

## Program for The 9th European Conference on Antennas and Propagation (EuCAP 2015)

Time	Afonso De Albuquerque (Pav 3B)	Bartolomeu Dias (Aud 4)	Diogo Cão (Aud 8)	Diogo De Silves (Room 1.08)	Diogo De Teive (Room 1.07)	Diogo Gomes (Room 1.06)	Fernão M Pinto (Hall 4)	Gil Eanes (Aud 3)	Gil Vicente (Hall 5)	Gonçalo V Cabral (Pav 5C)	Infante D. Henrique (Aud 1)	João G Zarco (Pav 3C)	Luís De Camões (Hall 3)	Museu De Marinha	Paulo Da Gama (Pav 5B)	Pedro A Cabral (Aud 2)	Pêro Escobar (Pav 3A)	Restaurant KAIS	Tristão V Teixeira (Pav 5A)
<b>Sunday, April 12</b>																			
09:00-12:30				SC2: Multibeam Antennas and Beamforming Networks Design	SC1: THz technology and instrumentation														
14:00-17:30				SC6: Microwave imaging for medical diagnostics: from theory to implementation	SC5: Adaptive Arrays Control: Theory and Techniques	SC4: Gap waveguides for mmWve antenna systems and electronic packaging													
<b>Monday, April 13</b>																			
09:00-10:00											Opening Session								
10:00-12:30											KS: Keynote Speakers								
13:40-18:10	W4 PropSim: Propagation Modelling and Simulation	R1 Array: Array Antennas		WS2 RFID: Chipless RFID Future and Challenges				C21 EleSmall: [C] Electrically Small Antennas		HD2 mmWAnt: Millimetre-wave, submillimetre-wave and Terahertz antennas	BA1 NumTech: Full Wave Computation and Numerical Techniques	W5 IndoorProp: Indoor Propagation			S4 Multibeam: Multi-beam satellites	C18 NF_EMC: [C] Deterministic & stochastic coupling analysis for Antennas, Near-Field & EMC applications	CC3 AntSystem: Antenna systems and architectures		S1 AlphaSat: Alpha-Sat Experiment
16:10-18:10								C35 ModeBase: [C] Mode-based strategy for antenna analysis and design				DS1 Beamform: Beamforming and signal processing		MA3 PrintElem: Printed elements, baluns and associated circuits	C29 BAN: [C] Measurements and Simulations in Channel Modelling in Wireless Body Area Networks	C37 Mutual: [C] Mutual Coupling Formulation and its Effects in Antenna Systems			C43 PropSat: [C] Results of Ka and Q band propagation campaigns using Alphasat Aldo Paraboni and other Satellites
19:00-20:00														Welcome Reception					
<b>Tuesday, April 14</b>																			
09:00-12:50	W3 ReconAnt: Adaptive and reconfigurable antennas	Bi5 PropBio: Propagation in Biomedical Environments	C4 SimTools: [C] Advances in Commercial Electromagnetic Simulation Tools	WS4 Julien: In Memoriam of Julien Perruisseau-Carrier				MA13 Scattering: Scattering and Diffraction		C10 60GHz: [C] Antenna technologies for fixed wireless access at 60 GHz and above		MA4 EMI/EMC: EMI/EMC/PIM Chamber design, measurement and instrumentation		MA15 Multiband: Multiband and wideband antennas	C30 MiMed1: [C] Methodologies and modelling for EMP in medical diagnostics and therapy (MiMed)	CC4 OTA: Over the Air (OTA) Testing in Antennas and Multiple Devices			S5 ArraySpace: Array Antennas for Space
11:10-12:50		MA16 InvScat: Imaging and Inverse Scattering									DS2 PropAeron: Propagation in Aeronautics and Navigation				CC5 UrbanProp: Urban Propagation				
14:00-15:00				WS5 R&S: Antenna Measurements at Rohde & Schwarz: The New Test Antenna Chamber			Poster P1: Propagation Poster Session 1		Poster A2: Antennas Poster Session 2				Poster A1: Antennas Poster Session 1						
15:00-16:20			Inv_1A: Invited Speakers Session 1A													Inv_1B: Invited Speakers Session 1B			
16:50-18:30	C41 PropBuilt: [C] The IET session on Propagation in the built environment	C23 MultiB: [C] Emerging techniques for multiband and wideband antennas	C13 Graphene: [C] Applications of Graphene and Novel Materials at Terahertz and Microwaves					MA10 UWBAnt: UWB antennas and time-domain techniques		C8 AMTA2: [C] AMTA/EurAAP Measurements of integrated antennas at mm-wavelengths		MA12 EMTheory: Electromagnetic theory and numerical techniques		C25 Inkjet: [C] Inkjet Printed Antennas for Flexible, Wearable and Large Area Electronics	Bi6 InvScat: Imaging and Inverse Scattering for Biomedical Applications	C28 MMIMO: [C] Massive MIMO for 5G broadband communication networks			C38 Array: [C] Non-Uniform and Sparse Antenna Arrays - Innovative Concepts and Technological Solutions

Wednesday, April 15																		
09:00-12:50	C20 RadioC: [C] Dynamic radio channel modelling in mobile-to-mobile heterogeneous networks	R2 LeakyAnt: Slotted-, guided- and leaky-wave antennas																
11:10-12:50	W1 NetPlan: Network Planning, Optimisation and Simulation	S8 MetaSpace: Advanced RF materials, metamaterials and EBG for Space Applications	C26 INTELE: [C] INTELECT	WS6 Altair: Application of Numerical Techniques to the Solution of Practical Antenna Problems with FEKO						C1 VISTA: [C] 2011-2015 early stage research in COST VISTA			C33 mmAnt: [C] Mm-wave Antenna Systems			C47 Security: [C] Wave-based sensing and imaging for security applications		
14:00-15:00				WS7 CST: CST Workshop: Advanced Antenna System Simulation				Poster P2: Propagation Poster Session 2		Poster A3: Antennas Poster Session 3						Poster A4: Antennas Poster Session 4		
15:00-16:50			Inv_2A: Invited Speakers Session 2A	WS1 AMTA: AMTA Workshop: Measurement Techniques for Multi-beam Antennas														Inv_2B: Invited Speakers Session 2B
16:50-18:30	C17 DMC: [C] Dense Multipath Component (DMC) characterization for radio channel modeling	MA6 MetaSurf: Metamaterial Lens and metasurfaces	C26 INTELE.: [C] INTELECT.							C12 PowerTr: [C] Antennas and systems for Wireless Power Transmission in space applications			C36 Scatter: [C] Modelling scattering phenomena in wireless links			MA7 FSS: Frequency and polarization selective surfaces		
20:00-22:00																		Conference Dinner
Thursday, April 16																		
09:00-12:50	C39 PropVeh: [C] Propagation Channels for Wide-Sense Vehicle-to-X Communications	MA1 Metamat: Metamaterials	C14 Bench: [C] Combined Simulation/Measurement Benchmark For Challenging Antennas							MA11 Prop: Other Propagation Topics			C45 THz: [C] THz Antennas and Applications			MA8 AntMeasur: General Antenna Measurements		
14:00-16:50				WS3 MiMed: Translating Microwave Medical Devices from Research Bench to Patient Bedside				Poster Awards: Awards Finalists Poster Session		Poster M1: Measurement Poster Session						Poster A5: Antennas Poster Session 5		
15:00-16:20			Inv_3A: Invited Speakers Session 3A															Inv_3B: Invited Speakers Session 3B
16:50-18:30	C32 OTA: [C] MIMO OTA Test Trade-offs	MA5 MetaAnt: Metamaterials Antennas and Components	C3 Nano: [C] Advanced computational methods and analysis of optical nanoantennas, resonators, and other photonic circuit components	BA2 NearFarMe: Advances in near-field, far-field, compact and RCS test ranges						C48 WirelessTr: [C] Wireless Power Transmission and Energy Harvesting			HD1 Lenses: Lens antennas and radomes			C16 Confor: [C] Conformal Antennas		
																		Bi4 AntCoup: Antenna interactions and coupling
																		C22 RFID: [C] Emerging chipless RFID technology trends
																		C24 HighNorth: [C] High North Satellite Propagation
Friday, April 17																		
09:00-10:20	C34 Mobile: [C] Mobile antenna concepts leveraging circuit design techniques	C27 Meta: [C] Latest Progress in Metamaterial-Based Antenna Design	C19 DomainD: [C] Domain decomposition methods and macro-basis functions for integral equations							MA2 WireAnt: Wire antennas			C42 Pulsed: [C] Pulsed-field radio: theory, applications, implementation			C5 Plasma: [C] Advances in Plasma-based Antennas and Devices		
10:50-12:10	W2 VehicProp: Propagation for Vehicle-to-X Communication	C11 GeoSci: [C] Antennas and Propagation for Geoscience Applications								C2 3D: [C] 3D Printing / Additive Manufacturing Technology of Electromagnetic Structure			MA14 ActiveAnt: Active and integrated antennas			MA9 ConforAnt: Conformal antennas		
12:10-13:10			Closing Session															
																		S6 Reflector: Reflector, feed systems and components
																		Bi2 BodyCom: Body-Centric Communications
																		CC1 mmWProp: Propagation for mmW and 5G
																		C6 mmSpace: [C] Advances in space-fed antennas for millimeter-wave communications
																		S7 NumSpace: Electromagnetic theory and numerical techniques for Space Applications
																		Bi7 SmallAnt: Small antennas and RF sensors
																		C31 Microflu: [C] Microfluidics and Tunable Material Systems for Antenna Reconfiguration and Control
																		S9 AntSpace: Antennas for Space Applications

## Sunday, April 12

**09:00 - 12:30 (Europe/Berlin)****SC1: THz technology and instrumentation**  TOP

Short Courses

Room: [Diogo de Teive \(Room 1.07\)](#)

Chair: Miguel Navarro-Cía (Imperial College London, United Kingdom)

**SC2: Multibeam Antennas and Beamforming Networks Design**  TOP

Short Courses

Room: [Diogo de Silves \(Room 1.08\)](#)

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

**14:00 - 17:30 (Europe/Berlin)****SC4: Gap waveguides for mmWve antenna systems and electronic packaging**  TOP

Short Courses

Room: [Diogo Gomes \(Room 1.06\)](#)

Chairs: Per-Simon Kildal (Chalmers University of Technology, Sweden), Ahmed Kishk (Concordia University, Canada), Ashraf Uz Zaman (Chalmers University of Technology, Sweden)

**SC5: Adaptive Arrays Control: Theory and Techniques**  TOP

Short Courses

Room: [Diogo de Teive \(Room 1.07\)](#)

Chairs: Randy L. Haupt (Colorado School of Mines, USA), Paolo Rocca (University of Trento, Italy)

**SC6: Microwave imaging for medical diagnostics: from theory to implementation**  TOP

Short Courses

Room: [Diogo de Silves \(Room 1.08\)](#)

Chairs: Lorenzo Crocco (CNR - National Research Council, Italy), Panagiotis Kosmas (King's College London, United Kingdom)

## Monday, April 13

**09:00 - 10:00 (Europe/Berlin)****Opening Session**  TOPRoom: [Infante D. Henrique \(Aud 1\)](#)**10:00 - 12:30 (Europe/Berlin)****KS: Keynote Speakers**  TOPRoom: [Infante D. Henrique \(Aud 1\)](#)

Chair: Luis M. Correia (IST - University of Lisbon &amp; INOV-INESC, Portugal)

**10:00 *Antenna Research, Development and Measurement Facilities in Brazil: a Perspective From the Laboratory of Integration and Testing of the Brazilian Institute for Space Research***[Geilson Loureiro](#) (Brazilian Institute for Space Research, INPE & Technological Institute of Aeronautics ITA, Brazil)**10:40 Coffee Break****11:10 *Wireless Dependable BAN of Things - Reliable Machine Centric Communications for Medicine, Cars, Energy, Smart City***[Ryuji Kohno](#) (Yokohama National University & University of Oulu, Japan)**11:50 *The Wireless Big Bang***[João Schwarz da Silva](#) (University of Luxembourg, Luxemburg)**13:40 - 18:10 (Europe/Berlin)****BA1 NumTech: Full Wave Computation and Numerical Techniques**  TOP

Antennas/Bridging other Areas

Room: Infante D. Henrique (Aud 1)

Chairs: Branko Kolundzija (University of Belgrade, Serbia), Francesca Vipiana (Politecnico di Torino, Italy)

**13:40 Domain Decomposition Method for Integral Equations Using Non-Conformal Meshing**

[Mario Alberto Echeverri Bautista](#) and [Francesca Vipiana](#) (Politecnico di Torino, Italy); [Matteo Alessandro Francavilla](#) (Istituto Superiore Mario Boella, Italy); [Giuseppe Vecchi](#) (Politecnico di Torino, Italy)

**14:00 Eliminating the DC Instability of the Time Domain Electric Field Integral Equation**

[Yves Beghein](#) (Ghent University, Belgium); [Kristof Cools](#) (University of Nottingham, United Kingdom); [Francesco Andriulli](#) (Ecole Nationale Supérieure des Télécommunications de Bretagne, France)

**14:20 A Regularised Electric Field Integral Equation for Scattering by Perfectly Conducting Junctions**

[Kristof Cools](#) (University of Nottingham, United Kingdom); [Francesco Andriulli](#) (Ecole Nationale Supérieure des Télécommunications de Bretagne, France)

**14:40 Robust, Efficient Evaluation of EM Green's Tensors in Generally Anisotropic, Planar-Stratified Media Via Complex-Plane Gauss-Laguerre Quadrature**

[Kamalesh Sainath](#) (Ohio State University & ElectroScience Laboratory, USA); [Fernando Teixeira](#) (Ohio State University, USA)

**15:00 Plasmonic Transmission Lines Mode Solver Based on the Method of Moments**

[Mai Sallam](#) (The American University in Cairo and Katholieke Universiteit Leuven, Egypt); [Guy A. E. Vandenbosch](#) and [Georges Gielen](#) (Katholieke Universiteit Leuven, Belgium); [Ezzeldin Soliman](#) (The American University in Cairo, Egypt)

**15:20 Recovery-Based a Posteriori Error Estimation for the Charge in the Method of Moments**

[Willem J Strydom](#) and [Matthys M. Botha](#) (Stellenbosch University, South Africa)

**15:40 Coffee Break**

**16:10 An NG-Based Algorithm for a Combined-Field Integral Formulation**

[Evgeny Chernokozhin](#) (Tel Aviv University, Israel); [Yaniv Brick](#) (Tel Aviv, Israel); [Amir Boag](#) (Tel Aviv University, Israel)

**16:30 Shaped Pattern Synthesis for Equispaced Linear Arrays with Non-Isotropic Antennas**

[Tom Bruintjes](#) and [Andre Kokkeler](#) (University of Twente, The Netherlands); [Georgios Karagiannis](#) (Huawei Technologies, Germany); [Gerard Smit](#) (University of Twente, The Netherlands)

**16:50 GPU Acceleration of an Iterative Physical Optics Algorithm for the Analysis of Electrically Large Scatterers**

[Luca Pandolfo](#), [Paolo De Vita](#) and [Mauro Bandinelli](#) (IDS Ingegneria Dei Sistemi S. p. A, Italy); [Giorgio Carluccio](#) (Delft University of Technology, The Netherlands); [Matteo Albani](#) (University of Siena, Italy)

**17:10 Multiple Eigencurrents Expansion for the Solution of Wave Scattering From Anisotropic Bodies**

[Vito Lancellotti](#) (Eindhoven University of Technology, The Netherlands)

**17:30 Hybrid Scattering-Admittance Operators for the Analysis of Finite Antenna Arrays**

[Salman Mokhlespour](#) and [Vito Lancellotti](#) (Eindhoven University of Technology, The Netherlands); [Anton G. Tijhuis](#) (TU/e Eindhoven University of Technology, The Netherlands)

**17:50 Physics-based Parametric Interpolation**

[Matteo Alessandro Francavilla](#) (Istituto Superiore Mario Boella, Italy); [Giorgio Giordanengo](#) (Istituto Superiore Mario Boella & Politecnico di Torino, Italy); [Marco Righero](#) (Istituto Superiore Mario Boella, Italy); [Giuseppe Vecchi](#) and [Francesca Vipiana](#) (Politecnico di Torino, Italy)

**13:40 - 15:40 (Europe/Berlin)**

**C18 NF\_EMC: [C] Deterministic & stochastic coupling analysis for Antennas, Near-Field & EMC applications**



TOP

Antennas/Multi Applications

Room: Pedro A Cabral (Aud 2)

Chairs: Sebastien Lalléchère (Blaise Pascal University, France), Blaise Ravelo (ESIGELEC, France)

**13:40 Use of S-parameter Enclosed in Kron's Method for Electromagnetic Compatibility Computation**

[Olivier Maurice](#) (GERAC, France); [Chaouki Kasmi](#) (French Network and Information Security Agency - ANSSI, France)

**14:00 Functional Safety and EMC: Monte Carlo Study of the Impact of Function Redundancy on a System Immunity**

[Emmanuel Amador](#) (EDF & EDF Lab, France); [Nicolas Bouyge](#) (EDF Lab & EDF, France)

**14:20 Statistical Analysis of Average and Maximum Crosstalks in Cable Bundles**

[Tarek Bdour](#) (OSA Department, XLIM Research Institute, Limoges, France, France); [Alain Reineix](#) (University of Limoges, France)

**14:40 RF Exposure Assessment of Children's Organs Using Surrogate Model Built with Electromagnetic Solvers and Statistics**

[Joe Wiart](#) (Orange- France Telecom, France); [Pierre Kersaudy](#) (Orange Labs, France); [Amal Ghanmi](#) (Univ MLV, France); [Nadège Varsier](#) and [Abdelhamid Hadjem](#) (Orange Labs, France); [Odile Picon](#) (Université Paris-Est Marne-la-Vallée, France)

**15:00 RF and EMC Investigation on CRIP System for the E-Healthcare CareStore Platform**

[Jorge Cabral](#) (University of Minho & ALGORITMI Centre, Portugal); [Blaise Ravelo](#) (ESIGELEC, France); [Christian Fischer Pedersen](#) (Aarhus University, Denmark); [Sebastien Lalléchère](#) (Blaise Pascal University, France)

**15:20 Statistical Approach of Ambient Electromagnetic Field Assessment with Body-Worn Multi-Axial Sensors**

[Christophe Roblin](#) (TELECOM ParisTech & ENSTA ParisTech, France)



TOP

**C21 EleSmall: [C] Electrically Small Antennas**

Antennas/Cellular Communications

Room: Gil Eanes (Aud 3)

Chairs: Christophe Fumeaux (The University of Adelaide & School of Electrical and Electronic Engineering, Australia), William Whittow (Loughborough University, United Kingdom)

**13:40 Antennas for Mobile Communication Devices: What's Next?**

[Marta Martínez-Vázquez](#) (IMST GmbH, Germany)

**14:00 Multi-Feed NVIS Realization on Small Aircraft Using Characteristic Modes**

[Jeffrey Chalas](#) (The Ohio State University & ElectroScience Lab, USA); [Kubilay Sertel](#) (The Ohio State University, USA); [John L. Volakis](#) (Ohio State University, USA)

**14:20 Compact Dual-mode Antenna for Body-centric Wireless Communications**

[Koichi Ito](#) (Chiba University, Japan)

**14:40 Considerations on SAR and Efficiency for W-BAN Antennas**

[Anja K. Skrivervik](#) and [Jovanche Trajkovikj](#) (EPFL, Switzerland); [Mohsen Koohestani](#) (Institut d'Electronique et de Télécommunications de Rennes - Université de Rennes 1, France); [Nuno Pires](#) (Instituto Superior Técnico & École Polytechnique Fédérale de Lausanne, Portugal)

**15:00 4G Cellular Antenna Design for Eyewear Devices**

[Aykut Changir](#) (University of Nice Sophia Antipolis, France); [Chinthana J Panagamuwa](#) and [William Whittow](#) (Loughborough University, United Kingdom); [Gilles Jacquemod](#) (University of Nice, France); [Frédéric Ganesello](#) (STMicroelectronics, France); [Romain Pilard](#) (STMicroelectronics, Technology R&D, STD, TPS Lab, France); [Cyril Luxey](#) (University Nice Sophia-Antipolis, France)

**15:20 Optimizing Small Wideband Antenna Performance for Both RIMP and Random-LOS**

[Per-Simon Kildal](#) (Chalmers University of Technology, Sweden); [Xiaoming Chen](#) (Qamcom Research & Technology AB, Sweden); [Andrés Alayon Glazunov](#) (Chalmers University of Technology, Sweden)

**CC3 AntSystem: Antenna systems and architectures**



Antennas/Cellular Communications

Room: [Pêro Escobar \(Pav 3A\)](#)

Chairs: [Georgia E. Athanasiadou](#) (University of Peloponnese, Greece), [Koen Mouthaan](#) (National University of Singapore, Singapore)

**13:40 The Effects of Antenna Array Size and Back Lobe Level on Self-Interference and Transmitted Powers for 4G Beamforming Multicell Systems with In-Band Full Duplex Relays**

[Dimitra Zarbouti](#), [George Tsoulos](#) and [Georgia E. Athanasiadou](#) (University of Peloponnese, Greece)

**14:00 Reconfigurable LTE MIMO Automotive Antenna System Based on the Characteristic Mode Analysis**

[Eugen Safin](#) (University of Kiel, Germany); [Risto Valkonen](#) (Nokia Networks, Finland); [Dirk Manteuffel](#) (University of Kiel, Germany)

**14:20 High Resolution ESM/ELINT DOA Estimation with Super-Heterodyne Multi-Octave Antenna System**

[Ivan Russo](#) (Elettronica S.p.A., Italy); [Paolo Baldonero](#) and [Antonio Manna](#) (Elettronica SpA, Italy); [Daniele Marcantoni](#) and [Fabrizio Trotta](#) (Elettronica S.p.A., Italy)

**14:40 Quad-Polarized Wideband Phased Array with Reduced Sidelobes by Interstitial-Packing**

[Hongzhao Ray Fang](#) and [Ramanan Balakrishnan](#) (National University of Singapore, Singapore); [Regis Guinvarc'h](#) (SONDRA, Supelec, France); [Koen Mouthaan](#) (National University of Singapore, Singapore)

**15:00 Generation of OAM Radio Waves with Three Polarizations Using Circular Horn Antenna Array**

[Xudong Bai](#) (Shanghai Jiao Tong University, P.R. China); [Xianling Liang](#) (Shanghai Jiaotong University, P.R. China); [Ronghong Jin](#) (Shanghai Jiao Tong University, P.R. China); [Junping Geng](#) (Shanghai Jiaotong University, P.R. China)

**15:20 Impedance Characterization of UHF RFID IC and Tag Performance**

[Aline Coelho de Souza](#) (IMEP-LAHC, France); [Yvan Duroc](#) (Université Claude-Bernard, France); [Tan Phu Vuong](#) (Grenoble INP, France); [Alexandre Luce](#) (LNE, France)

**13:40 - 18:10 (Europe/Berlin)**

**HD2 mmWAnt: Millimetre-wave, submillimetre-wave and Terahertz antennas**



Antennas/High Data-rate Transfer

Room: [Gonçalo V Cabral \(Pav 5C\)](#)

Chairs: [Daniele Cavallo](#) (Delft University of Technology, The Netherlands), [Jian Yang](#) (Chalmers University of Technology, Sweden)

**13:40 Rectangular to Large Diameter Conical Corrugated Waveguide Converter Based on Stacked Rings**

[Stephen Doherty](#) (National University of Ireland Maynooth, Ireland); [Arndt von Bieren](#) (SWISSto12 SA, Switzerland); [Fiachra Cahill](#) (Maynooth University, Ireland); [Alessandro Macor](#) and [Emile de Rijk](#) (SWISSto12 SA, Switzerland); [Neil Trappe](#) (NUI Maynooth, Ireland); [Mathieu Billod](#) (SWISSto12 SA, Switzerland); [Creadhe O'Sullivan](#) (National University of Ireland Maynooth, Ireland); [Mirko Favre](#) (SWISSto12 SA, Switzerland); [Marcin Gradziel](#) (National University of Ireland, Maynooth, Ireland); [John Anthony Murphy](#) (National University of Ireland Maynooth, Ireland)

**14:00 High Gain Flat Sinusoidal Bull's Eye Leaky Millimetre-Wave Antenna**

[Unai Beaskoetxea](#) (Universidad Pública de Navarra, Spain); [Victor Pacheco-Peña](#) and [Bakhtiyar Orazbayev](#) (Universidad Publica de Navarra, Spain); [Tahsin Akalin](#) (Université de Lille 1, France); [Stefano Maci](#) (University of Siena, Italy); [Miguel Navarro-Cía](#) (Imperial College London, United Kingdom); [Miguel Beruete](#) (Universidad Publica de Navarra, Spain)

**14:20 A 76.5 GHz Microstrip Comb-Line Antenna Array for Automotive Radar System**

[Dapeng Wu](#) (Chalmers University of Technology, Sweden); [Ziqiang Tong](#) (Freescale, Germany); [Ralf Reuter](#) (Freescale Semiconductor, Germany); [Heiko Gulan](#) (Karlsruhe Institute of Technology, Germany); [Jian Yang](#) (Chalmers University of Technology, Sweden)

**14:40 Modeling and Design of Parallel-Fed Continuous Transverse Stub (CTS) Arrays**

[Francesco Foglia Manzillo](#) (University of Rennes 1 - IETR, France); [Mauro Ettore](#) (University of Rennes 1 & UMR CNRS 6164, France); [Massimiliano Casaletti](#) (Sorbonne Universités UPMC, France); [Ronan Sauleau](#) (University of Rennes 1, France); [Nicolas Capet](#) (CNES, France)

**15:00 Analysis and Optical Characterisation of Bolometric Integrating Cavities Including a Free Space Gap in the Waveguide Structure**

[Darragh McCarthy](#) (National University of Ireland Maynooth, Ireland); [Neil Trappe](#) (NUI Maynooth, Ireland); [Stephen Doherty](#), [John Anthony Murphy](#) and [Colm Bracken](#) (National University of Ireland Maynooth, Ireland); [Marcin Gradziel](#) (National University of Ireland, Maynooth, Ireland); [Creadhe O'Sullivan](#) (National University of Ireland Maynooth, Ireland); [Maarten van der Vorst](#) (European Space Agency, The Netherlands); [Michael Audley](#) and [Gert de Lange](#) (SRON Netherlands Organization for Space Research, The Netherlands)

**15:20 Design of Millimeter-Wave Wideband Gap Waveguide Transitions Considering Integration Into the Antenna System**

[Astrid Algaba Brazález](#) (Chalmers University of Technology & Ericsson Research, Ericsson AB, Sweden); [Eva Rajo-Iglesias](#) (University Carlos III of Madrid, Spain); [Per-Simon Kildal](#) (Chalmers University of Technology, Sweden)

**15:40 Coffee Break**

**16:10 Alternative Optics Design for the ALMA Band 1 Receiver (35-52 GHz)**

[Alvaro Gonzalez](#) (National Astronomical Observatory of Japan, Japan); [Valeria Tapia](#) and [Ricardo Finger](#) (University of Chile, Chile); [Shin'Ichiro Asayama](#) (National Astronomical Observatory of Japan, Chile); [Ted Huang](#) (ASIAA, Taiwan)

**16:30 60-GHz CMOS On-Chip AMC Bandpass-Filtering Spiral Monopole Antenna**

[Huey-Ru Chuang](#), [Wen-Yi Ruan](#), [Chien-Chang Chou](#) and [Yi Wu](#) (National Cheng Kung University, Taiwan)

**16:50 Coherent Fourier Optics Representation of Focal Plane Fields**

[Nuria LLombart](#), [Erio Gandini](#) and [Beatriz Blázquez](#) (Delft University of Technology, The Netherlands); [Angelo Freni](#) (University of Florence, Italy); [Andrea Neto](#) (Delft University of Technology, The Netherlands)

**17:10 Implementation of UC-EBG Structure for 60 GHz Gridded Parasitic Patch Stacked Microstrip Antenna**

[Alexander V Bondarik](#) and [Daniel Sjöberg](#) (Lund University, Sweden)

**17:30 V-band Side-fed Printed Quasi-Parabolic Reflector Antenna with Beam-Steering**

[Alister Hosseini](#) and [Franco De Flaviis](#) (University of California, Irvine, USA)

**17:50 Single-Layer Differentially-Fed Circularly Polarized Aperture Antenna for 60 GHz Applications**

[Dia'aaldin J. M. Bisharat](#), [Shaowei Liao](#) and [Quan Xue](#) (City University of Hong Kong, Hong Kong)

**R1 Array: Array Antennas**

Antennas/Radars

Room: [Bartolomeu Dias \(Aud 4\)](#)

Chairs: Antonio Clemente (CEA-LETI Minatec, France), Giovanni Toso (European Space Agency, The Netherlands)

**13:40 On the Use of Beam-Forming Matrices for Building Overlapped Subarrays with Flat-Topped Radiation Patterns**

[Sergei P. Skobelev](#) (Radiophysika, Russia)

**14:00 Radon Transform: a Different Perspective on Planar Array Synthesis**

[Stefano Mosca](#) (SELEX ES SpA, Italy)

**14:20 A Balanced-fed 45° Linearly Polarized Slot Array Antenna Using SIW Technology**

[Hao Zhou](#) (Southeast University & State Key Lab. of Millimeter Waves, P.R. China); [Hong Wei](#) (Southeast University, P.R. China); [Ling Tian](#) (University of Southeast, P.R. China); [Mei Jiang](#) (Southeast University, P.R. China)

**14:40 P-Band Antenna Array for Airborne SAR Application and DBF SAR Demonstration**

[Markus Limbach](#), [Alberto Di Maria](#) and [Bernd Gabler](#) (German Aerospace Center (DLR), Germany); [Alicja Kość](#) (German Aerospace Center, Germany); [Ralf Horn](#) and [Rolf Scheiber](#) (German Aerospace Center (DLR), Germany)

**15:00 Frequency Diverse Array with Range-Dependent Transmit Beampattern**

[Wen-Qin Wang](#) (Department of Electrical and Electronic Engineering, Imperial College London, United Kingdom); [Zhi Zheng](#) (UESTC, P.R. China)

**15:20 Parallel Plate Mode Suppressed Strip-Line Fed Antenna for CP Phased Array Antenna**

[Youngsub Kim](#) and [Young Joong Yoon](#) (Yonsei University, Korea)

**15:40 Coffee Break****16:10 RF MEMS Based Millimeter Wave Phased Array for Short Range Communication**

[Omer Bayraktar](#), [Enis Kobal](#), [Yusuf Sevinc](#), [Çağrı Çetintepe](#), [Ilker Comart](#), [Kaan Demirel](#) and [Ebru Sagiroglu Topalli](#) (Middle East Technical University, Turkey); [Tayfun Akin](#) (Middle Eastern Technical University, Turkey); [Şimşek Demir](#) and [Ozlem Aydin Civi](#) (Middle East Technical University, Turkey)

**16:30 An Optically Controlled Phase Shifter for Antenna Array Beam Steering**

[Andre Sarker Andy](#) (Queen Mary University of London, United Kingdom); [Rostyslav Dubrovka](#), [Theo Kreouzis](#) and [Robert Donnan](#) (Queen Mary, University of London, United Kingdom)

**16:50 Non-uniform Printed Antenna Array for Wireless Communications in Sports Arenas**

[Tiago Varum](#) (Universidade de Aveiro - Instituto de Telecomunicações, Portugal); [João Matos](#) (Instituto de Telecomunicações, Universidade de Aveiro, Portugal); [Pedro Pinho](#) (IT - Instituto de Telecomunicações & ISEL - Instituto Superior de Engenharia de Lisboa, Portugal); [Ricardo Abreu](#) (Instituto de Telecomunicações, Portugal)

**17:10 Design of High Directivity Compact Parasitic Array for Beam-Steering Applications**

[Abdul Kaddour](#) (CEA-LETI, Minatec Campus, France); [Antonio Clemente](#) (CEA-LETI Minatec, France); [Serge Bories](#) (CEA, France); [Christophe Delaveaud](#) (CEA-LETI, France)

**17:30 Comparison of Phased Array Configurations of Spiral Antennas**

[Hongzhao Ray Fang](#) and [Ramanan Balakrishnan](#) (National University of Singapore, Singapore); [Regis Guinvarc'h](#) (SONDRA, Supelec, France); [Koen Mouthaan](#) (National University of Singapore, Singapore)

**17:50 Broadband Biquad UHF Antenna Array for DOA**

[Rainer Mueller](#) and [Ralf Lorch](#) (AIRBUS Defence & Space, Germany)

**13:40 - 15:40 (Europe/Berlin)****S1 AlphaSat: Alpha-Sat Experiment**

Propagation/Space

Room: [Tristão V Teixeira \(Pav 5A\)](#)

Chairs: Antonio Martellucci (European Space Agency, The Netherlands), Armando C Rocha (University of Aveiro & Institute of Telecommunications, Portugal)

**13:40 Alphasat Q/V-band Propagation Campaign Preparation in Aveiro**

[Armando C Rocha](#) and [Flávio M. da Silva Jorge](#) (Instituto de Telecomunicações, Portugal); [João Lima](#) and [António Soares](#) (Universidade de Aveiro, Portugal)

**14:00 The Ka- And Q-band AlphaSat Ground Station in Vigo**

[Fernando Machado](#), [Fernando Pérez-Fontán](#), [Vicente Pastoriza](#) and [Perfecto Marino](#) (University of Vigo, Spain)

**14:20 A DVB-S2 Signal Analyzer for the Alphasat TDP5 Communication Experiment**

[Harald Schlemmer](#) (Joanneum Research, Austria); [Eral Tuerkyilmaz](#) (JOANNEUM RESEARCH Forschungsgesellschaft mbH, Austria); [Michael Schmidt](#) (Researcher, Austria); [Wilfried Gappmair](#) (Graz University of Technology, Austria); [Juan Rivera Castro](#) (ESA, The Netherlands)

**14:40 AlphaSat Ka-band and Q-band Receiving Station in Rome: Development, Status and Measurements**

[Augusto Marziani](#) (Sapienza University of Rome, Italy); [Fernando Consalvi](#) (FUB, Italy); [Simone Chicarella](#) (Sapienza University of Rome, Italy); [Elio Restuccia](#) (ISCOM, Italy); [Luigi Amaduzzi](#) and [Frank S. Marzano](#) (Sapienza University of Rome, Italy)

**15:00 Alphasat Propagation Experiment in Madrid: Quality Assessment of the Measurements**

[Jose M Riera](#) (Universidad Politécnica de Madrid, Spain); [Gustavo Siles](#) and [Pedro Garcia-del-Pino](#) (Universidad Politecnica de Madrid, Spain); [Ana Benarroch](#) (Universidad Politécnica de Madrid, Spain)

**15:20 Rain XPD of Alphasat TDP5 Propagation Signals: Preliminary Analyses and Disdrometer Derivations**

[Karin Plimon](#), [Félix Cuervo](#), [Gunter Lammer](#), [Guenther Obertaxer](#) and [Michael Schönhuber](#) (Joanneum Research, Austria); [Juan Rivera Castro](#) (ESA, The Netherlands)

#### S4 Multibeam: Multi-beam satellites

Antennas/Space

Room: Paulo da Gama (Pav 5B)

Chairs: Cecilia Cappellin (TICRA, Denmark), Enrico Reiche (Airbus DS GmbH, Germany)

##### 13:40 Design of a Push-Broom Multi-Beam Radiometer for Future Ocean Observations

[Cecilia Cappellin](#), [Knud Pontoppidan](#) and [Per Nielsen](#) (TICRA, Denmark); [Niels Skou](#) and [Sten Søbjaerg](#) (Technical University of Denmark, Denmark); [Alexander Ihle](#) (HPS GMBH, Germany); [Marianna Ivashina](#) and [Oleg Iupikov](#) (Chalmers University of Technology, Sweden); [Kees van 't Klooster](#) (European Space Agency, The Netherlands)

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

[Oleg Iupikov](#) and [Marianna Ivashina](#) (Chalmers University of Technology, Sweden); [Knud Pontoppidan](#), [Per Nielsen](#) and [Cecilia Cappellin](#) (TICRA, Denmark); [Niels Skou](#) and [Sten Søbjaerg](#) (Technical University of Denmark, Denmark); [Alexander Ihle](#) (HPS GMBH, Germany); [Dennis Hartmann](#) (HPS-GmbH, Germany); [Kees van 't Klooster](#) (European Space Agency, The Netherlands)

##### 14:20 Wide-Band Compact Antenna Feed for Multi-Beam Satellite Communications

[Carlos A Leal-Sevillano](#) (Universidad Politecnica de Madrid, Spain); [Jorge A Ruiz-Cruz](#) (Universidad Autonoma de Madrid & Escuela Politecnica Superior, Spain); [Jose Ramon Montejo-Garai](#) and [Jesus Maria Rebolgar](#) (Universidad Politecnica de Madrid, Spain)

##### 14:40 Dual-band (Tx/Rx) Multiple-Beam Reflector Antenna Using a Frequency Selective Sub-Reflector for Ka-band Applications

[Nelson Fonseca](#) (European Space Agency, The Netherlands)

##### 15:00 Space Qualification of K/Ka-Band Single Feed Per Beam Feed Chains

[Enrico Reiche](#), [Christian Hartwanger](#), [Un Pyo Hong](#) and [Ralf Gehring](#) (Airbus DS GmbH, Germany); [Helmut Wolf](#) (Airbus Defence and Space & Communications Satellites, Germany)

##### 15:20 A Compact Planar Feed Structure for Ka-Band Satcom-on-the-Move Tracking Antennas

[Hendrik Bayer](#), [Alexander Krauss](#) and [Ralf Stephan](#) (Technische Universität Ilmenau, Germany); [Matthias Hein](#) (Ilmenau University of Technology, Germany)

#### 13:40 - 18:10 (Europe/Berlin)

#### W4 PropSim: Propagation Modelling and Simulation

Propagation/Wireless Networks

Room: Afonso de Albuquerque (Pav 3B)

Chairs: Cesar Briso (Universidad Politecnica de Madrid &amp; ETSIS Telecomunicacion, Spain), Enrico M. Vitucci (University of Bologna, Italy)

##### 13:40 Benefits of Variation of Large Scale Fading Across Large Antenna Arrays

[Jocelyn Aulin](#) (Huawei Technologies Sweden AB, Sweden)

##### 14:00 Performance of Receiver Spatial Diversity in Peer to Peer Radio Communications Within Vegetation Media

[Iñigo Cuiñas](#) and [José Antonio Gay-Fernández](#) (University of Vigo, Spain); [Javier López-Pérez](#) and [Diego Pascual](#) (Universidade de Vigo, Spain)

##### 14:20 Simple Approximation of Power Azimuth Spectrum for Multipath Propagation Environment

[Cezary Ziolkowski](#), [Jan M. Kelner](#), [Leszek Nowosielski](#) and [Marian Wnuk](#) (Military University of Technology, Poland)

##### 14:40 Evaluation and Proposal on Modified Model for 3GPP Based Indoor Penetration Loss Model

[Kentaro Nishimori](#) and [Hayate Kimoto](#) (Niigata University, Japan); [Tetsuro Imai](#) and [Ngochao Tran](#) (NTT DOCOMO, INC., Japan)

##### 15:00 MIMO Dual Polarized Fixed Satellite Systems Above 10GHz Above: Channel Modeling and Outage Capacity Evaluation

[Charilaos Kourgiorgas](#), [Athanasios D. Panagopoulos](#) and [Pantelis-Daniel Arapoglou](#) (National Technical University of Athens, Greece); [Stavros Stavrou](#) (Open University of Cyprus, Cyprus)

##### 15:20 Broadband Radio Communications in Subway Stations and Tunnels

[Cesar Briso](#) (Universidad Politecnica de Madrid & ETSIS Telecomunicacion, Spain); [Ke Guan](#) (Beijing Jiaotong University, P.R. China); [Lei Zhang](#) and [Jean Fernandez](#) (Universidad Politecnica de Madrid, Spain)

##### 15:40 Coffee Break

##### 16:10 A Monte-Carlo Approach to Modeling Radio Propagation by Ray-Tracing

[Jan Barowski](#), [Bastian Meiners](#) and [Ilona Rolfes](#) (Ruhr-Universität Bochum, Germany)

##### 16:30 Joint Ray Launching Method for Outdoor to Indoor Propagation Prediction Based on Interpolation

[Bing Xia](#) (University of Sheffield, United Kingdom); [Zhihua Lai](#) (Ranplan Wireless Network Design Ltd, University of Sheffield, United Kingdom); [Guillaume Villemaud](#) (Université de Lyon, INRIA, INSA-Lyon, CITI, France); [Jie Zhang](#) (University of Sheffield, Dept. of Electronic and Electrical Engineering, United Kingdom)

##### 16:50 WBAN Off-Body Channel Angular Structure Comparison Between SAGE Estimation and Ray Tracing Simulation

[Nicolas Amiot](#) (Université Rennes I & Institut d' Electronique et de Télécommunications de Rennes, France); [Meriem Mhedhbi](#) (University of Rennes 1, France); [Bernard Uguen](#) (University of Rennes I, France); [Raffaele D'Errico](#) (CEA, LETI, Minatec Campus & Univ\ Grenoble-Alpes, France)

##### 17:10 Ray Tracing Simulations of Indoor Channel Spatial Correlation for Physical Layer Security

[Enrico M. Vitucci](#) (University of Bologna, Italy); [Francesco Mani](#) (CEA-LETI, France); [Taghrid Mazloum](#) (Telecom ParisTech, France); [Alain Sibille](#) (Telecom Paris Tech & ENSTA PARISTECH, France); [Vittorio Degli-Esposti](#) (University of Bologna, Italy)

##### 17:30 Propagation Model Based on Building Penetration Loss Measurement for TVWS System

[Tomoshige Kan](#) (Tokyo Institute of Technology, Japan); [Hirokazu Sawada](#) (NICT, Japan); [Jun-ichi Takada](#) (Tokyo Institute of Technology, Japan)

##### 17:50 Incoherent Scattering of Normal Modes in Urban Canyon: Theory and Measurements

[Dmitry Chizhik](#) (Bell Laboratories, Alcatel-Lucent, USA); [Michael MacDonald](#) (Bell Labs, Lucent Technologies, USA); [Reinaldo Valenzuela](#) (Bell Laboratories, Alcatel-Lucent, USA)

#### 13:40 - 15:40 (Europe/Berlin)

#### W5 IndoorProp: Indoor Propagation

Propagation/Wireless Networks

Room: João G Zarco (Pav 3C)

Chairs: Conor Brennan (Dublin City University, Ireland), Fono Vincent (Université du Québec en Outaouais, Canada)

- 13:40 Advanced Indoor Localisation Based on the Viterbi Algorithm and Semantic Data**  
[Jens Trogh](#), [David Plets](#) and [Luc Martens](#) (Ghent University, Belgium); [Wout Joseph](#) (Ghent University/iMinds, Belgium)
- 14:00 Investigation on the Geometric Properties of Multipath Components in Indoor Radio Channels**  
[Bastian Meiners](#), [Jan Barowski](#), [Artur Nalobin](#) and [Ilona Rolfes](#) (Ruhr-Universität Bochum, Germany)
- 14:20 Power Delay Profile Analysis and Modeling of Industrial Indoor Channels**  
[Yun Ai](#) (Gjøvik University College & University of Oslo, Norway); [Michael Cheffena](#) and [Qihao Li](#) (Gjøvik University College, Norway)
- 14:40 Electromagnetic Wave Propagation Modeling in a Complex Environment Using Uniform Geometrical Theory of Diffraction**  
[Fono Vincent](#) (Université du Québec en Outaouais, Canada); [Larbi Talbi](#) (University of Quebec - Outaouais, Canada); [Khelifa Hettak](#) (Communications Research Centre, Canada)
- 15:00 Radio Frequency Measurements and Capacity Analysis for Industrial Indoor Environments**  
[Yun Ai](#) (Gjøvik University College & University of Oslo, Norway); [Michael Cheffena](#) and [Qihao Li](#) (Gjøvik University College, Norway)
- 15:20 A Method of Moments Based Indoor Propagation Model**  
[Ian Kavanagh](#), [Vinh Pham-Xuan](#), [Marissa Condon](#) and [Conor Brennan](#) (Dublin City University, Ireland)



#### WS2 RFID: Chipless RFID Future and Challenges

Scientific Workshop

Room: Diogo de Silves (Room 1.08)

Chair: Mohamed El-Hadidy (University of Duisburg-Essen, Germany)

- 13:40 A Novel Collision Avoidance MAC Protocol for Multi-Tag UWB Chipless RFID Systems Based on Notch Position Modulation**  
[Mohamed El-Hadidy](#) and [Ahmed Elawamry](#) (University of Duisburg-Essen, Germany); [Abdelfattah Fawky](#) (M. Sc, Germany); [Maher Khaliel](#) and [Thomas Kaiser](#) (Universität Duisburg-Essen, Germany)
- 14:20 Printable Depolarizing Chipless RFID Tag Based on DGS Resonators for Suppressing the Clutter Effects**  
[Maher Khaliel](#) (Universität Duisburg-Essen, Germany); [Mohamed El-Hadidy](#) (University of Duisburg-Essen, Germany); [Thomas Kaiser](#) (Universität Duisburg-Essen, Germany)
- 15:00 Smart Notch Detection Techniques for Robust Frequency Coded Chipless RFID Systems**  
[Ahmed Elawamry](#) (University of Duisburg-Essen, Germany); [Abdelfattah Fawky](#) (M. Sc, Germany); [Mohamed El-Hadidy](#) (University of Duisburg-Essen, Germany); [Thomas Kaiser](#) (Universität Duisburg-Essen, Germany)

#### 16:10 - 18:10 (Europe/Berlin)



#### C29 BAN: [C] Measurements and Simulations in Channel Modelling in Wireless Body Area Networks

Propagation/Biomedical

Room: Pedro A Cabral (Aud 2)

Chairs: Slawomir J. Ambroziak (Gdansk University of Technology, Poland), Carla Oliveira (University of Lisbon, Instituto Superior Tecnico & INOV - INESC, Portugal)

- 16:10 Miniaturized UWB Implantable Antenna for Brain-Machine-Interface**  
[Kamya Yekeh Yazdandoost](#) (National Institute of Information and Communications Technology, Japan); [Ryu Miura](#) (NICT, Japan)
- 16:30 Realistic Performance Measurement for Body-Centric Spatial Modulation Links**  
[Patrick Van Torre](#), [Thijs Castel](#) and [Hendrik Rogier](#) (Ghent University, Belgium)
- 16:50 Angular Characteristics of the UWB On-to-Off-Body Channel in Indoor Scenarios**  
[Oudomsack Pierre Pasquero](#) (CEA, LETI, Minatec Campus Univ\ Grenoble-Alpes France, France); [Raffaele D'Errico](#) (CEA, LETI, Minatec Campus & Univ\ Grenoble-Alpes, France)
- 17:10 Geometric Modeling of Shadowing Rate for Off-body Propagation During Human Walking**  
[Takahiro Aoyagi](#) (Tokyo Institute of Technology & Graduate School of Decision Science and Technology, Japan); [Minseok Kim](#) (Niigata University, Japan); [Jun-ichi Takada](#) (Tokyo Institute of Technology, Japan)
- 17:30 Simplified Human Phantoms for Wireless Body Area Network Modelling**  
[Lukasz Januszkiewicz](#) (Lodz University of Technology, Institute of Electronics, Poland); [Slawomir Hausman](#) (Technical University of Lodz, Poland)
- 17:50 Scenario-based WBAN Channel Characterization in Various Indoor Premises**  
[Christophe Roblin](#) (LTCI, TELECOM ParisTech and CNRS, France); [Yunfei Wei](#) (TELECOM ParisTech, France)



#### C35 ModeBase: [C] Mode-based strategy for antenna analysis and design

Antennas/Multi Applications

Room: Gil Eanes (Aud 3)

Chairs: Dirk Manteuffel (University of Kiel, Germany), Qi Wu (Beihang University, P.R. China)

- 16:10 Rigorous Eigenmode Analysis of Conducting Sphere**  
[Qi Wu](#) (Beihang University, P.R. China)
- 16:30 Radiation Pattern Adjustment of A Double Notched Antenna by Using Characteristic Modes Analysis**  
[Shen Wang](#) and [Hiroyuki Arai](#) (Yokohama National University, Japan)
- 16:50 Optimal Placement of PCB-integrated Diversity Elements in a Compact Tunable Handset Antenna**



