



ICEAA - IEEE APWC

International Conference on Electromagnetics
in Advanced Applications

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

OCTOBER 9-13, 2023
VENICE / ITALY





ICEAA - IEEE APWC

**OCTOBER 9-13, 2023
VENICE / ITALY**

ORGANIZED BY

**Politecnico di Torino
IEIIT-CNR**

IN COOPERATION WITH

**IEEE Antennas and Propagation Society
URSI, the International Union of Radio Science
Selene Srl - Eventi e Congressi**

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welcome to the conference

On behalf of the Steering Committee, of the Organizing Committee and of the Scientific Committee, we are glad to welcome all participants to the twenty-fourth edition of ICEAA and to the twelfth edition of IEEE APWC, the IEEE-APS Topical Conference on Antennas and Propagation in Wireless Communications. These two conferences share a common organization, registration fee, submission site, workshops and short courses, and social events.

The 2023 edition of ICEAA and IEEE APWC is organized by the Politecnico di Torino and the Institute of Electronics, Computer and Telecommunication Engineering (IEIIT-CNR) of the Italian National Research Council, with the principal cosponsorship of the IEEE Antennas and Propagation Society and the technical cosponsorship of the International Union of Radio Science (URSI).

The combination of these Conferences has a wide scope which includes all kinds of advanced applications in Electromagnetics and new technology developments. Broad areas are covered, ranging from Electromagnetic Selective Structures to Radio Telescopes and Radio Astronomy Systems, from Electromagnetic Compatibility to Nonlinear Media, Resonances and Inverse Problems, from Antennas, Propagation and Components Technologies to Radar Cross Section and Asymptotic Techniques, from Electromagnetic Application to Biomedicine to Computational Electromagnetics, from Wireless Communications to Metamaterials and Metasurfaces.

Altogether the two conferences feature 46 sessions including 29 special sessions organized by renowned experts. About 338 papers are scheduled, out of the 470 submitted. As in previous editions invited papers will be presented at the Conferences, giving recent information on the state of the art and new technologies.

We also welcome two Distinguished Lecturers, Prof. Nuno Borges Carvalho, University of Aveiro, Portugal, and Dr. Gurudas Ganguli, Plasma Physics Division, Naval Research Laboratory, Washington, USA, who will be presenting plenary lectures at the Conferences.

On Friday morning, October 13, a free half-day Short Course on "Accurate electromagnetics and antenna simulations using the FDTD Method" will be given by Prof. Atef Z. Elsherbeni, Colorado School of Mines, USA.

The Conferences are held in Venice at the "San Servolo Conference Centre," a fascinating place located in the heart of the Venetian lagoon just eight minutes by vaporetto from Piazza San Marco.

Don't miss the opportunity to visit Venice and its surroundings: we are sure you will enjoy them.

We look forward to seeing you in Venice in October.

Roberto D. Graglia

Chairman of the ICEAA - IEEE APWC Organizing Committee

Piorgiorgio L. E. Uslenghi

Chairman of the ICEAA - IEEE APWC Scientific Committee

DATES AND LOCATION

The conferences (combined ICEAA and IEEE APWC) will be held from 9th to 13th of October 2023, at the Servolo Conference Centre, Venice, Italy.

OFFICIAL LANGUAGE

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

PROCEEDINGS

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

ON SITE REGISTRATION FEE

The ICEAA and the IEEE APWC, share a common organization, registration fee, submission site and social events. The registration fee varies depending on number of papers presented, IEEE affiliation, and early or regular time of registration. Students up to the age of 30 enjoy a discounted rate. Full registration is required of all participants, including members of the Conference Committees, Session Chairs and Authors. A registration for each paper has been required from the corresponding author, in order for the paper to be included in the technical program. The registration fee includes attendance to all sessions, luncheons and coffee breaks, and possibility of downloading the Conference Proceedings from the conference portal.

REGISTRATION DESK

The registration desk will be located on the ground floor of the Congress Centre. Accompanying persons and late registrants may register, or pre-registrants may pick up conference materials, from Monday to Thursday at the following times: 8:00-17:30 17:30 (on Wednesdays only from 8:00 to 16:10).

MEALS AND REFRESHMENTS

Fixed-menu luncheons (from Monday to Thursday) and coffee breaks are included in the registration fee. See staff at the Registration Desk for directions during the Conference.

BANQUET

The Conference Dinner and the Award Ceremony will be held on Wednesday 11 October 2023 at the Ridotto di San Moisè in Palazzo Dandolo, now Hotel Monaco & Grand Canal, at 7.30 pm. This is a ticketed event with limited number of places, so please book early to avoid disappointment. Additional tickets can be purchased at the Registration Desk. The winners of the 2023 ICEAA - IEEE APWC Awards and of the IEEE Ulrich L. Rohde Awards will be announced at the Conference Dinner.

AUDIOVISUAL EQUIPMENT

Each meeting room will be equipped with a notebook. The presenting authors will not be allowed to use their personal computer for presentation; only the computer of the meeting rooms can be used for presentation. Authors' presentation files should be in either PowerPoint or PDF format. You must make sure that your presentation contains all of the fonts and any auxiliary or multimedia files needed, and that these files are copied on to the session room computer.

INTERNET CONNECTION

The Conference Centre features WI-FI Internet access.

MESSAGES

During the Conference, messages may be directed to participants via Email to: iceaa@seleneweb.com or iceaa23@polito.it
Messages will be posted in front of the Registration desk.

ATM MACHINE

An ATM is located at the entrance to the Congress Centre.

HOTEL ACCOMMODATIONS

It is advisable to make an early reservation because hotels are subject to availability. A number of hotel rooms have been booked for the duration of the Conference at the San Servolo Residential Centre which, however, can only accommodate a limited number of guests. For those wishing to stay in Venice, we recommend making a reservation well in advance because hotels in Venice are generally fully booked if you book shortly before your arrival.

TOURS & ACTIVITIES

For the latest information on the Accompanying Person Programme and other Social Events please check www.iceaa.net, or refer to the Conference registration desk.

PUBLIC TRANSPORT IN VENICE

AVM/Actv is the main public transport provider for the urban area of Venice and the suburban area. To move around Venice by public transport (i.e., by vaporetto) it is possible to purchase single ticket, day or multi-day tickets.

To avoid the queue that forms at the ticket office we suggest to download the AVM Venezia Official APP, that enables purchase and validation of local ACTV public transport tickets (further details at <https://actv.avmspa.it/en>)

You can also purchase the official city pass Venezia Unica card for public transport, entrance to the main places of interest and many other services online (www.veneziaunica.it/en).

FERRY TIMETABLE - Line 20

S. Marco / S. Zaccaria - S. Servolo - S. Lazzaro - S. Servolo - S. Marco / S. Zaccaria

Lido S.M.E. "E"	08:10														
S. Marco / S. Zacc. "B"	06:55	07:15	08:10	-	08:40	09:00	09:20	09:50	10:30	11:10	11:50	12:30	13:10	13:50	14:30
S. Servolo	07:05	07:25	08:20	08:20	08:50	09:10	09:30	10:00	10:40	11:20	12:00	12:40	13:20	14:00	14:40
S. Lazzaro	-	07:30	08:25	-	-	09:35	-	10:45	-	12:05	-	13:25	-	14:45	-
S. Servolo	-	07:35	08:30	-	-	09:40	-	10:50	-	12:10	-	13:30	-	14:50	-
S. Marco / S. Zacc. "B"	07:15	07:45	08:40	-	09:00	09:20	09:50	10:10	11:00	11:30	12:20	12:50	13:40	14:10	15:00
Lido S.M.E. "E"															

Lido S.M.E. "E"	16:00														18:35					
S. Marco / S. Zacc. "B"	15:10	15:40	-	16:30	17:10	17:50	18:10	-	19:10	19:50	20:30	21:30	22:30	23:30	00:30					
S. Servolo	15:20	15:50	-	16:40	17:20	18:00	18:20	-	19:20	20:00	20:40	21:40	22:40	23:40	00:40					
S. Lazzaro	15:25	-	-	16:45	17:25	-	18:25	-	-	-	-	-	-	-	-					
S. Servolo	15:30	-	16:10	16:50	17:30	-	-	18:45	-	-	-	-	-	-	-					
S. Marco / S. Zacc. "B"	15:40	-	16:20	17:00	17:40	18:10	-	18:55	19:30	20:10	20:50	21:50	22:50	23:50	00:50					
Lido S.M.E. "E"	16:00														18:35					

A = stops at S. Lazzaro only upon request by passengers, while boarding can be booked by call, at least 20 minutes before, to the free number 800 845065

USEFUL CONTACTS

FOR TECHNICAL AND SCIENTIFIC ASPECTS

ICEAA Secretariat

Dipartimento di Elettronica e Telecomunicazioni, Politecnico di Torino
 Corso Duca degli Abruzzi 24, 10129 Torino
 Tel. +39-011-090-4000 (-4056, Prof. R.D. Graglia; -4012, Prof. G. Lombardi)
 E-mail: iceaa23@polito.it

FOR LOGISTICS ASPECTS:

Selene s.r.l. (Mrs. Manuela Trincherò)

Via Medici, 23 - 10143 Torino
 Tel. +39 011 7499601
 E-mail: iceaa@seleneweb.com

For logistics aspects and hotel reservation during the Conference, please see staff at the Registration Desk

ICEAA - IEEE APWC 2023 young scientist award

A certificate and a prize of 800 Euro will be awarded to the young scientist (aged not more than thirty-six as of June 30, 2023) 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.

The finalists of this award must present their papers also in a special poster session scheduled for Wednesday, October 11, 2023, in the coffee-break area.

The session will be active for discussion during coffee breaks and during the last 20mins of lunch break. The poster must be one in A0 format with portrait orientation (i.e.: 1189x841w in millimeters).

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 2023 Young Scientist Award will be announced at the Conference Dinner on Wednesday evening, October 11, 2023. Since the award announcement and presentation are made at the Conference Dinner, all candidates are expected to attend it.

ICEAA 2023 industrial engineering paper award

This award is sponsored by the IEEE AP-S Industrial Initiatives and Listings Committee. A certificate and a prize of 500 Euro 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.

The finalists of this award must present their papers also in a special poster session scheduled for Wednesday, October 11, 2023, in the coffee-break area.

The session will be active for discussion during coffee breaks and during the last 20mins of lunch break. The poster must be one in A0 format with portrait orientation (i.e.: 1189x841w in millimeters). 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 ICEAA - IEEE APWC Conference Dinner, all candidates are expected to attend it.

IEEE Ulrich L. Rohde awards

innovative conference paper awards on computational techniques in electromagnetics

This annual award is given to two most innovative conference papers presented at an annual IEEE AP-S technically sponsored meeting with well consolidated tradition on Computational Techniques in Electromagnetics. ICEAA is the conference chosen by the Administrative Committee of the IEEE Antennas and Propagation Society to award the 2023 IEEE Ulrich L. Rohde Innovative Conference Paper Awards on Computational Techniques in Electromagnetics. The two best innovative conference paper awards consist of a monetary prize/honorarium of \$500, each. The recipient/s of each award must be members of the IEEE and in good standing. In addition, award winners will be invited to publish as an Invited Paper an expanded version of their award-winning paper on the IEEE Transactions on Antennas and Propagation, provided the paper passes the usual review process.

Energy sustainability for net zero radio communications

Abstract

Energy is central to all our activities, especially now, as electricity is needed for basic human survival. Nevertheless, the resources are limited. On certain occasions, we need to rely on the opportunity to have specific energy availability and energy on demand so that sensors, emergency communications, and ICT will continue to operate even if the energy grid is not there.

This talk will discuss the electricity generation problem and how to cope with the huge demand for ICT (Information Communication Technologies) technologies. We will address new paradigms for radio communications and alternatives to make energy available when needed and where needed. It is expected that Net Zero Radio alternatives will be available on the market in the future.

Biography

Nuno Borges Carvalho was born in Luanda, Angola, in 1972. He received his Diploma and Doctoral degrees in electronics and telecommunications engineering from the University of Aveiro, Aveiro, Portugal, in 1995 and 2000, respectively.

He is currently a Full Professor and a Senior Research Scientist with the Institute of Telecommunications, University of Aveiro, the director of the Department of Electronics, Telecommunications and Informatics at UA, and an IEEE Fellow. He coauthored *Intermodulation in Microwave and Wireless Circuits* (Artech House, 2003), *Microwave and Wireless Measurement Techniques* (Cambridge University Press, 2013), *White Space Communication Technologies* (Cambridge University Press, 2014) and *Wireless Power Transmission for Sustainable Electronics* (Wiley, 2020). He has been a reviewer and author of over 400 papers in magazines and conferences. He is the Editor in Chief of the Cambridge Wireless



Prof. Nuno Borges Carvalho

Departamento de Electrónica,
Telecomunicações e Informática
Instituto de Telecomunicações,
Universidade de Aveiro, Portugal

Power Transfer Journal, an associate editor of the IEEE Microwave Magazine, and former associate editor of the IEEE Transactions on Microwave Theory and Techniques and IET Microwaves Antennas and Propagation Journal.

He is the co-inventor of six patents. His main research interests include software-defined radio front-ends, backscatter communications, wireless power transmission, nonlinear distortion analysis, and measurements in microwave/wireless circuits and systems. He has been involved in the design of dedicated radios and systems for newly emerging wireless technologies.

Dr. Borges Carvalho is a member of the IEEE MTT ADCOM, the past chair of the IEEE Portuguese Section, TC-20 and TC-11, and also belongs to the technical committees, TC-25 and TC-26. He is also the Chair of the URSI Commission A (Metrology Group). He was the recipient of the 1995 University of Aveiro and the Portuguese Engineering Association Prize for the best 1995 student at the University of Aveiro, the 1998 Student Paper Competition (Third Place) of the IEEE Microwave Theory and Techniques Society (IEEE MTT-S) International Microwave Symposium (IMS), and the 2000 IEE Measurement Prize.

He is a Distinguished Lecturer for the RFID Council and was a previous Distinguished Microwave Lecturer for the IEEE Microwave Theory and Techniques Society. In 2023 he is the IEEE-MTT President.

Active removal of orbital debris by induced hypervelocity impact of injected dust grains

Abstract

Collisions of an active satellite with a small (1mm – cm) hard-to-track orbital debris can be mission ending. It has been established that we are at the tipping point for collisional cascade of larger objects to exponential growth of small orbital debris. This will make access to near-Earth space hazardous without first clearing the existing debris from this region. While there are concepts for removing larger debris objects, the more numerous (millions) smaller debris are difficult to eliminate by precision targeting one at a time. We present a concept for elimination of swarms of small debris by deploying micron scale dust to artificially enhance the drag on the debris. The key physics that makes this technique viable is the possibility of large momentum boost realized through hypervelocity dust/debris collision. By deploying high mass density micron scale dust in a narrow altitude band temporarily it is possible to artificially enhance drag on debris spread over a very large volume to force rapid re-entry. By synchronizing the dust and debris orbit decay rates a narrow dust layer can be used as a net to capture and force re-entry of numerous small debris objects simultaneously. The injected dust will also re-enter the atmosphere leaving no permanent residue in space.



Dr. Gurudas Ganguli

Plasma Physics Division
Naval Research Laboratory,
Washington DC 2035

actions, plasma turbulence, dusty plasma dynamics, laser-produced plasma expansion, and high energy density physics in hypervelocity impact of projectiles in space. His work has addressed both natural plasmas as well as induced disturbances in the near-earth space environment. He has developed space defense applications including (i) rapid remediation of pumped radiation belts, and (ii) elimination of small orbital debris, which are necessary for the protection of critical on-orbit space assets. His research has motivated a number of laboratory and space experiments. He has led several ONR/NRL, DTRA, DARPA, Air Force and NASA sponsored research programs involving beam-plasma interactions in ionospheric and magnetospheric plasmas as well as negative ion and dusty plasmas. He has authored/co-authored more than 180 publications. He is the recipient of 2014 E. O. Hulburt Award for science, several NRL Berman Awards for excellence in research publications, 2014 Edison Award for patent on a novel technique to de-orbit small orbital debris, and 2010 Technology Transfer Award. He was a member of the NRL Invention Evaluation Board and ONR panel member to upgrade the Navy S&T strategy plan in 2011 - 2012. He has been the thesis advisor for a doctoral and a master dissertation and member of several thesis committees for doctoral and masters candidates. He was the Chairman of the International Union of Radio Science, Commission H (US National Chapter), during 2002 - 2005. He is a Fellow of the American Physical Society, Adjunct Professor of Physics at West Virginia and Auburn Universities, and a member of the American Geophysical Union. He has given over 100 invited talks at various national and international institutions and was appointed by the American Physical Society as a Distinguished Lecturer in Plasma Physics for 2001 - 2002.

Biography

Dr. Ganguli is the Senior Scientist for Intense Particle Beams and Plasma Processes in the Plasma Physics Division, Naval Research Laboratory (NRL). Prior to this appointment he was the Head of the Space Analysis and Applications Section, Plasma Physics Division. He has a broad range of experience in plasma processes including beam-plasma inter-

free short course

Friday October 13, 2023 H 9:00 / 12:00 - Auditorium

Accurate electromagnetics and antenna simulations using the fdtd method

Abstract

This presentation will focus on recent developments in the finite difference time domain (FDTD) method for the solution of several electromagnetic and antenna problems. First a brief introduction of the method, its unified formulation, its capabilities, and the integration of linear and non-linear circuit elements in the electromagnetic simulation. Several examples of designing antennas, filters, and RFID tags as well as RCS computations of large targets will be demonstrated. This will be followed by the demonstration of how to examine the numerical results to accurately achieve successful simulations and how to eliminate numerical or geometry assignment errors. The speed up of the FDTD method using graphical processing gaming cards (GPUs) along with the use of different programming languages such as FORTRAN, MATLAB, CUDA, and OpenCL will be highlighted.



Prof. Atef Z. Elsherbeni

Electrical Engineering Department,
Colorado School of Mines, USA

Biography

Atef Z. Elsherbeni is a professor at the Electrical Engineering Department at Colorado School of Mines. He started his engineering career as a Software and System Design Engineer at Automated Data System Center in Egypt in 1979. He earned a Ph.D. degree in Electrical Engineering from Manitoba University in 1987. He joined the university of Mississippi in 1987 where he was a Professor of Electrical Engineering and Associate Dean for Research. He moved to Colorado School of Mines in 2013 where he was the Dobelman Distinguished Professor and Department Head of the EECS Department. He was one of the Associate Editors to Radio Science Journal, a past Chair of the Engineering and Physics Division of Mississippi Academy of Science, a past Chair of Educational Activity Committee for IEEE Region 3 Section, the general Chair for the 2014 APS-URSI Symposium, and the past president of ACES Society. Dr. Elsherbeni is the Editor-in-Chief for ACES Journal. He was selected as Finland Distinguished Professor, is one of the current IEEE Antennas and Propagation Society Distinguished Lecturers, is a Life Fellow member of IEEE, and a is Fellow member of ACES.

