Technical Program

Monday, April 11

Monday, April 11, 09:00 - 10:00 (Europe/Zurich)

Opening: Opening Session

Room: Davos
Chairs: Juan R Mosig (Ecole Polytechnique Federale de Lausanne, Switzerland), Cyril Mangenot (European Space Agency, The Netherlands)

Plenary

Monday, April 11, 10:00 - 10:40 (Europe/Zurich)

Keynote-A: Opening Session

Room: Davos

Keynote

10:00 ***Antenna Challenges for 5G***
Wen Tong (Huawei Technologies Canada Co., Ltd., Canada)

Monday, April 11, 11:10 - 11:50 (Europe/Zurich)

Keynote-B: Opening Session

Room: Davos

Keynote

11:10 ***Millimeter-Wave Channels in Urban Environments***
Andreas Molisch, Aki Karttunen, Rui Wang and C. Umit Bas (University of Southern California, USA); Sooyoung Hur (Samsung Electronics Co., Korea); Jeongho Park (Samsung Electronics, Korea); Jianzhong Zhang (Samsung Telecommunications America, USA)

Monday, April 11, 11:50 - 12:30 (Europe/Zurich)

Keynote-C: Opening Session

Room: Davos

Keynote

11:50 ***Broadband Millimeter-Wave and THz Antenna Arrays for Space and Security Applications***
Zoya Popović (University of Colorado at Boulder, USA)

Monday, April 11, 14:00 - 16:00 (Europe/Zurich)

A47: Reflectarrays and transmitarrays I

Multiple Applications
Room: A Dischma
Chairs: Rafael Boix (University of Seville, Spain), Angelo Freni (University of Florence, Italy)

Regular

14:00 ***Reflectarray Antenna with Reduced Crosspolar Radiation Pattern***
Daniel Rodríguez Prado (Universidad de Oviedo & Group of Signal Theory and Communications, Spain); Manuel Arrebola, Marcos Pino and Fernando Las-Heras (Universidad de Oviedo, Spain); Rafael Florencio (Universidad de Sevilla, Spain); Rafael Boix (University of Seville, Spain); Jose A. Encinar (Universidad Politecnica de Madrid, Spain)

14:20 ***Single-Layer Reflectarray Antennas with Improved Bandwidth by Attaching Phase-Delay Lines***
Chunhui Han (National Space Science Center, Chinese Academy of Sciences & University of Chinese Academy of Sciences, P.R. China); Yunhua Zhang (Center for Space Science and Applied Research, Chinese Academy of Sciences, P.R. China); Qingshan Yang (National Space Science Center, Chinese Academy of Sciences, P.R. China)

14:40 ***Linearly-polarized Transmit-Arrays for mmWave Applications; Comparative Study and Perspective***
Muhammad Irfan Ul haq Malick (Umm Al-Qura University & Fatih University, Saudi Arabia); Hamza Kaouach (UQU University, France); Erdal Korkmaz (Fatih University, Turkey)

15:00 ***A Wideband Folded Reflectarray Using Single-Layered Sub-Wavelength Elements***
Lu Guo, Peng-Khiang Tan and Tan-Huat Chio (National University of Singapore, Singapore)

15:20 ***Cross-polar Reduction in Reflectarray Antennas by Means of Element Rotation***
Rafael Florencio (Universidad de Sevilla, Spain); Jose A. Encinar (Universidad Politecnica de Madrid, Spain); Rafael Boix (University of Seville, Spain); Gerardo Perez-Palomino (Universidad Politécnica de Madrid, Spain); Giovanni Toso (European Space Agency, The Netherlands)

15:40 ***A Low-Cost Complementary Reflectarray with Cosecant Square Pattern for Radar Applications***
Giorgio Carluccio (Delft University of Technology, The Netherlands); Agnese Mazzinghi and Angelo Freni (University of Florence, Italy)

CS03a: AMTA/EurAPP Session, Advances in MIMO and Over-the-Air Performance Testing

Cellular and short-range communication
Room: A Flüela
Chairs: Yi Huang (University of Liverpool, United Kingdom), Janet O'Neil (ETS-Lindgren & TMC China, USA)

Convened

14:00 ***A Software-Defined-Radio Platform for Multiple-Input-Multiple-Output Over-The-Air Measurement***
Tian Hong Loh (UK, National Physical Laboratory, United Kingdom); Chong Li (National Physical Laboratory, United Kingdom); Haowen Wang (Shanghai Research Center for Wireless Communications, P.R. China); Fei Qin (Chinese Academy of Sciences, P.R. China)

14:20 ***Recent Advances in the Radiated Two-Stage MIMO OTA Test Method and Its Value for Antenna Design Optimization***
Moray Rumney (KeysightTechnologies, United Kingdom); Penghui Shen (General

Test Systems, P.R. China); Zhang Zheng (General Test Sytems, P.R. China); Hongwei Kong (Keysight Technologies Co Ltd., P.R. China); Ya Jing (Keysight Technologies, P.R. China)

14:40 ***MIMO Over-The-Air Testing for Electrically Large Objects in Non-Anechoic Environments***
Christopher Schirmer, Mario Lorenz and Wim A. Th. Kotterman (Technische Universität Ilmenau, Germany); Rainer Perthold (IZT GmbH, Germany); Markus Landmann (Fraunhofer Institute for Integrated Circuits IIS, Germany); Giovanni Del Galdo (Fraunhofer Institute for Integrated Circuits IIS & Technische Universität Ilmenau, Germany)

15:00 ***Analysis of the Uniform Plane Wave Distribution Model for the Reverberation Chamber***
Michael Foegelle (ETS-Lindgren, USA)

15:20 ***Stirring Effectiveness Characterization Based on Doppler Spread in a Reverberation Chamber***
Zhihao Tian, Yi Huang and Qian Xu (University of Liverpool, United Kingdom)

15:40 ***Measured Probabilities of Detection for 1- And 2 Bitstreams of 2-port Car-roof Antenna in RIMP and Random-LOS***
Madeleine Schilliger Kildal (Chalmers University of Technology & Bluetest AB, Sweden); Andrés Alayon Glazunov (Chalmers University of Technology, Sweden); Jan Carlsson (SP Technical Research Institute of Sweden, Sweden); John Kvarnstrand (Bluetest AB, Sweden); Amir Majidzadeh (Volvo Car Corporation, Sweden); Per-Simon Kildal (Chalmers University of Technology, Sweden)

A26: Metamaterials I

Fundamental research
Room: A Schwartzhorn
Chairs: Ala Sharaiha (Université de Rennes 1 & IETR, France), Dimitrios Sounas (The University of Texas at Austin, USA)

Regular

14:00 ***Parity-Time Symmetry for Cloaking and Negative Refraction***
Dimitrios Sounas (The University of Texas at Austin, USA); Romain Fleury (University of Texas at Austin, USA); Andrea Alù (The University of Texas at Austin, USA)

14:20 ***Design Method of CRLH TL Inspired Phase Shifters***
Jonathan Vivos (ONERA - The French Areospace Lab & Thalès Alenia Space, France); Thomas Crepin (ONERA, France); Michel-François Foulon (Thales Alenia Space, France); Jerome Sokoloff (Université de Toulouse, UPS, INP & CNRS, France)

14:40 ***Improved Microwave Absorption of Pyramidal Absorber Using Metamaterial***
Laura Pometcu (University of Rennes 1 & DGA, France); Ala Sharaiha (Université de Rennes 1 & IETR, France); Ratiba Benzerga (IETR - Université de Rennes 1, France); Philippe Pouliguen (DGA/Direction de la Stratégie, France); Gwenaël Dun (SIEPEL, France)

15:00 ***Transmission Enhancement Between Dual-band Textile Diamond Dipole Antennas with A Dual-band Textile AMC***
Muhammad Azfar Abdullah, Mohamad Kamal A. Rahim, Noor Asmawati Samsuri and Noor Asniza Murad (Universiti Teknologi Malaysia, Malaysia)

15:20 ***Modeling and Measurement of Metamaterial Antenna Reception Performance Based on Software Defined Radio***
Huseyin Akcelik, Kadır Ozden, Ahmet Ozer, Yılmaz Durna and Hasan Kocer (Turkish Military Academy, Turkey)

15:40 ***Multiple Metascreen for Efficient Phase Control with Small Printed Elements Variation***
Maddalena Violetti, Enrica Martini and Francesco Caminita (University of Siena, Italy); Marco Sabbadini (Esa Estec, The Netherlands); Stefano Maci (University of

Siena, Italy)

CS25: Optical antennas: scaling electromagnetics to the nanoscale

Fundamental research
Room: A Seehorn
Chairs: Christophe Fumeaux (The University of Adelaide & School of Electrical and Electronic Engineering, Australia), Richard W. Ziolkowski (University of Arizona, USA)

Convened

14:00 ***Passive and Active Metamaterial-Inspired Nano-Scale Antennas***
Richard W. Ziolkowski (University of Arizona, USA)

14:20 ***Optical Antennas for Far and Near Field Metrology***
Fabrizio Silvestri (Eindhoven University of Technology & Nederlandse Organisatie voor Toegepast- Natuurwetenschappelijk Onderzoek TNO, The Netherlands); Felipe Bernal Arango and Kim Vendel (Nederlandse Organisatie voor Toegepast-Natuurwetenschappelijk Onderzoek TNO, The Netherlands); Giampiero Gerini (TNO - Defence, Security and Safety, The Netherlands); Stefan Bäumer (TNO, The Netherlands); Femius Koenderink (FOM Institute AMOLF, The Netherlands)

14:40 ***Angle Sensing LWIR Detectors Using Coupled Nano-Antenna Arrays***
Bahareh Behzadnezhad and Elham Mohammadi (University of Wisconsin Madison, USA); Nader Behdad (University of Wisconsin-Madison, USA)

15:00 ***Terahertz and Optical Dielectric Resonator Antennas: Potential and Challenges for Efficient Designs***
Christophe Fumeaux (The University of Adelaide & School of Electrical and Electronic Engineering, Australia); Chengjun Zou and Daniel Headland (The University of Adelaide, Australia); Shruti Nirantar (RMIT University, Australia); Philipp Gutruf (University of Applied Sciences Karlsruhe, Germany); Longfang Zou (Imperial Colleege, United Kingdom); Madhu Bhaskaran and Sharath Sriram (RMIT University, Australia); Withawat Withayachumnankul (The University of Adelaide, Australia)

15:20 ***A Dedicated Volume Integral Equation (VIE) for the Analysis of Nanoparticle-on-Mirror (NPoM) Structures***
Xuezhi Zheng, Guy A. E. Vandenbosch and Victor V. Moshchalkov (Katholieke Universiteit Leuven, Belgium)

15:40 ***Heterodyne Terahertz Detection Through Plasmonic Photomixing***
Mona Jarrahi and Ning Wang (University of California Los Angeles, USA); Hamid Javadi (Jet Propulsion Laboratory, USA)

CS30: Pulsed-field radio: applications & implementation

Multiple applications
Room: A Sertig
Chairs: Ioan E. Lager (Delft University of Technology, The Netherlands), Claudio Sacchi (University of Trento, Italy)

Convened

14:00 ***Determining the Pulsed EM Radiation Characteristics of Thin Planar Antennas From Their Thévenin Network Representation***
Martin Štumpf (Brno University of Technology, Czech Republic); Guy A. E. Vandenbosch (Katholieke Universiteit Leuven, Belgium)

14:20 ***Time Domain Characterization of Millimeter Wave Pulses***
Daniel Sjöberg, Lars Ohlsson, Iman Vakili, Mats Gustafsson and Lars-Erik Wernersson (Lund University, Sweden)

14:40 ***A Fast Analysis of the Transient Radiation From Reflector Antennas Excited by Pulsed Beams***
Hsi-Tseng Chou (National Taiwan University, Taiwan); Prabbakar Pathak (The Ohio State University, USA)

15:00 ***Impulse-Radio Waveforms for MM-Wave Satellite Communications: Potential Benefits and Open Issues***
Mauro De Sanctis (University of Rome "Tor Vergata", Italy); Claudio Sacchi (University of Trento, Italy); Ernestina Cianca (University of Rome Tor Vergata, Italy); Tommaso Rossi (University of Rome "Tor Vergata", Italy)

15:20 ***Sub-100 Ps Monocycle Pulses for 5G UWB Communications***
Domenico Zito (University College Cork & Tyndall National Institute, Ireland)

15:40 ***Propagation of Gaussian Monocycle Pulses in Breast Phantoms with Slot Antenna Arrays***
Hang Song (Hiroshima University, The Netherlands); Hayato Kono (Hiroshima University, Japan); Xia Xiao (Tianjin University, P.R. China); Takamaro Kikkawa (Hiroshima University, Japan)

M1: Near Field Antenna Measurements

Multiple Applications
Room: A Wisshorn
Chairs: Francesca Mioc (Consultant, Switzerland), Sergiy Pivnenko (Antenna Systems Solutions, Denmark)

Regular

14:20 ***Spherical Near Field Offset Measurements Using Downsampled Acquisition and Advanced NF/FF Transformation Algorithm***
Lars Foged and Francesco Saccardi (Microwave Vision Italy, Italy); Francesca Mioc (Consultant, Switzerland); Per Iversen (Orbit/FR, USA)

14:40 ***Fast Hybrid Antenna Testing with Probe Compensated Procedure***
Giorgio Giordanengo (Istituto Superiore Mario Boella & Politecnico di Torino, Italy); Marco Righero (Istituto Superiore Mario Boella, Italy); Francesca Vipiana and Giuseppe Vecchi (Politecnico di Torino, Italy); Javier Leonardo Araque Quijano (Universidad Nacional de Colombia, Colombia)

15:00 ***Comparison of Near and Far Field Fousing Patterns for Two-Dimensional Sparse MIMO Arrays***
Harun Cetinkaya and Simon Kueppers (Fraunhofer-FHR, Germany); Reinhold Herschel, Stefan Lang and Nils Pohl (Fraunhofer FHR, Germany)

15:20 ***Antenna Diagnostics for Power Flow in Extreme Near-Field of a Standard Gain Horn***
Paula Irina Popa and Olav Breinbjerg (Technical University of Denmark, Denmark)

CS38a: Theory and Application of Characteristic Modes

EM modelling and simulation
Room: B Jakhobshorn
Chairs: Yikai Chen (University of Electronic Science and Technology of China, P.R. China), Dirk Manteuffel (University of Kiel, Germany)

Convened

14:00 ***Scattering Analysis for Arbitrarily Shaped Dielectric Bodies Using Characteristic Modes***
Yikai Chen (University of Electronic Science and Technology of China, P.R. China); Shiwen Yang (University of Electronic Science and Technology of China (UESTC), P.R. China)

14:20 ***Effects of Dielectrics and Internal Resonances on Modal Analysis of Terminal Chassis***
Zachary Miers and Buon Kiong Lau (Lund University, Sweden)

14:40 ***Crossed-Slot Antenna Array Design for an Incoherent Scatter Radar and Characteristic Modes Analysis***
Juan Ciafardini (Universidad Nacional de La Plata, Argentina); Eva Antonino-Daviu (Universidad Politecnica de Valencia, Spain); Marta Cabedo-Fabrés and Nora Mohamed Mohamed-Hicho (Universidad Politécnica de Valencia, Spain); Jose Bava (Universidad Nacional de La Plata, Argentina); Miguel Ferrando-Bataller (Universidad Politecnica De Valencia, Spain)

15:00 ***Bi-directional Pattern of Two-Notch Antenna by Characteristic Modes Analysis***
Hiroyuki Arai (Yokohama National University, Japan)

15:20 ***Systematic Approach for Electrically Tuning N-port Antenna System Based on Characteristic Modes***
Montaha Bouezzeddine (Rheinmain University of Applied Sciences, Germany); Werner L. Schroeder (RheinMain University of Applied Sciences, Germany)

15:40 ***Effects of Internal Components on Designing MIMO Terminal Antennas Using Characteristic Modes***
Zachary Miers and Buon Kiong Lau (Lund University, Sweden); Max Landaeus (Lite-On Mobile, Sweden); Augustine Sekyere and John Ako Enohnyaket (Lund University, Sweden)

A44: Optimisation methods

Multiple Applications
Room: B Pisch+ Parsenn
Chair: Slawomir Koziel (Reykjavik University, Iceland)

Regular

14:00 ***Multi-Objective Antenna Design Using Sequential Domain Patching with Automated Determination of Patch Size***
Slawomir Koziel (Reykjavik University, Iceland); Adrian Bekasiewicz (Gdansk University of Technology, Poland)

14:20 ***Cost-Efficient Modeling of Input Characteristics of Narrow-Band Antennas Using Response Features***
Slawomir Koziel (Reykjavik University, Iceland); Adrian Bekasiewicz (Gdansk University of Technology, Poland); Leifur Leifsson (Iowa State University, USA)

14:40 ***Optimization Procedure for Wideband Matched Feed Design***
Michael Palvig (Technical University of Denmark & TICRA, Denmark); Erik Jørgensen and Peter Meincke (TICRA, Denmark); Olav Breinbjerg (Technical University of Denmark, Denmark)

15:00 ***Enabling the Optimization-Based Design of Complex EM Devices Through the System-by-Design Approach***
Andrea Massa (University of Trento, Italy); Giacomo Oliveri (University of Trento & ELEDIA Research Center, Italy); MArco Salucci (ELEDIA Research Center, Italy); Paolo Rocca (University of Trento, Italy)

15:20 ***A Procedure to Correct the Response of Manufactured Groove Gap Waveguide Components***
Antonio Berenguer (Universitat Politecnica de Valencia & Instituto de Telecomunicaciones y Aplicaciones Multimedia, Spain); Mariano Baquero-Escudero, Daniel Sanchez-Escuderos and Vicente Boria (Universidad Politécnica de Valencia, Spain); Felipe Vico (Universitat Politècnica de València, Spain)

15:40 ***An Alternating Projections Algorithm for Optimizing Electromagnetic Fields in Regional Hyperthermia***
Christos Liontas (Fraunhofer Institute for High Frequency Physics and Radar Techniques FHR, Germany); Peter Knott (Fraunhofer FHR, Germany)

CS13: Compressed Sensing Theory Adopted in RF Applications (CSinRF)

