PROGRAMME BOOK

EuCAP 2015

9th European Conference on Antennas and Propagation

LISBON, PORTUGAL · 12-17 APRIL 2015

EurAAP EuCAP 2015

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Welcome to EuCAP 2015

Dear Colleague,

Welcome to the 2015 edition of EuCAP, the 9th European Conference on Antennas and Propagation, owned by the European Association on Antennas and Propagation (EurAAP), organised each year since 2006, and which we have the pleasure to host in Lisbon, Portugal.

EuCAP is supported by top level world-wide associations on Antennas and Propagation, and provides a forum on the major challenges faced by these communities. This year, we got a record high number of submitted papers, i.e., 1 328 papers were submitted by the scientific academic and industrial community (for both regular and convened sessions), which made us very proud. A total of 1 019 papers were accepted for presentation in either oral or poster sessions, providing an excellent overview of the current state-of-the-art in Antennas, Propagation and Measurements, and showing the latest developments and novelties required for future applications.

As you know, the acceptance of papers in a conference is limited by both absolute and relative thresholds. The former means that papers that are below the technical borderline cannot be accepted; the latter implies that some papers that are above this technical borderline are not accepted either, because the conference does not have capacity for them. This was the case for EuCAP'2015 as well. All papers had at least 4 reviews (one of them from a meta-reviewer, i.e., one of the TCP members, providing the final recommendation on acceptance), but more than 85% of the papers had 5 or more reviews, the average being 5.45. We consider this a success. The whole review process involved the hard work of 83 TPC members and 1 529 reviewers. With this result, we are quite confident on the final high quality of the papers being presented at the conference.

This year's programme follows the structure of the previous ones. On the first day, we've the tutorials, covering quite an interesting range of topics, by recognised experts; we accepted less than half of the proposals, which shows the interest that EuCAP has in the scientific community. The opening of the conference has three Keynote Speakers, from the three corners of the world: it is a real pleasure to have João S. da Silva, Ryuji Kohno and Geilson Loureiro, addressing exciting and complementary views on the design and usage of antennas for signal propagation in a variety of scenarios, and on some of the many applications that can be considered. The afternoon of most of the days include talks by Invited Speakers, providing in depth perspectives on many topics; we've tried to schedule their talks in order to minimise as much as possible the "conflicts of interest", i.e., to avoid that you would wish to exercise ubiquity to attend all the talks that are of interest to you (I hope we've managed to achieve this goal). The accepted papers were organised into Oral and Poster Sessions, the former coming from Regular and Convened Sessions submissions. Of course, in parallel to these sessions, we have the Workshops, both Scientific and Industrial, as well as meetings of the various Working Groups. Finally, not least important, EuCAP continues to offer an important Exhibition, where we can see some of the latest technological developments in our area.

I would like to thank all of those who have contributed to the success of the conference: the authors of the papers, tutorials and workshops submitted to the conference; the keynote and invited speakers, and sessions' chairpersons, who accepted the invitation to be here, hence, providing an excellent added value to the conference; the members of the various committees, who provided the necessary scientific and technical expertise, and performed an excellent work in shaping the conference programme; the reviewers of the papers, who ensured that high quality papers were accepted to the conference; last, but not the least, all the colleagues on the Local Organising Committee, who worked hard with me for more than a year towards the success of the conference, and without whom this edition of EuCAP would have never been possible. Organising such an event is never a one man show, and only with the support of all these colleagues, we managed to present this conference to you. Moreover, our sponsors, exhibitors and supporting institutions also deserve an acknowledgment, given the support they have provided. I hope you fill rewarded by the time and money spent to attend EuCAP in Lisbon.

Lisbon, the westernmost city in continental Europe, is quite an attractive place to visit, and you can easily extend your stay for a few days, so that you can enjoy the city and its surroundings, as well as its gastronomy. The weather is usually quite mild, and you'll be experiencing a pleasant Spring in the region.

My personal wishes that you enjoy both the conference and the city. Thank you for coming.

Luis M. Correia
Professor, IST - INOV/INESC, University of Lisbon, Lisbon, Portugal
(EuCAP'2015 Conference Chair)

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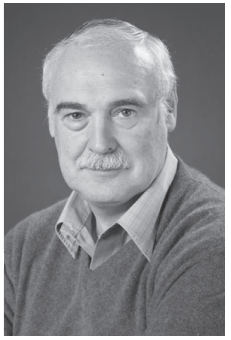

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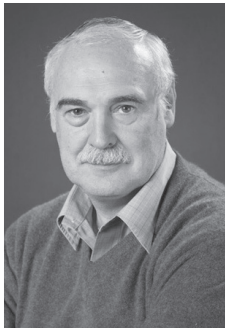

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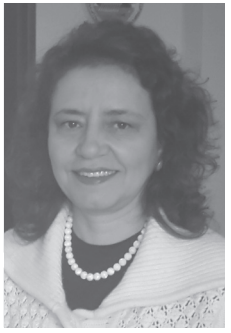

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- Prof. Xiangang Luo, Institute of Optics and Electronics, Chinese Academy of Sciences, P.R. China
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- Dr. Xiaojian Xu, BeiHang University, P.R. China
- Dr. Xiaoming Liu, Beijing University of Posts and Telecommunications, P.R. China
- Prof. Xin-Qing Sheng, School of Information and Electronics, Beijing Institute of Technology, P.R. China
- Prof. Xiongwen Zhao, North China Electric Power University, P.R. China
- Dr. Xiu Long Bao, Dublin Institute of Technology, Ireland
- Dr. Xudong Chen, National University of Singapore, Singapore
- Prof. Xuefeng Yin, Tongji University, P.R. China
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- Dr. Yasuhiro Nishioka, Mitsubishi Electric Corporation, Japan
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- Dr. Yaxin Yu, A*STAR Institute of High Performance Computing, Singapore
- Prof. Yevhen Yashchyshyn, Warsaw University of Technology, Poland
- Dr. Yi Wang, University of Greenwich, United Kingdom
- Prof. Yide Wang, IREENA, Polytech'Nantes, university of Nantes, France

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- Dr. Zhihua Lai, Ranplan Wireless Network Design Ltd, University of Sheffield, United Kingdom
- Mr. Zhinong Ying, Sony Mobile, Sweden
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- Prof. Zhongxiang Shen, Nanyang Technological University, Singapore
- Dr. Zi-Liang Liu, National University of Singapore, Singapore
- Dr. Ziqiang Tong, Institute for Communications Engineering and RF-Systems, Freescale, Germany

Geilson Loureiro
Head of the Laboratory of Integration and Testing of the Brazilian Institute for Space Research, Brazil

Antenna Research, Development and Measurement Facilities in Brazil: a Perspective from the Laboratory of Integration and Testing of the Brazilian Institute for Space Research

Monday, 13th April, 10:00-10:40 (Infante D. Henrique (Aud 1))

Abstract
This talk aims at presenting the Brazilian efforts for antenna related research and product development in Brazil from the perspective of the Laboratory of Integration and Testing (LIT) of INPE (The Brazilian Institute for Space Research). LIT is the main one of the two laboratories accredited to test antenna in Brazil. The life of an entrepreneur who manufactures and sells antennas in Brazil is not easy, even more if the manufacturing depends on the development of the product in Brazilian lands. Beyond the high taxes and the competition with Chinese products, there is still the process of approval by the Anatel and the lack of laboratory infrastructure. Anatel is the National Agency of Telecommunications; it sets the standards for approval of telecommunications products to be sold in Brazil. Thus, any antenna used to transmit signals must be tested and analyzed in accordance with the standards before being placed on the market. Such tests must be performed on the third party labs, but today the country has only two qualified laboratories. One of these is LIT, which currently has a far-field system, but is working to acquire three new systems, two near-field systems and a huge compact-range system. This fact will allow the country to test large antennas, communications satellites and will increase the capability for development and approval of new antennas.

CV
Geilson Loureiro is the head of the Laboratory of Integration and Testing (LIT) of the Brazilian Institute for Space Research (INPE) since February 2013. He is also Professor of Systems Engineering at graduate and undergraduate courses of INPE and ITA (Aeronautical Technological Institute), respectively, since 2003, being the founder of the Systems Engineering and Management program at INPE and of the Aerospace Engineering course at ITA. He is a member elected and re-elected of the Science and Technology Council of INPE since 2009. He was the first president of INCOSE Brazil (the Brazilian Chapter of the International Council on Systems Engineering) in March 2012 with a two year term. He had postdoctoral training in the University of Wurzburg (2011) and MIT (Massachusetts Institute of Technology, 2004 and 2005). He is a PhD from Loughborough University, England, UK, in 1999. He got his Master degree from ITA in 1994. He is an Electronics Engineer by ITA, class 1987.

Ryuji Kohno
Director & Professor, Center of Medical Information and Communication Technology, Yokohama National University, Japan
Finnish Distinguished Professor, Centre for Wireless Communications (CWC), University of Oulu, Finland

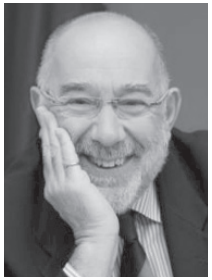
Wireless Dependable BAN of Things - Reliable Machine Centric Communications for Medicine, Cars, Energy, Smart City ...

Monday, 13th April, 11:10-11:50 (Infante D. Henrique (Aud 1))

Abstract
Wireless body area network(BAN) has been researched and developed for ubiquitous and remote medicine and its international standard IEEE802.15.6 was established in February, 2012. Highly reliable and secure, i.e. dependable BAN can be applicable to a body of cars, buildings as well as a human body for dependable machine to machine (M2M) sensing and controlling. Such a M2M network can be called as „BAN of Things" like Internet of Things (IoT). To perform dependability of BAN, antenna and other radio technologies in physical layer must be jointly optimized with MAC, Network, and application layers. Even after BAN has been developed and standardized in global, regulatory science must be keen to guarantee safety, reliability and security to be compliant for regulation. This talk will introduce concept and possible manners of dependability in wireless BAN for medical healthcare, energy follow control, car controlling harness etc, i.e. Dependable BAN of Things.

CV
Ryuji Kohno is IEEE and IEICE fellows. He received the Ph.D. degree in Dept.EE from the Univ. of Tokyo in 1984. During 1984-1985 he was a Visiting Scientist in Dept.EE, Univ. of Toronto, Canada. He has been a Professor since 1998 an a Director of Medical ICT Center since 2003 in Yokohama National Univ., Japan. Since 2007, he is also a Finnish Distinguished Professor in Univ. of Oulu, Finland. The meanwhile, he was also a director of SONY CSL/ATL during 1998-2002 and was a director of the UWB Tech. Inst. and Medical ICT Inst. of National Institute of Information and Communications Technology (NICT) during 2002-2011. Currently he is also the CEO of CWC-Nippon Inc. Ltd. since March 2012. He is a Fellow of IEEE, was a BoG member of IEEE Information Theory Society and a Director of IEEE Japan Council. He was awarded NTT DoCoMo Mobile Science Award in 2002.

Keynote Speakers



Joao Augusto Schwarz da Silva
University of Luxembourg

The Wireless Big Bang

Monday, 13th April, 11:50-12:30 (Infante D. Henrique (Aud 1))

Abstract
Progress in wireless communications in the past 30 years has been staggering. Soon we will emerge from the ICT era to enter into the Nano age where wireless technologies hold the promise of stopping the digital divide and contributing to expand human capabilities. The Internet will fully embrace the wireless technologies to become the nervous system of our society. The talk will review the progress made in wireless technologies and address some of the challenges ahead as we move towards such an all encompassing nervous Internet system. Issues such as spectrum, energy, health and radiation risks, cooperative networks and antenna design are amongst the questions that need being addressed. The promises are mindboggling but the threats are equally numerous. If we want the future wireless world to respond effectively to essential human requirements be it at the service level or at the resource level, more systemic approaches need to be considered. Beyond the technological and governance dimensions of the future network, care must be taken to ensure that ethical principles will drive us to this future where security and privacy of communications is guaranteed.

CV
Joined the European Commission in 1991 and in 2004 was appointed Director of the Network and Communication and further on Director of Converged Networks and Services. He had overall responsibility for all the R&D work relating to mobile communications, broadband networks including satellite communications, audio-visual and home networks; trust and security, software engineering and ICT for business applications. In 2005 he initiated a major European R&D drive toward the Future Internet. He left the European Commission in 2010 to become Research Fellow with the Center for Interdisciplinary Research on Security, Reliability and Trust with the University of Luxembourg. He is a member of the Scientific Council of the French operator Orange.

Invited Speakers

Antti V. Räisänen
Aalto University, Finland

Holographic Principles in Antenna Metrology at Millimeter and Submillimeter Wavelengths

Tuesday, 14th April, 15:00-15:40 (Diogo Cão (Aud 8))

Abstract
Holographic principles used in antenna metrology at millimeter and submillimeter wavelengths are discussed. Holographic principles may be applied, e.g., in determining the surface accuracy of large reflectors, in phase retrieval in near-field antenna measurements, in antenna pattern retrieval through input reflection coefficient measurement with reflective load in near-field, or in producing the plane wave conditions for the measurement (a hologram based compact antenna test range).

CV
Antti V. Räisänen is professor of radio engineering at Aalto University, Espoo, Finland since 1987. He has been a Visiting Scientist and Professor with the Five College Radio Astronomy Observatory and the Univ. of Massachusetts at Amherst, USA; Chalmers University of Technology, Sweden; Univ. of California at Berkeley, USA; Jet Propulsion Laboratory and California Institute of Technology, USA; Observatoire de Paris and Universite de Paris 6, and Universidad Carlos III de Madrid. He supervises research in millimeter-wave components, antennas, receivers, microwave measurements, etc., at the Aalto University School of Electrical Engineering, Dept. of Radio Science and Engineering and Millimetre Wave Laboratory of Finland - ESA External Laboratory (MilliLab). He has authored or co-authored some 500 scientific or technical papers and six books, e.g., Radio Engineering for Wireless Communication and Sensor Applications (Artech House, 2003). Dr. Räisänen is Fellow of IEEE since 1994 and Fellow of the Antenna Measurement Techniques Association (AMTA) since 2008. He was the recipient of the AMTA Distinguished Achievement Award in 2009.

Daniël Janse van Rensburg
Nearfield Systems Inc, USA

Factors Limiting the Upper Frequency of mm-Wave Spherical Near-field Test Systems

Tuesday, 14th April, 15:40-16:20 (Diogo Cão (Aud 8))

Abstract
Ongoing development of on-chip antennas operating at mm-Wave frequencies have led to the development of spherical near-field test systems operational at much higher frequencies than before. A natural progression is to apply these systems at even higher frequencies. This paper addresses some of the factors limiting this frequency bound. These include mechanical positioning repeatability, absolute position fidelity, RF sub-system stability and required far-field distances. Correction techniques that can be employed to enhance the performance of such measurement systems are also considered and evaluated.

CV
Dr Janse van Rensburg has been working in the microwave test industry for the past 25 years, most of which he was employed by Nearfield Systems Inc. in CA, USA. He specializes in microwave antenna measurement systems, computational electromagnetics and antenna design & analysis. He graduated from the University of Pretoria, South Africa and was awarded the B. Eng, M. Eng and Ph.D. degrees in 1985, 1987 and 1991 respectively, all in Electrical Engineering. He is a Senior Member of the IEEE, Licensed Professional Engineer in Ontario, Canada and a Fellow of the Antenna Measurement Techniques Association (AMTA). He remains actively involved in academia and was appointed as adjunct professor in 2005 in the School of Information Technology and Engineering, University of Ottawa, Ottawa, ON, Canada, where he provides post graduate student research supervision.

Erich Leitgeb
Institute of Microwaves and Photonic Engineering at Graz University of Technology

Combination of Free Space Optics (FSO) and RF for Different Wireless Application Scenarios

Tuesday, 14th April, 15:00-15:40 (Pedro A Cabral (Aud 2))

Abstract
In this contribution Free Space Optics (FSO) in combination with other wireless technologies (including WLAN and satellite communications) is presented. Modular communication systems are considered, which allows worldwide access to the Internet or other networks by combining satellite communications, FSO, Wireless LAN, Local Multipoint Distribution System (LMDS) and DVB-T (terrestrial digital video broadcast). Wireless LAN offers connectivity to mobile users in a network cell, Free Space Optics allows quick installation of broadband fixed wireless links instead of cables and satellite communications provides a backbone between distant locations in the world. DVB-T is the current video broadcast standard (instead of former analogue TV) and will also be used for Internet-access (see project SEE TV-WEB). Different scenarios (and results) using modular wireless technologies are shown. A brief introduction at the begin shows the advantages and disadvantages of Optical Wireless (also called Free Space Optics, FSO) compared to Fibre and RF technologies. The first part of the talk is focused on increasing the interest on Free Space Optics. A rough overview to the physical/electrical description of the various components, notably emitters (light sources), receivers (light detectors) and the transmission medium and -techniques are given. A look into the basics, describes the main influences on the reliability and availability of Free Space Optics units using this technology in the atmosphere. The effects like molecular absorption, scattering on small particles and atmospheric turbulences are discussed and the main limiting factors of FSO are demonstrated in this talk. Detailed fog measurements within international projects and the relevant influence on Free Space Optics are shown. Techniques to overcome the high attenuation of fog and clouds for Free Space Optics are presented and discussed and will increase the overall availability and reliability.

CV
Erich Leitgeb was born in 1964 in Fürstenfeld (Styria, Austria) and received his master degree at the University of Technology Graz in 1994. From 1982 to 1984 he attended the military service, including a training to an officer for Communications in the Austrian army, and he is still active as an expert (as Lieutenant-Colonel) in military communications. In 1994 he started research in Optical Communications at the Department of Communications and Wave Propagation and in February 1999 he received his PhD-degree with honours. Since January 2000 he is involved in international projects (like COST 270, EU project SatNEx / SatNEx 2, COST 291, COST IC0802 and IC1101) in different functions. Since 2011, he is the responsible Professor for the Optical and Wireless Communications at the Institute of Microwave and Photonic Engineering at TU Graz. He is giving lectures in Optical Communications, Antennas, Wave Propagation and Microwaves.

David W. Matolak
University of South Carolina, USA

Channel Characterization for Unmanned Aircraft Systems

Tuesday, 14th April, 15:40-16:20 (Pedro A Cabral (Aud 2))

Abstract
Unmanned aircraft systems (UAS), also known as unmanned aerial vehicles, or by the misnomer “drones,” are seeing explosive growth, and this growth is expected to continue for the foreseeable future. Hence numerous entities are involved with research, design, and testing to ensure safe and reliable UAS operation in the worldwide airspace. Since many UAS will be small and highly maneuverable, air-ground channel conditions will differ from—and often be more challenging than—those of traditional piloted aircraft, where ground sites are in open areas with tall antenna towers. Thus new research is required to accurately characterize the air-ground channel. We briefly review the history of study on the air-ground channel, then describe motivations for accurate air-ground channel characterization and modeling. We provide example air-ground channel measurement results from our work with NASA, discuss initial air-ground channel models, and future work.

CV
David W. Matolak received the B.S. degree from Penn. State, M.S. degree from Univ. of Massachusetts, and Ph.D. degree from the Univ. of Virginia, all in electrical engineering. He has over 20 years of experience in communication system research, development, design, and deployment, with private companies, government institutions, and academia, including AT&T Bell Labs, L3 Communication Systems, MITRE, and Lockheed Martin. He has over one hundred publications, eight patents, and expertise in wireless channel characterization, spread spectrum, ad hoc networking, and their application in civil and military terrestrial, aeronautical, and satellite communication systems. He was with Ohio University from 1999-2012, and is now with the University of South Carolina. His research interests are radio channel modeling and communication techniques for non-stationary fading channels, multicarrier transmission, and mobile ad hoc networks.

Özlem Aydın Çivi
Middle East Technical University, Turkey

Reconfigurable Reflectarrays: Design, Analysis and Fabrication

Wednesday, 15th April, 15:00-15:40 (Diogo Cão (Aud 8))

Abstract
Reflectarray antennas combine the advantages of both reflector and array antennas. Therefore, they offer low-loss, low-cost solutions for the high gain beam steering and beam shaping applications. In this talk, first the current progress and future perspectives regarding the design and analysis of reflectarrays will be discussed. Then, recent technological developments and techniques that are used to realize reconfigurability in reflectarrays will be presented.

CV
Özlem Aydin Civi received BSc, MSc and PhD degrees in 1990, 1992 and 1996 respectively in Electrical and Electronics Eng. Department of the Middle East Technical University (METU) in Ankara, Turkey. In 1997-1998 she was a visiting scientist at the ElectroScience Laboratory, Ohio State University. Since 1998, she has been with the Department of Electrical and Electronics Engineering, Middle East Technical University, where she is currently a Professor. Her research interests include multi-function antenna design, reconfigurable antennas/arrays, RF-MEMS applications, phased arrays and analytical, numerical and hybrid techniques in EMT problems especially fast asymptotic/hybrid techniques for the analysis of large finite periodic structures. She is author or co-author of more than 100 scientific publications. Since 1997, she has been a national delegate of the European Cooperation Actions COST260, COST284, COST-IC0603 on Antennas, and currently participates in COST-VISTA. She also participated in EU‘s Network of Excellence on RF MEMS and RF Microsystems. Since 2004, she is a technical reviewer of the European Community for scientific projects in the fields of antennas and communication. Dr. Civi chaired, organized sessions and served in the Technical Program Committees at many International Conferences. In particular, she was actively participated in the organization of 2011 URSI General Assembly and Co-chair of MEMSWAVE2012. She is a Senior Member of IEEE, member of EuRAAP, board member of EuMA Topical Group on RF MEMS, board member of ESoA, and vice chair of URSI Turkish National Committee. She is an Associate Editor of the IEEE Transactions on Antennas and Propagation.

Andrea Massa
University of Trento, Italy

Compressive Sensing - Basics, State-of-the-Art, and Advances in Electromagnetic Engineering

Wednesday, 15th April, 15:40-16:20 (Diogo Cão (Aud 8))

Abstract
The widely known Shannon/Nyquist theorem relates the number of samples required to reliably retrieve a „signal" to its (spatial and temporal) bandwidth. This fundamental criterion yields to both theoretical and experimental constraints in several Electromagnetic Engineering applications. Indeed, there is a relation between the number of measurements/data (complexity of the acquisition/ processing), the degrees of freedom of the field/signal (temporal/spatial bandwidth), and the retrievable information regarding the phenomena at hand (e.g., dielectric features of an unknown object, presence/position of damages in an array, location of an unknown incoming signal).
The new paradigm of Compressive Sensing (CS) is enabling to completely revisit these concepts by distinguishing the „informative content" of signals from their bandwidth. Indeed, CS theory asserts that one can recover certain signal/phenomena exactly from far fewer measurements than it is indicated by Nyquist sampling rate. To achieve this goal, CS relies on the fact that many natural phenomena are sparse (i.e., they can be represented by few non-zero coefficients in suitable expansion bases), and on the use of aperiodic sampling strategies, which can guarantee, under suitable conditions, a perfect recovery of the information content of the signal.
In this framework, the aim of this Talk is to discuss CS paradigm starting from its fundamentals and to illustrate its features and potentialities in different Electromagnetic Engineering areas. Moreover, recent advances in the application of CS to inverse scattering & imaging methods for NDE/NDT, array synthesis, direction-of-arrival estimation, and antenna diagnosis will be presented, envisaging possible future trends in CS as applied to Electromagnetics.

CV
Andrea Massa (M'96) received the M.S. and the Ph.D. degrees in EECS from the University of Genoa, Italy, in 1992, 1996, and 2009, respectively. Assistant Professor at the University of Genoa (1997- 1999), Associate Professor (2001-2004) and Full Professor (2005-today) of Electromagnetic fields at the University of Trento. At present, he is the Director of the ELEDIA Research Center located in Trento with offshore labs in Paris, Nagaski, and Addis Ababa. Moreover, he is holder of a Senior DigiTEo Chair at SUPELEC (France) and Adjunct Professor at Penn State University (USA). He has been Visiting Professor at the Missouri University of Science and Technology (USA), the NUS (Singapore), the Nagasaki University (Japan), the University of Paris Sud (France), and the Kumamoto University (Japan). Prof. Massa serves as AE of the IEEE-TAP, member of the Editorial Board of the JEMWA, a permanent member of the "PIERS Technical Committee" and of the "EuMW Technical Committee", and an ESoA member. His research activities are mainly concerned with direct and inverse scattering problems, antenna systems and large arrays, radars architectures and processing, WSNs, semantic wireless technologies, system-by-design/material-by-design (metamaterials and reconfigurable-materials), and theory/applications of optimization techniques to engineering problems.

Daniel Sievenpiper
University of California, USA

Invited: Nonlinear, Active, and Anisotropic Artificial Impedance Surfaces

Wednesday, 15th April, 15:00-15:40 (Pedro A Cabral (Aud 2)

Abstract
Artificial impedance surfaces, a type of planar metamaterial, have the potential to provide new capabilities that are not possible with homogeneous RF materials, and are much more practical than conventional metamaterial approaches to RF applications. By adding active electronics, nonlinear devices, and new types of anisotropic patterns, we can enable new capabilities such as controlling the flow of surface currents over metallic objects, nonlinear surfaces for absorbing or generating high power microwave energy, superluminal planar waveguides for thin, broadband antennas, and new practical approaches to cloaking surface features. This talk will discuss the use of passive anisotropic surfaces for controlling scattering effects. We will also discuss our recent work in nonlinear surfaces in which we have demonstrated the first example of waveform dependent absorption, and self-tuning absorbers, improved absorption performance that is available with active electronics. These same structures can also be used in reverse, as highly scalable microwave sources that can be built with off-the-shelf electronics. We will also discuss our use of nonlinearity to demonstrate self-focusing in artificial impedance surfaces. Finally, we will describe our recent work in superluminal surfaces and waveguides based on non-Foster circuit loading.

CV
Professor Dan Sievenpiper joined the UCSD faculty in 2010. He received his BS in 1994 and his PhD in 1999 from UCLA, where he studied photonic crystals and periodic structures, and invented the high impedance electromagnetic surface. After graduation, Dan joined HRL (the former Hughes Research Laboratories) in Malibu, CA. During the following 11 years, he developed new electromagnetic structures, with an emphasis on small, conformal, tunable, and steerable antennas. Dan held a variety of technical positions at HRL, including serving as the director of the Applied Electromagnetics Laboratory. At UCSD, his research is focused on artificial media, and the integration of active electronics with electromagnetic structures and antennas to enable new capabilities. In 2008, Dan was awarded the URSI Issac Koga Gold Medal. In 2009, he was named as a Fellow of the IEEE. Since 2010, he has served as an associate editor of IEEE Antennas and Wireless Propagation Letters. He is also currently the chair of the IEEE Antennas and Propagation Society Administrative Committee on New Technology Directions. Dan has more than 70 issued patents and more than 70 technical publications.

Kathleen L. Melde
University of Arizona, USA

On-Chip Antennas for Multi-Chip RF Data Transmission

Wednesday, 15th April, 15:40-16:20 (Pedro A Cabral (Aud 2)

Abstract
Multicore computer architectures with upwards of 100 processor cores in a small form factor promise unprecedented enhancement of computational performance. In a multicore computer architecture with hundreds cores, physical connections will severely restrict system performance due to slowed data transfer, excessive power consumption and required redundancy for broken data links.
This talk will present some of the recent developments to overcome package design challenges – providing a hybrid computing architecture with implemented 60 GHz antennas as the high efficient wireless interconnect which could generate over 10 Gbps bandwidth on the data transmissions. The short links between the router and the adjacent cores use physical transmission lines, while longer link communications between routers are done wirelessly. The work compares the design and performance of using a single antenna or a small reconfigurable antenna array. The antennas utilize a periodically-patched AMC structure associated with the ground-shielded conductor in order to enhance the antenna's impedance matching bandwidth. The validation presents that over 10 GHz -10 dB S11 bandwidth and the horizontal transmission capability. This work leverages from smart antenna methods that have demonstrated capacity improvements in wireless communications, yet the router locations in the multi core computer are in a fixed location.

CV
Kathleen L. Melde is a Professor in Electrical and Computer Engineering Department, University of Arizona, Tucson, AZ, USA and a Fellow of the IEEE. Her current projects include tunable RF front ends for cognitive radio, high-speed electronics packaging, on chip antennas, and computational photovoltaics. She has published over 90 publications and has co-authored five U.S. patents. Her current research interests include applied electromagnetics, antenna theory and design, and microwave circuit design. She received the B.S. degree from California State University, Long Beach, CA, the M.S. degree from California State University, Northridge, CA, and the Ph.D. degree from University of California, Los Angeles, CA, all in electrical engineering. She was with the Radar Systems Group, Hughes Electronics, El Segundo, CA, from 1985 to 1996. She has made contributions to the design and development of antennas and transmit/receive modules for airborne phased and active arrays. She has extensive experience in modeling, fabrication and measurement of the performance of antennas, antenna arrays, high-density microwave circuits, and high-speed packaging interconnects. She was a recipient of the University Of Arizona College Of Teaching Fellow in 2012. In 2010, she received the Excellence at the Student Interface Award from the University of Arizona. She was a recipient of the 2008 IBM Faculty Award. She has been an invited keynote speaker on several occasions. From 1999 to 2001, she has served on the Administrative Committee for the IEEE Transactions on Antennas and Propagation and the IEEE Antennas and Wireless Propagation Letters. She was the Co-Chair for the 2012 and Chair of the 2103 Conferences on the EPEPS. She is on the Organizing Committees for the 2014 AMTA conference and for the 2016 Antennas and Propagation Symposium.

Y. Jay Guo
University of Technology, Sydney, Australia

Advances in Reconfigurable Antennas for Wireless Communications

Thursday, 16th April, 15:00-15:40 (Diogo Cão (Aud 8))

Abstract
Owing to the rapid proliferation of wireless communications systems and the increasing demand on mobile data, the limited electromagnetic spectrum has become more and more congested. To address this challenge, future wireless communications systems need to be cognitive and reconfigurable. They will have the intelligence and capacity to adopt the most appropriate communications strategy based on the feedback from channel sensing activities and signal quality assessment, including the operating frequency, the beam pattern and the polarization. In order to achieve these flexibilities, reconfigurable antennas (RAs) with adaptive radiation characteristics are required instead of traditional antennas whose structures are tailored to fit particular applications. RAs can also be used to avoid interference, save energy, enhance security, and mitigate signal quality deterioration caused by multipath fading. Typical parameters of an antenna that can be reconfigured include frequency, polarization, radiation pattern, or a combination of the above. Depending on the reconfiguration mechanisms, RAs can also be classified into three main groups, namely, those using electrical devices, such as PIN diodes, varactor diodes and radio frequency micro electromechanical system (RF-MEMS), and those using mechanical changes and using material changes. In this talk, we shall review the recent progress of RAs using electrical methods to achieve reconfiguration. In particular, we shall review innovations on reconfigurable antenna elements, leaky wave antennas and antenna arrays, with the majority of results from our own research projects. We shall also shed some light on the future development of reconfigurable antennas.

CV
Professor Y. Jay Guo is a Fellow of the Australian Academy of Technological Sciences and Engineering (ATSE), a Fellow of IEEE and IET. Currently, he serves as the Director of Australia Research Centre for Big Data Technologies (ARCDA), and Distinguished Professor at University of Technology, Sydney (UTS). Prior this this appointment, Jas served as Director of a number of research programs in CSIRO, Australia. Before joining CSIRO, Jay worked in the European mobile communications industry for eight years. His research interest includes reconfigurable antennas, wideband and conformal antenna arrays, base-station antennas and advanced wireless communications systems.

Dirk Manteuffel
University of Kiel, Germany

Characteristic Mode based antenna design – a straight forward approach to small form factor antenna integration

Thursday, 16th April, 15:40-16:20 (Diogo Cão (Aud 8))

Abstract
When integrating antennas into the chassis of the application the performance is dominated by the integration impairments. Often, excitation of the chassis can be utilized to achieve both, good antenna performance and a small form factor. The Theory of Characteristic Modes (TCM) enables profound understanding on how such structures work and it can even be utilized as a valuable tool for straight forward design. The talk introduces to the TCM and shows how it can be used to design antennas for small mobile terminals, automotive applications and massive multi antenna systems for future mobile communication systems.

CV
Dirk Manteuffel was born in Issum, Germany in 1970. He received the Dipl. Ing. degree in electrical engineering fromDuisburgUniversity in 1998 and the Dr. Ing. degree from the University of Duisburg-Essen in 2002. In 2004 he received the young scientist award of the Vodafone foundation for science for his research on the analysis and design of integrated mobile phone antennas with special emphasis on the interaction with the user. From 1998 to 2009 he joint IMST inGermany. As a project manager he was responsible for industrial antenna development and advanced projects in the field of antennas and EM modeling. Since 2009 he is a full professor of wireless communications and a director of the Institute of Electrical- and Information Engineering at the Christian-Albrechts-University of Kiel, Germany. His research interests are antenna integration and EM modeling for mobile communications and biomedical applications. Since 2005 he is a member of the board of the ESoA – European School of Antennas. Since 2011 he is the chairman of the EurAAP working group on Small Antennas and serves as a director of the EurAAP since 2012. Since 2013 he is a member of the IEEE AP-S AdCom for the term 2013-2015 and since 2014 he serves as an associate editor of the IEEE Transactions on Antennas and Propagation. Prof. Manteuffel is inventor of 6 national and international patents and author and co author of more than 90 scientific publications including two books.

Alenka Zajić
Georgia Institute of Technology, USA

Modeling of Shallow Water Acoustic Channels for Underwater Vehicle-to-Vehicle Communications

Thursday, 16th April, 15:00-15:40 (Pedro A Cabral (Aud 2))

Abstract
This talk will address propagation modeling of underwater acoustic channels for underater vehicle-to-vehicle communications. Many scientific, defense, and safety endeavors require communications between untethered submerged devices and/or vehicles. Examples include sensor networks for seismic monitoring, analysis of resource deposits, oceanographic and environmental studies, tactical surveillance, etc., as well as communications between Unmanned or Autonomous Underwater Vehicles (UUVs, AUVs) for deep-water construction, repairs, scientific or resource exploration, defense applications, etc. Dr. Zajic will present the first wideband statistical channel model for acoustic underwater communications. The model was verified against measured data and very close agreement between measured and simulated data was found. She will also present the first algorithm that estimates both velocities between autonomous underwater vehicles in underwater acoustic communications.

CV
Alenka Zajic received the B.Sc. and M.Sc. degrees form the School of Electrical Engineering, University of Belgrade, in 2001 and 2003, respectively. She received her Ph.D. degree in Electrical and Computer Engineering from the Georgia Institute of Technology in 2008. Currently, she is an Assistant Professor in School of Electrical and Computer Engineering at Georgia Institute of Technology. Prior to that, she was visiting faculty in School of Computer Science at Georgia Institute of Technology, a post-doctoral fellow in the Naval Research Laboratory, and design engineer at Skyworks Solutions Inc. Dr. Zajic received the Neal Shepherd Memorial Best Propagation Paper Award in 2012, the Best Paper Award at ICT 2008, and the Best Student Paper Award at WCNC 2007. Currently, she is an editor for IEEE Transactions on Wireless Communications.

Invited Speakers

Giovanni Toso
European Space Agency, The Netherlands

The beauty of Multibeam Antennas

Thursday, 16th April, 15:40-16:20 (Pedro A Cabral (Aud 2))

Abstract
Multibeam Antennas find application in several fields including communications, remote sensing (e.g. radars, radiometers, etc.), electronic surveillance and defense systems, science (e.g. multibeam radio telescopes), RF navigation systems, etc. Multibeam antennas constitute a key enabling element offering high gain and large field of view, and they are required to satisfy stringent performance in terms of sidelobe level, cross-polarization, number of beams and power and pattern reconfigurability. Even if used in several domains, the design of multibeam antennas is particularly critical and challenging when dealing with on board satellite applications. In this area, satellite manufacturers daily face an increase in demand of satellite handled bandwidth, offered power, frequency reuse, traffic reconfigurability, and embarked antenna sizes. Indeed some of the emerging applications are strictly power limited and the system trends consist in adopting large on-board antennas, advantages being the increase of the available gain. Depending mainly on the operational frequency, pattern requirements, transmitting and/or receiving functionality, different architectures may be selected: from antenna systems completely based on independent feeds illuminating a number of reflectors to hybrid systems based on both arrays and reflectors, from phased arrays to lens antennas. In the last ten years innovative configurations have been proposed exploiting new frequencies, materials, polarization properties and reconfiguration capabilities. The talk will provide an overview on recent developments in the field of Multibeam Antennas with special emphasis to satellite applications.

CV
Giovanni Toso received the Laurea Degree (summa cum laude) and the Ph.D. in Electrical Engineering from the University of Florence, Florence, Italy, in 1992 and 1995, respectively. In 1996 he was visiting scientist at the Laboratoire d'Optique Electromagnétique, University of Aix-Marseille III, Marseille, France. From 1997 to 1999 he was a Post Doctoral student at the University of Florence. In 1999 he was a visiting scientist at the University of California, Los Angeles (UCLA). In the same year he received a scholarship from Thales Alenia Space (Rome, Italy) and he has been appointed researcher in a Radioastronomy Observatory of the Italian National Council of Researches (CNR). Since 2000 he is with the Antenna and Submillimeter Section of the European Space and Technology Centre of the European Space Agency, ESA ESTEC, Noordwijk, The Netherlands. He has been initiating and contributing to several R&D activities on satellite antennas based on arrays, reflectarrays, constrained lenses and reflectors. In 2009 he has been coeditor of the Special Issue on Active Antennas for Satellite Applications in the International Journal of Antennas and Propagation. In April 2014 he has been co-guest editor, with Dr. R. Mailloux, of the Special Issue on Innovative Phased Array Antennas based on Non-Regular Lattices and Overlapped Subarrays published in the IEEE Transactions on Antennas and Propagation. G. Toso is an Associate Editor of the IEEE Transactions on Antennas and Propagation.

Notes

Monday, April 13

09:00 - 12:30 Opening and Keynote Speakers
Room: Infante D. Henrique (Aud 1)
Chair: Luis M. Correia (IST - University of Lisbon; INOV-INESC, Portugal)

09:00 Opening
Luis M. Correia (IST - University of Lisbon; INOV-INESC, Portugal); Juan Mosig (Ecole Polytech. Fed. de Lausanne, Switzerland)

10:00 Antenna Research, Development and Measurement Facilities in Brazil: a Perspective From the Laboratory of Integration and Testing of the Brazilian Institute for Space Research
Geilson Loureiro (Brazilian Institute for Space Research, INPE & Technological Institute of Aeronautics ITA, Brazil)

10:40 – 11:10 Coffee Break
Room: Foyer D

11:10 Wireless Dependable BAN of Things - Reliable Machine Centric Communications for Medicine, Cars, Energy, Smart City
Ryuji Kohno (Yokohama National University & University of Oulu, Japan)

11:50 The Wireless Big Bang
João Schwarz da Silva (University of Luxembourg, Luxemburg)

12:30 – 13:40 Lunch Break
Room: Restaurant Espaço Tejo

13:40 - 18:10 BA1 NumTech: Full Wave Computation and Numerical Techniques Antennas/Bridging other Areas
Room: Infante D. Henrique (Aud 1)
Chairs: Branko Kolundzija (University of Belgrade, Serbia), Francesca Vipiana (Politecnico di Torino, Italy)

13:40 Domain Decomposition Method for Integral Equations Using Non-Conformal Meshing
Mario Alberto Echeverri Bautista and Francesca Vipiana (Politecnico di Torino, Italy); Matteo Alessandro Francavilla (Istituto Superiore Mario Boella, Italy); Giuseppe Vecchi (Politecnico di Torino, Italy)

14:00 Eliminating the DC Instability of the Time Domain Electric Field Integral Equation
Yves Beghein (Ghent University, Belgium); Kristof Cools (University of Nottingham, United Kingdom); Francesco Andriulli (Ecole Nationale Superieure des Telecomunications de Bretagne, France)

14:20 A Regularised Electric Field Integral Equation for Scattering by Perfectly Conducting Junctions
Kristof Cools (University of Nottingham, United Kingdom); Francesco Andriulli (Ecole Nationale Superieure des Telecomunications de Bretagne, France)

14:40 Robust, Efficient Evaluation of EM Green's Tensors in Generally Anisotropic, Planar-Stratified Media Via Complex-Plane Gauss-Laguerre Quadrature
Kamalesh Sainath (Ohio State University & ElectroScience Laboratory, USA); Fernando Teixeira (Ohio State University, USA)

15:00 Plasmonic Transmission Lines Mode Solver Based on the Method of Moments
Mai Sallam (The American University in Cairo and Katholieke Universiteit Leuven, Egypt); Guy A. E. Vandenbosch and Georges Gielen (Katholieke Universiteit Leuven, Belgium); Ezzeldin Soliman (The American University in Cairo, Egypt)

Monday, April 13

15:20 Recovery-Based a Posteriori Error Estimation for the Charge in the Method of Moments
Willem J Strydom and Matthys M. Botha (Stellenbosch University, South Africa)

15:40 – 16:10 Coffee Break
Room: Vasco da Gama (Pav 1)

16:10 An NG-Based Algorithm for a Combined-Field Integral Formulation
Evgeny Chernokozhin (Tel Aviv University, Israel)

16:30 Shaped Pattern Synthesis for Equispaced Linear Arrays with Non-Isotropic Antennas
Tom Bruintjes and Andre Kokkeler (University of Twente, The Netherlands); Georgios Karagiannis (Huawei Technologies, Germany); Gerard Smit (University of Twente, The Netherlands)

16:50 GPU Acceleration of an Iterative Physical Optics Algorithm for the Analysis of Electrically Large Scatterers
Luca Pandolfo, Paolo De Vita and Mauro Bandinelli (IDS Ingegneria Dei Sistemi S. p. A, Italy); Giorgio Carluccio (Delft University of Technology, The Netherlands); Matteo Albani (University of Siena, Italy)

17:10 Multiple Eigencurrents Expansion for the Solution of Wave Scattering From Anisotropic Bodies
Vito Lancellotti (Eindhoven University of Technology, The Netherlands)

17:30 Hybrid Scattering-Admittance Operators for the Analysis of Finite Antenna Arrays
Salman Mokhlespour and Vito Lancellotti (Eindhoven University of Technology, The Netherlands); Anton G. Tijhuis (TU/e Eindhoven University of Technology, The Netherlands)

17:50 Physics-based Parametric Interpolation
Matteo Alessandro Francavilla (Istituto Superiore Mario Boella, Italy); Giorgio Giordanengo (Istituto Superiore Mario Boella & Politecnico di Torino, Italy); Marco Righero (Istituto Superiore Mario Boella, Italy); Giuseppe Vecchi and Francesca Vipiana (Politecnico di Torino, Italy)

13:40 - 15:40 C18 NF_EMC: [C] Deterministic & stochastic coupling analysis for Antennas, Near-Field & EMC applications
Antennas/Multi Applications
Room: Pedro A Cabral (Aud 2)
Chairs: Sebastien Lalléchère (Blaise Pascal University, France), Blaise Ravelo (ESIGELEC, France)

13:40 Use of S-parameter Enclosed in Kron's Method for Electromagnetic Compatibility Computation
Olivier Maurice (GERAC, France); Chaouki Kasmi (French Network and Information Security Agency - ANSSI, France)

14:00 Functional Safety and EMC: Monte Carlo Study of the Impact of Function Redundancy on a System Immunity
Emmanuel Amador (EDF & EDF Lab, France); Nicolas Bouyge (EDF Lab & EDF, France)

14:20 Statistical Analysis of Average and Maximum Crosstalks in Cable Bundles
Tarek Bdour (OSA Department, XLIM Research Institute, Limoges, France, France); Alain Reineix (University of Limoges, France)

14:40 RF Exposure Assessment of Children's Organs Using Surrogate Model Built with Electromagnetic Solvers and Statistics
Joe Wiart (Orange- France Telecom, France); Pierric Kersaudy (Orange Labs, France); Amal Ghanmi (Univ MLV, France); Nadège Varsier and Abdelhamid Hadjem (Orange Labs, France); Odile Picon (Université Paris-Est Marne-la-Vallée, France)

15:00 RF and EMC Investigation on CRIP System for the E-Healthcare CareStore Platform
Jorge Cabral (University of Minho & ALGORITMI Centre, Portugal); Blaise Ravelo (ESIGELEC, France); Christian Fischer Pedersen (Aarhus University, Denmark); Sebastien Lalléchère (Blaise Pascal University, France)

15:20 Statistical Approach of Ambient Electromagnetic Field Assessment with Body-Worn Multi-Axial Sensors
Christophe Roblin (TELECOM ParisTech & ENSTA ParisTech, France)

15:40 – 16:10 Coffee Break
Room: Vasco da Gama (Pav 1)

13:40 - 15:40 C21 EleSmall: [C] Electrically Small Antennas
Antennas/Cellular Communications
Room: Gil Eanes (Aud 3)
Chairs: Christophe Fumeaux (The University of Adelaide ; School of Electrical and Electronic Engineering, Australia), William Whittow (Loughborough University, United Kingdom)

13:40 Antennas for Mobile Communication Devices: What's Next?
Marta Martínez-Vázquez (IMST GmbH, Germany)

14:00 Multi-Feed NVIS Realization on Small Aircraft Using Characteristic Modes
Jeffrey Chalas (The Ohio State University & ElectroScience Lab, USA); Kubilay Sertel (The Ohio State University, USA); John L. Volakis (Ohio State University, USA)

14:20 Compact Dual-mode Antenna for Body-centric Wireless Communications
Koichi Ito (Chiba University, Japan)

14:40 Considerations on SAR and Efficiency for W-BAN Antennas
Anja K. Skrivervik and Jovanche Trajkovikj (EPFL, Switzerland); Mohsen Koohestani (Institut d'Electronique et de Télécommunications de Rennes - Université de Rennes 1, France); Nuno Pires (Instituto Superior Técnico & École Polytechnique Fédérale de Lausanne, Portugal)

15:00 4G Cellular Antenna Design for Eyewear Devices
Aykut Cihangir (University of Nice Sophia Antipolis, France); Chinthana J Panagamuwa and William Whittow (Loughborough University, United Kingdom); Gilles Jacquemod (University of Nice, France); Frédéric Gianesello (STMicroelectronics, France); Romain Pilard (STMicroelectronics, Technology R&D, STD, TPS Lab, France); Cyril Luxey (University Nice Sophia-Antipolis, France)

15:20 Optimizing Small Wideband Antenna Performance for Both RIMP and Random-LOS
Per-Simon Kildal (Chalmers University of Technology, Sweden); Xiaoming Chen (Qamcom Research & Technology, Sweden); Andrés Alayon Glazunov (Chalmers University of Technology, Sweden)

15:40 – 16:10 Coffee Break
Room: Vasco da Gama (Pav 1)

13:40 - 15:40 CC3 AntSystem: Antenna systems and architectures
Antennas/Cellular Communications
Room: Pêro Escobar (Pav 3A)
Chairs: Georgia Athanasiadou (University of Peloponnese, Greece), Koen Mouthaan (National University of Singapore, Singapore)

13:40 The Effects of Antenna Array Size and Back Lobe Level on Self-Interference and Trans mitted Powers for 4G Beamforming Multicell Systems with In-Band Full Duplex Relays
Dimitra Zarbouti, George Tsoulos and Georgia Athanasiadou (University of Peloponnese, Greece)

14:00 Reconfigurable LTE MIMO Automotive Antenna System Based on the Characteristic Mode Analysis
Eugen Safin (University of Kiel, Germany); Risto Valkonen (Christian-Albrechts-Universität zu Kiel, Germany); Dirk Manteuffel (University of Kiel, Germany)

14:20 High Resolution ESM/ELINT DOA Estimation with Super-Heterodyne Multi-Octave Antenna System
Ivan Russo (Elettronica S.p.A., Italy); Paolo Baldonero and Antonio Manna (Elettronica SpA, Italy); Daniele Marcantoni and Fabrizio Trotta (Elettronica S.p.A., Italy)

14:40 Quad-Polarized Wideband Phased Array with Reduced Sidelobes by Interstitial-Packing
Hongzhao Ray Fang and Ramanan Balakrishnan (National University of Singapore, Singapore); Regis Guinvarc'h (SONDRA, Supelec, France); Koen Mouthaan (National University of Singapore, Singapore)

15:00 Generation of OAM Radio Waves with Three Polarizations Using Circular Horn Antenna Array
Xudong Bai (Shanghai Jiao Tong University, P.R. China); Xianling Liang (Shanghai Jiaotong University, P.R. China); Ronghong Jin (Shanghai Jiao Tong University, P.R. China); Junping Geng (Shanghai Jiaotong University, P.R. China)

15:20 Impedance Characterization of UHF RFID IC and Tag Performance
Aline Coelho de Souza (IMEP-LAHC, France); Yvan Duroc (Université Claude-Bernard, France); Tan Phu Vuong (Grenoble INP, France); Alexandre Luce (LNE, France)

15:40 – 16:10 Coffee Break
Room: Vasco da Gama (Pav 1)

13:40 - 18:10 HD2 mmWAnt: Millimetre-wave, submillimetre-wave and Terahertz antennas
Antennas/High Data-rate Transfer
Room: Gonçalo V Cabral (Pav 5C)
Chairs: Daniele Cavallo (Delft University of Technology, The Netherlands), Jian Yang (Chalmers University of Technology, Sweden)

13:40 Rectangular to Large Diameter Conical Corrugated Waveguide Converter Based on Stacked Rings
Stephen Doherty (National University of Ireland Maynooth, Ireland); Arndt von Bieren (SWISSto12 SA, Switzerland); Fiachra Cahill (Maynooth University, Ireland); Alessadro Macor and Emile de Rijk (SWISSto12 SA, Switzerland); Neil Trappe (NUI Maynooth, Ireland); Mathieu Billod (SWISSto12 SA, Switzerland); Creidhe O'Sullivan (National University of Ireland Maynooth, Ireland); Mirko Favre (SWISSto12 SA, Switzerland); Marcin Gradziel (National University of Ireland, Maynooth, Ireland); John Anthony Murphy (National University of Ireland Maynooth, Ireland)

14:00 High Gain Flat Sinusoidal Bull's Eye Leaky Millimetre-Wave Antenna
Unai Beaskoetxea (Universidad Pública de Navarra, Spain); Victor Pacheco-Peña and Bakhtiyar Orazbayev (Universidad Publica de Navarra, Spain); Tahsin Akalin (Université de Lille 1, France); Stefano Maci (University of Siena, Italy); Miguel Navarro-Cía (Imperial College London, United Kingdom); Miguel Beruete (Universidad Publica de Navarra, Spain)

14:20 A 76.5 GHz Microstrip Comb-Line Antenna Array for Automotive Radar System
Dapeng Wu (Chalmers University of Technology, Sweden); Ziqiang Tong (Freescale, Germany); Ralf Reuter (Freescale Semiconductor, Germany); Heiko Gulan (Karlsruhe Institute of Technology, Germany); Jian Yang (Chalmers University of Technology, Sweden)

14:40 Modeling and Design of Parallel-Fed Continuous Transverse Stub (CTS) Arrays
Francesco Foglia Manzillo (University of Rennes 1 - IETR, France); Mauro Ettorre (University of Rennes 1 & UMR CNRS 6164, France); Massimiliano Casaletti (University of Rennes1, France); Ronan Sauleau (University of Rennes 1, France); Nicolas Capet (CNES, France)

15:00 Analysis and Optical Characterisation of Bolometric Integrating Cavities Including a Free Space Gap in the Waveguide Structure
Darragh McCarthy (National University of Ireland Maynooth, Ireland); Neil Trappe (NUI Maynooth, Ireland); Stephen Doherty, John Anthony Murphy and Colm Bracken (National University of Ireland Maynooth, Ireland); Marcin Gradziel (National University of Ireland, Maynooth, Ireland); Creidhe O'Sullivan (National University of Ireland Maynooth, Ireland); Maarten van der Vorst (European Space Agency, The Netherlands); Michael Audley and Gert de Lange (SRON Netherlands Organization for Space Research, The Netherlands)

15:20 Design of Millimeter-Wave Wideband Gap Waveguide Transitions Considering Integration Into the Antenna System
Astrid Algaba Brazález (Chalmers University of Technology & Ericsson Research, Ericsson AB, Sweden); Eva Rajo-Iglesias (University Carlos III of Madrid, Spain); Per-Simon Kildal (Chalmers University of Technology, Sweden)

15:40 – 16:10 Coffee Break
Room: Vasco da Gama (Pav 1)

16:10 Alternative Optics Design for the ALMA Band 1 Receiver (35-52 GHz)
Alvaro Gonzalez (National Astronomical Observatory of Japan, Japan); Valeria Tapia and Ricardo Finger (University of Chile, Chile); Shin'Ichiro Asayama (National Astronomical Observatory of Japan, Chile); Ted Huang (ASIAA, Taiwan)

16:30 60-GHz CMOS On-Chip AMC Bandpass-Filtering Spiral Monopole Antenna
Huey-Ru Chuang, Wen-Yi Ruan, Chien-Chang Chou and Yi Wu (National Cheng Kung University, Taiwan)

16:50 Coherent Fourier Optics Representation of Focal Plane Fields
Nuria LLombart, Erio Gandini and Beatriz Blázquez (Delft University of Technology, The Netherlands); Angelo Freni (University of Florence, Italy); Andrea Neto (Delft University of Technology, The Netherlands)

17:10 Implementation of UC-EBG Structure for 60 GHz Gridded Parasitic Patch Stacked Microstrip Antenna
Alexander V Bondarik and Daniel Sjöberg (Lund University, Sweden)

17:30 V-band Side-fed Printed Quasi-Parabolic Reflector Antenna with Beam-Steering
Alister Hosseini and Franco De Flaviis (University of California, Irvine, USA)

17:50 Single-Layer Differentially-Fed Circularly Polarized Aperture Antenna for 60 GHz Applications
Dia'aaldin J. M. Bisharat, Shaowei Liao and Quan Xue (City University of Hong Kong, Hong Kong)

13:40 - 18:10 R1 Array: Array Antennas Antennas/Radars
Room: Bartolomeu Dias (Aud 4)
Chairs: Antonio Clemente (CEA-LETI Minatec, France), Giovanni Toso (European Space Agency, The Netherlands)

13:40 On the Use of Beam-Forming Matrices for Building Overlapped Subarrays with Flat-Topped Radiation Patterns
Sergei Skobelev (Radiophyzika, Russia)

14:00 Radon Transform: a Different Perspective on Planar Array Synthesis
Stefano Mosca (SELEX ES SpA, Italy)

14:20 A Balanced-fed 45° Linearly Polarized Slot Array Antenna Using SIW Technology
Hao Zhou (Southeast University & State Key Lab. of Millimeter Waves, P.R. China); Hong Wei (Southeast University, P.R. China); Ling Tian (University of Southeast, P.R. China); Mei Jiang (Southeast University, P.R. China)

14:40 P-Band Antenna Array for Airborne SAR Application and DBF SAR Demonstration
Markus Limbach, Alberto Di Maria and Bernd Gabler (German Aerospace Center (DLR), Germany); Alicja Kość (German Aerospace Center, Germany); Ralf Horn and Rolf Scheiber (German Aerospace Center (DLR), Germany)

15:00 Frequency Diverse Array with Range-Dependent Transmit Beampattern
Wen-Qin Wang (Department of Electrical and Electronic Engineering, Imperial College London, United Kingdom); Zhi Zheng (UESTC, P.R. China)

15:20 Parallel Plate Mode Suppressed Strip-Line Fed Antenna for CP Phased Array Antenna
Youngsub Kim and Young Joong Yoon (Yonsei University, Korea)

15:40 – 16:10 Coffee Break
Room: Vasco da Gama (Pav 1)

16:10 RF MEMS Based Millimeter Wave Phased Array for Short Range Communication
Omer Bayraktar, Enis Kobal, Yusuf Sevinc, Çağrı Çetintepe, Ilker Comart, Kaan Demirel and Ebru Sagiroglu Topalli (Middle East Technical University, Turkey); Tayfun Akın (Middle Eastern Technical University, Turkey); Şimşek Demir and Ozlem Aydin Civi (Middle East Technical University, Turkey)

16:30 An Optically Controlled Phase Shifter for Antenna Array Beam Steering
Andre Sarker Andy (Queen Mary University of London, United Kingdom); Rostyslav Dubrovka, Theo Kreouzis and Robert Donnan (Queen Mary, University of London, United Kingdom)

16:50 Non-uniform Printed Antenna Array for Wireless Communications in Sports Arenas
Tiago Varum (Universidade de Aveiro - Instituto de Telecomunicações, Portugal); João Matos (Instituto de Telecomunicações, Universidade de Aveiro, Portugal); Pedro Pinho (IT - Instituto de Telecomunicações & ISEL - Instituto Superior de Engenharia de Lisboa, Portugal); Ricardo Abreu (Instituto de Telecomunicações, Portugal)

17:10 Design of High Directivity Compact Parasitic Array for Beam-Steering Applications
Abdul Kaddour (CEA-LETI, Minatec Campus, France); Antonio Clemente (CEA-LETI Minatec, France); Serge Bories (CEA, France); Christophe Delaveaud (CEA-LETI, France)

17:30 Comparison of Phased Array Configurations of Spiral Antennas
Hongzhao Ray Fang and Ramanan Balakrishnan (National University of Singapore, Singapore); Regis Guinvarc'h (SONDRA, Supelec, France); Koen Mouthaan (National University of Singapore, Singapore)

17:50 Broadband Biquad UHF Antenna Array for DOA
Rainer Mueller and Ralf Lorch (AIRBUS Defence & Space, Germany)

13:40 - 15:40 S1 AlphaSat: Alpha-Sat Experiment Propagation/Space
Room: Tristão V Teixeira (Pav 5A)
Chairs: Antonio Martellucci (European Space Agency, The Netherlands), Armando C Rocha (University of Aveiro; Institute of Telecommunications, Portugal)

13:40 Alphasat Q/V-band Propagation Campaign Preparation in Aveiro
Armando C Rocha and Flávio M. da Silva Jorge (Instituto de Telecomunicações, Portugal); João Lima and António Soares (Universidade de Aveiro, Portugal)

14:00 The Ka- And Q-band AlphaSat Ground Station in Vigo
Fernando Machado, Fernando Pérez-Fontán, Vicente Pastoriza and Perfecto Marino (University of Vigo, Spain)

14:20 A DVB-S2 Signal Analyzer for the Alphasat TDP5 Communication Experiment
Harald Schlemmer (Joanneum Research, Austria); Eral Tuerkyilmaz (JOANNEUM RESEARCH Forschungsgesellschaft mbH, Austria); Michael Schmidt (Researcher, Austria); Wilfried Gappmair (Graz University of Technology, Austria); Juan Rivera Castro (ESA, The Netherlands)

14:40 AlphaSat Ka-band and Q-band Receiving Station in Rome: Development, Status and Measurements
Augusto Marziani (Sapienza University of Rome, Italy); Fernando Consalvi (FUB, Italy); Simone Chicarella (Sapienza University of Rome, Italy); Elio Restuccia (ISCOM, Italy); Luigi Amaduzzi and Frank S. Marzano (Sapienza University of Rome, Italy)

15:00 Alphasat Propagation Experiment in Madrid: Quality Assessment of the Measurements
Jose M Riera (Universidad Politécnica de Madrid, Spain); Gustavo Siles and Pedro Garcia-del-Pino (Universidad Politecnica de Madrid, Spain); Ana Benarroch (Universidad Politécnica de Madrid, Spain)

15:20 Rain XPD of Alphasat TDP5 Propagation Signals: Preliminary Analyses and Disdrometer Derivations
Karin Plimon, Félix Cuervo, Guenter Lammer, Guenther Obertaxer and Michael Schönhuber (Joanneum Research, Austria); Juan Rivera Castro (ESA, The Netherlands)

15:40 – 16:10 Coffee Break
Room: Vasco da Gama (Pav 1)

13:40 - 15:40 S4 Multibeam: Multi-beam satellites Antennas/Space

Room: Paulo da Gama (Pav 5B)
Chairs: Cecilia Cappellin (TICRA, Denmark), Enrico Reiche (Airbus DS GmbH, Germany)

13:40 Design of a Push-Broom Multi-Beam Radiometer for Future Ocean Observations
Cecilia Cappellin, Knud Pontoppidan and Per Nielsen (TICRA, Denmark); Niels Skou and Sten Søbjærg (Technical University of Denmark, Denmark); Alexander Ihle (HPS GMBH, Germany); Marianna Ivashina and Oleg Iupikov (Chalmers University of Technology, Sweden); Kees van ,t Klooster (European Space Agency, The Netherlands)

14:00 An Optimal Beamforming Algorithm for Phased-Array Antennas Used in Multi-Beam Spaceborne Radiometers

Oleg Iupikov and Marianna Ivashina (Chalmers University of Technology, Sweden); Knud Pontoppidan, Per Nielsen and Cecilia Cappellin (TICRA, Denmark); Niels Skou and Sten Søbjærg (Technical University of Denmark, Denmark); Alexander Ihle (HPS GMBH, Germany); Dennis Hartmann (HPS-GmbH, Germany); Kees van ,t Klooster (European Space Agency, The Netherlands)

14:20 Wide-Band Compact Antenna Feed for Multi-Beam Satellite Communications
Carlos A Leal-Sevillano (Universidad Politecnica de Madrid, Spain); Jorge A Ruiz-Cruz (Universidad Autonoma de Madrid & Escuela Politecnica Superior, Spain); Jose Ramon Montejo-Garai and Jesus Maria Rebollar (Universidad Politecnica de Madrid, Spain)

14:40 Dual-band (Tx/Rx) Multiple-Beam Reflector Antenna Using a Frequency Selective Sub-Reflector for Ka-band Applications
Nelson Fonseca (European Space Agency, The Netherlands)

15:00 Space Qualification of K/Ka-Band Single Feed Per Beam Feed Chains
Enrico Reiche, Christian Hartwanger, Un Pyo Hong and Ralf Gehring (Airbus DS GmbH, Germany); Helmut Wolf (Airbus Defence and Space & Communications Satellites, Germany)

15:20 A Compact Planar Feed Structure for Ka-Band Satcom-on-the-Move Tracking Antennas
Hendrik Bayer, Alexander Krauss and Ralf Stephan (Technische Universität Ilmenau, Germany); Matthias Hein (Ilmenau University of Technology, Germany)

15:40 – 16:10 Coffee Break
Room: Vasco da Gama (Pav 1)

13:40 - 18:10 W4 PropSim: Propagation Modelling and Simulation Propagation/Wireless Networks

