



# CONFERENCE BOOK

**5th EUROPEAN CONFERENCE  
ON ANTENNAS AND PROPAGATION**

ROME / ITALY  
11th - 15th APRIL 2011



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Dear EuCAP 2011 delegate,

On behalf of the Organizing Committee and of the Management Committee, I'm glad to welcome all participants to the 5th edition of the European Conference on Antennas and Propagation, organized by the European Association on Antennas and Propagation (EuRAAP), which this year is held in Italy, after the previous events in France, UK, Germany and Spain.

Actually, Italy one of the countries where antenna and propagation themes have most been studied since the beginning and have a long history, from the first studies on diffraction by Francesco Maria Grimaldi in the 17th century, to the Marconi's first experiments on long distance electromagnetic signals transmission in late 19th century, and still today a significant part of the research activity on these subjects is carried out by Italian researchers.

Despite of the international economic situation, the number of papers submitted to EuCAP has significantly increased with respect to the average of the previous years, with more than 1200 summaries (and many of them were already full papers), including the convened sessions, of very high quality: this has made very difficult the selection of the papers, and the Chairpersons involved in the final selection has been forced to keep a tight acceptance rate, for reasons of space. A total of more than 1000 papers, from all over the world, with 102 oral sessions are in this Conference: 42 of these sessions are convened, where the organizers have invited world experts to discuss on emerging methodologies, applications and technologies in the area of antennas and propagation; in addition, to this, three poster sessions with more than 220 papers. And in the Plenary Sessions the keynote speakers will address the present trends of our community in the international scenario.

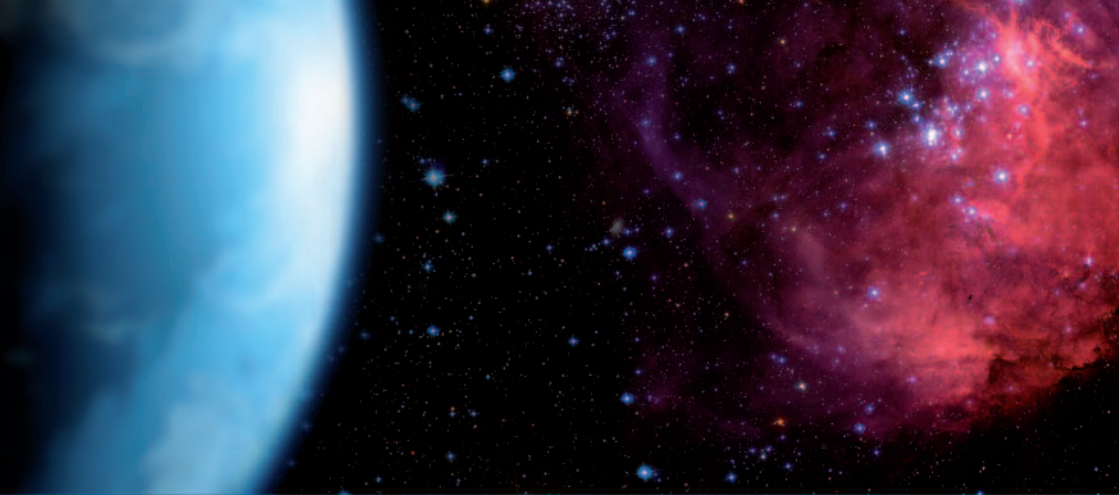
In few words, the Conference will globally give a wide overview of the most recent advances in the areas of antenna theory, design and measurements, and of radio waves propagation.

A total of 5 prizes will be awarded at the end of the Conference, to give recognition of the highest quality of the papers, covering four different topics (Antenna theory, design, measurements, Propagation) as well as a Student prize reserved to the best paper where the first author is a registered student and presenter.

Let me conclude by thanking all the authors, the members of the Review Committee, the Chairs of the Committee, all those who have contributed to build the Conference program, and all persons or organizations that have supported our work in many ways and have contributed to the success of EuCAP 2011.

We look forward to seeing you in Rome in April.

**Mario Orefice**  
*Politecnico di Torino, Italy, Chairman of EuCAP 2011*



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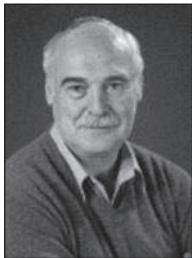
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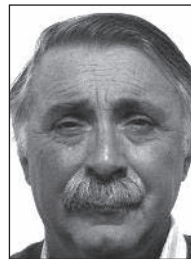


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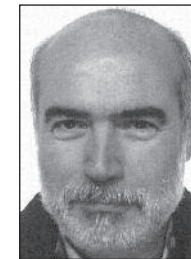
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After graduation from "Ecole Centrale de Paris", and a PhD in Atomic and Molecular Physics jointly at Pennsylvania State University and Paris VI (UPMC) University, joined Thomson-CSF Corporate Research Laboratories in 1984 as responsible of structural characterization and physics of semiconductor and superconductor devices including advanced optoelectronic devices. From 1999 to 2009, he was also Associate Research Director at CNRS in IEMN (Institute of Electronics, Microelectronics and Nanotechnologies), Lille University and from 2005 to 2009, co-Director of the Thales@NTU Joint Research Laboratory with Nanyang Technological University in Singapore. He is now the Scientific Director in Thales DMS (Defence Mission Systems) Division. He has been involved in numerous European and International projects and contracts in the field of Microwaves, Photonics and Nanotechnologies. He holds more than 200 publications and 40 patents in the field of Semiconductor physics, Spintronics, Photonics, Microwaves and related Nanotechnologies.

**Constantine A. Balanis**

Constantine A. Balanis (S'62 - M'68 - SM'74 - F'86 - LF'04) received the BSEE degree from Virginia Tech, Blacksburg, VA, in 1964, the MEE degree from the University of Virginia, Charlottesville, VA, in 1966, and the Ph.D. degree in Electrical Engineering from Ohio State University, Columbus, OH, in 1969. From 1964 - 1970 he was with NASA Langley Research Center, Hampton VA, and from 1970 - 1983 he was with the Department of Electrical Engineering, West Virginia University, Morgantown, WV. Since 1983 he has been with the School of Electrical, Computer and Energy Engineering, Arizona State University, Tempe, AZ, where he is now Regents' Professor. His research interests are in computational electromagnetics, smart antennas, and multipath propagation. He received in 2004 a Honorary Doctorate from the Aristotle University of Thessaloniki; the 2005 IEEE Antennas and Propagation Society Chen-To Tai Distinguished Educator Award; the 2000 IEEE Millennium Award, the 1996 Graduate Mentor Award, Arizona State University; the 1992 Special Professionalism Award from the IEEE Phoenix Section; the 1989 IEEE Region 6 Individual Achievement Award; and the 1987 - 1988 Graduate Teaching Excellence Award, School of Engineering, Arizona State University. Dr. Balanis is a Life Fellow of the IEEE. He has served as Associate Editor of the IEEE Transactions on Antennas and Propagation (1974 - 1977) and the IEEE Transactions on Geoscience and Remote Sensing (1981 - 1984), as Editor of the Newsletter for the IEEE Geoscience and Remote Sensing Society (1982 - 1983), as Second Vice-President (1984) and member of the Administrative Committee (1984-85) of the IEEE Geoscience and Remote Sensing Society, and as Distinguished Lecturer (2003 - 2005), Chairman of the Distinguished Lecturer Program (1988 - 1991), member of the AdCom (1992 - 95, 1997 - 1999), and Chair of the Awards and Fellows Committee of the IEEE Antennas and Propagation Society (2009-). He is the author of *Antenna Theory: Analysis and Design* (Wiley, 1982, 1997, 2005), *Advanced Engineering Electromagnetics* (Wiley, 1989) and *Introduction to Smart Antennas* (Morgan & Claypool, 2007) and editor of *Modern Antenna Handbook* (Wiley, 2008) and editor for the Morgan & Claypool Publishers on Antennas and Propagation series, and Computational Electromagnetics series.

**Nader Engheta**

Nader Engheta is the H. Nedwill Ramsey Professor of Electrical and Systems Engineering, and Professor of Bioengineering, at the University of Pennsylvania. He received his B.S. degree in EE from the University of Tehran, and his M.S and Ph.D. degrees in EE from Caltech. Selected as one of the Scientific American Magazine 50 Leaders in Science and Technology in 2006 for developing the concept of optical lumped nanocircuits, he is a Guggenheim Fellow, an IEEE Third Millennium Medalist, a Fellow of IEEE, American Physical Society (APS), Optical Society of America (OSA), American Association for the Advancement of Science (AAAS), and SPIE-The International Society for Optical Engineering, and the recipient of the 2008 George H. Heilmeyer Award for Excellence in Research from UPenn, the Fulbright Naples Chair Award, NSF Presidential Young Investigator award, the UPS Foundation Distinguished Educator term Chair, and several teaching awards including the Christian F. and Mary R. Lindback Foundation Award, S. Reid Warren, Jr. Award and W. M. Keck Foundation Award. His current research activities span a broad range of areas including metamaterials and plasmonics, nanooptics and nanophotonics, biologically-inspired sensing and imaging, miniaturized antennas and nanoantennas, physics and reverse-engineering of polarization vision in nature, mathematics of fractional operators, and physics of fields and waves phenomena. He has co-edited (with R. W. Ziolkowski) the book entitled "Metamaterials: Physics and Engineering Explorations" by Wiley-IEEE Press, 2006.

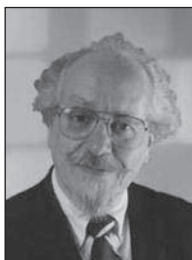
**Per-Simon Kildal**

Professor Per-Simon Kildal, Distinguished Lecturer of IEEE Antennas and Propagation Societ. Per-Simon Kildal is professor in antennas at Chalmers University of Technology in Gothenburg, Sweden since 1989. He is heading the Antenna group. His main tasks are to lead and supervise research and education within antenna systems. Until now, 18 graduate students have received a Ph.D. from him. Kildal received two doctoral degrees from the Norwegian Institute of Technology in Trondheim. He is a Fellow of IEEE since 1995, and in 2011 he was awarded the prestigious Distinguished Achievements Award from the IEEE Antennas and Propagation Society. Kildal has authored more than 120 articles in scientific journals; concerning antenna theory, analysis, design and measurements, two of which was awarded best paper awards by IEEE (1985 R.W.P. King Award and 1991 Schelkunoff Prize Paper Award). He is the inventor behind technologies such as dipole with beam forming ring, the hat antenna, and the eleven feed. Kildal was the first to introduce the reverberation chamber as an accurate measurement instrument tool for Over-The-Air (OTA) characterization of small antennas and wireless terminals for use in multipath environments with fading. Kildal is also the originator of the concept of soft and hard surfaces from 1988, today being regarded as the first metamaterials concept. This concept is the basis of his newest and most fundamental invention, the gap waveguide technology. The research is innovative and industrially oriented, and has resulted in several patents and related spinoff companies, the most known being Bluetest AB, see [www.kildal.se](http://www.kildal.se) for more details. Kildal organizes and lectures in courses within the European School of Antenna (ESoA, [www.antennasvce.org](http://www.antennasvce.org)). His textbook *Foundations of Antennas - A Unified Approach* (Lund, Sweden: Studentlitteratur, 2000) was well received, and is now in the process of being revised.



### Lluís Jofre

Lluís Jofre was born in Canet de Mar, Spain in 1956. He received the M.Sc. (Ing) and Ph.D. (Doctor Ing.) degrees in Electrical Engineering (Telecommunications Eng.), from the Universitat Politècnica de Catalunya (UPC), Barcelona, Spain in 1978 and 1982, respectively. From 1979 to 1980 he was Research Assistant in the Electrophysics Group at UPC, where he worked on the analysis and near field measurement of antenna and scatterers. From 1981 to 1982 he joined the Ecole Supérieure d'Electricité, Paris, France, where he was involved in microwave antenna design and imaging techniques for medical and industrial applications. In 1982, he was appointed Associate Professor at the Communications Department of the Telecommunication Engineering School at the UPC, where he became Full Professor in 1989. From 1986 to 1987, he was a Visiting Fulbright Scholar at the Georgia Institute of Technology, Atlanta, working on antennas, and electromagnetic imaging and visualization. From 1989 to 1994, he served as Director of the Telecommunication Engineering School (UPC), and from 1994-2000, as UPC Vice-rector for Academic Planning. From 2000 to 2001, he was a Visiting Professor at the Electrical and Computer Engineering Department, Henry Samueli School of Engineering, University of California, where he worked on reconfigurable antennas and sensors for civil engineering applications. From 2002 to 2004 he served as Director of the Catalan Research Foundation and since 2003 as director of the UPC-Telefonica Chair on Information Society Future Trends. He is a member of the Catalan Studies Institute since 1996 and 2010 IEEE Fellow. His research interests include antennas, electromagnetic scattering and imaging, and system miniaturization for wireless and sensing industrial and bio applications from microwave to THz frequencies. He has published more than 150 scientific and technical papers, reports and chapters in specialized volumes.



### Piergiorgio Uslenghi

#### *Education:*

Ph.D. Physics, The University of Michigan, 1967

M.S. Physics, The University of Michigan, 1964

Dott. Ing. Electrical Engineering, Polytechnic of Turin, Italy, 1960

#### *Professional Achievements:*

Fellow, IEEE; First Editor-in-Chief of Antennas and Wireless Propagation Letters, a new web-based scientific publication, 01/01; Honored as a Distinguished Alumnus by the Polytechnic of Turin, Italy, 04/01; President of the IEEE Antennas and Propagation Society, 2001; Vice President of the IEEE Antennas and Propagation Society, 2000

#### *Research Interests:*

Current research interests are in electromagnetics, scattering theory, modern optics, solid state, and applied mathematics. Current research efforts include the development of analytic-numerical models for scattering by anisotropic materials, frequency-selective sheets and imperfect conductors; studies of diffraction by bodies with cavities; model theory of graded-index anisotropic optical fibers; evaluation and modification of radar cross sections; design, measurement and evaluation of radar absorbing materials; nonlinear electromagnetic properties of composites.



### Jin-Fa Lee

Jin-Fa Lee received the B.S. degree from National Taiwan University, in 1982 and the M.S. and Ph.D. degrees from Carnegie-Mellon University in 1986 and 1989, respectively, all in electrical engineering. From 1988 to 1990, he was with ANSOFT (later acquired by ANSYS) Corp., where he developed several CAD/CAE finite element programs for modeling three-dimensional microwave and millimeter-wave circuits. From 1990 to 1991, he was a post-doctoral fellow at the University of Illinois at Urbana-Champaign. From 1991 to 2000, he was with Department of Electrical and Computer Engineering, Worcester Polytechnic Institute. He joined the Ohio State University at 2001 where he is currently a Professor in the Dept. of Electrical and Computer Engineering. Prof. Lee is an IEEE fellow and is currently serving as an associate editor for IEEE Trans. Antenna Propagation and as a Distinguished Lecturer for IEEE AP Society for the term of 2011-2013. Prof. Lee's main research interests include Electromagnetic Field Theories, Antennas, numerical methods and their applications to computational electromagnetics, analyses of numerical methods, fast finite element methods, fast integral equation methods, hybrid methods, three-dimensional mesh generation, domain decomposition methods, and multi-physics simulations and modeling.



### Olav Breinbjerg

Olav Breinbjerg was born in Silkeborg, Denmark on July 16, 1961. He received the M.Sc. and Ph.D. degrees in electrical engineering from the Technical University of Denmark (DTU) in 1987 and 1992, respectively. Since 1991 he has been on the faculty of the Department of Electrical Engineering of DTU where he is now Full Professor and Head of the Electromagnetic Systems Group including the DTU-ESA Spherical Near-Field Antenna Test Facility. Olav Breinbjerg was a Visiting Scientist at Rome Laboratory, Hanscom Air Force Base, Massachusetts, USA in the fall of 1988, a Fulbright Research Scholar at the University of Texas at Austin, Texas, USA in the spring of 1995, and a Guest Professor at the University of Siena, Italy in the spring of 2011. His research is generally in applied electromagnetics - and particularly in antennas, antenna measurements, computational techniques and scattering - for applications in wireless communication and sensing technologies. At present, his interests focus on metamaterials, antenna miniaturization, and spherical near-field antenna measurements. He is the author or co-author of more than 45 journal papers, 150 conference papers, and 70 technical reports, and he has been or is the main supervisor of 10 Ph.D. students. He has taught several B.Sc. and M.Sc. courses in the area of applied electromagnetic field theory on topics such as fundamental electromagnetics, analytical and computational electromagnetics, antennas, and antenna measurements at DTU, where he has also supervised more than 35 M.Sc. projects. Furthermore, he has given short courses at other European universities and within the European School of Antennas. He is currently the coordinating teacher at DTU for the 3<sup>rd</sup> semester course 31400 Electromagnetics, and the 7-9<sup>th</sup> semester courses 31428 Advanced Electromagnetics, 31430 Antennas, and 31435 Antenna Measurements in Radio Anechoic Chambers. Olav Breinbjerg received a US Fulbright Research Award in 1995. Also, he received the 2001 AEG Elektron Foundation's Award in recognition of his research in applied electromagnetics. Furthermore, he received the 2003 DTU Student Union's Teacher of the Year Award for his course on electromagnetics.



#### Thomas Kürner

Thomas Kürner (S'91-M'94-SM'01) received the Dipl.-Ing. degree in Electrical Engineering from Universität Karlsruhe (Germany) in 1990 and the Dr.-Ing. degree in 1993 from the same university. From 1990 to 1994 he was with the Institut für Höchstfrequenztechnik und Elektronik (IHE) at the University of Karlsruhe working on wave propagation modelling, radio channel characterization and radio network planning. From 1994 to 2003, he was with the radio network planning department at the headquarters of the GSM 1800 and UMTS operator E-Plus Mobilfunk GmbH & Co KG, Düsseldorf, where he was "Team Manager Radio Network Planning Support" being responsible for radio network planning tools, algorithms, processes and parameters. Since 2003, he has been a Professor for Mobile Radio Systems at the Institut für Nachrichtentechnik (IfN) at Technische Universität Braunschweig. His working areas are propagation, traffic and mobility models for automatic planning of mobile radio networks, planning of hybrid networks, car-to-car communications, indoor channel characterization for high-speed short-range systems including future terahertz communication systems as well as propagation aspects in satellite navigation systems. He has been engaged in several international bodies such as ITU-R SG 3, UMTS Forum Spectrum Aspects Group, COST 231/ 273/ 259, where he chaired the working group "Network Aspects", and COST 2100. He was also a work package leader in the European IST-MOMENTUM project working on methods for "Automatic Planning of large-scale Radio Networks" and was active in the European ICT-SOCRATES project of self-organisation in LTE networks. Currently, he is chairing the IEEE802.15 Interest Group THz. He has served as Vice-Chair Propagation at the European Conference on Antennas and Propagation (EuCAP) in 2007 and 2009 and in the IEEE Vehicular Technology Conference Fall 2010 and is Associate Editor of IEEE Transactions on Vehicular Technology since 2008. He is a member of VDE/ITG, VDI, Senior Member of the IEEE and an elected member of URSI commission F.



#### Michael Jensen

Prof. Michael Jensen received the B.S. and M.S. degrees in Electrical Engineering from Brigham Young University in 1990 and 1991, respectively, and the Ph.D. in Electrical Engineering at the University of California, Los Angeles in 1994. Since 1994, he has been at the Electrical and Computer Engineering Department at BYU where he is currently a Professor and Department Chair. He teaches courses in electromagnetics, high-frequency circuit design, and signal processing for communications. Dr. Jensen's research focuses on characterizing propagation channels and designing antennas for wireless communications as well as the development of advanced signal processing techniques for robust and secure communications. His publications in these areas include 3 book chapters, 59 journal articles, and over 150 conference articles. As a result of his work, he has been awarded the H. A. Wheeler paper award in the IEEE Transactions on Antennas and Propagation in 2002 and the best student paper award at the 1994 IEEE International Symposium on Antennas and Propagation. He was elevated to the grade of IEEE Fellow in 2008. Dr. Jensen is the Editor-in-Chief of the IEEE Transactions on Antennas and Propagation. He has previously served as member and chair of the Joint Meetings Committee for the IEEE Antennas and Propagation Society, a member of the Administrative Committee for this same society, and has been Vice-Chair or Technical Program Chair for seven different symposia. He has also been associate editor for IEEE Antennas and Wireless Propagation Letters, IEEE Transactions on Antennas and Propagation, and IEEE Antennas and Propagation Magazine. He is the co-founder of two companies that continue to do business in Utah County.



#### Cyril Mangenot

Cyril Mangenot was born in France in 1962. He received the Master in Electrical Engineering and Ph.D. degrees from Paul Sabatier University (Toulouse, France) in 1986 and 1989, respectively. He did his DEA (Extensive Study Diploma) on modelling of printed patch antenna on cylindrical launcher structure with Matra Marconi Space (now Astrium SAS) and his Ph.D on power synthesis of shaped beam antenna patterns in partnership with Alcatel Espace (now Thales Alenia Space). From 1989 to 2002 he was with ALCATEL SPACE, first as an antenna engineer for Spaceborne radars then as Head of the Antenna studies section in the Antenna Department. Since 2002 he has been with the European Space Research and Technology Centre (ESTEC), European Space Agency, Noordwijk, The Netherlands as Head of Antenna and sub-millimetre wave section in the Electromagnetics and Space Environment Division. His research interests are mainly in the field of array and multibeam antennas for satellite applications. He has co-authored 6 patent applications. He developed teaching experience with several contributions in high school and organised the 1st course on "antennas for space applications" as part of the European School of Antennas in 2006. He is a member of EurAAP and of the EuCAP steering committee as well as reviewer for IEEE Transactions on antennas and Propagation.



#### Manos M. Tentzeris

Professor Tentzeris was born and grew up in Piraeus, Greece. He graduated from Ionidios Model School of Piraeus in 1987 and he received the Diploma degree in Electrical Engineering and Computer Science (Magna Cum Laude) from the National Technical University in Athens, Greece, in 1992 and the M.S. and Ph.D. degrees in Electrical Engineering and Computer Science from the University of Michigan, Ann Arbor in 1993 and 1998.

He is currently a Professor with the School of ECE, Georgia Tech and he has published more than 320 papers in refereed Journals and Conference Proceedings, 3 books and 17 book chapters, while he is in the process of writing 2 books. He is currently the Georgia Electronic Design Center Associate Director for RFID/Sensors research, while he had been the GT-Packaging Research Center (NSF-ERC) Associate Director for RF research and the leader of the RF/Wireless Packaging Alliance from 2003-2006. Also, Dr. Tentzeris is the Head of the A.T.H.E.N.A. Research Group (20 students and researchers) and has established academic programs in Highly Integrated/Multilayer Packaging for RF and Wireless Applications using ceramic and organic flexible materials, paper-based RFID's and sensors, Microwave MEM's, SOP-integrated (UWB, multiband, conformal) antennas and Adaptive Numerical Electromagnetics (FDTD, MultiResolution Algorithms). He was the 1999 Technical Program Co-Chair of the 54th ARFTG Conference and he is currently a member of the technical program committees of IEEE-IMS, IEEE-AP and IEEE-ECTC Symposia. He was the TPC Chair for the IMS 2008 Conference and he will be a Co-Chair of the ACES 2009 Symposium. He was the Chairman for the 2005 IEEE CEM-TD Workshop. He was the Chair of IEEE-CPMT TC16 (RF Subcommittee) and he was the Chair of IEEE MTT/AP Atlanta Sections for 2003. He is a Fellow of IEEE, a member of MTT-15 Committee, an Associate Member of European Microwave Association (EuMA), a Fellow of the Electromagnetics Academy, and a member of Commission D, URSI and of the the Technical Chamber of Greece. He is the Founder and Chair of the newly formed IEEE MTT-S TC-24 (RFID Technologies). His hobbies include basketball, swimming, ping-pong and travel.



#### Jun-Ichi Takada

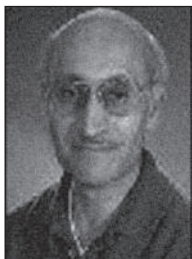
*Present positions:*

Professor, Department of International Development Engineering, Graduate School of Engineering, Tokyo Institute of Technology

*Curriculum Vitae:*

Jun-Ichi Takada (Senior Member) received B.E. and D.E. degrees from Tokyo Institute of Technology in 1987 and 1992, respectively. He was a Research Associate at Chiba University in 1992-1994, and an Associate Professor at Tokyo Institute of Technology in 1994-2006. He has been a Professor in Tokyo Institute of Technology since 2006. In 2003-2007, he was also a Researcher in National Institute of Information and Communications Technology, where he has currently been a Visiting Researcher.

His current interests include the radiowave propagation and channel modeling for various wireless systems, MIMO OTA test, spectrum sensing technology, regulatory issues of spectrum sharing. He served as a secretary and the chair of ICICE Technical Committee on Software Radio in 2001 - 2007 and 2007 - 2009, respectively. He served as the chair of measurement WG in ITU-R TG 1/8 on compatibility between UWB devices and radiocommunication services in 2005. He served as the co-chair of SIG in body communications in European COST action 2100 "Pervasive Mobile & Ambient Wireless Communications" by 2010. He currently serves as an assistant secretary of Japan National Committee of URSI. He has extensively involved in the international cooperation and development projects in East Asia. He is currently working with the Department World Heritage in Luang Prabang, Lao PDR in database and GIS application, and with the Mongolian State University of Education in development of in-service teacher training materials using ICT. He is a senior member of IEICE and IEEE, a member of ACES, ITE, ECTI Association Thailand and JASID.

**Prabhakar Pathak**

Prabhakar Pathak received a BS in physics from the University of Bombay in 1962, a BSEE in 1965 from Louisiana State University, his MSEE in 1970 and his Ph.D. in 1973, both graduate degrees from The Ohio State University. He has been at the ESL since he finished his schooling. He served a three year term as a distinguished lecturer for the IEEE Antenna and Propagation Society. He is a Fellow of the IEEE and is also a member of the U.S. Commission B of the International Scientific Radio Union (URSI) and of Sigma Xi.

Dr. Pathak has primarily dealt with the development of uniform asymptotic solutions which improve and extend the geometrical theory of diffraction for solving antenna and scattering problems associated with complex structures, such as aircraft and spacecraft. Some of this research has also been involved with an analysis of the problems of diffraction by discontinuities in the geometric as well as in the electrical properties of a surface; the latter category includes surface wave structures. In addition, has had been involved with the development of efficient hybrid methods for analysis of conformal antennas as well as RCS problems, and more recently for dealing with EM wave propagation in shipboard and urban environments. Currently, his work continues to be in the areas of asymptotic and hybrid methods, and in the development of uniform time domain ray solutions. He is also involved in the development of Gaussian Beam Techniques for antennas and other applications.

**Zhi Ning Chen**

(BEng, MEng, and PhDs) worked at Institute of Communications Engineering, Southeast University, and City University of Hong Kong, China with teaching and research appointments during 1988-1997. In 1997, he was awarded JSPS Fellowship to join in University of Tsukuba, Japan. In 2004, he worked at IBM T. J. Watson Research Center, USA as Academic Visitor. Since 1999, he has worked with Institute for Infocomm Research, Singapore and his current appointments are Principal Scientist and Department Head for RF & Optical. Dr Chen has organized many international technical events as key organizer. He is the founder of International Workshop on Antenna Technology (iWAT). He has published 290 journal and conference papers as well as authored and edited the books entitled Broadband Planar Antennas, UWB Wireless Communication, Antennas for Portable Devices, and Antennas for Base Station in Wireless Communications. He also contributed chapters to the books entitled UWB Antennas and Propagation for Communications, Radar, and Imaging as well as Antenna Engineering Handbook. He is holding 28 granted and filed patents with 21 licensed deals with industry. He is the recipient of the CST University Publication Award 2008, IEEE AP-S Honorable Mention Student Paper Contest 2008, IES Prestigious Engineering Achievement Award 2006, I2R Quarterly Best Paper Award 2004, and IEEE iWAT 2005 Best Poster Award. Dr. Chen's current research interest includes applied electromagnetic engineering, RF transmission over bio-channels, and antennas for wireless systems, in particular at mmW, submmW, and THz for medical and healthcare applications. Dr Chen is a Fellow of the IEEE for his contribution to small and broadband antennas for wireless. He is serving as an IEEE Antennas and Propagation Society Distinguished Lecturer and Associate Editor of IEEE Transaction on Antennas and Propagation.

**09:40 – 10:00      Room: Auditorium**

Conference Opening

**10:00 – 10:40      Room: Auditorium**

Plenary Speaker

**Emerging Technologies for Aerospace Applications**

Jean Chazelas

☕ Coffee Break      10:40 - 11:20

**11:20 – 12:40      Room: Auditorium**

Plenary Speakers

**Why We Need to Educate and Train EM Engineers and Scientists?**

Constantine A. Balanis

**Metatronics: Merging Electronics, Photonics, and Magnetics into One Paradigm**

Nader Engheta

🍴 Lunch Break      12:40 - 14:00

*For reasons of space, in this printed program the authorship and affiliation may have been reduced to the first authors. However, in the Proceedings the list of authors will be complete.*

**14:00 - 16:20 Room: Auditorium****CA17: New challenges on Ultra Wide Band antennas & systems (part1)**

Chairs: Milos Mazanek (Czech Technical University in Prague, Czech Republic), Christian Sturm (Karlsruhe Institute of Technology (KIT), Germany), Pertti Vainikainen (Aalto University, Finland)

**Research of Circular Polarisation Quality by Broadband Antennas Up to 40 GHz**

Milos Mazanek (Czech Technical University in Prague, Czech Republic), Christian Sturm (Karlsruhe Institute of Technology, Germany) et al.

**Evaluation of RF Localization for Deep Brain Implants**

Dirk Manteuffel; Peter A. Hoeher (University of Kiel, Germany); Maximilian Mehdorn (UKSH Kiel, Germany)

**An Impulse Radio UWB Hardware Demonstrator for Body Area Network Communication**

Oliver Lauer; David Barras; Marco Zahner; Jürg Fröhlich (Swiss Federal Institute of Technology Zurich, Switzerland)

**Exploitation of Spline-based Geometries for the Time-domain Synthesis of UWB Antennas**

Leonardo Lizzi; Giacomo Oliveri (University of Trento, Italy); Andrea Massa (University of Trento, Italy)

**Permittivity-matched Compact Ceramic Ultra-Wideband Horn Antennas for Biomedical Diagnostics**

Francesco Scotto di Clemente; Marko Helbig; Jürgen Sachs; Ulrich Schwarz; et al. (Ilmenau University of Technology, Germany)

**Broadband Printed Monopole Antenna Loaded with Low Conductive Material**

Solene Boucher; Xavier Castel (IETR-Université de Rennes 1, France); Ala Sharaiha (Université de Rennes 1, France); et al.

**14:00 - 16:20 Room: A****CA16: User mobile terminal antennas (part1)**

Chair: Lino Russo (Space Engineering, Italy)

**Mobility in Ku and Ka Bands: The Eutelsat's Point of View**

Eros Feltrin; Elisabeth Weller (Eutelsat SA, France)

**Next Generation Mobile Satcom Terminal Antennas for a Transformed World**

Robert Pearson (ERA Technology Limited, United Kingdom)

**Future Developments Trend for Ku and Ka Antenna for SATCOM on the Move**

Luca Marcellini (TeS Teleinformatica e Sistemi, Italy)

**How to select a Mobile Satcom System – Performance Vs Regulatory Requirements**

Guy Naym (Orbit Communication Ltd, Israel)

**Mobile Communications: High-Speed Train Antennas From Ku to Ka**

Raimondo Lo Forti (OrTES L.t.d., Cyprus); Giancarlo Bellaveglia; Alessia Colasante (TES Teleinformatica e Sistemi, Italy)

**Low Profile Ku-Band Transmit/Receive Terminal ODU for Satellite Mobile Communications**

Ana Rosa Ruiz; Alberto Pellón; Miguel Peña (TTI, Spain)

**Low Cost Ku-band Electronic Steerable Array Antenna for Mobile Satellite Communications**

Stefano Vaccaro; Daniel Llorens del Río; Jose Padilla (JAST SA, Switzerland); Rens Baggen (IMST GmbH, Germany)

**14:00 - 16:20 Room: B****CA18: Metamaterial applications (part1)**

Chairs: George V. Eleftheriades (University of Toronto, Canada), Sergei Tretyakov (Helsinki University of Technology, Finland)

**Experimental Verification of Frozen Mode Phenomenon in Printed Magnetic Photonic Crystals**

Nil Apaydin; Lanlin Zhang; Kubilay Sertel; John L. Volakis (Ohio State University, USA)

**Reduction of Antenna Blockage with a Transmission-Line Cloak**

Pekka Alitalo; Sergei Tretyakov (Helsinki University of Technology, Finland); et al.

**Analysis of 2D Metamaterial Structures Using Accelerated Computation of Mixed-Potential Green's Functions**

Guido Valerio; Alessandro Galli (Sapienza University of Rome, Italy); Donald R Wilton; David Jackson (University of Houston, USA)

**A NRI-TL Metamaterial-Loaded Bow-Tie Antenna**

Marco A. Antoniadis; George V. Eleftheriades (University of Toronto, Canada)

**Leaky-wave Optical Radiation From Subwavelength Metamaterial or Plasmonic Arrays**

Xing-Xiang Liu; Andrea Alù (The University of Texas at Austin, USA)

**Miniaturized Patch Antennas Loaded with Complementary Split-ring Resonators and Reactive Impedance Surface**

Yuanan Dong (University of California at Los Angeles, USA); Tatsuo Itoh (UCLA, USA)

**Graphene-Based Non-Reciprocal Metasurface**

Dimitrios L. Sounas; Christophe Caloz (Ecole Polytechnique de Montreal, Canada)

**14:00 - 16:20 Room: C****CA15: New trends on MIMO Systems and smart antennas (part1)**

Chairs: Miguel Angel Lagunas (Telecommunications Technological Center of Catalonia, Spain), Ana Isabel Perez (Universitat Politècnica de Catalunya, Spain)

**Impact of Current Localization on the Performance of Compact MIMO Antennas**

Hui Li; Buon Kiong Lau; Yi Tan (Lund University, Sweden); Sailing He (Royal Institute of Technology, Sweden); et al.

**Latest Advances in Mode-Stirred Reverberation Chambers for MIMO OTA Evaluation of Wireless Communications Devices**

M. A. García-Fernández; D. A. Sánchez-Hernández (Technical University of Cartagena, Spain); Juan Valenzuela-Valdés (Emite Ing, Spain)

**On the Switching Rate of ST-MIMO Systems with Energy-based Antenna Selection**

Athanasios Lioumpas; Angeliki Alexiou (University of Piraeus, Greece)

**Eigen-Beam-space Adaptive Antenna for OFDM Transmission with Zero Carriers**

Kazunari Kihira (Mitsubishi Electric Corporation, Japan)

**Performance of Cooperative MIMO Based on Measured Urban Channel Data**

Michael Jensen (Brigham Young University, USA); Buon Kiong Lau (Lund University, Sweden); et al.

**Beamforming in Interference Networks for Uniform Linear Arrays**

Rami Mochaourab; Eduard Jorswieck (Dresden University of Technology, Germany)

14:00 - 16:20

Room: D

**CA03: Integral Techniques in Electromagnetics (INTELECT) part 1**

Chairs: Athanasios Polimeridis (EPFL, Switzerland), Francesca Vipiana (Istituto Superiore Mario Boella (ISMB), Italy)

#### Some new developments of the Weighted Averages Algorithm

Juan R. Mosig (Ecole Polytechnique Federale de Lausanne, Switzerland)

#### Spatial Error Criterion for Discrete Complex Image Method

Emine Pinar Karabulut; Alper T. Erdogan; Irsadi Aksun (Koc University, Turkey)

#### Discrete Complex Image Approximation of Periodic Green's Functions in Multilayer Media

Suleyman Adanir; Lale Alatan (METU, Turkey)

#### Low Frequency Stability of the Mixed Discretization of the MFIE

Ignace Bogaert; Kristof Cools (Ghent University, Belgium); et al.

#### Discretization of the Electric-Magnetic Field Integral Equation with the Divergence-Taylor-Orthogonal Basis Functions

Eduard Ubeda; Jose M. Tamayo; Juan M. Rius (Universitat Politècnica de Catalunya, Spain)

#### A Contribution to the Efficient Computation of Multilayered Periodic Green's Functions

Rafael Boix (University of Seville, Spain)

14:00 - 16:20

Room: G1

**CA23: Small antennas (EurAAP Working Group) part1**

Chairs: Max James Ammann (Dublin Institute of Technology, Ireland), Pavel Hazdra (Czech Technical University in Prague, Czech Republic)  
Organizer: Eva Antonino-Daviu (Universidad Politecnica de Valencia, Spain), Cyril Luxey (University of Nice, France)

#### Surface-Mounted UWB Handset Antenna with Small Envelope Volume

Max James Ammann; Matthias John (Dublin Institute of Technology, Ireland); David Kearney (TDK, Ireland)

#### Dual-Band WLAN Multi-Antenna System with High Isolation

Rafik Addaci (University of Nice, France)

#### The Spherical Shape in the Study of Antenna Q

Guy A. E. Vandenbosch (Katholieke Universiteit Leuven, Belgium)

#### Versatility and Tunability of an Implantable Antenna for Telemedicine

Francesco Merli; Léandre Bolomey; Jean-François; Eric; Anja K Skrivervik (EPFL, Switzerland)

#### Selective Excitation of Characteristic Modes on Small Terminals

Robert Martens; Eugen Safin; Dirk Manteuffel (University of Kiel, Germany)

#### Multi-band MIMO Antenna with Full Coverage

Xianming Qing; Zhi Ning Chen; Terence S.P. See (Institute for Infocomm Research, Singapore)

14:00 - 16:20

Room: N1

**CP09: COST IC0802: Channel modelling for free space optical links (part1)**

Chairs: Carlo Capsoni (Politecnico di Milano, Italy), Erich Leitgeb (TUG, Austria)

#### 4-year Hydrometeor Attenuation Statistics Obtained At 93 GHz on an 850 M Terrestrial Path

Vaclav Kvicera; Martin Grabner (Czech Metrology Institute, Czech Republic); et al.

#### Linearity in Optical Attenuations for Free-Space Optical Links in Continental Fog

Muhammad Saeed Khan (TUG, Austria); Muhammad Saleem Awan (Graz University of Technology, Austria); et al.

#### Wavelength Selection on FSO-links

Thomas Plank; Martin Czaputa; Erich Leitgeb; Sajid Sheikh Muhammad (National University of Computer and Emerging Sciences, Pakistan); et al.

#### Effect of Hydrometeor Scattering on Optical Wave Propagation Through the Atmosphere

Roberto Nebuloni (Ieiit - Cnr, Italy); Carlo Capsoni (Politecnico di Milano, Italy)

#### FSO Link Attenuation Measurement and Modelling on Milesovka Hill

Ondrej Fiser; Jaroslav Svoboda; Zuzana Chladova (Institute of Atmospheric Physics, Czech Republic); et al.

14:00 - 16:20

Room: N2

**CM01: Pattern Comparison Techniques (AMTA session and Workshop) part1**

Chairs: Lars Jacob Foged (SATIMO, Italy), Carlo Rizzo (Tecnologica Ltd., United Kingdom), Manuel Sierra-Castañer (Technical University of Madrid, Spain)

#### Historical Background on the Use of Equivalent Stray Signal in Comparison of Antenna Patterns

Doren W. Hess (MI Technologies, USA)

#### The Use of Statistical Image Classification Techniques for the Assessment of Measured Antenna Pattern Functions

John McCormick (Selex SAS, United Kingdom); Stuart F Gregson (Nearfield Systems Inc., USA); Clive Parini (QMUL, United Kingdom)

#### Validation Standard Antennas: Past, Present and Future

Luca Salghetti; Allan Østergaard; Maurice Paquay; Elena Saenz; Sergey Pivnenko (European Space Agency, The Netherlands)

#### Antenna Pattern Comparison Using Pattern Subtraction and Statistical Analysis

Allen Newell (Nearfield Systems Inc., USA)

#### Facility Comparison Campaigns Within EURAPP

Lars Jacob Foged (SATIMO, Italy); Manuel Sierra-Castañer (Technical University of Madrid, Spain); Lucia Scialacqua (SATIMO, Italy)



14:00 - 16:20

Room: N3

**CP05: Recent Advances in MIMO Systems: Channel Characterization and Antenna-Channel Interactions (part1)**

Chairs: Michael Jensen (Brigham Young University, USA), Buon Kiong Lau (Lund University, Sweden)

#### **Channel Sounding Technique Using MIMO Software Radio Architecture**

Yohei Konishi; Minseok Kim; Mir Ghorraishi; Jun-ichi Takada; Satoshi Suyama; Hiroshi Suzuki (Tokyo Institute of Technology, Japan)

#### **Solving the Problem of Choosing the Right MIMO Measurement Antenna: Embedding/De-Embedding**

Martin Käske; Christian Schneider; Wim A. Th. Kotterman; Reiner S. Thomä (TU-Ilmenau, Germany)

#### **Measurement-based Delay Spread Analysis of Indoor Distributed Antenna Systems**

Fengyu Luan; Yan Zhang; Xinwei Hu; Shidong Zhou; Limin Xiao; Xibin Xu (Tsinghua University, P.R. China)

#### **On the Accuracy of Synthesised Wave-Fields in MIMO-OTA Set-Ups**

Wim A. Th. Kotterman; Albert Heuberger; Reiner S. Thomä (TU-Ilmenau, Germany)

#### **Use of Realistic Propagation Channel Information in MIMO Antenna System Evaluation**

Pertti Vainikainen (Aalto University, Finland); Enrico Maria Vitucci; Vittorio Degli-Esposti (University of Bologna, Italy); et al.