Multiple applications
Room: B Rinerhorn
Chairs: Giovanni Del Galdo (Fraunhofer Institute for Integrated Circuits IIS & Technische Universität Ilmenau, Germany), Joachim H. G. Ender (Fraunhofer FHR & Universität Siegen, Germany)

Convened

14:00 ***Compressed Sensing Applied to Spherical Near-field to Far-field Transformation***
Rasmus Cornelius, Dirk Heberling, Niklas Koep, Arash Behboodi and Rudolf Mathar (RWTH Aachen University, Germany)

14:20 ***Direction of Arrival Estimation Using Robust Complex Lasso***
Esa Ollila (Aalto University, Finland)

14:40 ***Bypassing Extensive ADC Requirements in the Presence of Interference Using Compressed Sensing***
Jacek M Pierzchlewski and Torben Larsen (Aalborg University, Denmark)

15:00 ***Empirical Discretization Errors in Sparse Representations for Motion State Estimation with Multi-Sensor Radar Systems***
Hossein Azodi, Uwe Siart, Thomas F. Eibert and Christian Koenen (Technische Universität München, Germany)

15:20 ***Antenna Array Optimization Strategies for Robust Direction Finding***
Marcus Grossmann (Fraunhofer Institute for Integrated Circuits IIS, Germany); Venkatesh Ramireddy and Jonas König (Ilmenau University of Technology, Germany); Markus Landmann (Fraunhofer Institute for Integrated Circuits IIS, Germany); Florian Roemer (Ilmenau University of Technology, Germany); Giovanni Del Galdo (Fraunhofer Institute for Integrated Circuits IIS & Technische Universität Ilmenau, Germany); Rainer Perthold (IZT GmbH, Germany)

15:40 ***Compressive Sensing as Applied to Electromagnetics - Challenges, Solutions, and Future Trends***
Andrea Massa (University of Trento, Italy); Giacomo Oliveri (University of Trento & ELEDIA Research Center, Italy); Nicola Anselmi and Lorenzo Poli (University of Trento, Italy)

A34: Millimetre and sub-millimetre antennas

Radar, Defence and security
Room: C Aspen 1
Chairs: Per-Simon Kildal (Chalmers University of Technology, Sweden), Nuria LLombart (Delft University of Technology, The Netherlands)

Regular

14:00 ***Design of a Dual-Band FSS Based Bolometer for Security Imagers At THz Frequencies***
Shahab Oddin Dabironezare (Technical University of Delft, The Netherlands); Erio Gandini (Delft University of Technology, The Netherlands); Juha Hassel (VTT Technical Research Centre of Finland, Finland); Andrea Neto and Nuria LLombart (Delft University of Technology, The Netherlands)

14:20 ***A Dual-Element MIMO Antenna System with a mm-Wave Antenna Array***
Rifaqat Hussain (KFUPM, Saudi Arabia); Mohammad S. Sharawi (King Fahd University of Petroleum and Minerals (KFUPM), Saudi Arabia); Ali Al-Reshaid (KFUPM, Saudi Arabia); Symon K. Podilchak (Heriot-Watt University, United Kingdom)

14:40 ***122 GHz Aperture-Coupled Stacked Patch Microstrip Antenna in LTCC Technology***
Akanksha Bhutani, Heiko Gulan, Benjamin Goettel and Christoph Heine (Karlsruhe Institute of Technology, Germany); Torsten Thelemann (Micro-Hybrid Electronic GmbH, Germany); Mario Pauli (Karlsruhe Institute of Technology, Germany); Thomas Zwick (Karlsruhe Institute of Technology (KIT), Germany)

15:00 ***Investigation on a 77-GHz Broadside Vivaldi Antenna***
Claudia Vasanelli, Hedi Meti and Christian Waldschmidt (University of Ulm, Germany)

15:20 ***An Ultra-Wideband Millimeter-Wave Phased Array***
Markus Novak (The Ohio State University, USA); Felix Miranda (NASA John H. Glenn Research Center, USA); John L. Volakis (Ohio State University, USA)

15:40 ***Micromachined Linear Slot Array Antenna for 100 GHz with 10 dB Gain Using GAP Waveguide Technology***
Sofia Rahiminejad and Ashraf Uz Zaman (Chalmers University of Technology, Sweden); Sjoerd Haasl (Royal Institute of Technology, Sweden); Per-Simon Kildal and Peter Enoksson (Chalmers University of Technology, Sweden)

A13: Array antenna analysis and synthesis

Radar, Defence and security
Room: C Aspen 2
Chairs: Marianna Ivashina (Chalmers University of Technology, Sweden), Andrea Massa (University of Trento, Italy)

Regular

14:00 ***Reconfigurable Aperiodic Array Synthesis by Compressive Sensing***
Carlo Bencivenni and Marianna Ivashina (Chalmers University of Technology, Sweden); Rob Maaskant (CHALMERS, Sweden)

14:20 ***Truncation Effects in Finite Wideband Connected Arrays Loaded with Artificial Dielectrics***
Waqas Hassan Syed, Daniele Cavallo and Andrea Neto (Delft University of Technology, The Netherlands)

14:40 ***Antenna Aperture Tapers for Regulatory Tradeoff***
Daniel Llorens (ViaSat Antenna Systems SA, Switzerland)

15:00 ***Design of Simplified Large Array Structures for Preliminary Experimental Validation***
Lorenzo Poli and Paolo Rocca (University of Trento, Italy); Giorgio Gottardi (ELEDIA Research Center, University of Trento, Italy); Andrea Massa (University of Trento, Italy)

15:20 ***Equivalent Circuit and Scanning Capabilities of Long Slot Arrays with TEM Parallel-Feed Excitation***
Francesco Foglia Manzillo (University of Rennes 1 - IETR, France); Mauro Ettorre (University of Rennes 1 & UMR CNRS 6164, France); Ronan Sauleau (University of Rennes 1, France); Nicolas Capet (CNES, France)

15:40 ***A Minkowski-Based Interval Analysis Tool for Pattern Distortions in Reflector Antennas with Localized Surface Deformations***
Nicola Anselmi, Paolo Rocca and Andrea Massa (University of Trento, Italy)

Monday, April 11, 16:30 - 18:30 (Europe/Zurich)

A6: Antenna Arrays

Multiple applications
Room: A Dischma
Chairs: Darwin Blanco (University of Rennes 1, France), Daniel Sjöberg (Lund University,

Sweden)

Regular

16:30 ***A Novel Dual-polarized Slot Yagi-Uda Array Antenna with High Gain and Low Profile***
Liu Hu, Ying Liu and Shuxi Gong (Xidian University, P.R. China)

16:50 ***A Novel Dual-Polarization and Dual-band Slotted Waveguide Antenna Array for Dual-Use Radars***
Arismar Cerqueira S. Jr. and Igor da Costa (INATEL, Brazil); Sergio Pinna (Scuola Superiore Sant'Anna, Italy); Suzanne Melo (National Institute of Telecommunications & Laboratory WOCA, Brazil); Francesco Laghezza, Filippo Scotti and Paolo Ghelfi (CNIT, Italy); Danilo Spadoti (Universidade Federal de Itajubá - UNIFEI, Brazil); Antonella Bogoni (CNIT, Italy)

17:10 ***Beam-Steerable Microstrip-Fed Bow-Tie Antenna Array for Fifth Generation Cellular Communications***
Naser Ojaroudiparchin and Ming Shen (Faculty of Engineering and Science, Aalborg University, Denmark); Gert Pedersen (Aalborg University, Denmark)

17:30 ***Corporate Distribution Networks for Slot Array Antenna Based on Groove Gap Waveguide Technology***
Ali Farahbakhsh (Graduate University of Advanced Technology, Iran); Davoud Zarifi (Iran University of Science and Technology, Iran); Ashraf Uz Zaman and Per-Simon Kildal (Chalmers University of Technology, Sweden)

17:50 ***Grating Lobe Suppression and Gain Enhancement in Periodic Thinned Array by Using PCB Antennas in a Fabry Perot Cavity***
Darwin Blanco (University of Rennes 1, France); Eva Rajo-Iglesias (University Carlos III of Madrid, Spain); Nuria LLombart (Delft University of Technology, The Netherlands)

18:10 ***Microstrip Antenna Array Integrated with 60 GHz Band CMOS Injection Locked Power Amplifier***
Alexander V Bondarik, Markus Tormanen, Daniel Sjöberg and Henrik Sjöland (Lund University, Sweden); Aimeric Bisognin (University Nice Sophia-Antipolis & STMicroelectronics, France); Fabien Ferrero (University Nice Sophia Antipolis, CNRS, LEAT & CREMANT, France); Cyril Luxey (University Nice Sophia-Antipolis, France)

CS03b: AMTA/EurAPP Session, Advances in MIMO and Over-the-Air Performance Testing

Cellular and short-range communication
Room: A Flüela
Chairs: Michael Foegelle (ETS-Lindgren, USA), Janet O'Neil (ETS-Lindgren & TMC China, USA)

Convened

16:30 ***Reconfigurable OTA Chamber for MIMO Wireless Device Testing***
Rashid Mehmood (Brigham Young University, USA); Jon Wallace (Lafayette College, USA); Michael Jensen (Brigham Young University, USA)

16:50 ***Evaluation of Devices with Adaptive Antennas Using Over the Air Techniques***
Doug Reed, Ronald Borsato and Alfonso Rodriguez-Herrera (Spirent Communications, USA)

17:10 ***Test Zone Characterization for the Multiprobe Anechoic Chamber Setup (MPAC)***
Alessandro Scannavini and Lars Foged (Microwave Vision Italy, Italy); Nicolas Gross (SATIMO, France); Lassi Hentila and Virtala Virtala (Anite, Finland); Aki Hekkala (Anite, Italy)

17:30 ***One Novel VDT+OTA Test Method to Reproduce Field Radio Environment in***

Lab

Zheng Liu and Xiao Zhang (China Academy of Information and Communication Technology, P.R. China); Huaizhi Yang (Anite Telecoms, P.R. China); Jin Wang (Anite Telecoms, Beijing, P.R. China); Lassi Hentila (Anite, Finland)

17:50 ***A Tetherless, Absolute-Time Channel Sounder and Channel Results From Two Factory Environments***

David Novotny (US National Institute of Standards and Technology, USA); Alexandra Curtin and Luis Gonzales (National Institute of Standards and Technolgy, USA); Kate A. Remley (NIST, USA); Peter Papazian (NIST & NTIA, USA); Richard Candell (National Institute of Standards and Technology, USA); Nader Moayeri (NIST, USA)

18:10 ***Coexistence of LTE-U and LAA in a Wi-Fi World***

Michael Foegelle (ETS-Lindgren, USA)

CS11a: Applications of graphene and low dimensional materials

Fundamental research
Room: A Schwartzhorn

Chairs: Dimitrios Sounas (The University of Texas at Austin, USA), Michele Tamagnone (Ecole Polytechnique Fédérale de Lausanne, Switzerland)

Convened

16:30 ***Chemical-Specific Biosensing Through Mid-Infrared Graphene Plasmons***

Daniel Rodrigo and Odeta Limaj (Ecole Polytechnique Federale de Lausanne (EPFL), Switzerland); Davide Janner (ICFO-Institut de Ciencies Fotoniques, Spain); Dordaneh Etezadi (Ecole Polytechnique Federale de Lausanne (EPFL), Switzerland); F. Javier García de Abajo (ICFO (The Institute of Photonic Sciences), Spain); Valerio Pruneri (ICFO and ICREA, Spain); Hatice Altug (Ecole Polytechnique Federale de Lausanne (EPFL), Switzerland)

16:50 ***Graphene-Based Hyperbolic Metasurfaces***

Juan Sebastián Gomez-Diaz (The Universit of Texas at Austin, USA); Andrea Alù (The University of Texas at Austin, USA)

17:10 ***Reconfigurable Terahertz Plasmonics and Metamaterials Using Graphene***

Sara Arezoomandan, Kai Yang and Hugo Condori (The University of Utah, USA); Nicholas Ramey (Case Western Reserve University, USA); Cesar Nieves (University of Puerto Rico, USA); Berardi Sensale Rodriguez (The University of Utah, USA)

17:30 ***Experimental Demonstration of a Terahertz Non-Reciprocal Isolator Based on Graphene***

Michele Tamagnone (Ecole Polytechnique Fédérale de Lausanne, Switzerland); Clara Moldovan (EPFL, Switzerland); Jean-Marie Poumirol and Alexey Kuzmenko (Université de Genève, Switzerland); Mihai Adrian (EPFL, Switzerland); Juan R Mosig (Ecole Polytechnique Federale de Lausanne, Switzerland)

17:50 ***Accurate Modelling of Graphene Field Effect Transistor for Wireless Communications***

Jing Tian (Queen Mary, University of London, United Kingdom); Anestis Katsounaros (Cambridge University & Agilent Technologies, United Kingdom); Darryl Smith and Yang Hao (Queen Mary, University of London, United Kingdom)

18:10 ***A Graphene-Loaded Substrate-Superstrate Leaky-Wave THz Antenna***

Walter Fuscaldo, Paolo Burghignoli, Paolo Baccarelli and Alessandro Galli (Sapienza University of Rome, Italy)

A3: Integral equations and general antenna theory

Fundamental research
Room: A Seehorn

Chairs: Mats Gustafsson (Lund University, Sweden), Andrea Neto (Delft University of Technology, The Netherlands)

Regular

16:30 ***Identification of H-type Resonances on a Flat Graphene Strip Grating in a Dielectric Slab***
Alexander Nosich (IRE NASU, Ukraine); Tatiana Zinenko (IRE NASU, Japan); Akira Matsushima (Kumamoto University, Japan)

16:50 ***Stored Energy in General Antenna System: A New Approach***
Abdelelah Alzahed (Royal Military College of Canada, Canada); Said Mikki (University of New Haven, USA); Yahia Antar (Royal Military College of Canada, Canada)

17:10 ***Stored Energies for Electric and Magnetic Sources, Comparison with Chu's Antenna Q***
Lars Jonsson (KTH Royal Institute of Technology, Sweden); Mats Gustafsson (Lund University, Sweden)

17:30 ***Spectral Green's Function of a Wire-Medium Loaded Fabry-Perot Cavity Antenna***
Davide Comite (Sapienza University of Rome, USA); Paolo Baccarelli, Paolo Burghignoli and Alessandro Galli (Sapienza University of Rome, Italy)

17:50 ***Reduction of Singular Surface Integrals of Tensor Green Function to Non-Singular Line Integrals in Integral Equations for Planar Geometries***
Elizabeth Bleszynski (Monopole Resesarch, USA); Marek Bleszynskiu (Monopole Resaearch, USA); Thomas Jaroszewicz (Monopole Research, USA)

18:10 ***On the Use of Thevenin Circuits in Distributed Transmission Lines and Its Consequences for Antennas in Reception***
Ozan Yurduseven (Delft University of Technology, The Netherlands); Angelo Freni (University of Florence, Italy); Nuria LLombart and Andrea Neto (Delft University of Technology, The Netherlands)

P4: Propagation measurements at microwaves and terahertz

Cellular and short-range communication
Room: A Sertig
Chairs: Robert Geise (Technische Universität Braunschweig, Germany), Joonas Kokkoniemi (University of Oulu, Finland)

Regular

16:30 ***Geometrically Up-Scaled Propagation Measurements for Terahertz Intra-Device Communication***
Robert Geise, Alexander Fricke, Georg Zimmer and Björn Neubauer (Technische Universität Braunschweig, Germany)

16:50 ***Measurements on Rough Surface Scattering in Terahertz Band***
Joonas Kokkoniemi, Janne Lehtomäki and Markku Juntti (University of Oulu, Finland)

17:10 ***Measurements on Penetration Loss in Terahertz Band***
Joonas Kokkoniemi, Janne Lehtomäki and Markku Juntti (University of Oulu, Finland)

17:30 ***Path Loss Characteristics of Indoor Radio Channels At 15 GHz***
Bei Zhang and Zhangdui Zhong (Beijing Jiaotong University, P.R. China); Xin Zhou (National Institute of Metrology & Beijing Jiaotong University, P.R. China); Ke Guan and Ruisi He (Beijing Jiaotong University, P.R. China)

17:50 ***Reflection and Transmission Measurements Using 60 GHz Patch Antennas in the Presence of Animal Tissue for non-Invasive Glucose Sensing***
Helena Cano-Garcia (MediWise| Medical Wireless Sensing Ltd & King's College London, United Kingdom); Ioannis Gouzouasis (King's College London, United Kingdom); Ioannis Sotiriou, Shimul Saha and George Palikaras (MediWise| Medical

Wireless Sensing Ltd, United Kingdom); Panagiotis Kosmas (King's College London, United Kingdom); Efthymios Kallos (MediWise, United Kingdom)

18:10 ***Finger Effect on 60 GHz User Device Antennas***
Mikko Heino (Aalto University, Finland); Clemens Icheln (Aalto University & School of Electrical Engineering, Finland); Katsuyuki Haneda (Aalto University, Finland)

A11: Antenna systems and architectures

Multiple Applications
Room: A Wisshorn
Chairs: Gregor Lasser (University of Colorado, Boulder, USA), Nevena Saponjic (Viasat Antenna Systems SA, Switzerland)

Regular

16:30 ***Metamaterial-based transmitarray for orthogonal-beam-space massive-MIMO***
Senglee Foo (Huawei Technologies Canada, Canada)

16:50 ***Circularly Polarized Planar Antenna for Near-Field and Far-Field Communication Systems***
Takashi Yamagajo and Manabu Kai (Fujitsu Laboratories Limited, Japan)

17:10 ***Tuning an Electrically Small On-The-Move HF Half-Loop Antenna***
Gregor Lasser (University of Colorado, Boulder, USA); Maxim Ignatenko and Dejan Filipovic (University of Colorado at Boulder, USA)

17:30 ***Dual-band Dual-polarized Stub-loaded Patch Antenna for Robust GNSS Receivers***
Maysam Ibraheam and Safwat Irteza Butt (Ilmenau University of Technology, Germany); Ralf Stephan (Technische Universität Ilmenau, Germany); Matthias Hein (Ilmenau University of Technology, Germany)