Room: Afonso de Albuquerque (Pav 3B)
Chairs: Cesar Briso (Universidad Politecnica de Madrid ; ETSIS Telecomunicacion, Spain), Enrico M. Vitucci (University of Bologna, Italy)

13:40 Benefits of Variation of Large Scale Fading Across Large Antenna Arrays
Jocelyn Aulin (Huawei Technologies Sweden AB, Sweden)

14:00 Performance of Receiver Spatial Diversity in Peer to Peer Radio Communications Within Vegetation Media
Iñigo Cuiñas and José Antonio Gay-Fernández (University of Vigo, Spain); Javier López-Pérez and Diego Pascual (Universidade de Vigo, Spain)

14:20 Simple Approximation of Power Azimuth Spectrum for Multipath Propagation Environment
Cezary Ziółkowski, Jan M. Kelner, Leszek Nowosielski and Marian Wnuk (Military University of Technology, Poland)

14:40 Evaluation and Proposal on Modified Model for 3GPP Based Indoor Penetration Loss Model
Kentaro Nishimori and Hayate Kimoto (Niigata University, Japan); Tetsuro Imai and Ngochao Tran (NTT DOCOMO, INC., Japan)

15:00 MIMO Dual Polarized Fixed Satellite Systems Above 10GHz Above: Channel Modeling and Outage Capacity Evaluation
Charilaos Kourogiorgas, Athanasios D. Panagopoulos and Pantelis-Daniel Arapoglou (National Technical University of Athens, Greece); Stavros Stavrou (Open University of Cyprus, Cyprus)

15:20 Broadband Radio Communications in Subway Stations and Tunnels
Cesar Briso (Universidad Politecnica de Madrid & ETSIS Telecomunicacion, Spain); Ke Guan (Beijing Jiaotong University, P.R. China); Lei Zhang and Jean Fernandez (Universidad Politecnica de Madrid, Spain)

15:40 – 16:10 Coffee Break
Room: Vasco da Gama (Pav 1)

16:10 A Monte-Carlo Approach to Modeling Radio Propagation by Ray-Tracing
Jan Barowski, Bastian Meiners and Ilona Rolfes (Ruhr-Universität Bochum, Germany)

16:30 Joint Ray Launching Method for Outdoor to Indoor Propagation Prediction Based on Interpolation
Bing Xia (University of Sheffield, United Kingdom); Zhihua Lai (Ranplan Wireless Network Design Ltd, University of Sheffield, United Kingdom); Guillaume Villemaud (Université de Lyon, INRIA, INSA-Lyon, CITI, France); Jie Zhang (University of Sheffield, Dept. of Electronic and Electrical Engineering, United Kingdom)

16:50 WBAN Off-Body Channel Angular Structure Comparison Between SAGE Estimation and Ray Tracing Simulation
Nicolas Amiot (Université Rennes I & Institut d' Electronique et de Télécommunications de Rennes, France); Meriem Mhedhbi (University of Rennes 1, France); Bernard Uguen (University of Rennes I, France); Raffaele D'Errico (CEA, LETI, Minatec Campus & Univ\. Grenoble-Alpes, France)

17:10 Ray Tracing Simulations of Indoor Channel Spatial Correlation for Physical Layer Security
Enrico M. Vitucci (University of Bologna, Italy); Francesco Mani (CEA-LETI, France); Taghrid Mazloum (Telecom ParisTech, France); Alain Sibille (Telecom Paris Tech & ENSTA PARISTECH, France); Vittorio Degli-Esposti (University of Bologna, Italy)

17:30 Propagation Model Based on Building Penetration Loss Measurement for TVWS System
Tomoshige Kan (Tokyo Institute of Technology, Japan); Hirokazu Sawada (NICT, Japan); Jun-ichi Takada (Tokyo Institute of Technology, Japan)

17:50 Incoherent Scattering of Normal Modes in Urban Canyon: Theory and Measurements
Dmitry Chizhik (Bell Laboratories, Alcatel-Lucent, USA); Michael MacDonald (Bell Labs, Lucent Technologies, USA); Reinaldo Valenzuela (Bell Laboratories, Alcatel-Lucent, USA)

13:40 - 15:40 W5 IndoorProp: Indoor Propagation Propagation/Wireless Networks
Room: João G Zarco (Pav 3C)
Chair: Conor Brennan (Dublin City University, Ireland), Fono Vincent (Université du Québec en Outaouais, Canada)

13:40 Advanced Indoor Localisation Based on the Viterbi Algorithm and Semantic Data
Jens Trogh, David Plets and Luc Martens (Ghent University, Belgium); Wout Joseph (Ghent University/iMinds, Belgium)

14:00 Investigation on the Geometric Properties of Multipath Components in Indoor Radio Channels
Bastian Meiners, Jan Barowski, Artur Nalobin and Ilona Rolfes (Ruhr-Universität Bochum, Germany)

14:20 Power Delay Profile Analysis and Modeling of Industrial Indoor Channels
Yun Ai (Gjøvik University College & University of Oslo, Norway); Michael Cheffena and Qihao Li (Gjøvik University College, Norway)

14:40 Electromagnetic Wave Propagation Modeling in a Complex Environment Using Uniform Geometrical Theory of Diffraction
Fono Vincent (Université du Québec en Outaouais, Canada); Larbi Talbi (University of Quebec - Outaouais, Canada); Khelifa Hettak (Communications Research Centre, Canada)

15:00 Radio Frequency Measurements and Capacity Analysis for Industrial Indoor Environments
Yun Ai (Gjøvik University College & University of Oslo, Norway); Michael Cheffena and Qihao Li (Gjøvik University College, Norway)

15:20 A Method of Moments Based Indoor Propagation Model
Ian Kavanagh, Vinh Pham-Xuan, Marissa Condon and Conor Brennan (Dublin City University, Ireland)

15:40 – 16:10 Coffee Break
Room: Vasco da Gama (Pav 1)

13:40 - 15:40 WS2 RFID: Chipless RFID Future and Challenges Scientific Workshop
Room: Diogo de Silves (Room 1.08)
Chair: Mohamed El-Hadidy (University of Duisburg-Essen, Germany)

13:40 A Novel Collision Avoidance MAC Protocol for Multi-Tag UWB Chipless RFID Systems Based on Notch Position Modulation
Mohamed El-Hadidy and Ahmed Elawamry (University of Duisburg-Essen, Germany); Abdelfattah Fawky (M. Sc, Germany); Maher Khaliel and Thomas Kaiser (Universität Duisburg-Essen, Germany)

14:20 Printable Depolarizing Chipless RFID Tag Based on DGS Resonators for Suppressing the Clutter Effects
Maher Khaliel (Universität Duisburg-Essen, Germany); Mohamed El-Hadidy (University of Duisburg-Essen, Germany); Thomas Kaiser (Universität Duisburg-Essen, Germany)

15:00 Smart Notch Detection Techniques for Robust Frequency Coded Chipless RFID Systems
Ahmed Elawamry (University of Duisburg-Essen, Germany); Abdelfattah Fawky (M. Sc, Germany); Mohamed El-Hadidy (University of Duisburg-Essen, Germany); Thomas Kaiser (Universität Duisburg-Essen, Germany)

15:40 – 16:10 Coffee Break
Room: Vasco da Gama (Pav 1)

16:10 - 18:10 C29 BAN: [C] Measurements and Simulations in Channel Modelling in Wireless Body Area Networks Propagation/Biomedical
Room: Pedro A Cabral (Aud 2)
Chairs: Slawomir J. Ambroziak (Gdansk University of Technology, Poland), Carla Oliveira (University of Lisbon, Instituto Superior Tecnico; INOV - INESC, Portugal)

16:10 Miniaturized UWB Implantable Antenna for Brain-Machine-Interface
Kamya Yekeh Yazdandoost (National Institute of Information and Communications Technology, Japan); Ryu Miura (NICT, Japan)

16:30 Realistic Performance Measurement for Body-Centric Spatial Modulation Links
Patrick Van Torre, Thijs Castel and Hendrik Rogier (Ghent University, Belgium)

16:50 Angular Characteristics of the UWB On-to-Off-Body Channel in Indoor Scenarios
Oudomsack Pierre Pasquero (CEA, LETI, Minatec Campus Univ\. Grenoble-Alpes France, France); Raffaele D'Errico (CEA, LETI, Minatec Campus & Univ\. Grenoble-Alpes, France)

17:10 Geometric Modeling of Shadowing Rate for Off-body Propagation During Human Walking
Takahiro Aoyagi (Tokyo Institute of Technology & Graduate School of Decision Science and Technology, Japan); Minseok Kim (Niigata University, Japan); Jun-ichi Takada (Tokyo Institute of Technology, Japan)

17:30 Simplified Human Phantoms for Wireless Body Area Network Modelling
Lukasz Januszkiewicz (Lodz University of Technology, Institute of Electronics, Poland); Slawomir Hausman (Technical University of Lodz, Poland)

17:50 Scenario-based WBAN Channel Characterization in Various Indoor Premises
Christophe Roblin (LTCI, TELECOM ParisTech and CNRS, France); Yunfei Wei (TELECOM ParisTech, France)

16:10 - 18:10 C35 ModeBase: [C] Mode-based strategy for antenna analysis and design Antennas/Multi Applications
Room: Gil Eanes (Aud 3)
Chairs: Dirk Manteuffel (University of Kiel, Germany), Qi Wu (Beihang University, P.R. China)

16:10 Rigorous Eigenmode Analysis of Conducting Sphere
Qi Wu (Beihang University, P.R. China)

16:30 Radiation Pattern Adjustment of A Double Notched Antenna by Using Characteristic Modes Analysis
Shen Wang and Hiroyuki Arai (Yokohama National University, Japan)

16:50 Optimal Placement of PCB-integrated Diversity Elements in a Compact Tunable Handset Antenna
Robert Martens and Dirk Manteuffel (University of Kiel, Germany)

17:10 Antenna Design Via Current Control of Antenna Currents Using Theory of Characteristic Modes
Ezdeen Elghannai and Roberto G. Rojas (The Ohio State University, USA)

17:30 Isosceles Right Triangular Waveguides with Boundary Conditions of Composite Electric and Magnetic Walls
Jing Yang, Lian Liu and Cheng Jin (Beijing Institute of Technology, P.R. China)

17:50 Study of Dipole Antennas' Characteristic Modes Through the Antenna Current Green's Function and the Singularity Expansion Method
Francois Sarrazin (University of Rennes 1, France); Said Mikki (Royal Millitary College of Canada, Canada); Yahia Antar (Royal Military College of Canada, Canada); Philippe Pouliguen (DGA/Direction de la Stratégie, France); Ala Sharaiha (Université de Rennes 1 & IETR, France)

16:10 - 18:10 C37 Mutual: [C] Mutual Coupling Formulation and its Effects in Antenna Systems Antennas/Cellular Communications
Room: Pêro Escobar (Pav 3A)
Chairs: Yahia Antar (Royal Military College of Canada, Canada), Said Mikki (Royal Millitary College of Canada, Canada)

16:10 Aspects of Generalized Electromagnetic Energy Exchange in Antenna Systems: A New Approach to Mutual Coupling
Said Mikki (Royal Millitary College of Canada, Canada); Yahia Antar (Royal Military College of Canada, Canada)

16:30 Study of Mutual Coupling for Patch Antennas with Single-Layer Capacitive Feed and Its Application to Fabry-Pérot Arrays
Adrian Capristan, Darwin Blanco and Eva Rajo-Iglesias (University Carlos III of Madrid, Spain)

16:50 Analysis of Mutual Coupling in Large Arrays of Printed Antennas Using Contour-FFT
Shambhu Nath Jha (ICOMS Detection S.A., Belgium); Simon Hubert (Université Catholique de Louvain & ICTEAM Institute, Belgium); Christophe Craeye (Université Catholique de Louvain, Belgium)

17:10 The Simple Truth About Effects of Mutual Coupling in MIMO Arrays for Single and Multiple Bit Streams in Rich Isotropic Multipath
Per-Simon Kildal (Chalmers University of Technology, Sweden); Xiaoming Chen (Qamcom Research & Technology, Sweden)

17:30 Wideband Decoupling and Tunable Matching Networks for Multi-Port Antennas
Montaha Bouezzeddine (Rheinmain University of Applied Sciences, Germany); Werner L. Schroeder (RheinMain University of Applied Sciences, Germany)

17:50 On the Constrains to Isolation Improvement in Multi-Antenna Systems
Sathya Narayana Venkatasubramanian (Aalto University, Finland); Anu Lehtovuori and Clemens Icheln (Aalto University & School of Electrical Engineering, Finland); Katsuyuki Haneda (Aalto University, Finland)

16:10 - 18:10 C43 PropSat: [C] Results of Ka and Q band propagation campaigns using Alphasat Aldo Paraboni and other Satellites
Propagation/Space
Room: Tristão V Teixeira (Pav 5A)
Chairs: Laurent Castanet (ONERA, France), Antonio Martellucci (European Space Agency, The Netherlands)

16:10 The Aldo Paraboni Scientific Experiment: Ka/Q Band Receiver Station in Hungary
László Csurgai-Horváth, István Rieger and Jozsef Kertesz (Budapest University of Technology and Economics, Hungary)

16:30 Three-Site Ka-Band Diversity Experiment Performed in Slovenia and Austria
Andrej Vilhar, Gorazd Kandus, Arsim Kelmendi and Urban Kuhar (Jozef Stefan Institute, Slovenia); Andrej Hrovat (Jožef Stefan Institute, Slovenia); Michael Schönhuber (Joanneum Research, Austria)

16:50 Propagation Experiments At 20 GHz in Southern Europe to Test High Order Propagation Models
Laurent Castanet and Xavier Boulanger (ONERA, France); Carlo Riva (Politecnico di Milano, Italy); Franz Teschl (Joanneum Research, now with Graz University of Technology, Austria); Jose M Riera (Universidad Politécnica de Madrid, Spain); Armando C Rocha (University of Aveiro & Institute of Telecommunications, Portugal)

17:10 Earth-Space Propagation Data Processing for Ka-band Frequencies and Above
Danielle Vanhoenacker-Janvier (Université catholique de Louvain, Belgium); Xavier Boulanger and Laurent Castanet (ONERA, France); Alberto Graziani and Carlos Pereira (Université Catholique de Louvain, Belgium)

17:30 Use of Microwave Profiler and Ka/Q-band Ground Propagation Terminal for Alphasat ALDO TDP5 Propagation Experiment – First Year of Operation
Félix Cuervo, Karin Plimon and Michael Schönhuber (Joanneum Research, Austria); Vinia Mattioli (He-Space Operations & Sapienza University of Rome, Italy); Antonio Martellucci (European Space Agency, The Netherlands); Juan Rivera Castro (ESA, The Netherlands)

17:50 Preliminary Statistics From the NASA Alphasat Beacon Receiver in Milan, Italy
James Nessel (NASA, USA); Michael Zemba and Jacquelynne Morse (NASA Glenn Research Center, USA); Lorenzo Luini and Carlo Riva (Politecnico di Milano, Italy)

16:10 - 18:10 DS1 Beamform: Beamforming and signal processing
Antennas/Defense and Secutity
Room: João G Zarco (Pav 3C)
Chairs: Michael Jensen (Brigham Young University, USA), Ioannis Kyriakides (University of Nicosia, Cyprus)

16:10 Polarisation-Angle-Delay Estimation for Blind Localisation Approaches Under Multipath Propagation
Stephan Haefner (Technische Universität Ilmenau, Germany); Martin Käske and Reiner S. Thomä (Ilmenau University of Technology, Germany)

16:30 Angle of Arrival Estimation for Moving User Equipment with Application to Indoor Terahertz Communications Using Grid Based Bayesian Filter
Bile Peng, Sebastian Priebe, Sebastian Rey and Thomas Kürner (Technische Universität Braunschweig, Germany)

16:50 Tracking More Targets with Less Antenna: An Investigation Into the Co-array Concept
Jiachen Wang, Hantao Xu, Xuezhi Zheng and Guy A. E. Vandenbosch (Katholieke Universiteit Leuven, Belgium)

17:10 Localization of Multiple Unknown RF Sources by Combining a Power Monitoring Network and a Guided Moving Sensor Under Constraints
Ioannis Kyriakides (University of Nicosia Research Foundation, Cyprus); Konstantinos Gotsis (Aristotle University of Thessaloniki, Greece); John Sahalos (Aristotle University of Thessaloniki, GR, Thessaloniki & University of Nicosia, CY, Nicosia, Greece)

17:30 Compact Beam Forming Network of a Switched Phased Array
Vincent Jaeck (French-German Research Institute of Saint-Louis, France); Loic Bernard (ISL, France); Kouroch Mahdjoubi (Université de Rennes, France); Ronan Sauleau and Sylvain Collardey (University of Rennes 1, France); Philippe Pouliguen (DGA/Direction de la Stratégie, France); Patrick Potier (DGA/Maîtrise de l'Information, France)

17:50 Optimal Array Signaling for Key Establishment in Static Multipath Channels
Rashid Mehmood, Jon Wallace and Michael Jensen (Brigham Young University, USA)

16:10 - 18:10 MA3 PrintElem: Printed elements, baluns and associated circuits

Antennas/Multi Applications
Room: Paulo da Gama (Pav 5B)
Chairs: Paola Pirinoli (Politecnico di Torino, Italy), Hao Xin (University of Arizona, USA)

16:10 Square-shape Fully Printed Chipless RFID Tag and Its Applications in Evacuation Procedures
Diego Betancourt (TU Dresden, Germany); Raji Sasidharan Nair (Technische Universität Dresden, Germany); Katherina Haase, Georg Schmidt, Maxi Bellmann, Daniel Höft and Arved Hübler (TU Chemnitz, Germany); Frank Ellinger (Dresden University of Technology, Germany)

16:30 A Novel Design of Miniaturized Power Divider and Branch Coupler Using Interdigital Circuit
Bin Li (Chinese Academy of Space Technology, Xi'an, P.R. China)

16:50 Efficient Probe Excitation of Dielectric Image Line Using Substrate Integrated Waveguide Based Matching Network
Chandra Prasad and Soumava Mukherjee (Indian Institute of Technology Kanpur, India); Animesh Biswas (IIT Kanpur, India)

17:10 New Compact Design for Short Range Wireless Power Transmission At 1GHz Using H-Slot Resonators
Sherif Sayed Ahmed Salah Hekal (Egypt-Japan University of Science and Technology & Faculty of Engineering at Shoubra - Benha University, Egypt); Adel Bedair (Egypt-Japan University of Science and Technology, Egypt)

17:30 Hybridization Strategy for Microstrip Antenna Optimization
Linh Ho Manh and Marco Mussetta (Politecnico di Milano, Italy); Paola Pirinoli (Politecnico di Torino, Italy); Riccardo Enrico Zich (Politecnico di Milano, Italy)

17:50 Miniaturization of Microwave Components and Antennas Using 3D Manufacturing
Jonathon O'Brien, Maria Cordoba Erazo, Eduardo Rojas, Juan Castro, Mohamed Abdin, Jing Wang and Gokhan Mumcu (University of South Florida, USA); Kenneth Church and Paul Deffenabugh (Sciperio, Inc., USA); Thomas Weller (University of South Florida, USA)

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09:00 - 10:40 Bi5 PropBio: Propagation in Biomedical Environments
Propagation/Biomedical
Room: Bartolomeu Dias (Aud 4)
Chairs: Andrea Ruaro (Technical University of Denmark; GN ReSound A/S, Denmark), Alain Sibille (Telecom Paris Tech; ENSTA PARISTECH, France)

09:00 Exposure Assessment of Stray Electromagnetic Fields Generated by a Wireless Power Transfer System
Rosanna Pinto (Technical Unit of Radiation Biology and Human Health, ENEA, Italy); Manuele Bertoluzzo (Department of Industrial Engineering, University of Padova, Italy); Vanni Lopresto (Technical Unit of Radiation Biology and Human Health, ENEA, Italy); Sergio Mancini (Technical Unit of Radiation Biology and Human Health, Italy); Caterina Merla (Technical Unit of Radiation Biology and Human Health, ENEA, Italy); Giovanni Pede and Antonino Genovese (Technical Unit for Advanced Technologies for Energy and Industry, ENEA, Italy); Giuseppe Buja (Department of Industrial Engineering, University of Padova, Italy)

09:20 Simulation of Microwave Transmission Measurements of the Human Heart
Marcel Seguin, Jeremie Bourqui and Elise Fear (University of Calgary, Canada); Michal Okoniewski (University of Calgary & Acceleware Ltd, Canada)

09:40 Analysis of Dependence of Signal Propagation Loss on Poses in Intra-Body Communication
Ibuki Yokota (Kyoto Institute of Technology, Japan); Yuichi Kado (Kyoto Institute of Technology & Graduate School of Science and Technology, Japan); Masaki Ishida (Kyoto Institute of Technology, Japan)

10:00 On the Applicability of Pathloss Model to Predict RF Human Exposure
Sandra Gomez (Télécom Bretagne, France); Patrice Pajusco (TELECOM Bretagne, France); Christian Person (Télécom Bretagne, France)

10:20 Analysis of Electric Field Spatial Variability in Simulations of Electromagnetic Waves Exposure to Mobile Telephony Base Stations
Mame Lo-Ndiaye and Nicolas Noé (Centre Scientifique et Technique du Bâtiment, France); Pierre Combeau (XLIM University of Poitiers, France); Yannis Pousset (Université de Poitiers, France); François Gaudaire (Centre Scientifique et Technique du Bâtiment, France)

10:40 – 11:10 Coffee Break
Room: Vasco da Gama (Pav 1)

09:00 - 12:50 C10 60GHz: [C] Antenna technologies for fixed wireless access at 60 GHz and above
Antennas/High Data-rate Transfer
Room: Gonçalo V Cabral (Pav 5C)
Chairs: Jiro Hirokawa (Tokyo Institute of Technology, Japan), Per-Simon Kildal (Chalmers University of Technology, Sweden)

09:00 60 GHz Slot Antenna Array Based on Ridge Gap Waveguide Technology Enhanced with Dielectric Superstrate
Husseint Attia, Milad Sharifi Sorkherizi and Ahmed Kishk (Concordia University, Canada)

09:20 A Self-Supported Hat-Fed Reflector Antenna for 60 GHz Frequency Band
Alireza Motevasselian (LEAX Arkivator Telecom, Sweden); Tomas Östling (Arkivator AB, Sweden)

09:40 60-GHz Multi-layer Multi-beam Slotted Waveguide Array Made by Diffusion Bonding Technique
Karim Tekkouk (University of Rennes1, France); Ronan Sauleau (University of Rennes 1, France); Mauro Ettorre (University of Rennes 1 & UMR CNRS 6164, France); Makoto Sano and Makoto Ando (Tokyo Institute of Technology, Japan)

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10:00 Designs of Plate-laminated Waveguide Slot Array Antennas for 60GHz and Above
Jiro Hirokawa, Satoshi Ito, Tatsuya Yamamoto, Miao Zhang and Makoto Ando (Tokyo Institute of Technology, Japan)

10:20 Analysis of Large Planar 60 GHz Array Including Microstrip-Ridge Gap Waveguide Distribution Network Using Modular Approach
Esperanza Alfonso (Gapwaves AB, Gothenburg, Sweden); Seyed Ali Razavi (Graduate University of Advanced Technology, Kerman, Iran); Liangliang Xiang (Huawei, Shanghai, P.R. China); Haiguang Chen (Huawei Technologies Sweden AB, Gothenburg, Sweden)

10:40 – 11:10 Coffee Break
Room: Vasco da Gama (Pav 1)

11:10 120-GHz-band Wireless Link Antenna Technologies for Polarization Multiplexing
Akihiko Hirata (NTT Corporation & NTT Device TechnologyLaboratories, Japan); Jun Takeuchi (NTT Corporation, Japan)

11:30 A New 2x2 Microstrip Patch Sub-array for 60GHz Wideband Planar Antenna with Ridge Gap Waveguide Distribution Layer
Ashraf Uz Zaman and Per-Simon Kildal (Chalmers University of Technology, Sweden)

11:50 Active Reconfigurable Luneburg Lens At 60GHz
Olivier Lafond (IETR, France); Mohamed Himdi (Université de Rennes 1, France); Jonathan Bor (IETR - University of Rennes 1, France); Hervé Merlet and Philippe Le Bars (Canon CRF, France)

12:10 Deployment Considerations for 60 GHz Backhaul Using Smart Street Furniture
Lars Manholm (Ericsson Research, Sweden); Jonas Fridén and Bengt-Erik Olsson (Ericsson AB, Sweden)

12:30 A Study of Interference Canceller for DDD System on Millimeter-Wave Band Fixed Wireless Access System
Kazuya Kojima, Toru Taniguchi, Masatoshi Nagayasu and Yasuhiro Toriyama (Japan Radio Co., Ltd., Japan); Miao Zhang (Tokyo Institute of Technology, Japan)

12:50 – 14:00 Lunch Break
Room: Restaurant Espaço Tejo

09:00 - 12:50 C30 MiMed1: [C] Methodologies and modelling for EMF in medical diagnostics and therapy (MiMed)
Propagation/Biomedical
Room: Pedro A Cabral (Aud 2)
Chairs: Yifan Chen (South University of Science and Technology of China, P.R. China), Lorenzo Crocco (CNR - National Research Council, Italy)

09:00 Volume Integral Equation Formulation for Medical Applications
Mina Bjelogrlic, Michael Mattes and Ioannis D Koufogiannis (EPFL, Switzerland); Santiago Capdevila (EPFL & École Polytechnique Fédérale de Lausanne, Switzerland); Juan R Mosig (Ecole Polytechnique Federale de Lausanne, Switzerland)

09:20 A Unidirectional Wideband Printed Quasi-Yagi Antenna for Microwave Breast Imaging
Constantine G. Kakoyiannis, Irene Karanasiou and Maria Koutsoupidou (Institute of Communication and Computer Systems, National Technical University of Athens, Greece); Nikolaos Uzunoglu (School of Electrical and Computer Engineering, National Technical University of Athens, Greece)

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09:40 Non-Invasive Microwave Lung Water Monitoring: Feasibility Study
Jochen Moll (Goethe University Frankfurt am Main, Germany); Jan Vrba (Faculty of Biomedical Engineering, Czech Technical University in Prague, Czech Republic); Ilja Merunka and Ondrej Fiser, Jr. (Czech Technical University in Prague & Faculty of Electrical Engineering, Czech Republic); Viktor Krozer (Goethe University of Frankfurt am Main, Germany)

10:00 Initial Study for Detection of Multiple Lymph Nodes in the Axillary Region Using Microwave Imaging
Raquel C. Conceição (Institute of Biomedical Engineering, University of Oxford & Instituto de Biofísica e Engenharia Biomédica, Faculdade de Ciências, Universidade de Lisboa, United Kingdom); Ricardo Eleutério (Instituto Biofisica e Engenharia Biomedica Fac Ciencias Univ Lisboa, Portugal)

10:20 Microwave Breast Imaging Based on an Optimized Two-step Iterative Shrinkage/ Thresholding Method
Zhenzhuang Miao (KING'S COLLEGE LONDON, United Kingdom); Panagiotis Kosmas (King's College London, United Kingdom)

10:40 – 11:10 Coffee Break
Room: Vasco da Gama (Pav 1)

11:10 Design and Modeling of a Microwave Imaging System for Breast Cancer Detection
Jorge Tobon Vasquez (Politecnico di Torino, Italy); Elia Attardo (Altair Engineering GmbH, Germany); Gianluca Dassano, Francesca Vipiana, Mario Roberto Casu, Marco Vacca, Azzurra Pulimeno and Giuseppe Vecchi (Politecnico di Torino, Italy)

11:30 A Comparative Study of Coherent Time Reversal Minimum Variance Beamformers for Breast Cancer Detection
Md Delwar Hossain (Faculty of Engineering and IT, University of Technology Sydney (UTS), Australia); Ananda Sanagavarapu Mohan (University of Technology Sydney (UTS), Australia)

11:50 Super-resolution Microwave Imaging: Time-domain Tomography Using Highly Accurate Evolutionary Optimization Method
Fan Yang and Yifan Chen (South University of Science and Technology of China, P.R. China); Rui Wang (The South University of Science and Technology of China, P.R. China); Qingfeng Zhang (South University of Science and Technology of China, P.R. China)

12:10 Numerical Heterogeneous Breast Phantoms with Different Resolutions
Nemanja Milosevic (University of Belgrade, France); Marija Nikolic and Branko Kolundzija (University of Belgrade, Serbia); Jasmin Music (WIPL-D, Serbia)

12:30 Criterion for the Optimal Choice of the Treatment Conditions in Magnetic Nanoparticle Hyperthermia: Assesment in 3D Realistic Numerical Head Model
Gennaro Bellizzi (University of Naples Federico II, Italy); Ovidio Mario Bucci (University of Naples, Italy)

12:50 – 14:00 Lunch Break
Room: Restaurant Espaço Tejo

09:00 - 12:50 C4 SimTools: [C] Advances in Commercial Electromagnetic Simulation Tools Antennas/Bridging other Areas
Room: Diogo Cão (Aud 8)
Chairs: Marc Rütschlin (CST AG, United Kingdom), Winfried Simon (IMST GmbH, Germany)

09:00 Making Better Antenna Design Choices with Antenna Magus
Konrad Brand, Brian K Woods, Thomas Sickel and Daniel Barnard (Magus (Pty) Ltd, South Africa)

09:20 The XPU Technology for Fast and Efficient FDTD Simulations Using Modern CPUs Cache Memory Bandwidth
Winfried Simon and Andreas Lauer (IMST GmbH, Germany); Andreas Wien (IMST, Germany)

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09:40 The Antenna Toolbox for Matlab (AToM)
Pavel Hazdra, Miloslav Capek and Milos Mazanek (Czech Technical University in Prague, Czech Republic); Zbynek Raida (Brno University of Technology, Czech Republic); Jaroslav Rymus (MECAS ESI, Czech Republic)

10:00 Overview of Recent Advances in the Electromagnetic Field Solver FEKO
Andrés G. Aguilar (Altair Engineering GmbH, Germany); Johann van Tonder and Ulrich Jakobus (Altair Development S.A. (Pty) Ltd, South Africa); Frank Illenseer (Altair Engineering GmbH, Germany)

10:20 State of the Art Antenna Simulation with CST STUDIO SUITE
Marc Rütschlin (CST AG, United Kingdom); Tilmann Wittig (CST AG, Germany)

10:40 – 11:10 Coffee Break
Room: Vasco da Gama (Pav 1)

11:10 SEMCAD X Matterhorn: A Novel Approach to Achieve Realism in Highly Complex Environments
Nicolas Chavannes (Schmid and Partner Engineering AG, Switzerland)

11:30 Mesh Assembly Framework for Hybrid 3D FEM/FEBI/MoM Electromagnetic Simulations
Lars Eric Rickard Petersson, Matthew Commens and Ravi Sundaram (ANSYS, Inc., USA)

11:50 WIPL-D: Advances in EM Simulation
Branko Kolundzija and Miodrag Tasic (University of Belgrade, Serbia); Milos Pavlovic (WIPL-D DOO, Serbia)

12:10 New Fast and Robust Modelling Algorithms for Electrically Large Antennas and Platforms
Erik Jørgensen (TICRA, Denmark); Oscar Borries (Technical University of Denmark & TICRA, Denmark); Peter Meincke and Min Zhou (TICRA, Denmark); Niels Vesterdal (Ticra, Denmark)

12:30 GPU Advancements Reduce Simulation Times for 25 GHz Automotive Radar Models
Jeff Barney (Remcom, Inc., USA)

12:50 – 14:00 Lunch Break
Room: Restaurant Espaço Tejo

09:00 - 10:40 CC4 OTA: Over the Air (OTA) Testing in Antennas and Multiple Devices Measurements/Cellular Communications
Room: Pêro Escobar (Pav 3A)
Chairs: Jan Carlsson (SP Technical Research Institute of Sweden, Sweden), Anton Skårbratt (Bluetest AB, Sweden)

09:00 Measuring User-Induced-Randomness to Evaluate Smart Phone Performance in Real Environments
Per H. Lehne (Telenor Research, Norway); Kashif Mahmood (Telenor ASA, Norway); Andrés Alayon Glazunov (Chalmers University of Technology, Sweden); Pål R. Grønsund (Telenor & University of Oslo, Norway); Per-Simon Kildal (Chalmers University of Technology, Sweden)

09:20 802.11p Measurements in Reverberation Chamber
Anton Skårbratt and Robert Rehammar (Bluetest AB, Sweden)

09:40 Investigation of Mode Stirring with Plates on Platform in a Reverberation Chamber
Madeleine Kildal (Chalmers University of Technology & Bluetest AB, Sweden); Xiaoming Chen (Qamcom Research & Technology, Sweden); Per-Simon Kildal (Chalmers University of Technology, Sweden); Jan Carlsson (SP Technical Research Institute of Sweden, Sweden)

10:00 An Experimental Reconfigurable OTA Chamber
Rashid Mehmood, Jon Wallace and Michael Jensen (Brigham Young University, USA)

10:20 Testing of LTE Devices in Transmit Diversity Enabled System Using Reverberation Chamber
Charlie Orlenius, Anton Skårbratt, Christian Lötbäck and Patrik Svedjenäs (Bluetest AB, Sweden)

10:40 – 11:10 Coffee Break
Room: Vasco da Gama (Pav 1)

09:00 - 12:50 MA13 Scattering: Scattering and Diffraction
Propagation/Multi Applications
Room: Gil Eanes (Aud 3)
Chairs: Thomas Dallmann (RWTH Aachen University, Germany), Vinh Pham-Xuan (Dublin City University, Ireland)

09:00 Cloaking a Bump Inside a Single Isotropic Lossless Dielectric
Constantinos A Valagiannopoulos (Aalto University, Finland); Nikolaos L. Tsitsas (Aristotle University of Thessaloniki, Greece); Ari Sihvola (Aalto University, Finland)

09:20 Thin Diffraction Grating Technology
Andrew Thain (Airbus Group Innovations, France); Anass Jaber (Serma Ingénierie, France); Yannick Platon, Alexandre Hervé and Gilles Peres (Airbus Group Innovations, France); Bruno Pasquier (Airbus Group Innovation, France); Laurent Evain (Airbus SAS, France); Guillaume Cambon (Airbus - SAS, France); François Harly (Airbus, France); Hervé Lenquette and Bertrand Sinigaglia (DGAC, France); Bertrand Spitz (ENAC, France)

09:40 Influence of the Lightning Protection of Blades on the Field Scattered by a Windturbine
Ludovic Claudepierre, Remi Douvenot, Christophe Morlaas and Alexandre Chabory (ENAC, France)

10:00 The Poynting Vector Behavior During the Resonance Scattering of an Obliquely Incident Plane Electromagnetic Wave by a Gyrotropic Cylinder
Vasiliy Es'kin, Alexander Ivoninsky and Alexander Kudrin (University of Nizhny Novgorod, Russia)

10:20 Analysis of Wind Turbines Radar Cross Section for Analyzing the Potential Impact on Weather Radars
Olatz Grande (University of the Basque Country, Spain); Itziar Angulo (University of the Basque Country UPV/EHU & Bilbao School of Engineering, Spain); David Jenn (Naval Postgraduate School, USA); Fernando Aguado (AEMET, Spain); David Guerra and David de la Vega (University of the Basque Country, Spain)

10:40 – 11:10 Coffee Break
Room: Vasco da Gama (Pav 1)

11:10 Efficient Full-Wave Computation of Radar Cross Section for Multiple Source Locations
Vinh Pham-Xuan (Dublin City University, Ireland)

11:30 Absorption and Scattering Properties of a Receiving Patch Antenna
Constant Manouan Aka Niamien (ESIGELEC IRSEEM EA 4353, France); Sylvain Collardey (University of Rennes 1, France); Kouroch Mahdjoubi (Université de Rennes, France)

11:50 A Semi-Analytical Expression for the RCS of a Frustum-Shaped Foam Target Support Structure
Thomas Dallmann and Dirk Heberling (RWTH Aachen University, Germany)

12:10 Solution of Volume Integral Equations with Novel Treatment to Strongly Singular Integrals
Gokhun Selcuk (Middle East Technical University & Aselsan Inc, Turkey); Sinan Kurt (Aselsan Inc. & TOBB ETU University, Turkey); Seyit Koc (Middle East Technical University, Turkey)

12:30 Electromagnetic Scattering From a Buried Cylinder Using T-Matrix and Signal-Flow-Graph Approach
Ayman Negm (Cairo University & Faculty of Engineering, Egypt); Islam Eshrah and Ragia Badr (Cairo University, Egypt)

12:50 – 14:00 Lunch Break
Room: Restaurant Espaço Tejo

09:00 - 12:50 MA15 Multiband: Multiband and wideband antennas
Antennas/Multi Applications
Room: Paulo da Gama (Pav 5B)
Chair: Giuseppe Di Massa (University of Calabria, Italy), María García-Vigueras (Ecole Polytechnique Fédérale de Lausanne, Switzerland)

09:00 Wide Band, Low Profile and Circular Polarized K/Ka Band Antenna
Przemyslaw Gorski and Joana S. Silva (Laboratory of Electromagnetics and Acoustics / École Polytechnique Fédérale de Lausanne & LEMA, Switzerland); Juan R Mosig (Ecole Polytechnique Federale de Lausanne, Switzerland)

09:20 A Wideband Strip-Helical Antenna with a Parasitic Patch
Xihui Tang (Shenzhen University, P.R. China); Yunliang Long (Sun Yat-Sen University, P.R. China)

09:40 A K/Ka/EHF Feed Chain for Dual-Use Telecom
Rodolfo Ravanelli (Thales Alenia Space Italy SpA, Italy); Pierluigi Cecchini (Thales Alenia Space Italia S.p.A., Italy); Roberto Mizzoni (Thales Alenia Space Italia, Italy); Giuseppe Addamo (Istituto di Elettr. e di Ingegneria dell'Inform. e delle Telecom. (IEIIT- CNR), Italy); Oscar Peverini (Istituto di Elettr. e di Ingegneria dell'Inform. e delle Telecom. (IEIIT- CNR), Italy); Riccardo Tascone and Giuseppe Virone (Istituto di Elettr. e di Ingegneria dell'Inform. e delle Telecom. (IEIIT- CNR), Italy)

10:00 Dielectric Wedge Antenna for Pavement Void Detection by Scattering
Stephen Pennock and Hugo Jenks (University of Bath, United Kingdom)

10:20 A Compact Hybrid Dielectric Resonator Antenna with a Meandered Slot Ring and Cavity Backing Offering Wideband Operation
Symon K. Podilchak (Queen's University & The Royal Military College of Canada, Canada); Jonathan Jonstone (Queen's University & Royal Military College of Canada, Canada); Michel Clénet (Defence Research and Development Canada, Canada); Yahia Antar (Royal Military College of Canada, Canada)

10:40 – 11:10 Coffee Break
Room: Vasco da Gama (Pav 1)

11:10 A Design Strategy of Active Matched Small-Antennas with Non-Foster Elements
Fernando Albarracín-Vargas (Universidad Carlos III de Madrid, Spain); Eduardo Ugarte-Muñoz (Universitiy Carlos III in Madrid, Spain); Daniel Segovia-Vargas (Universidad Carlos III de Madrid, Spain); Vicente Gonzalez-Posadas (Universidad Politecnica de Madrid, Spain)

11:30 Wideband Matching of Handset Antenna Ports At Noncontiguous Frequency Bands
Anu Lehtovuori (Aalto University & School of Electrical Engineering, Finland); Janne Ilvonen (Aalto University School of Electrical Engineering, Finland); Risto Valkonen (Christian-Albrechts-Universität zu Kiel, Germany)

11:50 Rotational Design Space Reduction for Cost-Efficient Multi-Objective Antenna Optimization
Slawomir Koziel (Reykjavik University, Iceland); Adrian Bekasiewicz (Gdansk University of Technology, Poland)

12:10 Dual-Polarized Patch Antenna for Virtual Antenna Array Based Radio Channel Measurements At 10 GHz
Marko Tapani Sonkki, Veikko Hovinen and Nuutti Tervo (University of Oulu, Finland); Cláudio Dias (Universidade Estadual de Campinas, Brazil); Juha Meinilä (Elektrobit Corporation, Finland); Antti Roivainen (Centre for Wireless Communications, Finland)

12:30 Wideband and Compact Fabry-Perot Cavity Antenna Using a Dual-Layer Periodic Planar Structure
Antonio Costanzo, Sandra Costanzo and Giuseppe Di Massa (University of Calabria, Italy)

12:50 – 14:00 Lunch Break
Room: Restaurant Espaço Tejo

09:00 - 10:40 MA4 EMI/EMC: EMI/EMC/PIM Chamber design, measurement and instrumentation
Measurements/Multi Applications
Room: João G Zarco (Pav 3C)
Chair: Sebastien Lalléchère (Blaise Pascal University, France), Vince Rodriguez (MI-Technologies; AMTA Board of Directors, USA)

09:00 An Ultra-thin Dual-Band Polarization-Independent Metamaterial Absorber for EMI/EMC Applications
Praneeth Munaga and Saptarshi Ghosh (Indian Institute of Technology Kanpur, India); Somak Bhattacharyya (G-207, HALL7, IIT KANPUR & Indian Institute of Technology, Kanpur, India); Devkinandan Chaurasiya (IITK, India); Kumar Vaibhav Srivastava (Indian Institute of Technology, Kanpur, India)

09:20 Improvement on Radiation Characteristics of Bow-Tie Antenna for EMI Measurement
Kazuki Kanai, Masaki Nagasawa and Ryosuke Suga (Aoyama Gakuin University, Japan); Takenori Yasuzumi (Toshiba Corporation, Japan); Tomoki Uwano and Osamu Hashimoto (Aoyama Gakuin University, Japan); Yukihisa Hasegawa (Toshiba Corporation, Japan)

09:40 A New Measurement Technique and Experimental Validations in Determination SAR of N-Antenna Transmitters Using Scalar E-Field Probes
Dinh Thanh Le (Le Quy Don Technical University, Vietnam); Lira Hamada and Soichi Watanabe (National Institute of Information and Communications Technology, Japan)

10:00 Experimental S-parameters Statistics Under Uncertain Loads Constraints
Sebastien Lalléchère and Sébastien Girard (Blaise Pascal University, France)

10:20 Utilizing Gain Interpolation for the Removal of Near-field Coupling Effects During EMC Antenna Calibrations
Dennis Lewis (Boeing, USA); Vince Rodriguez (MI-Technologies & AMTA Board of Directors, USA); Sandra Fermiñán Rodríguez (ETS-Lindgren, Germany)

10:40 – 11:10 Coffee Break
Room: Vasco da Gama (Pav 1)

09:00 - 12:50 S5 ArraySpace: Array Antennas for Space
Antennas/Space
Room: Tristão V Teixeira (Pav 5A)
Chair: Cyril Mangenot (European Space Agency, The Netherlands), Robert Shaw (CSIRO, Australia)

09:00 Design of Wideband, Wide-Scan Planar Arrays by Combining Connected Arrays and Artificial Dielectrics
Waqas Hassan Syed, Daniele Cavallo, Harshita Shivamurthy and Andrea Neto (Delft University of Technology, The Netherlands)

09:20 Compact Dual-Band Dual-Polarized Antenna Array for Robust Satellite Navigation Receivers
Maysam Ibraheam and Safwat Irteza Butt (Ilmenau University of Technology, Germany); Stefano Caizzone and Achim Dreher (German Aerospace Center (DLR), Germany); Ralf Stephan (Technische Universität Ilmenau, Germany); Matthias Hein (Ilmenau University of Technology, Germany)

09:40 Prototype 32 Elements Beam Forming Network for 21-GHz Band Broadcasting Satellite
Susumu Nakazawa (NHK, Japan); Masafumi Nagasaka (NHK Science & Technology Research Laboratory, Japan); Masashi Kamei (NHK, Japan); Shoji Tanaka (NHK Science and Technical Research Laboratories, Japan); Tomohiro Saito (NHK, Japan)

10:00 2 x 2 Stacked Patch Array with Corporate SIW Feeding Network
Eduardo Garcia-Marin, Jose Luis Masa-Campos and Pablo Sanchez-Olivares (Universidad Autonoma de Madrid, Spain)

10:20 Irregular Quad-Mode Antenna Array: Field-of-View Comparison with the Swedish LOFAR Station
David Prinsloo and Petrie Meyer (Stellenbosch University, South Africa); Rob Maaskant (CHALMERS, Sweden); Marianna Ivashina (Chalmers University of Technology, Sweden)

10:40 – 11:10 Coffee Break
Room: Vasco da Gama (Pav 1)

11:10 Compact Satellite Navigation Antenna Array Using Off-the-Shelf Ceramic Patch Antennas
Safwat Irteza Butt, Matthias Hein and Maysam Ibraheam (Ilmenau University of Technology, Germany); Ralf Stephan (Technische Universität Ilmenau, Germany); Thomas Harz and Yury Bulbin (AntennenTechnnik Badblankenburg, Germany)

11:30 Transistor Noise Characterization for an SKA Low- Noise Amplifier
Stuart G Hay (CSIRO ICT Centre, Australia); Robert Shaw (CSIRO, Australia)

11:50 Simultaneous Radiation of Narrow and Wide Beams Exploiting Two Concentric Isophoric Sparse Arrays
Ovidio Mario Bucci (University of Naples, Italy); Stefano Perna (Università degi Studi di Napoli Parthenope, Italy); Daniele Pinchera (University of Cassino & University of Naples, Federico II, Italy)

12:10 Shaped Beam Synthesis of Arrays of Real Antennas Via Phase Retrieval and Convex Programming
Jose Ignacio Echeveste (Universidad Politecnica de Madrid & ETSI de Telecomunicacion, Spain); Miguel A. González (Universidad Politécnica de Madrid, Spain); Jesús Rubio and Rafael Gómez Alcalá (University of Extremadura, Spain)

12:30 Density-Tapered Planar Arrays for Multibeam and Shaped Beam Coverage in Satellite Communications
Javier Fondevila-Gómez, Aaron A Salas-Sanchez, Juan Rodríguez-González and Francisco Ares-Pena (University of Santiago de Compostela, Spain)

12:50 – 14:00 Lunch Break
Room: Restaurant Espaço Tejo

09:00 - 12:50 W3 ReconfAnt: Adaptive and reconfigurable antennas
Antennas/Wireless Networks
Room: Afonso de Albuquerque (Pav 3B)
Chairs: Adam Narbudowicz (Dublin Institute of Technology \ RWTH Aachen University, Germany), Alexandru Tatomirescu (Aalborg University, Denmark)

09:00 On Pattern Reconfigurable Antennas Steered by Modulation Scheme
Adam Narbudowicz (Dublin Institute of Technology \ RWTH Aachen University, Germany); Max James Ammann (Dublin Institute of Technology, Ireland); Dirk Heberling (RWTH Aachen University, Germany)

09:20 A Mono, Dual and Triple Band Switchable Metamaterial-based Antenna
Ali Mansoul and Farid Ghanem (Centre de Developpement des Technologies Avancees, Algeria); Mohamed Trabelsi (Ecole Nationale Polytechnique d'Alger, Algeria)

09:40 Reconfigurable Patch Antenna for Wireless Applications
Noman Aftab (UET Lahore, Pakistan); Hassan Tariq Chattha and Yasir Jamal (University of Engineering & Technology Lahore Faisalabad Campus, Pakistan); Abubakar Sharif (GC University Faisalabad, Pakistan); Yi Huang (University of Liverpool, United Kingdom)

10:00 Additively Manufactured Shape Reconfigurable Loop Antennas
Daniel Revier, Christy Saintsing, Manos M. Tentzeris, Kai Yu and H. Jerry Qi (Georgia Institute of Technology, USA)

10:20 Optically Controlled Reconfigurable Antenna Array Based on a Slotted Circular Waveguide
Igor da Costa and Arismar Cerqueira S. Jr. (INATEL, Brazil); Edson Reis (BRADAR, Brazil); Danilo Spadoti (Universidade Federal de Itajubá - UNIFEI, Brazil); João Moreira (BRADAR, Brazil)

10:40 – 11:10 Coffee Break
Room: Vasco da Gama (Pav 1)

11:10 Alternative Duplexing for LTE FDD Using the Theory of Characteristic Modes
Alexandru Tatomirescu and Gert Pedersen (Aalborg University, Denmark)

11:30 Reactively Matched Long Slot Linear Connected Array Antenna
Hernán V. Barba Molina (University of Stuttgart & IEEE, Germany); Jan Hesselbarth (University of Stuttgart & IHF -- Institute of Radio Frequency Technology, Germany)

11:50 Design and Performance Evaluation of a Switched-Beam Antenna Array for 60 GHz WPAN Applications
Marc Imbert (Universitat Politècnica de Catalunya, Spain); Anna Papio Toda and Franco De Flaviis (University of California, Irvine, USA); Luis Jofre (UPC, Spain); Jordi Romeu (Universitat Politècnica de Catalunya, Spain)

12:10 Three Dimensional Microfabricated Broadband Patch and Multifunction Reconfigurable Antennae for 60 GHz Applications
Volkan Hunerli (Middle East Technical University, Turkey); Hema Mopidevi (Utah State University, USA); Engin Cagatay (Institute for Nanoelectronics, Technische Universität München, Germany); Marc Imbert and Jordi Romeu (Universitat Politècnica de Catalunya, Spain); Luis Jofre (UPC, Spain); Bedri Cetiner (Utah State University, USA); Necmi Biyikli (Bilkent University & UNAM, National Nanotechnology Research Center, Turkey)

12:30 Numerical Analysis of Reconfigurable Plasma Antenna Arrays
Anuar Fernandez Olvera (Eindhoven University of Technology, The Netherlands); Davide Melazzi (University of Padova, Italy); Vito Lancellotti (Eindhoven University of Technology, The Netherlands)

12:50 – 14:00 Lunch Break
Room: Restaurant Espaço Tejo

09:00 - 12:50 WS4 Julien: In Memoriam of Julien Perruisseau-Carrier Scientific Workshop
Room: Diogo de Silves (Room 1.08)
Chairs: Sean V Hum (University of Toronto, Canada), Juan R Mosig (Ecole Polytechnique Federale de Lausanne, Switzerland)

09:00 The Orbital Angular Momentum (OAM) Multiplexing Controversy: OAM as a Subset of MIMO
Michele Tamagnone (Ecole Polytechnique Fédérale de Lausanne, Switzerland); Joana S. Silva (Laboratory of Electromagnetics and Acoustics / École Polytechnique Fédérale de Lausanne & LEMA, Switzerland); Santiago Capdevila (EPFL & École Polytechnique Fédérale de Lausanne, Switzerland); Juan R Mosig (Ecole Polytechnique Federale de Lausanne, Switzerland); Julien Perruisseau-Carrier (Ecole Polytechnique Fédérale de Lausanne & EPFL, Switzerland)

10:40 – 11:10 Coffee Break
Room: Vasco da Gama (Pav 1)

11:10 - 12:50 CC5 UrbanProp: Urban Propagation Propagation/Cellular Communications
Room: Pêro Escobar (Pav 3A)
Chairs: Lúcio Studer Ferreira (INOV-INESC; IST - University of Lisbon, Portugal), Claude Oestges (Université Catholique de Louvain, Belgium)

11:10 Investigation of Ray-Tracing Accuracy in Street Cell Environment for High-SHF and EHF Bands
Nobutaka Omaki (NTT DOCOMO INC., Japan); Ngochao Tran, Koshiro Kitao, Tetsuro Imai and Yukihiko Okumura (NTT DOCOMO, INC., Japan); Motoharu Sasaki (NTT Access Network Service Systems Laboratories, Japan); Wataru Yamada (Nippon Telegraph and Telephone Cooporation, Japan)

11:30 Path Loss Characteristics At 800 MHz to 37 GHz in Urban Street Microcell Environment
Motoharu Sasaki (NTT Access Network Service Systems Laboratories, Japan); Wataru Yamada (Nippon Telegraph and Telephone Cooporation, Japan); Takatoshi Sugiyama and Masato Mizoguchi (NTT, Japan); Tetsuro Imai (NTT DOCOMO, INC., Japan)

11:50 Mixed Path Loss Model for Urban Environments
Sajjad Hussain, Dung Trinh and Conor Brennan (Dublin City University, Ireland)

12:10 Joint Ray Launching Method for Indoor to Outdoor Propagation Prediction Based on Ray Aggregation
Bing Xia (University of Sheffield, United Kingdom); Zhihua Lai (Ranplan Wireless Network Design Ltd, University of Sheffield, United Kingdom); Jie Zhang (University of Sheffield, Dept. of Electronic and Electrical Engineering, United Kingdom)

12:30 Path Loss Model and Root Mean Square Delay Spread Characterization of Near-Ground Outdoor UWB Channel
Ahmed M. Al-Samman (Universiti Teknologi Malaysia, Malaysia); Tharek Abdul Rahman (Wireless Communication Centre, Malaysia); Jamal Nasir (COMSATS Institute of Information Technology Abbottabad, Pakistan); Mohd Haizal Jamaluddin (Universiti Teknologi Malaysia, Malaysia); Mohsen Khalily (Wireless Communication Center (WCC) Universiti Teknologi Malaysia (UTM), Malaysia); Muhammad Ramlee Kamarudin (Universiti Teknologi Malaysia, Malaysia)

12:50 – 14:00 Lunch Break
Room: Restaurant Espaço Tejo

Tuesday, April 14

11:10 - 12:50 DS2 PropAeron: Propagation in Aeronautics and Navigation Propagation/Defense and Secutity
Room: João G Zarco (Pav 3C)
Chairs: Uwe-Carsten G. Fiebig (German Aerospace Center (DLR), Germany), Andrew Thain (Airbus Group Innovations, France)

11:10 Radio-Channel Characterization of an Over-Sea Communication
Ismail Ben Mabrouk (University Of Quebec In Outaouais, Canada); José Carlos Reyes (University of Bergen, Bergen, Norway)

11:30 Prediction by Simulation of Performances of RFID Systems in Aeronautic Environments
Alexandre Piche, Richard Perraud and Gilles Peres (Airbus Group Innovations, France)

11:50 Measured Doppler Power Profiles for Air to Ground Radio Links
Nicolas Schneckenburger, Dmitriy Shutin, Jost Thomas and Uwe-Carsten G. Fiebig (German Aerospace Center (DLR), Germany)

12:10 Comparison of Metrics for Clutter Data Comparison
Remi Douvenot (ENAC, France); Vincent Fabbro (ONERA, France); Kevin Elis (CNES, France); Yvonick Hurtaud (DGA/MI, France)

12:30 Stealthy Buildings for Radio Navigation Applications
Andrew Thain (Airbus Group Innovations, France); Anass Jaber (Serma Ingénierie, France); Jerome Robert, Yannick Platon, Alexandre Hervé and Gilles Peres (Airbus Group Innovations, France); Bruno Pasquier (Airbus Group Innovation, France); Laurent Evain (Airbus SAS, France); Guillaume Cambon (Airbus - SAS, France); François Harly (Airbus, France); Hervé Lenquette and Bertrand Sinigaglia (DGAC, France); Bertrand Spitz (ENAC, France)

12:50 – 14:00 Lunch Break
Room: Restaurant Espaço Tejo

11:10 - 12:50 MA16 InvScat: Imaging and Inverse Scattering Propagation/Multi Applications
Room: Bartolomeu Dias (Aud 4)
Chairs: Oleksandr Malyuskin (Queens University Belfast, United Kingdom), Okan Yurduseven (Duke University, USA)

11:10 Sparse Electromagnetic Imaging Using Nonlinear Iterative Shrinkage Thresholding
Abdulla Desmal and Hakan Bagci (King Abdullah University of Science and Technology (KAUST), Saudi Arabia)

11:30 Comparison of Different Reconstruction Algorithms for Image Reconstruction in Metamaterial Aperture Based Imaging System
Okan Yurduseven, Jonah Gollub and Hayrettin Odabasi (Duke University, USA); Mohammadreza Imani (University of Michigan, USA); Guy Lipworth (Duke University, USA); Alec Rose (Evolv Technology, USA); Parker Trofetter and David Smith (Duke University, USA)

11:50 Microwave Imaging and Material Characterization Using Resonantly Loaded Apertures
Oleksandr Malyuskin (Queens University Belfast, United Kingdom); Vincent Fusco (Queen's University Belfast, United Kingdom)

12:10 Polarimetric Target Discrimination for Ultrawideband Radar Imaging
Matthias Röding (Ilmenau University of Technology, Germany); Rudolf Zetik (Technical University Ilmenau, Germany); Reiner S. Thomä (Ilmenau University of Technology, Germany)

12:30 Probe Configuration Study for the Metamaterial Aperture Imager
Okan Yurduseven, Jonah Gollub and Hayrettin Odabasi (Duke University, USA); Mohammadreza Imani (University of Michigan, USA); Guy Lipworth (Duke University, USA); Alec Rose (Evolv Technology, USA); Parker Trofetter and David Smith (Duke University, USA)

12:50 – 14:00 Lunch Break
Room: Restaurant Espaço Tejo

14:00 - 15:00 Poster A1: Antennas Poster Session 1 Antennas
Room: Luís de Camões (Hall 3)
Chairs: David Fernandes (University of Coimbra - Instituto de Telecomunicações, Portugal), Filipa Prudencio (Instituto de Telecomunicacoes, Portugal)

A1.1 On the Stored and Radiated Energy Density
Lukas Jelinek and Miloslav Capek (Czech Technical University in Prague, Czech Republic)

A1.2 FDTD-Compatible Green's Function Based on Scalar Discrete Green's Function and Multidimensional Z-Transform
Tomasz P Stefanski (Gdansk University of Technology, Poland)

A1.3 A Fast Algorithm for the Analysis of Electrically Large Arrays of Plasmonic Nanoparticles with Aperiodic Spiral Order
Muhammad Zubair (Politecnico di Torino, Italy); Matteo Alessandro Francavilla and Marco Righero (Istituto Superiore Mario Boella, Italy); Giuseppe Vecchi (Politecnico di Torino, Italy); Luca Dal Negro (Boston University, USA)

A1.4 Investigation and Comparison Between Radiation Center and Phase Center for Canonical Antennas
Casimir Ehrenborg (Lund University, Sweden); Jonas Fridén (Ericsson AB, Sweden); Gerhard Kristensson (Lund University, Sweden)

A1.5 Spherical Model for Efficient Parametric Analysis of Implanted Antennas in WBAN Applications
Marko Bosiljevac (University of Zagreb, Croatia); Anja K. Skrivervik (EPFL, Switzerland); Zvonimir Sipus (University of Zagreb, Croatia)

A1.6 Method of Moments Analysis of Modulated Metasurface Antennas
David González-Ovejero, Enrica Martini, Francesco Caminita, Maddalena Violetti and Stefano Maci (University of Siena, Italy)

A1.7 Performance of a Novel Miniature Antenna Implanted Into the Human Trunk for Medical Telemetry Applications
Sofia Bakogianni and Stavros Koulouridis (University of Patras, Greece)

A1.8 An Overview of Stored Electromagnetic Energy
Mats Gustafsson (Lund University, Sweden)

A1.9 Application of the Hybrid Projective Methods for Determining Effective Permittivity of Artificial 1D- And 2D-Periodic Dielectric Layers
Olga Smolnikova (Company Radiophyzika, Russia); Sergei Skobelev (Radiophyzika, Russia)

A1.10 Computational Electromagnetic Modeling is Key in Objective Control of Hyperthermia
Gerard C. van Rhoon (Erasmus MC Cancer Institute, The Netherlands); Margarethus M. Paulides (Erasmus University Medical Center, The Netherlands); Tomas Drizdal (Erasmus MC Cancer Institute, The Netherlands)

A1.11 Modal Analysis of Non-Separable Outer-Boundary Cavities Via Spherical Vector Wave Functions
Theodoros Kaifas (Aristotle University of Thessaloniki, Greece); Elias E Vafiadis (Aristotle University of Thessaloniki & Physics Department, Greece); Xenofon Mitsalas (Democritus University of Thrace, Greece); John Sahalos (Aristotle University of Thessaloniki, GR, Thessaloniki & University of Nicosia, CY, Nicosia, Greece); George Kyriacou (Democritus University of Thrace, Greece)

A1.12 Verification & Validation Benchmarks for Assessing and Demonstrating the Credibility of Computational Medical Device Evaluation
Esra Neufeld and Niels Kuster (IT'IS Foundation, ETH Zurich, Switzerland)

A1.13 Optimal Aperture Distribution for Maximum Power Transfer in Planar Lossy Multilayered Matters
Aidin Razavi (Chalmers University of Technology, Sweden); Rob Maaskant (CHALMERS, Sweden); Jian Yang (Chalmers University of Technology, Sweden); Zvonimir Sipus (University of Zagreb, Croatia); Mats Viberg (Chalmers University of Technology, Sweden)

A1.14 On an Indirect Boundary Element Method for the Anisotropic EEG Forward Problem
Axelle Pillain, Lyes Rahmouni and Francesco Andriulli (Ecole Nationale Superieure des Telecomunications de Bretagne, France)

A1.15 Modeling an Extremely Thin Material Sheet Using the Finite-Difference Time-Domain Method
Yaxin Yu and Ching Eng Png (A*STAR Institute of High Performance Computing, Singapore)

A1.16 Stability and Accuracy Analysis of Several FDTD Schemes for Modeling Tellegen Media
Ana Grande (University of Valladolid, Spain); José Pereda (University of Cantabria, Spain); Ismael Barba, Ana Cabeceira and José Represa (University of Valladolid, Spain)

A1.17 Full-Wave Modeling of Stochastic Trees for Radar Cross Section Calculation
Branko Mrdakovic (WIPL-D, Serbia); Dragan I. Olcan and Branko Kolundzija (University of Belgrade, Serbia)

A1.18 A Tilted Subgrid for Two Dimensional FDTD
Chris Railton (University of Bristol & Communications Systems and Networks group, United Kingdom)

A1.19 Field-Circuit Co-Simulation of the Marx Generator
Qian Xu, He Jiang, Yi Huang, Jiafeng Zhou, Chaoyun Song and Lei Xing (University of Liverpool, United Kingdom)

A1.20 Acceleration of the DGF-FDTD Method on GPU Using the CUDA Technology
Tomasz Dziubak (Gdansk University of Technology, Poland); Michal Wiktor (Medical University of Gdansk, Poland); Slawomir Orlowski and Tomasz P Stefanski (Gdansk University of Technology, Poland)

A1.21 Field Computations Through the ACA Algorithm
Rob Maaskant (CHALMERS, Sweden); Vito Lancellotti (Eindhoven University of Technology, The Netherlands)

A1.22 Evaluation of Near-Singularity Cancellation Quadrature Schemes for the Green Function Gradient on Higher-Order Triangles
Matthys M. Botha (Stellenbosch University, South Africa)