IEEE AP-S Industry panel session

Thursday October 12, 2023 H 13:50 / 14:50 - Sala Teatro

Organized by R. Waterhouse

Important Technologies for Future Communication Networks; an Industry Perspective

We are entering a golden era for antenna technology in wireless communications networks. It is now universally agreed upon that efficient, intelligent antenna systems are the enabler for high data rate, low latency applications, for both terrestrial or non-terrestrial links. Whether to achieve these goals requires combining multiple bands in the low microwave frequency range, utilizing mm-wave frequencies or perhaps even sub-THz bands the need for efficient, adaptive antennas is obvious; even to the general community.

In this interactive panel session we bring together experts from the antenna and microwave manufacturing industry to openly discuss their views on what innovations are required from the antenna and EM communities to realize future wireless networks.

Panelists:

Daniele Piazza, Adant
Roberto Flamini, Huawei
Sara Mugnaini, OneWeb
Rod Waterhouse, Octane Wireless

Moderator

Agostino Monorchio, Università di Pisa

Monday 9

AUDITORIUM

09:10-10:10

FORMAL OPENING

R. Graglia, P.L.E. Uslenghi – Chairs of the Conference
Stefano Maci, IEEE AP-S President

PLENARY LECTURES

10:30-11:30

Energy sustainability for Net ZERO Radio Communications

Nuno Borges Carvalho

11:30-12:30

Active removal of orbital debris by induced hypervelocity impact of injected dust Grains

Gurudas Ganguli

AUDITORIUM

13:50-18:10

SESSION 01 ICEAA

Advances in time- and frequency-domain methods

Organized by L. Klinkenbusch, T. Weiland
Chairs: L. Klinkenbusch, T. Weiland

SALA TEATRO

13:50-18:10

SESSION 02 ICEAA

Microwave antennas, components and devices

Chairs: P.-Y. Chen, A. Piroddi

SALA 1E

13:50-15:10

SESSION 03 ICEAA

Electromagnetic theory and education

Chairs: D.R. Bergman, O. Franek

15:30-18:30

SESSION 04 ICEAA

Electromagnetic applications to biomedicine

Chairs: T. Nagaoka, G. Sacco

SALA 5X

13:50-16:10

SESSION 05 IEEE APWC

Technologies in Wireless Applications

Chairs: E. Carpentieri, D. Dobrykh

16:50-18:30

SESSION 06 ICEAA

Electromagnetic measurements

Chairs: A. Karami-Horestani, S. Rodini

SALA 1G

13:50-18:30

SESSION 07 ICEAA

Natural and stimulated emissions in the ionosphere and magnetosphere - part 1

Organized by G. Ganguli
Chairs: G. Ganguli



Coffee break
10:10-10:30



Lunch break
12:30-13:50



Coffee break
16:10-16:30

Tuesday 10

 AUDITORIUM

8:50-12:30

SESSION 08 ICEAA

Metamaterials and metasurfaces

Chairs: A. Monti, D. Ramaccia

13:50-15:50

SESSION 09 ICEAA

Recent advances and future trends in methodologies and technologies for smart EM environments

Organized by D. Erricolo, G. Oliveri
Chairs: D. Erricolo, G. Oliveri

16:30-18:10

SESSION 10 ICEAA

Recent advances in electromagnetics for MRI

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

 SALA TEATRO

8:50-10:10

SESSION 11 ICEAA

Radio telescopes and radio astronomy systems

Organized by D. de Villiers, E. de Lera Acedo, S. Srikanth
Chairs: D. de Villiers, E. de Lera Acedo

10:30-18:10

SESSION 12 ICEAA

Numerical methods in electromagnetics

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

 SALA 1E

8:50-10:10

SESSION 13 ICEAA

Modern problems of mathematical electromagnetics and their advanced applications

Organized by M.N. Georgieva-Grosse, G.N. Georgiev
Chairs: M.N. Georgieva-Grosse, G.N. Georgiev

10:30-12:30

SESSION 14 IEEE APWC

MIMO, 5G and UWB technologies

Chairs: J. Abularach, C. Morlaas

13:50-15:30

SESSION 15 ICEAA

Optoelectronics and photonics

Chairs: L. Seitner, Y. Ruan

15:30-18:30

SESSION 16 ICEAA

Natural and stimulated emissions in the ionosphere and magnetosphere - part 2

Organized by G. Ganguli
Chair: G. Ganguli

 SALA 5X

8:50-10:10

SESSION 17 IEEE APWC

Wireless power transmission and harvesting

Chairs: N. Seliger, A. van Ieperen

10:30-12:10

SESSION 18 ICEAA

Inverse scattering and Radar imaging

Chairs: A. Rangel, S. Tsynkov

13:50-16:10

SESSION 19 ICEAA

Electromagnetic modelling of materials, devices and circuits

Chairs: A. Abramowicz, S. Aldhaferi

16:30-18:30

SESSION 20 ICEAA

Nonlinear media, resonances and inverse problems

Organized by Y. Shestopalov
Chairs: Y. Shestopalov

 SALA 1G

8:50-10:10

SESSION 21 ICEAA

Advanced Architectures Supporting Radiationless Anapole Modes in Electrodynamics and Nanophotonics

Organized by A. Basharin, L. Matekovits
Chairs: A. Basharin, L. Matekovits

10:30-12:10

SESSION 22 ICEAA

Recent Advancement of Electromagnetic Theory

Organized by H. Shirai
Chairs: H. Kawaguchi, H. Shirai

13:50-15:30

SESSION 23 ICEAA

Electromagnetics in biomedical applications: recent studies on nervous system stimulation

Organized by G. Bonmassar, A. Paffi
Chairs: G. Bonmassar, A. Paffi

15:30-18:30

SESSION 24 ICEAA

EMC/EMI/EMP

Chairs: I. Massaoudi, H. Schreiber



Coffee break
10:10-10:30



Lunch break
12:30-13:50



Coffee break
16:10-16:30

Wednesday 11

AUDITORIUM

8:50-11:10

SESSION 25 ICEAA

Remote Sensing of the Earth's System to Mitigate the Impact of Natural Events on Technological Infrastructures

Organized by G. De Franceschi
Chairs: G. De Franceschi, V. Romano

11:30-15:50

SESSION 26 ICEAA

Reconfigurable Intelligent surfaces: design methods and applications

Organized by F. Costa, G. Manara
Chairs: F. Costa, G. Manara

SALA TEATRO

8:50-11:10

SESSION 27 ICEAA

Advances in Frequency-Domain CEM Techniques and Applications

Organized by B. Notaros
Chairs: B. Notaros, G. Kyriacou

11:10-15:10

SESSION 28 ICEAA

Integral Equations, Finite methods and Hybrid techniques

Chairs: K. Cools, L.-M. Mazzolo

15:10-15:50

SESSION 29 ICEAA

Non-hermitian and topological electromagnetics

Organized by P.-Y. Chen, M.D. Farhat
Chairs: P.-Y. Chen, K. Cools

SALA 1E

8:50-11:10

SESSION 30 ICEAA

Electromagnetic models and geophysical products for signals-of-opportunity reflectometry

Organized by M. Moghaddam
Chair: M. Moghaddam

11:10-16:10

SESSION 31 ICEAA

Micro- and mmWave Sensors in Advanced Applications

Organized by C. Baer
Chairs: C. Baer, C. Schulz

SALA 1G

8:50-14:30

SESSION 32 IEEE APWC

Antennas

Chairs: C. Deville; V. Rampa

14:30-16:10

SESSION 33 ICEAA

Phased and adaptive arrays

Chairs: A. Monorchio, T. van der Spuy



Coffee break
10:10-10:30



Lunch break
12:30-13:50



Coffee break
16:10-16:30



Banquet
19:30

Thursday 12

 AUDITORIUM

8:50-17:50

SESSION 34 IEEE APWC

Wide/Multi band antennas and innovative antenna technologies

Organized by H. Nakano
Chairs: H. Nakano, R.D. Tamas

 SALA TEATRO

8:50-12:30

SESSION 35 ICEAA

Mathematical Advances in Electromagnetics

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

13:50-14:50

SESSION 36 ICEAA

IEEE AP-S Industry panel session

Organized by R. Waterhouse
Moderator: A. Monorchio

14:50-18:10

SESSION 37 ICEAA

Computationally efficient solvers and stable discretizations

Organized by F.P. Andriulli
Chair: F.P. Andriulli

 SALA 1E

8:50-14:50

SESSION 38 ICEAA

Space Relevant Laboratory Experiments

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

15:10-18:10

SESSION 39 ICEAA

Test and Simulation Techniques for Transportation Systems

Organized by Y. Wen
Chairs: Y. Wen, D. Lu

 SALA 5X

9:10-12:30

SESSION 40 ICEAA

Additive Manufacturing for 5G and 6G Terrestrial and not Terrestrial Network

Organized by G. Addamo, M. Lumia
Chairs: G. Addamo, M. Lumia

13:50-15:50

SESSION 41 ICEAA

Design of electromagnetic-selective structures

Organized by Z. Shen
Chairs: Z. Shen

16:30-17:10

SESSION 42 ICEAA

Smart Signal and Image Processing - Part 1

Organized by A.E. Cetin
Chairs: A.E. Cetin, E. Salerno

17:10-18:10

SESSION 43 IEEE APWC

Smart Signal and Image Processing - Part 2

Organized by A.E. Cetin
Chairs: A.E. Cetin, S. Yarman

 SALA 1G

9:10-11:50

SESSION 44 ICEAA

Periodic and quasi-periodic electromagnetics

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

11:50-15:10

SESSION 45 IEEE APWC

Propagation models

Chairs: S. Del Prete, E. Plouhinec

15:10-18:10

SESSION 46 ICEAA

Radio astronomy and Space Applications

Chairs: G. Addamo, A. Sharma



Coffee break
10:10-10:30



Lunch break
12:30-13:50



Coffee break
16:10-16:30

Friday 12

AUDITORIUM

9.00-12.00

SHORT COURSE

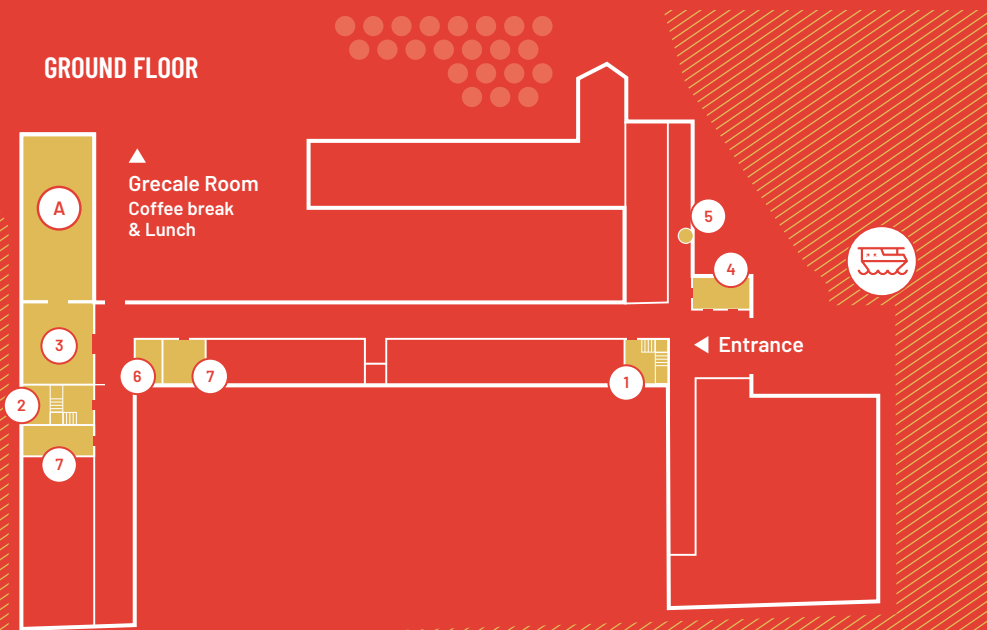
Accurate Electromagnetics and Antenna Simulations using the FDTD Method

Prof. Atef Z. Elsherbeni



Coffee break
10:10-10:30

Servolo Conference Centre



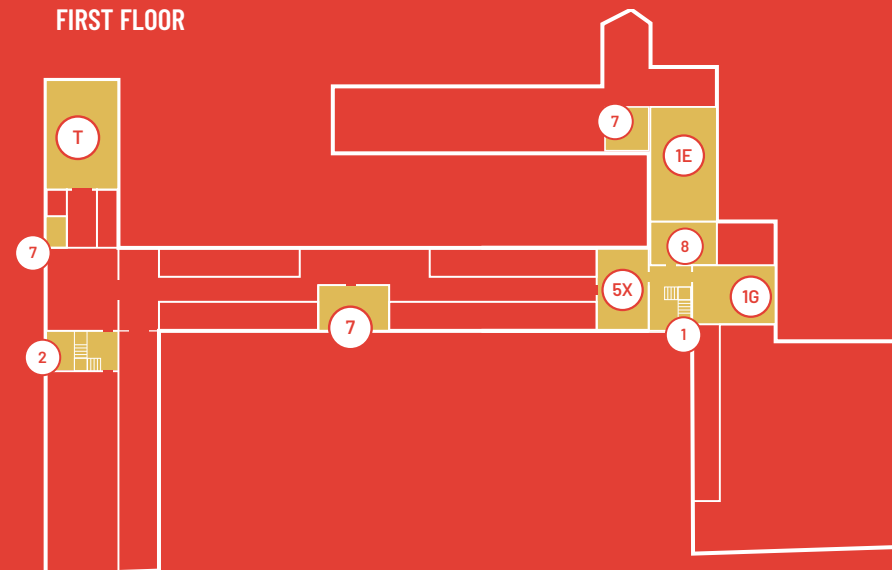
GROUND FLOOR

- A** AUDITORIUM
- 1** Stairs to SALA 1E / 1G / 5X
- 2** Stairs to SALA TEATRO
- 3** Registration desk
- 4** Hotel Reception
- 5** ATM machine
- 6** Bar
- 7** Toilet

FIRST FLOOR

- 1E** SALA 1E
- 1G** SALA 1G
- 5X** SALA 5X
- T** SALA TEATRO
- 1** Stairs to SALA 1E / 1G / 5X
- 8** Slide center for SALA 1E / 1G / 5X
- 2** Stairs to SALA TEATRO
- 7** Toilet

FIRST FLOOR



MONDAY 9

Monday, October 9 - H 09:10 / 12:30 - Auditorium

09:10-10:10

Formal Opening

R. Graglia, P.L.E. Uslenghi – Chairs of the Conference
S. Maci, IEEE AP-S President

Plenary lectures

10:30-11:30

Energy sustainability for Net ZERO Radio Communications

Nuño Borges Carvalho,
Departamento de Electrónica, Telecomunicações e Informática, Instituto de
Telecomunicações, Universidade de Aveiro, Portugal

11:30-12:30

Active removal of orbital debris by induced hypervelocity impact of injected dust Grains

Gurudas Ganguli,
Plasma Physics Division, Naval Research Laboratory, Washington DC 2035, USA

Monday, October 9 - H 13:50 / 18:10 - Auditorium

session 01

ICEAA

Advances in time- and frequency-domain methods

Organized by L. Klinkenbusch, T. Weiland
Chairs L. Klinkenbusch, T. Weiland

13:50-14:10

ADVANCED MODELING TECHNIQUES FOR ACCURATE AND EFFICIENT PARTICLE-IN-CELL SIMULATIONS OF LASER-PLASMA ACCELERATORS

M. Kirchen, Deutsches Elektronen Synchrotron, Germany; R. Lehe, J. Vay, Lawrence Berkeley National Laboratory, USA; A.R. Maier, Deutsches Elektronen Synchrotron, Germany;

14:10-14:30

INVERSE ESTIMATION OF ELECTRON TRAJECTORY FROM LIÉNARD-WIECHERT VORTEX FIELDS

H. Kawaguchi, J. Nishisako, Muroran Institute of Technology, Japan;

14:30-14:50

DESIGN AND OPTIMISATION OF A DOUBLE-NOTCH DOW HOM COUPLER

S. Abasi Udongwo, U. van Rienen, University of Rostock, Germany;

14:50-15:10

STABILITY OF TRANSIENT COUPLED MULTI-MODEL DISCRETE ELECTROMAGNETIC FIELD FORMULATIONS USING THE PORT-HAMILTONIAN SYSTEM FRAMEWORK

M. Clemens, M Günther, University of Wuppertal, Germany;

15:10-15:30

SURROGATE MODELLING FOR S-PARAMETERS BY USING STATE SPACE MAPPING

M. Dasi, P. Thoma, Frankfurt University of Applied Sciences, Germany;

15:30-15:50

MOM FORMULATION FOR LARGE IMPENETRABLE SCATTERERS USING DEEP-SHADOW PRODUCING MULTIPOLE KERNELS

R. Kalhöfer, L. Klinkenbusch, Kiel University, Germany; A. Boag, Tel Aviv University, Israel;

15:50-16:10

A DIRECT SOLVER BASED ON GENERALIZED DEBYE SOURCES FOR ELECTROMAGNETIC SCATTERING

E.V. Chernokozhin, A. Boag, Tel Aviv University, Israel;

16:30-16:50

INTERPOLATION-OPERATOR ORTHOGONAL, HIERARCHICAL H1-CONFORMING BASIS FUNCTIONS FOR TETRAHEDRAL FINITE ELEMENTS

L. Levente Toth, L. D. Schuck, R. Dyczij-Edlinger, Saarland University, Germany;

16:50-17:10

MODIFIED NODAL ANALYSIS USING MEASUREMENT DATA INSTEAD OF LUMPED MODELS

A. Galetzka, D. Loukrezis, H. De Gerssem, TU Darmstadt, Germany;

17:10-17:30

SIMULATING MULTI-TAPERED COAXIAL BALUNS WITH AN ISOGOMETRIC SURFACE INTEGRAL EQUATION METHOD

M. Nolte, Technische Universität Darmstadt, Germany; R. Torchio, Università degli Studi di Padova, Italy; S. Schöps, Technische Universität Darmstadt, Germany; A.E. Ruehli, Missouri University of Science & Technology, USA;

17:30-17:50

ELECTROMAGNETIC RAY TRACING SIMULATION AND IMAGING OF COMPLEX INDOOR SCENARIOS

H. Na, M. Saurer, T.F. Eibert, Technical University of Munich, Germany;

17:50-18:10

INVESTIGATION OF SYSTEM DISTORTIONS BY SCATTERING OF VERY LARGE WIND-TURBINES IN SOME DISTANCE TO DME-NAVIGATION STATIONS ON THE GROUND