[Robert Martens](#) and [Dirk Manteuffel](#) (University of Kiel, Germany)

**17:10 Antenna Design Via Current Control of Antenna Currents Using Theory of Characteristic Modes**

[Ezdeen Elghannai](#) and [Roberto G. Rojas](#) (The Ohio State University, USA)

**17:30 Isosceles Right Triangular Waveguides with Boundary Conditions of Composite Electric and Magnetic Walls**

[Jing Yang](#), [Lian Liu](#) and [Cheng Jin](#) (Beijing Institute of Technology, P.R. China)

**17:50 Study of Dipole Antennas' Characteristic Modes Through the Antenna Current Green's Function and the Singularity Expansion Method**

[Francois Sarrazin](#) (University of Rennes 1, France); [Said Mikki](#) (Royal Military College of Canada, Canada); [Yahia Antar](#) (Royal Military College of Canada, Canada); [Philippe Pouliguen](#) (DGA/Direction de la Stratégie, France); [Ala Sharaiha](#) (Université de Rennes 1 & IETR, France)



**C37 Mutual: [C] Mutual Coupling Formulation and its Effects in Antenna Systems**

Antennas/Cellular Communications

Room: [Pêro Escobar \(Pav 3A\)](#)

Chairs: [Yahia Antar](#) (Royal Military College of Canada, Canada), [Said Mikki](#) (Royal Military College of Canada, Canada)

**16:10 Aspects of Generalized Electromagnetic Energy Exchange in Antenna Systems: A New Approach to Mutual Coupling**

[Said Mikki](#) (Royal Military College of Canada, Canada); [Yahia Antar](#) (Royal Military College of Canada, Canada)

**16:30 Study of Mutual Coupling for Patch Antennas with Single-Layer Capacitive Feed and Its Application to Fabry-Pérot Arrays**

[Adrian Capristan](#), [Darwin Blanco](#) and [Eva Rajo-Iglesias](#) (University Carlos III of Madrid, Spain)

**16:50 Analysis of Mutual Coupling in Large Arrays of Printed Antennas Using Contour-FFT**

[Shambhu Nath Jha](#) (ICOMS Detection S.A., Belgium); [Simon Hubert](#) (Université Catholique de Louvain & ICTEAM Institute, Belgium); [Christophe Craeye](#) (Université Catholique de Louvain, Belgium)

**17:10 The Simple Truth About Effects of Mutual Coupling in MIMO Arrays for Single and Multiple Bit Streams in Rich Isotropic Multipath**

[Per-Simon Kildal](#) (Chalmers University of Technology, Sweden); [Xiaoming Chen](#) (Qamcom Research & Technology AB, Sweden)

**17:30 Wideband Decoupling and Tunable Matching Networks for Multi-Port Antennas**

[Montaha Bouezzeddine](#) (Rheinmain University of Applied Sciences, Germany); [Werner L. Schroeder](#) (RheinMain University of Applied Sciences, Germany)

**17:50 On the Constrains to Isolation Improvement in Multi-Antenna Systems**

[Sathya Narayana Venkatasubramanian](#) (Aalto University, Finland); [Anu Lehtovuori](#) and [Clemens Icheln](#) (Aalto University & School of Electrical Engineering, Finland); [Katsuyuki Haneda](#) (Aalto University, Finland)



**C43 PropSat: [C] Results of Ka and Q band propagation campaigns using Alphasat Aldo Paraboni and other Satellites**

Propagation/Space

Room: [Tristão V Teixeira \(Pav 5A\)](#)

Chairs: [Laurent Castanet](#) (ONERA, France), [Antonio Martellucci](#) (European Space Agency, The Netherlands)

**16:10 The Aldo Paraboni Scientific Experiment: Ka/Q Band Receiver Station in Hungary**

[László Csurgai-Horváth](#), [István Rieger](#) and [Jozsef Kertesz](#) (Budapest University of Technology and Economics, Hungary)

**16:30 Three-Site Ka-Band Diversity Experiment Performed in Slovenia and Austria**

[Andrej Vilhar](#), [Gorazd Kandus](#), [Arsim Kelmendi](#) and [Urban Kuhar](#) (Jozef Stefan Institute, Slovenia); [Andrej Hrovat](#) (Jožef Stefan Institute, Slovenia); [Michael Schönhuber](#) (Joanneum Research, Austria)

**16:50 Propagation Experiments At 20 GHz in Southern Europe to Test High Order Propagation Models**

[Laurent Castanet](#) and [Xavier Boulanger](#) (ONERA, France); [Carlo Riva](#) (Politecnico di Milano, Italy); [Franz Teschl](#) (Joanneum Research, now with Graz University of Technology, Austria); [Jose M Riera](#) (Universidad Politécnica de Madrid, Spain); [Armando C Rocha](#) (University of Aveiro & Institute of Telecommunications, Portugal)

**17:10 Earth-Space Propagation Data Processing for Ka-band Frequencies and Above**

[Danielle Vanhoenacker-Janvier](#) (Université catholique de Louvain, Belgium); [Xavier Boulanger](#) and [Laurent Castanet](#) (ONERA, France); [Alberto Graziani](#) and [Carlos Pereira](#) (Université Catholique de Louvain, Belgium)

**17:30 Use of Microwave Profiler and Ka/Q-band Ground Propagation Terminal for Alphasat ALDO TDP5 Propagation Experiment – First Year of Operation**

[Félix Cuervo](#), [Karin Plimon](#) and [Michael Schönhuber](#) (Joanneum Research, Austria); [Vinia Mattioli](#) (He-Space Operations & Sapienza University of Rome, Italy); [Antonio Martellucci](#) (European Space Agency, The Netherlands); [Juan Rivera Castro](#) (ESA, The Netherlands)

**17:50 Preliminary Statistics From the NASA Alphasat Beacon Receiver in Milan, Italy**

[James Nessel](#) (NASA, USA); [Michael Zemba](#) and [Jacquelynne Morse](#) (NASA Glenn Research Center, USA); [Lorenzo Luini](#) and [Carlo Riva](#) (Politecnico di Milano, Italy)



**DS1 Beamform: Beamforming and signal processing**

Antennas/Defense and Security

Room: [João G Zarco \(Pav 3C\)](#)

Chairs: [Michael Jensen](#) (Brigham Young University, USA), [Ioannis Kyriakides](#) (University of Nicosia, Cyprus)

**16:10 Polarisation-Angle-Delay Estimation for Blind Localisation Approaches Under Multipath Propagation**

[Stephan Haefner](#) (Technische Universität Ilmenau, Germany); [Martin Käske](#) and [Reiner S. Thomä](#) (Ilmenau University of Technology, Germany)

**16:30 Angle of Arrival Estimation for Moving User Equipment with Application to Indoor Terahertz Communications Using Grid Based Bayesian Filter**

[Bile Peng](#), [Sebastian Priebe](#), [Sebastian Rey](#) and [Thomas Kürner](#) (Technische Universität Braunschweig, Germany)

**16:50 Tracking More Targets with Less Antenna: An Investigation Into the Co-array Concept**

[Jiachen Wang](#), [Hantao Xu](#), [Xuezhi Zheng](#) and [Guy A. E. Vandenbosch](#) (Katholieke Universiteit Leuven, Belgium)

**17:10 Localization of Multiple Unknown RF Sources by Combining a Power Monitoring Network and a Guided Moving Sensor Under Constraints**

[Ioannis Kyriakides](#) (University of Nicosia Research Foundation, Cyprus); [Konstantinos Gotsis](#) (Aristotle University of Thessaloniki, Greece); [John Sahalos](#) (Aristotle University of Thessaloniki, GR, Thessaloniki & University of Nicosia, CY, Nicosia, Greece)

**17:30 Compact Beam Forming Network of a Switched Phased Array**

[Vincent Jaeck](#) (French-German Research Institute of Saint-Louis, France); [Loic Bernard](#) (ISL, France); [Kouroch Mahdjoubi](#) (Université de Rennes, France); [Ronan Sauleau](#) and [Sylvain Collardey](#) (University of Rennes 1, France); [Philippe Pouliguen](#) (DGA/Direction de la Stratégie, France); [Patrick Potier](#) (DGA/Maîtrise de l'Information, France)

**17:50 Optimal Array Signaling for Key Establishment in Static Multipath Channels**

[Rashid Mehmood](#), [Jon Wallace](#) and [Michael Jensen](#) (Brigham Young University, USA)

**MA3 PrintElem: Printed elements, baluns and associated circuits**

Antennas/Multi Applications

Room: [Paulo da Gama \(Pav 5B\)](#)

Chairs: [Paola Pirinoli](#) (Politecnico di Torino, Italy), [Hao Xin](#) (University of Arizona, USA)

**16:10 Square-shape Fully Printed Chipless RFID Tag and Its Applications in Evacuation Procedures**

[Diego Betancourt](#) (TU Dresden, Germany); [Raji Sasidharan Nair](#) (Technische Universität Dresden, Germany); [Katherina Haase](#), [Georg Schmidt](#), [Maxi Bellmann](#), [Daniel Höft](#) and [Arved Hübler](#) (TU Chemnitz, Germany); [Frank Ellinger](#) (Technische Universität Dresden, Germany)

**16:30 A Novel Design of Miniaturized Power Divider and Branch Coupler Using Interdigital Circuit**

[Bin Li](#) (Chinese Academy of Space Technology, Xi'an, P.R. China)

**16:50 Efficient Probe Excitation of Dielectric Image Line Using Substrate Integrated Waveguide Based Matching Network**

[Chandra Prasad](#) and [Soumava Mukherjee](#) (Indian Institute of Technology Kanpur, India); [Animesh Biswas](#) (IIT Kanpur, India)

**17:10 New Compact Design for Short Range Wireless Power Transmission At 1GHz Using H-Slot Resonators**

[Sherif Sayed Ahmed Salah Hekal](#) (Egypt-Japan University of Science and Technology & Faculty of Engineering at Shoubra - Benha University, Egypt); [Adel Bedair](#) (Egypt-Japan University of Science and Technology, Egypt)

**17:30 Hybridization Strategy for Microstrip Antenna Optimization**

[Linh Ho Manh](#) and [Marco Mussetta](#) (Politecnico di Milano, Italy); [Paola Pirinoli](#) (Politecnico di Torino, Italy); [Riccardo Enrico Zich](#) (Politecnico di Milano, Italy)

**17:50 Miniaturization of Microwave Components and Antennas Using 3D Manufacturing**

[Jonathon O'Brien](#), [Maria Cordoba Erazo](#), [Eduardo Rojas](#), [Juan Castro](#), [Mohamed Abdin](#), [Jing Wang](#) and [Gokhan Mumcu](#) (University of South Florida, USA); [Kenneth Church](#) and [Paul Deffenabugh](#) (Sciperio, Inc., USA); [Thomas Weller](#) (University of South Florida, USA)

**19:00 - 20:00 (Europe/Berlin)****Welcome Reception**

Room: [Museu de Marinha](#)

Tuesday, April 14

**09:00 - 10:40 (Europe/Berlin)****Bi5 PropBio: Propagation in Biomedical Environments**

Propagation/Biomedical

Room: [Bartolomeu Dias \(Aud 4\)](#)

Chairs: [Andrea Ruaro](#) (Technical University of Denmark & GN ReSound A/S, Denmark), [Alain Sibille](#) (Telecom Paris Tech & ENSTA PARISTECH, France)

**09:00 Exposure Assessment of Stray Electromagnetic Fields Generated by a Wireless Power Transfer System**

[Rosanna Pinto](#) (Technical Unit of Radiation Biology and Human Health, ENEA, Italy); [Manuele Bertoluzzo](#) (Department of Industrial Engineering, University of Padova, Italy); [Vanni Lopresto](#) (Technical Unit of Radiation Biology and Human Health, ENEA, Italy); [Sergio Mancini](#) (Technical Unit of Radiation Biology and Human Health, Italy); [Caterina Merla](#) (Technical Unit of Radiation Biology and Human Health, ENEA, Italy); [Giovanni Pede](#) and [Antonino Genovese](#) (Technical Unit for Advanced Technologies for Energy and Industry, ENEA, Italy); [Giuseppe Buja](#) (Department of Industrial Engineering, University of Padova, Italy)

**09:20 Simulation of Microwave Transmission Measurements of the Human Heart**

[Marcel Sequin](#), [Jeremie Bourqui](#) and [Elise Fear](#) (University of Calgary, Canada); [Michal Okoniewski](#) (University of Calgary & Acceleware Ltd, Canada)

**09:40 Analysis of Dependence of Signal Propagation Loss on Poses in Intra-Body Communication**

[Ibuki Yokota](#) (Kyoto Institute of Technology, Japan); [Yuichi Kado](#) (Kyoto Institute of Technology & Graduate School of Science and Technology, Japan); [Masaki Ishida](#) (Kyoto Institute of Technology, Japan)

**10:00 On the Applicability of Pathloss Model to Predict RF Human Exposure**

[Sandra Gomez](#) (Télécom Bretagne, France); [Patrice Pajusco](#) (TELECOM Bretagne, France); [Christian Person](#) (Télécom Bretagne, France)

**10:20 Analysis of Electric Field Spatial Variability in Simulations of Electromagnetic Waves Exposure to Mobile Telephony Base Stations**

[Mame Lo-Ndiaye](#) and [Nicolas Noé](#) (Centre Scientifique et Technique du Bâtiment, France); [Pierre Combeau](#) (XLIM University of Poitiers, France); [Yannis Pousset](#) (Université de Poitiers, France); [François Gaudaire](#) (Centre Scientifique et Technique du Bâtiment, France)

**09:00 - 12:50 (Europe/Berlin)****C10 60GHz: [C] Antenna technologies for fixed wireless access at 60 GHz and above**

Antennas/High Data-rate Transfer

Room: [Gonçalo V Cabral \(Pav 5C\)](#)

Chairs: [Jiro Hirokawa](#) (Tokyo Institute of Technology, Japan), [Per-Simon Kildal](#) (Chalmers University of Technology, Sweden)

**09:00 60 GHz Slot Antenna Array Based on Ridge Gap Waveguide Technology Enhanced with Dielectric Superstrate**

[Husseint Attia](#), [Milad Sharifi Sorkherizi](#) and [Ahmed Kishk](#) (Concordia University, Canada)

**09:20 A Self-Supported Hat-Fed Reflector Antenna for 60 GHz Frequency Band**

[Alireza Motevasselian](#) (LEAX Arkivator Telecom, Sweden); [Tomas Östling](#) (Arkivator AB, Sweden)

**09:40 60-GHz Multi-layer Multi-beam Slotted Waveguide Array Made by Diffusion Bonding Technique**

[Karim Tekkouk](#) (University of Rennes1, France); [Ronan Sauleau](#) (University of Rennes 1, France); [Mauro Ettore](#) (University of Rennes 1 & UMR CNRS 6164, France); [Makoto Sano](#) and [Makoto Ando](#) (Tokyo Institute of Technology, Japan)

**10:00 Designs of Plate-laminated Waveguide Slot Array Antennas for 60GHz and Above**

[Jiro Hirokawa](#), [Satoshi Ito](#), [Tatsuya Yamamoto](#), [Miao Zhang](#) and [Makoto Ando](#) (Tokyo Institute of Technology, Japan)

**10:20 Analysis of Large Planar 60 GHz Array Including Microstrip-Ridge Gap Waveguide Distribution Network Using Modular Approach**

[Esperanza Alfonso](#) (Gapwaves AB, Gothenburg, Sweden); [Seyed Ali Razavi](#) (Graduate University of Advanced Technology, Kerman, Iran); [Liangliang Xiang](#) (Huawei, Shanghai, P.R. China); [Haiguang Chen](#) (Huawei Technologies Sweden AB, Gothenburg, Sweden)

**10:40 Coffee Break**

**11:10 120-GHz-band Wireless Link Antenna Technologies for Polarization Multiplexing**

[Akihiko Hirata](#) (NTT Corporation & NTT Device Technology Laboratories, Japan); [Jun Takeuchi](#) (NTT Corporation, Japan)

**11:30 A New 2x2 Microstrip Patch Sub-array for 60GHz Wideband Planar Antenna with Ridge Gap Waveguide Distribution Layer**

[Ashraf Uz Zaman](#) and [Per-Simon Kildal](#) (Chalmers University of Technology, Sweden)

**11:50 Active Reconfigurable Luneburg Lens At 60GHz**

[Olivier Lafond](#) (IETR, France); [Mohamed Himdi](#) (Université de Rennes 1, France); [Jonathan Bor](#) (IETR - University of Rennes 1, France); [Hervé Merlet](#) and [Philippe Le Bars](#) (Canon CRF, France)

**12:10 Deployment Considerations for 60 GHz Backhaul Using Smart Street Furniture**

[Lars Manholm](#) (Ericsson Research, Sweden); [Jonas Fridén](#) and [Bengt-Erik Olsson](#) (Ericsson AB, Sweden)

**12:30 A Study of Interference Canceller for DDD System on Millimeter-Wave Band Fixed Wireless Access System**

[Kazuya Kojima](#), [Toru Taniguchi](#), [Masatoshi Nagayasu](#) and [Yasuhiro Toriyama](#) (Japan Radio Co., Ltd., Japan); [Miao Zhang](#) (Tokyo Institute of Technology, Japan)

**C30 MiMed1: [C] Methodologies and modelling for EMF in medical diagnostics and therapy (MiMed)**



Propagation/Biomedical

Room: [Pedro A Cabral \(Aud 2\)](#)

Chairs: [Lorenzo Crocco](#) (CNR - National Research Council, Italy), [Panagiotis Kosmas](#) (King's College London, United Kingdom)

**09:00 Volume Integral Equation Formulation for Medical Applications**

[Mina Bjelogrić](#), [Michael Mattes](#) and [Ioannis D Koufogiannis](#) (EPFL, Switzerland); [Santiago Capdevila](#) (EPFL & École Polytechnique Fédérale de Lausanne, Switzerland); [Juan R Mosig](#) (Ecole Polytechnique Federale de Lausanne, Switzerland)

**09:20 A Unidirectional Wideband Printed Quasi-Yagi Antenna for Microwave Breast Imaging**

[Constantine G. Kakoyiannis](#), [Irene Karanasiou](#) and [Maria Koutsoupidou](#) (Institute of Communication and Computer Systems, National Technical University of Athens, Greece); [Nikolaos Uzunoglu](#) (School of Electrical and Computer Engineering, National Technical University of Athens, Greece)

**09:40 Non-Invasive Microwave Lung Water Monitoring: Feasibility Study**

[Jochen Moll](#) (Goethe University Frankfurt am Main, Germany); [Jan Vrba](#) (Faculty of Biomedical Engineering, Czech Technical University in Prague, Czech Republic); [Ilja Merunka](#) and [Ondrej Fiser, Jr.](#) (Czech Technical University in Prague & Faculty of Electrical Engineering, Czech Republic); [Viktor Krozer](#) (Goethe University of Frankfurt am Main, Germany)

**10:00 Initial Study for Detection of Multiple Lymph Nodes in the Axillary Region Using Microwave Imaging**

[Raquel C. Conceição](#) (Institute of Biomedical Engineering, University of Oxford & Instituto de Biofísica e Engenharia Biomédica, Faculdade de Ciências, Universidade de Lisboa, United Kingdom); [Ricardo Eleutério](#) (Instituto Biofísica e Engenharia Biomedica Fac Ciências Univ Lisboa, Portugal)

**10:20 Microwave Breast Imaging Based on an Optimized Two-step Iterative Shrinkage/Thresholding Method**

[Zhenzhuang Miao](#) (KING'S COLLEGE LONDON, United Kingdom); [Panagiotis Kosmas](#) (King's College London, United Kingdom)

**10:40 Coffee Break**

**11:10 Design and Modeling of a Microwave Imaging System for Breast Cancer Detection**

[Jorge Tobon Vasquez](#) (Politecnico di Torino, Italy); [Elia Attardo](#) (Altair Engineering GmbH, Germany); [Gianluca Dassano](#), [Francesca Vipiana](#), [Mario Roberto Casu](#), [Marco Vacca](#), [Azzurra Pulimeno](#) and [Giuseppe Vecchi](#) (Politecnico di Torino, Italy)

**11:30 A Comparative Study of Coherent Time Reversal Minimum Variance Beamformers for Breast Cancer Detection**

[Md Delwar Hossain](#) (Faculty of Engineering and IT, University of Technology Sydney (UTS), Australia); [Ananda Sanagavarapu Mohan](#) (University of Technology Sydney (UTS), Australia)

**11:50 Super-resolution Microwave Imaging: Time-domain Tomography Using Highly Accurate Evolutionary Optimization Method**

[Fan Yang](#) and [Yifan Chen](#) (South University of Science and Technology of China, P.R. China); [Rui Wang](#) (The South University of Science and Technology of China, P.R. China); [Qingfeng Zhang](#) (South University of Science and Technology of China, P.R. China)

**12:10 Numerical Heterogeneous Breast Phantoms with Different Resolutions**

[Nemanja Milosevic](#) (University of Belgrade, France); [Marja Nikolic](#) and [Branko Kolundzija](#) (University of Belgrade, Serbia); [Jasmin Music](#) (WIPL-D, Serbia)

**12:30 Criterion for the Optimal Choice of the Treatment Conditions in Magnetic Nanoparticle Hyperthermia: Assesment in 3D Realistic Numerical Head Model**

[Gennaro Bellizzi](#) (University of Naples Federico II, Italy); [Ovidio Mario Bucci](#) (University of Naples, Italy)

**C4 SimTools: [C] Advances in Commercial Electromagnetic Simulation Tools**



Antennas/Bridging other Areas

Room: [Diogo Cão \(Aud 8\)](#)

Chairs: [Marc Rütshlin](#) (CST AG, United Kingdom), [Winfried Simon](#) (IMST GmbH, Germany)

**09:00 Making Better Antenna Design Choices with Antenna Magus**

[Konrad Brand](#), [Brian K Woods](#), [Thomas Sickel](#) and [Daniel Barnard](#) (Magus (Pty) Ltd, South Africa)

**09:20 The XPU Technology for Fast and Efficient FDTD Simulations Using Modern CPUs Cache Memory Bandwidth**

[Winfried Simon](#) and [Andreas Lauer](#) (IMST GmbH, Germany); [Andreas Wien](#) (IMST, Germany)

**09:40 The Antenna Toolbox for Matlab (AToM)**

[Pavel Hazdra](#), [Miloslav Capek](#) and [Milos Mazanek](#) (Czech Technical University in Prague, Czech Republic); [Zbynek Raida](#) (Brno University of Technology, Czech Republic); [Jaroslav Rymus](#) (MECAS ESI, Czech Republic)

**10:00 Overview of Recent Advances in the Electromagnetic Field Solver FEKO**

[Andrés G. Aguilar](#) (Altair Engineering GmbH, Germany); [Johann van Tonder](#) and [Ulrich Jakobus](#) (Altair Development S.A. (Pty) Ltd, South Africa); [Frank Illenseer](#) (Altair Engineering GmbH, Germany)

**10:20 State of the Art Antenna Simulation with CST STUDIO SUITE**

[Marc Rüttschlin](#) (CST AG, United Kingdom); [Tilman Wittig](#) (CST AG, Germany)

**10:40 Coffee Break****11:10 SEMCAD X Matterhorn: A Novel Approach to Achieve Realism in Highly Complex Environments**

[Nicolas Chavannes](#) (Schmid and Partner Engineering AG, Switzerland)

**11:30 Mesh Assembly Framework for Hybrid 3D FEM/FEBI/MoM Electromagnetic Simulations**

Lars Eric Rickard Petersson, [Matthew Commens](#) and [Ravi Sundaram](#) (ANSYS, Inc., USA)

**11:50 WIPL-D: Advances in EM Simulation**

[Branko Kolundzija](#) and [Miodrag Tasic](#) (University of Belgrade, Serbia); [Milos Pavlovic](#) (WIPL-D DOO, Serbia)

**12:10 New Fast and Robust Modelling Algorithms for Electrically Large Antennas and Platforms**

[Erik Jørgensen](#) (TICRA, Denmark); [Oscar Borries](#) (Technical University of Denmark & TICRA, Denmark); [Peter Meincke](#) and [Min Zhou](#) (TICRA, Denmark); [Niels Vesterdal](#) (Ticra, Denmark)

**12:30 GPU Advancements Reduce Simulation Times for 25 GHz Automotive Radar Models**

[Jeff Barney](#) (Remcom, Inc., USA)

**09:00 - 10:40 (Europe/Berlin)****CC4 OTA: Over the Air (OTA) Testing in Antennas and Multiple Devices**

Measurements/Cellular Communications

Room: [Pêro Escobar \(Pav 3A\)](#)

Chairs: [Jan Carlsson](#) (SP Technical Research Institute of Sweden, Sweden), [Anton Skårbratt](#) (Bluetest AB, Sweden)

**09:00 Measuring User-Induced-Randomness to Evaluate Smart Phone Performance in Real Environments**

[Per H. Lehne](#) (Telenor Research, Norway); [Kashif Mahmood](#) (Telenor ASA, Norway); [Andrés Alayon Glazunov](#) (Chalmers University of Technology, Sweden); [Pål R. Grønsund](#) (Telenor & University of Oslo, Norway); [Per-Simon Kildal](#) (Chalmers University of Technology, Sweden)

**09:20 802.11p Measurements in Reverberation Chamber**

[Anton Skårbratt](#) and [Robert Rehammar](#) (Bluetest AB, Sweden)

**09:40 Investigation of Mode Stirring with Plates on Platform in a Reverberation Chamber**

[Madeleine Kildal](#) (Chalmers University of Technology & Bluetest AB, Sweden); [Xiaoming Chen](#) (Qamcom Research & Technology AB, Sweden); [Per-Simon Kildal](#) (Chalmers University of Technology, Sweden); [Jan Carlsson](#) (SP Technical Research Institute of Sweden, Sweden)

**10:00 An Experimental Reconfigurable OTA Chamber**

[Rashid Mehmood](#), [Jon Wallace](#) and [Michael Jensen](#) (Brigham Young University, USA)

**10:20 Testing of LTE Devices in Transmit Diversity Enabled System Using Reverberation Chamber**

[Charlie Orlenius](#), [Anton Skårbratt](#), [Christian Lötbäck](#) and [Patrik Svedjenäs](#) (Bluetest AB, Sweden)

**09:00 - 12:50 (Europe/Berlin)****MA13 Scattering: Scattering and Diffraction**

Propagation/Multi Applications

Room: [Gil Eanes \(Aud 3\)](#)

Chairs: [Thomas Dallmann](#) (RWTH Aachen University, Germany), [Vinh Pham-Xuan](#) (Dublin City University, Ireland)

**09:00 Cloaking a Bump Inside a Single Isotropic Lossless Dielectric**

[Constantinos A Valagiannopoulos](#) (Aalto University, Finland); [Nikolaos L. Tsitsas](#) (Aristotle University of Thessaloniki, Greece); [Ari Sihvola](#) (Aalto University, Finland)

**09:20 Thin Diffraction Grating Technology**

[Andrew Thain](#) (Airbus Group Innovations, France); [Anass Jaber](#) (Serma Ingénierie, France); [Yannick Platon](#), [Alexandre Hervé](#) and [Gilles Peres](#) (Airbus Group Innovations, France); [Bruno Pasquier](#) (Airbus Group Innovation, France); [Laurent Evain](#) (Airbus SAS, France); [Guillaume Cambon](#) (Airbus - SAS, France); [François Harly](#) (Airbus, France); [Hervé Lenquette](#) and [Bertrand Sinigaglia](#) (DGAC, France); [Bertrand Spitz](#) (ENAC, France)

**09:40 Influence of the Lightning Protection of Blades on the Field Scattered by a Windturbine**

[Ludovic Claudepierre](#), [Remi Douvenot](#), [Christophe Morlaas](#) and [Alexandre Chabory](#) (ENAC, France)

**10:00 The Poynting Vector Behavior During the Resonance Scattering of an Obliquely Incident Plane Electromagnetic Wave by a Gyrotropic Cylinder**

[Vasily Es'kin](#), [Alexander Ivoninsky](#) and [Alexander Kudrin](#) (University of Nizhny Novgorod, Russia)

**10:20 Analysis of Wind Turbines Radar Cross Section for Analyzing the Potential Impact on Weather Radars**

[Olatz Grande](#) (University of the Basque Country, Spain); [Itziar Angulo](#) (University of the Basque Country UPV/EHU & Bilbao School of Engineering, Spain); [David Jenn](#) (Naval Postgraduate School, USA); [Fernando Aguado](#) (AEMET, Spain); [David Guerra](#) and [David de la Vega](#) (University of the Basque Country, Spain)

**10:40 Coffee Break****11:10 Efficient Full-Wave Computation of Radar Cross Section for Multiple Source Locations**

[Vinh Pham-Xuan](#), [Marissa Condon](#) and [Conor Brennan](#) (Dublin City University, Ireland)

**11:30 Absorption and Scattering Properties of a Receiving Patch Antenna**

[Constant Manouan Aka Niamien](#) (ESIGELEC IRSEEM EA 4353, France); [Sylvain Collardey](#) (University of Rennes 1, France); [Kouroch Mahdjoubi](#) (Université de Rennes, France)

**11:50 A Semi-Analytical Expression for the RCS of a Frustum-Shaped Foam Target Support Structure**

[Thomas Dallmann](#) and [Dirk Heberling](#) (RWTH Aachen University, Germany)

**12:10 Solution of Volume Integral Equations with Novel Treatment to Strongly Singular Integrals**

[Gokhun Selcuk](#) (Middle East Technical University & Aselsan Inc, Turkey); [Sinan Kurt](#) (Aselsan Inc. & TOBB ETU University, Turkey); [Seyit Koc](#) (Middle East Technical University, Turkey)

**12:30 Electromagnetic Scattering From a Buried Cylinder Using T-Matrix and Signal-Flow-Graph Approach**

[Ayman Negm](#) (Cairo University & Faculty of Engineering, Egypt); [Islam Eshrah](#) and [Ragia Badr](#) (Cairo University, Egypt)



**MA15 Multiband: Multiband and wideband antennas**

Antennas/Multi Applications

Room: [Paulo da Gama \(Pav 5B\)](#)

Chairs: [Giuseppe Di Massa](#) (University of Calabria, Italy), [María García-Vigueras](#) (Ecole Polytechnique Fédérale de Lausanne, Switzerland), [Rodolfo Ravanelli](#) (Thales Alenia Space Italy SpA, Italy)

**09:00 Wide Band, Low Profile and Circular Polarized K/Ka Band Antenna**

[Przemyslaw Gorski](#) and [Joana S. Silva](#) (Laboratory of Electromagnetics and Acoustics / École Polytechnique Fédérale de Lausanne & LEMA, Switzerland); [Juan R Mosig](#) (Ecole Polytechnique Federale de Lausanne, Switzerland)

**09:20 A Wideband Strip-Helical Antenna with a Parasitic Patch**

[Xihui Tang](#) (Shenzhen University, P.R. China); [Yunliang Long](#) (Sun Yat-Sen University, P.R. China)

**09:40 A K/Ka/EHF Feed Chain for Dual-Use Telecom**

[Rodolfo Ravanelli](#) (Thales Alenia Space Italy SpA, Italy); [Pierluigi Cecchini](#) (Thales Alenia Space Italia S.p.A., Italy); [Roberto Mizzoni](#) (Thales Alenia Space Italia, Italy); [Giuseppe Addamo](#) (Istituto di Elett. e di Ingegneria dell'Inform. e delle Telecom. (IEIIT- CNR), Italy); [Oscar Peverini](#) (Istituto di Elett. e di Ingegneria dell'Inform. e delle Telecom. (IEIIT- CNR), Italy); [Riccardo Tascone](#) and [Giuseppe Virone](#) (Istituto di Elett. e di Ingegneria dell'Inform. e delle Telecom. (IEIIT- CNR), Italy)

**10:00 Dielectric Wedge Antenna for Pavement Void Detection by Scattering**

[Stephen Pennock](#) and [Hugo Jenks](#) (University of Bath, United Kingdom)

**10:20 A Compact Hybrid Dielectric Resonator Antenna with a Meandered Slot Ring and Cavity Backing Offering Wideband Operation**

[Symon K. Podilchak](#) (Queen's University & The Royal Military College of Canada, Canada); [Jonathan Jonstone](#) (Queen's University & Royal Military College of Canada, Canada); [Michel Clénet](#) (Defence Research and Development Canada, Canada); [Yahia Antar](#) (Royal Military College of Canada, Canada)

**10:40 Coffee Break**

**11:10 A Design Strategy of Active Matched Small-Antennas with Non-Foster Elements**

[Fernando Albarracín-Vargas](#) (Universidad Carlos III de Madrid, Spain); [Eduardo Ugarte-Muñoz](#) (Universitiy Carlos III in Madrid, Spain); [Daniel Segovia-Vargas](#) (Universidad Carlos III de Madrid, Spain); [Vicente Gonzalez-Posadas](#) (Universidad Politecnica de Madrid, Spain)

**11:30 Wideband Matching of Handset Antenna Ports At Noncontiguous Frequency Bands**

[Anu Lehtovuori](#) (Aalto University & School of Electrical Engineering, Finland); [Janne Ilvonen](#) (Aalto University School of Electrical Engineering, Finland); [Risto Valkonen](#) (Nokia Networks, Finland)

**11:50 Rotational Design Space Reduction for Cost-Efficient Multi-Objective Antenna Optimization**

[Slawomir Koziel](#) (Reykjavik University, Iceland); [Adrian Bekasiewicz](#) (Gdansk University of Technology, Poland)

**12:10 Dual-Polarized Patch Antenna for Virtual Antenna Array Based Radio Channel Measurements At 10 GHz**

[Marko Tapani Sonkki](#), [Veikko Hovinen](#) and [Nuutti Tervo](#) (University of Oulu, Finland); [Cláudio Dias](#) (Universidade Estadual de Campinas, Brazil); [Juha Meinilä](#) (Elektrobit Corporation, Finland); [Antti Roivainen](#) (Centre for Wireless Communications, Finland)

**12:30 Wideband and Compact Fabry-Perot Cavity Antenna Using a Dual-Layer Periodic Planar Structure**

[Antonio Costanzo](#), [Sandra Costanzo](#) and [Giuseppe Di Massa](#) (University of Calabria, Italy)

**09:00 - 10:40 (Europe/Berlin)**



**MA4 EMI/EMC: EMI/EMC/PIM Chamber design, measurement and instrumentation**

Measurements/Multi Applications

Room: [João G Zarco \(Pav 3C\)](#)

Chairs: [Sebastien Lalléchère](#) (Blaise Pascal University, France), [Vince Rodriguez](#) (MI-Technologies & AMTA Board of Directors, USA)

**09:00 An Ultra-thin Dual-Band Polarization-Independent Metamaterial Absorber for EMI/EMC Applications**

[Praneeth Munaga](#) and [Saptarshi Ghosh](#) (Indian Institute of Technology Kanpur, India); [Somak Bhattacharyya](#) (G-207, HALL7, IIT KANPUR & Indian Institute of Technology, Kanpur, India); [Devkinandan Chaurasiya](#) (IITK, India); [Kumar Vaibhav Srivastava](#) (Indian Institute of Technology, Kanpur, India)

**09:20 Improvement on Radiation Characteristics of Bow-Tie Antenna for EMI Measurement**

[Kazuki Kanai](#), [Masaki Nagasawa](#) and [Ryosuke Suga](#) (Aoyama Gakuin University, Japan); [Takenori Yasuzumi](#) (Toshiba Corporation, Japan); [Tomoki Uwano](#) and [Osamu Hashimoto](#) (Aoyama Gakuin University, Japan); [Yukihisa Hasegawa](#) (Toshiba Corporation, Japan)

**09:40 A New Measurement Technique and Experimental Validations in Determination SAR of N-Antenna Transmitters Using Scalar E-Field Probes**

[Dinh Thanh Le](#) (Le Quy Don Technical University, Vietnam); [Lira Hamada](#) and [Soichi Watanabe](#) (National Institute of Information and Communications Technology, Japan)

**10:00 Experimental S-parameters Statistics Under Uncertain Loads Constraints**

[Sebastien Lalléchère](#) and [Sébastien Girard](#) (Blaise Pascal University, France)

**10:20 Utilizing Gain Interpolation for the Removal of Near-field Coupling Effects During EMC Antenna Calibrations**

[Dennis Lewis](#) (Boeing, USA); [Vince Rodriguez](#) (MI-Technologies & AMTA Board of Directors, USA); [Sandra Fermiñán Rodríguez](#) (ETS-Lindgren, Germany)

**09:00 - 12:50 (Europe/Berlin)**

## S5 ArraySpace: Array Antennas for Space

Antennas/Space

Room: [Tristão V Teixeira \(Pav 5A\)](#)

Chairs: Cyril Mangenot (European Space Agency, The Netherlands), Robert Shaw (CSIRO, Australia)

### 09:00 *Design of Wideband, Wide-Scan Planar Arrays by Combining Connected Arrays and Artificial Dielectrics*

[Waqas Hassan Syed](#), [Daniele Cavallo](#), [Harshita Shivamurthy](#) and [Andrea Neto](#) (Delft University of Technology, The Netherlands)

### 09:20 *Compact Dual-Band Dual-Polarized Antenna Array for Robust Satellite Navigation Receivers*

[Maysam Ibraheem](#) and [Safwat Irteza Butt](#) (Ilmenau University of Technology, Germany); [Stefano Caizzone](#) and [Achim Dreher](#) (German Aerospace Center (DLR), Germany); [Ralf Stephan](#) (Technische Universität Ilmenau, Germany); [Matthias Hein](#) (Ilmenau University of Technology, Germany)

### 09:40 *Prototype 32 Elements Beam Forming Network for 21-GHz Band Broadcasting Satellite*

[Susumu Nakazawa](#) (NHK, Japan); [Masafumi Nagasaka](#) (NHK Science & Technology Research Laboratory, Japan); [Masashi Kamei](#) (NHK, Japan); [Shoji Tanaka](#) (NHK Science and Technical Research Laboratories, Japan); [Tomohiro Saito](#) (NHK, Japan)

### 10:00 *2 x 2 Stacked Patch Array with Corporate SIW Feeding Network*

[Eduardo Garcia-Marin](#), [Jose Luis Masa-Campos](#) and [Pablo Sanchez-Olivares](#) (Universidad Autonoma de Madrid, Spain)

### 10:20 *Irregular Quad-Mode Antenna Array: Field-of-View Comparison with the Swedish LOFAR Station*

[David S Prinsloo](#) and [Petrie Meyer](#) (Stellenbosch University, South Africa); [Rob Maaskant](#) (CHALMERS, Sweden); [Marianna Ivashina](#) (Chalmers University of Technology, Sweden)

### 10:40 Coffee Break

### 11:10 *Compact Satellite Navigation Antenna Array Using Off-the-Shelf Ceramic Patch Antennas*

[Safwat Irteza Butt](#), [Matthias Hein](#) and [Maysam Ibraheem](#) (Ilmenau University of Technology, Germany); [Ralf Stephan](#) (Technische Universität Ilmenau, Germany); [Thomas Harz](#) and [Yury Bulbin](#) (AntennenTechnik Badblankenburg, Germany)

### 11:30 *Transistor Noise Characterization for an SKA Low- Noise Amplifier*

[Stuart G Hay](#) (CSIRO ICT Centre, Australia); [Robert Shaw](#) (CSIRO, Australia)

### 11:50 *Simultaneous Radiation of Narrow and Wide Beams Exploiting Two Concentric Isophoric Sparse Arrays*

[Ovidio Mario Bucci](#) (University of Naples, Italy); [Stefano Perna](#) (Università degli Studi di Napoli Parthenope, Italy); [Daniele Pinchera](#) (University of Cassino & University of Naples, Federico II, Italy)

### 12:10 *Shaped Beam Synthesis of Arrays of Real Antennas Via Phase Retrieval and Convex Programming*

[Jose Ignacio Echeveste](#) (Universidad Politecnica de Madrid & ETSI de Telecomunicacion, Spain); [Miguel A. González](#) (Universidad Politécnica de Madrid, Spain); [Jesús Rubio](#) and [Rafael Gómez Alcalá](#) (University of Extremadura, Spain)

### 12:30 *Density-Tapered Planar Arrays for Multibeam and Shaped Beam Coverage in Satellite Communications*

[Javier Fondevila-Gómez](#), [Aaron A Salas-Sanchez](#), [Juan Rodríguez-González](#) and [Francisco Ares-Pena](#) (University of Santiago de Compostela, Spain)

## W3 ReconfAnt: Adaptive and reconfigurable antennas

Antennas/Wireless Networks

Room: [Afonso de Albuquerque \(Pav 3B\)](#)

Chairs: Adam Narbudowicz (Dublin Institute of Technology \ RWTH Aachen University, Germany), Alexandru Tatomirescu (Aalborg University, Denmark)

### 09:00 *On Pattern Reconfigurable Antennas Steered by Modulation Scheme*

[Adam Narbudowicz](#) (Dublin Institute of Technology \ RWTH Aachen University, Germany); [Max James Ammann](#) (Dublin Institute of Technology, Ireland); [Dirk Heberling](#) (RWTH Aachen University, Germany)

### 09:20 *A Mono, Dual and Triple Band Switchable Metamaterial-based Antenna*

[Ali Mansoul](#) and [Farid Ghanem](#) (Centre de Developpement des Technologies Avancees, Algeria); [Mohamed Trabelsi](#) (Ecole Nationale Polytechnique d'Alger, Algeria)

### 09:40 *Reconfigurable Patch Antenna for Wireless Applications*

[Noman Aftab](#) (UET Lahore, Pakistan); [Hassan Tariq Chattha](#) and [Yasir Jamal](#) (University of Engineering & Technology Lahore Faisalabad Campus, Pakistan); [Abubakar Sharif](#) (GC University Faisalabad, Pakistan); [Yi Huang](#) (University of Liverpool, United Kingdom)

### 10:00 *Additively Manufactured Shape Reconfigurable Loop Antennas*

[Daniel Revier](#), [Christy Saintsing](#), [Manos M. Tentzeris](#), [Kai Yu](#) and [H. Jerry Qi](#) (Georgia Institute of Technology, USA)

### 10:20 *Optically Controlled Reconfigurable Antenna Array Based on a Slotted Circular Waveguide*

[Igor da Costa](#) and [Arismar Cerqueira S. Jr.](#) (INATEL, Brazil); [Edson Reis](#) (BRADAR, Brazil); [Danilo Spadoti](#) (Universidade Federal de Itajubá - UNIFEI, Brazil); [João Moreira](#) (BRADAR, Brazil)

### 10:40 Coffee Break

### 11:10 *Alternative Duplexing for LTE FDD Using the Theory of Characteristic Modes*

[Alexandru Tatomirescu](#) and [Gert Pedersen](#) (Aalborg University, Denmark)

### 11:30 *Reactively Matched Long Slot Linear Connected Array Antenna*

[Hernán V. Barba Molina](#) (University of Stuttgart & IEEE, Germany); [Jan Hesselbarth](#) (University of Stuttgart & IHF -- Institute of Radio Frequency Technology, Germany)

### 11:50 *Design and Performance Evaluation of a Switched-Beam Antenna Array for 60 GHz WPAN Applications*

[Marc Imbert](#) (Universitat Politècnica de Catalunya, Spain); [Anna Papio Toda](#) and [Franco De Flaviis](#) (University of California, Irvine, USA); [Luis Jofre](#) (UPC, Spain); [Jordi Romeu](#) (Universitat Politècnica de Catalunya, Spain)

### 12:10 *Three Dimensional Microfabricated Broadband Patch and Multifunction Reconfigurable Antennae for 60 GHz Applications*

[Volkan Hunerli](#) (Middle East Technical University, Turkey); [Hema Mopidevi](#) (Utah State University, USA); [Engin Cagatay](#) (Institute for Nanoelectronics, Technische Universität München, Germany); [Marc Imbert](#) and [Jordi Romeu](#) (Universitat Politècnica de Catalunya, Spain); [Luis Jofre](#) (UPC, Spain); [Bedri Cetiner](#) (Utah State University, USA); [Necmi Biyikli](#) (Bilkent University & UNAM, National Nanotechnology Research Center, Turkey)

### 12:30 *Numerical Analysis of Reconfigurable Plasma Antenna Arrays*

[Anuar Fernandez Olvera](#) (Eindhoven University of Technology, The Netherlands); [Davide Melazzi](#) (University of Padova, Italy); [Vito Lancellotti](#) (Eindhoven University of Technology, The Netherlands)

## WS4 Julien: In Memoriam of Julien Perruisseau-Carrier

Scientific Workshop

Room: Diogo de Silves (Room 1.08)

Chairs: Sean V Hum (University of Toronto, Canada), Juan R Mosig (Ecole Polytechnique Federale de Lausanne, Switzerland)

**09:00 The Orbital Angular Momentum (OAM) Multiplexing Controversy: OAM as a Subset of MIMO**

[Michele Tamagnone](#) (Ecole Polytechnique Fédérale de Lausanne, Switzerland); [Joana S. Silva](#) (Laboratory of Electromagnetics and Acoustics / École Polytechnique Fédérale de Lausanne & LEMA, Switzerland); [Santiago Capdevila](#) (EPFL & École Polytechnique Fédérale de Lausanne, Switzerland); [Juan R Mosig](#) (Ecole Polytechnique Federale de Lausanne, Switzerland); [Julien Perruisseau-Carrier](#) (Ecole Polytechnique Fédérale de Lausanne & EPFL, Switzerland)

**11:10 - 12:50 (Europe/Berlin)****CC5 UrbanProp: Urban Propagation**

TOP

Propagation/Cellular Communications

Room: Pêro Escobar (Pav 3A)

Chairs: Lúcio Studer Ferreira (INOV-INESC &amp; IST - University of Lisbon, Portugal), Claude Oestges (Université Catholique de Louvain, Belgium)

**11:10 Investigation of Ray-Tracing Accuracy in Street Cell Environment for High-SHF and EHF Bands**

[Nobutaka Omaki](#) (NTT DOCOMO INC., Japan); [Ngochao Tran](#), [Koshiro Kitao](#), [Tetsuro Imai](#) and [Yukihiko Okumura](#) (NTT DOCOMO, INC., Japan); [Motoharu Sasaki](#) (NTT Access Network Service Systems Laboratories, Japan); [Wataru Yamada](#) (Nippon Telegraph and Telephone Cooperation, Japan)

**11:30 Path Loss Characteristics At 800 MHz to 37 GHz in Urban Street Microcell Environment**

[Motoharu Sasaki](#) (NTT Access Network Service Systems Laboratories, Japan); [Wataru Yamada](#) (Nippon Telegraph and Telephone Cooperation, Japan); [Takatoshi Sugiyama](#) (Kogakuin University, Japan); [Masato Mizoguchi](#) (NTT, Japan); [Tetsuro Imai](#) (NTT DOCOMO, INC., Japan)

**11:50 Mixed Path Loss Model for Urban Environments**

[Sajjad Hussain](#), [Dung Trinh](#) and [Conor Brennan](#) (Dublin City University, Ireland)

**12:10 Joint Ray Launching Method for Indoor to Outdoor Propagation Prediction Based on Ray Aggregation**

[Bing Xia](#) (University of Sheffield, United Kingdom); [Zhihua Lai](#) (Ranplan Wireless Network Design Ltd, University of Sheffield, United Kingdom); [Jie Zhang](#) (University of Sheffield, Dept. of Electronic and Electrical Engineering, United Kingdom)

**12:30 Path Loss Model and Root Mean Square Delay Spread Characterization of Near-Ground Outdoor UWB Channel**

[Ahmed M. Al-Samman](#) (Universiti Teknologi Malaysia, Malaysia); [Tharek Abdul Rahman](#) (Wireless Communication Centre, Malaysia); [Jamal Nasir](#) (COMSATS Institute of Information Technology Abbottabad, Pakistan); [Mohd Haizal Jamaluddin](#) (Universiti Teknologi Malaysia, Malaysia); [Mohsen Khalily](#) (Wireless Communication Center (WCC) Universiti Teknologi Malaysia (UTM), Malaysia); [Muhammad Ramlee Kamarudin](#) (Universiti Teknologi Malaysia, Malaysia)

**DS2 PropAeron: Propagation in Aeronautics and Navigation**

TOP

Propagation/Defense and Security

Room: João G Zarco (Pav 3C)