A1.23 Novel Source-to-Source Compiler Approach for the Automatic Parallelization of Codes Based on the Method of Moments
Hipólito Gómez-Sousa (University of Vigo, Spain); Manuel Arenaz (University of A Coruña, Appentra Solutions S. L., Spain); Oscar Rubiños-López (University of Vigo, Spain); Jose Martinez Lorenzo (Northeastern University, USA)

A1.24 Numerical Analysis of Avionic Grounding Structures with Surface PEEC Formulation
Mauro Bandinelli and Alessandro Mori (IDS Ingegneria Dei Sistemi S. p. A, Italy); Giulio Antonini and Daniele Romano (University of L'Aquila, Italy); Gian Marco Sammarone (IDS Ingegneria dei Sistemi S.p.A., Italy)

A1.25 Study of Annular Ring Patch Antennas on Anisotropic Substrates by WCIP Method
Valdemir Neto (Universidade Federal Rural do Semi-Árido, Brazil); Cristhianne Vasconcelos and Maria Albuquerque (Federal University of Rio Grande do Norte, Brazil); Adaildo G Dassuncao (Federal University of Rio Grande do Norte & UFRN - CT - DCO, Brazil)

A1.26 The Finite Difference Frequency Domain Method for the Eigenanalysis of Open Periodic Structures
Christos S Lavranos (Democritus University of Thrace, Greece); Panagiotis Theofanopoulos (Democritus Univerrsity of Thrace, Greece); Kyriakos Zoiros (Democritus University of Thrace, Greece); Gerard Granet (Blaise Pascal University, France); George Kyriacou (Democritus University of Thrace, Greece)

A1.27 Comparison of a Fast Probabilistic Propagation Model Against an Analytical Computational-EM Model and Measurements for the Evaluation of Passive RFID Systems
Antonis G Dimitriou and Achilles Boursianis (Aristotle University of Thessaloniki, Greece); Ioannis Markakis (Aristotle Uniersity of Thessaloniki, Greece); Stavroula Siachalou and Theodoros Samaras (Aristotle University of Thessaloniki, Greece); John Sahalos (Aristotle University of Thessaloniki, GR, Thessaloniki & University of Nicosia, CY, Nicosia, Greece)

A1.28 Rigorous Analysis of Deformed Nanowires Using the Multilevel Fast Multipole Algorithm
Bariscan Karaosmanoglu, Akif Yilmaz and Ozgur Ergul (Middle East Technical University, Turkey)

A1.29 Comparison of 3D and 2D Method to Study the Propagation in a U-shaped Valley
Pierrick Hamel, Jean-Pierre Adam and Yannick Béniguel (IEEA, France); Jean-Christophe Joly (CEA, France)

A1.30 Accelerating Frequency Selective Surface Simulations: An Equivalent Circuit Method Versus Computational Electromagnetics Software - Limits and Further Developments
Mélusine Pigeon, Rostyslav Dubrovka, Robert Donnan and Theo Kreouzis (Queen Mary, University of London, United Kingdom)

A1.31 Comments on the Phase Center Computation for Ka-band Planar Lens-Antenna Feeders
Pedro Robustillo (École Polytechnique Fédéral de Lausanne, Switzerland); Joana S. Silva (Laboratory of Electromagnetics and Acoustics / École Polytechnique Fédérale de Lausanne & LEMA, Switzerland); Jorge R. Costa (Instituto de Telecomunicações / ISCTE-IUL, Portugal); Carlos A. Fernandes (Instituto de Telecomunicacoes, Instituto Superior Tecnico, Portugal); Juan R Mosig (Ecole Polytechnique Federale de Lausanne, Switzerland)

A1.32 Spatiotemporal Slabs in Order to Improve Performance in 2D FDTD
Juan Giraldo and Néstor M. Peña (Universidad de los Andes, Colombia); Michel Ney (TELECOM Bretagne Institute, France)

A1.33 Statistical Modeling of Antennas Via a Generalized Stochastic-FDTD Method
Athanasios N. Papadimopoulos, Georgios G. Pyrialakos and Antonios X. Lalas (Aristotle University of Thessaloniki, Greece); Theodoros T. Zygiridis (University of Western Macedonia, Greece); Nikolaos V. Kantartzis (Aristotle University of Thessaloniki, Greece); Christos S. Antonopoulos (Aristotle University of Thessaloniki & ELKE AUTH, Greece); Thomas F. Eibert (Technische Universität München, Germany); Theodoros D. Tsiboukis (Aristotle University of Thessaloniki, Greece)

A1.34 Detuning Effect Study of High-Q Mobile Phone Antennas
Pevand Bahramzy (Aalborg University & Intel Mobile Communications, Denmark); Gert Pedersen (Aalborg University, Denmark)

A1.35 Frequency Tunable and Circular Polarization Switchable Antenna Using Dual Polarized Active Artificial Ground Structure
Bin Liang and Benito Sanz-Izquierdo (University of Kent, United Kingdom); Edward Parker (The University of Kent, United Kingdom); John Batchelor (University of Kent, United Kingdom); Jungang Miao and Ming Bai (Beihang University, P.R. China)

A1.36 On the Design of Generic Matching Networks in Reflective-Type Phase Shifters for Antennas
Pablo Alcon (Universidad de Oviedo, Spain); Nuria Esparza (University of Oviedo, Spain); Luis Fernando Herran and Fernando Las-Heras (Universidad de Oviedo, Spain)

A1.37 Influence of Complementary Split Ring Resonator Dimensions in Ultra Wideband Microstrip Patch Antenna
Isaac Barros Tavares da Silva (Federal Rural University of Semi-Arid, Brazil); Humberto Andrade (Federal University of Semiarid Region & DCAT, UFERSA, Brazil); José Lucas Silva (UFERSA/UFRN, Brazil); Humberto C. C. Fernandes (Federal University of Rio Grande do Norte, Brazil)

A1.38 Application of Transformation Electromagnetics Concept to Delocalize Emissions
Paul-Henri Tichit and Jianjia Yi (IEF - Université Paris Sud, France); Shah Nawaz Burokur and André de Lustrac (Institut d'Electronique Fondamentale - Université Paris-Sud, France)

A1.39 Design of Modulated Metasurface Antennas Based on Elliptical Patches
Marco Faenzi, Mario Junior Mencagli, Enrica Martini, David González-Ovejero and Stefano Maci (University of Siena, Italy)

A1.40 A Triple-Slot Active Reflectarray Cell Using a Ferroelectric Capacitor
Kevin Nadaud (IETR/University of Nantes, France); Raphael Gillard (IETR & INSA, France); Erwan Fourn (INSA of Rennes & IETR, France); Caroline Borderon (IETR/University of Nantes, France); Hartmut Gundel (IREENA, France)

A1.41 Magnetic Near-Field Imaging with a Racemic Array of Helical-Shaped Metallic Wires
Tiago Morgado and Mario Silveirinha (Universidade de Coimbra - Instituto de Telecomunicações, Portugal)

A1.42 Half-massive Ceramics for Antenna Downsizing: Improvement of a Smart Magneto-Dielectric Material with Matching Permeability and Permittivity, and with Enhanced Low-Loss Frequency Range
Emmanuel Le guen (LabSTICC/IETR, France); Jean-Luc Mattei (LabSTICC, France); Anne-Claude Tarot (University of Rennes1, IETR, France)

A1.43 Composite Defect-Mode Superstructures and Wideband EBG Resonator Antennas
Raheel Hashmi, Basit Ali Zeb and Karu Esselle (Macquarie University, Australia)

A1.44 RF Sensor Based on Gap Waveguide Technology in LTCC for Liquid Sensing
Cristina Arenas-Buendia and Francois Gallée (Télécom Bretagne, France); Alejandro Valero-Nogueira (Universidad Politécnica de Valencia, Spain); Christian Person (Lab-STICC/MOM UMR CNRS, France)

A1.45 Wideband High-Impedance Surface Reflector for Low-profile High-Gain UHF Antenna
Nora Mohamed Mohamed-Hicho (Universidad Politécnica de Valencia, Spain); Eva Antonino-Daviu (Universidad Politecnica de Valencia, Spain); Marta Cabedo-Fabrés (Universidad Politécnica de Valencia, Spain); Miguel Ferrando-Bataller (Universidad Politecnica De Valencia, Spain); Daniel Sanchez-Escuderos (Universidad Politécnica de Valencia, Spain)

A1.46 Reconfigurable High-Impedance Metasurfaces with Interwoven Conductor Unit Cell Layouts
Andrea Vallecchi and Richard Langley (University of Sheffield, United Kingdom); Alex Schuchinsky (Queen's University Belfast, United Kingdom)

A1.47 Broadband Circular-polarization Through Optically Active V-shape Chiral Metamaterial
Rajkumar Jaiswar (Université Catholique de Louvain, Belgium); Isabelle Huynen (Université catholique de Louvain, Belgium)

A1.48 C-band Parallel Coupled Bandpass Filter with Harmonic Suppression Using Open Stub and CSRRs
Azzeddin Naghar (department of Teoría de la Señal y Comunicaciones, University of Vigo, Spain, Morocco); Ana Alejos (Universidade de Vigo, Spain); Francisco Falcone (Universidad Publica de Navarra, Spain); Manuel García Sánchez (Universidade de Vigo, Spain)

A1.49 Novel 3D Printed Synthetic Dielectric Materials for Antenna Applications
Shiyu Zhang, Chinwe C Njoku, William Whittow and J (Yiannis) Vardaxoglou (Loughborough University, United Kingdom)

A1.50 A Partially Complementary Chiral Metamaterial Based on a Four-Cranks Resonator
Ismael Barba, Ana Grande and Ana Cabeceira (University of Valladolid, Spain); Gregorio Molina-Cuberos (University of Murcia, Spain); José Represa (University of Valladolid, Spain)

A1.51 All-dielectric Metasurface for Optical Focusing
Elvira Pisano (University of Sannio, Italy); Fabrizio Silvestri (Eindhoven University of Technology & Netherlands Organization for Applied Scientific Research TNO, The Netherlands); Giampiero Gerini (TNO - Defence, Security and Safety, The Netherlands); Vito Lancellotti (Eindhoven University of Technology, The Netherlands); Vincenzo Galdi (University of Sannio, Italy)

A1.52 Design of Metamaterial Based Wide Angle Impedance Matching Layers for Active Phased Arrays
Fabrizio Silvestri (Eindhoven University of Technology & Netherlands Organization for Applied Scientific Research TNO, The Netherlands); Pierluigi Chiusolo (Universitá del Sannio, The Netherlands); Lorenzo Cifola (Thales Nederland, The Netherlands); Roland Bolt and Giampiero Gerini (TNO - Defence, Security and Safety, The Netherlands)

A1.53 Design Aspects of Finite Periodic Transmission Lines Based on Planar Structures
Tomas Zvolensky, Antti V. Räisänen, Juha Ala-Laurinaho and Constantin Simovski (Aalto University, Finland)

A1.54 Efficient Radome Optimization Through the System-by-Design Methodology
Matteo Carlin (University of Trento, Italy); MArco Salucci (ELEDIA Research Center, Italy); Lorenza Tenuti (ELEDIA Research Center, University of Trento, Italy); Paolo Rocca and Andrea Massa (University of Trento, Italy)

A1.55 A 60GHz Passive Repeater Array with Endfire Radiation Based on Metal Groove Unit-Cells
Duo Wang (IETR, INSA de Rennes, France); Raphael Gillard and Renaud Loison (IETR & INSA, France)

A1.56 Spectral Domain Analysis of Double Sided Open Periodic Structures
Sakineh Tooni (Technical University of Munich, Germany); Thomas F. Eibert (Technische Universität München, Germany); Larissa Vietzorreck (Technische Universitaet Muenchen, Germany)

14:00 - 15:00 Poster A2: Antennas Poster Session 2 Antennas
Room: Gil Vicente (Hall 5)
Chairs: María García-Vigueras (Ecole Polytechnique Fédérale de Lausanne, Spain), Ozan Yurduseven (Delft University of Technology, The Netherlands)

A2.1 Resonance Frequency Calculation of Spherical Microstrip Structure Using Hybrid Technique
Adam Kusiek, Rafal Lech, Piotr Kowalczyk and Wojciech Marynowski (Gdansk University of Technology, Poland)

A2.2 Compact Internal Antenna (FICA) for Mobile Handset and WLAN
Reza Najafi (Urmia, Iran)

A2.3 The Design and Analysis of Pyramidal Microstrip Antenna for GPS Application
Deok Kyu Kong (ADD & Yonsei University, Korea); Wan-Lai Roh (MTG, Korea); Young Joong Yoon (Yonsei University, Korea)

A2.4 A Circularly Polarized Stacked Patch Antenna Array for Tracking Applications in S-Band
Farooq A. Tahir and M. Saad Khan (National University of Sciences and Technology, Pakistan)

A2.5 A Flexible Low Cost Fractal-Slot Multiband Antenna for Wireless Applications
Sana Ahmed and Farooq A. Tahir (National University of Sciences and Technology, Pakistan); Hammad Cheema (School of Elect. Engineering and Comp. Science, National Uni. of Science & Technology, Pakistan)

A2.6 Antenna Arrays for Unmanned Aerial Vehicle
Diana Navarro-Méndez (Universidad Politécnica de Valencia & Escuela Politécnica Nacional, Spain); Hon Ching Moy-Li (Universidad Politécnica de Valencia, Spain); Fernando Carrera-Suárez (Universidad Politécnica de Valencia & Escuela Politécnica Nacional, Spain); Miguel Ferrando-Bataller (Universidad Politecnica De Valencia, Spain); Mariano Baquero-Escudero (Universidad Politécnica de Valencia, Spain)

A2.7 An Analysis of Elliptical-Rectangular Patch Structure on Multilayer Non-Confocal Elliptic Cylinders
Rafal Lech and Adam Kusiek (Gdansk University of Technology, Poland)

A2.8 Simulation-Driven Size Reduction of Antenna Structures Using Adjoint Sensitivities and Trust Regions
Adrian Bekasiewicz (Gdansk University of Technology, Poland); Slawomir Koziel (Reykjavik University, Iceland); J. Pieter Jacobs (University of Pretoria, South Africa)

A2.9 Self-Aligned Microstrip-fed Spherical Dielectric Resonator Antenna
Daniel López Cuenca and Jan Hesselbarth (University of Stuttgart & IHF -- Institute of Radio Frequency Technology, Germany)

A2.10 Miniaturized DRA Array for GNSS Applications
Stefano Caizzone and Achim Dreher (German Aerospace Center (DLR), Germany)

A2.11 High Profile Rectangular Dielectric Resonator Antenna Sequentially-fed for Improved Quality Dual Circular Polarization
Baptiste Hornecker (EPFL - LEMA, Switzerland); Juan R Mosig (Ecole Polytechnique Federale de Lausanne, Switzerland)

A2.12 A 60-GHz Coplanar-Waveguide-Fed Slot-Coupled Rectangular DRA Design Using the Theory of Characteristic Modes
Tomás Bernabeu-Jiménez (Universitat Politècnica de València & Instituto de Telecomunicaciones y Aplicaciones Multimedia (ITEAM), Spain); Alejandro Valero-Nogueira and Felipe Vico-Bondía (Universidad Politécnica de Valencia, Spain); Antonio Vila-Jiménez (Universitat Politècnica de València, Spain); Daniel Sanchez-Escuderos (Universidad Politécnica de Valencia, Spain); Francois Gallée (Télécom Bretagne, France)

A2.13 An Improved Simulation Method of Multipactor in High Power Antennas
Yun Li (China Academy of Space Technology Xi an, P.R. China)

A2.14 Extended Low-Profile Planar Lens Antenna with Multilayer Metallic-Hole Array
Daniel Sanchez-Escuderos and Marta Cabedo-Fabrés (Universidad Politécnica de Valencia, Spain); Eva Antonino-Daviu (Universidad Politecnica de Valencia, Spain); Miguel Ferrando-Bataller (Universidad Politecnica De Valencia, Spain)

A2.15 Implementation of Optically Transformed Devices with a Bed of Nails
Oscar Quevedo-Teruel (KTH Royal Institute of Technology, Sweden); Rhiannon C Mitchell-Thomas (University of Exeter, United Kingdom); Jose-Luis Vazquez-Roy, Luis Inclan-Sanchez and Eva Rajo-Iglesias (University Carlos III of Madrid, Spain)

A2.16 Nonlinear Optical Gap Antenna, an Opto-electronic Interface At the Nanoscale
Marie-Maxime Mennemanteuil and Mickaël Buret (Laboratoire Interdisciplinaire Carnot de Bourgogne, France); Alexandre Bouhelier (University of Burgundy, France)

A2.17 Harvesting Thermal Infrared Emission Using Nanodipole Terminated by Traveling Wave Rectifier
Islam Hashem Sayed (North Carolina State University, USA); Nadia Rafat (Cairo University, Egypt); Ezzeldin Soliman (The American University in Cairo, Egypt)

A2.18 Wideband Printed Tapering Quadrifilar Helical Antenna for GNSS
Juan Lei (Xidian University & Queen Mary University of London, P.R. China); Guang Fu (Xidian University, P.R. China); Yang Hao (Queen Mary, University of London, United Kingdom)

A2.19 Wideband Crossover Structure with Double Ring Resonators
Rafal Lech, Wojciech Marynowski and Adam Kusiek (Gdansk University of Technology, Poland); Jerzy Mazur (Gdansk University of Technology,, Poland)

A2.20 Integrated Filtering-Antenna with Controllable Frequency Bandwidth
Chunxu Mao, Steven Gao and Zhengpeng Wang (University of Kent, United Kingdom); Yi Wang (University of Greenwich, United Kingdom); Fan Qin (School of Electronics and Information, Northwestern Polytechnical University, P.R. China); Benito Sanz-Izquierdo (University of Kent, United Kingdom); Qing-Xin Chu (South China University of Technology, P.R. China)

A2.21 Optimum Design of a Miniaturized Onchip Wide Band Power Divider-Combiner Combined with Impedance Transformer
Alireza Shamsafar (University of Calabria, Italy); Elnaz Abaei (Universita Della Calabria, Italy); Hugo Oswaldo Moreno Aviles (Escuela Superior Politecnica de Chimborazo & Universita della Calabria, Ecuador)

A2.22 Integrated Suspended Stripline Structure (SSS) with J-shape Defected Stripline Structure (DSS) to Remove Undesired Signals in Wideband Applications
Zahriladha Zakaria (Universiti Teknikal Malaysia Melaka, Malaysia); Mohamad Ariffin Mutalib (Universiti Teknikal Malaysia Melaka & Hang Tuah Jaya, Malaysia); Sam Weng Yik (UTEM, Malaysia)

A2.23 Analytical Treatment of Microstrip Monopole Antenna with Finite Ground Plane
Anushruti Jaiswal (CARE, IIT Delhi, India); Mahesh Abegaonkar (IIT Delhi, India); Shiban K Koul (Indian Institute of Technology Delhi, India); Srinivasa Rao Zinka (DAIICT, Gandhinagar, India)

A2.24 Characteristic Basis Function Patterns Method for Reflector Antenna Calibration: An Extension to Multiple Frequencies
Ngoy Mutonkole (University of Stellenbosch, South Africa); Dirk de Villiers (Stellenbosch University, South Africa)

A2.25 Geometrical Synthesis of Offset Reflector Antennas Using Local Axis-Displaced Quadric Surfaces
Rafael A. Penchel and Jose R Bergmann (PUC-Rio, Brazil); Fernando Moreira (Federal University of Minas Gerais, Brazil)

A2.26 Equivalent Circuit of a Quadraxial Feed for Ultra-Wide Bandwidth Quadruple-Ridged Flared Horn Antennas
Theunis Beukman and Petrie Meyer (Stellenbosch University, South Africa); Rob Maaskant (CHALMERS, Sweden); Marianna Ivashina (Chalmers University of Technology, Sweden)

A2.27 An All-Metal K-Band Reflector Antenna for a Mechanically Steerable Data Downlink System
Joakim F Johansson, Mattias Viberg and Johan Petersson (RUAG Space AB, Sweden); Per Magnusson (Ruag Space Sweden, Sweden)

A2.28 Transparent Microwave Crossover for Transparent Butler Matrix Using Micro-metal Mesh Conductive Film
Bashir Muhammad Saad (Universiti Teknologi Malaysia & Faculty of Electrical Engineering, Malaysia); Sharul Kamal A. Rahim and Thomas Peter (Universiti Teknologi Malaysia, Malaysia); Mohammad Abedian Kasgari (Wireless Communication Centre, Faculty of Electrical Engineering, Universiti Teknologi Malaysia, Malaysia); Shadi Danesh ((WCC) UniversitiTeknologi Malaysia, UTM, Malaysia)

A2.29 An Investigation of Offset-Fed Beams on the Proposed SKA Dishes with Various Degrees of Shaping
Robert Lehmensiek and Isak Theron (EMSS Antennas (Pty) Ltd, South Africa); Dirk de Villiers (Stellenbosch University, South Africa)

A2.30 Phyllotactic Arrangements of Reflector Mesh Facets to Decrease Grating Lobes
Jean-Christophe Angevain (ESA, The Netherlands); Gonçalo Rodrigues (European Space Agency, The Netherlands); Julian Santiago-Prowald (European Space Agency (ESTEC), The Netherlands); Cyril Mangenot (European Space Agency, The Netherlands); Leri Datashvili (LLB-TUM, Germany)

A2.31 Focal Plane Array Size Reduction for Terahertz Transceivers in Integrated Technology
Erio Gandini, Nuria LLombart and Andrea Neto (Delft University of Technology, The Netherlands)

A2.32 Axially Slotted Antenna on Elliptic Cylinder Coated with Biaxial Anisotropic Material
Abdul-Kadir Hamid (University of Sharjah, UAE)

A2.33 Generation of a Cosecant-Squared Radiation Pattern with a Superstrate-Like Leaky-Wave Antenna
Francesco Scattone (University of Rennes 1 & IETR Institut d'Electronique et de Télécommunications de Rennes, France); Mauro Ettorre (University of Rennes 1 & UMR CNRS 6164, France); Ronan Sauleau (University of Rennes 1, France); Nelson Fonseca (European Space Agency, The Netherlands)

A2.34 Scalar Metasurface Antennas with Tilted Beam
Maciej Smierzchalski (University of Rennes 1, France); Massimiliano Casaletti (University of Siena, Italy); Mauro Ettorre (University of Rennes 1 & UMR CNRS 6164, France); Ronan Sauleau (University of Rennes 1, France); Nicolas Capet (CNES, France)

A2.35 Dual Band Isoflux Ultraflat Meta Antennas
Amagoia Tellechea (Public University of Navarra, Spain); Enrica Martini, David González-Ovejero, Marco Faenzi, Gabriele Minatti and Stefano Maci (University of Siena, Italy)

A2.36 Low-Profile Dual-band Circularly Polarized Microstrip Antenna for GNSS Applications
Faycel Fezai (XLIM University of Limoges, France); Amro A. Nour (University of Limoges-XLIM - UMR CNRS N°7252, France); Thierry Monediere (XLIM-UMR 6172-CNRS, University of Limoges, France); François Torres (University of Limoges-XLIM - UMR CNRS N°7252, France); Regis Chantalat (Center Technology Transfer CISTEME, France)

A2.37 A Single Ka-Band Antenna Aperture for TX and RX Operation Applying a Dual-Layer Partially Reflective Surface
Alexander Krauss, Hendrik Bayer and Ralf Stephan (Technische Universität Ilmenau, Germany); Matthias Hein (Ilmenau University of Technology, Germany)

A2.38 Role of Symmetries in Periodic Leaky-Wave Antennas, with Emphasis on the Double-Asymmetry Case
Amar Al-Bassam (Oststr. 99 & University of Duisburg-Essen, Germany); Simon Otto (University Duisburg-Essen, Germany); Christophe Caloz (Ecole Polytechnique de Montreal, Canada)

A2.39 Dual-polarized One-Dimensional Leaky Wave Antenna
María García-Vigueras (Ecole Polytechnique Fédérale de Lausanne, Spain); Marc Esquius Morote (Ecole Polytechnique Fédérale de Lausanne, Switzerland); Juan R Mosig (Ecole Polytechnique Federale de Lausanne, Switzerland)

A2.40 Low-Profile High-Gain Tilted-Beam Fabry-Perot Antenna
Fan Qin (School of Electronics and Information, Northwestern Polytechnical University, P.R. China); Steven Gao and Chunxu Mao (University of Kent, United Kingdom); Gao Wei, Jiadong Xu and Jianzhou Li (Northwestern Polytechnical University, P.R. China)

A2.41 Periodic and Periodic Phase-Reversal Leaky Wave Antennas in Reduced Permittivity Substrate Integrated Waveguide
Robert Henry (University of Calgary, Canada); Michal Okoniewski (University of Calgary & Acceleware Ltd, Canada)

A2.42 Smart Notch Detection Techniques for Robust Frequency Coded Chipless RFID Systems
Ahmed Elawamry (University of Duisburg-Essen, Germany); Abdelfattah Fawky (M. Sc, Germany); Mohamed El-Hadidy (University of Duisburg-Essen, Germany); Thomas Kaiser (Universität Duisburg-Essen, Germany)

A2.43 Printable Depolarizing Chipless RFID Tag Based on DGS Resonators for Suppressing the Clutter Effects
Maher Khaliel (Universität Duisburg-Essen, Germany); Mohamed El-Hadidy (University of Duisburg-Essen, Germany); Thomas Kaiser (Universität Duisburg-Essen, Germany)

A2.44 A Printed Planar Helix Antenna
Aneesh Kommalapati, Chen Zhao and Sheel Aditya (Nanyang Technological University, Singapore)

A2.45 Suspended-strip Gap Waveguide Coupled-Line Properties for Ka-band Component Design
Antonio Berenguer (Universitat Politecnica de Valencia & Instituto de Telecomunicaciones y Aplicaciones Multimedia, Spain); Mariano Baquero-Escudero and Daniel Sanchez-Escuderos (Universidad Politécnica de Valencia, Spain); Felipe Vico (Universitat Politècnica de València, Spain)

A2.46 Characteristic Mode Based Pattern Reconfigurable Antenna for Mobile Handset
Hui Li (Lund University, Sweden); Rui Ma and John Chountalas (Lund University, Czech Republic); Buon Kiong Lau (Lund University, Sweden)

14:00 - 15:00 Poster P1: Propagation Poster Session 1
Propagation
Room: Fernão M Pinto (Hall 4)
Chairs: Corentin Friedrich (IRCCyN - Ecole Centrale de Nantes, France), Flávio M. da Silva Jorge (Instituto de Telecomunicações ; Universidade de Aveiro, Portugal)

P1.1 Faster Resolution of the 3-D Forward Problems in Microwave Imaging by a Partial-Block BiCGStab Algorithm
Corentin Friedrich (IRCCyN - Ecole Centrale de Nantes, France); Sébastien Bourguignon (Ecole Centrale de Nantes, IRCCyN, France); Jérôme Idier (IRCCyN, France); Yves Goussard (Ecole Polytechnique de Montréal, Canada)

P1.2 Multiple Signal Classification (MUSIC) Method Approach to the Intensity-Only Inverse Reconstruction Based on the Microscopy System
Rui Chen and Xudong Chen (National University of Singapore, Singapore)

P1.3 Stored Grain Spoilage Monitoring Via 3D Microwave Imaging
Mohammad Asefi and Joe LoVetri (University of Manitoba, Canada); Ian Jeffrey (151 Research Inc, Canada); Majid Ostadrahimi (University of Manitoba Winnipeg, Manitoba, Canada); Amer Zakaria (American University of Sharjah, Canada); Colin Gilmore (151 Research Inc, Canada); Paul Card (151 Research Inc., Canada)

P1.4 A Forward Approach to Establish Parametric Scattering Center Models for Complex Targets
Yang He (School of Electronic Information, Wuhan University, P.R. China); Guo-Qiang Zhu (Wuhan University, P.R. China); Si-yuan He and Yun-hua Zhang (School of Electronic Information, Wuhan University, P.R. China)

P1.5 Physical-information Exploitation in Inverse Scattering Approaches for GPR Survey
Lorenza Tenuti (ELEDIA Research Center, University of Trento, Italy); MArco Salucci (ELEDIA Research Center, Italy); Lorenzo Poli (University of Trento, Italy); Giacomo Oliveri (University of Trento & ELEDIA Research Center, Italy); Andrea Massa (University of Trento, Italy)

P1.6 Differential Time-Reversal Tracking Using Independent Component Analysis
Mojtaba Razavian (Isfahan University of Technology, Iran); Mohammad Zoofaghari (University of Amirkabir, Iran); Reza Safian (Isfahan University of Technology, Iran)

P1.7 Ground Penetrating Radar Based on Ultrawideband Time-Reversal Method
Sirous Bahramidashtaki (Salman Farsi University, Iran); Javad Ghalibafan (Iran university of science and Technology, Iran)

P1.8 Comparison of Heuristic UTD Coefficients in an Outdoor Scenario
Diego Tami and Cássio Rego (Federal University of Minas Gerais, Brazil); Dinael Guevara (Francisco de Paula Santander University, Colombia); Andres Navarro (Universidad Icesi, Colombia); Fernando Moreira (Federal University of Minas Gerais, Brazil); Narcis Cardona (Universidad Politecnica Valencia, Spain); Jordi Joan Giménez (Universitat Politècnica de València, Spain)

P1.9 Assessment of the Shadowing Effect Between Windturbines
Ludovic Claudepierre, Remi Douvenot, Alexandre Chabory and Christophe Morlaas (ENAC, France)

P1.10 Electromagnetic Scattering From Impedance-Matched Bodies
Andrey Osipov (German Aerospace Center (DLR), Germany)

P1.11 3D Dielectric Cuboids: An Alternative for High-Resolution Terajets At THz Frequencies
Victor Pacheco-Peña and Miguel Beruete (Universidad Publica de Navarra, Spain); Igor Vladilenovich Minin and Oleg Vladilenovich Minin (Siberian State Academy of Geodesy, Russia)

P1.12 Electromagnetic Characterization of Inhomogeneous Media Using the State Space Method
Davoud Zarifi, Homayoon Oraizi and Mohammad Soleimani (Iran University of Science and Technology, Iran)

P1.13 Indoor RCS Measurement Facility ARCHE 3D: RCS Multi-Calibration Under Spherical Wave
Pierre Massaloux (CESTA, France)

P1.14 Time-Variant Scattering Properties of Wind Turbines
Frank Weinmann and Josef Worms (Fraunhofer FHR, Germany)

P1.15 Radiation of a Source on a Convex NURBS Surface
Manushanker Balasubramanian (Fraunhofer Institute for High Frequency Physics and Radar Techniques, Germany); Alberto Toccafondi and Stefano Maci (University of Siena, Italy)

P1.16 Impact of the Target Supporting Mast in an Indoor RCS Measurement Facility: Computation and Measurement
Pierre Massaloux (CESTA, France); Genevieve Mazemerceur (CEA, France)

P1.17 Assessment of Rain Fade Mitigation Techniques for High Throughput Satellites by a Time Series Synthesizer
Roberto Nebuloni (Ieiit - Cnr, Italy); Carlo Capsoni, Marco Luccini and Lorenzo Luini (Politecnico di Milano, Italy)

P1.18 Low-Cost System Design for Tracking Satellites in Geosynchronous Orbit
Sebastijan Mrak, Urban Kuhar and Andrej Vilhar (Jozef Stefan Institute, Slovenia)

P1.19 Wide-Band Characterization of Antennae Plus Aircraft Platform Patterns in L- And Ka-Band
Martin Schwinzerl (Joanneum Research, Austria); Jost Thomas (German Aerospace Center (DLR), Germany); Fernando Pérez-Fontán (University of Vigo, Spain); Michael Schönhuber (Joanneum Research, Austria); Wei Wang and Michael Walter (German Aerospace Center (DLR), Germany); Tanja Pelzmann and Guenther Obertaxer (Joanneum Research, Austria); Nicolas Floury (ESA, The Netherlands); Roberto Prieto-Cerdeira (European Space Agency, The Netherlands)

P1.20 Slant Path Attenuation At 72.5 and 82.5 GHz
George Brost (Air Force Research Laboratory, USA); Kevin Magde (AFRL, USA)

P1.21 Phase Fluctuations of GPS Signals Associated with Aurora
Irk Shagimuratov (IZMIRAN, Russia); Sergey Chernous (PGI, Russia); Iurii Cherniak and Irina Zakharenkova (WD IZMIRAN, Russia); Ivan Ephishov (IZMIRAN, Russia)

P1.22 Investigation of Electromagnetic Wave Propagation Through One-Dimensional Plasma Array
Teruki Naito, Kazuo Yamamoto, Shingo Yamaura, Tai Tanaka and Hayato Ogino (Mitsubishi Electric Corporation, Japan); Osamu Sakai (Kyoto University, Japan)

P1.23 Diffraction-induced Early-Time Diffusion of Pulses Propagating Through Scattering Random Media
Elizabeth Bleszynski (Monopole Resesarch, USA); Marek Bleszynskiu (Monopole Resaearch, USA); Thomas Jaroszewicz (Monopole Research, USA)

P1.24 Measurements of Horizontal Variations of Radio Refractivity – First Results
Pavel Valtr (Faculty of Electrical Engineering, Czech Technical University in Prague, Czech Republic); Pavel Pechac (Czech Technical University in Prague, Czech Republic); Martin Grabner (Czech Metrology Institute, Czech Republic)

P1.25 Spatial Correlation of Vertical Gradient of Refractivity on Large Scales
Martin Grabner (Czech Metrology Institute, Czech Republic); Pavel Pechac (Czech Technical University in Prague, Czech Republic); Pavel Valtr (Faculty of Electrical Engineering, Czech Technical University in Prague, Czech Republic)

P1.26 An Explicit FDTD Scheme for Simulation of Electromagnetic Propagation in Magnetized Cold Plasmas
Yaxin Yu (A*STAR Institute of High Performance Computing, Singapore); Dongying Li (Shanghai Jiaotong University, P.R. China); Qian Li and Ching Eng Png (A*STAR Institute of High Performance Computing, Singapore)

P1.27 Heating Properties of the Resonant Cavity Applicator with Ultrasound Monitoring System for Effective Hyperthermia Treatments
Keito Nakamura (Graduate School of Meiji University, Japan); Yasuhiro Shindo and Kazuo Kato (Meiji University, Japan)

P1.28 Sensitivity of Tropospheric Scintillation Models to the Accuracy of Radiosonde Data
Carlos Pereira (Université Catholique de Louvain, Belgium); Danielle Vanhoenacker-Janvier (Université catholique de Louvain, Belgium); Chiara Ghiringhelli (Polimi, Italy)

P1.29 UHF Antenna Design for the Estimation of Fiber Density of Steel Fiber Reinforced Concrete
Marta Sanchez, Iván Peña, Amaia Arrinda, David Guerra and Unai Gil (University of the Basque Country, Spain)

P1.30 High Resolution DOA Estimation for the Air, Marine, and Land Platforms
Ömer Faruk Kip (Gate Electronic Industry and Trade Inc., Turkey); Ozgur Sutcuoglu (GATE Elektronik A. S., Turkey); Okyanus Tulgar and Kadir Durgut (Gebze Technical University & Gate Electronic Industry and Trade Inc., Turkey)

P1.31 A Novel Collision Avoidance MAC Protocol for Multi-Tag UWB Chipless RFID Systems Based on Notch Position Modulation
Mohamed El-Hadidy and Ahmed Elawamry (University of Duisburg-Essen, Germany); Abdelfattah Fawky (M. Sc, Germany); Maher Khaliel and Thomas Kaiser (Universität Duisburg-Essen, Germany)

14:00 - 15:00 WS5 R&S: Antenna Measurements at Rohde & Schwarz: The New Test Antenna Chamber Industrial Workshop
Room: Diogo de Silves (Room 1.08)

15:00 - 16:20 Inv_1A: Invited Speakers Session 1A
Room: Diogo Cão (Aud 8)
Chair: Luca Salghetti Drioli (European Space Agency-ESTEC, The Netherlands)

15:00 Holographic Principles in Antenna Metrology At Millimeter and Submillimeter Wavelengths
Antti V. Räisänen and Juha Ala-Laurinaho (Aalto University, Finland)

15:40 Factors Limiting the Upper Frequency of mm-Wave Spherical Near-field Test Systems
Daniel Janse van Rensburg (Member & Near-field Systems Inc, USA)

16:20 – 16:50 Coffee Break
Room: Vasco da Gama (Pav 1)

15:00 - 16:20 Inv_1B: Invited Speakers Session 1B
Room: Pedro A Cabral (Aud 2)
Chair: Danielle Vanhoenacker-Janvier (Université catholique de Louvain, Belgium)

15:00 Combination of Free Space Optics (FSO) and RF for Different Wireless Application Scenarios
Erich Leitgeb (TUG, Austria); Thomas Plank (Graz University of Technology, Austria)

15:40 Channel Characterization for Unmanned Aircraft Systems
David W Matolak (University of South Carolina, USA)

16:20 – 16:50 Coffee Break
Room: Vasco da Gama (Pav 1)

16:50 - 18:30 Bi6 InvScat: Imaging and Inverse Scattering for Biomedical Applications

Propagation/Biomedical
Room: Pedro A Cabral (Aud 2)
Chairs: Ovidio Mario Bucci (University of Naples, Italy), Oleksandr Malyuskin (Queens University Belfast, United Kingdom)

16:50 The Virtual Experiments: An Emerging Framework for the Effective Solution of Inverse Scattering Problems
Martina Teresa Bevacqua (University Mediterranea, Italy); Lorenzo Crocco (CNR - National Research Council, Italy); Loreto Di Donato (University of Catania, Italy); Tommaso Isernia (University of Reggio Calabria, Italy)

17:10 Resonance Microwave Reflectometry for Early Stage Skin Cancer Identification
Oleksandr Malyuskin (Queens University Belfast, United Kingdom); Vincent Fusco (Queen's University Belfast, United Kingdom)

17:30 Clinical Microwave Tomography with a Lossy Coupling Bath – Insights Into Challenging Reconstruction Cases
Paul M Meaney, Shireen Geimer, Timothy Raynolds and Keith D. Paulsen (Dartmouth College, USA)

17:50 On the Design of Exposure Systems for Medical Applications of Microwaves
Ovidio Mario Bucci (University of Naples, Italy); Lorenzo Crocco (CNR - National Research Council, Italy); Rosa Scapaticci (CNR-National Research Council of Italy, Italy)

18:10 Imaging of Intracranial Tissues with Radio Waves
Yoshihiko Kuwahara (Shizuoka University, Japan)

16:50 - 18:30 C13 Graphene: [C] Applications of Graphene and Novel Materials at Terahertz and Microwaves

Antennas/Bridging other Areas
Room: Diogo Cão (Aud 8)
Chairs: Yang Hao (Queen Mary University, United Kingdom), Raj Mittra (Penn State University, USA)

16:50 Graphene Magnetoplasmonic Principles, Structures and Devices
Nima Chamanara and Christophe Caloz (Ecole Polytechnique de Montreal, Canada)

17:10 Entanglement of Two-Level Atoms Above Graphene
Andrei Nemilentsau, Seyyed Ali Hassani Gangaraj and George Hanson (University of Wisconsin-Milwaukee, USA); Stephen Hughes (Queen's University, Canada)

17:30 Theoretical Limits of Graphene Terahertz Non-Reciprocal Devices
Michele Tamagnone (Ecole Polytechnique Fédérale de Lausanne, Switzerland); Arya Fallahi (DESY-Center for Free Electron Laser Science (CFEL), Germany); Juan R Mosig (Ecole Polytechnique Federale de Lausanne, Switzerland); Julien Perruisseau-Carrier (Ecole Polytechnique Fédérale de Lausanne & EPFL, Switzerland)

17:50 Techniques for Reducing the SAR in Mobile Devices by Using Graphene-Type Absorbing Materials
Chiara Pelletti (The Pennsylvania State University, USA); Long Li (Xidian University, P.R. China); Mohammed Abdel-Mageed (Pennsylvania State University, USA); Giacomo Bianconi and Raj Mittra (Penn State University, USA)

18:10 Linear and Nonlinear Microwave Characterization of CVD-Grown Graphene Using CPW Structure
Mingguang Tuo (University of Arizona, USA); Si Li (University of Science and Technology of China, P.R. China); Dongchao Xu and Min Liang (University of Arizona, USA); Qi Zhu (University of Science and Technology of China, P.R. China); Qing Hao and Hao Xin (University of Arizona, USA)

16:50 - 18:30 C23 MultiB: [C] Emerging techniques for multiband and wideband antennas

Antennas/Radars
Room: Bartolomeu Dias (Aud 4)
Chairs: Toru Kawano (National Defense Academy, Japan), Hisamatsu Nakano (Hosei University, Japan)

16:50 A Bent-Ends Spiral Antenna Above a Fan-Shaped Electromagnetic Band-Gap Structure
Masahiro Tanabe (Toshiba Corporation, Japan)

17:10 Development of Reconfigurable Multiple Wideband Antenna for Radar and Monitoring Applications
Cristina Borda Fortuny and Amin Amiri (UCL, United Kingdom); Kin-Fai Tong (UCL, University of London, United Kingdom)

17:30 Numerical Analysis of a Grid Array Antenna Radiating a Linearly Polarized Dual-Beam
Toru Kawano (National Defense Academy, Japan); Hisamatsu Nakano (Hosei University, Japan)

17:50 A Wide-Band Wide-angle Scanning Phased Array with Pattern Reconfigurable Square Loop Antennas
Amit Mehta (Swanse University, United Kingdom); Rob Lewis (BAE Systems Advanced Technology Centre, United Kingdom); Nathan Clow (Dstl, United Kingdom); Arpan Pal (Swansea University, United Kingdom)

18:10 Metamaterial-Based Wideband Shorting-Wall Loaded Mushroom Array Antenna
Wei Liu (National University of Singapore, Singapore); Xianming Qing (Institute for Infocomm Research, Singapore); Zhi Ning Chen (National University of Singapore & Institute for Infocomm Research, Singapore)

16:50 - 18:30 C25 Inkjet: [C] Inkjet Printed Antennas for Flexible, Wearable and Large Area Electronics

Antennas/Multi Applications
Room: Paulo da Gama (Pav 5B)
Chairs: Benito Sanz-Izquierdo (University of Kent, United Kingdom), Atif Shamim (King Abdullah University of Science and Technology, Saudi Arabia)

16:50 Inkjet Printing for the Fabrication of CPW Antennas and Frequency Selective Surfaces
Thierry Monediere (University of Limoges & CNRS, France); Eric Arnaud (University of LIMOGES, France); Dominique Baillargeat, Nicolas Delhote and Marc Thevenot (XLIM, UMR CNRS n°7252, University of Limoges, France); Eloi Beaudrouet, Chrystelle Dossou-yovo and Rémi Noguéra (CERADROP, France)

17:10 A 3D Printed Microstrip Patch Antenna
Garret McKerricher (Three D Systems & King Abdullah University of Science and Tech, Saudi Arabia); Don Titterington (Three D Systems (3DSystems), USA)

17:30 Parametric Optimization of Inkjet Printing and Optical Sintering of Nanoparticle Inks
Erja Sipilä, Yanan Ren, Johanna Virkki and Lauri Tapio Sydänheimo (Tampere University of Technology, Finland); Manos M. Tentzeris (Georgia Institute of Technology, USA); Leena Ukkonen (Tampere University of Technology, Finland)

17:50 Tunable Inkjet-Printed Slotted Waveguide Antenna on a Ferrite Substrate
Ahmed Nafe (King Abdullah University of Science and Technology (KAUST), Saudi Arabia); Muhammad Farooqui and Atif Shamim (King Abdullah University of Science and Technology, Saudi Arabia)

18:10 A Low-cost Inkjet-printed Microfluidics-based Tunable Loop Antenna Feed by Microfluidics-based Tunable Balun
Wenjing Su (Georgia Institution of Technology, USA); Benjamin Cook and Manos M. Tentzeris (Georgia Institute of Technology, USA)

16:50 - 18:30 C28 MMIMO: [C] Massive MIMO for 5G broadband communication networks
Antennas/Cellular Communications
Room: Pêro Escobar (Pav 3A)
Chair: Vanja Plicanic Samuelsson (Sony Mobile Communications, Sweden)

16:50 On the Antenna Array Gain in Geometrical Ray Based Stochastic Channel Models
Mattias Gustafsson (Huawei Technologies Sweden AB, Sweden); Martin Alm (Huawei Technologies, Sweden)

17:10 Analysis of Massive MIMO with Hardware Impairments and Different Channel Models
Fredrik Athley (Ericsson AB, Sweden); Giuseppe Durisi (Chalmers University of Technology, Sweden); Ulf Gustavsson (Ericsson AB, Sweden)

17:30 Dual-polarized Turning Torso Antenna Array for Massive MIMO Systems
Runbo Ma (MPI-QMUL Information System Research Centre, P.R. China); Yue Gao (Queen Mary University of London, United Kingdom); Clive Parini (QMUL, United Kingdom); Laurie Cuthbert (Queen Mary, University of London, United Kingdom)

17:50 UE Antenna Properties and Their Influence on Massive MIMO System Performance
Erik L Bengtsson (Sony Mobile, Sweden); Fredrik Tufvesson and Ove Edfors (Lund University, Sweden)

18:10 28 GHz Propagation Analysis for Passive Repeaters in NLOS Channel Environment
Byungchul Kim, Hyunjin Kim, Dongkyu Choi, Youngju Lee, Wonbin Hong and Jeongho Park (Samsung Electronics, Korea)

16:50 - 18:30 C38 Array: [C] Non-Uniform and Sparse Antenna Arrays - Innovative Concepts and Technological Solutions
Antennas/Space
Room: Tristão V Teixeira (Pav 5A)
Chairs: Ioan E. Lager (Delft University of Technology, The Netherlands), Giacomo Oliveri (University of Trento, Italy)

16:50 An Innovative Strategy for the Fast Design of Maximally-Sparse Arrays with Sum and Difference Phase-Only Reconfigurable Fields
Andrea Francesco Morabito (University Mediterranea of Reggio Calabria, Italy)

17:10 Beamforming in Sparse, Random, 3D Array Antennas with Fluctuating Element Locations
Mark J. Bentum (University of Twente, The Netherlands); Ioan E. Lager, Sjoerd Bosma, Wessel Bruinsma and Robin Hes (Delft University of Technology, The Netherlands)

17:30 Array Tracing: a Graphical-Deterministic Procedure for the Synthesis of Linear Sparse Arrays
Giovanni Toso and Piero Angeletti (European Space Agency, The Netherlands)

17:50 Compressive Sensing Technique for Multi-Frequency Sparse Linear Array Design
Lorenzo Poli, Nicola Anselmi, Matteo Carlin and Paolo Rocca (University of Trento, Italy)

18:10 Mutual Coupling Analysis of Large Irregular Arrays: From Multipole to Interpolatory Methods
Quentin Gueuning (Université Catholique de Louvain, Belgium); Eloy de Lera Acedo and Edgar Colin-Beltran (University of Cambridge, United Kingdom); Christophe Craeye (Université Catholique de Louvain, Belgium)

16:50 - 18:30 C41 PropBuilt: [C] The IET session on Propagation in the built environment
Propagation/Wireless Networks
Room: Afonso de Albuquerque (Pav 3B)
Chairs: Michael J Neve (The University of Auckland, New Zealand), Richard Rudd (Aegis Systems Ltd, United Kingdom)

16:50 Investigation of the Use of Absorbing Materials for Indoor Co-Channel Applications
Kenneth Lee Ford (University of Sheffield, United Kingdom)

17:10 Engineering Indoor Wireless Communication Systems with High Capacity
Michael J Neve and Kevin W Sowerby (The University of Auckland, New Zealand)

17:30 The Impact of Thermally Insulating Products on Building Penetration Loss Between 100 MHz and 6 GHz
Richard Rudd (Aegis Systems Ltd, United Kingdom); Ken Craig (Signal Science Ltd, United Kingdom); Martin Ganley (BRE, United Kingdom)

17:50 Indoor Collaborative Localization Method Based on Ultra-Wideband Ranging
Cai Haofan, Guang Wu, Yifan Chen and Jiang Linshan (South University of Science and Technology of China, P.R. China)

18:10 Analysis of the Propagation Attenuation From Large Buildings in Broadcasting Services
Mario Orefice (Politecnico di Torino, Italy)

16:50 - 18:30 C8 AMTA2: [C] AMTA/EurAAP Measurements of integrated antennas at mm-wavelengths
Measurements/High Data-rate Transfer
Room: Gonçalo V Cabral (Pav 5C)
Chairs: Zhi Ning Chen (National University of Singapore ; Institute for Infocomm Research, Singapore), Antti V. Räisänen (Aalto University, Finland)

16:50 77-GHz Integrated Antenna with Plano-Convex Lens: Design and Measurement
Siew Bee Yeap and Xianming Qing (Institute for Infocomm Research, Singapore); Zhi Ning Chen (National University of Singapore & Institute for Infocomm Research, Singapore)

17:10 Design and Measurement of Integrated Antenna with a Plastic Lens for 60 GHz Wi-Gig Applications
Bisognin Aimeric (University Nice-Sophia Antipolis, France); Aykut Cihangir (University of Nice Sophia Antipolis, France); Cyril Luxey (University Nice Sophia-Antipolis, France); Gilles Jacquemod (University of Nice, France); Romain Pilard (STMicroelectronics, Technology R&D, STD, TPS Lab, France); Frédéric Gianesello (STMicroelectronics, France); Jorge R. Costa (Instituto de Telecomunicações / ISCTE-IUL, Portugal); Carlos A. Fernandes (Instituto de Telecomunicacoes, Instituto Superior Tecnico, Portugal); Eduardo B. Lima (Instituto de Telecomunicações & Instituto Superior Técnico, Portugal); Chinthana J Panagamuwa and William Whittow (Loughborough University, United Kingdom)

17:30 Wide Band Electrical Parameter Measurement by Absorber Pasted Ridged Horn Antenna
Hiroyuki Arai (Yokohama National University, Japan)

17:50 A Complete Measurement System for Integrated Antennas At Millimeter Wavelengths
Mohammad Mosalanejad (KU Leuven & IMEC, Belgium); Steven Brebels (IMEC, Belgium); Ilja Ocket (IMEC & ESAT-TELEMIC, KU Leuven, Belgium); Vladimir Volski (KU Leuven, Belgium); Charlotte Soens (Imec, Belgium); Guy A. E. Vandenbosch (Katholieke Universiteit Leuven, Belgium)

18:10 Reflection Coefficient Method for Characterizing Antennas on Probe Stations
Ville Viikari (Aalto University School of Electrical Engineering, Finland); Zhou Du (Nokia Networks, Finland); Vasilii Semkin (Aalto University School of Electrical Engineering, Finland); Juha Ala-Laurinaho and Antti V. Räisänen (Aalto University, Finland)

16:50 - 18:30 MA10 UWBAnt: UWB antennas and time-domain techniques
Antennas/Multi Applications
Room: Gil Eanes (Aud 3)
Chairs: Antonio Lazaro (URV, Spain), Pedram Mousavi (University of Alberta, Canada)

16:50 Radar Target Discrimination with Extinction Pulses Using Exponential B-Splines
Manuel Morante and David Blanco (University of Granada, Spain); María C. Carrion (Dpto Fisica Aplicada, Facultad de Ciencias, University of Granada, Spain)

17:10 UWB Antenna Array for Level and Permittivity Measurement with Calibrated Layer Stripping
Adam Maunder, Omid Taheri, Mohhamad Reza and Pedram Mousavi (University of Alberta, Canada)

17:30 UWB Body-Implantable Antenna for Short Range Communication
Joao Felicio (Instituto Superior Tecnico, Portugal); Carlos A. Fernandes (Instituto de Telecomunicacoes, Instituto Superior Tecnico, Portugal); Jorge R. Costa (Instituto de Telecomunicações / ISCTE-IUL, Portugal)

17:50 Polarization Performance of Log-Periodic Antennas on Top of Different Types of Ground Plane; the SKA-low Instrument Case
Eloy de Lera Acedo (University of Cambridge, United Kingdom); Benedetta Fiorelli (ESA-ESTEC, Noordwijk, Netherlands, The Netherlands); Michel Arts (ASTRON, the Netherlands Institute for Radio Astronomy, The Netherlands)

18:10 Forward/backward Coupled Ring Based Phasers for Real-Time Signal Processing
Shulabh Gupta (École Polytechnique de Montréal, Canada); Bakhtiar Khan and Christophe Caloz (Ecole Polytechnique de Montreal, Canada)

16:50 - 18:30 MA12 EMTheory: Electromagnetic theory and numerical techniques
Antennas/Multi Applications
Room: João G Zarco (Pav 3C)
Chairs: Yahia Antar (Royal Military College of Canada, Canada), Michael J Havrilla (Air Force Institute of Technology, USA)

16:50 Multilevel Fast Multipole Algorithm with Multiple Octrees for the Solution of Large-Scale Plasmonic Problems with Junctions
Hipólito Gómez-Sousa and Oscar Rubiños-López (University of Vigo, Spain); Jose Martinez Lorenzo (Northeastern University, USA)

17:10 A Four-Vector Formalism for Anisotropic Media
Michael J Havrilla (Air Force Institute of Technology, USA)

17:30 Diffraction of a Plane Wave by a Rectangular Hole in a Thick Conducting Screen
Hirohide Serizawa (Numazu National College of Technology, Japan)

17:50 On Electromagnetic Radiation in Nonlocal Environments—Steps Toward a Theory of Near Field Engineering
Said Mikki (Royal Millitary College of Canada, Canada); Yahia Antar (Royal Military College of Canada, Canada)

18:10 Ultrawideband Inverse Scattering Method for Resonance Region Target Recognition: Application to Small-Scale Airplane Targets with Measured Data
Mustafa Secmen (Yasar University, Turkey)

09:00 - 12:50 C1 VISTA: [C] 2011-2015 early stage research in COST VISTA
Antennas/Multi Applications
Room: Gil Eanes (Aud 3)
Chairs: Nuno Pires (Instituto Superior Técnico ; École Polytechnique Fédérale de Lausanne, Portugal), Oscar Quevedo-Teruel (KTH Royal Institute of Technology, Sweden)

09:00 Versatile Measurement System for Imaging Setups Prototyping
Ana Arboleya, Jaime Laviada, Yuri Álvarez, Cebrián García and Fernando Las-Heras (Universidad de Oviedo, Spain)

09:20 Lens-based Ka-band Antenna System Using Planar Feed
Joana S. Silva (Laboratory of Electromagnetics and Acoustics / École Polytechnique Fédérale de Lausanne & LEMA, Switzerland); María García-Vigueras (Ecole Polytechnique Fédérale de Lausanne, Spain); Marc Esquius Morote (Ecole Polytechnique Fédérale de Lausanne, Switzerland); Jorge R. Costa (Instituto de Telecomunicações / ISCTE-IUL, Portugal); Carlos A. Fernandes (Instituto de Telecomunicacoes, Instituto Superior Tecnico, Portugal); Juan R Mosig (Ecole Polytechnique Federale de Lausanne, Switzerland)

09:40 Altering Antenna Radiation Properties with Transformation Optics
Rhiannon C Mitchell-Thomas (University of Exeter, United Kingdom); Mahsa Ebrahimpouri and Oscar Quevedo-Teruel (KTH Royal Institute of Technology, Sweden)

10:00 Pseudo Localization Principle for RFID-Based Smart Blood Stock System
Andela Zaric (IT/IST - University of Lisbon, Portugal); Catarina Cruz (Instituto de Telecomunicações & Instituto Universitário de Lisboa ISCTE-IUL, Portugal); Antonio Matos and Marta Silva (ISCTE-IUL, Portugal); Jorge R. Costa (Instituto de Telecomunicações / ISCTE-IUL, Portugal); Carlos A. Fernandes (Instituto de Telecomunicacoes, Instituto Superior Tecnico, Portugal)

10:20 UHF W-BAN Antennas Operating in Indoor and Outdoor Environment
Jovanche Trajkovikj (EPFL, Switzerland); Tomislav Debogovic (Ecole Polytechnique Fédérale de Lausanne, Switzerland); Anja K. Skrivervik (EPFL, Switzerland)

10:40 – 11:10 Coffee Break
Room: Vasco da Gama (Pav 1)

11:10 Reconfigurable Beams From Millimetre-Wave Leaky-Wave Antennas
Marina Mavridou, Konstantinos Konstantinidis, Alexandros Feresidis and Peter Gardner (University of Birmingham, United Kingdom)

11:30 Synthesis Procedure for Thinned Leaky-Wave Phased Array Antennas
Francesco Scattone (University of Rennes 1 & IETR Institut d'Electronique et de Télécommunications de Rennes, France); Mauro Ettorre (University of Rennes 1 & UMR CNRS 6164, France); Benjamin Fuchs (University of Rennes 1 - IETR, France); Ronan Sauleau (University of Rennes 1, France); Nelson Fonseca (European Space Agency, The Netherlands)

11:50 Insightful Circuit Modeling of FSS with Arbitrary Scatterers
María García-Vigueras (Ecole Polytechnique Fédérale de Lausanne, Spain); Francisco Mesa (University of Seville, Spain); Raúl Rodríguez-Berral (Universidad de Sevilla, Spain); Francisco Medina (University of Sevilla, Spain); Juan R Mosig (Ecole Polytechnique Federale de Lausanne, Switzerland)

12:10 Magnetic Nanoparticles Enhanced Breast Cancer Microwave Imaging Via Compressive Sensing
Martina Teresa Bevacqua (University Mediterranea, Italy); Rosa Scapaticci (CNR-National Research Council of Italy, Italy)

12:30 Evolution of Pin-Flange Adapters for High Frequency Measurements
Sofia Rahiminejad and Elena Pucci (Chalmers University of Technology, Sweden); Sjoerd Haasl (Royal Institute of Technology, Sweden); Peter Enoksson (Chalmers University of Technology, Sweden)

12:50 – 14:00 Lunch Break
Room: Restaurant Espaço Tejo

09:00 - 12:50 C15 Prop5G: [C] Channel measurements and modelling in the higher frequency bands for 5G Propagation/Cellular Communications
Room: Pêro Escobar (Pav 3A)
Chairs: Thomas Kuerner (Braunschweig Technical University, Germany), Sana Salous (Durham University, United Kingdom)

09:00 Large Scale Characteristics of Urban Cellular Wideband Channels At 11 GHz
Minseok Kim (Niigata University, Japan); Jun-ichi Takada and Yuyuan Chang (Tokyo Institute of Technology, Japan); Jiyun Shen (NTT DOCOMO, INC., Japan); Yasuhiro Oda (NTT DoCoMo, Japan)

09:20 Phase Noise Effects on the Precision of Wideband Mobile Radio Channel Sounding Methods
Carlos E Salles Ferreira (Universidade Federal Fluminense, Brazil); Gláucio Lima Siqueira (Pontifícia Universidade Católica do Rio de Janeiro, Brazil); Raimundo Sampaio-Neto (Cetuc-Puc-Rio, Brazil)

09:40 Vectorial Channel Sounding of MISO Propagation Channels Without Synchronization
Georg Zimmer, Robert Geise and Björn Neubauer (Technische Universität Braunschweig, Germany)

10:00 Radio Propagation Measurments At 60 GHz Using Modular Antenna Array
Reza Arefi (Intel Corporation, USA); Ali Sadri (Intel & President and Chairman of WiGig Alliance, USA); Alexander Maltsev (Intel Corporation & University of Nizhny Novgorod, Russia); Joongheon Kim (Intel Corporation, USA)

10:20 Review of Millimeter-wave Propagation Characterization and Modelling Towards 5G Systems
Sana Salous (Durham University, United Kingdom); Maziar Nekovee (Samsung Electronics, United Kingdom); Vittorio Degli-Esposti (University of Bologna, Italy); Sooyoung Hur (Samsung Electronics & HQ Korea, Korea)

10:40 – 11:10 Coffee Break
Room: Vasco da Gama (Pav 1)

11:10 Simultaneous Millimeter-Wave Multi-Band Channel Sounding in an Urban Access Scenario
Richard J. Weiler and Michael Peter (Fraunhofer HHI, Germany); Thomas Kühne (TU Berlin, Germany); Mike Wisotzki and Wilhelm Keusgen (Fraunhofer Heinrich Hertz Institute, Germany)

11:30 Polarimetric Analysis of Mm-Wave Propagation for Advanced Beamforming Applications
Vittorio Degli-Esposti (University of Bologna, Italy); Franco Fuschini (DEI - Bologna, Italy); Enrico M. Vitucci, Marina Barbiroli and Marco Zoli (University of Bologna, Italy); Diego Andres Dupleich (Ilmenau University of Technology, Germany); Robert Müller (TU Ilmenau, Germany); Christian Schneider and Reiner S. Thomä (Ilmenau University of Technology, Germany)

11:50 28 GHz Indoor Channel Measurements and Modelling in Laboratory Environment Using Directional Antennas
Xianyue Wu (Heriot-Watt University, United Kingdom); Yan Zhang (Beijing Institute of Technology, P.R. China); Chengxiang Wang and George Goussetis (Heriot-Watt University, United Kingdom); Hadi Aggoune and Mohammed Alwakeel (University of Tabuk, Saudi Arabia)

12:10 Wideband Spatial Channel Model in an Urban Cellular Environments At 28 GHz
Sooyoung Hur (Samsung Electronics & HQ Korea, Korea); Yeon-Jea Cho and Taehwan Kim (KAIST, Korea); Jeongho Park (Samsung Electronics, Korea); Andreas Molisch (University of Southern California, USA); Katsuyuki Haneda (Aalto University, Finland); Michael Peter (Fraunhofer HHI, Germany)

12:30 On Path Loss Measurement and Modeling for Millimeter-wave 5G
Michael Peter (Fraunhofer HHI, Germany); Wilhelm Keusgen (Fraunhofer Heinrich Hertz Institute, Germany); Richard J. Weiler (Fraunhofer HHI, Germany)

12:50 – 14:00 Lunch Break
Room: Restaurant Espaço Tejo

09:00 - 10:40 C20 RadioC: [C] Dynamic radio channel modelling in mobile-to-mobile heterogeneous networks
Propagation/Wireless Networks
Room: Afonso de Albuquerque (Pav 3B)
Chairs: Raffaele D'Errico (CEA, LETI, Minatec Campus; Univ. Grenoble-Alpes, France), Claude Oestges (Université Catholique de Louvain, Belgium)

09:00 Doppler Analysis of an Indoor University-Hall
Brecht Hanssens, Emmeric Tanghe and Luc Martens (Ghent University, Belgium); Claude Oestges (Université Catholique de Louvain, Belgium); Wout Joseph (Ghent University/ iMinds, Belgium)