#### **Antenna Optimization for Time-variant MIMO Systems**

Lars Reichardt; Juan Pontes; Yoke Leen Sit; Thomas Zwick (Karlsruhe Institute of Technology, Germany)

14:00 - 16:20

Room: S1

**CA08: Research challenges in RF exposure assessment (part1)**

Chairs: Guglielmo d'Inzeo (Univ. La Sapienza, Roma, Italy), Joe Wiat (France Telecom R&D, France)

#### **Traffic Analysis for Exposure Assessment in Mobile Telephony**

Zaher Mahfouz; Azeddine Gati (Orange Labs, France); David Lautru (University Paris 06, France); et al.

#### **Research Challenges in Numerical Dosimetry for New Wireless Technologies**

Soichi Watanabe; Kanako Wake; Tomoaki; Taiji Sakai; Sang-Wook Park (National Institute of Information and Communications Technology, Japan)

#### **Statistical Study of SAR in Clustered Wireless Channels**

Ourouk Jawad (Université Libre de Bruxelles, Belgium); David Lautru (University Paris 06, France); et al.

#### **Numerical Mobile phone models validated by SAR measurements**

Yenny C Pinto (Telecom Bretagne, France); Amal Ghanmi; Abdelhamid Hadjem; Emmanuelle Conil (France Telecom R&D, France); et al.

#### **A new approach to assess the Specific Absorption Rate induced by multiple plane waves at 2.1 GHz**

Thierry Kientega (Whist Lab and Orange Labs, France)

#### **Methods for Measuring In-Situ Exposure Induced by Non-Regular Signals Like WLAN and LTE**

Azeddine Gati (Orange Labs, France); Joe Wiat (France Telecom R&D, France)

14:00 - 16:20

Room: S3

**CA12: Radar imaging and sensing (part1)**

Chairs: Alessandro Galli (Sapienza University of Rome, Italy), Alexander Yarovoy (Delft University of Technology, The Netherlands)

#### **Three-dimensional Micro-Antenna Array for Millimetre and Sub-Millimetre-Wave Remote Imaging**

Paolo Nenzi; Francesco Tripa; Marco; Frank S. Marzano (Sapienza University of Rome, Italy)

#### **Aperture Array Development for Future Large Radio Telescopes**

Pieter Benthem; Gideon Kant; Stefan J. Wijnholds (ASTRON, The Netherlands); et al.

#### **A Technology Demonstrator for a 0.5 m x 0.5 m Fully Electronic Digital Beamforming mm-Wave Imaging System**

Andreas Schiessl; Sherif Ahmed; Andreas Genghammer (Rohde & Schwarz, Germany); et al.

#### **Design Considerations of UWB MIMO Array Oriented for Short-Range Imaging**

Xiaodong Zhuge; Alexander Yarovoy (Delft University of Technology, The Netherlands)

#### **Wide-Band Radar Front-End Calibration for Imaging SAR Experiments with Conformal Antenna Array**

Thomas Bertuch; Peter Knott; Helmut Wilden; (Fraunhofer FHR, Germany); Olaf Peters (FGAN, Germany)

#### **GPR Reconstruction of the Features of Martian Subsoil in the Frame of the ExoMars Mission**

Guido Valerio (Sapienza University of Rome, Italy); Pier Matteo Barone; Sebastian Lauro; Elisabetta Mattei (Roma Tre University, Italy) et al.

14:00 - 16:20

Room: S2

**P01: Rough surface and random media scattering**

Chairs: Matti Herben (Eindhoven Univ. of Technology, The Netherlands), Saúl Torrico (Comsearch & The George Washington Univ., USA)

#### **Non-Specular Scattering Modeling for THz Propagation Simulations**

Sebastian Priebe; Martin Jacob; Christian Jansen; Thomas Kürner (Technische Univ. Braunschweig, Germany)

#### **Stochastic Scattering Model for the Application of SBR to Rough Surfaces**

Frank Weinmann (Fraunhofer FHR, Germany)

#### **Path-Integral Derivation and Analysis of Approximate Directed Wave Propagators**

Gregory Samelsohn (Holon Institute of Techn., Israel)

#### **On the Practical Applicability of Series Expansions for Kirchhoff Diffraction**

Stefano Perna; Antonio Iodice (Università degli Studi di Napoli Federico II, Italy)

**16:40 - 18:20 Room: Auditorium****CA17: New challenges on Ultra Wide Band antennas & systems (part2)**

Chairs: Milos Mazanek (Czech Technical University in Prague, Czech Republic), Christian Sturm (Karlsruhe Institute of Technology (KIT), Germany), Pertti Vainikainen (Aalto University, Finland)

**Experimental Identification of an Image Source Distribution on an Indoor Map**

Katsuyuki Haneda; Andreas Richter; Pertti Vainikainen (Aalto University, Finland)

**UWB Medical Diagnostic: In-Body Transmission Modeling and Applications**

Elena Pancera (Karlsruhe Institute of Technology, Germany)

**Super Wideband Antenna, a World Record?**

D Tran (IRCTR, The Netherlands); A Szilagyi (METRA, Romania); Ioan E. Lager (Delft University of Technology, The Netherlands); et al.

**Impact of Antenna Pattern on UWB Time-Based Ranging**

Marzieh Dashti (Tokyo Institute of Technology, Japan); Afroza Khatun (Aalto University School of Electrical Engineering, Finland); et al.

**16:40 - 18:20 Room: A****CA16: User mobile terminal antennas (part2)**

Chair: Lino Russo (Space Engineering, Italy)

**Flat Array Antenna for Ku-band Mobile Satellite Terminals**

Roberto Vincenti Gatti (RF Microtech, Italy); Luca Marcaccioli; Elisa Sbarra; Roberto Sorrentino (University of Perugia, Italy)

**Towards a Broadband and Squint-Free Ku-Band Phased Array Antenna System for Airborne Satellite Communications**

David Marpaung; Leimeng Zhuang; Maurizio Burla; Chris Roeloffzen (University of Twente, The Netherlands); et al.

**KA Band Active Phased Array Antenna System for Satellite Communication on the Move Terminal**

Carmelo Mollura; Francesco DiMaggio; Massimo Russo (Selex Communications, Italy)

**Phased Array Technology for Mobile User Terminals**

Rens Baggen; Sybille Holzwarth; Martin Böttcher; Bahram Sanadgol (IMST GmbH, Germany)

**T/R Modules Technology for Mobile Terminals**

Marzia Migliorelli (Space Engineering S.p.A, Italy)

**Quadrature Hybrid for Feeding DVB-T Antenna Arrays Transmitting Circular Polarized Waves**

Daniel Bertko; Ronny Hahnel (Dresden University of Technology, Germany)

**16:40 - 18:20 Room: B****CA18: Metamaterial applications (part2)**

Chairs: George V. Eleftheriades (University of Toronto, Canada), Sergei Tretyakov (Helsinki University of Technology, Finland)

**Equivalent Circuits for Electrically Small Antennas**

Carl Pfeiffer; Anthony Grbic (University of Michigan, USA)

**Broadband Microwave Devices Based on Artificial Transmission Lines**

Irina Vendik (St. Petersburg electrotechnical university, Russia)

**Non-Foster Elements - New Path Towards Broadband ENZ and MNZ Metamaterials**

Silvio Hrabar; Igor Krois; Ivan Bonic; Aleksandar Kiricenko (University of Zagreb, Croatia)

**Tunnelling and Radiating Phenomena Related to Coupled Omega Particles**

Luca Scorrano; Simone Tricarico; Filiberto Bilotti; Lucio Vegni (University of Roma Tre, Italy)

**Size-independent Metamaterial Resonators**

Piergiorgio L.E. Uslenghi (University of Illinois at Chicago, USA)

**16:40 - 18:20 Room: C****CA15: New trends on MIMO Systems and smart antennas (part2)**

Chairs: Miguel Angel Lagunas (Telecommunications Technological Center of Catalonia, Spain), Ana Isabel Perez (Universitat Politècnica de Catalunya, Spain)

**On Multistreaming with Electrically Small Antenna Arrays**

Josef A. Nossek; Michel Ivrlac (Munich University of Technology, Germany)

**System-Level Implications of Residual Transmit-RF Impairments in MIMO Systems**

Christoph Studer; Markus Wenk (ETH Zurich, Switzerland); Andreas Burg (EPFL, Switzerland)

**Reliable MIMO Communication Between Firefighters Equipped with Wearable Antennas and a Base Station Using Space-time Codes**

Patrick Van Torre; Luigi Vallozzi; Hendrik Rogier; Marc Moeneclaey; Jo Verhaevert (University College Ghent, Belgium)

**Statistical Evaluation of the MIMO Gain for LMS Channels**

Ernst Eberlein; Frank Burkhardt; Carmen Wagner (Fraunhofer Institute for Integrated Circuits IIS, Germany); et al.

**Antenna Effects in Wireless Communication Scenario**

Arijit De (Syracuse University, USA); Tapan Sarkar (USA); Magdalena Salazar-Palma (Universidad Carlos III de Madrid, Spain)

**16:40 - 18:20****Room: D****CA03: Integral Techniques in Electromagnetics (INTELECT) part 2**

Chairs: Athanasios Polimeridis (EPFL, Switzerland), Francesca Vipiana (Istituto Superiore Mario Boella (ISMB), Italy)

#### **Numerical Evaluation of Near Strongly Singular Integrals Via Singularity Cancellation Techniques**

Francesca Vipiana (Istituto Superiore Mario Boella (ISMB), Italy); Donald R Wilton (University of Houston, USA)

#### **Generation of Beams by Aperture Field Spectra**

Massimiliano Casaletti; Stefano Maci (University of Siena, Italy); Sinisa Skokic (University of Zagreb, Croatia)

#### **3-Simplex Interpolation of the Mixed-Potential Green's Functions in Layered Media**

Matteo Alessandro Francavilla (Politecnico di Torino, Italy); Donald R Wilton; Simone Paulotto; David Jackson (University of Houston, USA)

#### **Improving the Convergence of Double Series Summation Encountered in the Analysis of Curved Frequency Selective Surfaces**

Zvonimir Sipus; Marko Bosiljevac (University of Zagreb, Croatia)

**16:40 - 18:20****Room: G1****CA23: Small antennas (EurAAP Working Group) part2**

Chairs: Eva Antonino-Daviu (Universidad Politecnica de Valencia, Spain), Pavel Hazdra (Czech Technical University in Prague, Czech Republic), Cyril Luxey (University of Nice, France), Dirk Manteuffel (University of Kiel, Germany)

#### **Increasing the Bandwidth of Electrically Small Supergain Antennas Using Low-Q Electric Dipoles**

Arthur D Yaghjian (Research Consultant, USA); Howard Stuart (LGS, Bell Labs Innovations, USA)

#### **Negative Impedance Converters (Nics) in the Design of Small and Multifrequency Antennas**

Vicente Gonzalez-Posadas (Universidad Politecnica de Madrid, Spain); Eduardo Ugarte-Muñoz (University Carlos III in Madrid, Spain) et al.

#### **State-of-the-art in the Design of Electrically Small Antennas**

Steven R. Best (The MITRE Corporation, USA)

#### **Small Dual-band Fractal Antenna with Orthogonal Polarizations**

Pavel Hazdra; Jan Eichler; Miloslav Capek; Pavel Hamouz; Korinek (Czech Technical University in Prague, Czech Republic)

**16:40 - 18:20****Room: N1****CP09: COST IC0802: Channel modelling for free space optical links (part2)**

Chairs: Carlo Capsoni (Politecnico di Milano, Italy), Erich Leitgeb (TUG, Austria)

#### **Free-space Optical High-Speed Link in the Urban Area of Southern Rome: Preliminary Experimental Set Up and Channel Modelling**

Frank S. Marzano; Saverio Mori; Fabrizio Frezza (Sapienza University of Rome, Italy) et al.

#### **Measurement Data for FSO and E-band Radio Propagation Modeling**

László Csurgai-Horváth (Budapest University of Technology and Economics, Hungary); Erich Leitgeb (TUG, Austria); Jan Turan (Slovakia)

#### **FSO Ground Network Optimization and Analysis Considering the Influence of Clouds**

Frederic Lacoste; Alexandre Guérin; Andre Laurens (CNES, France); Guillaume Azema (Thales, Solutions de Sécurité et Services, France) et al.

**16:40 - 18:20****Room: N2****CM01: Pattern Comparison Techniques (AMTA session and Workshop) part2**

Chairs: Lars Jacob Foged (SATIMO, Italy), Carlo Rizzo (Tecnologica Ltd., United Kingdom), Manuel Sierra-Castañer (Technical University of Madrid, Spain)

#### **Workshop (AMTA) Pattern Comparison in Antenna Measurement**

Manuel Sierra-Castañer (Technical University of Madrid, Spain); Sergey Pivnenko (Technical University of Denmark, Denmark)

**16:40 - 18:20****Room: N3****CP05: Recent Advances in MIMO Systems: Channel Characterization and Antenna-Channel Interactions (part2)**

Chairs: Michael Jensen (Brigham Young University, USA), Buon Kiong Lau (Lund University, Sweden)

#### **MIMO Base Station Antenna Employing Mode Selection in Vertically Split Array**

Yuki Inoue; Keizo Cho (NTT DoCoMo, Japan)

#### **Experimental Evaluation of MIMO Terminal Antenna Configurations in Noise- and Interference-Limited Urban Scenarios**

Vanja Plicanic; Buon Kiong Lau (Lund University, Sweden); Henrik Asplund (Ericsson Research, Ericsson AB, Sweden)

#### **Wireless Security Enhancement Using Parasitic Reconfigurable Aperture Antennas**

Rashid Mehmood; Jon Wallace (Jacobs University Bremen, Germany)

#### **Antennas in Real Environments**

Boyan R Yanakiev; Morten Christensen (Molex Interconnect, Denmark); Jesper Ø Nielsen; Gert Pedersen (Aalborg University, Denmark)

#### **MIMO Sensor – Evaluation on Antenna Arrangement**

Kentaro Nishimori (Niigata University, Japan)

**16:40 - 18:20****Room: S1****CA08: Research challenges in RF exposure assessment (part2)**

Chairs: Guglielmo d'Inzeo (Univ. La Spienza, Roma, Italy), Joe Wiart (France Telecom R&D, France)

#### **Evaluation and Simulation of EM Dosimetry in a Real Indoor Scenario**

Victor Torres (Universidad Publica de Navarra, Spain); Jorge Becerra (Universidad Pública de Pamplona, Mexico); et al.

#### **Evaluations on SAR Around Implanted Cardiac Pacemaker by Mobile Radio Terminal**

Kazuyuki Saito; Yuta Endo; Soichi Watanabe (National Institute of Information and Communications Technology, Japan); et al.

#### **Avoiding the Interaction Between Hand and Capacitive Coupling Element Based Mobile Terminal Antenna**

Risto Valkonen; Janne Ilvonen; Kimmo Rasilainen; Jari Holopainen (Aalto University, Finland) et al.

#### **Fast SAR Methods for Electromagnetic Exposure Evaluation of Wireless Devices**

Mark Douglas (IT'IS Foundation ETH Zurich, Switzerland); Sami Gabriel (Vodafone Group R&D, United Kingdom) et al.

**16:40 - 18:20****Room: S3****CA12: Radar imaging and sensing (part2)**

Chairs: Alessandro Galli (Sapienza University of Rome, Italy), Alexander Yarovoy (Delft University of Technology, The Netherlands)

#### **A Multistatic Tomographic Approach to Microwave Imaging of Dielectric Targets**

Andrea Randazzo; Matteo Pastorino (University of Genoa, Italy) et al.

#### **Using a UWB Radar Imaging Method with Five Antennas on a Target with Arbitrary Translation and Rotation Motion**

Takuya Sakamoto; Toru Sato (Kyoto University, Japan)

#### **Circular Microwave Tomographic Imaging. Experimental Comparison Between Quantitative and Qualitative Algorithms**

Marta Guardiola; Luis Jofre (UPC, Spain); Andreas Fhager; Mikael Persson (Chalmers University of Technology, Sweden)

#### **Noise Considerations for Vital Signs CW Radar Sensors**

Brian Jensen; Thomas Jensen; Vitaliy Zhurbenko; Tom Johansen (Technical University of Denmark, Denmark)

**16:40 - 18:20****Room: S2****P02: Propagation in remote sensing**

Chairs: Michele D'Amico (Politecnico di Milano, Italy), Danielle Vanhoenacker-Janvier (Université catholique de Louvain, Belgium)

#### **Target Classification Through Time-Reversal Operator Analysis Using Ultrawideband Electromagnetic Waves**

Mehmet E Yavuz (Intel Corporation, USA); Ahmed E. Fouda; Fernando Teixeira (Ohio State University, USA)

#### **System Simulation of a Localization System Based on Power Level Detection with Distributed Antennas**

Arndt T. Ott; Mohammed Shalaby; Uwe Siart; Robert Brem; Thomas F. Eibert (Technische Universität München, Germany) et al.

#### **Effects of Incident Wave Polarization on Boresight Error**

Hongfu Meng (Southeast University, P.R. China)

#### **Polarization Investigation of Rough Surface Scattering for THz Propagation Modeling**

Sebastian Priebe; Martin Jacob; Thomas Kürner (Technische Universität Braunschweig, Germany)

#### **Modelling Polarimetric Effects of Precipitation on Spaceborne Side-Looking Aperture Radar Response**

Saverio Mori; Frank S. Marzano; Mario Montopoli; Luca Pulvirenti; Nazzareno Pierdicca (Sapienza University of Rome, Italy) et al.

#### **Landmine Detection Using Ground Penetrating Radar and Polarimetric Synthetic Aperture Radar**

Vaclav Kabourek (Czech Technical University in Prague, Czech Republic)

**09:00 - 10:40 Room: Auditorium**

**CA24: RFID technologies (COST IC0803/IC0603 special session) part1**

Chairs: Apostolos Georgiadis (CTTC, Spain), John Sahalos (Aristotle University of Thessaloniki, GR, Thessaloniki & University of Nicosia, CY, Nicosia, Greece)

**Multi-chip RFID Tags Integrating Shape-memory Alloys for Temperature Sensing**

Stefano Caizzzone; Cecilia Occhiuzzi; Gaetano Marrocco (University of Rome Tor Vergata, Italy)

**A Healthcare Application Based on Passive UHF RFID Technology**

Anastasis C Polycarpou; George K. Gregoriou (University of Nicosia, Cyprus); et al.

**Using X-parameters to Model RFID Energy Harvesting Circuits**

Alirio S. Boaventura; Nuno Borges Carvalho (University of Aveiro, Portugal)

**On the Design of Passive RFID Tags for ASK Modulation**

Antonis G Dimitriou; John Sahalos (Aristotle University of Thessaloniki, Greece); Aggelos Bletsas (Technical University of Crete, Greece)

**A Ku-band RF Self Identification (RFSID) System for Autonomous Logistics**

Valeria Palazzari; Federico Alimenti; Giulia; Paolo Mezzanotte; Luca Roselli (University of Perugia, Italy)

**09:00 - 10:40 Room: A**

**A01: Antenna Interactions and Coupling (part 1)**

Chairs: Jesús Rubio (Universidad de Extremadura, Spain), Clement Yann (IETR & Thales Systemes Aeroportes, France)

**Estimation of the Radiation Pattern of Finite Arrays of Waveguide-Fed Apertures From the Transmitting Characteristics of an Isolated Element**

Jesús Rubio; Juan F. Izquierdo (Universidad de Extremadura, Spain)

**On the Design of NFC Antennas for Contactless Payment Applications**

Tim Brown; Thomas Diakos (University of Surrey, United Kingdom)

**Diamagnetic Metasurfaces for Performance Enhancement of Microstrip Patch Antennas**

Kwok Chung (Hong Kong Polytechnic University, Hong Kong); Sarawuth Chaimool (King Mongkut's University North Bangkok, Thailand)

**On the Impact of Arbitrary Nozzle or Dome Configurations on Dielectric Endfire Antenna Performance in Industrial Radar Level Gauging**

Christian Zietz; Gunnar Armbrrecht; Eckhard Denicke (Leibniz Universität Hannover, Germany); Ilona Rolfes (Ruhr-Universität Bochum, Germany)

**MIMO OTA Optical Measurement Device**

Boyan R Yanakiev; Morten Christensen (Molex Interconnect, Denmark); Gert Pedersen (Aalborg University, Denmark)

**09:00 - 10:40 Room: B**

**CA07: EurAAP software WG - The future of computational electromagnetics: science or product? (part1)**

Chair: Guy A. E. Vandenbosch (Katholieke Universiteit Leuven, Belgium)

**The Future of Computational Electromagnetics: Science or Product**

Guy A. E. Vandenbosch (Katholieke Universiteit Leuven, Belgium)

**Making a Transition From University Research Lab to the World of Commercial Software for EM Modeling**

Raj Mittra (Penn State University, USA)

**How Does Research Fit Into the Commercial EM Tool Development Process?**

Peter Thoma (CST-Computer Simulation Technology AG, Germany)

**Antenna Design Framework: Solving the Eda Antinomy**

Giovanni Galgani; Giancarlo Guida; Marco Sabbadini; Mauro Bandinelli; Pierluigi Di Bartolomeo (IDS Ingegneria Dei Sistemi S.p.A, Italy)

**WIPL-D: From University Software to Company Product**

Branko Kolundzija (University of Belgrade, Serbia)

**Efficient EM CAD and Optimization by Advanced Hybrid Methods: Science and Product**

Fritz Arndt (University of Bremen, Germany)

**09:00 - 10:40 Room: C**

**CA01: Innovative array antennas (part1)**

Chairs: Gerard Caille (Thales Alenia Space France, France), Giovanni Toso (European Space Agency, The Netherlands)

**Beamforming Capabilities of Array-fed Reflector Antennas**

Lukasz Greda; Achim Dreher (German Aerospace Center (DLR), Germany)

**Ku-band Reconfigurable Compact Array in Dual Polarization**

Eric Vourch (Thales Alenia Space France, France)

**Plate-Laminating Double-Layer Waveguide Slot Arrays for 38GHz Fixed Wireless Access Systems**

Miao Zhang; Jiro Hirokawa; Makoto Ando (Tokyo Institute of Technology, Japan); Toru Taniguchi (Japan Radio Co., Ltd., Japan)

**Recent Progress in Electronically Tunable Reflectarray Technology using Liquid Crystals**

Robert Cahill (Queen's University Belfast, United Kingdom); Jose A. Encinar (Universidad Politecnica de Madrid, Spain) et al.

**Design and Test of an L-Band Phased Array for Maritime Satcom**

Matthias Geissler (IMST, Germany); Frank Woetzel (EPAK GmbH, Germany) et al.

09:00 - 10:40

Room: D

**CP01: Antennas and propagation: automotive applications (part1)**

Chairs: Thomas Kuerner (Braunschweig Technical University, Germany), Werner Wiesbiek (Karlsruhe Institute of Technology, Germany)

#### IEEE 802.11p Based Physical Layer Simulator for Car-to-Car Communication

Lars Reichardt; Yoke Leen Sit; Tom Schipper; Thomas Zwick (Karlsruhe Institute of Technology (KIT), Germany)

#### Wideband Measurement-Based Modeling of Inter-Vehicle Channels in the 5 GHz Band

Olivier Renaudin; Veli-Matti Kolmonen; Pertti Vainikainen; Claude Oestges (Université catholique de Louvain, Belgium)

#### MIMO System Design and Field Tests for Terminals with Confined Space - Impact on Automotive Communication

Eckhard Ohlmer; Gerhard Fettweis; Dirk Plettmeier (Dresden University of Technology, Germany)

#### Channel Models for V2V Communications: A Comparison of Different Approaches

David W Matolak; Qiong Wu (Ohio University, USA)

#### Comparison of Path Loss Measurements and Predictions At Urban Crossroads for C2C Communications

Moritz Schack; Jörg Nuckelt; Robert Geise; Lena A. Thiele; Thomas Kürner (Technische Universität Braunschweig, Germany)

09:00 - 10:40

Room: G1

**CA10: Microwave imaging and sensors for medical applications (part1)**

Chairs: Ian Craddock (University of Bristol, United Kingdom), Paul Meany (, USA)

#### Practical Issues in Microwave Raster Scanning

Reza Amineh; Kaveh Moussakhani; Haohan Xu; Sadegh Dadash; Yona Baskharoun; Li Liu; Natalia Nikolova (McMaster University, Canada)

#### An Experimental System for Time-Domain Microwave Breast Imaging

Emily Porter; Adam Santorelli; Mark Coates; Milica Popovic (McGill University, Canada)

#### Hemorrhagic Stroke Detection Via UWB Medical Imaging

Elena Pancera (Karlsruhe Institute of Technology, Germany)

#### Electromagnetic Focusing in Biological Tissues

Wyger M. Brink; Ioan E. Lager; Bert Jan Kooij (Delft University of Technology, The Netherlands)

#### Regional Estimation of the Dielectric Properties of the Breast: Skin, Adipose, and Fibroglandular Tissues

Douglas Kurrant; Elise Fear (University of Calgary, Canada)

09:00 - 10:40

Room: N1

**CP04: COST 2100: From channel models to channel impacts on wireless communications (part1)**

Chairs: Christian Ibars (Centre Tecnologic de Telecomunicacions de Catalunya - CTTC, Spain), Alain Sibille (Telecom Paris Tech & ENSTA PARISTECH, France)

#### Addressing Challenges in Propagation and Channels in the Networks of the Future

Luis M. Correia (IST - Technical University Lisbon, Portugal)

#### Wideband Radio Channel Measurements in Rural/Semi-rural and Dense Urban Environments in the 2-6 GHz Band and Applications to WiMAX Standard

Sana Salous (University of Durham, United Kingdom)

#### Virtual MIMO Performance in a Measured Outdoor-to-Indoor Cellular Scenario

Mark Beach (University of Bristol, United Kingdom)

#### Impact of Transmit Antenna Beamwidth for Fixed Relay Links Using Ray-Tracing and Winner II Channel Models

Nizabat Khan; Claude Oestges (Université catholique de Louvain, Belgium)

#### On Simplifying WINNER II Channel Model for MIMO OTA Performance Evaluation

Xiang Gao; Buon Kiong Lau; Xiaoguang Wang (Lund University, Sweden) et al.

09:00 - 10:40

Room: S2

**CP12: Propagation in Body Area Networks (part1)**

Chairs: Simon Cotton (Queen's University, Belfast, United Kingdom), Raffaele D'Errico (CEA-LETI, France)

#### On the WBAN Radio Channel Modelling for Medical Applications

Matti Hämäläinen; Attaphongse Taparugssanagorn; Jari Linatti (University of Oulu, Finland)

#### Investigation of Channel Spatial Diversity for Dual-link Cooperative Communications in WBAN

Lingfeng Liu (Université catholique de Louvain, Belgium); Vaibhav Bhatnagar (ICTEAM, Université Catholique de Louvain, Belgium) et al.

#### Doppler Characteristics and Correlation Properties of On-Body Channels

Raffaele D'Errico; Laurent Ouvry (CEA-Leti Minatoc, France)

#### On-body Diversity Channels At 2.45 GHz: Measurements and Statistical Analysis

Asimina Michalopoulou; Theodore Zervos; Kostas Peppas; Fotis Lazarakis (Institute of research "Demokritos", Greece) et al.

#### A New Look At the Body Area Network Channel Model

David B Smith; Leif W Hanlen (National ICT Australia, Australia); Tharaka Anuradha Lamahewa (Australian National University, Australia)

09:00 - 10:40

Room: N3

**CA13: Millimeter-wave & integrated antennas and systems (part1)**

Chair: Ronan Sauleau (University of Rennes 1, France)

**Multi-Beam Pillbox Antennas in the Millimeter-Wave Range**

Mauro Ettorre; Erio Gandini; Ronan Sauleau (University of Rennes 1, France)

**Active Switched Antenna Array for 77 GHz Digital Beamforming Radar**

Peter Feil; Tobias Chaloun (University of Ulm, Germany)

**Multi-layer Beamforming Lens Antenna Array with a New Line Design for Millimeter-Wave System-In-Package Applications**

W. Lee; Y. S. Kim; J. Kim; YoungJoong Yoon (Yonsei University in Korea, Korea)

**Novel All-Dielectric Mm-Wave Horn Antennas Based on EBG Structures**

Irina Khromova; Ramon Gonzalo; Iñigo Ederra; Jorge Teniente (Public University of Navarra, Spain) et al.

**Wideband Stacked Patch Antenna Array on LTCC for W-bands**

Antti E. I. Lamminen; Jussi Säily (VTT Technical Research Centre of Finland, Finland)

09:00 - 10:40

Room: N2

**M01: Wireless systems antenna measurements (part 1)**

Chairs: Per-Simon Kildal (Chalmers University of Technology, Sweden), Sebastien Lalléchère (Clermont University, France)

**Determination of Maximum Doppler Shift in Reverberation Chamber Using Level Crossing Rate**

Xiaoming Chen; Per-Simon Kildal (Chalmers University of Technology, Sweden) et al.

**Estimation of Peak Spatial-Average SAR of Inverted F-Antenna on Metal Plate Using Lightweight Phantom Composed of Wave Absorber**

Tan Watanabe; Naobumi Michishita; Yoshihide Yamada (Yokohama National University, Japan) et al.

**Upper Bounds on Fixed-Geometry Wheeler Cap Efficiency Measurements - Part I: System Model and Rectangular Cavities**

Constantine G. Kakoyiannis; Philip Constantinou (National Technical University of Athens, Greece)

**Upper Bounds on Fixed-Geometry Wheeler Cap Efficiency Measurements - Part II: Spherical and Cylindrical Cavities**

Constantine G. Kakoyiannis; Philip Constantinou (National Technical University of Athens, Greece)

**Total Scattering Cross Section Improvements From Electromagnetic Reverberation Chambers Modeling and Stochastic Formalism**

Sebastien Lalléchère (Clermont University, France); Ibrahim El Baba; Pierre Bonnet; Françoise Paladian (Blaise Pascal University, France)

09:00 - 10:40

Room: S1

**P03: Propagation models for millimeter and sub millimetre waves**

Chairs: Uwe-Carsten G. Fiebig (German Aerospace Center (DLR), Germany), Athanasios D. Panagopoulos (National Technical University of Athens, Greece)

**FDTD Channel Modelling with Time Domain Huygens' Technique**

Sema Dumanli (Toshiba Research Europe Ltd., United Kingdom); Chris Railton; Dominique L. Paul (University of Bristol, United Kingdom)

**Considerations on Cloud Attenuation At 100 and 300 GHz for Propagation Measurements Within the TERASENSE Project**

Gustavo Siles; Jose M Riera; Pedro García-del-Pino (Universidad Politecnica de Madrid, Spain)

**Conversion of Evanescent Waves Into Propagating Modes by Passing Through a Metamaterial Prism: An Iterative Approximation Method**

Constantinos A. Valagiannopoulos (Aalto University, Finland); Constantin Simovski (Helsinki University of Technology, Finland)

**A Physical Analytical Model for the Connectivity Evaluation of Dual-Polarized Millimeter-Wave Multi-Hop Backhaul Networks**

Georgios Pitsiladis; Athanasios D. Panagopoulos; Philip Constantinou (National Technical University of Athens, Greece)

**Frequency Scaling and Estimation of Attenuation and Other Propagation Parameters Using the Köppen Climatic Classification**

Maria Lucas; Jose M Riera (Universidad Politécnica de Madrid, Spain)

09:00 - 10:40

Room: S3

**P04: Propagation aspects in Wireless Sensor Networks**

Chairs: Diego Masotti (University of Bologna, Italy), Claude Oestges (Université catholique de Louvain, Belgium)

**Study of Line of Sight (LOS) and None Line of Sight (NLOS) Ultra Wideband Off-Body Radio Propagation for Body Centric Wireless Communications in Indoor**

Mohammad Monirujjaman; Qammer Hussain Abbasi; Akram Alomainy; Yang Hao (Queen Mary University of London, United Kingdom)

**UHF Radio Channel Characterization for Wireless Sensor Networks Within an Aircraft**

Raffaele D'Errico; Lionel Rudant (CEA-LETI, France)

**Topological Analysis of Performance in Indoor ZigBee Systems**

Victor Torres; Juan Antonio Nazabal; Carlos Fernandez; Francisco Falcone (Universidad Publica de Navarra, Spain)

**Feasibility Analysis of Peer-to-Peer Microwave Communications Between Self-powered Miniature Electronic Devices**

Dmitriy Penkin; Gerard J.M. Janssen; Alexander Yarovoy (Delft University of Technology, The Netherlands)

**Localization of Active UWB Sensor Nodes in Multipath and NLOS Environments**

Guowei Shen; Rudolf Zetik; Honghui Yan; Snezana Jovanoska; Reiner S. Thomä (TU-Ilmenau, Germany)

**11:00 - 12:40 Room: Auditorium**

**CA24: RFID technologies (COST IC0803/IC0603 special session) part2**

Chairs: Apostolos Georgiadis (CTTC, Spain), John Sahalos (Aristotle University of Thessaloniki, GR, Thessaloniki & University of Nicosia, CY, Nicosia, Greece)

**Wearable Aperture-Coupled Shorted Solar Patch Antenna for Remote Tracking and Monitoring Applications**

Frederick Declercq (Ghent University, Belgium); Apostolos Georgiadis (CTTC, Spain); Hendrik Rogier (Ghent University, Belgium)

**Evaluation for RFID Tag Antennas by Antenna Clearance Based on Power Reflection Coefficient**

Akiko Yamada; Hiroyuki Arai (Yokohama National University, Japan)

**Inkjet Printing of UWB Antennas on Paper Based Substrates**

George S. A. Shaker (University of Waterloo, Canada); Amin Rida (Georgia Institute of Technology, USA) et al.

**A Post-Processing Approach to the MUSIC Algorithm for 2D Direction Finding**

Nida Sakar (Istanbul Technical University, Turkey); Greg Hislop; Christophe Craeye (Université Catholique de Louvain, Belgium)

**Multiphysics Analysis of Harmonic RFID Tag on Paper with Embedded Nanoscale Material**

Luca Pierantoni (Università Politecnica delle Marche, Ancona, Italy)

**11:00 - 12:40 Room: A**

**A01: Antenna Interactions and Coupling (part 2)**

Chairs: Jesús Rubio (Universidad de Extremadura, Spain), Clement Yann (IETR & Thales Systemes Aeroportes, France)

**Mutual Coupling in MIMO Antennas with Transceiver Separation**

Mauro Pelosi; Gert Pedersen (Aalborg University, Denmark); Mikael Knudsen (Infineon Technologies, Denmark A/S, Denmark)

**Using Dirty Signal - How to Use or Not to Use Noise Corrupted Signal**

Tetsuki Taniguchi; Yoshio Karasawa; Nobuo Nakajima (The University of Electro-Communications, Japan)

**Pattern Control of UWB Printed Antenna on Large Ground Plane**

Elham Ebrahimi; Peter S Hall (University of Birmingham, United Kingdom); Oliver Litschke; Rens Baggen (IMST GmbH, Germany)

**Bandwidth Limitations and Optimum Low-band LTE MIMO Antenna Placement in Mobile Terminals Using Modal Analysis**

Aleksander Krewski; Werner Schroeder (Rhein-Main University of Applied Sciences, Germany); Klaus Solbach (UDE, Germany)

**Global Technique Analysis for Reconfigurable Reflectarray Antennas**

Clement Yann; Renaud Loison; Raphael Gillard (IETR, France); Michèle Labeyrie (Thales Systèmes Aéroportés, France)

**11:00 - 12:40 Room: B**

**CA07: EurAAP software WG - The future of computational electromagnetics: science or product? (part2)**

Chair: Guy A. E. Vandenbosch (Katholieke Universiteit Leuven, Belgium)

**The Maturity of Computational Electromagnetics: Are We There Yet?**

Jin-Fa Lee (Ohio State University, USA)

**Solving large scale EM problems using FDTD analysis**

Winfried Simon (IMST GmbH, Germany)

**Innovation in Computational Electromagnetics At Agilent**

Filip Demuyne (Agilent Technologies, Belgium)

**New Developments of the Electromagnetic Data Exchange**

Marco Sabbadini (Esa Estec, The Netherlands); Jonas Fridén (Ericsson AB, Sweden); Poul Erik Frandsen (TICRA, Denmark) et al.

**Discussion slot CA07:**

**The future of computational electromagnetics: science or product?**

Guy A. E. Vandenbosch (Katholieke Universiteit Leuven, Belgium)

**11:00 - 12:40 Room: C**

**CA01: Innovative array antennas (part2)**

Chairs: Gerard Caille (Thales Alenia Space France, France), Giovanni Toso (European Space Agency, The Netherlands)

**Overlapped Digital Subarray Architecture for Multiple Beam Phased Array Radar**

Jeffrey Herd; Sean Duffy (MIT Lincoln Laboratory, USA)

**GPU-accelerated Synthesis of Echo Generators**

Amedeo Capozzoli; Claudio Curcio; Angelo Lisenò (Università di Napoli Federico II, Italy)

**High Bandwidth Ku-Band Fabry-Perot Cavity Array Antenna Using FSS Superstrate**

Christoph Grabowski; Rainer J. Wansch (Fraunhofer Institut Integrierte Schaltungen, Germany)

**Minimizing the Number of Sensors in the Synthesis of Shaped Beam Patterns**

Michele D'Urso (SELEX Sistemi Integrati, Italy); Tommaso Isernia (University of Reggio Calabria, Italy) et al.

**Optimal Combined Amplitude-Density Synthesis of Aperiodic Arrays**

Giovanni Toso; Piero Angeletti (European Space Agency, The Netherlands)



11:00 - 12:40

Room: D

**CP01: Antennas and propagation: automotive applications (part2)**

Chairs: Thomas Kuerner (Braunschweig Technical University, Germany), Werner Wiesbick (Karlsruhe Institute of Technology, Germany)

**Application of the Finite Volume Time Domain Method for Evaluation and Development of Wideband Automotive Antenna Systems**

Hicham Tazi; Thomas F. Eibert (Technische Universität München, Germany); Christoph Ullrich (AUDI AG, Germany)

**Extended Solution Methods in FEKO to Solve Actual Antenna Simulation Problems:**

**Accelerated MoM and Windscreen Antenna Modelling**

Markus Schick; Ulrich Jakobus; Marlize Schoeman; et al. (EM Software & Systems – S. A. (Pty) Ltd, South Africa)

**Measured Channel Capacity of SIMO-UWB for Intra-Vehicle Communications**

Fengzhong Qu (Zhejiang University, P.R. China); Jia Li (Oakland University, USA); Liuqing Yang (Colorado State University, USA) et al.

**Wireless Link in Complex Environment for Automotive Applications At ISM and UWB Frequencies**

Guillermo C Vietti; Gianluca; Mario Orefice (Politecnico di Torino, Italy)

**UWB Measurements and Data Analysis in Automotive Scenarios**

Rudolf Zetik; Reiner S. Thomä (TU-Ilmenau, Germany)

11:00 - 12:40

Room: G1

**CA10: Microwave imaging and sensors for medical applications (part2)**

Chairs: Ian Craddock (University of Bristol, United Kingdom), Paul Meany (USA)

**Microwave Imaging for Medical Applications**

Mikael Persson; Xuezi Zeng; Andreas Fhager (Chalmers University of Technology, Sweden)

**Microwave Bone Quality Imaging: Foundational Data**

Paul M Meaney; Tian Zhou; Shireen Geimer; Amir Golnabi; Neil Epstein; Keith D. Paulsen (Dartmouth College, USA)

**A Planar Microwave Breast Imaging System Based on the Modulated Scattering Technique**

Tommy Henriksson (University of Bristol, United Kingdom); Nadine Joachimowicz (Supélec, France) et al.

**Development and Testing of a 60-Element UWB Conformal Array for Breast Cancer Imaging**

Maciej Klemm; David Gibbins; Jack Leendertz; et al. (University of Bristol, United Kingdom)

**Evolution of Antenna Performance for Applications in Thermal Medicine**

Paul Stauffer; Paolo Maccarini (Duke University Medical Center, USA)

11:00 - 12:40

Room: N1

**CP04: COST 2100: From channel models to channel impacts on wireless communications (part2)**

Chairs: Christian Ibars (Centre Tecnologic de Telecomunicacions de Catalunya - CTTC, Spain), Alain Sibille (Telecom Paris Tech & ENSTA PARISTECH, France)

**A Ray Tracing Based Stochastic Human Blockage Model for the IEEE 802.11ad 60 GHz Channel Model**

Martin Jacob; Sebastian Priebe (Technische Universität Braunschweig, Germany); Alexander Maltsev (Intel A/O, Russia) et al.