Chairs: Uwe-Carsten G. Fiebig (German Aerospace Center (DLR), Germany), Andrew Thain (Airbus Group Innovations, France)

**11:10 Radio-Channel Characterization of an Over-Sea Communication**

[Ismail Ben Mabrouk](#) (University Of Quebec In Outaouais, Canada); [José Carlos Reyes](#) (University of Bergen, Bergen, Norway)

**11:30 Prediction by Simulation of Performances of RFID Systems in Aeronautic Environments**

[Alexandre Piche](#), [Richard Perraud](#) and [Gilles Peres](#) (Airbus Group Innovations, France)

**11:50 Measured Doppler Power Profiles for Air to Ground Radio Links**

[Nicolas Schneckenburger](#), [Dmitriy Shutin](#), [Jost Thomas](#) and [Uwe-Carsten G. Fiebig](#) (German Aerospace Center (DLR), Germany)

**12:10 Comparison of Metrics for Clutter Data Comparison**

[Remi Douvenot](#) (ENAC, France); [Vincent Fabbro](#) (ONERA, France); [Kevin Elis](#) (CNES, France); [Yvonick Hurtaud](#) (DGA/MI, France)

**12:30 Stealthy Buildings for Radio Navigation Applications**

[Andrew Thain](#) (Airbus Group Innovations, France); [Anass Jaber](#) (Serma Ingénierie, France); [Jerome Robert](#), [Yannick Platon](#), [Alexandre Hervé](#) and [Gilles Peres](#) (Airbus Group Innovations, France); [Bruno Pasquier](#) (Airbus Group Innovation, France); [Laurent Evain](#) (Airbus SAS, France); [Guillaume Cambon](#) (Airbus - SAS, France); [François Harly](#) (Airbus, France); [Hervé Lenquette](#) and [Bertrand Sinigaglia](#) (DGAC, France); [Bertrand Spitz](#) (ENAC, France)

**MA16 InvScat: Imaging and Inverse Scattering**

TOP

Propagation/Multi Applications

Room: Bartolomeu Dias (Aud 4)

Chairs: Oleksandr Malyuskin (Queens University Belfast, United Kingdom), Okan Yurduseven (Duke University, USA)

**11:10 Sparse Electromagnetic Imaging Using Nonlinear Iterative Shrinkage Thresholding**

[Abdulla Desmal](#) and [Hakan Bagci](#) (King Abdullah University of Science and Technology (KAUST), Saudi Arabia)

**11:30 Comparison of Different Reconstruction Algorithms for Image Reconstruction in Metamaterial Aperture Based Imaging System**

[Okan Yurduseven](#), [Jonah Gollub](#) and [Hayrettin Odabasi](#) (Duke University, USA); [Mohammadreza Imani](#) (University of Michigan, USA); [Guy Lipworth](#) (Duke University, USA); [Alec Rose](#) (Evolv Technology, USA); [Parker Trofetter](#) and [David Smith](#) (Duke University, USA)

**11:50 Microwave Imaging and Material Characterization Using Resonantly Loaded Apertures**

[Oleksandr Malyuskin](#) (Queens University Belfast, United Kingdom); [Vincent Fusco](#) (Queen's University Belfast, United Kingdom)

**12:10 Polarimetric Target Discrimination for Ultrawideband Radar Imaging**

[Matthias Rödning](#) (Ilmenau University of Technology, Germany); [Rudolf Zetik](#) (Technical University Ilmenau, Germany); [Reiner S. Thomä](#) (Ilmenau University of Technology, Germany)

**12:30 Probe Configuration Study for the Metamaterial Aperture Imager**

[Okan Yurduseven](#), [Jonah Gollub](#) and [Hayrettin Odabasi](#) (Duke University, USA); [Mohammadreza Imani](#) (University of Michigan, USA); [Guy Lipworth](#) (Duke University, USA); [Alec Rose](#) (Evolv Technology, USA); [Parker Trofetter](#) and [David Smith](#) (Duke University, USA)

**14:00 - 15:00 (Europe/Berlin)****Poster A1: Antennas Poster Session 1**

Antennas

Room: [Luís de Camões \(Hall 3\)](#)

Chairs: David Fernandes (University of Coimbra - Instituto de Telecomunicações, Portugal), Filipa Prudencio (Instituto de Telecomunicacoes, Portugal)

**On the Stored and Radiated Energy Density**[Lukas Jelinek](#) and [Miloslav Capek](#) (Czech Technical University in Prague, Czech Republic)**FDTD-Compatible Green's Function Based on Scalar Discrete Green's Function and Multidimensional Z-Transform**[Tomasz P Stefanski](#) (Gdansk University of Technology, Poland)**A Fast Algorithm for the Analysis of Electrically Large Arrays of Plasmonic Nanoparticles with Aperiodic Spiral Order**[Muhammad Zubair](#) (Politecnico di Torino, Italy); [Matteo Alessandro Francavilla](#) and [Marco Righero](#) (Istituto Superiore Mario Boella, Italy); [Giuseppe Vecchi](#) (Politecnico di Torino, Italy); [Luca Dal Negro](#) (Boston University, USA)**Investigation and Comparison Between Radiation Center and Phase Center for Canonical Antennas**[Casimir Ehrenborg](#) (Lund University, Sweden); [Jonas Fridén](#) (Ericsson AB, Sweden); [Gerhard Kristensson](#) (Lund University, Sweden)**Spherical Model for Efficient Parametric Analysis of Implanted Antennas in WBAN Applications**[Marko Bosiljevac](#) (University of Zagreb, Croatia); [Anja K. Skrivervik](#) (EPFL, Switzerland); [Zvonimir Sipus](#) (University of Zagreb, Croatia)**Method of Moments Analysis of Modulated Metasurface Antennas**[David González-Ovejero](#), [Enrica Martini](#), [Francesco Caminita](#), [Maddalena Violetti](#) and [Stefano Maci](#) (University of Siena, Italy)**Performance of a Novel Miniature Antenna Implanted Into the Human Trunk for Medical Telemetry Applications**[Sofia Bakogianni](#) and [Stavros Koulouridis](#) (University of Patras, Greece)**An Overview of Stored Electromagnetic Energy**[Mats Gustafsson](#) (Lund University, Sweden)**Application of the Hybrid Projective Methods for Determining Effective Permittivity of Artificial 1D- And 2D-Periodic Dielectric Layers**[Olga Smolnikova](#) (Company Radiophysika, Russia); [Sergei P. Skobelev](#) (Radiophysika, Russia)**Computational Electromagnetic Modeling is Key in Objective Control of Hyperthermia**[Gerard C. van Rhoon](#) (Erasmus MC Cancer Institute, The Netherlands); [Margarethus M. Paulides](#) (Erasmus University Medical Center, The Netherlands); [Tomas Drizdal](#) (Erasmus MC Cancer Institute, The Netherlands)**Modal Analysis of Non-Separable Outer-Boundary Cavities Via Spherical Vector Wave Functions**[Theodoros Kaifas](#) (Aristotle University of Thessaloniki, Greece); [Elias E Vafiadis](#) (Aristotle University of Thessaloniki & Physics Department, Greece); [Xenofon Mitsalas](#) (Democritus University of Thrace, Greece); [John Sahalos](#) (Aristotle University of Thessaloniki, GR, Thessaloniki & University of Nicosia, CY, Nicosia, Greece); [George Kyriacou](#) (Democritus University of Thrace, Greece)**Verification & Validation Benchmarks for Assessing and Demonstrating the Credibility of Computational Medical Device Evaluation**[Esra Neufeld](#) and [Niels Kuster](#) (IT'IS Foundation, ETH Zurich, Switzerland)**Optimal Aperture Distribution for Maximum Power Transfer in Planar Lossy Multilayered Matters**[Aldin Razavi](#) (Chalmers University of Technology, Sweden); [Rob Maaskant](#) (CHALMERS, Sweden); [Jian Yang](#) (Chalmers University of Technology, Sweden); [Zvonimir Sipus](#) (University of Zagreb, Croatia); [Mats Viberg](#) (Chalmers University of Technology, Sweden)**On an Indirect Boundary Element Method for the Anisotropic EEG Forward Problem**[Axelle Pillain](#), [Lyes Rahmouni](#) and [Francesco Andriulli](#) (Ecole Nationale Supérieure des Télécommunications de Bretagne, France)**Modeling an Extremely Thin Material Sheet Using the Finite-Difference Time-Domain Method**[Yaxin Yu](#) and [Ching Eng Png](#) (A\*STAR Institute of High Performance Computing, Singapore)**Stability and Accuracy Analysis of Several FDTD Schemes for Modeling Tellegen Media**[Ana Grande](#) (University of Valladolid, Spain); [José Pereda](#) (University of Cantabria, Spain); [Ismael Barba](#), [Ana Cabeceira](#) and [José Represa](#) (University of Valladolid, Spain)**Full-Wave Modeling of Stochastic Trees for Radar Cross Section Calculation**[Branko Mrdakovic](#) (WIPL-D, Serbia); [Dragan I. Olcan](#) and [Branko Kolundzija](#) (University of Belgrade, Serbia)**A Tilted Subgrid for Two Dimensional FDTD**[Chris Raiton](#) (University of Bristol & Communications Systems and Networks group, United Kingdom)**Field-Circuit Co-Simulation of the Marx Generator**[Qian Xu](#), [He Jiang](#), [Yi Huang](#), [Jiafeng Zhou](#), [Chaoyun Song](#) and [Lei Xing](#) (University of Liverpool, United Kingdom)**Acceleration of the DGF-FDTD Method on GPU Using the CUDA Technology**[Tomasz Dziubak](#) (Gdansk University of Technology, Poland); [Michał Wiktor](#) (Medical University of Gdansk, Poland); [Sławomir Orłowski](#) and [Tomasz P Stefanski](#) (Gdansk University of Technology, Poland)**Field Computations Through the ACA Algorithm**[Rob Maaskant](#) (CHALMERS, Sweden); [Vito Lancellotti](#) (Eindhoven University of Technology, The Netherlands)**Evaluation of Near-Singularity Cancellation Quadrature Schemes for the Green Function Gradient on Higher-Order Triangles**[Matthys M. Botha](#) (Stellenbosch University, South Africa)**Novel Source-to-Source Compiler Approach for the Automatic Parallelization of Codes Based on the Method of Moments**[Hipólito Gómez-Sousa](#) (University of Vigo, Spain); [Manuel Arenaz](#) (University of A Coruña, Appentra Solutions S. L., Spain); [Oscar Rubiños-López](#) (University of Vigo, Spain); [Jose Martinez Lorenzo](#) (Northeastern University, USA)**Numerical Analysis of Avionic Grounding Structures with Surface PEEC Formulation**[Mauro Bandinelli](#) and [Alessandro Mori](#) (IDS Ingegneria Dei Sistemi S. p. A, Italy); [Giulio Antonini](#) and [Daniele Romano](#) (University of L'Aquila, Italy); [Gian Marco Sammarone](#) (IDS Ingegneria dei Sistemi S.p.A., Italy)**Study of Annular Ring Patch Antennas on Anisotropic Substrates by WCIP Method**[Valdemir Neto](#) (Universidade Federal Rural do Semi-Árido, Brazil); [Cristhianne Vasconcelos](#) and [Maria Albuquerque](#) (Federal University of Rio Grande do Norte, Brazil); [Adaildo G Dassuncao](#) (Federal University of Rio Grande do Norte & UFRN - CT - DCO, Brazil)**The Finite Difference Frequency Domain Method for the Eigenanalysis of Open Periodic Structures**



[Christos S Lavranos](#) (Democritus University of Thrace, Greece); [Panagiotis Theofanopoulos](#) (Democritus University of Thrace, Greece); [Kyriakos Zoiros](#) (Democritus University of Thrace, Greece); [Gerard Granet](#) (Blaise Pascal University, France); [George Kyriacou](#) (Democritus University of Thrace, Greece)

**Comparison of a Fast Probabilistic Propagation Model Against an Analytical Computational-EM Model and Measurements for the Evaluation of Passive RFID Systems**

[Antonios G Dimitriou](#) and [Achilles Boursianis](#) (Aristotle University of Thessaloniki, Greece); [Ioannis Markakis](#) (Aristotle University of Thessaloniki, Greece); [Stavroula Siachalou](#) and [Theodoros Samaras](#) (Aristotle University of Thessaloniki, Greece); [John Sahalos](#) (Aristotle University of Thessaloniki, GR, Thessaloniki & University of Nicosia, CY, Nicosia, Greece)

**Rigorous Analysis of Deformed Nanowires Using the Multilevel Fast Multipole Algorithm**

[Bariscan Karaosmanoglu](#), [Akif Yilmaz](#) and [Ozgur Ergul](#) (Middle East Technical University, Turkey)

**Comparison of 3D and 2D Method to Study the Propagation in a U-shaped Valley**

[Pierrick Hamel](#), [Jean-Pierre Adam](#) and [Yannick Béniguel](#) (IEEA, France); [Jean-Christophe Joly](#) (CEA, France)

**Accelerating Frequency Selective Surface Simulations: An Equivalent Circuit Method Versus Computational Electromagnetics Software - Limits and Further Developments**

[Mélusine Pigeon](#), [Rostyslav Dubrovka](#), [Robert Donnan](#) and [Theo Kreouzis](#) (Queen Mary, University of London, United Kingdom)

**Comments on the Phase Center Computation for Ka-band Planar Lens-Antenna Feeders**

[Pedro Robustillo](#) (École Polytechnique Fédérale de Lausanne, Switzerland); [Joana S. Silva](#) (Laboratory of Electromagnetics and Acoustics / École Polytechnique Fédérale de Lausanne & LEMA, Switzerland); [Jorge R. Costa](#) (Instituto de Telecomunicações / ISCTE-IUL, Portugal); [Carlos A. Fernandes](#) (Instituto de Telecomunicações, Instituto Superior Técnico, Portugal); [Juan R Mosig](#) (Ecole Polytechnique Federale de Lausanne, Switzerland)

**Spatiotemporal Slabs in Order to Improve Performance in 2D FDTD**

[Juan Giraldo](#) and [Néstor M. Peña](#) (Universidad de los Andes, Colombia); [Michel Ney](#) (TELECOM Bretagne Institute, France)

**Statistical Modeling of Antennas Via a Generalized Stochastic-FDTD Method**

[Athanasios N. Papadimopoulos](#), [Georgios G. Pyrialakos](#) and [Antonios X. Lalas](#) (Aristotle University of Thessaloniki, Greece); [Theodoros T. Zygidis](#) (University of Western Macedonia, Greece); [Nikolaos V. Kantartzis](#) (Aristotle University of Thessaloniki, Greece); [Christos S. Antonopoulos](#) (Aristotle University of Thessaloniki & ELKE AUTH, Greece); [Thomas F. Eibert](#) (Technische Universität München, Germany); [Theodoros D. Tsiboukis](#) (Aristotle University of Thessaloniki, Greece)

**Detuning Effect Study of High-Q Mobile Phone Antennas**

[Pevand Bahramzy](#) (Aalborg University & Intel Mobile Communications, Denmark); [Gert Pedersen](#) (Aalborg University, Denmark)

**Frequency Tunable and Circular Polarization Switchable Antenna Using Dual Polarized Active Artificial Ground Structure**

[Bin Liang](#) and [Benito Sanz-Izquierdo](#) (University of Kent, United Kingdom); [Edward Parker](#) (The University of Kent, United Kingdom); [John Batchelor](#) (University of Kent, United Kingdom); [Jungang Miao](#) and [Ming Bai](#) (Beihang University, P.R. China)

**On the Design of Generic Matching Networks in Reflective-Type Phase Shifters for Antennas**

[Pablo Alcon](#) (Universidad de Oviedo, Spain); [Nuria Esparza](#) (Universidad de Oviedo, Spain); [Luis Fernando Herran](#) and [Fernando Las-Heras](#) (Universidad de Oviedo, Spain)

**Influence of Complementary Split Ring Resonator Dimensions in Ultra Wideband Microstrip Patch Antenna**

[Isaac Barros Tavares da Silva](#) (Federal Rural University of Semi-Arid, Brazil); [Humberto Andrade](#) (Federal University of Semi-arid Region & DCAT, UFERSA, Brazil); [José Lucas Silva](#) (UFERSA/UFRN, Brazil); [Humberto C. C. Fernandes](#) (Federal University of Rio Grande do Norte, Brazil)

**Application of Transformation Electromagnetics Concept to Delocalize Emissions**

[Paul-Henri Tichit](#) and [Jianjia Yi](#) (IEF - Université Paris Sud, France); [Shah Nawaz Burokur](#) and [André de Lustrac](#) (Institut d'Electronique Fondamentale - Université Paris-Sud, France)

**Design of Modulated Metasurface Antennas Based on Elliptical Patches**

[Marco Faenzi](#), [Mario Junior Mencagli](#), [Enrica Martini](#), [David González-Ovejero](#) and [Stefano Maci](#) (University of Siena, Italy)

**A Triple-Slot Active Reflectarray Cell Using a Ferroelectric Capacitor**

[Kevin Nadaud](#) (IETR/University of Nantes, France); [Raphael Gillard](#) (IETR & INSA, France); [Erwan Fourn](#) (INSA of Rennes & IETR, France); [Caroline Borderon](#) (IETR/University of Nantes, France); [Hartmut Gundel](#) (IREENA, France)

**Magnetic Near-Field Imaging with a Racemic Array of Helical-Shaped Metallic Wires**

[Tiago Morgado](#) and [Mario Silveirinha](#) (Universidade de Coimbra - Instituto de Telecomunicações, Portugal)

**Half-massive Ceramics for Antenna Downsizing: Improvement of a Smart Magneto-Dielectric Material with Matching Permeability and Permittivity, and with Enhanced Low-Loss Frequency Range**

[Emmanuel Le guen](#) (LabSTICC/IETR, France); [Jean-Luc Mattei](#) (LabSTICC, France); [Anne-Claude Tarot](#) (University of Rennes1, IETR, France)

**Composite Defect-Mode Superstructures and Wideband EBG Resonator Antennas**

[Raheel Hashmi](#), [Basit Ali Zeb](#) and [Karu Esselle](#) (Macquarie University, Australia)

**RF Sensor Based on Gap Waveguide Technology in LTCC for Liquid Sensing**

[Cristina Arenas-Buendia](#) (Télécom Bretagne & Universidad Politécnica de Valencia, France); [Francois Gallée](#) (Télécom Bretagne, France); [Alejandro Valero-Nogueira](#) (Universidad Politécnica de Valencia, Spain); [Christian Person](#) (Lab-STICC/MOM UMR CNRS, France)

**Wideband High-Impedance Surface Reflector for Low-profile High-Gain UHF Antenna**

[Nora Mohamed Mohamed-Hicho](#) (Universidad Politécnica de Valencia, Spain); [Eva Antonino-Daviu](#) (Universidad Politecnica de Valencia, Spain); [Marta Cabedo-Fabrés](#) (Universidad Politécnica de Valencia, Spain); [Miguel Ferrando-Bataller](#) (Universidad Politecnica De Valencia, Spain); [Daniel Sanchez-Escuderos](#) (Universidad Politécnica de Valencia, Spain)

**Reconfigurable High-Impedance Metasurfaces with Interwoven Conductor Unit Cell Layouts**

[Andrea Vallecchi](#) and [Richard Langley](#) (University of Sheffield, United Kingdom); [Alex Schuchinsky](#) (Queen's University Belfast, United Kingdom)

**Broadband Circular-polarization Through Optically Active V-shape Chiral Metamaterial**

[Rajkumar Jaiswar](#) (Université Catholique de Louvain, Belgium); [Isabelle Huynen](#) (Université catholique de Louvain, Belgium)

**C-band Parallel Coupled Bandpass Filter with Harmonic Suppression Using Open Stub and CSRRs**

[Azzeddin Naghar](#) (department of Teoría de la Señal y Comunicaciones, University of Vigo, Spain, Morocco); [Ana Alejos](#) (Universidade de Vigo, Spain); [Francisco Falcone](#) (Universidad Publica de Navarra, Spain); [Manuel García Sánchez](#) (Universidade de Vigo, Spain); [Otman Aghzout](#) (UAE, Morocco)

**Novel 3D Printed Synthetic Dielectric Materials for Antenna Applications**

[Shiyu Zhang](#), [Chinwe C Njoku](#), [William Whittow](#) and [J \(Yiannis\) Vardaxoglou](#) (Loughborough University, United Kingdom)

**A Partially Complementary Chiral Metamaterial Based on a Four-Cranks Resonator**

[Ismael Barba](#), [Ana Grande](#) and [Ana Cabeceira](#) (University of Valladolid, Spain); [Gregorio Molina-Cuberos](#) (University of Murcia, Spain); [José Represa](#) (University of Valladolid, Spain)

**All-dielectric Metasurface for Optical Focusing**

[Elvira Pisano](#) (University of Sannio, Italy); [Fabrizio Silvestri](#) (Eindhoven University of Technology & Netherlands Organization for Applied Scientific Research TNO, The Netherlands); [Giampiero Gerini](#) (TNO - Defence, Security and Safety, The Netherlands); [Vito Lancellotti](#) (Eindhoven University of Technology, The Netherlands); [Vincenzo Galdi](#) (University of Sannio, Italy)

**Design of Metamaterial Based Wide Angle Impedance Matching Layers for Active Phased Arrays**

[Fabrizio Silvestri](#) (Eindhoven University of Technology & Netherlands Organization for Applied Scientific Research TNO, The Netherlands); [Pierluigi Chiusolo](#) (Università del Sannio, The Netherlands); [Lorenzo Cifola](#) (Thales Nederland, The Netherlands); [Roland Bolt](#) and [Giampiero Gerini](#) (TNO - Defence, Security and Safety, The Netherlands)

**Design Aspects of Finite Periodic Transmission Lines Based on Planar Structures**

[Tomas Zvolensky](#), [Antti V. Räsänen](#), [Juha Ala-Laurinaho](#) and [Constantin Simovski](#) (Aalto University, Finland)

**Efficient Radome Optimization Through the System-by-Design Methodology**

[Matteo Carlin](#) (University of Trento, Italy); [Marco Salucci](#) (ELEDIA Research Center, Italy); [Lorenza Tenuti](#) (ELEDIA Research Center, University of Trento, Italy); [Paolo Rocca](#) and [Andrea Massa](#) (University of Trento, Italy)

**A 60GHz Passive Repeater Array with Endfire Radiation Based on Metal Groove Unit-Cells**

[Duo Wang](#) (IETR, INSA de Rennes, France); [Raphael Gillard](#) and [Renaud Loison](#) (IETR & INSA, France)

**Spectral Domain Analysis of Double Sided Open Periodic Structures**

[Sakineh Tooni](#) (Technical University of Munich, Germany); [Thomas F. Eibert](#) (Technische Universität München, Germany); [Larissa Vietzorreck](#) (Technische Universitaet Muenchen, Germany)

**Poster A2: Antennas Poster Session 2**

Antennas

Room: [Gil Vicente \(Hall 5\)](#)

Chairs: [María García-Vigueras](#) (Ecole Polytechnique Fédérale de Lausanne, Switzerland), [Ozan Yurduseven](#) (Delft University of Technology, The Netherlands)

**Resonance Frequency Calculation of Spherical Microstrip Structure Using Hybrid Technique**

[Adam Kusiek](#), [Rafal Lech](#), [Piotr Kowalczyk](#) and [Wojciech Marynowski](#) (Gdansk University of Technology, Poland)

**Compact Internal Antenna (FICA) for Mobile Handset and WLAN**

[Reza Najafi](#) (Urmia, Iran)

**The Design and Analysis of Pyramidal Microstrip Antenna for GPS Application**

[Deok Kyu Kong](#) (ADD & Yonsei University, Korea); [Wan-Lai Roh](#) (MTG, Korea); [Young Joong Yoon](#) (Yonsei University, Korea)

**A Circularly Polarized Stacked Patch Antenna Array for Tracking Applications in S-Band**

[Farooq A. Tahir](#) and [M. Saad Khan](#) (National University of Sciences and Technology, Pakistan)

**A Flexible Low Cost Fractal-Slot Multiband Antenna for Wireless Applications**

[Sana Ahmed](#) and [Farooq A. Tahir](#) (National University of Sciences and Technology, Pakistan); [Hammad Cheema](#) (School of Elect. Engineering and Comp. Science, National Uni. of Science & Technology, Pakistan)

**Antenna Arrays for Unmanned Aerial Vehicle**

[Diana Navarro-Méndez](#) (Universidad Politécnica de Valencia & Escuela Politécnica Nacional, Spain); [Hon Ching Moy-Li](#) (Universidad Politécnica de Valencia, Spain); [Fernando Carrera-Suárez](#) (Universidad Politécnica de Valencia & Escuela Politécnica Nacional, Spain); [Miguel Ferrando-Bataller](#) (Universidad Politecnica De Valencia, Spain); [Mariano Baquero-Escudero](#) (Universidad Politécnica de Valencia, Spain)

**An Analysis of Elliptical-Rectangular Patch Structure on Multilayer Non-Confocal Elliptic Cylinders**

[Rafal Lech](#) and [Adam Kusiek](#) (Gdansk University of Technology, Poland)

**Simulation-Driven Size Reduction of Antenna Structures Using Adjoint Sensitivities and Trust Regions**

[Adrian Bekasiewicz](#) (Gdansk University of Technology, Poland); [Slawomir Koziel](#) (Reykjavik University, Iceland); [J. Pieter Jacobs](#) (University of Pretoria, South Africa)

**Self-Aligned Microstrip-fed Spherical Dielectric Resonator Antenna**

[Daniel López Cuenca](#) and [Jan Hesselbarth](#) (University of Stuttgart & IHF -- Institute of Radio Frequency Technology, Germany)

**Miniaturized DRA Array for GNSS Applications**

[Stefano Caizzone](#) and [Achim Dreher](#) (German Aerospace Center (DLR), Germany)

**High Profile Rectangular Dielectric Resonator Antenna Sequentially-fed for Improved Quality Dual Circular Polarization**

[Baptiste Hornecker](#) (EPFL - LEMA & Dassault Aviation, Switzerland); [Juan R Mosig](#) (Ecole Polytechnique Federale de Lausanne, Switzerland)

**A 60-GHz Coplanar-Waveguide-Fed Slot-Coupled Rectangular DRA Design Using the Theory of Characteristic Modes**

[Tomás Bernabeu-Jiménez](#) (Universitat Politècnica de València & Instituto de Telecomunicaciones y Aplicaciones Multimedia (ITEAM), Spain); [Alejandro Valero-Nogueira](#) and [Felipe Vico-Bondía](#) (Universidad Politécnica de Valencia, Spain); [Antonio Vila-Jiménez](#) (Universitat Politècnica de València, Spain); [Daniel Sanchez-Escuderos](#) (Universidad Politécnica de Valencia, Spain); [Francois Gallée](#) (Télécom Bretagne, France)

**An Improved Simulation Method of Multipactor in High Power Antennas**

[Yun Li](#) (China Academy of Space Technology Xi an, P.R. China)

**Extended Low-Profile Planar Lens Antenna with Multilayer Metallic-Hole Array**

[Daniel Sanchez-Escuderos](#) and [Marta Cabedo-Fabrés](#) (Universidad Politécnica de Valencia, Spain); [Eva Antonino-Daviu](#) (Universidad Politecnica de Valencia, Spain); [Miguel Ferrando-Bataller](#) (Universidad Politecnica De Valencia, Spain)

**Implementation of Optically Transformed Devices with a Bed of Nails**

[Oscar Quevedo-Teruel](#) (KTH Royal Institute of Technology, Sweden); [Rhianon C Mitchell-Thomas](#) (University of Exeter, United Kingdom); [Jose-Luis Vazquez-Roy](#), [Luis Inclan-Sanchez](#) and [Eva Rajo-Iglesias](#) (University Carlos III of Madrid, Spain)

**Nonlinear Optical Gap Antenna, an Optoelectronic Interface At the Nanoscale**

[Marie-Maxime Mennemanteuil](#) and [Mickaël Buret](#) (Laboratoire Interdisciplinaire Carnot de Bourgogne, France); [Alexandre Bouhelier](#) (University of Burgundy, France)

**Harvesting Thermal Infrared Emission Using Nanodipole Terminated by Traveling Wave Rectifier**

[Islam Hashem Sayed](#) (North Carolina State University, USA); [Nadia Rafat](#) (Cairo University, Egypt); [Ezzeldin Soliman](#) (The American University in Cairo, Egypt)

**Wideband Printed Tapering Quadrifilar Helical Antenna for GNSS**

[Juan Lei](#) (Xidian University & Queen Mary University of London, P.R. China); [Guang Fu](#) (Xidian University, P.R. China); [Yang Hao](#) (Queen Mary, University of London, United Kingdom)

**Wideband Crossover Structure with Double Ring Resonators**

[Rafal Lech](#), [Wojciech Marynowski](#) and [Adam Kusiek](#) (Gdansk University of Technology, Poland); [Jerzy Mazur](#) (Gdansk University of Technology,, Poland)

**Integrated Filtering-Antenna with Controllable Frequency Bandwidth**

[Chunxu Mao](#), [Steven Gao](#) and [Zhengpeng Wang](#) (University of Kent, United Kingdom); [Yi Wang](#) (University of Greenwich, United Kingdom); [Fan Qin](#) (School of Electronics and Information, Northwestern Polytechnical University, P.R. China); [Benito Sanz-Izquierdo](#) (University of Kent, United Kingdom); [Qing-Xin Chu](#) (South China University of Technology, P.R. China)

**Optimum Design of a Miniaturized Onchip Wide Band Power Divider-Combiner Combined with Impedance Transformer**

[Alireza Shamsafar](#) (University of Calabria, Italy); [Elnaz Abaei](#) (Universita Della Calabria, Italy); [Hugo Oswaldo Moreno Aviles](#) (Escuela Superior Politecnica de Chimborazo & Universita della Calabria, Ecuador)

**Integrated Suspended Stripline Structure (SSS) with J-shape Defected Stripline Structure (DSS) to Remove Undesired Signals in Wideband Applications**

[Zahriladha Zakaria](#) (Universiti Teknikal Malaysia Melaka, Malaysia); [Mohamad Ariffin Mutalib](#) (Universiti Teknikal Malaysia Melaka & Hang Tuah Jaya, Malaysia); [Sam Weng Yik](#) (UTEM, Malaysia)

**Analytical Treatment of Microstrip Monopole Antenna with Finite Ground Plane**

[Anushruti Jaiswal](#) (CARE, IIT Delhi, India); [Mahesh Abegaonkar](#) (IIT Delhi, India); [Shiban K Koul](#) (Indian Institute of Technology Delhi, India); [Srinivasa Rao Zinka](#) (DAIICT, Gandhinagar, India)

**Characteristic Basis Function Patterns Method for Reflector Antenna Calibration: An Extension to Multiple Frequencies**

[Ngoy Mutonkole](#) (University of Stellenbosch, South Africa); [Dirk de Villiers](#) (Stellenbosch University, South Africa)

**Geometrical Synthesis of Offset Reflector Antennas Using Local Axis-Displaced Quadric Surfaces**

[Rafael A. Penchel](#) and [Jose R Bergmann](#) (PUC-Rio, Brazil); [Fernando Moreira](#) (Federal University of Minas Gerais, Brazil)

**Equivalent Circuit of a Quadaxial Feed for Ultra-Wide Bandwidth Quadruple-Ridged Flared Horn Antennas**

[Theunis Beukman](#) and [Petrie Meyer](#) (Stellenbosch University, South Africa); [Rob Maaskant](#) (CHALMERS, Sweden); [Marianna Ivashina](#) (Chalmers University of Technology, Sweden)

**An All-Metal K-Band Reflector Antenna for a Mechanically Steerable Data Downlink System**

[Joakim F Johansson](#), [Mattias Viberg](#) and [Johan Petersson](#) (RUAG Space AB, Sweden); [Per Magnusson](#) (Ruag Space Sweden, Sweden)

**Transparent Microwave Crossover for Transparent Butler Matrix Using Micro-metal Mesh Conductive Film**

[Bashir Muhammad Saad](#) (Universiti Teknologi Malaysia & Faculty of Electrical Engineering, Malaysia); [Sharul Kamal A. Rahim](#) and [Thomas Peter](#) (Universiti Teknologi Malaysia, Malaysia); [Mohammad Abedian Kasgari](#) (Wireless Communication Centre, Faculty of Electrical Engineering, Universiti Teknologi Malaysia, Malaysia); [Shadi Danesh](#) ((WCC) Universiti Teknologi Malaysia, UTM, Malaysia)

**An Investigation of Offset-Fed Beams on the Proposed SKA Dishes with Various Degrees of Shaping**

[Robert Lehmensiek](#) and [Isak Theron](#) (EMSS Antennas (Pty) Ltd, South Africa); [Dirk de Villiers](#) (Stellenbosch University, South Africa)

**Phyllotactic Arrangements of Reflector Mesh Facets to Decrease Grating Lobes**

[Jean-Christophe Angevain](#) (ESA, The Netherlands); [Gonçalo Rodrigues](#) (European Space Agency, The Netherlands); [Julian Santiago-Prowald](#) (European Space Agency (ESTEC), The Netherlands); [Cyril Mangelot](#) (European Space Agency, The Netherlands); [Leri Datashvili](#) (LLB-TUM, Germany)

**Focal Plane Array Size Reduction for Terahertz Transceivers in Integrated Technology**

[Erio Gandini](#), [Nuria LLombart](#) and [Andrea Neto](#) (Delft University of Technology, The Netherlands)

**Axially Slotted Antenna on Elliptic Cylinder Coated with Biaxial Anisotropic Material**

[Abdul-Kadir Hamid](#) (University of Sharjah, UAE)

**Generation of a Coscant-Squared Radiation Pattern with a Superstrate-Like Leaky-Wave Antenna**

[Francesco Scattono](#) (University of Rennes 1 & IETR Institut d'Electronique et de Télécommunications de Rennes, France); [Mauro Ettore](#) (University of Rennes 1 & UMR CNRS 6164, France); [Ronan Sauleau](#) (University of Rennes 1, France); [Nelson Fonseca](#) (European Space Agency, The Netherlands)

**Scalar Metasurface Antennas with Tilted Beam**

[Maciej Smierzchalski](#) (University of Rennes 1, France); [Massimiliano Casaletti](#) (Sorbonne Universités UPMC, France); [Mauro Ettore](#) (University of Rennes 1 & UMR CNRS 6164, France); [Ronan Sauleau](#) (University of Rennes 1, France); [Nicolas Capet](#) (CNES, France)

**Dual Band Isoflux Ultraflat Meta Antennas**

[Amagoia Tellechea](#) (Public University of Navarra, Spain); [Enrica Martini](#), [David González-Ovejero](#), [Marco Faenzi](#), [Gabriele Minatti](#) and [Stefano Maci](#) (University of Siena, Italy)

**Low-Profile Dual-band Circularly Polarized Microstrip Antenna for GNSS Applications**

[Faycel Fezai](#) (XLIM University of Limoges, France); [Amro A. Nour](#) (University of Limoges-XLIM - UMR CNRS N°7252, France); [Thierry Monediere](#) (XLIM-UMR 6172-CNRS, University of Limoges, France); [François Torres](#) (University of Limoges-XLIM - UMR CNRS N°7252, France); [Regis Chantalat](#) (Center Technology Transfer CISTEME, France)

**A Single Ka-Band Antenna Aperture for TX and RX Operation Applying a Dual-Layer Partially Reflective Surface**

[Alexander Krauss](#), [Hendrik Bayer](#) and [Ralf Stephan](#) (Technische Universität Ilmenau, Germany); [Matthias Hein](#) (Ilmenau University of Technology, Germany)

**Role of Symmetries in Periodic Leaky-Wave Antennas, with Emphasis on the Double-Asymmetry Case**

[Amar Al-Bassam](#) (University of Duisburg-Essen, Germany); [Simon Otto](#) (University Duisburg-Essen, Germany); [Christophe Caloz](#) (Ecole Polytechnique de Montreal, Canada)

**Dual-polarized One-Dimensional Leaky Wave Antenna**

[Maria García-Viqueras](#) and [Marc Esquiú Morote](#) (Ecole Polytechnique Fédérale de Lausanne, Switzerland); [Juan R Mosig](#) (Ecole Polytechnique Fédérale de Lausanne, Switzerland)

**Low-Profile High-Gain Tilted-Beam Fabry-Perot Antenna**

[Fan Qin](#) (School of Electronics and Information, Northwestern Polytechnical University, P.R. China); [Steven Gao](#) and [Chunxu Mao](#) (University of Kent, United Kingdom); [Gao Wei](#), [Jiadong Xu](#) and [Jianzhou Li](#) (Northwestern Polytechnical University, P.R. China)

**Periodic and Periodic Phase-Reversal Leaky Wave Antennas in Reduced Permittivity Substrate Integrated Waveguide**

[Robert Henry](#) (University of Calgary, Canada); [Michal Okoniewski](#) (University of Calgary & Acceleware Ltd, Canada)

**Smart Notch Detection Techniques for Robust Frequency Coded Chipless RFID Systems**

[Ahmed Elawamry](#) (University of Duisburg-Essen, Germany); [Abdelfattah Fawky](#) (M. Sc, Germany); [Mohamed El-Hadidy](#) (University of Duisburg-Essen, Germany); [Thomas Kaiser](#) (Universität Duisburg-Essen, Germany)

**Printable Depolarizing Chipless RFID Tag Based on DGS Resonators for Suppressing the Clutter Effects**

[Maher Khalil](#) (Universität Duisburg-Essen, Germany); [Mohamed El-Hadidy](#) (University of Duisburg-Essen, Germany); [Thomas Kaiser](#) (Universität Duisburg-Essen, Germany)

**A Printed Planar Helix Antenna**

[Aneesh Kommalapati](#), [Chen Zhao](#) and [Sheel Aditya](#) (Nanyang Technological University, Singapore)

**Suspended-strip Gap Waveguide Coupled-Line Properties for Ka-band Component Design**

[Antonio Berenguer](#) (Universitat Politècnica de València & Instituto de Telecomunicaciones y Aplicaciones Multimedia, Spain); [Mariano Baquero-Escudero](#) and [Daniel Sanchez-Escuderos](#) (Universidad Politécnica de Valencia, Spain); [Felipe Vico](#) (Universitat Politècnica de València, Spain)

**Characteristic Mode Based Pattern Reconfigurable Antenna for Mobile Handset**

[Hui Li](#) (Lund University, Sweden); [Rui Ma](#) and [John Chountalas](#) (Lund University, Czech Republic); [Buon Kiong Lau](#) (Lund University, Sweden)



Poster P1: Propagation Poster Session 1

Propagation

Room: Fernão M Pinto (Hall 4)

Chairs: Corentin Friedrich (IRCCyN - Ecole Centrale de Nantes, France), Flávio M. da Silva Jorge (Instituto de Telecomunicações & Universidade de Aveiro, Portugal)

**Faster Resolution of the 3-D Forward Problems in Microwave Imaging by a Partial-Block BiCGStab Algorithm**

[Corentin Friedrich](#) (IRCCyN - Ecole Centrale de Nantes, France); [Sébastien Bourguignon](#) (Ecole Centrale de Nantes, IRCCyN, France); [Jérôme Idier](#) (IRCCyN, France); [Yves Goussard](#) (Ecole Polytechnique de Montréal, Canada)

**Multiple Signal Classification (MUSIC) Method Approach to the Intensity-Only Inverse Reconstruction Based on the Microscopy System**

[Rui Chen](#) and [Xudong Chen](#) (National University of Singapore, Singapore)

**Stored Grain Spoilage Monitoring Via 3D Microwave Imaging**

[Mohammad Asefi](#) and [Joe LoVetri](#) (University of Manitoba, Canada); [Ian Jeffrey](#) (151 Research Inc, Canada); [Majid Ostadrahimi](#) (University of Manitoba Winnipeg, Manitoba, Canada); [Amer Zakaria](#) (American University of Sharjah, Canada); [Colin Gilmore](#) (151 Research Inc, Canada); [Paul Card](#) (151 Research Inc., Canada)

**A Forward Approach to Establish Parametric Scattering Center Models for Complex Targets**

[Yang He](#) (School of Electronic Information, Wuhan University, P.R. China); [Guo-Qiang Zhu](#) (Wuhan University, P.R. China); [Si-yuan He](#) and [Yun-hua Zhang](#) (School of Electronic Information, Wuhan University, P.R. China)

**Physical-information Exploitation in Inverse Scattering Approaches for GPR Survey**

[Lorenza Tenuti](#) (ELEDIA Research Center, University of Trento, Italy); [Marco Salucci](#) (ELEDIA Research Center, Italy); [Lorenzo Poli](#) (University of Trento, Italy); [Giacomo Oliveri](#) (University of Trento & ELEDIA Research Center, Italy); [Andrea Massa](#) (University of Trento, Italy)

**Differential Time-Reversal Tracking Using Independent Component Analysis**

[Mojtaba Razavian](#) (Isfahan University of Technology, Iran); [Mohammad Zoofaghari](#) (University of Amirkabir, Iran); [Reza Safian](#) (Isfahan University of Technology, Iran)

**Ground Penetrating Radar Based on Ultrawideband Time-Reversal Method**

[Sirous Bahramidashtaki](#) (Salman Farsi University, Iran); [Javad Ghalibafan](#) (University of Shahrood, Iran)

**Comparison of Heuristic UTD Coefficients in an Outdoor Scenario**

[Diego Tami](#) and [Cássio Rego](#) (Federal University of Minas Gerais, Brazil); [Dinael Guevara](#) (Francisco de Paula Santander University, Colombia); [Andres Navarro](#) (Universidad Icesi, Colombia); [Fernando Moreira](#) (Federal University of Minas Gerais, Brazil); [Narcis Cardona](#) (Universidad Politecnica Valencia, Spain); [Jordi Joan Giménez](#) (Universitat Politècnica de València, Spain)

**Assessment of the Shadowing Effect Between Windturbines**

[Ludovic Claudepierre](#), [Remi Douvenot](#), [Alexandre Chabory](#) and [Christophe Morlaas](#) (ENAC, France)

**Electromagnetic Scattering From Impedance-Matched Bodies**

[Andrey Osipov](#) (German Aerospace Center (DLR), Germany)

**3D Dielectric Cuboids: An Alternative for High-Resolution Terajets At THz Frequencies**

[Victor Pacheco-Peña](#) and [Miguel Beruete](#) (Universidad Publica de Navarra, Spain); [Igor Vladilenovich Minin](#) and [Oleg Vladilenovich Minin](#) (Siberian State Academy of Geodesy, Russia)

**Electromagnetic Characterization of Inhomogeneous Media Using the State Space Method**

[Davoud Zarifi](#), [Homayoon Oraizi](#) and [Mohammad Soleimani](#) (Iran University of Science and Technology, Iran)

**Indoor RCS Measurement Facility ARCHE 3D: RCS Multi-Calibration Under Spherical Wave**

[Pierre Massaloux](#) (CESTA, France)

**Time-Variant Scattering Properties of Wind Turbines**

[Frank Weinmann](#) and [Josef Worms](#) (Fraunhofer FHR, Germany)

**Radiation of a Source on a Convex NURBS Surface**

[Manushanker Balasubramanian](#) (Fraunhofer Institute for High Frequency Physics and Radar Techniques, Germany); [Alberto Toccafondi](#) and [Stefano Maci](#) (University of Siena, Italy)

**Impact of the Target Supporting Mast in an Indoor RCS Measurement Facility: Computation and Measurement**

[Pierre Massaloux](#) (CESTA, France); [Genevieve Maze merceur](#) (CEA, France)

**Assessment of Rain Fade Mitigation Techniques for High Throughput Satellites by a Time Series Synthesizer**

[Roberto Nebuloni](#) (Ieitt - Cnr, Italy); [Carlo Capsoni](#), [Marco Luccini](#) and [Lorenzo Luini](#) (Politecnico di Milano, Italy)

**Low-Cost System Design for Tracking Satellites in Geosynchronous Orbit**

[Sebastijan Mrak](#), [Urban Kuhar](#) and [Andrej Vilhar](#) (Jozef Stefan Institute, Slovenia)

**Wide-Band Characterization of Antennae Plus Aircraft Platform Patterns in L- And Ka-Band**

[Martin Schwinzer](#) (Joanneum Research, Austria); [Jost Thomas](#) (German Aerospace Center (DLR), Germany); [Fernando Pérez-Fontán](#) (University of Vigo, Spain); [Michael Schönhuber](#) (Joanneum Research, Austria); [Wei Wang](#) and [Michael Walter](#) (German Aerospace Center (DLR), Germany); [Tanja Pelzmann](#) and [Guenther Obertaxer](#) (Joanneum Research, Austria); [Nicolas Flourey](#) (ESA, The Netherlands); [Roberto Prieto-Cerdeira](#) (European Space Agency, The Netherlands)

**Slant Path Attenuation At 72.5 and 82.5 GHz**

[George Brost](#) (Air Force Research Laboratory, USA); [Kevin Magde](#) (AFRL, USA)

**Phase Fluctuations of GPS Signals Associated with Aurora**

[Irk Shagimuratov](#) (IZMIRAN, Russia); [Sergey Chernous](#) (PGI, Russia); [Iurii Cherniak](#) and [Irina Zakharenkova](#) (WD IZMIRAN, Russia); [Ivan Ephishov](#) (IZMIRAN, Russia)

**Investigation of Electromagnetic Wave Propagation Through One-Dimensional Plasma Array**

[Teruki Naito](#), [Kazuo Yamamoto](#), [Shingo Yamaura](#), [Tai Tanaka](#) and [Hayato Ogino](#) (Mitsubishi Electric Corporation, Japan); [Osamu Sakai](#) (Kyoto University, Japan)

**Diffraction-induced Early-Time Diffusion of Pulses Propagating Through Scattering Random Media**

[Elizabeth Bleszynski](#) (Monopole Resesarch, USA); [Marek Bleszynski](#) (Monopole Resesarch, USA); [Thomas Jaroszewicz](#) (Monopole Research, USA)

**Measurements of Horizontal Variations of Radio Refractivity – First Results**

[Pavel Valtr](#) (Faculty of Electrical Engineering, Czech Technical University in Prague, Czech Republic); [Pavel Pechac](#) (Czech Technical University in Prague, Czech Republic); [Martin Grabner](#) (Czech Metrology Institute, Czech Republic)

**Spatial Correlation of Vertical Gradient of Refractivity on Large Scales**

[Martin Grabner](#) (Czech Metrology Institute, Czech Republic); [Pavel Pechac](#) (Czech Technical University in Prague, Czech Republic); [Pavel Valtr](#) (Faculty of Electrical Engineering, Czech Technical University in Prague, Czech Republic)

**An Explicit FDTD Scheme for Simulation of Electromagnetic Propagation in Magnetized Cold Plasmas**

[Yaxin Yu](#) (A\*STAR Institute of High Performance Computing, Singapore); [Dongying Li](#) (Shanghai Jiaotong University, P.R. China); [Qian Li](#) and [Ching Eng Png](#) (A\*STAR Institute of High Performance Computing, Singapore)

**Heating Properties of the Resonant Cavity Applicator with Ultrasound Monitoring System for Effective Hyperthermia Treatments**

[Keito Nakamura](#) (Graduate School of Meiji University, Japan); [Yasuhiro Shindo](#) and [Kazuo Kato](#) (Meiji University, Japan)

**Sensitivity of Tropospheric Scintillation Models to the Accuracy of Radiosonde Data**

[Carlos Pereira](#) (Université Catholique de Louvain, Belgium); [Danielle Vanhoenacker-Janvier](#) (Université catholique de Louvain, Belgium); [Chiara Ghiringhelli](#) (Polimi, Italy)

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

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

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

#### WS5 R&S: Antenna Measurements at Rohde & Schwarz: The New Test Antenna Chamber

Industrial Workshop  
 Room: [Diogo de Silves \(Room 1.08\)](#)

**15:00 - 16:20 (Europe/Berlin)**

#### Inv\_1A: Invited Speakers Session 1A

Room: [Diogo Cão \(Aud 8\)](#)  
 Chair: [Luca Salghetti Drioli](#) (European Space Agency-ESTEC, The Netherlands)

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

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

#### Inv\_1B: Invited Speakers Session 1B

Room: [Pedro A Cabral \(Aud 2\)](#)  
 Chair: [Danielle Vanhoenacker-Janvier](#) (Université catholique de Louvain, Belgium)