G. Greving, W.-D. Biermann, R. Mundt, NAVCOM Consult, Germany;

session 02

ICEAA

Microwave antennas, components and devices

Chairs P.-Y. Chen, A. Piroddi

13:50-14:10

INTELLIGENT REFLECTING SURFACES DRIVEN BY REINFORCEMENT LEARNING CONTROLLER FOR 6G INDOOR COVERAGE ENHANCEMENT

A. Piroddi, University of Bologna, Italy; M. Torregiani, Telebit SpA, Italy;

14:10-14:30

PERFORMANCE ANALYSIS OF DEPLOYMENT ERRORS FOR A TWO-STAGE ANTENNA IN CUBESAT CONSTELLATIONS AT THZ FREQUENCIES

I. Martin, D. Di Tucci, L. Lauterbach, D. Stark, A. Singh, SUNY Polytechnic Institute, USA;

14:30-14:50

ADDITIVELY MANUFACTURED COMPLIANT MECHANISM SOLUTIONS FOR ENHANCED ELECTROMAGNETIC DEVICE PERFORMANCE

G. Mackertich Sengerdy, P.L. Werner, D.H. Werner, The Pennsylvania State University, USA;

14:50-15:10

DESIGN OF A MULTI-LAYER DUAL-BAND FREQUENCY SELECTIVE SURFACE BANDPASS FILTER

M. Nasrat Zaqumi, A. Lalbakhsh, Macquarie University, Australia; G. Moloudian, Tyndall National Institute University College Cork, Ireland; K. Esselle, University of Technology Sydney, Australia;

15:10-15:30

CHARACTERIZATION OF A 2D STACKABLE DIELECTRIC LUNEBURG LENS RADIATION PATTERN: INSIGHTS FROM REVERBERATION AND RADIATION TESTS

M. AlMansoori, Technology Innovation Institute, United Arab Emirates; A. Rangel, Universidad Nacional de Colombia, Colombia; A. Banelli, F. Vega, C. Kasmi, Technology Innovation Institute, United Arab Emirates; L.O. Fichte, Helmut Schmidt University, Germany; M. Stiemer, Helmut Schmidt University, Germany;

15:30-15:50

NUMERICAL ANALYSIS AND SYNTHESIS OF GYROTRON INTERNAL MODE CONVERTER

X.X. Chen, J.T. Li, D.H. Xia, Y. Pan, Huazhong University of Science and Technology, China;

15:50-16:10

A LOW-COST WIDE-ANGLE COVERAGE RECTENNAS FOR ENERGY HARVESTING APPLICATIONS

T.-Dung Ha, X. Nie, University of Illinois, Chicago, USA; H. Bağcı, King Abdullah University of Science and Technology (KAUST), Thuwal, Saudi Arabia; D. Erricolo, P.-Y. Chen, University of Illinois, Chicago, USA;

16:30-16:50

A SPIRAL FLOWER SHAPE WEARABLE ANTENNA FOR SMART INTERNET OF THINGS

A. Al-Laymoun, R. Alrawashdeh, Mutah University, Jordan; J. Zhou, Liverpool University, United Kingdom;

16:50-17:10

A SIMPLE AND NOVEL PLANAR STRUCTURE TO EXCITE CHARACTERISTIC MODES

A.K. Çevik, ASELSAN Inc., Turkey; L. Alatan, Middle East Technical University, Turkey;

17:10-17:30

STOCHASTIC MODELING OF THE RADIATION PATTERN OF AIRBORNE ANTENNAS: APPLICATION TO THE RADAR ALTIMETER

E.M. Djelloul, A. Chabory, C. Morlaas, R. Douvenot, ENAC, France;

17:30-17:50

A TEFLON-FILLED OPEN-ENDED CIRCULAR WAVEGUIDE FOCAL-PLANE-ARRAY USED FOR SWAY COMPENSATION IN W-BAND 50DB-GAIN BACKHAUL REFLECTOR ANTENNAS

V. Chernikov, A. Vilenskiy, Chalmers University of Technology, Sweden; S. Agneessens, L. Manholm, Ericsson, Sweden; M. Ng Mou Kehn, National Yang Ming Chiao Tung University, Taiwan; M. Ivashina, Chalmers University of Technology, Sweden;

17:50-18:10

THREE-DIMENSION FREQUENCY SELECTIVE SURFACE WITH ORTHOGONAL DIAMOND-SHAPED STRUCTURE

Z. Chen, X. Yao, North China Electric Power University, China;

session 03

ICEAA

Electromagnetic theory and education

Chairs D.R. Bergman, O. Franek

13:50-14:10

STRUCTURED AND INTUITIVE PHASOR TRANSMISSION AND SCATTERING EQUATIONS

O. Franek, Aalborg University, Denmark;

14:10-14:30

METHOD OF CHARACTERISTICS APPLIED TO STOCHASTIC MAXWELL'S EQUATIONS IN THE CHAOS BASIS EXPANSION

D.R. Bergman, NRL, USA;

14:30-14:50

MODAL AMPLITUDES OF ELECTROMAGNETIC FIELDS IN A CONICAL CAVITY: A NOVEL APPROACH

A.A. Cosan, F. Erden, National Defence University, Turkish Naval Academy, Turkey;

14:50-15:10

EFFICIENT CALCULATION OF THE RADIATION OF WIRES WITH ARBITRARY TRAJECTORIES IN CAVITIES

J. Petzold, Otto von Guericke University, Germany; R. Vick, Otto von Guericke University, Germany;

session 04

ICEAA

Electromagnetic applications to biomedicine

Chairs T. Nagaoka, G. Sacco

15:30-15:50

DEVELOPMENT OF THERMAL REHABILITATION SYSTEM FOR SIMULTANEOUS HEATING OF BOTH KNEES

H. Taoda, Y. Shindo, Toyo University, Japan; K. Takahashi, Kyoto Prefectural University of Medicine, Japan;

15:50-16:10

INVESTIGATION OF DETECTION RANGE FOR BEDSORES USING ELECTROMAGNETIC WAVES

H. Ogawa, M. Takahashi, Chiba University, Japan;

16:30-16:50

NUMERICAL INVESTIGATION OF HEATING CHARACTERISTICS DEPENDING ON ULTRASOUND IRRADIATION POSITION DURING HIFU TREATMENT

Y. Takeuchi, Y. Shindo, Toyo University, Japan;

16:50-17:10

ANALYSIS OF HEATING CHARACTERISTICS OF RECTANGULAR RESONANT CAVITY APPLICATOR FOR DEEP HEATING OF ABDOMINAL TUMORS

M. Sakurai, Y. Shindo, Toyo University, Japan;

17:10-17:30

PRELIMINARY STUDY OF OPTIMIZED METASURFACE MATCHING LAYER IN NEAR FIELD

D. Gasperini, F. Costa, G. Manara, Università di Pisa, Italy; L. Daniel, Massachusetts Institute of Technology, USA; S. Genovesi, Università di Pisa, Italy;

17:30-17:50

FLEXIBLE LEAKY WAVE ANTENNAS FOR WEARABLE RADARS

G. Sacco, P. Vadher, D. Nikolayev, University of Rennes, France;

17:50-18:10

ESTIMATION OF ELECTROMAGNETIC ABSORPTION CHARACTERISTICS USING A HUMAN MODEL WITH ANATOMICAL STRUCTURES AT FREQUENCIES ABOVE 100 GHz

T. Nagaoka, National Institute of Information and Communications Technology, Japan;

18:10-18:30

AUTONOMOUS MOBILE ROBOT FOR SMART AMBULATORY APPLICATIONS

S. Bharadwaj, Y. Soni, Apurva, School of Automation Banasthali Vidyapith, India; A. Shastri, Centre for Artificial Intelligence, India

session 05

IEEE APWC

Technologies in Wireless Applications

Chairs E. Carpentieri, D. Dobrykh

13:50-14:10

A PHYSICS-INFORMED GENERATIVE MODEL FOR PASSIVE RADIO-FREQUENCY SENSING

S. Savazzi, CNR-IEIIT, Italy; F. Fieramosca, Politecnico di Milano, Italy; S. Kianoush, V. Rampa, CNR-IEIIT, Italy; M. D'Amico, Politecnico di Milano, Italy;

14:10-14:30

SITE-SPECIFIC MACHINE LEARNING APPROACH FOR LINE OF SIGHT DETECTION

M.H. Zadeh, F. Fuschini, M. Barbiroli, V.D. Esposti, E.M. Vitucci, S.D. Prete, University of Bologna, Italy;

14:30-14:50

NOTES WHEN DESIGNING SUBARRAYS (IN AESA SYSTEMS)

E. Carpentieri, MBDA, Italy;

14:50-15:10

IMPROVEMENT OF RADIATED EMISSION MEASUREMENT CHAIN BY UTILIZING A METALLIC PLANAR LENS

A. AlNeyadi, D. Martinez, A. Banelli, M. Almansoori, I. Yahi, F. Vega, C. Kasmi, Technology Innovation Institute, United Arab Emirates;

15:10-15:30

CERAMIC RFID TAG FOR OMNIDIRECTIONAL LONG-RANGE COMMUNICATION

D. Dobrykh, Tel Aviv University, Israel; A. Maksimenko, I. Yusupov, A. Slobozhanyuk, ITMO University, Russia; D. Filonov, Moscow Institute of Physics and Technology, Russia; P. Ginzburg, Tel Aviv University, Israel;

15:30-15:50

A COMPOSITE RIGHT/LEFT HANDED TRANSMISSION LINE-BASED RECONFIGURABLE ANTENNA FOR UHF RFID NEAR- AND FAR-FIELD APPLICATIONS

C. Song, Y. Qin, X. Liang, Z. Wang, S. Ye, Q. Zhang, G. Fang, Chinese Academy of Science, China;

15:50-16:10

A GSM CELL BROADCAST MOBILE NETWORK TO PROVIDE WIRELESS ALERT AND WARNING MESSAGES IN RURAL AREAS USING SOFTWARE DEFINED RADIO (SDR) TECHNOLOGY

J. Abularach, C. Bezerra, W. Acioli e Silva, Sidia Institute of Science and Technology, Brazil;

Monday, October 9 - H 16:50 / 18:30 - Sala 5X

session 06

ICEAA

Electromagnetic measurements

Chairs A. Karami-Horestani, S. Rodini

16:50-17:10

DESIGN OF SMALL-CONSTANT BIPLANAR COILS FOR CONTROLLING THE ULTRA-WEAK MAGNETIC FIELD IN MSR

S. Dou, X. Liu, H. Wu, T. Wen, X. Zheng, B. Han, Beihang University, China;

17:10-17:30

POSITION ESTIMATION USING THE LOOP ANTENNA IN THE SEA

R. Yabiku, M. Takahashi, Chiba University, Japan;

17:30-17:50

ENHANCING THE BIT DENSITY AND CAPACITY IN HYBRID TIME/PHASE DOMAIN ELECTROMAGNETIC ENCODERS

A. Karami-Horestani, F. Paredes, F. Martin, GEMMA/CIMITEC, Spain;

17:50-18:10

A WIRELESS PRESSURE SENSOR BASED ON A TUNABLE ELECTROMAGNETIC ABSORBING SURFACE

S. Rodini, S. Genovesi, G. Manara, F. Costa, Università di Pisa, Italy;

18:10-18:30

FORMULATION OF THE MEASUREMENT PROBLEM AND APPLICATION TO ANTENNA MEASUREMENT CORRECTION

A. Quennelle, A. Chabor, ENAC, France; R. Contreres, G. LeFur, CNES, France; P. Pouliguen, DGA-MI, France;

Monday, October 9 - H 13:50 / 18:30 - Sala 1G

session 07

ICEAA

Natural and stimulated emissions in the ionosphere and magnetosphere - part 1

Organized by G. Ganguli

Chairs G. Ganguli

13:50-14:10

SPACE DEBRIS IDENTIFICATION AND TRACKING (SINTRA)

A.S. Truitt, Intelligence Advanced Research Projects Activity (IARPA), MD, USA

14:10-14:30

TEST METHODS FOR NATURAL AND STIMULATED EMISSIONS IN THE IONOSPHERE AND MAGNETOSPHERE

B.J. Pokines, Air Force Office of Scientific Research, USA;

14:30-15:10

SOLITONS FOR ORBITAL DEBRIS DETECTION AND TRACKING

A. Sen, Institute for Plasma Research, India;

15:10-15:30

EXPERIMENTAL INVESTIGATION OF ORBITAL DEBRIS SOLITON GENERATION

B. Amatucci, E. Tejero, A. DuBois, C. L. Enloe, D. Blackwell, C. Crabtree, G. Ganguli, Naval Research Laboratory, USA; A. Sen, Institute for Plasma Research, India;

15:30-15:50

WAVES IN DUSTY PLASMAS - RESEARCH FROM LABORATORY TO SPACE

H.M. Thomas, DLR, Germany;

15:50-16:10

INCOHERENT SCATTER RADAR DIAGNOSTIC CAPABILITIES FOR REMOTELY SENSING IONOSPHERIC PLASMA SIGNATURES CAUSED BY SPACE DEBRIS

P.J. Erickson, F.D. Lind, MIT, USA;

16:30-16:50

INCOHERENT SCATTER RADAR AND SPACE DEBRIS DETECTION EXPERIMENT: OBSERVING STARLINK IN THE IONOSPHERE

J.B. Parham, J. Li, M. Dickson, T. Canny, G. Ginet, P. Erickson, F. Lind, MIT, USA;

16:50-17:10

THE DSX MISSION - PRELIMINARY RESULTS AND ANALYSIS

J.M. Albert, AFRL, USA;

17:10-17:30

THE SMART EXPERIMENT AND WEAK TURBULENCE THEORY

C. Crabtree, G. Ganguli, A. Fletcher, A. Rualdo Soto, US Naval Research Laboratory, USA;

17:30-17:50

NARROWBAND STIMULATED RADIATION DURING IONOSPHERIC HEATING EXPERIMENTS: RECENT OBSERVATIONS, THEORY, AND MODELING

W.A. Scales, Virginia Tech, USA;

17:50-18:10

QUANTUM INFORMATION SCIENCE AND WAVE PROPAGATION IN PLASMAS

A. K. Ram, Massachusetts Institute of Technology, USA; E. Koukoutsis, K. Hizanidis, National Technical University of Athens, Greece; G. Vahala, William and Mary, USA; M. Soe, Rogers State University, USA; L. Vahala, Old Dominion University, USA;

18:10-18:30

A LABORATORY INVESTIGATION OF ALFVÉN WAVES IN AN ALFVÉN SPEED GRADIENT

G. Joshi, Columbia University, USA; T. Carter, University of California, USA; D. W. Savin, Columbia University, USA; S. Tripathi, S. Vincena, M. Hahn, University of California, USA

TUESDAY 10

Tuesday, October 10 - H 08:50 / 12:30 - Auditorium

session 08

ICEAA

Metamaterials and metasurfaces

Chairs A. Monti, D. Ramaccia

08:50-09:10

REFLECTIVE METASURFACE FOR SIMULTANEOUS GENERATION OF FRONTHAUL AND BACKHAUL LINKS IN MM-WAVE FR2 COMMUNICATIONS

Á.F. Vaquero, B. Imaz-Lueje, M.R. Pino, M Arrebola, Universidad de Oviedo, Spain;

09:10-09:30

PREDICTION OF PEC/PMC TRANSITION FOR A MUSHROOM-LIKE METASURFACE USING DIFFERENTS NUMERICAL MODELS

C. Scotti, N. Malléjac, CEA DAM Le Ripault, France; S. Enoch, CNRS, France; M. Latrach, ESEO, France;

09:30-09:50

METAMATERIAL BASED SENSOR USING FRACTAL HILBERT STRUCTURE FOR LIQUID CHARACTERIZATION

R.K.A. Sattar, Al-Hadi University College, Iraq; M. Alibakhshikenari, Universidad Carlos III de Madrid, Spain; T.A. Elwi, International Applied and Theoretical Research Center (IATRC), Iraq; L. Kouhalvandi, Dogus University, Turkey; Z.A.A. Hassain, Mustansiriyah University, Iraq; B.S. Virdee, London Metropolitan University, UK; M. Soruri, University of Birjand, Iran; N.T. Tokan, Yildiz Technical University, Turkey; N.O. Parchin, Edinburgh Napier University, UK; P. Livreri, University of Palermo, Italy; I. Dayoub, University of Lille, France; S. Aissa, Université du Québec, Canada; E. Limiti, University of Rome "Tor Vergata", Italy

09:50-10:10

CIRCULAR ARRAY SYNTHESIS FOR CYLINDRICAL BEAM-SCANNING METASURFACES

M. Longhi, S. Vellucci, M. Barbuto, Niccolò Cusano University, Italy; A. Monti, Z. Hamzavi-Zarghani, L. Stefanini, D. Ramaccia, F. Bilotti, A. Toscano, Roma Tre University, Italy;

10:30-10:50

RADIATING AND GUIDED SCATTERING EMERGING AT TEMPORAL INTERFACES IN TIME-VARYING METAMATERIALS AND GUIDING STRUCTURES

L. Stefanini, D. Ramaccia, RomaTre University, Italy; M. Barbuto, Niccolò Cusano University, Italy; Z. Hamzavi-Zarghani, RomaTre University, Italy; M. Longhi, Niccolò Cusano University, Italy;

A. Monti, RomaTre University, Italy; S. Vellucci, Niccolò Cusano University, Italy; A. Toscano, RomaTre University, Italy; A. Alù, ASRC, City University of New York, USA; F. Bilotti, RomaTre University, Italy;

10:50-11:10

COMPARISON OF CLASSIC AND GENERALIZED INTERSECTION APPROACH FOR THE SYNTHESIS OF TRANSMITARRAYS WITH NEAR-FIELD CONSTRAINTS

S. M. Feito, A. F. Vaquero, University of Oviedo, Spain; F. Foglia Manzillo, A. Clemente, CEA-Leti, France; M. Arrebola, University of Oviedo, Spain;

11:10-11:30

PHASE-GRADIENT METASURFACES FOR ANTENNA APPLICATIONS

A. Monti, Roma Tre University, Italy; S. Vellucci, M. Longhi, M. Barbuto, Niccolò Cusano University, Italy; Z.H. Zarghani, D. Ramaccia, L. Stefanini, Roma Tre University, Italy; A. Alù, City University of New York, USA; A. Toscano, F. Bilotti, Roma Tre University, Italy;

11:30-11:50

TERAHERTZ METAMATERIAL WITH TUNABLE WINDOW BASED ON ELECTROMAGNETICALLY INDUCED TRANSPARENCY (EIT) IN SELF-ASYMMETRIC RESONATOR