**On the Throughput of an OFDM-based Cellular Optical Wireless System for an Aircraft Cabin**

Svilen Dimitrov; Harald Haas (The University of Edinburgh, United Kingdom); Mario Cappitell (EADS Deutschland GmbH, Germany) et al.

**On the Packet Error Rate of Correlated Shadowing Links in Body-Area Networks**

Paul Ferrand; Jean-Marie Gorce; Claire Goursaud (INSA-Lyon, France)

**Characterization of Inter-Pulse Interference and Fading for Ultra-Wideband Systems**

Klaus Witrals (Graz University of Technology, Austria); Marco Pausini (AT4 Wireless, Spain)

**Realistic Time Reversal and Spatial Beamforming: An Interference Mitigation Approach**

Sondos Alaa El Din; Mohamed El-Hadidy; Thomas Kaiser (Leibniz University of Hannover, Germany)

11:00 - 12:40

Room: S2

**CP12: Propagation in Body Area Networks (part2)**

Chairs: Simon Cotton (Queen's University, Belfast, United Kingdom), Raffaele D'Errico (CEA-LETI, France)

**K-Weight Based Spatial Autocorrelation Model for On-body Communication**

Yang; Qammer Hussain Abbasi; Akram Alomainy; Yang Hao (Queen Mary, University of London, United Kingdom)

**Novel Ultra-Wideband Antennas for In-Body Wireless Communication and Medical Imaging Applications**

Akinola Eesuola; Yifan Chen; Guiyun Tian (Newcastle University, United Kingdom)

**An Experimental Study on the Impact of Human Body Shadowing in Off-Body Communications Channels At 2.45 GHz**

Simon Cotton; Adrian McKernan; Ameenulla Jahabar Ali; William G. Scanlon (Queen's University Belfast, United Kingdom)

**Body Motion and Channel Response of Dynamic Body Area Channel**

Takahiro Aoyagi; Iswandi; Minseok Kim; Jun-ichi Takada (Tokyo Institute of Technology, Japan) et al.

**A Tapped Delay Line Model of Ground Reflection for UWB MS-MIMO Body Area Networks**

Stéphane van Roy (Université libre de Bruxelles, Belgium); Claude Oestges (Université catholique de Louvain, Belgium) et al.

**On the Separability of "On-body" and "Off-body" Clusters in the Modeling of UWB WBAN Channels for Various Indoor Scenarios**

Christophe Roblin (ENSTA ParisTech, France)

11:00 - 12:40

Room: N3

**CA13: Millimeter-wave & integrated antennas and systems (part2)**

Chair: Ronan Sauleau (University of Rennes 1, France)

#### 60-GHZ Antipodal Fermi Antenna on PCB

Mei Sun (I2r, Singapore); Xianming Qing; Zhi Ning Chen (Institute for Infocomm Research, Singapore)

#### 60-ghz Post-wall Waveguide Aperture Antenna with Directors Made by Multilayer Pcb Process

Hiroshi Nakano; Yasutake Hirachi (AMMSYS Inc., Japan); Ryosuke Suga; Jiro Hirokawa; Makoto Ando (Tokyo Institute of Technology, Japan)

#### Accurate Characterisation of a 60 GHz Antenna on LTCC Substrate

Christos Oikonomopoulos-Zachos (IMST GmbH, Germany); Diane Titz (LEAT-CNRS, France) et al.

#### V-band (57-66GHz) Planar Antennas for WPAN Applications

Dmitry E Zelenchuk; Vincent Fusco (Queen's University Belfast, United Kingdom); George Goussetis (Reader, United Kingdom)

11:00 - 12:40

Room: N2

**M01: Wireless systems antenna measurements (part 2)**

Chairs: Per-Simon Kildal (Chalmers University of Technology, Sweden), Sebastien Lalléchère (Clermont University, France)

#### Arbitrary Fading Emulation Using Mode-Stirred Reverberation Chambers with Stochastic Sample Handling

Juan Sánchez-Heredia (EMITE Ing, Spain); Miguel A. García-Fernández (Technical University of Cartagena, Spain) et al.

#### Indoor Angular Profile Measurements and Channel Characterization At the Millimeter-Wave Band

Nektarios Moraitis (National Technical University of Athens, Greece); Demosthenes Vouyioukas (University of the Aegean, Greece) et al.

#### Characterization of Integrated Antennas At Millimeter-Wave Frequencies

Yan FU (Université Joseph Fourier, France); Tan Phu Vuong (Grenoble INP, France); Laurent Dussot (CEA, LETI, Minatec, France) et al.

#### Source-Stirred Method for Antenna Efficiency Measurements

Yi Huang (University of Liverpool, United Kingdom)

11:00 - 12:40

Room: S1

**P05: Tropospheric propagation**

Chairs: Ana Benarroch (Universidad Politécnica de Madrid, Spain), Ondrej Fiser (Institute of Atmospheric Physics & Fac. of Electrical Engineering and Informatics/Uni of Pardubice, Czech Republic)

#### From Cumulative NWP Precipitation Data to Small Scale Rain Intensity Distribution: Assessment of a Procedure

Carlo Capsoni; Lorenzo Luini (Politecnico di Milano, Italy); Antonio Martellucci (European Space Agency, The Netherlands)

#### Analysis of Rain Influence on Joint Millimeter and Optical Elevated Links

Stanislav Zvanovec; Jiri Libich (Czech Technical University in Prague, Czech Republic)

#### Phase Delay and Differential Attenuation Due to Rain in Large Phased Array Antennas for Deep-Space Communications At 32 GHz

Emilio Matricciani (Politecnico di Milano, Italy)

#### Measured and Simulated Fluctuations of Received Power on 11 GHz Terrestrial Path Using Vertical Profiles of Atmospheric Refractivity

Martin Grabner; Vaclav Kvicera (Czech Metrology Institute, Czech Republic) et al.

#### Estimation of Rain Attenuation At Millimetre Waves From Experimental Drop Size Distributions

Jose Garcia-Rubia (Universidad de Jaén, Spain); Jose M Riera; Ana Benarroch et al. (Universidad Politecnica de Madrid, Spain)

11:00 - 12:40

Room: S3

**P06: UWB channel modeling**

Chairs: Simon Cotton (Queen's University, Belfast, United Kingdom), Raffaele D'Errico (CEA-LETI, France)

#### Sectorised Radio Channel Characterisation for Ultra Wideband Body-centric Wireless Communications

Qammer Hussain Abbasi; Mohammad Monirujjaman Khan; Akram Alomainy et al. (Queen Mary, University of London, United Kingdom)

#### Time-Domain Modelling of UWB Channel Containing Many Convex Obstacles in Cascade

Piotr Górnaiak; Wojciech Bandurski (Poznań University of Technology, Poland)

#### Simulated UWB Channel Modelling for Aircraft

Andrew Thain (EADS - Innovation Works, France)

#### Frequency Selectivity in Confined Environments

Vit Sipal; Javier Gelabert; Christopher Stevens (University of Oxford, United Kingdom) et al.

#### Performance Evaluation of Time Reversal in Intra-Vehicular Environment

François Bellens; François Quitin; Jean-Michel Dricot; François Horlin (Université Libre de Bruxelles, Belgium) et al.

14:00 - 15:00

Poster Session I

**A Circular Polarized Self Tracking L Band Array with High Bandwidth and Scan Beamwidth for Inmarsat BGAN Applications**

Neil Buchanan; Vincent Fusco; Dmitry E Zelenchuk (Queen's University of Belfast, United Kingdom)

**Antenna Control Using EBG**

Mohd Saari Mohamad Isa; Richard Langley; Salam Khamas (University of Sheffield, United Kingdom)

**Integrated Photonic Antenna Unit for Dual WLAN Band Applications**

Yevhen Yashchynshyn (Warsaw University of Technology, Poland)

**Dual-Band Frequency Tunable Planar Inverted F Antenna**

Issa Elfergani (University of Bradford, United Kingdom); Abubakar Sadiq Hussaini (Instituto de Telecomunicações, Portugal) et al.

**Design and Integration of UWB Antennas for High Data Rate Miniature Impulse Radio Transmitter**

Ali Chami (Université Nice Sophia Antipolis, France); Olivier Fourquin (University of Aix-Marseille I, France) et al.

**Dual Mode Helix Antenna for Wideband Terrestrial and GPS L2 Communications**

Sultan Shoaib (HITEC University, Pakistan); Waqar Shah; Muhammad Amin (Institute of Space Technology, Islamabad, Pakistan) et al.

**Design of a Triple-Frequency Full-Wave Rectenna**

Juan Morcillo-Sánchez (Universidad Carlos III de Madrid, Spain); Vicente Gonzalez-Posadas (Universidad Politécnica de Madrid, Spain) et al.

**Developments on Active Array Antennas**

Antonio Montesano (University of Siena, Italy); Luis de la Fuente; Carlos Montesano (EADS-CASA Espacio, Spain)

**Non - Foster Circuitry Design for Antennas**

Stavros Koulouridis (University of Patras, Greece)

**Equivalent Electrical Circuit Model for Design and Optimization of MEMS-Controlled Reflectarray Phase Shifter Cells**

Farooq Ahmad Tahir (University of Toulouse, France)

**Circularly Polarized Array of Bent Monopoles for L-Band Mobile Satellite Communications**

Aldo Petosa; Soulideth Thirakoune (Communications Research Centre Canada, Canada)

**Automotive Glass Antenna for Worldwide Cellular Phone Coverage**

Matteo Cerretelli; Paolo Facchini; Andrea Notari (ASK Industries S.p.A., Italy); Guido Biffi Gentili (University of Florence, Italy)

**Design and Experiments of 77 GHz Antennas in LTCC Technology**

Dan Neculoiu (IMT Bucharest, Romania)

**Dual-Multilayer PIFA for Wideband Signals**

Guillermo C Vietti; Gianluca Dassano; Mario Orefice (Politecnico di Torino, Italy)

**A Fast Switching Antenna Diversity System for Improved Mobile Reception of Digital Radio Signals of a Geostationary Satellite**

Simon Senega; Stefan Lindenmeier (Universität der Bundeswehr, Germany)

**Multibeam Network Design and Measurement for Triangular Array of Three Radiating Elements**

Javier Garcia-Gasco Trujillo; Manuel Sierra Perez (Universidad Politécnica de Madrid, Spain) et al.

**Efficient Optimization of Reconfigurable Parasitic Antenna Arrays Using Geometrical Considerations**

Prabhat Baniya (University of Massachusetts Dartmouth, USA); Samee Ur Rehman; Jon Wallace (Jacobs University Bremen, Germany)

**Optical Design of the Stratosphere-Troposphere Exchange and Climate Monitor Radiometer (STEAMR) Instrument**

Mark Whale (University of Bern, Switzerland)

**Blanking the Abnormal Direction Finding Errors Caused by Wave Surface Distortion**

Eugene Kondakov (Southern Federal University, Russia)

**Loop Antenna Design for in Vivo Localized Exposure At 2.45 GHz**

Andrea D'Attis (ICE nB "Sapienza" University of Rome, Italy) et al.

**Vital Signs Detection Using Doppler Radar and Continuous Wavelet Transform**

Abubakar Tariq; Hooshang Shiraz (University of Birmingham, United Kingdom)

**Microwave Focusing Algorithms for Breast Cancer Detection: A Comparison for a 2D Simplified Scenario**

Raffaele Solimene (Second University of Naples, Italy); Giuseppe Ruvio (Dublin Institute of Technology, Ireland) et al.

**Feasibility Study of an Ultra Wideband Pseudo-Noise-Radar for Medical Applications**

Xuyang Li (Karlsruhe Institute of Technology, Germany)

**Microchamber Set-Up for Real Time Studies of Biological Structures in Presence of Electromagnetic Fields**

Paolo Marracino (La Sapienza University, Rome, Italy)

**Analysis of Temporal Compression Characteristics Using Active Phase Conjugation in Systems with Multiple Antenna Elements**

Pei Xiao (University of Surrey, United Kingdom); Vincent Fusco; Padmini Sundaralingam (Queen's University Belfast, United Kingdom)

**Mutual Coupling Reduction Between Closely-Packed MIMO PIFA Arrays**

Qian Li; Alexandros Feresidis (Loughborough University, United Kingdom)

**Planar Compact Array with Parasitic Elements for MIMO Systems**

David Puente-García (Universidad Politécnica de Madrid, Spain)

**Uncertainties in Estimating Ergodic MIMO Capacity and Diversity Gain of Multipoint Antenna Systems with Different Port Weights**

Ahmed Hussain; Per-Simon Kildal (Chalmers University of Technology, Sweden) et al.

**A Tunable Multi-band Meander Line Printed Monopole Antenna for MIMO Systems**

Alireza Mallahzadeh; Sajad Mohammad ali nezhad (Shahed University, Iran); Ailar Sedghara (Tarbiat Modares University, Iran)

**Compact Bandwidth-Optimized Two Element MIMO Antenna System for 2.5 - 2.7 GHz**

Vladimir Ssorin (Lobachevsky State University, Russia); Alexey Artemenko (The University of Nizhny Novgorod, Russia) et al.

**Reuse of the Mobile Communication Antenna for FM Reception**

Cristina Picher; Jaume Anguera; Aurora Andújar; Carmen Borja; Carles Puente (Fractus, Spain); Sungtek Kahng (University of Incheon, Korea)

**Analysis of a Complex Waveguide Structure for Microwave Wideband Low Cross-Polar Aperture Antenna**

Kathy Camila Cardozo Osinski Senhorini (Federal University of Tocantins, UFT, Brazil); Jose R. Bergmann (PUC-Rio, Brazil) et al.

**Multilayer Frequency-Selective-Surface Reflector for Constant Gain Over Ultra Wideband**

Y. Ranga (Macquarie University, Australia); Ladislav Matekovits (Politecnico di Torino, Italy) et al.

**Broadband Bowtie Antenna for RF Energy Scavenging Applications**

Fabrizio Congedo; Giuseppina Monti; Mario Cannarile (University of Salento, Italy); Luciano Tarricone (University of Lecce, Italy)

**2x2 Dual Linear Polarization Wideband Slot Array**

Jorge R. Costa (Instituto de Telecomunicações / ISCTE-IUL, Portugal); Eduardo B. Lima (Instituto de Telecomunicações, Portugal) et al.

### Fundamental Characteristics of a Strip Folded Dipole Antenna with a Feed Line on the Dielectric Substrate

Junmyeoung Kim (National Defense Academy, Japan)

### A Dual-Band Circularly Polarized Monopole Antenna for WLAN Application

Samaneh Esfandiarpour; Hamid Reza Hassani; Ali Frotanpour (Shahed University, Iran)

### Resonator Type and Positioning Study for the Creation of a Potentially Reconfigurable Frequency Notch in a UWB Antenna Return Loss

Symeon Nikolaou (Frederick Research Center, Cyprus); Miloš Davidović (University of Belgrade, Serbia) et al.

### A Novel Broadband Quasi-Complementary Fractal Antenna

Hossein Farahani (K. N. Toosi University of Technology, Iran)

### A Compact Coplanar-fed Monopole for Broadband Applications

Rosa De Paolis; Giuseppina Monti; Luciano Tarricone; Valeria De Paolis (University of Salento, Italy)

### A Tapered Design of a CRLH-TL Leaky Wave Antenna

Onofrio Losito; Michele Gallo (Politecnico di Bari, Italy); Vincenzo Dimiccoli (ITEL Telecomunicazioni S.r.l., Italy) et al.

### Dual-Polarized Log-Periodic Antenna on a Conical MID Substrate

Christian Orlob; Quang Huy Dao; Daniel Kornek (Leibniz Universität Hannover, Germany)

### Ultra Wideband Printed Monopole Antenna with Dual-Band Circular Polarization

Mohsen Khalily; Mohamad Kamal A. Rahim; Muhammad Ramlee Kamarudin; Masoumeh Shaneshin (University Technology Malaysia, Malaysia) et al.

### Pulse Response Behavior of a UWB Antenna with Switchable Band-Notching Feature

Alexander Vasylychenko (CSEM SA, Switzerland); Rostyslav Dubrovka (Queen Mary, University of London, United Kingdom) et al.

### An Ultrawideband Antenna for FMCW-Radar Positioning Systems

Gabor Vinci (University of Erlangen-Nuremberg, Germany)

### A Planar Ultrawideband Antenna with Multiple Controllable Band Notches for UWB Cognitive Radio Applications

Mohammed Al-Husseini; Ali Ramadan (American University of Beirut, Lebanon); Youssef Tawk (University of New Mexico, USA) et al.

### Tri-Band Antenna for WLAN 802.11 a/n, b/g/n and y (A Generic Planar Antenna Design Approach)

Muhammad Amir Yousuf (Ecole Polytechnique - ParisTech, France); Christophe Roblin (ENSTA ParisTech, France)

### Design of a High-Gain Low-Profile Wideband Stacked DRA for C-Band

Murilo Moraes; Luciano Prado de Oliveira (University of Campinas, Brazil); Joao Moreira; Edson Reis (Orbisat, Brazil) et al.

### A Concept for a Broadband Electromagnetic Band Gap (EBG) Structure

Amir Zaghloul (Virginia Polytechnic Institute and State University, USA); Sandeep Palreddy (Microwave Engineering Corporation, USA) et al.

### An Ultra Wide-Band System for RF Energy Harvesting

Aniello Buonanno; Michele D'Urso (SELEX Sistemi Integrati, Italy) et al.

### Wideband Active Interference Cancellation Techniques for Military Applications

Georg Karawas; Kavita Goverdhanam; James Koh (US Army, USA)

### A Compact Reconfigurable Single/Dual Band Antenna for Wireless Communications

Hocine Kimouche (EMP, Algeria)

### A Pattern Reconfigurable Antenna with Switching Function of Shape and Direction

Daisuke Uchida; Hiroyuki Arai (Yokohama National University, Japan); YoungJoong Yoon (yonsei university in Korea, Korea)

### A Polarization Reconfigurable Slot Antenna

Ali Ramadan; Mohammed Al-Husseini; Karim Youssef Kabalan; Ali El-Hajj (American University of Beirut, Lebanon) et al.

### Design of a Reconfigurable Antenna for Ground Penetrating Radar Applications

Nicola Romano (Second University of Naples, Italy); Francesco Soldovieri (CNR, Italy); Raffaele Persico (IBAM-CNR, Italy)

### An Alternative Energy Source for Low Power Autonomous Sensors

Vlad Marian (Ecole Centrale de Lyon, France)

### Effects of On-PCB Location of Radiating Element on the Performance of Mobile Terminal GPS Antennas in Multipath Environment

Masood Ur Rehman; Xiaodong Chen; Clive Parini (Queen Mary, University of London, United Kingdom) et al.

### Size Reduction of RFID Antenna for Cable Identification Application

Tin Komljenovic; Zvonimir Sipus (University of Zagreb, Croatia)

### Radiation Quality Factor of Spherical Antennas with Material Cores

Troels V. Hansen; Oleksiy S. Kim; Olav Breinbjerg (Technical University of Denmark, Denmark)

### Performance of Electromagnetic Sensor Based on Shorted Stacked Patches

Branimir Ivacic; Davor Bonefacic; Juraj Bartolic (University of Zagreb, Croatia)

### Textile MIMO Antenna for Wireless Body Area Networks

Jesús Santiso; Marta Cabedo-Fabrés; Eva Antonino-Daviu; Miguel Ferrando; Felipe Penaranda-Foix (Universidad Politécnica de Valencia, Spain)

### Reading Range of Wearable Textile RFID Tags in Real Configurations

Sabina Manzari; Cecilia Occhiuzzi; Gaetano Marrocco (University of Rome Tor Vergata, Italy)

### Parametric Analysis of On-Body Dual-Band Antenna Performance: Dependence on the Human Body Morphology

Nacer Chahat; Maxime Zhadobov; Ronan Sauleau; Kourosh Mahdjoubi (University of Rennes 1, France)

### MOM Analysis of Antenna Devoted to BAN

Farshad Keshmiri (Universite catholique de Louvain, Belgium) et al.

### Study of a Confocal Configuration for Imaging Cameras Working At 220 GHz

Itziar Maestrojuán; Ramon Gonzalo; Iñigo Ederra; Jorge Teniente (Public University of Navarra, Spain)

### On the Performance of Bundles of CNT-dipoles in the Terahertz Regime

Mario F Pantoja; Amelia Rubio Bretones (University of Granada, Spain); Douglas H. Werner (Pennsylvania State University, USA) et al.

### H-plane Horn Array Using Low-Loss Rectangular Waveguide At THz Frequencies

Daniel Sanchez Escuderos; Miguel Ferrando; Mariano Baquero; José Ignacio Herranz-Herruzo et al. (Universitat Politècnica de Valencia, Spain)

### Comparison of Ultra-wideband THz Generation and Detection Systems

Neda Khiabani; Yi Huang; Yao-Chun Shen (University of Liverpool, United Kingdom)

### Discussions on the Main Parameters of THz Photoconductive Antennas as Emitters

Neda Khiabani (University of Liverpool, United Kingdom); Yi Huang (University of Liverpool, United Kingdom); Yao-Chun Shen (University of Liverpool, United Kingdom)

### Polarisation-Agile, Evanescent Open-Ended Waveguide Antenna

Peter Ludlow; Vincent Fusco (Queen's University Belfast, United Kingdom)

**Matching Evanescent Open-Ended Waveguide Antennas Using the Imaginary Smith Chart**

Peter Ludlow; Vincent Fusco (Queen's University Belfast, United Kingdom)

**Slot Planar Antenna on Metallic Support with Large Bandwidth**

Christophe Morlaas (ENAC, France)

**An Operational Modified-LINC Demonstrator for Wireless Communication**

Fatna Benahmed Daho (University of Limoges, France)

**TDMA X-Band FMCW MIMO Radar for Short Range Surveillance Applications**

Francesco Belfiori (Delft University of Technology, The Netherlands)

**Study on the Variation in Dielectric Properties of Heterogeneous Substrates Composed of Nanomaterials**

Chinwe Njoku; William Whittow; J (Yiannis) Vardaxoglou (Loughborough University, United Kingdom)

**15:00 – 16:20 Room: Auditorium**

Invited lectures

**Space Antennas challenges and proposed ways forward: An ESA Perspective**

Cyril Mangenot

**Inkjet-Printed RFID and Wireless Sensor Nodes: The Final Step to Bridge Cognitive Intelligence, Nanotechnology and RF?**

Manos Tentzeris

**15:00 – 16:20 Room: A**

Invited lectures

**MIMO Wireless Propagation: Modern Channel Characterization for Emerging Applications**

Michael A. Jensen

**De-embedding of antennas from propagation channel in wireless communications**

Jun-Ichi Takada

**16:40 - 18:20 Room: Auditorium**

A02: Wearable antennas

Chairs: Manuel Sierra-Castañer (Technical University of Madrid, Spain), Manos M. Tentzeris (Georgia Institute of Technology, USA)

**Design and Realization of a Wearable Multi-Frequency RF Energy Harvesting System**

Diego Masotti (University of Bologna, Italy); Alessandra Costanzo (DEIS, University of Bologna, Italy); Stefano Adami (ETHLAB, Italy)

**Design and Fabrication of a Flexible Minkowski Fractal Antenna for VHF Applications**

En Chi Lee (Universiti Malaysia Perlis (UniMAP), Malaysia); Ping Jack Soh (Katholieke Universiteit Leuven, Belgium) et al.

**Slotline Structure for on/off-body Communications At 2.45 GHz**

James Kelly; Kenneth Lee Ford; Richard Langley (University of Sheffield, United Kingdom)

**Design and Analysis UWB Wearable Textile Antenna**

Mohamad Kamal A. Rahim (Universiti Teknologi Malaysia, Malaysia)

**On the Use of Soft Surfaces to Reduce Back Radiation in Textile Microstrip Patch Antennas**

Iria Gallego-Gallego (University Carlos III of Madrid, Spain); Oscar Quevedo-Teruel (Universidad Autónoma de Madrid, Spain) et al.

**16:40 - 18:20 Room: A**

A03: Array antennas I

Chairs: Matthias Geissler (IMST, Germany), Paul S Taylor (University of Kent, United Kingdom)

**Tolerance Analysis of Linear Antenna Arrays Generating Shaped Beam Patterns**

Marcos Álvarez-Folgueiras; Juan Rodríguez-González; Francisco Ares-Pena (University of Santiago de Compostela, Spain)

**A Passively Switched Dual-Band FSS Slot Array**

Paul S Taylor; John Batchelor; Edward Parker (The University of Kent, United Kingdom)

**A Broadband Antenna for GSM1800 and UMTS BTS Applications**

Suoaad Ibrakee; Jonathan Michael Rigelsford (The University of Sheffield, United Kingdom)

**An Attractive S-Band Dual-Pol Printed Antenna for Multifunction Phased Array Radars**

Federica Mastrangeli; Guido Valerio; Alessandro Galli (Sapienza University of Rome, Italy) et al.

**Analysis of Microstrip Patch Antenna Array Integrated with Mushroom-Like**

Electromagnetic Band Gap (EBG) for 5.8 GHz  
Mohd Nor Md Tan (University Technology Mara, Malaysia); Tharek Abdul Rahman (Wireless Communication Centre, Malaysia) et al.

**16:40 - 18:20****Room: B**

**A04: MIMO, smart and signal processing antennas I**

Chairs: Ting-Wei Kang (National Sun Yat-Sen University, Taiwan), Patrick Van Torre (University College Ghent, Belgium)

**Site-Specific Evaluation of a MIMO Channel Capacity for Multi-antenna Mobile Terminals in Proximity to a Human Hand**

Bin Abdullah Al-Hadi Azremi; Katsuyuki Haneda; Pertti Vainikainen (Aalto University, Finland)

**Performance Analysis of a Reconfigurable Antenna System for MIMO Communications**

John Kountouriotis (Drexel University, USA); Daniele Piazza (Adant, Italy); Kapil Dandekar (Drexel University, USA) et al.

**Tri-Band Printed Monopole Antenna for WLAN and WiMAX MIMO Systems**

Alireza Mallahzadeh; Seyyedeh Faezeh Seyyedrezaei; Neamatollah Ghahvehchian (Shahed university, Iran) et al.

**Ambiguity Analysis of Isolation-Based Multi-antenna Structures on Mobile Terminal**

Bin Abdullah Al-Hadi Azremi (Aalto University, Finland); Mario Costa; Visa Koivunen (Helsinki University of Technology, Finland) et al.

**Internal Handset Antenna Array for LTE/WWAN and LTE MIMO Operations**

Ting-Wei Kang; Kin-Lu; Ming-Fang Tu (National Sun Yat-sen University, Taiwan)

**16:40 - 18:20****Room: C**

**A05: Beamforming, data processing and multiple beam antennas I**

Chairs: Andrew Hellicar (CSIRO ICT Centre, Australia), Harmen Schippers (National Aerospace Laboratory NLR, The Netherlands)

**Array Synthesis with Spatial Power Pattern and Polarization Constraints**

Benjamin Fuchs (University of Rennes 1, France)

**Sparse Electromagnetic Imaging**

Marija Nikolić; Arye Nehorai (Washington University in St. Louis, USA); Antonije Djordjevic (University of Belgrade, Serbia)

**Imaging and Tracking of Targets in Clutter Using Differential Time-Reversal**

Ahmed E. Fouda; Fernando Teixeira (Ohio State University, USA); Mehmet E Yavuz (Intel Corporation, USA)

**Circular Arrays for SDMA Communication Systems**

Andrew Hellicar; Hajime Suzuki (CSIRO, Australia)

**Design of Dual Beam Meander Line Antenna**

Mohamad Zoinol Abidin Bin Abd Aziz (Universiti Teknikal Malaysia Melaka, Malaysia)

**16:40 - 18:20****Room: D**

**A06: Automotive antennas**

Chairs: Ziqiang Tong (Johannes Kepler University Linz, Austria), Francesca Vipiana (Istituto Superiore Mario Boella (ISMB), Italy)

**A Novel Dielectric Resonator Antenna with Very High Dielectric Constant**

Nisar Ahmad Abbasi; Richard Langley (University of Sheffield, United Kingdom)

**77GHz Center-Fed Differential Microstrip Antenna Array**

Ziqiang Tong (Johannes Kepler University Linz, Austria); Andreas Stelzer (University of Linz, Austria)

**Low-Cost S-Band Antennas for Mobile Satellite Systems**

Cesar Dominguez; Ferdinando Tiezzi; Jose Padilla (JAST SA, Switzerland) et al.

**Design of Multi-Band Compact Antennas for Automotive Communications**

Sergio Arianos; Gianluca Dassano; Mario Orefice (Politecnico di Torino, Italy); Francesca Vipiana (Istituto Superiore Mario Boella, Italy)

**A Low-Profile Antenna Mounted on Metal Plane for Digital Terrestrial Television Reception**

Ning Guan; Hiroiku Tayama; Ryouhei Hosono; Hirotaka Furuya (Fujikura Ltd., Japan)

**16:40 - 18:20****Room: N1**

**A07: Mobile communication I**

Chairs: Anders Derneryd (Ericsson AB & Lund University, Sweden), David Marpaung (University of Twente, The Netherlands)

**Ground Plane Boosters to Provide Multi-Band Operation**

Aurora Andújar; Jaume Anguera; Carles Puente (Fractus, Spain)

**A Wideband Fabry-Perot Cavity Antenna with Successively Tapered Meandering Loops**

Dongho Kim (Electronics and Telecommunications Research Institute, Korea)

**Dual-Polarized Dielectric Resonator Antennas for Base Station Applications**

Anders Derneryd (Ericsson AB, Sweden); Ubaid Mahmood Khan (Chalmers University of Technology, Sweden) et al.

**Handset Antenna Array to Mitigate the Finger Loading Effect**

Jaume Anguera; Aurora Andújar; Carles Puente; Cristina Picher (Fractus, Spain); Yolanda Cobo (Universitat Ramon Llull, Spain);

**Over-the-Air Performance Testing of Wireless Terminals by Data Throughput Measurements in Reverberation Chamber**

Anton Skårbratt; John Åsberg; Charlie Orlenius (Bluetest AB, Sweden)

**16:40 - 18:20 Room: N3****A08: Planar and conformal antennas I**

Chairs: Juraj Bartolic (University of Zagreb, Croatia), Giuseppe Di Massa (University of Calabria, Italy)

#### **Multiple Sources Discrimination by Array Processing**

Giuseppe Di Massa; Sandra Costanzo (University of Calabria, Italy); Gaspare Galati (Tor Vergata University, Italy)

#### **A Multi-Polarization and Multi-Frequency Single Layer Planar Antenna**

Mayumi Matsunaga; Kenji Kakemizu; Massimo Candotti (Ehime University, Japan) et al.

#### **Design of a Dual-Band Rejected UWB Printed Monopole Antenna**

Imen Ben Trad; (SysCOM Laboratory, ENIT, Tunis, Tunisia); Hatem Rmili (ISSAT Mahdia, Tunisia); Jean-marie Floch (IETR, France) et al.

#### **A Low Cross Polarization 5 GHz-Band 3-Stacked Meander-Line Antenna Integrated with a Meander-Line Shape Balun**

Satoshi Yoshida; Shoichi Tanifuji; Suguru Kameda; Noriharu Suematsu; Tadashi Takagi; Kazuo Tsubouchi (Tohoku University, Japan)

#### **Design of an Inverted F Antenna by Using a Transmission Line Model**

Michele Gallo; Onofrio Losito (Politecnico di Bari, Italy); Vincenzo Dimiccoli (1ITEL Telecomunicazioni S.r.l., Italy) et al.

**16:40 - 18:20 Room: S2****A09: Spectral methods**

Chairs: Vito Lancellotti (Technical University of Eindhoven, The Netherlands), Zvonimir Sipus (University of Zagreb, Croatia)

#### **Mode-Matching Formulation of a Conducting Wedge with a Corrugated Cylindrical Tip**

Anastasis C Polycarpou; Marios Christou (University of Nicosia, Cyprus)

#### **A Hybrid Projective Method for Analysis of Electromagnetic Scattering From a Doubly Periodic Dielectric Structure**

Sergei Skobelev (Company "Radiophysika", Russia)

#### **Dispersion and Attenuation Analysis of Substrate Integrated Waveguides by Driven Eigenproblem Computation**

Huanlei Chen; Carsten H Schmidt; Thomas F. Eibert (Technische Universität München, Germany) et al.

#### **Rigorous Determination of the Modal Spectrum for Multilayered Structures Through a Simple Closed-Form Approach**

Guido Valerio; Alessandro Galli (Sapienza University of Rome, Italy); David Jackson (University of Houston, USA)

#### **FEM Eigenmode Solver for EBG Band Diagram Computation**

Romain Garnier (Universite Paul sabatier Toulouse 3., France)

**16:40 - 18:20 Room: S3****A10: Antennas for remote sensing and radio astronomy**

Chairs: William A Imbriale (Jet Propulsion Laboratory, USA), Luca Petrillo (ONERA - The French Aerospace Lab, France)

#### **Broadband Patch Array in Ku-Band for Polarimetric SAR Systems in UAVs**

Saray Sánchez-Sevilleja; Juan Ramón Larrañaga-Sudupe (INTA, Spain)

#### **Periodic Structures to Efficiently Launch HF Surface Waves**

Luca Petrillo (ONERA - The French Aerospace Lab, France)

#### **Analysis of RATAN-600 Radio Telescope Antenna Using the MLPO Algorithm**

Christine Letrou; Christian Parrot (TELECOM sudParis, France); Amir Baruh (Tel Aviv University, Israel) et al.

#### **Performance of a Quad-Ridged Feed in a Wideband Radio Telescope**

William A Imbriale (Jet Propulsion Laboratory, USA)

#### **A Simultaneous s/Ka Feed System for Remote Sensing Applications**

Christophe Granet; Ian Davis; John Kot; Greg Pope (BAE Systems Australia Ltd, Australia); Chris Rose (Viasat, USA)

**16:40 - 18:20 Room: G1****CA09: Biological effects of Electromagnetic Fields**

Chairs: Francesca Apollonio (ICEmB at "Sapienza" University of Rome, Italy), Micaela Liberti (ICEmB at "Sapienza" University of Rome, Italy)

#### **Radiofrequency and Microwave Bioelectromagnetic Interactions: State of the Art and Future Perspectives**

Carmela Marino; Paolo Galloni; Vanni Lopresto; Caterina Merla (ICEmB at ENEA, Research Center Casaccia, UT BIORAD, Italy)

#### **European Cooperation Projects**

Mirjana Moser (Federal Office of Public Health, Switzerland)

#### **Exposure Systems for Bioelectromagnetic Investigations in the Radiofrequency Range: Classification and Emerging Trends**

Alessandra Paffi (Sapienza University of Rome, Italy); Francesca Apollonio (ICEmB at "Sapienza" University of Rome, Italy) et al.

#### **Detection of permeabilisation obtained by micropulses and nanopulses by means of bioimpedance of biological tissues**

Lluis M Mir (UMR 8203 CNRS-Institut Gustave-Roussy, France)

#### **Combined Effects Induced in Biological Systems by Exposure to EMF and Chemical or Physical Agents**

Maria Rosaria Scarfi (CNR, Italy)

16:40 - 18:20

Room: N2

**M02: Advances in indoor and outdoor test ranges**

Chairs: Francesco D'Agostino (University of Salerno, Italy), Hakan Eriksson (Saab Electronic Defence Systems, Sweden)

#### **The CDT Ultra Wide-Band Anechoic Chamber**

Jose Manuel Serna; Félix Tercero; Timothy Finn; José Antonio López (IGN Spain, Spain)

#### **Signature Measurements in Monostatic and Bistatic SAR Configuration**

Helmut Essen; Manfred Haegelen; Sebastian Hantscher (Fraunhofer-FHR, Germany); Alfred Wahlen; Gunnar Briese (FGAN-FHR, Germany) et al.

#### **Electrical Alignment of Antenna Coordinate System in a Planar Near-Field Setup**

Anders Mynster (DELTA A/S, Denmark); Jeppe Nielsen; Sergey Pivnenko (Technical University of Denmark, Denmark)

#### **RCS Measurement Results for Automotive Related Objects At 23-27 GHz**

Tom Schipper; Lars Reichardt; Thomas Zwick (Karlsruhe Institute of Technology (KIT), Germany)

16:40 - 18:20

Room: S1

**P07: Propagation models for automatic networks planning**

Chairs: Reiner Hoppe (AWE Communications, Germany), Yves Lostanlen (SIRADEL, Canada)

#### **Surrogate Optimization of Indoor Radio Coverage**

Lajos Nagy (Budapest University of Technology and Economics, Hungary)

#### **Prediction of Range, Power Consumption and Throughput for IEEE 802.11n in Large Conference Rooms**

Frederic Heereman; Wout; Emmeric Tanghe; Luc Martens (Ghent University, Belgium); David Plets (IBBT-Ghent University, Belgium)

#### **Automatic Network Optimization and Dynamic Network Management Using a Propagation Prediction Tool in a Living Lab Setting**

David Plets (IBBT-Ghent University, Belgium); Wout Joseph; Kris Vanhecke; Luc Martens (Ghent University, Belgium)

#### **Optimization of Single Frequency Networks for DVB-T Services Using SA and PSO**

Marta Lanza; Angel Luis Gutiérrez; Iván Barriuso; Marta Domingo; Jesús Ramón Pérez et al. (University of Cantabria, Spain)

#### **Analysis of the Mast Contribution to the Scattering Pattern of Wind Turbines in the UHF Band**

Itziar Angulo; David de la Vega; Olatz Grande; David Guerra; Pablo Angueira (University of the Basque Country, Spain)



**09:00 - 10:40 Room: Auditorium****A11: New materials, meta-materials, EBG structures I (part 1)**

Chairs: Thomas Bertuch (Fraunhofer FHR, Germany), Filiberto Bilotti (University Roma Tre, Italy)

**Compact Multi-frequency Metamaterial-Inspired Antenna**

Iñigo Liberal; Iñigo Ederra; Ramon Gonzalo (Public University of Navarra, Spain)

**Analytical Modelling of Amorphous Glass-coated Microwires for Microwave Applications**

Iñigo Liberal; Iñigo Ederra; Ramon Gonzalo (Public University of Navarra, Spain)

**Analysis of Anomalous Extraordinary Transmission Through Metallic Arrays**

Miguel Beruete; Miguel Navarro-Cia; Vitaliy Lomakin (University of California, San Diego, USA) et al.

**Wide Angle Negative Refraction in Fishnet Metamaterials**

Miguel Beruete; Miguel Navarro-Cia; Mario Sorolla (Universidad Publica de Navarra, Spain)

**Stacked Cut-Off Hole Arrays for Lens Antennas At Subterahertz Frequencies**

Miguel Navarro-Cia; Miguel Beruete; Mario Sorolla (Universidad Publica de Navarra, Spain)

**09:00 - 10:40 Room: A****A12: Array antennas II (part 1)**

Chairs: Amedeo Capozzoli (Università di Napoli Federico II, Italy), Luca Salghetti (European Space Agency-ESTEC, The Netherlands)

**Experimental Results on a Planar Array of Parasitic Dipoles Fed by Only One Active Element**

Marcos Álvarez-Folgueiras; Juan Rodríguez-González; Francisco Ares-Pena (University of Santiago de Compostela, Spain)

**Design and Realization of a New Antenna for Localization with RFID**

Tan Phu Vuong (Grenoble INP, France)

**Future Architectures for ESA Deep Space Ground Stations Antennas**

Mario Fornaroli (Callisto Ltd., France)

**A Wideband Conformal Antenna Array for Cognitive Radio/MIMO Applications**

Jagath Kumara Halpe Gamage; Bengt Holter; Irene Jensen; Karsten Husby; Jacob Kuhnle (SINTEF ICT, Norway)

**Asymmetric Array Elements for Symmetric Scan Performance**

Hans Steyskal (c/o Air Force Research Laboratory, USA)

**09:00 - 10:40 Room: D****A13: Reflector and lens antennas (part 1)**

Chair: Aki Karttunen (Aalto University, Finland)

**A Novel 3D Printed Focusing Probe in Scattering-type Scanning Near-field Millimetre & Terahertz Wave Microscope**

Bin Zhu (Vrije Universiteit Brussel, Belgium); Sam A Vanlooce (University of Ghent, Belgium); Johan Stiens (VUB, Belgium) et al.

**Collimating and Resonant Properties of Two-Shell Radially Symmetric Lenses**

Artem V. Boriskin (IRE NASU, Ukraine); Alexander Vorobyov; Ronan Sauleau (University of Rennes 1, France)

**Wide Band Hat-Fed Reflector Antenna for Satellite Communication**

Erik G Geterud; Jian Yang (Chalmers University of Technology, Sweden); Tomas Ostling (Arkivator AB, Sweden)

**Beam Steerable Quartz Integrated Lens Antenna for 60 GHz Frequency Band**

Alexey Artemenko (The University of Nizhny Novgorod, Russia); Alexander Maltsev (Intel A/O, Russia) et al.