17:50 ***Tunable Radiator for Small Satellite Application***
Nevena Saponjic (Viasat Antenna Systems SA, Switzerland); Tomislav Debogovic (Ecole Polytechnique Fédérale de Lausanne (EPFL), Switzerland); Frédéric Bongard (JAST SA, Switzerland); Pedro Robustillo (École Polytechnique Fédérale de Lausanne, Switzerland); Maria Carolina Vigano and Mikael Krummen (Viasat Antenna Systems SA, Switzerland); Jean-Daniel Landis (Almatech, Switzerland); Marco Sabbadini (Esa Estec, The Netherlands)

18:10 ***Q/V-Band Feed System Development***
Richard Roberts (Airbus Defence and Space Ltd, United Kingdom); Paul Booth and Graham Fox (Airbus Defence and Space Ltd., United Kingdom); Simon J Stirland (Astrium Ltd, United Kingdom); Massimiliano Simeoni (European Space Agency, The Netherlands)

Monday, April 11, 16:30 - 18:10 (Europe/Zurich)

CS38b: Theory and Application of Characteristic Modes

EM modelling and simulation
Room: B Jakhobshorn
Chairs: Yikai Chen (University of Electronic Science and Technology of China, P.R. China), Dirk Manteuffel (University of Kiel, Germany)

Convened

16:30 ***Mode-Based Analytical Models for Arbitrary Wire and Planar Antennas***
Binbin Yang and Jacob Adams (North Carolina State University, USA)

16:50 ***Some Numerical Aspects of Characteristic Mode Decomposition***

Miloslav Capek, Michal Masek and Pavel Hazdra (Czech Technical University in Prague, Czech Republic)

17:10 ***Compact Multi-Element Antenna for Massive MIMO Based on Characteristic Modes***
Dirk Manteuffel (University of Kiel, Germany)

17:30 ***On the Interaction of Characteristic Modes in Slot Antennas Etched on Finite Ground Planes***
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); Juan Ciafardini (Universidad Nacional de La Plata, Argentina); Miguel Ferrando-Bataller (Universidad Politecnica De Valencia, Spain)

17:50 ***Systematic Methods for Synthesis and Control of Radiation Patterns of Antennas Mounted on Complex Platforms***
Raj Mittra (Penn State University, USA); Chao Li (University of Central Florida, USA); Mohammad S. Sharawi (King Fahd University of Petroleum and Minerals (KFUPM), Saudi Arabia); Agostino Monorchio (University of Pisa, Italy)

Monday, April 11, 16:30 - 18:30 (Europe/Zurich)

P6: Propagation modelling and simulation I

EM modelling and simulation
Room: B Pisch+ Parsenn
Chairs: Jonathan Israel (ONERA - The French Aerospace Lab, France), Ann Morgenthaler (Northeastern University, USA)

Regular

16:30 ***Radio Frequency Guided Wave Communication in Deep Oil Wells***
Ann Morgenthaler, Margergy Hines and Carey Rappaport (Northeastern University, USA)

16:50 ***A Propagation Modeling Approach to Source Location and Navigation***
Zhuangzhuang Dai, Robert J Watson and Peter Shepherd (University of Bath, United Kingdom)

17:10 ***Advanced SAR Imaging Methods for Forward-Looking Ground Penetrating Radar***
Yukinori Fuse (Northeastern University, USA); Borja Gonzalez-Valdes (University of Vigo, Spain); José Ángel Martinez-Lorenzo (The Gordon CenSSIS, Northeastern university, USA); Carey Rappaport (Northeastern University, USA)

17:30 ***Characterisation of Radio Wave Propagation in Complex Indoor Environments with and Accurate Ray Launching and UTD Method***
Leyre Azpilicueta (Tecnologico de Monterrey, Mexico); Peio Lopez Iturri, Erik Aguirre and Francisco Falcone (Universidad Publica de Navarra, Spain)

17:50 ***Comparison of 3D Volume Integral Equation and Ray Tracing for Indoor Propagation Modelling***
Ian Kavanagh, Sajjad Hussain and Conor Brennan (Dublin City University, Ireland)

18:10 ***2D Modeling of the Atmospheric Refraction Based on Gaussian Beams***
Charles-Antoine L'Hour (Onera, France); Vincent Fabbro (ONERA, France); Alexandre Chabory (ENAC, France); Jerome Sokoloff (Université de Toulouse, UPS, INP & CNRS, France)

P12: Propagation in space

Space
Room: C Aspen 1
Chair: Franz Teschl (Graz University of Technology, Austria)

Regular

16:30 ***Beam Steering for Reception Performance Improvement of Satellite-Based AIS***
Anindya Harchowdhury (Indian Institute of Technology Bombay, India)

16:50 ***Radiation Characteristics of Side Fed Bifilar Helix Antenna for L-Band LEO Satellites and Terrestrial Mobile Communications***
Muhammad Ahmad (COMSATS Institute of Information Technology, Lahore Pakistan, Pakistan); Taimoor Zahid (Institute of Space Technology, Islamabad Pakistan, Pakistan); Taimoor Naeem (COMSATS Institute of Information Technology Lahore Pakistan, Pakistan); Muhammad Amin (Institute of Space Technology Islamabad, Pakistan); Farooq A. Tahir (National University of Sciences and Technology, Pakistan)

17:10 ***A Small-Angle Approximation for Bistatic Polarimetry***
Thomas Dallmann (RWTH Aachen University, Germany); Matthias Röding (Ilmenau University of Technology, Germany); Dirk Heberling (RWTH Aachen University, Germany); Reiner S. Thomä (Ilmenau University of Technology, Germany)

17:30 ***Mobile Satellite Propagation Channels for Ku and Ka Band***
Sebastien Rougerie (CNES, France)

17:50 ***Customized Microwave Attenuation Statistics From Dual Polarization Weather Radar Data***
Franz Teschl, Reinhard Teschl and Helmut Paulitsch (Graz University of Technology, Austria)

18:10 ***A Time Domain Model for Multipath Wave Propagation of Satellite Radio Reception Underneath Dense Foliage***
Ali Nassar (Universitaet der Bundeswehr München, Germany); Simon Senega (University of the Bundeswehr Munich, Germany); Stefan Lindenmeier (Universität der Bundeswehr, Germany)

A16: Array antennas I

Radar, Defence and security
Room: C Aspen 2
Chairs: Ahmed Kishk (Concordia University, Canada), Johan Wettergren (RUAG Space AB, Sweden)

Regular

16:30 ***Shaped Beam Synthesis of Sparse Arrays of Coupled Elements Through a Modified Orthogonal Matching Pursuit Algorithm and Multiple Dictionaries***
Jesús Rubio (University of Extremadura, Spain); Juan Córcoles (Universidad Autónoma de Madrid & Escuela Politécnica Superior, Spain); Juan F. Izquierdo (Universidad de Extremadura, Spain); Rafael Gómez Alcalá (University of Extremadura, Spain); José Gil (Universidad Politécnica de Madrid, Spain)

16:50 ***Closely Packed mm-Wave MIMO Antenna Arrays with Dielectric Resonator Elements***
Mohamed Hussain (King Fahd University of Petroleum and Minerals, Saudi Arabia); Mohammad S. Sharawi (King Fahd University of Petroleum and Minerals (KFUPM), Saudi Arabia); Symon K. Podilchack (Heriot-Watt University, United Kingdom); Yahia Antar (Royal Military College of Canada, Canada)

17:10 ***A Compact C-Band Global Coverage Antenna***
Johan Wettergren (RUAG Space AB, Sweden); Hans Ekström (RUAG Space Sweden, Sweden); Joakim F Johansson (RUAG Space AB, Sweden); Per Magnusson (Ruag Space Sweden, Sweden)

17:30 ***Enhanced Gain of Scanning DRA Array***
Ahmed Kishk (Concordia University, Canada)

17:50 ***A Planar Dual-Polarized Microstrip 1D-Beamforming Antenna Array for the 24 GHz ISM-Band***

Gerhard Franz Hamberger and Andreas Drexler (Technische Universität München, Germany); Stefan Trummer (Astyx GmbH, Germany); Uwe Siart and Thomas F. Eibert (Technische Universität München, Germany)

18:10 ***Polarization Purity Improvement Method for Linear Series-Fed Antenna Arrays***

Izabela Slomian, Krzysztof Wincza and Slawomir Gruszczynski (AGH University of Science and Technology, Poland)

Monday, April 11, 18:30 - 20:00 (Europe/Zurich)

WR: Welcome Reception

Room: Exhibition Foyer

Tuesday, April 12

Tuesday, April 12, 08:40 - 10:20 (Europe/Zurich)

CS32a: Reconfigurable Antennas for Autonomous Devices

Cellular and short-range communication
Room: A Dischma
Chairs: Joseph Costantine (American University of Beirut & University of New Mexico, Lebanon), Leonardo Lizzi (University Nice-Sophia Antipolis, CNRS, LEAT, France)

Convened

08:40 ***A Miniaturized Pattern Reconfigurable Antenna for Automotive Applications***

Jerzy Kowalewski (Karlsruhe Institute of Technology, Germany); Tobias Mahler (Karlsruhe Institute of Technology (KIT), Germany); Jonathan Mayer (Karlsruhe Institute of Technology, Germany); Thomas Zwick (Karlsruhe Institute of Technology (KIT), Germany)

09:00 ***Pixel Reconfigurable Antennas: Towards Low-Complexity Full Reconfiguration***

Daniel Rodrigo (Ecole Polytechnique Federale de Lausanne (EPFL), Switzerland); Jordi Romeu (Universitat Politècnica de Catalunya, Spain); Bedri Cetiner (Utah State University, USA); Luis Jofre (Universitat Politecnica de Catalunya, Spain)

09:20 ***Reconfigurable Multi-Slot Antenna for Bio-Medical Applications***

Laure Huitema (Xlim Laboratory, France); Hang Wong and Wei Lin (City University of Hong Kong, Hong Kong); Aurelian Crunteanu (Xlim Laboratory, France)

09:40 ***Printed Inverted-F Antenna with Reconfigurable Pattern and Polarization***

Kansheng Yang (Dublin Institute of Technology, Ireland); Abraham Loutridis (Dublin Institute of Technology & CTVR-Telecommunications Research Centre, Ireland); 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)

10:00 ***Frequency Reconfigurable Antennas Based on the Use of Dielectric Elastomer Materials***

Eva Rajo-Iglesias (University Carlos III of Madrid, Spain); Kexin Liu and Oscar Quevedo-Teruel (KTH Royal Institute of Technology, Sweden)

CS22a: Millimeter wave antenna systems for future broadband communication networks

Cellular and short-range communication
Room: A Flüela
Chairs: Jiro Hirokawa (Tokyo Institute of Technology, Japan), Ronan Sauleau (University of Rennes 1, France)

Convened

08:40 ***Alignment Control of 120-GHz-Band 2-D Waveguide-Slot Arrays Using Beam-Tilting 1-D Array Antennas***
Akihiko Hirata (NTT Corporation & NTT Device TechnologyLaboratories, Japan); Jun Takeuchi (NTT Corporation, Japan); Jiro Hirokawa (Tokyo Institute of Technology, Japan)

09:00 ***Millimetre-Wave Beam-Switching Rotman Lens Antenna Designs on Multi-Layered LCP Substrates***
Jussi Säily (VTT Technical Research Centre of Finland, Finland); Michal Pokorný (Brno University of Technology, Czech Republic); Mikko Kaunisto, Antti E. I. Lamminen and Jouko Aurinsalo (VTT Technical Research Centre of Finland, Finland); Zbynek Raida (Brno University of Technology, Czech Republic)

09:20 ***Dielectric Flat Lenses with Cylindrically Distributed Parameters for Millimeter-Wave Applications***
Marc Imbert and Jordi Romeu (Universitat Politècnica de Catalunya, Spain); Luis Jofre (Universitat Politecnica de Catalunya, Spain)

09:40 ***A Wideband Circularly Polarized Microstrip Antenna Array At Ka-band***
N Nasimuddin and Xianming Qing (Institute for Infocomm Research, Singapore); Zhi Ning Chen (National University of Singapore & Institute for Infocomm Research, Singapore)

10:00 ***Study of Phased Array in UE for 5G mm Wave Communication System with Consideration of User Body Effect***
Zhinong Ying (SONY Mobile Communications AB, Sweden); Kun Zhao (KTH Royal Institute of Technology & Sony Mobile Communication AB, Sweden); Thomas Bolin (Sony Mobile Communications, Sweden); Jakob Helander and Daniel Sjöberg (Lund University, Sweden); Sailing He (Royal Institute of Technology, Sweden); Alessandro Scannavini and Lars Foged (Microwave Vision Italy, Italy); Nicolas Gross (SATIMO, France)

CS11b: Applications of graphene and low dimensional materials

Fundamental research
Room: A Schwartzhorn
Chairs: Dimitrios Sounas (The University of Texas at Austin, USA), Michele Tamagnone (Ecole Polytechnique Fédérale de Lausanne, Switzerland)

Convened

08:40 ***Non-Reciprocal THz Components Based on Spatiotemporally Modulated Graphene***
Diego Correas Serrano (Technical University of Cartagena, Spain); Juan Sebastián Gomez-Diaz (The Universit of Texas at Austin, USA); Dimitrios Sounas (The University of Texas at Austin, USA); Alejandro Alvarez-Melcon (Technical University of Cartagena, Spain); Andrea Alù (The University of Texas at Austin, USA)

09:00 ***Mid-Infrared Reflectarrays Based on an Aperiodic Graphene Nanostrips Array***
Eduardo Carrasco (Foundation for Research on Information Technologies in Society, IT'IS, Switzerland); Michele Tamagnone (Ecole Polytechnique Fédérale de Lausanne, Switzerland); Tony Low (University of Minnesota, USA); Myles Capstick (IT'IS Foundation, Switzerland); Juan R Mosig (Ecole Polytechnique Federale de Lausanne, Switzerland)

09:20 ***Electromagnetic Spectrum Transformation in Space-Time Modulated and Dispersion Engineered Graphene Surface Plasmons***
Nima Chamanara and Christophe Caloz (Ecole Polytechnique de Montreal, Canada)

09:40 ***Graphene-based Plasmonic Phase Modulator for Terahertz-band Communication***

Prateek Singh (University at Buffalo, USA); Gregory Aizin (Kingsborough Community College, USA); Ngwe Thawdar (University at Buffalo, USA); Michael Michael Medley (AFRL, USA); Josep M Jornet (University at Buffalo, USA)

10:00 ***Graphene Plasmons: Scattering Properties and Enhanced Magneto-optics in Graphene Resonators***
Luis Martin-Moreno and Tetiana Slipshenko (Instituto de Ciencia de Materiales de Aragon & CSIC-Universidad de Zaragoza, Spain); Alexey Nikitin (CIC NanoGUNE, Spain)

CS34a: Small and Wearable Antennas

Biomedical and wearable applications including biological effects
Room: A Seehorn
Chairs: Davor Bonefačić (University of Zagreb & Dept of Wireless Communications, Croatia), Anja K. Skrivervik (EPFL, Switzerland)

Convened

08:40 ***Performance of a Textile Magneto-Electric Dipole Operating in the Vicinity of the Human Body***
Ping Jack Soh (Universiti Malaysia Perlis (UNIMAP) & Katholieke Universiteit Leuven, Malaysia); Sen Yan (KU Leuven, Belgium); Herwansyah bin Lago (Universiti Malaysia Perlis UniMAP, Malaysia); Xuezhi Zheng (Katholieke Universiteit Leuven, Belgium); Faizal Jamlos (Universiti Malaysia Perlis, Malaysia); Guy A. E. Vandenbosch (Katholieke Universiteit Leuven, Belgium)

09:00 ***Comparison of SAR of UHF Wearable Antennas***
Jovanche Trajkovikj and Anja K. Skrivervik (EPFL, Switzerland)

09:20 ***A Simple Dual-Band Dual-Mode Antenna for Off-/On-Body Centric Communications***
Roy B. V. B. Simorangkir, Yang Yang and Karu Esselle (Macquarie University, Australia); Ladislau Matekovits (Politecnico di Torino, Italy); Syed Muzahir Abbas (Macquarie University, Australia)

09:40 ***Wearable Antennas Using Electronic Textiles for RF Communications and Medical Monitoring***
Asimina Kiourti (The Ohio State University, USA); John L. Volakis (Ohio State University, USA)

10:00 ***Low-Profile Wideband Stick-on Antenna for Body-Area 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)

P10: Propagation modelling and simulation II

Cellular and short-range communication
Room: A Sertig
Chair: Jan M. Kelner (Military University of Technology, Poland)

Regular

08:40 ***Analysis of Underwater EM Propagation for Scuba Diving Communication Systems***
Andrea Massaccesi and Paola Pirinoli (Politecnico di Torino, Italy)

09:00 ***Influence of Receiver/Transmitter Motion Direction on the Correlational and Spectral Signal Properties***
Cezary Ziółkowski and Jan M. Kelner (Military University of Technology, Poland)

09:20 ***On the Path Loss Model for 5-GHz Microwave-Based Pinless Subsea Connectors***

José Carlos Reyes (University of Bergen, Bergen, Norway); Ismail Ben Mabrouk (British University in Egypt, Canada); Tomasz Ciamulski (WiSub AS, Norway)

09:40 ***Experimental Validation of Receiver Sensitivity for 100-Mbps Data Rates in Seawater by Using 2.4 GHz-low-power Electronics***
José Carlos Reyes (University of Bergen, Bergen, Norway); Ismail Ben Mabrouk (British University in Egypt, Canada); Tomasz Ciamulski (WiSub AS, Norway)

10:00 ***Real-Time Vehicular Channel Emulator for Future Conformance Tests of Wireless ITS Modems***
Golsa Ghiaasi (Technical University of Vienna, Austria); Mehdi Ashury (Vienna University of Technology, Austria); Dimitrios Vlastaras (Lund University, Sweden); Markus Hofer (AIT Austrian Institute of Technology, Austria); Zhinan Xu and Thomas Zemen (AIT Austrian Institute of Technology GmbH, Austria)

CS12a: Bridging the simulations - measurements gap: state-of-the-art

EM modelling and simulation
Room: A Wisshorn
Chairs: Francesca Mioc (Consultant, Switzerland), Guy A. E. Vandenbosch (Katholieke Universiteit Leuven, Belgium)

