50-09:10

A TWO-DIMENSIONAL PROBLEM OF DIFFRACTION BY A CONVEX POLYGON
B.V. Budaev, University of California at Berkeley, United States

09:10-09:30

FREQUENCY SPECTRUM AND RESONANCES OF ROTATING STRUCTURES
T. Geva, Tel-Aviv University, Israel; B. Z. Steinberg, Tel-Aviv University, Israel

09:30-09:50

ELECTRIC FIELD INTEGRAL EQUATION FOR A BODY-OF-REVOLUTION SCATTERER IN A PEC-TERMINATED RECTANGULAR WAVEGUIDE
A. Akgun, Eindhoven University of Technology, Netherlands; S. Eijsvogel, Eindhoven University of Technology, Netherlands; B.P. de Hon, Eindhoven University of Technology, Netherlands; M.C. van Beurden, Eindhoven University of Technology, Netherlands

09:50-10:10

ELECTROMAGNETIC SCATTERING CHARACTERISTICS OF MATERIAL-LOADED PARALLEL-PLATE WAVEGUIDES UNDER H-POLARIZED INCIDENCE
T. Zhang, Chuo University, Japan; K. Kobayashi, Chuo University, Japan

10:10-10:30

THE ABEL INTEGRAL TRANSFORM AND THE REGULARIZATION OF ELECTROMAGNETIC WAVE SCATTERING PROBLEMS
P.D. Smith, Macquarie University, Australia; E.D. Vinogradova, Macquarie University, Australia

11:00-11:20

RESONANCE SCATTERING OF EM PLANE WAVES BY ARBITRARILY SHAPED SLOTTED METALLIC CYLINDERS
E. Vinogradova, Macquarie University, Australia

Friday, September 18 - H 11:20-12:40 - room 201

session 40 **ICEAA**

Recent Developments in Computational Electromagnetic Techniques and Engineering Applications

Organized by A.A. Ergin, H.A. Ulku
Chairs A.A. Ergin, H.A. Ulku

11:20-11:40

RANGE PROFILE CONSTRUCTION USING TRIANGULAR RAY TUBE TRACING
A.A. Ergin, Bahcesehir University, Turkey; M. Güvenç, Yeditepe University, Turkey

11:40-12:00

WELL-CONDITIONED T-MATRIX METHOD FOR A PAIR OF TRANSPARENT INHOMOGENEITIES
M.E. Hatipoglu, Gebze Technical University, Turkey; T. Tanaka, Kyoto University, Japan; F. Dikmen, Gebze Technical University, Turkey

12:00-12:20

GENETIC ALGORITHM AND NEURAL NETWORK BASED FINE TUNING OF THE SOMMERFELD INTEGRATION PATH IN PLANAR LAYERED MEDIA
M.E. Hatipoglu, Gebze Technical University, Turkey; A. Alparslan, Trakya University, Turkey; F. Dikmen, Gebze Technical University, Turkey

12:20-12:40

ON THE ELECTROSTATIC ANALYSIS OF TWO CIRCULAR DISKS
D. Coksak, Yeditepe University, Turkey; S. Cakmak, Yeditepe University, Turkey; H. A. Ulku, Yeditepe University, Turkey

Friday, September 18 - H 08:30-12:20 - room 202

session 41 **ICEAA**

Metamaterials with Symmetry Properties

Organized by R. Kastner
Chair R. Kastner

08:30-08:50

TOWARD PRACTICAL NONRECIPROCAL METASURFACES: DESIGN FRAMEWORK, MECHANISMS, AND APPLICATIONS
K. Takahagi, Acquisition Technology and Logistics Agency, Ministry of Defense, Japan; A. Tennant, The University of Sheffield, United Kingdom

08:50-09:10

POLARIZABILITY TENSOR AND CURRENT SYMMETRIES OF HIGH-ORDER KNOT SCATTERERS VIA MODAL EFIE
N. Goshen, Tel-Aviv University, Israel; Y. Mazor, Tel-Aviv University, Israel