X. Liu, J. Sun, Z. Shi, S. Xiu, Y. Hou, Y. Cui, L. Zhang, Xi'an Jiaotong University, China;

11:50-12:10

RECONFIGURABLE METASURFACE-DOME SYNTHESIS FOR BEAM-STEERING

M. Longhi, S. Vellucci, M. Barbuto, Niccolò Cusano University, Italy; A. Monti, Z. Hamzavi-Zarghani, L. Stefanini, D. Ramaccia, F. Bilotti, A. Toscano, Roma Tre University, Italy;

12:10-12:30

TIME-SWITCHED METASURFACES: CONVERSION FROM GUIDED TO RADIATED MODES

L. Stefanini, D. Ramaccia, RomaTre University, Italy; V. Galdi, University of Sannio, Italy; M. Barbuto, Niccolò Cusano University, Italy; Z. Hamzavi-Zarghani, RomaTre University, Italy; M. Longhi, Niccolò Cusano University, Italy; A. Monti, RomaTre University, Italy; S. Vellucci, Niccolò Cusano University, Italy; A. Toscano, F. Bilotti, RomaTre University, Italy;

Tuesday, October 10 - H 13:50 / 15:50 - Auditorium

session 09

ICEAA

Recent advances and future trends in methodologies and technologies for smart EM environments

Organized by D. Erricolo, G. Oliveri

Chairs D. Erricolo, G. Oliveri

13:50-14:10

SPATIAL MULTIPLEXING IN NEAR FIELD RIS-AIDED MIMO CHANNELS

M. Di Renzo, CNRS & CentraleSupélec, Paris-Saclay University, France;

14:10-14:30

RECONFIGURABLE NONLINEAR PHOTONIC METASURFACES

C. De Angelis, O. Sergaeva, P. Franceschini, University of Brescia, Italy; A. Tognazzi, University of Palermo, Italy; M. Gandolfi, D. Rocco, University of Brescia, Italy;

14:30-14:50

RECONFIGURABLE ELECTROMAGNETIC ENVIRONMENTS: A SIGNAL PROCESSING APPROACH

D. Dardari, University of Bologna, Italy;

14:50-15:10

A MACROSCOPIC RAY-BASED MODEL FOR REFLECTIVE METASURFACES

E.M. Vitucci, University of Bologna, Italy; M. Albani, University of Siena, Italy; S. Kodra, M. Barbiroli, V. Degli-Esposti, University of Bologna, Italy;

15:10-15:30

RECONFIGURABLE AND TIME MODULATED METASURFACES ENABLING A NEW GENERATION OF SMART ANTENNAS

F. Bilotti, Roma Tre University, Italy; M. Barbuto, M. Longhi, Unicusano University, Italy; A. Monti, Roma Tre University, Italy; D. Ramaccia, Unicusano University, Italy; L. Stefanini, A. Toscano, Roma Tre University, Italy; S. Vellucci, Unicusano University, Italy;

15:30-15:50

ADVANCED WAVE MANIPULATION FOR SMART EM ENVIRONMENT THROUGH STATIC PASSIVE SKINS

G. Oliveri, A. Massa, University of Trento, Italy;

Tuesday, October 10 - H 16:30 / 18:10 - Auditorium

session 10

ICEAA

Recent advances in electromagnetics for MRI

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

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

16:30-16:50

A PASSIVE AND CONFORMAL MAGNETIC METASURFACE FOR 3T MRI BIRDCAGE COIL

S. Rotundo, D. Brizi, University of Pisa Italy; G. Carluccio, K. Lakshmanan, C. M. Collins, R. Lattanzi, New York University, USA; A. Monorchio, University of Pisa Italy;

16:50-17:10

METAMATERIALS AND METASURFACE PADS FOR HIGH FIELD MRI

M. Dubois, Multiwave Imaging, France; D. Bendahan, R. Abbedaim, S. Enoch, CNRS, France;

17:10-17:30

A WEB-ACCESSIBLE TOOL FOR 2D ANALYTICAL SOLUTIONS OF ELECTROMAGNETIC FIELDS IN CONCENTRIC CYLINDERS

G. Carluccio, E. Montin, C. M. Collins, R. Lattanzi, New York University, USA;

17:30-17:50

TRANSMIT EFFICIENCY ACROSS A RANGE OF FIELD STRENGTHS, RELATIVE PERMITTIVITIES AND TRANSMIT COILS

G. Carluccio, C. Collins, New York University, USA;

17:50-18:10

AN ANALYTICAL SOLUTION TO INVESTIGATE THE IMPACT OF AN INSULATING LAYER WITH HIGH PERMITTIVITY MATERIALS IN MAGNETIC RESONANCE IMAGING APPLICATIONS

V. Miranda, D. Riccio, G. Ruello, University of Napoli Federico II, Italy; G. Carluccio, C. Collins, R. Lattanzi, New York University, USA;

Tuesday, October 10 - H 08:50 / 10:10 - Sala Teatro

session 11

ICEAA

Radio telescopes and radio astronomy systems

Organized by D. de Villiers, E. de Lera Acedo, S. Srikanth

Chairs: D. de Villiers, E. de Lera Acedo

08:50-09:10

WIDEBAND ANTENNA DESIGN FOR TIME DOMAIN RFI MEASUREMENTS

S. Snyman, J. Gilmore, Stellenbosch University, South Africa;

09:10-09:30

AN ULTRA-WIDEBAND FEED HORN FOR THE GREEN BANK TELESCOPE

S.D. White, G. Watts, Green Bank Observatory, USA; A. Bulatek, University of Florida, USA; R. Simon, R. Lynch, Green Bank Observatory, USA; M. Harris, Johns Hopkins University, USA; J. Nelson, Green Bank Observatory, USA; L. Jenson, S. Ransom, National Radio Astronomy Observatory, USA;

09:30-09:50

BEAM MODELLING ACCURACY FOR FLUX CALIBRATION OF PHASED ARRAY RADIO TELESCOPES

S.J. Wijnholds, ASTRON, Netherlands; M.G. Labate, SKAO, United Kingdom; D.B. Davidson, Curtin University, Australia; P. Bolli, INAF, Italy;

09:50-10:10

ANTENNA POSITION ESTIMATION RESULTS FROM IN-SITU MEASUREMENT DATA

R. Raal, R.-M. Weideman, D.I.L. de Villiers, Stellenbosch University, South Africa; A. Cuyt, University of Antwerp, Belgium; S.J. Wijnholds, Netherlands Institute for Radio Astronomy (ASTRON), Netherlands;

session 12

ICEAA

Numerical methods in electromagnetics

Organized by R. Graglia, D.R. Wilton

Chairs: R. Graglia, D.R. Wilton

10:30-10:50

ANALYTICAL EVALUATION OF THE 4-D SINGULAR INTEGRAL: A DIFFERENT PERSPECTIVE FOR A SYSTEMATIC APPROACH

D. Tihon, C. Craeye, UCLouvain, Belgium;

10:50-11:10

EFFICIENT EVALUATION OF TEST INTEGRALS FOR SURFACE METHOD OF MOMENTS BASED ON VERTEX FUNCTIONS

J. Rivero, Politecnico di Torino, Italy; V. F. Martin, Universidad de Extremadura, Spain; D.R. Wilton, University of Houston, USA; W. A. Johnson, Consultant, USA; F. Vipiana, Politecnico di Torino, Italy;

11:10-11:30

EXACT CALCULATION OF MATRIX ENTRIES IN SPACE-TIME GALERKIN TIME DOMAIN BOUNDARY ELEMENT METHOD FOR THE SCALAR WAVE EQUATION

A. Zuccotti, K. Cools, Universiteit Gent, Belgium;

11:30-11:50

METHOD FOR EVALUATING THE ACCURACY OF SOMMERFELD INTEGRALS CALCULATIONS IN HALF-SPACE PROBLEMS

B. Kolundzija, University of Belgrade, Serbia; N. Basta, WIPL-D d.o.o., Serbia;

11:50-12:10

OPERATOR FILTERING BASED FAST DIRECT SOLVERS FOR ELECTROMAGNETIC INTEGRAL EQUATIONS

C. Henry, IMT Atlantique, France; D. Consoli, L. Rahmouni, A. Dély, Politecnico di Torino, Italy; A. Merlini, IMT Atlantique, France; F.P. Andriulli, Politecnico di Torino, Italy;

12:10-12:30

A NOVEL MULTIREOLUTION PRECONDITIONER INCLUDING PIECEWISE HOMOGENEOUS DIELECTRIC OBJECTS

V. F. Martin, D. M. Solis, J. M. Taboada, University of Extremadura, Spain; F. Vipiana, Politecnico di Torino, Italy;

13:50-14:10

AN EFFICIENT LOW-RANK REPRESENTATION OF 1ST KIND INTEGRAL EQUATION BOUNDARY ELEMENT METHOD MATRICES

N. Lochner, M. Vouvakis, University of Massachusetts Amherst, USA;

14:10-14:30

DEVELOPMENT AND APPLICATIONS OF THE LAPLACIAN REPRESENTATION APPROACH FOR THE ASYMPTOTIC PART OF THE LAYERED-MEDIUM GREEN'S FUNCTION IN THE MIXED POTENTIAL FORMULATION

E. Bleszynski, M. Bleszynski, T. Jaroszewicz, Monopole Research, USA; W. Johnson, Consultant, USA; J. Rivero, F. Vipiana, Politecnico di Torino, Italy; D. Wilton, University of Houston, USA;

14:30-14:50

DISCONTINUOUS GALERKIN FORMULATION FOR MODELLING MULTIPLE MATERIAL AND MULTIPLE CONDUCTOR JUNCTIONS

V. F. Martin, D. M. Solis, L. Landesa, University of Extremadura, Spain; F. Obelleiro, University of Vigo, Spain; J. M. Taboada, University of Extremadura, Spain;

14:50-15:10

EXTENSION OF THE HIGHER-ORDER ARRAY DECOMPOSITION METHOD FOR ARRAYS WITH NON-IDENTICAL ELEMENTS

M. Brandt-Møller, M. Mattes, Technical University of Denmark, Denmark; M. Zhou, E. Jørgensen, TICRA, Denmark; O. Breinbjerg, EIMaReCo, Denmark;

15:10-15:30

START VECTOR ESTIMATION FOR ITERATIVE MULTIPLE-FREQUENCY INVERSE SOURCE SOLUTIONS

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

15:30-15:50

SECOND ORDER TRANSITION BOUNDARY CONDITION FOR NOT DENSE THIN SHEETS ANALYSIS WITH MOM

A. Mazzinghi, University of Florence, Italy; A. Mori, M. Bercigli, M. Bandinelli, IDS Spa, Italy; A. Freni, University of Florence, Italy;

15:50-16:10

PERFORMANCE OF THE NORMALLY-INTEGRATED MAGNETIC FIELD INTEGRAL EQUATION FOR FLAT FACETED SURFACES

A.F. Peterson, M.M. Bibby, Georgia Institute of Technology, USA;

16:30-16:50

ON THE VALIDATION OF CURL-CONFORMING HIGHER-ORDER BASIS FUNCTIONS USING THE METHOD OF MANUFACTURED SOLUTIONS

A. Amor-Martin, L.E. Garcia-Castillo, University Carlos III of Madrid, Spain;

16:50-17:10

APPLICATION OF THE METHOD OF MOMENTS IN TELESCOPE CORONAGRAPH PUPIL AND FOCAL PLANE MASK DESIGN

S. Yan, L. Wise, Howard University, USA; P. Chen, Jet Propulsion Laboratory, USA;

17:10-17:30

PYRAMIDAL VERSUS TETRAHEDRAL ELEMENTS IN FINITE ELEMENT APPLICATIONS

R.D. Graglia, P. Petrini, Politecnico di Torino, Italy

17:30-17:50

QUANTUM COMPUTATIONAL ELECTROMAGNETICS—RECENT PROGRESS

T.E. Roth, Purdue University; USA, D.-Y. Na, Pohang U of Science and Technology, South Korea; C.J.Y. Ryu, University of Illinois at Urbana-Champaign, USA; W.C. Chew, Purdue University; USA

17:50-18:10

PHYSICS-INFORMED MACHINE LEARNING FOR HYBRID OPTIMIZATION OF MICROWAVE AND RF DEVICES

Y.N. Liu, J.M. Jin, University of Illinois at Urbana-Champaign, USA;

Tuesday, October 10 - H 08:50 / 10:10 - Sala 1E

session 13

ICEAA

Modern problems of mathematical and computational electromagnetics and their advanced applications

Organized by M.N. Georgieva-Grosse, G.N. Georgiev
Chairs: M. Georgieva, G. Georgiev

08:50-9:10

SYNTHESIS OF A TWIST STRUCTURE FROM A GIVEN MULTIBEAM SCATTERING DIAGRAM

Yu.V. Yukhanov, T.Yu. Privalova, Southern Federal University, Russia;

09:10-09:30

SIMULATION OF PHOTOCATALYTIC GOLD GROWTH ON RESONANT OPTICAL TEMPLATES

M. Gerken, Kiel University, Germany;

09:30-09:50

EFFECT OF THE PERMITTIVITY OF ISOTROPIC LOAD ON THE AREA OF PHASE SHIFTER OPERATION OF A CIRCULAR FERRITE-DIELECTRIC WAVEGUIDE WITH AZIMUTHAL MAGNETIZATION: ANALYSIS IN TERMS OF THE L3 NUMBERS

G. Nikolov Georgiev, M. Nikolova Georgieva-Grosse, Consulting and Researcher, Bulgaria;

09:50-10:10

SOMMERFELD INTEGRALS ASYMPTOTICS IN DIPOLE RADIATION PROBLEMS

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

Tuesday, October 10 - H 10:30 / 12:30 - Sala 1E

session 14

IEEE APWC

MIMO, 5G and UWB technologies

Chairs: J. Abularach, C. Morlaas

10:30-10:50

HIGHLY DIRECTIVE COMPACT MULTIBAND MIMO ANTENNA WITH IMPROVED GAIN FOR 5G WIRELESS COMMUNICATION SYSTEM

O. Khan, CECOS University of IT and Emerging Sciences Peshawar, Pakistan; S. Khan, Comsats University Abbottabad, Pakistan, Pakistan; M. Alibakhshikenari, Universidad Carlos III de Madrid, Spain; M. Anab, UET Peshawar, Pakistan; J. Nasir, Comsats University Islamabad Pakistan, Pakistan; M. Dalarsson, KTH Royal Institute of Technology, Stockholm, Sweden;

10:50-11:10

TRIPLE-BAND DIELECTRIC RESONATOR ANTENNA BASED ON ANISOTROPIC AND HETEROGENEOUS CERAMICS

B.B. De Araújo, C. Morlaas, ENAC, France; R. Pascaud, ISAE-SUPAERO, France; A. Chabory, ENAC, France; M. Grzeskowiak, ISAE-SUPAERO, France; G. Mazingue, ANYWAVES, France;

11:10-11:30

REAL-TIME TESTBED FOR EVALUATING THE BATTERY CONSUMPTION IN 5G MOBILE NETWORKS AND 5G VOICE CALLS OVER IP MULTIMEDIA SUBSYSTEM (IMS)

J. Abularach, W. Acioli e Silva, C. Bruno de Souza, J. Oliveira de Sousa, M. Damasceno, R. Gomes dos Reis, Sidia Institute of Science and Technology, Brazil;

11:30-11:50

ANALYSIS OF LORA SIGNAL CHARACTERISTICS AT MAIZE AND COCOA CROPS IN TROPICAL REGIONS

B. Ramos, E. Del Rosario, N. Tovar, ESPOL, Ecuador;

11:50-12:10

MINIATURE ULTRA-WIDEBAND ANTENNA FOR SMART HOMES AND WEARABLE INDUSTRIAL APPLICATIONS

A. Shastri, M.G. Siddiqui, Banasthali Vidyapith, India;

12:10-12:30

DESIGN AND ANALYSIS OF MM-WAVE MIMO SIW ANTENNA FOR MULTIBEAM 5G APPLICATIONS

S. Ghosh, Indian Institute of Space Science & Technology, India; S. Chakraborty, Regent Education and Research Foundation, India; D. Saha, Indian Institute of Space Science & Technology, India; S.C. Ekpo, Manchester Metropolitan University, United Kingdom; A. Chakraborty, Jadavpur University, India; F. Elias, M. Uko, Manchester Metropolitan S. Ghosh, Indian Institute of Space Science & Technology, India; S. Chakraborty, Regent Education and Research Foundation, India; D. Saha, Indian Institute of Space Science & Technology, India; S.C. Ekpo, Manchester Metropolitan University, United Kingdom; A. Chakraborty, Jadavpur University, India; F. Elias, M. Uko, Manchester Metropolitan University, United Kingdom;

Tuesday, October 10 - H 13:50 / 15:30 - Sala 1E

session 15

ICEAA

Optoelectronics and photonics

Chairs: L. Seitner, Y. Ruan

13:50-14:10

GENERATION OF A TUNABLE DUAL-FREQUENCY SOURCE BY OPERATING A LASER AT PERIOD-ONE

Z. Chen, Y. Ruan, C. Fang, Y. Yu, H. Du, University of Wollongong, Australia;

14:10-14:30

SYSTEM MODELLING FOR MICROWAVE PHOTONIC GENERATION BASED ON PERIOD-ONE DYNAMICS IN A LASER WITH OPTICAL FEEDBACK

C. Fang, Z. Chen, Y. Ruan, Y. Yu, Q. Guo, H Du, University of Wollongong, Australia;

14:30-14:50

CHARACTERIZING SURFACE PHONON POLARITONS IN QUARTZ BY NEAR-FIELD MICROSCOPY

K. Shiraharta, A. Ohi, S. Hashiyada, Y. Kawano, Chuo University, Japan;

14:50-15:10

DERIVATION OF RELAXATION OSCILLATION FREQUENCY OF A SEMICONDUCTOR LASER WITH DUAL OPTICAL FEEDBACK BASED ON LINEAR STABILITY ANALYSIS

Y. Jiang, B. Liu, Xiangtan University, China; Y. Ruan, Y. Yu, University of Wollongong, Australia;

15:10-15:30

MODELING THE INFLUENCE OF CHARGE CARRIER DIFFUSION ON HARMONIC COMB FORMATION IN QUANTUM CASCADE LASERS

L. Seitner, J. Popp, F. Naunheimer, G. Janowski, M. Haider, C. Jirauschek, Technical University of Munich, Germany;

Tuesday, October 10 - H 15:30 / 18:30 - Sala 1E

session 16

ICEAA

Natural and stimulated emissions in the ionosphere and magnetosphere - part 2

Organized by G. Ganguli

Chairs: G. Ganguli

15:30-15:50

MMS WAVE-PARTICLE OBSERVATIONS DURING MAGNETOTAIL PASSES

D.N. Baker, University of Colorado Boulder, USA;