Convened

08:40 ***Bridging the Simulations-Measurements Gap: State-of-the-Art***
Guy A. E. Vandenbosch (Katholieke Universiteit Leuven, Belgium); Francesca Mioc (Consultant, Switzerland)

09:00 ***Measurements and Simulations of MIMO2x2 Reference Antennas***
Maria Alberica Saporetti, Lars Foged and Alessandro Scannavini (Microwave Vision Italy, Italy); Stefan Weitz (IMST, Germany); Jürgen Kunisch (IMST GmbH, Germany)

09:20 ***Measurements and Simulations Correlation of High Reliability Reflector Antenna***
Maria Alberica Saporetti and Lars Foged (Microwave Vision Italy, Italy); Manuel Sierra-Castañer (Universidad Politécnica de Madrid, Spain); Erik Jørgensen (TICRA, Denmark); Torben Voigt (Altair FEKO, Germany); Alain Michel (Ansys France, France); Davide Tallini (Computer Simulation Technology, CST GmbH, Germany); Branko Kolundzija (University of Belgrade, Serbia); Martin Böttcher (IMST GmbH, Germany); Andreas Wien (IMST, Germany); Mario Orefice and Gianluca Dassano (Politecnico di Torino, Italy); Jose Manuel Serna (IGN Spain, Spain); Giorgio Giordanengo (Istituto Superiore Mario Boella & Politecnico di Torino, Italy)

09:40 ***Measurements and Simulations of the GSM Antenna***
Guy A. E. Vandenbosch (Katholieke Universiteit Leuven, Belgium)

10:00 Discussion

CS06a: AMTA/EurAPP Post Processing Techniques in Antenna Measurements

EM modelling and simulation
Room: B Jakhobshorn
Chairs: Sergiy Pivnenko (Antenna Systems Solutions, Denmark), Manuel Sierra-Castañer (Universidad Politécnica de Madrid, Spain)

Convened

08:40 ***Fast Irregular Antenna Field Transformations Above Perfectly Conducting Ground Planes***
Raimund A. M. Mauermayer and Thomas F. Eibert (Technische Universität München, Germany)

09:00 ***Consensus Value Methods Used to Compile On-Axis Gain Measurement Results***

Jeffrey Guerrieri (National Institute of Standards and Technology, USA); Mike Francis and Ronald Wittmann (NIST, USA)

09:20 ***TD Optimal Sampling Interpolation Over a Plane From NF Data Collected Through a Nonconventional Plane-Rectangular Scanning***
Francesco D'Agostino, Flaminio Ferrara, Claudio Gennarelli, Rocco Guerriero and Massimo Migliozzi (University of Salerno, Italy)

09:40 ***Computational Electromagnetic Modelling of Compact Antenna Test Range Quiet Zone Probing: A Comparison of Simulation Techniques***
Clive Parini (QMUL, United Kingdom); Rostyslav Dubrovka (Queen Mary, University of London, United Kingdom); Stuart Gregson (Nearfield Systems Inc. & Queen Mary, University of London, USA)

10:00 ***Time Filtering Techniques for Echo Reduction in Antenna Measurements***
María Pilar González-Blanco García and Manuel Sierra-Castañer (Universidad Politécnica de Madrid, Spain)

CS19a: INTELECT: Integral Equations in Electromagnetics

EM modelling and simulation
Room: B Pisch+ Parsenn
Chairs: Lale Alatan (METU, Turkey), Juan R Mosig (Ecole Polytechnique Federale de Lausanne, Switzerland)

Convened

08:40 ***FVC: A Fluctuating Volume-Current Formulation for Modeling Electromagnetic Fluctuations in Complex Media***
Athanasios Polimeridis (Skolkovo Institute of Science and Technology, Russia); M. T. Homer Reid (MIT, USA); Weiliang Jin (Princeton University, Russia); Steven Johnson (MIT, USA); Jacob White (Massachusetts Institute of Technology, USA); Alejandro Rodriguez (Princeton University, USA)

09:00 ***Evaluation of Hypersingular Integrals on Curvilinear Surface Elements***
Gokhun Selcuk (Middle East Technical University & Aselsan Inc, Turkey); Seyit Koc (Middle East Technical University, Turkey)

09:20 ***A Broadband Multilevel Fast Multipole Algorithm with Incomplete-Leaf Tree Structures for Multiscale Electromagnetic Problems***
Manouchehr Takrimi (Bilkent University, Turkey); Ozgur Ergul (Middle East Technical University, Turkey); Vakur Erturk (Bilkent University, Turkey)

09:40 ***Layered Green's Functions Estimation with Contour-FFT***
Simon Hubert (Université Catholique de Louvain & ICTEAM Institute, Belgium); Shambhu Nath Jha (ICOMS Detection S.A., Belgium); Christophe Craeye (Université Catholique de Louvain, Belgium)

10:00 ***Generation of Characteristic Basis Functions for Hybrid Scattering-Admittance Operators***
Salman Mokhlespour and Vito Lancellotti (Eindhoven University of Technology, The Netherlands); Anton G. Tijhuis (TU/e Eindhoven University of Technology, The Netherlands)

Tuesday, April 12, 08:40 - 12:30 (Europe/Zurich)

WS1: FORESEEN

Room: B Rinerhorn

WS2: Key enabling technologies on antenna and channel models for an effective mmWave 5G deployment

Room: B Strela

Tuesday, April 12, 08:40 - 10:20 (Europe/Zurich)

M3: SAR and Material Measurements

Multiple Applications
Room: C Aspen
Chairs: Chi-Chih Chen (The Ohio State University & ElectroScience Laboratory, USA), Sven Kuhn (IT'IS Foundation, Switzerland)

Regular

08:40 ***Characterization of RF Magnetic Media with Free Space Methods and Genetic Algorithms***
Raenita Fenner (Loyola University MD, USA); Jonathan Frasch and Edward Rothwell (Michigan State University, USA)

09:00 ***Electromagnetic Characterization and Validation of Aircraft Composite Materials***
Luis Da silva (INATEL, Brazil); Igor Baratta, Rodrigo Assis, Leandro Bellei, Cassio Andrade, Italo Aguiar, Vinicius Maia, Vinicius Moradei, Priscilla Campici and Sidney Nunes (Embraer, Brazil); Arismar Cerqueira S. Jr. (INATEL, Brazil)

09:20 ***A New Method for Millimeter-Wave Characterization of Thin Resistive Fabrics***
Domenic Belgiovane, Jr. and Chi-Chih Chen (The Ohio State University & ElectroScience Laboratory, USA)

09:40 ***A Validated Reactive Near-Field Phasor Measurement System for Antenna Pattern Measurements***
Sven Kuhn (IT'IS Foundation, Switzerland); Serge Pfeifer, Eugene Grobbelaar, Beyhan Kochali and Peter Sepan (Schmid&Partner Engineering AG, Switzerland); Niels Kuster (IT'IS Foundation, Switzerland)

10:00 ***Comprehensive Validation and Uncertainty Evaluation of New SAR Measurement Technologies***
Mark Douglas (IT'IS Foundation ETH Zurich, Switzerland); Lucas Portelli (IT'IS Foundation, Switzerland); Eduardo Carrasco (Foundation for Research on Information Technologies in Society, IT'IS, Switzerland); Andreas Christ (Research Consultant, Brazil); Nitin Jain (BNNSPEAG Test & Calibration Laboratory, India); Niels Kuster (IT'IS Foundation, Switzerland)

P14: Tropospheric Propagation

Space
Room: C Sanada1
Chairs: Flávio M. da Silva Jorge (Instituto de Telecomunicações & Universidade de Aveiro, Portugal), Martin Rytir (Norwegian Defence Research Establishment (FFI), Norway)

Regular

08:40 ***Rain Attenuation on a Satellite Link on the Western Coast of Norway***
Martin Rytir (Norwegian Defence Research Establishment (FFI), Norway)

09:00 ***Radio Wave Depolarization Simulator Based on the SC EXCELL Model***
Eric Regonesi, Carlo Capsoni and Carlo Riva (Politecnico di Milano, Italy)

09:20 ***Interfade and Inter-Event Interval: a Time-Based Classification and Modelling***
Flávio M. da Silva Jorge (Instituto de Telecomunicações & Universidade de Aveiro, Portugal); Carlo Riva (Politecnico di Milano, Italy); Armando C Rocha (University of Aveiro & Institute of Telecommunications, Portugal)

09:40 ***Rain Cell Size Statistics for Different Altitudes Derived From Weather Radar Measurements***

Reinhard Teschl and Franz Teschl (Graz University of Technology, Austria)

10:00 ***Ka-band Propagation Campaign in Malaysia - First Months of Operation and Site Diversity Analysis***
Félix Cuervo and Michael Schönhuber (Joanneum Research, Austria); Carlo Capsoni (Politecnico di Milano, Italy); Hong Yin Lam (Universiti Tun Hussein Onn Malaysia, Malaysia); Siat Ling Jong and Jafri Din (Universiti Teknologi Malaysia, Malaysia); Antonio Martellucci (European Space Agency, The Netherlands)

CS29a: Propagation in Aeronautics

Space
Room: C Sanada2
Chairs: Uwe-Carsten G. Fiebig (German Aerospace Center (DLR), Germany), Fernando Pérez-Fontán (University of Vigo, Spain)

Convened

08:40 ***Modeling Scattering From Tree Canopies for UAV Scenarios***
Milan Kvicera (Czech Technical University in Prague, Czech Republic); Fernando Pérez-Fontán (University of Vigo, Spain); Jonathan Israel (ONERA - The French Aerospace Lab, France); Pavel Pechac (Czech Technical University in Prague, Czech Republic)

09:00 ***Ground Reflection for Low Elevations At L- And K-Band***
Thomas Jost (German Aerospace Center (DLR), Germany); Martin Schwinzerl (Joanneum Research, Austria); Wei Wang (German Aerospace Center (DLR), Germany); Tanja Pelzmann and Guenther Obertaxer (Joanneum Research, Austria); Michael Walter (German Aerospace Center (DLR), Germany); Michael Schönhuber (Joanneum Research, Austria); Nicolas Floury (ESA, The Netherlands)

09:20 ***An UTD Ray Tracing Model for Satellite-to-Helicopter Aeronautical Radio Channel Analysis***
Edgar Lemos-Cid (University of Vigo, Spain); Manuel García Sánchez and Ana Alejos (Universidade de Vigo, Spain)

09:40 ***Line of Sight Power Variation in the Air to Ground Channel***
Nicolas Schneckenburger, Thomas Jost, Dmitriy Shutin and Uwe-Carsten G. Fiebig (German Aerospace Center (DLR), Germany)

10:00 ***Analysis of the Doppler Behavior on a Supersonic Speed Ground-Projectile Channel***
Hervé Boeglen (Laboratoire XLIM-SIC, France); Laurent Barbero (ISL, France); Albekaye Traore (Laboratoire XLIM-SIC, France); Dirk Schmoltzi (ISL, France); Rodolphe Vauzelle (University of Poitiers, France)

Tuesday, April 12, 10:50 - 12:30 (Europe/Zurich)

CS32b: Reconfigurable Antennas for Autonomous Devices

Cellular and short-range communication
Room: A Dischma
Chairs: Joseph Costantine (American University of Beirut & University of New Mexico, Lebanon), Leonardo Lizzi (University Nice-Sophia Antipolis, CNRS, LEAT, France)

Convened

10:50 ***A Reconfigurable RF Front-End Receiver for Autonomous Spectrum Sensing Cognitive Radios***
Ali Ramadan (Fahad Bin Sultan University, Saudi Arabia); Joseph Costantine (American University of Beirut & University of New Mexico, Lebanon); Youssef Tawk (The University of New Mexico & Notre Dame University Louaize, USA); Karim Youssef Kabalan (American University of Beirut, Lebanon); Christos Christodoulou

(University of New Mexico, USA)

11:10 ***Reduced-Power Millimeter-Wave Reconfigurable Systems***
Elias A. Alwan (The Ohio State University & The Electroscience Lab, USA); Dimitris Papantonis, Markus Novak, Abe Akhiyat and Brian Dupaix (Ohio State University, USA); Waleed Khalil (The Ohio State University, USA); John L. Volakis (Ohio State University, USA)

11:30 ***Dual Resonant Compact Frequency Agile Microstrip Antenna***
Cyril Jouanlanne (CEA, France); Christophe Delaveaud (CEA-LETI, France)

11:50 ***Pattern-Reconfigurable Antenna Suitable for Autonomous Wireless Nodes***
Le Huy Trinh (University of Information and Technology & Vietnam National University, Vietnam); Leonardo Lizzi (University Nice-Sophia Antipolis, CNRS, LEAT, France); Fabien Ferrero (University Nice Sophia Antipolis, CNRS, LEAT & CREMANT, France); Robert Staraj (University of Nice-Sophia Antipolis, France); Jean-Marc Ribero (Université de Nice Sophia Antipolis, France)

CS22b: Millimeter wave antenna systems for future broadband communication networks

Cellular and short-range communication
Room: A Flüela
Chairs: Jiro Hirokawa (Tokyo Institute of Technology, Japan), Ronan Sauleau (University of Rennes 1, France)

Convened

10:50 ***Dual-Polarised Lens Feed Arrays and End-Fire Antennas in E-band***
Juha Ala-Laurinaho (Aalto University, Finland); Antti E. I. Lamminen and Jussi Säily (VTT Technical Research Centre of Finland, Finland); Rasmus Luomaniemi (Aalto University, Finland); Mikko Kaunisto (VTT Technical Research Centre of Finland, Finland); Tom Kovarik (Nokia, USA); Pekka Wainio (Nokia, Finland); Antti V. Räisänen (Aalto University, Finland)

11:10 ***A Switched-Beam Linearly-Polarized Transmitarray Antenna for V-Band Backhaul Applications***
Laurent Dussopt (CEA, LETI, Minatec, France); Amazir Moknache (CEA, France); Jussi Säily, Antti E. I. Lamminen, Mikko Kaunisto and Jouko Aurinsalo (VTT Technical Research Centre of Finland, Finland); Terry Bateman and Jim Francey (Optiprint AG, Switzerland)

11:30 ***Millimeter-Wave High Gain Lens Antenna with Reduced Focus Distance***
Oleg Soykin (Radio Gigabit LLC, Russia); Alexey Artemenko (The University of Nizhny Novgorod, Russia); Andrey Mozharovskiy and Alexander Myskov (Radio Gigabit LLC, Russia); Roman Maslennikov (The University of Nizhny Novgorod, Russia)

11:50 ***A Multi-Layer Gap Waveguide Array Antenna Suitable for Manufactured by Die-Sink EDM***
Abbas Vosoogh, Per-Simon Kildal and Vessen Vassilev (Chalmers University of Technology, Sweden)

12:10 ***60-GHz Unbalanced-Fed Bandpass-Filtering On-Chip Yagi Antenna in GIPD Technology***
Hsiang-Chieh Wang, Yung-Hsiang Chuang, Wen-Yi Ruan, Chien-Chang Chou and Huey-Ru Chuang (National Cheng Kung University, Taiwan)

A27: Metasurfaces I

Fundamental research
Room: A Schwartzhorn
Chairs: Andrea Alù (The University of Texas at Austin, USA), Stefano Maci (University of Siena, Italy)

Regular

10:50 ***Low-Cost Metasurface Using Glide Symmetry for Integrated Waveguides***
Mahsa Ebrahimpouri (KTH Royal Institute of Technology, Sweden); Eva Rajo-Iglesias (University Carlos III of Madrid, Spain); Zvonimir Sipus (University of Zagreb, Croatia); Oscar Quevedo-Teruel (KTH Royal Institute of Technology, Sweden)

11:10 ***Metasurface-based Ultrathin Carpet Cloak***
Bakhtiyar Orazbayev (Universidad Publica de Navarra, Spain); Nasim Mohammadi Estakhri (The University of Texas at Austin, USA); Miguel Beruete (Universidad Publica de Navarra, Spain); Andrea Alù (The University of Texas at Austin, USA)

11:30 ***Theoretical Design Considerations for Dual Circularly-Polarized Broadside Beam Metasurface Antenna***
Amagoia Tellechea (Public University of Navarra, Spain); Francesco Caminita and Enrica Martini (University of Siena, Italy); Iñigo Ederra (Universidad Publica de Navarra, Spain); JuanCarlos Iriarte (Public University of Navarra & Antenna Group, Spain); Ramon Gonzalo (Public University of Navarra, Spain); Stefano Maci (University of Siena, Italy)

11:50 ***Transition Function for Describing Metasurface Dispersion***
Mario Mencagli, Jr., Enrica Martini and Stefano Maci (University of Siena, Italy)

12:10 ***Metasurface Enhanced Slot Antennas***
Iñigo Ederra (Universidad Publica de Navarra, Spain); Ramon Gonzalo (Public University of Navarra, Spain); JuanCarlos Iriarte (Public University of Navarra & Antenna Group, Spain)

CS34b: Small and Wearable Antennas

Biomedical and wearable applications including biological effects
Room: A Seehorn
Chairs: Davor Bonefačić (University of Zagreb & Dept of Wireless Communications, Croatia), Anja K. Skrivervik (EPFL, Switzerland)

Convened

10:50 ***Wearable Antennas: Comparison of Different Concepts***
Jaromir Hubalek and Jaroslav Lacik (Brno University of Technology, Czech Republic); Jan Puskely (Delft University of Technology, The Netherlands); Jan Prasek, Zbynek Raida and Petr Vasina (Brno University of Technology, Czech Republic)

11:10 ***3D Printing, Inkjet Printing and Embroidery Techniques for Wearable Antennas***
William Whittow (Loughborough University, United Kingdom)

11:30 ***State Space Approach to Stored Electromagnetic Energy in Dispersive Media***
Mats Gustafsson (Lund University, Sweden)

11:50 ***Bandwidth Optimization of Linear Arrays Above Ground***
Pavel Hazdra, Miloslav Capek and Tomas Lonsky (Czech Technical University in Prague, Czech Republic)

12:10 ***Compact Planar Arrays Based on Parasitic Superdirective Elements***
Abdullah Haskou (IETR UMR CNRS 6164, Université de Rennes1, France); Ala Sharaiha (Université de Rennes 1 & IETR, France); Sylvain Collardey (University of Rennes 1, France)