09:10-09:30

TOWARDS REALIZATION OF THIN PTD-SYMMETRIC SURFACES AT THE VHF-UHF BANDS

R. Geva, Tel Aviv University, Israel; R. Kastner, Tel Aviv University, Israel

09:30-09:50

AI-DRIVEN CHIRAL METASURFACES EXHIBITING PROMINENT CIRCULAR DICHROISM

M. Iwanaga, National Institute for Materials Science (NIMS), Japan; C.H. Chiang, National Institute for Materials Science (NIMS), Japan; Y.L. Ho, National Institute for Materials Science (NIMS), Japan; M.K. Sahoo, National Institute for Materials Science (NIMS), Japan; K. Watanabe, National Institute for Materials Science (NIMS), Japan

09:50-10:10

ROTATION INDUCED SYMMETRIES IN REST-FRAME ELECTRODYNAMICS OF ROTATING STRUCTURES

T. Geva, Tel-Aviv University, Israel; B. Z. Steinberg, Tel-Aviv University, Israel

10:10-10:30

EXTENDING THE SCAN RANGE OF ANTENNA ARRAYS USING ANISOTROPIC NONLOCAL PHASE-GRADIENT METASURFACES: FROM RIGOROUS THEORY TO REALISTIC CONSTRUCTS

A. Zhuravlev, ITMO University, Russian Federation; A. Shaham, Israel Institute of Technology, Israel; A. Epstein, Israel Institute of Technology, Israel

11:00-11:20

ZERO-SPACING MOIRÉ METASURFACE FOR DYNAMIC BEAMFORMING

S. Liu, T.J. Cui, Southeast University, China

11:20-11:40

PENETRABLE NONLINEAR METAGRATINGS FOR TRANSMISSIVE BISTABLE DIFFRACTION

N. Cohen Levi, Technion – Israel Institute of Technology, Israel; A. Epstein, Technion – Israel Institute of Technology, Israel

11:40-12:00

INFRARED OPTICAL METASURFACES WITH BROKEN SYMMETRY META-ATOMS

V. Raghunathan, Indian Institute of Science, India; U. Bag, Indian Institute of Science, India; A.S. Lal Krishna, Indian Institute of Science, India

12:00-12:20

LEAKY-MODE GENERATION IN ALL-METAL CORRUGATED STRUCTURES VIA SLOW-WAVE PERTURBATION

G. Flaviani, Sapienza University of Rome, Italy; B. Ambrogi, Sapienza University of Rome, Italy; G. Pomante, Sapienza University of Rome, Italy; P. Burghignoli, Sapienza University of Rome, Italy; D. Comite, Sapienza University of Rome, Italy

Friday, September 18 - H 08:30-09:30 - room 203

session 42 **ICEAA**

Visualization and Imaging of Electromagnetic Fields and Waves

Organized by S. Yagitani
Chair S. Yagitani

08:30-08:50

IMAGING OF ELECTROMAGNETIC FIELD DISTRIBUTIONS BY METASURFACE SENSORS
S. Yagitani, Kanazawa University, Japan; T. Imachi, Kanazawa University, Japan; M. Ozaki, Kanazawa University, Japan

08:50-09:10

A COMPACT METASURFACE SENSOR FOR NEAR-FIELD ELECTROMAGNETIC MAPPING AND LEAKAGE DETECTION
M. Putro, Kanazawa University, Japan; S. Yagitani, Kanazawa University, Japan; T. Imachi, Kanazawa University, Japan; M. Ozaki, Kanazawa University, Japan

09:10-09:30

PROTOTYPE OF A LOW FREQUENCY METASURFACE ABSORBER WITH EMBEDDED FERRITE SHEETS
A. Tatsuta, Panasonic Connect Co., Ltd,, Japan; S. Tanimoto, Panasonic Connect Co., Ltd,, Japan; M. Iyoda, Panasonic Connect Co., Ltd,, Japan; M. Arimatsu, Kanazawa University, Japan; I. Fujimori, Kanazawa University, Japan; S. Yagitani, Kanazawa University, Japan