**A New Metal-Rod-Supported Hat Antenna for Potentially Combining with the Eleven Antenna as a Dual-Band Feed for Reflectors**

Jian Yang; Wei Wei (Chalmers University of Technology, Sweden); Tomas Ostling; Thomas Schafer (Arkivator AB, Sweden)

**09:00 - 10:40 Room: S1****A14: Multiband, wideband, UWB antennas I (part 1)**

Chairs: Andrea Massa (University of Trento, Italy), Elena Pancera (Karlsruhe Institute of Technology, Germany)

**Dual-Band Annular-Ring Microstrip Antenna with Bow Tie Shaped Aperture Coupling**

Mónica Ramirez (Autonomous University of Barcelona, Spain); Josep Parrón (Universitat Autònoma de Barcelona, Spain)

**A New UWB Radar System Using UWB CMOS Chip**

Yinan Yu; Sohaib Maalik; Jian Yang; Tomas McKelvey (Chalmers University of Technology, Sweden) et al.

**Optimization of Matching Circuits for Antennas**

Jussi Rahola (Optenni Ltd, Finland)

**A Dual Polarized Low Profile UWB Antenna for Building Material Analysis**

Dorothea Sturtz; Heiko Braun; Martin Pohlmann (Robert Bosch GmbH, Germany) et al.

**Novel UWB Low-Profile Sinuous Slot Antenna**

Antonio Manna; Paolo Baldonero; Fabrizio Trotta (Elettronica S.p.A., Italy)

**09:00 - 10:40****Room: B****CA14: Terahertz Antennas & Systems (part1)**

Chairs: Luis Jofre (UPC, Spain), Nuria Llombart (Universidad Complutense de Madrid, Spain)

**Broadband and Multispectral Response of Planar Antennas for Terahertz Security Screening**

Erich Grossman (NIST, USA)

**A Focal-plane Array of Dielectric Rod Antennas for THz Imaging**

Stephen M Hanham (Imperial College London, United Kingdom); Trevor S. Bird (Antengenuity, Australia)

**Silicon Based Antennas for THz Integrated Arrays**

Nuria Llombart (Universidad Complutense de Madrid, Spain); Bertrand Thomas (JPL, USA); Maria Alonso (UPC, Spain) et al.

**Silicon Field Effect Transistors for Terahertz Detection and Imaging**

Wojciech Knap (University Montpellier 2 and CNRS, France)

**Sub-Millimetre Wave Material Characterization**

Elena Saenz; Luis Rolo; Maurice Paquay (European Space Agency, The Netherlands) et al.

**09:00 - 10:40****Room: C****CA02: Antennas for space applications (part 1)**

Chairs: Yan Brand (Eutelsat S. A., France), Laszlo-Rudolf Kis (Intelsat Corporation, USA), Cyril Mangenot (European Space Agency, The Netherlands)

**Antenna Requirements as Seen by an Operator**

Hector T. Fenech; Alessia Tomatis; D. Serrano; Emmanuel Lance (Eutelsat S.A., France); Maria Kalama (Eutelsat S.A., France)

**Multi-beam Phased Arrays for Communication Satellites**

Michael Whelan (The Boeing Company, USA)

**Thales Alenia Space France Antennas: Recent Achievements for Telecommunications**

Jean-Christophe Lafond; Philippe Lepeltier; Jacques Maurel; Eric Vourch; Claude Labourdette et al. (Thales Alenia Space, France)

**A Dual Circular Combined K/Ka-Band RF Sensing Feed Chain for Multi Beam Satellite Antennas**

Enrico Reiche; Simon J Stirland (Astrium Ltd, United Kingdom); Christian Hartwanger (EADS Astrium GmbH, Germany) et al.

**A Summary of Recent Developments in Satellite Antennas At MDA**

Eric Amyotte; Yves Demers; Virginie Dupessey; Michel Forest; Louis Hildebrand; Aiping Liang et al. (MDA, Canada)

**09:00 - 10:40****Room: G1****CA04: Numerical Methods for Challenging Multi-Scale Problems (part1)**

Chairs: Francesco Andriulli (Ecole Nationale Supérieure des Telecommunications de Bretagne (TELECOM Bretagne), France), Giuseppe Vecchi (Politecnico di Torino, Italy)

**Fast Fourier Transform Accelerated Multilevel Green's Function Interpolation for Mixed Potential and Direct Field Surface Integral Equations**

Dennis T. Schobert; Thomas F. Eibert; Carsten H. Schmidt (Technische Universität München, Germany)

**A New Highly Accurate Time Integration Scheme for DG-FEM**

Meilin Liu; Hakan Bagci (King Abdullah University of Science and Technology (KAUST), Saudi Arabia)

**Fast Integral Equation Solver Strategies with Implicit Matrix Vector Product Evaluation for Planar-3D Structures**

Thomas Vaupel (Fraunhofer FHR, Germany)

**Supercomputer Solutions of Extremely Large Problems in Electromagnetics: From Ten Million to One Billion Unknowns**

Jose M. Taboada; Luis Landesa (University of Extremadura, Spain); Marta G. Araújo; José Bértolo; (University of Vigo, Spain) et al.

**New computational strategies for electromagnetic modeling of multiscale heterogeneous composites**

Zhen Peng; Jue Wang; Feiran Lei; Jin-Fa Lee (Electroscience Lab., The Ohio State University, USA)

**09:00 - 10:40****Room: N1****CP08: COST IC0802: Channel modelling for radio systems from L to W band (part1)**

Chairs: Laurent Castanet (ONERA, France), Antonio Martellucci (European Space Agency, The Netherlands)

**Radiowave Propagation Modelling for ITU and WRC Regulatory Activities**

Sergio Buonomo (ITU, Switzerland); Bertram Arbesser Rastburg (ESA - Estec, The Netherlands)

**Clustering of the Multipath Radio Channel Parameters**

Susana Mota; Armando C Rocha (University of Aveiro, Portugal); Maura Garcia; Fernando Pérez-Fontán (University of Vigo, Spain)

**Statistical and Physical-Statistical Modeling of the Land Mobile Satellite, LMS, Channel At Ku- and Ka-Band**

Fernando Pérez-Fontán (University of Vigo, Spain); Nicolas Jeannin; Laurent Castanet; Mametsa (ONERA, France) et al.

**Propagation Modelling and Mapping of Rain, Clouds and Water Vapour to Cope with Spatial and Temporal Variability**

Aldo Paraboni; Carlo Riva; Carlo Capsoni; Lorenzo Luini (Politecnico di Milano, Italy); Laurent Castanet; Nicolas Jeannin (ONERA, France) et al.

**Synergic Use of EO, NWP and Ground Based Data for the Characterisation of Water Vapour Field**

Nazzareno Pierdicca (Uni Roma1, Italy); Fabio Rocca (Politecnico di Milano, Italy); Bjorn Rommen (Estec, The Netherlands); et al.

**09:00 - 10:40 Room: N2**

**CM02: Fast Antenna Near Field Measurements Techniques (AMTA session) part1**

Chairs: Lars Jacob Foged (SATIMO, Italy), Carlo Rizzo (Tecnologica Ltd., United Kingdom), Manuel Sierra-Castañer (Technical University of Madrid, Spain)

**Fresnel Zone to Far Field Algorithm for Rapid Array Antenna Measurements**

Manuel Sierra-Castañer (Technical University of Madrid, Spain); Sara Burgos (Antenna Systems Solutions, Spain)

**Spherical Near Field Measurements with Truncated Scan Area**

Enrica Martini; Stefano Maci (University of Siena, Italy); Lars Jacob Foged (SATIMO, Italy)

**A New Method to Reduce Truncation Errors in Partial Spherical Near-Field Measurements**

Francisco José Cano (Technical University of Madrid, Spain); Sergey Pivnenko (Technical University of Denmark, Denmark)

**Positioning Errors Compensation in the NF - FF Transformation with Helicoidal Scanning for Long Antennas: Experimental Tests**

Francesco D'Agostino; Flaminio Ferrara; Claudio Gennarelli; Rocco Guerriero; Massimo Migliozzi (University of Salerno, Italy)

**Electric Dipole Based Synthetic Data Generation for Probe-Corrected Near-Field Antenna Measurements**

Carsten H Schmidt; Dennis T. Schobert; Thomas F. Eibert (Technische Universität München, Germany)

**09:00 - 10:40 Room: N3**

**CP07: Mobile propagation and scattering from buildings and vegetation (part1)**

Chairs: Vittorio Degli-Esposti (University of Bologna, Italy), Saúl Torrico (Comsearch & The George Washington University, USA)

**Radioelectric Propagation in a Deciduous Tree Forest At Wireless Networks Frequency Bands**

Jose Antonio Gay Fernandez; Iñigo Cuiñas; Manuel García Sánchez (Universidade de Vigo, Spain)

**A Propagation Prediction Model in Vegetated Residential Environments - A Simplified Analytical Approach**

Saúl Torrico (Comsearch, USA); Kin Lien Chee; Thomas Kürner (Technische Universität Braunschweig, Germany)

**Simulation of Fading Statistics in Hilly/Mountainous Terrain**

Jonathan S. Lu (Polytechnic Institute of NYU, USA); Henry L. Bertoni (Polytechnic University, USA); et al.

**Frequency Characteristics of Angular Spread for Radio Wave Propagation Through Foliage**

Chaymaly Phakasoum; Mir Ghoraiishi; Jun-ichi Takada (Tokyo Institute of Technology, Japan); Koshiro Kitao; Tetsuro Imai (NTT DoCoMo, Japan)

**An assessment of complex scattered electric field through building facade homogenization**

Shermila Mostarshedi; Elodie Richalo; Odile Picont (Université Paris-Est (Marne-la-Vallée), France); Joe Wiart (France Telecom R&D, France)

**09:00 - 10:40 Room: S3**

**CA19: Transformation electromagnetics (part1)**

Chairs: André de Lustrac (Institut d'Electronique Fondamentale - Université Paris-Sud, France), Yang Hao (Queen Mary, University of London, United Kingdom)

**Ultra-Directive Emission Made by Transformation Optics**

Paul-Henri Tichit (Institut d'Electronique Fondamentale - Université Paris-Sud, France); Shah Nawaz Burokur (University Paris Ouest, France) et al.

**Three-Dimensional Metamaterial Lens Antennas**

Tie Jun Cui (Southeast University, P.R. China)

**Cloaking a Reflector Antenna Using Coordinate Transformation Approach**

Wenxuan Tang; Yang Hao (Queen Mary, University of London, United Kingdom); Raj Mittra (Penn State University, USA)

**The Transform of Geometry in Space and Its Application in Reconfigurable PIFA Antenna**

Duc Nguyen (1Laboratory LAHC, Institute Microelectronic Electromagnetic and Photonic, Grenoble INP-Minatec, France) et al.

**Tensor Transmission-Line Metamaterials and Their Applications**

Gurkan Gok; Anthony Grbic (University of Michigan, Ann Arbor, USA)

**09:00 - 10:40 Room: S2**

**M03: Advances in EM field measurements (part 1)**

Chairs: Rens Baggen (IMST GmbH, Germany), Gemma Roqueta (Universitat Politècnica de Catalunya & University of California, Irvine, Spain)

**Microwave Non-Destructive Evaluation of Corrosion in Reinforced Concrete Structures**

Gemma Roqueta; Luis Jofre (Universitat Politècnica de Catalunya, Spain); Maria Feng (University of California, Irvine, USA)

**Absolute Field Strength Measurements of Slotted Enclosures Using an Electro-Optical Field-Sensor**

Lena A. Thiele; Robert Geise (Technische Universität Braunschweig, Germany)

**Retrieving Half-Space Fresnel Coefficients by Multistatic GPR Data**

Raffaele Solimene; Antonietta D'Alterio; Rocco Pierri (Second University of Naples, Italy)

**Contactless Measurement Method for Integrated mm-Wave Antennas**

Ulf Johannsen (Eindhoven University of Technology, The Netherlands); Marco Spirito (Delft University of Technology, The Netherlands) et al.

**Radar Target Identification of Mining Infrastructure for Automated Mine Machinery Navigation**

Chad Hargrave (CSIRO, Australia)

**11:00 - 12:40 Room: Auditorium**

**A11: New materials, meta-materials, EBG structures I (part 2)**

Chairs: Filiberto Bilotti (University Roma Tre, Italy), Nader Engheta (University of Pennsylvania, USA)

**Cylindrical Active Coated Nano-Particles Excited by Electric and Magnetic Line Sources**

Samel Arslanagic (Technical University of Denmark, Denmark)

**Microstrip Gain Enhancement Using Left Handed Metamaterial Structure**

Mohamad Kamal A. Rahim; Farid Zubir; Huda A. Majid (Universiti Teknologi Malaysia, Malaysia)

**Radiation Efficiency Improvement of Dual Band Patch Antenna Based on a Complementary Rectangular Split Ring Resonator**

Noelia Ortiz; Francisco Falcone; Mario Sorolla (Universidad Publica de Navarra, Spain)

**Comparative Study of the Integral Equation Formulations When Analyzing Left-Handed Materials**

Marta G. Araújo (Universidade de Vigo, Spain); Javier Rivero; Jose M. Taboada; Luis Landesa (University of Extremadura, Spain) et al.

**Bandwidth Analysis of Lumped-element-based Planar Anisotropic Cloak**

Silvio Hrabar; Iva Malcic (University of Zagreb, Croatia)

**11:00 - 12:40 Room: A**

**A12: Array antennas II (part 2)**

Chairs: Amedeo Capozzoli (Università di Napoli Federico II, Italy), Luca Salghetti (European Space Agency-ESTEC, The Netherlands)

**Design of a Low-Profile Printed Array of Loaded Dipoles with Inherent Frequency Selectivity Properties**

Daniele Cavallo (TNO, The Netherlands); Silvio Savoia (University of Sannio, Italy); et al.

**Direction Dependent Antenna Modulation Using a Two Element Array**

HongZhe Shi; Alan Tennant (University of Sheffield, United Kingdom)

**New Circularly Polarized Slot Radiator for Substrate Integrated Waveguide (SIW) Planar Array**

Jose Luis Masa-Campos (Universidad Autonoma de Madrid, Spain); Manuel Sierra-Perez (Universidad Politécnica de Madrid, Spain) et al.

**Unusual Tapering of Leaky-Wave Radiators and Their Applications**

Jose-Luis Gómez-Tornero (Polytechnic University of Cartagena, Spain)

**Analysis of Microstrip Patch Antenna Array Integrated with Mushroom-Like EBG for 5.8 GHz**

Mohd Nor Md Tan (University Technology Mara, Malaysia); Tharek Abdul Rahman (Wireless Communication Centre, Malaysia) et al.

**11:00 - 12:40 Room: D**

**A13: Reflector and lens antennas (part 2)**

Chairs: Erik Jørgensen (TICRA, Denmark), Aki Karttunen (Aalto University, Finland)

**Complex-source-point Beam Scattering by a Thin High-Contrast Dielectric Disk**

Mikhail Balaban (Institute of Radio-physics and Electronics of NASU, Ukraine); Ronan Sauleau (University of Rennes 1, France) et al.

**Application of a Hybrid Domain Decomposition Approach for the Analysis of Large Reflector Antennas**

Carlos Delgado; Eliseo García; Felipe Cátedra (University of Alcalá, Spain)

**Double-shell Modified Extended Hemispherical Lens Feed for Reflectors in Scanning Applications**

Carlos A. Fernandes; Eduardo B. Lima; Jorge R. Costa (Instituto de Telecomunicações / ISCTE-IUL, Portugal)

**A Low-Reflection Flat-Lens Design for Microwave Imaging System**

Yan Zhang (State Key Laboratory of Millimeter Waves, Southeast University, P.R. China); Raj Mittra (Penn State University, USA)

**Modeling and Efficiency Investigation of Arrays of Reflector Antennas for Deep Space Communication**

Marta Cametti; Marco Pasian; Maurizio Bozzi; Luca Perregrini (University of Pavia, Italy)

**11:00 - 12:40 Room: S1**

**A14: Multiband, wideband, UWB antennas I (part 2)**

Chairs: Andrea Massa (University of Trento, Italy), Elena Pancera (Karlsruhe Institute of Technology, Germany)

**Particle Swarm Antennas for Wireless Communication Systems**

Anthony Minasian; Javid Atai (University of Sydney, Australia); Trevor S. Bird (Antengenuity, Australia)

**A Compact Wideband Dielectric Resonator Antenna for C-Band Application**

Mohsen Khalily; Mohamad Kamal A. Rahim; Muhammad Ramlee Kamarudin (Universiti Teknologi Malaysia, Malaysia)

**Design and Analysis of a Band-Notched UWB 1 to 4 Wilkinson Power Divider Using Symmetric Defected Ground Structure**

Firoozeh Khajeh Mirzaee; Abdullah Mirtaheri; Somayyeh Chamaani (K. N. Toosi University, Iran)

**Wideband Double Ridged Horn Antenna: Pattern Analysis and Improvement**

Meisam Ghorbani (K.N. Toosi University of Technology, Iran); Ali Khaleghi (Rikshospitalet and NTNU, Norway)

**Omnidirectional Low-Dispersive UWB-Antenna**

Jan E. Bauer; Rainer J. Wansch (Fraunhofer Institut Integrierte Schaltungen IIS, Germany)



11:00 - 12:40

Room: B

**CA14: Terahertz Antennas & Systems (part2)**

Chairs: Luis Jofre (UPC, Spain), Nuria Llombart (Universidad Complutense de Madrid, Spain)

#### **In-Line X-Slot Element Focal Plane Array of Kinetic Inductance Detectors**

Annalisa Iacono (University of Eindhoven (TUE), The Netherlands); Angelo Freni (University of Florence, Italy) et al.

#### **Optical Requirements and Modelling of Coupling Devices for the SAFARI Instrument on SPICA**

Neil Trappe (NUI Maynooth, Ireland)

#### **Feed Networks for Antenna-Array Coupled TES Bolometers for CMB Polarimetry**

Roger OBrient (California Institute of Technology, USA)

#### **Terahertz Photoconductive Antennas: Principles and Applications**

Daryoosh Saeedkia (TeTechS Inc., Canada)

#### **Plasmonic Antenna for Beam-Shaping of Terahertz Quantum Cascade Lasers**

Tahsin Akalin (Université de Lille 1, France); Miguel Beruete; Miguel Navarro-Cia (Universidad Publica de Navarra, Spain) et al.

11:00 - 12:40

Room: C

**CA02: Antennas for space applications (part 2)**

Chairs: Yan Brand (Eutelsat S. A., France), Laszlo-Rudolf Kis (Intelsat Corporation, USA), Cyril Mangenot (European Space Agency, The Netherlands)

#### **High Performance Reflectors for Telecom Space Antennas in MELCO**

Hiroyuki Ohmine (Mitsubishi Electric Corporation, Japan)

#### **Highly Accurate and Stable Reflector Antennas At RUAG Space**

Per Ingvarson (RUAG Space AB, Sweden)

#### **Study of the Impact to the Beam Isolation From the Reflector Holddown Holes**

Ji-Fu Ma; Michael Thorburn (Space Systems Loral, USA)

#### **Compact and Stable Earth Deck Multi-Beam Ka-Band Antenna Structure and Dual Gridded Reflector**

Ernst Pfeiffer; Olaf Reichmann; Alexander Ihle (HPS GMBH, Germany); Stefan Linke; Christoph Tschepe (INVENT GMBH, Germany); et al.

#### **30m Class Lightweight Large Deployable Reflector**

Satoru Ozawa; Kyoji Shintate; Akio Tsujihata (Japan Aerospace Exploration Agency, Japan)

11:00 - 12:40

Room: G1

**CA04: Numerical Methods for Challenging Multi-Scale Problems (part2)**

Chairs: Francesco Andriulli (Ecole Nationale Supérieure des Telecommunications de Bretagne (TELECOM Bretagne), France), Giuseppe Vecchi (Politecnico di Torino, Italy)

#### **Fast Electromagnetic Analysis of Multi-Scale Models with MLFMA Utilizing Spherical Basis Functions**

Jonatan Aronsson; Vladimir Okhmatovskii (University of Manitoba, Canada)

#### **Linear Embedding Via Green's Operators and Arnoldi Basis Functions for Analyzing Complex Structures**

Vito Lancellotti; Bastiaan de Hon; Anton G. Tijhuis (Technische Universiteit Eindhoven, The Netherlands)

#### **On the Hybridization of Dipole Moment (DM) and Finite Methods for Efficient Solution of Multiscale Problems**

Raj Mittra; Jonathan N Bringuier (Penn State University, USA); Chiara Pelletti (University of Pisa, Italy) et al.

#### **On the Regularization of the Vector Potential in the Electric Field Integral Equation**

Francesco Andriulli (Ecole Nationale Supérieure des Telecommunications de Bretagne (TELECOM Bretagne), France) et al.

#### **PSTD Based 3D EM Propagation Modeling of a Comet Nucleus**

Gabriel Arnold; Christoph Statz; Sebastian Hegler; Dirk Plettemeier (Dresden University of Technology, Germany) et al.

11:00 - 12:40

Room: N1

**CP08: COST IC0802: Channel modelling for radio systems from L to W band (part2)**

Chairs: Laurent Castanet (ONERA, France), Antonio Martellucci (European Space Agency, The Netherlands)

#### **Use of Remote Sensing Techniques and Navigation Data for Tropospheric Channel Assessment**

Susanne Crewell (Universität Köln, Germany); Frank S. Marzano; Vinia Mattioli (Sapienza University of Rome / Perugia, Italy) et al.

#### **Dynamic Modelling of Atmospheric Microwave Transmission for Precipitation Quantification Using Mie Scattering**

Susanne Hipp; Uwe Siart (Technische Universität München, Germany); Christian Chwala (Karlsruhe Institute of Technology, Germany) et al.

#### **Joint Results of 20 GHz Recent Earth-Space Propagation Experiments in Canada and Europe**

Cesar A. Amaya; Tu Nguyen (Communications Research Centre, Canada); Armando C Rocha (U. Aveiro / IT Aveiro, Portugal) et al.

#### **Use of Space-Time Channel Models and Data for Design and Control of Adaptive SatCom Systems**

Carlo Capsoni (Politecnico di Milano, Italy); Laurent Castanet (ONERA, France); Piero Gabellini (Space Engineering S.p.a., Italy) et al.

#### **Review of Prediction Methods for Low-Elevation Aerospace Systems and New Achievements**

Joel Lemorton; Vincent Fabbro; Charilaos Kourogiorgas (ONERA, France) et al.

#### **Propagation Modeling for the Design of Data-Downlink of non-GEO Satellite Systems (Earth Observation / Space Exploration) and DRS**

Carlo Capsoni (Politecnico di Milano, Italy); Nazzareno Pierdicca; Frank S. Marzano (Sapienza University of Rome, Italy) et al.



Lunch Break

12:40 - 14:00

**11:00 - 12:40****Room: N2**

**CM02: Fast Antenna Near Field Measurements Techniques (AMTA session) part2**

Chairs: Lars Jacob Foged (SATIMO, Italy), Carlo Rizzo (Tecnologica Ltd., United Kingdom), Manuel Sierra-Castañer (Technical University of Madrid, Spain)

**Dual Polarized Probe for Wideband Planar Near Field Measurement Applications**

Lars Jacob Foged; Andrea Giacomini; Roberto Morbidini (SATIMO, Italy)

**G/T Estimation For DVB-SH Automotive 2-Port Switchable CP Antennas**

Enrico Toniolo; Mario Busa; Massimo; Daniel Zamberlan (Calero Antenne S.p.A., Italy)

**Application of Mathematical Absorber Reflection Suppression to Planar Near-Field Antenna Measurements**

Stuart F Gregson; Allen Newell; Greg Hindman; Michael Carey (Nearfield Systems Inc., USA)

**Near Field Test Bench in Design and Production Phase**

Paolo Baldonero; Antonio Manna; Andrea Pantano; Fabrizio Trotta; Roberto Flamini (Elettronica SpA, Italy)

**Far Field and Gain Calculation Starting From Near Field Time - Domain Data Acquisition**

Rabia Rammal (université de Limoges, France); Michele Lalande; Edson Martinod; Noel Feix (XLIM/OSA, France)

**11:00 - 12:40****Room: N3**

**CP07: Mobile propagation and scattering from buildings and vegetation (part2)**

Chairs: Vittorio Degli-Esposti (University of Bologna, Italy), Saúl Torrico (Comsearch & The George Washington University, USA)

**Radiowaves Scattering from Irregular Building Facades through MoM Analysis**

Yelakan Berenger Ouattara; Elodie Richalot; Odile Picon (Université Paris-Est, France); Kubické Gildas (IREENA, France) et al.

**Analysis of Angular Parameters of Dense Multipath Components in an Urban Macro-Cell Scenario**

Martin Käske; Reiner S. Thomä (Ilmenau University of Technology, Germany)

**Parameter Estimation of Delay-Doppler Frequency Power Spectrum for Vehicular Propagation Channels**

Xuefeng Yin; Quan Zuo (Tongji University, P.R. China); Zhimeng Zhong; Stan X. Lu (Huawei Technology Company, P.R. China)

**Ray-Tracing Evaluation of Diffuse Scattering in an Outdoor Scenario**

Francesco Mani; Claude Oestges (Université catholique de Louvain, Belgium)

**Clutter Height Variation and Its Effect on frequency dependence of Radio Path Loss**

Dmitry Chizhik (Bell Laboratories, Alcatel-Lucent, USA)

**Coupling a Deterministic Propagation Model with Diffuse Scattering and Urban Furniture for Small Cells**

G. Gougeon; Yves Lostanlen (SIRADEL, Canada); Laurent Maviel (CITI Laboratory, France)

**11:00 - 12:40****Room: S3**

**CA19: Transformation electromagnetics (part2)**

Chairs: André de Lustrac (Institut d'Electronique Fondamentale - Université Paris-Sud, France), Yang Hao (Queen Mary, University of London, United Kingdom)

**DB Boundary Conditions At the Inner Surface of an Arbitrarily Shaped Cloak**

Enrica Martini; Stefano Maci (University of Siena, Italy); Arthur D Yaghjian (Research Consultant, USA)

**Practical Realization of Transformation-Optics Designed Invisibility Cloak Through Layered Structures**

Yijun Feng (Nanjing University, P.R. China)

**Transformational Plasmonics**

Muamer Kadic; Guillaume Dupont (Aix-Marseille University, France); Sébastien Guenneau; Stefan Enoch (CNRS, France)

**Broadband Dielectric Zone Plate Antenna From Transformation Electromagnetics**

Rui Yang; Wenxuan Tang; Yang Hao (Queen Mary, University of London, United Kingdom)

**Advances in Conformal Metamaterial Antennas Using High Impedance (HIS) and Electromagnetic Bandgap (EBG) Surfaces**

George K Palikaras (Queen Mary University of London, United Kingdom); Alexandros Feresidis (Loughborough University, United Kingdom) et al.

**11:00 - 12:40****Room: S2**

**M03: Advances in EM field measurements (part 2)**

Chairs: Rens Baggen (IMST GmbH, Germany), Gemma Roqueta (Universitat Politècnica de Catalunya & University of California, Irvine, Spain)

**Frequency Selective Surface Absorber for WLAN Security**

Umair Rafique (Mohammad Ali Jinnah University, Pakistan)

**Low Cost Measurement Setup for Passive Microwave Remote Sensing by Aperture Synthesis Technique**

Yassine Aouial (University of Rennes 1, France); Olivier Lafond (IETR, France); Mohamed Himdi (Université de Rennes 1, France) et al.

**Evaluation of the Mono-static Microwave Radar Algorithms for Breast Imaging**

Evgeny Kirshin; Guanran Zhu; Milica Popovic; Mark Coates (McGill University, Canada)

**An Effective Toolbox for Water Distribution Network Monitoring**

Giancarlo Prisco; Michele D'Urso; Gabriella Bernardi (SELEX Sistemi Integrati, Italy) et al.

**Microwave Tomography for GPR Investigations on a Steep Fractured Rock Slope: An Example From Maratea**

Francesco Soldovieri; Massimo Bavusi; Antonio Loperte (CNR, Italy) et al.

14:00 - 15:00

**Poster Session II****The Effects of Support Structures on Near-Field Exposure Levels for HF Antennas**

Ying Fu (University of Sheffield, United Kingdom); Mike Hate (BBC World Service, United Kingdom) et al.

**A Reconfigurable Decoupling and Matching Network for a Frequency Agile Compact Array**  
Yong Cai (CSIRO, Australia); Y Jay Guo (Wireless Technologies Lab, CSIRO ICT Centre, Australia)

**A Consideration of Equivalent Circuit of Magnetic-Resonant Wireless Power Transfer**  
Hiroshi Hirayama; Yuki Okuyama; Nobuyoshi Kikuma; Kunio Sakakibara (Nagoya Institute of Technology, Japan)

**On the Reduction of Mutual Coupling Between Stacked Patches by Exploiting the Properties of the Parasitic Patch**

Oscar Quevedo-Teruel (Universidad Autónoma de Madrid, Spain); Zvonimir Sipus (University of Zagreb, Croatia)

**Mutual Coupling Reduction Between Dual Polarized Microstrip Patch Antennas Using Compact Spiral Artificial Magnetic Conductor**  
Lila Mouffok; Lana Damaj; Xavier Begaud; Anne-Claire Lepage (Institut TELECOM, TELECOM ParisTech, France); Hubert Diez (CNES, France)

**On Adjusting the Characteristics of a Low-Index Slab Antenna with a Finite Set of Metallic Pins**

Constantinos A Valagiannopoulos (Aalto University, Finland)

**Design of a Compact H/OH Horn for the Parkes Radio Telescope**

Christophe Granet (BAE Systems Australia Ltd, Australia); Mark Bowen; John Reynolds (CSIRO, Australia) et al.

**A Compact UWB Passive Balun Solution for Cryogenic 2-13 GHz Eleven Feed for Future Wideband Radio Telescopes**

Hasan Raza; Jian Yang (Chalmers University of Technology, Sweden)

**Temporal Beam Pattern Stability of a Radio Astronomy Phased Array Feed**

Wim van Cappellen (ASTRON, The Netherlands); Marianna Ivashina (Chalmers University of Technology, Sweden)

**Reducing the Complexity of the Beam Calibration Models of Phased-Array Radio Telescopes**

Oleg Lupikov (Sevastopol National Technical University, Ukraine); Marianna Ivashina (Chalmers University of Technology, Sweden); Oleg Smirnov (ASTRON, The Netherlands)

**Corrugated Horn Antenna Noise Temperature Characterisation for the NRL Water Vapor Millimeter-Wave Spectrometer Project**

Jorge Teniente (Public University of Navarra, Spain); R. Michael Gomez (Naval Research Laboratory, USA) et al.

**Focusing System for a 300 GHz Radar with Two Target Distances**

Javier Montero-de-Paz; Oscar Garcia-Perez; Alejandro Rivera-Lavado; Eduardo Ugarte-Muñoz (Universidad Carlos III in Madrid, Spain) et al.

**Analytic Techniques for the Design of Correlator Arrays for Remote Sensing and Radio Astronomy**

Lorenzo Poli; Matteo Carlin; Paolo Rocca (University of Trento, Italy)

**Beam Steering and Adaptive Nulling of Low Sidelobe Level Time-Modulated Linear Array**

Yizhen Tong; Alan Tennant (University of Sheffield, United Kingdom)

**Modified Circular Taylor Patterns to Generate Footprint Patterns**

Raquel Eirey-Pérez; Marcos Álvarez-Folgueiras; Juan Rodríguez-González et al. (University of Santiago de Compostela, Spain)

**ANN Element Characterization for Reflectarray Antenna Optimization**

Pedro Robustillo; Jose A. Encinar; Juan Zapata (Universidad Politécnica de Madrid, Spain)

**Design and Development of a V-Shaped Printed Dipole Antenna Array for Passive Radar**

Peter Knott (Fraunhofer FHR, Germany); Ulrich R.O. Nickel (Fraunhofer FKIE, Germany)

**Comparison of Different PSO Initialization Techniques for High Dimensional Search Space Problems: A Test with FSS and Antenna Arrays**

Angel Luis Gutiérrez; Marta Lanza; Iván Barriuso; Luis Valle; Marta Domingo; Jesús Ramón Pérez et al. (University of Cantabria, Spain)

**Comparison of Heuristic Methods When Applied to the Design of Reflectarrays**

Iván Barriuso; Angel Luis Gutiérrez; Marta Lanza; Jesús Ramón Pérez; Luis Valle; Marta Domingo et al. (University of Cantabria, Spain)

**Shaped-Beam Reconfigurable Reflectarray with Gathered Elements in an Irregular Lattice for LMDS Base Station**

Eduardo Carrasco (Universidad Politécnica de Madrid, Spain); Manuel Arrebola (Universidad de Oviedo, Spain) et al.

**New Low Loss Inverted Microstrip Line Using Gap Waveguide Technology for Slot Antenna Applications**

Elena Pucci; Ashraf Zaman (Chalmers University of Technology, Sweden); Eva Rajo-Iglesias (University Carlos III of Madrid, Spain) et al.

**Unequally Spaced Arrays Synthesis Using Self-adaptive Differential Evolution**

Sotirios Goudos; Apostolos A Nanos; Theo Samaras; Katherine Siakavara (Aristotle University of Thessaloniki, Greece) et al.

**Phase-Only Synthesis of A-Periodic Reflectarrays**

Amedeo Capozzoli; Claudio Curcio (Università di Napoli Federico II, Italy) et al.

**General Analysis Tool for Reflectarray Antennas in Dual-Reflector Configurations**

Carolina Tienda; Jose A. Encinar (Universidad Politécnica de Madrid, Spain); Manuel Arrebola (Universidad de Oviedo, Spain)

**A New Iterative Method for Synthesizing Flat-Topped Pattern**

Abolfazl Haddadi (Amirkabir University of Technology, Iran); Parastoo Taghikhani (Shahed University, Iran) et al.

**Accurate Electromagnetic Modeling of Liquid Crystal Cells for Reconfigurable Reflectarrays**

Gerardo Perez-Palomino; Jose A. Encinar; Mariano Barba (Universidad Politécnica de Madrid, Spain)

**Design of Rectangular Bismuth Titanate (BIT) Ceramic Array Antenna**

Wee Fwen Hoon (Universiti Malaysia Perlis (UniMAP), Malaysia)

**Preliminary Results on Tunable Frequency Selective Surface for Beam Steering Transmit-array Applications**

Luigi Boccia (Università della Calabria, Italy); Ivan Russo (Universität Ulm, Germany) et al.

**Analytically-Designed Multi-Beam Arrays with Predictable Sidelobes**

Lorenzo Poli; Paolo Rocca (University of Trento, Italy)

**Synthesis of Sub-Arrayed Antennas for Wireless Power Transmission**

Paolo Rocca; Giacomo Oliveri; Andrea Massa (University of Trento, Italy)

**A New Method for the Prognosis of Scan Blindness Angle in Finite Phased Arrays of Printed Dipoles**

Bilgehan Avser; Vakur Erturk (Bilkent University, Turkey)

**Performances of Galileo System Navigation Antenna for Global Positioning**

Silvia Arenas; Fernando Monjas (EADS CASA Espacio, Spain); Antonio Montesano (University of Siena, Italy) et al.

**Dual-antenna System Composed of Patch Array and Planar Yagi-Uda Array**

Qiang Chen (Tohoku University, Japan); Shiwei Qu (University of Electronic Science and Technology of China, P.R. China) et al.

**Novel Method for Using Adaptive Array Antennas in DS-CDMA Mobile Radio Systems**

Amin Al-Ka'bi (Australian College of Kuwait, Kuwait)

**Real-time Adaptive Beam-forming for Vibrating Airborne Antenna Arrays**

Harmen Schippers; Rasmus Cornelius; Adriaan Hulzinga; Guus Vos (National Aerospace Laboratory NLR, The Netherlands)

**Inclined Slot Array Antennas on a Rectangular Coaxial Line**

Satoshi Yamaguchi (Mitsubishi Electric Corporation, Japan)

**Excitation of a Double Corrugation Slow-wave Structure in Terahertz Range**

Vitaliy Zhurbenko (Technical University of Denmark, Denmark); Viktor Krozer (Goethe University of Frankfurt am Main, Germany) et al.

**Trade-Offs in Multifaceted Passive Electromagnetic Deflector for the 60 GHz Frequency Band**

Muhammad Imran Kazim (Technical University of Eindhoven (TU/e), The Netherlands); Matti Herben (Eindhoven University of Technology, The Netherlands)

**Water Content Evolution in Leaves Based on Active THz Imaging System**

JuanCarlos Iriarte; David Etayo; Ines Palacios; Itziar Maestrojuán; Iñigo Liberal; Ainara Rebollo et al. (Public University of Navarra, Spain)

**Design of 60-GHz CMOS On-Chip Linear Tapered Slot Antenna with Corrugation Structure**

Huey-Ru Chuang (National Cheng Kung University, Taiwan)

**Circularly Polarized Multi-Beam Lens Antenna System for High Altitude Platforms (HAPS)**

Marco Letizia; Jean-François Zürcher (École Polytechnique Fédérale de Lausanne, Switzerland) et al.

**Design of a Circularly Polarized Patch Antenna Over a Reactive Impedance Substrate**

Guillaume Chertier (Polytech'Nice, France); Loïc Bernard (ISL, France); Ronan Sauleau (University of Rennes 1, France)

**Body Armour with Integral High Impedance Surface**

Benito Sanz-Izquierdo; Edward Parker; John Batchelor; Jonathan Miller (University of Kent, United Kingdom)

**Dynamic Tuning of Electromagnetic Bandgap**

Dushmantha Thalakatuna (Macquarie University, Australia); Ladislau Matekovits (Politecnico di Torino, Italy) et al.

**A Reconfigurable Miniaturised Split Ring Antenna Over AMC**

Shaozhen Zhu; Kenneth Lee Ford; Alan Tennant; Richard Langley (University of Sheffield, United Kingdom)

**Two-dimensional Magneto-Inductive Wave Data Structures**

Christopher Chan; Christopher Stevens (University of Oxford, United Kingdom)

**Conceptual Implementation of MNG Metamaterial for Reduced Size Rectangular Patch Antenna**

Md. Zuboraj; Mahdy Chowdhury; Abdullah Ovi; Md. Abdul Matin (Bangladesh University of Engineering and Technology, Bangladesh)

**A Review of Mechanically Reconfigurable Antennas Using Smart Material Actuators**

Shahrazad Jalali Mazlouman (Simon Fraser University, Canada); Alireza Mahanfar (Microsoft Corp., USA); Carlo Menon (SFU, Canada) et al.

**Improving Microstrip Filters with Gap Waveguide Packaging**

Astrid Algaba Brazález; Ashraf Zaman; Elena Pucci (Chalmers University of Technology, Sweden) et al.

**A Low-Profile, Wideband Circularly Polarized Curl Antenna Backed by a Polarization Dependent Reflector**

Hossein Farahani; Foad Fereidoony (Ms. in K. N. Toosi University of Technology, Tehran, Iran)

**The Performance of RFID Antennas on Metamaterial Substrate**

Onofrio Losito; Michele Bozzetti (Politecnico di Bari, Italy); Vincenzo Dimiccoli; Domenico Barletta (1ITEL Telecomunicazioni S.r.l., Italy)

**Performance of Uniaxial Multilayer Cylinders and Spheres Used for Invisible Cloak Realization**

Branimir Ivsic; Tin Komljenovic; Zvonimir Sipus (University of Zagreb, Croatia)

**Circular Polarization From a ZOR Patch-Coupled Rectangular Ring-Mushroom Antenna**

Seongryong Yoo; Sungtek Kahng; Geonho Jang (University of Incheon, Korea); Jaume Anguera (Fractus, Spain)

**Application of the Complex Materials for Antenna Synthesis**

Ivan Petoev; Vasili Tabatadze (Unknown, Georgia); Revaz Zaridze (Tbilisi State University, Georgia)

**Beam-Scanning Antennas Based on Metamaterial Planar Lens**

Yan Yang (University of Southampton, United Kingdom)

**Design of Dual Beam Printed Dipole Antenna**

Jean Michel Denoual; Jean-marie Floch (IETR, France); Yan Kokar (IETR-INSA Rennes, France)

**Genetic Algorithms for Synthesis or Radiation Patterns in Ring-Reconfigurable Reflectors**

Julio Gutierrez-Ríos (Universidad Politécnica de Madrid, Spain); Juan Vassal'lo Sanz (Consejo Superior de Investigaciones Científicas, Spain)

**A Conformal UWB Directional Antenna**

Domenico Gaetano; Max James Ammann; Patrick McEvoy; Matthias John (Dublin Institute of Technology, Ireland)

**Design of Cylindrically Bent Antenna Array on LCP Substrate with Large Coverage At 60 GHz**

Mingda Huang; Matti Herben (Eindhoven University of Technology, The Netherlands) et al.

**Implementation of Single Reflector in a Quad-Yagi Array Antenna**

Ignacio Anitzine; Juan Antonio Romo (University of the Basque Country, Spain)

**Bandwidth Enhancement of Microstrip-Fed Slot Radiating Element Using Its Complementary Stub**

Elena Abdo-Sánchez; Teresa María Martín-Guerrero; Carlos Camacho-Peñalosa (University of Málaga, Spain) et al.