P11: Propagation modelling and simulation III

Cellular and short-range communication
Room: A Sertig
Chairs: Carlo Capsoni (Politecnico di Milano, Italy), Polat Goktas (Bilkent University & Bilkent University, Communications and Spectrum Management Research Center, Turkey)

Regular

10:50 ***Parametrization of Automotive Lithium-Ion Batteries and Its Influence on the Wireless In-Battery Channel***
Damian Alonso, Oliver Opalko and Klaus M. Dostert (Karlsruhe Institute of Technology (KIT), Germany)

11:10 ***Optical Attenuation Measurements in Low Visibility Conditions***
Kapal Dev (Politecnico di Milano Italy, Pakistan); Roberto Nebuloni (Ieiit - Cnr, Italy); Carlo Capsoni (Politecnico di Milano, Italy)

11:30 ***Multi-Sector Path Loss Model for Millimeter-Wave Propagation System***
YU Ziming (Huawei Technologies CO., LTD, P.R. China); Xiaofeng Lu (Huawei Technology Company, P.R. China); Hua Yan (Huawei Technologies Co., Ltd, P.R. China); Chang Cao, Jia He and Guangjian Wang (Huawei Technologies Co., Ltd., P.R. China); Wen Tong (Huawei Technologies Canada Co., Ltd., Canada)

11:50 ***Short-Term Propagation Measurements and Modeling for Terrestrial Line-of-Sight Links***
Polat Goktas (Bilkent University & Bilkent University, Communications and Spectrum Management Research Center, Turkey); Satilmis Topcu, Ezhan Karasan and Ayhan Altintas (Bilkent University, Turkey)

12:10 ***Modeling Statistics of Rain Attenuation Affecting FSO Link: a Case Study***
Umair Korai Baloch (IICT, Mehran University of Engineering and Technology, Jamshoro, Pakistan); Lorenzo Luini (Politecnico di Milano, Italy); Roberto Nebuloni (Ieiit - Cnr, Italy); Carlo Capsoni (Politecnico di Milano, Italy); Kapal Dev (Politecnico di Milano Italy, Pakistan)

CS12b: Bridging the simulations - measurements gap: state-of-the-art

EM modelling and simulation
Room: A Wisshorn
Chairs: Francesca Mioc (Consultant, Switzerland), Guy A. E. Vandenbosch (Katholieke Universiteit Leuven, Belgium)

Convened

10:50 ***Application of the Structure Data Dictionary to Satellite Antenna Modelling***
Francesca Mioc (Consultant, Switzerland); Maria Alberica Saporetti (Microwave Vision Italy, Italy); Marco Sabbadini (Esa Estec, The Netherlands); Mauro Del Muto (StepOver, Italy)

11:10 ***Future directions of the WG***

11:30 ***Measured Antenna Representation of Flush Mounted Antennas for Computational Electromagnetic Solvers***
Lucia Scialacqua, Lars Foged and Francesco Saccardi (Microwave Vision Italy, Italy); Francesca Mioc (Consultant, Switzerland)

11:50 ***Discussion***

11:10 ***Conclusions***

CS06b: AMTA/EurAPP Post Processing Techniques in Antenna Measurements

EM modelling and simulation
Room: B Jakhobshorn
Chairs: Sergiy Pivnenko (Antenna Systems Solutions, Denmark), Manuel Sierra-Castañer (Universidad Politécnica de Madrid, Spain)

Convened

10:50 ***Near Field 3D Reconstruction of the Search and Rescue Antennas on the GALILEO Satellite***
Cecilia Cappellin (TICRA, Denmark); Luca Salghetti Drioli (European Space Agency-ESTEC, The Netherlands)

11:10 ***Application of Single Probe Correction File for Multi-Frequency Spherical Near-Field Antenna Measurements***
Sergiy Pivnenko (Antenna Systems Solutions, Denmark); Enrique Venero (Antenna Systems Solutions, Spain); Carlo Rizzo (Antenna Systems Solutions, United Kingdom)

11:30 ***Regularization of Residual Ill-Conditioning in Planar Near-Field Measurements***
Amedeo Capozzoli, Claudio Curcio and Angelo Liseno (Università di Napoli Federico II, Italy)

11:50 ***Higher Order Versus First Order Probe Correction Techniques Applied to Experimental Spherical NF Antenna Measurements***
Lars Foged and Francesco Saccardi (Microwave Vision Italy, Italy); Andrea Giacomini (Microwave Vision Italy (MVI), Italy)

12:10 ***Reduced Set of Points in Phaseless Broadband Near-Field Antenna Measurement: Effects of Noise and Mechanical Errors***
Ana Arboleya and Jaime Laviada (Universidad de Oviedo, Spain); Juha Ala-Laurinaho (Aalto University, Finland); Yuri Álvarez and Fernando Las-Heras (Universidad de Oviedo, Spain); Antti V. Räisänen (Aalto University, Finland)

CS19b: INTELECT: Integral Equations in Electromagnetics

EM modelling and simulation
Room: B Pisch+ Parsenn
Chairs: Lale Alatan (METU, Turkey), Juan R Mosig (Ecole Polytechnique Federale de Lausanne, Switzerland)

Convened

10:50 ***A Decoupled Charge-Current Formulation for the Scattering of Homogeneous Lossless Dielectrics***
Felipe Vico-Bondía (Universidad Politécnica de Valencia, Spain); Miguel Ferrando-Bataller (Universidad Politecnica De Valencia, Spain); Tomás Bernabeu-Jiménez (Universitat Politècnica de València & Instituto de Telecomunicaciones y Aplicaciones Multimedia (ITEAM), Spain); Daniel Sanchez-Escuderos (Universidad Politécnica de Valencia, Spain)

11:10 ***Electromagnetic Analysis of Periodic Structures with slotFFT Algorithm***
Alberto Serna (University of Extremadura, Spain); Mario Fernandez (Adasa Sistemas & Universidad de Extremadura, Spain); Luis Landesa (University of Extremadura, Spain); Diego M. Solís (University of Vigo, Spain); Jose M. Taboada (University of Extremadura, Spain)

11:30 ***Evaluation of 4-D Reaction Integrals in the Method of Moments Via Double Application of the Divergence Theorem***
Javier Rivero (University of Extremadura, Spain); Francesca Vipiana (Politecnico di Torino, Italy); Donald Wilton (University of Houston, USA); William Johnson (Private Consultant, USA)

11:50 ***Analysis of Arbitrary Gap Waveguide Structures Using Mode Matching Approach***
Mladen Vukomanovic, Marko Bosiljevac and Zvonimir Sipus (University of Zagreb, Croatia)

12:10 ***Hierarchical Basis Preconditioners and Their Application to the PMWCHT Integral Equation***
John Erick Ortiz Guzman (Ecole Nationale Superieure des Telecomunications de Bretagne, France); Simon B Adrian (Technische Universität München & Institut Mines-Télécom / Télécom Bretagne, Germany); Rajendra Mitharwal (Télécom

Bretagne, France); Yves Beghein (Ghent University, Belgium); Thomas F. Eibert (Technische Universität München, Germany); Kristof Cools (University of Nottingham, United Kingdom); Francesco Andriulli (Ecole Nationale Superieure des Telecomunications de Bretagne, France)

M2: Antenna Measurements

Multiple Applications
Room: C Aspen
Chairs: Jari-Matti Hannula (Aalto University, Finland), Vince Rodriguez (NSI-MI Technologies, LLC. & IEEE-EMC Board of Directors, USA)

Regular

10:50 ***Phase Stable Multi-Channel Antenna Measurements on a Moving Positioner***
Tamara Sheret (Queen Mary University London, United Kingdom); Ben Allen (University of Oxford, United Kingdom); Clive Parini (Queen Mary University of London, United Kingdom)

11:10 ***Uncertainty Analysis of Intermodulation-Based Antenna Measurements***
Jari-Matti Hannula (Aalto University, Finland); Ville Viikari (Aalto University & School of Electrical Engineering, Finland)

11:30 ***A Simple Setup to Measure the Realized Gain of Miniaturized Antennas in HF Band***
Evgueni Kaverine (University of Rennes 1, France); Sébastien Palud (TDF, France); Franck Colombel and Mohamed Himdi (Université de Rennes 1, France)

11:50 ***Simulations of a Planar Array Arrangement for Automotive Random-LOS OTA Testing***
Andrés Alayon Glazunov, Aidin Razavi and Per-Simon Kildal (Chalmers University of Technology, Sweden)

12:10 ***A Method for Gain Over Temperature Measurements Using Two "Hot" Noise Sources***
Vince Rodriguez (NSI-MI Technologies, LLC. & IEEE-EMC Board of Directors, USA); Charles Osborne (MI Technologies, USA)

A33: Terahertz antennas and receivers

Space
Room: C Sanada1
Chairs: Maria Alonso-delPino (Jet Propulsion Laboratory, USA), Erio Gandini (Delft University of Technology, The Netherlands)

Regular

10:50 ***Micro-Lens Antenna Integrated in a Silicon Micromachined Receiver At 1.9 THz***
Maria Alonso-delPino (Jet Propulsion Laboratory, USA); Theodore Reck (NASA-JPL, Caltech, USA); Choonsup Lee (JPL, USA); Cecile Jung-Kubiak (NASA-JPL, Caltech, USA); Nuria LLombart (Delft University of Technology, The Netherlands); Imran Mehdi and Goutam Chattopadhyay (JPL, USA)

11:10 ***Sub-THz Photon Counting Receiver Working At Room Temperature for Polarization Measurements of the Cosmic Microwave Background Radiation***
Luis-Enrique Garcia-Muñoz (University Carlos III of Madrid, Spain)

11:30 ***Wide Field of View Lens-Based Focusing System for Security Imagers At THz Frequencies***
Erio Gandini and Nuria LLombart (Delft University of Technology, The Netherlands)

11:50 ***Modular Quasi-Optical System for Short and Long Imaging Range At Sub-Millimeter Wave Frequencies***

Erio Gandini (Delft University of Technology, The Netherlands); Jan Svedin (FOI, Sweden); Tomas Bryllert (Chalmers University of Technology, Sweden); Nuria LLombart (Delft University of Technology, The Netherlands)

12:10 ***A Low-Cost Rotationally Symmetric Probe for Terahertz Near-Field Scanning***
Kung Bo Ng (City University of Hong Kong, Hong Kong)

Tuesday, April 12, 10:50 - 12:10 (Europe/Zurich)

CS29b: Propagation in Aeronautics

Space
Room: C Sanada2
Chairs: Uwe-Carsten G. Fiebig (German Aerospace Center (DLR), Germany), Fernando Pérez-Fontán (University of Vigo, Spain)

Convened

10:50 ***Statistical Analysis of the Radiation Pattern of an Antenna Mounted on an Aircraft***
Marcos Arias (University of Vigo, Spain); Thomas Jost (German Aerospace Center (DLR), Germany); Borja Gonzalez-Valdes (University of Vigo, Spain); Wei Wang, Siwei Zhang, Markus Ulmschneider and Christian Gentner (German Aerospace Center (DLR), Germany)

11:10 ***ARNS-band Air to Ground Radio Channel Characterization Using 902-928 ISM Band Measurements***
Wouter Pelgrum (Ohio University, USA); Nicolas Schneckenburger, Okuary Osechas and Elisabeth Nossek (German Aerospace Center (DLR), Germany)

11:30 ***Synthetized Tropospheric Total Attenuation Time Series for Satellite-to-Aeronautical Link From L to Q Band***
Alberto Graziani (Université Catholique de Louvain, Belgium); Danielle Vanhoenacker-Janvier (Université catholique de Louvain, Belgium); Carlos Pereira (Spacebel, Belgium); Alessandro Vergani and Carlo Riva (Politecnico di Milano, Italy); Joel Lemorton (ONERA, France)

11:50 ***Airborne Measurements Enhancing the Satellite-To-Aircraft / Helicopter Channel Model in L-Band***
Tanja Pelzmann (Joanneum Research, Austria); Thomas Jost (German Aerospace Center (DLR), Germany); Martin Schwinzerl (Joanneum Research, Austria); Fernando Pérez-Fontán (University of Vigo, Spain); Michael Schönhuber (Joanneum Research, Austria); Nicolas Floury (ESA, The Netherlands)

Tuesday, April 12, 13:30 - 16:20 (Europe/Zurich)

WS3: CST Workshop: Advanced Antenna System Simulation

Room: B Rinerhorn

Tuesday, April 12, 13:30 - 15:00 (Europe/Zurich)

PS2: Poster 2

Biomedical and wearable applications including biological effects
Room: Foyer A2

Regular

X Band Radar Target Tracking in Marine Environment: a Comparison of Different Algorithms in a Real Scenario
Daniele Arturi (University Mediterranea, Italy); Lorenzo Crocco (CNR - National

Research Council of Italy, Italy); Francesco Serafino (CNR IREA, Italy)

A Cornered Shallow Cavity Backed Slot Antenna Suitable for Smart Hip Implants
Sema Dumanli (Toshiba Research Europe Ltd., United Kingdom)

SAR in the Presence of Conductive Medical Implant At 0.9, 1.8 and 2.4 GHz Due to Close Proximity Antenna
Nazirah Othman (University Teknologi Malaysia, Malaysia); Noor Asmawati Samsuri, Mohamad Kamal A. Rahim and Norfatin Akma Binti Elias (Universiti Teknologi Malaysia, Malaysia)

Cavity-Backed Slotted Patch Antennas Radiating Into A Lossy Human Body
Patrick Carberry (Worcester Polytechnic Institute, USA); Ara Nazarian (Harvard Medical School, USA); Sergey Makarov (Worcester Polytechnic Institute, USA)

Multi-Purpose VHP-Female Version 3.0 Cross-Platform Computational Human Model
Janakinadh Yanamadala and Gregory Noetscher (Worcester Polytechnic Institute, USA); Sara Louie (ANSYS, Inc., USA); Alexander Prokop (CST-Computer Simulation Technology AG, Germany); Mikhail Kozlov (MR:comp GmbH, Germany); Ara Nazarian (Harvard Medical School, USA); Sergey Makarov (Worcester Polytechnic Institute, USA)

Validity of PEC Approximation for On-Body Propagation
Nikolaj P. B. 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)

Performance Evaluation of In-Place Calibration in Microwave Imaging for Breast Cancer Detection
Sollip Kwon and Seungjun Lee (Ewha Womans University, Korea)

A Handy and Portable Measuring System for Electromagnetic Radiation Assessment
John Sahalos (Aristotle University of Thessaloniki, GR, Thessaloniki & University of Nicosia, CY, Nicosia, Greece); Fanis Mavromatis (Democritus University of Thrace, Greece); Christos Koukourlis (University of Thraki, Greece)

SAR Assessment of Google Glasses At Cellular Wireless Frequency Bands
Manuel Ferreira (ESTSetúbal/Polytechnic Institute of Setúbal, Portugal); Carla Oliveira (University of Lisbon, Instituto Superior Tecnico & INOV - INESC, Portugal); Filipe D. Cardoso (ESTSetubal/Polytechnic Institute of Setubal, Portugal); Luis M. Correia (IST - University of Lisbon & INESC, Portugal)

Personal Exposure to Radiofrequency Electromagnetic Fields: University of Barcelona Study
Neus Vidal, Aleix Garcia-Miquel and Jose López-Villegas (University of Barcelona, Spain); Elisenda Roca (Instituto de Microelectronica de Sevilla, Spain)

Implementation of a Dielectric Waveguide Configuration for Microwave Tomography Applied to Breast Cancer Detection
Alvaro Diaz-Bolado (ViaSat Antenna Systems, Switzerland); Hamidreza Memarzadeh-Tehran (University of Tehran, Iran); Jean-Jacques Laurin (Ecole Polytechnique de Montrea, Canada)

Breast Skin Shape Reconstruction for Microwave Imaging Systems
Jorge Tobon Vasquez and Francesca Vipiana (Politecnico di Torino, Italy); Max James Ammann (Dublin Institute of Technology, Ireland); Giuseppe Ruvio (Dublin Institute of Technology & Antenna & High Frequency Research Centre, Ireland)

Evaluation of the Sensitivity of Transmission Measurements At Millimeter Waves Using Patch Antennas for Non-invasive Glucose Sensing
Shimul Saha and Ioannis Sotiriou (MediWise| Medical Wireless Sensing Ltd, United Kingdom); Ioannis Gouzouasis (King's College London, United Kingdom); Helena Cano-Garcia (MediWise| Medical Wireless Sensing Ltd & King's College London, United Kingdom); George Palikaras (MediWise| Medical Wireless Sensing Ltd, United Kingdom); Panagiotis Kosmas (King's College London, United Kingdom); Efthymios Kallos (MediWise, United Kingdom)

Highly Sensitive Mushroom-Shaped Gold-Silica Nano Antenna Array for Refractive Index Sensing

Sara Magdy Kandil (Zewail City for Science and Technology, Egypt); Tamer A. Ali (Cairo University & Center for Nanotechnology, Zewail City for Science and Technology, Egypt); Sherif Sedky (AUC, Egypt); Ezzeldin Soliman (The American University in Cairo, Egypt)

Study of the Gap Influence on Highly Sensitive Plasmonic Nanosandwich for Refractive Index Sensing

Sara Magdy Kandil (Zewail City for Science and Technology, Egypt); Inas El Babli (Faculty of Engineering, Cairo University, Egypt); Ashraf Badawi (Zewail City for Science and Technology, Egypt)

Characterization of Dielectric Materials with a Modified DIRECT Algorithm

Cristina Madrid Sanchez (Universidad Politecnica de Cartagena, Spain); Alejandro Alvarez-Melcon and Fernando D Quesada Pereira (Technical University of Cartagena, Spain)

Extraction of Dielectric Properties of Biological Tissues From Rectangular Waveguide Transmission Measurements

Irena Zivkovic (Max Planck Institute for Biological Cybernetics, Germany); Klaus Scheffler (Max-Planck-Institut Tübingen, Germany)

Direction of Arrival Estimation in Urban Multipath Environments

Eran Greenberg and Menahem Naor (RAFAEL, Israel)

Design of an Implantable Miniaturized Meander Line Antenna for Biomedical Telemetry

Mai Sallam (The American University in Cairo & Katholieke Universteit Leuven, Egypt); Ashraf Badawi (Zewail City for Science and Technology, Egypt); Ezzeldin Soliman (The American University in Cairo, Egypt)