Friday, September 18 - H 09:30-12:20 - room 203

session 43 **ICEAA**

Technologies and Measurement Methods for Antennas

Chairs M. de Villiers, H. Maune

09:30-09:50

MICROWAVE LIQUID CRYSTAL TECHNOLOGIES FOR RECONFIGURABLE INTELLIGENT SURFACES: TOWARD SCALABLE SMART RADIO ENVIRONMENTS
H. Maune, TU Darmstadt, Germany

09:50-10:10

MACHINE LEARNING-BASED SOURCE SEPARATION OF RF SIGNALS FOR DIGITAL COMMUNICATIONS
N. Karsch, Ruhr University Bochum, Germany; T. Musch, Ruhr University Bochum, Germany

10:10-10:30

ASSESSING THE INCIDENT FIELD IN A SPHERICAL NEAR-FIELD SETUP VIA A SHIFTED HALFWAVE DIPOLE
A.L. Vergnes, ENAC, France; A. Chabory, ENAC, France; R. Douvenot, ENAC, France; L. Kuhler, ENAC, France; C. Morlaas, ENAC, France; N. Mézières, CNES, France

11:00-11:20

HOLOGRAPHIC MEASUREMENT OF THE FIRST MEERKAT EXTENSION ANTENNAS IN THE KU BAND
M. S. de Villiers, South African Radio Astronomy Observatory, South Africa; A. Peens-Hough, South African Radio Astronomy Observatory, South Africa; M. Johnston, South African Radio Astronomy

Observatory, South Africa; T. Glaubach, Max-Planck-Institut fur Radioastronomie, Germany; D. C. Bok, OHB Digital Connect GmbH, Germany

11:20-11:40

DUAL-BAND SECOND-ORDER REFLECTIVE POLARIZATION ROTATOR

A. El Yousfi, King Fahd University of Petroleum and Minerals, Saudi Arabia; A. F. Abbas, King Fahd University of Petroleum and Minerals, Saudi Arabia; A. M. Alnour Ahmed, The University of Queensland, Australia; A. A. Omar, King Fahd University of Petroleum and Minerals, Saudi Arabia

11:40-12:00

DEVELOPMENT OF A MILLIMETER-WAVE TRANSMITARRAY ANTENNA WITH BIDIRECTIONAL BEAM STEERING

P. Mei, Huazhong University of Science and Technology, China; J. W. Yu, Huazhong University of Science and Technology, China; G.F. Pedersen, Aalborg University, Denmark; S. Zhang, Aalborg University, Denmark

12:00-12:20

ELECTRO-OPTIC CONTROL OF ASYMMETRIC ELECTROMAGNETIC TRANSMISSION CHARACTERISTICS OF A GRATING

M. Clemente-Arenas, Universidad Nacional Tecnol´ ogica de Lima Sur, Peru; R.E. Rubio-Noriega, Pontificia Universidad Católica del Perú, Peru; J. V. Urbina, The Pennsylvania State University, United States; A. Lakhtakia, The Pennsylvania State University, United States

Friday, September 18 - H 08:30-09:50 - room 204

session 44 **APWC**

Microwave antennas, components, and devices

Chairs W.C. Lai, G. Martinez

08:30-08:50

A TOP-PARALLEL COUPLED QUADRATURE VOLTAGE-CONTROLLED OSCILLATOR IN LOW COST 0.35 µM CMOS

W.C. Lai, S.L. JAng, C.W. Chang, C.D. Chinh, Ming Chi University of Technology, Taiwan