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

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

**16:50 - 18:30 (Europe/Berlin)**

#### Bi6 InvScat: Imaging and Inverse Scattering for Biomedical Applications

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

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

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

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

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

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

#### C13 Graphene: [C] Applications of Graphene and Novel Materials at Terahertz and Microwaves

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

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

**17:10 Entanglement of Two-Level Atoms Above Graphene**

[Andrei Nemilentsau](#), [Seyyed Ali Hassani Gangaraj](#) and [George Hanson](#) (University of Wisconsin-Milwaukee, USA); [Stephen Hughes](#) (Queen's University, Canada)

**17:30 Theoretical Limits of Graphene Terahertz Non-Reciprocal Devices**

[Michele Tamagnone](#) (Ecole Polytechnique Fédérale de Lausanne, Switzerland); [Arya Fallahi](#) (DESY-Center for Free Electron Laser Science (CFEL), Germany); [Juan R Mosig](#) (Ecole Polytechnique Federale de Lausanne, Switzerland); [Julien Perruisseau-Carrier](#) (Ecole Polytechnique Fédérale de Lausanne & EPFL, Switzerland)

**17:50 Techniques for Reducing the SAR in Mobile Devices by Using Graphene-Type Absorbing Materials**

[Chiara Pelletti](#) (The Pennsylvania State University, USA); [Long Li](#) (Xidian University, P.R. China); [Mohammed Abdel-Mageed](#) (Pennsylvania State University, USA); [Giacomo Bianconi](#) and [Raj Mittra](#) (Penn State University, USA)

**18:10 Linear and Nonlinear Microwave Characterization of CVD-Grown Graphene Using CPW Structure**

[Mingguang Tuo](#) (University of Arizona, USA); [Si Li](#) (University of Science and Technology of China, P.R. China); [Dongchao Xu](#) and [Min Liang](#) (University of Arizona, USA); [Qi Zhu](#) (University of Science and Technology of China, P.R. China); [Qing Hao](#) and [Hao Xin](#) (University of Arizona, USA)

**C23 MultiB: [C] Emerging techniques for multiband and wideband antennas**



Antennas/Radars

Room: [Bartolomeu Dias \(Aud 4\)](#)

Chairs: [Toru Kawano](#) (National Defense Academy, Japan), [Hisamatsu Nakano](#) (Hosei University, Japan)

**16:50 A Bent-Ends Spiral Antenna Above a Fan-Shaped Electromagnetic Band-Gap Structure**

[Masahiro Tanabe](#) (Toshiba Corporation, Japan)

**17:10 Development of Reconfigurable Multiple Wideband Antenna for Radar and Monitoring Applications**

[Cristina Borda Fortuny](#) and [Amin Amiri](#) (UCL, United Kingdom); [Kin-Fai Tong](#) (UCL, University of London, United Kingdom)

**17:30 Numerical Analysis of a Grid Array Antenna Radiating a Linearly Polarized Dual-Beam**

[Toru Kawano](#) (National Defense Academy, Japan); [Hisamatsu Nakano](#) (Hosei University, Japan)

**17:50 A Wide-Band Wide-angle Scanning Phased Array with Pattern Reconfigurable Square Loop Antennas**

[Amit Mehta](#) (Swansea University, United Kingdom); [Rob Lewis](#) (BAE Systems Advanced Technology Centre, United Kingdom); [Nathan Clow](#) (Dstl, United Kingdom); [Arpan Pal](#) (Swansea University, United Kingdom)

**18:10 Metamaterial-Based Wideband Shorting-Wall Loaded Mushroom Array Antenna**

[Wei Liu](#) (National University of Singapore, Singapore); [Xianming Qing](#) (Institute for Infocomm Research, Singapore); [Zhi Ning Chen](#) (National University of Singapore & Institute for Infocomm Research, Singapore)

**C25 Inkjet: [C] Inkjet Printed Antennas for Flexible, Wearable and Large Area Electronics**



Antennas/Multi Applications

Room: [Paulo da Gama \(Pav 5B\)](#)

Chairs: [Benito Sanz-Izquierdo](#) (University of Kent, United Kingdom), [Atif Shamim](#) (King Abdullah University of Science and Technology, Saudi Arabia)

**16:50 Inkjet Printing for the Fabrication of CPW Antennas and Frequency Selective Surfaces**

[Thierry Monediere](#) (University of Limoges & CNRS, France); [Eric Arnaud](#) (University of LIMOGES, France); [Dominique Baillargeat](#), [Nicolas Delhote](#) and [Marc Thevenot](#) (XLIM, UMR CNRS n°7252, University of Limoges, France); [Eloi Beaudrouet](#), [Chrystelle Dossou-yovo](#) and [Rémi Noguéra](#) (CERADROP, France)

**17:10 A 3D Printed Microstrip Patch Antenna**

[Garret McKerricher](#) (Three D Systems & King Abdullah University of Science and Tech, Saudi Arabia); [Don Titterington](#) (Three D Systems (3DSYSTEMS), USA)

**17:30 Parametric Optimization of Inkjet Printing and Optical Sintering of Nanoparticle Inks**

[Erja Sipilä](#), [Yanan Ren](#), [Johanna Virkki](#) and [Lauri Tapio Sydänheimo](#) (Tampere University of Technology, Finland); [Manos M. Tentzeris](#) (Georgia Institute of Technology, USA); [Leena Ukkonen](#) (Tampere University of Technology, Finland)

**17:50 Tunable Inkjet-Printed Slotted Waveguide Antenna on a Ferrite Substrate**

[Ahmed Nafe](#) (King Abdullah University of Science and Technology (KAUST), Saudi Arabia); [Muhammad Farooqui](#) and [Atif Shamim](#) (King Abdullah University of Science and Technology, Saudi Arabia)

**18:10 A Low-cost Inkjet-printed Microfluidics-based Tunable Loop Antenna Feed by Microfluidics-based Tunable Balun**

[Wenjing Su](#) (Georgia Institution of Technology, USA); [Benjamin Cook](#) and [Manos M. Tentzeris](#) (Georgia Institute of Technology, USA)

**C28 MMIMO: [C] Massive MIMO for 5G broadband communication networks**



Antennas/Cellular Communications

Room: [Pêro Escobar \(Pav 3A\)](#)

Chair: [Vanja Plicanic Samuelsson](#) (Sony Mobile Communications, Sweden)

**16:50 On the Antenna Array Gain in Geometrical Ray Based Stochastic Channel Models**

[Mattias Gustafsson](#) (Huawei Technologies Sweden AB, Sweden); [Martin Alm](#) (Huawei Technologies, Sweden)

**17:10 Analysis of Massive MIMO with Hardware Impairments and Different Channel Models**

[Fredrik Athley](#) (Ericsson AB, Sweden); [Giuseppe Durisi](#) (Chalmers University of Technology, Sweden); [Ulf Gustavsson](#) (Ericsson AB, Sweden)

**17:30 Dual-polarized Turning Torso Antenna Array for Massive MIMO Systems**

[Runbo Ma](#) (MPI-QMUL Information System Research Centre, P.R. China); [Yue Gao](#) (Queen Mary University of London, United Kingdom); [Clive Parini](#) (QMUL, United Kingdom); [Laurie Cuthbert](#) (Queen Mary, University of London, United Kingdom)

**17:50 UE Antenna Properties and Their Influence on Massive MIMO System Performance**

[Erik L Bengtsson](#) (Sony Mobile, Sweden); [Fredrik Tufvesson](#) and [Ove Edfors](#) (Lund University, Sweden)

**18:10 28 GHz Propagation Analysis for Passive Repeaters in NLOS Channel Environment**

[Byungchul Kim](#), [Hyunjin Kim](#), [Dongkyu Choi](#), [Youngju Lee](#), [Wonbin Hong](#) and [Jeongho Park](#) (Samsung Electronics, Korea)

### C38 Array: [C] Non-Uniform and Sparse Antenna Arrays - Innovative Concepts and Technological Solutions

Antennas/Space

Room: [Tristão V Teixeira \(Pav 5A\)](#)

Chairs: Ioan E. Lager (Delft University of Technology, The Netherlands), Giacomo Oliveri (University of Trento, Italy)

#### 16:50 *An Innovative Strategy for the Fast Design of Maximally-Sparse Arrays with Sum and Difference Phase-Only Reconfigurable Fields*

[Andrea Francesco Morabito](#) (University Mediterranea of Reggio Calabria, Italy)

#### 17:10 *Beamforming in Sparse, Random, 3D Array Antennas with Fluctuating Element Locations*

[Mark J. Bentum](#) (University of Twente, The Netherlands); [Ioan E. Lager](#), [Sjoerd Bosma](#), [Wessel Bruinsma](#) and [Robin Hes](#) (Delft University of Technology, The Netherlands)

#### 17:30 *Array Tracing: a Graphical-Deterministic Procedure for the Synthesis of Linear Sparse Arrays*

[Giovanni Toso](#) and [Piero Angeletti](#) (European Space Agency, The Netherlands)

#### 17:50 *Compressive Sensing Technique for Multi-Frequency Sparse Linear Array Design*

[Lorenzo Poli](#), [Nicola Anselmi](#), [Matteo Carlin](#) and [Paolo Rocca](#) (University of Trento, Italy)

#### 18:10 *Mutual Coupling Analysis of Large Irregular Arrays: From Multipole to Interpolatory Methods*

[Quentin Gueuning](#) (Université Catholique de Louvain, Belgium); [Eloy de Lera Acedo](#) and [Edgar Colin-Beltran](#) (University of Cambridge, United Kingdom); [Christophe Craeye](#) (Université Catholique de Louvain, Belgium)

### C41 PropBuilt: [C] The IET session on Propagation in the built environment

Propagation/Wireless Networks

Room: [Afonso de Albuquerque \(Pav 3B\)](#)

Chairs: Clare Allen (Ofcom, United Kingdom), Pavel Pechac (Czech Technical University in Prague, Czech Republic)

#### 16:50 *Investigation of the Use of Absorbing Materials for Indoor Co-Channel Applications*

[Kenneth Lee Ford](#) (University of Sheffield, United Kingdom)

#### 17:10 *Engineering Indoor Wireless Communication Systems with High Capacity*

[Michael J Neve](#) and [Kevin W Sowerby](#) (The University of Auckland, New Zealand)

#### 17:30 *The Impact of Thermally Insulating Products on Building Penetration Loss Between 100 MHz and 6 GHz*

[Richard Rudd](#) (Aegis Systems Ltd, United Kingdom); [Ken Craig](#) (Signal Science Ltd, United Kingdom); [Martin Ganley](#) (BRE, United Kingdom)

#### 17:50 *Indoor Collaborative Localization Method Based on Ultra-Wideband Ranging*

[Cai Haofan](#), [Guang Wu](#), [Yifan Chen](#) and [Jiang Linshan](#) (South University of Science and Technology of China, P.R. China)

#### 18:10 *Analysis of the Propagation Attenuation From Large Buildings in Broadcasting Services*

[Mario Orefice](#) (Politecnico di Torino, Italy)

### C8 AMTA2: [C] AMTA/EurAAP Measurements of integrated antennas at mm-wavelengths

Measurements/High Data-rate Transfer

Room: [Gonçalo V Cabral \(Pav 5C\)](#)

Chairs: Zhi Ning Chen (National University of Singapore &amp; Institute for Infocomm Research, Singapore), Antti V. Räsänen (Aalto University, Finland)

#### 16:50 *77-GHz Integrated Antenna with Plano-Convex Lens: Design and Measurement*

[Siew Bee Yeap](#) and [Xianming Qing](#) (Institute for Infocomm Research, Singapore); [Zhi Ning Chen](#) (National University of Singapore & Institute for Infocomm Research, Singapore)

#### 17:10 *Design and Measurement of Integrated Antenna with a Plastic Lens for 60 GHz Wi-Gig Applications*

[Bisognin Aimeric](#) (University Nice-Sophia Antipolis, France); [Aykut Cihangir](#) (University of Nice Sophia Antipolis, France); [Cyril Luxey](#) (University Nice Sophia-Antipolis, France); [Gilles Jacquemod](#) (University of Nice, France); [Romain Pilard](#) (STMicroelectronics, Technology R&D, STD, TPS Lab, France); [Frédéric Giancesello](#) (STMicroelectronics, France); [Jorge R. Costa](#) (Instituto de Telecomunicações / ISCTE-IUL, Portugal); [Carlos A. Fernandes](#) (Instituto de Telecomunicações, Instituto Superior Técnico, Portugal); [Eduardo B. Lima](#) (Instituto de Telecomunicações & Instituto Superior Técnico, Portugal); [Chinthana J Panagamuwa](#) and [William Whittow](#) (Loughborough University, United Kingdom)

#### 17:30 *Wide Band Electrical Parameter Measurement by Absorber Pasted Ridged Horn Antenna*

[Hiroyuki Arai](#) (Yokohama National University, Japan)

#### 17:50 *A Complete Measurement System for Integrated Antennas At Millimeter Wavelengths*

[Mohammad Mosalanejad](#) (KU Leuven & IMEC, Belgium); [Steven Brebels](#) (IMEC, Belgium); [Ilja Ocket](#) (IMEC & ESAT-TELEMIC, KU Leuven, Belgium); [Vladimir Volski](#) (KU Leuven, Belgium); [Charlotte Soens](#) (Imec, Belgium); [Guy A. E. Vandebosch](#) (Katholieke Universiteit Leuven, Belgium)

#### 18:10 *Reflection Coefficient Method for Characterizing Antennas on Probe Stations*

[Ville Viikari](#) (Aalto University School of Electrical Engineering, Finland); [Zhou Du](#) (Nokia Networks, Finland); [Vasilii Semkin](#) (Aalto University School of Electrical Engineering, Finland); [Juha Ala-Laurinaho](#) and [Antti V. Räsänen](#) (Aalto University, Finland)

### MA10 UWBAnt: UWB antennas and time-domain techniques

Antennas/Multi Applications

Room: [Gil Eanes \(Aud 3\)](#)

Chairs: Antonio Lazaro (URV, Spain), Pedram Mousavi (University of Alberta, Canada)

#### 16:50 *Radar Target Discrimination with Extinction Pulses Using Exponential B-Splines*

[Manuel Morante](#) and [David Blanco](#) (University of Granada, Spain); [María C. Carrion](#) (Dpto Fisica Aplicada, Facultad de Ciencias, University of Granada, Spain)

**17:10 UWB Antenna Array for Level and Permittivity Measurement with Calibrated Layer Stripping**Adam Maunder, Omid Taheri, Mohamad Reza and [Pedram Mousavi](#) (University of Alberta, Canada)**17:30 UWB Body-Implantable Antenna for Short Range Communication**[Joao Felicio](#) (Instituto Superior Tecnico, Portugal); [Carlos A. Fernandes](#) (Instituto de Telecomunicacoes, Instituto Superior Tecnico, Portugal); [Jorge R. Costa](#) (Instituto de Telecomunicações / ISCTE-IUL, Portugal)**17:50 Polarization Performance of Log-Periodic Antennas on Top of Different Types of Ground Plane; the SKA-low Instrument Case**[Eloy de Lera Acedo](#) (University of Cambridge, United Kingdom); [Benedetta Fiorelli](#) (ESA-ESTEC, Noordwijk, Netherlands, The Netherlands); [Michel Arts](#) (ASTRON, the Netherlands Institute for Radio Astronomy, The Netherlands)**18:10 Forward/backward Coupled Ring Based Phasers for Real-Time Signal Processing**[Shulabh Gupta](#) (École Polytechnique de Montréal, Canada); [Bakhtiar Khan](#) and [Christophe Caloz](#) (Ecole Polytechnique de Montreal, Canada)**MA12 EMTheory: Electromagnetic theory and numerical techniques**

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Antennas/Multi Applications

Room: [João G Zarco](#) (Pav 3C)Chairs: [Yahia Antar](#) (Royal Military College of Canada, Canada), [Michael J Havrilla](#) (Air Force Institute of Technology, USA)**16:50 Multilevel Fast Multipole Algorithm with Multiple Octrees for the Solution of Large-Scale Plasmonic Problems with Junctions**[Hipólito Gómez-Sousa](#) and [Oscar Rubiños-López](#) (University of Vigo, Spain); [Jose Martinez Lorenzo](#) (Northeastern University, USA)**17:10 A Four-Vector Formalism for Anisotropic Media**[Michael J Havrilla](#) (Air Force Institute of Technology, USA)**17:30 Diffraction of a Plane Wave by a Rectangular Hole in a Thick Conducting Screen**[Hirohide Serizawa](#) (Numazu National College of Technology, Japan)**17:50 On Electromagnetic Radiation in Nonlocal Environments—Steps Toward a Theory of Near Field Engineering**[Said Mikki](#) (Royal Military College of Canada, Canada); [Yahia Antar](#) (Royal Military College of Canada, Canada)**18:10 Ultrawideband Inverse Scattering Method for Resonance Region Target Recognition: Application to Small-Scale Airplane Targets with Measured Data**[Mustafa Secmen](#) (Yasar University, Turkey)**Wednesday, April 15****09:00 - 12:50 (Europe/Berlin)****C1 VISTA: [C] 2011-2015 early stage research in COST VISTA**

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Antennas/Multi Applications

Room: [Gil Eanes](#) (Aud 3)Chairs: [Nuno Pires](#) (Instituto Superior Técnico & École Polytechnique Fédérale de Lausanne, Portugal), [Oscar Quevedo-Teruel](#) (KTH Royal Institute of Technology, Sweden)**09:00 Versatile Measurement System for Imaging Setups Prototyping**[Ana Arboleya](#), [Jaime Laviada](#), [Yuri Álvarez](#), [Cebrián García](#) and [Fernando Las-Heras](#) (Universidad de Oviedo, Spain)**09:20 Lens-based Ka-band Antenna System Using Planar Feed**[Joana S. Silva](#) (Laboratory of Electromagnetics and Acoustics / École Polytechnique Fédérale de Lausanne & LEMA, Switzerland); [María García-Vigueras](#) and [Marc Esquiús Morote](#) (Ecole Polytechnique Fédérale de Lausanne, Switzerland); [Jorge R. Costa](#) (Instituto de Telecomunicações / ISCTE-IUL, Portugal); [Carlos A. Fernandes](#) (Instituto de Telecomunicacoes, Instituto Superior Tecnico, Portugal); [Juan R Mosig](#) (Ecole Polytechnique Federale de Lausanne, Switzerland)**09:40 Altering Antenna Radiation Properties with Transformation Optics**[Rhiannon C Mitchell-Thomas](#) (University of Exeter, United Kingdom); [Mahsa Ebrahimpouri](#) and [Oscar Quevedo-Teruel](#) (KTH Royal Institute of Technology, Sweden)**10:00 Pseudo Localization Principle for RFID-Based Smart Blood Stock System**[Andela Zaric](#) (IT/IST - University of Lisbon, Portugal); [Catarina Cruz](#) (Instituto de Telecomunicações & Instituto Universitário de Lisboa ISCTE-IUL, Portugal); [Antonio Matos](#) and [Marta Silva](#) (ISCTE-IUL, Portugal); [Jorge R. Costa](#) (Instituto de Telecomunicações / ISCTE-IUL, Portugal); [Carlos A. Fernandes](#) (Instituto de Telecomunicacoes, Instituto Superior Tecnico, Portugal)**10:20 UHF W-BAN Antennas Operating in Indoor and Outdoor Environment**[Jovanche Trajkovikj](#) (EPFL, Switzerland); [Tomislav Debogovic](#) (Ecole Polytechnique Fédérale de Lausanne, Switzerland); [Anja K. Skrivervik](#) (EPFL, Switzerland)**10:40 Coffee Break****11:10 Reconfigurable Beams From Millimetre-Wave Leaky-Wave Antennas**[Marina Mavridou](#), [Konstantinos Konstantinidis](#), [Alexandros Feresidis](#) and [Peter Gardner](#) (University of Birmingham, United Kingdom)**11:30 Synthesis Procedure for Thinned Leaky-Wave Phased Array Antennas**[Francesco Scattoni](#) (University of Rennes 1 & IETR Institut d'Electronique et de Télécommunications de Rennes, France); [Mauro Ettore](#) (University of Rennes 1 & UMR CNRS 6164, France); [Benjamin Fuchs](#) (University of Rennes 1 - IETR, France); [Ronan Sauleau](#) (University of Rennes 1, France); [Nelson Fonseca](#) (European Space Agency, The Netherlands)**11:50 Insightful Circuit Modeling of FSS with Arbitrary Scatterers**[María García-Vigueras](#) (Ecole Polytechnique Fédérale de Lausanne, Switzerland); [Francisco Mesa](#) (University of Seville, Spain); [Raúl Rodríguez-Berral](#) (Universidad de Sevilla, Spain); [Francisco Medina](#) (University of Sevilla, Spain); [Juan R Mosig](#) (Ecole Polytechnique Federale de Lausanne, Switzerland)**12:10 Magnetic Nanoparticles Enhanced Breast Cancer Microwave Imaging Via Compressive Sensing**[Martina Teresa Bevacqua](#) (University Mediterranea, Italy); [Rosa Scapatucci](#) (CNR-National Research Council of Italy, Italy)**12:30 Evolution of Pin-Flange Adapters for High Frequency Measurements**[Sofia Rahiminejad](#) and [Elena Pucci](#) (Chalmers University of Technology, Sweden); [Sjoerd Haasl](#) (Royal Institute of Technology, Sweden); [Peter Enoksson](#) (Chalmers University of Technology, Sweden)



**C15 Prop5G: [C] Channel measurements and modelling in the higher frequency bands for 5G**

Propagation/Cellular Communications

Room: [Pêro Escobar \(Pav 3A\)](#)

Chairs: Thomas Kuerner (Braunschweig Technical University, Germany), Sana Salous (Durham University, United Kingdom)

**09:00 Large Scale Characteristics of Urban Cellular Wideband Channels At 11 GHz**[Minseok Kim](#) (Niigata University, Japan); [Jun-ichi Takada](#) and [Yuyuan Chang](#) (Tokyo Institute of Technology, Japan); [Jiyun Shen](#) (NTT DOCOMO, INC., Japan); [Yasuhiro Oda](#) (NTT DoCoMo, Japan)**09:20 Phase Noise Effects on the Precision of Wideband Mobile Radio Channel Sounding Methods**[Carlos E Salles Ferreira](#) (Universidade Federal Fluminense, Brazil); [Gláucio Lima Siqueira](#) (Pontifícia Universidade Católica do Rio de Janeiro, Brazil); [Raimundo Sampaio-Neto](#) (Cetuc-Puc-Rio, Brazil)**09:40 Vectorial Channel Sounding of MISO Propagation Channels Without Synchronization**[Georg Zimmer](#), [Robert Geise](#) and [Björn Neubauer](#) (Technische Universität Braunschweig, Germany)**10:00 Review of Millimeter-wave Propagation Characterization and Modelling Towards 5G Systems**[Sana Salous](#) (Durham University, United Kingdom); [Maziar Nekovee](#) (Samsung Electronics, United Kingdom); [Vittorio Degli-Esposti](#) (University of Bologna, Italy); [Sooyoung Hur](#) (Samsung Electronics & HQ Korea, Korea)**10:20 Simultaneous Millimeter-Wave Multi-Band Channel Sounding in an Urban Access Scenario**[Richard J. Weiler](#) and [Michael Peter](#) (Fraunhofer HHI, Germany); [Thomas Kühne](#) (TU Berlin, Germany); [Mike Wisotzki](#) and [Wilhelm Keusgen](#) (Fraunhofer Heinrich Hertz Institute, Germany)**10:40 Coffee Break****11:10 Polarimetric Analysis of Mm-Wave Propagation for Advanced Beamforming Applications**[Vittorio Degli-Esposti](#) (University of Bologna, Italy); [Franco Fuschini](#) (DEI - Bologna, Italy); [Enrico M. Vitucci](#), [Marina Barbiroli](#) and [Marco Zoli](#) (University of Bologna, Italy); [Diego Andres Dupleich](#) (Ilmenau University of Technology, Germany); [Robert Müller](#) (TU Ilmenau, Germany); [Christian Schneider](#) and [Reiner S. Thomä](#) (Ilmenau University of Technology, Germany)**11:30 28 GHz Indoor Channel Measurements and Modelling in Laboratory Environment Using Directional Antennas**[Xianyue Wu](#) (Heriot-Watt University, United Kingdom); [Yan Zhang](#) (Beijing Institute of Technology, P.R. China); [Chengxiang Wang](#) and [George Goussetis](#) (Heriot-Watt University, United Kingdom); [el-Hadi M. Aggoune](#) (University of Tabuk & Director of Sensor Networks and Cellular System (SNCS) Research Center, Saudi Arabia); [Mohammed Alwakeel](#) (University of Tabuk, Saudi Arabia)**11:50 Wideband Spatial Channel Model in an Urban Cellular Environments At 28 GHz**[Sooyoung Hur](#) (Samsung Electronics & HQ Korea, Korea); [Yeon-Jea Cho](#) and [Taehwan Kim](#) (KAIST, Korea); [Jeongho Park](#) (Samsung Electronics, Korea); [Andreas Molisch](#) (University of Southern California, USA); [Katsuyuki Haneda](#) (Aalto University, Finland); [Michael Peter](#) (Fraunhofer HHI, Germany)**12:10 On Path Loss Measurement and Modeling for Millimeter-wave 5G**[Michael Peter](#) (Fraunhofer HHI, Germany); [Wilhelm Keusgen](#) (Fraunhofer Heinrich Hertz Institute, Germany); [Richard J. Weiler](#) (Fraunhofer HHI, Germany)**09:00 - 10:40 (Europe/Berlin)****C20 RadioC: [C] Dynamic radio channel modelling in mobile-to-mobile heterogeneous networks**

Propagation/Wireless Networks

Room: [Afonso de Albuquerque \(Pav 3B\)](#)

Chairs: Raffaele D'Errico (CEA, LETI, Minatec Campus &amp; Univ\ Grenoble-Alpes, France), Claude Oestges (Université Catholique de Louvain, Belgium)

**09:00 Doppler Analysis of an Indoor University-Hall**[Brecht Hanssens](#), [Emmeric Tanghe](#) and [Luc Martens](#) (Ghent University, Belgium); [Claude Oestges](#) (Université Catholique de Louvain, Belgium); [Wout Joseph](#) (Ghent University/iMinds, Belgium)**09:20 Channel Measurements of Device-to-Device Communications At 2.45 GHz**[Simon Cotton](#) (Queen's University, Belfast, United Kingdom); [Nidhi Bhargav](#) (Queen's University Belfast, United Kingdom)**09:40 A Non-Stationary Mobile-to-Mobile Multipath Fading Channel Model Taking Account of Velocity Variations of the Mobile Stations**[Wiem Dahech](#) (2 Evacuation Street El Alia, Tunisia); [Matthias Pätzold](#) (University of Agder, Norway); [Neji Youssef](#) (Ecole superieure des communications de Tunis, Tunisia)**10:00 Modeling Impact of Moving Scatterers on Doppler Spectrum in Vehicle-to-Vehicle Channels**[Alenka Zajc](#) (Georgia Institute of Technology, USA)**10:20 Geometry-Based Path Interpolation for Rapid Ray-Optical Modeling of Vehicular Channels**[Jörg Nuckelt](#) and [Thomas Kürner](#) (Technische Universität Braunschweig, Germany); [Moritz Schack](#) (TU Braunschweig, Germany)**09:00 - 12:50 (Europe/Berlin)****C26 INTELL: [C] INTELLECT**

Antennas/Bridging other Areas

Room: [Diogo Cão \(Aud 8\)](#)

Chairs: Lale Alatan (METU, Turkey), Juan R Mosig (Ecole Polytechnique Federale de Lausanne, Switzerland)

**09:00 The SIE-MoM Analysis of Dielectric Bodies Embedded in a Shielded Stratified Medium**[Bartosz Bieda](#), [Robert Borowiec](#) and [Andrzej A. Kucharski](#) (Wroclaw University of Technology, Poland); [Piotr Slobodzian](#) (Wroclaw University of Technology & Faculty of Electronics, Poland)**09:20 A High Order Locally Corrected Nystrom Implementation of the Decoupled Potential Integral Equation**[Felipe Vico-Bondía](#) (Universidad Politécnica de Valencia, Spain); [Miguel Ferrando-Bataller](#) (Universidad Politécnica De Valencia, Spain); [Tomás Bernabeu-Jiménez](#) (Universitat Politècnica de València & Instituto de Telecomunicaciones y Aplicaciones Multimedia (ITEAM), Spain); [Antonio Berenguer](#) (Universitat Politecnica de Valencia & Instituto de Telecomunicaciones y Aplicaciones Multimedia, Spain)**09:40 Improvements in the MoM Analysis of 3-D Planar Multilayered Periodic Structures Used in the Design of Wideband Reflectarray Antennas**

[Rafael Florencio](#) (Universidad de Sevilla, Spain); [Rafael Boix](#) (University of Seville, Spain); [Jose A. Encinar](#) (Universidad Politecnica de Madrid, Spain)

**10:00 Power Computations in VIE Formulations**

[Athanasios Polimeridis](#) (Skolkovo Institute of Science and Technology, Russia); [M. T. Homer Reid](#) and [Steven Johnson](#) (MIT, USA); [Jacob White](#) (Massachusetts Institute of Technology, USA); [Alejandro Rodriguez](#) (Princeton University, USA)

**10:20 Hierarchical Bases Preconditioners for a Conformingly Discretized Combined Field Integral Equation Operator**

[Simon B Adrian](#) (Technische Universität München & Institut Mines-Télécom / Télécom Bretagne, Germany); [Francesco Andriulli](#) (Ecole Nationale Supérieure des Télécommunications de Bretagne, France); [Thomas F. Eibert](#) (Technische Universität München, Germany)

**10:40 Coffee Break**

**11:10 Volumetric Testing for the Nonconforming Discretization of Integral Equations in Scattering Problems**

[Eduard Ubeda](#) and [Ivan Sekulic](#) (Universitat Politècnica de Catalunya (UPC), Spain); [Juan M. Rius](#) (Universitat Politècnica de Catalunya, Spain); [Alexander Heldring](#) (Polytechnical University of Catalunya, Spain)

**11:30 MLFMA for Large-Scale Nanoplasmonics Modeling**

[Diego M. Solis](#) (University of Vigo, Spain); [Jose M. Taboada](#) (University of Extremadura, Spain); [Fernando Obelleiro](#) (University of Vigo, Spain); [F. Javier García de Abajo](#) (ICFO (The Institute of Photonic Sciences), Spain); [Luis M. Liz-Marzán](#) (CIC BIOMAGUNE, Spain)

**11:50 Fully Numerical Evaluation of 4-D Reaction Integrals in the Method of Moments**

[Donald Wilton](#) (University of Houston, USA); [Francesca Vipiana](#) (Politecnico di Torino, Italy); [William Johnson](#) (Private Consultant, USA)

**12:10 An Iterative Solution Approach of the Magnetic Field Integral Equation for Scattering Computations**

[Robert Brem](#) (Technische Universität München, Germany); [Simon B Adrian](#) (Technische Universität München & Institut Mines-Télécom / Télécom Bretagne, Germany); [Thomas F. Eibert](#) (Technische Universität München, Germany)

**12:30 Numerical Solution of Diffraction Problems Using Large Matrix Compression**

[Gleb Ryzhakov](#) and [Alexander Mikhalev](#) (Skolkovo Institute of Science and Technology, Russia); [Daria Sushnikova](#) (Institute of Numerical Mathematics of Russian Academy of Sciences, Russia); [Ivan Oseledets](#) (Skolkovo Institute of Science and Technology & Institute of Numerical Mathematics of Russian Academy of Sciences, Russia)



**C33 mmAnt: [C] Mm-wave Antenna Systems**

Antennas/High Data-rate Transfer

Room: [Gonçalo V Cabral \(Pav 5C\)](#)

Chairs: [Cyril Luxey](#) (University Nice Sophia-Antipolis, France), [Marta Martínez-Vázquez](#) (IMST GmbH, Germany)

**09:00 Millimeter-Wave Antennas for Radio Access and Backhaul in 5G Heterogeneous Mobile Networks**

[Laurent Dussout](#) (CEA, LETI, Minatec, France); [Ossama El Bouayadi](#) (CEA, France); [Jose Alberto Zevallos Luna](#) (CEA, LETI, Minatec, France); [Cedric Dehos](#) (CEA, France); [Yann Lamy](#) (CEA, LETI, Minatec, France)

**09:20 Rotman Lens with Ridge-Gap Waveguide, Implemented in LTCC Technology, for 60 GHz Applications**

[Fernando Carrera-Suárez](#) and [Diana Navarro-Méndez](#) (Universidad Politécnica de Valencia & Escuela Politécnica Nacional, Spain); [Mariano Baquero-Escudero](#) and [Alejandro Valero-Nogueira](#) (Universidad Politécnica de Valencia, Spain)

**09:40 Broadband Circularly Polarized Aperture-Coupled Microstrip Antenna in HDI Technology for WiGig Applications**

[Aimeric Bisognin](#) (University Nice Sophia-Antipolis & STMicroelectronics, France); [Diane Titz](#) and [Gilles Jacquemod](#) (University of Nice, France); [Romain Pilard](#) (STMicroelectronics, Technology R&D, STD, TPS Lab, France); [Frédéric Ganesello](#) and [Daniel Gloria](#) (STMicroelectronics, France); [Frédéric Devillers](#) (Orange Labs-CREMANT, France); [Cyril Luxey](#) (University Nice Sophia-Antipolis, France)

**10:00 Intersymbol Interference Analysis of a 60 GHz-Band Compact Range Wireless Access System**

[Miao Zhang](#), [Kiyomichi Araki](#), [Jiro Hirokawa](#) and [Makoto Ando](#) (Tokyo Institute of Technology, Japan)

**10:20 On-chip and In-package Antennas for mm-Wave CMOS Circuits**

[Niels Van Thienen](#), [Wouter Steyaert](#), [Yang Zhang](#) and [Patrick Reynaert](#) (KU Leuven, Belgium)

**10:40 Coffee Break**

**11:10 Compact 28 GHz Antenna Array with Full Polarization Flexibility Under Yaw, Pitch, Roll Motions**

[Wonbin Hong](#), [Kwanghyun Baek](#), [Youngju Lee](#) and [Seungtae Ko](#) (Samsung Electronics, Korea)

**11:30 On-Chip Antenna Integration for Single-Chip Millimeter-Wave FMCW Radars**

[Bedilu Adela](#) (Eindhoven University of Technology, The Netherlands); [Paul Zeijl](#) (Omniradar, The Netherlands); [A. B. \(Bart\) Smolders](#) (Eindhoven University of Technology, The Netherlands)

**11:50 Compact Terahertz Instruments for Planetary Missions**

[Goutam Chattopadhyay](#), [Theodore Reck](#), [Adrian Tang](#) and [Cecile Jung-Kubiak](#) (NASA-JPL, Caltech, USA); [Choonsup Lee](#) (JPL, USA); [Jose V Siles](#) (NASA Jet Propulsion Laboratory, USA); [Erich Schlecht](#) (NASA-JPL, Caltech, USA); [Yanghyo Kim](#) and [M-c Chang](#) (UCLA, USA); [Imran Mehdi](#) (JPL, USA)

**12:10 A Lens-Coupled All-Silicon Integrated 2x2 Array of Harmonic Receivers for THz Multi-Color Active Imaging**

[Janusz Grzyb](#), [Konstantin Statnikov](#) and [Ulrich Pfeiffer](#) (University of Wuppertal, Germany)

**12:30 Gain Enhancement of Low Profile On-Chip Dipole Antenna Via Artificial Magnetic Conductor At 94 GHz**

[Mahmoud Nafe](#) (King Abdullah University for Science and Technology, Saudi Arabia); [Atif Shamim](#) (King Abdullah University of Science and Technology, Saudi Arabia); [Ahad Syed](#) (King Abdullah University for Science and Technology, Saudi Arabia)



**C44 MiMed2: [C] Therapeutic Applications of Electromagnetic Fields (MiMed)**

Antennas/Biomedical

Room: [Pedro A Cabral \(Aud 2\)](#)

Chairs: [Margarethus M. Paulides](#) (Erasmus University Medical Center, The Netherlands), [Desmond Teck Beng Yeo](#) (GE Global Research, USA)

**09:00 Focusing and Steering for Medical Applications with Magnetic Near-Field Arrays and Metasurfaces**

[Alon Ludwig](#), [Joseph Wong](#), [Ariel Epstein](#), [George V. Eleftheriades](#) and [Costas D Sarris](#) (University of Toronto, Canada)

**09:20 Optimization of Chest Wall Hyperthermia Treatment Using a Virtual Human Chest Model**

[Dario Rodrigues](#) and [Mark Hurwitz](#) (Thomas Jefferson University, USA); [Paolo Maccarini](#) (Duke University, USA); [Paul Stauffer](#) (Thomas Jefferson University, USA)

**09:40 Design and Characterization of on-Head Antenna Systems for Neural Motor Prosthesis**

[Terence S.P. See](#) and [Xianming Qing](#) (Institute for Infocomm Research, Singapore); [Zhi Ning Chen](#) (National University of Singapore & Institute for Infocomm Research, Singapore)

**10:00 A Directive Antenna Array Applicator for Focused Electromagnetic Hyperthermia Treatment of Breast Cancer**[Erdal Korkmaz](#), [Omer Isik](#) and [Huseyin Sagkol](#) (Fatih University, Turkey)**10:20 The Importance of Source Polarization in Transverse Electric Time Reversal Focusing**[Domenica A. M. Iero](#) (Università Mediterranea di Reggio Calabria, Italy); [Lorenzo Crocco](#) (CNR - National Research Council, Italy); [Tommaso Isernia](#) (University of Reggio Calabria, Italy)**10:40 Coffee Break****11:10 A New Approach to High-Quality Patient-Specific Hyperthermia Treatment**[Myles Capstick](#) (IT'IS Foundation, Switzerland); [Esra Neufeld](#) (IT'IS Foundation, ETH Zurich, Switzerland); [Marie-Christine Gosselin](#) (IT'IS Foundation, ETHZ, Switzerland); [Dimce Iliev](#) (IT'IS Foundation, Switzerland); [Julien Renggli](#) (ZMT ZurichMedTech AG, Switzerland); [Danilo Selic](#), [Bruno Rivara](#) and [Steffen Deubler](#) (SPEAG Schmid and Partner Engineering AG, Switzerland); [Manuel Guidon](#) (ZMT ZurichMedTech AG, Switzerland); [Niels Kuster](#) (IT'IS Foundation, ETH Zurich, Switzerland)**11:30 Monitoring Breast Cancer Treatment Progress with Microwave Tomography and Radar-based Tissue-regions Estimation**[Anastasia Baran](#) (University of Manitoba, Canada); [Douglas Kurrant](#) and [Elise Fear](#) (University of Calgary, Canada); [Joe LoVetri](#) (University of Manitoba, Canada)**11:50 Clinical Introduction of Novel Microwave Hyperthermia Technology: The HYPERcollar3D Applicator for Head and Neck Hyperthermia**[Margarethus M. Paulides](#), [Z Rijnen](#), [P Togni](#) and [René Verhaart](#) (Erasmus University Medical Center, The Netherlands); [Tomas Drizdal](#) (Erasmus MC Cancer Institute, The Netherlands); [Daniel de Jong](#), [Martine Franckena](#) and [Gerda Verduijn](#) (Erasmus University Medical Center, The Netherlands); [Gerard C. van Rhoon](#) (Erasmus MC Cancer Institute, The Netherlands)**12:10 Exploiting Electromagnetic Fields to Enhance the Delivery of Therapeutics to Tumors**[Sylvain Martel](#) (Ecole Polytechnique Montreal, Canada)**12:30 Measurement of Electrical Properties of Biological Tissue At Radio Frequencies Using Magnetic Resonance Imaging**[Seung-Kyun Lee](#), [Bulumulla Selaka](#), [Peter Lamb](#) and [Ileana Hancu](#) (GE Global Research, USA)**C47 Security: [C] Wave-based sensing and imaging for security applications**

Propagation/Defense and Security

Room: [João G Zarco \(Pav 3C\)](#)Chairs: [Jose Martinez Lorenzo](#) (Northeastern University, USA), [Carey Rappaport](#) (Northeastern University, USA)**09:00 A 300 GHz Imaging Radar for Standoff Anomaly Detection**[Alejandro Badolato](#), [Gorka Rubio-Cidre](#) and [Luis Úbeda-Medina](#) (Technical University of Madrid, Spain); [Jesús Grajal](#) (Universidad Politécnica de Madrid, Spain); [Beatriz Mencia-Oliva](#) (Universidad Politecnica de Madrid & ETSI Telecomunicacion, Spain); [Antonio García-Pino](#), [Borja Gonzalez-Valdes](#) and [Oscar Rubiños-López](#) (University of Vigo, Spain)**09:20 A New Approach for Measuring Electromagnetic Side-Channel Energy Available to the Attacker in Modern Processor-Memory Systems**[Robert Callan](#) and [Nina Popovic](#) (Georgia Tech, USA); [Alenka Zajic](#) and [Milos Prvulovic](#) (Georgia Institute of Technology, USA)**09:40 Multistatic Fourier-based Technique for Radar Systems**[Yuri Álvarez](#) (Universidad de Oviedo, Spain); [Yolanda Rodriguez-Vaqueiro](#) (Northeastern University, USA); [Borja Gonzalez-Valdes](#) (University of Vigo, Spain); [Spiros Mantzavinos](#) and [Carey Rappaport](#) (Northeastern University, USA); [Fernando Las-Heras](#) (Universidad de Oviedo, Spain); [Jose Martinez Lorenzo](#) (Northeastern University, USA)**10:00 Multistatic Nearfield Imaging Radar for Portal Security Systems Using a High Gain Toroidal Reflector Antenna**[Carey Rappaport](#) (Northeastern University, USA); [Borja Gonzalez-Valdes](#) (University of Vigo, Spain)**10:20 Focal Plane and Synthetic Aperture Array Alternatives in a 340 GHz Imaging Radar**[Ken Cooper](#), [Theodore Reck](#) and [Robert Dengler](#) (Jet Propulsion Laboratory, California Institute of Technology, USA); [Nuria LLombart](#) (Delft University of Technology, The Netherlands)**10:40 Coffee Break****11:10 On-the-Move Millimeter Wave Imaging System Using Multiple Transmitters and Receivers**[Borja Gonzalez-Valdes](#) (University of Vigo, Spain); [Yuri Álvarez](#) and [Javier Gutiérrez-Meana](#) (Universidad de Oviedo, Spain); [Carey Rappaport](#) (Northeastern University, USA); [Fernando Las-Heras](#) (Universidad de Oviedo, Spain); [Antonio García-Pino](#) (University of Vigo, Spain); [Jose Martinez Lorenzo](#) (Northeastern University, USA)**11:30 Single-Transceiver Compressive Antenna for High-Capacity Sensing and Imaging Applications**[Jose Martinez Lorenzo](#) and [Juan Heredia-Juesas](#) (Northeastern University, USA); [William Blackwell](#) (MIT Lincoln Laboratory, USA)**11:50 Advanced Fully-Electronic Personnel Security Screening Technology**[Sherif Sayed Ahmed](#) (Rohde & Schwarz GmbH & Co. KG, Germany)**12:10 Passive Imaging Strategies for Real-time Wireless Localization of Non-cooperative Targets in Security Applications**[Federico Viani](#) (University of Trento & ELEDIA Research Center, Italy); [Fabrizio Robol](#) and [Enrico Giarola](#) (ELEDIA Research Center, Italy); [Paolo Rocca](#) (University of Trento, Italy); [Giacomo Oliveri](#) (University of Trento & ELEDIA Research Center, Italy); [Andrea Massa](#) (University of Trento, Italy)**12:30 Wave-based Sensing and Imaging for Security Applications**[Kristofer Roe](#) (Smiths Detection Inc., USA)**C7 AMTA1: [C] AMTA/EurAAP Diagnostics, imaging, and post-processing in antenna measurements**

Measurements/Bridging other Areas

Room: [Paulo da Gama \(Pav 5B\)](#)Chairs: [Daniel J. Janse van Rensburg](#) (Near Field Systems Inc., USA), [Sergey Pivnenko](#) (Technical University of Denmark, Denmark)**09:00 Extending the Plane Wave Based Fast Irregular Antenna Field Transformation Algorithm for Amplitude-Only Data**[Carlos Lopez](#), [Raimund A. M. Mauermayer](#) and [Thomas F. Eibert](#) (Technische Universität München, Germany)**09:20 Characterizing the Near Field Strength of ISS-RapidScat Reflector Antenna From Measurement Data Using Spectral Back Projection Method**[Yahya Rahmat-Samii](#) (University of California, Los Angeles (UCLA), USA); [Luis Amaro](#) (Jet Propulsion Laboratory, USA); [Joshua M Kovitz](#) (University of California, Los Angeles, USA)**09:40 Configurable Robotic Millimeter-Wave Antenna Facility**[Jeffrey Guerrieri](#), [Joshua Gordon](#) and [David Novotny](#) (National Institute of Standards and Technology, USA); [Mike Francis](#) (NIST, USA)

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

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

**10:40 Coffee Break**

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

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

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

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

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

**09:00 - 10:40 (Europe/Berlin)**

**R2 LeakyAnt: Slotted-, guided- and leaky-wave antennas**  **TOP**

Antennas/Radars

Room: [Bartolomeu Dias \(Aud 4\)](#)

Chairs: [Miguel Ferrando-Rocher](#) (Universidad Politécnica de Valencia, Spain), [Lei Wang](#) (Ecole Polytechnique Fédérale de Lausanne (EPFL) & Southeast University, Switzerland)

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

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

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

**10:00 RLSA Bessel Beam Launchers Using Hankel Waves**  
[Santi Conchetto Pavone](#) (University of Siena, Italy); [Mauro Ettore](#) (University of Rennes 1 & UMR CNRS 6164, France); [Matteo Albani](#) (University of Siena, Italy)

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

**09:00 - 12:50 (Europe/Berlin)**

**S2 SatProp: Satellite Propagation**  **TOP**

Propagation/Space

Room: [Tristão V Teixeira \(Pav 5A\)](#)

Chairs: [Bertram Arbesser-Rastburg](#) (Spacotec Partners, Austria), [Laurent Castanet](#) (ONERA, France)

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

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

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

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

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

**10:40 Coffee Break**

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

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

**11:50 Weather Effects Mitigation At Ka Band by Using Radiometeorological Model Forecast in Deep Space Downlinks**

[Marianna Biscarini](#) (University of La Sapienza, Italy); [Frank S. Marzano](#) (Sapienza University of Rome, Italy); [Luciano Iess](#) (University of Rome La Sapienza, Italy); [Mario Montopoli](#) (CETEMPS - University of L'Aquila, Italy); [Klaide De Sanctis](#) (HIMET, Italy); [Saverio Di Fabio](#) (CETEMPS, Italy); [Maria Montagna](#) (SciSys @ ESA, Germany); [Mattia Mercolino](#) and [Marco Lanucara](#) (European Space Agency, Germany)

**12:10 Mobile and Nomadic Measurements of the LMS Propagation Channel At Ku and Ka Bands**

[Joel Lemorton](#) and [Xavier Boulanger](#) (ONERA, France); [Mehdi Ait-Ighil](#) (ONERA - The French Aerospace Lab, France); [Fernando Pérez-Fontán](#) (University of Vigo, Spain); [Sebastien Rougerie](#) and [Frederic Lacoste](#) (CNES, France)

**12:30 Statistical Significance of Specific Rain Attenuation Dependence on Geographic and Climatic Conditions**

[Michael Schönhuber](#) and [Karin Plimon](#) (Joanneum Research, Austria); [Merhala Thurai](#) (Colorado State University, USA)

**11:10 - 12:50 (Europe/Berlin)****S8 MetaSpace: Advanced RF materials, metamaterials and EBG for Space Applications**

Antennas/Space

Room: [Bartolomeu Dias \(Aud 4\)](#)

Chairs: [Mauro Ettore](#) (University of Rennes 1 & UMR CNRS 6164, France), [Tiago Morgado](#) (Universidade de Coimbra - Instituto de Telecomunicações, Portugal)

**11:10 Transformation Optics SW-Based Devices**

[Mario Junior Mencagli](#), [Enrica Martini](#), [David González-Ovejero](#) and [Stefano Maci](#) (University of Siena, Italy)