15:50-16:10

CHARACTERISTICS OF ELECTRON MICROBURST PRECIPITATION: PROBING WAVE-PARTICLE INTERACTIONS IN EARTH'S MAGNETOSPHERE

R.M. Millan, K.A. Cantwell, Dartmouth College, USA;

16:30-16:50

THE EVOLUTION OF CHORUS EMISSIONS OVER TIME AND MAGNETIC LATITUDE

A.N. Jaynes, R.N. Troyer, K.R. Vidal, University of Iowa, USA;

16:50-17:10

PRECIPITATION CURTAINS: LOW-ALTITUDE FOOTPRINT OF MESOSCALE CONVECTION

A. Ukhorskiy, K. Sorathia, V. Merkin, A. Michael, JHU/APL, USA; R. Millan, Dartmouth College, USA;

17:10-17:30

UPPER-HYBRID WAVES AND FLUCTUATIONS IN SPACE PLASMA

P.H. Yoon, University of Maryland College Park, United Kingdom; Y. Omura, Kyoto University, Japan;

17:30-17:50

LOWER HYBRID WAVES IN THE AURORAL IONOSPHERE

R. Bingham, STFC Rutherford Appleton Laboratory, United Kingdom;

17:50-18:10

WAVE PARTICLE INTERACTIONS IN THE MAGNETOSPHERE, A CHARGED PARTICLE PERSPECTIVE: OBSERVATIONS, INSTRUMENTATION AND MISSION CONCEPTS

S. G. Kanekal, NASA GSFC, USA;

18:10-18:30

HIGH MU CORE ELF/VLF MICRO-ARRAY TRANSMITTERS (MAT) FOR SPACE PLATFORMS

K. Papadopoulos, University of Maryland, USA; W. Amatucci, K. Hrenyo, A. Hyde, Plasma Physics Division, Naval Research Laboratory, USA;

Tuesday, October 10 - H 08:50 / 10:10 - Sala 5X

session 17

IEEE APWC

Wireless power transmission and harvesting - IEEE APWC

Chairs: N. Seliger, A. van Ieperen

08:50-09:10

A PLANAR MAGNETO-INDUCTIVE DEVICE WITH MODULATED MUTUAL INDUCTANCE FOR WIRELESS POWER TRANSMISSION

N. Seliger, J. Honsa, Technical University of Applied Sciences Rosenheim, Germany;

09:10-09:30

COUPLING-INDEPENDENT CAPACITIVE WIRELESS POWER TRANSFER WITH ONE TRANSMITTER AND TWO RECEIVERS USING FREQUENCY BIFURCATION

A.I. van Ieperen, S. Derammelaere, B. Minnaert, University of Antwerp, Belgium;

09:30-09:50

HYBRID WIRELESS RF- PEROVSKITE PHOTOVOLTAICS ENERGY HARVESTER DESIGN CONSIDERATIONS FOR LOW-POWER INTERNET OF THINGS

M. Uko, F. Elias, S. Ekpo, Manchester Metropolitan University, United Kingdom; D. Saha, S. Ghosh, Indian Institute of Space Science and Technology, India; M. Ijaz, Manchester Metropolitan University, United Kingdom; S. Chakraborty, Indian Institute of Space Science and Technology, India; A. Gibson, Manchester Metropolitan University;

09:50-10:10

INTEGRATED 3D WIRELESS POWER TRANSMISSION COIL FOR CAPSULE ENDOSCOPE

L. Zhu, Y. Xiang, Q. Zhu, University of Science and Technology of China, China;

Tuesday, October 10 - H 10:30 / 12:10 - Sala 5X

session 18

ICEAA

Inverse scattering and Radar imaging

Chairs: A. Rangel, S. Tsynkov

10:30-10:50

TRANSIONOSPHERIC AUTOFOCUS FOR SYNTHETIC APERTURE RADAR

M. Gilman, S. Tsynkov, North Carolina State University, USA;

10:50-11:10

PERFORMANCE EVALUATION OF VIVALDI ANTENNAS FOR GPR SYSTEMS AND THE IMPACT OF GROUP DELAY

A. Rangel, C. Pedraza, E. Ruiz, Universidad Nacional de Colombia, Colombia; J. Pantoja, F. Vega, C. Kasmi, TII, United Arab Emirates;

11:10-11:30

ACCURATE SHALLOW-BURIED OBJECT DETECTION USING BISTATIC DRONE-MOUNTED GROUND PENETRATING RADAR

N. Boskovic, Institute of Physics Belgrade, Serbia; A. Atanaskovic, N. Doncov, Faculty of Electronic Engineering Niš, Serbia;

11:30-11:50

ENTROPY-BASED SAMPLING STRATEGY FOR LONG-TAIL TARGET DETECTION OF SAR IMAGES

C.-qi Zhang, J. Zhao, Y. Deng, Z.-wen Zhang, Y.-hua Tan, Peking University, China;

11:50-12:10

CONTRAST SOURCE INVERSION BASED COMPLEX PERMITTIVITY IMAGING FOR MICROWAVE NON-DESTRUCTIVE EVALUATION IN REAL ROAD SCENARIO

K. Suzuki, S. Kidera, University of Electro-Communications, Japan;

Tuesday, October 10 - H 13:50 / 16:10 - Sala 5X

session 19

ICEAA

Electromagnetic modelling of materials, devices and circuits

Chairs: A. Abramowicz, S. Aldhaeri

13:50-14:10

HYPERTHERMIA TREATMENT PLANNING USING SHAPE OPTIMIZATION

V.U. Karthik, Spring Arbor University, USA; S.R.H. Hoole, Baldaeus Theological College, Sri Lanka;

14:10-14:30

CIRCUIT DESIGN WITH ENERGY STORAGE CIRCUIT THAT OPERATES ON LOW POWER FOR WIPT

K. Takemoto, M. Takahashi, Chiba-University, Japan;

14:30-14:50

ELECTROMAGNETIC INTERFERENCE SHIELDING EFFECTIVENESS PERFORMANCES OF SCREEN PRINTING INK AND EXPANDED GRAPHITE BASED COMPOSITE AT X AND KU BANDS

Z. Ertekin, M. Secmen, Yasar University, Turkey; M. Erol, Dokuz Eylul University, Turkey;

14:50-15:10

3D-PRINTING OF ALL-DIELECTRIC ELECTROMAGNETIC DEVICES: CHALLENGES AND OPPORTUNITIES

D. Isakov, K Couling, G.J. Gibbons, University of Warwick, United Kingdom;

15:10-15:30

ON THE EQUIVALENCE OF COUPLED RESONATORS AND YEE CELLS

A. Abramowicz, Warsaw University of Technology, Poland;

15:30-15:50

STABLE AND BROADBAND EXTRACTION OF PERMITTIVITY AND PERMEABILITY OF LOW-LOSS DIELECTRIC MATERIAL USING RECTANGULAR WAVEGUIDE SYSTEM

S.S AIDhaeri, P.O. Leye, A. Banelli, I. Yahi, C. Kasmi, F. Vega, TII, United Arab Emirates;

15:50-16:10

SINGLE CONTROL VARACTOR-BASED TUNABLE PHASE TRANSMISSION LINE FOR MICROWAVE PHASE SHIFTER APPLICATIONS

Z. Zulfi, A. Munir, Institut Teknologi Bandung, Indonesia;

Tuesday, October 10 - H 16:30 / 18:30 - Sala 5X

session 20

ICEAA

Nonlinear media, resonances and inverse problems

Organized by Y. Shestopalov

Chairs: Y. Shestopalov

16:30-16:50

DIGITAL PANCHARATNAM-BERRY METASURFACES WITH 1-BIT OAM-MODULES FOR BROADBAND RCS REDUCTION

A. Semenikhin, D. Semenikhina, Y. Yukhanov, Southern Federal University, Russia;

16:50-17:10

ON A SCIENTIFIC HERITAGE OF VICTOR P. SHESTOPALOV: CRITICAL POINTS OF DISPERSION EQUATIONS AND THE THEORY OF INTERTYPE INTERACTION

Y.V. Shestopalov, University of Gävle, Sweden;

17:10-17:30

RECONSTRUCTION OF THE LIGHTNING CHANNEL-BASE CURRENT FROM REMOTE MEASUREMENTS OF ELECTRIC AND MAGNETIC FIELD BY MEANS OF REGULARIZATION TECHNIQUES

R. Aramini, M. Brignone, D. Mestriner, M. Pastorino, R. Procopio, A. Randazzo, University of Genoa, Italy; M. Rubinstein, HEIG-VD, Switzerland;

17:30-17:50

METHOD OF INTEGRAL SUMMATION IDENTITIES IN THE PROBLEM OF A TE-POLARIZED ELECTROMAGNETIC WAVE DIFFRACTION ON A VERTICAL BARRIER IN AN INFINITE WAVEGUIDE

G.V. Abgaryan, Kazan Federal University, Russia; Y.V. Shestopalov, MIREA - Russian Technological University, Russia; A.E. Shipilo, Kazan Federal University, Russia;

17:50-18:10

DEVELOPMENT OF DIFFRACTION ELECTRONICS IN IRE NAS OF UKRAINE

K.A. Lukin, E.M. Khutoryan, IRE NASU, Ukraine;

18:10-18:30

NUMERICAL SIMULATION OF THE PLANAR WAVEGUIDE

Y. Shestopalov, E. Smolkin, University of Gävle, Sweden;

Tuesday, October 10 - H 08:50 / 10:10 - Sala 1G

session 21

ICEAA

Advanced Architectures Supporting Radiationless Anapole Modes in Electrodynamics and Nanophotonics

Organized by A. Basharin, L. Matekovits

Chairs: A. Basharin, L. Matekovits

08:50-09:10

MODIFIED MULTIPOLES IN METAMATERIALS

M. Cojocari, A. Ospanova, A. Basharin, University of Eastern Finland, Finland;

09:10-09:30

ON THE PHYSICS AND DESIGN OF PLASMONIC ANAPOLES IN METALLIC NANOSTRUCTURES

E. Hassan, Umeå University, Sweden; A.B. Evlyukhin, A. Calà Lesina, Leibniz University Hannover, Germany;

09:30-09:50

Suppression of scattering for small dielectric particles: anapole mode and invisibility
B. Lukyanchuk, A. Bekirov, A. Fedyanin, Lomonosov Moscow State University, Russia;

09:50-10:10

SUPERTOROIDAL ELECTRODYNAMICS

N. Papasimakis, Y. Shen, N. I. Zheludev, University of Southampton, United Kingdom;

Tuesday, October 10 - H 10:30 / 12:10 - Sala 1G

session 22

ICEAA

Recent Advancement of Electromagnetic Theory

Organized by H. Shirai

Chairs: H. Kawaguchi, H. Shirai

10:30-10:50

HIGH FREQUENCY EM SCATTERING BY A LARGE BUILDING WITH MULTIPLE WINDOWS

C.M. Bui, H. Shirai, Chuo University, Japan;

10:50-11:10

EXTENDED PHYSICAL OPTICS APPROXIMATION FOR EDGE DIFFRACTION BY DIELECTRIC WEDGES

D.M. Nguyen, H. Shirai, Chuo University, Japan; S.Y. Kim, KIST, Korea, South;

11:10-11:30

A STUDY ON FAST INVERSE LAPLACE TRANSFORM FOR TRANSIENT ANALYSIS

K. Watanabe, Fukuoka Institute of Technology, Japan;

11:30-11:50

EVALUATION OF MILLIMETER VORTEX FAR-FIELDS USING TIME-DOMAIN SURFACE INTEGRAL EQUATION

H. Kawaguchi, Muroran Institute of Technology, Japan;

11:50-12:10

BANDWIDTH ENHANCEMENT OF RCS REDUCTION BY METASURFACES BASED ON SCATTERING CANCELLATION

H. Suenobu, S. Yamamoto, M. Takikawa, N. Yoneda, Mitsubishi Electric Corporation, Japan;

Tuesday, October 10 - H 13:50 / 15:30 - Sala 1G

session 23

ICEAA

Electromagnetics in biomedical applications: recent studies on nervous system stimulation

Organized by G. Bonmassar, A. Paffi

Chairs: G. Bonmassar, A. Paffi

13:50-14:10

MICROSECOND ELECTRIC PULSES EFFECTS IN SPINAL CORD INJURIES: RESULTS FROM RISEUP PROJECT

G. Innamorati, Tor Vergata University, Italy; C. Codazzi, G. Bergafora, P. Giardullo, C. Merla, F. Camera, ENEA, Italy; M. Sanchez-Petidier, L. Vallet, CNRS, France; M. Colella, L. Caramazza, N. Dolciotti, S. Fontana, Sapienza University of Rome, Italy; M. Pedraza, Centro de Investigación Príncipe Felipe, Italy; P. Marracino, RISE Technology, Italy; C. Consales, ENEA, Italy;

14:10-14:30

EMPLOYING A PATIENT-SPECIFIC VOLUME CONDUCTOR MODEL AS INPUT FOR A BIOPHYSICAL NETWORK MODEL FOR DEEP BRAIN STIMULATION

J.P. Payonk, R. Appali, K. Spiliotis, J. Starke, R. Köhling, U. van Rienen, University of Rostock, Germany;

14:30-14:50

ELECTRO PULSED DEVICES FOR REGENERATION OF INJURED SPINAL CORD: ADVANCED MODELLING OF MICRODEVICES AND CELLS

A. Paffi, L. Caramazza, M. Colella, N. Dolciotti, Sapienza University of Rome, Italy; S. Fontana, University of Rome; IIT, Italy; P. Marracino, M. Balucani, Rise Technology S. R. L., Italy; F. Apollonio, M. Liberti, Sapienza University of Rome, Italy;

14:50-15:10

A NEW METAMATERIAL FOR MRI-SAFE DEEP BRAIN STIMULATION LEADS

F. Marturano, Harvard Medical School, USA; L. Golestanirad, Northwestern University, USA; G. Bonmassar, Harvard Medical School, USA;

15:10-15:30

HOW INSIGHTS FROM EM THEORY HAVE GUIDED SURGICAL PRACTICE TO MAKE MRI SAFER FOR PATIENTS WITH ACTIVE ELECTRONIC IMPLANTS

L. Golestani Rad, Northwestern University, USA;

session 24

ICEAA

EMC/EMI/EMP

Chair: I. Massaoudi, H. Schreiber

15:30-15:50

BROADBAND MODAL SOLUTION OF THE FULL-WAVE METHOD OF MOMENTS BASED ON A QUASI-STATIC EIGENVALUE APPROACH

H. Schreiber, M. Leone, Otto von Guericke University Magdeburg, Germany;

15:50-16:10

PROPER ORTHOGONAL DECOMPOSITION-BASED MODEL ORDER REDUCTION OF DELAYED PEEC MODELS

M. Altaf Khattak, D. Romano, G. Antonini, University of L'Aquila, Italy; F. Ferranti, Vrije Universiteit Brussel and Flanders Make, Belgium;

16:30-16:50

SIMULATION ANALYSIS OF THE BIT ERROR INDUCED BY EMI ON GALVANICALLY ISOLATED DATA-LINK EMBEDDED IN AN AUTOMOTIVE BATTERY MANAGEMENT IC

A. Ahmadi, Politecnico di Torino, Italy; C. Serratori, V. Bendotti, STMicroelectronics, Italy; P. S. Crovetto, Politecnico di Torino, Italy;

16:50-17:10

ALTERNATIVE ACTIVE SOLUTION FOR CROSSTALK REDUCTION

B. El Mokhtari, P. Bonnet, CNRS, France

17:10-17:30

A NON-OVERLAPPING TIME DOMAIN DECOMPOSITION METHOD

I. Massaoudi, P. Bonnet, CNRS, France

17:30-17:50

IEMI ANALYSIS OF CIVIL DRONES: EXTRACTION OF COMPLEX NATURAL RESONANCES FROM POLARIMETRIC RADAR CROSS-SECTION MEASUREMENTS

M. Rosenthal, R. Vick, Otto von Guericke University, Germany;

17:50-18:10

RECENT HIGH POWER ELECTROMAGNETICS RESEARCH AT THE UNIVERSITY OF NEW MEXICO

E. Schamiloglu, C. Christodoulou, University of New Mexico, USA;

18:10-18:30

THREAT ANALYSIS OF VEHICLE ENGINE ELECTRONIC CONTROL UNIT IN SEVERE ELECTROMAGNETIC PULSE ENVIRONMENT AND RESEARCH ON PROTECTION

X. Ma, H. Y. Zheng, Y. He, China Electronics Technology Cyber Security Co., Ltd, China; D. Tsyanev, V. Mordachev, E. Sinkevich, Belarusian State University of Informatics and Radioelectronics, Belarus;

Wednesday 11

session 25

ICEAA

Remote Sensing of the Earth's System to Mitigate the Impact of Natural Events on Technological Infrastructures

Organized by G. De Franceschi

Chairs: G. De Franceschi, V. Romano

08:50-09:10

INGV CENTER FOR SPACE OBSERVATIONS OF EARTH (COS): APPLICATION MODULES AND ICT PLATFORM

M.F. Buongiorno, G. De Franceschi, V. Romano, C. Marcocci, S. Atzori, S. Corradini, S. Scollo, G. Puglisi, INGV, Italy;

09:10-09:30

THE PLATFORM FOR EARTH OBSERVATION FROM SPACE IN THE FRAMEWORK OF THE ITALIAN PNRR - NEXT GENERATION EU

V. Romano, C. Cesaroni, G. Ganci, S. Mainella, INGV, Italy; M. Manunta, CNR-IREA, Italy; C. Marcocci, E. Marotta, M. Musacchio, E. Pica, C. Scotto, INGV, Italy;

09:30-09:50

VOLCANIC PLUMES DETECTION AND RETRIEVALS FROM REMOTE SENSING SYSTEMS: RECENT DEVELOPMENT AND FUTURE IMPROVEMENTS

S. Corradini, S. Scollo, L. Guerrieri, L. Mereu, L. Merucci, INGV, Italy; F. Romeo, University of Rome - La Sapienza, Italy; M. Prestifilippo, D. Stelitano, INGV, Italy;

09:50-10:10

PERFORMANCE ANALYSIS OF A STRONG CONSTRAINT 4DVAR AND 4DENVAR AT LOW AND MID-LATITUDES

N. Ssessanga, W. J. Miloch, L.B.N. Clausen, D. Kotova, University of Oslo, Norway;

10:30-10:50

GROUND VLF TRANSMITTER WAVE PROPAGATION IN THE UPPER ATMOSPHERE

L. Chen, Z. Xia, W. Gu, The University of Texas at Dallas, USA;

10:50-11:10

HIGH LATITUDE L-BAND AMPLITUDE SCINTILLATION FROM FEBRUARY 2023 G3 STORM

R. Imam, Istituto Nazionale di Geofisica e Vulcanologia, Italy; R. Ghidoni, Alma Mater Studiorum University of Bologna, Italy; L. Spogli, L. Alfonsi, Istituto Nazionale di Geofisica e Vulcanologia, Italy; T. Maestri, Alma Mater Studiorum University of Bologna, Italy; C. Cesaroni, Istituto Nazionale di Geofisica e Vulcanologia, Italy;