**Design and Performance Analysis of UWB Circular Disc Monopole Textile Antenna and Bending Consequences**

Shuvashis Dey; Nandita Saha; Subrata Biswas (American International University- Bangladesh, Bangladesh)

**Integrable Sleeve Choke for Radiation Improvement of a Printed Monopole Antenna for 2.4-GHz USB-Dongle Applications**

Saou-Wen Su (Lite-On Technology Corp., Taiwan)

**Miniaturized Broadband Planar Feeds for Circularly Polarized Antennas**

Michel Clénet (DRDC Ottawa, Canada); Yahia Antar (Royal Military College of Canada, Canada)

**Substrate-Integrated Waveguide-to-Microstrip Couplers for Integrated-Circuit Antenna Applications**

Vladimir Labay (Gonzaga University, USA); Jens Bornemann (University of Victoria, Canada)

**Optically Controlled Switchable Microstrip Filter for the GSM1800 Frequency Band**

Chinthana J Panagamuwa (Loughborough University, United Kingdom); Ahmed EzzEldin (British University in Egypt, Egypt)



**Computer Tool for the Analysis of the Doppler Spectrum in the Scattered Field by Wind Turbines**

Maria Jesús Algar; Lorena Lozano; Iván González Diego; Felipe Cátedra (University of Alcalá, Spain)

**Feasibility Study on Electronically Steerable PDHT Antenna s/s**

Roberto Mizzoni; Franco Perrini (Thales Alenia Space-Italia S.p.a., Italy)

**An Omnidirectional Dual-Reflector Antenna with a Shaped Main Reflector Described by Local Conic Sections**

Rafael A. Penchel (PUC-Rio, Brazil); Jose R Bergmann (PUC-Rio, Brazil); Fernando Moreira (Federal University of Minas Gerais, Brazil)

**A Simultaneous X/Ka Feed System for Reflectors with a F/D Ratio of 0.8**

Christophe Granet; Ian Davis; John Kot; Greg Pope; Karl Verran; Tim Mellor (BAE Systems Australia Ltd, Australia)

**Multimode Monopulse Tracking Feed with Dual-Band Potential for Land-Mobile Satellite Communications in Ka-Band**

Hendrik Bayer; Alexander Krauss; Ralf Stephan; Matthias Hein (Ilmenau University of Technology, Germany)

**Synthesis and Analysis of Omnidirectional Dual-Reflector Antennas: Case of the Main Reflector with Circular Generatrix**

Sandro Zang; Jose R Bergmann (PUC-Rio, Brazil)

**A 6-m Mesh Reflector Antenna for SMAP: Modeling the RF Performance of a Challenging Earth-orbiting Instrument**

Paolo Focardi (Jet Propulsion Laboratory, USA)

**Generation of Circular Polarization with Low-Profile EBG Antenna**

Moustapha Salah Toubet (XLIM - UMR 6172 - CNRS, University of Limoges, France); Mohamad Hajj (University of Limoges, France) et al.

**On the Maximally Sparse Aperiodic Array Design for Space Applications**

Theodoros Kaifas; Dimitrios G. Babas; George Miaris et al. (Aristotle University of Thessaloniki, GR, Thessaloniki, Greece)

**New Compact OMT Based on a Septum Solution**

Pablo Sarasa; Marina Diaz-Martin; Jean-Christophe Angevain; Cyril Mangenot (European Space Agency, The Netherlands)

**Study of the  $\Pi$  Network as the Compound Slot Equivalent Circuit Model**

Ignacio Montesinos-Ortego (Technical University of Madrid, Spain); Manuel Sierra-Perez (Universidad Politécnica de Madrid, Spain) et al.

**A Comparison Between the Cases of Electric and Magnetic Sources in the Inverse Source Problem**

Claudio Mola (Second University of Naples, Italy); Francesco Soldovieri (CNR, Italy) et al.

**Cosecant Squared Pattern Synthesis for Reflector Antenna Using IWO**

Alireza Mallahzadeh; Parastoo Taghikhani (Shahed University, Iran); Amirhossein Ghasemi (Université Paris Ouest La Défense, France) et al.

**Development of a Closed-Loop Fluidic System for a Phase Reconfigurable Reflectarray Element**

Stephen Long; Gregory Huff (Texas A&M University, USA)

**Novel Linearly and Circularly Polarized 60 GHz MEMS Antennas on Low- and High-Resistivity Silicon**

Ezzeldin Soliman (The American University in Cairo, Egypt)

**15:00 – 16:20 Room: Auditorium**

Invited lectures

**The "Challenging" World of Terahertz Radiation and Imaging**

Lluís Jofre

**Miniaturization of Ultra-wideband Antennas**

Zhi-Ning Chen

**15:00 – 16:20 Room: A**

Invited lectures

**Size-independent Metamaterial Resonators**

Piergiorgio Uslenghi

**The Art of Higher-Order Probe Correction in Spherical Near-Field Antenna Measurements**

Olav Breinbjerg

**16:40 - 18:20 Room: Auditorium**

**A15: New materials, meta-materials, EBG structures II**

Chairs: Ladislau Matekovits (Politecnico di Torino & Macquarie University, Sydney, Italy), Raj Mittra (Penn State University, USA)

**Metadispersion for a Cascade of Planar Periodic Structures**

Enrica Martini; Giovanni Maria Sardi; Francesco Caminita; Stefano Maci (University of Siena, Italy)

**Flexible Uniplanar Artificial Magnetic Conductor**

María Elena de Cos; Yuri Álvarez; Ramona Hadarig; Fernando Las-Heras (Universidad de Oviedo, Spain)

**Equivalent Circuit Model and Reflection Phase Control Methods for Dual-band AMC**

Ji Hwan Yoon; Eun Young Kim; Yohan Lim; YoungJoong Yoon (Yonsei University in Korea)

**Influence of Number of Rings on Radiation of CSRR-Loaded Leaky Wave Antenna**

Stephanie Eggermont; Isabelle Huynen (Université catholique de Louvain, Belgium)

**A Low Loss Rat Race Balun in Gap Waveguide Technology**

Hasan Raza; Jian Yang (Chalmers University of Technology, Sweden)

**16:40 - 18:20****Room: A****A16: Small antennas, RFID tags and sensores I**

Chairs: Richard Langley (University of Sheffield, United Kingdom), Francesco Merli (Ecole Polytechnique Fédérale de Lausanne (EPFL), Switzerland)

**Analysis of Using High-Resistance RFID Tag Antennas for Robust Impedance Matching**

Toni Björninen; Leena Ukkonen; Lauri Tapio Sydänheimo (Tampere University of Technology, Finland) et al.

**RFID on the Road ... Some Considerations About Passive Tag Antennas**

Ondřej Franek; Persefoni Kyritsi; Gert Pedersen (Aalborg University, Denmark)

**Optimization of an Antenna for Wireless Energy Transfer**

Giambattista Gruosso; Marco Mussetta; Riccardo Enrico Zich (Politecnico di Milano, Italy)

**Dual-Band RF Energy-Harvesting Circuit for Range Enhancement in Passive Tags**

Chomora Mikeka; Hiroyuki Arai (Yokohama National University, Japan)

**16:40 - 18:20****Room: B****A17: MIMO, smart and signal processing antennas II**

Chairs: Josef A. Nosseck (TU Munich, Germany), Daniele Pinchera (University of Cassino & University of Naples, Federico II, Italy)

**Discussion of Statistical Metrics for MIMO OTA Performance Based on Empirical Results**

Yifei Feng; Jens Jonas; Werner Schroeder (Rhein-Main University of Applied Sciences, Germany)

**Isolation Improvement Method for Mobile Terminal Antennas At Lower UHF Band**

Janne Ilvonen (Aalto University School of Electrical Engineering, Finland); Outi Kivekäs (Helsinki University of Technology, Finland) et al.

**Small Radiating Ground Plane with Higher Order Modes**

Marko Tapani Sonkki (University of Oulu, Finland); Eva Antonino-Daviu; Miguel Ferrando (Universidad Politecnica De Valencia, Spain) et al.

**On the Limits of MIMO Systems: Complete Matrix Model and Intuitive Graphic Representation**

Daniele Pinchera (University of Cassino, Italy)

**Printed, Low-Cost, Dual-Polarized Dual-Loop-Antenna System for 2.4/5 GHz WLAN Access Points**

Saou-Wen Su (Lite-On Technology Corp., Taiwan)

**16:40 - 18:20****Room: C****A18: Beamforming, data processing and multiple beam antennas II**

Chair: Makoto Ando (Tokyo Institute of Technology, Japan)

**5x1 Linear Antenna Array for 60 GHz Beam Steering Applications**

Mikko Kyrö (Aalto University School of Electrical Engineering, Finland); Diane Titz (LEAT-CNRS, France) et al.

**Implementation of Broadband microstrip-U Coupled Patch Array on Si/BCB Membrane for Beamforming Applications At 60 GHz**

Amar Adane (Telecom-Bretagne, France)

**UWB SAR Medical Imaging Via Broadband Minimum Variance Distortionless Response (MVDR) Algorithm**

Malyhe Jalilvand; Elena Pancera (Karlsruhe Institute of Technology, Germany)

**Design of Multibeam CORPS-BFN for Cellular Mobile Communications Systems**

Armando Arce-Casas; David H. Covarrubias (CI-CESE, Mexico); Marco Panduro (Mexico)

**An Effective Approach for Sparse Arrays Design with the Minimum Number of Sensors**

Giancarlo Prisco; Michele D'Urso (SELEX Sistemi Integrati, Italy)

**16:40 - 18:20****Room: D****A19: Planar and conformal antennas II**

Chairs: Matteo Albani (University of Siena, Italy), Per Ingvarson (RUAG Space AB, Sweden)

**Balanced Antipodal Vivaldi Antenna with Novel Transition From Feeding Line to the Flares**

Hossein Azodi (Lehrstuhl für Hochfrequenztechnik, Germany); Xiaodong Zhuge (Delft University of Technology, The Netherlands) et al.

**Gain Compensation of a Printed Log Periodic Dipole Array Antenna by Cutting-away the Dielectric**

Daniel Oloumi (Blekinge institute of Technology, Sweden); Mohammad Mohammadirad (Iran University of Science and Technology, Iran) et al.

**Optimal Synthesis of Circularly Symmetric Aperture Sources with Shaped Patterns**

Ovidio Mario Bucci (University of Naples, Italy); Tommaso Isernia (University of Reggio Calabria, Italy) et al.

**Integrated, Single-Feed, Dual-Polarized Loop Antenna for Compact, Outdoor Access-Point Applications**

Saou-Wen Su (Lite-On Technology Corp., Taiwan)

**16:40 - 18:20****Room: G1****A23: Electromagnetic exposures and interactions**

Chair: Mark Douglas (IT'IS Foundation ETH Zurich, Switzerland)

**Experimental System for the Study of Multi-frequency Dosimetry**

Marcos Álvarez-Folgueiras (University of Santiago de Compostela, Spain) et al.

**Hybridized Axonal Field Model for Signal Estimation in Magnetic Resonance Imaging**

Syed Anwar; Greg Cook (University of Sheffield, United Kingdom)

**Proposition of Birdcage Coil for 4 T MRI System with No Lumped Circuit Elements**

Ryotaro Suga; Kazuyuki Saito; Masaharu Takahashi; Koichi Ito (Chiba University, Japan)

**Modeling Signals of Small Tumors Inside the Breast in Ultra-Wide Frequency Band**

Nikolai Simonov; Soon Ik Jeon; Seong Ho Son; Jong Moon Lee; Hyuk-Je Kim (ETRI, Korea)

**16:40 - 18:20****Room: N2****A20: Mobile communication II**

Chairs: Naobumi Michishita (National Defense Academy, Japan), Roberto Sorrentino (University of Perugia, Italy)

**Evaluation and Analysis of the Hidden Node Margin for Cognitive Radio System Operation in a Real Scenario**

Marina Barbiroli (University of Bologna, Italy); Claudia Carciofi (FUB, Italy); Alessandro Guidotti (University of Bologna, Italy) et al.

**Wideband Slotted Radiating Ground Plane for Mobile Applications**

Eva Antonino-Daviu (Universidad Politecnica de Valencia, Spain); Marko Tapani Sonkki (University of Oulu, Finland) et al.

**A Compact and Reconfigurable DVB-H Antenna for Mobile Handheld Devices**

Laure Huitema; Tibault Reveyrand; Cyril Decroze (XLIM, France); Eric Arnaud; Thierry Monediere (University of LIMOGES, France)

**Low-sized X-Band Antenna for WiMax Applications**

Maksym Khruslov; Igor Ivanchenko; Nina Popenko (A. Usikov Institute of Radio Physics and Electronics, Ukraine)

**Fundamental Study on U-Shape Folded Dipole Antenna for WiMAX**

Hisashi Morishita; Nguyen Tuan Hung (National Defense Academy of Japan, Japan)

**16:40 - 18:20****Room: N3****A21: RCS reduction, prediction, imaging and related theory**

Chairs: María Elena de Cos (Universidad de Oviedo, Spain), Andrea Randazzo (University of Genoa, Italy)

**Broadband RCS Reduction Using AMC Technology**

JuanCarlos Iriarte; Jose Luis Martinez de Falcón; Itziar Maestrojuán; Iñigo Liberal; Ainara Rebollo et al. (Public University of Navarra, Spain)

**Design of a Wideband Radar Absorbing Structure**

Egemen Yildirim (Aselsan, Turkey); Ozlem Civi (Middle East Technical University, Turkey)

**Analytical Estimation**

Aritz Estévez; Jesus Illescas; Antonio Marcotegui (Tafco Metawireless, Spain); Francisco Falcone (Universidad Publica de Navarra, Spain)

**Imaging Through Random Media**

Ozlem Kilic; Andrew Smith (The Catholic University of America, USA)

**RCS Reduction Using a Combination of Artificial Magnetic Conductors**

María Elena de Cos; Yuri Álvarez; Fernando Las-Heras (Universidad de Oviedo, Spain)

**16:40 - 18:20****Room: S2****A22: Time domain methods**

Chairs: Ioan E. Lager (Delft University of Technology, The Netherlands), Alberto Toccafondi (University of Siena, Italy)

**Time-domain Receiving Properties of a Multi-mode Cylindrical Waveguide Antenna**

Ioan E. Lager; Adrianus T De Hoop (Delft University of Technology, The Netherlands)

**Application of the Dual-Grid Scheme in BoR-FDTD for the Simulation of Reflector Antennas**

Samsul Haimi Dahlan (University Rennes 1, France)

**Antenna Source Identification in Time Domain Electromagnetic**

Pierre Bonnet (Blaise Pascal University, France)

**On the Behaviour of the Electromagnetic Fields At Edges in the Analysis of TM Scattering by Perfectly Conducting Polygonal Cross-Section Cylinders**

Giulia Coluccini; Mario Lucido; Gaetano Panariello (University of Cassino, Italy)

**A New Robust Technique for Transient Analysis of Conducting Cylinders - TM Case**

Zaker Hossein Firouzeh; Rouzbeh Moini; Seyed Hossein Hesamedin Sadeghi (Amirkabir University of Technology, Iran) et al.

**16:40 - 18:20****Room: N1****CA11: Body Implanted antennas**

Chairs: Xiaodong Chen (Queen Mary, University of London, United Kingdom), Koichi Ito (Chiba University, Japan)

**Rfid STENTag for Passive Vascular Monitoring**

Cecilia Occhiuzzi; Giordano Contri; Gaetano Marrocco (University of Rome Tor Vergata, Italy)

**Passive UHF RFID Near Field Link Budget for Implanted Sensors**

Christoph Schmidt; Daniel Valderas; Joseba Garcia; Iñaki Ortego (Ceit and Tecnun, University of Navarra, Spain) et al.

**Design of a Helical Folded Dipole Antenna for Biomedical Implants**

Hayato Mizuno; Masaharu Takahashi; Kazuyuki Saito; Nozomi Haga; Koichi Ito (Chiba University, Japan)

**Beamscanning Probe Antennas for Deep Brain Stimulation**

Kin-Fai Tong (UCL, University of London, United Kingdom); Arnaud Dufour (ENSEEIH, France) et al.

**Rethinking Antenna Requirements for Medical Implant Systems**

William G. Scanlon (Queen's University Belfast, United Kingdom)

**16:40 - 18:20****Room: S1****P08: Propagation for maritime and aeronautical applications**

Chairs: Carlo Riva (Politecnico di Milano, Italy), Michael Schönhuber (Joanneum Research, Austria)

**Dynamical Evolution of Brillouin Precursors in Multilayered Sea Water-Based Media**

Ana Alejos (Universidade de Vigo, Spain); Muhammad Dawood; Jianxiong Sun (New Mexico State University, USA)

**Computations of the Effects of Wind Turbines in the Close Near Field of RF Installations**

Emmanuel H. Van Lil; Jan-willem De Bleser; Antoine Van de Capelle (Katholieke Universiteit Leuven, Belgium)

**Marine CSEM Scattered Subsurface Response Detection Using Total-Field Scattered-Field FDTD Formulation**

Andrea D. Dukeshire (University of Calgary, Canada)

**Testing Single Frequency GPS Receivers Under Ionospheric Disturbances: A New Approach**

Géraldine Artaud (CNES, France); Thomas Junique (M3 SYSTEMS, France); Yoan Gregoire; Christophe Ouzeau (Silicom, France)

**Heterogeneous Radar Ducting and Radar Performance Due to a Cold Front Advecting Over the Sea of Japan**

Robert E. Marshall (NSWCDD, USA)

**On the Interference Analysis Between Terrestrial Cellular and Multiple Airborne Wireless Networks**

Nektarios Moraitis; Athanasios D. Panagopoulos (National Technical University of Athens, Greece)

**16:40 - 18:20****Room: S3****P09: Mobile propagation channel measurements**

Chairs: Jun-ichi Takada (Tokyo Institute of Technology, Japan), Reiner S. Thomä (TU-Ilmenau, Germany)

**Outdoor-to-Indoor Propagation Loss Measurements for Broadband Wireless Access in Rural Areas**

Kin Lien Chee (Technische Universität Braunschweig, Germany); Anggia Anggraini (University of Hannover, Germany) et al.

**Outdoor-to-Indoor Channels At 2.45 GHz and 5.2 GHz for Geolocation Applications**

Wei Wang; Jost Thomas; Christian Gentner; Armin Dammann; Uwe-Carsten G. Fiebig (German Aerospace Center (DLR), Germany)

**Wideband Time-Variant Air-To-Ground Radio Channel Measurements At 5 GHz**

Jürgen Kunisch; Itziar de la Torre; Andreas Winkelmann; Michael Eube (IMST, Germany); Tim Fuss (Airbus Operations GmbH, Germany)

**Empirical Time-Spatial Propagation Formula for Outdoor LOS Environments**

Teruya Fujii (Softbank Mobile, Japan); Yoshichika Ohta; Hideki Omote (Softbank Telecom Corp., Japan)

**Dependency of the Power and Delay Domain Parameters on Antenna Height and Distance in Urban Macro Cell**

Annika Böttcher; Peter Vary (RWTH Aachen University, Germany); Christian Schneider; Reiner S. Thomä (Ilmenau University of Technology, Germany)

**09:00 - 10:40 Room: Auditorium****A24: Multiband, wideband, UWB antennas II (part 1)**

Chairs: Katsuyuki Haneda (Aalto University, Finland), Jian Yang (Chalmers University of Technology, Sweden)

**Bandwidth Enhancement of CRLH Leaky-Wave Antennas**

Aita Thior; Xavier Begaud (Institut TELECOM, TELECOM ParisTech, France) et al.

**UWB RFID Backscattered Energy in the Presence of Nearby Metallic Reflectors**

Francesco Guidi (ENSTA - ParisTech and University of Bologna, France); Alain Sibille (Telecom Paris Tech, France) et al.

**Improved Design of an Ultra Wideband Universal Serial Bus Device Mounted Antenna Based on Comparative Radiation Efficiency Measurements**

Nuno Pires (Instituto Superior Técnico, Portugal); Marco Letizia (École Polytechnique Fédérale de Lausanne, Switzerland) et al.

**Ultra-Wideband Microstrip Antenna with Coupled Notch Circuit**

Marjan Mokhtaari (University of Victoria, Canada); Jens Bornemann (University of Victoria, Canada)

**Air-gap Standing Parallel Strips Waveguide for X-ray Lithography Fabrication: Characteristics and Antenna Application**

Mohammadreza Tayfeh Aligodarz; David Klymyshyn; Atabak Rashidian (University of Saskatchewan, Canada)

**09:00 - 10:40 Room: A****A25: Reflectarrays (part 1)**

Chairs: Jose A. Encinar (Universidad Politecnica de Madrid, Spain), Marco Mussetta (Politecnico di Milano & Politecnico di Torino, Italy)

**Folded Reflectarray Antenna Using a Modified Polarization Grid for Beam-Steering**

Sabine Dieter; Peter Feil; Wolfgang Menzel (University of Ulm, Germany)

**Dual-Reflectarray Antenna for Bidirectional Satellite Links in Ku-Band**

Carolina Tienda; Jose A. Encinar (Universidad Politecnica de Madrid, Spain); Simone Montori (RF Microtech, Italy) et al.

**Analysis of Printed Reflectarrays Using Extended Local Periodicity**

Min Zhou; Stig Sørensen; Erik Jørgensen; Peter Meincke (TICRA, Denmark) et al.

**Demonstration of a Gathered Element for Reconfigurable-Beam Reflectarrays Based on Ohmic MEMS**

Eduardo Carrasco; Mariano Barba (Universidad Politecnica de Madrid, Spain); Bruno Reig (CEA-LETI, France) et al.

**Efficient Electromagnetic Simulation of Periodic Microstrip Reflectarrays**

Farooq Ahmad Tahir (University of Toulouse, France)

**09:00 - 10:40 Room: B****A26: Millimeter / Sub-millimeter wave and THz technologies I (part 1)**

Chairs: Dejan Filipovic (University of Colorado at Boulder, USA), Christos Oikonomopoulos-Zachos (IMST GmbH, Germany)

**Freestanding Submillimetre Wave FSS Technology**

Raymond Dickie; Robert Cahill; Vincent Fusco (Queen's University Belfast, United Kingdom)

**60 GHz Ultrawideband Hybrid-Integrated Dual-Polarized Front-End in LTCC Technology**

Robert Müller; Alexis Paolo Garcia Ariza; Xia Lei; Frank Wollenschläger; Alexander Schulz (TU Ilmenau, Germany) et al.

**Dual-Polarized Architecture for Channel Sounding At 60 GHz with Digital/Analog Phase Control Based on 0.25 $\mu$ m SiGe BiCMOS and LTCC Technology**

Alexis Paolo Garcia Ariza; Robert Müller; Frank Wollenschläger; Xia Lei (Ilmenau University of Technology, Germany) et al.

**Low Loss Goubau Line on High-Resistivity Silicon in the 57-64 GHz Band**

Julien Emond (université Paris-Est (marne-la-vallée), France)

**09:00 - 10:40 Room: C****CA21: Innovative design and applications of reconfigurable antennas (COST IC0603 ASSIST) part1**

Chairs: Christos Christodoulou (University of New Mexico, USA), Julien Perruisseau-Carrier (Centre Tecnologic de Telecomunicacions de Catalunya (CTTC), Barcelona, Spain)

**Front End Optically Reconfigurable Antenna System**

Youssef Tawk (University of New Mexico, USA); Joseph Costantine (California State University Fullerton, USA) et al.

**Antenna Reconfigurability Based on a Novel Parasitic Pixel Layer**

Daniel Rodrigo (Universitat Politècnica de Catalunya, Spain); Yasin Damgaci; Mehmet Unlu; (Utah State University, USA) et al.

**End-Switched CRLH Leaky-Wave Antenna with Enhanced Electronic Full-Space Beam Steering Performance**

Hoang Nguyen; Samer Abielmona; Christophe Caloz (Ecole Polytechnique de Montreal, Canada)

**Equivalent Surface Modelling for Reconfigurable Partially Reflective Surface Antennas**

Tomislav Debgovic (University of Zagreb, Croatia) et al.

**Novel Wideband Pyramidal Monopole Antenna with Wide Tunable Frequency Band-Notch**

Zhen Hua Sampson Hu; Peter S Hall (University of Birmingham, United Kingdom); James Kelly (University of Sheffield, United Kingdom) et al.

09:00 - 10:40

Room: D

**CA22: Focusing systems, lenses, and reflectors (part1)**

Chairs: Stefano Maci (University of Siena, Italy), Ronan Sauleau (University of Rennes 1, France)

#### **Discrete Lenses for Multibeam Applications**

Juan Lizarraga; Gonzalo Crespo; Carlos Del-Río (Public University of Navarra, Spain)

#### **Compact Shaped Dual-Reflector System for Military Ka-Band SATCOM on the Move**

Ian Davis; John Kot; Christophe Granet; Greg Pope; Karl Verran (BAE Systems Australia Ltd, Australia)

#### **Optimal Eccentricity of a Low Permittivity Integrated Lens for a High-Gain Beam-Steering Antenna**

Aki Karttunen; Juha Ala-Laurinaho; Antti V. Räisänen (Aalto University, Finland); Ronan Sauleau (University of Rennes 1, France)

#### **Combination of Leaky and CPW Modes for Leaky Lens Antennas with Dual Polarization**

Oscar Quevedo-Teruel (Universidad Autónoma de Madrid, Spain); Andrea Neto (Delft University of Technology, The Netherlands)

#### **Newfocus Research Networking Program**

Ronan Sauleau (University of Rennes 1, France); Oszkar Biro (Technische Universitaet Graz, Austria); Johan Stiens (VUB, Belgium) et al.

09:00 - 10:40

Room: G1

**CA26: European School of Antennas (ESoA) (EurAAP Working Group) part1**

Chairs: Stefano Maci (University of Siena, Italy), Dirk Manteuffel (University of Kiel, Germany)

#### **Antenna Research and Technology for the Intelligent Car**

Lars Reichardt; Christian Sturm; Werner Wiesbeck (Karlsruhe Institute of Technology, Germany)

#### **Ultra Wideband Antennas and Propagation**

Elena Pancera; Werner Wiesbeck (Karlsruhe Institute of Technology, Germany)

#### **Recent Activities on Antenna Measurements At Mm- and Submm-Wavelengths At Aalto University**

Antti V. Räisänen; Juha Ala-Laurinaho; Aki Karttunen; Juha Mallat; Patrik Pousi; Aleks Tamminen (Aalto University, Finland)

#### **Leaky Waves and Periodic Structures for Antenna Applications: Research and Teaching Activities At Sapienza University of Rome**

Fabrizio Frezza (Sapienza University of Rome, Italy)

#### **Solving the Dispersion Problem for Broad Band Imaging Cameras**

Andrea Neto (Delft University of Technology, The Netherlands)

09:00 - 10:40

Room: N1

**CP11: Land Mobile Satellite propagation channel modelling (part1)**

Chairs: Frederic Lacoste (CNES, France), Fernando Pérez-Fontán (University of Vigo, Spain)

#### **Land Mobile Satellite Dual Polarized MIMO Channel Along Roadside Trees: Modeling and Performance Evaluation**

Michael Cheffena (University Graduate Center - UNIK, Norway); Fernando Pérez-Fontán (University of Vigo, Spain) et al.

#### **Influence of Receiver Position on Building Penetration Loss At 5.0 GHz for High Elevation Angles**

Milan Kvicera; Pavel Pechac (Czech Technical University in Prague, Czech Republic)

#### **On the Small Scale Modelling Aspects of Dual Circular Polarised Land Mobile Satellite MIMO Channels in Line of Sight and in Vehicles**

Tim Brown; Argyrios Kyrgiazos (University of Surrey, United Kingdom)

#### **Numerical Analysis of the Impact of Building Face Features on LMS Channel Modelling**

Mehdi Ait-Ighil; Joel Lemorton (ONERA, France); Fernando Pérez-Fontán (University of Vigo, Spain) et al.

#### **Physical-Statistical Model for the LMS Channel At Ku/Ka Band**

Nicolas Jeannin; Laurent Castanet (ONERA, France)

09:00 - 10:40

Room: N2

**CM03: General Antenna Measurements (AMTA session) part1**

Chairs: Lars Jacob Foged (SATIMO, Italy), Carlo Rizzo (Tecnologica Ltd., United Kingdom), Manuel Sierra-Castañer (Technical University of Madrid, Spain)

#### **Thermal Testing of Antennas in Spherical Near Field Multi-Probe System**

Lars Jacob Foged; Andrea Giacomini (SATIMO, Italy); Roberto Morbidini (SATIMO, Italy)

#### **New Methods to Reduce Leakage Errors in Planar Near-Field Measurements**

Francisco José Cano (Technical University of Madrid, Spain); Sara Burgos (Antenna Systems Solutions, Spain) et al.

#### **Performance Comparison Between Serrated Edge and Rolled Edge Reflectors Inside CATR Facilities**

Alfonso Muñoz-Acevedo (Universidad Politécnica de Madrid, Spain); Sara Burgos (Antenna Systems Solutions, Spain) et al.

#### **Low Frequency Analysis of Large Dual Reflector Compact Ranges**

Josef Migl; Alexander Geise; Hans-Juergen Steiner (Astrium GmbH, Germany); Juergen Hartmann (EADS Astrium, Germany)

#### **Electromagnetic Model of a Near-Field Cable-Free Impedance and Gain Measurement Technique for Electrically Small Antennas**

Jiaying Zhang; Sergey Pivnenko; Olav Breinbjerg (Technical University of Denmark, Denmark)

**09:00 - 10:40** **Room: N3****CP06: Multi-dimensional propagation models for next generation systems (part1)**

Chair: Claude Oestges (Université catholique de Louvain, Belgium)

**Polarimetric Analysis of the MIMO-UWB Channel in Laboratories**

Concepcion Garcia-Pardo; Maria Martinez-Quinto; Maria Teresa Martinez-Ingles et al. (Universidad Politecnica de Cartagena, Spain)

**Parameterization of the COST 2100 MIMO Channel Model in Indoor Scenarios**

Juho Poutanen; Katsuyuki Haneda (Aalto University, Finland); Lingfeng Liu; Claude Oestges (Université catholique de Louvain, Belgium)

**Scheduling Multi-User MIMO Communication Based on Physical Channel Parameters**

Yan Shi (Brigham Young University, USA); Michael Jensen (Brigham Young University, USA)

**A New Deterministic Hybrid Model for Indoor-To-Outdoor Radio Coverage Prediction**

Dmitry Umansky (University of Lyon, France); Guillaume de la Roche (University of Bedfordshire, United Kingdom) et al.

**Accuracy of Specular Path Estimates with ESPRIT and RiMAX in the Presence of Measurement-based Diffuse Multipath Components**

Davy Gaillot (University of Lille, France); Emmeric Tanghe (Ghent University, Belgium); Paul Stefanut (University of Lille, France) et al.

**09:00 - 10:40** **Room: S2****CA27: On-Body Wearable Antennas (part1)**

Chairs: Peter S Hall (University of Birmingham, United Kingdom), Richard Langley (University of Sheffield, United Kingdom)

**Fundamental Characteristics of Electrodes for Intra-Body Communications**

Nozomi Haga; Koichi Ito (Chiba University, Japan)

**A Compact Planar UWB Antenna for On-Body Communications**

Nacer Chahat; Maxime Zhadobov; Ronan Sauleau (University of Rennes 1, France); Koichi Ito (Chiba University, Japan)

**Crumpling of Compact Textile Antennas**

Qiang Bai; Richard Langley (University of Sheffield, United Kingdom)

**Animated Human Movement and Posture Capture for Body Worn Antenna Simulation**

Srijittra Swaisaenyakorn; Paul Robert Young; John Batchelor (University of Kent, United Kingdom)

**Investigation of the Ear-To-Ear Radio Propagation Channel**

Søren H Kvist; Kaj Bjarne Jakobsen (Technical University of Denmark, Denmark); Jesper Thaysen (GN ReSound A/S, Denmark)

**09:00 - 10:40** **Room: S3****CA25: Sensor Networks: Pervasive Electromagnetics for Sensing and Tracking (part1)**

Chair: Gaetano Marrocco (University of Rome Tor Vergata, Italy)

**Passive RFID-based Localization System for First Responders**

Emidio Di Giampaolo (University of L'Aquila, Italy)

**Harvesting RF Energy with a Paper-based Rectenna**

Manos M. Tentzeris (Georgia Institute of Technology, USA); Hiroshi Nishimoto (The University of Tokyo, Japan)

**Electromagnetic Tracking of Transceiver-free Targets in Wireless Networked Environments**

Federico Viani; Paolo Rocca; Giacomo Oliveri; Andrea Massa (University of Trento, Italy)

**Theory and Experimentations of Multi-chip RFID Tags**

Gaetano Marrocco; Stefano Caizzone (Università di Roma Tor Vergata, Italy)

**Electrical Property Characterization of Blood Glucose for On-body Sensors**

Tuba Yilmaz; Yang Hao (Queen Mary, University of London, United Kingdom)

**09:00 - 10:40** **Room: S1****P10: Propagation for fixed satellite services**

Chairs: Frederic Lacoste (CNES, France), Robert J Watson (University of Bath, United Kingdom)

**Performance of Site Diversity Technique Estimated From Time Diversity**

Carlo Capsoni; Michele D'Amico; Carlo Riva (Politecnico di Milano, Italy); Roberto Nebuloni (Ieiti - Cnr, Italy)

**A Tool for Synthesizing Rain Attenuation Time Series in LEO Earth Observation Satellite Downlinks At Ka Band**

Pantelis-Daniel Arapoglou (University of Luxemburg, Luxemburg) et al.

**Long Term Rain Rate and Ka-Band Attenuation Variability in Aveiro**

Armando C Rocha (U. Aveiro / IT Aveiro, Portugal); Cláudia Camacho (University of Aveiro, Portugal)

**Simulation of Outage for 21-GHz Band Satellite Broadcasting System Using Frequency Scaling of Measured Rain Attenuation**

Susumu Nakazawa (NHK, Japan)

**Mixture Weibull Model Applied to the Cumulative Distribution of Rainfall Induced Attenuation in Tropical Brazil**

Erasmus Miranda (Catholic University of Petropolis, Brazil); Marlene S Pontes (Pontifical Catholic University of Rio de Janeiro, Brazil) et al.

**11:00 - 12:40 Room: Auditorium****A24: Multiband, wideband, UWB antennas II (part 2)**

Chairs: Katsuyuki Haneda (Aalto University, Finland), Jian Yang (Chalmers University of Technology, Sweden)

#### **Optimization of Frequency-Independent UWB Inverted-Hat Antenna Using Genetic Algorithm**

Jing Zhao; Dimitris Psychoudakis; Chi-Chih Chen; John L. Volakis (Ohio State University, USA)

#### **Configuration Requirements for Log-Periodic Array Antennas**

Jian Yang (Chalmers University of Technology, Sweden)

#### **Investigation of Backfire Monofilar Helical Antenna**

Thomas Smith; Niels Larsen; Ulrich Gothelf (Thrane and Thrane, Denmark) et al.

#### **Compact High-Gain Short-Horn Antenna for UWB Applications**

Y. Ranga; Karu Esselle (Macquarie University, Australia); Andrew R Weily (CSIRO ICT Centre, Australia) et al.

#### **Design of Triple-Band Dipole-Type Antenna with Dual-Band Artificial Magnetic Conductor Structure**

Maisarah Abu; Mohamad Kamal A. Rahim; Osman Ayop; Farid Zubir (Universiti Teknologi Malaysia, Malaysia)

**11:00 - 12:40 Room: A****A25: Reflectarrays (part 2)**

Chairs: Jose A. Encinar (Universidad Politecnica de Madrid, Spain), Marco Mussetta (Politecnico di Milano & Politecnico di Torino, Italy)

#### **Design and Characterization of 2-bit Passive Unit-Cells and Transmit-Arrays in X-Band**

Antonio Clemente; Laurent Dussopt (CEA, LETI, Minatoc, France); Ronan Sauleau (University of Rennes 1, France) et al.

#### **Robust 2-bit Dual-Linearly-Polarised Unit-Cell for Reflectarray Applications**

Roger Pereira; Raphael Gillard (IETR, France); Ronan Sauleau (University of Rennes 1, France) et al.

#### **Validation of Concentric Square Rings Backscattering for Reflectarray Applications**

Guillermo C Vietti; Paola Pirinoli; Mario Orefice (Politecnico di Torino, Italy); Marco Mussetta (Politecnico di Milano, Italy)

#### **Reflectarray Antennas with Accurate Calculation of Phase Shifts**

Yasser Abdallah; Cyrille Menudier; Marc Thevenot; Thierry Monediere (XLIM-UMR 6172-CNRS, University of Limoges, France);

#### **On Cross-Polarization in Spiraphase-Type Reflectarrays with Elements Based on Ring Slot with Loaded Stubs**

Alexander Martynyuk (Universidad Nacional Autonoma de Mexico, Mexico) et al.

**11:00 - 12:40 Room: B****A26: Millimeter / Sub-millimeter wave and THz technologies I (part 2)**

Chairs: Dejan Filipovic (University of Colorado at Boulder, USA), Christos Oikonomopoulos-Zachos (IMST GmbH, Germany)

#### **Wideband W-band Patch Antenna**

Hongyu Zhou (University of Colorado, USA); Nathan Sutton (University of Colorado, USA); Dejan Filipovic (University of Colorado at Boulder, USA)

#### **Dielectric Horn Antennas in the Terahertz Band**

Belen Andres-Garcia; Luis-Enrique Garcia-Muñoz (University Carlos III of Madrid, Spain); et al.

#### **Parasitic Mode Suppression Techniques for Shielded Fabry-Perot Cavity Antennas**

Shoaib Muhammad; Ronan Sauleau (University of Rennes 1, France); Hervé Legay (Thalès Alenia Space, France)

#### **Recent Developments and Recommendations for Improving Harmonic Radar Tracking Systems**

Nazifa Tahir; Graham Michael Brooker (University of Sydney, Australia)

#### **Electrically Tunable Liquid Crystal Phase Shifter in Antipodal Finline Technology for Reconfigurable W-Band Vivaldi Antenna Array Concepts**

Markus Koeberle; Matthias Hoefle; Mo Chen; Andreas Penirschke; Rolf Jakoby (Technische Universität Darmstadt, Germany)

**11:00 - 12:40 Room: C****CA21: Innovative design and applications of reconfigurable antennas (COST IC0603 ASSIST) part2**

Chairs: Christos Christodoulou (University of New Mexico, USA), Julien Perruisseau-Carrier (Centre Tecnologic de Telecomunicacions de Catalunya (CTTC), Barcelona, Spain)

#### **Active Parasitic Arrays for Low Cost Compact MIMO Transmitters**

Bo Han (Aalborg University & Athens Information Technology, Greece); Vlas Barousis (University of Piraeus, Greece) et al.

#### **Reconfiguration and Thermoregulation using Biologically Inspired Vascular Networks**

Franklin Drummond; Gregory Huff (Texas A&M University, USA)

#### **An Electronically Tunable Half-Mode Substrate Integrated Waveguide Leaky-Wave Antenna**

Asanee Suntives; Sean V Hum (University of Toronto, Canada)

#### **Design of Reconfigurable Compact Antennas for Automotive Communications**

Javier Araque Quijano (Universidad Nacional de Colombia, Colombia); Sergio Arianos (Politecnico di Torino, Italy) et al.



11:00 - 12:40

Room: D

CA22: Focusing systems, lenses, and reflectors (part2)

Chairs: Stefano Maci (University of Siena, Italy), Ronan Sauleau (University of Rennes 1, France)

#### Near Field Focusing and Radar Cross Section for a Finite Paraboloidal Screen

Vitaliy Bulygin (A.Y. Usikov Institute of RadioPhysics and Electronics, Kharkov, Ukraine)

#### Highly Tapered, Uniform Phased Horn Based on Variable Impedance Lens Effect

Marko Bosiljevac (University of Zagreb, Croatia); Massimiliano Casaletti; Francesco Caminita (University of Siena, Italy) et al.

#### Refocusing a THz Reflector Imaging System

Borja Gonzalez-Valdes; Antonio Garcia-Pino; Oscar Rubiños-López (University of Vigo, Spain) et al.

#### Double-shell Modified Extended Hemispherical Lens Feed for Reflectors in Scanning Applications

Carlos A. Fernandes; Eduardo B. Lima; Jorge R. Costa (Instituto de Telecomunicações / ISCTE-IUL, Portugal)

#### An Aperiodic Active Lens for Multibeam Satellite Applications: From the Design to the Breadboard Manufacturing and Testing

Gianfranco Rugggerini (TeS Teletinformatica e Sistemi (A Space Engineering Company), Italy) et al.

11:00 - 12:40

Room: G1

CA26: European School of Antennas (ESoA) (EurAAP Working Group) part2

Chairs: Stefano Maci (University of Siena, Italy), Dirk Manteuffel (University of Kiel, Germany)

#### Advanced Spherical Near-Field Antenna Measurement Techniques - Recent Research and ESoA PhD Course

Jeppe Nielsen; Sergey Pivnenko; Olav Breinbjerg (Technical University of Denmark, Denmark)

#### The Small Antenna Concept. From Microwaves to Optical Frequencies

Luis Jofre; Raquel Serrano; Santiago Capdevila (Universitat Politècnica de Catalunya, Spain)

#### New BOR1 and Decoupling Efficiencies for Characterizing Ultra-Wideband Reflectors and Feeds

Per-Simon Kildal; Jian Yang; Marianna Ivashina (Chalmers University of Technology, Sweden)

#### The Gap Waveguide as a Metamaterial-Based Electromagnetic Packaging Technology Enabling Integration of MMICs and Antennas Up to THz

Per-Simon Kildal (Chalmers University of Technology, Sweden); Stefano Maci (University of Siena, Italy) et al.