09:20 Channel Measurements of Device-to-Device Communications At 2.45 GHz
Simon Cotton (Queen's University, Belfast, United Kingdom); Nidhi Bhargav (Queen's University Belfast, United Kingdom)

09:40 A Non-Stationary Mobile-to-Mobile Multipath Fading Channel Model Taking Account of Velocity Variations of the Mobile Stations
Wiem Dahech (2 Evacuation Street El Alia, Tunisia); Matthias Pätzold (University of Agder, Norway); Neji Youssef (Ecole superieure des communications de Tunis, Tunisia)

10:00 Modeling Impact of Moving Scatterers on Doppler Spectrum in Vehicle-to-Vehicle Channels
Alenka Zajic (Georgia Institute of Technology, USA)

10:20 Geometry-Based Path Interpolation for Rapid Ray-Optical Modeling of Vehicular Channels
Jörg Nuckelt and Thomas Kürner (Technische Universität Braunschweig, Germany); Moritz Schack (TU Braunschweig, Germany)

10:40 – 11:10 Coffee Break
Room: Vasco da Gama (Pav 1)

09:20 - 12:50 C26 INTELLE: [C] INTELLECT
Antennas/Bridging other Areas
Room: Diogo Cão (Aud 8)
Chairs: Lale Alatan (METU, Turkey), Juan R Mosig (Ecole Polytechnique Federale de Lausanne, Switzerland)

09:00 The SIE-MoM Analysis of Dielectric Bodies Embedded in a Shielded Stratified Medium
Bartosz Bieda, Robert Borowiec and Andrzej A. Kucharski (Wroclaw University of Technology, Poland); Piotr Słobodzian (Wroclaw University of Technology & Faculty of Electronics, Poland)

Wednesday, April 15

Monday Tuesday Wednesday Thursday Friday

09:20 A High Order Locally Corrected Nystrom Implementation of the Decoupled Potential Integral Equation
Felipe Vico-Bondía (Universidad Politécnica de Valencia, Spain); Miguel Ferrando-Bataller (Universidad Politecnica De Valencia, Spain); Tomás Bernabeu-Jiménez (Universitat Politècnica de València & Instituto de Telecomunicaciones y Aplicaciones Multimedia (ITEAM), Spain); Antonio Berenguer (Universitat Politecnica de Valencia & Instituto de Telecomunicaciones y Aplicaciones Multimedia, Spain)

09:40 Improvements in the MoM Analysis of 3-D Planar Multilayered Periodic Structures Used in the Design of Wideband Reflectarray Antennas
Rafael Florencio (Universidad de Sevilla, Spain); Rafael Boix (University of Seville, Spain); Jose A. Encinar (Universidad Politecnica de Madrid, Spain)

10:00 Power Computations in VIE Formulations
Athanasios Polimeridis (Skolkovo Institute of Science and Technology, Russia); M. T. Homer Reid and Steven Johnson (MIT, USA); Jacob White (Massachusetts Institute of Technology, USA); Alejandro Rodriguez (Princeton University, USA)

10:20 Hierarchical Bases Preconditioners for a Conformingly Discretized Combined Field Integral Equation Operator
Simon B Adrian (Technische Universität München & Institut Mines-Télécom / Télécom Bretagne, Germany); Francesco Andriulli (Ecole Nationale Superieure des Telecomunications de Bretagne, France); Thomas F. Eibert (Technische Universität München, Germany)

10:40 – 11:10 Coffee Break
Room: Vasco da Gama (Pav 1)

11:10 Volumetric Testing for the Nonconforming Discretization of Integral Equations in Scattering Problems
Eduard Ubeda and Ivan Sekulic (Universitat Politècnica de Catalunya (UPC), Spain); Juan M. Rius (Universitat Politècnica de Catalunya, Spain); Alexander Heldring (Polytechnical University of Catalunya, Spain)

11:30 MLFMA for Large-Scale Nanoplasmonics Modeling
Diego M. Solís (University of Vigo, Spain); Jose M. Taboada (University of Extremadura, Spain); Fernando Obelleiro (University of Vigo, Spain); F. Javier García de Abajo (ICFO (The Institute of Photonic Sciences), Spain); Luis M. Liz-Marzán (CIC BIOMAGUNE, Spain)

11:50 Fully Numerical Evaluation of 4-D Reaction Integrals in the Method of Moments
Donald Wilton (University of Houston, USA); Francesca Vipiana (Politecnico di Torino, Italy); William Johnson (Private Consultant, USA)

12:10 An Iterative Solution Approach of the Magnetic Field Integral Equation for Scattering Computations
Robert Brem (Technische Universität München, Germany); Simon B Adrian (Technische Universität München & Institut Mines-Télécom / Télécom Bretagne, Germany); Thomas F. Eibert (Technische Universität München, Germany)

12:30 Numerical Solution of Diffraction Problems Using Large Matrix Compression
Gleb Ryzhakov and Alexander Mikhalev (Skolkovo Institute of Science and Technology, Russia); Daria Sushnikova (Institute of Numerical Mathematics of Russian Academy of Sciences, Russia); Ivan Oseledets (Skolkovo Institute of Science and Technology & Institute of Numerical Mathematics of Russian Academy of Sciences, Russia)

12:50 – 14:00 Lunch Break
Room: Restaurant Espaço Tejo

09:00 - 12:50 C33 mmAnt: [C] Mm-wave Antenna Systems Antennas/High Data-rate Transfer

Room: Gonçalo V Cabral (Pav 5C)
Chairs: Frédéric Gianesello (STMicroelectronics, France), Marta Martínez-Vázquez (IMST GmbH, Germany)

09:00 Millimeter-Wave Antennas for Radio Access and Backhaul in 5G Heterogeneous Mobile Networks
Laurent Dussopt (CEA, LETI, Minatec, France); Ossama El Bouayadi (CEA, France); Jose Alberto Zevallos Luna (CEA, LETI, Minatec, France); Cedric Dehos (CEA, France); Yann Lamy (CEA, LETI, Minatec, France)

09:20 Rotman Lens with Ridge-Gap Waveguide, Implemented in LTCC Technology, for 60 GHz Applications
Fernando Carrera-Suárez and Diana Navarro-Méndez (Universidad Politécnica de Valencia & Escuela Politécnica Nacional, Spain); Mariano Baquero-Escudero and Alejandro Valero-Nogueira (Universidad Politécnica de Valencia, Spain)

09:40 Broadband Circularly Polarized Aperture-Coupled Microstrip Antenna in HDI Technology for WiGig Applications
Aimeric Bisognin (University Nice Sophia-Antipolis & STMicroelectronics, France); Diane Titz and Gilles Jacquemod (University of Nice, France); Romain Pilard (STMicroelectronics, Technology R&D, STD, TPS Lab, France); Frédéric Gianesello and Daniel Gloria (STMicroelectronics, France); Frédéric Devillers (Orange Labs-CREMANT, France); Cyril Luxey (University Nice Sophia-Antipolis, France)

10:00 Intersymbol Interference Analysis of a 60 GHz-Band Compact Range Wireless Access System
Miao Zhang, Kiyomichi Araki, Jiro Hirokawa and Makoto Ando (Tokyo Institute of Technology, Japan)

10:20 On-chip and In-package Antennas for mm-Wave CMOS Circuits
Niels Van Thienen, Wouter Steyaert, Yang Zhang and Patrick Reynaert (KU Leuven, Belgium)

10:40 – 11:10 Coffee Break
Room: Vasco da Gama (Pav 1)

11:10 Compact 28 GHz Antenna Array with Full Polarization Flexibility Under Yaw, Pitch, Roll Motions
Wonbin Hong, Kwanghyun Baek, Youngju Lee and Seungtae Ko (Samsung Electronics, Korea)

11:30 On-Chip Antenna Integration for Single-Chip Millimeter-Wave FMCW Radars
Bedilu Adela (Eindhoven University of Technology, The Netherlands); Paul Zeijl (Omniradar, The Netherlands); A. B. (Bart) Smolders (Eindhoven University of Technology, The Netherlands)

11:50 Compact Terahertz Instruments for Planetary Missions
Goutam Chattopadhyay, Theodore Reck, Adrian Tang and Cecile Jung-Kubiak (NASA-JPL, Caltech, USA); Choonsup Lee (JPL, USA); Jose V Siles (NASA Jet Propulsion Laboratory, USA); Erich Schlecht (NASA-JPL, Caltech, USA); Yanghyo Kim and M-c Chang (UCLA, USA); Imran Mehdi (JPL, USA)

12:10 A Lens-Coupled All-Silicon Integrated 2x2 Array of Harmonic Receivers for THz Multi-Color Active Imaging
Janusz Grzyb, Konstantin Statnikov and Ullrich Pfeiffer (University of Wuppertal, Germany)

12:30 Gain Enhancement of Low Profile On-Chip Dipole Antenna Via Artificial Magnetic Conductor At 94 GHz
Mahmoud Nafe (King Abdullah University for Science and Technology, Saudi Arabia); Atif Shamim (King Abdullah University of Science and Technology, Saudi Arabia); Ahad Syed (King Abdullah University for Science and Technology, Saudi Arabia)

12:50 – 14:00 Lunch Break
Room: Restaurant Espaço Tejo

09:00 - 12:50 C44 MiMed2: [C] Therapeutic Applications of Electromagnetic Fields (MiMed)

Room: Pedro A Cabral (Aud 2)
Chairs: Margarethus M. Paulides (Erasmus University Medical Center, The Netherlands), Desmond Teck Beng Yeo (GE Global Research, USA)

09:00 Focusing and Steering for Medical Applications with Magnetic Near-Field Arrays and Metasurfaces
Alon Ludwig, Joseph Wong, Ariel Epstein, George V. Eleftheriades and Costas D Sarris (University of Toronto, Canada)

09:20 Optimization of Chest Wall Hyperthermia Treatment Using a Virtual Human Chest Model
Dario Rodrigues and Mark Hurwitz (Thomas Jefferson University, USA); Paolo Maccarini (Duke University, USA); Paul Stauffer (Thomas Jefferson University, USA)

09:40 Design and Characterization of on-Head Antenna Systems for Neural Motor Prosthesis
Terence S.P. See and Xianming Qing (Institute for Infocomm Research, Singapore); Zhi Ning Chen (National University of Singapore & Institute for Infocomm Research, Singapore)

10:00 A Directive Antenna Array Applicator for Focused Electromagnetic Hyperthermia Treatment of Breast Cancer
Erdal Korkmaz, Omer Isik and Huseyin Sagkol (Fatih University, Turkey)

10:20 The Importance of Source Polarization in Transverse Electric Time Reversal Focusing
Domenica A. M. Iero (Università Mediterranea di Reggio Calabria, Italy); Lorenzo Crocco (CNR - National Research Council, Italy); Tommaso Isernia (University of Reggio Calabria, Italy)

10:40 – 11:10 Coffee Break
Room: Vasco da Gama (Pav 1)

11:10 A New Approach to High-Quality Patient-Specific Hyperthermia Treatment
Myles Capstick (IT'IS Foundation, Switzerland); Esra Neufeld (IT'IS Foundation, ETH Zurich, Switzerland); Marie-Christine Gosselin (IT'IS Foundation, ETHZ, Switzerland); Dimce Iliev (IT'IS Foundation, Switzerland); Julien Renggli (ZMT ZurichMedTech AG, Switzerland); Danilo Selic, Bruno Rivara and Steffen Deubler (SPEAG Schmid and Partner Engineering AG, Switzerland); Manuel Guidon (ZMT ZurichMedTech AG, Switzerland); Niels Kuster (IT'IS Foundation, ETH Zurich, Switzerland)

11:30 Monitoring Breast Cancer Treatment Progress with Microwave Tomography and Radar-based Tissue-regions Estimation
Anastasia Baran (University of Manitoba, Canada); Douglas Kurrant and Elise Fear (University of Calgary, Canada); Joe LoVetri (University of Manitoba, Canada)

11:50 Clinical Introduction of Novel Microwave Hyperthermia Technology: The HYPERcollar3D Applicator for Head and Neck Hyperthermia
Margarethus M. Paulides, Z Rijnen, P Togni and René Verhaart (Erasmus University Medical Center, The Netherlands); Tomas Drizdal (Erasmus MC Cancer Institute, The Netherlands); Daniel de Jong, Martine Franckena and Gerda Verduijn (Erasmus University Medical Center, The Netherlands); Gerard C. van Rhoon (Erasmus MC Cancer Institute, The Netherlands)

12:10 Exploiting Electromagnetic Fields to Enhance the Delivery of Therapeutics to Tumors
Sylvain Martel (Ecole Polytechnique Montreal, Canada)

12:30 Measurement of Electrical Properties of Biological Tissue At Radio Frequencies Using Magnetic Resonance Imaging
Seung-Kyun Lee, Bulumulla Selaka, Peter Lamb and Ileana Hancu (GE Global Research, USA)

12:50 – 14:00 Lunch Break
Room: Restaurant Espaço Tejo

09:00 - 12:50 C47 Security: [C] Wave-based sensing and imaging for security applications
Propagation/Defense and Secutity
Room: João G Zarco (Pav 3C)
Chairs: Jose Martinez Lorenzo (Northeastern University, USA), Carey Rappaport (Northeastern University, USA)

09:00 A 300 GHz Imaging Radar for Standoff Anomaly Detection
Alejandro Badolato, Gorka Rubio-Cidre and Luis Úbeda-Medina (Technical University of Madrid, Spain); Jesús Grajal (Universidad Politécnica de Madrid, Spain); Beatriz Mencia-Oliva (Universidad Politecnica de Madrid & ETSI Telecomunicacion, Spain); Antonio García-Pino, Borja Gonzalez-Valdes and Oscar Rubiños-López (University of Vigo, Spain)

09:20 A New Approach for Measuring Electromagnetic Side-Channel Energy Available to the Attacker in Modern Processor-Memory Systems
Robert Callan and Nina Popovic (Georgia Tech, USA); Alenka Zajic and Milos Prvulovic (Georgia Institute of Technology, USA)

09:40 Multistatic Fourier-based Technique for Radar Systems
Yuri Álvarez (Universidad de Oviedo, Spain); Yolanda Rodriguez-Vaqueiro (Northeastern University, USA); Borja Gonzalez-Valdes (University of Vigo, Spain); Spiros Mantzavinos and Carey Rappaport (Northeastern University, USA); Fernando Las-Heras (Universidad de Oviedo, Spain); Jose Martinez Lorenzo (Northeastern University, USA)

10:00 Multistatic Nearfield Imaging Radar for Portal Security Systems Using a High Gain Toroidal Reflector Antenna
Carey Rappaport (Northeastern University, USA); Borja Gonzalez-Valdes (University of Vigo, Spain)

10:20 Focal Plane and Synthetic Aperture Array Alternatives in a 340 GHz Imaging Radar
Ken Cooper, Theodore Reck and Robert Dengler (Jet Propulsion Laboratory, California Institute of Technology, USA); Nuria LLombart (Delft University of Technology, The Netherlands)

10:40 – 11:10 Coffee Break
Room: Vasco da Gama (Pav 1)

11:10 On-the-Move Millimeter Wave Imaging System Using Multiple Transmitters and Receivers
Borja Gonzalez-Valdes (University of Vigo, Spain); Yuri Álvarez and Javier Gutiérrez-Meana (Universidad de Oviedo, Spain); Carey Rappaport (Northeastern University, USA); Fernando Las-Heras (Universidad de Oviedo, Spain); Antonio García-Pino (University of Vigo, Spain); Jose Martinez Lorenzo (Northeastern University, USA)

11:30 Single-Transceiver Compressive Antenna for High-Capacity Sensing and Imaging Applications
Jose Martinez Lorenzo and Juan Heredia-Juesas (Northeastern University, USA); William Blackwell (MIT Lincoln Laboratory, USA)

11:50 Advanced Fully-Electronic Personnel Security Screening Technology
Sherif Sayed Ahmed (Rohde & Schwarz GmbH & Co. KG, Germany)

12:10 Passive Imaging Strategies for Real-time Wireless Localization of Non-cooperative Targets in Security Applications
Federico Viani (University of Trento & ELEDIA Research Center, Italy); Fabrizio Robol and Enrico Giarola (ELEDIA Research Center, Italy); Paolo Rocca (University of Trento, Italy); Giacomo Oliveri (University of Trento & ELEDIA Research Center, Italy); Andrea Massa (University of Trento, Italy)

12:30 Wave-based Sensing and Imaging for Security Applications
Kristofer Roe (Smiths Detection Inc., USA)

12:50 – 14:00 Lunch Break
Room: Restaurant Espaço Tejo

09:00 - 12:50 C7 AMTA1: [C] AMTA/EurAAP Diagnostics, imaging, and post-processing in antenna measurements
Measurements/Bridging other Areas
Room: Paulo da Gama (Pav 5B)
Chairs: Daniel J. Janse van Rensburg (Near Field Systems Inc., USA), Sergey Pivnenko (Technical University of Denmark, Denmark)

09:00 Extending the Plane Wave Based Fast Irregular Antenna Field Transformation Algorithm for Amplitude-Only Data
Carlos Lopez, Raimund A. M. Mauermayer and Thomas F. Eibert (Technische Universität München, Germany)

09:20 Characterizing the Near Field Strength of ISS-RapidScat Reflector Antenna From Measurement Data Using Spectral Back Projection Method
Yahya Rahmat-Samii (University of California, Los Angeles (UCLA), USA); Luis Amaro (Jet Propulsion Laboratory, USA); Joshua M Kovitz (University of California, Los Angeles, USA)

09:40 Configurable Robotic Millimeter-Wave Antenna Facility
Jeffrey Guerrieri, Joshua Gordon and David Novotny (National Institute of Standards and Technology, USA); Mike Francis (NIST, USA)

10:00 Study of Daily Tissue Changes Through Breast Monitoring with Time-Domain Microwave Radar
Emily Porter (McGill Universtiy, Canada); Riza Kazemi (University of British Columbia, Canada); Adam Santorelli and Milica Popović (McGill University, Canada)

10:20 Phase Retrieval Procedure for Microwave Linear Arrays
Benjamin Fuchs (University of Rennes 1 - IETR, France); Laurent Le Coq (University of Rennes 1 & IETR, France)

10:40 – 11:10 Coffee Break
Room: Vasco da Gama (Pav 1)

11:10 Source Reconstruction Technique for Planar Arrays of Wide Slots
Makoto Sano (Tokyo Institute of Technology, Japan); Manuel Sierra-Castañer (Universidad Politécnica de Madrid, Spain); Jiro Hirokawa and Makoto Ando (Tokyo Institute of Technology, Japan)

11:30 Investigation of Spherical Higher Order Modes Sources in Antenna Measurement Probe Design
Lars Foged (Microwave Vision Italy, Italy); Andrea Giacomini (Microwave Vision Italy (MVI), Italy); Francesco Saccardi and Lucia Scialacqua (Microwave Vision Italy, Italy)

11:50 Comparison of Different Antenna Diagnostics Techniques with Limited Far Field Data Input
Sergey Pivnenko (Technical University of Denmark, Denmark); Cecilia Cappellin (TICRA, Denmark)

12:10 Imaging-based Classification Algorithms on Clinical Trial Data with Injected Tumour Responses
Yunpeng Li (McGill University, Canada); Emily Porter (McGill Universtiy, Canada); Mark Coates (McGill University, Canada)

12:30 Study of the Influence of Mechanical Errors in Diagnostics Applications by Means of Statistical Analysis
Ana Arboleya, Jaime Laviada, Yuri Álvarez and Fernando Las-Heras (Universidad de Oviedo, Spain)

12:50 – 14:00 Lunch Break
Room: Restaurant Espaço Tejo

09:00 - 10:40 R2 LeakyAnt: Slotted-, guided- and leaky-wave antennas
Antennas/Radars
Room: Bartolomeu Dias (Aud 4)
Chairs: Miguel Ferrando-Rocher (Universidad Politécnica de Valencia, Spain), Lei Wang (Ecole Polytechnique Fédérale de Lausanne (EPFL); Southeast University, Switzerland)

09:00 Gain Enhanced H-plane Gap SIW Horn Antenna with Phase Correction
Lei Wang (Ecole Polytechnique Fédérale de Lausanne (EPFL) & Southeast University, Switzerland); Marc Esquius Morote (Ecole Polytechnique Fédérale de Lausanne, Switzerland); Xiaoxing Yin (Southeast University, P.R. China); Juan R Mosig (Ecole Polytechnique Federale de Lausanne, Switzerland)

09:20 Low Cost Switchable RHCP/LHCP Antenna for SOTM Applications in Ka-band
José Ignacio Herranz-Herruzo, Alejandro Valero-Nogueira and Miguel Ferrando-Rocher (Universidad Politécnica de Valencia, Spain); Bernardo Bernardo-Clemente (Universitat Politècnica de València, Spain); Régis Lenormand, Antonin Hirsch, Jean-Luc Almeida, Mathieu Arnaud and Lyonel Barthe (Thales Alenia Space, France)

09:40 A Sectorial Fabry – Perot Antenna for Radar Application
Marco Degiorgi, Filippo Costa, Simone Genovesi and Agostino Monorchio (University of Pisa, Italy)

10:00 RLSA Bessel Beam Launchers Using Hankel Waves
Santi Concetto Pavone (University of Siena, Italy); Mauro Ettorre (University of Rennes 1 & UMR CNRS 6164, France); Matteo Albani (University of Siena, Italy)

10:20 SIW Pillbox Antenna Integrating Monopulse Phase Comparison Technique
Karim Tekkouk (University of Rennes1, France); Mauro Ettorre (University of Rennes 1 & UMR CNRS 6164, France); Laurent Le Coq (University of Rennes 1 & IETR, France); Ronan Sauleau (University of Rennes 1, France)

10:40 – 11:10 Coffee Break
Room: Vasco da Gama (Pav 1)

09:00 - 12:50 S2 SatProp: Satellite Propagation Propagation/Space
Room: Tristão V Teixeira (Pav 5A)
Chairs: Bertram Arbesser-Rastburg (Spacetec Partners, Austria), Laurent Castanet (ONERA, France)

09:00 Fading and Scattering Due to Trees in L to Ka Band Propagation Simulations
Jonathan Israel (ONERA - The French Aerospace Lab, France); Anthony Pajot (OKTAL-SE, France)

09:20 Initial Results From a Measurement Campaign for Low Elevation Angle Links in Different Environments
Jan Zeleny (Czech Technical University, Czech Republic); Fernando Pérez-Fontán (University of Vigo, Spain); Pavel Pechac (Czech Technical University in Prague, Czech Republic)

09:40 Land Mobile Satellite Propagation Characteristics From Knife-Edge Diffraction Modeling and Hemispheric Images
Marie Rieche and Alexander Ihlow (Ilmenau University of Technology, Germany); Thomas Heyn (Fraunhofer IIS, Germany); Fernando Pérez-Fontán (University of Vigo, Spain); Giovanni Del Galdo (Fraunhofer Institute for Integrated Circuits IIS & Technische Universität Ilmenau, Germany)

10:00 Measurement of Instantaneous Frequency Scaling for Q/V-Band
Johannes Ebert and Karin Plimon (Joanneum Research, Austria); Michael Schmidt (Researcher, Austria); Juan Rivera Castro (ESA, The Netherlands)

10:20 Evaluation of Inter-Annual Variability of Rainfall Rate and Rain Attenuation Based on the ITU Rec P.678
Flávio M. da Silva Jorge (Instituto de Telecomunicações & Universidade de Aveiro, Portugal); Armando C Rocha and Susana Mota (University of Aveiro & Institute of Telecommunications, Portugal)

10:40 – 11:10 Coffee Break
Room: Vasco da Gama (Pav 1)

11:10 Performance of Site-Diversity Satellite Communication Systems in Equatorial Malaysia Investigated Through Weather Radar Data
Hong Yin Lam (Universiti Tun Hussein Onn Malaysia, Malaysia); Lorenzo Luini (Politecnico di Milano, Italy); Jafri Din (Universiti Teknologi Malaysia, Malaysia); Carlo Capsoni (Politecnico di Milano, Italy); Athanasios D. Panagopoulos (National Technical University of Athens, Greece)

11:30 Joint Effects of Clouds and Rain on Ka-Band Earth Observation Data Downlink Systems
Lorenzo Luini and Carlo Capsoni (Politecnico di Milano, Italy)

11:50 Weather Effects Mitigation At Ka Band by Using Radiometeorological Model Forecast in Deep Space Downlinks
Marianna Biscarini (University of La Sapienza, Italy); Frank S. Marzano (Sapienza University of Rome, Italy); Luciano Iess (Univerity of Rome La Sapienza, Italy); Mario Montopoli (CETEMPS - University of L'Aquila, Italy); Klaide De Sanctis (HIMET, Italy); Saverio Di Fabio (CETEMPS, Italy); Maria Montagna (SciSys @ ESA, Germany); Mattia Mercolino and Marco Lanucara (European Space Agency, Germany)

12:10 Mobile and Nomadic Measurements of the LMS Propagation Channel At Ku and Ka Bands
Joel Lemorton and Xavier Boulanger (ONERA, France); Mehdi Ait-Ighil (ONERA - The French Aerospace Lab, France); Fernando Pérez-Fontán (University of Vigo, Spain); Sebastien Rougerie and Frederic Lacoste (CNES, France)

12:30 Statistical Significance of Specific Rain Attenuation Dependence on Geographic and Climatic Conditions
Michael Schönhuber and Karin Plimon (Joanneum Research, Austria); Merhala Thurai (Colorado State University, USA)

12:50 – 14:00 Lunch Break
Room: Restaurant Espaço Tejo

11:10 - 12:50 S8 MetaSpace: Advanced RF materials, metamaterials and EBG for Space Applicationsgo to top
Antennas/Space
Room: Bartolomeu Dias (Aud 4)
Chairs: Mauro Ettorre (University of Rennes 1; UMR CNRS 6164, France), Tiago Morgado (Universidade de Coimbra - Instituto de Telecomunicações, Portugal)

11:10 Transformation Optics SW-Based Devices
Mario Junior Mencagli, Enrica Martini, David González-Ovejero and Stefano Maci (University of Siena, Italy)

11:30 Optically Reconfigurable Metacheckerboard
Mario Junior Mencagli, David González-Ovejero and Enrica Martini (University of Siena, Italy); Brigitte Loiseaux (Thales Research & Technology, France); Charlotte Tripon-Canseliet (Université Pierre et Marie Curie, France); Jean-Maurice Chazelas (Thales Aerospace Division, France); Stefano Maci (University of Siena, Italy)

11:50 Broadband Fabry-Perot Type Sub–Wavelength Profile Antenna
Konstantinos Konstantinidis, Alexandros Feresidis and Peter S Hall (University of Birmingham, United Kingdom)

12:10 Efficient Characterization of a CPW Series Capacitor in Ku Band
Juan Duran and Cedric Martel (ONERA, France); Gaëtan Prigent (LAPLACE & GRE, France); Olivier Pascal (Université de Toulouse - UPS INPT CNRS, France)

12:30 Circularly Polarized Ultra-Thin Antennas for Space: Examples of Realizations
Marco Faenzi, Francesco Caminita and Enrica Martini (University of Siena, Italy); Paolo De Vita (IDS Ingegneria Dei Sistemi S. p. A, Italy); Marco Sabbadini (Esa Estec, The Netherlands); Stefano Maci (University of Siena, Italy)

12:50 – 14:00 Lunch Break
Room: Restaurant Espaço Tejo

11:10 - 12:50 W1 NetPlan: Network Planning, Optimisation and Simulation
Propagation/Wireless Networks
Room: Afonso de Albuquerque (Pav 3B)
Chairs: Rausley Adriano Amaral de Souza (National Institute of Telecommunications (INATEL), Brazil), Christian Schneider (Ilmenau University of Technology, Germany)

11:10 Indoor-to-Outdoor Channel Characterization for Modeling and Prediction of Interference in Next Generation Wireless Networks
Sanaa Hamid (Khalifa University, Abu Dhabi, UAE); Arafat Al-Dweik (University of Guelph, UAE); Maysam Mirahmadi (The University of Western Ontario, Canada); Khalid Mubarak (Khalifa University, Abu Dhabi, UAE); Abdallah Shami (The University of Western Ontario, Canada)

11:30 Mobile Networks Optimization Using Open-Source GRASS-RaPlaT Tool and Evolutionary Algorithm
Darko Šekuljica, Andrej Vilhar and Matjaž Depolli (Jozef Stefan Institute, Slovenia); Andrej Hrovat (Jožef Stefan Institute, Slovenia); Igor Ozimek and Tomaz Javornik (Jozef Stefan Institute, Slovenia)

11:50 Required Number of Propagation Scenarios for Acceptable Reproduction of Spectral Efficiency Distribution in (heterogeneous) Network Simulations
Milan Narandžić (University of Novi Sad, Serbia); Christian Schneider, Wim A. Th. Kotterman and Reiner S. Thomä (Ilmenau University of Technology, Germany)

12:10 A Multi-objective Approach to Indoor Wireless Heterogeneous Networks Planning
Sotirios Goudos (Aristotle University of Thessaloniki, Greece); David Plets (Ghent University - iMinds, Belgium); Ning Liu and Luc Martens (Ghent University, Belgium); Wout Joseph (Ghent University/iMinds, Belgium)

12:30 Simultaneous Sensing-Transmission in Cognitive Radio Networks Under Spatiotemporally Collaborative Techniques
Mário Henrique Pereira Alves (National Institute of Telecommunications - Inatel, Brazil); Rausley Adriano Amaral de Souza (National Institute of Telecommunications (INATEL), Brazil); Adoniran Judson Braga (Universidade de Brasília, Brazil)

12:50 – 14:00 Lunch Break
Room: Restaurant Espaço Tejo

11:10 - 12:10 WS6 Altair: Application of Numerical Techniques to the Solution of Practical Antenna Problems with FEKO
Industrial Workshop
Room: Diogo de Silves (Room 1.08)

14:00 - 15:00 Poster A3: Antennas Poster Session 3 Antennas
Room: Gil Vicente (Hall 5)
Chairs: Duarte de Sousa Fonseca (Loughborough University, United Kingdom), Asimina Kiourti (The Ohio State University, USA)

A3.1 Simultaneous Two-port Injection Matched Antenna
Yasin Kabiri (The University of Birmingham, United Kingdom); Peter Gardner and Costas Constantinou (University of Birmingham, United Kingdom)

A3.2 Electrically Small Modified Planar Inverted-F Antenna
Saad Mufti, Alan Tennant and Luke Seed (University of Sheffield, United Kingdom)

A3.3 Implementation and Wireless Readout of Passive UHF RFID Strain Sensor Tags Based on Electro-Textile Antennas
Feiyuan Long and Xiao Dong Zhang (City University of Hong Kong, Hong Kong); Toni Björninen, Johanna Virkki and Lauri Tapio Sydänheimo (Tampere University of Technology, Finland); Chan Yan-Cheong (City University of Hong Kong, Hong Kong); Leena Ukkonen (Tampere University of Technology, Finland)

A3.4 Influence of Phantom Models on Implantable Antenna Performance for Biomedical Applications
Neus Vidal, Aleix Garcia-Miquel, Jose López-Villegas and Javier Sieiro (University of Barcelona, Spain); Francisco Ramos (Francisco Albero S.A., Spain)

A3.5 Miniaturization Effects on Implantable Antennas for Biomedical Applications
Aleix Garcia-Miquel, Neus Vidal, Jose López-Villegas and Javier Sieiro (University of Barcelona, Spain); Francisco Ramos (Francisco Albero S.A., Spain)

A3.6 Humidity Passive Sensors Based on UHF RFID Using Cork Dielectric Slabs
Ricardo Gonçalves (Instituto de Telecomunicações, Portugal); Pedro Tavares Pinho (ISEL, Portugal); Nuno Borges Carvalho (University of Aveiro/IT Aveiro, Portugal); Manos M. Tentzeris (Georgia Institute of Technology, USA)

A3.7 Antenna Q for Small Antennas with Radiation Constraints and Perturbations
Lars Jonsson (Royal Institute of Technology (KTH), Sweden); Mats Gustafsson (Lund University, Sweden)

A3.8 Reducing and Controlling the Beamwidth of Electrically Small Antenna Arrays
Jingni Zhong (Ohio State University & ElectroScience Laboratary, USA); Asimina Kiourti (The Ohio State University, USA); John L. Volakis (Ohio State University, USA)

A3.9 Small UHF RFID Tag Antenna for Metallic Objects
Sergio López and Josep Parrón (Universitat Autònoma de Barcelona, Spain)

A3.10 Use of the Characteristic Modes Theory for the Design of an Antenna in a Harsh Environment From a Generic Antenna Topology
Francois Gallée and Jean Philippe Coupez (Télécom Bretagne, France); Eva Antonino-Daviu (Universidad Politecnica de Valencia, Spain); Marta Cabedo-Fabrés (Universidad Politécnica de Valencia, Spain); Thomas Bernabeu (Iteam Institute - Universitat Politècnica de Valencia, Spain); Alejandro Valero-Nogueira (Universidad Politécnica de Valencia, Spain)

A3.11 An Electrically Small Three-Band Multi-polarization Cross Spiral Antenna
Mayumi Matsunaga and Masataka Suzuki (Ehime University, Japan)

A3.12 On the Extending Bandwidth of Electrically Small Antenna Using Negative Impedance Converter
Katarzyna Jagodzińska (Koszalin University of Technology, Poland)

A3.13 About Radiation Efficiency Optimizing of A Miniaturized Antennas
Yaakoub Dia (University of Limoges, France); Laure Huitema (Xlim Laboratory, France); Christophe Delaveaud (CEA-LETI, France); Stéphane Bila (LIM UMR, France); Marc Thevenot (XLIM-UMR 6172-CNRS, University of Limoges, France)

A3.14 Modified Minkowski Fractal Patch Antenna for Multiband GPS Receiver
Wojciech Krzysztofik (Wroclaw University of Technology, Poland); Lukasz Nartowski (NOKIA Wroclaw, Poland)

A3.15 A Preliminary Study on a Reduced Size Planar Grid Array for Automotive Radars
Emilio Arnieri (University of Calabria, Italy); Amedeo Michelin Salomon (STMicroelectronics, Catania, Italy); G. Amendola (Universita della Calabria, Italy); Luigi Boccia (University of Calabria, Italy); Mario Paparo (STMicroelectronics, Catania- Italy, Italy); Salvo Scaccianoce (STMicroelectronics, Catania, Italy)

A3.16 Human Effect on Twin Antenna On-body for Three Diversity Techniques At 2.4 GHz
Dina Al-Saffar, Robert Michael Edwards, Oluwaseun Ojerinde, Chinthana J Panagamuwa and Rob Seager (Loughborough University, United Kingdom)

A3.17 Performance on the Human Body of a Dual-Band Textile Antenna Loaded with Metamaterials
Sen Yan (KU Leuven, Belgium); Ping Jack Soh (Universiti Malaysia Perlis, Malaysia); Guy A. E. Vandenbosch (Katholieke Universiteit Leuven, Belgium)

A3.18 Knitted Textile Waveguide Bending
Xiaobin Jia (The University of Sheffield, United Kingdom); Alan Tennant and Richard Langley (University of Sheffield, United Kingdom); Tilak Dias and William Hurley (Nottingham Trent University, United Kingdom)

A3.19 Dually Polarized Tunable Printed Antennas for Medical Applications
Albert Sabban (ORT BRAUDE COLLEGE, Israel)

A3.20 Sensitivity of a Wearable Printed Antenna with a Full Ground Plane in Close Proximity to Human Arm
Syed Muzahir Abbas, Yogesh Ranga and Karu Esselle (Macquarie University, Australia)

A3.21 Design and Analysis of a Wearable Antenna System for Wireless Safety Applications
Mahmoud Ali (University of Siena, Italy); Guido Biffi Gentili (University of Florence, Italy); Claudio Salvador (Advanced Microwave Engineering, Italy); Alberto Toccafondi (University of Siena, Italy); Filippo Zani (Advanced Microwave Engineering, Italy)

A3.22 Performance of Embroidered Conductive Yarn in Textile Antennas and Microstrip Lines
Branimir Ivšić (University of Zagreb, Croatia); Davor Bonefačić (University of Zagreb & Dept of Wireless Communications, Croatia); Juraj Bartolić (University of Zagreb, Croatia)

A3.23 Investigation of Textile Striplines Connectivity for Feeding and Connecting Wearable Antennas
Aris Tsolis (Loughborough University, United Kingdom); Antonis A Alexandridis (NCSR „Demokritos“, Greece); William Whittow and J (Yiannis) Vardaxoglou (Loughborough University, United Kingdom)

A3.24 Microwave Interconnects Between Textile and Rigid Substrates Using Permanent Magnets
Duarte de Sousa Fonseca, Rob Seager and James A. Flint (Loughborough University, United Kingdom)

A3.25 Effect of Ink Usage Conservation Techniques on the Read Range of Inkjet Printed Epidermal RFID Tags
Dumtoochukwu Oyeka (University of Kent., United Kingdom); John Batchelor (University of Kent, United Kingdom)

A3.26 The Analysis of Influence of Textile Antenna Location on Its Performance
Lukasz Januszkiewicz (Lodz University of Technology, Institute of Electronics, Poland)

A3.27 Vertically Polarized Omnidirectional Printed Slot Loop Antenna
Nikolaj P.I. Kammersgaard and Søren H Kvist (Technical University of Denmark & GN ReSound A/S, Denmark); Jesper Thaysen (GN ReSound A/S, Denmark); Kaj Bjarne Jakobsen (Technical University of Denmark, Denmark)

A3.28 Investigation of Candidate Antennas for Body Area Networks: Characterization in the Proximity of Human Tissues
Jian Wang and Milica Popović (McGill University, Canada)

A3.29 Wireless Power Transfer Using Self-resonant Spiral Antenna Through Reinforced Plasterboard Wall
Hiroshi Hirayama, Shohei Fukasawa, Keigo Nakamura, Nobuyoshi Kikuma and Kunio Sakakibara (Nagoya Institute of Technology, Japan)

A3.30 Circular-Polarization Reconfigurable Monopole Antenna with Enhanced Boresight Gain for GNSS Applications
Yunfei Cao, William S. W. Cheung and Ti Yuk (The University of Hong Kong, Hong Kong)

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A3.31 Antenna with Patterns and Polarizations Dual Controlling Freedom
Haitao Liu (China Academy of Space Technology, P.R. China); Tian Hong Loh (UK, National Physical Laboratory, United Kingdom); Steven Gao (University of Kent, United Kingdom)

A3.32 Experimental Validation of an Agile Electromagnetic Band Gap Matrix Antenna
Hussein Abou Taam (University of Limoges & XLIM, France); Georges Zakka El Nashef and Eric Arnaud (XLIM, France); Thierry Monediere (University of Limoges & CNRS, France); Bernard Jecko (XLIM, France); Mohamed Rammal (Lebanese University, Lebanon)

A3.33 A Developed Excitation Law for Beam Forming and Steering Applied to A Novel Electromagnetic Band Gap Antenna
Hussein Abou Taam (University of Limoges & XLIM, France); Georges Zakka El Nashef and Eric Arnaud (XLIM, France); Thierry Monediere (University of Limoges & CNRS, France); Bernard Jecko (XLIM, France); Mohamed Rammal (Lebanese University, Lebanon)

A3.34 Comparison Between Pneumatically-Controlled and PIN-Diode-Based Aperture-Coupled Patch Antennas
Billy Wu (University of Calgary, Canada); Michal Okoniewski (University of Calgary & Acceleware Ltd, Canada); Chris Hayden (University of Calgary, Canada)

A3.35 A Reconfigurable Patch Antenna with Symmetrical Structure for Polarization Diversity
Sung Woo Lee and Young Je Sung (Kyonggi University, Korea); Seung jae Lee, Ho sang Yoon and Hong joon Park (HCT, Korea)

A3.36 A Reconfigurable Beam-Scanning Partially Reflective Surface (PRS) Antenna
Luyang Ji (Xidian University & CSIRO Computational Informatics, Australia); Y. Jay Guo and Peiyuan Qin (University of Technology, Sydney, Australia); Guang Fu (Xidian University, P.R. China)

A3.37 Antenna System for Temperature Sensing
Mathieu Cosker (LEAT, University Nice-Sophia Antipolis, CNRS, France); Robert Staraj (University of Nice-Sophia Antipolis, France); Jean-Marc Ribero (Université de Nice Sophia Antipolis, France)

A3.38 Reconfigurable THz Metamaterial Antenna Based on Graphene
Ahmed Radwan (Politecnico di Milano, Italy)

A3.39 Low-Profile Compact-Size Electronically Beam-Switching Antenna for Wireless Communications
Long Zhang, Steven Gao and Qi Luo (University of Kent, United Kingdom)

A3.40 Pattern Reconfigurable Wideband Circularly-Polarized Quadrifilar Helix with Broadside and Backfire Radiation Patterns
Wei Lin and Hang Wong (City University of Hong Kong, Hong Kong)

A3.41 Mutual Coupling Control in a Multiple Antenna System Using Ferrimagnetic Substrate
Evmorfili Andreou (NCSR Demokritos, Institute of Informatics & Telecommunications, Greece); Theodore Zervos (NCSR „Demokritos“, Institute of Informatics & Telecommunications, Greece); Antonis A Alexandridis (NCSR „Demokritos“, Greece); Fotis Lazarakis (NCSR Demokritos, Institute of Informatics & Telecommunications, Greece); George Fikioris (National Technical University of Athens, Greece)

A3.42 Reconfigurable PIFA Antenna Using RF MEMS Switches
Ghassen Chaabane (XLIM Université de Limoges, France); Pierre Blondy (XLIM – University of Limoges, France); Matthieu Chatras, Cyril Guines and Valerie Madrangeas (XLIM – Université de Limoges, UMR CNRS, France)

A3.43 A Tunable Filtenna for Cognitive Radio Applications
Ali Ramadan and Karim Youssef Kabalan (American University of Beirut, Lebanon); Joseph Costantine (American University of Beirut & University of New Mexico, USA); Youssef Tawk (The University of New Mexico & Notre Dame University Louaize, USA); Christos Christodoulou (University of New Mexico, USA)

A3.44 Reconfigurable Square Patch Antenna Using Capacitive Loading and Varactor Diode
Ines Rouissi (FACULTE DES SCIENCES DE TUNIS, Tunisia); Jean-marie Floch (IETR, France); Hatem Rmili (King Abdulaziz University & Faculty of Engineering, Saudi Arabia); Hichem Trabelsi (Faculte des Sciences de Tunis, Tunisia)

A3.45 A New High-Gain and Low-Complexity Pattern-Reconfigurable Antenna
Stylianos D. Assimonis, Argiris Theopoulos and Theodoros Samaras (Aristotle University of Thessaloniki, Greece)

A3.46 Compact Frequency Reconfigurable Slot Antenna with Continuous Tuning Range for Cognitive Radios
William S. W. Cheung, Yunfei Cao and Ti Yuk (The University of Hong Kong, Hong Kong)

14:00 - 15:00 Poster A4: Antennas Poster Session 4
Antennas
Room: Luís de Camões (Hall 3)
Chairs: Enrique González-Plaza (Universidad de Oviedo, Spain), Hamed Hasani (Ecole Polytechnique Fédérale de Lausanne, Switzerland)

A4.1 Synthesis of Timed Antenna Arrays for Arbitrary Shaped-Beam Energy Patterns
Alberto Reyna and Marco Panduro (Autonomous University of Tamaulipas, Mexico); Carlos Del-Río (Public University of Navarra & Antenna Group, Spain)

A4.2 Development of Odd Orientation Array Antenna (OOAA) by Using Leucaena Leucocephala Substrate
Ahmad Azlan Ab Aziz (Universiti Teknologi Mara & UiTM, Malaysia); Mohd Tarmizi Ali (Universiti Teknologi Mara, Malaysia); Faizal Jamlos (Universiti Malaysia Perlis, Malaysia); Zaiki Awang (Universiti Teknologi MARA, Malaysia)

A4.3 An Electronically Controlled 8-Element Switched Beam Planar Array
Sameir Deif (King Fahd University for Petroleum and Minerals, Saudi Arabia); Saeed Dweik (KFUPM, Saudi Arabia); Mohammad S. Sharawi (King Fahd University of Petroleum and Minerals (KFUPM), Saudi Arabia)

A4.4 A Planar Ku Band Antenna for Satellite Communications
Mesut Gokten, Ahmet F Yagli and Lokman Kuzu (Turksat International Satellite and Cable Operator, Turkey); Senol Gulgonul (Sakarya University & Turksat Satellite Communication and Cable TV AS, Turkey)

A4.5 Broadband Focusing Using Aperture-Coupled Microstrip Patch Antenna Arrays
Randy L. Haupt, Atef Elsherbeni and Payam Nayeri (Colorado School of Mines, USA)

A4.6 Two- And Three- Dimensional Near Field Beam Steering Loop Arrays
Bo-Hee Choi, Byung-Chul Park and Jeong Hae Lee (Hongik University, Korea)

A4.7 An Air-filled Cavity-backed 2×2 Slot Sub-array Fed by Inverted Microstrip Gap Waveguide
Seyed Ali Razavi (Graduate University of Advanced Technology, Kerman, Iran); Per-Simon Kildal (Chalmers University of Technology, Sweden)

A4.8 Extremely Low-Profile Planar Antenna Array for Satellite Communications in the Ku-Band
Ignacio Montesinos-Ortego (TTI Norte, Spain); Ana Rosa Ruiz and Manuel J Gonzalez (TTI, Spain); Erika Méndez, Andrés Peñafiel, Alberto Chico and Iván Cayón (TTI Norte, Spain); Alberto Pellón (TTI, Spain)

A4.9 Low Profile Array With Integrated High Impedance Surfaces For High Performance Adaptive GNSS
Cedric Martel (ONERA, France)

A4.10 A Parasitic Three-Element Superdirective Electrically Small Antenna Array
Abdullah Haskou (IETR UMR CNRS 6164, Université de Rennes1, France); Antonio Clemente (CEA-LETI Minatec, France); Ala Sharaiha (Université de Rennes 1 & IETR, France); Christophe Delaveaud (CEA-LETI, France); Sylvain Collardey (University of Rennes 1, France); Lionel Rudant (CEA-LETI & MINATEC, France)

A4.11 On the Simultaneous Mutual-Coupling Compensation for All the Space Directions
Jesús Rubio (University of Extremadura, Spain); Juan F. Izquierdo (Universidad de Extremadura, Spain); Juan Córcoles (Universidad Autónoma de Madrid & Escuela Politécnica Superior, Spain)

A4.12 Interleaved Dual-band Circularly Polarized Active Array Antenna for Satellite Communications
Qi Luo, Long Zhang and Steven Gao (University of Kent, United Kingdom); Sergio Pires (Universidade de Aveiro, Portugal); Pedro Cruz (Instituto de Telecomunicações - Universidade de Aveiro, Portugal); Nuno Borges Carvalho (University of Aveiro/IT Aveiro, Portugal)

A4.13 Fundamental Challenges for Wideband Antenna Elements in Focal-Plane Arrays
Aleksei Dubok, Ali Al-Rawi, Matti Herben and A. B. (Bart) Smolders (Eindhoven University of Technology, The Netherlands)

A4.14 Experimental Results of a Planar Array Composed by an Active Dipole Above a Ground Plane with Parasitic Elements
Aaron A Salas-Sanchez, Javier Fondevila-Gómez, Juan Rodríguez-González and Francisco Ares-Pena (University of Santiago de Compostela, Spain)

A4.15 Study of Grating Efficiency of Planar Arrays
Abbas Vosoogh and Per-Simon Kildal (Chalmers University of Technology, Sweden)

A4.16 Fast Detection of Faulty Elements in EM-Simulated Antenna Array Models From Amplitude-Only Data
Slawomir Koziel (Reykjavik University, Iceland); J. Pieter Jacobs (University of Pretoria, South Africa)

A4.17 Wideband Wide Beam Metallic Tapered Slot Antenna Design for Phased Array Radar Applications
Ashutosh Kedar (Scientist E, India)

A4.18 Array Antennas in Magnetic Nuclear Fusion and Their Modelling At the Ion Cyclotron Resonance Frequency
Walid Helou (CEA/IRFM, France); Pierre Dumortier and Frédéric Durodié (LPP-ERM/KMS, Belgium); Marc Goniche (CEA/IRFM, France); Julien Hillairet (CEA Cadarache & IRFM - Research Institute on Magnetic Nuclear Fusion, France); Gilles Berger-By, Jean-Michel Bernard and Laurent Colas (CEA/IRFM, France); Riccardo Maggiora (Politecnico di Torino, Italy); Roland Magne (CEA/IRFM, France); Daniele Milanesio (Politecnico di Torino, Italy); Patrick Mollard and Gilles Lombard (CEA/IRFM, France)

A4.19 Design of MIMO System with Large Transmit Array Antenna Using Two-Stage Block Diagonalization
Tetsuki Taniguchi (University of Electro-Communications, Japan); Yoshio Karasawa (The University of Electro-Communications, Japan)

A4.20 Wall Clutter Mitigation Using a Modified Subspace Projection Method for Non-Parallel Measurement Through-the-Wall Radar Imaging
Youngjoon Lim and Minyoung Yoon (Seoul National University, Korea); Sumin Yun (Seoul National University & INMC, Korea); Hyunwook Jun and Sangwook Nam (Seoul National University, Korea)

A4.21 Performance of STBC-OFDM-IDMA System Incorporating a New GRP-based Interleaver Over Frequency Selective Channel
Khalida Ghanem (Advanced Technologies Center (CDTA), Algeria); Mustapha Djeddou (Military Polytechnic School, Algeria); Widad Belaoura (EMP, Communication Systems Laboratory, Algeria)

A4.22 DoA Estimation Technique of Back-Scattering Signal From RFID for Gesture Recognition
Naoki Honma, Kazuto Toda and Yoshitaka Tsunekawa (Iwate University, Japan)

A4.23 Blind Source Separation Based Phase Estimator for Carrier Synchronization of High-Order QAM Signals
Mustapha Chouiha (Ecole Militaire Polytechnique, Algeria); Abdelhakim Khouas (University M'Hamed Bougara of Boumerdès (UMBB) & IGEE, Algeria); Adel Belouchrani (Ecole Nationale Polythechnique, Algiers, Algeria); Geneviève B. Baudoin (ESIEE, France)

A4.24 High-Power and Compact S-Band RF-MEMS Phase Shifters
Alexandre Harck (XLIM - University of Limoges France, France); Pierre Blondy (XLIM – University of Limoges, France); Damien Passerieux (University of Limoges, France); Serge Villers (ASTRIUM Space Transportation, France); Sylvie Fargeot (AIRBUS Defence and Space, France)

A4.25 Feedback of the Channel Information for Transmit Beamforming in WLAN
Moussa Diallo, Calvin Iloki and Moustapha Mbaye (UCAD, Senegal)

A4.26 Beamforming Using Conventional and Particle Filter Based Algorithms for Radar Target DOA Estimation
Lajos Nagy (Budapest University of Technology and Economics, Hungary)

A4.27 A BiCMOS 4x4 Butler Matrix
Domenico Calzona (Università della Calabria, Italy); Luigi Boccia and Alireza Shamsafar (University of Calabria, Italy); G. Amendola (Universita della Calabria, Italy)

A4.28 A Low Profile Compact Reconfigurable MIMO Antenna for Cognitive Radio Applications
Rifaqat Hussain (KFUPM, Saudi Arabia); Mohammad S. Sharawi (King Fahd University of Petroleum and Minerals (KFUPM), Saudi Arabia)

A4.29 Realization and MIMO-link Measurements of a Transmit Module for Spatial Modulation
Jo Verhaevert and Patrick Van Torre (Ghent University, Belgium)

A4.30 A New Antenna Arrangement Design of Massive MIMO in LOS Environment for Further Capacity Enhancement
Takuto Arai (NTT, Japan); Atsushi Ohta (NTT Network Innovation Laboratories, Japan); Satoshi Kurosaki (NTT, Japan); Kazuki Maruta (NTT Corporation & NTT Access Network Service Systems Laboratories, Japan); Tatsuhiko Iwakuni (NTT, Japan); Masataka Iizuka (Nippon Telegraph and Telephone Corporation, Japan)

A4.31 Measurements of a MIMO Train-To-Wayside Communication System on Tunnels
Juan Moreno (Universidad Politécnica de Madrid, Spain); Leandro De Haro Ariet (Polytechnic University of Madrid, Spain); Carlos Rodríguez Sánchez (Metro de Madrid S.A., Spain); Luis Cuéllar Navarrete (Polytechnic University of Madrid, Spain); Jose M Riera (Universidad Politécnica de Madrid, Spain)

A4.32 A Novel Uniplanar Differentially-fed UWB Polarization Diversity Antenna with Dual Notch Bands
He Huang and Ying Liu (Xidian University, P.R. China); Shu Gong (National Laboratory of Antennas and Microwave Technology, P.R. China)

A4.33 A Compact Four-Port Patch Antenna for MIMO Application
Ka Ming Mak (State Key Laboratory of Millimeter Wave & City University of Hong Kong, Hong Kong)

A4.34 Planar Multiband MIMO Antenna System Operating in GSM 1800, LTE2300, LTE2500, WLAN and WiMAX Bands
Kaustubh Chhabilwad (Indian Institute of Technology, Bombay, India); Shrikanth Reddy and Anil Kamma (IIT Bombay, India)

A4.35 Isolation Improvement Using CMRC for MIMO Antennas
William S. W. Cheung, Di Wu, Li Liu and Ti Yuk (The University of Hong Kong, Hong Kong)

A4.36 A Multi Layers Polymer Bendable Multiple Input Multiple Output (MIMO) Antenna Array on PDMS Substrate for 5.8 GHz Applications
Abdulrahman Shueai Mohsen Alqadami (Advanced Communication Engineering Centre (ACE), University Malaysia Perlis (UniMAP), Malaysia); Faizal Jamlos (Universiti Malaysia Perlis, Malaysia)

A4.37 Spatial Multiplexing of 4×4 UCA LoS MIMO Systems with Splitting Matrix At RF Band
Zhengyi Li (Fujitsu Laboratories Ltd, Japan); Liang Zhou and Atsushi Honda (Fujitsu Laboratories Ltd., Japan); Yoji Ohashi (Fujitsu, Japan)

A4.38 Body Loss Study of Beamforming Mode in LTE MIMO Mobile Terminals
Shuai Zhang (Aalborg University, Denmark); Kun Zhao (KTH Royal Institute of Technology & Sony Mobile Communication AB, Sweden); Zhinong Ying (Sony Mobile, Sweden); Sailing He (Royal Institute of Technology, Sweden)

A4.39 A Dual Band Polygon Shaped CPW-Fed Planar Monopole Antenna with Circular Polaraization and Isolation Enhansment for MIMO Aplications
Amir Hossein Haghparast (Faculty of Engineering, Shahed University, Tehran, IRAN, Iran); Gholamreza Dadashzadeh (Shahed University, Iran)

A4.40 A Two-Element Patch Antenna Exploiting Path Inequality for Bandwidth Augmentation
Anastasios Koutinos and Georgios Ioannopoulos (Democritus University of Thrace, Greece); Panagiotis Gkonis (National Technical University of Athens, Greece); Michael Chryssomallis and George Kyriacou (Democritus University of Thrace, Greece)

A4.41 MIMO Dielectric Resonator Antenna for LTE Femtocell Access Point Applications
Mohsen Khalily (Wireless Communication Center (WCC) Universiti Teknologi Malaysia (UTM), Malaysia); Mohd Haizal Jamaluddin (Universiti Teknologi Malaysia, Malaysia); Tharek Abdul Rahman (Wireless Communication Centre, Malaysia); Jamal Nasir (COMSATS Institute of Information Technology Abbottabad, Pakistan); Muhammad Ramlee Kamarudin (Universiti Teknologi Malaysia, Malaysia)

A4.42 Design of a Flexible Dielectric Reflectarray Antenna for THz Applications
Ruyuan Deng (Department of Electronic Engineering, Tsinghua University, P.R. China); Ladislau Matekovits (Politecnico di Torino, Italy); Fan Yang (Tsinghua University, P.R. China); Paola Pirinoli (Politecnico di Torino, Italy); Shenheng Xu and Maokun Li (Tsinghua University, P.R. China)

A4.43 Active Reflectarray Element with Large Reconfigurability Frequency Range
Sandra Costanzo, Francesca Venneri, Antonio Raffo, Giuseppe Di Massa and Pasquale Corsonello (University of Calabria, Italy)

A4.44 Two-Dimensional Antenna Beamsteering Using Metamaterial Transmitarray
João Ricardo Reis, Jr, Zaid Al-Daher and Nigel Copner (University of South Wales, United Kingdom); Rafael F. S. Caldeirinha and Telmo R. Fernandes (IPL - Polytechnic Institute of Leiria & Instituto de Telecomunicação (IT), Portugal)

A4.45 Single Layer Quad-Band Dual-Polarized Unit Cell for Reflectarray Antennas in Ku Band
Hamed Hasani (Ecole Polytechnique Fédérale de Lausanne, Switzerland); Custodio Peixeiro (IST-TUL, Portugal); Anja K. Skrivervik (EPFL, Switzerland); Julien Perruisseau-Carrier (Ecole Polytechnique Fédérale de Lausanne & EPFL, Switzerland)

A4.46 Folded Reflectarray with Dually Polarized Cells
Abdelhady Mahmoud (Concordia University- Benha University, Egypt); Ahmed Kishk (Concordia University, Canada)

A4.47 Evaluation of the Phase Discretization Effect in Transmitarrays Formed by Sub-Wavelength Patches
Eduardo B. Lima (Instituto de Telecomunicações & Instituto Superior Técnico, Portugal); Sérgio Matos (Instituto de Telecomunicações, Portugal); Jorge R. Costa (Instituto de Telecomunicações / ISCTE-IUL, Portugal); Carlos A. Fernandes (Instituto de Telecomunicacoes, Instituto Superior Tecnico, Portugal)

A4.48 Iterative Design Approach for Multi-Band Single-Layer Reflectarrays
Michele Borgese (Università di Pisa, Italy); Filippo Costa, Simone Genovesi and Agostino Monorchio (University of Pisa, Italy)

14:00 - 15:00 Poster P2: Propagation Poster Session 2
Propagation
Room: Fernão M Pinto (Hall 4)
Chairs: Nektarios Moraitis (National Technical University of Athens ; Institute of Communications and Computers Systems, Greece), Bile Peng (Technische Universität Braunschweig, Germany)

P2.1 Antenna Radiation Characterization for On-Body Communication Channel Using Creeping Wave Theory
Zhongkun Ma (Pierre and Marie Curie University, France); Julien Sarrazin (University of Pierre & Marie Curie UPMC, France); Aziz Benlarbi-Delaï (Sorbonne Universités, UPMC Paris 06, France); Luca Petrillo (Université Libre de Bruxelles, Belgium); Theodoros Mavridis (Université Libre de Bruxelles & Université Pierre et Marie Curie, Belgium); Philipe De Doncker (ULB, Belgium)

P2.2 Measurements for Body-to-Body UWB WBAN Radio Channels
Timo Kumpuniemi and Matti Hämäläinen (University of Oulu, Finland); Kamya Yekeh Yazdandoost (University of Oulu - Centre for Wireless Communications, Finland); Jari Iinatti (University of Oulu, Finland)

P2.3 Simultaneous Measurements of the Channel Response for Multiple Eavesdroppers Operating in the Vicinity of a Body Area Network At 2.45 GHz
Nidhi Bhargav (Queen's University Belfast, United Kingdom); Simon Cotton (Queen's University, Belfast, United Kingdom)

P2.4 A Statistical Characterization of Shadowed Fading in Indoor Off-Body Communications Channels At 5.8 GHz
Seong Ki Yoo (Queen't University Belfast, United Kingdom); Simon Cotton (Queen's University, Belfast, United Kingdom)

P2.5 Signal Reliability Improvement Using Selection Combining Based Macro-Diversity for Off-Body Communications At 868 MHz
Seong Ki Yoo (Queen't University Belfast, United Kingdom); Simon Cotton (Queen's University, Belfast, United Kingdom); Adrian D McKernan and William G. Scanlon (Queen's University Belfast, United Kingdom)

P2.6 Planar Spiral Antenna for Brain Stroke Detection
Marina Shokry and Abdelmegid Allam (German University in Cairo, Egypt)

P2.7 Vehicular Traffic Intersecting Body-to-Body Communications Channels At 2.45 GHz
Michael Doone (Queen's University Belfast, United Kingdom); Simon Cotton (Queen's University, Belfast, United Kingdom)

P2.8 Radio Channel Characterization At 2.4 GHz in Nuclear Plant Environment
Hanna Farhat (CEA, LETI, MINATEC Campus, France); Lorenzo Minghini (University Grenoble-Alpes & CEA, LETI, Minatec Campus, France); Julien Keignart (CEA - LETI, France); Raffaele D'Errico (CEA, LETI, Minatec Campus & Univ\. Grenoble-Alpes, France)

P2.9 Analysis of Total Installation Cost Versus Downlink Whole-Body SAR in Indoor Wireless Networks
David Plets (Ghent University - iMinds, Belgium); Wout Joseph (Ghent University/iMinds, Belgium); Kris Vanhecke and Luc Martens (Ghent University, Belgium)

P2.10 Sequence Detection of Movement for Accurate Area Based Indoor Positioning and Tracking
Piotr Wawrzyniak (Lodz University of Technology, Poland); Slawomir Hausman (Technical University of Lodz, Poland); Piotr Korbel (Lodz University of Technology, Poland)

P2.11 Measurements and Modeling for Indoor Environments Analysis At 10 GHz for 5G
Leslye Castro (Universidade Federal do Pará, Brazil); Iury Batalha (Universidade Federal do Pará & LCT, Brazil); Diego Silva (Federal University of Pará, Brazil); Hélio Ferreira, Wellington Fonseca and Fabrício Barros (Universidade Federal do Pará, Brazil); Gervásio Cavalcante (UFPA, Brazil)

P2.12 Signal Reception Characteristics in the Proximity of Alice and Bob for Secure Indoor Peer-to-Peer Communications At 2.45 GHz
Nidhi Bhargav (Queen's University Belfast, United Kingdom); Simon Cotton (Queen's University, Belfast, United Kingdom); Vincent Fusco (Queen's University Belfast, United Kingdom)

P2.13 Cross-Layer Modeling for Video Quality Loss on WLANs
Iury Batalha (Universidade Federal do Pará & LCT, Brazil); Bruno Castro (Federal University of Pará, Brazil); Andreia Lopes (Universidade Federal do Pará, Brazil); Evaldo Pelaes (Federal University of Pará, Brazil); Gervásio Cavalcante (UFPA, Brazil)

P2.14 Statistical Channel Model for Wireless Sensor Networks Deployment in Suburban Environment
Eran Greenberg (RAFAEL, Israel); Alon Sheinberg (Rafael, Israel)