**11:30 Optically Reconfigurable Metacheckerboard**

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

**11:50 Broadband Fabry-Perot Type Sub-Wavelength Profile Antenna**

[Konstantinos Konstantinidis](#), [Alexandros Feresidis](#) and [Peter S Hall](#) (University of Birmingham, United Kingdom)

**12:10 Efficient Characterization of a CPW Series Capacitor in Ku Band**

[Juan Duran](#) and [Cedric Martel](#) (ONERA, France); [Gaëtan Prigent](#) (LAPLACE & GRE, France); [Olivier Pascal](#) (Université de Toulouse - UPS INPT CNRS, France)

**12:30 Circularly Polarized Ultra-Thin Antennas for Space: Examples of Realizations**

[Marco Faenzi](#), [Francesco Caminita](#) and [Enrica Martini](#) (University of Siena, Italy); [Paolo De Vita](#) (IDS Ingegneria Dei Sistemi S. p. A, Italy); [Marco Sabbadini](#) (Esa Estec, The Netherlands); [Stefano Maci](#) (University of Siena, Italy)

**W1 NetPlan: Network Planning, Optimisation and Simulation**

Propagation/Wireless Networks

Room: [Afonso de Albuquerque \(Pav 3B\)](#)

Chairs: [Rausley Adriano Amaral de Souza](#) (National Institute of Telecommunications (INATEL), Brazil), [Christian Schneider](#) (Ilmenau University of Technology, Germany)

**11:10 A Multi-objective Approach to Indoor Wireless Heterogeneous Networks Planning**

[Sotirios Goudos](#) (Aristotle University of Thessaloniki, Greece); [David Plets](#) (Ghent University - iMinds, Belgium); [Ning Liu](#) and [Luc Martens](#) (Ghent University, Belgium); [Wout Joseph](#) (Ghent University/iMinds, Belgium)

**11:30 Indoor-to-Outdoor Channel Characterization for Modeling and Prediction of Interference in Next Generation Wireless Networks**

[Sanaa Hamid](#) (Khalifa University, Abu Dhabi, UAE); [Arafat Al-Dweik](#) (University of Guelph, UAE); [Maysam Mirahmadi](#) (The University of Western Ontario, Canada); [Khalid Mubarak](#) (Khalifa University, Abu Dhabi, UAE); [Abdallah Shami](#) (The University of Western Ontario, Canada)

**11:50 Mobile Networks Optimization Using Open-Source GRASS-RaPlAT Tool and Evolutionary Algorithm**

[Darko Šekuljica](#), [Andrej Vilhar](#) and [Matjaž Depolli](#) (Jozef Stefan Institute, Slovenia); [Andrej Hrovat](#) (Jozef Stefan Institute, Slovenia); [Igor Ozimek](#) and [Tomaz Javornik](#) (Jozef Stefan Institute, Slovenia)

**12:10 Required Number of Propagation Scenarios for Acceptable Reproduction of Spectral Efficiency Distribution in (heterogeneous) Network Simulations**

[Milan Narandžić](#) (University of Novi Sad, Serbia); [Christian Schneider](#), [Wim A. Th. Kotterman](#) and [Reiner S. Thomä](#) (Ilmenau University of Technology, Germany)

**12:30 Simultaneous Sensing-Transmission in Cognitive Radio Networks Under Spatiotemporally Collaborative Techniques**

[Mário Henrique Pereira Alves](#) (National Institute of Telecommunications - Inatel, Brazil); [Rausley Adriano Amaral de Souza](#) (National Institute of Telecommunications (INATEL), Brazil); [Adoniran Judson Braga](#) (Universidade de Brasília, Brazil)

**11:10 - 12:10 (Europe/Berlin)****WS6 Altair: Application of Numerical Techniques to the Solution of Practical Antenna Problems with FEKO**

Industrial Workshop

Room: [Diogo de Silves \(Room 1.08\)](#)

**14:00 - 15:00 (Europe/Berlin)****Poster A3: Antennas Poster Session 3**

Antennas

Room: [Gil Vicente \(Hall 5\)](#)

Chairs: [Duarte de Sousa Fonseca](#) (Loughborough University, United Kingdom), [Asimina Kiourti](#) (The Ohio State University, USA)

**Simultaneous Two-port Injection Matched Antenna**

[Yasin Kabiri](#) (The University of Birmingham, United Kingdom); [Peter Gardner](#) and [Costas Constantinou](#) (University of Birmingham, United Kingdom)

**Electrically Small Modified Planar Inverted-F Antenna**

[Saad Mufti](#), [Alan Tennant](#) and [Luke Seed](#) (University of Sheffield, United Kingdom)

**Implementation and Wireless Readout of Passive UHF RFID Strain Sensor Tags Based on Electro-Textile Antennas**

[Feiyuan Long](#) and [Xiao Dong Zhang](#) (City University of Hong Kong, Hong Kong); [Toni Björninen](#), [Johanna Virkki](#) and [Lauri Tapio Sydänheimo](#) (Tampere University of Technology, Finland); [Chan Yan-Cheong](#) (City University of Hong Kong, Hong Kong); [Leena Ukkonen](#) (Tampere University of Technology, Finland)

**Influence of Phantom Models on Implantable Antenna Performance for Biomedical Applications**

[Neus Vidal](#), [Aleix Garcia-Miquel](#), [Jose López-Villegas](#) and [Javier Sieiro](#) (University of Barcelona, Spain); [Francisco Ramos](#) (Francisco Albero S.A., Spain)

**Miniaturization Effects on Implantable Antennas for Biomedical Applications**

[Aleix Garcia-Miquel](#), [Neus Vidal](#), [Jose López-Villegas](#) and [Javier Sieiro](#) (University of Barcelona, Spain); [Francisco Ramos](#) (Francisco Albero S.A., Spain)

**Humidity Passive Sensors Based on UHF RFID Using Cork Dielectric Slabs**

[Ricardo Gonçalves](#) (Instituto de Telecomunicações, Portugal); [Pedro Tavares Pinho](#) (ISEL, Portugal); [Nuno Borges Carvalho](#) (University of Aveiro/IT Aveiro, Portugal); [Manos M. Tentzeris](#) (Georgia Institute of Technology, USA)

**Antenna Q for Small Antennas with Radiation Constraints and Perturbations**

[Lars Jonsson](#) (Royal Institute of Technology (KTH), Sweden); [Mats Gustafsson](#) (Lund University, Sweden)

**Reducing and Controlling the Beamwidth of Electrically Small Antenna Arrays**

[Jingni Zhong](#) (Ohio State University & ElectroScience Laboratory, USA); [Asimina Kiourti](#) (The Ohio State University, USA); [John L. Volakis](#) (Ohio State University, USA)

**Small UHF RFID Tag Antenna for Metallic Objects**

[Sergio López](#) and [Josep Parrón](#) (Universitat Autònoma de Barcelona, Spain)

**Use of the Characteristic Modes Theory for the Design of an Antenna in a Harsh Environment From a Generic Antenna Topology**

[Francois Gallée](#) and [Jean Philippe Coupez](#) (Télécom Bretagne, France); [Eva Antonino-Daviu](#) (Universidad Politécnica de Valencia, Spain); [Marta Cabedo-Fabrés](#) (Universidad Politécnica de Valencia, Spain); [Thomas Bernabeu](#) (Iteam Institute - Universitat Politècnica de Valencia, Spain); [Alejandro Valero-Nogueira](#) (Universidad Politécnica de Valencia, Spain)

**An Electrically Small Three-Band Multi-polarization Cross Spiral Antenna**

[Mayumi Matsunaga](#) and [Masataka Suzuki](#) (Ehime University, Japan)

**On the Extending Bandwidth of Electrically Small Antenna Using Negative Impedance Converter**

[Katarzyna Jaqodzińska](#) (Koszalin University of Technology, Poland)

**About Radiation Efficiency Optimizing of A Miniaturized Antennas**

[Yaakoub Dia](#) (University of Limoges, France); [Laure Huitema](#) (Xlim Laboratory, France); [Christophe Delaveaud](#) (CEA-LETI, France); [Stéphane Bila](#) (LIM UMR, France); [Marc Thevenot](#) (XLIM-UMR 6172-CNRS, University of Limoges, France)

**Modified Minkowski Fractal Patch Antenna for Multiband GPS Receiver**

[Wojciech Krzysztofik](#) (Wroclaw University of Technology, Poland); [Lukasz Nartowski](#) (NOKIA Wroclaw, Poland)

**A Preliminary Study on a Reduced Size Planar Grid Array for Automotive Radars**

[Emilio Arneri](#) (University of Calabria, Italy); [Amedeo Michelin Salomon](#) (STMicroelectronics, Catania, Italy); [G. Amendola](#) (Universita della Calabria, Italy); [Luigi Boccia](#) (University of Calabria, Italy); [Mario Paparo](#) (STMicroelectronics, Catania- Italy, Italy); [Salvo Scaccianoce](#) (STMicroelectronics, Catania, Italy)

**Human Effect on Twin Antenna On-body for Three Diversity Techniques At 2.4 GHz**

[Dina Al-Saffar](#), [Robert Michael Edwards](#), [Oluwaseun Ojerinde](#), [Chinthana J Panagamuwa](#) and [Rob Seager](#) (Loughborough University, United Kingdom)

**Performance on the Human Body of a Dual-Band Textile Antenna Loaded with Metamaterials**

[Sen Yan](#) (KU Leuven, Belgium); [Ping Jack Soh](#) (Universiti Malaysia Perlis, Malaysia); [Guy A. E. Vandenbosch](#) (Katholieke Universiteit Leuven, Belgium)

**Knitted Textile Waveguide Bending**

[Xiaobin Jia](#) (The University of Sheffield, United Kingdom); [Alan Tennant](#) and [Richard Langley](#) (University of Sheffield, United Kingdom); [Tilak Dias](#) and [William Hurley](#) (Nottingham Trent University, United Kingdom)

**Dually Polarized Tunable Printed Antennas for Medical Applications**

[Albert Sabban](#) (ORT BRAUDE COLLEGE, Israel)

**Sensitivity of a Wearable Printed Antenna with a Full Ground Plane in Close Proximity to Human Arm**

[Syed Muzahir Abbas](#), [Yogesh Ranga](#) and [Karu Esselle](#) (Macquarie University, Australia)

**Design and Analysis of a Wearable Antenna System for Wireless Safety Applications**

[Mahmoud Ali](#) (University of Siena, Italy); [Guido Biffi Gentili](#) (University of Florence, Italy); [Claudio Salvador](#) (Advanced Microwave Engineering, Italy); [Alberto Toccafondi](#) (University of Siena, Italy); [Filippo Zani](#) (Advanced Microwave Engineering, Italy)

**Performance of Embroidered Conductive Yarn in Textile Antennas and Microstrip Lines**

[Branimir Ivšić](#) (University of Zagreb, Croatia); [Davor Bonefačić](#) (University of Zagreb & Dept of Wireless Communications, Croatia); [Juraj Bartolić](#) (University of Zagreb, Croatia)

**Investigation of Textile Striplines Connectivity for Feeding and Connecting Wearable Antennas**

[Aris Tsolis](#) (Loughborough University, United Kingdom); [Antonis A Alexandridis](#) (NCSR "Demokritos", Greece); [William Whittow](#) and [J \(Yiannis\) Vardaxoglou](#) (Loughborough University, United Kingdom)

**Microwave Interconnects Between Textile and Rigid Substrates Using Permanent Magnets**

[Duarte de Sousa Fonseca](#), [Rob Seager](#) and [James A. Flint](#) (Loughborough University, United Kingdom)

**Effect of Ink Usage Conservation Techniques on the Read Range of Inkjet Printed Epidermal RFID Tags**

[Dumtoochukwu Oyeku](#) (University of Kent., United Kingdom); [John Batchelor](#) (University of Kent, United Kingdom)

**The Analysis of Influence of Textile Antenna Location on Its Performance**

[Lukasz Januszkiewicz](#) (Lodz University of Technology, Institute of Electronics, Poland)

**Vertically Polarized Omnidirectional Printed Slot Loop Antenna**

[Nikolaj P.I. Kammersgaard](#) and [Søren H Kvist](#) (Technical University of Denmark & GN ReSound A/S, Denmark); [Jesper Thaysen](#) (GN ReSound A/S, Denmark); [Kaj Bjarne Jakobsen](#) (Technical University of Denmark, Denmark)

**Investigation of Candidate Antennas for Body Area Networks: Characterization in the Proximity of Human Tissues**

[Jian Wang](#) and [Milica Popović](#) (McGill University, Canada)

**Wireless Power Transfer Using Self-resonant Spiral Antenna Through Reinforced Plasterboard Wall**

[Hiroshi Hirayama](#), [Shohei Fukasawa](#), [Keigo Nakamura](#), [Nobuyoshi Kikuma](#) and [Kunio Sakakibara](#) (Nagoya Institute of Technology, Japan)

**Circular-Polarization Reconfigurable Monopole Antenna with Enhanced Boresight Gain for GNSS Applications**

[Yunfei Cao](#), [William S. W. Cheung](#) and [Ti Yuk](#) (The University of Hong Kong, Hong Kong)

**Antenna with Patterns and Polarizations Dual Controlling Freedom**

[Haitao Liu](#) (China Academy of Space Technology, P.R. China); [Tian Hong Loh](#) (UK, National Physical Laboratory, United Kingdom); [Steven Gao](#) (University of Kent, United Kingdom)

**Experimental Validation of an Agile Electromagnetic Band Gap Matrix Antenna**

[Hussein Abou Taam](#) (University of Limoges & XLIM, France); [Georges Zakka El Nashef](#) and [Eric Arnaud](#) (XLIM, France); [Thierry Monediere](#) (University of Limoges & CNRS, France); [Bernard Jecko](#) (XLIM, France); [Mohamed Rammal](#) (Lebanese University, Lebanon)

**A Developed Excitation Law for Beam Forming and Steering Applied to A Novel Electromagnetic Band Gap Antenna**

[Hussein Abou Taam](#) (University of Limoges & XLIM, France); [Georges Zakka El Nashef](#) and [Eric Arnaud](#) (XLIM, France); [Thierry Monediere](#) (University of Limoges & CNRS, France); [Bernard Jecko](#) (XLIM, France); [Mohamed Rammal](#) (Lebanese University, Lebanon)

**Comparison Between Pneumatically-Controlled and PIN-Diode-Based Aperture-Coupled Patch Antennas**

[Billy Wu](#) (University of Calgary, Canada); [Michal Okoniewski](#) (University of Calgary & Acceleware Ltd, Canada); [Chris Hayden](#) (University of Calgary, Canada)

**A Reconfigurable Patch Antenna with Symmetrical Structure for Polarization Diversity**

[Sung Woo Lee](#) and [Young Je Sung](#) (Kyonggi University, Korea); [Seung jae Lee](#), [Ho sang Yoon](#) and [Hong joon Park](#) (HCT, Korea)

**A Reconfigurable Beam-Scanning Partially Reflective Surface (PRS) Antenna**

[Luyang Ji](#) (Xidian University & CSIRO Computational Informatics, Australia); [Y. Jay Guo](#) and [Peiyuan Qin](#) (University of Technology, Sydney, Australia); [Guang Fu](#) (Xidian University, P.R. China)

**Antenna System for Temperature Sensing**

[Mathieu Cosker](#) (LEAT, University Nice-Sophia Antipolis, CNRS, France); [Robert Staraj](#) (University of Nice-Sophia Antipolis, France); [Jean-Marc Ribero](#) (Université de Nice Sophia Antipolis, France)

**Reconfigurable THz Metamaterial Antenna Based on Graphene**

[Ahmed Radwan](#) (Politecnico di Milano, Italy)

**Low-Profile Compact-Size Electronically Beam-Switching Antenna for Wireless Communications**

[Long Zhang](#), [Steven Gao](#) and [Qi Luo](#) (University of Kent, United Kingdom)

**Pattern Reconfigurable Wideband Circularly-Polarized Quadrifilar Helix with Broadside and Backfire Radiation Patterns**

[Wei Lin](#) and [Hang Wong](#) (City University of Hong Kong, Hong Kong)

**Mutual Coupling Control in a Multiple Antenna System Using Ferrimagnetic Substrate**

[Evmorfili Andreou](#) (NCSR Demokritos, Institute of Informatics & Telecommunications, Greece); [Theodore Zervos](#) (NCSR "Demokritos", Institute of Informatics & Telecommunications, Greece); [Antonis A Alexandridis](#) (NCSR "Demokritos", Greece); [Fotis Lazarakis](#) (NCSR Demokritos, Institute of Informatics & Telecommunications, Greece); [George Fikioris](#) (National Technical University of Athens, Greece)

**Reconfigurable PIFA Antenna Using RF MEMS Switches**

[Ghassen Chaabane](#) (XLIM Université de Limoges, France); [Pierre Blondy](#) (XLIM – University of Limoges, France); [Matthieu Chatras](#), [Cyril Guines](#) and [Valerie Mdrangeas](#) (XLIM – Université de Limoges, UMR CNRS, France)

**A Tunable Filtenna for Cognitive Radio Applications**

[Ali Ramadan](#) and [Karim Youssef Kabalan](#) (American University of Beirut, Lebanon); [Joseph Costantine](#) (American University of Beirut & University of New Mexico, USA); [Youssef Tawk](#) (The University of New Mexico & Notre Dame University Louaize, USA); [Christos Christodoulou](#) (University of New Mexico, USA)

**Reconfigurable Square Patch Antenna Using Capacitive Loading and Varactor Diode**

[Ines Rouissi](#) (FACULTE DES SCIENCES DE TUNIS, Tunisia); [Jean-marie Floch](#) (IETR, France); [Hatem Rmili](#) (King Abdulaziz University & Faculty of Engineering, Saudi Arabia); [Hichem Trabelsi](#) (Faculte des Sciences de Tunis, Tunisia)

**A New High-Gain and Low-Complexity Pattern-Reconfigurable Antenna**

[Stylianios D. Assimonis](#), [Argiris Theopoulos](#) and [Theodoros Samaras](#) (Aristotle University of Thessaloniki, Greece)

**Compact Frequency Reconfigurable Slot Antenna with Continuous Tuning Range for Cognitive Radios**

[William S. W. Cheung](#), [Yunfei Cao](#) and [Ti Yuk](#) (The University of Hong Kong, Hong Kong)



**Poster A4: Antennas Poster Session 4**

Antennas

Room: [Luís de Camões](#) (Hall 3)

Chairs: [Enrique González-Plaza](#) (Universidad de Oviedo, Spain), [Hamed Hasani](#) (Ecole Polytechnique Fédérale de Lausanne, Switzerland)

**Synthesis of Timed Antenna Arrays for Arbitrary Shaped-Beam Energy Patterns**

[Alberto Reyna](#) and [Marco Panduro](#) (Autonomous University of Tamaulipas, Mexico); [Carlos Del-Río](#) (Public University of Navarra & Antenna Group, Spain)

**Development of Odd Orientation Array Antenna (OOAA) by Using Leucaena Leucocephala Substrate**

[Ahmad Azlan Ab Aziz](#) (Universiti Teknologi Mara & UiTM, Malaysia); [Mohd Tarmizi Ali](#) (Universiti Teknologi Mara, Malaysia); [Faizal Jamlos](#) (Universiti Malaysia Perlis, Malaysia); [Zaiki Awang](#) (Universiti Teknologi MARA, Malaysia)

**An Electronically Controlled 8-Element Switched Beam Planar Array**

[Sameir Deif](#) (King Fahd University for Petroleum and Minerals, Saudi Arabia); [Saeed Dweik](#) (KFUPM, Saudi Arabia); [Mohammad S. Sharawi](#) (King Fahd University of Petroleum and Minerals (KFUPM), Saudi Arabia)

**A Planar Ku Band Antenna for Satellite Communications**

[Mesut Gokten](#), [Ahmet F Yagli](#) and [Lokman Kuzu](#) (Turksat International Satellite and Cable Operator, Turkey); [Senol Gulgonul](#) (Sakarya University & Turksat Satellite Communication and Cable TV AS, Turkey)

**Broadband Focusing Using Aperture-Coupled Microstrip Patch Antenna Arrays**

[Randy L. Haupt](#), [Atef Elsherbeni](#) and [Payam Nayeri](#) (Colorado School of Mines, USA)

**Two- And Three- Dimensional Near Field Beam Steering Loop Arrays**

[Bo-Hee Choi](#), [Byung-Chul Park](#) and [Jeong Hae Lee](#) (Hongik University, Korea)

**An Air-filled Cavity-backed 2x2 Slot Sub-array Fed by Inverted Microstrip Gap Waveguide**

[Seyed Ali Razavi](#) (Graduate University of Advanced Technology, Kerman, Iran); [Per-Simon Kildal](#) (Chalmers University of Technology, Sweden)

**Extremely Low-Profile Planar Antenna Array for Satellite Communications in the Ku-Band**

[Ignacio Montesinos-Ortego](#) (TTI Norte, Spain); [Ana Rosa Ruiz](#) and [Manuel J Gonzalez](#) (TTI, Spain); [Erika Méndez](#), [Andrés Peñafiel](#), [Alberto Chico](#) and [Iván Cayón](#) (TTI Norte, Spain); [Alberto Pellón](#) (TTI, Spain)

**Low Profile Array With Integrated High Impedance Surfaces For High Performance Adaptive GNSS**

[Cedric Martel](#) (ONERA, France)

**A Parasitic Three-Element Superdirective Electrically Small Antenna Array**

[Abdullah Haskou](#) (IETR UMR CNRS 6164, Université de Rennes1, France); [Antonio Clemente](#) (CEA-LETI Minattec, France); [Ala Sharaiha](#) (Université de Rennes 1 & IETR, France); [Christophe Delaveaud](#) (CEA-LETI, France); [Sylvain Collardey](#) (University of Rennes 1, France); [Lionel Rudant](#) (CEA-LETI & MINATEC, France)

**On the Simultaneous Mutual-Coupling Compensation for All the Space Directions**

[Jesús Rubio](#) (University of Extremadura, Spain); [Juan F. Izquierdo](#) (Universidad de Extremadura, Spain); [Juan Córcoles](#) (Universidad Autónoma de Madrid & Escuela Politécnica Superior, Spain)

**Interleaved Dual-band Circularly Polarized Active Array Antenna for Satellite Communications**

[Qi Luo](#), [Long Zhang](#) and [Steven Gao](#) (University of Kent, United Kingdom); [Sergio Pires](#) (Universidade de Aveiro, Portugal); [Pedro Cruz](#) (Instituto de Telecomunicações - Universidade de Aveiro, Portugal); [Nuno Borges Carvalho](#) (University of Aveiro/IT Aveiro, Portugal)

**Fundamental Challenges for Wideband Antenna Elements in Focal-Plane Arrays**

[Alekssei Dubok](#), [Ali Al-Rawi](#), [Matti Herben](#) and [A. B. \(Bart\) Smolders](#) (Eindhoven University of Technology, The Netherlands)

**Experimental Results of a Planar Array Composed by an Active Dipole Above a Ground Plane with Parasitic Elements**

[Aaron A Salas-Sanchez](#), [Javier Fondevila-Gómez](#), [Juan Rodríguez-González](#) and [Francisco Ares-Pena](#) (University of Santiago de Compostela, Spain)

**Study of Grating Efficiency of Planar Arrays**

[Abbas Vosoogh](#) and [Per-Simon Kildal](#) (Chalmers University of Technology, Sweden)

**Fast Detection of Faulty Elements in EM-Simulated Antenna Array Models From Amplitude-Only Data**

[Slawomir Koziel](#) (Reykjavik University, Iceland); [J. Pieter Jacobs](#) (University of Pretoria, South Africa)

**Wideband Wide Beam Metallic Tapered Slot Antenna Design for Phased Array Radar Applications**

[Ashutosh Kedar](#) (Scientist E, India)

**Array Antennas in Magnetic Nuclear Fusion and Their Modelling At the Ion Cyclotron Resonance Frequency**

[Walid Helou](#) (CEA/IRFM, France); [Pierre Dumortier](#) and [Frédéric Durodié](#) (LPP-ERM/KMS, Belgium); [Marc Goniche](#) (CEA/IRFM, France); [Julien Hillairet](#) (CEA Cadarache & IRFM - Research Institute on Magnetic Nuclear Fusion, France); [Gilles Berger-By](#), [Jean-Michel Bernard](#) and [Laurent Colas](#) (CEA/IRFM, France); [Riccardo Maggiora](#) (Politecnico di Torino, Italy); [Roland Magne](#) (CEA/IRFM, France); [Daniele Milanese](#) (Politecnico di Torino, Italy); [Patrick Mollard](#) and [Gilles Lombard](#) (CEA/IRFM, France)

**Design of MIMO System with Large Transmit Array Antenna Using Two-Stage Block Diagonalization**

[Tetsuki Taniguchi](#) (University of Electro-Communications, Japan); [Yoshio Karasawa](#) (The University of Electro-Communications, Japan)

**Wall Clutter Mitigation Using a Modified Subspace Projection Method for Non-Parallel Measurement Through-the-Wall Radar Imaging**

[Youngjoon Lim](#) and [Minyoung Yoon](#) (Seoul National University, Korea); [Sumin Yun](#) (Seoul National University & INMC, Korea); [Hyunwook Jun](#) and [Sangwook Nam](#) (Seoul National University, Korea)

**Performance of STBC-OFDM-IDMA System Incorporating a New GRP-based Interleaver Over Frequency Selective Channel**

[Khalida Ghanem](#) (Advanced Technologies Center (CDTA), Algeria); [Mustapha Djeddou](#) (Military Polytechnic School, Algeria); [Widad Belaoura](#) (EMP, Communication Systems Laboratory, Algeria)

**DoA Estimation Technique of Back-Scattering Signal From RFID for Gesture Recognition**

[Naoki Honma](#), [Kazuto Toda](#) and [Yoshitaka Tsunekawa](#) (Iwate University, Japan)

**Blind Source Separation Based Phase Estimator for Carrier Synchronization of High-Order QAM Signals**

[Mustapha Chouihia](#) (Ecole Militaire Polytechnique, Algeria); [Abdelhakim Khousas](#) (University M'Hamed Bougara of Boumerdès (UMBB) & IGEE, Algeria); [Adel Belouchrani](#) (Ecole Nationale Polytechnique, Algiers, Algeria); [Geneviève B. Baudoin](#) (ESIEE, France)

**High-Power and Compact S-Band RF-MEMS Phase Shifters**

[Alexandre Harck](#) (XLIM - University of Limoges France, France); [Pierre Blondy](#) (XLIM - University of Limoges, France); [Damien Passerieux](#) (University of Limoges, France); [Serge Villers](#) (ASTRIUM Space Transportation, France); [Sylvie Fargeot](#) (AIRBUS Defence and Space, France)

**Feedback of the Channel Information for Transmit Beamforming in WLAN**

[Moussa Diallo](#), [Calvin Iloki](#) and [Moustapha Mbaye](#) (UCAD, Senegal)

**Beamforming Using Conventional and Particle Filter Based Algorithms for Radar Target DOA Estimation**

[Lajos Nagy](#) (Budapest University of Technology and Economics, Hungary)

**A BiCMOS 4x4 Butler Matrix**

[Domenico Calzona](#) (Università della Calabria, Italy); [Luigi Boccia](#) and [Alireza Shamsafar](#) (University of Calabria, Italy); [G. Amendola](#) (Università della Calabria, Italy)

**A Low Profile Compact Reconfigurable MIMO Antenna for Cognitive Radio Applications**

[Rifaqat Hussain](#) (KFUPM, Saudi Arabia); [Mohammad S. Sharawi](#) (King Fahd University of Petroleum and Minerals (KFUPM), Saudi Arabia)

**Realization and MIMO-link Measurements of a Transmit Module for Spatial Modulation**

[Jo Verhaevert](#) and [Patrick Van Torre](#) (Ghent University, Belgium)

**A New Antenna Arrangement Design of Massive MIMO in LOS Environment for Further Capacity Enhancement**

[Takuto Arai](#) (NTT, Japan); [Atsushi Ohta](#) (NTT Network Innovation Laboratories, Japan); [Satoshi Kurosaki](#) (NTT, Japan); [Kazuki Maruta](#) (NTT Corporation & NTT Access Network Service Systems Laboratories, Japan); [Tatsuhiko Iwakuni](#) (NTT, Japan); [Masataka Iizuka](#) (Nippon Telegraph and Telephone Corporation, Japan)

**Measurements of a MIMO Train-To-Wayside Communication System on Tunnels**

[Juan Moreno](#) (Universidad Politécnica de Madrid, Spain); [Leandro De Haro Ariet](#) (Polytechnic University of Madrid, Spain); [Carlos Rodríguez Sánchez](#) (Metro de Madrid S.A., Spain); [Luis Cuéllar Navarrete](#) (Polytechnic University of Madrid, Spain); [Jose M Riera](#) (Universidad Politécnica de Madrid, Spain)

**A Novel Uniplanar Differentially-fed UWB Polarization Diversity Antenna with Dual Notch Bands**

[He Huang](#) and [Ying Liu](#) (Xidian University, P.R. China); [Shu Gong](#) (National Laboratory of Antennas and Microwave Technology, P.R. China)

**A Compact Four-Port Patch Antenna for MIMO Application**

[Ka Ming Mak](#) (State Key Laboratory of Millimeter Wave & City University of Hong Kong, Hong Kong)

**Planar Multiband MIMO Antenna System Operating in GSM 1800, LTE2300, LTE2500, WLAN and WiMAX Bands**

[Kaustubh Chhabilwad](#) (Indian Institute of Technology, Bombay, India); [Shrikanth Reddy](#) and [Anil Kamra](#) (IIT Bombay, India)

**Isolation Improvement Using CMRC for MIMO Antennas**

[William S. W. Cheung](#), [Di Wu](#), [Li Liu](#) and [Ti Yuk](#) (The University of Hong Kong, Hong Kong)

**A Multi Layers Polymer Bendable Multiple Input Multiple Output (MIMO) Antenna Array on PDMS Substrate for 5.8 GHz Applications**

[Abdulrahman Shueai Mohsen Alqadami](#) (Advanced Communication Engineering Centre (ACE), University Malaysia Perlis (UniMAP), Malaysia); [Faizal Jamlos](#) (Universiti Malaysia Perlis, Malaysia)

**Spatial Multiplexing of 4x4 UCA LoS MIMO Systems with Splitting Matrix At RF Band**

[Zhengyi Li](#) (Fujitsu Laboratories Ltd, Japan); [Liang Zhou](#) and [Atsushi Honda](#) (Fujitsu Laboratories Ltd., Japan); [Yoji Ohashi](#) (Fujitsu, Japan)



**Body Loss Study of Beamforming Mode in LTE MIMO Mobile Terminals**

[Shuai Zhang](#) (Aalborg University, Denmark); [Kun Zhao](#) (KTH Royal Institute of Technology & Sony Mobile Communication AB, Sweden); [Zhinong Ying](#) (Sony Mobile, Sweden); [Sailing He](#) (Royal Institute of Technology, Sweden)

**A Dual Band Polygon Shaped CPW-Fed Planar Monopole Antenna with Circular Polarization and Isolation Enhancement for MIMO Applications**

[Amir Hossein Haghparast](#) (Faculty of Engineering, Shahed University, Tehran, IRAN, Iran); [Gholamreza Dadashzadeh](#) (Shahed University, Iran)

**A Two-Element Patch Antenna Exploiting Path Inequality for Bandwidth Augmentation**

[Anastasios Koutinos](#) and [Georgios Ioannopoulos](#) (Democritus University of Thrace, Greece); [Panagiotis Gkonis](#) (National Technical University of Athens, Greece); [Michael Chryssomallis](#) and [George Kyriacou](#) (Democritus University of Thrace, Greece)

**MIMO Dielectric Resonator Antenna for LTE Femtocell Access Point Applications**

[Mohsen Khalily](#) (Wireless Communication Center (WCC) Universiti Teknologi Malaysia (UTM), Malaysia); [Mohd Haizal Jamaluddin](#) (Universiti Teknologi Malaysia, Malaysia); [Tharek Abdul Rahman](#) (Wireless Communication Centre, Malaysia); [Jamal Nasir](#) (COMSATS Institute of Information Technology Abbottabad, Pakistan); [Muhammad Ramlee Kamarudin](#) (Universiti Teknologi Malaysia, Malaysia)

**Design of a Flexible Dielectric Reflectarray Antenna for THz Applications**

[Ruyuan Deng](#) (Department of Electronic Engineering, Tsinghua University, P.R. China); [Ladislau Matekovits](#) (Politecnico di Torino, Italy); [Fan Yang](#) (Tsinghua University, P.R. China); [Paola Pirinoli](#) (Politecnico di Torino, Italy); [Shenheng Xu](#) and [Maokun Li](#) (Tsinghua University, P.R. China)

**Active Reflectarray Element with Large Reconfigurability Frequency Range**

[Sandra Costanzo](#), [Francesca Veneri](#), [Antonio Raffo](#), [Giuseppe Di Massa](#) and [Pasquale Corsonello](#) (University of Calabria, Italy)

**Two-Dimensional Antenna Beamsteering Using Metamaterial Transmitarray**

[João Ricardo Reis, Jr.](#), [Zaid Al-Daher](#) and [Nigel Copner](#) (University of South Wales, United Kingdom); [Rafael F. S. Caldeirinha](#) and [Telmo R. Fernandes](#) (IPL - Polytechnic Institute of Leiria & Instituto de Telecomunicação (IT), Portugal)

**Single Layer Quad-Band Dual-Polarized Unit Cell for Reflectarray Antennas in Ku Band**

[Hamed Hasani](#) (Ecole Polytechnique Fédérale de Lausanne, Switzerland); [Custodio Peixeiro](#) (IST-TUL, Portugal); [Anja K. Skrivervik](#) (EPFL, Switzerland); [Julien Perruisseau-Carrier](#) (Ecole Polytechnique Fédérale de Lausanne & EPFL, Switzerland)

**Folded Reflectarray with Dually Polarized Cells**

[Abdelhady Mahmoud](#) (Concordia University- Benha University, Egypt); [Ahmed Kishk](#) (Concordia University, Canada)

**Evaluation of the Phase Discretization Effect in Transmitarrays Formed by Sub-Wavelength Patches**

[Eduardo B. Lima](#) (Instituto de Telecomunicações & Instituto Superior Técnico, Portugal); [Sérgio Matos](#) (Instituto de Telecomunicações, Portugal); [Jorge R. Costa](#) (Instituto de Telecomunicações / ISCTE-IUL, Portugal); [Carlos A. Fernandes](#) (Instituto de Telecomunicações, Instituto Superior Técnico, Portugal)

**Iterative Design Approach for Multi-Band Single-Layer Reflectarrays**

[Michele Borgese](#) (Università di Pisa, Italy); [Filippo Costa](#), [Simone Genovesi](#) and [Agostino Monorchio](#) (University of Pisa, Italy)

**Poster P2: Propagation Poster Session 2**

Propagation

Room: [Fernão M Pinto \(Hall 4\)](#)

Chairs: [Nektarios Moraitis](#) (National Technical University of Athens & Institute of Communications and Computers Systems, Greece), [Bile Peng](#) (Technische Universität Braunschweig, Germany)

**Antenna Radiation Characterization for On-Body Communication Channel Using Creeping Wave Theory**

[Zhongkun Ma](#) (Pierre and Marie Curie University, France); [Julien Sarrazin](#) (University of Pierre & Marie Curie UPMC, France); [Aziz Benlarbi-Delaï](#) (Sorbonne Universités, UPMC Paris 06, France); [Luca Petrillo](#) (Université Libre de Bruxelles, Belgium); [Theodoros Mavridis](#) (Université Libre de Bruxelles & Université Pierre et Marie Curie, Belgium); [Philippe De Doncker](#) (ULB, Belgium)

**Measurements for Body-to-Body UWB WBAN Radio Channels**

[Timo Kumpulniemi](#) and [Matti Hämäläinen](#) (University of Oulu, Finland); [Kamya Yekeh Yazdandoost](#) (University of Oulu - Centre for Wireless Communications, Finland); [Jari Iinatti](#) (University of Oulu, Finland)

**Simultaneous Measurements of the Channel Response for Multiple Eavesdroppers Operating in the Vicinity of a Body Area Network At 2.45 GHz**

[Nidhi Bhargav](#) (Queen's University Belfast, United Kingdom); [Simon Cotton](#) (Queen's University, Belfast, United Kingdom)

**A Statistical Characterization of Shadowed Fading in Indoor Off-Body Communications Channels At 5.8 GHz**

[Seong Ki Yoo](#) (Queen's University Belfast, United Kingdom); [Simon Cotton](#) (Queen's University, Belfast, United Kingdom)

**Signal Reliability Improvement Using Selection Combining Based Macro-Diversity for Off-Body Communications At 868 MHz**

[Seong Ki Yoo](#) (Queen's University Belfast, United Kingdom); [Simon Cotton](#) (Queen's University, Belfast, United Kingdom); [Adrian D Mckernan](#) and [William G. Scanlon](#) (Queen's University Belfast, United Kingdom)

**Planar Spiral Antenna for Brain Stroke Detection**

[Marina Shokry](#) and [Abdelmegid Allam](#) (German University in Cairo, Egypt)

**Vehicular Traffic Intersecting Body-to-Body Communications Channels At 2.45 GHz**

[Michael Doone](#) (Queen's University Belfast, United Kingdom); [Simon Cotton](#) (Queen's University, Belfast, United Kingdom)

**Radio Channel Characterization At 2.4 GHz in Nuclear Plant Environment**

[Hanna Farhat](#) (CEA, LETI, MINATEC Campus, France); [Lorenzo Minghini](#) (University Grenoble-Alpes & CEA, LETI, Minatec Campus, France); [Julien Keignart](#) (CEA - LETI, France); [Raffaele D'Errico](#) (CEA, LETI, Minatec Campus & Univ. Grenoble-Alpes, France)

**Analysis of Total Installation Cost Versus Downlink Whole-Body SAR in Indoor Wireless Networks**

[David Plets](#) (Ghent University - iMinds, Belgium); [Wout Joseph](#) (Ghent University/iMinds, Belgium); [Kris Vanhecke](#) and [Luc Martens](#) (Ghent University, Belgium)

**Sequence Detection of Movement for Accurate Area Based Indoor Positioning and Tracking**

[Piotr Wawrzyniak](#) (Lodz University of Technology, Poland); [Sławomir Hausman](#) (Technical University of Lodz, Poland); [Piotr Korbel](#) (Lodz University of Technology, Poland)

**Measurements and Modeling for Indoor Environments Analysis At 10 GHz for 5G**

[Leslye Castro](#) (Universidade Federal do Pará, Brazil); [Iury Batalha](#) (Universidade Federal do Pará & LCT, Brazil); [Diego Silva](#) (Federal University of Pará, Brazil); [Hélio Ferreira](#), [Wellington Fonseca](#) and [Fabrício Barros](#) (Universidade Federal do Pará, Brazil); [Gervásio Cavalcante](#) (UFPA, Brazil)

**Signal Reception Characteristics in the Proximity of Alice and Bob for Secure Indoor Peer-to-Peer Communications At 2.45 GHz**

[Nidhi Bhargav](#) (Queen's University Belfast, United Kingdom); [Simon Cotton](#) (Queen's University, Belfast, United Kingdom); [Vincent Fusco](#) (Queen's University Belfast, United Kingdom)

**Cross-Layer Modeling for Video Quality Loss on WLANs**

[Iury Batalha](#) (Universidade Federal do Pará & LCT, Brazil); [Bruno Castro](#) (Federal University of Pará, Brazil); [Andreia Lopes](#) (Universidade Federal do Pará, Brazil); [Evaldo Pelaes](#) (Federal University of Pará, Brazil); [Gervásio Cavalcante](#) (UFPA, Brazil)

**Statistical Channel Model for Wireless Sensor Networks Deployment in Suburban Environment**

[Eran Greenberg](#) (RAFAEL, Israel); [Alon Sheinberg](#) (Rafael, Israel)

**Field Trial on Adaptive Modulation of Microwave Communication Link At 6.8GHz**

[Lei Bao](#), [Jonas Hansryd](#) and [Göran Sandin](#) (Ericsson AB, Sweden); [Urs Noser](#) (Ericsson AB, Switzerland)

**Impact of Wireless NLOS Backhaul Design on Small-Cells Deployment and End-user Experience**

[Gregory Gougeon](#), [Mathieu Brau](#) and [Yoann Corre](#) (SIRADEL, France); [Yves Lostanlen](#) (SIRADEL & University of Toronto, Canada)

**Radio-Wave Propagation Predictions in a Three-Layered Medium for VHF/UHF Based on Dyadic Green's Function**

[Diego Silva](#), [Cristiane Ruiz Gomes](#), [Jasmine Priscyla Leite de Araújo](#) and [Hermínio Gomes](#) (Federal University of Pará, Brazil); [Gervásio Cavalcante](#) (UFPA, Brazil)

**Application of Analytical Propagation Models on Point-To-Point and Point-To-Area RF Signal Prediction**

[Claudio Garcia Batista](#) (Federal University of São João Del-Rei (UFSJ), Brazil); [Cássio Rego](#) and [Mateus Motta Evangelista](#) (Federal University of Minas Gerais, Brazil); [Glaucio L. Ramos](#) (Federal University of São João Del-Rei, Brazil)

**Analysis of Radio Propagation At Intersection Considering Car Antenna Positions for Inter-vehicle Communications**

[Suquru Imai](#), [Kenji Taguchi](#) and [Tatsuya Kashiwa](#) (Kitami Institute of Technology, Japan); [Satoru Komatsu](#) (Honda R&D Co., Ltd., Japan)

**Vehicle-to-Vehicle Communication: End-to-End Performance Evaluation in Dense Propagation Environments**

[Georgios Pitsiladis](#), [Dimitrios Papanikolaou](#), [Athanasios D. Panagopoulos](#) and [Constantinos Antoniou](#) (National Technical University of Athens, Greece)

**Fading Characteristics of Dynamic Person-to-Vehicle Channels At 5.8 GHz**

[Michael Doone](#) (Queen's University Belfast, United Kingdom); [Simon Cotton](#) (Queen's University, Belfast, United Kingdom)

**Performance of Secret Key Generation in Non Stationary Channels**

[Taghrid Mazloum](#) (Telecom ParisTech, France); [Alain Sibille](#) (Telecom Paris Tech & ENSTA PARISTECH, France)

**An Initial Path-Loss Model Within Vegetation in the THz Band**

[Armita Afsharinejad](#) (Telecommunication Software and Systems Group (TSSG), Waterford Institute of Technology (WIT), Ireland); [Alan Davy](#) and [Brendan Jennings](#) (Waterford Institute of Technology, Ireland); [Conor Brennan](#) (Dublin City University, Ireland)

**Performance Evaluation of MIMO Satellite Multiple-Relay Multi-User Fading Channels**

[Styliani Fassoj](#), [Emmanouel T. Michailidis](#) and [Athanasios G. Kanatas](#) (University of Piraeus, Greece)

**Rigorous Full-wave Analysis of Mode Coupling in Coaxial Waveguide Bends**

[Qiang Zhang](#), [Chengwei Yuan](#) and [Shengren Peng](#) (National University of Defense Technology, P.R. China)

**Improvement of Resonant Cavity Applicator for Thermotherapy of Osteoarthritis**

[Yasuhiro Shindo](#) (Meiji University, Japan); [Keito Nakamura](#) (Graduate School of Meiji University, Japan); [Kazuo Kato](#) (Meiji University, Japan)

**A Validation Using Measurement Data of a Radio Channel Model with Geographical Information**

[Jose Leon Calvo](#) (RWTH Aachen University, Germany); [Florian Schröder](#) (RWTH Aachen University & Lehrstuhl für Theoretische Informationstechnik, Germany); [Xiang Xu](#) and [Rudolf Mathar](#) (RWTH Aachen University, Germany)

**Wireless Indoor Networks Planning Considering QoE Metrics on Multimedia Applications**

[Allan Braga](#) (Federal University of Pará, Brazil); [Ramz Fraiha](#) (Federal University of Pará UFPA, Brazil); [Joao Carmona](#) (UFPA, Brazil); [Jasmine Priscyla Leite de Araújo](#), [Simone da Graça de Castro Fraiha](#), [Josiane do Couto Rodrigues](#) and [Hermínio Gomes](#) (Federal University of Pará, Brazil); [Gervásio Cavalcante](#) (UFPA, Brazil)

**The Tamm State Analogue Tuning in the Chainlike Structure Loaded with Varactor Diode**

[Aleksey Girich](#) (Institute for Radiophysics and Electronics NAS of Ukraine, Ukraine)

**Improved Target Detection Resolution by Compressed Sensing on Narrow-Band Radar**

[Sandra Costanzo](#), [Adele Mangialardi](#) and [Antonio Raffo](#) (University of Calabria, Italy)

**A Mode Matching Method for Modeling Low Frequency Wireless Communication for Oil Fields**

[Guilherme Rosa](#) (Pontifical Catholic University of Rio de Janeiro, PUC-Rio, Brazil); [Jose R Bergmann](#) (PUC-Rio, Brazil)

**WS7 CST: CST Workshop: Advanced Antenna System Simulation**



Industrial Workshop

Room: [Diogo de Silves \(Room 1.08\)](#)

**15:00 - 16:20 (Europe/Berlin)**

**Inv\_2A: Invited Speakers Session 2A**



Room: [Diogo Cão \(Aud 8\)](#)

Chair: [Jose A. Encinar](#) (Universidad Politecnica de Madrid, Spain)

**15:00 Reconfigurable Reflectarrays: Design, Analysis and Fabrication**

[Ozlem Aydin Civi](#) (Middle East Technical University, Turkey)

**15:40 Compressive Sensing - Basics, State-of-the-Art, and Advances in Electromagnetic Engineering**

[Andrea Massa](#) (University of Trento, Italy)

**Inv\_2B: Invited Speakers Session 2B**



Room: [Pedro A Cabral \(Aud 2\)](#)

Chair: [Eva Rajo-Iglesias](#) (University Carlos III of Madrid, Spain)

**15:00 Nonlinear, Active, and Anisotropic Impedance Surfaces**

[Daniel Stevenpiper](#) (University of California, San Diego, USA)

**15:40 On-Chip Antenna Arrays for Multi-Chip RF Data Transmission**  
[Kathleen Melde](#), [Sungjong Yoo](#) and [Ho-Hsin Yeh](#) (University of Arizona, USA)

## 15:00 - 16:50 (Europe/Berlin)

### WS1 AMTA: AMTA Workshop: Measurement Techniques for Multi-beam Antennas

Scientific Workshop  
 Room: [Diogo de Silves \(Room 1.08\)](#)  
 Chair: [Lars Foged](#) (Microwave Vision Italy, Italy)

## 16:50 - 18:30 (Europe/Berlin)

### Bi3 Wearable: Wearable Antennas

Antennas/Biomedical  
 Room: [Pedro A Cabral \(Aud 2\)](#)  
 Chairs: [Davor Bonefačić](#) (University of Zagreb & Dept of Wireless Communications, Croatia), [Benjamin Loader](#) (National Physical Laboratory, United Kingdom)

**16:50 Stretchable and Flexible E-Fiber Antennas with High Geometrical Accuracy**  
[Asimina Kiourti](#) (The Ohio State University, USA); [John L. Volakis](#) (Ohio State University, USA)

**17:10 The Performance of Conducting Elastomer Antennas for Body Worn Applications**  
[Benjamin Loader](#) and [Andrew Gregory](#) (National Physical Laboratory, United Kingdom)

**17:30 Quantifying the Impact of Seam Compression on Embroidered Textile Substrate-Integrated Structures**  
[Thomas Kaufmann](#) (The University of Adelaide, Australia); [Christophe Fumeaux](#) (The University of Adelaide & School of Electrical and Electronic Engineering, Australia)

**17:50 A Compact Circularly Polarized Wearable Filtering Antenna for Off-Body Communications**  
[Zhi Hao Jiang](#) and [Micah Gregory](#) (The Pennsylvania State University, USA); [Douglas H Werner](#) and [Pingjuan Werner](#) (Pennsylvania State University, USA)

**18:10 Antenna Designs of Smart Watch for Cellular Communications by Using Metal Belt**  
[Kun Zhao](#) (KTH Royal Institute of Technology & Sony Mobile Communication AB, Sweden); [Zhinong Ying](#) (Sony Mobile, Sweden); [Sailing He](#) (Royal Institute of Technology, Sweden)