An Unconditionally Stable Thermal TLM Algorithm for Dosimetric Applications

Oualid Makhlouf and Marylène Cueille (University of Nice Sophia Antipolis CNRS, France); Jean-Lou Dubard (Université de Nice - Sophia Antipolis, CNRS, France)

Feasibility Study of Temperature Change Detection in Phantom Using M-Sequence Radar

Ondrej Fiser, Jr. (Czech Technical University in Prague & Faculty of Electrical Engineering, Czech Republic); Marko Helbig and Sebastian Ley (Technische Universität Ilmenau, Germany); Jürgen Sachs (Ilmenau University of Technology, Germany); Jan Vrba (Czech Technical University, Czech Republic)

Simultaneous Electrical and Mechanical Heart Activity Registration by Means of Synchronized ECG and M-sequence UWB Sensor

Marko Helbig, Johannes Zender and Sebastian Ley (Technische Universität Ilmenau, Germany); Jürgen Sachs (Ilmenau University of Technology, Germany)

Compact Microwave Applicator for Thermal Therapy of Breast Cancer: Comparative Assessment of Arrays Operating At 434 and 915 MHz

Aleix Garcia-Miquel (University of Barcelona, Spain); Sergio Curto (Kansas State University, USA); Neus Vidal and Jose López-Villegas (University of Barcelona, Spain); Punit Prakash (Kansas State University, USA)

Knitted Waveguide Antenna

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)

On-Body Off-Body Dual Mode Microstrip Antenna for Body Area Network Applications

Carlos Mendes (Instituto Superior de Engenharia de Lisboa, Portugal); Custodio Peixeiro (IST-TUL, Portugal)

Increasing the Radiation Efficiency and Matching Stability of In-Body Capsule Antennas

Denys Nikolayev (Institute of Electronics and Telecommunications of Rennes, France); Maxim Zhadobov (University of RENNES 1, France); Pavel Karban (University of West Bohemia, Czech Republic); Ronan Sauleau (University of Rennes 1, France)

PS1: Poster 1

Cellular and short-range communication
Room: Foyer C1

Regular

Performance Characterization of a Reconfigurable MIMO Antenna in Indoor Environment
Rifaqat Hussain and Wajih Abu-Al-Saud (KFUPM, Saudi Arabia); Muhammad Umar Khan (National University of Sciences and Technology & School of Electrical Engineering and Computer Science, Pakistan); Ali H Muqaibel (KFUPM, Saudi Arabia); Mohammad S. Sharawi (King Fahd University of Petroleum and Minerals (KFUPM), Saudi Arabia)

Side Lobe Level Reduction for Beam Steerable Antenna Design
Marion Allayioti (Guildford, Surrey GU2 7XH, University of Surrey, United Kingdom); James Kelly (University of Surrey & Institute for Communication Systems (ICS), United Kingdom)

A High Data-Rate Kiosk Application Circularly Polarized Fractal Antenna for Millimeter Wave Band Radio with CMOS Technolgoy
Javad Pourahmadazar (National Institute of Scientific Research (INRS), Canada); Reza Karimian, Bahnemiri (The National Institute of Scientific Research, Canada); Tayeb A. Denidni (INRS-EMT, Canada)

A Single Feed Dual-band Circularly Polarized Millimeter-wave Antenna for 5G Communication
Hanieh Aliakbari (AmirKabir University of Technology, Iran); Abdolali Abdipour and Rashid Mirzavand (Amirkabir University of Technology, Iran); Alessandra Costanzo (DEI, University of Bologna, Italy); Pedram Mousavi (University of Alberta, Canada)

Mobile Terminal LTE MIMO Antennas for 700 MHz LTE Band
Shuai Zhang and Gert Pedersen (Aalborg University, Denmark)

MIMO Performance Comparison of the Colocated Tri-polarized Loops with Different Mutual Couplings
Hui Zhang and Dazhi Piao (Communication University of China, P.R. China); Lingyu Yang (Communication University of China & Information Engineering School, P.R. China); Zengrui Li (Communication University of China & Faculty of Science and Technology, P.R. China)

Pattern Reconfigurable Millimeter-Wave Antenna Design for 5G Handset Applications
Wei-Shiuan Chang, Chang-Fa Yang, Chih-Kai Chang, Wen-Jiao Liao and Liang Cho (National Taiwan University of Science and Technology, Taiwan); Wen-Shyh Chen (National Chung-Shan Institute of Science & Technology, Taiwan)

Addressing Carrier Aggregation with Narrow-band Tunable Antennas
Samantha Caporal del Barrio (Aalborg University, Denmark); Art Morris (Wispry, USA); Gert Pedersen (Aalborg University, Denmark)

8×8 Planar Phased Array Antenna with High Efficiency and Insensitivity Properties for 5G Mobile Base Stations
Naser Ojaroudiparchin and Ming Shen (Faculty of Engineering and Science, Aalborg University, Denmark); Gert Pedersen (Aalborg University, Denmark)

Investigation of a Termination Impact in a Multiport Antenna System
Montaha Bouezzeddine (Rheinmain University of Applied Sciences, Germany)

SIW Antenna for MIMO System
Adham Mahmoud and Abdelmegid Allam (German University in Cairo, Egypt)

2.4GHz Patch Antenna Arrays Suitable for Remotely Piloted Aircraft Systems
Ioannis Petropoulos (University of Limoges, France); Jacques Sombrin (TéSA Laboratory & LABEX Sigma-Lim, University of Limoges, France); Nicolas Delhote (SigmaLim Labex, University of Limoges, France); Cyrille Menudier (XLIM - UMR CNRS 7252 - University of Limoges & Antenna and Associated Waves Dept, France)

Design of a Flexible Antenna Using Printed Silver Loaded Epoxy on PDMS/Plastic Substrate for Wearable Application

Husameldin Elmobarak and Sharul Kamal A. Rahim (Universiti Teknologi Malaysia, Malaysia); Mohammad Abedian (Universiti Teknologi Malaysia (UTM) & Wireless Communication Centre, Malaysia); Nadera Najib Al-Areqi (Faculty of Electrical Engineering, Universiti Teknologi Malaysia, Malaysia)

Measurement and Analysis of Spectrum Occupancy From 140 to 1000 MHz in Rural Western Montana

Erin Wiles and Bryce Hill (Montana Tech University, USA); Felipe Augusto Anon da Silva (Federal University of ABC, Brazil); Kevin Negus (Montana Tech University, USA)

On Measurement Uncertainty Introduced by Instruments in Frequency Domain Channel Measurement Systems

Xin Zhou (National Institute of Metrology & Beijing Jiaotong University, P.R. China); Zhangdui Zhong (Beijing Jiaotong University, P.R. China); Xin Bian (National Institute of Metrology, P.R. China); Bo Ai (Beijing Jiaotong University, P.R. China); Ke Liu (National Institute of Metrology, P.R. China); Ke Guan, Ruisi He, Bei Zhang and Jianqiang Wu (Beijing Jiaotong University, P.R. China)

Antenna Measurements From 140 to 220 GHz in a Model Tower Range

Philip Miller (UK, National Physical Laboratory, United Kingdom); Zhengrong Tian (National Physical Laboratory & NPL, United Kingdom)

Irregular Probe Corrected Antenna Field Transformations Utilizing Gaussian Beam Based Fast Multipole Translation Operators

Thomas F. Eibert and Carlos Lopez (Technische Universität München, Germany); Thorkild Birk Hansen (Seknion, Inc., USA)

Attenuation Due to Hydrometeors in Three Millimeter Wave Bands

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)

Ray Tracing Simulations At Millimeter Waves in Different Indoor and Outdoor Scenarios

Andrea Schiavoni, Alessandro Leoni, Domenico Arena and Roberto Lanzo (Telecom Italia, Italy)

High Input Resistance Terahertz Dipole Antenna with an Isolating Photonic Band Gap Layer

Wenfei Yin (The University of Sheffield & The University of Sheffield, United Kingdom); Salam Khamas (University of Sheffield, United Kingdom)

Design of SIW-Fed Dielectric Wedge Antenna with Improved Bandwidth

Zuping Qian (PLA University of Sci. & Tech., P.R. China); Yang Cai (PLA University of Science and Technology, P.R. China); Yingsong Zhang (Institute of Communication Engineering, P.R. China); Lei Wang (Ecole Polytechnique Fédérale de Lausanne (EPFL), Switzerland); Qianqian Wang (PLA University of Science and Technology, P.R. China)

Bandwidth Enhancement of 4×4 Sub Arrays Circularly Polarized Rectangular Dielectric Resonator Antenna by Sequential Feeding Network

Mohammad Akbari (Concordia University & Montreal, Canada); Shraman Gupta (Concordia University, Canada); Reza Movahedinia (Concordia University, Montreal, Quebec H3G 1M8, Canada); Saman Zarbakhsh and Abdel R. Sebak (Concordia University, Canada)

Low-Side Lobe Level Aperture Coupled Dielectric Resonator Antenna Array Fed by SIW

Shraman Gupta (Concordia University, Canada); Mohammad Akbari (Concordia University & Montreal, Canada); Reza Movahedinia (Concordia University, Montreal, Quebec H3G 1M8, Canada); Saman Zarbakhsh and Abdel R. Sebak (Concordia University, Canada)

Investigation of Surface Waves Suppression on 5G Handset Devices At 15 GHz

Bo Xu (KTH Royal Institute of Technology & Zhejiang University, P.R. China); Kun Zhao (KTH Royal Institute of Technology & Sony Mobile Communication AB, Sweden); Zhinong Ying (SONY Mobile Communications AB, Sweden); Sailing He

(Royal Institute of Technology, Sweden); Jun Hu (Zhejiang University, P.R. China)

Millimeter-Wave Phased Array Antenna with Wide Beam Coverage
Yonghun Cheon and Yonghoon Kim (Samsung Electronics, Korea)

Impact of Gain and Polarization in the Design of Reconfigurable Chip-to-Chip Antennas
Prabhat Baniya (University of Arizona, USA); Aimeric Bisognin (University Nice Sophia-Antipolis & STMicroelectronics, France); Kathleen Melde (University of Arizona, USA); Cyril Luxey (University Nice Sophia-Antipolis, France)

Circularly Polarized Antenna with Folded Ground and Parasitic Branch for 60 GHz WLAN
Seungtae Ko, Kwanghyun Baek, Yoon Geon Kim, Youngju Lee and Wonbin Hong (Samsung Electronics, Korea)

Reconfigurable Printed Antenna Arrays for Mm-wave Aplications
R. dos Santos (National Institute of Telecommunications (INATEL), Brazil); Rafael A. Penchel (Federal University of Technology - Paraná, Brazil); Marilia Bontempo (National Institute of Telecommunications (INATEL), Brazil); Arismar Cerqueira S. Jr. (INATEL, Brazil)

Dielectric Loaded Planar Inverted-F Antenna for Millimeter-Wave 5G Hand Held Devices
Khaled Mahbub Morshed, Karu Esselle and Michael Heimlich (Macquarie University, Australia)

Sidelobe Reduction of Unequally Spacing Arrays for 5G Applications
Muhammad Ramlee Kamarudin and Norhudah Seman (Universiti Teknologi Malaysia, Malaysia); Yoshihide Yamada (Malaysia-Japan International Institute of Technology, Universiti Teknologi Malaysia, Malaysia); Noor Ainniesafina Zainal (Universiti Teknologi Malaysia (UTM), Malaysia); Mohsen Khalily (University of Surrey & 5G Innovation Centre, Institute for Communication Systems (ICS), United Kingdom); Muzammil Jusoh (Universiti Malaysia Perlis & School of Computer and Communiction Engineering, Malaysia)

A Study of Array Antenna with Phase Compensated Technique for 60 GHz Communication
Hyunjin Kim, Seungtae Ko, Byungchul Kim, Kwanghyun Baek, Wonbin Hong and Youngju Lee (Samsung Electronics, Korea)

A Compact Dual-Polarized Patch Antenna Using Metamaterial-Line Based Feeding Network
Qinlong Li, William S. W. Cheung, Changfei Zhou and Ti Yuk (The University of Hong Kong, Hong Kong)

Multiplexing Efficiency of High Order MIMO in Mobile Terminal in Different Propagation Scenarios
Kun Zhao (KTH Royal Institute of Technology & Sony Mobile Communication AB, Sweden); Erik L Bengtsson (Sony Mobile, Sweden); Zhinong Ying (SONY Mobile Communications AB, Sweden); Sailing He (Royal Institute of Technology, Sweden)

MIMO Antennas for Next Generation Mobile Terminals
Sultan Shoaib and Imran Shoaib (Queen Mary University of London, United Kingdom); Xiaodong Chen (Queen Mary, University of London, United Kingdom); Clive Parini (QMUL, United Kingdom)

Spatial Scanner Channel Sounder for Space Diversity Studies
Mamadou Dialounke Balde (University of Rennes 1, France); Stéphane Avrillon and Christian Brousseau (Université de Rennes 1, France); Dominique Lemur (IETR, Universite' de Rennes 1, France); Bernard Uguen (University of Rennes I, France)

Enhanced Bandwidth of Dual ZOR Antenna for Multiband Applications
Jae-Gon Lee and Jeong Hae Lee (Hongik University, Korea)

Dual Polarized Complementary Antenna for LTE
Wing Chi Mok (City University of Hong Kong, Hong Kong)

Wideband CP Reconfigurable Slot Antenna with Compact Size for GNSS
Zhenxiao Zhe, Yunfei Cao, William S. W. Cheung and Ti Yuk (The University of Hong

Kong, Hong Kong)

Wideband Manhole Antenna for Small Cell Applications
Nima Jamaly, Pavle Belanovic, Damiano Scanferla, Erich Zimmermann and Carine Genoud (Swisscom, Switzerland)

Ultra Wideband Slot-loaded, Dielectric-filled Discone Antenna for WLAN Applications
D Tran (IRCTR & TU Delft, The Netherlands); Mengchu Wang and Alexander Yarovoy (TU Delft, The Netherlands)

Multi-Objective Optimization for Base-Station Location in Mixed-Cell LTE Networks
Ioannis Valavanis, Dimitra Zarbouti, Georgia E. Athanasiadou and George Tsoulos (University of Peloponnese, Greece)

An Integrated Dipole Cylindrical DR Antenna for UWB Applications
Raed A Abd-Alhameed (University of Bradford, United Kingdom); Asmaa Majeed (Basrah University, Iraq); Khalil Hassan Sayidmarie (University of Mosul, Iraq); A. S. Abdallah (University of Basrah, Basrah, Iraq); Nazar Ali (Khaifa University, UAE)

Angular Power Distribution Measurements and Modelling of Outdoor Urban Environment Using Ray-tracing At 2 and 18 GHz
Johannes Hejselbæk, Anders Karstensen and Gert Pedersen (Aalborg University, Denmark)

Effect of Finite Ring Radius and Antenna Radiation on Spatial Correlation in Multiprobe Over-The-Air Tests
Mounia Belhabib and Raffaele D'Errico (CEA, LETI, Minatec Campus & Univ\. Grenoble-Alpes, France); Bernard Uguen (University of Rennes I, France)

Wideband Self-interference Interference Channel Modelling for an On-frequency Frequency Repeater
Sathya Narayana Venkatasubramanian (Aalto University, Finland); Leo Laughlin (University of Bristol, United Kingdom); Katsuyuki Haneda (Aalto University, Finland); Mark Beach (University of Bristol, United Kingdom)

High Accurate Path Loss Prediction Formula by Using Occupancy Ratio for Mobile Radio Propagation -Extended Sakagami Path Loss Prediction Formula for Suburban and Rural Areas-
Hideki Omote (Softbank Corp., Japan); Yosuke Sugita (Softbank Mobile Corp., Japan); Teruya Fujii (Softbank Corp., Japan)

Characteristics of 5G Wireless Millimeter Wave Propagation: Transformation of Rain Attenuation Applying Different Prediction Models
Péter Kántor and János Bitó (Budapest University of Technology and Economics, Hungary); Árpád Drozdy (Aalto University, Finland)

Optimization of Power Consumption in Wireless Access Networks Using Differential Evolution with Eigenvector Based Crossover Operator
Sotirios Goudos (Aristotle University of Thessaloniki, Greece); Margot Deruyck (Ghent University / IBBT, Belgium); David Plets (Ghent University - iMinds, Belgium); Luc Martens (Ghent University, Belgium); Wout Joseph (Ghent University/iMinds, Belgium)

Adjustment of the Gaussian Scatterer Density Model to Different Mobile Radio Propagation Environment
Jan M. Kelner and Cezary Ziółkowski (Military University of Technology, Poland)

Comparison of Ray Tracing Simulations and Channel Measurements At mmWave Bands for Indoor Scenarios
Anders Karstensen, Wei Fan, Ines Carton and Gert Pedersen (Aalborg University, Denmark)

A Non-Resonant Element for Multiband Operation in Smartphones and Tablets
Jaume Anguera and Aurora Andújar (Fractus, Spain)

Outdoor Transmission Measurement at 26 GHz; Results of a 3 Years Trial in Norway
Per Thorvaldsen, Carl H. Bernhoft and Ingvar Henne (Bergen University College, Norway)

Modified Biconical Antenna for Ultrawideband Applications
Stanislav Stefanov Zhekov, Alexandru Tatomirescu and Gert Pedersen (Aalborg University, Denmark)

Slot Antenna for All-Metal Smartwatch Applications
Di Wu, William S. W. Cheung, Qinlong Li and Ti Yuk (The University of Hong Kong, Hong Kong)

Man-Made Interference in Below 3GHz Frequencies: How Severe is the Problem?
Alexandros Palaios (RWTH Aachen University, Germany); Vanya Miteva (RWTH Aachen, Germany); Petri Mähönen (RWTH Aachen University, Germany)

Study of a Metamaterial with Single Passband Between Two Neighboring Absorptive Bands
Wu Weiwei (National University of Defence Technology, P.R. China); Meng Tianzhen (National University of Defense Technology, P.R. China); Huang Jingjian, He Yan and Du Xiangyu (National University of Defence Technology, P.R. China); Wu WeiWei (Nanjing University of Aeronautics and Astronautics, P.R. China)