P2.15 Field Trial on Adaptive Modulation of Microwave Communication Link At 6.8GHz
Lei Bao, Jonas Hansryd and Göran Sandin (Ericsson AB, Sweden); Urs Noser (Ericsson AB, Switzerland)

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P2.16 Impact of Wireless NLOS Backhaul Design on Small-Cells Deployment and End-user Experience
Gregory Gougeon, Mathieu Brau and Yoann Corre (SIRADEL, France); Yves Lostanlen (SIRADEL & University of Toronto, Canada)

P2.17 Radio-Wave Propagation Predictions in a Three-Layered Medium for VHF/UHF Based on Dyadic Green's Function
Diego Silva, Cristiane Ruiz Gomes, Jasmine Priscyla Leite de Araújo and Hermínio Gomes (Federal University of Pará, Brazil); Gervásio Cavalcante (UFPA, Brazil)

P2.18 Application of Analytical Propagation Models on Point-To-Point and Point-To-Area RF Signal Prediction
Claudio Garcia Batista (Federal University of São João Del-Rei (UFSJ), Brazil); Cássio Rego and Mateus Motta Evangelista (Federal University of Minas Gerais, Brazil); Glaucio L. Ramos (Federal University of São João Del-Rei, Brazil)

P2.19 Analysis of Radio Propagation At Intersection Considering Car Antenna Positions for Inter-vehicle Communications
Suguru Imai, Kenji Taguchi and Tatsuya Kashiwa (Kitami Institute of Technology, Japan); Satoru Komatsu (Honda R&D Co., Ltd., Japan)

P2.20 Vehicle-to-Vehicle Communication: End-to-End Performance Evaluation in Dense Propagation Environments
Georgios Pitsiladis, Dimitrios Papanikolaou, Athanasios D. Panagopoulos and Constantinos Antoniou (National Technical University of Athens, Greece)

P2.21 Fading Characteristics of Dynamic Person-to-Vehicle Channels At 5.8 GHz
Michael Doone (Queen's University Belfast, United Kingdom); Simon Cotton (Queen's University, Belfast, United Kingdom)

P2.22 Performance of Secret Key Generation in Non Stationary Channels
Taghrid Mazloum (Telecom ParisTech, France); Alain Sibille (Telecom Paris Tech & ENSTA PARISTECH, France)

P2.23 An Initial Path-Loss Model Within Vegetation in the THz Band
Armita Afsharinejad (Telecommunication Software and Systems Group (TSSG), Waterford Institute of Technology (WIT), Ireland); Alan Davy and Brendan Jennings (Waterford Institute of Technology, Ireland); Conor Brennan (Dublin City University, Ireland)

P2.24 Performance Evaluation of MIMO Satellite Multiple-Relay Multi-User Fading Channels
Styliani Fassoi, Emmanouel T. Michailidis and Athanasios G. Kanatas (University of Piraeus, Greece)

P2.25 Rigorous Full-wave Analysis of Mode Coupling in Coaxial Waveguide Bends
Qiang Zhang, Chengwei Yuan and Shengren Peng (National University of Defense Technology, P.R. China)

P2.26 Improvement of Resonant Cavity Applicator for Thermotherapy of Osteoarthritis
Yasuhiro Shindo (Meiji University, Japan); Keito Nakamura (Graduate School of Meiji University, Japan); Kazuo Kato (Meiji University, Japan)

P2.27 A Validation Using Measurement Data of a Radio Channel Model with Geographical Information
Jose Leon Calvo (RWTH Aachen University, Germany); Florian Schröder (RWTH Aachen University & Lehrstuhl für Theoretische Informationstechnik, Germany); Xiang Xu and Rudolf Mathar (RWTH Aachen University, Germany)

P2.28 Wireless Indoor Networks Planning Considering QoE Metrics on Multimedia Applications
Allan Braga (Federal University of Pará, Brazil); Ramz Fraiha (Federal University of Pará UFPA, Brazil); Joao Carmona (UFPA, Brazil); Jasmine Priscyla Leite de Araújo, Simone da Gra?a de Castro Fraiha, Josiane do Couto Rodrigues and Hermínio Gomes (Federal University of Pará, Brazil); Gervásio Cavalcante (UFPA, Brazil)

P2.29 The Tamm State Analogue Tuning in the Chainlike Structure Loaded with Varactor Diode
Aleksey Girich (Institute for Radiophysics and Electronics NAS of Ukraine, Ukraine)

P2.30 Improved Target Detection Resolution by Compressed Sensing on Narrow-Band Radar
Sandra Costanzo, Adele Mangialardi and Antonio Raffo (University of Calabria, Italy)

P2.31 A Mode Matching Method for Modeling Low Frequency Wireless Communication for Oil Fields
Guilherme Rosa (Pontifical Catholic University of Rio de Janeiro, PUC-Rio, Brazil); Jose R Bergmann (PUC-Rio, Brazil)

15:00 - 16:20 WS7 CST: CST Workshop: Advanced Antenna System Simulation Industrial Workshop
Room: Diogo de Silves (Room 1.08)

15:00 - 16:20 Inv_2A: Invited Speakers Session 2A
Room: Diogo Cão (Aud 8)
Chair: Jose A. Encinar (Universidad Politecnica de Madrid, Spain)

15:00 Reconfigurable Reflectarrays: Design, Analysis and Fabrication
Ozlem Aydin Civi (Middle East Technical University, Turkey)

15:40 Compressive Sensing - Basics, State-of-the-Art, and Advances in Electromagnetic Engineering
Andrea Massa (University of Trento, Italy)

16:20 – 16:50 Coffee Break
Room: Vasco da Gama (Pav 1)

15:00 - 16:20 Inv_2B: Invited Speakers Session 2B
Room: Pedro A Cabral (Aud 2)
Chair: Eva Rajo-Iglesias (University Carlos III of Madrid, Spain)

15:00 Nonlinear, Active, and Anisotropic Impedance Surfaces
Daniel Sievenpiper (University of California, San Diego, USA)

15:40 On-Chip Antenna Arrays for Multi-Chip RF Data Transmission
Kathleen Melde, Sungjong Yoo and Ho-Hsin Yeh (University of Arizona, USA)

16:20 – 16:50 Coffee Break
Room: Vasco da Gama (Pav 1)

15:00 - 16:50 WS1 AMTA: AMTA Workshop: Measurement Techniques for Multi-beam Antennas Scientific Workshop
Room: Diogo de Silves (Room 1.08)
Chair: Lars Foged (Microwave Vision Italy, Italy)

16:50 - 18:30 Bi3 Wearable: Wearable Antennas Antennas/Biomedical
Room: Pedro A Cabral (Aud 2)
Chairs: Davor Bonefačić (University of Zagreb ; Dept of Wireless Communications, Croatia), Benjamin Loader (National Physical Laboratory, United Kingdom)

16:50 Stretchable and Flexible E-Fiber Antennas with High Geometrical Accuracy
Asimina Kiourti (The Ohio State University, USA); John L. Volakis (Ohio State University, USA)

17:10 The Performance of Conducting Elastomer Antennas for Body Worn Applications
Benjamin Loader and Andrew Gregory (National Physical Laboratory, United Kingdom)

17:30 Quantifying the Impact of Seam Compression on Embroidered Textile Substrate-Integrated Structures
Thomas Kaufmann (The University of Adelaide, Australia); Christophe Fumeaux (The University of Adelaide & School of Electrical and Electronic Engineering, Australia)

17:50 A Compact Circularly Polarized Wearable Filtering Antenna for Off-Body Communications
Zhi Hao Jiang and Micah Gregory (The Pennsylvania State University, USA); Douglas H Werner and Pingjuan Werner (Pennsylvania State University, USA)

18:10 Antenna Designs of Smart Watch for Cellular Communications by Using Metal Belt
Kun Zhao (KTH Royal Institute of Technology & Sony Mobile Communication AB, Sweden); Zhinong Ying (Sony Mobile, Sweden); Sailing He (Royal Institute of Technology, Sweden)

16:50 - 18:30 C12 PowerTr: [C] Antennas and systems for Wireless Power Transmission in space applications Antennas/Multi Applications
Room: Gil Eanes (Aud 3)
Chairs: Nuno Borges Carvalho (University of Aveiro/IT Aveiro, Portugal), Alessandra Costanzo (DEIS, University of Bologna, Italy)

16:50 5.8 GHz Microstrip Antennas and Array for Microwave Power Transfer
António Carvalho (IT-DETI-Universidade de Aveiro, Portugal); Ricardo Gonçalves (Instituto de Telecomunicações, Portugal); Nuno Borges Carvalho (University of Aveiro/IT Aveiro, Portugal); Pedro Tavares Pinho (ISEL, Portugal); Apostolos Georgiadis (CTTC, Spain); Alessandra Costanzo (DEIS, University of Bologna, Italy)

17:10 The Compact X-band AIA for MPT with a GaAs MMIC on a Multi-Layer Substrate
N. Hasegawa (Kyoto University & ISAS/JAXA, Japan); Satoshi Yoshida (Japan Aerospace Exploration Agency & Institute of Space and Astronautical Science, Japan); Naoki Shinohara (Kyoto University, Japan); Shigeo Kawasaki (Institute of Space and Astronautical Science, Japan Aerospace Exploration Agency, Japan)

17:30 Design and Characterization of Effective Antennas for K-band Rectennas
Alexandru Takacs (LAAS-CNRS Université de Toulouse, France); Hervé Aubert (Laboratory of Analysis and Architecture of Systems & Institut National Polytechnique de Toulouse, France); Stephane Fredon (French Space Agency, France); Laurent Despoisse (Thales Alenia Space, France)

17:50 Experimental Study on Sensors in a Car Engine Compartment Driven by Microwave Power Transfer
Naoki Shinohara (Kyoto University, Japan)

18:10 Introduction of Wireless Power Transfer Technology for Heavy-Duty Vehicles
Naoki Shinohara (Kyoto University, Japan)

16:50 - 18:30 C17 DMC: [C] Dense Multipath Component (DMC) characterization for radio channel modeling
Propagation/Wireless Networks
Room: Afonso de Albuquerque (Pav 3B)
Chairs: Davy P Gaillot (University of Lille 1, France), Wout Joseph (Ghent University/iMinds, Belgium)

16:50 Polarimetric Characteristics of Specular and Dense Multipath Components in an Industrial Hall
Emmeric Tanghe (Ghent University, Belgium); Davy P Gaillot (University of Lille 1, France); Wout Joseph (Ghent University/iMinds, Belgium); Isabelle Vin (Université Lille 1, France); Pierre Laly, Viet-Chi Tran and Martine Liénard (University of Lille 1, France); Luc Martens (Ghent University, Belgium)

17:10 Modelling the mmWave Channel Based on Intelligent Ray Launching Model
Jialai Weng and Xiaoming Tu (University of Sheffield, United Kingdom); Zhihua Lai (Ranplan Wireless Network Design Ltd, University of Sheffield, United Kingdom); Sana Salous (Durham University, United Kingdom); Jie Zhang (University of Sheffield, Dept. of Electronic and Electrical Engineering, United Kingdom)

17:30 Maximum-Likelihood Based Estimation of Angular Parameters of Dense-Multipath-Components
Martin Käske and Reiner S. Thomä (Ilmenau University of Technology, Germany)

17:50 Using Tuned Diffuse Scattering Parameters in Ray Tracing Channel Modeling
Juan Pascual-García (Universidad Politécnica de Cartagena, Spain); Maria Teresa Martinez-Ingles (Universidad Politecnica de Cartagena, Spain); Jose-Maria Molina-Garcia-Pardo, José-Víctor Rodríguez and Leandro Juan-Llacer (Universidad Politécnica de Cartagena, Spain)

18:10 Dense Multipath Components Add-on for COST 2100 Channel Model
Usman Tahir Virk and Katsuyuki Haneda (Aalto University, Finland); Jean-Frederic Wagen (University of Applied Sciences of Western Switzerland, Fribourg, Switzerland)

16:50 - 18:30 C24 HighNorth: [C] High North Satellite Propagation
Propagation/Space
Room: Tristão V Teixeira (Pav 5A)
Chairs: Lars Erling Bråten (Norwegian Defence Research Establishment (FFI), Norway), Terje Tjelta (Telenor, Norway)

16:50 Experimental Campaign with First Results for Determining High North 20 GHz Satellite Links Propagation Conditions
Terje Tjelta (Telenor, Norway); Martin Rytir (Norwegian Defence Research Establishment (FFI), Norway); Per Arne Grotthing (Telenor Sattelite Broadcasting, Norway); Josef Noll (UNIK, Norway); Jan Erik Håkegård (SINTEF, Norway); Johansen Trond Henning (Norwegian Defence Logistic Organization, Norway); Michael Ciecko (Telenor Satellite Broadcasting, Norway); Michael Cheffena (Gjøvik University College, Norway); Jostein Sander and Terje Mjelde (FFI, Norway)

17:10 One Year of 20 GHz Satellite Measurement Data From a Nordic Maritime Environment
Lars Erling Bråten and Martin Rytir (Norwegian Defence Research Establishment (FFI), Norway)

17:30 Clear-Air Scintillation and Multipath for Low-Elevation High-Latitude Satellite Communication Links
Martin Rytir (Norwegian Defence Research Establishment (FFI), Norway)

17:50 Characterization of Tropospheric Propagation in Polar Areas for the Design of Earth Observation Satellites Ka Band Data Downlink
Nicolas Jeannin and Laurent Castanet (ONERA, France)

18:10 Results From Three Years of Ka-band Propagation Characterization At Svalbard, Norway
James Nessel (NASA, USA); Michael Zemba and Jacquelynne Morse (NASA Glenn Research Center, USA)

16:50 - 18:30 C26 INTELLE.: [C] INTELLECT. Antennas/Bridging other Areas
Room: Diogo Cão (Aud 8)
Chairs: Lale Alatan (METU, Turkey), Juan R Mosig (Ecole Polytechnique Federale de Lausanne, Switzerland)

16:50 Rigorous Losses Evaluation in the Numerical Analysis of SIW Structures
Massimiliano Casaletti (University of Rennes1, France); Guido Valerio (Sorbonne Universités UPMC, France); Ronan Sauleau (University of Rennes 1, France); Matteo Albani (University of Siena, Italy)

17:10 Efficient Analysis of Reflectarrays Through the Use of Characteristic Modes
Erdinc Ercil (ASELSAN, Turkey); Lale Alatan (METU, Turkey); Ozlem Aydin Civi (Middle East Technical University, Turkey)

17:30 Efficient Analysis of Gap Waveguide Structures Using Mode Matching Approach
Mladen Vukomanovic, Marko Bosiljevac and Zvonimir Sipus (University of Zagreb, Croatia)

17:50 Behavior of Time-Domain Volumic Methods in Presence of High-Contrast Media Interfaces
Michel Ney and Abdelrahman Ijjeh (TELECOM Bretagne Institute, France); Francesco Andriulli (Ecole Nationale Superieure des Telecomunications de Bretagne, France)

18:10 Antenna Q-factor Calculation Using the MoM Impedance Matrix
Doruk Tayli and Mats Gustafsson (Lund University, Sweden)

16:50 - 18:30 C36 Scatter: [C] Modelling scattering phenomena in wireless links
Propagation/High Data-rate Transfer
Room: Gonçalo V Cabral (Pav 5C)
Chairs: Uwe-Carsten G. Fiebig (German Aerospace Center (DLR), Germany), Fernando Pérez-Fontán (University of Vigo, Spain)

16:50 MARLENE: MediterraneAn RFC and Sea cLutter ENvironmental Experiment
Vincent Fabbro (ONERA, France); Jörg Förster (Technical Center for Ships and Naval Weapon, Germany); Gregor Biegel (Fraunhofer FHR, Germany); Christian Onno Böhler (Technical Centre for Ships and Naval Weapons, Naval Technology and Research, France); Michael Gallus and Andreas Ulland (Technical Centre for Ships and Naval Weapons, Naval Technology and Research, Germany); Thorsten Brehm (Fraunhofer FHR, Germany); Jean-Paul Marcellin, Xavier Boulanger and Laurent Castanet (ONERA, France); Andreas Danklmayer (Fraunhofer FHR, Germany); Yvonick Hurtaud (DGA/MI, France)

17:10 Propagation Channel At 5.2 GHz in Baltic Sea with Focus on Scattering Phenomena
Wei Wang (German Aerospace Center (DLR), Germany); Gerald Hoerack (Graz University of Technology, Austria); Jost Thomas, Ronald Raulefs, Michael Walter and Uwe-Carsten G. Fiebig (German Aerospace Center (DLR), Germany)

17:30 Physical Optics Analysis of the Radiation Pattern of an Antenna Mounted on an Aircraft
Marcos Arias (University of Vigo, Spain); Jost Thomas (German Aerospace Center (DLR), Germany)

17:50 Scattering From Single Isolated Tree Based on Physical Optics: Preliminary Model
Milan Kvicera (Czech Technical University in Prague, Czech Republic); Fernando Pérez-Fontán (University of Vigo, Spain); Pavel Pechac (Czech Technical University in Prague, Czech Republic)

18:10 Statistical Modeling of THz Scatter Channels
Seunghwan Kim (Georgia Tech, USA); Alenka Zajic (Georgia Institute of Technology, USA)

16:50 - 18:30 C40 PropGbit: [C] Propagation for multi-gigabit applications
Propagation/Cellular Communications
Room: Pêro Escobar (Pav 3A)
Chairs: Vittorio Degli-Esposti (University of Bologna, Italy), Katsuyuki Haneda (Aalto University, Finland)

16:50 Study of Propagation Mechanisms and Identification of Scattering Objects in Indoor Multipath Channels At 11 GHz
Khagendra Belbase (Tokyo Institute of Technology, Japan); Minseok Kim (Niigata University, Japan); Jun-ichi Takada (Tokyo Institute of Technology, Japan)

17:10 Development of High Frequency Band Over 6 GHz for 5G Mobile Communication Systems
Tetsuro Imai (NTT DOCOMO, INC., Japan)

17:30 A Full Solution of an Integral Equation Which Represents Terrain Effects on Radio Wave Propagation
Emanoel Costa (Pontifícia Universidade Católica do Rio de Janeiro (PUC-Rio), Brazil); Markus Liniger (LiniKomm GmbH, Switzerland)

17:50 Spatial Characterization of Coherence Bandwidth for 72 GHz mm-Wave Indoor Propagation Channel
Yongyu He, Xuefeng Yin and Yilin Ji (Tongji University, P.R. China); Xiaofeng Lu (Huawei Technology Company, P.R. China); Mingde Du (Huawei, P.R. China)

18:10 28 GHz Channel Modeling Using 3D Ray-Tracing in Urban Environments
Sooyoung Hur (Samsung Electronics & HQ Korea, Korea); Sangkyu Baek, Byungchul Kim and Jeongho Park (Samsung Electronics, Korea); Andreas Molisch (University of Southern California, USA); Katsuyuki Haneda (Aalto University, Finland); Michael Peter (Fraunhofer HHI, Germany)

16:50 - 18:30 C9 AMTA3: [C] AMTA/EurAAP Satellite and Aerospace Antenna Testing Measurements/Space
Room: Paulo da Gama (Pav 5B)
Chairs: Mathieu Riel (MDA, Canada), Luca Salghetti Drioli (European Space Agency-ESTEC, The Netherlands)

16:50 SMAP: Performance Verification and Testing of a Challenging Instrument Antenna
Paolo Focardi (Jet Propulsion Laboratory & California Institute of Technology, USA); Paula Brown (JPL, USA); Joseph Vacchione and Jefferson Harrell (Jet Propulsion Laboratory, USA)

17:10 Pattern Testing of Low-Cost Antennas for LEO and MEO Satellites At MDA
Mathieu Riel, Pierre Arsenault, Benjamin Lemelin-Auger and Eric Amyotte (MDA, Canada)

17:30 First Results of Innovative Mobile Near-Field Antenna Measurement System for Extreme Large DUTs
Hans-Juergen Steiner (Airbus Defence & Space & Electronics Devision, Germany); Alexander Geise (Astrium GmbH, Germany); Carsten H Schmidt (Airbus DS GmbH, Germany); Torsten Fritzel (Airbus DS, Germany); Maurice Paquay (European Space Agency & ESTEC, The Netherlands)

17:50 DTU-ESA Millimeter-Wave Validation Standard Antenna (mm-VAST) – Detailed Design
Oleksiy S. Kim, Sergey Pivnenko and Olav Breinbjerg (Technical University of Denmark, Denmark); Rolf Jørgensen and Niels Vesterdal (Ticra, Denmark); Kim Branner, Peter Berring and Christen Malte Markussen (Technical University of Denmark, Denmark); Maurice Paquay (European Space Agency & ESTEC, The Netherlands)

18:10 Analysis of Spacecraft Antenna Farm Interaction with Equivalent Current Technique
Luca Salghetti Drioli (European Space Agency-ESTEC, The Netherlands); Lars Foged, Francesco Saccardi and Lucia Scialacqua (Microwave Vision Italy, Italy)

16:50 - 18:30 MA6 MetaSurf: Metamaterial Lens and metasurfaces
Antennas/Multi Applications
Room: Bartolomeu Dias (Aud 4)
Chairs: Miguel Navarro-Cía (Imperial College London, United Kingdom), Ronan Sauleau (University of Rennes 1, France)

16:50 Flattened Generalized Maxwell Fish-eye Lens Limiting Sub-unity Refractive Index Regions
Andrey V. Osipov (Saint Petersburg Electrotechnical University, Russia); Daniel Rodríguez Prado (Universidad de Oviedo & Group of Signal Theory and Communications, Spain); Oscar Quevedo-Teruel (KTH Royal Institute of Technology, Sweden)

17:10 144 GHz Epsilon-Near-Zero Metamaterial Lens
Víctor Torres, Bakhtiyar Orazbayev and Victor Pacheco-Peña (Universidad Publica de Navarra, Spain); Jorge Teniente (Public University of Navarra, Spain); Miguel Beruete (Universidad Publica de Navarra, Spain); Miguel Navarro-Cía (Imperial College London, United Kingdom); Mario Sorolla (Universidad Publica de Navarra, Spain); Nader Engheta (University of Pennsylvania, USA)

17:30 Zoned Fishnet Metamaterial Lens with Millimetre-Wave Dual-Band Response
Bakhtiyar Orazbayev, Victor Pacheco-Peña, Víctor Torres and Miguel Beruete (Universidad Publica de Navarra, Spain); Miguel Navarro-Cía (Imperial College London, United Kingdom)

17:50 A Wide-angle Broadband Waveplate Through Field Transformation
Junming Zhao and Yijun Feng (Nanjing University, P.R. China); Yang Hao (Queen Mary University, United Kingdom)

18:10 Parallel-Plate-Waveguide Luneburg Lens Through a Holey Plate Metasurface
Cheikh Diallo (University of Rennes 1, France); Oscar Quevedo-Teruel (KTH Royal Institute of Technology, Sweden); Guido Valerio (Sorbonne Universités UPMC, France); Hervé Legay (Thalès Alenia Space, France); Ronan Sauleau (University of Rennes 1, France)

Wednesday, April 15

16:50 - 18:30 MA7 FSS: Frequency and polarization selective surfaces
Antennas/Multi Applications
Room: João G Zarco (Pav 3C)
Chairs: Enrica Martini (University of Siena, Italy), J (Yiannis) Vardaxoglou (Loughborough University, United Kingdom)

16:50 Enhancement of Antenna Gain and a Bandwidth Using Frequency Selective Reflectors
Dongho Kim (Sejong University, Korea)

17:10 Multiband Frequency Selective Surface with Open Matryoshka Elements
Alfrêdo Gomes Neto (Instituto Federal de Educação, Ciência e Tecnologia da Paraíba - IFPB & Grupo de Telecomunicações e Eletromagnetismo Aplicado - GTEMA, Brazil); Adaildo DAssunção Junior (Instituto Federal de Educação, Ciência e Tecnologia da Paraíba, IFPB, Brazil); Jefferson Costa Silva (Instituto Federal de Educação, Ciência e Tecnologia da Paraíba & IFPB, Brazil); Josiel Cruz and João Batista Silva (Federal Institute of Education, Science and Technology of Paraíba, IFPB & Group of Telecommunications and Applied Electromagnetism, GTEMA, Brazil); Nieremberg Ramos (Instituto Federal de Educação, Ciência e Tecnologia da Paraíba, Brazil)

17:30 Design Principles for Coupled Complementary Metasurfaces
David González-Ovejero and Enrica Martini (University of Siena, Italy); J (Yiannis) Vardaxoglou (Loughborough University, United Kingdom); Stefano Maci (University of Siena, Italy)

17:50 A Performance Study of Circular Polarization Selective Structures
Andreas Ericsson and Daniel Sjöberg (Lund University, Sweden)

18:10 Compact Quarter-Wave Plate Metasurface At 1 and 2.2 THz
Víctor Torres (Universidad Publica de Navarra, Spain); Nuria Sanchez (NTC UPV, Spain); David Etayo (Public University of Navarra, Spain); Ruben Ortuño (Universidad Politécnica de Valencia, Spain); Miguel Navarro-Cía (Imperial College London, United Kingdom); Alejandro Martinez (Universidad Politecnica de Valencia, Spain); Miguel Beruete (Universidad Publica de Navarra, Spain)

Thursday, April 16

09:00 - 12:50 Bi1 CancerDet: Microwave Cancer Detection
Antennas/Biomedical
Room: Pedro A Cabral (Aud 2)
Chairs: Panagiotis Kosmas (King's College London, United Kingdom), Dario Rodrigues (Thomas Jefferson University, USA)

09:00 GPU Accelerated Confocal Microwave Imaging Algorithms for Breast Cancer Detection
Muhammad Adnan Elahi, Atif Shahzad, Martin Glavin, Edward Jones and Martin O'Halloran (National University of Ireland, Galway, Ireland)

09:20 Evaluation of the 3D Time Reversal Method for Hyperthermia Treatment Planning in Head and Neck Tumors
Pegah Takook (CHALMERS, Sweden); Hana Dobšíček Trefná, Andreas Fhager and Mikael Persson (Chalmers University of Technology, Sweden)

09:40 Data-driven Matched Field Processing for Radar-based Microwave Breast Cancer Detection
Jochen Moll (Goethe University Frankfurt am Main, Germany); Joel Harley (University of Utah, USA); Viktor Krozer (Goethe University of Frankfurt am Main, Germany)

10:00 Spectral Filtering in Phase Delay Beamforming for Multistatic UWB Breast Cancer Imaging
Raquel C. Conceição (Institute of Biomedical Engineering, University of Oxford & Instituto de Biofísica e Engenharia Biomédica, Faculdade de Ciências, Universidade de Lisboa, United Kingdom); Dallan Byrne (University of Bristol, United Kingdom); Navid Ghavami (Institute of Biomedical Engineering, University of Oxford, United Kingdom); Penny Probert Smith (University of Oxford, United Kingdom); Ian Craddock (University of Bristol, United Kingdom)

10:20 Towards Integrated Measurements of Dielectric Tissue Properties At Microwave Frequencies
Jochen Moll (Goethe University Frankfurt am Main, Germany); Justin McCombe (McMaster University, Canada); Greg Hislop (CSIRO Earth Science and Resource Engineering, Australia); Viktor Krozer (Goethe University of Frankfurt am Main, Germany); Natalia Nikolova (McMaster University, Canada)

10:40 – 11:10 Coffee Break
Room: Vasco da Gama (Pav 1)

11:10 Image Classification for a Time-Domain Microwave Radar System: Experiments with Stable Modular Breast Phantoms
Adam Santorelli and Olivier Laforest (McGill University, Canada); Emily Porter (McGill Universtiy, Canada); Milica Popović (McGill University, Canada)

11:30 First Trials Towards Contrast Enhanced Microwave Breast Cancer Detection by Magnetic Modulated Nanoparticles
Sebastian Ley and Marko Helbig (Technische Universität Ilmenau, Germany); Jürgen Sachs (Ilmenau University of Technology, Germany); Sindy Frick and Ingrid Hilger (University Hospital Jena, Germany)

11:50 Compact UWB Antenna Array for Microwave Imaging
Bright Yeboah-Akowuah and Panagiotis Kosmas (King's College London, United Kingdom); Yifan Chen (South University of Science and Technology of China, P.R. China)

12:10 On the Use of Microwave Based Thermal Monitoring in Hyperthermia
Andreas Fhager, Hana Dobšíček Trefná and Mikael Persson (Chalmers University of Technology, Sweden)

12:30 Detection of Brain Tumor and Localization of a Deep Brain RF-source Using Microwave Imaging
Rohit Chandra (Norwegian University of Science and Technology (NTNU), Norway); Ilangko Balasingham (Norwegian University of Science and Technology, Norway)

12:50 – 14:00 Lunch Break
Room: Restaurant Espaço Tejo

09:00 - 12:50 C14 Bench: [C] Combined Simulation/Measurement Benchmark For Challenging Antennas Measurements/Bridging other Areas

Room: Diogo Cão (Aud 8)
Chairs: Lars Foged (Microwave Vision Italy, Italy), Raphael Gillard (IETR ; INSA, France)

09:00 A Novel Scheme for Stored Energy Evaluation
Miloslav Capek and Lukas Jelinek (Czech Technical University in Prague, Czech Republic); Guy A. E. Vandenbosch (Katholieke Universiteit Leuven, Belgium); Pavel Hazdra (Czech Technical University in Prague, Czech Republic)

09:20 Recent Developments in Using Measured Sources in Computational EMC
Morten Sorensen (Aalborg University, Denmark); Ondřej Franek (Aalborg University & APNet Section, Denmark); Gert Pedersen (Aalborg University, Denmark)

09:40 Progress on DDM and FETI-2LM Methods for AESA Architectures and Metamaterial Analysis
André Barka (ONERA -The French Aerospace Lab, France); Rémi Baque, Philippe Dreuillet and Francois-Xavier Roux (ONERA, France)

10:00 Bridging the Gap: Bringing Measurements and Computational Results Together
Vince Rodriguez (MI Technologies, USA)

10:20 Combined NF Antenna Simulation/ Measurement for Fast Testing
Giorgio Giordanengo (Istituto Superiore Mario Boella & Politecnico di Torino, Italy); Francesca Vipiana (Politecnico di Torino, Italy); Lars Foged and Francesco Saccardi (Microwave Vision Italy, Italy); Francesca Mioc (Consultant, Switzerland); Mauro Bandinelli and Mirko Bercigli (IDS Ingegneria Dei Sistemi S. p. A, Italy); Marco Sabbadini (Esa Estec, The Netherlands); Giuseppe Vecchi (Politecnico di Torino, Italy)

10:40 – 11:10 Coffee Break
Room: Vasco da Gama (Pav 1)

11:10 Optimized Diagnosis of Reflectors Misalignements in Radioastronomical Applications
Amedeo Capozzoli, Claudio Curcio, Giuseppe D'Elia and Angelo Liseno (Università di Napoli Federico II, Italy); Salvatore Savarese and Pietro Schipani (INAF - Istituto Nazionale di Astrofisica, Italy)

11:30 Measurement and Simulation of Reflector Antenna
Lars Foged and Maria Alberica Saporetti (Microwave Vision Italy, Italy); Manuel Sierra-Castañer (Universidad Politécnica de Madrid, Spain); Erik Jørgensen (TICRA, Denmark); Torben Voigt (Altair FEKO, Germany); Flavio Calvano (ANSYS Italia, Italy); Davide Tallini (Computer Simulation Technology, CST GmbH, Germany)

11:50 A Feasibility Study on the Extension of the Point Scatterer Formulation to Vegetation Media
Nuno R. Leonor (Universidade de Vigo, Portugal); Rafael F. S. Caldeirinha (IPL - Polytechnic Institute of Leiria & Instituto de Telecomunicação (IT), Portugal); Telmo R. Fernandes (IPLeiria / Institute of Telecommunications & ESTG/IT-DL, Portugal); Manuel García Sánchez (Universidade de Vigo, Spain)

12:10 Measurements as Enhancement of Numerical Simulation for Challenging Antennas
Lars Foged, Lucia Scialacqua and Francesco Saccardi (Microwave Vision Italy, Italy); Francesca Mioc (Consultant, Switzerland)

12:30 Combining the Fast Irregular Antenna Field Transformation Algorithm with Asymptotic High Frequency Methods
Raimund A. M. Mauermayer and Thomas F. Eibert (Technische Universität München, Germany)

12:50 – 14:00 Lunch Break
Room: Restaurant Espaço Tejo

09:00 - 12:50 C39 PropVeh: [C] Propagation Channels for Wide-Sense Vehicle-to-X Communications

Propagation/Wireless Networks
Room: Afonso de Albuquerque (Pav 3B)
Chairs: Ke Guan (Beijing Jiaotong University, P.R. China), David W Matolak (University of South Carolina, USA)

09:00 A Multi-mode Waveguide Tunnel Channel Model for High-Speed Train Wireless Communication Systems
Liu Yu (Shandong University, P.R. China); Chengxiang Wang, Ammar Ghazal and Shangbin Wu (Heriot-Watt University, United Kingdom); Wensheng Zhang (Shandong University, P.R. China)

09:20 Angular Dispersion Characterization of Vehicle-to-Vehicle Channel in Cross-Road Scenarios
Ruisi He (Beijing Jiaotong University, P.R. China); Olivier Renaudin (University of Southern California, USA); Veli-Matti Kolmonen and Katsuyuki Haneda (Aalto University, Finland); Zhangdui Zhong (Beijing Jiaotong University, P.R. China); Simon Hubert (Université Catholique de Louvain & ICTEAM Institute, Belgium); Claude Oestges (Université Catholique de Louvain, Belgium)

09:40 Measurement-based Stochastic Models for Channel Transition in Underground Subway Environments
Xuesong Cai, Xuefeng Yin and Yongyu He (Tongji University, P.R. China); Weiming Duan (Huawei, P.R. China); Silvia Ruiz Boqué (UPC, Spain)

10:00 Large-Scale Fading Characterization in Curved Modern Subway Tunnels
Ke Guan, Bo Ai and Zhangdui Zhong (Beijing Jiaotong University, P.R. China); Carlos Lopez and Lei Zhang (Universidad Politecnica de Madrid, Spain); Cesar Rodríguez (Universidad Politécnica de Madrid, Spain); Bei Zhang (Beijing Jiaotong University, P.R. China)

10:20 On Multilink Shadowing Effects in Measured V2V Channels on Highway
Mikael Nilsson (Lund University & Volvo Car Corporation, Sweden); Dimitrios Vlastaras (Lund University, Sweden); Taimoor Abbas (Volvo Cars Corporation, Sweden); Bjorn Bergqvist (EESE & Volvo Car Group, Sweden); Fredrik Tufvesson (Lund University, Sweden)

10:40 – 11:10 Coffee Break
Room: Vasco da Gama (Pav 1)

11:10 V2V Channel Characteristics and Models for 5 GHz Parking Garage Channels
David W Matolak and Ruoyu Sun (University of South Carolina, USA); Pengyu Liu (Beijing Jiaotong University, P.R. China)

11:30 Realistic Simulation Scenario for Hybrid LTE/IEEE 802.11p Vehicular Communication
Andreas Möller and Johannes Baumgarten (Technische Universität Braunschweig, Germany); Zeeshan Hameed Mir (Qatar Mobility Innovations Center (QMIC), Qatar); Thomas Kürner (Technische Universität Braunschweig, Germany); Fethi Filali (QMIC, Qatar)

11:50 Differential Spatial Modulation in V2X
Meng Zhang and Xiang Cheng (Peking University, P.R. China); Liuqing Yang (Colorado State University, USA)

12:10 Cluster Spreads for Time-Variant Vehicular Channels
Zhinan Xu (FTW Telecommunications Research Center Vienna, Austria); Mingming Gan (FTW, Telecommunications Research Center Vienna, Austria); Christoph F Mecklenbräuker (Vienna University of Technology, Austria); Thomas Zemen (AIT Austrian Institute of Technology GmbH & FTW Telecommunications Research Center Vienna, Austria)

12:30 Cluster Lifetime Characterization for Vehicular Communication Channels
Mingming Gan (FTW, Telecommunications Research Center Vienna, Austria); Zhinan Xu (FTW Telecommunications Research Center Vienna, Austria); Christoph F Mecklenbräuker (Vienna University of Technology, Austria); Thomas Zemen (AIT Austrian Institute of Technology GmbH & FTW Telecommunications Research Center Vienna, Austria)

12:50 – 14:00 Lunch Break
Room: Restaurant Espaço Tejo

09:00 - 12:50 C45 THz: [C] THz Antennas and Applications

Antennas/High Data-rate Transfer
Room: Gonçalo V Cabral (Pav 5C)
Chairs: Yi Huang (University of Liverpool, United Kingdom), Daniel Segovia-Vargas (Universidad Carlos III de Madrid, Spain)

09:00 Terahertz Frequency Scanning Reflectarray/Mirror
Shi-Wei Qu and Huan Yi (University of Electronic Science and Technology of China, P.R. China); Wei-Wei Wu (Univ of Electronic Sci & Technol of China, P.R. China); Baojie Chen (City University of HongKong, Hong Kong); Chi Hou Chan (City University of Hong Kong, Hong Kong)

09:20 A Tri-reflector Compact Antenna Test Range Operating in the THz Range
Xiaodong Chen (Queen Mary University of London, United Kingdom); Xiaoming Liu, Junsheng Yu, Yuan Yao, Cheng Yang, Hai Wang, Hairui Liu and Zejian Lu (Beijing University of Posts and Telecommunications, P.R. China); Richard Wylde (St Andrews University, United Kingdom)

09:40 Terahertz Emission From Photoconductive Antenna Fabricated on GaAs/Sapphire Substrate
Jitao Zhang, Mingguang Tuo, Michael Gehl, Ricky Gibson, Min Liang, Galina Khitrova and Hao Xin (University of Arizona, USA)

10:00 An Antenna-free Device for Continuous-Wave THz Emission: Vertical Large Area Emitter
Alejandro Rivera-Lavado and Javier Montero-de-Paz (Universidad Carlos III de Madrid, Spain); Gottfried Döhler (Max Planck Institute for the Science of Light, Germany); Luis-Enrique Garcia-Muñoz (University Carlos III of Madrid, Spain); Sascha Preu (Technische Universität Darmstadt, Germany); Stefan Malzer and Sebastian Bauerschmidt (Max Planck Institute for the Science of Light, Germany); Daniel Segovia-Vargas (Universidad Carlos III de Madrid, Spain)

10:20 On-Chip Double Slot Antenna At 300 GHz Enhanced by Artificial Dielectrics
Waqas Hassan Syed (Delft University of Technology, The Netherlands); Giuseppe Fiorentino (Delft University of Technology, Italy); Daniele Cavallo (Delft University of Technology, The Netherlands); Pasqualina M. Sarro (Delft University of Technology, Italy); Andrea Neto (Delft University of Technology, The Netherlands)

10:40 – 11:10 Coffee Break
Room: Vasco da Gama (Pav 1)

11:10 A mm-Wave Integrated Lens Antenna for E-band
Juha Ala-Laurinaho, Aki Karttunen and Antti V. Räisänen (Aalto University, Finland)

11:30 Performance Evaluation of a 120 GHz 3D-Printed Plastic Elliptical Lens Antenna-System
Bisognin Aimeric (University Nice-Sophia Antipolis, France); Fabien Ferrero (CREMANT, Université Nice-Sophia Antipolis & CREMANT CNRS, France); Diane Titz and Gilles Jacquemod (University of Nice, France); Romain Pilard (STMicroelectronics, Technology R&D, STD, TPS Lab, France); Frédéric Gianesello, Daniel Gloria, Claire Laporte and Hilal Ezzeddine (STMicroelectronics, France); Philippe Ratajczak (Orange Labs, France); Jorge R. Costa (Instituto de Telecomunicações / ISCTE-IUL, Portugal); Eduardo B. Lima (Instituto de Telecomunicações & Instituto Superior Técnico, Portugal); Carlos A. Fernandes (Instituto de Telecomunicacoes, Instituto Superior Tecnico, Portugal); Cyril Luxey (University Nice Sophia-Antipolis, France)

11:50 A Top Loaded THz Photomixer Antenna
Neda Khiabani (McMaster University, Canada); Yi Huang and Yao-Chun Shen (University of Liverpool, United Kingdom)

12:10 A 874 GHz Mixer Block Integrated Spline Horn and Lens Antenna for ISMAR Instrument
Yogesh Karandikar, Arvid Hammar, Peter Sobis and Per Forsberg (Omnisys Instruments AB, Sweden); Anders Emrich (Omnisys Instruments, Sweden)

12:30 Monolithically-Integrated Antenna-Coupled Field-Effect Transistors for Detection Above 2 THz
Alvydas Lisauskas (Radiophysics Department, Vilnius University, Germany)

12:50 – 14:00 Lunch Break
Room: Restaurant Espaço Tejo

09:00 - 12:50 CC2 MIMO: MIMO, diversity, and smart antennas

Antennas/Cellular Communications
Room: Pêro Escobar (Pav 3A)
Chairs: Frederic Broyde (Excem, France), Dirk Manteuffel (University of Kiel, Germany)

09:00 Double Ring Antenna Design for MIMO Application in Mobile Terminals
Kun Zhao (KTH Royal Institute of Technology & Sony Mobile Communication AB, Sweden); Shuai Zhang (Aalborg University, Denmark); Zhinong Ying (Sony Mobile, Sweden); Sailing He (Royal Institute of Technology, Sweden)

09:20 A Highly Compact Broadband Near-Edge Antenna for Communication Devices with Conducting Body
Kun Wang, Raimund A. M. Mauermayer, Li Li and Thomas F. Eibert (Technische Universität München, Germany)

09:40 Effect of External Perturbation on Constellation Points in Beam-Space MIMO
Mohsen Yousefbeiki (École Polytechnique Fédérale de Lausanne (EPFL) & Laboratory of Electromagnetics and Acoustics (LEMA), Switzerland); Juan R Mosig (Ecole Polytechnique Federale de Lausanne, Switzerland); Andreas Burg (EPFL, Switzerland)

10:00 Planar MIMO Antenna System with Polarization Diversity for 2.5-2.7 GHz LTE Indoor FemtoCells
Oleg Soykin, Artem Kolobov, Alexey Artemenko, Vladimir Ssorin and Roman Maslennikov (Radio Gigabit LLC, Russia)

10:20 On the Performance of Spatial Multiplexing in MIMO-WCDMA Networks with Principal Component Analysis At the Reception
Panagiotis Gkonis and Andrew Kapsalis (National Technical University of Athens, Greece); Constantinos Zekios (Democritus University of Thrace, Greece); Dimitra I Kaklamani and Iakovos S. Venieris (National Technical University of Athens, Greece); Michael Chryssomallis and George Kyriacou (Democritus University of Thrace, Greece)

10:40 – 11:10 Coffee Break
Room: Vasco da Gama (Pav 1)

11:10 On BER Evaluation of a Regional Anti-Jamming Subcarrier Strategy for MIMO-OFDMA Systems
Maria Seimeni, Panagiotis Gkonis, Dimitra I Kaklamani and Iakovos S. Venieris (National Technical University of Athens, Greece); Christos Papavassiliou (Imperial College London, United Kingdom)

11:30 Compact Asymmetric Coplanar Strip-Fed MIMO Antenna for UWB Applications
Ahmed Abdelmonem (Elminia, Egypt); Mahmoud Abdelrahman Abdalla and Ahmed Abdelraheem (MTC, Cairo, Egypt)

11:50 MIMO Antenna Concept Based on Characteristic Modes for Indoor Base Stations
Thade Hadamik, Robert Martens and Dirk Manteuffel (University of Kiel, Germany)

12:10 Two Multiple-Antenna-Port and Multiple-User-Port Antenna Tuners
Frederic Broyde and Evelyne Clavelier (Excem, France)

12:30 A Fresnel-like Reflector Antenna Design for High-Order Orbital Angular Momentum States
Nelson Fonseca and Ludovic Coulomb (European Space Agency, The Netherlands); Jean-Christophe Angevain (ESA, The Netherlands)

12:50 – 14:00 Lunch Break
Room: Restaurant Espaço Tejo

09:00 - 12:50 MA1 Metamat: Metamaterials Antennas/Multi Applications
Room: Bartolomeu Dias (Aud 4)
Chairs: Christophe Caloz (Ecole Polytechnique de Montreal, Canada), Sylvain Lannebère (University of Coimbra, Portugal)

09:00 Chiral Metamaterials for Optical Pulling Forces
David Fernandes (University of Coimbra - Instituto de Telecomunicações, Portugal); Mario Silveirinha (Universidade de Coimbra - Instituto de Telecomunicações, Portugal)

09:20 Infinite Lifetime States with Quantized Energy in a Core-shell Plasmonic Nanoparticle
Sylvain Lannebère (University of Coimbra, Portugal); Mario Silveirinha (Universidade de Coimbra - Instituto de Telecomunicações, Portugal)

09:40 Broadband Subwavelength Imaging with a Wire Medium Slab Loaded with Graphene Sheets
Ali Forouzmand (University of Mississippi, USA); Alexander Yakovlev (The University of Mississippi, USA)

10:00 Minimization of Metasurface Susceptibility Range by Optimizing the Longitudinal Phase and Polarization Angle
Karim Achouri and Mohamed A Salem (Polytechnique Montréal, Canada); Christophe Caloz (Ecole Polytechnique de Montreal, Canada)

10:20 Deflection Angle Tuning in Thin Structures with Diffraction Inspired Unidirectionality
Pablo Rodríguez-Ulibarri (Universidad Pública de Navarra, Spain); Miguel Beruete (Universidad Publica de Navarra, Spain); Miguel Navarro-Cía (Imperial College London, United Kingdom); Andriy Serebryannikov (Adam Mickiewicz University, Poland)

10:40 – 11:10 Coffee Break
Room: Vasco da Gama (Pav 1)

11:10 Wave Propagation in Periodic Temporal Slabs
Mohamed A Salem (Polytechnique Montréal, Canada); Christophe Caloz (Ecole Polytechnique de Montreal, Canada)

11:30 Efficient Numerical Analysis of 3D Periodic Metamaterials: Multilayer Approach and Eigenmode Analysis
Denis Tihon (Université Catholique de Louvain & ICTEAM Institute, Belgium); Valentina Sozio (University of Siena, Italy); Nilufer Ozdemir (Universite Catholique de Louvain, Belgium); Matteo Albani (University of Siena, Italy); Christophe Craeye (Université Catholique de Louvain, Belgium)

11:50 Analysis of Metal Insulator Metal Plasmonic Transmission Lines for Improved Rectenna's Coupling Efficiency
Islam Hashem Sayed (North Carolina State University, USA); Nadia Rafat (Cairo University, Egypt); Ezzeldin Soliman (The American University in Cairo, Egypt)

12:10 Towards Reflection-less or Total Reflection Magnet-less Nonreciprocal Metasurface
Burak Gurlek (École Polytechnique de Montréal, Canada); Christophe Caloz (Ecole Polytechnique de Montreal, Canada)

12:30 Asymmetric Band Structures with Nonreciprocal Materials and Chiral Media
Filipa Prudencio (Instituto de Telecomunicacoes, Portugal); Sérgio Matos and Carlos Paiva (Instituto de Telecomunicações, Portugal)

12:50 – 14:00 Lunch Break
Room: Restaurant Espaço Tejo

09:00 - 12:50 MA11 Prop: Other Propagation Topics Propagation/Multi Applications
Room: Gil Eanes (Aud 3)
Chairs: Vincent Fabbro (ONERA, France), Etienne Perret (Grenoble INP - LCIS, France)

09:00 E-band Propagation Channel Measurements in an Urban Street Canyon
Vasilii Semkin (Aalto University School of Electrical Engineering, Finland); Usman Tahir Virk, Aki Karttunen, Katsuyuki Haneda and Antti V. Räisänen (Aalto University, Finland)

09:20 Assessing and Removing the Impact of Non-Reciprocal Transceiver Circuitry for Channel-Based Key Establishment
Attiya Mahmood and Michael Jensen (Brigham Young University, USA)

09:40 Trans-Ionospheric Propagation Experiment At HF-band: Channel Measurement and Modelling
Frederic Lacoste (CNES, France); Vincent Fabbro and Joel Lemorton (ONERA, France); Guillaume Decerprit (NOVELTIS, France); Rolland Fleury and Pascal Pagani (Telecom Bretagne, France); Françoise Carvalho and Sebastien Rougerie (CNES, France)

10:00 Line of Sight MIMO-UWB Short Range Communication in Underground Mine Tunnel
Ismail Ben Mabrouk (University Of Quebec In Outaouais, Canada); Mourad Nedil (UQAT, Canada); José Carlos Reyes (University of Bergen, Bergen, Norway)

10:20 Real-Time Channel Model Selection Using Windowed Received Signal Strength Measurements
Adrian D McKernan (Queen's University Belfast, United Kingdom); Simon Cotton (Queen's University, Belfast, United Kingdom)

10:40 – 11:10 Coffee Break
Room: Vasco da Gama (Pav 1)

11:10 Polarisation Characteristics of Propagation Paths in Indoor 70 GHz Channels
Aki Karttunen, Katsuyuki Haneda and Jan Järveläinen (Aalto University, Finland); Jyri Putkonen (Nokia & Network, Finland)

11:30 Theoretical Study on Detection Distance for Chipless RFID Systems According to Transmit Power Regulation Standards
Arnaud Vena (University of Montpellier II & Institut d'Electronique du Sud (IES), France); Etienne Perret (Grenoble INP - LCIS, France); Brice Sorli (University of Montpellier & IES, France); Smail Tedjini (Grenoble-inp, France)

11:50 Mitigating Severe Channel Effects Using Tripolar Antenna Diversity
Jeff Frolik (University of Vermont, USA)

12:10 Measurement Process of Vertically Polarized Electromagnetic Surface-Waves Over a Calm Sea in the HF Band Over a Spherical Earth
Mathilde Bellec (University of Rennes & TDF, France); Pierre - Yves Jezequel and Sébastien Palud (TDF, France); Franck Colombel and Stéphane Avrillon (Université de Rennes 1, France); Pouliguen Philippe (DGA, France)

12:30 Further Investigations Into Signal Level Enhancements Over Two Over-Sea Radio Paths
Naveed Mufti (University of Engineering & Technology Peshawar, Mardan Campus, Pakistan); David Siddle and Michael Warrington (University of Leicester, United Kingdom)

12:50 – 14:00 Lunch Break
Room: Restaurant Espaço Tejo

09:00 - 12:50 MA8 AntMeasur: General Antenna Measurements

Measurements/Multi Applications
Room: João G Zarco (Pav 3C)
Chairs: Dirk Heberling (RWTH Aachen University, Germany), Hans-Juergen Steiner (Airbus Defence; Space; Electronics Devision, Germany)

09:00 Vertically Polarized Electromagnetic Surface Waves Over a Smooth Sea in HF Band. Measurements and Comparisons with Theoretical Models
Mathilde Bellec (University of Rennes & TDF, France); Christophe Bourlier (Laboratory IETR, University of Nantes, France); Pierre - Yves Jezequel and Sébastien Palud (TDF, France); Franck Colombel and Stéphane Avrillon (Université de Rennes 1, France); Pouliguen Philippe (DGA, France)

09:20 An Improved Method for Simultaneous Calibrations of Gain, Phase Center and Near Boresight Patterns for Log-Periodic Dipole Arrays
Zhong Chen (ETS-Lindgren, USA)

09:40 Effect of the UAV Orientation in Antenna Pattern Measurements
Fabio Paonessa (IEIIT - CNR, Italy); Giuseppe Virone (Istituto di Elettr. e di Ingegneria dell'Inform. e delle Telecom. (IEIIT- CNR), Italy); Andrea Lingua, Marco Piras, Irene Aicardi and Paolo Maschio (Politecnico di Torino, Italy); Oscar Peverini (Istituto di Elettr. e di Ingegneria dell'Inform. e delle Telecom. (IEIIT- CNR), Italy); Giuseppe Addamo (Istituto di Elettr. e di Ingegneria dell'Inform. e delle Telecom. (IEIIT- CNR), Italy); Renato Orta (Politecnico di Torino, Italy); Riccardo Tascone (Istituto di Elettr. e di Ingegneria dell'Inform. e delle Telecom. (IEIIT- CNR), Italy); Pietro Bolli (Osservatorio Astrofisico di Arcetri, Italy)

10:00 Near Field to Far Field Transformation Applied to HF Antennas
Christopher Djoma, Muriel Darces and Marc Hélier (UPMC Univ Paris 6, France)

10:20 Quiet Zone Extension of an Existing Compensated Compact Range 75/60
Carsten H Schmidt (Airbus DS GmbH, Germany); Hans-Juergen Steiner (Airbus Defence & Space & Electronics Devision, Germany); Stefan Klett (Airbus DS GmbH, Germany); Herald Garcia (THALES ALENIA SPACE, France); Gilbert Forma (Thales Alenia Space, France)

10:40 – 11:10 Coffee Break
Room: Vasco da Gama (Pav 1)

11:10 Combining Mode Rotation with CLEAN: Extract Scatterer Information
Marc Dirix and Dirk Heberling (RWTH Aachen University, Germany)

11:30 Time-domain Algorithm for FMCW Based Short Distance Ranging System
Fangzhou Wang (Beijing Institute of Technology, P.R. China); Xi Pan (Beiijng Institute of Technology, P.R. China); Chengyong Xiang and Ming Chen (Beijing Telemetry Technology Research Institute, P.R. China)

11:50 Feature Extraction for BCIs Based on Electromagnetic Source Localization and Common Spatial Patterns
Aleksandr Zaitcev, Greg Cook, Wei Liu, Elizabeth Milne and Martyn Paley (University of Sheffield, United Kingdom)

12:10 Emulating Spherical Wave Channel Models in Multi-probe OTA Setups
Wei Fan (Aalborg University, Denmark); Xavier Carreño (Intel Mobile Communications, Denmark); Jesper Ø Nielsen and Gert Pedersen (Aalborg University, Denmark)

12:30 On the Number of Required Probes for Anechoic Chamber Based Method for MIMO OTA Testing
Wu Xing-feng (Academy of Broadcasting Planning, P.R. China)

12:50 – 14:00 Lunch Break
Room: Restaurant Espaço Tejo

09:00 - 12:50 S10 TransArray: Reflectarrays and transmitarrays

Antennas/Space
Room: Tristão V Teixeira (Pav 5A)
Chairs: Nader Behdad (University of Wisconsin, USA), Nelson Fonseca (European Space Agency, The Netherlands)

09:00 Analysis and Optimization of a Curved Transmit-Receive Contoured Beam Reflectarray
Min Zhou and Stig Sørensen (TICRA, Denmark); Oscar Borries (Technical University of Denmark & TICRA, Denmark); Erik Jørgensen (TICRA, Denmark)

09:20 Dual-polarized Low Loss Reflectarray Cells with MEMS-based Dynamic Phase Control
Tomislav Debogovic (Ecole Polytechnique Fédérale de Lausanne, Switzerland)

09:40 A PLL-based Retro-Directive Antenna System for Communications with Arbitrary Frequency Gaps
Andreas Winterstein, Lukasz A Greda and Achim Dreher (German Aerospace Center (DLR), Germany)

10:00 1-Bit Unit-Cell for Transmitarray Applications in Ka-Band
Luca Di Palma (CEA, LETI, Minatec, France); Antonio Clemente (CEA-LETI Minatec, France); Laurent Dussopt (CEA, LETI, Minatec, France); Ronan Sauleau (University of Rennes 1, France); Patrick Potier (DGA/Maîtrise de l'Information, France); Philippe Pouliguen (DGA/Direction de la Stratégie, France)

10:20 A Dual Linearly-Polarized Transmitarray Element
Wenbo Pan, Cheng Huang, Xiaoliang Ma and Xiangang Luo (Institute of Optics and Electronics, Chinese Academy of Sciences, P.R. China)

10:40 – 11:10 Coffee Break
Room: Vasco da Gama (Pav 1)

11:10 Principle of Bifocal Antennas Implemented in a Dual Reflectarray Configuration
Carolina Tienda (German Aerospace Center, Germany); Jose A. Encinar (Universidad Politecnica de Madrid, Spain); Gerhard Krieger and Jesus Cuevas Castillo (DLR, Germany)

11:30 Radiation Pattern Synthesis for Monopulse Radar Applications Using a Reconfigurable Transmitarray in X-Band
Luca Di Palma (CEA, LETI, Minatec, France); Antonio Clemente (CEA-LETI Minatec, France); Laurent Dussopt (CEA, LETI, Minatec, France); Ronan Sauleau (University of Rennes 1, France); Patrick Potier (DGA/Maîtrise de l'Information, France); Philippe Pouliguen (DGA/Direction de la Stratégie, France)

11:50 Near-Field Focusing Transmitarray Lens
Enrique González-Plaza and Germán León (Universidad de Oviedo, Spain); Susana Loredo (University of Oviedo, Spain); Fernando Las-Heras (Universidad de Oviedo, Spain)

12:10 A Multibeam Antenna for Imaging Based on Planar Lenses
Enrique González-Plaza (Universidad de Oviedo, Spain); Jorge R. Costa (Instituto de Telecomunicações / ISCTE-IUL, Portugal); Carlos A. Fernandes (Instituto de Telecomunicacoes, Instituto Superior Tecnico, Portugal); Germán León (Universidad de Oviedo, Spain); Susana Loredo (University of Oviedo, Spain); Fernando Las-Heras (Universidad de Oviedo, Spain)

12:30 Dual-Polarized Square-Shaped Offset-Fed Reflectarray Antenna with High Gain and High Bandwidth in the 60 GHz Domain
Tristan Visentin (Fraunhofer Institute for Telecommunications, Heinrich Hertz Institute, Germany); Wilhelm Keusgen (Fraunhofer Heinrich Hertz Institute, Germany); Richard J. Weiler (Fraunhofer HHI, Germany)

12:50 – 14:00 Lunch Break
Room: Restaurant Espaço Tejo

09:00 - 12:50 S3 TropProp: Tropospheric Propagation

Propagation/Space
Room: Paulo da Gama (Pav 5B)
Chairs: Charilaos Kourogiorgas (National Technical University of Athens, Greece), Jose M Riera (Universidad Politécnica de Madrid, Spain)

09:00 Statistical Results From Radio Signal Strength Measurement Campaign Over Two Over-Sea Paths in Channel Islands, UK
Naveed Mufti (University of Engineering & Technology Peshawar, Mardan Campus, Pakistan); David Siddle and Michael Warrington (University of Leicester, United Kingdom)

09:20 Evidence of Cyclic Behaviour in Historical Rainfall Statistics in Milan
Emilio Matricciani and Carlo Riva (Politecnico di Milano, Italy)

09:40 Rain Attenuation Estimations At High Latitudes Based on Weather Radar Data
Jan Erik Håkegård (SINTEF, Norway); Snorre Stavik Rønning (Norwegian Meteorological Institute, Norway)

10:00 Predicting Cloud Attenuation on Earth-Space EHF Links
Lorenzo Luini and Carlo Capsoni (Politecnico di Milano, Italy)

10:20 Rain Attenuation Time Series Synthesizer Based on Copula Functions
Charilaos Kourogiorgas (National Technical University of Athens, Greece); Arsim Kelmendi (Jozef Stefan Institute, Slovenia); Athanasios D. Panagopoulos (National Technical University of Athens, Greece); Spiros Livieratos (ASPETE, Greece); Andrej Vilhar (Jozef Stefan Institute, Slovenia); George Chatzarakis (ASPETE, Greece)

10:40 – 11:10 Coffee Break
Room: Vasco da Gama (Pav 1)

11:10 Comparison of Exact and Approximate FSO Rain Attenuation Formulas Based on Actual DSD
Vladimir Brazda (Institute of Atmospheric Physics Prague, Czech Republic); Ondrej Fiser (Institute of Atmospheric Physics & Fac. of Electrical Engineering and Informatics/Uni of Pardubice, Czech Republic)

11:30 Modeling and Prediction of Tropospheric Radiopropagation Parameters From Ground-based Multi-channel Radiometric Measurements Between Ka and W Band
Vinia Mattioli (He-Space Operations & Sapienza University of Rome, Italy); Frank S. Marzano (Sapienza University of Rome, Italy); Piero Ciotti (University of L'Aquila, Italy); Patrizia Basili (University of Perugia, Italy); Ada Vittoria Bosisio (CNR-IEIIT & c/o Politecnico di Milano, Italy); Kevin Madge and George Brost (Air Force Research Laboratory, USA)

11:50 Fade Dynamics Variability in a Long-Term Slant-Path Ka-Band Experiment
Jose García-Rubia (The Catholic University of America, USA); Jose M Riera (Universidad Politécnica de Madrid, Spain); Pedro Garcia-del-Pino and Gustavo Siles (Universidad Politecnica de Madrid, Spain); Ana Benarroch (Universidad Politécnica de Madrid, Spain)

12:10 Estimate of Tropospheric Scintillation Along a Leo-Leo Link Through High Resolution Radiosonde Data
Enrica Martini (University of Siena, Italy); Angelo Freni and Luca Facheris (University of Florence, Italy); Fabrizio Cuccoli (RaSS CNIT & Dep. of Electronic and Telecommunications, Univ of Firenze, Italy)

12:30 Characteristic Wave Diversity in Near Vertical Incidence Skywave Propagation
Ben Witvliet (University of Twente & Radiocommunications Agency Netherlands, The Netherlands); Mark J. Bentum, Cornelis H Slump and Roel Schiphorst (University of Twente, The Netherlands); Erik Van Maanen, George Petersen and Albert Westenberg (Radiocommunications Agency Netherlands, The Netherlands)

12:50 – 14:00 Lunch Break
Room: Restaurant Espaço Tejo

14:00 - 15:00 Poster A5: Antennas Poster Session 5 Antennas

Room: Luís de Camões (Hall 3)
Chairs: Bisognin Aimeric (CIMPA-CA-EPIB, France), Joana S. Silva (Laboratory of Electromagnetics and Acoustics / École Polytechnique Fédérale de Lausanne; LEMA, Switzerland)

A5.1 Frequency Selective Smart Shield Design for Wireless Signals
Maurício Silva (Instituto de Aeronáutica e Espaço, Brazil); Cynthia Junqueira (Institute of Aeronautics And Space, Brazil); Ali E Culhaoglu and Erich Kemptner (German Aerospace Center (DLR), Germany)

A5.2 Control of the Pass and Stop Bands Ratio of Complementary Frequency Selective Surfaces
Syed Sheheryar Bukhari, William Whittow and J (Yiannis) Vardaxoglou (Loughborough University, United Kingdom)

A5.3 Transparent Circuit Analog Electromagnetic Absorber for Window Applications
Ic Pyo Hong and In Gon Lee (Kongju National University, Korea)