Wednesday, October 11 - H 11:30 / 15:50 - Auditorium

session 26

ICEAA

Reconfigurable Intelligent surfaces: design methods and applications

Organized by F. Costa, G. Manara
Chairs: G. Costa, G. Manara

11:30-11:50

RECENT ADVANCES ON MULTI-SCALE WAVE MANIPULATION THROUGH RECONFIGURABLE INTELLIGENT SURFACES

G. Oliveri, A. Benoni, M. Salucci, A. Massa, University of Trento, Italy;

11:50-12:10

COMPOSITE VORTEX THEORY AS A NEW DESIGN STRATEGY FOR INTELLIGENT REFLECTING SURFACES

M. Barbuto, Niccolò Cusano University, Italy; Z. Hamzavi-Zarghani, Rome Tre University, Italy; M. Longhi, Niccolò Cusano University, Italy; A. Monti, D. Ramaccia, L. Stefanini, Rome Tre University, Italy; S. Vellucci, Niccolò Cusano University, Italy; A. Alù, City University of New York, USA; F. Bilotti, A. Toscano, Rome Tre University, Italy;

12:10-12:30

MODELING AND OPTIMIZING RECONFIGURABLE INTELLIGENT SURFACES IN WIRELESS ENVIRONMENTS

M. Di Renzo, CNRS & Paris-Saclay University, France;

13:50-14:10

OPTICALLY TRANSPARENT METASURFACE WITH HIGH RF TRANSMISSION AND WIDE-ANGLE STABILITY IN DUAL BANDS AND DUAL POLARIZATIONS

R.Z. Jiang, Q. Cheng, T.J. Cui, Southeast University, Nanjing, China;

14:10-14:30

CURVED ELECTROMAGNETIC SKINS FOR SMART ELECTROMAGNETIC ENVIRONMENTS

M. Beccaria, Politecnico di Torino, Italy; A. Mazzinghi, University of Florence, Italy; A. Massaccesi, Politecnico di Torino, Italy; A. Freni, University of Florence, Italy; P. Pirinoli, Politecnico di Torino, Italy;

14:30-14:50

MM-WAVE AND THZ DESIGN STRATEGIES OF RECONFIGURABLE INTELLIGENT SURFACES

F. Costa, University of Pisa, Italy; M. Borgese, SIAE Microelettronica, Italy; G. Manara, University of Pisa, Italy;

14:50-15:10

WALSH MEETS OAM IN HOLOGRAPHIC MIMO

C. Vanwynsberghe, J. He, Technology Innovation Institute, United Arab Emirates; C. Huang, Zhejiang University, China; M. Debbah, Technology Innovation Institute, United Arab Emirates;

15:10-15:30

NEAR-FIELD FOCUSING WITH TRANSMITARRAYS: IMPACT OF PHASE QUANTIZATION

M. Defives, CEA Leti, France; R. Sauleau, IETR, France; M. Arrebola, Universidad de Oviedo, Spain; A. Clemente, CEA Leti, France;

15:30-15:50

A 2-BIT RECONFIGURABLE INTELLIGENT SURFACE WITH FILTERING FUNCTION

J.C. Liang, Q. Cheng, T.J. Cui, Southeast University, China;

Wednesday, October 11 - H 08:50 / 11:10 - Sala Teatro

session 27

ICEAA

Advances in Frequency-Domain CEM Techniques and Applications

Organized by B. Notaros
Chairs: B. Notaros, G. Kyriacou

08:50-09:10

ALTERNATIVE COMPUTATIONAL TECHNIQUES FOR THE NUMERICAL ANALYSIS OF CHARACTERISTIC MODES

D. G. Arnaoutoglou, K. Samaras, Democritus University of Thrace, Greece; K.D. Paschaloudis, Rennes Université, France; C. L. Zekios, Florida International University, USA; G.A. Kyriacou, Democritus University of Thrace, Greece;

09:10-09:30

COMPARATIVE ANALYSIS OF TWO METHODS OF EVALUATION OF MATRIX ELEMENTS OF VOLUME INTEGRAL EQUATIONS BY USING LAPLACIAN REPRESENTATION OF THE GREEN'S FUNCTION

E. Bleszynski, M. Bleszynski, T. Jaroszewicz, Monopole Research, USA;

09:30-09:50

GENERAL METHOD OF MOMENT FOR SOLVING THE SURFACE INTEGRAL EQUATION USING THE GREEN'S FUNCTION CALCULATOR

B. Kolundzija, N. Basta, University of Belgrade, Serbia; B. Mrdakovic, WIPL-D, Serbia;

09:50-10:10

MLFMA-SLOTFFT FOR THE ELECTROMAGNETIC SOLUTION OF DENSELY PACKED FINITE PERIODIC STRUCTURES

V.F. Martín, D.M. Solís, D. Jericó, A. Serna, L. Landesa, J.M. Taboada, Universidad de Extremadura, Spain;

10:30-10:50

ADVANCED ERROR ESTIMATION, ADAPTIVE REFINEMENT, AND UNCERTAINTY QUANTIFICATION METHODOLOGIES IN FREQUENCY-DOMAIN COMPUTATIONAL ELECTROMAGNETICS

B.M. Notaroš, J.J. Harmon, S. Kasdorf, Colorado State University, USA;

10:50-11:10

DISCRETE TAYLOR TRANSFORM AND INVERSE TRANSFORM OF UNIVARIATE FUNCTIONS ON NONUNIFORM LATTICES

A. Baghai-Wadji, University of Cape Town, South Africa;

Wednesday, October 11 - H 11:10 / 15:10 - Sala Teatro

session 28

ICEAA

Integral Equations, Finite methods and Hybrid techniques

Chairs: K. Cools, L.-M. Mazzolo

11:10-11:30

HYBRID CARTESIAN/UNSTRUCTURED NUMERICAL METHOD FOR EFFICIENT RESOLUTION OF MAXWELL'S EQUATIONS IN TIME DOMAIN: APPLICATION TO BURIED OBJECT DETECTION FROM AIRBORNE REMOTE SENSING PLATFORMS

L.-M. Mazzolo, S. Angelliaume, X. Ferrieres, ONERA, France;

11:30-11:50

MODELING OBJECTS WITH MULTILAYERED COATINGS WITH HIGH ORDER IMPEDANCE BOUNDARY CONDITION

P. Soudais, Dassault Aviation, France;

11:50-12:10

A YUKAWA-CALDERON TIME-DOMAIN COMBINED FIELD INTEGRAL EQUATION FOR ELECTROMAGNETIC SCATTERING

V.C. Le, Ghent University, Belgium; P. Cordel, F.P. Andriulli, Politecnico di Torino, Italy; K. Cools, Ghent University, Belgium;

12:10-12:30

SINGLE SOURCE FORMULATION FOR THE SCATTERING/TRANSMISSION PROBLEM BY PENETRABLE TARGETS INCLUDING CONDUCTING MULTI-SCREENS

K. Cools, Ghent University, Belgium;

13:50-14:10

ON THE EVALUATION OF RETARDED-TIME POTENTIALS DUE TO CRWG FUNCTIONS: SELF-TERM CASE

A. Aktepe, Gebze Technical University, Turkey; H.A. Ulku, Yeditepe University, Turkey;

14:10-14:30

MULTI-SCREEN BOUNDARY ELEMENT METHODS FOR THE TIME DOMAIN ELECTRIC FIELD INTEGRAL EQUATION

K. Cools, Ghent University, Belgium; C. Urzúa-Torres, TU Delft, Netherlands;

14:30-14:50

VOLUME-SURFACE INTEGRAL EQUATION SOLVER FOR CHIRAL MEDIA

P. Olyslager, C. Munger, H. Rogier, K. Cools, Ghent University, Belgium;

14:50-15:10

A HYBRID ANALYTICAL-NUMERICAL APPROACH FOR THE CALCULATION OF THE GTD DIFFRACTION COEFFICIENT FOR THE DIFFRACTION AT THE TIP OF AN ARBITRARY SECTION CONE

I. Sarigiannidis, M. Casaletti, Sorbonne Universite, France; M. Albani, University of Siena, Italy;

Wednesday, October 11 - H 15:10 / 15:50 - Sala Teatro

session 29

ICEAA

Non-hermitian and topological electromagnetics

Organized by P.-Y. Chen, M.D. Farhat

Chairs: P.-Y. Chen, K. Cools

15:10-15:30

LEVERAGING NON-HERMITIAN SYSTEMS FOR HARDWARE SECURITY IN THE INTERNET OF THINGS

M. Yang, P.-Y. Chen, University of Illinois at Chicago, USA;

15:30-15:50

MULTIMODAL WEARABLE SENSING SYSTEMS BASED ON HIGHER-ORDER PARITY-TIME SYMMETRY

Z. Ye, M. Yang, University of Illinois at Chicago, USA; M. Farhat, King Abdullah University of Science and Technology, Saudi Arabia; P.-Y. Chen, University of Illinois at Chicago, USA;

Wednesday, October 11 - H 08:50 / 11:10 - Sala 1E

session 30

ICEAA

Electromagnetic models and geophysical products for signals-of-opportunity reflectometry

Organized by M. Moghaddam

Chairs: M. Moghaddam

08:50-09:10

DEMONSTRATION OF RESERVOIR WATER STORAGE LEVEL MONITORING USING CYGNSS'S SPACEBORNE GNSS-R CONSTELLATION

N. Brendle, The Ohio State University, USA; S. Chan, G. Hajj, NASA JPL, USA; M. Al-Khaldi, J. Johnson, The Ohio State University, USA;

09:10-09:30

AN ANALYSIS OF THE NASA CSDA BISTATIC RADAR GNSS-R DATASET

M. Al-Khaldi, J. Johnson, The Ohio State University, USA; D. McKague, A. Russel, D. Twigg, University of Michigan, USA;

09:30-09:50

DEEP GENERATIVE REGRESSION MODELS FOR SOIL MOISTURE RETRIEVAL FROM GNSS-R OBSERVATIONS

G. Tsagkatakis, FORTH, Greece; A. Melebari, USC, USA; R. Akbar, MIT, USA; J.D. Campbell, E. Hodges, M. Moghaddam, USC, USA;

09:50-10:10

SIGNALS OF OPPORTUNITY REFLECTOMETRY AT MULTIPLE FREQUENCIES AND POLARIZATIONS: SIMULATION STUDIES AND INSTRUMENT VALIDATION

J. Garrison, B. Nold, S. Kim, E. Smith, A.S. Choudhari, Purdue University, USA; P.K. Kelly, Agile RF, USA; S. Tower, MMA Design LLC, USA;

10:30-10:50

INLAND WATER INUNDATION EXTENT AND WIND SPEEDS FROM PASSIVE L-BAND GNSS-R AND ACTIVE C- AND KA-BAND RADAR

J.V. Fayne, University of Michigan,USA;

10:50-11:10

INTEGRATION OF VEGETATION AND TOPOGRAPHY FOR GNSS-R

J.D. Campbell, A. Melebari, E. Hodges, M. Moghaddam, University of Southern California, USA;

Wednesday, October 11 - H 11:10 / 16:10 - Sala 1E

session 31

ICEAA

Micro- and mmWave Sensors in Advanced Applications

Organized by C. Baer

Chairs: C. Baer, C. Schulz

11:10-11:30

BROADBAND, FULL-DUPLEX TRANSCIVE AMPLIFIER FOR BI-STATIC, REFLECTOMETER-OPERATED RADAR APPLICATIONS IN X-BAND

R. Kaesbach, Ruhr University Bochum, Germany; O. Silva, F. Vega, C. Kasmi, Technology Innovation Institute, United Arab Emirates; T. Musch, C. Baer, Ruhr University Bochum, Germany;

11:30-11:50

COMPARISON OF DIFFERENT ELECTROMAGNETIC DELAY LINES FOR X-BAND RADAR TARGET GENERATION

J. Mertin, R. Kaesbach, B. Hattenhorst, T. Musch, C. Baer, Ruhr University Bochum, Germany;

11:50-12:10

3D MAPPING OF SURFACE PROFILES BY RADAR MEASUREMENTS AT E-BAND EMPLOYING ON-SITE NEAR-FIELD CALIBRATION

M. Linder, D. Schwarz, C. Waldschmidt, Ulm University, Germany;

12:10-12:30

IMPROVING THE IMAGE QUALITY IN HIGH-RESOLUTION 4D RADARS WITH SPARSE ARRAYS BY COMPRESSED SENSING

D. Schwarz, M. Linder, C. Bonfert, C. Waldschmidt, Universität Ulm, Germany;

13:50-14:10

TRACER PARTICLES WITH ENCAPSULATED RESONATORS FOR ELECTROMAGNETIC LOCALIZATION AND TRACKING IN MOVING BULK MATERIALS

B. Hattenhorst, M. van Delden, F. Schenkel, J. Schorlemer, J. Barowski, I. Rolfes, T. Musch, Ruhr University Bochum, Germany;

14:10-14:30

COMPARISON OF TE11- AND TE01-MODE EXCITATION IN OVERMODED WAVEGUIDES FOR INDUSTRIAL APPLICATIONS

C. Schulz, Ruhr University Bochum, Germany;

14:30-14:50

DESIGN AND EVALUATION OF A DIELECTRIC WAVEGUIDE BASED FINGERPRINTING AND DISTRIBUTION NETWORK FOR MMW-RADAR OPERATION

C. Baer, Ruhr University Bochum, Germany;

14:50-15:10

SPECTRAL COMPONENT ANALYSIS FOR HARDWARE CHARACTERIZATION IN RF APPLICATIONS

N. Karsch, T. Musch, C. Baer, Ruhr Universität Bochum, Germany;

15:10-15:30

SENSOR DESIGN FOR MM-WAVE IN VITRO EPITHELIAL CELL MEASUREMENTS

P. Hinz, M. Frick, C. Damm, Ulm University, Germany;

15:30-15:50

EVALUATION AND DESIGN OF MULTI-MODE MULTI-PORT DIRECTION FINDING ANTENNAS

L. Grundmann, D. Manteuffel, Leibniz University Hannover, Germany;

15:50-16:10

MAINTENANCE-FREE WIRELESS SENSOR NETWORKS FOR INFRASTRUCTURE MONITORING

T. Ussmueller, D. Gunjic, M. Fischer, M. Renzler, D. Mair, University of Innsbruck, Austria;

Wednesday, October 11 - H 08:50 / 14:30 - Sala 1G

session 32

IEEE APWC

Antennas

Chairs: C. Deville, V. Rampa

08:50-09:10

DEVELOPMENT OF NON-CONVENTIONAL SUPER-UWB ANTENNA BASED ON GENETIC ALGORITHM OPTIMIZATION

K. Fertas, F. Fertas, M. CHALLAL, UMBB, Algeria; T. Maamria, EMP, Algeria;

09:10-09:30

SMALL FOOTPRINT, ACTIVE HIGHLY INTEGRATED TX/RX PHASED ARRAY ANTENNA WITH WIDE SCAN COVERAGE AT K-BAND

A. Emadeddin, B. L. G. Jonsson, KTH, Sweden;

09:30-09:50

GLOBAL SIMULATION OF ACTIVE ANTENNAS

C. Deville, Safran Data Systems, France; C. Menudier, M. Thevenot, XLIM, France; B. Lesur, Safran Data Systems, France;

09:50-10:10

BROADBAND UNIPLANAR CROSSED-DIPOLE ANTENNA

H. Wang, Ajou University, Korea, South; G. Byun, UNIST, Korea, South; I. Park, Ajou University, Korea, South;

10:30-10:50

IMPACT OF A LARGE DISTRIBUTION NETWORK ON RADIATION CHARACTERISTICS OF PLANAR SPIRAL ANTENNA ARRAYS

P. Tcheg, Pilz GmbH & Co. KG, Germany; D. Pouchè, Reutlingen University of Applied Sciences, Germany;

10:50-11:10

A WIDEBAND LOW-PROFILE DUAL-POLARIZED ANTENNA WITH TRANSMISSION CHARACTERISTICS

Y. Sun, P. Liu, S. Zhang, Aalborg University, Denmark;

11:10-11:30

SMALL, MOBILE AND AUTONOMOUS INSTRUMENT TO MEASURE ELECTRIC FIELD AND ELECTRIC CONDUCTIVITY OF AIR

E. Seran, M. Godefroy, LATMOS/Sorbonne University, France;

11:30-11:50

DESIGN OF S-BAND PLANAR ARRAY USING POWER-WEIGHTED METHOD BASED ON KAISER FUNCTION

H. Mistialustina, C. Chairunnisa, B. Syihabuddin, A. Munir, Institut Teknologi Bandung, Indonesia;

11:50-12:10

AN EM BODY MODEL FOR DEVICE-FREE LOCALIZATION WITH MULTIPLE ANTENNA RECEIVERS: A FIRST STUDY

V. Rampa, CNR-IEIIT, Italy; F. Fieramosca, POLIMI-DEIB, Italy; S. Savazzi, CNR-IEIIT, Italy; M. D'Amico, POLIMI-DEIB, Italy;

12:10-12:30

L-BAND CONFORMAL ARRAY FOR SYNTHETIC APERTURE RADAR APPLICATIONS

L.P. Oliveira, M. Almansoori, Technology Innovation Institute, United Arab Emirates; H.E.H. Figueroa, University of Campinas, Brazil; F. Vega, C. Kasmi, Technology Innovation Institute, United Arab Emirates;

13:50-14:10

MONOPULSE CHAPARRAL CHOKE ANTENNA DESIGN AND IMPLEMENTATION FOR SATELLITE COMMUNICATION SYSTEMS

İ. Şişman, Profen Communication Technologies, Turkey; T. Haykir Ergin, Yeditepe University, Turkey;

14:10-14:30

MANUFACTURE AND MEASUREMENT OF CIRCULARLY POLARIZED KA-BAND RADIATING ELEMENTS FOR SATCOM WIDE-ANGLE PHASED ARRAYS TILES

A. Barka, A. De Oliveira Cabral Junior, A. Dorlé, ONERA, France;

Wednesday, October 11 - H 14:30 / 16:10 - Sala 1G

session 33

ICEAA

Phased and adaptive arrays

Chairs: A. Monorchio, T. van der Spuy

14:30-14:50

MUTUAL COUPLING REDUCTION USING OCTAGON FREQUENCY SELECTIVE SURFACE STRUCTURE FOR FULL DUPLEX APPLICATIONS

J. Zaid, A. Ashoor, Huawei Technologies Canada, Canada;

14:50-15:10

A NON-CONVENTIONAL PLANAR PHASED ARRAY BASED ON THE FIELD EQUIVALENCE PRINCIPLE FOR WIDE ANGLE STEERING OF GAUSSIAN BEAMS