#### Effects of Using a Low-Cost COTS Antenna in Close Proximity to the Body

W. Dave Waddoup; Akram Alomainy; Yang Hao (Queen Mary, University of London, United Kingdom)

11:00 - 12:40

Room: N1

CP11: Land Mobile Satellite propagation channel modelling (part2)

Chairs: Frederic Lacoste (CNES, France), Fernando Pérez-Fontán (University of Vigo, Spain)

#### Channel Sounding Using GNSS Signals

Jost Thomas; Wei Wang; Frank Schubert; Felix Antreich; Uwe-Carsten G. Fiebig (German Aerospace Center (DLR), Germany)

#### Antenna Diversity for Mobile Satellite Applications: Performance Evaluation Based on Measurements

Daniel Arndt (Fraunhofer Institute for Integrated Circuits, Germany); Alexander Ihlow (Ilmenau University of Technology, Germany) et al.

#### Slant Path Attenuation in Vegetation at Ku- and C-Band

Franz Teschl; Michael Schönhuber (Joanneum Research, Austria); Fernando Pérez-Fontán (University of Vigo, Spain) et al.

#### Stationarity Study of Land Mobile Satellite Channel in View of Developing a Time Series Generator

Belén Montenegro-Villacieros; Claude Oestges (Université catholique de Louvain, Belgium) et al.

11:00 - 12:40

Room: N2

CM03: General Antenna Measurements (AMTA session) part2

Chairs: Lars Jacob Foged (SATIMO, Italy), Carlo Rizzo (Tecnologica Ltd., United Kingdom), Manuel Sierra-Castañer (Technical University of Madrid, Spain)

#### Experimental Set-Up for Antenna Characterization in Waterpipes

Riccardo Stefanelli; Daniele Trincherò (Politecnico di Torino, Italy)

#### Gain Calibration Uncertainties for Standard Gain Horn Calibration At a Compact Antenna Test Range

Hakan Eriksson; Bengt Svensson (Saab Microwave Systems, Sweden)

#### Rotary Joint Characterization Using Antenna Measurements

Laurent Le Coq (University of Rennes 1, France)

#### A THz Imaging System for Biomedical Applications

Tonny Rubæk; Robin Dahlbäck; Andreas Fhager; Jan Stake; Mikael Persson (Chalmers University of Technology, Sweden)

#### Exoneration of Performing Total RCS Measurements in the Near Field

Menahem Naor; Victoria Kobrinsky (RAFAEL Advanced Defence Systems Ltd, Israel)

**11:00 - 12:40** **Room: N3****CP06: Multi-dimensional propagation models for next generation systems (part2)**

Chair: Claude Oestges (Université catholique de Louvain, Belgium)

#### Large-Scale Parameters of Wideband MIMO Channel in Urban Multi-Cell Scenario

Milan Narandžić; Christian Schneider; Martin Käske (Ilmenau University of Technology, Germany) et al.

#### Impact of Path Loss and Delay Spread on Base Station Cooperation

Konstantinos Manolakis; Stephan Jäckel (Fraunhofer-Institute for Telecommunications, Heinrich-Hertz-Institut, Berlin, Germany) et al.

#### Channel Measurement and Characterization of Interference Between Residential Femto-cell Systems

Xiang Gao (Lund University, Sweden); Andres Alayon Glazunov (KTH - Royal Institute of Technology, Sweden) et al.

#### The Diffuse Multipath Component and Channel Stability in Space

Dana Porrat (The Hebrew University, Israel)

**11:00 - 12:40** **Room: S2****CA27: On-Body Wearable Antennas (part2)**

Chairs: Peter S Hall (University of Birmingham, United Kingdom), Richard Langley (University of Sheffield, United Kingdom)

#### Ultra Wideband for in and on-body medical implants: A study of the Limits and new opportunities

Ashutosh Ghildiyal (Sorin Group, France); Balwant Godara (Institut Supérieur d'Electronique de Paris, France) et al.

#### On-Body performance of Wireless Sensor Nodes using IEEE 802.15.4

Max Munoz; Yang Hao (Queen Mary, University of London, United Kingdom)

#### Measurement Errors Introduced by the Use of Co-axial Cabling in the Assessment of Wearable Antenna Performance in Off-Body Channels

Philip A Catherwood; William G. Scanlon (Queen's University Belfast, United Kingdom)

#### A Printed Monopole and the Use of Simple Phantoms for Body-centric Radio Measurements At Popular Mobile Communications Frequencies.

Robert Michael Edwards (Loughborough University, United Kingdom)

#### Antenna Design and Channel Measurements for On-Body Communications At 60 GHz

Xianyue Wu; Lida Akhoondzadeh-Asl; Yuriy I. Nechayev; Peter S Hall (University of Birmingham, United Kingdom)

**11:00 - 12:40** **Room: S3****CA25: Sensor Networks: Pervasive Electromagnetics for Sensing and Tracking (part2)**

Chair: Gaetano Marrocco (University of Rome Tor Vergata, Italy)

#### The Effective Electrically Small Encapsulated Antenna Applied for Communication Between Self-powered Miniature Devices

Dmitriy Penkin; Alexander Yarovoy; Gerard J.M. Janssen (Delft University of Technology, The Netherlands)

#### Real Time Estimation of Motion and Range of RFID Tags

Urmila Pujare (Pennsylvania State University, USA)

#### Novel RFID-based Electromagnetic System for Medicine Monitoring and Tracking

Harish Rajagopalan (University of California Los Angeles (UCLA), USA)

#### Design, realization and measurement of micro-magnetic radiators inside pipes filled with water

Luca Cisoni; Riccardo Stefanelli (Politecnico di Torino - iXem Labs, Italy); Daniele Trincherò (Politecnico di Torino, Italy)

#### A Prototype Passive UHF RFID Transfer Tattoo Tag

Mohamad Ali Ziai; John Batchelor (University of Kent, United Kingdom)

**11:00 - 12:40** **Room: S1****M04: Phased-array and adaptive antenna testing**

Chairs: Sergey Pivnenko (Technical University of Denmark, Denmark), Hans-Juergen Steiner (Astrium GmbH & Measurement Technology, Germany)

#### Near/Farfield Measurements of a Polarisation Agile Phased Array At Ku-Band

Rens Baggen (IMST GmbH, Germany); Stefano Vaccaro; Daniel Llorens del Rio (JAST, Switzerland); et al.

#### Precise Element Field Measurement for Phased Array Calibrations

Toru Takahashi (Mitsubishi Electric Corporation, Japan)

#### New Calibration Method Used for Active Phased Array Antennas

Thomas Lambard (I.E.T.R., France); Herve Jeuland (ONERA, France); Olivier Lafond (IETR, France) et al.

#### OTA Throughput Testing of Multi-Antenna Terminals by Using StarMIMO Test Range

Alessandro Scannavini; Lars Jacob Foged; Nicolas Gross (SATIMO, France)

#### Radiation Characteristics on Fading Generator Using Scattering Objects

Ryo Yamaguchi (NTT DoCoMo, Inc., Japan)



## 14:00 - 15:00 Poster Session III

**Horizontal Dipole Antenna Above a Lossy Half-Space: a New Model for the Sommerfeld's Integral Kernel**

Milica Rančić; Predrag Rančić (University of Niš, Serbia)

**Automatic Mesh Generation for Planar Structures Based on Contours, Adaptive Grid and the Delaunay Condition**

Tomasz A. Linkowski; Piotr Slobodzian (Wroclaw University of Technology, Poland)

**Extending a Hybrid FE/BI-MLFMM-UTD Method to Treat Dielectric Objects with the Boundary Integral Method**

Nicola Staffolani (Fraunhofer Institut for High Frequency Physics and Radar Techniques FHR, Germany)

**A New Accurate and Efficient Analysis of the Electromagnetic Scattering by a Perfectly Conducting Rectangular Plate**

Giulia Coluccini; Mario Lucido (University of Cassino, Italy)

**Numerical Study of the Differential Phase Shift in a Circular Ferrite-Dielectric Waveguide**

Georgi Nikolov Georgiev (University of Veliko Tirnovo "St. St. Cyril and Methodius", Bulgaria) et al.

**Radiation Q of Dipole Modal Currents**

Pavel Hazdra; Miloslav Capek; Jan Eichler; Pavel Hamouz; Milos Mazanek (Czech Technical University in Prague, Czech Republic)

**Using of Double-Positive and Double-Negative Materials for Minimisation of Stratton-Chu Antenna Size**

Boris Panchenko (Radio Engineering Institute, Ural State Technical University, Yekaterinburg, Russia) et al.

**Analysis of Electromagnetic Systems Using Graphics Processing Units**

Sladjana Maric (WIPL-D, Serbia); Dragan I. Olcan; Branko Kolundzija (University of Belgrade, Serbia)

**Advances in FDTD for Dispersive and High Frequency Simulations**

Stefan Schild; Nicolas Chavannes; Niels Kuster (IT'IS Foundation, Switzerland)

**Efficient Generation of the High-Level Basis Functions in CBFM**

Eliseo Garcia (Alcala University, Spain)

**A Kernel Independent Butterfly Algorithm for Fast Integral Transforms of Oscillatory Type**

Felipe Vico\_Bondia; Miguel Ferrando; Daniel Sanchez Escuderos; Esperanza Alfonso (Universidad Politécnic de Valencia, Spain)

**Preliminary Results From a Physically-Based Methodology for the Evaluation of a Time Diversity System**

Lorenzo Luini; Carlo Capsoni (Politecnico di Milano, Italy)

**Processing of the Interferometric Data From Satellite ALOS of Lake Baikal Natural Territory**

Alexander Leonov; Irina Kirbizhekova (Buryat Scientific Centre, Russia)

**Analysis of Time and Spatial Evolution of Brillouin Precursors Through Metallic Media in THz Band**

Ana Alejos (Universidade de Vigo, Spain); Muhammad Dawood (New Mexico State University, USA) et al.

**Influence on the Ear-to-Ear Link Loss From Heterogeneous Head Phantom Variations**

Rohit Chandra; Anders Johansson (Lund University, Sweden)

**Evaluation in Terms of BER of the WBAN System Using UWB and ISM Band**

Takayuki Sasamori (Akita Prefectural University, Japan)

**Short-Term and Long-Term Fading of In-Body to Out-Of-Body Channel in MICS Band**

Somayyeh Chamaani (K. N. Toosi Univerity, Iran); Yuriy I. Nechayev; Peter S Hall (University of Birmingham, United Kingdom) et al.

**Measurement and Characterization of the Path Loss for Ear-to-Ear Wireless Communication**

Baqer Nour; Olav Breinbjerg (Technical University of Denmark, Denmark)

**Troposphere Refraction State Classification Using Measured Attenuation of Non-Line-of-Sight Microwave Links**

Otakar Jicha; Pavel Pechac; Vaclav Kvicera; Martin Grabner (Czech Metrology Institute, Czech Republic)

**Research on the Influence of Rainfall on Millimeter Wave Doppler Fuse**

R Yang (University, P.R. China)

**Height-gain Modeling - an Analysis of the RF Signal Vertical Distribution in Urban**

Propagation Scenario  
Adrian Mihaiuti; Alimpie Ignea (Politehnica University of Timisoara, Romania)

**Comparison Between GMSK and PSK Modulation Systems in the Wireless Propagation Channels Emulated in a Reverberating Chamber**

Antonio Sorrentino; Giuseppe Ferrara; Maurizio Migliaccio (Universita' Napoli Parthenope, Italy)

**Estimation of Airport Surface Propagation Channel: Ray Tracing Model and Measurements**

Pierpaolo Usai (University of Pisa, Italy); Alessandro Corucci (University of Pisa, Italy) et al.

**Experimental Investigation of Impact of Antenna Locations on the Capacity of Wideband Distributed Antenna Systems in Indoor Environments**

Xu Zhou; Xuefeng Yin (Tongji University, P.R. China); Byung-Jae Kwak (Electronics and Telecommunications Research Institute, USA) et al.

**Creation of an Isotropic Multi-Path Propagation Channel Using SATIMO SG24 System**

Alaa Choumane (University of Limoges, France); Moutar Mouhamadou (XLIM-UMR 6172-CNRS, University of Limoges, France) et al.

**Analysis of AOA-TOA Signal Distribution in Indoor Environments**

Evgeny Tsalolihin; Igal Bilik (University of Massachusetts, USA); Nathan Blaunstein (Ben-Gurion University of the Negev, Beer-Sheva, Israel) et al.

**Influence of Modelling Diffraction on Electromagnetic Wave Propagation Predictions in Subterranean Galleries**

Ludek Subrt; Pavel Pechac (Czech Technical University in Prague, Czech Republic)

**MIMO Indoor Propagation Prediction Using 3D Shoot-and-Bounce Ray (SBR) Tracing Technique for 2.4 GHz and 5 GHz**

Yousef Dama (Mobile and Satellite Communications Research Centre, United Kingdom) et al.

**Wireless MIMO Channel Capacity Analysis Based on Multiple Spatial Diversity for Indoor Propagation**

Mohamad Zoinol Abidin Bin Abd Aziz (Universiti Teknikal Malaysia Melaka, Malaysia)

**Capacity of MIMO UWB Propagation Channel in Outdoor to Indoor Configuration**

Nadine Malhouroux (France Telecom Research & Development, France)

**Spatial, Polarized and Cross-Polarized Correlation Measurements for Single-BS MIMO and Multi-BS Cooperative MIMO**

Yoshichika Ohta; Sugita Yosuke; Hideki Omote (Softbank Telecom Corp., Japan); Teruya Fujii (Softbank Mobile, Japan)

**Single Layer Anisotropic Impedance Surface for Linear to Circular Polarization Conversion in Reflect Mode**

Efstratios Doumanis (Queen's University Belfast, United Kingdom); George Goussetis (Reader, United Kingdom) et al.

**NAVRCS - A Simulation Tool for Maritime Targets Under Realistic Conditions**

Helmut Essen; HAnS Hellmuth Fuchs; Gregor Biegel; Gert Lindqvist (Fraunhofer FHR, Germany)

**A WLAN Planning Proposal Through Direct Probabilistic Method and Particle Swarm Algorithm Hybrid Approach**

Josiane do Couto Rodrigues; Simone da Graça de Castro Fraiha; Jasmine Priscyla Leite de Araújo (Federal University of Pará, Brazil) et al.

**Computational Reasoning Over Radiopropagation Models and Their Formulations**

Marco Zappatore (University of Salento (Lecce), Italy)

**Analysis of Nakagami Fading in VANET Scenarios**

Juan Ángel Ferreiro Lage (University of Vigo, Spain)

**Vector Characteristics of Mathieu Beams**

Hongfu Meng (Southeast University, P.R. China); Wenbin Dou (Southeast University, P.R. China)

**Spectrum Sensing in Mm-Wave Cognitive Radio Networks Under Rain Fading**

Dimitrios Papanikolaou; Nikolaos Papanikolaou; Georgios Pitsiladis; Athanasios D. Panagopoulos et al. (National Technical University of Athens, Greece)

**Rain Induced Attenuation Statistics Over a LOS Microwave Link Operating in Tropical Region Amritsar (India)**

Parshotam Sharma (Model Institute of Engineering and Technology, India); Inderjit Singh (Eternal University, India) et al.

**Localized Behaviors of Rain Measured in Tokyo Tech Millimeter-wave Wireless Network**

Makoto Ando; Md. Mohibul Hasan; Rushanthy Jayawardene; Takuichi Hirano; Jiro Hirokawa (Tokyo Institute of Technology, Japan)

**ELF Emissions From Lightning Sprites**

Manoj Kumar Paras; Jagdish Rai (Indian Institute of Technology Roorkee, India)

**Depolarization Effects**

Iñigo Etayo; Ananda Satrustegui; Miguel Yabar (Acciona Energia, Spain); Francisco Falcone (Universidad Publica de Navarra, Spain) et al.

**Propagation Over Terrain - Comparison of Method**

Vladimir Schejbal; Dusan Cermak (University of Pardubice, Czech Republic) et al.

**Features of Short Wave Propagation in Winter Conditions**

Natalya Mozhaeva (Institute for Physics, Russia)

**Estimating Channel Fading Statistics Based on Radio Wave Propagation Predicted with Deterministic MR-FDPF Method**

Meiling Luo (INSA-Lyon, CITI Lab, France); Dmitry Umansky (University of Lyon, France) et al.

**Comparison Between Two Simulation Techniques and Measurement Results for Ultra Wideband Indoor Radio Channels**

Fabricio Barros (Pontificia Universidade Catolica do Rio de Janeiro, Brazil) et al.

**FSO Link Performance Modelling Using Artificial Intelligence**

Martin Mudroch; Jiri Libich; Stanislav Zvanovec; Milos Mazanek (Czech Technical University in Prague, Czech Republic)

**A Comparison of MLP and RBF Neural Networks Architectures for Electromagnetic Field Prediction in Indoor Environments**

Ivan Vilovic (University of Dubrovnik, Croatia)

**Diffraction of an Electric Polarized Wave by an Obtuse-Angled Dielectric Wedge: A UAPO Solution**

Giovanni Riccio; Gianluca Gennarelli (University of Salerno, Italy)

**Transmission Properties of the Circular Waveguide, Containing an Azimuthally Magnetized Ferrite Toroid and a Dielectric Cylinder**

Mariana Nikolova Georgieva-Grosse, et al.

**The Calculation of Magnetic Field Strength of Magnetic Antenna with Ferromagnetic Core in a Task of People's Search Under Avalanches**

Igor Borisovich Shirokov; Maxim Durmanov; Elena Redkina; Ludmila Naumicheva (Sevastopol National Technical University, Ukraine)

**A New Mesh Generator Optimized for Electromagnetic Analysis**

Javier Moreno; Maria Jesús Algar; Iván González Diego; Felipe Cátedra (University of Alcala, Spain)

**Investigation of Multipactor Effect on Return Loss Degradation**

Ali Frotanpour; Gholamreza Dadashzadeh (Shahed University, Iran); Mahmoud Shahabadi (University of Tehran, Iran)

**Microwave Measurements of Dielectric Constants of a High Dielectric Constant Material by Six Basic Mixture Equations**

Jyh Sheen; Yong-Lin Wang; Weihsing Liu; Wei-Lung Mao (National Formosa University, Taiwan)

**UWB Wireless Interconnect Scheme for Communicating Devices Within Small Conducting Enclosure**

Javier Gelabert; David Edwards; Christopher Stevens (University of Oxford, United Kingdom)

**Field Measurements Within a Reverberation Chamber Based on the Perturbation Theory**

Mohamed Nasseridine; Elodie Richalot (Université Paris-Est (Marne-la-Vallée), France)

**Spatial Correlations of Incremental Sources in Isotropic Environment Such as Reverberation Chamber**

Xiaoming Chen; Per-Simon Kildal (Chalmers University of Technology, Sweden) et al.

**Rician Channels in a RC: Statistical Uncertainty of K Estimations Versus K Fluctuations Due to Unstirred Paths**

Mihai Ionut Andries; Philippe Besnier; Christophe Lemoine (IETR, France)

**State-of-the-Art Measurements of LTE Terminal Antenna Performance**

John Åsberg; Charlie Orlenius (Bluetest AB, Sweden); Joon Ho Byun (Telecommunication R&D Center, Samsung Electronics, Korea) et al.

**Ultra Light Carbon Phantom for RF Measurement of Mobile Terminals in Browsing and Jogging Positions**

Yoshiaki Amano; Masayuki Nakano; Hiroyasu Ishikawa (KDDI R&D Laboratories Inc., Japan) et al.

**Influence of Source Antenna Beamwidth on Gain Measurement Method Using Numerical Compact Range Concept**

Kazuhiro Komiya; Ryo Yamaguchi; Keizo Cho (NTT DoCoMo, Japan)

**Open-Ended Rectangular Waveguide Near-Field Frequency Response of Multilayered Structures**

Ayman J. Jundi; Nasser Qaddoumi (American University of Sharjah, UAE)

**Comparisons of Different Methods to Determine Correlation Applied to Multi-Port UWB Eleven Antenna**

Xiaoming Chen; Per-Simon Kildal (Chalmers University of Technology, Sweden) et al.

**Wideband Scalable Probe for Spherical Near-Field Antenna Measurements**

Oleksiy S. Kim; Sergey Pivnenko; Olav Breinbjerg (Technical University of Denmark, Denmark)

**A Novel, Non-Iterative, Analytic Method to Find the Surface Refraction Point for Air-Coupled Ground Penetrating Radar**

Carey Rappaport (Northeastern University, USA)

**Characterization of Rubble on the Frequency Band [ 300Mhz -3Ghz ]**

Hamzeh Hamieh; Edson Martinod; Michele Lalande (University of Limoges, France); Bernard Jecko (University of Limoges, France)

**Mixed-Mode S-parameter Extraction for Differential Microstrip to Waveguide Transitions**

Markus Ortner (DICE GmbH & Co KG, Austria); Ziqiang Tong (Johannes Kepler University Linz, Austria) et al.

**Design of an Alternative Drive-Test Setup for Snmp-Based Equipments in Broadband Wireless Networks**

Bruno Castro (Federal University of Pará, Brazil)  
**Support Vector Regression for Echo Correction in Antenna Measurement**  
Rafael Ayestarán; Jana Alvarez (University of Oviedo, Spain)

**Fault Detection in Grid Scattering by a Time Reversal Music Approach**

Giovanni Leone (Università di Reggio Calabria, Italy); Andrea Baratonìa (Second University of Naples, Italy)

**Accurate Fitting of Noisy Irregular Beam Data for the Planck Space Telescope**

Oscar Borries (Technical University of Denmark, Denmark); Per Nielsen (TICRA, Denmark)

**On the Sensitivity of Probe-Corrected Spherical Near-Field Antenna Measurements with High-Order Probes Using Double Phi-Step Theta-Scanning Scheme Against Various Measurement Uncertainties**

Tommi Laitinen (Aalto University School of Electrical Engineering, Finland) et al.

**Attenuation Due to Vegetation for Satellite Services: Winter Season Measurement**

Petr Horak; Pavel Pechac (Czech Technical University in Prague, Czech Republic)

**Electromagnetic Characterization of Non Linear Surfaces Using Impedance Boundary Conditions**

Rodolfo Ravanelli (Thales Alenia Space Italy SpA, Italy)

**15:00 – 16:20 Room: Auditorium**

Invited lectures

**Application of Beam Methods to Electromagnetic Antenna and Scattering Problems**

Prabhakar Pathak

**Domain Decomposition Methods for solving EMC/EMI problems: Electrically Large (antennas on platforms) and Small (signal integrity in ICS and packages)**

Jin-Fa Lee

**15:00 – 16:20 Room: A**

Invited lectures

**Propagation Aspects in Future THz Communication Systems**

Thomas Kürner

**Characterizing MIMO antenna systems and wireless stations in reverberation chamber**

Per-Simon Kildal

☕ Coffee Break

16:20 - 16:40

**16:40 - 18:20 Room: Auditorium****A27: New materials, meta-materials, EBG structures III**

Chairs: Andrea Alù (The University of Texas at Austin, USA), Piergiorgio L.E. Uslenghi (University of Illinois at Chicago, USA)

**Artificial Surfaces Formed by Tessellations of Intertwined Spirals**

Andrea Vallecchi (University of Siena, Italy); Alex Schuchinsky (Queen's University of Belfast, United Kingdom)

**Contribution on Notch Antenna Loaded by Magneto-dielectric Material**

Gwenn Le Fur; François Grange; Christophe Delaveaud (CEA-LETI, France) et al.

**Beamwidth Control of 1D LWA Radiating At Broadside**

María García-Vigueras (Technical University of Cartagena, Spain)

**A Comparative Study of Reflection Characteristics of Artificial Ground Planes Incorporating a Slanted Sheet Vias or Slots**

Sadiq Ullah; James A. Flint; Rob Seager (Loughborough University, United Kingdom)

**Mutual Coupling Reduction for Integrated Pin-Made Feed**

Erio Gandini (IETR - University of Rennes 1, France); Mauro Ettorre (University of Rennes 1, France) et al.

**Chiral Antenna Element as a Low Backscattering Sensor**

Antti Karilainen (Aalto University, Finland); Pekka Alitalo (TKK Helsinki University of Technology, Finland) et al.

**16:40 - 18:20 Room: A****A28: Small antennas, RFID tags and sensores II**

Chairs: Steven R Best (The MITRE Corporation, USA), Luca Pierantoni (Università Politecnica delle Marche, Ancona, Italy)

**Dual-Band Meandered Folded Printed Quadrifilar Helix Antenna**

J. Rabemanantsoa; Ala Sharaiha (Université de Rennes 1, France)

**Analysis and Improvement of Reverberation Chamber Method for Characterization of Small and Terminal Antennas**

Christian Lötbäck; Magnus Franzén; Charlie Orlenius (Bluetest AB, Sweden)

**A Miniature Printed Antenna with Outer Surface Cable Current Suppression and Low Proximity Effects**

Hubregt J. Visser; Ruud Vullers (imec-Netherlands, The Netherlands)

**DVB-T Reception Test with Ultra Miniature CPW Antenna**

Benjamin Jannier; Niamien Manouan Aka Constant (Institut d'Electronique et des Télécommunications de Rennes, France) et al.

**16:40 - 18:20 Room: B****A29: Millimeter / Sub-millimeter wave and THz technologies II**

Chairs: Antonio García-Pino (University of Vigo, Spain), Daniel Segovia-Vargas (Universidad Carlos III de Madrid, Spain)

**Fabrication of Antennas on a Thick Resin Layer Fed Through a Hole From the Bottom in a Silicon Chip At 60GHz**

Jiro Hirokawa; Kim Huey Koh; Tomoya Suzuki (Tokyo Institute of Technology, Japan); Yasutake Hirachi (Ammsys Inc., Japan) et al.

**A Compact Dual-Polarized Wideband Patch Antenna Array for the Unlicensed 60 GHz Band**

Frank Wollenschläger; Ralf; Xia Lei; Jens Müller; Robert Müller; Alexis Paolo Garcia Ariza; Reiner S. Thomä; Matthias Hein (Ilmenau University of Technology, Germany)

**COMPACT Metallic Self-Polarizing Fabry-Perot Cavity ANTENNAS with SMALL LATERAL SIZE**

Shoaib Muhammad; Ronan Sauleau (University of Rennes 1, France); Hervé Legay (Thalès Alenia Space, France)

**Novel LTCC UWB 60GHz Semi-shielded Aperture Stacked Patch Antenna with Differential Feeding**

Bill Yang; Alexander Yarovoy; Shenario Amaldoss (Delft University of Technology, The Netherlands)

**Analytic Approach to the Analysis of Ridge and Groove Gap Waveguides - Comparison of Two Methods**

Marko Bosiljevac (University of Zagreb, Croatia); Alessia Polemi (University of Modena and Reggio Emilia, Italy) et al.

**16:40 - 18:20 Room: C****A30: Active and integrated antennas I**

Chairs: Jordi Romeu (Universitat Politècnica de Catalunya, Spain), Luciano Tarricone (University of Salento, Italy)

**Independently Reconfigurable Multiband High Impedance Surface for L, C, X AND Ku RADAR Bands**

Hyung-Joo Lee; Kenneth Lee Ford; Richard Langley (University of Sheffield, United Kingdom)

**Performance Degradation in Silicon Integrated Antennas Due to Coils for Inductive Energy Coupling**

Joan Gemio; Josep Parrón (Universitat Autònoma de Barcelona, Spain) et al.

**PIFA Top-Loaded Monopole Antenna with Diversity Features for WBAN Applications**

Thierry Alves; Benoit Poussot; Jean-Marc Laheurte (Université de Paris Est Marne La Vallée (UPEMLV), France)

**A Double-Dipole Antenna with Parasitic Elements for 122 GHz System-in-Package Radar Sensors**

Stefan Beer; Heiko Gulan; Christian Rusch; Grzegorz Adamiuk; Thomas Zwick (Karlsruhe Institute of Technology (KIT), Germany)

**MEMS-4-MMIC: Design of Antenna Array Front End At 24 GHz**

Marta Arias Campo; Oliver Litschke (IMST GmbH, Germany); Tauno Vaha-Heikkilä; Markku Lahti (VTT Electronics, Finland) et al.

**16:40 - 18:20 Room: D****A31: Planar and conformal antennas III**

Chair: Enrica Martini (University of Siena, Italy)

**An X-band Slotted Waveguide Array for Radar Applications**

Gianfranco Ruggerini (TeS Telematica e Sistemi (A Space Engineering Company), Italy)

**Planar Antennas Based on Surface-to-Leaky Wave Transformation**

Gabriele Minatti; Massimiliano Casaletti; Francesco Caminita (University of Siena, Italy) et al.

**A Novel Single Layer Patch Antenna for Ka Dual Bands In-Flight Entertainment**

D Tran (IRCTR, The Netherlands)

**Independent Control of the Leakage Rate and Pointing Angle of a Novel Planar Leaky-Wave Antenna**

Alejandro Javier Martinez-Ros (Technical University of Cartagena, Spain) et al.

**Portable Low Profile Antenna At X Band**

José Manuel Inclán-Alonso; Andrés García-Aguilar; Lucía Vigil-Herrero; José-Manuel Fernández-González et al. (Universidad Politécnica de Madrid, Spain)

**16:40 - 18:20 Room: G1****A35: Medical applications**

Chairs: Dirk Manteuffel (University of Kiel, Germany), Anja K Skrivervik (EPFL, Switzerland)

**Accuracy Investigation of an Ultra-Wideband Time Domain Microwave Imaging System**

Xuezhi Zeng; Andreas Fhager; Peter Linner; Mikael Persson; Herbert Zirath (Chalmers University of Technology, Sweden)

**A Theoretical Investigation of a Loaded Micelle Exposed to Pulsed E-field**

Paolo Marracino (La Sapienza University, Rome, Italy)

**Progress in Clinical Diagnostics and Treatment with Electromagnetic Fields**

Andreas Fhager; Xuezhi Zeng; Tonny Rubæk; Hana Dobšiček Trefná; Peter Linner et al. (Chalmers University of Technology, Sweden)

**Synthesis of a Wideband Antenna Array for Microwave Imaging Applications**

Leonardo Lizzi; Paolo Rocca; Andrea Massa (University of Trento, Italy); Takafumi Fujimoto (Nagasaki University, Japan) et al.

**Interaction Between MRI RF Field and Pacemaker Holders: A Comparison Between Birdcage and TEM Coils in 3 T Systems**

Stefano Pisa; Paolo Bernardi; Alessandro Bicchieri; Agnese Fabrizi; Emanuele Piuze (Sapienza University of Rome, Italy)

16:40 - 18:20

Room: S1

A32: Other antenna topics

Chairs: Benito Palumbo (Retired, Italy), Carey Rappaport (Northeastern University, USA)

**A Millimeter-Wave Wide-Band Transition From a Differential Microstrip to a Rectangular Waveguide for 60 GHz Applications**

Markus Ortner (DICE GmbH & Co KG, Austria); Ziqiang Tong (Johannes Kepler University Linz, Austria) et al.

**Singly-Fed Dielectric Resonator Antenna with a Wideband Circular Polarization**

Mohamad Sulaiman; Salam Khamas (University of Sheffield, United Kingdom)

**An Ultralow Cross-Polarization Slotted Waveguide Chebyshev Array Antenna**

Alireza Mallahzadeh; Sajad Mohammad ali nezhad (Shahed university, Iran)

**Suppression of the Slot-Mode Propagation in a Slitted Waveguide**

Trevor R. Cameron; Adrian T. Sutinjo; Michal Okoniewski (University of Calgary, Canada)

16:40 - 18:20

Room: S2

A33: Numerical methods

Chairs: Paola Pirinoli (Politecnico di Torino, Italy), Emmanuel H. Van Lil (Katholieke Universiteit Leuven, Belgium)

**Particle Swarm Optimization Algorithm with Moving Boundaries as a Powerful Tool for Exploration Research**

Aleksey Galan; Olena Boryskina (IRE NASU, Ukraine); Ronan Sauleau (University of Rennes 1, France) et al.

**Analysis of Flare Rolling and Corrugating Effects for H-plane Horn Radiator**

Ozan Yurduseven (Ankara University, Turkey); Ahmet Serdar Turk (Yildiz Technical University, Turkey)

**Compressed Sensing in Electromagnetics: Theory, Applications and Perspectives**

Marco Donald Migliore; Daniele Pinchera (University of Cassino, Italy)

**Radiation Efficiency and Q Factor Study of Franklin Antenna Using the Theory of Characteristic Modes**

Pavel Hamouz; Pavel Hazdra; Milan Polivka; Miloslav Capek; Milos Mazanek (Czech Technical University in Prague, Czech Republic)

**Wideband Tracking of Characteristic Modes**

Bryan Raines; Roberto G. Rojas (The Ohio State University, USA)

16:40 - 18:20

Room: S3

A34: Space application antennas

Chairs: Peter de Maagt (European Space Agency, The Netherlands), Roberto Mizzoni (Thales Alenia Space Italia, Italy)

**Design and Final Testing of Pband Ground Station Antenna for Galileo in Orbit Test System**

Lars Jacob Foged; Thierry Blin; Luc Duchesne (SATIMO, France); Luciano Paiusco; Massimo Ciollaro (Inmarsat, United Kingdom) et al.

**Multi-Objective Optimization of XBA Sentinel Antenna**

Rodolfo Ravanelli (Thales Alenia Space Italy SpA, Italy)

**GNSS Antenna for Precise Orbit Determination Including s/C Interference Predictions**

Mikael Öhgren (RUAG Space AB, Sweden)

**SHF Antenna Farm**

Christian Hartwanger (EADS Astrium GmbH, Germany); Un Pyo Hong; Ralf Gehring (Astrium GmbH, Germany) et al.

**Design and Verification of Argos Tx/Rx Space Segment Antenna**

Luc Duchesne; Marc Goff; Ludovic Durand (SATIMO, France); Jean-Marc Baracco (Mardel, France); Lars Jacob Foged (SATIMO, Italy)

16:40 - 18:20

Room: N1

CA06: Inverse problems and optimization techniques

Chair: Magda El-Shenawee (U of Arkansas, USA)

**Inverse Scattering Techniques to Detect the Moving Object in Complex Medium**

Abdel-Aziz Hassanin (Menoufia University, Egypt)

**Inverse Scattering Level Set Algorithm for Retrieving the Shape and Location of Multiple Targets**

Mohammad Hajhashemi (University of Florida, USA); Magda El-Shenawee (U of Arkansas, USA)

**Optimization as an Information Exploitation Tool for Solving Inverse Scattering Problems**

Paolo Rocca; Giacomo Oliveri; Andrea Massa (University of Trento, Italy)

**Improved Quantitative Microwave Tomography by Exploiting the Physical Meaning of the Linear Sampling Method**

Loreto Di Donato; Tommaso Isernia (University of Reggio Calabria, Italy); Ilaria Catapano; Lorenzo Crocco (CNR - National Research Council, Italy)

**Radial Line Slot Array Optimization**

Marco Mussetta (Politecnico di Milano, Italy); Agnese Mazzinghi (University of Florence, Italy) et al.

16:40 - 18:20

Room: N2

**M05: Measurement algorithms and processing techniques**

Chairs: Fernando Las-Heras (Universidad de Oviedo, Spain), Roberto Vallauri (Telecom Italia, Italy)

#### **Antenna Calibration for Near-Field Problems with the Method of Moments**

Greg Hislop; Sebastien Lambot; Christophe Craeye; David González-Ovejero; Rémi Sarkis (Université catholique de Louvain, Belgium)

#### **Time-Saving Scanning Schemes for Measurement of Electrically Large Antennas by Spherical Near-Field Technique**

Sergey Pivnenko (Technical University of Denmark, Denmark)

#### **Profile Reconstruction Using the Sources Reconstruction Method**

Yuri Álvarez; Cebrián García; Fernando Las-Heras (Universidad de Oviedo, Spain)

#### **Echo Characterization for Imperfect Antenna Measurement Systems**

Rafael Ayestarán; Jana Alvarez (University of Oviedo, Spain)

#### **An Efficient Approach to the Near-Field Sampling of Electromagnetic Fields**

Amedeo Capozzoli; Claudio Curcio; Angelo Liseno (Università di Napoli Federico II, Italy)

16:40 - 18:20

Room: N3

**P11: Mobile propagation channel modelling**

Chairs: Vittorio Degli-Esposti (University of Bologna, Italy), Xuefeng Yin (Tongji University, P.R. China)

#### **Comparisons of UTD-based and FK Models for Propagation Through Windows**

Ming Yang; Anthony Keith Brown (University of Manchester, United Kingdom)

#### **Implementation of Golden Section Search Method in SAGE Algorithm**

Quan Zuo; Xuefeng Yin; Junhe Zhou (Tongji University, P.R. China) et al.

#### **Impact of Wireless Propagation Channel Parameters on IEEE802.11n Performances**

Ali Bouhlef (France Telecom R&D, France); Valery Guillet (France Telecom R&D, France) et al.

#### **Including Embedded Element Antenna Characteristics in Winner II Channel Models and Comparison with Isotropic Propagation Environment**

Ulf Carlberg (SP Technical Research Institute of Sweden, Sweden); Per-Simon Kildal (Chalmers University of Technology, Sweden) et al.

#### **The Microscopic Level of Visibility Regions for Different Scenarios in Urban Environment**

Ana Katalinic (Croatian Post and Electronic Communications Agency, Croatia); Radovan Zentner (University of Zagreb, Croatia)

#### **Study of Propagation Model and Fading Characteristics for Wireless Relay System Between Long-Haul Train Cars**

Toshio Ito; Naoki Kita; Wataru Yamada; Takatoshi Sugiyama (NTT, Japan)

09:00 - 10:40

Room: A

**A36: New materials, meta-materials, EBG structures IV (part 1)**

Chairs: Sergei Tretyakov (Helsinki University of Technology, Finland), Amir Zaghoul (Virginia Polytechnic Institute and State University, USA)

#### **Flexible Dipole and Monopole Antennas**

Qing Liu; Kenneth Lee Ford; Richard Langley (University of Sheffield, United Kingdom) et al.

#### **Engineered Birefringence Positive-Negative Effective Indices: Interferometric Techniques and Wedge Experiment**

Miguel Navarro-Cia; Miguel Beruete; Francisco Falcone; Mario Sorolla (Universidad Publica de Navarra, Spain)

#### **Investigation of Stability of Negative Impedances for Use in Active Metamaterials and Antennas**

Eduardo Ugarte-Muñoz (University Carlos III in Madrid, Spain); Silvio Hrabar (University of Zagreb, Croatia) et al.

#### **Spherical Active Coated Nano-Particles - Impact of the Electric Hertzian Dipole Orientation**

Samel Arslanagic (Technical University of Denmark, Denmark)

#### **Enhancing Antenna Gain Using Magnifying Wire Medium**

Rostyslav Dubrovka; Pavel Belov (Queen Mary University of London, United Kingdom)

09:00 - 10:40

Room: B

**A37: Array antennas III (part 1)**

Chairs: Tommaso Isernia (University of Reggio Calabria, Italy), Hans Steyskal (c/o Air Force Research Laboratory, USA)

#### **On the Optimal Synthesis of Phase-Only Reconfigurable Antenna Arrays**

Tommaso Isernia (University of Reggio Calabria, Italy); Andrea Massa (University of Trento, Italy) et al.

#### **Synthesis of Large Sparse Linear Arrays by Bayesian Compressive Sensing**

Giacomo Oliveri; Fabrizio Robol; Matteo Carlin; Andrea Massa (University of Trento, Italy)

#### **Optimizing Uniformly Excited Time-Modulated Linear Arrays**

Michele D'Urso (SELEX Sistemi Integrati, Italy); Alessio Iacono (University Federico II, Napoli, Italy) et al.

#### **MEMS Based Waveguide Phase Shifters for Phased Arrays in Automotive Radar Applications**

Alexander Vorobyov (IETR, University of Rennes 1, France); Ronan Sauleau (University of Rennes 1, France) et al.



09:00 - 10:40

Room: C

A38: Multiband, wideband, UWB antennas III (part 1)

Chairs: John Batchelor (University of Kent, United Kingdom), Marta Martínez-Vázquez (IMST GmbH, Germany)

#### Optimization of UWB Planar Antennas Using Adaptive Design Specifications

Stanislav Ogurtsov; Slawomir Koziel (Reykjavik University, Iceland)

#### Compact and Conformal Ultra Wideband Antenna for Wearable Applications

Md. Hasanuzzaman Sagor; Qammer Hussain Abbasi; Akram Alomainy; Yang Hao (Queen Mary, University of London, United Kingdom)

**UWB Planar Monopole Antenna with Stable Radiation Pattern and Low Transient Distortion**  
Foad Fereidoony; Somayyeh Chamaani; Abdullah Mirtaheeri (K. N. Toosi University, Iran)

#### BROADBAND Leaky-Wave Antennas with Double-Layer PRS: ANALYSIS AND DESIGN

Carolina Mateo-Segura (Queen Mary University, United Kingdom); Alexandros Feresidis (Loughborough University, United Kingdom) et al.