### C12 PowerTr: [C] Antennas and systems for Wireless Power Transmission in space applications

Antennas/Multi Applications  
 Room: [Gil Eanes \(Aud 3\)](#)  
 Chairs: [Nuno Borges Carvalho](#) (University of Aveiro/IT Aveiro, Portugal), [Alessandra Costanzo](#) (DEIS, University of Bologna, Italy)

**16:50 5.8 GHz Microstrip Antennas and Array for Microwave Power Transfer**  
[António Carvalho](#) (IT-DETI-Universidade de Aveiro, Portugal); [Ricardo Gonçalves](#) (Instituto de Telecomunicações, Portugal); [Nuno Borges Carvalho](#) (University of Aveiro/IT Aveiro, Portugal); [Pedro Tavares Pinho](#) (ISEL, Portugal); [Apostolos Georgiadis](#) (CTTC, Spain); [Alessandra Costanzo](#) (DEIS, University of Bologna, Italy)

**17:10 The Compact X-band AIA for MPT with a GaAs MMIC on a Multi-Layer Substrate**  
[N. Hasegawa](#) (Kyoto University & ISAS/JAXA, Japan); [Satoshi Yoshida](#) (Japan Aerospace Exploration Agency & Institute of Space and Astronautical Science, Japan); [Naoki Shinohara](#) (Kyoto University, Japan); [Shigeo Kawasaki](#) (Institute of Space and Astronautical Science, Japan Aerospace Exploration Agency, Japan)

**17:30 Design and Characterization of Effective Antennas for K-band Rectennas**  
[Alexandru Takacs](#) (LAAS-CNRS Université de Toulouse, France); [Hervé Aubert](#) (Laboratory of Analysis and Architecture of Systems & Institut National Polytechnique de Toulouse, France); [Stephane Fredon](#) (French Space Agency, France); [Laurent Despoisse](#) (Thales Alenia Space, France)

**17:50 Experimental Study on Sensors in a Car Engine Compartment Driven by Microwave Power Transfer**  
[Naoki Shinohara](#) (Kyoto University, Japan)

**18:10 Introduction of Wireless Power Transfer Technology for Heavy-Duty Vehicles**  
[Naoki Shinohara](#) (Kyoto University, Japan)

### C17 DMC: [C] Dense Multipath Component (DMC) characterization for radio channel modeling

Propagation/Wireless Networks  
 Room: [Afonso de Albuquerque \(Pav 3B\)](#)  
 Chairs: [Davy P Gaillot](#) (University of Lille 1, France), [Wout Joseph](#) (Ghent University/iMinds, Belgium)

**16:50 Polarimetric Characteristics of Specular and Dense Multipath Components in an Industrial Hall**  
[Emmeric Tanghe](#) (Ghent University, Belgium); [Davy P Gaillot](#) (University of Lille 1, France); [Wout Joseph](#) (Ghent University/iMinds, Belgium); [Isabelle Vin](#) (Université Lille 1, France); [Pierre Laly](#), [Viet-Chi Tran](#) and [Martine Liénard](#) (University of Lille 1, France); [Luc Martens](#) (Ghent University, Belgium)

**17:10 Modelling the mmWave Channel Based on Intelligent Ray Launching Model**  
[Jialai Weng](#) and [Xiaoming Tu](#) (University of Sheffield, United Kingdom); [Zhihua Lai](#) (Ranplan Wireless Network Design Ltd, University of Sheffield, United Kingdom); [Sana Salous](#) (Durham University, United Kingdom); [Jie Zhang](#) (University of Sheffield, Dept. of Electronic and Electrical Engineering, United Kingdom)

**17:30 Maximum-Likelihood Based Estimation of Angular Parameters of Dense-Multipath-Components**  
[Martin Käske](#) and [Reiner S. Thomä](#) (Ilmenau University of Technology, Germany)

**17:50 Using Tuned Diffuse Scattering Parameters in Ray Tracing Channel Modeling**

[Juan Pascual-García](#) (Universidad Politécnica de Cartagena, Spain); [Maria Teresa Martinez-Ingles](#) (Universidad Politecnica de Cartagena, Spain); [Jose-Maria Molina-Garcia-Pardo](#), [José-Víctor Rodríguez](#) and [Leandro Juan-Llacer](#) (Universidad Politécnica de Cartagena, Spain)

**18:10 Dense Multipath Components Add-on for COST 2100 Channel Model**

[Usman Tahir Virk](#) and [Katsuyuki Haneda](#) (Aalto University, Finland); [Jean-Frederic Wagen](#) (University of Applied Sciences of Western Switzerland, Fribourg, Switzerland)

**C24 HighNorth: [C] High North Satellite Propagation**

TOP

Propagation/Space

Room: [Tristão V Teixeira \(Pav 5A\)](#)

Chairs: [Lars Erling Bråten](#) (Norwegian Defence Research Establishment (FFI), Norway), [Terje Tjelta](#) (Telenor, Norway)

**16:50 Experimental Campaign with First Results for Determining High North 20 GHz Satellite Links Propagation Conditions**

[Terje Tjelta](#) (Telenor, Norway); [Martin Rytir](#) (Norwegian Defence Research Establishment (FFI), Norway); [Per Arne Grothting](#) (Telenor Sattelite Broadcasting, Norway); [Josef Noll](#) (UNIK, Norway); [Jan Erik Håkegård](#) (SINTEF, Norway); [Johansen Trond Henning](#) (Norwegian Defence Logistic Organization, Norway); [Michael Ciecko](#) (Telenor Satellite Broadcasting, Norway); [Michael Cheffena](#) (Gjøvik University College, Norway); [Jostein Sander](#) and [Terje Mjelde](#) (FFI, Norway)

**17:10 One Year of 20 GHz Satellite Measurement Data From a Nordic Maritime Environment**

[Lars Erling Bråten](#) and [Martin Rytir](#) (Norwegian Defence Research Establishment (FFI), Norway)

**17:30 Clear-Air Scintillation and Multipath for Low-Elevation High-Latitude Satellite Communication Links**

[Martin Rytir](#) (Norwegian Defence Research Establishment (FFI), Norway)

**17:50 Characterization of Tropospheric Propagation in Polar Areas for the Design of Earth Observation Satellites Ka Band Data Downlink**

[Nicolas Jeannin](#) and [Laurent Castanet](#) (ONERA, France)

**18:10 Results From Three Years of Ka-band Propagation Characterization At Svalbard, Norway**

[James Nessel](#) (NASA, USA); [Michael Zemba](#) and [Jacquelynne Morse](#) (NASA Glenn Research Center, USA)

**C26 INTELL.: [C] INTELLECT.**

TOP

Antennas/Bridging other Areas

Room: [Diogo Cão \(Aud 8\)](#)

Chairs: [Lale Alatan](#) (METU, Turkey), [Juan R Mosig](#) (Ecole Polytechnique Federale de Lausanne, Switzerland)

**16:50 Rigorous Losses Evaluation in the Numerical Analysis of SIW Structures**

[Massimiliano Casaletti](#) and [Guido Valerio](#) (Sorbonne Universités UPMC, France); [Ronan Sauleau](#) (University of Rennes 1, France); [Matteo Albani](#) (University of Siena, Italy)

**17:10 Efficient Analysis of Reflectarrays Through the Use of Characteristic Modes**

[Erdinc Ercil](#) (ASELSAN, Turkey); [Lale Alatan](#) (METU, Turkey); [Ozlem Aydin Civi](#) (Middle East Technical University, Turkey)

**17:30 Efficient Analysis of Gap Waveguide Structures Using Mode Matching Approach**

[Mladen Vukomanovic](#), [Marko Bosiljevac](#) and [Zvonimir Sipus](#) (University of Zagreb, Croatia)

**17:50 Behavior of Time-Domain Volumic Methods in Presence of High-Contrast Media Interfaces**

[Michel Ney](#) and [Abdelrahman Ijeh](#) (TELECOM Bretagne Institute, France); [Francesco Andriulli](#) (Ecole Nationale Supérieure des Telecommunications de Bretagne, France)

**18:10 Antenna Q-factor Calculation Using the MoM Impedance Matrix**

[Doruk Tayli](#) and [Mats Gustafsson](#) (Lund University, Sweden)

**C36 Scatter: [C] Modelling scattering phenomena in wireless links**

TOP

Propagation/High Data-rate Transfer

Room: [Gonçalo V Cabral \(Pav 5C\)](#)

Chairs: [Uwe-Carsten G. Fiebig](#) (German Aerospace Center (DLR), Germany), [Fernando Pérez-Fontán](#) (University of Vigo, Spain)

**16:50 MARLENE: Mediterranean RFC and Sea cLutter ENvironmental Experiment**

[Vincent Fabbro](#) (ONERA, France); [Jörg Förster](#) (Technical Center for Ships and Naval Weapon, Germany); [Gregor Biegel](#) (Fraunhofer FHR, Germany); [Christian Onno Böhler](#) (Technical Centre for Ships and Naval Weapons, Naval Technology and Research, France); [Michael Gallus](#) and [Andreas Ulland](#) (Technical Centre for Ships and Naval Weapons, Naval Technology and Research, Germany); [Thorsten Brehm](#) (Fraunhofer FHR, Germany); [Jean-Paul Marcellin](#), [Xavier Boulanger](#) and [Laurent Castanet](#) (ONERA, France); [Andreas Danklmayer](#) (Fraunhofer FHR, Germany); [Yvonick Hurtaud](#) (DGA/MI, France)

**17:10 Propagation Channel At 5.2 GHz in Baltic Sea with Focus on Scattering Phenomena**

[Wei Wang](#) (German Aerospace Center (DLR), Germany); [Gerald Hoerack](#) (Graz University of Technology, Austria); [Jost Thomas](#), [Ronald Raulefs](#), [Michael Walter](#) and [Uwe-Carsten G. Fiebig](#) (German Aerospace Center (DLR), Germany)

**17:30 Physical Optics Analysis of the Radiation Pattern of an Antenna Mounted on an Aircraft**

[Marcos Arias](#) (University of Vigo, Spain); [Jost Thomas](#) (German Aerospace Center (DLR), Germany)

**17:50 Scattering From Single Isolated Tree Based on Physical Optics: Preliminary Model**

[Milan Kvicera](#) (Czech Technical University in Prague, Czech Republic); [Fernando Pérez-Fontán](#) (University of Vigo, Spain); [Pavel Pechac](#) (Czech Technical University in Prague, Czech Republic)

**18:10 Statistical Modeling of THz Scatter Channels**

[Seunghwan Kim](#) (Georgia Tech, USA); [Alenka Zajic](#) (Georgia Institute of Technology, USA)

**C40 PropGbit: [C] Propagation for multi-gigabit applications**

TOP

Propagation/Cellular Communications

Room: Pêro Escobar (Pav 3A)

Chairs: Vittorio Degli-Esposti (University of Bologna, Italy), Katsuyuki Haneda (Aalto University, Finland)

**16:50 Study of Propagation Mechanisms and Identification of Scattering Objects in Indoor Multipath Channels At 11 GHz**

[Khagendra Belbase](#) (Tokyo Institute of Technology, Japan); [Minseok Kim](#) (Niigata University, Japan); [Jun-ichi Takada](#) (Tokyo Institute of Technology, Japan)

**17:10 Development of High Frequency Band Over 6 GHz for 5G Mobile Communication Systems**

[Tetsuro Imai](#) (NTT DOCOMO, INC., Japan)

**17:30 A Full Solution of an Integral Equation Which Represents Terrain Effects on Radio Wave Propagation**

[Emanuel Costa](#) (Pontifícia Universidade Católica do Rio de Janeiro (PUC-Rio), Brazil); [Markus Liniger](#) (LiniKomm GmbH, Switzerland)

**17:50 Spatial Characterization of Coherence Bandwidth for 72 GHz mm-Wave Indoor Propagation Channel**

[Yongyu He](#), [Xuefeng Yin](#) and [Yilin Ji](#) (Tongji University, P.R. China); [Xiaofeng Lu](#) (Huawei Technology Company, P.R. China); [Mingde Du](#) (Huawei, P.R. China)

**18:10 28 GHz Channel Modeling Using 3D Ray-Tracing in Urban Environments**

[Sooyoung Hur](#) (Samsung Electronics & HQ Korea, Korea); [Sangkyu Baek](#), [Byungchul Kim](#) and [Jeongho Park](#) (Samsung Electronics, Korea); [Andreas Molisch](#) (University of Southern California, USA); [Katsuyuki Haneda](#) (Aalto University, Finland); [Michael Peter](#) (Fraunhofer HHI, Germany)

**C9 AMTA3: [C] AMTA/EurAAP Satellite and Aerospace Antenna Testing**



TOP

Measurements/Space

Room: Paulo da Gama (Pav 5B)

Chairs: Mathieu Riel (MDA, Canada), Luca Salghetti Drioli (European Space Agency-ESTEC, The Netherlands)

**16:50 SMAP: Performance Verification and Testing of a Challenging Instrument Antenna**

[Paolo Focardi](#) (Jet Propulsion Laboratory & California Institute of Technology, USA); [Paula Brown](#) (JPL, USA); [Joseph Vacchione](#) and [Jefferson Harrell](#) (Jet Propulsion Laboratory, USA)

**17:10 Pattern Testing of Low-Cost Antennas for LEO and MEO Satellites At MDA**

[Mathieu Riel](#), [Pierre Arsenaault](#), [Benjamin Lemelin-Auger](#) and [Eric Amyotte](#) (MDA, Canada)

**17:30 First Results of Innovative Mobile Near-Field Antenna Measurement System for Extreme Large DUTs**

[Hans-Juergen Steiner](#) (Airbus Defence & Space & Electronics Division, Germany); [Alexander Geise](#) (Astrium GmbH, Germany); [Carsten H Schmidt](#) (Airbus DS GmbH, Germany); [Torsten Fritzel](#) (Airbus DS, Germany); [Maurice Paquay](#) (European Space Agency & ESTEC, The Netherlands)

**17:50 DTU-ESA Millimeter-Wave Validation Standard Antenna (mm-VAST) – Detailed Design**

[Oleksiy S. Kim](#), [Sergey Pivnenko](#) and [Olav Breinbjerg](#) (Technical University of Denmark, Denmark); [Rolf Jørgensen](#) and [Niels Vesterdal](#) (Ticra, Denmark); [Kim Branner](#), [Peter Berring](#) and [Christen Malte Markussen](#) (Technical University of Denmark, Denmark); [Maurice Paquay](#) (European Space Agency & ESTEC, The Netherlands)

**18:10 Analysis of Spacecraft Antenna Farm Interaction with Equivalent Current Technique**

[Luca Salghetti Drioli](#) (European Space Agency-ESTEC, The Netherlands); [Lars Foged](#), [Francesco Saccardi](#) and [Lucia Scialacqua](#) (Microwave Vision Italy, Italy)

**MA6 MetaSurf: Metamaterial Lens and metasurfaces**



TOP

Antennas/Multi Applications

Room: Bartolomeu Dias (Aud 4)

Chairs: Miguel Navarro-Cía (Imperial College London, United Kingdom), Ronan Sauleau (University of Rennes 1, France)

**16:50 Flattened Generalized Maxwell Fish-eye Lens Limiting Sub-unity Refractive Index Regions**

[Andrey V. Osipov](#) (Saint Petersburg Electrotechnical University, Sweden); [Daniel Rodríguez Prado](#) (Universidad de Oviedo & Group of Signal Theory and Communications, Spain); [Oscar Quevedo-Teruel](#) (KTH Royal Institute of Technology, Sweden)

**17:10 144 GHz Epsilon-Near-Zero Metamaterial Lens**

[Victor Torres](#), [Bakhtiyar Orazbayev](#) and [Victor Pacheco-Peña](#) (Universidad Publica de Navarra, Spain); [Jorge Teniente](#) (Public University of Navarra, Spain); [Miguel Beruete](#) (Universidad Publica de Navarra, Spain); [Miguel Navarro-Cía](#) (Imperial College London, United Kingdom); [Mario Sorolla](#) (Universidad Publica de Navarra, Spain); [Nader Engheta](#) (University of Pennsylvania, USA)

**17:30 Zoned Fishnet Metamaterial Lens with Millimetre-Wave Dual-Band Response**

[Bakhtiyar Orazbayev](#), [Victor Pacheco-Peña](#), [Victor Torres](#) and [Miguel Beruete](#) (Universidad Publica de Navarra, Spain); [Miguel Navarro-Cía](#) (Imperial College London, United Kingdom)

**17:50 A Wide-angle Broadband Waveplate Through Field Transformation**

[Junming Zhao](#) and [Yijun Feng](#) (Nanjing University, P.R. China); [Yang Hao](#) (Queen Mary University, United Kingdom)

**18:10 Parallel-Plate-Waveguide Luneburg Lens Through a Holey Plate Metasurface**

[Cheikh Diallo](#) (University of Rennes 1, France); [Oscar Quevedo-Teruel](#) (KTH Royal Institute of Technology, Sweden); [Guido Valerio](#) (Sorbonne Universités UPMC, France); [Hervé Legay](#) (Thalès Alenia Space, France); [Ronan Sauleau](#) (University of Rennes 1, France)

**MA7 FSS: Frequency and polarization selective surfaces**



TOP

Antennas/Multi Applications

Room: João G Zarco (Pav 3C)

Chairs: Enrica Martini (University of Siena, Italy), J (Yiannis Vardaxoglou (Loughborough University, United Kingdom)

**16:50 Enhancement of Antenna Gain and a Bandwidth Using Frequency Selective Reflectors**

[Dongho Kim](#) (Sejong University, Korea)

**17:10 Multiband Frequency Selective Surface with Open Matryoshka Elements**

[Alfrêdo Gomes Neto](#) (Instituto Federal de Educação, Ciência e Tecnologia da Paraíba - IFPB & Grupo de Telecomunicações e Eletromagnetismo Aplicado - GTEMA, Brazil); [Adaildo DAssunção Junior](#) (Instituto Federal de Educação, Ciência e Tecnologia da Paraíba, IFPB, Brazil); [Jefferson Costa Silva](#) (Instituto Federal de Educação, Ciência e Tecnologia da Paraíba & IFPB, Brazil); [Josiel Cruz](#) and [João Batista Silva](#) (Federal Institute of Education, Science and Technology of Paraíba, IFPB & Group of Telecommunications and Applied Electromagnetism, GTEMA, Brazil); [Nieremberg Ramos](#) (Instituto Federal de Educação, Ciência e Tecnologia da Paraíba, Brazil)

**17:30 Design Principles for Coupled Complementary Metasurfaces**

[David González-Ovejero](#) and [Enrica Martini](#) (University of Siena, Italy); [J \(Yiannis\) Vardaxoglou](#) (Loughborough University, United Kingdom); [Stefano Maci](#) (University of Siena, Italy)

**17:50 A Performance Study of Circular Polarization Selective Structures**

[Andreas Ericsson](#) and [Daniel Sjöberg](#) (Lund University, Sweden)

**18:10 Compact Quarter-Wave Plate Metasurface At 1 and 2.2 THz**

[Víctor Torres](#) (Universidad Publica de Navarra, Spain); [Nuria Sanchez](#) (NTC UPV, Spain); [David Etayo](#) (Public University of Navarra, Spain); [Ruben Ortuño](#) (Universidad Politécnica de Valencia, Spain); [Miguel Navarro-Cía](#) (Imperial College London, United Kingdom); [Alejandro Martinez](#) (Universidad Politecnica de Valencia, Spain); [Miguel Beruete](#) (Universidad Publica de Navarra, Spain)

**20:00 - 22:00 (Europe/Berlin)****Conference Dinner**  TOP

Room: Restaurant KAIS

**Thursday, April 16****09:00 - 12:50 (Europe/Berlin)****Bi1 CancerDet: Microwave Cancer Detection**  TOP

Antennas/Biomedical

Room: Pedro A Cabral (Aud 2)

Chairs: Panagiotis Kosmas (King's College London, United Kingdom), Dario Rodrigues (Thomas Jefferson University, USA)

**09:00 GPU Accelerated Confocal Microwave Imaging Algorithms for Breast Cancer Detection**

[Muhammad Adnan Elahi](#), [Atif Shahzad](#), [Martin Glavin](#), [Edward Jones](#) and [Martin O'Halloran](#) (National University of Ireland, Galway, Ireland)

**09:20 Evaluation of the 3D Time Reversal Method for Hyperthermia Treatment Planning in Head and Neck Tumors**

[Pegah Takook](#) (CHALMERS, Sweden); [Hana Dobšiček Trefná](#), [Andreas Fhager](#) and [Mikael Persson](#) (Chalmers University of Technology, Sweden)

**09:40 Data-driven Matched Field Processing for Radar-based Microwave Breast Cancer Detection**

[Jochen Moll](#) (Goethe University Frankfurt am Main, Germany); [Joel Harley](#) (University of Utah, USA); [Viktor Krozer](#) (Goethe University of Frankfurt am Main, Germany)

**10:00 Spectral Filtering in Phase Delay Beamforming for Multistatic UWB Breast Cancer Imaging**

[Raquel C. Conceição](#) (Institute of Biomedical Engineering, University of Oxford & Instituto de Biofísica e Engenharia Biomédica, Faculdade de Ciências, Universidade de Lisboa, United Kingdom); [Dallan Byrne](#) (University of Bristol, United Kingdom); [Navid Ghavami](#) (Institute of Biomedical Engineering, University of Oxford, United Kingdom); [Penny Probert Smith](#) (University of Oxford, United Kingdom); [Ian Craddock](#) (University of Bristol, United Kingdom)

**10:20 Towards Integrated Measurements of Dielectric Tissue Properties At Microwave Frequencies**

[Jochen Moll](#) (Goethe University Frankfurt am Main, Germany); [Justin McCombe](#) (McMaster University, Canada); [Greg Hislop](#) (CSIRO Earth Science and Resource Engineering, Australia); [Viktor Krozer](#) (Goethe University of Frankfurt am Main, Germany); [Natalia Nikolova](#) (McMaster University, Canada)

**10:40 Coffee Break****11:10 Image Classification for a Time-Domain Microwave Radar System: Experiments with Stable Modular Breast Phantoms**

[Adam Santorelli](#) and [Olivier Laforest](#) (McGill University, Canada); [Emily Porter](#) (McGill University, Canada); [Milica Popović](#) (McGill University, Canada)

**11:30 First Trials Towards Contrast Enhanced Microwave Breast Cancer Detection by Magnetic Modulated Nanoparticles**

[Sebastian Ley](#) and [Marko Helbig](#) (Technische Universität Ilmenau, Germany); [Jürgen Sachs](#) (Ilmenau University of Technology, Germany); [Sindy Frick](#) and [Ingrid Hilger](#) (University Hospital Jena, Germany)

**11:50 Compact UWB Antenna Array for Microwave Imaging**

[Bright Yeboah-Akouwah](#) and [Panagiotis Kosmas](#) (King's College London, United Kingdom); [Yifan Chen](#) (South University of Science and Technology of China, P.R. China)

**12:10 On the Use of Microwave Based Thermal Monitoring in Hyperthermia**

[Andreas Fhager](#), [Hana Dobšiček Trefná](#) and [Mikael Persson](#) (Chalmers University of Technology, Sweden)

**12:30 Detection of Brain Tumor and Localization of a Deep Brain RF-source Using Microwave Imaging**

[Rohit Chandra](#) (Norwegian University of Science and Technology (NTNU), Norway); [Ilangko Balasingham](#) (Norwegian University of Science and Technology, Norway)

**C14 Bench: [C] Combined Simulation/Measurement Benchmark For Challenging Antennas**  TOP

Measurements/Bridging other Areas

Room: Diogo Cão (Aud 8)

Chairs: Lars Foged (Microwave Vision Italy, Italy), Raphael Gillard (IETR & INSA, France)

**09:00 A Novel Scheme for Stored Energy Evaluation**

[Miloslav Capek](#) and [Lukas Jelinek](#) (Czech Technical University in Prague, Czech Republic); [Guy A. E. Vandenbosch](#) (Katholieke Universiteit Leuven, Belgium); [Pavel Hazdra](#) (Czech Technical University in Prague, Czech Republic)

**09:20 Recent Developments in Using Measured Sources in Computational EMC**

[Morten Sorensen](#) (Aalborg University, Denmark); [Ondřej Franek](#) (Aalborg University & APNet Section, Denmark); [Gert Pedersen](#) (Aalborg University, Denmark)

**09:40 Progress on DDM and FETI-2LM Methods for AESA Architectures and Metamaterial Analysis**

[André Barka](#) (ONERA -The French Aerospace Lab, France); [Rémi Baque](#), [Philippe Dreuillet](#) and [Francois-Xavier Roux](#) (ONERA, France)

**10:00 Bridging the Gap: Bringing Measurements and Computational Results Together**

[Vince Rodriguez](#) (MI Technologies, USA)

**10:20 Combined NF Antenna Simulation/Measurement for Fast Testing**

[Giorgio Giordanengo](#) (Istituto Superiore Mario Boella & Politecnico di Torino, Italy); [Francesca Vipiana](#) (Politecnico di Torino, Italy); [Lars Foged](#) and [Francesco Saccardi](#) (Microwave Vision Italy, Italy); [Francesca Mioc](#) (Consultant, Switzerland); [Mauro Bandinelli](#) and [Mirko Bergigli](#) (IDS Ingegneria Dei Sistemi S. p. A, Italy); [Marco Sabbadini](#) (Esa Estec, The Netherlands); [Giuseppe Vecchi](#) (Politecnico di Torino, Italy)

**10:40 Coffee Break****11:10 Optimized Diagnosis of Reflectors Misalignments in Radioastronomical Applications**

[Amedeo Capozzoli](#), [Claudio Curcio](#), [Giuseppe D'Elia](#) and [Angelo Lisenò](#) (Università di Napoli Federico II, Italy); [Salvatore Savarese](#) and [Pietro Schipani](#) (INAF - Istituto Nazionale di Astrofisica, Italy)

**11:30 Measurement and Simulation of Reflector Antenna**

[Lars Foged](#) and [Maria Alberica Saporetti](#) (Microwave Vision Italy, Italy); [Manuel Sierra-Castañer](#) (Universidad Politécnica de Madrid, Spain); [Erik Jørgensen](#) (TICRA, Denmark); [Torben Voigt](#) (Altair FEKO, Germany); [Flavio Calvano](#) (ANSYS Italia, Italy); [Davide Tallini](#) (Computer Simulation Technology, CST GmbH, Germany)

**11:50 A Feasibility Study on the Extension of the Point Scatterer Formulation to Vegetation Media**

[Nuno R. Leonor](#) (Universidade de Vigo, Portugal); [Rafael F. S. Caldeirinha](#) (IPL - Polytechnic Institute of Leiria & Instituto de Telecomunicação (IT), Portugal); [Telmo R. Fernandes](#) (IPLeiria / Institute of Telecommunications & ESTG/IT-DL, Portugal); [Manuel García Sánchez](#) (Universidade de Vigo, Spain)

**12:10 Measurements as Enhancement of Numerical Simulation for Challenging Antennas**

[Lars Foged](#), [Lucia Scialacqua](#) and [Francesco Saccardi](#) (Microwave Vision Italy, Italy); [Francesca Mioc](#) (Consultant, Switzerland)

**12:30 Combining the Fast Irregular Antenna Field Transformation Algorithm with Asymptotic High Frequency Methods**

[Raimund A. M. Mauermayer](#) and [Thomas F. Eibert](#) (Technische Universität München, Germany)

**C39 PropVeh: [C] Propagation Channels for Wide-Sense Vehicle-to-X Communications**

Propagation/Wireless Networks

Room: [Afonso de Albuquerque \(Pav 3B\)](#)

Chairs: [Ke Guan](#) (Beijing Jiaotong University, P.R. China), [David W Matolak](#) (University of South Carolina, USA)

**09:00 A Multi-mode Waveguide Tunnel Channel Model for High-Speed Train Wireless Communication Systems**

[Liu Yu](#) (Shandong University, P.R. China); [Chenqiang Wang](#), [Ammar Ghazal](#) and [Shangbin Wu](#) (Heriot-Watt University, United Kingdom); [Wensheng Zhang](#) (Shandong University, P.R. China)

**09:20 Angular Dispersion Characterization of Vehicle-to-Vehicle Channel in Cross-Road Scenarios**

[Ruisi He](#) (Beijing Jiaotong University, P.R. China); [Olivier Renaudin](#) (University of Southern California, USA); [Veli-Matti Kolmonen](#) and [Katsuyuki Haneda](#) (Aalto University, Finland); [Zhangdui Zhong](#) (Beijing Jiaotong University, P.R. China); [Simon Hubert](#) (Université Catholique de Louvain & ICTEAM Institute, Belgium); [Claude Oestges](#) (Université Catholique de Louvain, Belgium)

**09:40 Measurement-based Stochastic Models for Channel Transition in Underground Subway Environments**

[Xuesong Cai](#), [Xuefeng Yin](#) and [Yongyu He](#) (Tongji University, P.R. China); [Weiming Duan](#) (Huawei, P.R. China); [Silvia Ruiz Boqué](#) (UPC, Spain)

**10:00 Large-Scale Fading Characterization in Curved Modern Subway Tunnels**

[Ke Guan](#), [Bo Ai](#) and [Zhangdui Zhong](#) (Beijing Jiaotong University, P.R. China); [Carlos Lopez](#) and [Lei Zhang](#) (Universidad Politécnica de Madrid, Spain); [Cesar Rodríguez](#) (Universidad Politécnica de Madrid, Spain); [Bei Zhang](#) (Beijing Jiaotong University, P.R. China)

**10:20 On Multilink Shadowing Effects in Measured V2V Channels on Highway**

[Mikael Nilsson](#) (Lund University & Volvo Car Corporation, Sweden); [Dimitrios Vlastaras](#) (Lund University, Sweden); [Taimoor Abbas](#) (Volvo Cars Corporation, Sweden); [Bjorn Bergqvist](#) (EES & Volvo Car Group, Sweden); [Fredrik Tufvesson](#) (Lund University, Sweden)

**10:40 Coffee Break****11:10 V2V Channel Characteristics and Models for 5 GHz Parking Garage Channels**

[David W Matolak](#) and [Ruoyu Sun](#) (University of South Carolina, USA); [Pengyu Liu](#) (Beijing Jiaotong University, P.R. China)

**11:30 Realistic Simulation Scenario for Hybrid LTE/IEEE 802.11p Vehicular Communication**

[Andreas Möller](#) and [Johannes Baumgarten](#) (Technische Universität Braunschweig, Germany); [Zeeshan Hameed Mir](#) (Qatar Mobility Innovations Center (QMIC), Qatar); [Thomas Kürner](#) (Technische Universität Braunschweig, Germany); [Fethi Filali](#) (QMIC, Qatar)

**11:50 Differential Spatial Modulation in V2X**

[Meng Zhang](#) and [Xiang Cheng](#) (Peking University, P.R. China); [Liuqing Yang](#) (Colorado State University, USA)

**12:10 Cluster Spreads for Time-Variant Vehicular Channels**

[Zhinan Xu](#) (FTW Telecommunications Research Center Vienna, Austria); [Mingming Gan](#) (FTW, Telecommunications Research Center Vienna, Austria); [Christoph F Mecklenbräuker](#) (Vienna University of Technology, Austria); [Thomas Zemen](#) (AIT Austrian Institute of Technology GmbH & FTW Telecommunications Research Center Vienna, Austria)

**12:30 Cluster Lifetime Characterization for Vehicular Communication Channels**

[Mingming Gan](#) (FTW, Telecommunications Research Center Vienna, Austria); [Zhinan Xu](#) (FTW Telecommunications Research Center Vienna, Austria); [Christoph F Mecklenbräuker](#) (Vienna University of Technology, Austria); [Thomas Zemen](#) (AIT Austrian Institute of Technology GmbH & FTW Telecommunications Research Center Vienna, Austria)

**C45 THz: [C] THz Antennas and Applications**

Antennas/High Data-rate Transfer

Room: [Gonçalo V Cabral \(Pav 5C\)](#)

Chairs: [Yi Huang](#) (University of Liverpool, United Kingdom), [Daniel Segovia-Vargas](#) (Universidad Carlos III de Madrid, Spain)

**09:00 Terahertz Frequency Scanning Reflectarray/Mirror**

[Shi-Wei Qu](#) and [Huan Yi](#) (University of Electronic Science and Technology of China, P.R. China); [Wei-Wei Wu](#) (Univ of Electronic Sci & Technol of China, P.R. China); [Baojie Chen](#) (City University of HongKong, Hong Kong); [Chi Hou Chan](#) (City University of Hong Kong, Hong Kong)

**09:20 A Tri-reflector Compact Antenna Test Range Operating in the THz Range**

[Xiaodong Chen](#) (Queen Mary University of London, United Kingdom); [Xiaoming Liu](#), [Junsheng Yu](#), [Yuan Yao](#), [Cheng Yang](#), [Hai Wang](#), [Hairui Liu](#) and [Zejian Lu](#) (Beijing University of Posts and Telecommunications, P.R. China); [Richard Wyld](#) (St Andrews University, United Kingdom)

**09:40 Terahertz Emission From Photoconductive Antenna Fabricated on GaAs/Sapphire Substrate**

[Jitao Zhang](#), [Mingguang Tuo](#), [Michael Gehl](#), [Ricky Gibson](#), [Min Liang](#), [Galina Khitrova](#) and [Hao Xin](#) (University of Arizona, USA)

**10:00 An Antenna-free Device for Continuous-Wave THz Emission: Vertical Large Area Emitter**

[Alejandro Rivera-Lavado](#) and [Javier Montero-de-Paz](#) (Universidad Carlos III de Madrid, Spain); [Gottfried Döhler](#) (Max Planck Institute for the Science of Light, Germany); [Luis-Enrique Garcia-Muñoz](#) (Universidad Carlos III de Madrid, Spain); [Sascha Preu](#) (Technische Universität

Darmstadt, Germany); [Stefan Malzer](#) and [Sebastian Bauerschmidt](#) (Max Planck Institute for the Science of Light, Germany); [Daniel Segovia-Vargas](#) (Universidad Carlos III de Madrid, Spain)

**10:20 On-Chip Double Slot Antenna At 300 GHz Enhanced by Artificial Dielectrics**

[Wagas Hassan Syed](#) (Delft University of Technology, The Netherlands); [Giuseppe Fiorentino](#) (Delft University of Technology, Italy); [Daniele Cavallo](#) (Delft University of Technology, The Netherlands); [Pasqualina M. Sarro](#) (Delft University of Technology, Italy); [Andrea Neto](#) (Delft University of Technology, The Netherlands)

**10:40 Coffee Break**

**11:10 A mm-Wave Integrated Lens Antenna for E-band**

[Juha Ala-Laurinaho](#), [Aki Karttunen](#) and [Antti V. Räsänen](#) (Aalto University, Finland)

**11:30 Performance Evaluation of a 120 GHz 3D-Printed Plastic Elliptical Lens Antenna-System**

[Bisognin Aimeric](#) (University Nice-Sophia Antipolis, France); [Fabien Ferrero](#) (CREMANT, Université Nice-Sophia Antipolis & CREMANT CNRS, France); [Diane Titz](#) and [Gilles Jacquemod](#) (University of Nice, France); [Romain Pilard](#) (STMicroelectronics, Technology R&D, STD, TPS Lab, France); [Frédéric Giancesello](#), [Daniel Gloria](#), [Claire Laporte](#) and [Hilal Ezzeddine](#) (STMicroelectronics, France); [Philippe Ratajczak](#) (Orange Labs, France); [Jorge R. Costa](#) (Instituto de Telecomunicações / ISCTE-IUL, Portugal); [Eduardo B. Lima](#) (Instituto de Telecomunicações & Instituto Superior Técnico, Portugal); [Carlos A. Fernandes](#) (Instituto de Telecomunicações, Instituto Superior Técnico, Portugal); [Cyril Luxey](#) (University Nice Sophia-Antipolis, France)

**11:50 A Top Loaded THz Photomixer Antenna**

[Neda Khiabani](#) (McMaster University, Canada); [Yi Huang](#) and [Yao-Chun Shen](#) (University of Liverpool, United Kingdom)

**12:10 A 874 GHz Mixer Block Integrated Spline Horn and Lens Antenna for ISMAR Instrument**

[Yogesh Karandikar](#), [Arvid Hammar](#), [Peter Sobis](#) and [Per Forsberg](#) (Omnisys Instruments AB, Sweden); [Anders Emrich](#) (Omnisys Instruments, Sweden)

**12:30 Monolithically-Integrated Antenna-Coupled Field-Effect Transistors for Detection Above 2 THz**

[Alvydas Lisauskas](#) (Radiophysics Department, Vilnius University, Lithuania)



**CC2 MIMO: MIMO, diversity, and smart antennas**

Antennas/Cellular Communications

Room: [Pêro Escobar \(Pav 3A\)](#)

Chairs: [Frederic Broyde](#) (Excem, France), [Dirk Manteuffel](#) (University of Kiel, Germany)

**09:00 Double Ring Antenna Design for MIMO Application in Mobile Terminals**

[Kun Zhao](#) (KTH Royal Institute of Technology & Sony Mobile Communication AB, Sweden); [Shuai Zhang](#) (Aalborg University, Denmark); [Zhinong Ying](#) (Sony Mobile, Sweden); [Sailing He](#) (Royal Institute of Technology, Sweden)

**09:20 A Highly Compact Broadband Near-Edge Antenna for Communication Devices with Conducting Body**

[Kun Wang](#), [Raimund A. M. Mauermayer](#), [Li Li](#) and [Thomas F. Eibert](#) (Technische Universität München, Germany)

**09:40 Effect of External Perturbation on Constellation Points in Beam-Space MIMO**

[Mohsen Yousefibeiki](#) (École Polytechnique Fédérale de Lausanne (EPFL) & Laboratory of Electromagnetics and Acoustics (LEMA), Switzerland); [Juan R Mosig](#) (Ecole Polytechnique Federale de Lausanne, Switzerland); [Andreas Burg](#) (EPFL, Switzerland)

**10:00 Planar MIMO Antenna System with Polarization Diversity for 2.5-2.7 GHz LTE Indoor FemtoCells**

[Oleg Soykin](#), [Artem Kolobov](#), [Alexey Artemenko](#), [Vladimir Ssorin](#) and [Roman Maslennikov](#) (Radio Gigabit LLC, Russia)

**10:20 On the Performance of Spatial Multiplexing in MIMO-WCDMA Networks with Principal Component Analysis At the Reception**

[Panagiotis Gkonis](#) and [Andrew Kapsalis](#) (National Technical University of Athens, Greece); [Constantinos Zekios](#) (Democritus University of Thrace, Greece); [Dimitra I Kaklamani](#) and [Iakovos S. Venieris](#) (National Technical University of Athens, Greece); [Michael Chryssomallis](#) and [George Kyriacou](#) (Democritus University of Thrace, Greece)

**10:40 Coffee Break**

**11:10 On BER Evaluation of a Regional Anti-Jamming Subcarrier Strategy for MIMO-OFDMA Systems**

[Maria Seimeni](#), [Panagiotis Gkonis](#), [Dimitra I Kaklamani](#) and [Iakovos S. Venieris](#) (National Technical University of Athens, Greece); [Christos Papavassiliou](#) (Imperial College London, United Kingdom)

**11:30 Compact Asymmetric Coplanar Strip-Fed MIMO Antenna for UWB Applications**

[Ahmed Abdelmonem](#) (Elminia, Egypt); [Mahmoud Abdelrahman Abdalla](#) and [Ahmed Abdelraheem](#) (MTC, Cairo, Egypt)

**11:50 MIMO Antenna Concept Based on Characteristic Modes for Indoor Base Stations**

[Thade Hadamik](#), [Robert Martens](#) and [Dirk Manteuffel](#) (University of Kiel, Germany)

**12:10 Two Multiple-Antenna-Port and Multiple-User-Port Antenna Tuners**

[Frederic Broyde](#) and [Evelyne Clavelier](#) (Excem, France)

**12:30 A Fresnel-like Reflector Antenna Design for High-Order Orbital Angular Momentum States**

[Nelson Fonseca](#) and [Ludovic Coulomb](#) (European Space Agency, The Netherlands); [Jean-Christophe Angevain](#) (ESA, The Netherlands)



**MA1 Metamat: Metamaterials**

Antennas/Multi Applications

Room: [Bartolomeu Dias \(Aud 4\)](#)

Chairs: [Christophe Caloz](#) (Ecole Polytechnique de Montreal, Canada), [Sylvain Lannebère](#) (University of Coimbra, Portugal)

**09:00 Chiral Metamaterials for Optical Pulling Forces**

[David Fernandes](#) (University of Coimbra - Instituto de Telecomunicações, Portugal); [Mario Silveirinha](#) (Universidade de Coimbra - Instituto de Telecomunicações, Portugal)

**09:20 Infinite Lifetime States with Quantized Energy in a Core-shell Plasmonic Nanoparticle**

[Sylvain Lannebère](#) (University of Coimbra, Portugal); [Mario Silveirinha](#) (Universidade de Coimbra - Instituto de Telecomunicações, Portugal)

**09:40 Broadband Subwavelength Imaging with a Wire Medium Slab Loaded with Graphene Sheets**

[Ali Forouzmand](#) (University of Mississippi, USA); [Alexander Yakovlev](#) (The University of Mississippi, USA)

**10:00 Minimization of Metasurface Susceptibility Range by Optimizing the Longitudinal Phase and Polarization Angle**

[Karim Achouri](#) and [Mohamed A Salem](#) (Polytechnique Montréal, Canada); [Christophe Caloz](#) (Ecole Polytechnique de Montreal, Canada)



**10:20 Deflection Angle Tuning in Thin Structures with Diffraction Inspired Unidirectionality**

[Pablo Rodríguez-Ulibarri](#) (Universidad Pública de Navarra, Spain); [Miguel Beruete](#) (Universidad Publica de Navarra, Spain); [Miguel Navarro-Cía](#) (Imperial College London, United Kingdom); [Andriy Serebryannikov](#) (Adam Mickiewicz University, Poland)

**10:40 Coffee Break****11:10 Wave Propagation in Periodic Temporal Slabs**

[Mohamed A Salem](#) (Polytechnique Montréal, Canada); [Christophe Caloz](#) (Ecole Polytechnique de Montreal, Canada)

**11:30 Efficient Numerical Analysis of 3D Periodic Metamaterials: Multilayer Approach and Eigenmode Analysis**

[Denis Tihon](#) (Université Catholique de Louvain & ICTEAM Institute, Belgium); [Valentina Sozio](#) (University of Siena, Italy); [Nilufer Ozdemir](#) (Université Catholique de Louvain, Belgium); [Matteo Albani](#) (University of Siena, Italy); [Christophe Craeye](#) (Université Catholique de Louvain, Belgium)

**11:50 Analysis of Metal Insulator Metal Plasmonic Transmission Lines for Improved Rectenna's Coupling Efficiency**

[Islam Hashem Sayed](#) (North Carolina State University, USA); [Nadia Rafat](#) (Cairo University, Egypt); [Ezzeldin Soliman](#) (The American University in Cairo, Egypt)

**12:10 Towards Reflection-less or Total Reflection Magnet-less Nonreciprocal Metasurface**

[Burak Gurlek](#) (École Polytechnique de Montréal, Canada); [Christophe Caloz](#) (Ecole Polytechnique de Montreal, Canada)

**12:30 Asymmetric Band Structures with Nonreciprocal Materials and Chiral Media**

[Filipa Prudencio](#) (Instituto de Telecomunicacoes, Portugal); [Sérgio Matos](#) and [Carlos Paiva](#) (Instituto de Telecomunicações, Portugal)

**MA11 Prop: Other Propagation Topics**

Propagation/Multi Applications

Room: [Gil Eanes \(Aud 3\)](#)

Chairs: [Vincent Fabbro](#) (ONERA, France), [Etienne Perret](#) (Grenoble INP - LCIS, France)

**09:00 E-band Propagation Channel Measurements in an Urban Street Canyon**

[Vasilii Semkin](#) (Aalto University School of Electrical Engineering, Finland); [Usman Tahir Virk](#), [Aki Karttunen](#), [Katsuyuki Haneda](#) and [Antti V. Räsänen](#) (Aalto University, Finland)

**09:20 Assessing and Removing the Impact of Non-Reciprocal Transceiver Circuitry for Channel-Based Key Establishment**

[Attiya Mahmood](#) and [Michael Jensen](#) (Brigham Young University, USA)

**09:40 Trans-Ionospheric Propagation Experiment At HF-band: Channel Measurement and Modelling**

[Frederic Lacoste](#) (CNES, France); [Vincent Fabbro](#) and [Joel Lemorton](#) (ONERA, France); [Guillaume Decerprit](#) (NOVELTIS, France); [Rolland Fleury](#) and [Pascal Pagani](#) (Telecom Bretagne, France); [Françoise Carvalho](#) and [Sebastien Rougerie](#) (CNES, France)

**10:00 Line of Sight MIMO-UWB Short Range Communication in Underground Mine Tunnel**

[Ismail Ben Mabrouk](#) (University Of Quebec In Outaouais, Canada); [Mourad Nedil](#) (UQAT, Canada); [José Carlos Reyes](#) (University of Bergen, Bergen, Norway)

**10:20 Real-Time Channel Model Selection Using Windowed Received Signal Strength Measurements**

[Adrian D McKernan](#) (Queen's University Belfast, United Kingdom); [Simon Cotton](#) (Queen's University, Belfast, United Kingdom)

**10:40 Coffee Break****11:10 Polarisation Characteristics of Propagation Paths in Indoor 70 GHz Channels**

[Aki Karttunen](#), [Katsuyuki Haneda](#) and [Jan Järveläinen](#) (Aalto University, Finland); [Jyri Putkonen](#) (Nokia & Network, Finland)

**11:30 Theoretical Study on Detection Distance for Chipless RFID Systems According to Transmit Power Regulation Standards**

[Arnaud Vena](#) (University of Montpellier II & Institut d'Electronique du Sud (IES), France); [Etienne Perret](#) (Grenoble INP - LCIS, France); [Brice Sorli](#) (University of Montpellier & IES, France); [Smail Tedjini](#) (Grenoble-inp, France)

**11:50 Mitigating Severe Channel Effects Using Tripolar Antenna Diversity**

[Jeff Frolík](#) (University of Vermont, USA)

**12:10 Measurement Process of Vertically Polarized Electromagnetic Surface-Waves Over a Calm Sea in the HF Band Over a Spherical Earth**

[Mathilde Bellec](#) (University of Rennes & TDF, France); [Pierre - Yves Jezequel](#) and [Sébastien Palud](#) (TDF, France); [Franck Colombel](#) and [Stéphane Avrillon](#) (Université de Rennes 1, France); [Pouliguen Philippe](#) (DGA, France)

**12:30 Further Investigations Into Signal Level Enhancements Over Two Over-Sea Radio Paths**

[Naveed Mufti](#) (University of Engineering & Technology Peshawar, Mardan Campus, Pakistan); [David Siddle](#) and [Michael Warrington](#) (University of Leicester, United Kingdom)

**MA8 AntMeasur: General Antenna Measurements**

Measurements/Multi Applications

Room: [João G Zarco \(Pav 3C\)](#)

Chairs: [Dirk Heberling](#) (RWTH Aachen University, Germany), [Hans-Juergen Steiner](#) (Airbus Defence & Space & Electronics Division, Germany)

**09:00 Vertically Polarized Electromagnetic Surface Waves Over a Smooth Sea in HF Band. Measurements and Comparisons with Theoretical Models**

[Mathilde Bellec](#) (University of Rennes & TDF, France); [Christophe Bourlier](#) (Laboratory IETR, University of Nantes, France); [Pierre - Yves Jezequel](#) and [Sébastien Palud](#) (TDF, France); [Franck Colombel](#) and [Stéphane Avrillon](#) (Université de Rennes 1, France); [Pouliguen Philippe](#) (DGA, France)

**09:20 An Improved Method for Simultaneous Calibrations of Gain, Phase Center and Near Boresight Patterns for Log-Periodic Dipole Arrays**

[Zhong Chen](#) (ETS-Lindgren, USA)