R. Cetiner, A. Hizal, Aselsan, Turkey; H. Yildiz, Baskent University, Turkey; S. Koc, METU, Turkey;

15:10-15:30

COMPACT WIDE-SCAN DUAL-POLARIZED DIELECTRIC RESONATOR ANTENNA ARRAY BASED ON LTCC TECHNOLOGY FOR MILLIMETER-WAVE APPLICATIONS

Y. Zhang, Eindhoven University of Technology, Netherlands; S. Ogurtsov, V. Vasilev, The Antenna Company, Netherlands; A.R. Vilenskiy, M.V. Ivashina, Chalmers University of Technology, Sweden; D. Caratelli, The Antenna Company, Netherlands;

15:30-15:50

SYSTEMATIC SELF-INTERFERENCE MITIGATION IN FULL DUPLEX ANTENNA ARRAYS VIA TRANSMIT BEAMFORMING

M. Ayebe, Chalmers University of Technology, Sweden; J. Malmström, S. E. Gunnarson, SAAB, Sweden; H. Holter, Ericsson AB, Sweden; M. Ivashina, Chalmers University of Technology, Sweden; C. Bencivenni, Gapwaves AB, Sweden; R. Maaskant, Chalmers University of Technology, Sweden;

15:50-16:10

OUT-OF-BAND INTERFERENCE SUPPRESSION OF SATCOM ANTENNA ARRAYS THROUGH TRANSMIT BEAMFORMING

T. van der Spuy, R. Maaskant, M.T. Behrens, M. Ivashina, Chalmers University of Technology, Sweden; L. Nyström, Satcube AB, Sweden;

THURSDAY 12

Thursday, October 12 – H 08:50 / 17:50 – Auditorium

session 34

IEEE APWC

Wide/Multi band antennas and innovative antenna technologies

Organized by H. Nakano

Chairs: H. Nakano, R.D. Tamas

08:50-09:10

DUAL-BAND AND WIDEBAND DESIGN OF A SINGLE-LAYER MULTI-RING MICROSTRIP ANTENNA FED BY AN L-PROBE

M. Takahashi, S. Saito, Y. Kimura, Saitama University, Japan;

09:10-09:30

SURFACE WAVE TECHNIQUE FOR RIS APPLICATIONS

A. Jafargholi, K.F. Tong, K.K. Wong, UCL, United Kingdom;

09:30-09:50

FUTURE HEALTHCARE ENABLED BY RECONFIGURABLE INTELLIGENT SURFACES

J.R. Kazim, J. Rains, M.A. Imran, Q.H. Abbasi, H.T. Abbas, University of Glasgow, United Kingdom;

09:50-10:10

CIRCULARLY POLARIZED MACKAY WITH SINGLE FEED

S. Makino, M. Yoneda, Kanazawa Institute of Technology, Japan;

10:30-10:50

RESONANT CAVITY ANTENNAS UTILIZING 2 KINDS OF ARTIFICIAL MATERIALS TO IMPROVE MICROSTRIP PATCH ANTENNA GAIN

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

10:50-11:10

BANDWIDTH ENHANCEMENT FOR A MILLIMETER-WAVE DIELECTRIC RESONATOR ANTENNA

K.T. Lo, Y.S. To, H. Wong, City University of Hong Kong, China;

11:10-11:30

SPIRAL ANTENNA WITH A TWO-LAYER CIRCULAR HIS REFLECTOR SANDWICHED BY RING-SHAPED ABSORBERS

M. Tanabe, Toshiba Infrastructure Systems & Solutions Corporation, Japan;

11:30-11:50

A CPW-FED PRINTED ULTRA WIDEBAND ANTENNA

K. Li, Queen Mary University of London, United Kingdom; J.-A. Ortiz-Fuentes, Carlos III University of Madrid, Spain; J. Kelly, Queen Mary University of London, United Kingdom; D. Segovia-Vargas, Carlos III University of Madrid, Spain;

11:50-12:10

MEASUREMENT OF NEAR-FIELD ELECTROMAGNETIC DISTRIBUTION RADIATED FROM SLOTTED CIRCUIT-SHAPE WAVEGUIDES TO MELT SNOW WITH MICROWAVE

T. Maruyama, K. Unyu, Y. Sasaki, National Institute of Technology, Japan; M. Omiya, Hokkaido University, Japan; Masashi Nakatsugawa, Japan; T. Nakamura, Y. Tamayama, Nagaoka University of Technology, Japan;

12:10-12:30

WIDEBAND CIRCULARLY POLARIZED FSS-HORN ANTENNAS

C.A. Heiman, A. Constantin, M. Pastorcici, R.D. Tamas, Constanta Maritime University, Romania;

13:50-14:10

CIRCUMFERENCE-LENGTH DEPENDENCY OF THE WPT PERFORMANCE BETWEEN THE CIRCUIT-SHAPE LEAKY WAVEGUIDE AND A LAMBDA/2 WAVELENGTH DIPOLE ANTENNA

M. Nakatsugawa, Y. Sasaki, T. Maruyama, National Institute of Technology, Japan; M. Omiya, Hokkaido University, Japan; Y. Tamayama, Nagaoka University of Technology, Japan;

14:10-14:30

ANTENNA MEASUREMENT SYSTEM USING THE LOCK-IN AMPLIFIER

S. Kurokawa, A. Widarta, National Institute of Advanced Industrial Science and Technology (AIST), Japan;

14:30-14:50

A WIDEBAND SMALL CANCELLATION CIRCUIT ENABLING CONTROL OF AMPLITUDE-FREQUENCY CHARACTERISTICS BY USING TWO VARIABLE RESISTORS

S. Yamaura, K. Nishimoto, Y. Inasawa, Mitsubishi Electric, Japan;

14:50-15:10

ON BEAM CREATION FOR ANALOG MILLIMETER-WAVE PHASED ARRAY ANTENNA MODULES

N. Guan, S. Kaushal, Fujikura Ltd., Japan;

15:10-15:30

ROD ANTENNA SYSTEM FOR BI-DIRECTIONAL BEAM-FORMING

K. Sato, J. Oshima, DKK Co., Ltd., Japan; Hisamatsu Nakano, Hosei University, Japan;

15:30-15:50

DESIGN OF A COMPACT AND WIDEBAND MONOPOLE ANTENNA

A. Ding, Z. Shen, Nanyang Technological University, Singapore; T.H. Gan, National University of Singapore, Singapore;

15:50-16:10

MODAL CURRENT DISTRIBUTION FOR ELECTRICALLY SMALL SPHERICAL HELIX ANTENNA

K. Fujita, Maebashi Institute of Technology, Japan;

16:30-16:50

CMA-ES-DRIVEN OPTIMIZATION ON SPLINE-BASED PATCH GEOMETRY OF WIDEBAND PLANAR MONOPOLE ANTENNA

A. D. Prasetyo, A. Munir, Institut Teknologi Bandung, Indonesia;

16:50-17:10

OMNIDIRECTIONAL MICROSTRIP ANTENNA FOR OCEAN WIRELESS SENSOR NETWORK

T. Fujimoto, Y. Arikawa, R. Matsuo, C.-E. Guan, Nagasaki University, Japan; Y. Maemura, University of Nagasaki, Japan

17:10-17:30

CURVATURE SHAPE UTILIZATION FOR CHARACTERISTICS ENHANCEMENT OF SKELETAL WIRE DISCONE ANTENNA

A. Munir, R.S. Asthan, Institut Teknologi Bandung, Indonesia; D.A. Nurmantris, Telkom University, Indonesia;

17:30-17:50

RADIATION FROM AN ACTIVE RING REGION

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

Thursday, October 12 - H 08:50 / 12:30 - Sala Teatro

session 35

ICEAA

Mathematical Advances in Electromagnetics

Organized by P.D. Smith and E.D. Vinogradova

Chairs: P.D. Smith, E.D. Vinogradova

08:50-09:10

COMPLEX-SOURCE BEAM SCATTERING BY A SURFACE OF IMPEDANCE: REFLECTION AND SURFACE-WAVE EXCITATION

M. Katsav, E. Heyman, Tel Aviv University, Israel;

09:10-09:30

COMPLEX-SOURCE BEAM DIFFRACTION BY AN IMPEDANCE WEDGE: EXACT AND ASYMPTOTIC SOLUTIONS

M. Katsav, E. Heyman, Tel Aviv University, Israel;

09:30-09:50

P.T.D AND ROTATIONAL SYMMETRIES IN NON-REFLECTING STRUCTURES

R. Geva, R. Kastner, Tel Aviv University, Israel; M. Silveirinha, University of Lisbon, Portugal

09:50-10:10

HELMHOLTZ-GALERKIN TECHNIQUE FOR THE ANALYSIS OF THE DIFFRACTION FROM A RESISTIVE-FILLED CIRCULAR HOLE IN A RESISTIVE PLANE

M. Lucido, University of Cassino and Southern Lazio, Italy;

10:30-10:50

ANALYTICALLY REGULARIZED TE-SCATTERING FROM ENSEMBLES OF SLOTTED CYLINDERS

E.D. Vinogradova, Macquarie University, Australia;

10:50-11:10

COMPARISON OF ANALYTICALLY REGULARIZED TE- AND TM-SCATTERING FORMULATIONS

P.D. Smith, E.D. Vinogradova, Macquarie University, Australia;

11:10-11:30

WIENER-HOPF SOLUTION OF DIFFRACTION BY A PEC WEDGE IN ANISOTROPIC MEDIA

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

11:30-11:50

ABSORPTION BY A HOLED RESISTIVE PLANE: A NEW OPTICAL THEOREM FORMULATION

M. Lucido, University of Cassino and Southern Lazio, Italy;

11:50-12:10

CHAOTIC DYNAMICS OF ELECTROMAGNETIC FIELD IN PLANE-PARALLEL RESONATOR WITH SEMITRANSSPARENT NONLINEAR LAYER

K. A. Lukin, IRE NASU, Ukraine; H.E. Hernades-Figueroa, UNICAMP, Brazil; K.S. Svehko, IRE NASU, Ukraine;

12:10-12:30

MODELLING PHOTONIC CRYSTAL SURFACE EMITTING LASERS (PCSELS) WITH ITERATIVE WEIGHTED INDEX METHOD

B. Lang, A. Vukovic, P. Sewell, University of Nottingham, United Kingdom; S. Rihani, K. Boylan, G. Berry, N. Hattasan, D. Moodie, J. Rawsthorne, Huawei Technologies, United Kingdom;

Thursday, October 12 - H 13:50 / 14:50 - Sala Teatro

session 36

ICEAA

IEEE AP-S Industry panel session

Organized by R. Waterhouse

Moderator: A. Monorchio

13:50-14:50

IEEE AP-S INDUSTRY PANEL SESSION

session 37

ICEAA

Computationally efficient solvers and stable discretizations

Organized by F.P. Andriulli

Chair: F.P. Andriulli

14:50-15:10

MAXWELL-SCHRODINGER MODELING OF A FLUXONIUM QUBIT COUPLED TO A TRANSMISSION LINE NETWORK

T.E. Roth, Purdue University,USA;

15:10-15:30

NANOPHOTONIC SIMULATION AND INVERSE DESIGN USING FAST HIGH-ORDER CHEBYSHEV-BASED NYSTRÖM METHODS

D. Aslanyan, J. Hu, C. Sideris, University of Southern California,USA;

15:30-15:50

RESECTION STRATEGY FOR THE MULTI-LEVEL PLANE WAVE TIME DOMAIN ALGORITHM

C. Münger, K. Cools, Ghent University, Belgium;

15:50-16:10

POINT-IN-DOMAIN ALGORITHM FOR PRECISE NEAR FIELD CALCULATIONS

B.M. Ninkovic, WIPL-D d.o.o., Serbia; M.S. Tasic, B.M. Kolundzija, University of Belgrade, Serbia;

16:30-16:50

ARRAY ANALYSIS BY ITERATIVE LOCALISED SOLUTIONS WITH IMPROVED CONVERGENCE

A.S. Conradie, M.M. Botha, Stellenbosch University, South Africa;

16:50-17:10

APPLICABILITY OF MIDAS WITH ADAPTIVE DISCRETIZATION TO MELTING HYDROMETEORS AT MICROWAVE FREQUENCIES

K.S. Kuo, University of Maryland,USA; I. Fenni, JPL / UCLA,USA; H. Roussel, Sorbonne Universités, France;

17:10-17:30

ON WELL CONDITIONED INTEGRAL FORMULATIONS FOR FAST ELECTROPHYSIOLOGICAL SOURCE IMAGING OF THE BRAIN

A. Merlini, IMT Atlantique, France; V. Giunzioni, Politecnico di Torino, Italy; C. Henry, IMT Atlantique, France; S.B. Adrian, Universität Rostock, Germany; F.P. Andriulli, Politecnico di Torino, Italy;

17:30-17:50

ON SOME OPERATOR FILTERING STRATEGIES BASED ON SUITABLY MODIFIED GREEN'S FUNCTIONS

M.E. Masciocchi, Politecnico di Torino, Italy; E. Citraro, Politecnico di Torino, Italy; A. Déli, Politecnico di Torino, Italy; L. Rahmouni, Politecnico di Torino, Italy; A. Merlini, IMT Atlantique, France; F.P. Andriulli, Politecnico di Torino, Italy;

17:50-18:10

INVESTIGATION OF PIVOTING STRATEGIES FOR THE APPLICATION OF THE ADAPTIVE CROSS APPROXIMATION TO THE MAGNETIC FIELD INTEGRAL EQUATION

J.M. Tetzner, S. B. Adrian, Universität Rostock, Germany;

session 38

ICEAA

Space Relevant Laboratory Experiments

Organized by W.E. Amatucci, E. Scime

Chairs: W.E. Amatucci, E. Scime

08:50-09:10

FIRST RESULTS FROM THE LIEFSI CAMPAIGN IN THE NRL SPSC

J.W. Bonnell, O. Agapitov, Space Sciences Laboratory,USA; K. Goodrich, J. Bowman, West Virginia University,USA; E. Tejero, W. Amatucci, US Naval Research Laboratory,USA;

09:10-09:30

GENERATION OF Z-MODES AND WHISTLERS IN THE LABORATORY WITH APPLICATION TO ACTIVE EXPERIMENTS IN SPACE PLASMAS

S. Dorfman, V. Roytershteyn, Space Science Institute,USA; J. Perez, University of California Los Angeles,USA; G.L. Delzanno, Q. Marksteiner, H. Xu, Los Alamos National Laboratory,USA; C. Cattell, C. Colpitts, University of Minnesota,USA;

09:30-09:50

EXPERIMENTAL STUDY ON THE PARAMETRIC GENERATION OF VERY LOW FREQUENCY (VLF) WAVES IN A SCALED IONOSPHERIC ENVIRONMENT

B. Amatucci, Naval Research Laboratory,USA;

09:50-10:10

CROSS-FIELD STRUCTURE GENERATION APPROACHING DISSIPATION SCALES VIA THREE-WAVE COUPLING OF SHEAR ALFVEN WAVES AND KINK WAVES

S. Vincena, S.K.P. Tripathi, W. Gekelman, P. Pribyl, UCLA,USA; R. Sydora, University of Alberta, Canada;

10:30-10:50

LABORATORY INVESTIGATION OF NONLINEAR SUB-CYCLOTRON DAMPING

E.M. Tejero, US Naval Research Laboratory,USA; J. Schroeder, Wheaton College,USA; F. Skiff, University of Iowa,USA; A.M. DuBois, C.L. Enloe, C. Crabtree, US Naval Research Laboratory, USA; V. Harid, University of Colorado, Denver, USA;

10:50-11:10

LABORATORY STUDIES OF THE COUPLING BETWEEN DUST, WAVES, AND COHERENT PLASMA STRUCTURES IN THE MAGNETIZED DUSTY PLASMA EXPERIMENT (MDPX)

E. Thomas, S. C. Thakur, E. Price, S. Williams, Auburn University,USA; J. Williams, Wittenberg University, USA;

11:10-11:30

ELECTRON THERMAL ANISOTROPY DURING ELECTRON-ONLY RECONNECTION IN PHASMA

E.E. Scime, M.H. Barbhuiya, G.E. Bartolo, P.A. Cassak, T. Gilbert, R. John, R. Singh Nirwan, T. Rood, P. Shi, T. Steinberger, K. Stevenson, S. Yadav, West Virginia University, USA;

11:30-11:50

UNDERSTANDING MAGNETOTAIL DYNAMICS THROUGH COMPARISON OF SIMULATED AND PHYSICAL ENERGETIC NEUTRAL ATOM MEASUREMENTS

A. Keesee, J. Tibbetts, University of New Hampshire, USA; N. Buzulukova, NASA GSFC, USA; R. Nikoukar, Applied Physics Lab, USA; R. Katus, Eastern Michigan University, USA; K. Sorathia, A. Sciola, Applied Physics Lab, USA; A. Devanandan, University of New Hampshire, USA; M. Gkioulidou, V. Merkin, Applied Physics Lab, USA;

11:50-12:10

PLASMA SOURCES AND DIAGNOSTIC SOLUTION FOR INVESTIGATING LABORATORY PLASMAS

S.K. Karkari, Y. Patil, A.K. Pandey, S. Das, P. Singh, S. Dahiya, Institute for Plasma Research, Homi Bhabha National Institute, India; N. Sirse, IPS Academy, Indore, India;

12:10-12:30

EMISSIVE PROBES FOR PLASMA DIAGNOSTICS

R.W. Schrittwieser, C. Ionita, F. Enescu, University of Innsbruck, Austria;

13:50-14:10

UNCD-ARMoured PROBES FOR DIAGNOSTICS IN HOT AND HAZARDOUS PLASMAS

C. Ionita, R.W. Schrittwieser, University of Innsbruck, Austria; G. Xu, N. Yan, H. Wang, Institute of Plasma Physics, Chinese Academy of Sciences, China; V. Naulin, J.J. Rasmussen, Department of Physics, Technical University of Denmark, Denmark; D. Steinmüller-Nethl, CarbonCompetence GmbH, Austria;

14:10-14:30

HELICON NORMAL MODES IN RADIALLY NON-UNIFORM PLASMA AND FLUID SIMULATIONS ON HELICON DISCHARGES

P. Guittienne, R. Karimov, I. Furno, EPFL, Switzerland;

14:30-14:50

A REVISIT ON SATURATION CURRENT RATIO METHOD OF A CYLINDRICAL LANGMUIR PROBE ASSISTED WITH A DC BIASED HAIRPIN PROBE TO DETERMINE PLASMA ELECTRONEGATIVITY