#### UWB Printed Slot Antenna with Added Band and Notches

Hamid Reza Hassani; Sajad Mohammad ali nezhad; Mohammad Samadi (Shahed University, Iran)

09:00 - 10:40

Room: D

A39: Active and integrated antennas II (part 1)

Chairs: Miguel Ferrando (Universidad Politecnica De Valencia, Spain), William Whittow (Loughborough University, United Kingdom)

#### Integrated Cognitive Radio Antenna Using Reconfigurable Band Pass Filters

Maria Zamudio; Youssef Tawk (University of New Mexico, USA); Joseph Costantine (California State University Fullerton, USA) et al.

#### Compact Frequency Agile Slot Ring Resonators for Reflectarray Phase Shifting Cells

Mohamed Kharbech (Institut National des sciences appliquées (INSA Rennes), France)

#### Circularly Polarised Antenna Requirements Within a Reverberant Phase Conjugation Communication System

Padmini Sundaralingam; Vincent Fusco (Queen's University Belfast, United Kingdom)

#### Electronic Steering Antenna Onboard for Satellite Communications in X Band.

Gonzalo Expósito-Domínguez (Universidad Politécnica de Madrid, Spain); Pablo Padilla (Universidad de Granada, Spain) et al.

#### W-band Vivaldi Antenna in LTCC for CW-Radar Nearfield Distance Measurements

Christian Rusch; Jochen Schäfer (Karlsruhe Institut of Technology, Germany); Tobias Klein (IMST GmbH, Germany) et al.

09:00 - 10:40

Room: N1

A40: Reconfigurable antennas (part 1)

Chairs: Christos Christodoulou (University of New Mexico, USA), Robert Staraj (University of Nice - Sophia Antipolis, France)

#### Overcoming Failures in Reconfigurable Antenna Arrays Using Equivalent Frequency Dependent Graphs

Joseph Costantine (California State University Fullerton, USA); Manuel Rivera (University of New Mexico, USA) et al.

#### Influence of a Magneto-Dielectric Resonator on DVB-H Antenna Performances

Fabien Ferrero (University of Nice, France); Alexis Chevalier (University of Brest, France) et al.

#### Reconfigurable Monopole Antennas

Abubakar Tariq; Mohamad Hamid; Hooshang Shiraz (University of Birmingham, United Kingdom)

#### Log-periodic Patch Antenna with Tunable Frequency

Muhammad Faizal Ismail; Mohamad Kamal A. Rahim (Universiti Teknologi Malaysia, Malaysia)

#### Multi-functional Miniaturized Slot Antenna System for Small Satellites

Jose Padilla (JAST SA, Switzerland)

09:00 - 10:40

Room: G2

A42: Integral equations methods (part 1)

Chairs: Marco Donald Migliore (University of Cassino, Italy), Juan M. Rius (Universitat Politècnica de Catalunya, Spain)

#### Considering Surface Diffraction in the Hybrid FEBI-MLFMM-UTD Method

Manushanker Balasubramanian (Fraunhofer Institute for High Frequency Physics and Radar Techniques, Germany)

#### A 'Charge and Current' Formulation of the Electric Field Integral Equation

Jan-willem De Bleser; Emmanuel H. Van Lil; Antoine Van de Capelle (Katholieke Universiteit Leuven, Belgium)

#### Boolean Operations Implementation Over 3d Parametric Surfaces to Be Included in the Geometrical Module of an Electromagnetic Solver

Abdelhamid Tayebi; Josefa Gómez Pérez; Iván González Diego; Felipe Cátedra (University of Alcalá, Spain)

#### Double Exponential Quadrature Formulas for the Direct Calculation of Sommerfeld Integral Tails

Ruzica Golubović Ničiforović; Athanasios Polimeridis; Juan R Mosig (Ecole Polytechnique Federale de Lausanne, Switzerland)

#### A Parametric Study of the Double Exponential Algorithm Utilized in Weakly Singular Integrals

Ioannis Koufogiannis; Athanasios Polimeridis; Michel Mattes; Juan R Mosig (Ecole Polytechnique Federale de Lausanne, Switzerland)

09:00 - 10:40

Room: N2

**CP13: Earth-space propagation effects: measurements, modelling and mitigation (part1)**

Chairs: Joel Lemorton (ONERA, France), Aldo Paraboni (Polytechnic of Milan, Italy)

**Study and Test of a New Stochastic Rain Attenuation Time Series Synthesizer Based on a Mixed Law for Tropical and Equatorial Areas**

Xavier Boulanger (CNES-ONERA, France); Laurent Castanet; Nicolas Jeannin (ONERA, France) et al.

**Observation of Phase Fluctuations of GPS Signals At Midlatitudes**

Irk Shagimuratov; Iurii Cherniak (WD IZMIRAN, Russia); Andrzhay Krankowski (GRL/UWM, Poland); Ivan Ephishov (IZMIRAN, Russia)

**Aspects of Earth-space Propagation Impairments on Low-Angle Paths**

David V. Rogers; Pierre Bouchard (Communications Research Centre Canada, Canada)

**A Rain Attenuation Time Series Synthesizer Based on 2-State Markov Chains Coupled to an "Event-on-Demand" Generator**

Marcio Rodrigues (PUC-Rio, Brazil); Guillaume Carrie; Laurent Castanet (ONERA, France); Luiz A R da Silva Mello (PUC/RIO, Brazil)

**Physical-Statistical Models of Sky Noise Temperature for Deep Space Receiving Stations From X Band to W Band**

Vinia Mattioli; Frank S. Marzano; Nazzareno Pierdicca (DIE - Sapienza University of Rome, Italy) et al.

09:00 - 10:40

Room: N3

**CM04: Antenna diagnostics (AMTA session)**

Chairs: Lars Jacob Foged (SATIMO, Italy), Carlo Rizzo (Tecnologica Ltd., United Kingdom), Manuel Sierra-Castañer (Technical University of Madrid, Spain)

**Source Reconstruction in Advanced Processing of Antenna Measurements**

Javier Leonardo Araque Quijano (Universidad Nacional de Colombia, Colombia); Giuseppe Vecchi (Politecnico di Torino, Italy) et al.

**Advanced Processing of Measured Fields Using Field Reconstruction Techniques**

Erik Jørgensen; Peter Meincke; Cecilia Cappellin (TICRA, Denmark)

**Investigation of Full Probe Correction and Higher Order Expansion Functions in Multilevel Fast Multipole Accelerated Inverse Equivalent Current Method**

Thomas F. Eibert; Carsten H Schmidt (Technische Universität München, Germany) et al.

**Geometry Reconstruction From Amplitude-Only Scattered Field Data**

Yuri Álvarez; Cebrián García; Fernando Las-Heras (Universidad de Oviedo, Spain)

**A Theoretical Description of the IsoFilter(TM) Rejection Curve**

Doren W. Hess (MI Technologies, USA)

09:00 - 10:40

Room: S1

**CP03: Wireless Power Transmission and Energy Harvesting (part1)**

Chairs: Tatsuo Itoh (UCLA, USA), Shigeo Kawasaki (Institute of Space and Astronautical Science, Japan Aerospace Exploration Agency, Japan), Tamotsu Nishino (Mitsubishi Electric Corp., Japan)

**An Autonomous Wireless Sensor Powered by Vibration-driven Energy Harvesting in a Microwave Wireless Power Transmission System**

Yuji Suzuki (The University of Tokyo, Japan) et al.

**CRLH-Transmission Line Leaky Wave Antennas Integrated with Distributed Amplifiers with Power Recycling Feedback Scheme**

Chung-Tse Michael Wu; Tatsuo Itoh (University of California, Los Angeles, USA)

**Wireless Power Transfer with Metamaterials**

Bingnan Wang; Koon Hoo Teo (Mitsubishi Electric Research Lab, USA); Tamotsu Nishino (Mitsubishi Electric Corp., Japan) et al.

**Microwave WPT to a Rover Using Active Integrated Phased Array Antennas**

Shigeo Kawasaki (Institute of Space and Astronautical Science, Japan Aerospace Exploration Agency, Japan)

**High Speed Parallel Data Transmission and Power Transmission Technology for Wireless Repeater System**

Tomohiro Seki (Nippon Telegraph and Telephone Corporation, Japan)

09:00 - 10:40

Room: S3

**CA05: Parallelisation and fast solver techniques for numerical methods (part1)**

Chair: Tapan Sarkar (USA)

**Automatic Goal Oriented Optimization Using Parallel Higher Order Basis Based Integral Equation Solver**

Daniel Garcia-Doñoro (University Carlos III of Madrid, Spain); Weixin Zhao (Syracuse University, USA) et al.

**GPU-based Acceleration of MPIE/MoM Matrix Calculation for the Analysis of Microstrip Circuits**

Daniilo De Donno; Alessandra Esposito; Giuseppina Monti; Luciano Tarricone (University of Salento, Italy)

**Stability Analysis of a Parallel Higher Order Basis Based Integral Equation Solver (HOBBIES) on a Cluster with 512 AMD CPU Cores**

Yu Zhang (Xidian University, P.R. China); Hui Zhao (China Academy of Electronics and Information Technology, P.R. China) et al.

**Accuracy: The Frequently Overlooked Parameter in the Solution of Extremely Large Problems**

Ozgur Ergül (University of Strathclyde, United Kingdom); Levent Gürel (Bilkent University, Turkey)

**Parallel Higher Order Method of Moments for Accurate Analysis of Antenna-Radome-Platform System**

Xun-Wang Zhao; Yu Zhang (Xidian University, P.R. China); Daniel Garcia-Doñoro (University Carlos III of Madrid, Spain) et al.

09:00 - 10:40

Room: G1

**CA28: Advances in Computer-assisted design of antennas including requirements, modelling, algorithms (part1)**

Chairs: Poul Erik Frandsen (TICRA, Denmark), Francesca Mioc (Consultant, Switzerland), Marco Sabbadini (Esa Estec, The Netherlands)

**An Overview of Cad Tools Developed At IETR for the Synthesis and Optimisation of Shaped Lens Antennas At Millimetre Waves**

Anthony Rolland (IETR, University of Rennes 1, France); Ngoc Tinh Nguyen (University of Rennes 1, France) et al.

**Array Full-Wave Optimization and Space Mapping Techniques Using Fast MoM Solvers**

Fabio Milani; Mirko Bercigli; Mauro Bandinelli (Ingegneria dei Sistemi, IDS, Italy); Angelo Freni (University of Florence, Italy) et al.

**Feed-Array Design in Presence of Strong Scattering From Reflectors**

Mauro Bandinelli; Fabio Milani; Giancarlo Guida; Mirko Bercigli (IDS Ingegneria Dei Sistemi S.p.A, Italy) et al.

**Modelling of Transmission Through Apertures in Thick Dielectric Screens Using Volume Integral Equations**

Vladimir Volski; Guy A. E. Vandenbosch (Katholieke Universiteit Leuven, Belgium)

**On the Radiation Resistance for Small Capacitive Dipole Antennas**

Mats Gustafsson; Daniel Sjöberg (Lund University, Sweden)

09:00 - 10:40

Room: S2

**P12: MIMO propagation and system aspects**

Chairs: Andreas Richter (Aalto University, Finland), Werner Wiesbiek (Karlsruhe Institute of Technology, Germany)

**Experimental MIMO Capacity Results Based on Macro-Cell Metropolitan Channel Measurements in Shanghai**

Ping Wang (SIMIT, P.R. China); Yingzhe Li (CAS, P.R. China) et al.

**Elevation Extension for a Geometry-Based Radio Channel Model and Its Influence on MIMO Antenna Correlation and Gain Imbalance**

Lassi Hentilä; Pekka Kyösti; Juha Meinilä (Elektrobit Corporation, Finland)

**Estimation of 2X2 MIMO Capacity with Dual-Polarized Antennas Under Received Power Imbalance Through Propagation Measurements**

Shinobu Nanba; Yuki Hirota; Yoji Kishi (KDDI R&D Laboratories, Japan)

**Analysis of the Performance of LTE Systems in an Interleaved F-DAS MIMO Indoor Environment**

Enrico Maria Vitucci (University of Bologna, Italy); Luigi Tarlazzi (CommScope Italy Srl, Via Mengolina, 20 Faenza, Italy) et al.

**Consideration of MIMO in the Planning of LTE Networks in Urban and Indoor Scenarios**

Oliver Stähler; Reiner Hoppe; Gerd Wölfle; Timm Herrmann (AWE Communications GmbH, Germany)

**MIMO Capacity in Space and Time Domain for Various Urban Environment**

Evgeny Tsalolihin (University of Massachusetts, Dartmouth, USA)

11:00 - 12:40

Room: A

**A36: New materials, meta-materials, EBG structures IV (part 2)**

Chairs: Sergei Tretyakov (Helsinki University of Technology, Finland), Amir Zaghoul (Virginia Polytechnic Institute and State University, USA)

**Modelling EBG Surfaces Using Amended DB Boundary Conditions**

Marko Bosiljevac; Zvonimir Sipus; Per-Simon Kildal (Chalmers University of Technology, Sweden) et al.

**Broadband Extraordinary Transmission Device Realized with Dielectrics**

Di Bao; Wenxuan Tang; Yang Hao (Queen Mary, University of London, United Kingdom)

**Novel Frequency Selective Electromagnetic Absorber Combining Honeycomb Waveguide and Carbon Nanotube Composites**

Stephanie Eggermont; Pierre Bollen; Isabelle Huynen (Université catholique de Louvain, Belgium)

**Method of Moments Formulation for the Analysis and Design of Plasmonic Nano-Optical Antennas of Arbitrary Shape**

Jose M. Taboada; Javier Rivero; Luis Landesa (University of Extremadura, Spain); Marta G. Araújo (Universidade de Vigo, Spain) et al.

**Dual Band Textile Antenna on EBG for WiFi Applications**

Mohamad Mantash; Anne-Claude Tarot; Sylvain; Kourosh Mahdjoubi (University of Rennes 1, France)

11:00 - 12:40

Room: B

**A37: Array antennas III (part 2)**

Chairs: Tommaso Isernia (University of Reggio Calabria, Italy), Hans Steyskal (c/o Air Force Research Laboratory, USA)

**The New Role of Time-Modulation for Innovative Array Synthesis**

Giacomo Oliveri; Matteo Carlin (University of Trento, Italy)

**A Ka Band Planar Slot Array Antenna for 45 Degree Linear Polarization Using Substrate Integrated Waveguide**

Dong-yeon Kim; Sangwook Nam (Seoul National University, Korea)

**Comparison of 60 GHz Low and High Gain Antennas for Coverage Analysis of Aircraft In-cabin Radio Link**

Itziar de la Torre; Jürgen Kunisch; Christos Oikonomopoulos-Zachos; Marta Martínez-Vázquez (IMST GmbH, Germany)

**On a Multi-Objective Approach in the Non-Uniform Symmetrical Linear Antenna Array Design**

Francesco Napoli; Lara Pajewski; Giuseppe Schettini ("Roma Tre" University, Italy); Roberto Vescovo (University of Trieste, Italy)

11:00 - 12:40

Room: C

A38: Multiband, wideband, UWB antennas III (part 2)

Chairs: John Batchelor (University of Kent, United Kingdom), Marta Martínez-Vázquez (IMST GmbH, Germany)

#### PIFA Antenna for UWB Applications with WLAN Band Rejection Using Spiral Slots

Hmeda Hraga; Chan Hwang See; Raed A. Abd-Alhameed (University of Bradford, United Kingdom) et al.

#### A Frequency Tunable Embedded Normal-Mode Helix Antenna for Portable Wireless Devices

Shahrzad Jalali Mazlouman (Simon Fraser University, Canada); Alireza Mahanfar (Microsoft Corp., USA); Carlo Menon (SFU, Canada) et al.

#### Time and Frequency Domain Characteristics of UWB Cavity-Backed Slot Antenna Array

Guillaume Clementi; Ali Chami (Université Nice Sophia Antipolis, France); Nicolas Fortino (University of Nice, France) et al.

#### A Novel Dual-band and Dual-polarised Antenna for WLAN Systems

Shihua Wang (Queen Mary University of London, United Kingdom); Dean Kitchener (Wireless Technology Laboratories Ltd, United Kingdom) et al.

#### Photoconductive Switches for Radar Systems Exploiting Time Domain

Maria Grazia Labate; Aniello Buonanno; Michele D'Urso; Giovanni Calzolaio (SELEX Sistemi Integrati, Italy) et al.

11:00 - 12:40

Room: D

A39: Active and integrated antennas II (part 2)

Chairs: Miguel Ferrando (Universidad Politecnica De Valencia, Spain), William Whittow (Loughborough University, United Kingdom)

#### Novel All-Dielectric Mm-Wave Horn Antennas Based on EBG Structures

Irina Khromova; Ramon Gonzalo; Iñigo Ederra; Jorge Teniente (Public University of Navarra, Spain) et al.

#### RF-MEMS-based Millimeter-Wave Switch for Integrated Antenna Applications

Amin Enayati (ESAT, Katholieke Universiteit Leuven, Belgium); Xavier Rottenberg; Walter Raedt (IMEC, Belgium) et al.

#### Equivalent Circuit of FSS Loaded with Lumped Elements Using Modal Decomposition

**Equivalent Circuit Method**  
Rostyslav Dubrovka; Robert Donnan (Queen Mary, University of London, United Kingdom)

#### Increasing Parallel Plate Stop-band in Gap Waveguides Using Inverted Pyramid-Shaped Nails for Slot Array Application Above 60GHz

Ashraf Zaman (Chalmers University of Technology, Sweden); Vessen Vassilev (Sweden) et al.

#### Effect of On-Air-Combining on the Signal Quality in Distributed Transmitter Systems

Florian Pivit; Thomas Bohn; Nils Larcher; Daniel Markert (Alcatel-Lucent, Germany)

11:00 - 12:40

Room: N1

A40: Reconfigurable antennas (part 2)

Chairs: Christos Christodoulou (University of New Mexico, USA), Robert Staraj (University of Nice - Sophia Antipolis, France)

#### Design of Vivaldi Antennas with Embedded Reconfigurable Stopband Filter

Xavier Artiga (Centre tecnològic de Telecomunicacions de Catalunya (CTTC), Spain) et al.

#### Miniature Reconfigurable Antenna with Magneto Dielectric Substrate for DVB-H Band

Florian Canneva (LEAT, France); Fabien Ferrero (University of Nice, France) et al.

#### Wide Frequency Reconfigurability on a Miniature Omnidirectional Antenna Combining Variable Capacitance and Inductance

Sarah Sufyar; Christophe Delaveaud (CEA-LETI, France); Robert Staraj (University of Nice-Sophia Antipolis, France)

#### Pixeled-Dipole Based Isofrequency Reconfigurable RF Repeater

Edgar Diaz (Universidad Politecnica de Cataluña, Spain)

#### Design of a Reconfigurable Antenna for Ground Penetrating Radar Applications

Giovanni Leone (Università di Reggio Calabria, Italy)

11:00 - 12:40

Room: G2

A42: Integral equations methods

Chairs: Marco Donald Migliore (University of Cassino, Italy), Juan M. Rius (Universitat Politècnica de Catalunya, Spain)

#### Solving Electrically Large Electrodynamical Problems Using Graphics Processing Units

Dusan Zoric (University of Belgrade, Serbia); Dragan I. Olcan; Branko Kolundzija (University of Belgrade, Serbia)

#### Multipole Accelerated Macro Basis Functions Analysis of Printed Antenna Arrays

David González-Ovejero; Christophe Craeye (Université catholique de Louvain, Belgium); Francisco Mesa (University of Seville, Spain)

#### A Uniform High Frequency Solution for Triple Diffraction From Straight Wedges

Giorgio Carluccio; Federico Puggelli; Matteo Albani (University of Siena, Italy)

#### Adaptive Numerical Integration Algorithms for the Evaluation of Surface Radiation Integrals

Giorgio Carluccio; Matteo Albani (University of Siena, Italy)

#### Application of Hybrid MoM and Multilayered Green Function Approach to Analysis of EM/EMI Problems Related to Printed Circuit Boards and Microstrip Antennas

Faik Bogdanov (Georgian Technical University, Georgia)

11:00 - 12:40

Room: N3

**AA1: Small antennas, RFID tags and sensores III**

Chairs: Patrice Brachet (France Telecom, France), Milos Mazanek (Czech Technical University in Prague, Czech Republic)

#### **A Linearly Polarized Huygens Source Formed by Two Omega Particles**

Pekka Alitalo (TKK Helsinki University of Technology, Finland); Antti Karilainen (Aalto University, Finland) et al.

#### **RFID Tag Antenna for Passive Strain Sensing**

Cecilia Occhiuzzi; Corrado Paggi; Gaetano Marrocco (University of Rome Tor Vergata, Italy)

#### **A New Enhanced UHF RFID Sensor-Tag**

Luca Catarinucci; Riccardo Colella; Luciano Tarricone (University of Salento, Italy)

#### **Reduction of the Absorption Loss in the Head Via a Metamaterial Inspired Z Antenna**

Samantha Caporal Del Barrio; Ivan Bonev; Mauro Pelosi; Ondřej Franek; Gert Pedersen (Aalborg University, Denmark)

11:00 - 12:40

Room: N2

**CP13: Earth-space propagation effects: measurements, modelling and mitigation (part2)**

Chairs: Joel Lemorton (ONERA, France), Aldo Paraboni (Polytechnic of Milan, Italy)

#### **A Theoretical Approach for the Dynamic Reconfiguration of an On-Board Antenna Pattern and Its Performance Assessment**

Aldo Paraboni; Carlo Capsoni; Laura Resteghini; Marco Luccini (Politecnico di Milano, Italy); Roberto Nebuloni (Ieiti - Cnr, Italy)

#### **Simultaneous Beacon and Radiometer Propagation Measurements in the Ka-band**

Jose M Riera; Ana Benarroch; Pedro García-del-Pino (Universidad Politécnica de Madrid, Spain) et al.

#### **A Review of ESA Activities on Tropospheric Channel Modeling and Characterization for Spatial Systems**

Antonio Martellucci (European Space Agency, The Netherlands); Pavel Valtr (European Space Agency (ESA/ESTEC), The Netherlands)

#### **Distance-Aware Adaptive Resources Allocation for LEO Satellites Constellations**

Marwen Abdennebi (L2TI Laboratory, University of Paris Nord, France); Nawel Zangar (Université de versailles Saint quentin en yvelines, France)

#### **Planning of Advanced SatCom Systems Using ACM Techniques: The Impact of Rain Fade**

Lorenzo Luini (Politecnico di Milano, Italy); Luis Emiliani (SES-ASTRA, Luxemburg); Carlo Capsoni (Politecnico di Milano, Italy)

11:00 - 12:40

Room: S1

**CP03: Wireless Power Transmission and Energy Harvesting (part2)**

Chairs: Tatsuo Itoh (UCLA, USA), Shigeo Kawasaki (Institute of Space and Astronautical Science, Japan Aerospace Exploration Agency, Japan), Tamotsu Nishino (Mitsubishi Electric Corp., Japan)

#### **Development of Rectenna with Wireless Communication System**

Naoki Shinohara (Kyoto University, Japan)

#### **Power Balance of Inductive Wireless Power Transmission**

Jan Kracek; Milos Mazanek (Czech Technical University in Prague, Czech Republic)

#### **Magnetic Field Design for High Efficient and Low EMF Wireless Power Transfer in On-Line Electric Vehicle**

Seungyoung Ahn; Jounggho Kim (Korea Advanced Institute of Science and Technology, Korea)

#### **Effect of Nearby Human Body on WPT System**

Qiaowei Yuan (Sendai National College of Technology, Japan)

11:00 - 12:40

Room: S3

**CA05: Parallelisation and fast solver techniques for numerical methods (part2)**

Chair: Tapan Sarkar (USA)

#### **Electromagnetics and Information Technology: Much More Than High Performance Computing**

Luciano Tarricone (University of Salento, Italy)

#### **Parallel Computation of Radar Cross Section of Target with Coatings**

Ying Yan (Xidian University, P.R. China); Hui Zhao (China Academy of Electronics and Information Technology, P.R. China) et al.

#### **Performance Evaluation of the Multi-Device OpenCL FDTD Solver**

Tomasz Stefanski (ETH Zurich, Switzerland); Nicolas Chavannes (IT'IS Foundation, ETH Zurich, Switzerland) et al.

#### **FPGA Implementation of Pipeline Digit-Slicing Multiplier-Less Radix 22 DIF SDF Butterfly for Fast Fourier Transform Structure**

Yazan Samir Algnabi; Rozita Teymourzadeh (National University of Malaysia (UKM), Malaysia) et al.

11:00 - 12:40

Room: G1

**CA28: Advances in Computer-assisted design of antennas including requirements, modelling, algorithms (part2)**

Chairs: Poul Erik Frandsen (TICRA, Denmark), Francesca Mioc (Consultant, Switzerland), Marco Sabbadini (Esa Estec, The Netherlands)

**Finiteness Effects in Wideband Connected Arrays: Analytical Models to Highlight the Effects of the Loading Impedances**

Andrea Neto; Daniele Cavallo; Giampiero Gerini (TNO - Defence, Security and Safety, The Netherlands)

**Scatterer-Induced Feed Mismatch Estimate by Using a Generalized Spherical Wave Matrix Approach**

Cristian Della Giovampaola; Enrica Martini; Alberto Toccafondi; Stefano Maci (University of Siena, Italy)

**Beam-Waveguide Analysis Using Complex Conical Beams**

Sinisa Skokic (University of Zagreb, Croatia); Massimiliano Casaletti; Stefano Maci (University of Siena, Italy) et al.

**Algorithm and Modeling for Fast Optimization and Design of Large Log-Periodic Array Antennas with Commercial EM Solvers**

Jian Yang; Per-Simon Kildal (Chalmers University of Technology, Sweden)

**Sparse Array Synthesis Via Alternating Projections and Iterative Field Synthesis Orthogonalization**

Javier Leonardo Araque Quijano (Universidad Nacional de Colombia, Colombia); Giuseppe Vecchi (Politecnico di Torino, Italy) et al.

11:00 - 12:40

Room: S2

**P13: Electromagnetic propagation modelling**

Chairs: Vaclav Kvicera (Czech Metrology Institute, Czech Republic), Frank S. Marzano (Sapienza University of Rome, Italy)

**Comparisons of Approximate and Exact Solutions for Forward Scattering**

Vladimir Schejbal (University of Pardubice, Czech Republic); Ondrej Fiser (Institute of Atmospheric Physics, Czech Republic) et al.

**Efficient Implementation and Evaluation of Parallel Radio Wave Propagation**

Florian Schröder; Michael Reyer; Rudolf Mathar (RWTH Aachen University, Germany)

**Green's Function Formulation for Multilayered Cylindrical Structures and Its Application to Scattering Problems**

Sergey Knyazev; Yury Kostitsyn (Ural Federal University, Russia) et al.

**Propagation Velocity Equalizer Circuit on Multi Microstrip Transmission Line Structure**

Jaejun Lee; Byungjoon Kim; Sangwook Nam (Seoul National University, Korea)

**Surface Boundary Conditions for Lossy Dielectrics to Model Electromagnetic Wave Propagation in Tunnels**

Jorge Avella (France)

Day / Room	9:00 - 10:40	11:00 - 12:40	14:00 - 15:00	15:00 - 16:20	16.40 - 18.20
<b>Monday 11th April</b>					
G2			Ansoft / Ansys Workshop 1	Ansoft / Ansys Workshop 1	EuCAP ST C
<b>Tuesday 12th April</b>					
G1			EurAAP Delegate Assembly	EurAAP Delegate Assembly	
G2			Ansoft / Ansys Workshop 2	Ansoft / Ansys Workshop 2	Ansoft / Ansys Workshop 2
<b>Wednesday 13th April</b>					
S2			CST Workshop	CST Workshop	
S3			EurAAP WG on Small Antennas	EurAAP WG on Small Antennas	
G1			EurAAP WG Software Meeting	EurAAP WG Software Meeting	
G2			CARE Workshop	CARE Workshop	ESoA Board
<b>Thursday 14th April</b>					
G1			COST IC06603 Workshop	COST IC06603 Workshop	
G2			SPEAG Workshop 1 + 2	SPEAG Workshop 1 + 2	SPEAG Workshop 1 + 2

**CARE Workshop**

Coordinating the Antenna Research in Europe Starting from the results achieved by the ACE Network of Excellence, the CARE project will continue and reinforce the collaboration among the European Institutions involved in antenna research, with a specific emphasis on focus on the New Member States. CARE will reinforce the collaborations among the European Institutions by:

- 1) Researchers secondments
- 2) International workshops
- 3) Training courses
- 4) Dissemination, by conferences and Internet

CARE will also support the dissemination of the research results within the enlarged Europe, in close cooperation with the European Association on Antennas and Propagation (EurAAP). In particular, CARE organizes a Workshop on Wednesday 13 April 2011, joined with the EuCAP 2011. The workshop will be focused on presenting the project status and the future activities.

In this frame, you are welcome to the CARE workshop where you can be informed about the possibilities to take benefit from the CARE Project by sending or hosting students secondments funded by CARE.

**EurAAP WG Software Meeting**

Electromagnetic Data Exchange Language Developer's Condensed Course

The EDX team is proud to announce Electromagnetic Data Exchange Language Developer's Condensed Course at EuCAP2011, organised by ESA and the EurAAP Software Working Group in cooperation with the European School of Antennas, held as part of the EurAAP Software Working Group Meeting in EUR Congressi, Wednesday 13 April 2011 at 15:30.

**CST Workshop**

Design Flow: From Antenna to Array design

Classical workflow of array designers starts from a correct choice of a suitable element topology depending on the prescribed design specifications. This can be achieved either through literature research either through rearrangement of past available structures. Further steps are generally connected to a fast and efficient procedure ("Infinite array approach") to analyze and optimize the overall array performances such as Active element Gain, Active S-Parameters, bandwidth, beam-scanning capability taking into account the E.M. inter-element mutual coupling.

The final step is the simulation of the finite array structure since the edge effects, neglected by the infinite array approach, must be taken into account as well for a final validation.

The scope of this workshop is to show how efficiently CST STUDIO SUITE™ can be applied to the aforementioned time-consuming tasks related to antenna and antenna array design.

Day / Room	14:00 - 16:20	16:40 - 18:20
<b>Sunday 10th April</b>		
N3	Short Course 3	Short Course 3
S1	Short Course 8	Short Course 8
S2	Short Course 9	Short Course 9
S3	Short Course 10	Short Course 10
G1	Short Course 2	Short Course 2
G2	Short Course 1	Short Course 1

Day / Room	14:00 - 15:00	15:00 - 16:20	16:40 - 18:20
<b>Friday 15th April</b>			
N1	Short Course 3	Short Course 3	Short Course 3
N2	Short Course 5	Short Course 5	Short Course 5
N3	Short Course 6	Short Course 6	Short Course 6
S1	Short Course 8	Short Course 8	Short Course 8
S2	Short Course 9	Short Course 9	Short Course 9
S3	Short Course 10	Short Course 10	Short Course 10
G1	Short Course 4	Short Course 4	Short Course 4
G2	Short Course 7	Short Course 7	Short Course 7

**Short Course 1:**  
**Extensions of Spherical Near-Field Scanning**  
 Doren Hess, MI Technologies  
 Date: Sunday 10th April  
 Transformation

**Short Course 2:**  
**Electromagnetics and Its Applications to Antenna Engineering**  
 Yang Hao, Queen Mary, University of London  
 Raj Mittra, Pennsylvania State University  
 Date: Sunday 10th April

**Short Course 3:**  
**EM Design of complex antennas**  
 Matthias Geissler, IMST GmbH  
 Date: Friday 15th April

**Short Course 4:**  
**Electronically Scanned Reflectarrays**  
 Julien Perruisseau-Carrier, CTTC  
 Date: Friday 15th April

**Short Course 5:**  
**Radio Network Optimization and Planning of High Capacity Heterogeneous 3G and 4G Networks**  
 Francisco Falcone, Universidad Pública de Navarra  
 Date: Friday 15th April

**Short Course 6:**  
**Radio and Optical Waves Propagation Modelling for Scientists and Engineers**  
 Ondrej Fiser, Institute of Atmospheric Physics of the Czech Academy  
 Date: Friday 15th April

**Short Course 7:**  
**MIMO Antenna Measurements made simple for 4G Systems**  
 David A. Sanchez-Hernandez, Technical University of Cartagena  
 Date: Friday 15th April

**Short Course 8:**  
**The ABC of small antennas**  
 Matthias Hein, Ilmenau University of Technology  
 Dates:  
 1st half - Sunday 10th April,  
 2nd half - Friday 15th April

**Short Course 9:**  
**Dielectric Resonator Antennas, Theory, Design with Recent Developments**  
 Ahmed Kishk, University of Mississippi  
 Dates:  
 1st half - Sunday 10th April  
 2nd half - Friday 15th April

**Short Course 10:**  
**Domain Decomposition, High Frequency, Beam, and Hybrid Methods for Electromagnetic Applications**  
 Jin-Fa Lee, The Ohio State University  
 Dates:  
 1st half - Sunday 10th April  
 2nd half - Friday 15th April



**Welcome Drink***Palazzo dei Congressi***Monday, April 11th, 18:30 h**

The EuCAP Committee is glad to welcome the delegates to share a complimentary welcome drink organized at Palazzo dei Congressi on Monday April 11st, at 18:30 just after the Sessions.

This is the ideal opportunity to say hello to other attendees and to network with fellow delegates from around the world. *The Welcome Drink will be free of charge for all attendees of EuCAP 2011!*

**Gala Dinner***Villa Miani, Via Trionfale 151, 00136 Roma***Thursday, April 14th****19:30 h cocktail, 20:30 h dinner**

The Conference dinner will be held in one of the most exclusive venues in Rome, the magnificent Villa Miani placed over the hill of Monte Mario in a green oasis within the City. Built in 1873 by "Società Monte Mario" as a strolling place, Villa Miani is an elegant neoclassic building surrounded by acres of extremely cured English-style lawn that offers an absolutely unique and spectacular view over Rome. Comfortable buses, will arrange the transportation from Palazzo dei Congressi with departure at 18:30, offering the opportunity for a short city tour. The guests will arrive at Villa Miani in time to admire the amazing colors and lights of Rome at the sunset while enjoying a welcome cocktail in the garden. The return will be organized such to leave the attendees as close as possible to their hotels. *Fee per Person: 70,00 €*

**Guest Program****Historic Museum of Radios****Tuesday, April 12th, 9:30 h**

The Museum of Radios is located just inside the beautiful Vatican Gardens and stores hundreds of devices that recall the past History of radio broadcasting along the past decades: microphones, recorders, receivers and so on. The exhibition of vintage devices is enriched by a significant collection of photos and movies.

The guests will meet at the S. Ufficio gate at the entrance of Vatican State and will have the possibility to enter the Vatican boundary, cross the Gardens and visit the Museum.

The maximum number of admitted guests is 20! Visit booking will be available onsite, at the EuCAP Registration Desk.

*Preliminary Program:*

9:30: Meeting point at the S. Ufficio gate and document check / 12:30: End of the visit

*Info:* Jesuit Father Bruno Bisceglia S.J., University of Salerno, bbisceglia@unisa.it

*Admission fee: Free. Please ask at the registration desk for available spaces.*

**The Machines of Leonardo Da Vinci**

An exhibition dedicated to the universal genius of Leonardo Da Vinci, in the heart of Rome with numerous touring versions all over the world, the Leonardo Da Vinci's Museum give to every single visitor a unique experience where its sensorial perception and the knowledge about "Leonardo" espouse together to donate the feeling of being immerse in a very topicality past. A landmark both for visitors and training aid, a cognitive instrument, the Leonardo Da Vinci's Museum of Rome has the real machines draw by Da Vinci's codes. An imposing and peculiar work, made with trifle care to realize actual working machines, with great size, built the way of special processes: these machines, not just "models" are entirely made by wood and this required the use of sophisticated technologies both special human skills. This Museum is an exhibition well studied and well-groomed down to the smallest detail, where machines interactivity play the key role. EuCAP Delegates will find inside their Conference bag two 40 % discount coupons!

*Palazzo della Cancelleria**Piazza della Cancelleria, 00186 Roma**Info:*E-mail: [info@mostradileonardo.com](mailto:info@mostradileonardo.com)

Tel: +39.06.69887616

[www.mostradileonardo.com/index.php?lang=EN](http://www.mostradileonardo.com/index.php?lang=EN)

*Admission fee: 5 € (instead of 9 €). Please ask at the registration desk for available spaces.*

**Walking along Emperor Roots****11th April 14:00 - 18:00 / 14th April****09:00 -13:00**

Duration: 4 hours

Fee\* per Person: 62,00 €

*\* The price per person includes coach, city taxes, guide, entrance to Coliseum, headphones.*

**Baroque Rome****13th April 14:00 - 18:00**

Duration: 4 hours

Fee\* per Person: 44,00 €

*\* The price per person includes coach, city taxes, guide, headphones.*

**Roman Castle****14th April 14:00 - 18:00**

Duration: 4 hours

Fee\* per Person: 63,00 €

*\* The price per person includes coach, city taxes, guide, headphones, wine tasting.*

Booking forms will be available at KUONI desk during the congress days for participants that would like to take part to city tours/excursion and haven't booked in advance.

Payment by credit card or cash on the spot available.

Voucher:

For tours and excursions you can pick up your tickets onsite at the congress center at tour desk.

**EuCAP 2011 website**

<http://www.eucap2011.org/>

**Registration fees**

Registration includes attending the full conference and scientific sessions. Coffee during the official breaks is included as well as the lunch refreshments. Lunch for Students/Retired is not included and can be booked additionally.

**Short Courses and Workshops**

For last minute Workshop- or Short Course- Registrations, please apply at the registration counter.

Fees Short Courses:

Half day 150,00 €

Full day 250,00 €

**On-Site Registration Counter – Office Hours**

The registration desk on site will be open as follows:

Sunday, 10th April:	13:00 – 17:00
Monday, 11th April:	08:00 – 17:00
Tuesday, 12th April:	08:00 – 17:00
Wednesday, 13th April:	08:00 – 17:00
Thursday, 14th April:	08:00 – 17:00
Friday, 15th April:	08:00 – 10:00

**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 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 be held in English only. No translation will be provided.

**EuCAP 2011 Conference Venue**

Roma Palazzo Congressi

Piazza J.F. Kennedy 1

00100 Roma / Italy

Phone.: +39 0654513710

Fax: +39 0654513800

Website : <http://www.eurcongressiroma.it/en>

E-Mail: [info@eurcongressiroma.it](mailto:info@eurcongressiroma.it)

**Shopping**

If you love to shop then you're going to love Rome!

Rome is a great place for shopping, with designer outlets and department stores all over the city. A cosmopolitan and thriving capital city for over 2000 years, Rome provides a multi-ethnic mix that is both attractive and explosive!

Rome is home to a diverse array of shopping opportunities. The five "must be" shopping areas in Rome are: "Piazza di Spagna", "Via del Corso", "Trastevere", Viale Marconi as well as the flea market "Porta Portese" which takes place every Sunday from 8:00 am till 2:00 pm.

Shops in Rome usually, except on Sunday and Monday mornings, open from 9:00 am - 1:00 pm and from 3:30 pm - 7:30 pm (in summer: 4:00 pm - 8:00 pm).

**Currency**

Italy uses the Euro (€).

**ATM's**

Make sure your bankcard is of the four PIN number type; this is the standard in Rome. ATMs in Italy are compatible with the Cirrus or Plus system.

**Credit and debit cards**

Credit and debit cards are widely accepted. But, however, many of smaller shops, cafes and smaller restaurants do not take credit cards.

**Time Zone**

The time zone in Italy is UTC/GMT +1 hour

**Telephone code**

The country code for Italy is 0039; please dial this number before a local Italian number. Each city in Italy has its own city code. The city code of Rome is 06. So when you make a call from another country than Italy to Rome dial 0039 + 06 + the phone number.

**Speaker upload**

Please bring your presentations on a USB memory stick or CD-ROM in MS-Power Point or Adobe PDF format to EuCAP 2011 and submit it in the Session Room at the conference venue at least 20 minutes prior to your session!

**Wireless Access**

The Eur Congressi has got a wireless network. For accessing this network, please contact the registration desk.

**Weather**

Temperatures around 18 °C (64 °F) may be expected in April. It is recommendable to bring warm clothes, since it can be rather cold at this time of year.

**Safety and insurance**

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 Organizing Committee of EuCap 2011 cannot assume any responsibility and will not accept any liability in these matters.

**Emergency Services**

The national telephone number for all emergency services in Italy including AMBULANCE, FIRE and POLICE is "112".

Other useful telephone numbers are:

Ambulance Service (Ambulance) 118

National Police (Police) 112

Fire Service 115

**Destination Rome**

The city of Rome is located in the central-western portion of the Italian Peninsula, on the Tiber river within the Lazio region of Italy. Rome's history spans over two and a half thousand years. It was the capital city of the Roman Kingdom, the Roman Republic and the Roman Empire, which was a major political and cultural influence in the lands bordering the Mediterranean Sea for over four hundred years from the 1st Century BC until the 4th Century AD. Since the 2nd Century AD Rome has been the seat of the Papacy and, after the end of Byzantine domination in the eighth century it

became the capital of the Papal States, which lasted until 1870. In 1871 Rome became the capital of the Kingdom of Italy, and in 1946 that of the Italian Republic. Since 1929 it is also the site of the Vatican City, an independent city-state run by the Pope.