**09:40 Effect of the UAV Orientation in Antenna Pattern Measurements**

[Fabio Paonessa](#) (IEIIT - CNR, Italy); [Giuseppe Virone](#) (Istituto di Elett. e di Ingegneria dell'Inform. e delle Telecom. (IEIIT- CNR), Italy); [Andrea Lingua](#), [Marco Piras](#), [Irene Aicardi](#) and [Paolo Maschio](#) (Politecnico di Torino, Italy); [Oscar Peverini](#) (Istituto di Elett. e di Ingegneria dell'Inform. e delle Telecom. (IEIIT- CNR), Italy); [Giuseppe Addamo](#) (Istituto di Elett. e di Ingegneria dell'Inform. e delle Telecom. (IEIIT- CNR), Italy); [Renato Orta](#) (Politecnico di Torino, Italy); [Riccardo Tascone](#) (Istituto di Elett. e di Ingegneria dell'Inform. e delle Telecom. (IEIIT- CNR), Italy); [Pietro Bolli](#) (Osservatorio Astrofisico di Arcetri, Italy)

**10:00 Near Field to Far Field Transformation Applied to HF Antennas**

[Christopher Djoma](#), [Muriel Darces](#) and [Marc Hélier](#) (UPMC Univ Paris 6, France)

**10:20 Quiet Zone Extension of an Existing Compensated Compact Range 75/60**

[Carsten H Schmidt](#) (Airbus DS GmbH, Germany); [Hans-Juergen Steiner](#) (Airbus Defence & Space & Electronics Division, Germany); [Stefan Klett](#) (Airbus DS GmbH, Germany); [Herald Garcia](#) (THALES ALENIA SPACE, France); [Gilbert Forma](#) (Thales Alenia Space, France)

#### 10:40 Coffee Break

#### 11:10 *Combining Mode Rotation with CLEAN: Extract Scatterer Information*

[Marc Dirix](#) and [Dirk Heberling](#) (RWTH Aachen University, Germany)

#### 11:30 *Time-domain Algorithm for FMCW Based Short Distance Ranging System*

[Fangzhou Wang](#) (Beijing Institute of Technology, P.R. China); [Xi Pan](#) (Beijing Institute of Technology, P.R. China); [Chengyong Xiang](#) and [Ming Chen](#) (Beijing Telemetry Technology Research Institute, P.R. China)

#### 11:50 *Feature Extraction for BCIs Based on Electromagnetic Source Localization and Common Spatial Patterns*

[Aleksandr Zaitcev](#), [Greg Cook](#), [Wei Liu](#), [Elizabeth Milne](#) and [Marty Paley](#) (University of Sheffield, United Kingdom)

#### 12:10 *Emulating Spherical Wave Channel Models in Multi-probe OTA Setups*

[Wei Fan](#) (Aalborg University, Denmark); [Xavier Carreño](#) (Intel Mobile Communications, Denmark); [Jesper Ø Nielsen](#) and [Gert Pedersen](#) (Aalborg University, Denmark)

#### 12:30 *On the Number of Required Probes for Anechoic Chamber Based Method for MIMO OTA Testing*

[Wu Xing-feng](#) (Academy of Broadcasting Planning, P.R. China)

### S10 TransArray: Reflectarrays and transmitarrays



Antennas/Space

Room: [Tristão V Teixeira \(Pav 5A\)](#)

Chairs: [Nader Behdad](#) (University of Wisconsin, USA), [Nelson Fonseca](#) (European Space Agency, The Netherlands)

#### 09:00 *Analysis and Optimization of a Curved Transmit-Receive Contoured Beam Reflectarray*

[Min Zhou](#) and [Stig Sørensen](#) (TICRA, Denmark); [Oscar Borries](#) (Technical University of Denmark & TICRA, Denmark); [Erik Jørgensen](#) (TICRA, Denmark)

#### 09:20 *Dual-polarized Low Loss Reflectarray Cells with MEMS-based Dynamic Phase Control*

[Tomislav Debogetic](#) (Ecole Polytechnique Fédérale de Lausanne, Switzerland)

#### 09:40 *A PLL-based Retro-Directive Antenna System for Communications with Arbitrary Frequency Gaps*

[Andreas Winterstein](#), [Lukasz A Greda](#) and [Achim Dreher](#) (German Aerospace Center (DLR), Germany)

#### 10:00 *1-Bit Unit-Cell for Transmitarray Applications in Ka-Band*

[Luca Di Palma](#) (CEA, LETI, Minatec, France); [Antonio Clemente](#) (CEA-LETI Minatec, France); [Laurent Dussopt](#) (CEA, LETI, Minatec, France); [Ronan Sauleau](#) (University of Rennes 1, France); [Patrick Potier](#) (DGA/Maîtrise de l'Information, France); [Philippe Pouliguen](#) (DGA/Direction de la Stratégie, France)

#### 10:20 *A Dual Linearly-Polarized Transmitarray Element*

[Wenbo Pan](#), [Cheng Huang](#), [Xiaoliang Ma](#) and [Xiangang Luo](#) (Institute of Optics and Electronics, Chinese Academy of Sciences, P.R. China)

#### 10:40 Coffee Break

#### 11:10 *Principle of Bifocal Antennas Implemented in a Dual Reflectarray Configuration*

[Carolina Tienda](#) (German Aerospace Center, Germany); [Jose A. Encinar](#) (Universidad Politécnica de Madrid, Spain); [Gerhard Krieger](#) and [Jesus Cuevas Castillo](#) (DLR, Germany)

#### 11:30 *Radiation Pattern Synthesis for Monopulse Radar Applications Using a Reconfigurable Transmitarray in X-Band*

[Luca Di Palma](#) (CEA, LETI, Minatec, France); [Antonio Clemente](#) (CEA-LETI Minatec, France); [Laurent Dussopt](#) (CEA, LETI, Minatec, France); [Ronan Sauleau](#) (University of Rennes 1, France); [Patrick Potier](#) (DGA/Maîtrise de l'Information, France); [Philippe Pouliguen](#) (DGA/Direction de la Stratégie, France)

#### 11:50 *Near-Field Focusing Transmitarray Lens*

[Enrique González-Plaza](#) and [Germán León](#) (Universidad de Oviedo, Spain); [Susana Loredo](#) (University of Oviedo, Spain); [Fernando Las-Heras](#) (Universidad de Oviedo, Spain)

#### 12:10 *A Multibeam Antenna for Imaging Based on Planar Lenses*

[Enrique González-Plaza](#) (Universidad de Oviedo, Spain); [Jorge R. Costa](#) (Instituto de Telecomunicações / ISCTE-IUL, Portugal); [Carlos A. Fernandes](#) (Instituto de Telecomunicações, Instituto Superior Técnico, Portugal); [Germán León](#) (Universidad de Oviedo, Spain); [Susana Loredo](#) (University of Oviedo, Spain); [Fernando Las-Heras](#) (Universidad de Oviedo, Spain)

#### 12:30 *Dual-Polarized Square-Shaped Offset-Fed Reflectarray Antenna with High Gain and High Bandwidth in the 60 GHz Domain*

[Tristan Visentin](#) (Fraunhofer Institute for Telecommunications, Heinrich Hertz Institute, Germany); [Wilhelm Keusgen](#) (Fraunhofer Heinrich Hertz Institute, Germany); [Richard J. Weiler](#) (Fraunhofer HHI, Germany)

### S3 TropProp: Tropospheric Propagation



Propagation/Space

Room: [Paulo da Gama \(Pav 5B\)](#)

Chairs: [Charilaos Kourogiorgas](#) (National Technical University of Athens, Greece), [Jose M Riera](#) (Universidad Politécnica de Madrid, Spain)

#### 09:00 *Statistical Results From Radio Signal Strength Measurement Campaign Over Two Over-Sea Paths in Channel Islands, UK*

[Naveed Mufti](#) (University of Engineering & Technology Peshawar, Mardan Campus, Pakistan); [David Siddle](#) and [Michael Warrington](#) (University of Leicester, United Kingdom)

#### 09:20 *Evidence of Cyclic Behaviour in Historical Rainfall Statistics in Milan*

[Emilio Matricciani](#) and [Carlo Riva](#) (Politecnico di Milano, Italy)

#### 09:40 *Rain Attenuation Estimations At High Latitudes Based on Weather Radar Data*

[Jan Erik Håkegård](#) (SINTEF, Norway); [Snorre Stavik Rønning](#) (Norwegian Meteorological Institute, Norway)

#### 10:00 *Predicting Cloud Attenuation on Earth-Space EHF Links*

[Lorenzo Luini](#) and [Carlo Capsoni](#) (Politecnico di Milano, Italy)

#### 10:20 *Rain Attenuation Time Series Synthesizer Based on Copula Functions*

[Charilaos Kourogiorgas](#) (National Technical University of Athens, Greece); [Arsim Kelmendi](#) (Jozef Stefan Institute, Slovenia); [Athanasios D. Panagopoulos](#) (National Technical University of Athens, Greece); [Spiros Livieratos](#) (ASPETE, Greece); [Andrej Vilhar](#) (Jozef Stefan Institute, Slovenia); [George Chatzarakis](#) (ASPETE, Greece)

**10:40 Coffee Break****11:10 Comparison of Exact and Approximate FSO Rain Attenuation Formulas Based on Actual DSD**

[Vladimir Brazda](#) (Institute of Atmospheric Physics Prague, Czech Republic); [Ondrej Fiser](#) (Institute of Atmospheric Physics & Fac. of Electrical Engineering and Informatics/Uni of Pardubice, Czech Republic)

**11:30 Modeling and Prediction of Tropospheric Radiopropagation Parameters From Ground-based Multi-channel Radiometric Measurements Between Ka and W Band**

[Vinia Mattioli](#) (He-Space Operations & Sapienza University of Rome, Italy); [Frank S. Marzano](#) (Sapienza University of Rome, Italy); [Piero Ciotti](#) (University of L'Aquila, Italy); [Patrizia Basili](#) (University of Perugia, Italy); [Ada Vittoria Bosisio](#) (CNR-IEIIT c/o Politecnico di Milano, Italy); [Kevin Madge](#) and [George Brost](#) (Air Force Research Laboratory, USA)

**11:50 Fade Dynamics Variability in a Long-Term Slant-Path Ka-Band Experiment**

[Jose García-Rubia](#) (The Catholic University of America, USA); [Jose M Riera](#) (Universidad Politécnica de Madrid, Spain); [Pedro Garcia-del-Pino](#) and [Gustavo Siles](#) (Universidad Politécnica de Madrid, Spain); [Ana Benarroch](#) (Universidad Politécnica de Madrid, Spain)

**12:10 Estimate of Tropospheric Scintillation Along a Leo-Leo Link Through High Resolution Radiosonde Data**

[Enrica Martini](#) (University of Siena, Italy); [Angelo Freni](#) and [Luca Facheris](#) (University of Florence, Italy); [Fabrizio Cuccoli](#) (RaSS CNIT & Dep. of Electronic and Telecommunications, Univ of Firenze, Italy)

**12:30 Characteristic Wave Diversity in Near Vertical Incidence Skywave Propagation**

[Ben Witvliet](#) (University of Twente & Radiocommunications Agency Netherlands, The Netherlands); [Mark J. Bentum](#), [Cornelis H Slump](#) and [Roel Schiphorst](#) (University of Twente, The Netherlands); [Erik Van Maanen](#), [George Petersen](#) and [Albert Westenberg](#) (Radiocommunications Agency Netherlands, The Netherlands)

**14:00 - 15:00 (Europe/Berlin)****Poster A5: Antennas Poster Session 5**

Antennas

Room: Luís de Camões (Hall 3)

Chairs: Bisognin Aimeric (CIMPACA-EPIB, France), Joana S. Silva (Laboratory of Electromagnetics and Acoustics / École Polytechnique Fédérale de Lausanne &amp; LEMA, Switzerland)

**Frequency Selective Smart Shield Design for Wireless Signals**

[Maurício Silva](#) (Instituto de Aeronáutica e Espaço, Brazil); [Cynthia Junqueira](#) (Institute of Aeronautics And Space, Brazil); [Ali E Culhaoglu](#) and [Erich Kemptner](#) (German Aerospace Center (DLR), Germany)

**Control of the Pass and Stop Bands Ratio of Complementary Frequency Selective Surfaces**

[Syed Sheheryar Bukhari](#), [William Whittow](#) and [J.\(Yiannis\) Vardaxoglou](#) (Loughborough University, United Kingdom)

**Transparent Circuit Analog Electromagnetic Absorber for Window Applications**

[Ic Pyo Hong](#) and [In Gon Lee](#) (Kongju National University, Korea)

**Antenna-Filter-Antenna Based Frequency Selective Surfaces for Quasi-Optical Applications in Q-Band**

[Hamza Kaouach](#) (UQU University, France); [Amar H Kabashi](#) (Umm Al-Qura University, Saudi Arabia)

**165/183 GHz FSS for the MetOp Second Generation Microwave Sounder Instrument**

[Raymond Dickie](#) and [Robert Cahill](#) (Queens University Belfast, United Kingdom); [Vincent Fusco](#) and [Paul Baine](#) (Queen's University Belfast, United Kingdom); [Peter Campbell](#) (Airbus Defence and Space, United Kingdom); [Yvonne Munro](#) (EADS Astrium, United Kingdom); [Mike Buckley](#) (Airbus Defence and Space, United Kingdom)

**A Switchable Frequency Selective Surface Based on a Modified Jerusalem-Cross Unit Cell**

[Hijab Zahra](#) (Macquarie University, Australia); [Sabaina Rafique](#) (COMSATS Institute of Information Technolgy, Pakistan); [Muhammad Farhan Shafique](#) (COMSATS Institute of Information Technolgy, Pakistan); [Karu Esselle](#) (Macquarie University, Australia)

**Numerical Homogenization and Synthesis of Wave Polarizers Through the Material-by-Design Paradigm**

[Giacomo Oliveri](#) (University of Trento & ELEDIA Research Center, Italy); [Francesca Apolloni](#) and [Angelo Gelmini](#) (ELEDIA Research Center, University of Trento, Italy); [Ephrem Teshale Bekele](#) (University of Trento & Eledia Research Center, DISI, University of Trento, Italy); [Stefano Maci](#) (University of Siena, Italy); [Andrea Massa](#) (University of Trento, Italy)

**A Dual-Band Single-Layer Frequency Selective Surface for Wi-Fi Applications**

[David Ferreira](#) (University of Vigo & Instituto de Telecomunicações, Portugal); [Telmo R. Fernandes](#) (IPLeia / Institute of Telecommunications & ESTG/IT-DL, Portugal); [Iñigo Cuiñas](#) (University of Vigo, Spain); [Rafael F. S. Caldeirinha](#) (IPL - Polytechnic Institute of Leiria & Instituto de Telecomunicação (IT), Portugal)

**FSS Designs Using a Population-Based Hybrid Algorithm Inspired on the Echolocation of Bats**

[Wellington Candeia de Araujo](#) (Universidade Estadual da Paraíba, Brazil); [Adaildo DAssunção Junior](#) (Instituto Federal de Educação, Ciência e Tecnologia da Paraíba, IFPB, Brazil); [Elder Oliveira](#) (State University of Paraíba, Brazil); [Adaildo G Dassuncao](#) (Federal University of Rio Grande do Norte & UFRN - CT - DCO, Brazil)

**Quasi-Optical Phase Retrieval of Radiation Patterns of Non-Standard Horn Antennas At Millimetre and Submillimetre Wavelengths**

[John Anthony Murphy](#), [Ian McAuley](#), [Darragh McCarthy](#) and [Neil Trappe](#) (National University of Ireland Maynooth, Ireland); [Marcin Gradziel](#) (National University of Ireland, Maynooth, Ireland); [Credhe O'Sullivan](#) and [Ronan Mahon](#) (National University of Ireland Maynooth, Ireland)

**300-GHz Horn Antennas for Kiosk Download**

[Takuro Tajima](#) (NTT Device Technology Laboratories & Nippon Telegraph and Telephone Corporation, Japan); [Ho-jin Song](#) (NTT Device Technology Laboratories, Japan); [Makoto Yaita](#) (NTT Microsystem Integration Laboratories, Japan); [Toshihide Tosaka](#) and [Katsumi Fujii](#) (NICT, Japan); [Akifumi Kasamatsu](#) (National Institute of Information and Communications Technology (NICT), Japan)

**160GHz Harmonic-Rejecting Antenna with CMOS Rectifier for Millimeter-Wave Wireless Power Transmission**

[Peng Zhu](#) (Katholieke Universiteit Leuven, Belgium); [Zhongkun Ma](#) (Pierre and Marie Curie University, France); [Guy A. E. Vandenbosch](#) and [Georges G.E. Gielen](#) (Katholieke Universiteit Leuven, Belgium)

**60 GHz On-Chip Antenna Array with Efficiency Improvement Using 3D Microfabrication Technology**

[Paulo Mendes](#) (University of Minho, Portugal); [Pedro Anacleto](#) (Universidade do Minho & Johns Hopkins University, Portugal); [Manuel Zamith](#) (University of Minho, Portugal)

**Design of an Efficient 900 GHz Antenna in Standard CMOS Technology for Imaging Arrays**

[Matteo Perenzoni](#) (Fondazione Bruno Kessler, Italy); [Daniele Cavallo](#) (Delft University of Technology, The Netherlands)

**Theoretical Model Based on Spectral Green's Function Representation for Photoconductive Slot Antennas**

[Alessandro Garufo](#) (TU Delft, The Netherlands); [Giorgio Carluccio](#), [Nuria LLombart](#) and [Andrea Neto](#) (Delft University of Technology, The Netherlands)

**Quasi-Optical System for a Real Time Stand-Off Submillimeter-Wave Dual-Mode Imager**

[Erio Gandini](#) and [Nuria LLombart](#) (Delft University of Technology, The Netherlands); [Duncan Robertson](#) (The University of St Andrews, United Kingdom); [Arttu Luukanen](#) (Asqella Oy, Finland); [Juha Hassel](#) (VTT Technical Research Centre of Finland, Finland); [Tomas Bryllert](#) (Chalmers University of Technology, Sweden); [Roger Appleby](#) (Queen's University Belfast & Roger Appleby MMW Consulting, United Kingdom)

**Suppressed Back-Lobe SIW-Fed MPA Array for 60 GHz Wireless Communication**

[Mahmood Karami](#) and [Ramezan Ali Sadeqhzadeh](#) (K. N. Toosi University of Technology, Iran); [Moein Noferesti](#) (K. N. TOOSI University of Technology, Iran); [Majid Sharifi](#) (Khaje nasir University of Technology, Iran)

**Integrated On-Chip Antennas for THz Spectrometer for Electron Bunch Compression Monitor Applications**

[Mario Schiselski](#) and [Niels Neumann](#) (Technische Universität Dresden, Germany); [Michael Gensch](#) (HZDR, Germany); [Dirk Plettemeier](#) (Dresden University of Technology, Germany)

**High Coupling Radiating Element Using Impedance Transform Stub for Microstrip Comb-Line Antennas in the Millimeter-Wave Band**

[Kazuyuki Seo](#) (Nippon Pillar Packing Co., Ltd., Japan)

**Composite Cavity-Backed Crossed Dipole Coupled to a Magneto-Electric Dipole**

[Son Xuat Ta](#), [Huy Hung Tran](#) and [Ikmo Park](#) (Ajou University, Korea)

**A Folded Loop Antenna with Four Resonant Modes**

[Di Wu](#), [William S. W. Cheung](#) and [Ti Yuk](#) (The University of Hong Kong, Hong Kong)

**Substrate Integrated Waveguide Cavity Backed Slot Antenna with Parasitic Slots for Dual-frequency and Broadband Application**

[Soumava Mukherjee](#) (Indian Institute of Technology Kanpur, India); [Animesh Biswas](#) (IIT Kanpur, India); [Kumar Vaibhav Srivastava](#) (Indian Institute of Technology, Kanpur, India)

**A Printed Circularly Polarized Half-Moon Monopole Antenna**

[Afshin Panahi](#) and [Xiu Long Bao](#) (Dublin Institute of Technology, Ireland); [Giuseppe Ruvio](#) (Dublin Institute of Technology & Antenna & High Frequency Research Centre, Ireland); [Max James Ammann](#) (Dublin Institute of Technology, Ireland)

**Lumped Equivalent Circuit Formulation of Dual Band PIFA**

[Jawad Yousaf](#) (Sungkyunkwan University, South Korea, Korea)

**New Compact Broadband GSM/UMTS/LTE Antenna Realised by 3D Printing**

[Jean-marie Floch](#), [Bilal El Jaafari](#) and [Ahmad El sayed Ahmad](#) (IETR, France)

**Two Multiband Uiplanar Antennas for Microwave Breast Imaging**

[Maria Koutsoupidou](#) (Institute of Communications and Computer Systems, National Technical University of Athens, Greece); [Irene Karanasiou](#) (Institute of Communication and Computer Systems, National Technical University of Athens, Greece); [Constantine G. Kakoyiannis](#) (Institute of Communications and Computer Systems, National Technical University of Athens, Greece); [Nikolaos Uzunoglu](#) (School of Electrical and Computer Engineering, National Technical University of Athens, Greece)

**Slotted Patch Antenna with Broadband Circular Polarization**

[Jeen-Sheen Row](#) and [Jhih-Ming Chen](#) (National Changhua University of Education, Taiwan)

**Realization and Test of a Versatile and Low-Cost Printed Configuration of UWB Dual-Pol Antenna**

[Simona Mazzocchi](#) and [Alessandro Galli](#) (Sapienza University of Rome, Italy); [Marco Zucca](#) (Selex ES S.p.A., Italy)

**Dual-Band Dual-Polarized Microstrip Antenna for Rx/Tx Terminals for High Altitude Platforms**

[Lucas Santos Pereira](#) and [Marcos V. T. Heckler](#) (Universidade Federal do Pampa, Brazil)

**Switched Non-uniformly Distributed-Turns Coil Antenna for Dual-band Operation**

[Ashwani Sharma](#) (University of Deusto, Spain); [Ignacio J Garcia Zuazola](#) (Loughborough University, Spain); [John Batchelor](#) (University of Kent, United Kingdom); [Asier Perallos](#) (Fundacion Deusto, Spain)

**An Inverted-F Antenna Integrated with Solar Cells for Energy Harvesting**

[Youssef Tawk](#) (The University of New Mexico & Notre Dame University Louaize, USA); [Joseph Costantine](#) (American University of Beirut & University of New Mexico, USA); [Christos Christodoulou](#) (University of New Mexico, USA)

**Wideband Monopole Vivaldi Antenna and Its Angular Periodic Performance**

[Marko Tapani Sonkki](#) (University of Oulu, Finland); [Miguel Ferrando-Bataller](#) (Universidad Politecnica De Valencia, Spain); [Eva Antonino-Daviu](#) (Universidad Politecnica de Valencia, Spain); [Erkki T. Salonen](#) (University of Oulu, Finland)

**A Fin Type Wideband Bent Monopole Antenna Closed to L-shape Grounded Plate**

[Kyoichi Iigusa](#) and [Fumihide Kojima](#) (National Institute of Information and Communications Technology, Japan); [Hiroyuki Yano](#) (National Institute of Information and Communications Technology, USA)

**Comparison of a Cavity Antenna with Stacked Patches and a Metasurface-Inspired Design**

[Mario Martinis](#) (University of Rennes 1 & The Institut D'électronique et de Télécommunications de Rennes, France); [Kourosh Mahdjoubi](#), [Ronan Sauleau](#) and [Sylvain Collardey](#) (University of Rennes 1, France); [Loic Bernard](#) (ISL, France)

**Filtering Functions in a Versatile Intricate Antenna**

[Lana Damaj](#) (Institut Mines Telecom, Telecom ParisTech, France); [Anne-Claire Lepage](#) (Institut Mines-Telecom, Telecom ParisTech, France); [Xavier Begaud](#) (Institut Mines Telecom, Telecom ParisTech, France)

**A Dual-Band Compact L-Quad Antenna Array for Radio Localization**

[Mariana G Pralon](#) (Technische Universität Ilmenau, Germany); [Alexander Popugaev](#) (Fraunhofer IIS, Germany); [Dominik Schulz](#) and [Reiner S. Thomä](#) (Ilmenau University of Technology, Germany)

**On the Phase Response and Radiation Efficiency of the Complementary Strip-Slot as an Array Element**

[Elena Abdo-Sánchez](#) (University of Málaga & E.T.S.I. Telecomunicación, Spain); [Teresa María Martín-Guerrero](#) (University of Málaga, Spain); [Jaime Esteban](#) (Universidad Politécnica de Madrid, Spain); [Carlos Camacho-Peñalosa](#) (University of Málaga, Spain)

**A High Efficient Automotive Roof-Antenna Concept for LTE, DAB-L, GNSS and SDARS with Low Mutual Coupling**

[Iuliia Goncharova](#) (University of the Bundeswehr, Munich, Germany); [Stefan Lindenmeier](#) (Universität der Bundeswehr, Germany)

**Design Methods for Efficient Multiband Antennas with Parasitic Elements**

[Tarik Faradi](#) (University of Nice Sophia Antipolis & TRAXENS, France); [Aliou Diallo](#) (University of Nice, France); [Philippe Le Thuc](#) (University of Nice & UNS-CNRS-LEAT, France); [Pascal Daragon](#) (TRAXENS, France); [Robert Staraj](#) (University of Nice-Sophia Antipolis, France)

**Fast Simulation-Driven Design of a Planar UWB Dipole Antenna with an Integrated Balun**

[Slawomir Koziel](#) and [Stanislav Ogurtsov](#) (Reykjavik University, Iceland); [Wlodzimierz Zieniutycz](#) and [Adrian Bekasiewicz](#) (Gdansk University of Technology, Poland)

**Calibration with Single Measurement in Microwave Imaging System for Breast Cancer Detection**

[Sollip Kwon](#), [Heesun Yu](#) and [Seungjun Lee](#) (Ewha Womans University, Korea)

**Overview of Radiofrequency Simulation for Automotive Antennas At Renault**

[Raed El-Makhour](#) and [Martine Gatsinzi-Ibambe](#) (RENAULT S.A.S, France); [Xavier Bunlon](#) and [Philippe Boutier](#) (Renault sas, France)

**Detailed Pattern Computations of the UHF Antennas on the Spacecraft of the ExoMars Mission**

[Cecilia Cappellin](#), [Erik Jørgensen](#) and [Peter Meincke](#) (TICRA, Denmark); [Oscar Borries](#) (Technical University of Denmark & TICRA, Denmark); [Christian Nardini](#) (Thales Alenia Space France, Denmark); [Christophe Dreyer](#) (Thales Alenia Space, France)

**Investigation of Integrated Filter-Antenna Based on Cascaded and Multilayer Approach**

[Sam Weng Yik](#) (UTEM, Malaysia); [Zahriladha Zakaria](#) (Universiti Teknikal Malaysia Melaka, Malaysia); [Mohamad Ariffin Mutalib](#) (Universiti Teknikal Malaysia Melaka & Hang Tuah Jaya, Malaysia); [Abdul Rani Othman](#) (, Malaysia)

**Ex Vivo Tissue Shrinking in Microwave Thermal Ablation**

[Laura Farina](#) (Sapienza University of Rome, Italy); [Claudio Amabile](#) (R&D Unit, HS Hospital Service SpA, Italy); [Yitzhak Nissenbaum](#) (Hadassah Medical Centre, Hebrew University, Israel); [Marta Cavagnaro](#) (Sapienza University of Rome, Italy); [Vanni Lopresto](#) (ENEA, Italian National Agency for New Technologies, Energy and Sustainable Economic Development, Italy); [Rosanna Pinto](#) (ENEA, Italy); [Nevio Tosoratti](#) and [Simone Cassarino](#) (R&D Unit, HS Hospital Service SpA, Italy); [Noam Weiss](#) (Technion IIT, Israel); [S Nahum Goldberg](#) (Hadassah Medical Centre, Hebrew University, Italy)

**Passive Intermodulation in Distributed Circuits with Cascaded Discrete Nonlinearities**

[Dmitry Kozlov](#), [Alexey Shitvov](#) and [Alex Schuchinsky](#) (Queen's University Belfast, United Kingdom)

**Synthesis of a Wide Band Circularly Polarized Directive Parasitic Elements Antenna**

[Jamil Fouany](#) (University of Limoges & Faculty of Science, France); [Marc Thevenot](#) (XLIM-UMR 6172-CNRS, University of Limoges, France); [Cyrille Menudier](#) (XLIM - UMR CNRS 7252 - University of Limoges & Antenna and Associated Waves Dept, France); [Eric Arnaud](#) (University of LIMOGES, France); [Thierry Monediere](#) (University of Limoges & CNRS, France)

**User Body Loss Study for Popular Smartphones**

[Alexandru Tatomirescu](#) and [Gert Pedersen](#) (Aalborg University, Denmark)

**Localization System Using Resonant Magnetic Coupling Factor for Improving Efficiency in Wireless Power Transfer**

[Wei Chen](#) and [Sebastian Rickers](#) (University of Duisburg-Essen, Germany); [Guido Bruck](#) (University of Duisburg Essen, Germany); [Peter Jung](#) (Universität Duisburg-Essen, Germany)

**New Heterogeneous Superstrate High Gain Antenna**

[Loic Martin](#) (IETR & Bouygues Telecom, France); [Bruno Froppier](#) and [Tchanguiz Razban](#) (University of Nantes, France); [Eduardo Motta Cruz](#) (Bouygues Telecom, France)

**Design and Characterization of Multi-Layer Substrate Integrated Waveguide (SIW) Slot Coupler**

[Ratnesh Tiwari](#) and [Soumava Mukherjee](#) (Indian Institute of Technology Kanpur, India); [Animesh Biswas](#) (IIT Kanpur, India)

**Frequency Tunable Wideband Axial-Mode Helix Antennas Using NiTi Shape Memory Alloys**

[Adnan Kaya](#) (Izmir Katip Celebi University, Turkey)

**SMAP Telecom and Science Antenna Multipath Interference**

[Mohamed Abid](#) (JPL / NASA, USA); [Paolo Focardi](#) (Jet Propulsion Laboratory & California Institute of Technology, USA); [Dennis Lee](#) and [Stanley Butman](#) (Jet Propulsion Laboratory, California Institute of Technology, USA); [Luis Amaro](#) and [William A Imbriale](#) (Jet Propulsion Laboratory, USA)

**A Combinatorial Algorithm for Base-station Location Optimization for LTE Mixed-Cell MIMO Wireless Systems**

[Georgia E. Athanasiadou](#), [George Tsoulos](#) and [Dimitra Zarbouti](#) (University of Peloponnese, Greece)



**Poster Awards: Awards Finalists Poster Session**

Room: Fernão M Pinto (Hall 4)

Chairs: Antonio A Moreira (I.S.T. - Technical U. Lisbon / I.T. Lisbon, Portugal), Anja K. Skrivervik (EPFL, Switzerland)

**Compact Terahertz Instruments for Planetary Missions**

[Goutam Chattopadhyay](#), [Theodore Reck](#), [Adrian Tang](#) and [Cecile Jung-Kubiak](#) (NASA-JPL, Caltech, USA); [Choonsup Lee](#) (JPL, USA); [Jose V Siles](#) (NASA Jet Propulsion Laboratory, USA); [Erich Schlecht](#) (NASA-JPL, Caltech, USA); [Yanghyo Kim](#) and [M-c Chang](#) (UCLA, USA); [Imran Mehdi](#) (JPL, USA)

**DTU-ESA Millimeter-Wave Validation Standard Antenna (mm-VAST) – Detailed Design**

[Oleksiy S. Kim](#), [Sergey Pivnenko](#) and [Olav Breinbjerg](#) (Technical University of Denmark, Denmark); [Rolf Jørgensen](#) and [Niels Vesterdal](#) (Ticra, Denmark); [Kim Branner](#), [Peter Berring](#) and [Christen Malte Markussen](#) (Technical University of Denmark, Denmark); [Maurice Paquay](#) (European Space Agency & ESTEC, The Netherlands)

**Evolution of Pin-Flange Adapters for High Frequency Measurements**

[Sofia Rahiminejad](#) and [Elena Pucci](#) (Chalmers University of Technology, Sweden); [Sjoerd Haasl](#) (Royal Institute of Technology, Sweden); [Peter Enoksson](#) (Chalmers University of Technology, Sweden)

**Alamouti Space-time Coding in Car-to-Car Communications - SDR-based Implementation and Measurement**

[Matthias Maschlanka](#), [Torsten Eichner](#), [Michael Meuleners](#) and [Christoph Degen](#) (Hochschule Niederrhein University of Applied Sciences, Germany)

**A New Measurement Technique and Experimental Validations in Determination SAR of N-Antenna Transmitters Using Scalar E-Field Probes**

[Dinh Thanh Le](#) (Le Quy Don Technical University, Vietnam); [Lira Hamada](#) and [Soichi Watanabe](#) (National Institute of Information and Communications Technology, Japan)

**Data-driven Matched Field Processing for Radar-based Microwave Breast Cancer Detection**

[Jochen Moll](#) (Goethe University Frankfurt am Main, Germany); [Joel Harley](#) (University of Utah, USA); [Viktor Krozer](#) (Goethe University of Frankfurt am Main, Germany)

**Propagation Channel At 5.2 GHz in Baltic Sea with Focus on Scattering Phenomena**

[Wei Wang](#) (German Aerospace Center (DLR), Germany); [Gerald Hoerack](#) (Graz University of Technology, Austria); [Jost Thomas](#), [Ronald Raulefs](#), [Michael Walter](#) and [Uwe-Carsten G. Fiebig](#) (German Aerospace Center (DLR), Germany)

**Joint Effects of Clouds and Rain on Ka-Band Earth Observation Data Downlink Systems**

[Lorenzo Luini](#) and [Carlo Capsoni](#) (Politecnico di Milano, Italy)

**Faster Resolution of the 3-D Forward Problems in Microwave Imaging by a Partial-Block BiCGStab Algorithm**

[Corentin Friedrich](#) (IRCCyN - Ecole Centrale de Nantes, France); [Sébastien Bourguignon](#) (Ecole Centrale de Nantes, IRCCyN, France); [Jérôme Idier](#) (IRCCyN, France); [Yves Goussard](#) (Ecole Polytechnique de Montréal, Canada)

**Weather Effects Mitigation At Ka Band by Using Radiometeorological Model Forecast in Deep Space Downlinks**

[Marianna Biscarini](#) (University of La Sapienza, Italy); [Frank S. Marzano](#) (Sapienza University of Rome, Italy); [Luciano Iess](#) (University of Rome La Sapienza, Italy); [Mario Montopoli](#) (CETEMPS - University of L'Aquila, Italy); [Klaide De Sanctis](#) (HIMET, Italy); [Saverio Di Fabio](#) (CETEMPS, Italy); [Maria Montagna](#) (SciSys @ ESA, Germany); [Mattia Mercolino](#) and [Marco Lanucara](#) (European Space Agency, Germany)

**Intersymbol Interference Analysis of a 60 GHz-Band Compact Range Wireless Access System**

[Miao Zhang](#), [Kiyomichi Araki](#), [Jiro Hirokawa](#) and [Makoto Ando](#) (Tokyo Institute of Technology, Japan)

**Cylindrically-bent Rectangular Patch Antennas: Novel Modeling Techniques for Resonance Frequency Variation and Uncertainty**

[Luigi Vallozzi](#) (Ghent University, Belgium); [Freek Boeykens](#) (Verotech BVBA, Belgium); [Hendrik Rogier](#) (Ghent University, Belgium)

**Scalar Metasurface Antennas with Tilted Beam**

[Maciej Smierzchalski](#) (University of Rennes 1, France); [Massimiliano Casaletti](#) (Sorbonne Universités UPMC, France); [Mauro Ettore](#) (University of Rennes 1 & UMR CNRS 6164, France); [Ronan Sauleau](#) (University of Rennes 1, France); [Nicolas Capet](#) (CNES, France)

**Collimating Leaky-Wave Radiation with Metasurfaces**

[Carl Pfeiffer](#) (University of Michigan, USA); [Anthony Grbic](#) (University of Michigan, Ann Arbor, USA)

**Iterative Design Approach for Multi-Band Single-Layer Reflectarrays**

[Michele Borgese](#) (Università di Pisa, Italy); [Filippo Costa](#), [Simone Genovesi](#) and [Agostino Monorchio](#) (University of Pisa, Italy)

**Multistatic Nearfield Imaging Radar for Portal Security Systems Using a High Gain Toroidal Reflector Antenna**

[Carey Rappaport](#) (Northeastern University, USA); [Borja Gonzalez-Valdes](#) (University of Vigo, Spain)

**Low Profile Array With Integrated High Impedance Surfaces For High Performance Adaptive GNSS**[Cedric Martel](#) (ONERA, France)**A Comparative Study of Coherent Time Reversal Minimum Variance Beamformers for Breast Cancer Detection**[Md Delwar Hossain](#) (Faculty of Engineering and IT, University of Technology Sydney (UTS), Australia); [Ananda Sanagavarapu Mohan](#) (University of Technology Sydney (UTS), Australia)**On BER Evaluation of a Regional Anti-Jamming Subcarrier Strategy for MIMO-OFDMA Systems**[Maria Seimeni](#), [Panagiotis Gkonis](#), [Dimitra I Kaklamani](#) and [Iakovos S. Venieris](#) (National Technical University of Athens, Greece); [Christos Papavassiliou](#) (Imperial College London, United Kingdom)**The Effects of Antenna Array Size and Back Lobe Level on Self-Interference and Transmitted Powers for 4G Beamforming Multicell Systems with In-Band Full Duplex Relays**[Dimitra Zarbouti](#), [George Tsoulos](#) and [Georgia E. Athanasiadou](#) (University of Peloponnese, Greece)**Reactively Matched Long Slot Linear Connected Array Antenna**[Hernán V. Barba Molina](#) (University of Stuttgart & IEEE, Germany); [Jan Hesselbarth](#) (University of Stuttgart & IHF -- Institute of Radio Frequency Technology, Germany)**Impact of Neutralization on Isolation in Co-Planar and Back-to-Back Antennas**[Sathya Narayana Venkatasubramanian](#) and [Linsheng Li](#) (Aalto University, Finland); [Clemens Icheln](#) (Aalto University & School of Electrical Engineering, Finland); [Fabien Ferrero](#) (CREMANT, Université Nice-Sophia Antipolis & CREMANT CNRS, France); [Cyril Luxey](#) (University Nice Sophia-Antipolis, France); [Katsuyuki Haneda](#) (Aalto University, Finland)**On-Chip Double Slot Antenna At 300 GHz Enhanced by Artificial Dielectrics**[Waqas Hassan Syed](#) (Delft University of Technology, The Netherlands); [Giuseppe Fiorentino](#) (Delft University of Technology, Italy); [Daniele Cavallo](#) (Delft University of Technology, The Netherlands); [Pasqualina M. Sarro](#) (Delft University of Technology, Italy); [Andrea Neto](#) (Delft University of Technology, The Netherlands)**Analysis of Electrically Large Antennas Using Fast Physical Optics**[Oscar Borries](#) (Technical University of Denmark & TICRA, Denmark); [Hans Henrik Viskum](#), [Peter Meincke](#) and [Erik Jørgensen](#) (TICRA, Denmark); [Per Christian Hansen](#) (Technical University of Denmark, Denmark); [Carsten H Schmidt](#) (Airbus DS GmbH, Germany)**A Novel Collision Avoidance MAC Protocol for Multi-Tag UWB Chipless RFID Systems Based on Notch Position Modulation**[Mohamed El-Hadidy](#) and [Ahmed Elawamry](#) (University of Duisburg-Essen, Germany); [Abdefattah Fawky](#) (M. Sc, Germany); [Maher Khaliel](#) and [Thomas Kaiser](#) (Universität Duisburg-Essen, Germany)**Poster M1: Measurement Poster Session**

Measurements

Room: [Gil Vicente \(Hall 5\)](#)Chairs: [Rasmus Cornelius](#) (RWTH Aachen University, Germany), [Lucia Scialacqua](#) (Microwave Vision Italy, Italy)**A New Method for Detecting Multipactor in Pulse Mode**[Wei Huan](#) (CAST in Xi'an, P.R. China)**Optimized Near Field Antenna Measurements in the Cylindrical Geometry**[Amedeo Capozzoli](#), [Claudio Curcio](#) and [Angelo Liseno](#) (Università di Napoli Federico II, Italy)**Reduction of Cross-Polarization in a Single Offset Parabolic Reflector**[Carolina Tienda](#) (German Aerospace Center, Germany); [Noora Al-Kahachi](#) and [Marwan Younis](#) (German Aerospace Center (DLR), Germany); [Gerhard Krieger](#) (DLR, Germany)**Non-Ideal Quiet Zone Effects on Compact Range Measurements**[Jeffrey Fordham](#) and [David Wayne](#) (MI Technologies, USA); [John McKenna](#) (MI Technologies LLC, USA)**Far-Field Antenna Calculation Based on Randomly Distributed Near-Field Measurement Data**[Mohamed Farouq](#), [Mohammed Serhir](#) and [Dominique Picard](#) (DRE, Laboratoire des Signaux et Systèmes, France)**Quiet Zone Characterization of a Built-It-Yourself Antenna Test Chamber**[Hammam Shakhtour](#), [Joerg Pamp](#) and [Dirk Heberling](#) (RWTH Aachen University, Germany); [Hein de Groot](#) (Industrieweg 12 NL-2382 NV Zoeterwoude, Germany); [Bas de Groot](#) (Industrieweg 12 NL-2382 NV Zoeterwoude, The Netherlands)**Investigations on Probe Phase Center Impact in Antenna Measurement Results Uncertainty for Spherical Near Field Systems**[Gwenn Le Fur](#), [Francisco José Cano](#) and [Luc Duchesne](#) (SATIMO, France); [Daniel Belot](#), [Kevin Elis](#), [Lise Feat](#), [Anthony Bellion](#) and [Romain Contreres](#) (CNES, France)**Wide-Angle ISAR Imaging of Vehicles**[Chenchen J. Li](#) and [Hao Ling](#) (The University of Texas at Austin, USA)**Influence of Antenna Alignment and Line-of-sight Obstruction on the Accuracy of Range Estimates Between a Pair of Miniature UWB Antennas**[Manmohan Sharma](#) (Queen Mary University of London, United Kingdom); [Clive Parini](#) (QMUL, United Kingdom); [Akram Alomainy](#) (Queen Mary University of London, United Kingdom)**High Performance UWB Array Antenna for Brain Tumor Detection Via Scattering Parameters in Microwave Imaging Simulation System**[Aminudin Jamlos](#) (Advanced Communication Engineering (ACE) Centre, Malaysia); [Faizal Jamlos](#) (Universiti Malaysia Perlis, Malaysia); [Abdul Hafizh Ismail](#) (UniMAP, Malaysia)**Material Characterization De-embedding for Rectangular to Square Waveguide**[Alexander Knisely](#) (Air Force Institute of Technology (AFIT), USA); [Michael J Havrilla](#) (Air Force Institute of Technology, USA)**A Pragmatic Approach to Uncertainty Analysis in Free Space Material Measurements**[Luis Rolo](#) and [Elena Saenz](#) (European Space Agency, The Netherlands)**Space Radiation Hardness of PTFE Based RF Substrates for GEO Satellite Application**[Ralf Wilke](#), [Korbinian Schraml](#) and [Dirk Heberling](#) (RWTH Aachen University, Germany)**Microwave Glucose Monitoring in Aqueous- And Blood-Glucose Solutions: In Vitro Feasibility Study**[Jan Vrba](#) (Faculty of Biomedical Engineering, Czech Technical University in Prague, Czech Republic); [Jakub Karch](#) (Czech Technical University in Prague, Czech Republic); [David Vrba](#) (Czech Technical University in Prague & Faculty of Biomedical Engineering, Czech Republic)**Effects of Pulsed RF Disturbances on Aeronautical Communication Systems**[Emmanuel H. Van Lil](#) (Katholieke Universiteit Leuven, Belgium); [Jo Verhaevert](#) (UGent, Belgium); [Jan De Vos](#) and [Dirk Van Troyen](#) (KU Leuven, Belgium)**Radio Link Characterization of the CorteXlab Testbed with a Large Number of Software Defined Radio Nodes**[Achille Mouaffo](#) (Université de Lyon, INRIA, INSA-Lyon, CITI, France); [Leonardo S. Cardoso](#) (INSA Lyon, France); [Hervé Boeglen](#) (Laboratoire XLIM-SIC, France); [Guillaume Villemaud](#) (Université de Lyon, INRIA, INSA-Lyon, CITI, France); [Rodolphe Vauzelle](#) (University of Poitiers, France)

**Mobility Improves Performance of RFID Library Systems**

[Konstantinos Tountas](#) (Technical University of Crete, Greece); [Antonis G Dimitriou](#) (Aristotle University of Thessaloniki, Greece); [Aggelos Bletsas](#) (Technical University of Crete, Greece); [John Sahalos](#) (Aristotle University of Thessaloniki, GR, Thessaloniki & University of Nicosia, CY, Nicosia, Greece)

**On S-Parameter Based Complex Correlation of Multi-Port Antenna**

[Xiaoming Chen](#) (Qamcom Research & Technology AB, Sweden); [Per-Simon Kildal](#) (Chalmers University of Technology, Sweden)

**Impact of the Spatial User Distribution on the Coverage Antenna Pattern of Maximum Ratio Combining in Random Line-Of-Sight**

[Andrés Alayon Glazunov](#) and [Per-Simon Kildal](#) (Chalmers University of Technology, Sweden); [Jan Carlsson](#) (SP Technical Research Institute of Sweden, Sweden); [Madeleine Kildal](#) (Chalmers University of Technology & Bluetest AB, Sweden); [Sadegh Mansouri](#) (Chalmers University of Technology, Iran)

**14:00 - 16:50 (Europe/Berlin)****WS3 MiMed: Translating Microwave Medical Devices from Research Bench to Patient Bedside**

Scientific Workshop

Room: [Diogo de Silves \(Room 1.08\)](#)

Chairs: Raquel C. Conceição (Institute of Biomedical Engineering, University of Oxford & Instituto de Biofísica e Engenharia Biomédica, Faculdade de Ciências, Universidade de Lisboa, United Kingdom), Martin O'Halloran (National University of Ireland, Galway, Ireland)

**15:00 - 16:20 (Europe/Berlin)****Inv\_3A: Invited Speakers Session 3A**

Room: [Diogo Cão \(Aud 8\)](#)

Chair: J (Yiannis) Vardaxoglou (Loughborough University, United Kingdom)

**15:00 Advances in Reconfigurable Antennas for Wireless Communications**

[Y. Jay Guo](#) and [Peiyuan Qin](#) (University of Technology, Sydney, Australia)

**15:40 Characteristic Mode Based Antenna Design – a Straight Forward Approach to Small Form Factor Antenna Integration**

[Dirk Manteuffel](#) (University of Kiel, Germany)

**Inv\_3B: Invited Speakers Session 3B**

Room: [Pedro A Cabral \(Aud 2\)](#)

Chair: Michael Jensen (Brigham Young University, USA)

**15:00 Modeling, Simulation, and Velocity Estimation of Shallow Water Acoustic Vehicle-to-Vehicle Channels**

[Alenka Zajic](#) (Georgia Institute of Technology, USA)

**15:40 The Beauty of Multibeam Antennas**

[Giovanni Toso](#) (European Space Agency, The Netherlands)

**16:50 - 18:30 (Europe/Berlin)****BA2 NearFarMe: Advances in near-field, far-field, compact and RCS test ranges**

Measurements/Bridging other Areas

Room: [Diogo de Silves \(Room 1.08\)](#)

Chairs: Rasmus Cornelius (RWTH Aachen University, Germany), Francesco D'Agostino (University of Salerno, Italy)

**16:50 Experimental Testing on a Near-Field to Far-Field Transformation with Planar Spiral Scanning for Quasi-Planar Antennas**

[Francesco D'Agostino](#), [Flaminio Ferrara](#), [Claudio Gennarelli](#), [Rocco Guerriero](#) and [Massimo Migliozi](#) (University of Salerno, Italy)

**17:10 IETR Millimetre Wave Compact Antenna Test Range: Implementation and Validation**

[Laurent Le Coq](#) (University of Rennes 1 & IETR, France); [Benjamin Fuchs](#) (University of Rennes 1 - IETR, France); [Thomas Kozan](#) and [Sara Burgos](#) (ORBIT/FR Europe GmbH, Germany); [Per Iversen](#) (Orbit/FR, USA)

**17:30 Investigation of Different Matrix Solver for Spherical Near-Field to Far-Field Transformation**

[Rasmus Cornelius](#) (RWTH Aachen University, Germany); [Arya Bangun](#) (RWTH Aachen, Germany); [Dirk Heberling](#) (RWTH Aachen University, Germany)