The Design of A Tripolarization Rectangle Dielectric Resonator Antenna
Yan He, Taolin Liu, Xiangyu Du and Weiwei Wu (National University of Defense Technology, P.R. China)

PS3: Poster 3

EM modelling and simulation
Room: Foyer C2

Regular

Frequency Reconfigurable Multiband Planar Antenna with Wide Tuning Frequency Range
Imen Ben Trad (IETR-INSA Rennes, France); Ines Rouissi (FACULTE DES SCIENCES DE TUNIS, Tunisia); Jean-marie Floch (IETR-INSA Rennes, France); Hatem Rmili (King Abdulaziz University & Faculty of Engineering, Saudi Arabia); Hichem Trabelsi (Faculte des Sciences de Tunis, Tunisia)

NF-Huygens & MaxVal. Two New Methods for Determining the Safety Distances to Base Station Antennas
Karsten Menzel (EMFfx Consulting & Simulation, Willich, Germany, Germany); Sebastian Rey and Thomas Kürner (Technische Universität Braunschweig, Germany)

Waves in a Lossy Goubau Line
Ekaterina Kuzmina (Moscow State Institute of Radio Engineering, Electronics and Automation, Russia)

Determination of Effective Permittivity of Metamaterial Antenna Cells
Maksym Khruslov, Igor Ivanchenko and Nina Popenko (A. Usikov Institute of Radio Physics and Electronics, Ukraine); Yury Shestopalov (University of Gävle, Sweden); Malay Tripathy (Amity University, Noida, India); Ekaterina Derevyanchuk (Penza State University, Russia)

Perturbation Method for Near-Elliptical Half-Mode Cavity Antennas
Nghia Nguyen-Trong (University of Adelaide, Australia); Thomas Kaufmann (The University of Adelaide, Australia); Christophe Fumeaux (The University of Adelaide & School of Electrical and Electronic Engineering, Australia)

Electromagnetic Modeling of Printed Antennas on Nematic Liquid Crystal Cells
Nectarios Papanicolaou, Marios Christou and Anastasis C Polycarpou (University of Nicosia, Cyprus)

Pseudo-analytical Circuits for Dual-Polarized FSS
María García-Vigueras (IETR-INSA Rennes, France); 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)

Applicability Limits of Ruze and Schanda Formulae
Aleksey Solovey (L-3 ESSCO, USA)

New Formulation to Study the Mutual Coupling Between Two Opened Waveguides Radiate in the Free Space
Abdessalem KA (Sys'Com, ENIT, Tunis El Manar University, Tunisia, Tunisia); Mourad Aidi (National Engineering School of Tunis, Tunisia); Taoufik Aguili (ENIT, Tunisia)

Simulation of Internal Electromagnetic Interference for Vehicular Antenna Performance Evaluation
Irfan Yousaf (Lunds University & Volvo Cars Corporation, Sweden); Buon Kiong Lau (Lund University, Sweden); Bjorn Bergqvist (EESE & Volvo Car Group, Sweden)

Increasing the Impedance Bandwidth of Dipole and Monopole Antennas with Parasitic Elements
Vishwanath Iyer and Shashank Kulkarni (MathWorks, Inc., USA); Giorgia Zucchelli (MathWorks, The Netherlands); Sergey Makarov (Worcester Polytechnic Institute, USA)

Synthesis of Aperiodic Arrays with Uniform Amplitude Excitation Including Coupling Effects
Jose Ignacio Echeveste (Universidad Politecnica de Madrid & ETSI de Telecomunicacion, Spain); Miguel A. González (Universidad Politécnica de Madrid, Spain); Jesús Rubio (University of Extremadura, Spain); Christophe Craeye (Université Catholique de Louvain, Belgium)

Preliminary Design of an ICRF Traveling-wave Comb-line Antenna for Fusion Devices
Riccardo Ragona (Ghent University & LPP-ERM/KMS, Belgium); André Messiaen (Laboratory for Plasma Physics, LPP-ERM/KMS, Belgium)

Reflectarray Probe Optimization At Millimeter Frequencies
Álvaro Fernández Vaquero (Universidad de Oviedo, Spain); Daniel Rodríguez Prado (Universidad de Oviedo & Group of Signal Theory and Communications, Spain); Manuel Arrebola, Marcos Pino and Fernando Las-Heras (Universidad de Oviedo, Spain)

Sidelobe Reduction in Uniformly-Fed Microstrip Arrays
Haim Matzner (HIT-Holon Institute of Technology, Israel); Ely Levine (AFEKA, Academic College of Engineering, Israel); Dima Reznik (HIT, Israel)

Method of Moments in Time Domain Comprising WGM, SPM and Attachment Modes: Stability Issues
Elson Agastra and Bexhet Kamo (Polytechnic University of Tirana & Faculty of Information Technology, Albania); Algenti Lala (Polytechnic University of Tirana, Albania); Ilir Shinko (Polytechnic University of Tirana & Faculty of Information Technology, Albania); Shkelzen Cakaj (Post and Telecommunication of Kosovo (PTK), Yugoslavia (defunct))

An Adaptive Sampling Algorithm for the Efficient Prediction of Antenna Radiation Patterns Over a Wide Frequency Bandwidth
Ngoy Mutonkole (University of Stellenbosch, South Africa); Dirk de Villiers (Stellenbosch University, South Africa)

Analysis of Plasma-Wave Interaction with ADAMANT and Characteristic Basis Functions
Davide Melazzi (University of Padova, Italy); Marco Manente (T4I Srl, Italy); Vito Lancellotti (Eindhoven University of Technology, The Netherlands)

Nystrom-type Method Essentials in the Scattering by Comb-like Graphene Strip Grating in the THz Range
Olga Shapoval (Institute of Radio-Physics and Electronics, Ukraine); Alexander Nosich (IRE NASU, Ukraine)

Numerical Design of Testing Functions for the Magnetic-Field Integral Equation
Bariscan Karaosmanoglu and Ozgur Ergul (Middle East Technical University, Turkey)

Singularity Cancellation and Extraction Techniques for Precise Evaluation of Impedance Integrals in Thin-Wire Analysis
Aleksandra Krneta (School of Electrical Engineering, University of Belgrade,

Serbia); Branko Kolundzija (University of Belgrade, Serbia)

Accurate Evaluation of Electromagnetic Scattering From Large and Complex Aeronautical Intakes

Stefano Bertini, Alessandro Mori and Mirko Bercigli (IDS Ingegneria Dei Sistemi S. p. A, Italy); Stefano Sensani (IDS Ingegneria dei Sistemi S.p.A., Italy)

Analysis of Curved Frequency Selective Surface for Radome Using Characteristic Basis Function Method

Chan-Sun Park and Yi-Ru Jeong (Yonsei University, Korea); Ic Pyo Hong (Kongju National University, Korea); Jong-Gwan Yook and Heoung-Jae Chun (Yonsei University, Korea); Yong Bae Park (Ajou University, Korea); Youn-Jae Kim (Agency for Defense and Development, Korea)

Study on the Impact of the Body Shadow Effect in Wireless Channels Through Dosimetry Measurements

Silvia de Miguel-Bilbao (Health Institute Carlos III, Spain); Juan Blas (University of Valladolid, Spain); Erik Aguirre and Peio Lopez Iturri (Universidad Publica de Navarra, Spain); Leyre Azpilicueta (Tecnologico de Monterrey, Mexico); Francisco Falcone (Universidad Publica de Navarra, Spain); Victoria Ramos (Institute of Health Carlos III, Spain)

GO Solutions with Fast Marching

Amedeo Capozzoli, Claudio Curcio, Angelo Liseno and Salvatore Savarese (Università di Napoli Federico II, Italy)

High Frequency Modeling of Large Composite Scatterers of Arbitrary Shape: Vortex-Lens Validation

Jose Martinez Lorenzo, Galia Ghazi, Ashkan Ghanbarzade, Juan Heredia-Juesas, Ali Molaei, Anthony Bisulco and Luis Tirado (Northeastern University, USA)

Higher Order Diffraction Improvement of Models for Irregular Terrain Propagation

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)

Sandwich Spherical and Geodesic Antenna Radomes Analysis

Aleksey Karpov, Sergey Knyazev, Lubov Lesnaya and Sergey Shabunin (Ural Federal University, Russia)

Design of PCB RF Probe Landing Pads for Measurements Up to 90 GHz

Philipp F Freidl, Sebastian Sattler, Michael Gadringer and Dominik Amschl (Graz University of Technology, Austria); Ulrich Muehlmann (NXP Semiconductors, Austria); Gerald Holweg (, Austria); Wolfgang Boesch (Graz University of Technology & Institute of Microwave and Photonic Engineering, Austria)

GO Shaping of Omnidirectional Dual-Reflector Antennas with Arbitrary Main-Beam Direction in Elevation Plane by Connecting Conic Section

Rafael A. Penchel (Federal University of Technology - Paraná, Brazil); Sandro R. Zang and Jose R Bergmann (PUC-Rio, Brazil); Fernando Moreira (Federal University of Minas Gerais, Brazil)

Optimizing the Numerical Port for Inverted Microstrip Gap Waveguide in Full-Wave Simulators

Jinlin Liu (Chalmers University of Technology, Sweden); Ashraf Zaman (University of Saskatchewan, Canada); Per-Simon Kildal (Chalmers University of Technology, Sweden)

Dual-Band Printed Folded Dipole Balanced Antenna for 700/2600MHz LTE Bands

Issa Elfergani (Instituto de Telecomunicações, Portugal); Abubakar Sadiq Hussaini (Instituto de Telecomunicações & University of Bradford, Portugal); Jonathan Rodriguez (Instituto de Telecomunicações, Portugal); Raed A Abd-Alhameed (University of Bradford, United Kingdom)

Aperture-Coupled Asymmetric Dielectric Resonator Antenna with Slotted Microstripline for Enhanced UltraWideband

Chemseddine Zebiri (Ferhat Abbas University of Setif, Algeria); Nazar Ali (Khaifa University, UAE); Issa Elfergani (Instituto de Telecomunicações, Portugal); Abubakar Sadiq Hussaini (Instituto de Telecomunicações & University of Bradford, Portugal); Jonathan Rodriguez (Instituto de Telecomunicações, Portugal); Raed A

Abd-Alhameed (University of Bradford, United Kingdom)

Reconfigurable Antennas Based on Stub-Loaded Substrate-Integrated Circuits
Nghia Nguyen-Trong (University of Adelaide, Australia); Leonard Hall (Defence Science and Technology Organisation, Australia); Christophe Fumeaux (The University of Adelaide & School of Electrical and Electronic Engineering, Australia)

Optimization of a Dual-Band-Antenna Using Statistics on Structures (SoS)
Christian Römelsberger (CADFEM GmbH, Germany); Sebastian Wolff (DYNARDO Austria GmbH, Austria)

A Comparison Between SNO and PSO for Reflect-Array Optimization
Alessandro Niccolai, Francesco Grimaccia, Marco Mussetta and Riccardo Enrico Zich (Politecnico di Milano, Italy)

A New Evolutionary Algorithm for Sparse Array Optimization
Francesco Bardi, Francesco Grimaccia, Marco Mussetta, Alessandro Niccolai and Riccardo Enrico Zich (Politecnico di Milano, Italy)

Hybrid Method for Deterministic Estimation of Radiated Emissions of Electrical Appliances
Peio Lopez Iturri and Erik Aguirre (Universidad Publica de Navarra, Spain); Leyre Azpilicueta (Tecnologico de Monterrey, Mexico); Pablo Rodríguez-Ulibarri (Universidad Pública de Navarra, Spain); Miguel Beruete and Francisco Falcone (Universidad Publica de Navarra, Spain)

Advanced RADAR Sensors Modeling for Driving Assistance Systems Testing
Jean-Claude Kedzia (ESI Group, France); Philippe De Souza (CIVITEC, France); Dominique Gruyer (LIVIC-IFSTTAR, France)

Insertion Loss Variation in Complementary Split Ring Resonator Transmitarray Unit Cells Employing the Element Rotation Method
Emre Erdil (Middle East Technical University, Turkey); Kagan Topalli (Bilkent University, Turkey); Ozlem Aydin Civi (Middle East Technical University, Turkey)

Accurate Parametric Modeling of Gain and Sidelobe Levels in Blocked Aperture Reflector Systems Using Implicit Space Mapping
Dirk de Villiers (Stellenbosch University, South Africa)

RF Characterization of Flexible Substrates for New Conformable Antenna Systems
Hong-Duc Nguyen (TELECOM Bretagne, France); Jean Philippe Coupez (Télécom Bretagne, France); Vincent Castel (Lab-STICC, TELECOM Bretagne, France); Christian Person (Lab-STICC/MOM UMR CNRS, France); Anastasia Delattre, Laura Crowther-Alwyn and Pascal Borel (CTP Grenoble, France)

Investigation of a Disk-Loaded Monopole Antenna with Extended Bandwidth Matching
Ivor L. Morrow (Cranfield University, United Kingdom); William Whittow (Loughborough University, United Kingdom)

A New Method for the Design of Slot Antenna Arrays: Theory and Experiment
Sebastien Clauzier (Royal Military College, Canada); Said Mikki (University of New Haven, USA); Muhammed Karimi and Atif Shamim (King Abdullah University of Science and Technology, Saudi Arabia); Yahia Antar (Royal Military College of Canada, Canada)

Tuesday, April 12, 15:00 - 16:20 (Europe/Zurich)

InvTue-A: Invited Speakers Tuesday - Track A

Room: B Pisch+ Parsenn
Chair: Christoph F Mecklenbräuker (Vienna University of Technology, Austria)

Invited

15:00 ***THz Antenna Systems for Wide Field of View Imaging Cameras***

Nuria LLombart (Delft University of Technology, The Netherlands)

15:40 ***Efficient Optical to Terahertz Wave Conversion Through Plasmonic Antennas***
Mona Jarrahi (University of California Los Angeles, USA)

InvTue-B: Invited Speakers Tuesday - Track B

Room: C Aspen
Chair: Koichi Ito (Chiba University, Japan)

Invited

15:00 ***The MINDS Design of Wearable Medical Devices for Cardiovascular Health Informatics***
Yuan-Ting Zhang (Chinese University of Hong Kong, Hong Kong SAR, The People's Republic of China)

15:40 ***Robust Integral Equation Methods for the Maxwell Equations in Complex Geometries***
Leslie Greengard (New York University, NY, USA)

Tuesday, April 12, 16:50 - 18:30 (Europe/Zurich)

A39b: Antenna design for MIMO applications

Cellular and short-range communication
Room: A Dischma
Chairs: Buon Kiong Lau (Lund University, Sweden), Jose Martinez Lorenzo (Northeastern University, USA)

Regular

16:50 ***Optimization-Driven Design of Compact UWB MIMO Antenna***
Adrian Bekasiewicz (Gdansk University of Technology, Poland); Slawomir Koziel (Reykjavik University, Iceland); Tom Dhaene (Ghent University, Belgium)

17:10 ***A Six-Antenna Design for MIMO Uses on WLAN Access Points***
Wen-Jiao Liao, Xin-Xiong Chen and Bang-Yun Dai (National Taiwan University of Science and Technology, Taiwan)

17:30 ***MIMO Antenna System for Smartphones Using Non-Resonant Elements***
Aurora Andújar and Jaume Anguera (Fractus, Spain)

17:50 ***Numerical Design of Compressive Antennas for High-Sensing-Capacity Applications***
Jose Martinez Lorenzo and Richard Obermeier (Northeastern University, USA)

18:10 ***Dual Band Port Isolation Enhancement Between Microstrip Array Elements***
Maha Abdel-Haleem (Egypt-Japan University of Science and Technology, Egypt)

P15: Propagation at millimetre-wave frequencies

Cellular and short-range communication
Room: A Flüela

Regular

16:50 ***Design of a Ka-band Propagation Terminal for Atmospheric Measurements in Polar Regions***
Jacquelynne Houts (NASA Glenn Research Center, USA); James Nessel and Michael Zemba (NASA, USA)

17:10 ***Frequency Range Extension of the ITU-R NLOS Path Loss Models Applicable for Urban Street Environments with 28 GHz Measurements***
Juyul Lee, Myung-Don Kim, Jinyi Liang, Jae-Joon Park and Bonghyuk Park (ETRI, Korea)

17:30 ***Comparison of Parametric and Nonparametric Characterization of 15 GHz Propagation Channels in Indoor Environments***
Cen Ling (Tongji Unversity, P.R. China); Xuefeng Yin (Tongji University, P.R. China); Haowen Wang (Shanghai Research Center for Wireless Communications, P.R. China); Xiaomei Zhang (Huawei, P.R. China)

17:50 ***THALES ALENIA SPACE HTS/V-HTS Multiple Beam Antennas Sub-systems on the Right Track***
Pierre Bosshard, Jean-Christophe Lafond, François Dubos and Philippe Lepeltier (Thales Alenia Space, France)

18:10 ***Local Multipath Model Parameters for Generating 5G Millimeter-Wave 3GPP-like Channel Impulse Response***
Mathew Samimi (NYU WIRELESS, USA); Theodore Rappaport (New York University & NYU WIRELESS, USA)

A28: EBG, metamaterials and metasurfaces

Fundamental research
Room: A Schwartzhorn
Chairs: Matteo Albani (University of Siena, Italy), Stéphane Mallegol (THALES Systèmes Aéroportés, France)

Regular

16:50 ***On the Design of Low SAR CPW Antenna with Magneto Dielectric AMC Based Ground Plane***
Reza Karimian, Bahnemiri (The National Institute of Scientific Research, Canada); Javad Pourahmadazar (National Institute of Scientific Research (INRS), Canada); Tayeb A. Denidni (INRS-EMT, Canada); Mourad Nedil (UQAT, Canada)

17:10 ***Low-Profile VHF-UHF Dipole on a Loaded Electromagnetic Band Gap Surface***
Stéphane Mallegol, Yonnech Coupa and Michel Jousset (THALES Systèmes Aéroportés, France); Christian Renard (Thales Systèmes Aéroportés, France)

17:30 ***Polarization Reconfigurable Metasurface Superstrate Antenna with Low Profile***
Zhao Wu, Haixia Liu and Long Li (Xidian University, P.R. China)