During the Middle-Ages, Rome was home to popes such as Alexander VI and Leo X, who transformed the city into one of the major centres of the Italian Renaissance, along with Florence. The current-day version of St Peter's Basilica was built and the Sistine Chapel was painted by Michelangelo. Famous artists and architects, such as Bramante, Bernini and Raphael resided for some time in Rome, contributing to its Renaissance and Baroque architecture.

Rome, especially in classical times, has been influential in the world regarding subjects such as architecture, art, culture, politics, literature, law, philosophy and religion. Due to this centrality on many levels and powerful city-status, Rome has been nicknamed "Caput Mundi" (Latin for "Capital of the World") and "The Eternal City". The city is, on addition, an important centre of pilgrimage in the Christian, notably the Roman Catholic Church, and St Peter's Basilica, found in the Holy See, is often called the "the greatest of all churches of Christendom". Rome's architectural and archaeological sites contribute to it having many UNESCO World Heritage Sites.

Its global influence in politics, literature, high culture, the arts, music, religion, education, fashion, cinema and cuisine lead it to being considered an Alpha-world city, according to Loughborough University and GaWC in 2008. Rome is also a hub of the cinematic and filming industry; for example, the Cinecittà Studios, which saw the filming of several internationally acclaimed movies as well as television programs, are located in the city.

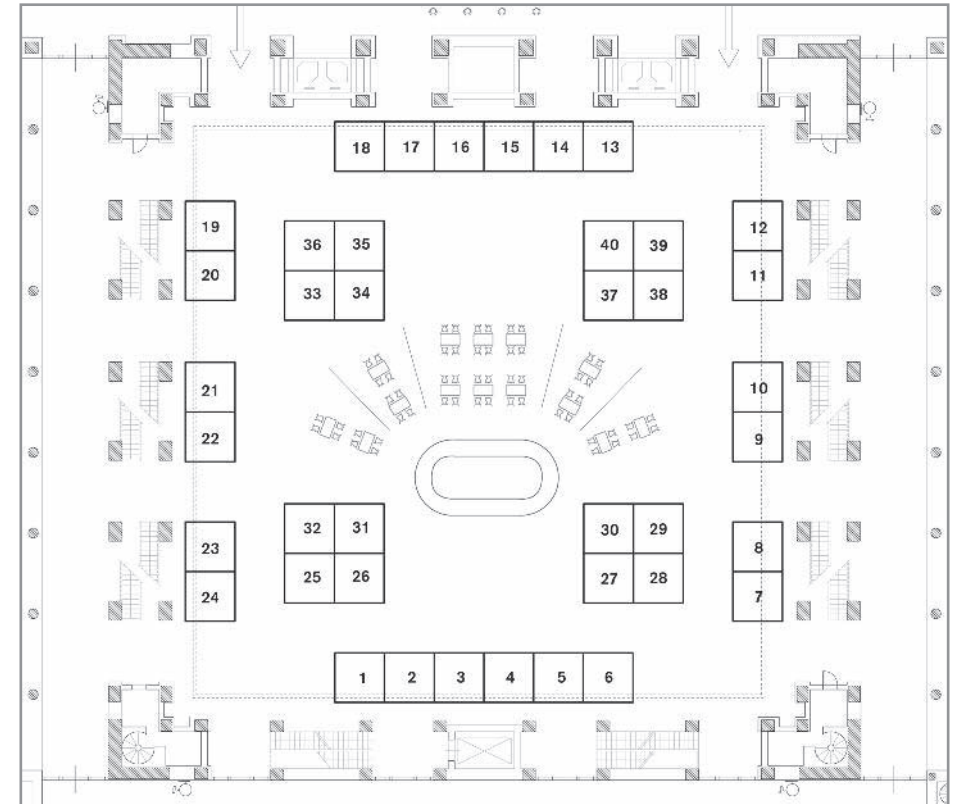
**Getting to Eur Congressi Roma S.p.A. by public transport**

*By direct train from Fiumicino Airport:*  
This Airport is connected non-stop to the Termini Station by Leonardo Express direct train. The train runs every 30 minutes with a journey time of 30 minutes.

*By Bus from Ciampino Airport:*  
This airport is connected by bus to the Termini Station and to the Anagnina underground stop.

*From Termini Station by B-Line:*  
Take the underground B Line in direction Laurentina up to Eur Fermi stop. The line runs from 05:30 am to 11:30 pm.

For further information, please visit the Rome Public Transport (<http://www.atac.roma.it>).



- |       |                                      |       |                                 |
|-------|--------------------------------------|-------|---------------------------------|
| 1+2   | The Microwave Vision Group           | 22    | WIPL-D d.o.o.                   |
| 3     | SAAB Compact Range                   | 23+24 | ASTRIUM                         |
| 4     | VERTEX ANTENNENTECHNIK GmbH          | 25    | ANSYS                           |
| 5     | ESoA                                 | 26    | SIEPEL                          |
| 6     | EMSCAN                               | 27+30 | Schmid & Partner Engineering AG |
| 7     | AMTA                                 | 28    | EMITE Ing                       |
| 8     | Space Engineering                    | 29    | Bluestest AB                    |
| 9     | ACTIONS & SERVICES                   | 31    | ESA                             |
| 9     | Antenna Systems Solutions - ASYSOL - | 32    | TICRA                           |
| 10    | NEWFASANT                            | 33    | JAST Antenna Systems            |
| 11    | ROHDE & SCHWARZ                      | 34    | FEKO - by EM Software & Systems |
| 12    | Wiley-Blackwell                      | 35    | Agilent Technologies            |
| 13+14 | IDS Ingegneria Dei Sistemi           | 36    | E&C Anechoic Chambers           |
| 15+16 | CST - Computer Simulation Technology | 37    | IMST                            |
| 17    | EMCoS Consulting and Software        | 38    | EuCAP 2012                      |
| 18    | Mician GmbH                          | 39+40 | MICROSPACE                      |
| 19+20 | MI Technologies                      | 39+40 | Nearfield Systems               |
| 21    | WinProp by AWE-Com                   |       |                                 |



**Agilent Technologies**  
Via Piero Gobetti, 2/C  
Centro Direzionale Villa Fiorita  
Cernusco sul Naviglio  
20063 Milano  
ITALY  
www.agilent.com  
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Agilent has provided solutions for Electronics Test and Measurement since 1939. We pioneered the markets for many of today's electronic test instruments, enabling the digital and wireless revolutions now under way.



**ANSYS Italia Srl**  
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ITALY  
www.ansys.com  
**Booth Number 25**

ANSOFT is the ANSYS product suite for hi and low frequencies simulation.



**ACTIONS & SERVICES**  
47, Chemin de l'Orée de Soisy  
91450 Soisy sur Seine  
FRANCE  
www.as-f.com  
**Booth Number 9**

Actions & Services has more than 15 years of experience in  $\mu$ wave systems supply. We have installed a large number of High Tech Telecom Training Labs for students in European technical schools and Universities.



**Antenna Systems Solutions - ASYSOL**  
Centro de Empresas (Office #1)  
Parque Científico y Tecnológico UPM  
Campus de Montegancedo  
28223 Pozuelo de Alarcón  
SPAIN  
www.asysol.com  
**Booth Number 9**

ASYSOL is one of the most technologically advanced organizations capable of leading in the invention, development and manufacture of the RF industry's most advanced test systems (antenna metrology, antenna development, microwave components, automation and software), with the result of providing professional solutions, services, consultancy and training.



**AMTA**  
www.amta.org  
**Booth Number 7**  
EuCAP 2011 Sponsor

The Antenna Measurement Techniques Association (AMTA) is a non-profit professional organization for members involved in research and development of antenna and radar-scattering measurements. The principal objective of AMTA is to provide a forum for the exchange of information on electromagnetic measurement techniques and problems.



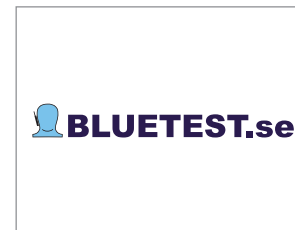
**ASTRIUM**  
www.astrium.eads.net  
**Booth Number 23 + 24**

Astrium, number 1 space company in Europe and 3 worldwide, employs 15,000 men and women in France, Germany, Netherlands, Spain and UK. All professionals chosen from among the very best, all passionate about space.



**WinProp by AWE-Com**  
AWE Communications GmbH  
Otto-Lilienthal-Str. 36  
71034 Boeblingen  
GERMANY  
www.awe-communications.com  
**Booth Number 21**

AWE's WinProp software suite provides accurate propagation models with short computation times for rural, urban, indoor and tunnel scenarios. Beyond propagation WinProp includes adaptive modules for the simulation and planning of wireless networks.



**Bluetest AB**  
Lindholmen Science Park  
Götaverksgatan 1  
417 55 Gothenburg  
SWEDEN  
www.bluetest.se  
**Booth Number 29**

Bluetest's RTS series of systems with a unique and patented technology significantly saves time and cost for OTA (Over-The-Air) tests of wireless devices with small antennas.



**CST – Computer Simulation Technology AG**

Bad Nauheimer Strasse 19  
64289 Darmstadt  
GERMANY  
www.cst.com

**Booth Number 15 + 16**  
**EuCAP 2011 Gold Sponsor**

CST develops and markets software for the simulation of electromagnetic fields. Its products allow you to characterize, design and optimize electromagnetic devices all before going into the lab or measurement chamber.



**E&C Anechoic Chambers N.V.**

Nijverheidsstraat 7A  
2260 Westerlo  
BELGIUM  
www.ecanechoicchambers.com

**Booth Number 36**

We at E&C Anechoic Chambers are committed to continue and further improve the over half-a-century lasting excellence in development and manufacturing of absorber material for anechoic chambers.



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GEORGIA  
www.emcos.com

**Booth Number 17**

EMCoS focuses on generation of special simulation software. Powerful simulation tools and techniques let solve complex EM problems in fast and efficient manner. EMCoS software is widely used in automotive, aircraft and naval industries.



**EMITE Ing**

Edificio CEEIM  
Campus Espinardo  
30100 Espinardo, Murcia  
SPAIN

www.emite-ing.com  
**Booth Number 28**

EMITE provides fast, repeatable and accurate MIMO measurements and MIMO OTA compliance testing with the 8x8 MIMO Analyzer Series E for a wide variety of fading environments in a single and intuitive interface. The MIMO Analyzer is as 3GPP candidate technology, and has recently been selected to perform the first LTE MIMO OTA measurements for 3GPP/CTIA.



**EMSCAN**

#1, 1715 – 27 Avenue N.E.  
Calgary, AB T2E 7E1  
CANADA  
www.emscan.com

**Booth Number 6**

EMSCAN is a world-leading developer of real time magnetic near-field measurement solutions. We provide Real-Time Visual Test Solutions for Antenna and PCB Designers and Verification Engineers.



**European Space Agency (ESA)**

ESTEC  
Keplerlaan 1, PB 299  
2200 AG Noordwijk  
THE NETHERLANDS  
www.esa.int

**Booth Number 31**  
**EuCAP 2011 Gold Sponsor**

Space is a key asset for Europe, providing essential information needed by decision-makers to respond to global challenges. Space provides indispensable technologies and services, and increases our understanding of our planet and the Universe. Since 1975, the European Space Agency (ESA) has been shaping the development of this space capability.



**ESoA coordinator**

University of Siena  
Information Engineering  
Department  
via Roma, 56  
53100 Siena  
ITALY

www.esoa-web.org  
**Booth Number 5**

ESoA courses prolong for five days and consist on about 20 - 25 hours of lectures and 15 - 20 hours of other activities. The lectures are provided both by people from the host Universities and by key-note speakers from other institutions.



**EPFL**

www.epfl.ch  
**EuCAP 2011 Sponsor**

EPFL is one of the two Ecoles Polytechniques in Switzerland. EPFL has three missions: education, research and technology transfer at the highest international level. EPFL is ranked (2010) as the best European university in the area of Engineering.



**EM Software & Systems GmbH**  
Otto-Lilienthal-Str. 36  
71034 Böblingen  
GERMANY  
www.emss.de  
**Booth Number 34**  
**EuCAP 2011 Gold Sponsor**

EMSS distributes the leading electromagnetic (EM) simulation software FEKO and the antenna design tool Antenna Magus and also offers consulting for EMC antennas and computational electromagnetics. FEKO is an EM analysis software suite for solving a wide range of applications for a large variety of industries.



**IDS Ingegneria Dei Sistemi S.p.A**  
Via Enrica Calabresi  
24 - Loc. Montacchiello  
56121 Pisa  
ITALY  
www.idscompany.it  
**Booth Number 13 + 14**  
**EuCAP 2011 Sponsor**

IDS S.p.A. is an independent system engineering company providing high technology engineering consultancy, integrated software and hardware system solutions operating in both defense and civilian fields. At EuCAP 2011, IDS will launch the latest version of its electromagnetic simulation environments: ADF-EMS and EMIND.



**IMST GmbH**  
Carl-Friedrich-Gauß-Str. 2 - 4  
47475 Kamp-Lintfort  
GERMANY  
www.imst.com  
**Booth Number 37**

IMST GmbH is a professional development house for high-frequency circuits, wireless modules, and communications systems. We provide individualized support – from initial consulting to series production. IMST presents the EMPIRE XCcel™ - design tool for microwave components and antennas.



**Istituto Superiore Mario Boella**  
via Pier Carlo Boggio 61  
10138 Torino  
ITALY  
**EuCAP 2011 Sponsor**

Istituto Superiore Mario Boella (ISMB) is an applied research centre focused on the innovation enabled by Information and Communication Technologies (ICTs) founded in 2000 by Compagnia di San Paolo and Politecnico di Torino and is located within the new Campus of Politecnico



**Mician GmbH**  
Schlachte 21  
28195 Bremen  
GERMANY  
www.mician.com  
**Booth Number 18**

Mician develops and markets software tools for fast and accurate designs of passive waveguide components and antennas.



**MICROSPACE s.r.l.**  
ITALY  
www.microspace.it  
**Booth Number 39 + 40**

MICROSPACE is specialized in the exclusive representation of leading U.S. and European manufacturers of RF & Microwave components, Antenna Measurement Systems, Antennas, RF and Dielectric Absorbing Materials, Inertial Navigation Systems, GPS Timing Equipment, mostly working in the defense and aerospace markets.



**The Microwave Vision Group**  
17, Avenue de Norvège  
1140 Villebon-sur-Yvette  
FRANCE  
www.microwavevision.com  
**Booth Number 1 + 2**

The Microwave Vision Group comprises SATIMO, ORBIT/FR, and AEMI. It is dedicated to the conception, production and sale of antenna test and measurement solutions.



**MI Technologies**  
1125 Satellite Blvd.  
Suite 100  
Suwanee, GA 30024  
USA  
www.mi-technologies.com  
**Booth Number 19 + 20**

Over 50 years ago, MI Technologies introduced the world to microwave measurement systems and we continue to build on that legacy. MI is the leading global supplier of RF and Microwave products, systems, services and training.



**Nearfield Systems Inc.**  
19730 Magellan Drive  
Torrance, California, 90502  
USA  
www.nearfield.com  
**Booth Number 39 + 40**

NSI is a high technology company that manufactures systems, including positioners RF instrumentation and software, that are used to measure antennas for personal communications, military radar & communications and spacecraft antennas.



**NEWFASANT S.L.**  
CL/ Conde De Peñalver, 61  
28006 Madrid  
SPAIN  
www.fasant.com  
**Booth Number 10**

We provide NEWFASANT, a SW tool that simulates electromagnetic fields for studies of Antennas and antennas interaction with structures, RCS, ISAR, Doppler, Electromagnetic Compatibility, Radio Propagation and microwave components.



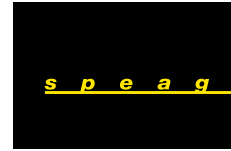
**Rohde & Schwarz**  
Headquarters  
Mühldorfstr. 15  
81671 München  
GERMANY  
www.rohde-schwarz.com  
**Booth Number 11**

Rohde & Schwarz is Europe's leading manufacturer of electronic test and measurement equipment. We offer a full range of microwave T&M instruments up to 325 GHz including signal generators, spectrum analyzers, network analyzers and power meters.



**Saab, Electronic Defence Systems**  
41289 Gothenburg  
SWEDEN  
www.saabgroup.com  
**Booth Number 3**

Saab's Compact Range in Gothenburg, Sweden performs fast and accurate antenna measurements over a wide operating frequency band. Our measurement service provides you with a complete measurement program together with all the relevant documentation. The antenna measurement service is accredited to ISO 17025.



**Schmid & Partner Engineering AG**  
Zeughausstr. 43  
8004 Zurich  
SWITZERLAND  
http://www.speag.com  
**Booth Number 27 + 30**  
EuCAP 2011 Sponsor

Schmid & Partner Engineering AG (SPEAG) is the leading developer and manufacturer of the most reliable, efficient, user-friendly and advanced experimental (DASY, iSAR, SAR/OTA Phantoms) and numerical tools (SEMCAD X) for the electromagnetic near- and far-fields from DC to light.



**SIEPEL**  
ZA de Kermaquer  
Impasse de la Manille  
56470 La Trinite sur Mer  
FRANCE  
www.siepel.com  
**Booth Number 26**

SIEPEL is a manufacturer of a wide range of microwave absorbers and anechoic chambers dedicated to EMC, antenna testing and compact range. These absorbers are designed per numerical simulation.



**Space Engineering S.p.A.**  
Via dei Berio,91  
00155 Roma  
ITALY  
www.space.it  
**Booth Number 8**

Space Engineering, a management-owned SME incorporated in 1989, structured as Group comprising TeS-Telematica e Sistemi. Core business of Space Engineering, is the Space market. SE operates at both system-level (performance/assessment/design) and equipment-level (HW/SWdesign & Implementation).



**Thales Alenia Space**  
Via Saccomuro, 24  
00131 Roma  
ITALY  
EuCAP 2011 Sponsor

Thales Alenia Space is European leader reference in telecoms, radar and optical Earth observation, defense and security, navigation and science and space infrastructures and transportation. Thales Alenia Space is a joint venture between Thales (67 %) and Finmeccanica (33 %) and has 11 industrial sites in 4 European countries (France, Italy, Spain and Belgium) with over 7.200 employees worldwide.



**TICRA**  
Læderstræde 34  
1201 Copenhagen K  
DENMARK  
www.ticra.com  
**Booth Number 32**

TICRA develop and market the world renowned reflector antenna design software, GRASP, POS and CHAMP, as well as the measurement software, SNIFT. TICRA also provides expert consultancy services within the field of antenna design, installed performance and anomaly investigations.



**VERTEX  
ANTENNENTECHNIK GmbH**  
A General Dynamics Company  
Baumstr. 46 - 50  
47198 Duisburg  
GERMANY  
www.vertexant.de  
**Booth Number 4**

Offers precision ground station antennas/stations in the fields of satellite communications, remote sensing, TT&C, deep space missions, astronomy, including services as design/engineering, software development, in-plant integration, on-site installation, commissioning, acceptance testing, aftersales-services.



**JAST Antenna Systems**  
PSE-EPFL, Bat. C  
1015 Lausanne  
SWITZERLAND  
www.jastantenna.com  
**Booth Number 33**

JAST Antennas, a ViaSat company, offers satellite antenna and phased array design, fabrication, installation and service, primarily for mobile satellite communications from L-band to Ka-band.



**Wiley-Blackwell**  
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#05-01 Parkview Square  
Singapore 188778  
www.wiley.com  
**Booth Number 12**









Wiley-Blackwell are a leading international publisher of print and electronic products, specialising in scientific and technical books and journals. Visit our stand at EuCAP and view our new and bestselling books in the area.



**WIPL-D d.o.o.**  
Gandijeva 7 apt 32  
11073 Belgrade  
SERBIA  
www.wipl-d.com  
**Booth Number 22**

WIPL-D, with its flagship software products WIPL-D Pro and WIPL-D Pro CAD, as well as consulting services, enables users worldwide to perform fast and accurate high-frequency simulations of antennas, microwave circuits, scatterers, EMC problems, antenna placement etc.

## Technical Sessions – Overview

	Invited / Plenary speakers
	Antennas convened sessions
	Antennas regular sessions
	Measurements convened sessions
	Measurements regular sessions
	Propagation convened sessions
	Propagation regular sessions
	Poster sessions
	Workshops and other meetings
	Short courses



ROOM / TIME	9:40 - 10:00	10:00 - 10:40	11:20 - 12:40	14:00 - 16:20	16.40 - 18.20
POSTER HALL					
AUDITORIUM					
A					
B					
C					
D				EurAAP Board of Directors	EurAAP Board of Directors
N1					
N2					
N3				Short Courses	Short Courses
S1				Short Courses	Short Courses
S2				Short Courses	Short Courses
S3				Short Courses	Short Courses
G1				Short Courses	Short Courses
G2				Short Courses	Short Courses

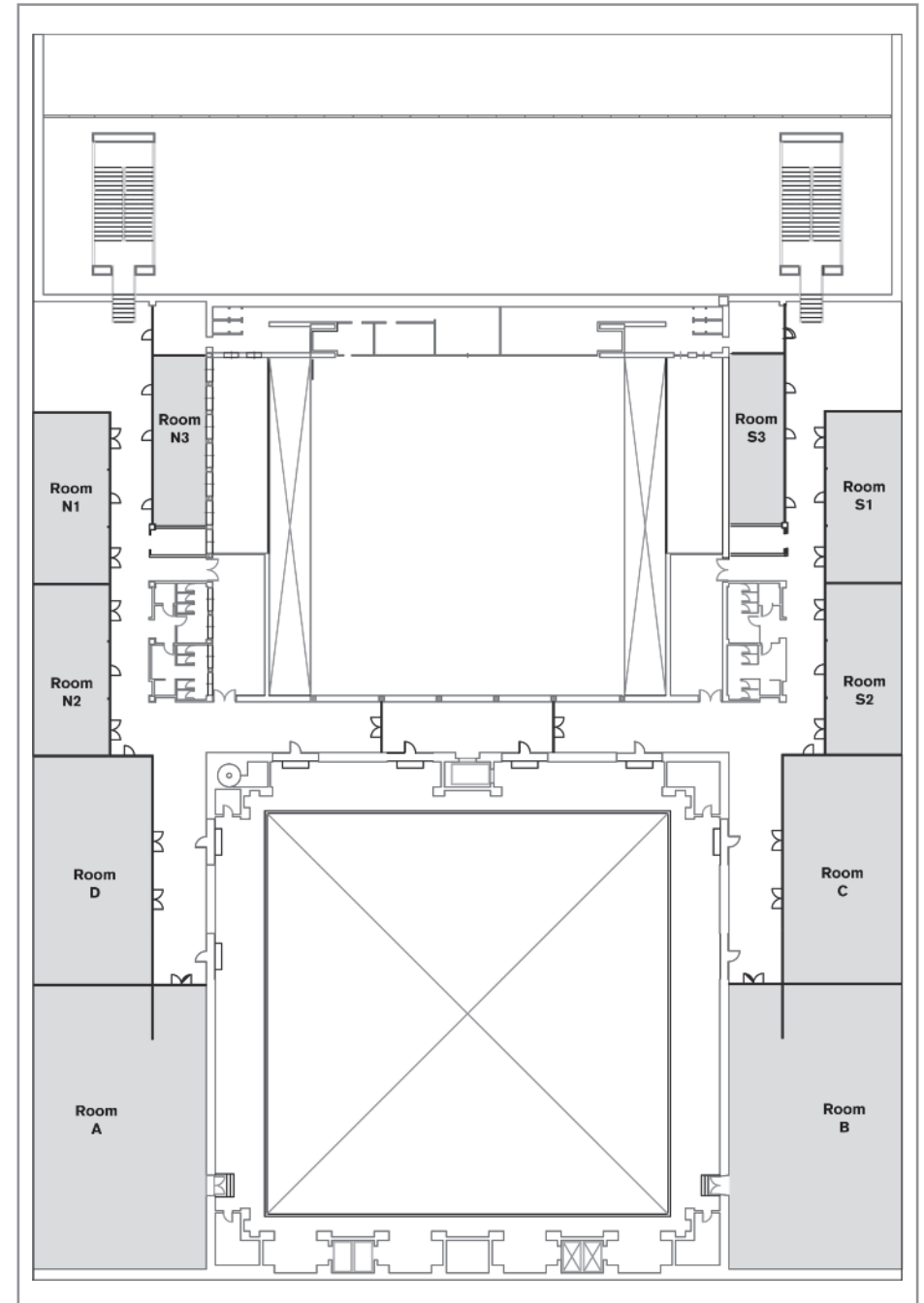
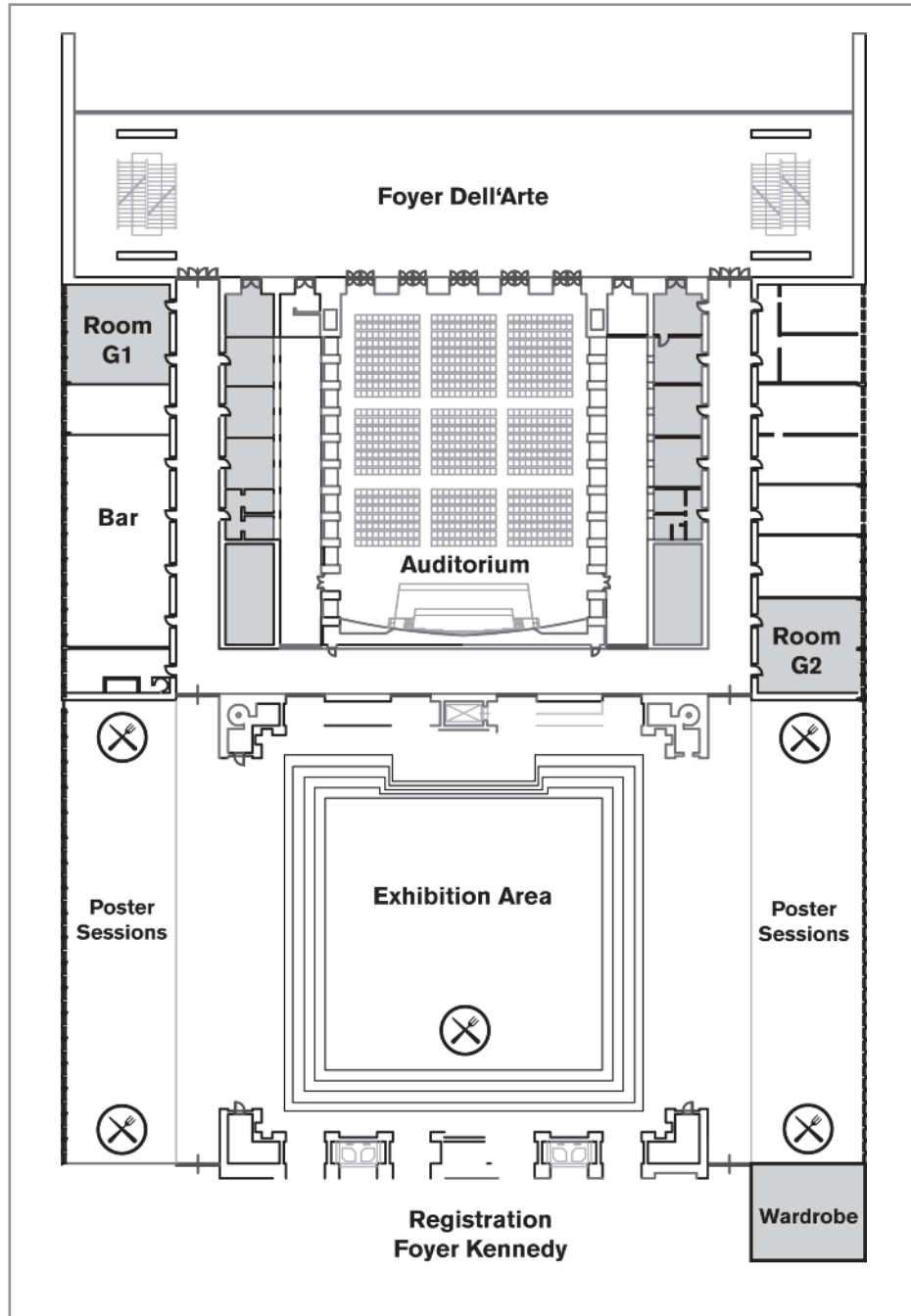
ROOM / TIME	9:40 - 10:00	10:00 - 10:40	11:20 - 12:40	14:00 - 16:20	16.40 - 18.20
POSTER HALL					
AUDITORIUM	Conference opening	Plenary speaker: J. Chazelas	Plenary speakers: C. Balanis, N. Engeta	CA17 - New challenges on Ultra Wide Band antennas & systems	CA17 - New challenges on Ultra Wide Band antennas & systems
A				CA16 - User mobile terminal antennas	CA16 - User mobile terminal antennas
B				CA18 - Metamaterial applications	CA18 - Metamaterial applications
C				CA15 - New trends on MIMO Systems and smart antennas	CA15 - New trends on MIMO Systems and smart antennas
D				CA03 - Integral Techniques in Electro- magnetics (INTELECT)	CA03 - Integral Techniques in Electro- magnetics (INTELECT)
N1				CP09-COST IC0802: Channel modelling for free space optical links	CP09-COST IC0802: Channel modelling for free space optical links
N2				CM1 - Pattern Comparison Techniques (AMTA session and Workshop)	CM1 - Pattern Comparison Techniques (AMTA session and Workshop)
N3				CP05 - Recent Advances in MIMO Systems: Channel Characterization and Antenna- Channel Interactions	CP05 - Recent Advances in MIMO Systems: Channel Characterization and Antenna- Channel Interactions
S1				CA08 - Research challenges in RF exposure assessment	CA08 - Research challenges in RF exposure assessment
S2				P01 - Rough surface and random media scattering	P02 - Propagation in remote sensing
S3				CA12 - Radar imaging and sensing	CA12 - Radar imaging and sensing
G1				CA23 - Small antennas (EurAAP Work- ing Group)	CA23 - Small antennas (EurAAP Work- ing Group)
G2				Ansoft / Ansys Workshop I	EUCAP ST C

ROOM / TIME	9:00 - 10:40	11:00 - 12:40	14:00 - 15:00	15:00 - 16:20	16.40 - 18.20
POSTER HALL			Poster Session 1		
AUDITORIUM	CA24 - RFID technologies (COST IC0803/IC0603 special session)	CA24 - RFID technologies (COST IC0803/IC0603 special session)		Invited lectures: C. Mangenot M. Tentzeris	A02 - Wearable antennas
A	A01 - Antenna interactions and coupling	A01 - Antenna interactions and coupling		Invited lectures: M. Jensen J. Takada	A03 - Array antennas I
B	CA07 - EurAAP software WG - The future of computational electromagnetics: science or product?	CA07 - EurAAP software WG - The future of computational electromagnetics: science or product?			A04 - MIMO, smart and signal processing antennas I
C	CA01 - Innovative array antennas	CA01 - Innovative array antennas			A05 - Beamforming, data processing and multiple beam antennas I
D	CP01 - Antennas and propagation: automotive applications	CP01 - Antennas and propagation: automotive applications			A06 - Automotive antennas
N1	CP04 - COST 2100: From channel models to channel impacts on wireless communications	CP04 - COST 2100: From channel models to channel impacts on wireless communications			A07 - Mobile communication I
N2	M01 - Wireless systems antenna measurements	M01 - Wireless systems antenna measurements			M02 - Advances in indoor and outdoor test ranges
N3	CA13 - Millimeter-wave & integrated antennas and systems	CA13 - Millimeter-wave & integrated antennas and systems			A08 - Planar and conformal antennas I
S1	P03 - Propagation models for millimetre and sub millimetre waves	P05 - Tropospheric propagation			P07 - Propagation models for automatic network planning
S2	CP12 - Propagation in Body Area Networks	CP12 - Propagation in Body Area Networks			A09 - Spectral methods
S3	P04 - Propagation aspects in Wireless Sensor Networks	P06 - UWB channel modelling			A10 - Antennas for remote sensing and radio astronomy
G1	CA10 - Microwave imaging and sensors for medical applications	CA10 - Microwave imaging and sensors for medical applications	EurAAP delegate assembly	EurAAP delegate assembly	CA09 - Biological effects of Electromagnetic Fields
G2	TICRA Workshop 1 + 2	TICRA Workshop 1 + 2	Ansoft / Ansys Workshop 2	Ansoft / Ansys Workshop 2	Ansoft / Ansys Workshop 2

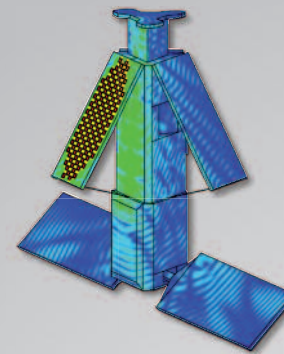
ROOM / TIME	9:00 - 10:40	11:00 - 12:40	14:00 - 15:00	15:00 - 16:20	16.40 - 18.20
POSTER HALL			Poster Session 2		
AUDITORIUM	A11 - New materials, metamaterials, EBG structures I	A11 - New materials, metamaterials, EBG structures I		Invited lectures: L. Jofre Z. Chen	A15 - New materials, metamaterials, EBG structures II
A	A12 - Array antennas II	A12 - Array antennas II		Invited lectures: P. Uslenghi O. Breinbjerg	A16 - Small antennas, RFID tags and sensors I
B	CA14 - Terahertz Antennas & Systems	CA14 - Terahertz Antennas & Systems			A17 - MIMO, smart and signal processing antennas II
C	CA02 - Antennas for space applications	CA02 - Antennas for space applications			A18 - Beamforming, data processing and multiple beam antennas II
D	A13 - Reflector and lens antennas	A13 - Reflector and lens antennas			A19 - Planar and conformal antennas II
N1	CP08 - COST IC0802: Channel modelling for radio systems from L to W band	CP08 - COST IC0802: Channel modelling for radio systems from L to W band			CA11 - Body Implanted antennas
N2	CM02 - Fast Antenna Near field Measurement Techniques (AMTA session)	CM02 - Fast Antenna Near field Measurement Techniques (AMTA session)			A20 - Mobile communication
N3	CP07 - Mobile propagation and scattering from buildings and vegetation	CP07 - Mobile propagation and scattering from buildings and vegetation			A21 - RCS reduction, prediction, imaging and related theory
S1	A14 - Multiband, wideband, UWB antennas I	A14 - Multiband, wideband, UWB antennas I			P08 - Propagation for maritime and aeronautical applications
S2	M03 - Advances in EM field measurements	M03 - Advances in EM field measurements	CST Workshop	CST Workshop	A22 - Time domain methods
S3	CA19 - Transformation electromagnetics	CA19 - Transformation electromagnetics	EurAAP WG on Small Antennas	EurAAP WG on Small Antennas	P09 - Mobile propagation channel measurements
G1	CA04 - Numerical Methods for Challenging Multi-Scale Problems	CA04 - Numerical Methods for Challenging Multi-Scale Problems	EurAAP WG Software Meeting	EurAAP WG Software Meeting	A23 - Electromagnetic exposures and interactions
G2			CARE Workshop	CARE Workshop	ESoA Board

ROOM / TIME	9:00 - 10:40	11:00 - 12:40	14:00 - 15:00	15:00 - 16:20	16.40 - 18.20
POSTER HALL			Poster Session 3		
AUDITORIUM	A24 - Multiband, wideband, UWB antennas II	A24 - Multiband, wideband, UWB antennas II		Invited lectures: P. Pathak Jin-Fa Lee	A27 - New materials, metamaterials, EBG structures III
A	A25 - Reflectarrays	A25 - Reflectarrays		Invited lectures: T. Kuerner P.S. Kildal	A28 - Small antennas, RFID tags and sensors II
B	A26 - Millimeter/Submillimeter wave and THz technologies I	A26 - Millimeter/Submillimeter wave and THz technologies I			A29 - Millimeter / Submillimeter wave and THz technologies II
C	CA21 - Innovative design and applications of reconfigurable antennas (COST IC0603 ASSIST)	CA21 - Innovative design and applications of reconfigurable antennas (COST IC0603 ASSIST)			A30 - Active and integrated antennas I
D	CA22 - Focusing systems, lenses, and reflectors	CA22 - Focusing systems, lenses, and reflectors			A31 - Planar and conformal antennas III
N1	CP11 - Land Mobile Satellite propagation channel modelling	CP11 - Land Mobile Satellite propagation channel modelling			CA06 - Inverse problems and optimization techniques
N2	CM03 - General Antenna Measurements (AMTA session)	CM03 - General Antenna Measurements (AMTA session)			MO5 - Measurement algorithms and processing techniques
N3	CP06 - Multi-dimensional propagation models for next generation systems	CP06 - Multi-dimensional propagation models for next generation systems			P11 - Mobile propagation channel modelling
S1	P10 - Propagation for fixed satellite services	MO4 - Phased-array and adaptive antenna testing			A32 - Other antenna topics
S2	CA27 - On-Body Wearable Antennas	CA27 - On-Body Wearable Antennas			A33 - Numerical methods
S3	CA25 - Sensor Networks: Pervasive Electromagnetics for Sensing and Tracking	CA25 - Sensor Networks: Pervasive Electromagnetics for Sensing and Tracking			A34 - Space application antennas
G1	CA26 - European School of Antennas (ESoA) (EurAAP Working Group)	CA26 - European School of Antennas (ESoA) (EurAAP Working Group)	COST IC0603 Workshop	COST IC0603 Workshop	A35 - Medical applications
G2			SPEAG Workshop 1 + 2	SPEAG Workshop 1 + 2	SPEAG Workshop 1 + 2

ROOM / TIME	9:00 - 10:40	11:00 - 12:40	14:00 - 15:00	15:00 - 16:20	16.40 - 18.20
POSTER HALL					
AUDITORIUM					
A	A36 - New materials, metamaterials, EBG structures IV	A36 - New materials, metamaterials, EBG structures IV			
B	A37 - Array antennas III	A37 - Array antennas III			
C	A38 - Multiband, wideband, UWB antenna III	A38 - Multiband, wideband, UWB antenna III			
D	A39 - Active and integrated antennas II	A39 - Active and integrated antennas II			
N1	A40 - Reconfigurable antennas	A40 - Reconfigurable antennas			
N2	CP13 - Earth-space propagation effects: measurements, modelling and mitigation	CP13 - Earth-space propagation effects: measurements, modelling and mitigation	Short Courses	Short Courses	Short Courses
N3	CM04 - Antenna diagnostics (AMTA session)	A41 - Small antennas, RFID tags and sensors III	Short Courses	Short Courses	Short Courses
S1	CP03 - Wireless Power Transmission and Energy Harvesting	CP03 - Wireless Power Transmission and Energy Harvesting	Short Courses	Short Courses	Short Courses
S2	P12 - MIMO propagation and system aspects	P13 - Electromagnetic propagation modelling	Short Courses	Short Courses	Short Courses
S3	CA05 - Parallelisation and fast solver techniques for numerical methods	CA05 - Parallelisation and fast solver techniques for numerical methods	Short Courses	Short Courses	Short Courses
G1	CA28 - Advances in computerassisted design of antennas including requirements, modelling, algorithms	CA28 - Advances in computerassisted design of antennas including requirements, modelling, algorithms	Short Courses	Short Courses	Short Courses
G2	A42 - Integral equations methods	A42 - Integral equations methods	Short Courses	Short Courses	Short Courses



## The Complete Antenna Design and Placement Solution



FEKO includes several computational methods, each optimised for different problem types.

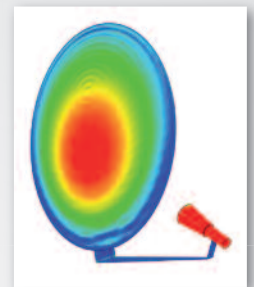
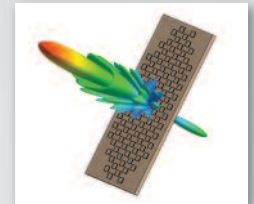
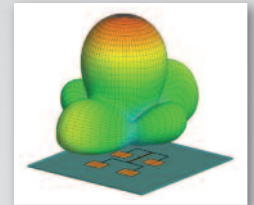
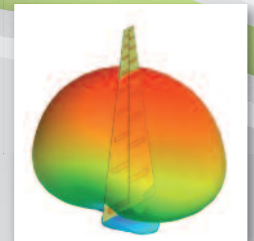
The Method of Moments and the Finite Element Method allow the analysis of a wide range of complex antennas. Hybridisation of these with asymptotic high frequency techniques allows the simulation of an antenna in their operating environment.

**Additional Applications:** Waveguide, RF components, Microstrip Circuits, EMC, Cable Coupling, Radomes, RCS, Bio-EM.



**Antenna Design:** The combination of FEKO and Antenna Magus, with its huge database of antennas, provides a smooth design and analysis workflow.

**FEKO**  
Comprehensive Electromagnetic Solutions



[www.feko.info](http://www.feko.info)

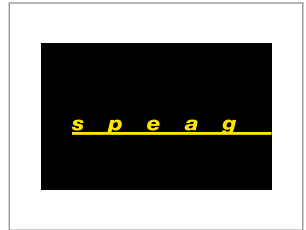
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