A.K. Pandey, P. Singh, S. Karkari, Institute for Plasma Research, India;

Thursday, October 12 - H 15:10 / 18:10 - Sala 1E

session 39

ICEAA

Test and Simulation Techniques for Transportation Systems

Organized by Y. Wen

Chairs: Y. Wen, D. Lu

15:10-15:30

AN EDGE COMPUTING-ENABLED TRACK OBSTACLE DETECTION METHOD BASED ON YOLOV5

Z. Zhang, Beijing Jiaotong University, China; Y. Cai, China Academy of Railway Sciences Corporation Limited; H. Lu, T. Wen, B. Cai, Beijing Jiaotong University, China;

15:30-15:50

RESEARCH ON ACTIVE PROTECTION TEST VERIFICATION SYSTEM AGAINST SAME FREQUENCY CONDUCTED EMI

M. Zhang, CRRC Qingdao Sifang CO., LTD., China; Q. Song, F. Yang, The Beijing Jiaotong University, China; Y. Sun, CRRC Qingdao Sifang CO., LTD., China; J. Xiao, The Beijing Jiaotong University, China;

15:50-16:10

SPOOFING MONITORING OF GNSS LOCALIZATION: A LDSASM ARCHITECTURE FOR GNSS/ODOMETER-BASED TRAIN POSITIONING

J. Liu, B.-gen Cai, J. Wang, D.-biao Lu, W. Jiang, Beijing Jiaotong University, China;

16:30-16:50

GNSS SIGNAL PROPAGATION ERROR MODELLING METHOD IN TRAIN LOCALIZATION ENVIRONMENTS

X. Li, D. Lu, B. Cai, Y. Liu, Beijing Jiaotong University, China;

16:50-17:10

DESIGN OF FLEXIBLE SIMULATION PLATFORM FOR IGNITION CONTROL SYSTEM

S. Du, Y. Wen, Beijing Jiaotong University, China; K. Zhang, J. Jia, China Faw Group CO., LTD, China; J. Zhang, Beijing Jiaotong University, China;

17:10-17:30

RESEARCH ON EMI SIMULATION OF FUEL CELL VEHICLE DRIVE SYSTEM BASED ON ANSYS

S. Mao, China Automotive Engineering Research Institute Co., Ltd, China; J. Cui, Beijing Jiaotong University, China; W. Qian, China Automotive Engineering Research Institute Co., Ltd, China; J. Ren, Beijing Jiaotong University, China;

17:30-17:50

RESEARCH ON THE COUPLING BETWEEN HIGH-VOLTAGE CABLES AND LOW-VOLTAGE CABLES IN ELECTRIC VEHICLES

H. Wang, Beijing Jiaotong University, China; C. Gao, H. Han, CHINA FAW GROUP CO., LTD, China; J. Ren, Beijing Jiaotong University, China; D. Zhang, Beijing Jiaotong University, China;

17:50-18:10

DANISH-BASED FAULT-TOLERANT EXTENDED KALMAN FILTER TRAIN LOCALIZATION METHOD CASE STUDY AND PERFORMANCE TEST

D. Zhou, D. Lu, J. Wang, B. Cai, Beijing Jiaotong University, China;

session 40

ICEAA

Additive Manufacturing for 5G and 6G Terrestrial and not Terrestrial Network

Organized by G. Addamo and M. Lumia

Chairs: G. Addamo, M. Lumia

09:10-09:30

SELECTIVE LASER SINTERING OF WAVEGUIDE DEVICES FOR 5G AND 6G COMMUNICATION SYSTEMS

J.R. Montejo-Garai, Universidad Politécnica de Madrid, Spain; M. González-Calvo, Leica Geosystems AG, Switzerland; J.A. Ruiz-Cruz, Universidad Autónoma de Madrid, Spain; J. Rebollar, Universidad Politécnica de Madrid, Spain;

09:30-09:50

COMPACT FILTERS BASED ON CERAMIC RESONATORS MADE IN ADDITIVE MANUFACTURING TECHNOLOGY

L. Pelliccia, F. Cacciamani, P. Vallerotonda, RF Microtech Srl, Italy; C. Tomassoni, University of Perugia, Italy; O. Bouzekri, ESTEC, Netherlands;

09:50-10:10

DESIGN APPROACHES FOR ADDITIVE MANUFACTURING OF WAVEGUIDE FILTERS

E. Menargues, SWISSto12, Switzerland; M. García-Viguera, IETR-INSA, France; S. Sirci, SWISSto12, Switzerland; L. Polo-Lopez, IETR-INSA, France;

10:30-10:50

3D- PRINTED DIELECTRIC SUPERSTRATES FOR BROADBAND AND HIGH-GAIN ANTENNAS

C. Ponti, P. Baccarelli, Roma Tre University, Italy; S. Ceccuzzi, ENEA, Italy; G. Schettini, Roma Tre University, Italy;

10:50-11:10

STAINLESS STEEL LASER-SINTERED 3D PRINTED CORRUGATED HORN ANTENNAS AT KA BAND

I. Goode, A. Singh, C. E. Saavedra, Queen's University, Canada;

11:10-11:30

3D PRINTED CIRCULAR POLARIZED MILLIMETER WAVE SLOTTED WAVEGUIDE ANTENNA FOR 5G AND 6G SYSTEMS

A. Sharma, D.N. Owenby, J. Valenti, The Johns Hopkins University, USA;

11:30-11:50

HIGH-POWER TESTS IN ADDITIVE MANUFACTURING KA-BAND FEEDS AND FEED COMPONENTS

E. Menargues, S. Sirci, A. Calleau, A. Dimitriades, SWISSto12, Switzerland;

11:50-12:10

LOW-PROFILE 3D PRINTED TRANSMIT-ARRAY FOR WIDE-ANGLE BEAM SCANNING AT KA-BAND

Á. F. Vaquero, Universidad de Oviedo, Spain; S. Matos, University Institute of Lisbon, Portugal; M. Arrebola, Universidad de Oviedo, Spain; J. R. Costa, University Institute of Lisbon, Portugal; J.

Felicio, Centro de Investigação Naval (CINAV), Portugal; C. Fernandes, Instituto Superior Técnico (IST), Portugal; Nelson J. G. Fonseca, European Space Agency, Netherlands;

12:10-12:30

LOW PROFILE 3-D PRINTED TRANSMITARRAY FOR FUTURE 6G WIRELESS COMMUNICATIONS

F.A. Dicandia, CNR, Italy; S. Genovesi, Università di Pisa, Italy;

session 41

ICEAA

Design of electromagnetic- selective structures

Organized by Z. Shen

Chair: Z. Shen

13:50-14:10

A NOVEL LOW-SCATTERING VIVALDI ARRAY DESIGN METHOD BY LOADING RESISTIVE REFLECTING UNITS

S.G. Fang, S.W. Qu, University of Electronic Science and Technology of China (UESTC), China;

14:10-14:30

HIGHLY SELECTIVE THIRD-ORDER BANDPASS FREQUENCY SELECTIVE SURFACE

M. Li, Z. Shen, Nanyang Technological University, Singapore;

14:30-14:50

LOW-PROFILE PLANAR ULTRA-WIDEBAND PHASED ARRAY ANTENNA WITH FSS SUPERSTRATE LOADING

H.T. Wang, S.W. Qu, University of Electronic Science and Technology of China, China;

14:50-15:10

HIGH MODULATION FREEDOM LEAKY-WAVE ANTENNA BASED ON SINUSOIDAL PHASE GRATING MODULATION

Y. Wang, X. Ding, J. Wang, Q. Wu, Harbin Institute of Technology, China;

15:10-15:30

LEAKY-WAVE ANTENNA WITH HIGH SCANNING LINEARITY AND HIGH SCANNING RATE BASED ON SPOOF SURFACE PLASMON POLARITONS

X. Ding, Y. Wang, J. Wang, Q. Wu, Harbin Institute of Technology, China;

15:30-15:50

LOW-PROFILE DUAL-POLARIZED ANGLE-SELECTIVE SURFACE BASED ON DOUBLE-LAYER FREQUENCY SELECTIVE SURFACE

C. Du, Xi'an Jiaotong University, China; Z. Shen, Nanyang Technological University, Singapore;

Thursday, October 12 - H 16:30 / 17:10 - Sala 5X

session 42

ICEAA

Smart Signal and Image Processing - Part 1

Organized by A.E. Cetin

Chairs: A.E. Cetin, E. Salerno

16:30-16:50

A NOVEL INTERGRATION METHOD FOR WIDEBAND RADAR VIA MAINLOBE BROADENING

Y.Wu, T. Fan, X. Yu, G. Cui, University of Electronic Science and Technology of China, China;

16:50-17:10

EVALUATING THE VELOCITY OF SHIPS FROM LOW-RESOLUTION SAR IMAGES

M. Reggiannini, E. Salerno, National Research Council of Italy, Italy;

Thursday, October 12 - H 17:10 / 18:10 - Sala 5X

session 43

IEEE APWC

Smart Signal and Image Processing - Part 2

Organized by A.E. Cetin

Chairs: A.E. Cetin, S. Yarman

17:10-17:30

ROBUST ARRAY SIGNAL PROCESSING USING L1-KERNEL-BASED PRINCIPAL COMPONENT ANALYSIS

H. Pan, E. Koyuncu, A.E. Cetin, University of Illinois Chicago, USA;

17:30-17:50

5G ANTENNA ARRAY FED BY A MICROSTRIP ROTMAN LENS

A. Najafabadi, EPFL, Switzerland; F.A. Ghani, M. Ozdemir, I. Tekin, Sabanci University, Turkey;

17:50-18:10

A RECONFIGURABLE CODEC FOR SECURE VOICE COMMUNICATION

O. Korkmaz, F. Ince, B.S. Yarman, RFT Research Corp, Teknopark, Turkey;

Thursday, October 12 - H 09:10 / 11:50 - Sala 1G

session 44

ICEAA

Periodic and quasi-periodic electromagnetics

Organized by K. Esselle, L. Matekovits

Chairs: K. Esselle, L. Matekovits

09:10-09:30

MULTI BEAM RADIATION BY LINE SOURCES EMBEDDED IN AN ELECTROMAGNETIC BAND GAP MATERIAL

C. Ponti, P. Baccarelli, Roma Tre University, Italy; S. Ceccuzzi, ENEA, Italy; G. Schettini, Roma Tre University, Italy;

09:30-09:50

STUDY AND CHARACTERIZATION OF 3D PERIODIC STRUCTURES WITH HIGHER SYMMETRIES

H. Wang, O. Zetterstrom, P. Castillo-Tapia, KTH Royal Institute of Technology, Sweden; F. Mesa, Universidad de Sevilla, Spain; O. Quevedo-Teruel, KTH Royal Institute of Technology, Sweden;

09:50-10:10

OPTIMIZATION PROCESS FOR BENDING A PERIODIC STRUCTURE: START AHEAD WITH NEURAL NETWORKS

F. Ebrahimi, University of Houston, USA; L. Kouhalvandi, Dogus University, Turkey; F. Mir, University of Houston, USA; L. Matekovits, Politecnico di Torino, Italy;

10:30-10:50

COMPARISON BETWEEN FREQUENCY SELECTIVE SURFACES WITH RECTANGULAR AND HEXAGONAL PERIODICITY OPERATING AS ABSORBERS

A. De Sabata, University Politehnica Timisoara, Romania; O. Zeno-Lipan, University of Richmond, USA; L. Matekovits, Politecnico di Torino, Romania; A.-M. Silaghi, University Politehnica Timisoara, Romania;

10:50-11:10

STUDY REGARDING THE INFLUENCE OF THE BIASING NETWORK IN DESIGNING A SWITCHABLE FREQUENCY SELECTIVE SURFACE

A.-M. Silaghi, Politehnica University Timisoara, Romania; F. Mir, University of Houston, USA; A. De Sabata, University Politehnica Timisoara, Romania; L. Matekovits, Politecnico di Torino, Italy;

11:10-11:30

ALL-METAL GLIDE-SYMMETRIC SLOTTED PLANAR ANTENNAS

D. Comite, Sapienza University of Rome, Italy; G. Valerio, Sorbonne, France;

11:30-11:50

BEAM-STEERING ANTENNAS USING SEMI-PERIODIC METASURFACES

K. Singh, F. Ahmed, K.P. Esselle, University of Technology Sydney, Australia;

Thursday, October 12 - H 11:50 / 15:10 - Sala 1G

session 45

IEEE APWC

Propagation models

Chairs: S. Del Prete, E. Plouhinec

11:50-12:10

SSW-2D: SOME OPEN-SOURCE PROPAGATION SOFTWARE INTRODUCING SPLIT-STEP WAVELET AND WAVELET-TO-WAVELET PROPAGATION TECHNIQUES

R. Douvenot, ENAC, Toulouse Univ., France;

12:10-12:30

A UTD ELLIPTIC CYLINDER MODEL FOR STUDYING BODY ORIENTATION INFLUENCE ON HUMAN BLOCKAGE

E. Plouhinec, CRcC Saint-Cyr, France; B. Uguen, Université de Rennes 1, France;

13:50-14:10

INVESTIGATION ON VERTICAL RESOLUTION OF ATMOSPHERIC SIMULATIONS FOR THE PROPAGATION IN REALISTIC TURBULENT MEDIA

V. Darchy, R Douvenot, ENAC, France; S. Jamme, ISAE-Supaero, France; H. Galiègue, ENAC, France;

14:10-14:30

A STUDY ON PROPAGATION OF FREQUENCY DIVERSE ARRAY IN MULTIPATH ENVIRONMENTS

S. Del Prete, F. Fuschini, M. Barbiroli, M. Hossein Zadeh, University of Bologna, Italy;

14:30-14:50

ADVANCED WEB TOOL FOR THE OPTIMIZATION OF ANTENNA POSITIONING BASED ON EVOLUTIONARY ALGORITHMS

C.J. Hellín, H. Liu, F. Calles, A. Tayebi, J.J. Cuadrado-Gallego, J. Gómez, University of Alcalá, Spain;

14:50-15:10

RECONFIGURABLE UWB MONOPOLE ANTENNA WITH WLAN BAND-NOTCH CHARACTERISTIC

K. Fertas, F. Fertas, M. Challal, UMBB, Algeria;

Thursday, October 12 - H 15:10 / 18:10 - Sala 1G

session 46

ICEAA

Radio astronomy and Space Applications

Chairs: G. Addamo, A. Sharma

15:10-15:30

QUALIFICATION OF X-BAND GAN HYBRID POWER AMPLIFIERS FOR NEAR EARTH AND DEEP SPACE

J. Dennison, A. Sharma, J. Lehtonen, Johns Hopkins Applied Physics Lab, USA;

15:30-15:50

BROADBAND COAXIAL-TO-RECTANGULAR WAVEGUIDE TRANSITION

B. Mohamadzade, A. Dunning, D.B. Hayman, K. Smart, CSIRO Astronomy and Space Science, Australia;

15:50-16:10

INITIAL CONCEPT AND ROADMAP OF THE BAND-4+5 RECEIVER UPGRADE OF THE ATACAMA LARGE MILLIMETER / SUBMILLIMETER ARRAY (ALMA)

Y.-J. Hwang, T. Huang, C.-C. Chiong, M.J. Wang, P. Koch, Academia Sinica Institute of Astronomy and Astrophysics, Taiwan; T. Kojima, A. Gonzalez, National Astronomical Observatory, Japan;

16:30-16:50

CHARACTERIZATION OF THE BEAM AND THE APERTURE OF THE ONSALA TWIN TELESCOPES

G. Hovey, V. Mugundhan, R. Haas, K. Le Bail, J. Conway, Onsala Space Observatory, Sweden;

16:50-17:10

CHARACTERISING THE FREQUENCY RIPPLE IN ANTENNA NOISE TEMPERATURE USING EXPONENTIAL ANALYSIS

R. Weideman, Stellenbosch University, South Africa; A. Cuyt, University of Antwerp, Belgium; D.I.L. de Villiers, Stellenbosch University, South Africa;

17:10-17:30

3D PRINTED X-BAND ANTENNA FOR THE INTERSTELLAR MAPPING AND ACCELERATION PROBE (IMAP) SPACECRAFT

A. Sharma, The Johns Hopkins University Applied Physics Laboratory, USA;

17:30-17:50

INTRINSIC POLARIZATION IN POLARIMETRICALLY BEAMFORMED ARRAYS WITH DIFFERENTIALLY ROTATED ELEMENTS

P. di Ninni, National Institute for Astrophysics, Italy; T.D. Carozzi, Onsala Space Observatory, Chalmers University, Sweden

17:50-18:10

NEW 18-32 GHZ RECEIVER FOR 40-M YEBES RADIO TELESCOPE

F. Tercero, O. Garcia-Perez, G. Gomez-Molina, J.A. Lopez-Perez, J.D. Gallego, Observatorio de Yebes, Spain; R. Sanchez-Montero, Universidad de Alcala, Spain; P. deVicente, Observatorio de Yebes, Spain;

FRIDAY 13

Friday, October 13 - H 9:00/12:00 - Auditorium

Short course

Accurate Electromagnetics and Antenna Simulations using the FDTD Method

Prof. Atef Z. Elsherbeni

Electrical Engineering Department at Colorado School of Mines - USA

list of Reviewers

G. Addamo, Italy
W.E. Amatucci, USA
F.P. Andriulli, Italy
C. Baer, Germany
A. Basharin, Russia
E. Bleszynski, USA
A. Boag, Israel
G. Bonmassar, USA
A.V. Bosisio, Italy
M.M. Botha, South Africa
G. Carluccio, USA
A.E. Cetin, USA
P.-Y. Chen, USA
L. Ciorba, Italy
F. Costa, Italy
G. De Franceschi, Italy
E. de Lera Acedo, UK
D. de Villiers, South Africa
D. Erricolo, USA
K. Esselle, Australia
M.D. Farhat, Saudi Arabia
G. Ganguli, USA
G.N. Georgiev, Bulgaria
M.N. Georgieva-Grosse, Bulgaria
R.D. Graglia, Italy
L. Klinkenbusch, Germany
R. Lattanzi, USA
G. Lombardi, Italy
M. Lumia, Italy
G. Manara, Italy
L. Matekovits, Italy
M. Moghaddam, USA
A. Monorchio, Italy
H. Nakano, Japan
B. Notaros, USA
G. Oliveri, Italy
A. Paffi, Italy
F. Paonessa, Italy
P. Petrini, Italy
O. Peverini, Italy
S. Rengarajan, USA
E. Scime, USA
Z. Shen, Singapore
Y. Shestopalov, Sweden
H. Shirai, Japan
P.D. Smith, Australia
S. Srikanth, USA
P.L.E. Uslenghi, USA
F. Vega, UAE
E.D. Vinogradova, Australia
T. Weiland, Germany
Y. Wen, China
D.R. Wilton, USA