**17:50 Closed-Loop Real-Time PNF Position Compensation with a Tracking Laser**

[Scott T McBride](#) (MI Technologies, USA)

**18:10 Investigation on Planar Near-to-Far-Field Transformations for EMC Applications**

[Vladimir Volski](#) (KU Leuven, Belgium); [Blaise Ravelo](#) (ESIGELEC, France); [Guy A. E. Vandenberg](#) (Katholieke Universiteit Leuven, Belgium); [Davy Pissoot](#) (KU Leuven, ReMI Research Group, Ostend, Belgium)

**Bi4 AntCoupl: Antenna interactions and coupling**

Antennas/Biomedical

Room: [Pedro A Cabral \(Aud 2\)](#)

Chairs: Christophe Fumeaux (The University of Adelaide & School of Electrical and Electronic Engineering, Australia), Stavros Koulouridis (University of Patras, Greece)

**16:50 A Case-Study to Assess Compliance with Exposure Limit Values for Workers Exposed to Multiple Frequency Electromagnetic Sources**

[Vanni Lopresto](#) (ENEA, Italian National Agency for New Technologies, Energy and Sustainable Economic Development, Italy); [Rosanna Pinto](#) and [Sergio Mancini](#) (ENEA, Italy); [Edoardo Genovese](#) (CST - Computer Simulation Technology AG, Germany); [Marco Renzi](#) and [Mauro Cerboni](#) (Tecnorad Italia S.p.A., Italy)

**17:10 Dosimetry Study of Anatomical Pregnant Woman & Fetus Models Inside Three Different Elevator Cabins**

[Ioanna Karatsi](#) and [Stavros Koulouridis](#) (University of Patras, Greece)

**17:30 Comprehensive Study on Coupled Meandered Microstrip Line RF Coil Elements for 7-Tesla Magnetic Resonance Imaging**

[Ashraf Abuelhaija](#) (Duisburg-Essen University, Germany); [Klaus Solbach](#) (UDE, Germany); [Stephan Orzada](#) (Erwin L. Hahn Institute For Magnetic Resonance Imaging, Germany)

**17:50 Impact of Neutralization on Isolation in Co-Planar and Back-to-Back Antennas**

[Sathya Narayana Venkatasubramanian](#) and [Linsheng Li](#) (Aalto University, Finland); [Clemens Icheln](#) (Aalto University & School of Electrical Engineering, Finland); [Fabien Ferrero](#) (CREMANT, Université Nice-Sophia Antipolis & CREMANT CNRS, France); [Cyril Luxey](#) (University Nice Sophia-Antipolis, France); [Katsuyuki Haneda](#) (Aalto University, Finland)

**18:10 Integrated Antenna Currents on a Polycrystalline Silicon Solar Cell**

[Oisín O'Conchubhair](#), [Patrick McEvoy](#) and [Max James Ammann](#) (Dublin Institute of Technology, Ireland)

**C16 Confor: [C] Conformal Antennas**

Antennas/Multi Applications

Room: [João G Zarco](#) (Pav 3C)

Chairs: [Vakur Erturk](#) (Bilkent University, Turkey), [Zvonimir Sipus](#) (University of Zagreb, Croatia)

**16:50 Analysis of Canonical Curved Metasurfaces**

[Marko Bosiljevac](#) and [Dario Bojanjac](#) (University of Zagreb, Croatia); [Anthony Grbic](#) (University of Michigan, Ann Arbor, USA); [Zvonimir Sipus](#) (University of Zagreb, Croatia)

**17:10 Low-Profile Ultra-Wideband Reconfigurable Tightly-Coupled Arrays**

[Dimitris Papantonis](#) (Ohio State University, USA); [Markus Novak](#) (The Ohio State University, USA); [Nima Ghalichechian](#) (ElectroScience Laboratory & The Ohio State University, USA); [John L. Volakis](#) (Ohio State University, USA)

**17:30 Empirical and Full-Wave Techniques for the Analysis of Cylindrical Microstrip Antennas and Arrays**

[Marcos V. T. Heckler](#) (Universidade Federal do Pampa, Brazil); [Alexis F. Tinoco-S.](#) (Instituto Tecnológico de Aeronáutica & Laboratório de Antenas e Propagação - LAP, Brazil); [Achim Dreher](#) (German Aerospace Center (DLR), Germany); [da Silva Lacava](#) (Instituto Tecnológico de Aeronautica, Brazil)

**17:50 Solid State Vs. Micro-Relay Switches Employed in a Circular Switched Parasitic Array Antenna**

[Claudius Loecker](#) (Fraunhofer Institute of High Frequency Technology and Radar Techniques FHR, Germany); [Thomas Bertuch](#) (Fraunhofer FHR, Germany)

**18:10 Analysis of Cylindrically Conformal Antennas Using Closed-Form Green's Function Representations**

[Mert Kalfa](#) (Bilkent University, Turkey); [Sakir Karan](#) (Aselsan, Turkey); [Vakur Erturk](#) (Bilkent University, Turkey)

**C22 RFID: [C] Emerging chipless RFID technology trends**

Antennas/Multi Applications

Room: [Tristão V Teixeira](#) (Pav 5A)

Chairs: [David Girbau](#) (Universitat Rovira i Virgili, Spain), [Etienne Perret](#) (Grenoble INP - LCIS, France)

**16:50 Potentialities of Dual-Polarized Interrogation for Spectral Domain Chipless Tags**

[Filippo Costa](#), [Simone Genovesi](#), [Agostino Monorchio](#) and [Giuliano Manara](#) (University of Pisa, Italy)

**17:10 Millimetre-wave Scanning Radar for the Detection and Remote Reading of Passive Electromagnetic Sensors**

[Dominique Henry](#) and [Ayoub Rifai](#) (LAAS-CNRS, France); [Herve Aubert](#) (LAAS, France); [Patrick Pons](#) (LAAS-CNRS, University of Toulouse, France)

**17:30 A Novel Phase Encoding Technique Exploiting Linear or Circular Polarization**

[Simone Genovesi](#), [Filippo Costa](#), [Agostino Monorchio](#) and [Giuliano Manara](#) (University of Pisa, Italy)

**17:50 Time-coded Chipless Sensors to Detect Quality of Materials in Civil Engineering**

[Angel Ramos](#) (Universitat Rovira i Virgili, Spain); [Antonio Lazaro](#) (URV, Spain); [David Girbau](#) (Universitat Rovira i Virgili, Spain)

**18:10 High Performance Chipless RFID Reader Based on IR-UWB Technology**

[Marco Garbati](#) (University Grenoble Alpes LCIS, France); [Romain Siragusa](#) (Grenoble INP, France); [Etienne Perret](#) (Grenoble INP - LCIS, France); [Arnaud Vena](#) (University of Montpellier II & Institut d'Electronique du Sud (IES), France); [Christophe Halope](#) (Arjowiggins Security, France)

**C3 Nano: [C] Advanced computational methods and analysis of optical nanoantennas, resonators, and other photonic circuit components**

Antennas/Bridging other Areas

Room: [Diogo Cão](#) (Aud 8)

Chairs: [Alexander Nosich](#) (IRE NASU, Ukraine), [Xuezhi Zheng](#) (Katholieke Universiteit Leuven, Belgium)

**16:50 Integral-Equation Study of Ray Effects and Natural-Mode Resonances in a 2-D Dielectric Prism**

[Ilya O. Sukharevsky](#) and [Ayhan Altintas](#) (Bilkent University, Ukraine)

**17:10 Seebeck Nanoantennas for Infrared Detection and Energy Harvesting Applications**

[Edgar Briones](#) (University of San Luis Potosi, Mexico); [Javier Alda](#), [Juan Carlos Martinez-Anton](#) and [Alexander Cuadrado](#) (Universidad Complutense de Madrid, Spain); [Joel Briones](#) (ITESO, Jesuit University of Guadalajara, Mexico)

**17:30 Modal Analysis in Understanding the Optical Response of a Nanoantenna**

[Xuezhi Zheng](#), [Guy A. E. Vandenbosch](#) and [Victor V. Moshchalkov](#) (Katholieke Universiteit Leuven, Belgium)



**17:50 Wideband Equivalent Circuit for 1-D Periodic Compound Gratings**

[Carlos Molero](#) and [Raúl Rodríguez-Berral](#) (Universidad de Sevilla, Spain); [Francisco Mesa](#) (University of Seville, Spain); [Francisco Medina](#) (University of Sevilla, Spain)

**18:10 Excitation of a Grounded Lossy Dielectric Slab by an External Complex Source Point Beam**

[Nikolaos L. Tsitsas](#) (Aristotle University of Thessaloniki, Greece); [Constantinos A Valagiannopoulos](#) (Aalto University, Finland)

**C32 OTA: [C] MIMO OTA Test Trade-offs**

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Measurements/Cellular Communications

Room: [Afonso de Albuquerque \(Pav 3B\)](#)

Chairs: [Mattias Gustafsson](#) (Huawei Technologies Sweden AB, Sweden), [David A Sánchez-Hernández](#) (Universidad Politécnica de Cartagena, Spain)

**16:50 The Decomposition Method: Accelerated OTA Test of MIMO Devices**

[Bernhard Auinger](#) and [Michael Gadringer](#) (Graz University of Technology, Austria); [Adam Tankielun](#) (Rohde & Schwarz GmbH & Co. KG, Germany); [Thomas Zemen](#) (AIT Austrian Institute of Technology GmbH & FTW Telecommunications Research Center Vienna, Austria); [Christoph von Gagern](#) (Rohde & Schwarz GmbH & Co. KG, Germany); [Wolfgang Boesch](#) (Graz University of Technology & Institute of Microwave and Photonic Engineering, Austria)

**17:10 Advances in Antenna Pattern-Based MIMO OTA Test Methods**

[Moray Rumney](#) (Keysight Technologies, United Kingdom); [Hongwei Kong](#) (Agilent, P.R. China); [Ya Jing](#) (Agilent Technologies, P.R. China); [Xu Zhao](#) (Agilent, P.R. China)

**17:30 LTE Carrier Aggregation MIMO OTA Tests Using a Reverberation Chamber**

[Peter Liao](#) (SGS, Taiwan); [Miguel Mora](#) (EMITE & Edif CEDIT, Parque Tecnológico de Fuente Alamo, Spain)

**17:50 Device-to-Device Extension to Geometry-Based Stochastic Channel Models**

[Tommi Jamsa](#) (Tommi Jamsa Consulting & Huawei Technologies Sweden, Finland); [Pekka Kyösti](#) (Anite Telecoms Oy, Finland)

**18:10 Comparison of Channel Emulation Techniques in Multiprobe Anechoic Chamber Setups**

[Inés Cartón Lorente](#), [Wei Fan](#), [Jesper Ø Nielsen](#) and [Gert Pedersen](#) (Aalborg University, Denmark)



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**C46 TuneSmall: [C] Tuning and Miniaturization Techniques for Small Device Antennas operating at LTE bands**

Antennas/Cellular Communications

Room: [Pêro Escobar \(Pav 3A\)](#)

Chairs: [Samantha Caporal Del Barrio](#) (Aalborg University, Denmark), [Art Morris](#) (Wispry, USA)

**16:50 Characteristic Mode Investigation of a Reactively Loaded Electrically Small Dipole Antenna**

[Matthew Young](#) (University of Illinois at Urbana-Champaign, USA); [Jennifer T. Bernhard](#) (University of Illinois at Urbana-Champaign & Electromagnetics Laboratory, USA)

**17:10 Simple Front-End Concept for the Complex Challenges of Multi-Band Communications**

[Emil Buskgaard](#), [Alexandru Tatomirescu](#) and [Samantha Caporal Del Barrio](#) (Aalborg University, Denmark); [Pevand Bahramzy](#) (Aalborg University & Intel Mobile Communications, Denmark); [Ondřej Franek](#) (Aalborg University & APNet Section, Denmark); [Gert Pedersen](#) (Aalborg University, Denmark)

**17:30 Unveiling the Potential of Antenna Tuners**

[Art Morris](#) (Wispry, USA)

**17:50 Tunable MIMO Antenna for Small Handsets**

[Kimmo Rasilainen](#) (Aalto University School of Electrical Engineering, Finland); [Anu Lehtovuori](#) (Aalto University & School of Electrical Engineering, Finland); [Janne Ilvonen](#) and [Jari Holopainen](#) (Aalto University School of Electrical Engineering, Finland); [Risto Valkonen](#) (Nokia Networks, Finland); [Ville Viikari](#) (Aalto University School of Electrical Engineering, Finland)

**18:10 Electrical Balance Duplexer Adaptation in Indoor Mobile Scenarios**

[Leo Laughlin](#), [Mark Beach](#) and [Kevin A Morris](#) (University of Bristol, United Kingdom); [John Haine](#) (U-blox, United Kingdom)



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**C48 WirelessTr: [C] Wireless Power Transmission and Energy Harvesting**

Antennas/Multi Applications

Room: [Gil Eanes \(Aud 3\)](#)

Chairs: [Alessandra Costanzo](#) (DEIS, University of Bologna, Italy), [Yi Huang](#) (University of Liverpool, United Kingdom)

**16:50 Statistical Modeling of a Shielded Wireless Charging Device**

[Alenka Zajic](#) (Georgia Institute of Technology, USA); [Zoya Popović](#) (University of Colorado at Boulder, USA)

**17:10 Rectenna Demonstrators At Holst Centre / Imec and Eindhoven University of Technology**

[Huib J. Visser](#) (IMEC Netherlands, The Netherlands); [Hans Pflug](#) (Holst Centre / imec, The Netherlands); [Shady Keyrouz](#) (Eindhoven University of Technology, The Netherlands)

**17:30 Circularly Polarized Shorted Ring Slot Rectenna with a Mesh Design for Optimized Inkjet Printing on Paper Substrate**

[Ricard Martinez](#), [Apostolos Georgiadis](#) and [Ana Collado](#) (CTTC, Spain); [Manos M. Tentzeris](#) (Georgia Institute of Technology, USA); [George Goussetis](#) (Heriot-Watt University, United Kingdom); [Jose-Luis Gómez-Tornero](#) (Polytechnic University of Cartagena, Spain)

**17:50 A Broadband Efficient Rectenna Array for Wireless Energy Harvesting**

[Chaoyun Song](#), [Yi Huang](#) and [Jiafeng Zhou](#) (University of Liverpool, United Kingdom); [Sheng Yuan](#) (The University of Liverpool, United Kingdom); [Qian Xu](#) (University of Liverpool, United Kingdom)

**18:10 Antenna Design for Unified Far-Field Communication and Near-Field Recharging**

[Francesco Berra](#) (University of Bologna, Italy); [Alessandra Costanzo](#) (DEI University of Bologna, Italy); [Marco Dionigi](#) (University of Perugia, Italy); [Diego Masotti](#) and [Franco Matri](#) (University of Bologna, Italy); [Mauro Mongiardo](#) and [Roberto Sorrentino](#) (University of Perugia, Italy)



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**HD1 Lenses: Lens antennas and radomes**

Antennas/High Data-rate Transfer

Room: [Gonçalo V Cabral \(Pav 5C\)](#)

Chairs: [Andrey Mozharovskiy](#) (Radio Gigabit LLC & Lobacevski State University of Nizhniy Novgorod, Russia), [Andrea Neto](#) (Delft University of Technology, The Netherlands)

**16:50 Multi-beam Luneburg Lens Antenna for Cellular Communications**

[Tse Tong Chia](#) (Temasek Laboratories@NUS, Singapore)

**17:10 Differences in EM Performance Between Multi-Panel Faceted and Spherical Radomes**

[Aleksey Solovey](#) (L-3 ESSCO, USA)

**17:30 Frequency Independent Patterns From Double Shell Lenses Fed by Leaky Wave Feeders**

[Ozan Yurduseven](#) (Delft University of Technology, The Netherlands); [Jorge R. Costa](#) (Instituto de Telecomunicações / ISCTE-IUL, Portugal); [Carlos A. Fernandes](#) (Instituto de Telecomunicações, Instituto Superior Técnico, Portugal); [Andrea Neto](#) (Delft University of Technology, The Netherlands)

**17:50 Smooth Plate Luneburg Lens with Superstrate**

[Jonathan Bor](#) (IETR - University of Rennes 1, France); [Olivier Lafond](#) (IETR, France); [Mohamed Himdi](#) (Université de Rennes 1, France)

**18:10 High Gain Millimeter-Wave Lens Antennas with Improved Aperture Efficiency**

[Andrey Mozharovskiy](#), [Alexey Artemenko](#), [Vladimir Ssorin](#), [Roman Maslennikov](#) and [Alexey Sevastyanov](#) (Radio Gigabit LLC, Russia)

**MA5 MetaAnt: Metamaterials Antennas and Components** 

Antennas/Multi Applications

Room: [Bartolomeu Dias \(Aud 4\)](#)

Chairs: [Eva Rajo-Iglesias](#) (University Carlos III of Madrid, Spain), [Alexander Yakovlev](#) (The University of Mississippi, USA)

**16:50 V-Band Groove Gap Waveguide Diplexer**

[Morteza Rezaee](#) (Ferdowsi University of Mashhad, Iran); [Ashraf Uz Zaman](#) and [Per-Simon Kildal](#) (Chalmers University of Technology, Sweden)

**17:10 Microwave Horn Antenna Made of a Graphene-Containing Carbon Composite Material**

[Tatyana M. Zaboronkova](#) (Technical University of Nizhny Novgorod, Russia); [Nikolai Dugin](#) (Radiophysical Research Institute, Russia); [Evgeny Myasnikov](#) (Volga State Academy of Water Transport, Russia)

**17:30 Novel Horn-Like Antenna Based on Skewed Transmission Line Lattices**

[Joni Vehmas](#) (Aalto University, Finland)

**17:50 Mutual Coupling Reduction Between Neighboring Strip Dipole Antennas Using Confocal**

[Hossein Mehrpour Bernety](#) (the University of Mississippi, USA); [Alexander Yakovlev](#) (The University of Mississippi, USA)

**18:10 A Zero Beam-Squinting Leaky-Wave Antenna Using NRI-TL Metamaterials**

[Kypros Kossifos](#) and [Marco A. Antoniadis](#) (University of Cyprus, Cyprus)

Friday, April 17

**09:00 - 10:20 (Europe/Berlin)**

**Bi2 BodyCom: Body-Centric Communications** 

Propagation/Biomedical

Room: [Pedro A Cabral \(Aud 2\)](#)

Chairs: [Rosanna Pinto](#) (ENEA, Italy), [Marcel Seguin](#) (University of Calgary, Canada)

**09:00 Head-centric Body-channel Propagation Paths Characterization**

[Andrea Ruaro](#) (Technical University of Denmark & GN ReSound A/S, Denmark); [Jesper Thaysen](#) (GN ReSound A/S, Denmark); [Kaj Bjarne Jakobsen](#) (Technical University of Denmark, Denmark)

**09:20 Impact of Radio Wave Polarisation on Off-Body Communications in Indoor Environments**

[Slawomir J. Ambroziak](#) (Gdansk University of Technology, Poland); [Luis M. Correia](#) (IST - University of Lisbon & INOV-INESC, Portugal); [Ryszard Katulski](#) (Gdansk University of Technology, Poland); [Michal Mackowiak](#) (INOV-INESC / IST - University of Lisbon, Portugal)

**09:40 A Low Profile Microstrip Patch Antenna for Body-Centric Communications At 2.45GHz Band**

[Bright Yeboah-Akouwah](#) and [Panagiotis Kosmas](#) (King's College London, United Kingdom); [Yifan Chen](#) (South University of Science and Technology of China, P.R. China)

**10:00 Analytical Model, Measurements, and Effect of Outer Lossless Shell of Phantoms for On-body Propagation Channel Around the Body for Body Area Networks**

[Rohit Chandra](#) (Norwegian University of Science and Technology (NTNU), Norway); [Anders Johansson](#) (Lund University, Sweden)

**C19 DomainD: [C] Domain decomposition methods and macro-basis functions for integral equations** 

Antennas/Bridging other Areas

Room: [Diogo Cão \(Aud 8\)](#)

Chairs: [Vito Lancellotti](#) (Eindhoven University of Technology, The Netherlands), [Rob Maaskant](#) (CHALMERS, Sweden)

**09:00 A Comparison of Two Types of Macro Basis Functions Defined on LEGO Electromagnetic Bricks**

[Vito Lancellotti](#) (Eindhoven University of Technology, The Netherlands); [Rob Maaskant](#) (CHALMERS, Sweden)

**09:20 Efficient Domain Decomposition Method for Electromagnetic Modeling of Scattering From Forest Environments**

[Ines Fenni](#) (University UPMC, France); [Hélène Roussel](#) (Sorbonne Université UPMC Paris 06, France); [Muriel Darces](#) (UPMC Univ Paris 6, France); [Raj Mittra](#) (Penn State University, USA)

**09:40 Macro-basis Functions for Electromagnetic Modelling of Penetrable and Impenetrable Bodies**

[Matteo Alessandro Francavilla](#) and [Marco Righero](#) (Istituto Superiore Mario Boella, Italy); [Giuseppe Vecchi](#) and [Francesca Vipiana](#) (Politecnico di Torino, Italy)

**10:00 On the Use of Contour-FFT for the MBF-based Analysis of Arrays of Antennas Placed Vertically Above a Multi-layered Substrate**

[Khalidoun Alkhalifeh](#) (Université Catholique de Louvain, Belgium); [Shambhu Nath Jha](#) (ICOMS Detection S.A., Belgium); [Sumit Karki](#) and [Christophe Craeye](#) (Université Catholique de Louvain, Belgium)

**C27 Meta: [C] Latest Progress in Metamaterial-Based Antenna Design**



Antennas/Multi Applications

Room: [Bartolomeu Dias \(Aud 4\)](#)

Chairs: Hisamatsu Nakano (Hosei University, Japan), Xianming Qing (Institute for Infocomm Research, Singapore)

**09:00 Metaspiral Antenna System with Dielectric Slabs**

[Hisamatsu Nakano](#), [Toshio Shimizu](#), [Kenta Yoshida](#) and [Junji Yamauchi](#) (Hosei University, Japan)

**09:20 Mutual-coupling Reduction of Four-element Cavity-backed Slot Antenna System Using Mushroom Walls**

[Guohua Zhai](#) and [Xianming Qing](#) (Institute for Infocomm Research, Singapore); [Zhi Ning Chen](#) (National University of Singapore & Institute for Infocomm Research, Singapore)

**09:40 Wideband Diamond Dipole Antenna with Broadside Radiation Characteristics**

[Chetan Joshi](#) (Institut Mines-Telecom, Telecom ParisTech, France); [Julien Sarrazin](#) (University of Pierre & Marie Curie UPMC, France); [Anne-Claire Lepage](#) and [Xavier Begaud](#) (Institut Mines-Telecom, Telecom ParisTech, France)

**10:00 Analysis of Anisotropic Metamaterial Inclusions and Substrates**

[Chinwe C Njoku](#), [Shiyu Zhang](#), [J Yiannis Vardaxoglou](#) and [William Whittow](#) (Loughborough University, United Kingdom)

**C34 Mobile: [C] Mobile antenna concepts leveraging circuit design techniques**



Antennas/Cellular Communications

Room: [Afonso de Albuquerque \(Pav 3B\)](#)

Chairs: Fabien Ferrero (CREMANT, Université Nice-Sophia Antipolis & CREMANT CNRS, France), Frédéric Ganesello (STMicroelectronics, France)

**09:00 Reconfigurable Antenna for Extension of LTE Operational Mode Over TV White Spaces**

[Le Huy Trinh](#) (University of Nice Sophia Antipolis, France); [Fabien Ferrero](#) (CREMANT, Université Nice-Sophia Antipolis & CREMANT CNRS, France); [Jean Marc Ribero](#) (University of nice & LEAT, France); [Robert Staraj](#) (University of Nice-Sophia Antipolis, France)

**09:20 Optimization of Frequency Tunable Matching Circuits**

[Jussi Rahola](#) (Optenni Ltd, Finland)

**09:40 MEMS Tunable Antennas to Address LTE 600 MHz-bands**

[Samantha Caporal Del Barrio](#) (Aalborg University, Denmark); [Art Morris](#) (Wispry, USA); [Gert Pedersen](#) (Aalborg University, Denmark)

**10:00 Variable Matching Circuit Using SP6T MEMS Switches Dedicated to LTE Multiband Antenna**

[Anne-Claire Lepage](#) (Institut Mines-Telecom, Telecom ParisTech, France); [Bernard Huyart](#) (Institut Mines Telecom, Telecom ParisTech, France); [Thanh Nga Mai](#) (Mines-Telecom Paristech, France)

**C42 Pulsed: [C] Pulsed-field radio: theory, applications, implementation**



Antennas/Multi Applications

Room: [Gonçalo V Cabral \(Pav 5C\)](#)

Chairs: Takamaro Kikkawa (Hiroshima University, Japan), Ioan E. Lager (Delft University of Technology, The Netherlands)

**09:00 Signal Integrity in Pulse-train Excited Array Antennas in Time and Space - A Full TD Analysis**

[Adrianus T De Hoop](#) and [Ioan E. Lager](#) (Delft University of Technology, The Netherlands)

**09:20 An Extension of the Time-Domain Friis Equation**

[Martin Štumpf](#) (Brno University of Technology, Czech Republic); [Guy A. E. Vandenbosch](#) (Katholieke Universiteit Leuven, Belgium)

**09:40 Impulse Based Radio Technology for Mm-Waves**

[Daniel Sjöberg](#), [Lars Ohlsson](#), [Iman Vakili](#), [Mats Gustafsson](#) and [Lars-Erik Wernersson](#) (Lund University, Sweden)

**10:00 Digital Confocal Imaging of Breast Cancer Using UWB-CMOS Integrated Circuits**

[Takamaro Kikkawa](#), [Afreeen Azhari](#), [Kenji Hashimoto](#), [Yuji Seo](#), [Hayato Kono](#) and [Mitian Wang](#) (Hiroshima University, Japan); [Xia Xiao](#) (Tianjin University, P.R. China); [Akihiro Toya](#) (Kure National College of Technology, Japan); [Yoshihiro Masui](#) (Hiroshima Institute of Technology, Japan); [Junnichi Somei](#), [Eiji Suematsu](#) and [Yuichi Watarai](#) (Sharp, Japan); [Hiromasa Watanabe](#) and [Toshihiko Ohta](#) (Sharp-Takaya, Japan)

**C5 Plasma: [C] Advances in Plasma-based Antennas and Devices**



Antennas/Defense and Security

Room: [João G Zarco \(Pav 3C\)](#)

Chairs: Theodore Anderson (Haleakala Research and Development, USA), Davide Melazzi (University of Padova, Italy)

**09:00 Plasma Metamaterials, and Their Reconfigurable and Nonlinear Properties**

[Osamu Sakai](#) (The University of Shiga Prefecture, Japan)

**09:20 An Overview of Experimental and Numerical Results on the Performance of Plasma Antennas Arrays**

[Theodore Anderson](#) (Haleakala Research and Development, USA); [Davide Melazzi](#) (University of Padova, Italy); [Vito Lancellotti](#) (Eindhoven University of Technology, The Netherlands)

**09:40 Plasma Microdischarge as Power-Induced Limiter Element in Microstrip Devices**

[Romain Pascaud](#) (Université de Toulouse - ISAE, France); [Francisco Pizarro](#) (Pontificia Universidad Católica de Valparaíso, Chile); [Thierry Callegari](#), [Laurent Liard](#) and [Olivier Pascal](#) (Université de Toulouse - UPS INPT CNRS, France)

**10:00 Reconfigurable Leaky Wave Antenna Using a Gradient Index Plasma**

[Jerome Sokoloff](#) (University Paul Sabatier of Toulouse, France); [Asma Kallel](#) (Université Paul Sabatier-CNRS-LAPLACE, France); [Thierry Callegari](#) (Université de Toulouse - UPS INPT CNRS, France)

**C6 mmSpace: [C] Advances in space-fed antennas for millimeter-wave communications**

Antennas/Space

Room: [Tristão V Teixeira \(Pav 5A\)](#)

Chairs: Laurent Dussopt (CEA, LETI, Minatec, France), Andrea Neto (Delft University of Technology, The Netherlands)

**09:00 Collimating Leaky-Wave Radiation with Metasurfaces**

[Carl Pfeiffer](#) (University of Michigan, USA); [Anthony Grbic](#) (University of Michigan, Ann Arbor, USA)

**09:20 Physical-Optics Analysis and Design of a Beam-Forming Network Coupled to an Imaging-System Configuration for Ka-Band Satellite Applications**

[Etienne Girard](#) (Thales Alenia Space, France); [Guido Valerio](#) (Sorbonne Universités UPMC, France); [Mauro Ettore](#) (University of Rennes 1 & UMR CNRS 6164, France); [Ronan Sauleau](#) (University of Rennes 1, France); [Hervé Legay](#) (Thalès Alenia Space, France)

**09:40 True-Time-Delay Reflectarray and Transmitarrays Based on Miniaturized Element Frequency Selective Surfaces**

[Seyed Mohamad Amin Momeni Hasan Abadi](#) (University of Wisconsin-Madison, USA); [Nader Behdad](#) (University of Wisconsin, USA)

**10:00 Millimeter-wave Beam-Scanning Antennas Using Liquid Crystals**

[Gerardo Perez-Palomino](#) (Universidad Politécnica de Madrid, Spain); [Jose A. Encinar](#) and [Mariano Barba](#) (Universidad Politecnica de Madrid, Spain); [Robert Cahill](#) and [Raymond Dickie](#) (Queens University Belfast, United Kingdom); [Paul Baine](#) (Queen's University of Belfast, United Kingdom); [Michael Bain](#) (Queen's University Belfast, United Kingdom)

**CC1 mmWProp: Propagation for mmW and 5G**

TOP

Propagation/Cellular Communications

Room: [Pêro Escobar \(Pav 3A\)](#)

Chairs: Thomas Kürner (Technische Universität Braunschweig, Germany), Reiner S. Thomä (Ilmenau University of Technology, Germany)

**09:00 Precipitation Modelling for Performance Evaluation of Ad-Hoc Microwave 5G Mesh Networks**

[Péter Kántor](#) and [László Csurgai-Horváth](#) (Budapest University of Technology and Economics, Hungary); [Árpád Drozdy](#) (Aalto University, Finland); [János Bitó](#) (Budapest University of Technology and Economics, Hungary)

**09:20 Millimeter Wave Channel Measurements and Modeling for Indoor Femtocell Applications**

[Nektarios Moraitis](#) (National Technical University of Athens & Institute of Communications and Computers Systems, Greece); [Athanasios D. Panagopoulos](#) (National Technical University of Athens, Greece)

**09:40 Coverage and Outage Capacity Evaluation in 5G Millimeter Wave Cellular Systems: Impact of Rain Attenuation**

[Charilaos Kourgiorgas](#) (National Technical University of Athens, Greece); [Stavros Sagkriotis](#) (NTUA, Greece); [Athanasios D. Panagopoulos](#) (National Technical University of Athens, Greece)

**10:00 Enhanced Graph-theoretic Channel Model for Performance Evaluation of MIMO Antennas and Millimeter Wave Communications**

[Traianos Yioultis](#) and [Dimitrios Ntaikos](#) (Aristotle University of Thessaloniki, Greece); [Athanasios C. Iossifides](#) (Alexander Technological Educational Institute of Thessaloniki & ATEI of Thessaloniki, Greece)

**MA2 WireAnt: Wire antennas**

TOP

Antennas/Multi Applications

Room: [Gil Eanes \(Aud 3\)](#)

Chairs: Qing-Xin Chu (South China University of Technology, P.R. China), Ala Sharaiha (Université de Rennes 1 &amp; IETR, France)

**09:00 A Dual-Polarized Base-Station Antenna for LTE Communication System**

[Xing-Xin Guo](#) (School of Electronic and Information Engineering, P.R. China); [Ding-Liang Wen](#) and [Qing-Xin Chu](#) (South China University of Technology, P.R. China)

**09:20 A Broadband Dual-Polarized Antenna with  $\Gamma$ -Shaped Feeding Structures**

[Ding-Liang Wen](#) and [Qing-Xin Chu](#) (South China University of Technology, P.R. China)

**09:40 Analysis of Electrical Dipole Linear Array Maximum Directivity**

[Antonio Clemente](#) (CEA-LETI Minatec, France); [Christophe Delaveaud](#) (CEA-LETI, France); [Lionel Rudant](#) (CEA-LETI & MINATEC, France)

**10:00 Characteristic Mode Coupling in Dipoles and Dipole Arrays**

[Aaron King](#) and [Jennifer T. Bernhard](#) (Electromagnetics Laboratory, University of Illinois at Urbana-Champaign, USA)

**S6 Reflector: Reflector, feed systems and components**

TOP

Antennas/Space

Room: [Paulo da Gama \(Pav 5B\)](#)

Chairs: Jean-Christophe Angevain (ESA, The Netherlands), Nuria LLombart (Delft University of Technology, The Netherlands)

**09:00 Analysis of Electrically Large Antennas Using Fast Physical Optics**

[Oscar Borries](#) (Technical University of Denmark & TICRA, Denmark); [Hans Henrik Viskum](#), [Peter Meincke](#) and [Erik Jørgensen](#) (TICRA, Denmark); [Per Christian Hansen](#) (Technical University of Denmark, Denmark); [Carsten H Schmidt](#) (Airbus DS GmbH, Germany)

**09:20 Fast Prediction of Aperture Efficiency and Sidelobe Levels in Shaped Reflector Systems Through Model Based Output Space Mapping**

[Dirk de Villiers](#) (Stellenbosch University, South Africa); [Marianna Ivashina](#) (Chalmers University of Technology, Sweden); [Rob Maaskant](#) (CHALMERS, Sweden)

**09:40 Fast and Accurate Analysis of Reflector Antennas with Struts and Satellite Platform Scattering**

[Niels Vesterdal](#) (Ticra, Denmark); [Oscar Borries](#) (Technical University of Denmark & TICRA, Denmark); [Min Zhou](#), [Knud Pontoppidan](#) and [Erik Jørgensen](#) (TICRA, Denmark)

**10:00 Noise Performance of a Phased-Array Feed Composed of Thick Vivaldi Elements with Embedded Low-Noise Amplifiers**

[Bruce Veidt](#), Tom Burgess, Keith Yeung, Stéphane Claude, Ivan Wevers, Mark Halman, Pat Niranjana, Matthew Yao, Alex Jew and Anthony Willis (NRC Herzberg, Canada)

## 10:50 - 12:10 (Europe/Berlin)

### Bi7 SmallAnt: Small antennas and RF sensors

Antennas/Biomedical

Room: [Pedro A Cabral \(Aud 2\)](#)

Chairs: Stefano Caizzone (German Aerospace Center (DLR), Germany), Oleksiy S. Kim (Technical University of Denmark, Denmark)

#### 10:50 *Passive RFID Couplets as Wireless Interface for Sensor Applications*

[Stefano Caizzone](#) (German Aerospace Center (DLR), Germany); [Emidio Di Giampaolo](#) (University of L'Aquila, Italy); [Gaetano Marrocco](#) (University of Rome Tor Vergata, Italy)

#### 11:10 *Characterization of Chip-Size Electrically-Small Antennas for Smart Wireless Biomedical Devices*

[Paulo Mendes](#) (University of Minho, Portugal); [José Fernandes](#) (DEI- University of Minho, Portugal); [Pedro Anacleto](#) (Universidade do Minho & Johns Hopkins University, Portugal); [Hugo Dinis](#) (University of Minho, Portugal)

#### 11:30 *Stored Energy of Coupled Electric and Magnetic Currents and the Lower Bound on Q*

[Oleksiy S. Kim](#) (Technical University of Denmark, Denmark)

#### 11:50 *On the Geometry, Impedance Matching and Quality Factor of Implantable Planar Dipole Antennas*

[Sofia Bakogianni](#) and [Stavros Koulouridis](#) (University of Patras, Greece)

### C11 GeoSci: [C] Antennas and Propagation for Geoscience Applications

Propagation/Radars

Room: [Bartolomeu Dias \(Aud 4\)](#)

Chairs: Alessandro Galli (Sapienza University of Rome, Italy), Greg Hislop (CSIRO Earth Science and Resource Engineering, Australia)

#### 10:50 *Sparse MIMO Arrays for Short-Range Imaging*

[Alexander Yarovoy](#) (Delft University of Technology, The Netherlands); [Harun Cetinkaya](#) (Microwave Sensing, Signals and Systems (MS3), Delft University of Technology, The Netherlands)

#### 11:10 *Ground Permittivity Estimation Using Radar to Ground Coupling*

[Greg Hislop](#) (CSIRO Earth Science and Resource Engineering, Australia)

#### 11:30 *Efficient Simulation of Coupled Ground Antennas*

[Khalidoun Alkhalifeh](#) (Université Catholique de Louvain, Belgium); [Nilufer Ozdemir](#) (Université Catholique de Louvain, Belgium); [Christophe Craeye](#) (Université Catholique de Louvain, Belgium)

#### 11:50 *GPR Early-Time Signal Features for the Evaluation of Shallow-Soil Permittivity*

[Elena Pettinelli](#) (Roma Tre University, Italy); [Davide Comite](#) and [Alessandro Galli](#) (Sapienza University of Rome, Italy); [Sebastian Lauro](#) and [Elisabetta Mattei](#) (Roma Tre University, Italy)

### C2 3D: [C] 3D Printing / Additive Manufacturing Technology of Electromagnetic Structure

Antennas/Multi Applications

Room: [Gil Eanes \(Aud 3\)](#)

Chairs: Corey Shemelya (University of Texas at El Paso, USA), Hao Xin (University of Arizona, USA)

#### 10:50 *3D PRINTING MULTI-FUNCTIONALITY: Embedded RF Antennas and Components*

[Corey Shemelya](#) (University of Texas at El Paso, USA); [Michael Zemba](#) (NASA Glenn Research Center, USA); [David Espalin](#) (University of Texas at El Paso, USA); [Craig Kief](#) (Configurable Space Microsystems Innovations and Applications Center & University of New Mexico, USA); [Hao Xin](#) (University of Arizona, USA); [Eric MacDonald](#) and [Ryan Wicker](#) (University of Texas at El Paso, USA)

#### 11:10 *3D Printed 20/30-GHz Dual-Band Offset Stepped-Reflector Antenna*

[Olav Breinbjerg](#) and [Oleksiy S. Kim](#) (Technical University of Denmark, Denmark)

#### 11:30 *Frequency Selective Surfaces Formed by Partially Metalizing 3D Printed Shapes*

[Benito Sanz-Izquierdo](#) (University of Kent, United Kingdom); [Edward Parker](#) (The University of Kent, United Kingdom)

#### 11:50 *Microwave and THz Components Printed Using Additive Manufacturing Technique*

[Min Liang](#) and [Hao Xin](#) (University of Arizona, USA)

### C31 Microflu: [C] Microfluidics and Tunable Material Systems for Antenna Reconfiguration and Control

Antennas/Cellular Communications

Room: [Pêro Escobar \(Pav 3A\)](#)

Chairs: Ozlem Aydin Civi (Middle East Technical University, Turkey), Nader Behdad (University of Wisconsin-Madison, USA)

#### 10:50 *Tunable mm-Wave Artificial Impedance Surfaces Using Piezoelectric Bender Actuators*

[Marina Mavridou](#), [Alexandros Feresidis](#) and [Peter Gardner](#) (University of Birmingham, United Kingdom)

#### 11:10 *Microfluidically Reconfigured Frequency Tunable Dipole Antenna*

[Abhishek Dey](#) (University of South Florida, USA); [Asimina Kiourti](#) (The Ohio State University, USA); [Gokhan Mumcu](#) (University of South Florida, USA); [John L. Volakis](#) (Ohio State University, USA)

#### 11:30 *A Fluidically-Tunable, Dual-Band Patch Antenna*

[Tonmoy Bhattacharjee](#) and [Hongrui Jiang](#) (University of Wisconsin Madison, USA); [Nader Behdad](#) (University of Wisconsin-Madison, USA)

**11:50 Complex Modes of a Tunable Graphene-Based Fabry-Perot Cavity THz Antenna**  
 Walter Fuscaldo, Paolo Burghignoli, Paolo Baccarelli and Alessandro Galli (Sapienza University of Rome, Italy)

#### MA14 ActiveAnt: Active and integrated antennas



TOP

Antennas/Multi Applications

Room: Gonçalo V Cabral (Pav 5C)

Chairs: Deepak Nagarkoti (Queen Mary University of London, United Kingdom), Mohammad S. Sharawi (King Fahd University of Petroleum and Minerals (KFUPM), Saudi Arabia)

**10:50 High-Efficiency On-Chip Antenna Array for Terahertz Power Source**  
 Daniele Cavallo, Akshay Visweswaran, Nuria LLombart, Marco Spirito, Andrea Neto and John Long (Delft University of Technology, The Netherlands)

**11:10 Development of Superconducting Front-End T/R Module for Active Phased Array Antenna**  
 Hiroyuki Kayano (Toshiba Corporation, Japan)

**11:30 Power Amplifier Based Integrated and Miniaturized Active Antenna**  
 Sagar Kumar Dhar (King Fahd University of Petroleum and Minerals, Saudi Arabia); Oualid Hammi (KFUPM, Saudi Arabia); Mohammad S. Sharawi (King Fahd University of Petroleum and Minerals (KFUPM), Saudi Arabia); Fadhel Ghannouchi (University of Calgary, Canada)

**11:50 Noise Measurements of a Non-Foster Circuit for Matching of a Receiver Antenna**  
 Deepak Nagarkoti (Queen Mary University of London, United Kingdom); Yang Hao (Queen Mary, University of London, United Kingdom); Khalid Z Rajab (Queen Mary University of London, United Kingdom)

#### MA9 ConforAnt: Conformal antennas



TOP

Antennas/Multi Applications

Room: João G Zarco (Pav 3C)

Chairs: Carl Pfeiffer (University of Michigan, USA), Luigi Vallozzi (Ghent University, Belgium)

**10:50 A Conical Phased Array for Reliable and Discrete Communications**  
 Vincent Jaeck (French-German Research Institute of Saint-Louis, France); Loic Bernard (ISL, France); Kouroch Mahdjoubi (Université de Rennes, France); Ronan Sauleau and Sylvain Collardey (University of Rennes 1, France); Philippe Pouliguen (DGA/Direction de la Stratégie, France); Patrick Potier (DGA/Maîtrise de l'Information, France)

**11:10 Cylindrically-bent Rectangular Patch Antennas: Novel Modeling Techniques for Resonance Frequency Variation and Uncertainty**  
 Luigi Vallozzi (Ghent University, Belgium); Freek Boeykens (Verotech BVBA, Belgium); Hendrik Rogier (Ghent University, Belgium)

**11:30 CPW-fed Dual Band Monopole Antenna Based on Conductive Polymers**  
 Zahir Hamouda (Institut Aéronautique, Université de Blida, Algeria)

**11:50 Circumferential Array of Cylindrical Hybrid Antennas**  
 Prêntice Ribeiro Filho (Laboratório de Antenas e Propagação - LAP, Brazil); Alexis F. Tinoco-S. (Instituto Tecnológico de Aeronáutica & Laboratório de Antenas e Propagação - LAP, Brazil); Daniel Nascimento (Laboratório de Antenas e Propagação - LAP, Brazil); da Silva Lacava (Laboratório de Antenas e Propagação, Brazil)

#### S7 NumSpace: Electromagnetic theory and numerical techniques for Space Applications



TOP

Antennas/Space

Room: Paulo da Gama (Pav 5B)

Chairs: Dragan I. Olcan (University of Belgrade, Serbia), Giovanni Toso (European Space Agency, The Netherlands)

**10:50 Modal Analysis of Planar Structures Loaded with Wire-Medium Slabs Using a Transmission-Line Approach**  
 Davide Comite, Paolo Baccarelli, Paolo Burghignoli, David Di Ruscio and Alessandro Galli (Sapienza University of Rome, Italy)

**11:10 Exact Solution for Anisotropic, Periodically Modulated Boundary Conditions Excited by a Surface Wave**  
 Francesco Caminita, Enrica Martini and Stefano Maci (University of Siena, Italy)

**11:30 Antennas in Reception**  
 Andrea Neto, Ozan Yurduseven and Nuria LLombart (Delft University of Technology, The Netherlands); Angelo Freni (University of Florence, Italy)

**11:50 Characterization of Printed Transmission Lines At High Frequencies**  
 Sven van Berkel (Delft University of Technology, The Netherlands); Alessandro Garufo (TU Delft, The Netherlands); Nuria LLombart and Andrea Neto (Delft University of Technology, The Netherlands)

#### S9 AntSpace: Antennas for Space Applications



TOP

Antennas/Space

Room: Tristão V Teixeira (Pav 5A)

Chairs: Benedetta Fiorelli (ESA-ESTEC, Noordwijk, Netherlands, The Netherlands), Per Magnusson (Ruag Space Sweden, Sweden)

**10:50 Antenna Development for MetOp Second Generation Wind Scatterometer**  
 Chung-Chi Lin (European Space Agency/ESTEC, The Netherlands); Allan Østergaard and Marc Loiselet (European Space Agency, The Netherlands); Quiterio García and Ana Trastoy (Airbus Defence and Space, Spain); Per Magnusson (Ruag Space Sweden, Sweden); Patrik Dimming and Mikael Petersson (RUAG Space Sweden, Sweden)

**11:10 MetOp-SG SCA Antenna Breadboard Definition, Manufacturing and Testing**  
 Quiterio García, Ana Trastoy and Antonio Montesano (Airbus Defence and Space, Spain); Ignacio Herrera and Aurelio Gualo (TTI Norte, Spain); Chung-Chi Lin (European Space Agency/ESTEC, The Netherlands); Allan Østergaard (European Space Agency, The Netherlands)

**11:30 A Thermally Stable Dual-Polarized Waveguide Array**  
 Per Magnusson (Ruag Space Sweden, Sweden); Patrik Dimming (RUAG Space Sweden, Sweden)

**11:50 A Ray-tracing Method to Analyzing Modulated Planar Fabry-Perot Antennas**

[Mikkel Dahl Hougs](#), [Oleksiy S. Kim](#) and [Olav Breinbjerg](#) (Technical University of Denmark, Denmark)

**W2 VehicProp: Propagation for Vehicle-to-X Communication**

Propagation/Wireless Networks

Room: [Afonso de Albuquerque](#) (Pav 3B)

Chairs: [Edith Condo Neira](#) (SP Technical Research Institute of Sweden, Sweden), [Kristian Karlsson](#) (SP Technical Research Institute of Sweden, Sweden)

**10:50 Combination of Full Wave Methods and Ray Tracing for Radiation Pattern Simulations of Antennas on Vehicle Roofs**

[Marina Mocker](#) (Technische Universität München, Germany); [Manuel Schiller](#) (Technische Universität München, Germany); [Robert Brem](#) (Technische Universität München, Germany); [Zuguang Sun](#) (TU München, Germany); [Hicham Tazi](#) (AUDI AG, Germany); [Thomas F. Eibert](#) (Technische Universität München, Germany); [Alois Knoll](#) (Technical University Munich Garching, Germany)

**11:10 Combined LTE and IEEE 802.11p Antenna for Vehicular Applications**

[Edith Condo Neira](#), [Jan Carlsson](#) and [Kristian Karlsson](#) (SP Technical Research Institute of Sweden, Sweden); [Erik G Ström](#) (Chalmers University of Technology, Sweden)

**11:30 On the Effect of Vertical Spatial Diversity on V2V Communication for Three Different Platooning Scenarios**

[Kristian Karlsson](#) (SP Technical Research Institute of Sweden, Sweden); [Gunnar Ledfelt](#) and [Samuel Wickström](#) (Scania, Sweden); [Russ Whiton](#) (Volvo Trucks, Sweden); [Magnus JV Olbäck](#) (Volvo Technology, Sweden); [Johan Rogö](#) (Kapsch, Sweden); [Marcus Larsson](#) (Qamcom Research and Technology AB & Halmstad University, Sweden)

**11:50 Alamouti Space-time Coding in Car-to-Car Communications - SDR-based Implementation and Measurement**

[Matthias Maschlanka](#), [Torsten Eichner](#), [Michael Meuleners](#) and [Christoph Degen](#) (Hochschule Niederrhein University of Applied Sciences, Germany)

**12:10 - 13:10 (Europe/Berlin)****Closing Session**

Room: [Diogo Cão](#) (Aud 8)