08:50-09:10

DEMONSTRATION OF A GAN-BASED SINGLE-POLE-QUADRUPLE-THROW SWITCH FOR MILLIMETER-WAVE BEAM-SWITCHING SYSTEM

Y. F. Tsao, National Yang Ming Chiao Tung University, Taiwan; C. Y. Liu, National Yang Ming Chiao Tung University, Taiwan; O. Hilt, Ferdinand-Braun-Institut (FBH), Germany; S. Chevtchenko, Ferdinand-Braun-Institut (FBH), Germany; H. Yazdani, Ferdinand-Braun-Institut (FBH), Germany; Y. H. Tu, National Yang Ming Chiao Tung University, Taiwan; H. T. Hsu, National Yang Ming Chiao Tung University, Taiwan

09:10-09:30

DESIGN OF DUAL-BAND POWER DIVIDER WITH PURELY RESISTIVE ISOLATION NETWORK

C.Y. Liu, NYCU, Taiwan; H.T. Hsu, NYCU, Taiwan; Y.H. Tu, NYCU, Taiwan; Y.F. Tsao, NYCU, Taiwan

09:30-09:50

MULTIPLE-BAND VOLTAGE-CONTROLLED OSCILLATOR OF SYNTHESIZER WITH PHASE BALANCED MICROMIXER

W.C. Lai, Ming Chi University of Technology, Taiwan

Friday, September 18 - H 09:50-12:40 - room 204

session 45 **ICEAA**

Advances in Computational electromagnetics and Optimization

Chairs G. Martinez, Y. Wada

09:50-10:10

A LARGE-SCALE DATABASE SEARCH METHOD FOR REAL-TIME ESTIMATION AND OPTIMIZATION

Y. Wada, Nagoya Institute of Technology, Japan; R. Ikeya, Nagoya Institute of Technology, Japan; H. Shiokawa, University of Tsukuba, Japan; H. Wakatsuchi, Nagoya Institute of Technology, Japan

10:10-10:30

DIRECTIONAL H2-MATRIX METHOD WITH HIGHER-ORDER HIERARCHICAL BASIS FUNCTIONS FOR LARGE-SCALE ELECTROMAGNETIC SCATTERING ANALYSIS

A. Noor, Howard University, United States; S. Yan, Howard University, United States

11:00-11:20

A HYBRID KERNEL-INDEPENDENT FAST MULTIPOLE METHOD FOR EFFICIENT SIMULATION OF LAYERED MEDIA

S.S. Vaezi, Purdue University, United States; L.J. Gomez, Purdue University, United States; W.C. Chew, Purdue University, United States

11:20-11:40

COMPARISON OF MACRO-BASIS-FUNCTION CONSTRUCTION METHODS FOR REDUCED-ORDER ANALYSIS OF CAVITY-BACKED REFLECTARRAYS

D. Lin, Chalmers University of Technology, Sweden; L. Manholm, Ericsson Research, Sweden; O. Talcot, Ericsson Research, Sweden; R. Maaskant, Chalmers University of Technology, Sweden

11:40-12:00

SOLVING-SYSTEM TRANSFORMATION FOR INVERSE SCATTERING WITH MIXED BOUNDARY CONDITIONS

B. Jiang, University of Science and Technology of China, China; C. Chen, University of Science and Technology of China, China; W. Chen, University of Science and Technology of China, China; X. Zhang, University of Science and Technology of China, China

12:00-12:20

AUTOMATIC GENERATION OF PIXEL-BASED PATCH ANTENNAS USING FAST RANK-REVEALING ALGORITHM

A. Gupta, IIT Madras, India; A. Bekasiewicz, Gdansk University of Technology, Poland

12:20-12:40

DESIGN OF A REFLECTARRAY ANTENNA WITH QUANTUM BEHAVED WARRING-STATES OPTIMIZATION

F. Chiaudani, Politecnico di Milano, Italy; G.F. Martinez, Politecnico di Milano, Italy; E.L. Zich, Politecnico di Milano, Italy; R.E. Zich, Politecnico di Milano, Italy

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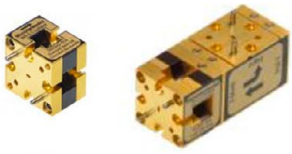

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