A5.4 Antenna-Filter-Antenna Based Frequency Selective Surfaces for Quasi-Optical Applications in Q-Band
Hamza Kaouach (UQU University, France); Amar H Kabashi (Umm Al-Qura University, Saudi Arabia)

A5.5 165/183 GHz FSS for the MetOp Second Generation Microwave Sounder Instrument
Raymond Dickie and Robert Cahill (Queens University Belfast, United Kingdom); Vincent Fusco and Paul Baine (Queen's University Belfast, United Kingdom); Peter Campbell (Airbus Defence and Space, United Kingdom); Yvonne Munro (EADS Astrium, United Kingdom); Mike Buckley (Airbus Defence and Space, United Kingdom)

A5.6 A Switchable Frequency Selective Surface Based on a Modified Jerusalem-Cross Unit Cell
Hijab Zahra (Macquarie University, Australia); Sabaina Rafique (COMSATS Institute of Information Technolog, Pakistan); Muhammad Farhan Shafique (COMSATS Institute of Information Technolgy, Pakistan); Karu Esselle (Macquarie University, Australia)

A5.7 Numerical Homogenization and Synthesis of Wave Polarizers Through the Material-by-Design Paradigm
Giacomo Oliveri (University of Trento & ELEDIA Research Center, Italy); Francesca Apolloni and Angelo Gelmini (ELEDIA Research Center, University of Trento, Italy); Ephrem Teshale Bekele (University of Trento & Eledia Research Center, DISI, University of Trento, Italy); Stefano Maci (University of Siena, Italy); Andrea Massa (University of Trento, Italy)

A5.8 A Dual-Band Single-Layer Frequency Selective Surface for Wi-Fi Applications
David Ferreira (University of Vigo & Instituto de Telecomunicações, Portugal); Telmo R. Fernandes (IPLeiria / Institute of Telecommunications & ESTG/IT-DL, Portugal); Iñigo Cuiñas (University of Vigo, Spain); Rafael F. S. Caldeirinha (IPL - Polytechnic Institute of Leiria & Instituto de Telecomunicação (IT), Portugal)

A5.9 FSS Designs Using a Population-Based Hybrid Algorithm Inspired on the Echolocation of Bats
Wellington Candeia de Araujo (Universidade Estadual da Paraíba, Brazil); Adaildo DAssunção Junior (Instituto Federal de Educação, Ciência e Tecnologia da Paraíba, IFPB, Brazil); Elder Oliveira (State University of Paraíba, Brazil); Adaildo G Dassuncao (Federal University of Rio Grande do Norte & UFRN - CT - DCO, Brazil)

A5.10 Quasi-Optical Phase Retrieval of Radiation Patterns of Non-Standard Horn Antennas At Millimetre and Submillimetre Wavelengths
John Anthony Murphy, Ian McAuley, Darragh McCarthy and Neil Trappe (National University of Ireland Maynooth, Ireland); Marcin Gradziel (National University of Ireland, Maynooth, Ireland); Creidhe O'Sullivan and Ronan Mahon (National University of Ireland Maynooth, Ireland)

A5.11 300-GHz Horn Antennas for Kiosk Download
Takuro Tajima (NTT Device Technology Laboratories & Nippon Telegraph and Telephone Corporation, Japan); Ho-jin Song (NTT Device Technology Laboratories, Japan); Makoto Yaita (NTT Microsystem Integration Laboratories, Japan); Toshihide Tosaka and Katsumi Fujii (NICT, Japan); Akifumi Kasamatsu (National Institute of Imformation and Communications Technology (NICT), Japan)

A5.12 160GHz Harmonic-Rejecting Antenna with CMOS Rectifier for Millimeter-Wave Wireless Power Transmission
Peng Zhu (Katholieke Universiteit Leuven, Belgium); Zhongkun Ma (Pierre and Marie Curie University, France); Guy A. E. Vandenbosch and Georges G.E. Gielen (Katholieke Universiteit Leuven, Belgium)

A5.13 60 GHz On-Chip Antenna Array with Efficiency Improvment Using 3D Microfabrication Technology
Paulo Mendes (University of Minho, Portugal); Pedro Anacleto (Universidade do Minho & Johns Hopkins University, Portugal); Manuel Zamith (University of Minho, Portugal)

A5.14 Design of an Efficient 900 GHz Antenna in Standard CMOS Technology for Imaging Arrays
Matteo Perenzoni (Fondazione Bruno Kessler, Italy); Daniele Cavallo (Delft University of Technology, The Netherlands)

A5.15 Theoretical Model Based on Spectral Green's Function Representation for Photoconductive Slot Antennas
Alessandro Garufo (TU Delft, The Netherlands); Giorgio Carluccio, Nuria LLombart and Andrea Neto (Delft University of Technology, The Netherlands)

A5.16 Quasi-Optical System for a Real Time Stand-Off Submillimeter-Wave Dual-Mode Imager
Erio Gandini and Nuria LLombart (Delft University of Technology, The Netherlands); Duncan Robertson (The University of St Andrews, United Kingdom); Arttu Luukanen (Asqella Oy, Finland); Juha Hassel (VTT Technical Research Centre of Finland, Finland); Tomas Bryllert (Chalmers University of Technology, Sweden); Roger Appleby (Queen's University Belfast & Roger Appleby MMW Consulting, United Kingdom)

A5.17 Suppressed Back-Lobe SIW-Fed MPA Array for 60 GHz Wireless Communication
Mahmood Karami and Ramezan Ali Sadeghzadeh (K. N. Toosi University of Technology, Iran); Moein Noferesti (K. N. TOOSI University of Technology, Iran); Majid Sharifi (Khaje nasir University of Technology, Iran)

A5.18 Integrated On-Chip Antennas for THz Spectrometer for Electron Bunch Compression Monitor Applications
Mario Schiselski and Niels Neumann (Technische Universität Dresden, Germany); Michael Gensch (HZDR, Germany); Dirk Plettemeier (Dresden University of Technology, Germany)

A5.19 High Coupling Radiating Element Using Impedance Transform Stub for Microstrip Comb-Line Antennas in the Millimeter-Wave Band
Kazuyuki Seo (Nippon Pillar Packing Co., Ltd., Japan)

A5.20 Composite Cavity-Backed Crossed Dipole Coupled to a Magneto-Electric Dipole
Son Xuat Ta, Huy Hung Tran and Ikmo Park (Ajou University, Korea)

A5.21 A Folded Loop Antenna with Four Resonant Modes
Di Wu, William S. W. Cheung and Ti Yuk (The University of Hong Kong, Hong Kong)

A5.22 Substrate Integrated Waveguide Cavity Backed Slot Antenna with Parasitic Slots for Dual-frequency and Broadband Application
Soumava Mukherjee (Indian Institute of Technology Kanpur, India); Animesh Biswas (IIT Kanpur, India); Kumar Vaibhav Srivastava (Indian Institute of Technology, Kanpur, India)

A5.23 A Printed Circularly Polarized Half-Moon Monopole Antenna
Afshin Panahi and Xiu Long Bao (Dublin Institute of Technology, Ireland); Giuseppe Ruvio (Dublin Institute of Technology & Antenna & High Frequency Research Centre, Ireland); Max James Ammann (Dublin Institute of Technology, Ireland)

A5.24 Lumped Equivalent Circuit Formulation of Dual Band PIFA
Jawad Yousaf (Sungkyunkwan Univresity, South Korea, Korea)

A5.25 New Compact Broadband GSM/UMTS/LTE Antenna Realised by 3D Printing
Jean-marie Floch, Bilal El Jaafari and Ahmad El sayed Ahmad (IETR, France)

A5.26 Two Multiband Uniplanar Antennas for Microwave Breast Imaging
Maria Koutsoupidou (Institute of Communications and Computer Systems, National Technical University of Athens, Greece); Irene Karanasiou (Institute of Communication and Computer Systems, National Technical University of Athens, Greece); Constantine G. Kakoyiannis (Institute of Communications and Computer Systems, National Technical University of Athens, Greece); Nikolaos Uzunoglu (School of Electrical and Computer Engineering, National Technical University of Athens, Greece)

A5.27 Slotted Patch Antenna with Broadband Circular Polarization
Jeen-Sheen Row and Jhih-Ming Chen (National Changhua University of Education, Taiwan)

A5.28 Realization and Test of a Versatile and Low-Cost Printed Configuration of UWB Dual-Pol Antenna
Simona Mazzocchi and Alessandro Galli (Sapienza University of Rome, Italy); Marco Zucca (Selex ES S.p.A., Italy)

A5.29 Dual-Band Dual-Polarized Microstrip Antenna for Rx/Tx Terminals for High Altitude Platforms
Lucas Santos Pereira and Marcos V. T. Heckler (Universidade Federal do Pampa, Brazil)

A5.30 Switched Non-uniformly Distributed-Turns Coil Antenna for Dual-band Operation
Ashwani Sharma (University of Deusto, Spain); Ignacio J Garcia Zuazola (Loughborough University, Spain); John Batchelor (University of Kent, United Kingdom); Asier Perallos (Fundacion Deusto, Spain)

A5.31 An Inverted-F Antenna Integrated with Solar Cells for Energy Harvesting
Youssef Tawk (The University of New Mexico & Notre Dame University Louaize, USA); Joseph Costantine (American University of Beirut & University of New Mexico, USA); Christos Christodoulou (University of New Mexico, USA)

A5.32 Wideband Monopole Vivaldi Antenna and Its Angular Periodic Performance
Marko Tapani Sonkki (University of Oulu, Finland); Miguel Ferrando-Bataller (Universidad Politecnica De Valencia, Spain); Eva Antonino-Daviu (Universidad Politecnica de Valencia, Spain); Erkki T. Salonen (University of Oulu, Finland)

A5.33 A Fin Type Wideband Bent Monopole Antenna Closed to L-shape Grounded Plate
Kyoichi Iigusa and Fumihide Kojima (National Institute of Information and Communications Technology, Japan); Hiroyuki Yano (National Institute of Information and Communications Technology, USA)

A5.34 Comparison of a Cavity Antenna with Stacked Patches and a Metasurface-Inspired Design
Mario Martinis (University of Rennes 1 & The Institut D'électronique et de Télécommunications de Rennes, France); Kourosh Mahdjoubi, Ronan Sauleau and Sylvain Collardey (University of Rennes 1, France); Loic Bernard (ISL, France)

A5.35 Filtering Functions in a Versatile Intricate Antenna
Lana Damaj (Institut Mines Telecom, Telecom ParisTech, France); Anne-Claire Lepage (Institut Mines-Telecom, Telecom ParisTech, France); Xavier Begaud (Institut Mines Telecom, Telecom ParisTech, France)

A5.36 A Dual-Band Compact L-Quad Antenna Array for Radio Localization
Mariana G Pralon (Technische Universität Ilmenau, Germany); Alexander Popugaev (Fraunhofer IIS, Germany); Dominik Schulz and Reiner S. Thomä (Ilmenau University of Technology, Germany)

A5.37 On the Phase Response and Radiation Efficiency of the Complementary Strip-Slot as an Array Element
Elena Abdo-Sánchez (University of Málaga & E.T.S.I. Telecomunicación, Spain); Teresa María Martín-Guerrero (University of Málaga, Spain); Jaime Esteban (Universidad Politécnica de Madrid, Spain); Carlos Camacho-Peñalosa (University of Málaga, Spain)

A5.38 A High Efficient Automotive Roof-Antenna Concept for LTE, DAB-L, GNSS and SDARS with Low Mutual Coupling
Iuliia Goncharova (University of the Bundeswehr, Munich, Germany); Stefan Lindenmeier (Universität der Bundeswehr, Germany)

A5.39 Design Methods for Efficient Multiband Antennas with Parasitic Elements
Tarik Faradi (University of Nice Sophia Antipolis & TRAXENS, France); Aliou Diallo (University of Nice, France); Philippe Le Thuc (University of Nice & UNS-CNRS-LEAT, France); Pascal Daragon (TRAXENS, France); Robert Staraj (University of Nice-Sophia Antipolis, France)

A5.40 Fast Simulation-Driven Design of a Planar UWB Dipole Antenna with an Integrated Balun
Slawomir Koziel and Stanislav Ogurtsov (Reykjavik University, Iceland); Wlodzimierz Zieniutycz and Adrian Bekasiewicz (Gdansk University of Technology, Poland)

A5.41 Calibration with Single Measurement in Microwave Imaging System for Breast Cancer Detection
Sollip Kwon, Heesun Yu and Seungjun Lee (Ewha Womans University, Korea)

A5.42 Overview of Radiofrequency Simulation for Automotive Antennas At Renault
Raed El-Makhour and Martine Gatsinzi-Ibambe (RENAULT S.A.S, France); Xavier Bunlon and Philippe Boutier (Renault sas, France)

A5.43 Detailed Pattern Computations of the UHF Antennas on the Spacecraft of the ExoMars Mission
Cecilia Cappellin, Erik Jørgensen and Peter Meincke (TICRA, Denmark); Oscar Borries (Technical University of Denmark & TICRA, Denmark); Christian Nardini (Thales Alenia Space France, Denmark); Christophe Dreyer (Thales Alenia Space, France)

A5.44 Investigation of Integrated Filter-Antenna Based on Cascaded and Multilayer Approach
Sam Weng Yik (UTEM, Malaysia); Zahriladha Zakaria (Universiti Teknikal Malaysia Melaka, Malaysia); Mohamad Ariffin Mutalib (Universiti Teknikal Malaysia Melaka & Hang Tuah Jaya, Malaysia); Abdul Rani Othman (, Malaysia)

A5.45 E x Vivo Tissue Shrinking in Microwave Thermal Ablation
Laura Farina (Sapienza University of Rome, Italy); Claudio Amabile (R&D Unit, HS Hospital Service SpA, Italy); Yitzhak Nissenbaum (Hadassah Medical Centre, Hebrew University, Israel); Marta Cavagnaro (Sapienza University of Rome, Italy); Vanni Lopresto (ENEA, Italian National Agency for New Technologies, Energy and Sustainable Economic Development, Italy); Rosanna Pinto (ENEA, Italy); Nevio Tosoratti and Simone Cassarino (R&D Unit, HS Hospital Service SpA, Italy); Noam Weiss (Technion IIT, Israel); S Nahum Goldberg (Hadassah Medical Centre, Hebrew University, Italy)

A5.46 Passive Intermodulation in Distributed Circuits with Cascaded Discrete Nonlinearities
Dmitry Kozlov, Alexey Shitvov and Alex Schuchinsky (Queen's University Belfast, United Kingdom)

A5.47 Synthesis of a Wide Band Circularly Polarized Directive Parasitic Elements Antenna
Jamil Fouany (University of Limoges & Faculty of Science, France); Marc Thevenot (XLIM-UMR 6172-CNRS, University of Limoges, France); Cyrille Menudier (XLIM - UMR CNRS 7252 - University of Limoges & Antenna and Associated Waves Dept, France); Eric Arnaud (University of LIMOGES, France); Thierry Monediere (University of Limoges & CNRS, France)

A5.48 User Body Loss Study for Popular Smartphones
Alexandru Tatomirescu and Gert Pedersen (Aalborg University, Denmark)

A5.49 Localization System Using Resonant Magnetic Coupling Factor for Improving Efficiency in Wireless Power Transfer
Wei Chen and Sebastian Rickers (University of Duisburg-Essen, Germany); Guido Bruck (University of Duisburg Essen, Germany); Peter Jung (Universität Duisburg-Essen, Germany)

A5.50 New Heterogeneous Superstrate High Gain Antenna
Loïc Martin (IETR & Bouygues Telecom, France); Bruno Froppier and Tchanguiz Razban (University of Nantes, France); Eduardo Motta Cruz (Bouygues Telecom, France)

A5.51 Design and Characterization of Multi-Layer Substrate Integrated Waveguide (SIW) Slot Coupler
Ratnesh Tiwari and Soumava Mukherjee (Indian Institute of Technology Kanpur, India); Animesh Biswas (IIT Kanpur, India)

A5.52 Frequency Tunable Wideband Axial-Mode Helix Antennas Using NiTi Shape Memory Alloys
Adnan Kaya (Izmir Katip Celebi University, Turkey)

A5.53 SMAP Telecom and Science Antenna Multipath Interference
Mohamed Abid (JPL / NASA, USA); Paolo Focardi (Jet Propulsion Laboratory & California Institute of Technology, USA); Dennis Lee and Stanley Butman (Jet Propulsion Laboratory, California Institute of Technology, USA); Luis Amaro and William A Imbriale (Jet Propulsion Laboratory, USA)

A5.54 A Combinatorial Algorithm for Base-station Location Optimization for LTE Mixed-Cell MIMO Wireless Systems
Georgia Athanasiadou, George Tsoulos and Dimitra Zarbouti (University of Peloponnese, Greece)

14:00 - 15:00 Poster Awards: Awards Finalists Poster Session
Room: Fernão M Pinto (Hall 4)
Chairs: Antonio A Moreira (I.S.T. - Technical U. Lisbon / I.T. Lisbon, Portugal), Anja K. Skrivervik (EPFL, Switzerland)

AF.1 Compact Terahertz Instruments for Planetary Missions
Goutam Chattopadhyay, Theodore Reck, Adrian Tang and Cecile Jung-Kubiak (NASA-JPL, Caltech, USA); Choonsup Lee (JPL, USA); Jose V Siles (NASA Jet Propulsion Laboratory, USA); Erich Schlecht (NASA-JPL, Caltech, USA); Yanghyo Kim and M-c Chang (UCLA, USA); Imran Mehdi (JPL, USA)

AF.2 DTU-ESA Millimeter-Wave Validation Standard Antenna (mm-VAST) – Detailed Design
Oleksiy S. Kim, Sergey Pivnenko and Olav Breinbjerg (Technical University of Denmark, Denmark); Rolf Jørgensen and Niels Vesterdal (Ticra, Denmark); Kim Branner, Peter Berring and Christen Malte Markussen (Technical University of Denmark, Denmark); Maurice Paquay (European Space Agency & ESTEC, The Netherlands)

AF.3 Evolution of Pin-Flange Adapters for High Frequency Measurements
Sofia Rahiminejad and Elena Pucci (Chalmers University of Technology, Sweden); Sjoerd Haasl (Royal Institute of Technology, Sweden); Peter Enoksson (Chalmers University of Technology, Sweden)

AF.4 Alamouti Space-time Coding in Car-to-Car Communications - SDR-based Implementation and Measurement
Matthias Maschlanka, Torsten Eichner, Michael Meuleners and Christoph Degen (Hochschule Niederrhein University of Applied Sciences, Germany)

AF.5 A New Measurement Technique and Experimental Validations in Determination SAR of N-Antenna Transmitters Using Scalar E-Field Probes
Dinh Thanh Le (Le Quy Don Technical University, Vietnam); Lira Hamada and Soichi Watanabe (National Institute of Information and Communications Technology, Japan)

AF.6 Data-driven Matched Field Processing for Radar-based Microwave Breast Cancer Detection
Jochen Moll (Goethe University Frankfurt am Main, Germany); Joel Harley (University of Utah, USA); Viktor Krozer (Goethe University of Frankfurt am Main, Germany)

AF.7 Propagation Channel At 5.2 GHz in Baltic Sea with Focus on Scattering Phenomena
Wei Wang (German Aerospace Center (DLR), Germany); Gerald Hoerack (Graz University of Technology, Austria); Jost Thomas, Ronald Raulefs, Michael Walter and Uwe-Carsten G. Fiebig (German Aerospace Center (DLR), Germany)

AF.8 Joint Effects of Clouds and Rain on Ka-Band Earth Observation Data Downlink Systems
Lorenzo Luini and Carlo Capsoni (Politecnico di Milano, Italy)

AF.9 Faster Resolution of the 3-D Forward Problems in Microwave Imaging by a Partial-Block BiCGStab Algorithm
Corentin Friedrich (IRCCyN - Ecole Centrale de Nantes, France); Sébastien Bourguignon (Ecole Centrale de Nantes, IRCCyN, France); Jérôme Idier (IRCCyN, France); Yves Goussard (Ecole Polytechnique de Montréal, Canada)

AF.10 Weather Effects Mitigation At Ka Band by Using Radiometeorological Model Forecast in Deep Space Downlinks
Marianna Biscarini (University of La Sapienza, Italy); Frank S. Marzano (Sapienza University of Rome, Italy); Luciano Iess (Univerity of Rome La Sapienza, Italy); Mario Montopoli (CETEMPS - University of L'Aquila, Italy); Klaide De Sanctis (HIMET, Italy); Saverio Di Fabio (CETEMPS, Italy); Maria Montagna (SciSys @ ESA, Germany); Mattia Mercolino and Marco Lanucara (European Space Agency, Germany)

AF.11 Intersymbol Interference Analysis of a 60 GHz-Band Compact Range Wireless Access System
Miao Zhang, Kiyomichi Araki, Jiro Hirokawa and Makoto Ando (Tokyo Institute of Technology, Japan)

AF.12 Cylindrically-bent Rectangular Patch Antennas: Novel Modeling Techniques for Resonance Frequency Variation and Uncertainty
Luigi Vallozzi (Ghent University, Belgium); Freek Boeykens (Verotech BVBA, Belgium); Hendrik Rogier (Ghent University, Belgium)

AF.13 Scalar Metasurface Antennas with Tilted Beam
Maciej Smierzchalski (University of Rennes 1, France); Massimiliano Casaletti (University of Siena, Italy); Mauro Ettorre (University of Rennes 1 & UMR CNRS 6164, France); Ronan Sauleau (University of Rennes 1, France); Nicolas Capet (CNES, France)

AF.14 Collimating Leaky-Wave Radiation with Metasurfaces
Carl Pfeiffer (University of Michigan, USA); Anthony Grbic (University of Michigan, Ann Arbor, USA)

AF.15 Iterative Design Approach for Multi-Band Single-Layer Reflectarrays
Michele Borgese (Università di Pisa, Italy); Filippo Costa, Simone Genovesi and Agostino Monorchio (University of Pisa, Italy)

AF.16 Multistatic Nearfield Imaging Radar for Portal Security Systems Using a High Gain Toroidal Reflector Antenna
Carey Rappaport (Northeastern University, USA); Borja Gonzalez-Valdes (University of Vigo, Spain)

AF.17 Low Profile Array With Integrated High Impedance Surfaces For High Performance Adaptive GNSS
Cedric Martel (ONERA, France)

AF.18 A Comparative Study of Coherent Time Reversal Minimum Variance Beamformers for Breast Cancer Detection
Md Delwar Hossain (Faculty of Engineering and IT, University of Technology Sydney (UTS), Australia); Ananda Sanagavarapu Mohan (University of Technology Sydney (UTS), Australia)

AF.19 On BER Evaluation of a Regional Anti-Jamming Subcarrier Strategy for MIMO-OFDMA Systems
Maria Seimeni, Panagiotis Gkonis, Dimitra I Kaklamani and Iakovos S. Venieris (National Technical University of Athens, Greece); Christos Papavassiliou (Imperial College London, United Kingdom)

AF.20 The Effects of Antenna Array Size and Back Lobe Level on Self-Interference and Transmitted Powers for 4G Beamforming Multicell Systems with In-Band Full Duplex Relays
Dimitra Zarbouti, George Tsoulos and Georgia Athanasiadou (University of Peloponnese, Greece)

AF.21 Reactively Matched Long Slot Linear Connected Array Antenna
Hernán V. Barba Molina (University of Stuttgart & IEEE, Germany); Jan Hesselbarth (University of Stuttgart & IHF -- Institute of Radio Frequency Technology, Germany)

AF.22 Impact of Neutralization on Isolation in Co-Planar and Back-to-Back Antennas
Sathya Narayana Venkatasubramanian and Linsheng Li (Aalto University, Finland); Clemens Icheln (Aalto University & School of Electrical Engineering, Finland); Fabien Ferrero (CREMANT, Université Nice-Sophia Antipolis & CREMANT CNRS, France); Cyril Luxey (University Nice Sophia-Antipolis, France); Katsuyuki Haneda (Aalto University, Finland)

AF.23 On-Chip Double Slot Antenna At 300 GHz Enhanced by Artificial Dielectrics
Waqas Hassan Syed (Delft University of Technology, The Netherlands); Giuseppe Fiorentino (Delft University of Technology, Italy); Daniele Cavallo (Delft University of Technology, The Netherlands); Pasqualina M. Sarro (Delft University of Technology, Italy); Andrea Neto (Delft University of Technology, The Netherlands)

AF.24 Analysis of Electrically Large Antennas Using Fast Physical Optics
Oscar Borries (Technical University of Denmark & TICRA, Denmark); Hans Henrik Viskum, Peter Meincke and Erik Jørgensen (TICRA, Denmark); Per Christian Hansen (Technical University of Denmark, Denmark); Carsten H Schmidt (Airbus DS GmbH, Germany)

AF.25 A Novel Collision Avoidance MAC Protocol for Multi-Tag UWB Chipless RFID Systems Based on Notch Position Modulation
Mohamed El-Hadidy and Ahmed Elawamry (University of Duisburg-Essen, Germany); Abdelfattah Fawky (M. Sc, Germany); Maher Khaliel and Thomas Kaiser (Universität Duisburg-Essen, Germany)

14:00 - 15:00 Poster M1: Measurement Poster Session
Measurements
Room: Gil Vicente (Hall 5)
Chairs: Rasmus Cornelius (RWTH Aachen University, Germany), Lucia Scialacqua (Microwave Vision Italy, Italy)

M1.1 A New Method for Detecting Multipactor in Pulse Mode
Wei Huan (CAST in Xi'an, P.R. China)

M1.2 Optimized Near Field Antenna Measurements in the Cylindrical Geometry
Amedeo Capozzoli, Claudio Curcio and Angelo Liseno (Università di Napoli Federico II, Italy)

M1.3 Reduction of Cross-Polarization in a Single Offset Parabolic Reflector
Carolina Tienda (German Aerospace Center, Germany); Noora Al-Kahachi and Marwan Younis (German Aerospace Center (DLR), Germany); Gerhard Krieger (DLR, Germany)

M1.4 Non-Ideal Quiet Zone Effects on Compact Range Measurements
Jeffrey Fordham (MI Technologies, USA)

M1.5 Far-Field Antenna Calculation Based on Randomly Distributed Near-Field Measurement Data
Mohamed Farouq, Mohammed Serhir and Dominique Picard (DRE, Laboratoire des Signaux et Systèmes, France)

M1.6 Quiet Zone Characterization of a Built-It-Yourself Antenna Test Chamber
Hammam Shakhtour, Joerg Pamp and Dirk Heberling (RWTH Aachen University, Germany); Hein de Groot (Industrieweg 12 NL-2382 NV Zoeterwoude, Germany); Bas de Groot (Industrieweg 12 NL-2382 NV Zoeterwoude, The Netherlands)

M1.7 Investigations on Probe Phase Center Impact in Antenna Measurement Results Uncertainty for Spherical Near Field Systems
Gwenn Le Fur, Francisco José Cano and Luc Duchesne (SATIMO, France); Daniel Belot, Kevin Elis, Lise Feat, Anthony Bellion and Romain Contreres (CNES, France)

M1.8 Wide-Angle ISAR Imaging of Vehicles
Chenchen J. Li and Hao Ling (The University of Texas at Austin, USA)

M1.9 Influence of Antenna Alignment and Line-of-sight Obstruction on the Accuracy of Range Estimates Between a Pair of Miniature UWB Antennas
Manmohan Sharma (Queen Mary University of London, United Kingdom); Clive Parini (QMUL, United Kingdom); Akram Alomainy (Queen Mary, University of London, United Kingdom)

M1.10 High Performance UWB Array Antenna for Brain Tumor Detection Via Scattering Parameters in Microwave Imaging Simulation System
Aminudin Jamlos (Advanced Communication Engineering (ACE) Centre, Malaysia); Faizal Jamlos (Universiti Malaysia Perlis, Malaysia); Abdul Hafiizh Ismail (UniMAP, Malaysia)

M1.11 Material Characterization De-embedding for Rectangular to Square Waveguide
Alexander Knisely (Air Force Institute of Technology (AFIT), USA); Michael J Havrilla (Air Force Institute of Technology, USA)

M1.12 A Pragmatic Approach to Uncertainty Analysis in Free Space Material Measurements
Luis Rolo and Elena Saenz (European Space Agency, The Netherlands)

M1.13 Space Radiation Hardness of PTFE Based RF Substrates for GEO Satellite Application
Ralf Wilke, Korbinian Schraml and Dirk Heberling (RWTH Aachen University, Germany)

M1.14 Microwave Glucose Monitoring in Aqueous-And Blood-Glucose Solutions: In Vitro Feasibility Study
Jan Vrba (Faculty of Biomedical Engineering, Czech Technical University in Prague, Czech Republic); Jakub Karch (Czech Technical University in Prague, Czech Republic); David Vrba (Czech Technical University in Prague & Faculty of Biomedical Engineering, Czech Republic)

M1.15 Effects of Pulsed RF Disturbances on Aeronautical Communication Systems
Emmanuel H. Van Lil (Katholieke Universiteit Leuven, Belgium); Jo Verhaevert (UGent, Belgium); Jan De Vos and Dirk Van Troyen (KU Leuven, Belgium)

M1.16 Radio Link Characterization of the CorteXlab Testbed with a Large Number of Software Defined Radio Nodes
Achille Mouaffo (Université de Lyon, INRIA, INSA-Lyon, CITI, France); Leonardo S. Cardoso (INSA Lyon, France); Hervé Boeglen (Laboratoire XLIM-SIC, France); Guillaume Villemaud (Université de Lyon, INRIA, INSA-Lyon, CITI, France); Rodolphe Vauzelle (University of Poitiers, France)

M1.17 Mobility Improves Performance of RFID Library Systems
Konstantinos Tountas (Technical University of Crete, Greece); Antonis G Dimitriou (Aristotle University of Thessaloniki, Greece); Aggelos Bletsas (Technical University of Crete, Greece); John Sahalos (Aristotle University of Thessaloniki, GR, Thessaloniki & University of Nicosia, CY, Nicosia, Greece)

M1.18 On S-Parameter Based Complex Correlation of Multi-Port Antenna
Xiaoming Chen (Qamcom Research & Technology, Sweden); Per-Simon Kildal (Chalmers University of Technology, Sweden)

M1.19 Impact of the Spatial User Distribution on the Coverage Antenna Pattern of Maximum Ratio Combining in Random Line-Of-Sight
Andrés Alayon Glazunov and Per-Simon Kildal (Chalmers University of Technology, Sweden); Jan Carlsson (SP Technical Research Institute of Sweden, Sweden); Madeleine Kildal (Chalmers University of Technology & Bluetest AB, Sweden); Sadegh Mansouri (Chalmers University of Technology, Iran)

14:00 - 16:50 WS3 MiMed: Translating Microwave Medical Devices from Research Bench to Patient Bedside
Scientific Workshop
Room: Diogo de Silves (Room 1.08)
Chairs: Raquel C. Conceição (Institute of Biomedical Engineering, University of Oxford ; Instituto de Biofísica e Engenharia Biomédica, Faculdade de Ciências, Universidade de Lisboa, United Kingdom), Martin O'Halloran (National University of Ireland, Galway, Ireland)

16:20 – 16:50 Coffee Break
Room: Vasco da Gama (Pav 1)

15:00 - 16:20 Inv_3A: Invited Speakers Session 3A
Room: Diogo Cão (Aud 8)
Chair: J (Yiannis) Vardaxoglou (Loughborough University, United Kingdom)

15:00 Advances in Reconfigurable Antennas for Wireless Communications
Y. Jay Guo and Peiyuan Qin (University of Technology, Sydney, Australia)

15:40 Characteristic Mode Based Antenna Design – a Straight Forward Approach to Small Form Factor Antenna Integration
Dirk Manteuffel (University of Kiel, Germany)

16:20 – 16:50 Coffee Break
Room: Vasco da Gama (Pav 1)

15:00 - 16:20 Inv_3B: Invited Speakers Session 3B
Room: Pedro A Cabral (Aud 2)
Chair: Michael Jensen (Brigham Young University, USA)

15:00 Modeling, Simulation, and Velocity Estimation of Shallow Water Acoustic Vehicle-to-Vehicle Channels
Alenka Zajic (Georgia Institute of Technology, USA)

15:40 The Beauty of Multibeam Antennas
Giovanni Toso (European Space Agency, The Netherlands)

16:20 – 16:50 Coffee Break
Room: Vasco da Gama (Pav 1)

16:50 - 18:30 BA2 NearFarMe: Advances in near-field, far-field, compact and RCS test ranges Measurements/Bridging other Areas Room: Diogo de Silves (Room 1.08) Chairs: Rasmus Cornelius (RWTH Aachen University, Germany), Francesco D'Agostino (University of Salerno, Italy)

16:50 Experimental Testing on a Near-Field to Far-Field Tranformation with Planar Spiral Scanning for Quasi-Planar Antennas
Francesco D'Agostino, Flaminio Ferrara, Claudio Gennarelli, Rocco Guerriero and Massimo Migliozzi (University of Salerno, Italy)

17:10 IETR Millimetre Wave Compact Antenna Test Range: Implementation and Validation
Laurent Le Coq (University of Rennes 1 & IETR, France); Benjamin Fuchs (University of Rennes 1 - IETR, France); Thomas Kozan and Sara Burgos (ORBIT/FR Europe GmbH, Germany); Per Iversen (Orbit/FR, USA)

17:30 Investigation of Different Matrix Solver for Spherical Near-Field to Far-Field Transformation
Rasmus Cornelius (RWTH Aachen University, Germany); Arya Bangun (RWTH Aachen, Germany); Dirk Heberling (RWTH Aachen University, Germany)

17:50 Closed-Loop Real-Time PNF Position Compensation with a Tracking Laser
Scott T McBride (MI Technologies, USA)

18:10 Investigation on Planar Near-to-Far-Field Transformations for EMC Applications
Vladimir Volski (KU Leuven, Belgium); Blaise Ravelo (ESIGELEC, France); Guy A. E. Vandenbosch (Katholieke Universiteit Leuven, Belgium); Davy Pissoort (KU Leuven, ReMI Research Group, Ostend, Belgium)

16:50 - 18:30 Bi4 AntCoupl: Antenna interactions and coupling Antennas/Biomedical Room: Pedro A Cabral (Aud 2) Chairs: Christophe Fumeaux (The University of Adelaide & School of Electrical and Electronic Engineering, Australia), Stavros Koulouridis (University of Patras, Greece)

16:50 A Case-Study to Assess Compliance with Exposure Limit Values for Workers Exposed to Multiple Frequency Electromagnetic Sources
Vanni Lopresto (ENEA, Italian National Agency for New Technologies, Energy and Sustainable Economic Development, Italy); Rosanna Pinto and Sergio Mancini (ENEA, Italy); Edoardo Genovese (CST - Computer Simulation Technology AG, Germany); Marco Renzi and Mauro Cerboni (Tecnorad Italia S.p.A., Italy)

17:10 Dosimetry Study of Anatomical Pregnant Woman & Fetus Models Inside Three Different Elevator Cabins
Ioanna Karatsi and Stavros Koulouridis (University of Patras, Greece)

17:30 Comprehensive Study on Coupled Meandered Microstrip Line RF Coil Elements for 7-Tesla Magnetic Resonance Imaging
Ashraf Abuelhaija (Duisburg-Essen University, Germany); Klaus Solbach (UDE, Germany); Stephan Orzada (Erwin L. Hahn Institute For Magnetic Resonance Imaging, Germany)

17:50 Impact of Neutralization on Isolation in Co-Planar and Back-to-Back Antennas
Sathya Narayana Venkatasubramanian and Linsheng Li (Aalto University, Finland); Clemens Icheln (Aalto University & School of Electrical Engineering, Finland); Fabien Ferrero (CREMANT, Université Nice-Sophia Antipolis & CREMANT CNRS, France); Cyril Luxey (University Nice Sophia-Antipolis, France); Katsuyuki Haneda (Aalto University, Finland)

18:10 Integrated Antenna Currents on a Polycrystalline Silicon Solar Cell
Oisin O'Conchubhair, Patrick McEvoy and Max James Ammann (Dublin Institute of Technology, Ireland)

16:50 - 18:30 C16 Confor: [C] Conformal Antennas Antennas/Multi Applications Room: João G Zarco (Pav 3C) Chairs: Vakur Erturk (Bilkent University, Turkey), Zvonimir Sipus (University of Zagreb, Croatia)

16:50 Analysis of Canonical Curved Metasurfaces
Marko Bosiljevac and Dario Bojanjac (University of Zagreb, Croatia); Anthony Grbic (University of Michigan, Ann Arbor, USA); Zvonimir Sipus (University of Zagreb, Croatia)

17:10 Low-Profile Ultra-Wideband Reconfigurable Tightly-Coupled Arrays
Dimitris Papantonis (Ohio State University, USA); Markus Novak (The Ohio State University, USA); Nima Ghalichechian (ElectroScience Laboratory & The Ohio State University, USA); John L. Volakis (Ohio State University, USA)

17:30 Empirical and Full-Wave Techniques for the Analysis of Cylindrical Microstrip Antennas and Arrays
Marcos V. T. Heckler (Universidade Federal do Pampa, Brazil); Alexis F. Tinoco-S. (Instituto Tecnológico de Aeronaútica & Laboratório de Antenas e Propagação - LAP, Brazil); Achim Dreher (German Aerospace Center (DLR), Germany); da Silva Lacava (Instituto Tecnologico de Aeronautica, Brazil)

17:50 Solid State Vs. Micro-Relay Switches Employed in a Circular Switched Parasitic Array Antenna
Claudius Loecker (Fraunhofer Institute of High Frequency Technology and Radar Techniques FHR, Germany); Thomas Bertuch (Fraunhofer FHR, Germany)

18:10 Analysis of Cylindrically Conformal Antennas Using Closed-Form Green's Function Representations
Mert Kalfa (Bilkent University, Turkey); Sakir Karan (Aselsan, Turkey); Vakur Erturk (Bilkent University, Turkey)

16:50 - 18:30 C22 RFID: [C] Emerging chipless RFID technology trends Antennas/Multi Applications Room: Tristão V Teixeira (Pav 5A) Chairs: David Girbau (Universitat Rovira i Virgili, Spain), Etienne Perret (Grenoble INP - LCIS, France)

16:50 Potentialities of Dual-Polarized Interrogation for Spectral Domain Chipless Tags
Filippo Costa, Simone Genovesi, Agostino Monorchio and Giuliano Manara (University of Pisa, Italy)

17:10 Millimetre-wave Scanning Radar for the Detection and Remote Reading of Passive Electromagnetic Sensors
Dominique Henry and Ayoub Rifai (LAAS-CNRS, France); Herve Aubert (LAAS, France); Patrick Pons (LAAS-CNRS, University of Toulouse, France)

17:30 A Novel Phase Encoding Technique Exploting Linear or Circular Polarization
Simone Genovesi, Filippo Costa, Agostino Monorchio and Giuliano Manara (University of Pisa, Italy)

17:50 Time-coded Chipless Sensors to Detect Quality of Materials in Civil Engineering
Angel Ramos (Universitat Rovira i Virgili, Spain); Antonio Lazaro (URV, Spain); David Girbau (Universitat Rovira i Virgili, Spain)

18:10 High Performance Chipless RFID Reader Based on IR-UWB Technology
Marco Garbati (University Grenoble Alpes LCIS, France); Romain Siragusa (Grenoble INP, France); Etienne Perret (Grenoble INP - LCIS, France); Arnaud Vena (University of Montpellier II & Institut d'Electronique du Sud (IES), France); Christophe Halope (Arjowiggins Security, France)

16:50 - 18:30 C3 Nano: [C] Advanced computational methods and analysis of optical nanoantennas, resonators, and other photonic circuit components
Antennas/Bridging other Areas
Room: Diogo Cão (Aud 8)
Chairs: Alexander Nosich (IRE NASU, Ukraine), Xuezhi Zheng (Katholieke Universiteit Leuven, Belgium)

16:50 Integral-Equation Study of Ray Effects and Natural-Mode Resonances in a 2-D Dielectric Prism
Ilya O. Sukharevsky and Ayhan Altintas (Bilkent University, Ukraine)

17:10 Seebeck Nanoantennas for Infrared Detection and Energy Harvesting Applications
Edgar Briones (University of San Luis Potosi, Mexico); Javier Alda, Juan Carlos Martinez-Anton and Alexander Cuadrado (Universidad Complutense de Madrid, Spain); Joel Briones (ITESO, Jesuit University of Guadalajara, Mexico)

17:30 Modal Analysis in Understanding the Optical Response of a Nanoantenna
Xuezhi Zheng, Guy A. E. Vandenbosch and Victor V. Moshchalkov (Katholieke Universiteit Leuven, Belgium)

17:50 Wideband Equivalent Circuit for 1-D Periodic Compound Gratings
Carlos Molero and Raúl Rodríguez-Berral (Universidad de Sevilla, Spain); Francisco Mesa (University of Seville, Spain); Francisco Medina (University of Sevilla, Spain)

18:10 Excitation of a Grounded Lossy Dielectric Slab by an External Complex Source Point Beam
Nikolaos L. Tsitsas (Aristotle University of Thessaloniki, Greece); Constantinos A Valagiannopoulos (Aalto University, Finland)

16:50 - 18:30 C32 OTA: [C] MIMO OTA Test Trade-offs Measurements/Cellular Communications
Room: Afonso de Albuquerque (Pav 3B)
Chairs: Mattias Gustafsson (Huawei Technologies Sweden AB, Sweden), David A Sánchez-Hernández (Universidad Politécnica de Cartagena, Spain)

16:50 The Decomposition Method: Accelerated OTA Test of MIMO Devices
Bernhard Auinger and Michael Gadringer (Graz University of Technology, Austria); Adam Tankielun (Rohde & Schwarz GmbH & Co. KG, Germany); Thomas Zemen (AIT Austrian Institute of Technology GmbH & FTW Telecommunications Research Center Vienna, Austria); Christoph von Gagern (Rohde & Schwarz GmbH & Co. KG, Germany); Wolfgang Boesch (Graz University of Technology & Institute of Microwave and Photonic Engineering, Austria)

17:10 Advances in Antenna Pattern-Based MIMO OTA Test Methods
Moray Rumney (Keysight Technologies, United Kingdom); Hongwei Kong (Agilent, P.R. China); Ya Jing (Agilent Technologies, P.R. China); Xu Zhao (Agilent, P.R. China)

17:30 LTE Carrier Aggregation MIMO OTA Tests Using a Reverberation Chamber
Peter Liao (SGS, Taiwan); Miguel Mora (EMITE & Edif CEDIT, Parque Tecnologico de Fuente Alamo, Spain)

17:50 Device-to-Device Extension to Geometry-Based Stochastic Channel Models
Tommi Jamsa (Tommi Jamsa Consulting & Huawei Technologies Sweden, Finland); Pek-

16:50 - 18:30 C46 TuneSmall: [C] Tuning and Miniaturization Techniques for Small Device Antennas operating at LTE bands
Antennas/Cellular Communications
Room: Pêro Escobar (Pav 3A)
Chairs: Samantha Caporal Del Barrio (Aalborg University, Denmark), Art Morris (Wispry, USA)

16:50 Characteristic Mode Investigation of a Reactively Loaded Electrically Small Dipole Antenna
Matthew Young (University of Illinois at Urbana-Champaign, USA); Jennifer T. Bernhard (University of Illinois at Urbana-Champaign & Electromagnetics Laboratory, USA)

17:10 Simple Front-End Concept for the Complex Challenges of Multi-Band Communications
Emil Buskgaard, Alexandru Tatomirescu and Samantha Caporal Del Barrio (Aalborg University, Denmark); Pevand Bahramzy (Aalborg University & Intel Mobile Communications, Denmark); Ondřej Franek (Aalborg University & APNet Section, Denmark); Gert Pedersen (Aalborg University, Denmark)

17:30 Unveiling the Potential of Antenna Tuners
Art Morris (Wispry, USA)

17:50 Tunable MIMO Antenna for Small Handsets
Kimmo Rasilainen (Aalto University School of Electrical Engineering, Finland); Anu Lehtovuori (Aalto University & School of Electrical Engineering, Finland); Janne Ilvonen and Jari Holopainen (Aalto University School of Electrical Engineering, Finland); Risto Valkonen (Christian-Albrechts-Universität zu Kiel, Germany); Ville Viikari (Aalto University School of Electrical Engineering, Finland)

18:10 Electrical Balance Duplexer Adaptation in Indoor Mobile Scenarios
Leo Laughlin, Mark Beach and Kevin A Morris (University of Bristol, United Kingdom); John Haine (U-blox, United Kingdom)

16:50 - 18:30 C48 WirelessTr: [C] Wireless Power Transmission and Energy Harvesting Antennas/Multi Applications
Room: Gil Eanes (Aud 3)
Chairs: Alessandra Costanzo (DEIS, University of Bologna, Italy), Yi Huang (University of Liverpool, United Kingdom)

16:50 Statistical Modeling of a Shielded Wireless Charging Device
Alenka Zajic (Georgia Institute of Technology, USA); Zoya Popović (University of Colorado at Boulder, USA)

17:10 Rectenna Demonstrators At Holst Centre / Imec and Eindhoven University of Technology
Huib J. Visser (IMEC Netherlands, The Netherlands); Hans Pflug (Holst Centre / imec, The Netherlands); Shady Keyrouz (Eindhoven University of Technology, The Netherlands)

17:30 Circularly Polarized Shorted Ring Slot Rectenna with a Mesh Design for Optimized Inkjet Printing on Paper Substrate
Ricard Martinez, Apostolos Georgiadis and Ana Collado (CTTC, Spain); Manos M. Tentzeris (Georgia Institute of Technology, USA); George Goussetis (Heriot-Watt University, United Kingdom); Jose-Luis Gómez-Tornero (Polytechnic University of Cartagena, Spain)

17:50 A Broadband Efficient Rectenna Array for Wireless Energy Harvesting
Chaoyun Song, Yi Huang and Jiafeng Zhou (University of Liverpool, United Kingdom); Sheng Yuan (The University of Liverpool, United Kingdom); Qian Xu (University of Liverpool, United Kingdom)

18:10 Antenna Design for Unified Far-Field Communication and Near-Field Recharging
Fracesco Berra (University of Bologna, Italy); Alessandra Costanzo (DEI University of Bologna, Italy); Marco Dionigi (University of Perugia, Italy); Diego Masotti and Franco Mastri (University of Bologna, Italy); Mauro Mongiardo and Roberto Sorrentino (University of Perugia, Italy)

Thursday, April 16

16:50 - 18:30 HD1 Lenses: Lens antennas and radomes
Antennas/High Data-rate Transfer
Room: Gonçalo V Cabral (Pav 5C)
Chairs: Andrey Mozharovskiy (Radio Gigabit LLC ; Lobacevski State University of Nizhniy Novgorod, Russia), Andrea Neto (Delft University of Technology, The Netherlands)

16:50 Multi-beam Luneburg Lens Antenna for Cellular Communications
Tse Tong Chia (Temasek Laboratories@NUS, Singapore)

17:10 Differences in EM Performance Between Multi-Panel Faceted and Spherical Radomes
Aleksey Solovey (L-3 ESSCO, USA)

17:30 Frequency Independent Patterns From Double Shell Lenses Fed by Leaky Wave Feeders
Ozan Yurduseven (Delft University of Technology, The Netherlands); Jorge R. Costa (Instituto de Telecomunicações / ISCTE-IUL, Portugal); Carlos A. Fernandes (Instituto de Telecomunicacoes, Instituto Superior Tecnico, Portugal); Andrea Neto (Delft University of Technology, The Netherlands)

17:50 Smooth Plate Luneburg Lens with Superstrate
Jonathan Bor (IETR - University of Rennes 1, France); Olivier Lafond (IETR, France); Mohamed Himdi (Université de Rennes 1, France)

18:10 High Gain Millimeter-Wave Lens Antennas with Improved Aperture Efficiency
Andrey Mozharovskiy, Alexey Artemenko, Vladimir Ssorin, Roman Maslennikov and Alexey Sevastyanov (Radio Gigabit LLC, Russia)

16:50 - 18:30 MA5 MetaAnt: Metamaterials Antennas and Components
Antennas/Multi Applications
Room: Bartolomeu Dias (Aud 4)
Chairs: Eva Rajo-Iglesias (University Carlos III of Madrid, Spain), Alexander Yakovlev (The University of Mississippi, USA)

16:50 V-Band Groove Gap Waveguide Diplexer
Morteza Rezaee (Ferdowsi University of Mashhad, Iran); Ashraf Uz Zaman and Per-Simon Kildal (Chalmers University of Technology, Sweden)

17:10 Microwave Horn Antenna Made of a Graphene-Containing Carbon Composite Material
Tatyana M. Zaboronkova (Technical University of Nizhny Novgorod, Russia); Nikolai Dugin (Radiophysical Research Institute, Russia); Evgeny Myasnikov (Volga State Academy of Water Transport, Russia)

17:30 Novel Horn-Like Antenna Based on Skewed Transmission Line Lattices
Joni Vehmas (Aalto University, Finland)

17:50 Mutual Coupling Reduction Between Neighboring Strip Dipole Antennas Using Confocal
Hossein Mehrpour Bernety (the University of Mississippi, USA); Alexander Yakovlev (The University of Mississippi, USA)

18:10 A Zero Beam-Squinting Leaky-Wave Antenna Using NRI-TL Metamaterials
Kypros Kossifos and Marco A. Antoniades (University of Cyprus, Cyprus)

Friday, April 17

09:00 - 10:20 Bi2 BodyCom: Body-Centric Communications
Propagation/Biomedical
Room: Pedro A Cabral (Aud 2)
Chairs: Rosanna Pinto (ENEA, Italy), Marcel Seguin (University of Calgary, Canada)

09:00 Head-centric Body-channel Propagation Paths Characterization
Andrea Ruaro (Technical University of Denmark & GN ReSound A/S, Denmark); Jesper Thaysen (GN ReSound A/S, Denmark); Kaj Bjarne Jakobsen (Technical University of Denmark, Denmark)

09:20 Impact of Radio Wave Polarisation on Off-Body Communications in Indoor Environments
Slawomir J. Ambroziak (Gdansk University of Technology, Poland); Luis M. Correia (IST - University of Lisbon & INOV-INESC, Portugal); Ryszard Katulski (Gdansk University of Technology, Poland); Michal Mackowiak (INOV-INESC / IST - University of Lisbon, Portugal)

09:40 A Low Profile Microstrip Patch Antenna for Body-Centric Communications At 2.45GHz Band
Bright Yeboah-Akowuah and Panagiotis Kosmas (King's College London, United Kingdom); Yifan Chen (South University of Science and Technology of China, P.R. China)

10:00 Analytical Model, Measurements, and Effect of Outer Lossless Shell of Phantoms for On-body Propagation Channel Around the Body for Body Area Networks
Rohit Chandra (Norwegian University of Science and Technology (NTNU), Norway); Anders Johansson (Lund University, Sweden)

10:20 – 10:50 Coffee Break
Room: Foyer D

09:00 - 10:20 C19 DomainD: [C] Domain decomposition methods and macro-basis functions for integral equations
Antennas/Bridging other Areas
Room: Diogo Cão (Aud 8)
Chairs: Vito Lancellotti (Eindhoven University of Technology, The Netherlands), Rob Maaskant (CHALMERS, Sweden)

09:00 A Comparison of Two Types of Macro Basis Functions Defined on LEGO Electromagnetic Bricks
Vito Lancellotti (Eindhoven University of Technology, The Netherlands); Rob Maaskant (CHALMERS, Sweden)

09:20 Efficient Domain Decomposition Method for Electromagnetic Modeling of Scattering From Forest Environments
Ines Fenni (University UPMC, France); Hélène Roussel (Sorbonne Université UPMC Paris 06, France); Muriel Darces (UPMC Univ Paris 6, France); Raj Mittra (Penn State University, USA)

09:40 Macro-basis Functions for Electromagnetic Modelling of Penetrable and Impenetrable Bodies
Matteo Alessandro Francavilla and Marco Righero (Istituto Superiore Mario Boella, Italy); Giuseppe Vecchi and Francesca Vipiana (Politecnico di Torino, Italy)

10:00 On the Use of Contour-FFT for the MBF-based Analysis of Arrays of Antennas Placed Vertically Above a Multi-layered Substrate
Khaldoun Alkhalifeh (Université Catholique de Louvain, Belgium); Shambhu Nath Jha (ICOMS Detection S.A., Belgium); Sumit Karki and Christophe Craeye (Université Catholique de Louvain, Belgium)

10:20 – 10:50 Coffee Break
Room: Foyer D

09:00 - 10:20 C27 Meta: [C] Latest Progress in Metamaterial-Based Antenna Design

Antennas/Multi Applications
Room: Bartolomeu Dias (Aud 4)
Chairs: Hisamatsu Nakano (Hosei University, Japan), Xianming Qing (Institute for Infocomm Research, Singapore)

09:00 Metaspiral Antenna System with Dielectric Slabs
Hisamatsu Nakano, Toshio Shimizu, Kenta Yoshida and Junji Yamauchi (Hosei University, Japan)

09:20 Mutual-coupling Reduction of Four-element Cavity-backed Slot Antenna System Using Mushroom Walls
Guohua Zhai and Xianming Qing (Institute for Infocomm Research, Singapore); Zhi Ning Chen (National University of Singapore & Institute for Infocomm Research, Singapore)

09:40 Wideband Diamond Dipole Antenna with Broadside Radiation Characteristics
Chetan Joshi (Institut Mines-Telecom, Telecom ParisTech, France); Julien Sarrazin (University of Pierre & Marie Curie UPMC, France); Anne-Claire Lepage and Xavier Begaud (Institut Mines-Telecom, Telecom ParisTech, France)

10:00 Analysis of Anisotropic Metamaterial Inclusions and Substrates
Chinwe C Njoku, Shiyu Zhang, J (Yiannis) Vardaxoglou and William Whittow (Loughborough University, United Kingdom)

10:20 – 10:50 Coffee Break
Room: Foyer D

09:00 - 10:20 C34 Mobile: [C] Mobile antenna concepts leveraging circuit design techniques

Antennas/Cellular Communications
Room: Afonso de Albuquerque (Pav 3B)
Chairs: Fabien Ferrero (CREMANT, Université Nice-Sophia Antipolis; CREMANT CNRS, France), Frédéric Gianesello (STMicroelectronics, France)

09:00 Reconfigurable Antenna for Extension of LTE Operational Mode Over TV White Spaces
Le Huy Trinh (University of Nice Sophia Antipolis, France); Fabien Ferrero (CREMANT, Université Nice-Sophia Antipolis & CREMANT CNRS, France); Jean Marc Ribero (University of nice & LEAT, France); Robert Staraj (University of Nice-Sophia Antipolis, France)

09:20 Optimization of Frequency Tunable Matching Circuits
Jussi Rahola (Optenni Ltd, Finland)

09:40 MEMS Tunable Antennas to Address LTE 600 MHz-bands
Samantha Caporal Del Barrio (Aalborg University, Denmark); Art Morris (Wispry, USA); Gert Pedersen (Aalborg University, Denmark)

10:00 Variable Matching Circuit Using SP6T MEMS Switches Dedicated to LTE Multiband Antenna
Anne-Claire Lepage (Institut Mines-Telecom, Telecom ParisTech, France); Bernard Huyart (Institut Mines Telecom, Telecom ParisTech, France); Thanh Nga Mai (Mines-Telecom Paristech, France)

10:20 – 10:50 Coffee Break
Room: Foyer D

09:00 - 10:20 C42 Pulsed: [C] Pulsed-field radio: theory, applications, implementation

Antennas/Multi Applications
Room: Gonçalo V Cabral (Pav 5C)
Chairs: Takamaro Kikkawa (Hiroshima University, Japan), Ioan E. Lager (Delft University of Technology, The Netherlands)

09:00 Signal Integrity in Pulse-train Excited Array Antennas in Time and Space - A Full TD Analysis
Adrianus T De Hoop and Ioan E. Lager (Delft University of Technology, The Netherlands)

09:20 An Extension of the Time-Domain Friis Equation
Martin Štumpf (Brno University of Technology, Czech Republic); Guy A. E. Vandenbosch (Katholieke Universiteit Leuven, Belgium)

09:40 Impulse Based Radio Technology for mm-Waves
Daniel Sjöberg, Lars Ohlsson, Iman Vakili, Mats Gustafsson and Lars-Erik Wernersson (Lund University, Sweden)

10:00 Digital Confocal Imaging of Breast Cancer Using UWB-CMOS Integrated Circuits
Takamaro Kikkawa, Afreen Azhari, Kenji Hashimoto, Yuji Seo, Hayato Kono and Mitian Wang (Hiroshima University, Japan); Xia Xiao (Tianjin University, P.R. China); Akihiro Toya (Kure National College of Technology, Japan); Yoshihiro Masui (Hiroshima Institute of Technology, Japan); Junnichi Somei, Eiji Suematsu and Yuichi Watarai (Sharp, Japan); Hiromasa Watanabe and Toshihiko Ohta (Sharp-Takaya, Japan)

10:20 – 10:50 Coffee Break
Room: Foyer D

09:00 - 10:20 C5 Plasma: [C] Advances in Plasma-based Antennas and Devices

Antennas/Defense and Secutity
Room: João G Zarco (Pav 3C)
Chairs: Theodore Anderson (Haleakala Research and Development, USA), Davide Melazzi (University of Padova, Italy)

09:00 Plasma Metamaterials, and Their Reconfigurable and Nonlinear Properties
Osamu Sakai (The University of Shiga Prefecture, Japan)

09:20 An Overview of Experimental and Numerical Results on the Performance of Plasma Antennas Arrays
Theodore Anderson (Haleakala Research and Development, USA); Davide Melazzi (University of Padova, Italy); Vito Lancellotti (Eindhoven University of Technology, The Netherlands)

09:40 Plasma Microdischarge as Power-Induced Limiter Element in Microstrip Devices
Romain Pascaud (Université de Toulouse - ISAE, France); Francisco Pizarro (Pontificia Universidad Catolica de Valparaiso, Chile); Thierry Callegari, Laurent Liard and Olivier Pascal (Université de Toulouse - UPS INPT CNRS, France)

10:00 Reconfigurable Leaky Wave Antenna Using a Gradient Index Plasma
Jerome Sokoloff (University Paul Sabatier of Toulouse, France); Asma Kallel (Université Paul Sabatier-CNRS-LAPLACE, France); Thierry Callegari (Université de Toulouse - UPS INPT CNRS, France)

10:20 – 10:50 Coffee Break
Room: Foyer D

09:00 - 10:20 C6 mmSpace: [C] Advances in space-fed antennas for millimeter-wave communications

Antennas/Space
Room: Tristão V Teixeira (Pav 5A)
Chairs: Laurent Dussopt (CEA, LETI, Minatec, France), Andrea Neto (Delft University of Technology, The Netherlands)

09:00 Collimating Leaky-Wave Radiation with Metasurfaces
Carl Pfeiffer (University of Michigan, USA); Anthony Grbic (University of Michigan, Ann Arbor, USA)

09:20 Physical-Optics Analysis and Design of a Beam-Forming Network Coupled to an Imaging-System Configuration for Ka-Band Satellite Applications
Etienne Girard (Thales Alenia Space, France); Guido Valerio (Sorbonne Universités UPMC, France); Mauro Ettorre (University of Rennes 1 & UMR CNRS 6164, France); Ronan Sauleau (University of Rennes 1, France); Hervé Legay (Thalès Alenia Space, France)

09:40 True-Time-Delay Reflectarray and Transmitarrays Based on Miniaturized Element Frequency Selective Surfaces
Seyed Mohamad Amin Momeni Hasan Abadi (University of Wisconsin-Madison, USA); Nader Behdad (University of Wisconsin, USA)

10:00 Millimeter-wave Beam-Scanning Antennas Using Liquid Crystals
Gerardo Perez-Palomino (Universidad Politécnica de Madrid, Spain); Jose A. Encinar and Mariano Barba (Universidad Politecnica de Madrid, Spain); Robert Cahill and Raymond Dickie (Queens University Belfast, United Kingdom); Paul Baine (Queen's University of Belfast, United Kingdom); Michael Bain (Queen's University Belfast, United Kingdom)

10:20 – 10:50 Coffee Break
Room: Foyer D

09:00 - 10:20 CC1 mmWProp: Propagation for mmW and 5G

Propagation/Cellular Communications
Room: Pêro Escobar (Pav 3A)
Chairs: Thomas Kürner (Technische Universität Braunschweig, Germany), Reiner S. Thomä (Ilmenau University of Technology, Germany)

09:00 Precipitation Modelling for Performance Evaluation of Ad-Hoc Microwave 5G Mesh Networks
Péter Kántor and László Csurgai-Horváth (Budapest University of Technology and Economics, Hungary); Árpád Drozdy (Aalto University, Finland); János Bitó (Budapest University of Technology and Economics, Hungary)

09:20 Millimeter Wave Channel Measurements and Modeling for Indoor Femtocell Applications
Nektarios Moraitis (National Technical University of Athens & Institute of Communications and Computers Systems, Greece); Athanasios D. Panagopoulos (National Technical University of Athens, Greece)

09:40 Coverage and Outage Capacity Evaluation in 5G Millimeter Wave Cellular Systems: Impact of Rain Attenuation
Charilaos Kourogiorgas (National Technical University of Athens, Greece); Stavros Sagkriotis (NTUA, Greece); Athanasios D. Panagopoulos (National Technical University of Athens, Greece)

10:00 Enhanced Graph-theoretic Channel Model for Performance Evaluation of MIMO Antennas and Millimeter Wave Communications
Traianos Yioultsis and Dimitrios Ntaikos (Aristotle University of Thessaloniki, Greece); Athanassios C. Iossifides (Alexander Technological Educational Institute of Thessaloniki & ATEI of Thessaloniki, Greece)

10:20 – 10:50 Coffee Break
Room: Foyer D

09:00 - 10:20 MA2 WireAnt: Wire antennas

Antennas/Multi Applications
Room: Gil Eanes (Aud 3)
Chairs: Qing-Xin Chu (South China University of Technology, P.R. China), Ala Sharaiha (Université de Rennes 1; IETR, France)

09:00 A Dual-Polarized Base-Station Antenna for LTE Communication System
Xing-Xin Guo (School of Electronic and Information Engineering, P.R. China); Ding-Liang Wen and Qing-Xin Chu (South China University of Technology, P.R. China)

09:20 A Broadband Dual-Polarized Antenna with Γ-Shaped Feeding Structures
Ding-Liang Wen and Qing-Xin Chu (South China University of Technology, P.R. China)

09:40 Analysis of Electrical Dipole Linear Array Maximum Directivity
Antonio Clemente (CEA-LETI Minatec, France); Christophe Delaveaud (CEA-LETI, France); Lionel Rudant (CEA-LETI & MINATEC, France)

10:00 Characteristic Mode Coupling in Dipoles and Dipole Arrays
Aaron King and Jennifer T. Bernhard (Electromagnetics Laboratory, University of Illinois at Urbana-Champaign, USA)

10:20 – 10:50 Coffee Break
Room: Foyer D

09:00 - 10:20 S6 Reflector: Reflector, feed systems and components

Antennas/Space
Room: Paulo da Gama (Pav 5B)
Chairs: Jean-Christophe Angevain (ESA, The Netherlands), Nuria LLombart (Delft University of Technology, The Netherlands)

09:00 Analysis of Electrically Large Antennas Using Fast Physical Optics
Oscar Borries (Technical University of Denmark & TICRA, Denmark); Hans Henrik Viskum, Peter Meincke and Erik Jørgensen (TICRA, Denmark); Per Christian Hansen (Technical University of Denmark, Denmark); Carsten H Schmidt (Airbus DS GmbH, Germany)

09:20 Fast Prediction of Aperture Efficiency and Sidelobe Levels in Shaped Reflector Systems Through Model Based Output Space Mapping
Dirk de Villiers (Stellenbosch University, South Africa); Marianna Ivashina (Chalmers University of Technology, Sweden); Rob Maaskant (CHALMERS, Sweden)

09:40 Fast and Accurate Analysis of Reflector Antennas with Struts and Satellite Platform Scattering
Niels Vesterdal (Ticra, Denmark); Oscar Borries (Technical University of Denmark & TICRA, Denmark); Min Zhou, Knud Pontoppidan and Erik Jørgensen (TICRA, Denmark)

10:00 Noise Performance of a Phased-Array Feed Composed of Thick Vivaldi Elements with Embedded Low-Noise Amplifiers
Bruce Veidt, Tom Burgess, Keith Yeung, Stéphane Claude, Ivan Wevers, Mark Halman, Pat Niranjanan, Matthew Yao, Alex Jew and Anthony Willis (NRC Herzberg, Canada)

10:20 – 10:50 Coffee Break
Room: Foyer D

10:50 - 12:10 Bi7 SmallAnt: Small antennas and RF sensors

Antennas/Biomedical
Room: Pedro A Cabral (Aud 2)
Chairs: Stefano Caizzone (German Aerospace Center (DLR), Germany), Oleksiy S. Kim (Technical University of Denmark, Denmark)

10:50 Passive RFID Couplets as Wireless Interface for Sensor Applications
Stefano Caizzone (German Aerospace Center (DLR), Germany); Emidio Di Giampaolo (University of L'Aquila, Italy); Gaetano Marrocco (University of Rome Tor Vergata, Italy)

11:10 Characterization of Chip-Size Electrically-Small Antennas for Smart Wireless Biomedical Devices
Paulo Mendes (University of Minho, Portugal); José Fernandes (DEI- University of Minho, Portugal); Pedro Anacleto (Universidade do Minho & Johns Hopkins University, Portugal); Hugo Dinis (University of Minho, Portugal)

11:30 Stored Energy of Coupled Electric and Magnetic Currents and the Lower Bound on Q
Oleksiy S. Kim (Technical University of Denmark, Denmark)

11:50 On the Geometry, Impedance Matching and Quality Factor of Implantable Planar Dipole Antennas
Sofia Bakogianni and Stavros Koulouridis (University of Patras, Greece)

10:50 - 12:10 C11 GeoSci: [C] Antennas and Propagation for Geoscience Applications

Propagation/Radars
Room: Bartolomeu Dias (Aud 4)
Chairs: Alessandro Galli (Sapienza University of Rome, Italy), Greg Hislop (CSIRO Earth Science and Resource Engineering, Australia)

10:50 Sparse MIMO Arrays for Short-Range Imaging
Alexander Yarovoy (Delft University of Technology, The Netherlands); Harun Cetinkaya (Microwave Sensing, Signals and Systems (MS3), Delft University of Technology, The Netherlands)

11:10 Ground Permittivity Estimation Using R adar to Ground Coupling
Greg Hislop (CSIRO Earth Science and Resource Engineering, Australia)

11:30 Efficient Simulation of Coupled Ground Antennas
Khaldoun Alkhalifeh (Université Catholique de Louvain, Belgium); Nilufer Ozdemir (Universite Catholique de Louvain, Belgium); Christophe Craeye (Université Catholique de Louvain, Belgium)

11:50 GPR Early-Time Signal Features for the Evaluation of Shallow-Soil Permittivity
Elena Pettinelli (Roma Tre University, Italy); Davide Comite and Alessandro Galli (Sapienza University of Rome, Italy); Sebastian Lauro and Elisabetta Mattei (Roma Tre University, Italy)

10:50 - 12:10 C2 3D: [C] 3D Printing / Additive Manufacturing Technology of Electromagnetic Structure

Antennas/Multi Applications
Room: Gil Eanes (Aud 3)
Chairs: Corey Shemelya (University of Texas at El Paso, USA), Hao Xin (University of Arizona, USA)

10:50 3D PRINTING MULTI-FUNCTIONALITY: Embedded RF Antennas and Components
Corey Shemelya (University of Texas at El Paso, USA); Michael Zemba (NASA Glenn Research Center, USA); David Espalin (University of Texas at El Paso, USA); Craig Kief (Configurable Space Microsystems Innovations and Applications Center & University of New Mexico, USA); Hao Xin (University of Arizona, USA); Eric MacDonald and Ryan Wicker (University of Texas at El Paso, USA)

11:10 3D Printed 20/30-GHz Dual-Band Offset Stepped-Reflector Antenna
Olav Breinbjerg and Oleksiy S. Kim (Technical University of Denmark, Denmark)

11:30 Frequency Selective Surfaces Formed by Partially Metalizing 3D Printed Shapes
Benito Sanz-Izquierdo (University of Kent, United Kingdom); Edward Parker (The University of Kent, United Kingdom)

11:50 Microwave and THz Components Printed Using Additive Manufacturing Technique
Min Liang and Hao Xin (University of Arizona, USA)

10:50 - 12:10 C31 Microflu: [C] Microfluidics and Tunable Material Systems for Antenna Reconfiguration and Control

Antennas/Cellular Communications
Room: Pêro Escobar (Pav 3A)
Chair: Ozlem Aydin Civi (Middle East Technical University, Turkey), Nader Behdad (University of Wisconsin-Madison, USA)

10:50 Tunable mm-Wave Artificial Impedance Surfaces Using Piezoelectric Bender Actuators
Marina Mavridou, Alexandros Feresidis and Peter Gardner (University of Birmingham, United Kingdom)

11:10 Microfluidically Reconfigured Frequency Tunable Dipole Antenna
Abhishek Dey (University of South Florida, USA); Asimina Kiourti (The Ohio State University, USA); Gokhan Mumcu (University of South Florida, USA); John L. Volakis (Ohio State University, USA)

11:30 A Fluidically-Tunable, Dual-Band Patch Antenna
Tonmoy Bhattacharjee and Hongrui Jiang (University of Wisconsin Madison, USA); Nader Behdad (University of Wisconsin-Madison, USA)

11:50 Complex Modes of a Tunable Graphene-Based Fabry-Perot Cavity THz Antenna
Walter Fuscaldo, Paolo Burghignoli, Paolo Baccarelli and Alessandro Galli (Sapienza University of Rome, Italy)

10:50 - 12:10 MA14 ActiveAnt: Active and integrated antennas

Antennas/Multi Applications
Room: Gonçalo V Cabral (Pav 5C)
Chairs: Deepak Nagarkoti (Queen Mary University of London, United Kingdom), Mohammad S. Sharawi (King Fahd University of Petroleum and Minerals (KFUPM), Saudi Arabia)

10:50 High-Efficiency On-Chip Antenna Array for Terahertz Power Source
Daniele Cavallo, Akshay Visweswaran, Nuria LLombart, Marco Spirito, Andrea Neto and John Long (Delft University of Technology, The Netherlands)

11:10 Development of Superconducting Front-End T/R Module for Active Phased Array Antenna
Hiroyuki Kayano (Toshiba Corporation, Japan)

11:30 Power Amplifier Based Integrated and Miniaturized Active Antenna
Sagar Kumar Dhar (King Fahd University of Petroleum and Minerals, Saudi Arabia); Oualid Hammi (KFUPM, Saudi Arabia); Mohammad S. Sharawi (King Fahd University of Petroleum and Minerals (KFUPM), Saudi Arabia); Fadhel Ghannouchi (University of Calgary, Canada)

11:50 Noise Measurements of a Non-Foster Circuit for Matching of a Receiver Antenna
Deepak Nagarkoti (Queen Mary University of London, United Kingdom); Yang Hao (Queen Mary, University of London, United Kingdom); Khalid Z Rajab (Queen Mary University of London, United Kingdom)

10:50 - 12:10 MA9 ConforAnt: Conformal antennas

Antennas/Multi Applications
Room: João G Zarco (Pav 3C)
Chairs: Carl Pfeiffer (University of Michigan, USA), Luigi Vallozzi (Ghent University, Belgium)

10:50 A Conical Phased Array for Reliable and Discrete Communications
Vincent Jaeck (French-German Research Institute of Saint-Louis, France); Loic Bernard (ISL, France); Kouroch Mahdjoubi (Université de Rennes, France); Ronan Sauleau and Sylvain Collardey (University of Rennes 1, France); Philippe Pouliguen (DGA/Direction de la Stratégie, France); Patrick Potier (DGA/Maîtrise de l'Information, France)

11:10 Cylindrically-bent Rectangular Patch Antennas: Novel Modeling Techniques for Resonance Frequency Variation and Uncertainty
Luigi Vallozzi (Ghent University, Belgium); Freek Boeykens (Verotech BVBA, Belgium); Hendrik Rogier (Ghent University, Belgium)

11:30 CPW-fed Dual Band Monopole Antenna Based on Conductive Polymers
Zahir Hamouda (Institut Aéronautique, Université de Blida, Algeria)

11:50 Circumferential Array of Cylindrical Hybrid Antennas
Prêntice Ribeiro Filho (Laboratório de Antenas e Propagação - LAP, Brazil); Alexis F. Tinoco-S. (Instituto Tecnológico de Aeronaútica & Laboratório de Antenas e Propagação - LAP, Brazil); Daniel Nascimento (Laboratório de Antenas e Propagação - LAP, Brazil); da Silva Lacava (Laboratório de Antenas e Propagação, Brazil)

10:50 - 12:10 S7 NumSpace: Electromagnetic theory and numerical techniques for Space Applications

Antennas/Space
Room: Paulo da Gama (Pav 5B)
Chair: Dragan I. Olcan (University of Belgrade, Serbia), Giovanni Toso (European Space Agency, The Netherlands)

10:50 Modal Analysis of Planar Structures Loaded with Wire-Medium Slabs Using a Transmission-Line Approach
Davide Comite, Paolo Baccarelli, Paolo Burghignoli, David Di Ruscio and Alessandro Galli (Sapienza University of Rome, Italy)

11:10 Exact Solution for Anysotropic, Periodically Modulated Boundary Conditions Excited by a Surface Wave
Francesco Caminita, Enrica Martini and Stefano Maci (University of Siena, Italy)

11:30 Antennas in Reception
Andrea Neto, Ozan Yurduseven and Nuria LLombart (Delft University of Technology, The Netherlands); Angelo Freni (University of Florence, Italy)

11:50 Characterization of Printed Transmission Lines At High Frequencies
Sven van Berkel (Delft University of Technology, The Netherlands); Alessandro Garufo (TU Delft, The Netherlands); Nuria LLombart and Andrea Neto (Delft University of Technology, The Netherlands)

10:50 - 12:10 S9 AntSpace: Antennas for Space Applications

Antennas/Space
Room: Tristão V Teixeira (Pav 5A)
Chairs: Benedetta Fiorelli (ESA-ESTEC, Noordwijk, Netherlands, The Netherlands), Per Magnusson (Ruag Space Sweden, Sweden)

10:50 Antenna Development for MetOp Second Generation Wind Scatterometer
Chung-Chi Lin (European Space Agency/ESTEC, The Netherlands); Allan Østergaard and Marc Loiselet (European Space Agency, The Netherlands); Quiterio García and Ana Trastoy (Airbus Defence and Space, Spain); Per Magnusson (Ruag Space Sweden, Sweden); Patrik Dimming and Mikael Petersson (RUAG Space Sweden, Sweden)

11:10 MetOp-SG SCA Antenna Breadboard Definition, Manufacturing and Testing
Quiterio García, Ana Trastoy and Antonio Montesano (Airbus Defence and Space, Spain); Ignacio Herrera and Aurelio Gualo (TTI Norte, Spain); Chung-Chi Lin (European Space Agency/ESTEC, The Netherlands); Allan Østergaard (European Space Agency, The Netherlands)

11:30 A Thermally Stable Dual-Polarized Waveguide Array
Per Magnusson (Ruag Space Sweden, Sweden); Patrik Dimming (RUAG Space Sweden, Sweden)

11:50 A Ray-tracing Method to Analyzing Modulated Planar Fabry-Perot Antennas
Mikkel Dahl Hougs, Oleksiy S. Kim and Olav Breinbjerg (Technical University of Denmark, Denmark)

Friday, April 17

10:50 - 12:10 W2 VehicProp: Propagation for Vehicle-to-X Communication
Propagation/Wireless Networks
Room: Afonso de Albuquerque (Pav 3B)
Chairs: Edith Condo Neira (SP Technical Research Institute of Sweden, Sweden), Kristian Karlsson (SP Technical Research Institute of Sweden, Sweden)

10:50 Combination of Full Wave Methods and Ray Tracing for Radiation Pattern Simulations of Antennas on Vehicle Roofs
Marina Mocker (Technische Universität München, Germany); Manuel Schiller (Technische Universtität München, Germany); Robert Brem (Technische Universität München, Germany); Zuguang Sun (TU München, Germany); Hicham Tazi (AUDI AG, Germany); Thomas F. Eibert (Technische Universität München, Germany); Alois Knoll (Technical University Munich Garching, Germany)

11:10 Combined LTE and IEEE 802.11p Antenna for Vehicular Applications
Edith Condo Neira, Jan Carlsson and Kristian Karlsson (SP Technical Research Institute of Sweden, Sweden); Erik G Ström (Chalmers University of Technology, Sweden)

11:30 On the Effect of Vertical Spatial Diversity on V2V Communication for Three Different Platooning Scenarios
Kristian Karlsson (SP Technical Research Institute of Sweden, Sweden); Gunnar Ledfelt and Samuel Wickström (Scania, Sweden); Russ Whiton (Volvo Trucks, Sweden); Magnus JV Olbäck (Volvo Technology, Sweden); Johan Rogö (Kapsch, Sweden); Marcus Larsson (Qamcom Research and Technology AB & Halmstad University, Sweden)

11:50 Alamouti Space-time Coding in Car-to-Car Communications - SDR-based Implementation and Measurement
Matthias Maschlanka, Torsten Eichner, Michael Meuleners and Christoph Degen (Hochschule Niederrhein University of Applied Sciences, Germany)

12:10 - 13:10 Closing Ceremony
Room: Diogo Cão (Aud 8)
Chair: Luis M. Correia (IST - University of Lisbon; INOV-INESC, Portugal)

12:10 Closing
Best paper awards.
Presentation of EuCAP2016.

Short Courses

A set of short courses will be held on 12th April 2015.

Time	Room	Short Course
09:00 - 10:30	Diogo de Teive (Room 1.07)	**SC1 (Half-day):** THz Technology and instrumentation
	Diogo de Silves (Room 1.08)	**SC2 (Half-day):** Multibeam Antennas and Beamforming Networks Design
10:30 - 11:00	in front of the rooms	Coffee Break
11:00 - 12:30	Diogo de Teive (Room 1.07)	**SC1 (Half-day):** THz Technology and instrumentation
	Diogo de Silves (Room 1.08)	**SC2 (Half-day):** Multibeam Antennas and Beamforming Networks Design
14:00 - 15:30	Diogo Gomes (Room 1.06)	**SC3 (Half-day):** Gap waveguides for mmWave antenna systems and electronic packaging
	Diogo de Teive (Room 1.07)	**SC5 (Half-day):** Adaptive arrays control: theory and techniques
	Diogo de Silves (Room 1.08)	**SC6 (Half-day):** Microwave imaging for medical diagnostics: from theory to implementation
15:30 - 16:00	in front of the rooms	Coffee Break
16:00 - 17:30	Diogo Gomes (Room 1.06)	**SC3 (Half-day):** Gap waveguides for mmWave antenna systems and electronic packaging
	Diogo de Teive (Room 1.07)	**SC5 (Half-day):** Adaptive arrays control: theory and techniques
	Diogo de Silves (Room 1.08)	**SC6 (Half-day):** Microwave imaging for medical diagnostics: from theory to implementation

SC1 (Half-day):
THz Technology and instrumentation

Miguel Navarro-Cía, Imperial College London, UK

Course Room: **Diogo de Teive (Room 1.07)**
Date: **Sunday, 12th April**
Time: **09:00 - 10:30**
10:30 - 11:00 Coffee Break
11:00 - 12:30

Abstract
Given the saturation of the microwave spectrum and the increasing demand of data speed, wireless communications are being moved beyond microwaves into the millimetre-wave and teraherz (THz) regime. Meanwhile, THz is becoming key for security screening because of its better resolution and material penetration compared to microwaves, see Fig. 1. In all these applications, engineers play an important role for the modelling of the propagation channel and the design of components and systems. Thus, an increasing demand of engineers with device and system expertise on THz is foreseen for the next years.

This Short Course aims to provide an opportunity for attendees to familiarize with THz technology and instrumentation (continuous-wave and pulsed, comercial and non-commercial) in general, and in particular to near-field time-domain microscopy, see Fig. 2. The characterization of THz waveguides and Zenneck surface waves on bow-tie antennas will be used as practical example of the usefulness of the technique.

By the end of the Short Course participants will be better able to:

- Classify the different commercial THz instruments according to their THz generation and detection.
- Reflect upon the attendee' beliefs about the challenges in THz technology.
- Consider time-domain approach instead of the continuous-wave approach to test components.
- Adopt a critical attitude towards scaling down/up microwave/optical designs for THz.

The Short Course will cover the following sections:

- Why THz now? Historic introduction of THz science and technology. Current applications and potential opportunities. Challenges from the material point of view. Considerations for modelling/simulations.
- Type of instruments: continuous-wave, CW, (preferred by EE/Antenna engineers) vs. time-domain, TDS (preferred by optical engineers). Commercial instruments. My own experience: CW-ABmm, TDS-Teraview and non-commercial near-field TDS.
- TDS: generation & detection
- Near-field microscopy:
  > Aperture-based vs. scattering-based
  > Understanding the subwavelength -aperture-based THz nearfield microscope
- Applications:
  > Propagation in waveguides: parallel-plate and dielectricline hollow metallic waveguides
  > Zenneck surface waves

SC2 (Half-day):
Multibeam Antennas and Beamforming Networks Design

Giovanni Toso and Piero Angeletti, ESA ESTEC, The Netherlands

Course Room: **Diogo de Silves (Room 1.08)**
Date: **Sunday, 12th April**
Time: **09:00 - 10:30**
10:30 - 11:00 Coffee Break
11:00 - 12:30

Abstract
The objective of this course consists in presenting the state of the art and the on-going developments in Multi-Beam Antennas (MBAs) and Beam-Forming Networks (BFNs).

MBAs find application in several fields including communications, remote sensing (e.g. radars, radiometers, etc.), electronic surveillance and defense systems, science (e.g. multibeam radio telescopes), RF navigation systems, etc. MBAs constitute a key enabling element offering high gain and large field of view, and they are required to satisfy stringent performance in terms of sidelobe level, cross-polarization, number of beams and power and pattern reconfigurability. Depending mainly on the operational frequency, pattern requirements, transmitting and/or receiving functionality, different architectures may be selected: from antenna systems completely based on independent feeds illuminating a number of reflectors to hybrid systems based on both arrays and reflectors, from phased arrays to lens antennas. The BFN plays an essential role in any antenna system relaying on a set of radiating elements to generate a beam. More specifically, in an emitting antenna array, a BFN performs the functions of, focusing the energy radiated by an array along one or more predetermined directions in space by opportunely phasing and weighting the signals feeding the radiating elements of the array. The BFN complexity increases with the number of beams and antenna elements. The complexity further increases when beam shape and pointing reconfigurability are required. Indeed, full flexibility would be reached if any beam signal could be independently addressed to any antenna element with full freedom of phase and amplitude weighting. For these reasons efficient BFN architectures have been the subject of intense research and development in the past 50 years.
Even if used in several domains, the design of MBAs and BFNs is particularly critical and challenging when dealing with on board satellite applications. In this area, satellite manufacturers daily face an increase in demand of satellite handled bandwidth, offered power, frequency reuse, traffic reconfigurability, and embarked antenna sizes. Indeed some of the emerging applications are strictly power limited and the system trends consist in adopting large on-board antennas, advantages being the increase of the available gain.

Course Outline
The course will cover both theoretical and practical aspects for the following topics:

- Overview of Multibeam Antennas and system requirements.
  > Satellite Communication Systems
  > Wireless Communications
  > RADARs
- Multibeam Array Antennas
  > Linear and Planar Direct Radiating Arrays (based on Periodic or Aperiodic lattices)
  > Reflector-based architectures (Single-Feed-per-Beam, Multiple-Feed-per-Beam)
  > Lens-based architectures (free space and constrained)
- Analog Beamforming Networks
  > Corporate divider/combiners
  > Blass and Nolen matrices
  > Butler matrices
- Digital Beamforming Networks
- Overview of some Operational Multibeam Antennas/BFNs
  > MBAs for Spaceborne Narrowband and Broadband Satellite Communication Systems
  > MBAs for Wireless Communications
- On-going European Developments
- Current Design and Technological Challenges

The topics are presented through slides with content ranging from theory to applications with examples and references to technical literature. The course has been previously delivered during European (EuMC and EUCAP) and IEEE conferences (APS, ICWITS) with excellent participation and feedbacks. The matter is of interest for Space Applications, Radar Systems and Mobile Communications.

SC3 (Half-day):
Gap waveguides for mmWave antenna systems and electronic packaging

Ahmed Kishk, Univ. Quebec, Canada
Per-Simon Kildal and Ashraf Zaman, Chalmers Univ., Sweden

Course Room: **Diogo Gomes (Room 1.06)**
Date: **Sunday, 12th April**
Time: **14:00 - 15:30**
15:30 - 16:00 Coffee Break
16:00 - 17:30

Abstract
There is an emergent need for higher data rate related to upcoming wireless applications. Given the data rate, capacity and quality of service (QoS) requirements, this can only be possible if the vast unlicensed bandwidth available at mmWave frequencies can be utilized and all the technical hurdles at mmWave frequencies (above 30GHz) are solved in a cost-effective way. In terms of available bandwidth world-wide, flexible transmission rules, 60GHz is a boon from a system perspective. But RF designers have faced enormous challenges in simulation, design, integration, physical realization, packaging and test of the complete systems. The technical challenges are literally orders of magnitude more complex than 2.4GHz or 5GHz Wi-Fi systems of today.

In future, the industrial winners will be the companies that can provide the mmWave hardware at the lowest cost. This requires new waveguide and mmWave packaging technologies that are more cost-effective than normal rectangular waveguide technology, and is more power-efficient (lower losses) than PCB-based microstrip and coplanar waveguides. The gap waveguide technology has this potential.

The main advantages of the gap waveguide structure are as follows: Gap waveguide is a waveguide where EM wave can be guided and controlled even in an oversized parallel-plate structure. The waveguide can be realized without any requirement of metal contact between the upper metal surface and the lower surface, and thereby allowing cheap manufacturing of low-loss waveguide components at mmWave frequency bands or even higher. The relaxed mechanical requirements pave the way for low or moderate precision machining, lower fabrication time requirements and may even make possible the usage of some low cost fabrication techniques such as injection moulding, and plastic hot embossing.
This short course will contain an overview of the gap waveguide technology, the parallel-plate stopband design, some antenna designs based on gap waveguide technology and some RF subsystem design such as filters, packaging of RF electronics. This will give an opportunity for antenna specialists to start using and contribute to the development of this promising technology.

The course organisation is as follows:

- An overview of soft and hard surface, Hard waveguides,
- Basic principle of Gap waveguide technology, Comparison of losses with other available Microwave technologies such as rectangular waveguide and microstrip lines.
- The importance of the design of the parallel-plate stopband using different types of periodic structures.
- High gain planar slot array antenna designs based on different gap waveguide configurations.
- RF sub-system designs such as filters and diplexer.
- RF packaging with Gap waveguide.

SC5 (Half-day):
Adaptive arrays control: theory and techniques

Paolo Rocca, Univ. of Trento, Italy
Randy L. Haupt, Colorado School of Mines, USA

Course Room: **Diogo de Teive (Room 1.07)**
Date: **Sunday, 12th April**
Time: **14:00 - 15:30**
15:30 - 16:00 Coffee Break
16:00 - 17:30

Abstract
Interferences are becoming more and more common due to the growing number of wireless systems and applications which are used in our everyday life and that crowd the frequency spectrum. When the main beam gain times the desired signal is less than the sidelobe gain times the interference signal, then the interference overwhelms the desired signal. An adaptive antenna automatically adjusts its antenna pattern to steer the main beam in the direction of the desired signal while placing nulls in the direction of the interferences.

Adaptive antenna arrays are widely used in well-established applications like radar, sonar, seismic, and communications and are of great interest also in novel systems related to automotive, navigation and remote sensing. These antenna systems are designed to complement other interference suppression techniques, such as low sidelobes, spread-spectrum techniques, and high directivity.

In this framework, the course is focused on adaptive antenna arrays and is aimed at presenting a review, starting from the basic theoretical concepts, of the principal technologies and algorithms used for the control of these antenna systems up to the most recent advances. The theoretical part will be corroborated with examples on the use of adaptive arrays for real applications.

The short course will consist of three main parts, namely theory, algorithms, and architectures, where the following topics will be presented:

1. THEORY: terminology / signals in antenna arrays / interference and noise / adaptive array approaches;

2. ALGORITHMS: direct inversion of the covariance matrix / random search / deterministic and stochastic optimization / non-digital beam-forming approaches;

3. ARCHITECTURES: dynamic and reconfigurable arrays / multipath / MIMO / time-modulated arrays / adaptive array calibration and compensation.

SC6 (Half-day):
Microwave imaging for medical diagnostics: from theory to implementation

Panagiotis Kosmas, King's College London, UK
Lorenzo Crocco, CNR-IREA, Italy

Course Room: **Diogo de Silves (Room 1.08)**
Date: **Sunday, 12th April**
Time: **14:00 - 15:30**
15:30 - 16:00 Coffee Break
16:00 - 17:30

Abstract
Medical applications of electromagnetic (EM) fields in the microwave frequency range are an emerging topic for the EURAAP community, as witnessed by several successful sessions held at recent EUCAP and IEEE AP conferences. The ever-increasing need of introducing microwave engineers with diverse backgrounds to the theory and practical implementation of advanced imaging and inversion methods has become a major objective for the new COST Action TD1301 „MiMed", which aims to accelerate the development and clinical application of microwave medical imaging methodologies. To this end, this short course aims to not only introduce the audience to this complex and stimulating topic, but also to provide hands-on tools that would enable interested researchers to embark on this field.

The course will focus on microwave imaging methods as applied in various clinical applications, such as breast cancer detection and screening, stroke and trauma detection and imaging, as well as therapy monitoring and planning. Emphasis will be given on microwave tomography, which aims to estimate the spatial distribution of dielectric properties in a tissue region by solving an EM inverse scattering problem. Several EM inverse scattering methods have been proposed in recent years for this purpose, such as conjugate gradient techniques and Gauss-Newton (GN) optimization algorithms. The short course is meant for a potential large audience (e.g. MiMed participants, as well as students from various groups worldwide). In particular, by paving the path from the understanding of the basic mathematical problems to their practical implementation into computational tools, we are confident that we will motivate new research in this important area.

The material will be mostly covered with PowerPoint slides, but the instructors will pay specific attention to answering questions and explaining how the (sometimes complex) mathematical concepts can be implemented in practice via numerical codes. As such, a sufficient time is foreseen for an open interaction between the instructors and the trainees.

The general course's structure is as follows:

Part I: Introduction & Theoretical Background
This part will first introduce emerging microwave medical imaging applications, which are based on the methods presented in the course. This introduction will emphasize the need for microwave imaging and will motivate the material covered in the course. We will then present and explain the various challenges in microwave imaging by providing a basic general theoretical framework for inverse scattering problems.

Part II: From theory to implementation -
the microwave imaging practitioner toolbox,
with examples
This main part of the course will first introduce linear model-based inversion methods, which are easier to implement and application-specific. We will argue the usefulness of these methods in clinical applications such as differential imaging for clinical follow-up and contrast-enhanced microwave imaging. Then, more powerful but challenging non-linear microwave tomography methods will be analysed, focusing on contrast-source inversion (CSI) and Gauss-Newton (GN) methods. The methods will be applied to quantitative imaging of human tissue dielectric properties. Advanced topics such as regularization by projection and sparsitypromoting algorithms will also be presented. The attendees must have a good understanding of EM theory and a solid background in mathematics. The instructors aim to make the topic understood to non-experts, and therefore students at PhD level will particularly benefit from this course.

Workshops Overview

	Time	Room	Scientific Workshop
Monday, 13th April	13:40 - 15:40	Diogo de Silves (Room 1.08)	WS2 RFID: Chipless RFID Future and Challenges
Tuesday, 14th April	09:00 - 12:50	Diogo de Silves (Room 1.08)	WS4 Julien: In Memoriam of Julien Perruisseau-Carrier
Wednesday, 15th April	15:00 - 16:50	Diogo de Silves (Room 1.08)	WS1 AMTA: AMTA Workshop: Measurement Techniques for Multi-beam Antennas
Thursday, 16th April	14:00 - 15:50	Diogo de Silves (Room 1.08)	WS3 MiMed: Translating Microwave Medical Devices from Research Bench to Patient Bedside

	Time	Room	Industrial Workshops
Tuesday, 14th April	14:00 - 15:00	Diogo de Silves (Room 1.08)	WS5 R&S: Antenna Measurements at Rohde & Schwarz: The New Antenna Chamber
Wednesday, 15th April	11:10 - 12:10	Diogo de Silves (Room 1.08)	WS6 Altair: Application of Numerical Techniques to the Solution of Practical Antenna Problems with FEKO
Wednesday, 15th April	14:00 - 15:00	Diogo de Silves (Room 1.08)	WS7 CST: CST Workshop: Advanced Antenna System Simulation

WS1: AMTA Workshop - Measurement Techniques for Multi-beam Antennas

Room: **Diogo de Silves (Room 1.08)**
Date: **Wednesday, 15th April**
Time: **15:00-16:50**
Organisers: **I. Roberts - Eutelsat S.A., France**
D. Janse van Rensburg - NSI, USA
L. J. Foged - MVG , Italy

Abstract

In recent years, there has been an increasing need for products and related testing of antennas providing multiple beams in civilian and military communication, aerospace, RF and microwave communities. The goal of the AMTA workshop is to discuss challanges and avances of near-field multi-beam antenna measurements, to show state-of-the art measurement systems and discuss new developments and promising approaches. The workshop is based on invited speakers that will cover pertinent aspects of multi beam antenna testing followed by a panel a discussion. AMTA workshops are famous for lively discussions and high audience partecipation. Please bring your questions as well.

PROGRAMME

Multi-Beam Antenna Testing - A Spacecraft Operators Perspective, Ian Roberts.
The increasing demand for High Throughput and Ka-Band Multi-Spot Spacecraft and flexible payloads using array antennas leads to a need for more extensive testing than is normally required for the majority of types of antennas currently being flown. The prospective use of the Q and V-Bands for multi-beam antennas introduces additional constraints. This presentation will address the current types of RF testing performed on multi-beam antennas and the foreseen challenging areas related to future multi-beam antenna applications on commercial spacecraft. In-orbit testing aspects will also be reviewed.

Near-field test systems for multi-beam antennas, Daniël Janse van Rensburg
Multi-beam antennas with agile beam steering capability are ideal candidates for testing in the near-field. The highspatial density of acquisition and the huge volume of measurement makes it imperative to use sophisticated RF sub-systems that can cope with the data throughput, allow for analog or digital input and enables automated transmit/receive switching. Electrical and thermal considerations also make it desirable to test theseantennasin their nominal transmit/receive operating mode as opposed to transmit-only or receive-only. The NSI,RF measurement system architeture supports suchmultiplex-transmit and receive, pulse-mode measurements, with varying measurement parameters during the course of a single acquisition. This capability also allows pulsed transmit and receive tests tobe interleaved using a single measurement setup. This presentation willgive an overview of these applications and touch on some of the critical factorsdriving an efficient solution.

Multibeam antenna system testing based onfast probe array technology and the application of aggresive undersampling schemes in future testing schenarios, Lars Jacob Foged

The testing of modern and future multibeam antennas is moving away from functional verificationof the antennaas a component and towards testing the multibeam antenna as part of a closed system. Examples of this trendare End-to-End testing of satellite systems and Active Antenna Stations (AAS) for the upcoming 5G cellular networks. In such testing scenarios, direct access to the antenna may not be feasible and often the signals are highly modulated. Near field antenna testing has many desirable qualities and is considered a cost and time effecient testing methology. A limiting feature of near field testing is the sampling requirementand dependance on aquisitionof bothamplitude and phase information. This presentation will discuss the application of advanced probe array technology andphase recovery techniques from modulated signals in the effecient near field testing of multibeam antennas systems. A breif discussion on taking advantage ofapriori information about the antenna, such as results from numerical modelling and previus measurementsand including it in the testing methodology to radically-reduce the sampling requirements will also be covered.

WS2: Chipless RFID Future and Challenges

Room: **Room: Diogo de Silves (Room 1.08)**
Date: **Monday, 13th April**
Time: **13:40-15:40**
Organiser: **Mohamed El-Hadidy and Thomas Kaiser - Duisburg-Essen University, Germany**

Abstract
RF-Barcode of the future:This workshop aims to construct a solid platform for interactive discussions between the researchers from RF, signal processing, communication and networking societies for sharing their objectives, challenges, experiences and future solutions for chipless RFID systems.

The requirements of the multi-tag scenario for chipless RFID systems illustrated in Fig. 1would be proposed. Furthermore, the printability, nonlinearity and sufficient coding capacity of the tag will be introduced as optimum solutions to dethrone the barcode from item level labelling. Increasing the reading range using enhanced UWB, high gain, pencil beam and steering reader antenna will be illustrated.

This workshop will introduce a novel collision avoidance protocol for the chipless RFID systems. The protocol will be presented as the first Medium Access Control (MAC) algorithm for handling the multi-tag identification scenario of the frequency signature based chipless RFID tags.

Novel techniques for chipless RFID multi-tag detection and identification, enhancing the system latency and increasing encoding capacity would be introduced. The channel and environmental effects on the chipless RFID tag detection will be deeply discussed. Smart channel estimation and equalization algorithms in dense multipath propagation scenarios will be presented.
Programme

Chipless RFID Future and Challenges, Mohammed El-Hadidy [10min]
A Novel Collision Avoidance MAC Protocol for Multi-Tag UWB Chipless RFID Systems Based on Notch Position Modulation, Mohammed El-Hadidy [20min]
- Multi-Tag detection and collision free tag communication
- Notch Position Modulation (NPM) and signaling schemes
- Protocol description and mathematical framework
- Open discussion

Printable Depolarizing Chipless RFID Tag Based on DGS Resonators forSuppressing the Clutter Effects, Maher Khaliel [20 min]
- FC Chipless RFID tag categoriesand proposed tag structure
- Coplanar Waveguide (CPW) Defected Ground Structure (DGS) L shape resonator
- Measurement results and comparisons
- Open discussion

Smart Notch Detection Techniques for Robust Frequency Coded Chipless RFID Systems, Ahmed El-Awamry [20 min]
- State of the Art of tag detection techniques.
- Window Based Singular Value Decomposition (WBSVD)
- Adaptive threshold Energy Detection (ED)
- Open discussion

Realistic Chipless RFID System: Coexistence and Clutter Avoidance, Abdelfattah Fawky [20 min]
- Chipless RFID channel model
- Clutter definition and environmental effects
- System considerations and limitations
- Open discussion

Chipless RFID Multi-Tag Testbed Demonstration and Panel Discussion [10 min]
- Multi-Tag Detection using Software Defined Radio (SDR)
- Pencil-beam reflect array antenna of the reader
- Open discussion

WS3: Translating Microwave Medical Devices from Research Bench to Patient Bedside

Room: **Room: Diogo de Silves (Room 1.08)**
Date: **Thursday, 16th April**
Time: **14:00 – 15:50**
Organisers: **M. O'Halloran - National University of Ireland Galway, Ireland**
R. Conceição - University of Oxford, UK and Universidade de Lisboa, Portugal

Abstract
Research in Microwave imaging and therapeutic in Europe has reached critical mass, with many research groups rapidly progressing towards pilot clinical studies. To date, the research has been primarily driven by engineers, with little or no input from clinicians or patients. In order for the clinical adoption of the technology, several important topics must be considered:

1. Refinement and optimisation of hardware and software systems prior to pilot patient studies;

2. Design and fabrication of standard phantoms, allowing for direct comparisons to be made between competing systems (a process previously adopted by other emerging imaging modalities);

3. Careful design of pilot clinical studies to produce clinically-meaningful results and demonstrate the effectiveness of the technology.

In this session, groups who have direct experience dealing with these issues will present their work, highlighting the potential of the technology, while also helping more junior researchers to avoid common pitfalls. The impact of the session will be a much more informed research community where the translation from "research bench to patient bedside" will be much less daunting.

The workshop will take the form of a series of interactive translational case-studies, where leaders in the field will describe their experience in terms of system refinement, phantom testing and clinical trial design and implementation. These case-studies will span a wide variety of topics ranging from practical considerations in terms of device design (safety and comfort) to patient recruitment, securing ethical approval, design of the clinical trial and interpretation of results. These case-studies will span a wide variety of microwave medical devices:

1. Microwave tomography for breast cancer detection, Paul Meaney, University of Dartmouth, USA

2. Stroke detection using Microwave signal classification, Andreas Fhager, University of Chalmers, Sweden

3. Respiration monitoring using UWB Radar, Jürgen Sachs, Ilmenau University of Technology, Germany

4. Confocal Microwave Imaging for breast cancer imaging, Martin O'Halloran, National University of Ireland Galway, Ireland

5. Microwave Hyperthermia for Cancer Treatment, Gerard Van Rhoon and Maarten Paulides, Erasmus MC Cancer Institute, Netherlands

6. Emerging applications of Microwave Imaging and Therapeutics, Lorenzo Crocco, National Research Council, Italy.

Scientific Workshops

WS4: In Memoriam of Perruisseau-Carrier

Room:	**Room: Diogo de Silves (Room 1.08)**
Date:	**Tuesday, 14th April**
Time:	**09:00-12:50**
Organiser:	**Sean V. Hum - University of Toronto, Canada** **Juan R. Mosig - École Polytechnique Fédérale de Lausanne, Switzerland**

Abstract

Julien Perruisseau-Carrier (1979-2014) was a prolific researcher and scholar in the area of reconfigurable antennas, MEMS, reflectarrays, and emerging terahertz devices. Tragically, he passed away suddenly in June 2014, at a very young age of 34. Julien was a very active member of the EurAAP, IEEE APS and URSI communities, and also involved in many European projects with COST, ESA, and others. He was an associate editor of the IEEE Transactions on Antennas and Propagation; a regular contributor to EuCAP and IEEE AP-S; and was the Swiss representative for URSI B. Julien was an assistant professor at the Ecole Polytechnique Fédérale de Lausanne (EPFL), in Switzerland.

As with all memorials, we wish to bring special attention to his life and scientific accomplishments. The format of the workshop consists of opening presentations by the co-organizers, giving a brief overview of Julien's life and career. This will be followed by scientific presentations by contributors, in the same format as regular EuCAP oral paper presentations (15 minute presentations organized in 20 minute time slots.) Both solicited and unsolicited contributions are equally welcome. Contributions may focus on scientific topics related to Julien's research interests, present collaborations in which Julien was active, or share aspects of Julien's life. It is not required that contributors to have worked directly with Julien in order to submit a contribution.

With the help of all contributors we hope to create a unique and memorable workshop commemorating the life of a great researcher, colleague, mentor, and friend.

WS5: Antenna Measurements at Rohde & Schwarz: The New Test Antenna Chamber

Room:	**Diogo de Silves (Room 1.08)**
Date:	**Tuesday, 13th April**
Time:	**14:00-15:00**
Organiser:	**Yvonne Weitsch, Rohde & Schwarz, Germany**

Abstract

Rohde & Schwarz develops high-quality microwave measurement equipment, antennas and diverse test solutions. The company is member in various bodies in the field of mobile communication to collaborate to standards. In the area of EMC, R&S offers highly accurate measurement antennas as well as the service to characterise and calibrate antennas of customers according to CISPR Standards. The measurements are hampered by the coupling between the environment and the antenna. Therefore, the measurements are carried out under specific known conditions and the measurement results can be corrected by this systematic influence. In the past, 2D radiation diagrams have mostly been sufficient for the characterisation of antennas. However, high-tech and ever advancing antenna systems require the knowledge of 3D radiation characteristics. This applies e.g for direction finding antenna systems to deliver precise bearings. The measurement of 3D patterns in the far field, depending on size of the antenna under test (AUT) and frequency, cannot be handled over a wide bandwidth. An anechoic measurement chamber not only enables the possibility of near field measurement technique with subsequent transformation into the far field. Besides other advantageous, it also provides improved measurement accuracy and after all reproducible test conditions. The comprehensive antenna portfolio of R&S, covering not only broadband antennas but both low and highly directive types, has not allowed for a test system off the shelf. Instead the company needed a tailored test chamber supporting all types of measurements.

The company's choice of measurement system has been a combined near field / far field antenna chamber measuring 14 m x 10 m x 8 m. The 8-axis positioning system with a positioning accuracy of ±0.02 dB can move AUTs with a weight up to 200 kg and with a length up to 2 m. An exceptionally wide frequency range from 200 MHz to 40 GHz can be measured. The measurement distance can be varied from 1m to 8.5 m.

The workshop will open with the introduction into standards applying for antenna measurements and associated test requirements. Future applications demand for high precision 3D measurement systems. Different test systems are presented as well as the company's decision for a spherical test system with the option to measure in the near field as well as in the far field. Before having gone into operation, knowledge about the performance of the new antenna test chamber has been gathered by evaluation measurement tests. The workshop will present the range of near field and far field measurements and will explain R&S' experience in it. The near field measurement technique reveals new topics such as first and full order probe correction. Together with the TU München, R&S investigates the influence of probe correction. The TU München has developed on top an algorithm based on equivalent current sources. This algorithm leaves many degrees of freedom such as full probe correction. Another advantage of using an equivalent current source representation is that the current distribution close to 2 / 2 the aperture of the AUT can be visualised. This is a diagnostic tool which is helpful in the development process. Another topic is to ever enhance the accuracy of the measurements. The presentation gives insight in the technologies used in the company's test chamber such as the gating function implemented in the ARCS software by March Microwave Systems. Ongoing research at the TU München is echo suppression or the method of the principal component. A singular value decomposition is behind it where the patterns can be split into major and minor components and can be filtered accordingly.

In conclusion, the new antenna chamber enables high-precision 3D measurements from 200 MHz to 40 GHz with great development potential due to continuing research on further increasing accuracy by novel techniques.

WS6: Application of Numerical Techniques to the Solution of Practical Antenna Problems with FEKO

Room:	**Diogo de Silves (Room 1.08)**
Date:	**Wednesday, 14th April**
Time:	**11:10-12:10**
Organiser:	**M. Schick - Altair Engineering GmbH, Germany**

Abstract

FEKO is a leading electromagnetic analysis software suite, based on multiple state of the art computational EM techniques for solving a wide range of EM problems for a large variety of industries. The workshop will start with an overview about different numerical methods. Thereby the frequency based techniques in FEKO like MoM will be described. A main part of the workshop illustrates the application of these methods to the solution of typical antenna problems. Different antenna applications will be given and also comparisons with measurements will be presented. Extensions to the standard numerical methods will be demonstrated such as adaptive frequency interpolation techniques for the fast solution of broadband antenna problems.

WS7: CST Workshop: Advanced Antenna System Simulation

Room:	**Diogo de Silves (Room 1.08)**
Date:	**Thursday, 15th April**
Time:	**14:00-15:00**
Organiser:	**Tilmann Wittig, Marc Ruetschlin and João Costa, CST GmbH, Germany**

Abstract

FEKO is a leading electromagnetic analysis software suite, based on multiple state of the art computational EM techniques for solving a wide range of EM problems for a large variety of industries. The workshop will start with an overview about different numerical methods. Thereby the frequency based techniques in FEKO like MoM will be described. A main part of the workshop illustrates the application of these methods to the solution of typical antenna problems. Different antenna applications will be given and also comparisons with measurements will be presented. Extensions to the standard numerical methods will be demonstrated such as adaptive frequency interpolation techniques for the fast solution of broadband antenna problems.

List of Convened Sessions and Corresponding Conveners:

2011-2015 early stage research in COST VISTA:
Oscar Quevedo-Teruel (KTH - Royal Institute of Technology, Sweden), Nuno Pires (EPFL, Switzerland)

3D printing / additive manufacturing technology of electromagnetic structure:
Hao Xin (University of Arizona, USA)

Advanced computational methods and analysis of optical nanoantennas, resonators, and other photonic circuit components:
Alexander I. Nosich (Institute of Radio-Physics and Electronics NASU, Ukraine),
Guy A. E. Vandenbosch (Katholieke Universiteit Leuven, Belgium)

Advances in commercial electromagnetic simulation tools:
Winfried Simon (IMST, Germany), Marc Rütschlin (CST, Germany)

Advances in plasma-based antennas and devices:
Davide Melazzi (University of Padova, Italy), T. Anderson (Haleakala Research and Development, USA), V. Lancellotti (Eindhoven University of Technology, Netherlands)

Advances in space-fed antennas for millimetre-wave communications:
Laurent Dussopt (CEA-LETI, France), Sean V. Hum (University of Toronto, Canada)

AMTA/EurAAP diagnostics, imaging, and post-processing in antenna measurements:
Sergey Pivnenko (Technical University of Denmark, Denmark), Daniel J. van Rensburg (Nearfield Systems, USA)

AMTA/EurAAP measurements of integrated antennas at mm-wavelengths:
Antti V. Räisänen (Aalto University, Finland), Zhi Ning Chen (National University of Singapore, Singapore)

AMTA/EurAAP satellite and aerospace antenna testing:
Luca S. Drioli (ESA, Netherlands)

Antenna technologies for fixed wireless access at 60 GHz and above:
Per-Simon Kildal (Chalmers University of Technology, Sweden), Jiro Hirokawa (Tokyo Institute of Technology, Japan)

Antennas and propagation for geoscience applications:
Greg Hislop (CSIRO, Australia), Ivor L. Morrow (Cranfield University, UK)

Antennas and systems for wireless power transmission in space applications:
Alessandra Costanzo (University of Bologna, Italy), Nuno Carvalho (University of Aveiro, Portugal), Apostolos Georgiadis (CTTC, Spain)

Applications of graphene and novel materials at TeraHertz and microwaves:
Raj Mittra (Pennsylvania State University, USA), Yang Hao (Queen Mary College, UK)

Channel measurements and modelling in the higher frequency bands for 5G:
Sana Salous (Durham University, UK), Jie Zhang (University of Sheffield, UK)

Combined simulation/measurement benchmark for challenging antennas:
Raphaël Gillard (IETR – Rennes, France), Lars J. Foged (MVG, Italy)

Conformal antennas:
Vakur B. Erturk (Bilkent University, Turkey), Zvonimir Sipus (University of Zagreb, Croatia)

Dense multipath component characterisation for radio channel modelling:
Davy P. Gaillot (University of Lille1, France), Joseph Wout (Ghent University, Belgium)

Deterministic & stochastic coupling analysis for antennas, near-field & EMC applications:
Sébastien Lallechere (Blaise Pascal University, France), Blaise Ravelo (ESIGELEC - IRSEEM, France)

Domain decomposition methods and macro-basis functions for integral equations:
Vito Lancellotti (Eindhoven University of Technology, Netherlands), Rob Maaskant (Chalmers University of Technology, Sweden), Raj Mittra (Pennsylvania State University, USA)

Dynamic radio channel modelling in mobile-to-mobile heterogeneous networks:
Claude Oestges (UCL, Belgium), Raffaele D'Errico (CEA-LETI, France)

Electrically small antennas:
Thomas Kaufmann (University of Adelaide, Australia), Will Whittow (Loughborough University, UK)

Emerging chipless RFID technology trends:
Etienne Perret (Grenoble Institute of Technology, France), David Girbau (Universitat Rovira i Virgili, Spain)

Emerging techniques for multiband and wideband antennas:
Hisamatsu Nakano (Hosei University, Japan), Toru Kawano (National Defence Academy, Japan)

High north satellite propagation:
Terje Tjelta (Telenor Research, Norway), Lars Erling Bråten (Norwegian Defence Research, Norway)

Inkjet printed antennas for flexible, wearable and large area electronics:
Atif Shamim (KAUST, Saudi Arabia), Manos Tentzeris (Georgia Tech, USA)

INTELLECT:
Juan Mosig (EPFL, Switzerland)

Latest progress in metamaterial-based antenna design:
Zhi Ning Chen (National University of Singapore, Singapore), Xianming Qing (Institute for Infocomm Research, Singapore)

Massive MIMO for 5G broadband communication networks:
Vanja P. Samuelsson (Sony Mobile Communications, Sweden), Fredrik Tufvesson (Lund University, Sweden)

Measurements and simulations in channel modelling in wireless body area networks:
Slawomir J. Ambroziak (Gdansk University of Technology, Poland), Carla Oliveira (IST - University of Lisbon, Portugal)

Methodologies and modelling for EMF in medical diagnostics and therapy (MIMED):
Lorenzo Crocco (CNR-IREA, Italy), Yifan Chen (South University of Science and Technology, China)

Microfluidics and tuneable material systems for antenna reconfiguration and control:
Gregory H. Huff (Texas A&M University, USA), Ozlem A. Civi (Middle East Technical University, Turkey)

MIMO OTA test trade-offs:
David A. Sanchez-Hernandez (Technical University of Cartagena, Spain)

mm-wave antenna systems:
Cyril Luxey (Polytech Nice Sophia-Antipolis, France), Marta Martinez-Vazquez (IMST, Germany), Romain Pilard (STMicroelectronics, France)

Mobile antenna concepts leveraging circuit design techniques:
Fabien Ferrero (University Nice-Sophia Antipolis, France), Frédéric Gianesello (STMicroelectronics, France)

Mode-based strategy for antenna analysis and design:
Qi Wu (Technische Universität Hamburg-Harburg, Germany), Jennifer T. Bernhard (University of Illinois at Urbana-Champaign, USA)

Modelling scattering phenomena in wireless links:
Uwe-Carsten Fiebig (DLR, Germany), Fernando Perez-Fontán (University of Vigo, Spain)

Mutual coupling formulation and its effects in antenna system:
Said Mikki (Royal Military College, Canada), Mohammad S. Sharawi (KFUPM, Saudi Arabia), Yahia Antar (Royal Military College, Canada)

Non-Uniform and Sparse Antenna Arrays - Innovative Concepts and Technological Solutions:
Giacomo Oliveri (University of Trento, Italy), Ioan E. Lager (Delft University of Technology, Netherlands)

Propagation channels for wide-sense vehicle-to-x communications:
Zhangdui Zhong (Beijing Jiaotong University, China), Bo Ai (Beijing Jiaotong University, China)

Propagation for multi-gigabit applications:
Vittorio Degli-Esposti (University of Bologna, Italy), Katsuyuki Haneda (Aalto University, Finland)

Pulsed-field radio: theory, applications, implementation:
Ioan E. Lager (Delft University of Technology, Netherlands), Amir Shlivinski (Ben-Gurion University, Israel)

Results of Ka and Q band propagation campaigns using Alphasat Aldo Paraboni and other satellites:
Antonio Martellucci (ESA, Netherlands), Carlo Riva (Politecnico di Milano, Italy)

IET session on propagation in the built environment:
Richard Rudd (Aegis Systems, UK), Michael Neve (University of Auckland, New Zealand), Clare Allen (OFCOM, UK)

Therapeutic applications of electromagnetic fields (MIMED):
Margarethus M. Paulides (Erasmus MC Cancer Institute, Netherlands), Desmond T.B. Yeo (General Electric, USA)

THz Antennas and Applications:
Yi Huang (University of Liverpool, UK), Daniel Segovia-Vargas (Universidad Carlos III de Madrid, Spain)

Convened Sessions

Tuning and miniaturisation techniques for small device antennas operating at LTE bands:
Samantha Caporal Del Barrio (Univ. Aalborg, Denmark), Gert F. Pedersen (Univ. Aalborg, Denmark), Art Morris (WiSpry, USA)

Wave-based sensing and imaging for security applications:
Jose Martinez Lorenzo (Northeastern University, USA), Carey Rappaport (Northeastern University, USA)

Wireless power transmission and energy harvesting:
Alessandra Costanzo (University of Bologna, Italy), Yi Huang (University of Liverpool, UK), Huib Visser (Holst Centre / IMEC, Netherlands)

Awards

EuCAP 2015 Awards are the following:

- 2015 EurAAP Awards
- 2015 EurAAP Leopold B. Felsen Award
- EuCAP 2015 - Lisbon Awards:
  > EuCAP 2015 Lisbon Best Papers Awards
  > ESoA-EuCAP 2015 - Lisbon Best Student Paper Awards

2015 EURAAP AWARDS

The EurAAP Awards are granted every year, during the European Conference on Antennas & Propagation event. Starting in 2015, 2 Awards will be given:
- the EurAAP Antenna Award
- the EurAAP Propagation Award

These Awards aim at recognising the contribution of an individual person to:
- Advances in Antennas & Propagation
- Education in the fields of Antennas & Propagation
- Coordination of research & networking activities in the fields of Antennas & Propagation in Europe or in relationship to Europe

The Awards consist of:
- a plaque
- free registration for the 2015 edition of EuCAP
- free ticket for the Conference Dinner at the 2015 edition of EuCAP

The Awards will be presented at EuCAP 2015 Conference Dinner.

Awards Committee
The recipients of the Awards are selected by an Award Committee composed of 7 members: the leader of the EurAAP WG Societal Issues, who acts as Chairperson, and 6 members appointed for a three-year term by the EurAAP BoD on behalf of the EurAAP Delegates Assembly. Their deliberations are confidential, and their decision final.

Nominations
All EurAAP members have had the possibility to nominate candidates. A biography of the nominees must have been provided, highlighting the reasons why the nominated candidate should be considered for the prize. The candidates could also get endorsements from other EurAAP members. The nomination forms have been available in the conference website.

2015 EURAAP LEOPOLD B. FELSEN AWARD

The "Leopold B. Felsen Award for Excellence in Electrodynamics" was originally established jointly by the University of Siena and the University of Sannio, funded through a donation from Michael and Judy Felsen in fulfilment of the last wishes of their father, Professor Leo Felsen (1924-2005). Starting from 2015, the Award will be established by the European Association on Antennas and Propagation.

The main purpose of the EurAAP Leopold B. Felsen Award is to keep alive Prof. Felsen's memory and scientific legacy, as well as to foster academic excellence in the electromagnetics community, by giving recognition to outstanding scientific contributions from early stage researchers in electrodynamics, with emphasis on wave interactions with complex environments. Detailed information on the Award is available at http://www.euraap.org/events/news. The award consists of a prize of 4.000 euros, which will be funded by the Felsen Family through a donation.

The Award is to be presented every year at EuCAP's Conference Dinner.

Award Committee
A committee composed by Prof. Vincenzo Galdi (University of Sannio) and by other four prominent scientists will be in charge of the selection. For the first edition, Prof. Galdi chairs the committee. The committee assigns the Award on the basis of:
- pertinence of the topics
- relevance and quality of the presented papers
- scientific standing of the candidate

The four members of the committee are chosen by the EurAAP Board of Directors (BoD), in consultation with Prof. Galdi. For the first edition, Prof. Felsen's son (Michael) and daughter (Judy) are invited to EuCAP 2015 Conference Dinner to present the prize.

Eligibility and Nomination
The Award, by nomination only, will be presented annually, as a career award, to an early stage researcher. Information on the documentation the nominators must submit has been available at the conference website.

Eligible nominees should be under 40 years of age at the submission deadline. Previous awardees (also from the former Sannio and Siena editions) are not eligible.

All documents were sent to Prof. Galdi, to the Chair of the EurAAP Awards Committee and the Chair of the EurAAP Board of Directors:
Prof. Vicenzo Galdi, University of Sannio
Dr. Marta Martínez Vázquez, Chair of the EurAAP Awards Committee
Prof. Juan R. Mosig, Chair of the EurAAP Board of Directors

EUCAP BEST PAPER AWARDS

The EuCAP 2015 Best Paper Awards have been created to contribute to the recognition of scientific quality of research and engineering in four thematic domains:

- Measurement,
- Propagation,
- Electromagnetic and Antenna Theory,
- Antenna Design and Applications.

The Awards consist of offers sponsored by J. Wiley and EPFL.

The authors of the selected papers are invited to compete for the Awards on a special poster session held on the afternoon of Thursday, April 16th.

The Awards are to be presented at EuCAP 2015 Closing Ceremony.

Awards Committee
The Awards Committee is chaired by Prof. A. Moreira and Prof. A. Skrivervik. For each Award, the Conference Organising Committee has nominated a Jury constituted by three distinguished researchers in the field.

MEASUREMENT

Jury members:
Dirk Heberling, RWTH Aachen University, Germany
Manuel Sierra Castañer, Universidad Politécnica de Madrid, Spain
Lars Foged, Microwave Vision Group, Italy

Finalists:

Goutam Chattopadhyay[1], Theodore Reck[1], Adrian Tang[1,2], Cecile Jung-Kubiak[1], Choonsup Lee[1], Jose Siles[1], Erich Schlecht[1], Yanghyo M. Kim[2], M-C F. Chang[2], and Imran Mehdi[1], "*Compact Terahertz Instruments for Planetary Missions*"

1 Jet Propulsion Laboratory, California Institute of Technology, Pasadena, CA USA,

2 University of California, Los Angeles, CA USA

Oleksiy S. Kim[1], Sergey Pivnenko[1], Olav Breinbjerg[1], Rolf Jørgensen[2], Niels Vesterdal Larsen[2], Kim Branner[3], Peter Berring[3], Christen Malte Markussen[3], Maurice Paquay[4], "*DTU-ESA Millimeter-Wave Validation Standard Antenna (mm-VAST) – Detailed Design*"

1 Department of Electrical Engineering, Technical University of Denmark, Kgs. Lyngby, Denmark

2 TICRA, Copenhagen, Denmark,

3 Department of Wind Energy, Technical University of Denmark, Roskilde, Denmark,

4 ESA/ESTEC, Noordwijk, the Netherlands

Sofia Rahiminejad[1], Elena Pucci[2], Sjoerd Haasl[3], Peter Enoksson[1] , "*Evolution of Pin-Flange Adapters for High Frequency Measurements*"

1 Department of Microtechnology and Nanoscience, Chalmers University of Technology, Gothenburg, Sweden

2 Department of Signals and Systems, Chalmers University of Technology, Gothenburg, Sweden

3 Royal Institute of Technology, Stockholm, Sweden

Matthias Maschlanka, Torsten Eichner, Michael Meuleners, Christoph Degen, "*Alamouti Space-time Coding in Car-to-Car Communications - SDR-based Implementation and Measurement*"

Faculty of Electrical Engineering and Computer Science Hochschule Niederrhein – University of Applied Sciences, Krefeld, Germany

Dinh Thanh Le[1], Lira Hamada[2], Soichi Watanabe[2], "*A New Measurement Technique and Experimental Validations in Determination SAR of N-Antenna Transmitters Using Scalar E-Field Probes*"

1 Faculty of Radio-Electronics Eng., Le Quy Don Technical University, Hanoi, Vietnam

2 EMC Lab., National Institute of Information and Communications Technology (NICT), Koganei, Tokyo, Japan

Papers ordered by registration entry

PROPAGATION

Jury members:
Thomas Kuerner, Technische Universität Braunschweig, Germany
Michael Schönhuber, Fachhochschule Joanneum Graz, Austria
David W. Matolak, University of South Carolina, USA

Finalists:

Jochen Moll[1], Joel B. Harley[2], Viktor Krozer[1], "*Data-driven Matched Field Processing for Radar-based Microwave Breast Cancer Detection*"

1 Goethe University of Frankfurt, Department of Physics, Frankfurt am Main, Germany

2 Department of Electrical and Computer Engineering, University of Utah, USA

Wei Wang, Jost Thomas, Ronald Raulefs, Gerald Hoerack, Michael Walter, Uwe-Carsten G. Fiebig, "*Propagation Channel At 5.2 GHz in Baltic Sea with Focus on Scattering Phenomena*"

German Aerospace Center (DLR), Institute of Communications and Navigation, Wessling, Germany

Lorenzo Luini, Carlo Capsoni, "*Joint Effects of Clouds and Rain on Ka-Band Earth Observation Data Downlink Systems*"

Dipartimento di Elettronica, Informazione e Bioingegneria (DEIB), Politecnico di Milano, Milano, Italy

Corentin Friedrich[1,2], Sébastien Bourguignon[1], Jérôme Idier[1], Yves Goussard[2], "*Faster Resolution of the 3-D Forward Problems in Microwave Imaging by a Partial-Block BiCGStab Algorithm*"

1 LUNAM Université, École Centrale de Nantes, Nantes, France

2 École Polytechnique de Montréal, Dept. of Electrical Engineering, Montréal QC, Canada

Marianna Biscarini[1], Frank S. Marzano[1], Luciano Iess[2], Mario Montopoli[1], Klaide De Sanctis[3], Saverio Di Fabio[3], Maria Montagna, Mattia Mercolino[4], Marco Lanucara[4], "*Weather effects mitigation at Ka band by using radiometeorological model forecast in deep space downlinks*"

1 DIET and CRAS, Sapienza University of Rome, Italy

2 DIMA and CRAS, Sapienza University of Rome, Italy

3 HIMET and CETEMPS, University of L'Aquila, Italy

4 ESOC, European Space Agency, Germany

ELECTROMAGNETIC AND ANTENNA THEORY

Jury members:
Angelo Freni, Università degli Studi di Firenze, Italy
Mats Gustafsson, Lund University, Sweden
Christophe Caloz, École Polytechnique de Montréal, Canada

Finalists:

Miao Zhang, Kiyomichi Araki, Jiro Hirokawa, Makoto Ando, "*Intersymbol Interference Analysis of a 60 GHz-Band Compact Range Wireless Access System*"

Dept. of Electrical and Electronic Eng., Tokyo Institute of Technology, Tokyo, Japan

Luigi Vallozzi[1], Freek Boeykens[2], Hendrik Rogier[1], "*Cylindrically-bent rectangular patch antennas: novel modeling techniques for resonance frequency variation and uncertainty*"

1 Department of Information Technology, Ghent University, Ghent, Belgium

2 Verotech BVBA, Researchpark Haasrode, Leuven, Belgium

Maciej Smierzchalski[1], Massimiliano Casaletti[2], Mauro Ettorre[1], Ronan Sauleau[1], and Nicolas Capet[3], "*Scalar metasurface antennas with tilted beam*"

1 IETR, UMR CNRS 6164, University of Rennes 1, Rennes, France

2 Sorbonne Universités, UPMC Univ Paris, France

3 CNES, Toulouse, France

Carl Pfeiffer, Anthony Grbic, "*Collimating Leaky-Wave Radiation with Metasurfaces*"

Department of Electrical Engineering and Computer Science, University of Michigan, MI, USA

Michele Borgese, Filippo Costa, Simone Genovesi, Agostino Monorchio, "*Iterative Design Approach for Multi-Band Single-Layer Reflectarrays*"

Dipartimento Ingegneria dell'Informazione, Microwave and Radiation Lab Università di Pisa, Italy

Papers ordered by registration entry

Lisbon Awards

ANTENNA DESIGN AND APPLICATIONS

Jury members:
Lluis Joffre, Universidad Politécnica de Madrid, Spain
Dirk Manteuffel, Christian Albrecht Universität zu Kiel, Germany
Per-Simon Kildal, Chalmers University of Technology, Sweden

Finalists:
Carey Rappaport, Borja Gonzalez-Valdes, "*Multistatic Nearfield Imaging Radar for Portal Security Systems Using a High Gain Toroidal Reflector Antenna*"

ALERT Center of Excellence, Northeastern University, Boston (MA), USA

Cedric Martel, "*Low Profile Array With Integrated High Impedance Surfaces For High Performance Adaptive GNSS*"

Electromagnetism and Radar Department (DEMR) ONERA - The French Aerospace Lab, Toulouse, France

Md Delwar Hossain, Ananda Sanagavarapu Mohan, "*A Comparative Study of Coherent Time Reversal Minimum Variance Beamformers for Breast Cancer Detection*"

Centre for Health Technologies, University of Technology, Sydney, Australia

Maria Seimeni[1], Panagiotis K. Gkonis[1], Dimitra I. Kaklamani[1], Iakovos S. Venieris[1], Christos Papavassiliou[2], "*On BER evaluation of a Regional Anti-Jamming Subcarrier Strategy for MIMO-OFDMA Systems*"

1 National Technical University of Athens, School of Electrical and Computer Engineering, Athens, Greece

2 Electrical and Electronic Engineering, Imperial College, South Kensington Campus, London, UK

Dimitra Zarbouti, George Tsoulos, Georgia Athanasiadou, "*The Effects of Antenna Array Size and Back Lobe Level on Self-Interference and Transmitted Powers for 4G Beamforming Multicell Systems with In-Band Full Duplex Relays*"

Dept. of Informatics and Telecommunications, University of Peloponnese, Greece

Papers ordered by registration entry

ESOA-EUCAP 2015 - LISBON STUDENT AWARDS

EuCAP 2015 awards a prize to recognize the best paper presented by a student.

ESoA sponsors the Best Student Paper Awards.

To be eligible, the (first) author must fulfil the following conditions:
- PhD student or having obtained the PhD in 2015,
- under 35 years of age at the Conference starting date
- registered at EuCAP
- personally present the paper at EuCAP
- be present at the EuCAP closing ceremony session

Also, a maximum of two co-authors can be over the age of 35.

The authors of the selected papers are invited to compete for the Awards on a special poster session held on the afternoon of Thursday, April 16th.

The Awards are to be presented at EuCAP'2015's Closing Ceremony.

Awards Committee
The Best Student Paper Awards Committee is chaired by Prof. A. Moreira and Prof. A. Skrivervik.

The Conference Organising Committee in agreement with ESoA has nominated a Jury constituted by three distinguished researchers.

Jury members:
Marta Martínez-Vázquez, IMST, Germany
Ross Stone, IEEE, USA
Matthias Hein, Technische Universität Illmenau, Germany

Finalists:
Hernán Barba Molina, Jan Hesselbarth, "*Reactively Matched Long Slot Linear Connected Array Antenna*"

University of Stuttgart, Institute of Radio Frequency Technology (IHF), Stuttgart, Germany

Grants

EUCAP2015 TRAVEL GRANTS

Eight travel grants have been awarded to young authors (aged below 35) of high quality papers from developing countries. The grants mean free entrance at EuCAP. Details on applications have been announced at the conference website. The applications have been ranked and the Grants Jury has assigned the grants. The applicants have been informed of the decision.

Sathya Narayana Venkatasubramanian[1], Linsheng Li[1], Clemens Icheln[1], Fabien Ferrero[2], Cyril Luxey[3], Katsuyuki Haneda[1], "*Impact of Neutralization on Isolation in Co-Planar and Back-to-Back Antennas*"

1 Dept. of Radio Science and Engineering, Aalto University School of Electrical Engineering, Espoo, Finland

2 Univ. Nice Sophia Antipolis, CNRS, LEAT, UMR 7248, Sophia Antipolis, France

3 EpOC, Universite Nice-Sophia Antipolis, France

Waqas Hassan Syed, Giuseppe Fiorentino, Daniele Cavallo, Pasqualina M. Sarro, Andrea Neto, "*On-Chip double slot antenna at 300 GHz enhanced by artificial dielectrics*"

Dept. of Microelectronics, Delft University of Technology, Delft, The Netherlands

Oscar Borries[1,2], Hans Henrik Viskum[2], Peter Meincke[2], Erik Jørgensen[2], Per Christian Hansen[1], Carsten H Schmidt[3], "*Analysis of Electrically Large Antennas using Fast Physical Optics*"

1 Technical University of Denmark, DTU Compute, Kgs. Lyngby, Denmark

2 TICRA, Læderstræde 34, DK-1201 Copenhagen, Denmark

3 Airbus Defence & Space, Munich, Germany

Mohamed El-Hadidy, Ahmed Elawamry, Abdelfattah Fawky, Maher Khaliel, Thomas Kaiser, "*A Novel Collision Avoidance MAC Protocol for Multi-Tag UWB Chipless RFID Systems Based on Notch Position Modulation*"

Institute of Digital Signal Processing, Duisburg-Essen University, Duisburg, Germany

Papers ordered by registration entry




WELCOME RECEPTION

Venue: Maritime Museum (Museu de Marinha), Praça do Império, 1400-206 Lisboa, Portugal

Schedule: Monday, 13th April, 19:00

Transfer: Shuttle bus service from the conference venue to the Maritime Museum, starting at 18:15. Shuttle bus service from the Maritime Museum to the conference venue and "Cais do Sodré" underground station, starting at 20:15.

Registration: This event is free of charge.

We would like to invite you to join the welcome reception at the Maritime Museum.

Visit the museum and mingle with your conference colleagues and exhibitors in an informal atmosphere, enjoying drinks and snacks from the buffet and listen to traditional Portuguese folk music.

The Maritime Museum (Museu de Marinha) is installed in the west wing of the Jerónimos Monastery. The museum celebrates the XV and XVI centuries' Portuguese domination of the seas and the discovery of new worlds.

The exhibits include historical paintings, archaeological items and many scale models of ships used in Portugal since the 15th century. Highlights of the museum are a couple of royal ceremonial barges from the 18th century and the first seaplane that crossed the South Atlantic, from Lisboa to Rio de Janeiro, in 1922.
The entertainment will be performed by the Instituto Superior Técnico (IST) students´ tuna and a folk group of "Cante Alentejano".

The IST tuna is a group of engineering students in their traditional black gowns who play traditional musical instruments and sing serenades in a very lively atmosphere.

"Cante Alentejano" is a genre of traditional two-part singing performed by amateur choral groups in southern Portugal, characterized by distinctive melodies, lyrics and vocal styles, and performed without instrumentation. This very special folk polyphonic singing has been chosen by UNESCO as "Intangible Cultural Heritage".




CONFERENCE DINNER

Venue: Restaurant KAIS, Cais da Viscondessa, R. da Cintura – Santos, 1200-109 Lisboa, Portugal

Schedule: Wednesday, 15th April, 20:00

Transfer: Shuttle bus services from the conference venue and from "Cais do Sodré" underground station to restaurant KAIS, starting at 19:15. Shuttle bus services from restaurant KAIS to the conference venue and "Cais do Sodré" underground station, starting at 22:30.

Registration: This event is paid and registration is mandatory
(€ 80,00 per person for onsite registration).

Located by the Tagus riverside the KAIS restaurant is currently one of the most fashionables venues in town. It is housed in a late XIX century warehouse that used to be the power plant of the city trams.
The decoration invokes the two main inspirations of Portuguese cuisine: the country-side with the old olive trees and the sea with a grandiose fountain. The modernist furniture creates an industrial but elegant atmosphere. The large rooftop windows and the light of hundreds of candles transform the immense room into an intimate and welcoming dining area.

The selected menu will provide a good sample of Portuguese and Mediterranean cuisine (welcome drink, starter, fish plate, meat plate and dessert) served with white and red Portuguese wines, mineral water, soft drinks and coffee.

The dinner will be followed by Fado entertainment and the presentation of awards.

Fado is a popular urban song that is an important Portuguese national symbol of identity. Fado music is widely sung in Lisbon and represents a unique multicultural synthesis of Afro-Brazilian music, local genres of song and dance, rural music, and urban song patterns of the early nineteenth century. Fado is typically performed by a solo male or female singer, accompanied by an acoustic guitar and the Portuguese "guitarra", a heart-shaped twelve-stringed lute. It is performed professionally and informally in grass-root associations and often transmitted over successive generations within the same families.
Fado has been chosen, in 2011, by UNESCO as "Intangible Cultural Heritage".

CONFERENCE DINNER AFTER PARTY

Venue: K Urban Beach, Avenida Brasilia, Lisboa, Portugal

Schedule: Wednesday, 15th April

Feel free to visit K Urban Beach after the conference dinner on own expense. It is in walking distance to restaurant Kais.




GUEST PROGRAMME

Lisbon is Europe's second-oldest capital (after Athens), once home to the world's greatest explorers like Vasco da Gama, Magellan and Prince Henry the Navigator, becoming the first true world city, the capital of an empire spreading over all continents, from South America (Brazil) to Asia (Macao, China; Goa, India). The former launch pad for many of the world's greatest voyages is now where modern travelers discover... A set of tours is suggested below, organised by the following company:

Dianatours – Viagens e Turismo, Lda.
Campo Grande, 30 B, 1700-093 Lisboa, Portugal
Tel. (+351) 21 799 85 40
reservas@dianatours.pt
www.dianatours.pt

Dianatours will be present at the registration desk of EuCAP 2015

LISBOA MONUMENTAL TOUR – HALF DAY

Your guided tour starts in the Belém quarter, where you find the most beautiful and historical monuments from the 15th and 16th centuries. After a brief stop at the Belém Tower a world heritage by UNESCO, you will take a look at the Monument to the Discoveries (Padrão dos Descobrimentos). Next you visit the church of S. Jerome Monastery, the Coach Museum, the oldest and most picturesque district of Lisbon – Alfama and pass by the downtown (Baixa) to admire the most important squares of Lisbon such as the monumental Trade Square and Rossio Square.

Schedule: daily, 9:00 and 14:30: departing from Campo Grande 30B, 1700 Lisboa, Portugal
Price per person: € 30,00

DISCOVER PENA PALACE, SINTRA, CASCAIS, ESTORIL – HALF DAY

First of all you visit the impressive and romantic Pena Palace, located on one of the highest peaks in Serra de Sintra Natural Park and built in the 19th century at a high of 500 meters (1640 ft). The palace is characterised by its blend of styles, which combine to create an unmistakable appearance. At the end of the morning, you will drive to Sintra where you have some free time to wander the medieval streets of the town that charmed kings and inspired poets and to taste the traditional sweets of the region. After Sintra, you drive to Cascais a little fishing harbor which was the former summer residence of the Portuguese Royal Family. Here you can enjoy a magnificent view over the bay. Before returning to Lisbon, you will pass by Estoril where you will see the Casino and its gardens (the bus does not stop at Estroil, it is just a panoramic visit).

Schedule: daily at 9:00: departing from Campo Grande 30B, 1700 Lisboa, Portugal. A similar tour starts at 14:30: which includes a stop at the Cape Roca, the westernmost point in continental Europe and also a visit at the Sintra National Palace but excludes a stop at the Pena Palace.
Price per person: € 55,00

DISCOVER SINTRA ROYAL PALACES – FULL DAY

First of all you visit the impressive and romantic Pena Palace, located on one of the highest peaks in Serra de Sintra Natural Park and built in the 19th century at a high of 500 meters (1640 ft). The palace is characterised by its blend of styles, which combine to create an unmistakable appearance. At the end of the morning, you will drive to Sintra where you have some free time to wander the medieval streets of the town that charmed kings and inspired poets and to taste the traditional sweets of the region. After lunch in Sintra, you drive to Sintra National Palace, the former hunting residence of the Portuguese royal family in the 15th century. After a stop at the Cape Roca – Westernmost point in continental Europe – you continue your tour to Cascais, a little fishing harbor which was the former summer residence of the Portuguese royal family. Here you can enjoy a magnificent view over the bay. Before your return to Lisbon, you will finally pass by Estoril where you will see the Casino and its gardens (the bus does not stop at Estroil, it is just a panoramic visit).

Schedule: daily at 9:00, departing from Campo Grande 30B, 1700 Lisboa, Portugal
Price per person with lunch: € 86,00
Price per person without lunch: € 67,00

ÓBIDOS, NAZARÉ, FÁTIMA – FULL DAY

Leaving Lisbon you head north. Your first stop is Óbidos, a small village surrounded by medieval walls, with its typical whitewashed houses and wrought iron balconies, its handcraft and the famous Pousada do Castelo.

Your next stop is Nazaré, one of the most picturesque Portuguese fishing villages. Here you will have some free time and you can stroll through the little village.

After that you visit the wonderful church of Batalha (World Heritage by UNESCO), a monastery of the 14th century, which is considered a masterpiece of Portuguese gothic architecture with his beautiful stained-glass windows.

Next stop of the guided tour is Fátima, the worldwide famous religious centre and pilgrimage place, where Our Lady appeared in 1917. Here you have lunch. Before returning to Lisbon, you finally visit the houses of Lúcia, Francisco and Jacinta in Aljustrel. They were children from Aljustrel who said they witnessed three apparitions of an angel in 1916 and several apparitions of the Blessed Virgin Mary in 1917. Mary was given the title Our Lady of Fátima as a result, and Fátima became a major centre of world Christian pilgrimage. after that you also get some free time to visit the Shrine of the Sanctuary, as well as time to attend the mass.

Schedule: daily at 9:00, departing from Campo Grande 30B, 1700 Lisboa, Portugal
Price per person with lunch: € 80,00
Price per person without lunch: € 65,00

HOP ON – HOP OFF: ORIENTE LINE

- Chiado
- Bairro alto
- Principe Real
- Madre de Deus Convent
- Botanical Garden.
- Water Museum
- Fado Museum
- Tiles Museum
- São Roque Museum
- Oceanarium
- Nacional Pantheonde

Schedule: daily, from 9:15 to 18:00
Duration: 2 Hours
Frequency: Every 45 minutes
Price per person: € 18,00, ticket validity: 48 hours

HOP ON – HOP OFF: BELÉM LINE

- Belém Tower
- Alfama
- Monument to the Discoveries
- Jerónimos Monastery
- City Museum
- Berardo Museum
- Calouste Gulbenkian Museum
- Electricity Museum
- Oriente Museum
- Coach Museum
- Anciant Art Museum
- Chiado Museum
- Design and Fashion Museum

Schedule: daily, from 9:00 to 19:00
Duration: 1h 50 Minutes
Frequency: Every 30 minutes
Price per person: € 18,00, ticket validity: 48 hours

AMTA Technical Tours

Registration for the tours is available at the registration desk at a first-come first-serve basis. Only participants with a valid conference registration can attend the visits. The number of participants is limited.

Visit to MEO Satellite Earth Station

Tuesday, April 14, 14:00-17:00

Bus departure from Conference Site at 14:00

The Alfouvar satellite ground station has been built by Companhia Portuguesa Radio Marconi, in 1974, and is located about 30 km North of Lisbon. Nowadays, it belongs to the MEO Serviços de Comunicações operator network. The visit comprises the transmitter and receiver rooms as well as the dish antenna field. Several generations of satellite communications equipment will be at display.

For more information visit: http://www.fundacao.telecom.pt/Home/HistoryandHeritage/PTsHistory/HistoricalEquipment/Detail/tabid/350/itemId/551/parId/346/Default.aspx

Visit to an HF Transmitter Site of the Portuguese Navy

Wednesday, April 15, 14:00-17:00

Bus departure from Conference Site at 14:00

Registered participants will visit an HF transmitter site of the Portuguese Navy, located in Penalva, Coina (about 30 km South of Lisbon).

The visit comprises the HF antenna field and the transmitter's room. About 25 HF antennas can be seen during a bus tour. Different types of HF omnidirectional and directional antennas, such as, log periodic, spiral cone, double cone, elliptical and conical antennas (vertically, horizontally and elliptically polarized), will be approached within a plot area of about 400 acres. The transmitter's room comprises about 30 HF transmitters with output power up to 10 kW.

General Information

EuCAP 2015 Website:
http://www.eucap2015.org/

EuCAP 2015 Conference Venue:
Centro de Congressos de Lisboa
Praça Indústrias
1300-307 Lisboa, Portugal
Phone: (+351) 21 3601400
Fax: (+351) 213601499
E-mail for general information: lisboacc@aip.pt
Website: www.lisboacc.pt

On-Site Registration Desk (Office Hours):
The registration desk on site will be open as follows

Sunday, 12th April	14:00 – 18:00
Monday, 13th April	08:00 – 18:00
Tuesday, 14th April	08:00 – 18:00
Wednesday, 15th April	08:00 – 18:00
Thursday, 16th April	08:00 – 18:00
Friday, 17th April	08:00 – 13:00

Short Courses and Workshops:
For last minute Workshop- or Short Course- registrations, please apply at the registration counter.
Fees Short Courses:
Half day € 100,00

Registration Fees:
Registration includes attending the full conference and scientific sessions. Coffee, refreshments (during the official breaks) and lunches are also included.

Badges:
All delegates will receive a badge and tickets for the booked events. Participants are kindly requested to wear their badges throughout the conference, even at the social events. The replacement of lost or forgotten badges carries a € 25,00 charge. In order to facilitate the duplication of the badge, please present a copy of your registration confirmation as proof.

Official Language:
All sessions will only be held in English. No translation will be provided.

Wireless Access:
The Centro de Congressos de Lisboa has got a wireless network. For accessing the network, connect to "EUCAP_WIFI", which is open access.

Lunches, Coffee Breaks:
Lunches are served at Restaurant Espaço Tejo, located next to room Fernão M Pinto (Hall4), from Monday to Thursday.

The coffee breaks are served at the exhibition hall during exhibition hours. On Monday and Friday morning the coffee break is served at Foyer D.

As in all major cities, people should be aware of safety risks. You are advised not to wear your conference badge outside congress activities. It is highly recommended that all participants carry adequate personal travel and health insurance. The organizers do not accept responsibility for individual medical, travel or personal insurance. All participants are strongly advised to take out their own personal insurance before travelling to the convention.

Emergency Service:
General emergencies, ambulance, fire and police: 112

Telephone Code:
The international country calling code of Portugal is +351.

Time Zone:
In April, the time zone in Portugal is UTC/GMT +01:00

Weather:
In April, the average daytime temperature in Lisbon is around 20°C (68°F). The sun rises approximately at 07:00 and sets approximately at 20:00.

Currency:
The official Portuguese currency is Euro (€).

Banks, Credit and Debit Cards:
Foreign currency may be exchanged at banks, which are open to the public on working days, at exchange offices and automatic machines.

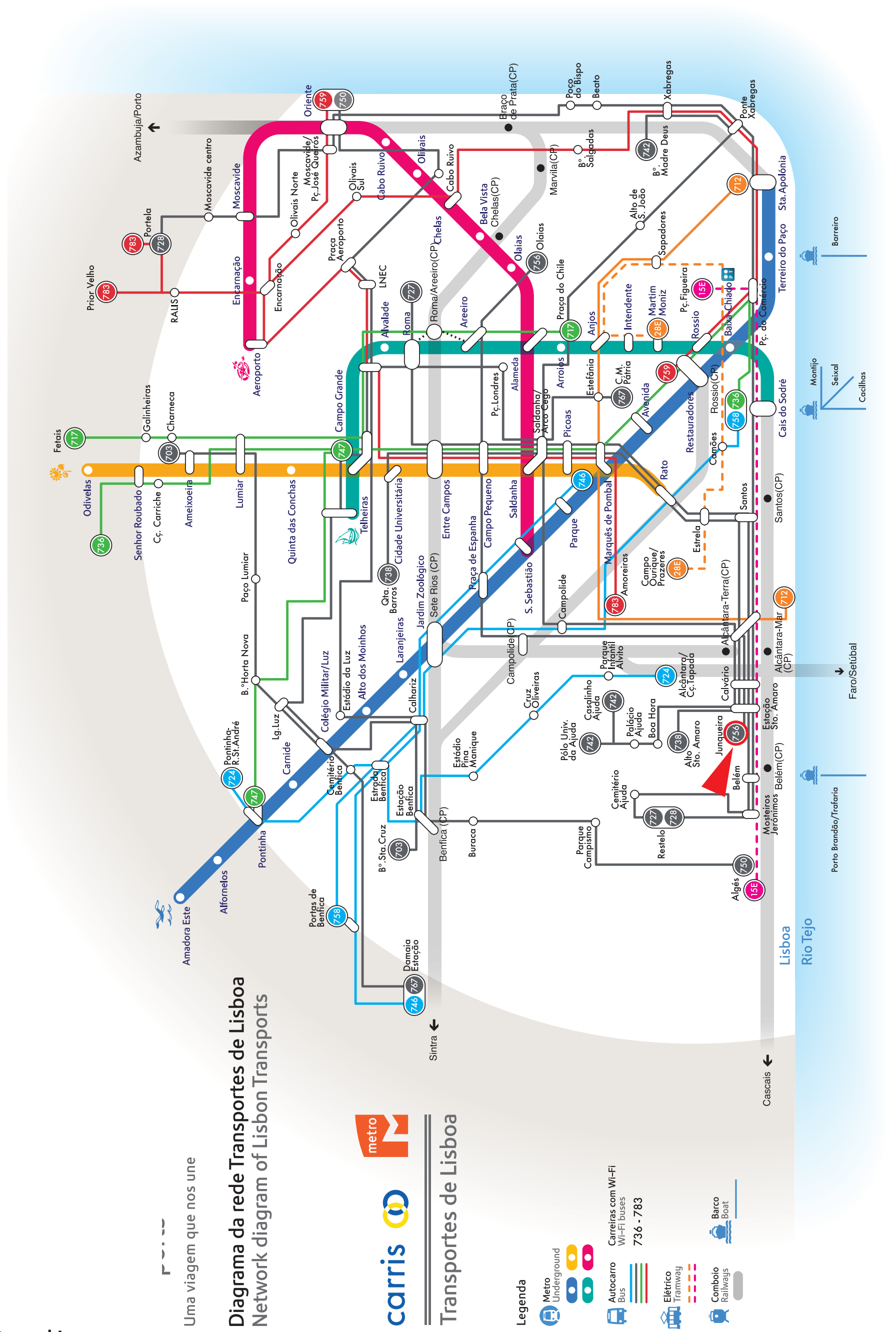
Major credit cards are accepted in most hotels, shops and restaurants. Traveler's cheques and currency can be changed at hotels or at a bank - these are open Monday to Friday from 08:30 to 15:00. Automatic changing and cash dispensing machines linked to international networks are also widely available.

Working Hours:

Buses:	Every day / 24 hours.
Underground:	Every day / 06:30 – 01:00
Banks:	Mon - Fri / 08:30 – 15:00
Shopping Centers:	Every day / 10:00 – 23:00
Shops:	Mon - Fri / 09:00 – 13:00 and 15:00 – 19:00; Sat 09:00 – 19:00
Embassies:	Mon - Fri / 09:00 – 15:00
Post Offices:	Mon - Fri / 08:30 – 18:30
Pharmacies:	Mon - Fri / 09:00 – 13:00 and 15:00 – 19:00 also: 24 hour (night) service
Meal times:	Lunch: 12:00 – 14:00
	Dinner: 20:00 – 22:00

Shopping:
Lisbon is the right place for shopaholics. You will find a little bit of everything, from traditional shops to large shopping centres. For a nice shopping day you should start in downtown Baixa and walk through the old romantic streets. Lisbon is famous for its fashion. Besides international fashion labels you will find a lot of unique boutiques from Portuguese designers.

If you prefer shopping centers you should visit the biggest mall of Portugal, the Colombo Shopping Center. It is open every day from 09:00 to 23:00.



Safety and Insurance:

General Information

GETTING TO THE CONGRESS CENTER:

By air
Lisboa International Airport, 7 km from the city centre and 15 km from the Lisboa Congress Centre has daily flights to and from major cities around the world. The Portuguese airline TAP Portugal as well as major international airlines flies to and from Lisboa.

There is a taxi station at the airport. Approximate the price to the congress centre will be € 15,00.
The Aerobus service provides regular trips between the airport and the city centre. Service starts at 7:45 and ends at 23:20, with departs every 20 minutes. Tickets may be purchased on-board: Single ticket price: € 3,50 (valid for 24h); Two-way ticket price: € 5,50.

The airport is also served by the subway red line (station Aeroporto). Tickets are purchased in automatic vending machines: Single ticket price: € 1,40; One day ticket price: € 6,00.

However, Lisbon Congress Centre is not served by Metro. Change to buses must be made at the city centre (see By Bus/Tram below).

By Bus/Tram
Regular bus lines also serve the airport: 705, 722, 744 and 783. However, none of these buses go directly to Lisbon Congress Centre and change must be made at the city centre. The Congress Centre can be reached by bus or tramway from the city centre to the following bus/tram stops located nearby:

Bus stop R. Junqueira (Centro de congressos) – 15E (tram), 714, 727, 732, 751, 756
Bus stop Hospital Egas Moniz / Av. Índia – 728

By taxi
You can take a taxi from every part of Lisbon. Please inform the driver, you want to be taken to the Lisboa Congress Centre in Alcântara. RADIO TAXI (+351) 219 362 113

Parking at the Congress Center:
The congress centre has two large paid parking lots. One is just in front of the main entrance (one open air at ground level and one underground) and the other is at the western end (two underground floors). The parking lots are open from 8:00 to 20:00.

Tickets are obtained when entering the parking lots and the payment is made at the cashier before leaving.

The cost is about € 1,50 per hour. There is also a daily rate of € 12,80. Participants that want to use the daily rate must change their tickets at the reception of the congress centre.

Destination Lisbon:
Lisbon is not just the capital and the largest city of Portugal, it is also one of the oldest cities in the world. It has an amazing history and a lovely old town centre with lots of cafés as well as unique architecture and culture. You will find modern infrastructures next to ancient charm.

Its surroundings offer an incredible variety of tourist attractions, from fairytale palaces in one of Europe's most romantic towns (Sintra) to world-class golf and fun in Europe's largest casino in Estoril, and surfing in Cascais or escaping to a natural park in Arrábida.

Lisbon is lively, cheerful, sincere and impressive. The city is quite simply a stunning destination.

AUTHORS INFORMATION

Important Information for Oral Presentations:

- The overall time slot for each presentation is 20 minutes for both regular and convened presentations. Plan your speech for a duration of 15 minutes, in order to allow time for questions and discussion. Session chairs have been instructed to rigorously enforce the schedule, i.e., to strictly obey the duration of a presentation. We kindly ask you for your understanding and for your cooperation in keeping the schedule.
- Be at the room of your session 15 minutes before session starts, so that you can meet your session chairs and the other speakers in advance.
- A video projector and a laptop will be available in all conference rooms. The use of your own laptop has to be announced in advance to the technician in each session room.
- Please bring your presentation on a USB memory stick in MS-PowerPoint or Adobe PDF formats and upload it in the session room NO LATER than 15 minutes prior to your session start! You can of course bring it earlier, in one of the coffee/lunch breaks.
- In order to avoid any problems with your presentation, please make sure it fulfils the corresponding requirements, and read carefully the instructions below.

PowerPoint Instructions:

- If preparing your presentation in PowerPoint, please use the following versions only: PP 97-2003 and 95 (*.ppt) or 2007, 2010, 2013 to guarantee it will be opened successfully on an on-site PC.
- We recommend you to save your PowerPoint presentation using PPT format instead of PPS.
- All videos or animations in the presentation must run automatically!

Pictures/Videos:

- JPG images are the preferred file format for inserted images.
- GIF, TIF or BMP formats will be accepted as well.
- Images inserted into PowerPoint are embedded into the presentations. Images that are created at a dpi setting higher than 200 dpi are not necessary and will only increase the file size of your presentation.
- We cannot provide support for embedded videos in your presentation; please test your presentation with the on-site PC several hours before your presentation. Generally, the WMV format should work with no difficulties.
- In case, that your video is not inserted in PowerPoint, it is possible to have it in other formats – MPEG 2, 4, AVI (codecs: DivX, XviD, h264) or WMV. Suggested bitrate for all mpeg4 based codecs is about 1Mbps with SD PAL resolution (1024x576pix with square pixels, AR: 16/9).
- In case of Full HD videos, please let us know before the meeting and we test it.
- Videos that require additional reading or projection equipment (e.g., VHS cassettes) will not be accepted.

Fonts

- Only fonts that are included in the basic installation of MS-Windows will be available (English version of Windows). Use of other fonts not included in Windows can cause wrong layout / style of your presentation.
- Suggested fonts: Arial, Times New Roman, Tahoma
  If you insist on using different fonts, these must be embedded into your presentation by choosing the right option when saving your presentation, see details below:
- Click on „File“, then „Save As“
- Check the „Tools“ menu and select „Embed True Type Fonts“

Poster Presentations:

Three poster sessions will be organised on Tuesday, Wednesday and Thursday (with sub-sessions for Antennas, Propagation and Measurement). Posters will be on display in the different poster halls on ground floor and first floor.

Each poster board is marked with the poster ID-number. Your poster number has been sent to you in the Presentation Schedule. Authors are required to use only the boards corresponding to their posters. Poster presenters have to hang up their poster on the day of their presentation from 10:00 to 14:00. The authors will need to stay personally just during their poster session from 14:00 to 15:00. Posters have to be removed from the boards from 16:50 to 18:00. Posters left on the boards after the poster sessions, will not be returned by the organizers.

PLATINUM SPONSOR

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www.esa.int

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Navy's general mission is to assure Portugal can use the sea for the nation own interest. To accomplish the mission, Portuguese Navy has three specific functions: military defence and external policy support, security and state authority and economic, scientific and cultural development. The Escola Naval is a public institution of military higher education, whose mission is to train naval officers by running courses and other complementary teaching activities.

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www.mician.com

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NSI also offers in-house test facilities for contract antenna testing and consulting services for range evaluation and accuracy assessment.

NSI - Nearfeld
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United States
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Antenna Measurement Techniques Association (AMTA)
75 14Th St NE
Atlanta, GA 30309
United States
www.amta.org

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The Ecole Polytechnique Fédérale de Lausanne is a leading research & teaching Swiss institution. It covers disciplines ranging from the Basic Sciences to Engineering, Architecture and the Life Sciences.

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John-Schehr-Strasse 26
10407 Berlin
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Germany
www.mician.com

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www.airbusdefenceandspace.com

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WIPL-D d.o.o.
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11070 Belgrade
Serbia
www.wipl-d.com

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89564 Nattheim
Germany
www.albatross-projects.com

Altair Engineering GmbH
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FEKO is a leading electromagnetic (EM) analysis software suite, based on multiple state of the art computational EM (CEM) techniques for solving a wide range of EM problems for a large variety of industries.

Altair Engineering GmbH
Calwer Strasse 7
71034 Boeblingen
Germany
www.feko.info

Antenna Measurement Techniques Association (AMTA) Booth No. 1.33

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Antenna Measurement Techniques Association (AMTA)
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Atlanta, GA 30309
United States
www.amta.org

ANSYS
Booth No. 1.19

ANSYS simulation software enables organizations to confidently predict how their products will operate in the real world. We believe that every product is a promise of something greater.

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Spain
www.ansys.com

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TTI works in the radiofrequency and antenna technology fields developing advanced products. TTI provides customized antenna solutions based on different technologies: printed antennas, active phase arrays, multi-layer structures, waveguide antennas and horns. Besides the antenna design capabilities, TTI provides a wide portfolio of GaN and GaAs based BUCs/SSPAs in Ka, Ku, X and C band; as well as SOTM (Satcom On The Move) antenna system solutions

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www.bluetest.se

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The Netherlands
www.comtest.eu

COST IC1102 VISTA
Booth No. 1.36

VISTA (IC1102) is the EU COST Action on Versatile, Integrated, and Signal-aware Technologies for Antennas within the ICT Domain.
The main objective of the Action is to assist and coordinate the research in the field of integrated and versatile antennas for wireless applications, by bringing together experts from the distinct areas of radio, RF and microwave engineering, as well as related topics such as signal processing or (micro)fabrication techniques. Another goal is the promotion of the career start of young researchers.

COST IC1102 VISTA
RWTH Aachen University
Wuellnerstrasse 5b
52062 Aachen
Germany
www.cost-vista.eu

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Georgia
www.emcos.com

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10407 Berlin
Germany
www.enprobe.de

ESoA
Booth No. 1.40

ESoA is a geographically distributed post graduate school founded in 2004 that has the objective to reinforce the European training and research in antennas.

ESoA
University of Siena
Department of Information Engineering
Via Roma, 56
53100 Siena
Italy
www.esoa-web.org

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7270 Davos
Switzerland
www.eucap2016.org

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Italy
www.idscorporation.com

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www.theiet.org

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47475 Kamp-Linfort
Germany
www.imst.de

Instituto de Telecomunicações (IT)
Booth No. 1.08

IT is a private non-profit Portuguese research institution in the area of Telecommunications. With about 300 researchers holding a PhD, 300 PhD students and 200 MSc students, the research covers wireless communications, optical communications, networks and multimedia and supporting basic sciences.

Instituto de Telecomunicações (IT)
Torre Norte - Piso 10 Av. Rovisco Pais, 1
1049 - 001 Lisboa
Portugal
www.it.pt

Instituto Superior Ténico - Lisbon University (IST-UL) Booth No. 1.23

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Campus Alameda
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Booth No. 1.44

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1228 Plan-les-Ouates
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Microwave Vision Group
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75008 Paris
France
www.microwavevision.com

Polytechnic Institute of Setúbal (IPS)
Booth No. 1.02

IPS (Polytechnic Institute of Setúbal, Portugal) is a public institution of higher education, which employs approximately 650 personnel and has approximately 6 500 students. At present IPS comprises five Higher Education Schools: Setúbal School of Technology, Barreiro School of Technology, School of Education, School of Business Administration and School of Health Care. Besides post-secondary specialization technological courses and post-graduation diplomas, IPS offers a wide range of 1st cycle (licenciatura) and 2nd cycle (master) Bologna degrees, in the areas of its five Schools.

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www.ips.pt

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United Kingdom
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PREMIX OY
Booth No. 1.11

PREMIX is a supplier of unique plastic materials for various industries. Especially for Antennas and other RF devices we have generated PREPERM product family. PREPERM - Low loss controlled dielectric materials for high frequency applications. PREPERM thermoplastic materials enables new design possibilities for designers while offering superior processability combined with low loss tangent and stable dielectric constant.

PREMIX OY
Muovitie 4, P.O. Box 12
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www.premixgroup.com

Radiation Group - Technical University of Madrid
Booth No. 1.38

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Radiation Group - Technical University of Madrid
TSI Telecommunicacion
Avda Complutense 30
28040 Madrid
Spain
www.gr.ssr.upm.es/asytrain

Remcom
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Remcom provides electromagnetic simulation solutions for design engineers and EM simulation professionals. Application areas include antenna design, MRI, wireless communications, radar and scattering, and microwave and RF.

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United States
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www.ticra.com

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www.viasat.com

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Serbia
www.wipl-d.com

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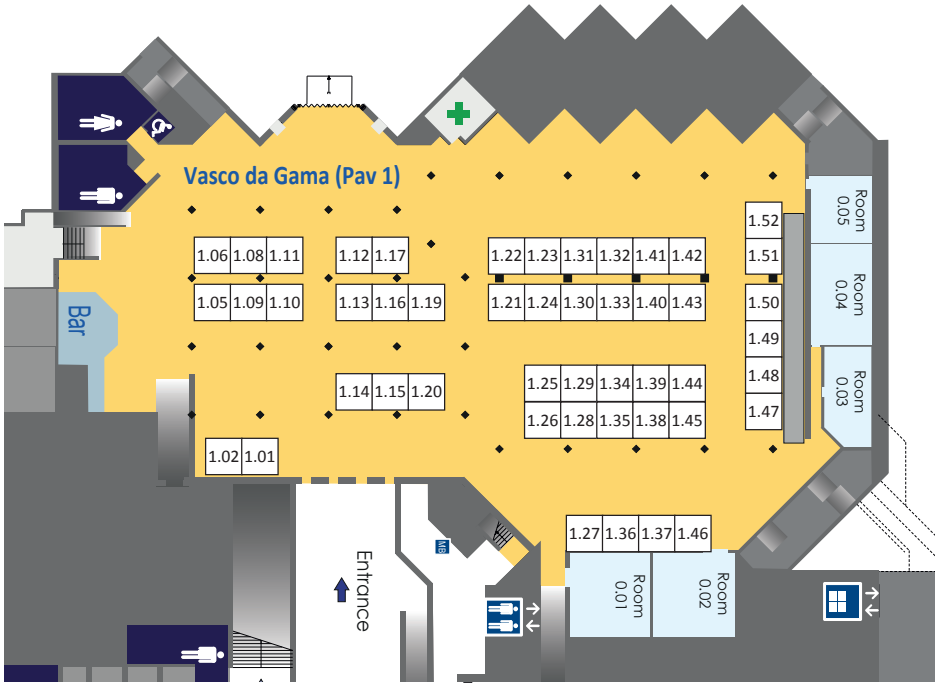
Visit www.vadiodes.com

Virginia Diodes, Inc.
979 Second Street SE
Suite 309
Charlottesville, VA 22902
United States
www.virginiadiodes.com

Floorplan Exhibition Hall



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1.51	Airbus Defence & Space
1.49	Albatross Projects GmbH
1.21	Altair Engineering GmbH
1.19	ANSYS
1.33	Antenna Measurement Techniques Association (AMTA)
1.34	Apple Inc.
1.45	ASYSOL / TTI
1.13/1.16	Bluetest
1.01	COMTEST Engineering bv
1.36	COST IC1102 VISTA
1.25/1.26	CST-Computer Simulation Technology AG
1.41	Custom Microwave Inc.
1.50	E&C Anechoic Chambers N.V.
1.43	EMCoS
1.10	EMITE Ing
1.06	enprobe GmbH
1.40	ESoA
1.17	ETS-Lindgren GmbH
1.35	EuCAP2016
1.09	European Space Agency (ESA)
1.12	IDS Ingegneria dei Sistemi S.p.A.

Booth No.	Exhibitor (in alphabetical order)
1.27	IMST GmbH
1.32	Institut of Engineering and Technology (IET)
1.08	Instituto de Telecomunicações (IT)
1.23	Instituto Superior Ténico - Lisbon University (IST-UL)
1.44	Keysight Technologies
1.42	Marinha Portuguesa - Escola Naval
1.46/1.37	MI Technologies
1.52	Mician GmbH
1.20/1.14/1.15	Microwave Vision Group
1.47/1.48	NSI - Nearfield
1.02	Polytechnic Institute of Setúbal (IPS)
1.11	PREMIX OY
1.31	Printech Circuit Laboratories Ltd.
1.38	Radiation Group - Techn. Univ. of Madrid
1.30	Remcom
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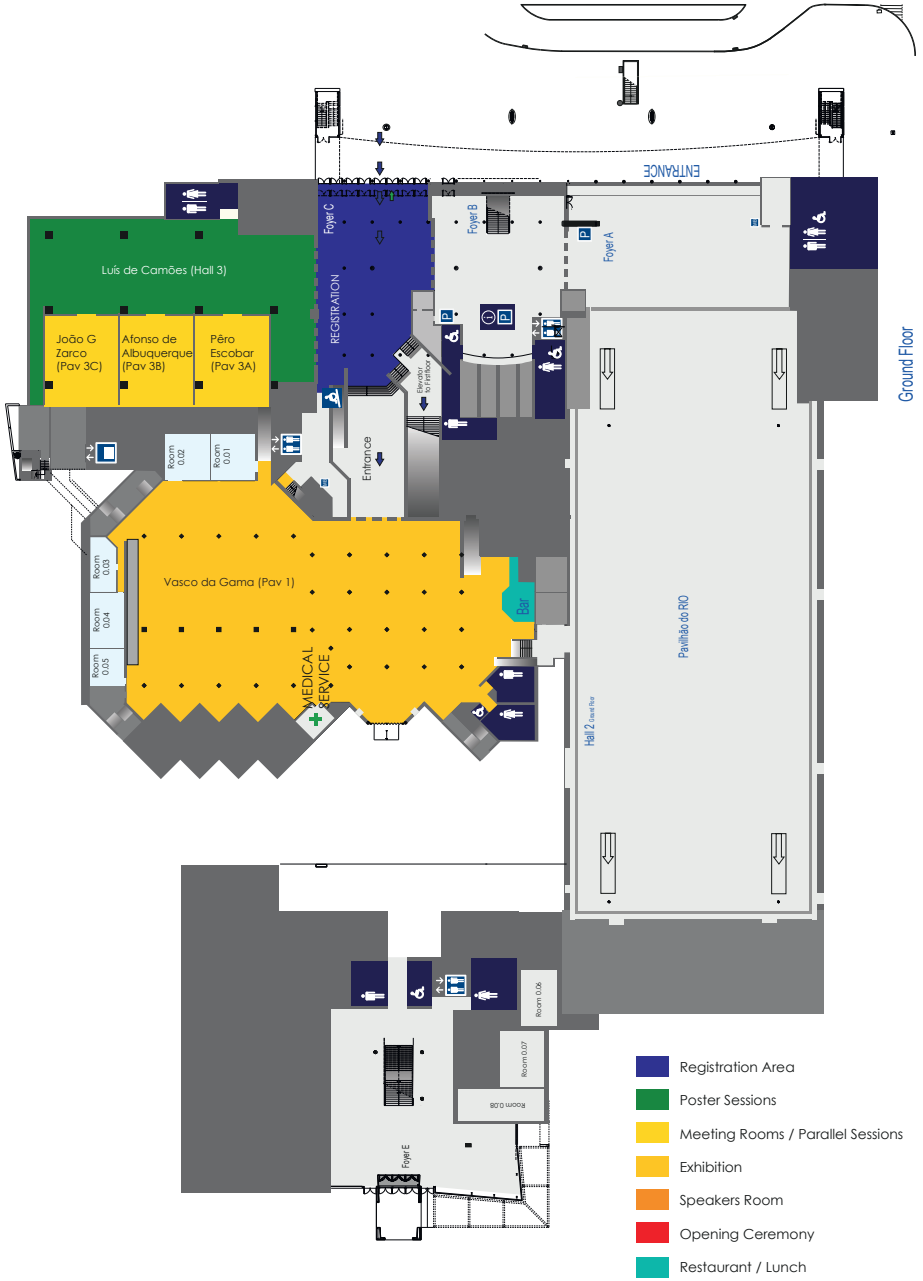
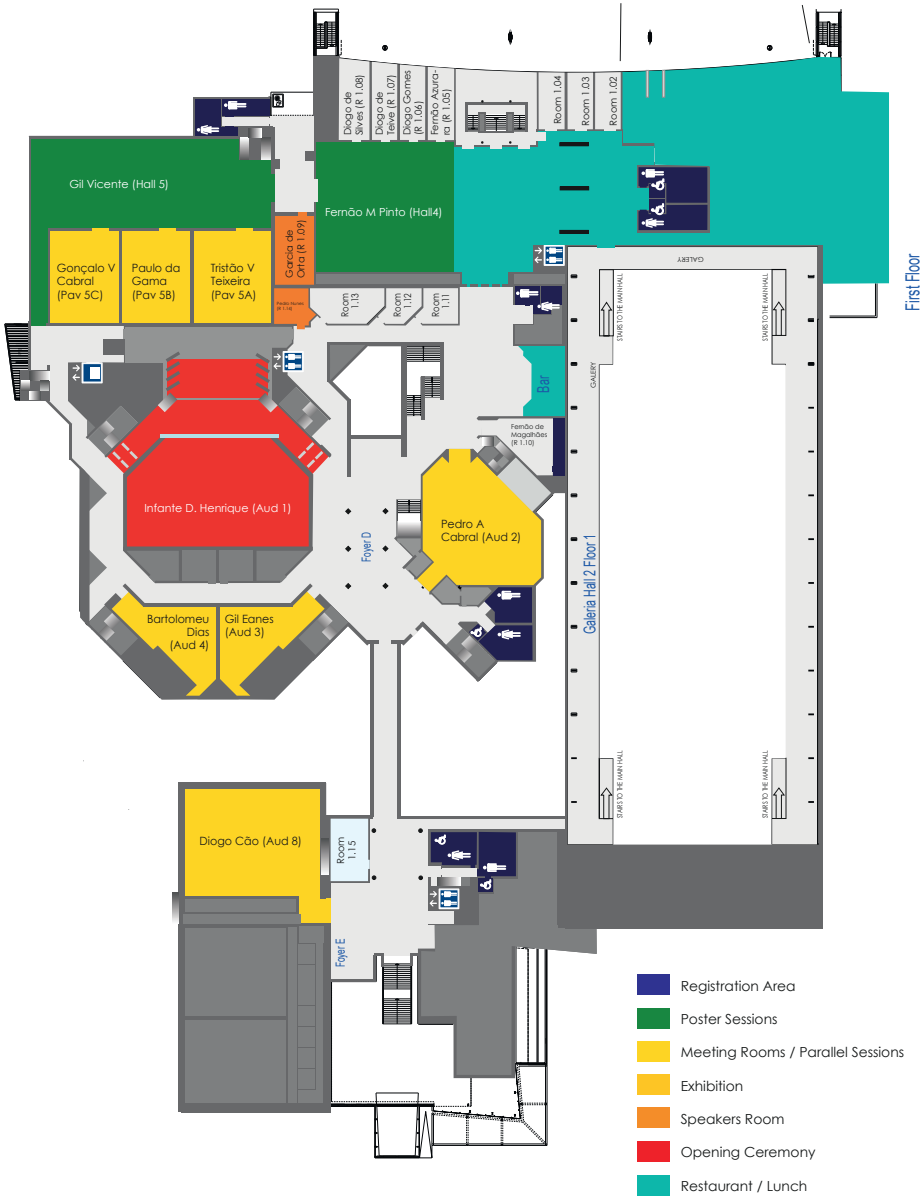
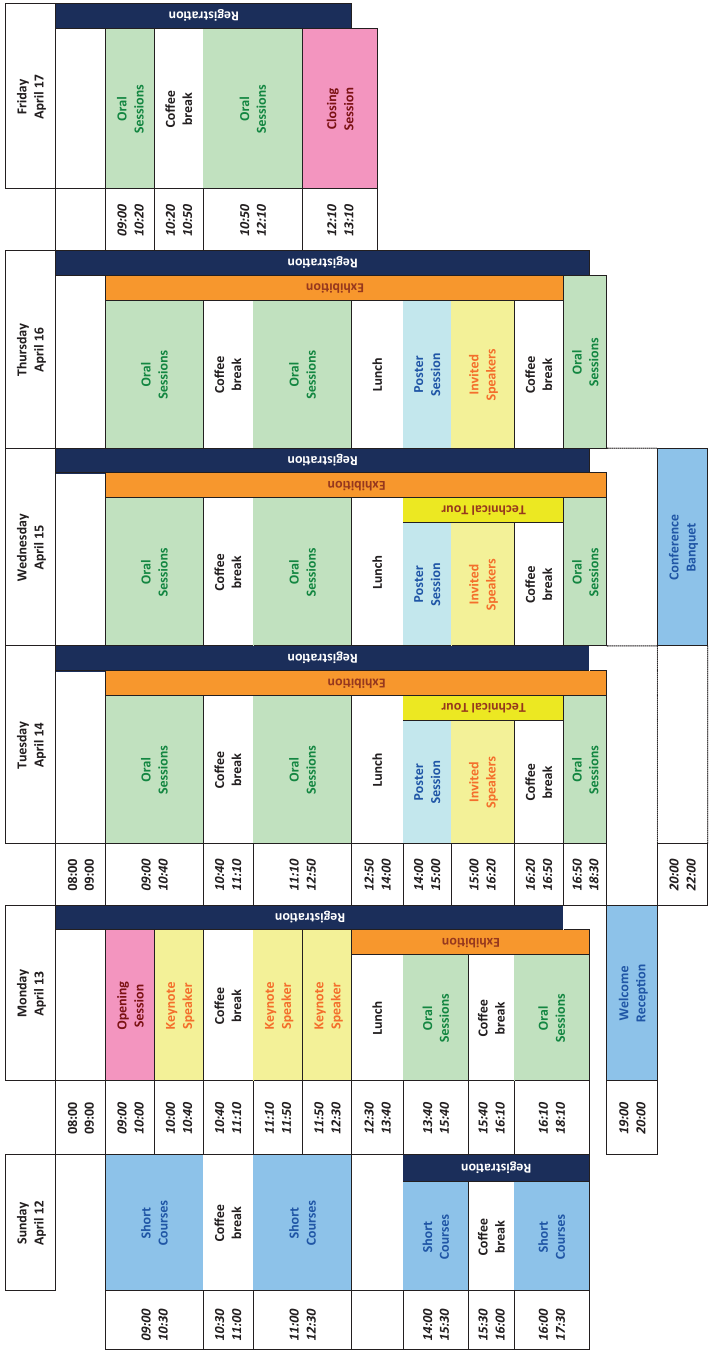
1.29	Tech-X UK Ltd
1.28	TICRA
1.05	ViaSat
1.39	Virginia Diodes, Inc.
1.24	WIPL-D d.o.o.

Floorplan Ground Floor



Floorplan First Floor





Time	Afonso De Albuquerque (Pav 3B)	Bartolomeu Dias (Aud 4)	Diogo Cão (Aud 8)	Diogo De Silves (Room 1.08)	Fernão M Pinto (Hall 4)	Gil Eanes (Aud 3)	Gil Vicente (Hall 5)	Gonçalo V Cabral (Pav 5C)	Infante D. Henrique (Aud 1)	João G Zarco (Pav 3C)	Luís De Camões (Hall 3)	Paulo Da Gama (Pav 5B)	Pedro A Cabral (Aud 2)	Pêro Escobar (Pav 3A)	Tristão V Teixeira (Pav 5A)
10:00	KS: Keynote Speakers														
13:40	W4 Prop-Sim: Propagation Modelling and Simulation	R1 Array: Array Antennas		WS2 RFID: Chipless RFID Future and Challenges		C21 EleSmall: [C] Electrically Small Antennas		HD2 mmWAnt: Millimetre-wave, submillimetre-wave and Terahertz antennas	BA1 Num-Tech: Full Wave Computation and Numerical Techniques	W5 Indoor-Prop: Indoor Propagation		S4 Multibeam: Multi-beam satellites	C18 NF_EMC: [C] Deterministic & stochastic coupling analysis for Antennas, Near-Field & EMC applications	CC3 AntSystem: Antenna systems and architectures	S1 AlphaSat: Alpha-Sat Experiment
16:10				C35 Mode-Base: [C] Mode-based strategy for antenna analysis and design						DS1 Beamform: Beamforming and signal processing		MA3 PrintElem: Printed elements, baluns and associated circuits	C29 BAN: [C] Measurements and Simulations in Channel Modelling in Wireless Body Area Networks	C37 Mutual: [C] Mutual Coupling Formulation and its Effects in Antenna Systems	C43 PropSat: [C] Results of ka and Q band propagation campaigns using Aphasat Aldo Paraboni and other Satellites

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Programme Overview Tuesday, April 14

Time	Afonso De Albuquerque (Pav 3B)	Bartolomeu Dias (Aud 4)	Diogo Cão (Aud 8)	Diogo De Silves (Room 1.08)	Fernão M Pinto (Hall 4)	Gil Eanes (Aud 3)	Gil Vicente (Hall 5)	Gonçalo V Cabral (Pav 5C)	Infante D. Henrique (Aud 1)	João G Zarco (Pav 3C)	Luís De Camões (Hall 3)	Paulo Da Gama (Pav 5B)	Pedro A Cabral (Aud 2)	Pêro Escobar (Pav 3A)	Tristão V Teixeira (Pav 5A)
9:00	W3 ReconfAnt: Adaptive and reconfigurable antennas	Bi5 PropBio: Propagation in Biomedical Environments	C4 SimTools: [C] Advances in Commercial Electromagnetic Simulation Tools	WS4 Julien: In Memoriam of Julien Perruisseau-Carrier		MA13 Scattering: Scattering and Diffraction		C10 60GHz: [C] Antenna technologies for fixed wireless access at 60 GHz and above		MA4 EMI/EMC: EMI/EMC/PIM Chamber design, measurement and instrumentation		MA15 Multiband: Multiband and wideband antennas	C30 MiMed1: [C] Methodologies and modelling for EMF in medical diagnostics and therapy (MiMed)	CC4 OTA: Over the Air (OTA) Testing in Antennas and Multiple Devices	S5 ArraySpace: Array Antennas for Space
11:10		MA16 InvScat: Imaging and Inverse Scattering								DS2 PropAeron: Propagation in Aeronautics and Navigation				CC5 UrbanProp: Urban Propagation	
14:00				WS5 R&S: Antenna Measurements at Rohde & Schwarz: The New Test Antenna Chamber	Poster P1: Propagation Poster Session 1		Poster A2: Antennas Poster Session 2				Poster A1: Antennas Poster Session 1				
15:00			Inv_1A: Invited Speakers Session 1A										Inv_1B: Invited Speakers Session 1B		
16:50	C41 PropBuilt: [C] The IET session on Propagation in the built environment	C23 MultiB: [C] Emerging techniques for multiband and wideband antennas	C13 Graphene: [C] Applications of Graphene and Novel Materials at Terahertz and Microwaves			MA10 UWBAnt: UWB antennas and time-domain techniques		C8 AMTA2: [C] AMTA/EurAAP Measurements of integrated antennas at mm-wavelengths		MA12 EMTheory: Electromagnetic theory and numerical techniques		C25 Inkjet: [C] Inkjet Printed Antennas for Flexible, Wearable and Large Area Electronics	Bi6 InvScat: Imaging and Inverse Scattering for Biomedical Applications	C28 MMIMO: [C] Massive MIMO for 5G broadband communication networks	C38 Array: [C] Non-Uniform and Sparse Antenna Arrays - Innovative Concepts and Technological Solutions

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Programme Overview Wednesday, April 15

Time	Afonso De Albuquerque (Pav 3B)	Bartolomeu Dias (Aud 4)	Diogo Cão (Aud 8)	Diogo De Silves (Room 1.08)	Fernão M Pinto (Hall 4)	Gil Eanes (Aud 3)	Gil Vicente (Hall 5)	Gonçalo V Cabral (Pav 5C)	Infante D. Henrique (Aud 1)	João G Zarco (Pav 3C)	Luís De Camões (Hall 3)	Paulo Da Gama (Pav 5B)	Pedro A Cabral (Aud 2)	Pêro Escobar (Pav 3A)	Tristão V Teixeira (Pav 5A)
9:00	C20 RadioC: [C] Dynamic radio channel modelling in mobile-to-mobile heterogeneous networks	R2 LeakyAnt: Slotted-, guided- and leaky-wave antennas	C26 INTELLE: [C] INTELLECT			C1 VISTA: [C] 2011-2015 early stage research in COST VISTA		C33 mmAnt: [C] Mm-wave Antenna Systems		C47 Security: [C] Wave-based sensing and imaging for security applications		C7 AMTA1: [C] AMTA/EurAAP Diagnostics, imaging, and post-processing in antenna measurements	C44 MiMed2: [C] Therapeutic Applications of Electromagnetic Fields (MiMed)	C15 Prop5G: [C] Channel measurements and modelling in the higher frequency bands for 5G	S2 SatProp: Satellite Propagation
11:10	W1 NetPlan: Network Planning, Optimisation and Simulation	S8 MetaSpace: Advanced RF materials, metamaterials and EBG for Space Applications		WS6 Altair: Application of Numerical Techniques to the Solution of Practical Antenna Problems with FEKO											
14:00				WS7 CST: CST Workshop: Advanced Antenna System Simulation	Poster P2: Propagation Poster Session 2		Poster A3: Antennas Poster Session 3				Poster A4: Antennas Poster Session 4				
15:00			Inv_2A: Invited Speakers Session 2A	WS1 AMTA: AMTA Workshop: Measurement Techniques for Multi-beam Antennas									Inv_2B: Invited Speakers Session 2B		
16:50	C17 DMC: [C] Dense Multipath Component (DMC) characterization for radio channel modeling	MA6 MetaSurf: Metamaterial Lens and metasurfaces	C26 INTELLE.: [C] INTELLECT.			C12 PowerTr: [C] Antennas and systems for Wireless Power Transmission in space applications		C36 Scatter: [C] Modelling scattering phenomena in wireless links		MA7 FSS: Frequency and polarization selective surfaces		C9 AMTA3: [C] AMTA/EurAAP Satellite and Aerospace Antenna Testing	Bi3 Wearable: Wearable Antennas	C40 Propgbit: [C] Propagation for multi-gigabit applications	C24 HighNorth: [C] High North Satellite Propagation

Programme Overview Thursday, April 16

Time	Afonso De Albuquerque (Pav 3B)	Bartolomeu Dias (Aud 4)	Diogo Cão (Aud 8)	Diogo De Silves (Room 1.08)	Fernão M Pinto (Hall 4)	Gil Eanes (Aud 3)	Gil Vicente (Hall 5)	Gonçalo V Cabral (Pav 5C)	Infante D. Henrique (Aud 1)	João G Zarco (Pav 3C)	Luís De Camões (Hall 3)	Paulo Da Gama (Pav 5B)	Pedro A Cabral (Aud 2)	Pêro Escobar (Pav 3A)	Tristão V Teixeira (Pav 5A)
9:00	C39 ProVeh: [C] Propagation Channels for Wide-Sense Vehicle-to-X Communications	MA1 Metamat: Metamaterials	C14 Bench: [C] Combined Simulation/Measurement Benchmark For Challenging Antennas			MA11 Prop: Other Propagation Topics		C45 THz: [C] THz Antennas and Applications		MA8 AntMeasur: General Antenna Measurements		S3 TropProp: Tropospheric Propagation	Bi1 CancerDet: Microwave Cancer Detection	CC2 MIMO: MIMO, diversity, and smart antennas	S10 TransArray: Reflectarrays and transmitarrays
14:00				WS3 MiMed: Translating Microwave Medical Devices from Research Bench to Patient Bedside	Poster Awards: Awards Finalists Poster Session		Poster M1: Measurement Poster Session				Poster A5: Antennas Poster Session 5				
15:00			Inv_3A: Invited Speakers Session 3A										Inv_3B: Invited Speakers Session 3B		
16:50	C32 OTA: [C] MIMO OTA Test Trade-offs	MA5 MetaAnt: Metamaterials Antennas and Components	C3 Nano: [C] Advanced computational methods and analysis of optical nanoantennas, resonators, and other photonic circuit components			C48 WirelessTr: [C] Wireless Power Transmission and Energy Harvesting		HD1 Lenses: Lens antennas and radomes		C16 Confor: [C] Conformal Antennas		BA2 NearFarMe: Advances in near-field, far-field, compact and RCS test ranges	Bi4 AntCoupl: Antenna interactions and coupling	C46 TuneSmall: [C] Tuning and Miniaturization Techniques for Small Device Antennas operating at LTE bands	C22 RFID: [C] Emerging chipless RFID technology trends

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Programme Overview Friday, April 17

Time	Afonso De Albuquerque (Pav 3B)	Bartolomeu Dias (Aud 4)	Diogo Cão (Aud 8)	Diogo De Silves (Room 1.08)	Fernão M Pinto (Hall 4)	Gil Eanes (Aud 3)	Gil Vicente (Hall 5)	Gonçalo V Cabral (Pav 5C)	Infante D. Henrique (Aud 1)	João G Zarco (Pav 3C)	Luís De Camões (Hall 3)	Paulo Da Gama (Pav 5B)	Pedro A Cabral (Aud 2)	Pêro Escobar (Pav 3A)	Tristão V Teixeira (Pav 5A)
9:00	C34 Mobile: [C] Mobile antenna concepts leveraging circuit design techniques	C27 Meta: [C] Latest Progress in Metamaterial-Based Antenna Design	C19 DomainD: [C] Domain decomposition methods and macro-basis functions for integral equations			MA2 WireAnt: Wire antennas		C42 Pulsed: [C] Pulsed-field radio: theory, applications, implementation		C5 Plasma: [C] Advances in Plasma-based Antennas and Devices		S6 Reflector: Reflector, feed systems and components	Bi2 BodyCom: Body-Centric Communications	CC1 mmWProp: Propagation for mmW and 5G	C6 mmSpace: [C] Advances in space-fed antennas for millimeter-wave communications
10:50	W2 VehicProp: Propagation for Vehicle-to-X Communication	C11 GeoSci: [C] Antennas and Propagation for Geoscience Applications				C2 3D: [C] 3D Printing / Additive Manufacturing Technology of Electromagnetic Structure		MA14 ActiveAnt: Active and integrated antennas		MA9 ConforAnt: Conformal antennas		S7 NumSpace: Electromagnetic theory and numerical techniques for Space Applications	Bi7 SmallAnt: Small antennas and RF sensors	C31 Microflu: [C] Microfluidics and Tunable Material Systems for Antenna Reconfiguration and Control	S9 AntSpace: Antennas for Space Applications

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