17:50 ***Analysis of the Reflection Characteristics of a Planar EBG Structure on Lossy Silicon Substrates***
Qiang Liu (Eindhoven University of Technology, The Netherlands); Yingzhe Xi (TU/e, The Netherlands); Ad Reniers and A. B. (Bart) Smolders (Eindhoven University of Technology, The Netherlands)

18:10 ***Application of Dielectric Resonator Based Metamaterial in Waveguide Coupler***
Gizem Kalender (Yasar University, Turkey); Yesim Zoral (Dokuz Eylül University, Turkey); Mustafa Secmen (Yasar University, Turkey)

A54: Wearable antennas

Multiple applications
Room: A Seehorn
Chairs: Juraj Bartolić (University of Zagreb, Croatia), Marko Bosiljevac (University of Zagreb, Croatia)

Regular

16:50 ***Study of Wearable WBAN Antenna Properties Based on Spherical Body Model***
Marko Bosiljevac (University of Zagreb, Croatia); Benjamin Fuchs (University of Rennes 1 - IETR, France); Anja K. Skrivervik (EPFL, Switzerland); Zvonimir Sipus (University of Zagreb, Croatia)

17:10 ***Wearable Energy Harvesting Using Wideband Textile Antennas***
Andrej Galoić and Branimir Ivšić (University of Zagreb, Faculty of Electrical Engineering and Computing, Croatia); Davor Bonefačić (University of Zagreb & Dept of Wireless Communications, Croatia); Juraj Bartolić (University of Zagreb, Croatia)

17:30 ***A Stretchable and Flexible Polymer Based Monopole Antenna for Wearable Applications***
Farhan Ghaffar (KAUST, Saudi Arabia); Aftab Hussain (King Abdullah University of Science and Technology (KAUST), Saudi Arabia); Muhammad Hussain (KAUST, Saudi Arabia); Atif Shamim (King Abdullah University of Science and Technology, Saudi Arabia)

17:50 ***A Wrist Wearable Dual Port Dual Band Stacked Patch Antenna for Wireless Information and Power Transmission***
Sema Dumanli (Toshiba Research Europe Ltd., United Kingdom)

18:10 ***Liquid Metal Based Antenna for Wearable Electronic***
Alexander Vorobyov (CSEM & Center Suisse d'Electronique et de Microtechnique SA, Switzerland); Cedric Hennemann and Philippe Dallemagne (CSEM, Switzerland)

P7: Urban propagation

Cellular and short-range communication
Room: A Sertig
Chairs: Sajjad Hussain (Dublin City University, Ireland), Andreas Molisch (University of Southern California, USA)

Regular

16:50 ***Improvement of Ray Tracing in Urban Street Cell Environment of Non Line-of-Site (NLOS) with Consideration of Building Corner and Its Surface Roughness***
Nobutaka Omaki (NTT DOCOMO INC., Japan); Tetsuro Imai, Koshiro Kitao and Yukihiko Okumura (NTT DOCOMO, INC., Japan)

17:10 ***Estimation of Rician K-factor Values in Urban Terrain***
Jaroslaw Sadowski (Gdansk University of Technology, Poland)

17:30 ***Spatially Consistent Pathloss Modeling for Millimeter-Wave Channels in Urban Environments***
Andreas Molisch and Aki Karttunen (University of Southern California, USA); Sooyoung Hur (Samsung Electronics Co., Korea); Jeongho Park (Samsung Electronics, Korea); Jianzhong Zhang (Samsung, USA)

17:50 ***An Image Visibility Based Pre-processing Method for Fast Ray Tracing in Urban Environments***
Sajjad Hussain and Conor Brennan (Dublin City University, Ireland)

18:10 ***Frequency Dependency of Channel Parameters in Urban LOS Scenario for mmWave Communications***
Pekka Kyösti (Anite Telecoms Oy, Finland); Ines Carton, Anders Karstensen, Wei Fan and Gert Pedersen (Aalborg University, Denmark)

A4: Antenna design and optimization

EM modelling and simulation
Room: B Jakhobshorn
Chairs: Chi-Chih Chen (The Ohio State University & ElectroScience Laboratory, USA), Jacques Sombrin (TéSA Laboratory & LABEX Sigma-Lim, University of Limoges, France)

Regular

16:50 ***Higher Dynamic Measurement of Antenna Passive Intermodulation Products, Using Ray Optics***
Jacques Sombrin (TESA Laboratory, France)

17:10 ***Parametric Modeling of Deformable Antennas Based on the Spherical Modes Expansion Method***
Jinxin Du (Télécom ParisTech & Institut Mines−Télécom, France); Christophe Roblin (Telecom ParisTech & LTCI - Institut Mines-Télécom, France)

17:30 ***A 60-GHz On-Chip Tapered Slot Vivaldi Antenna with Improved Radiation Characteristics***
Anwer Sayed Abd El-Hameed (Assistant Research & Egypt-Japan University for Science and Technology (E-JUST), Egypt); Adel Barakat (Electronics Research Institute (ERI), Egypt); Adel Bedair and Ahmed Allam (Egypt-Japan University of Science and Technology, Egypt); Ramesh K Pokharel (Kyushu University, Japan)

17:50 ***Low-Profile Broadband Reflector Antenna Designed for Low Mutual Coupling***
Chi-Chih Chen (The Ohio State University & ElectroScience Laboratory, USA); Gregory Wainwright (The Ohio State University, USA)

18:10 ***Antenna Measurement Uncertainty Method for Measurements in Compact Antenna Test Ranges***
Stephen Blalock (Georgia Institute of Technology, USA); Jeffrey Fordham (MI Technologies, USA)

A17: Electromagnetic modelling and simulation

EM modelling and simulation
Room: B Pisch+ Parsenn
Chairs: Danie Ludick (Stellenbosch University, South Africa), Francesca Mioc (Consultant, Switzerland)

Regular

16:50 ***Prediction of Electromagnetic Scattering from Metasurfaces***
Tse Tong Chia (DSO National Laboratories, Singapore)

17:10 ***Analysis of Triaxial Well-Logging Sensors in Layered Anisotropic Earth Formations***
Kamalesh Sainath (Ohio State University & ElectroScience Laboratory, USA); Fernando Teixeira (The Ohio State University, USA)

17:30 ***Analyzing UHF-Band Antennas Near Anatomical Human Models with a Fast Integral-Equation Method***
Jackson Massey, Vivek Subramanian and Chang Liu (The University of Texas at Austin, USA); Ali Yimaz (University of Texas at Austin, USA)

17:50 ***On the Accuracy of Different Boundary Integral Formulations for Dielectric Bodies Using RWG and BC Functions***
Harmen van der Ven (Netherlands Aerospace Centre, The Netherlands); Christos Liontas (Fraunhofer Institute for High Frequency Physics and Radar Techniques FHR, Germany); Kristof Cools (University of Nottingham, United Kingdom); Duncan van der Heul (University of Delft, The Netherlands)

18:10 ***A Fast Analysis Method for the Groove Gap Waveguide Using Transmission Line Theory***
Antonio Berenguer (Universitat Politecnica de Valencia & Instituto de Telecomunicaciones y Aplicaciones Multimedia, Spain); Vincent Fusco (Queen's University Belfast, United Kingdom); Miguel Ferrando-Rocher and Vicente Boria (Universidad Politécnica de Valencia, Spain)

CS01: Advanced Manufacturing Techniques for antennas

Multiple applications
Room: C Aspen
Chair: Maarten van der Vorst (European Space Agency, The Netherlands)

Convened

16:50 ***Ku-Band Sidearm Orthomode Transducer Manufactured by Additive Layer Manufacturing***
Michael Szymkiewicz, Yves Konkel, Christian Hartwanger and Michael Schneider (Airbus DS GmbH, Germany)

17:10 ***Additive Manufacturing of Waveguide for Ku-band Satellite Communications Antenna***
John Thornton (MDA & MDA Space and Robotics Ltd, United Kingdom); Brian Dalay (MDA Space and Robotics Ltd, United Kingdom); David Smith (Northumbria University, United Kingdom)

17:30 ***Digital Manufacturing & Rapid Prototyping: Enabling Innovative & Cost Effective Antenna Solution From RF Up to mmW***
Aimeric Bisognin (University Nice Sophia-Antipolis & STMicroelectronics, France); Cyril Luxey (University Nice Sophia-Antipolis, France); Frédéric Gianesello (STMicroelectronics, France); Diane Titz (University of Nice, France); Carlos A. Fernandes (Instituto de Telecomunicacoes, Instituto Superior Tecnico, Portugal); Jorge R. Costa (Instituto de Telecomunicações / ISCTE-IUL, Portugal); Daniel Gloria (STMicroelectronics, France)

17:50 ***Design and Fabrication of a Lightweight Additive-Manufactured Ka-band Horn Antenna Array***
Alexandros I. Dimitriadis (Ecole Polytechnique Fédérale de Lausanne & SWISSto12 SA, Switzerland); Mirko Favre and Mathieu Billod (SWISSto12 SA, Switzerland); Jean-Philippe Ansermet (Ecole Polytechnique Fédérale de Lausanne, Switzerland); Emile de Rijk (SWISSto12 SA, Switzerland)

18:10 ***Applicability of 3D Printing Techniques for Compact Ku-band Medium/High-Gain Antennas***
Maarten van der Vorst and Johannes Gumpinger (European Space Agency, The Netherlands)

A37: Reflectarrays and transmitarrays II

Space
Room: C Sanada1
Chairs: Jorge R. Costa (Instituto de Telecomunicações / ISCTE-IUL, Portugal), Ronan Sauleau (University of Rennes 1, France)

Regular

16:50 ***Multi-Spot Beam Reflectarrays for Satellite Telecommunication Applications in Ka-Band***
Min Zhou and Stig Sørensen (TICRA, Denmark)

17:10 ***Dual Polarized Reflectarray Antenna to Generate Independent Beams in Ku and Ka Bands***
Eduardo Martinez-de-Rioja and Jose A. Encinar (Universidad Politecnica de Madrid, Spain); Rafael Florencio (Universidad de Sevilla, Spain); Rafael Boix (University of Seville, Spain)

17:30 ***Dual-Band Circularly Polarized Transmit-Array Unit-Cell At X and K Bands***
Parinaz Naseri (University of Alberta, Canada); Rashid Mirzavand (Amirkabir University of Technology, Iran); Pedram Mousavi (University of Alberta, Canada)

17:50 ***Circularly-polarized Reconfigurable Transmitarray 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)

18:10 ***Design of a 40 dBi Planar Bifocal Lens for Mechanical Beam Steering At Ka-Band***

Sérgio Matos (Instituto de Telecomunicações, Portugal); Eduardo B. Lima (Instituto de Telecomunicações & Instituto Superior Técnico, Portugal); Jorge R. Costa (Instituto de Telecomunicações / ISCTE-IUL, Portugal); Carlos A. Fernandes (Instituto de Telecomunicacoes, Instituto Superior Tecnico, Portugal); Nelson Fonseca (European Space Agency, The Netherlands)

P1: Imaging and inverse scattering 1

Radar, Defence and security
Room: C Sanada2
Chairs: Sandra Costanzo (University of Calabria, Italy), Tran Vu La (ENSTA Bretagne, France)

Regular

16:50 ***Guessing the Texture of Magnetic Samples Assisted by Aharonov-Bohm Effect***

Constantinos A Valagiannopoulos (Nazarbayev University, Kazakhstan); Andrea Alù (The University of Texas at Austin, USA); Alexandros Dimakis (University of Texas at Austin, USA); Edwin Marengo (Northeastern University, USA)

17:10 ***Microwave Bessel Beam Launcher for High Penetration Planetary Drilling Operations***

Sandra Costanzo, Giuseppe Di Massa, Antonio Borgia and Antonio Raffo (University of Calabria, Italy); Thijs Versloot and Leopold Summerer (European Space Agency, The Netherlands)

17:30 ***Study of Wind Speed Retrievals From Sentinel-1 Images Using Physical Models***

Tran Vu La (ENSTA Bretagne, France); Ali Khenchaf (ENSTA Bretagne & LAB-STICC UMR CNRS 6285, France); Fabrice Comblet (ENSTA Bretagne, France); Carole Nahum (Direction Générale de l'Armement, France)

17:50 ***A Sparsity-Regularized Born Iterative Method for Reconstruction of Two-Dimensional Piecewise Continuous Inhomogeneous Domains***

Ali Imran Sandhu, Abdulla Desmal and Hakan Bagci (King Abdullah University of Science and Technology (KAUST), Saudi Arabia)

18:10 ***An Adaptive Learning-by-Examples Strategy for Efficient Eddy Current Testing of Conductive Structures***

MArco Salucci (ELEDIA Research Center, Italy); Shamim Ahmed (CEA, France); Andrea Massa (University of Trento, Italy)

Wednesday, April 13

Wednesday, April 13, 08:40 - 10:20 (Europe/Zurich)

A40: Wideband antennas

Cellular and short-range communication
Room: A Dischma
Chairs: Eva Antonino-Daviu (Universidad Politecnica de Valencia, Spain), Lei Wang (Ecole Polytechnique Fédérale de Lausanne (EPFL), Switzerland)

Regular

08:40 ***Compact Wideband Probe-Fed Dielectric Resonator Antenna for X-Band Applications***

Mohammad Abedian (Universiti Teknologi Malaysia (UTM) & Wireless Communication Centre, Malaysia); Sharul Kamal A. Rahim (Universiti Teknologi Malaysia, Malaysia); Shadi Danesh (Wireless Communication Centre, Faculty of Electrical Engineering, Universiti Teknologi Malaysia, Malaysia); Christophe Fumeaux (The University of Adelaide & School of Electrical and Electronic Engineering, Australia); Tharek Abdul Rahman (Wireless Communication Centre, Malaysia)

09:00 ***UWB Multi-Beam Antenna Array for the Microwave Band***

Alexia Moreno Peñarrubia, Miguel Ferrando-Bataller, Marta Cabedo-Fabrés and Eva Antonino-Daviu (iTeam, Universidad Politécnica de Valencia, Spain)

09:20 ***Wideband Circularly Polarized Antenna Using Metasurface***

Changfei Zhou, William S. W. Cheung, Yunfei Cao and Ti Yuk (The University of Hong Kong, Hong Kong)

09:40 ***Wideband Coplanar Waveguide-Fed Slot Antenna Array with Via-Wall Structure***

Mei Yang (Nanjing University of Posts and Telecommunications, P.R. China); Xiaoxing Yin (Southeast University, P.R. China); Hongxin Zhao (State Key Laboratory of Millimeter Waves, P.R. China); Lei Wang (Ecole Polytechnique Fédérale de Lausanne (EPFL), Switzerland)

10:00 ***Wideband Two-Port Symmetrical Monopole Antenna with Broadside and Omnidirectional Radiation***

Marko Tapani Sonkki (University of Oulu, Finland); Eva Antonino-Daviu (Universidad Politecnica de Valencia, Spain); Miguel Ferrando-Bataller (Universidad Politecnica De Valencia, Spain); Erkki T. Salonen (University of Oulu, Finland)

CS23a: Millimeter-wave propagation measurements and models for 5G systems and applications

Cellular and short-range communication

Room: A Flüela

Chair: Franco Fuschini (DEI - Bologna, Italy)

Convened

08:40 ***Polarimetric Indoor Measurements At 94 GHz***

Maria Teresa Martinez-Ingles (Universidad Politecnica de Cartagena, Spain); Jose-Maria Molina-Garcia-Pardo (Universidad Politécnica de Cartagena, Spain); Davy P Gaillot (University of Lille 1, France); Juan Pascual-García, José-Víctor Rodríguez and Leandro Juan-Llacer (Universidad Politécnica de Cartagena, Spain); Martine Liénard (University of Lille, France)

09:00 ***Wideband Measurements in Indoor and Outdoor Environments in the 30 GHz and 60 GHz Bands***

Sana Salous (Durham University, United Kingdom); Yuteng Gao (Northwestern Polytechnical University, P.R. China)

09:20 ***Estimating the Omni-Directional Pathloss From Directional Channel Sounding***

Katsuyuki Haneda, Sinh Nguyen and Jan Järveläinen (Aalto University, Finland); Jyri Putkonen (Nokia & Network, Finland)

09:40 ***Channel Characteristics Study for Future Indoor Millimeter and Submillimeter Wireless Communications***

Bile Peng and Thomas Kürner (Technische Universität Braunschweig, Germany)

10:00 ***Comparative Study of Centimetric and Millimetric Propagation Channels in Indoor Environments***

Wei Fan, Ines Carton and Gert Pedersen (Aalborg University, Denmark)

CS04a: Advances in Plasma-based Antennas and Devices

Fundamental research
Room: A Schwartzhorn
Chairs: Vito Lancellotti (Eindhoven University of Technology, The Netherlands), Davide Melazzi (University of Padova, Italy)

Convened

08:40 ***Radiation Properties of a Gaseous Plasma Dipole***
Davide Melazzi (University of Padova, Italy); Paola De Carlo (Department of Industrial Engineering, University of Padova, Italy); Vito Lancellotti (Eindhoven University of Technology, The Netherlands); Fabio Trezzolani (University of Padua, Italy); Marco Manente (T4I Srl, Italy); Daniele Pavarin (University of Padova, Italy)

09:00 ***Electromagnetic Resonance Scattering by an Array of Magnetized Plasma Cylinders***
Alexander Kudrin, Alexander Ivoninsky and Vasiliy Es'kin (University of Nizhny Novgorod, Russia)

09:20 ***Preliminary Study on the Feasibility of a Plasma-Based Electrically Small ENG Antenna***
Vincent Laquerbe and Romain Pascaud (Institut Supérieur de l'Aéronautique et de l'Espace (ISAE-SUPAERO), Université de Toulouse, France); Thierry Callegari, Laurent Liard and Olivier Pascal (Université de Toulouse - UPS INPT CNRS, France)

09:40 ***Hybrid Finite-Element Boundary-Integral Numerical Approach to the Design of Plasma Antennas***
Anuar Fernandez Olvera (Eindhoven University of Technology, The Netherlands); Davide Melazzi (University of Padova, Italy); Vito Lancellotti (Eindhoven University of Technology, The Netherlands)

10:00 ***Performance of Switchable Patches Array Using Plasma Commercial Fluorescent Lamps***
Oumar Barro (Institute of Electronics and Telecommunications of Rennes, (IETR) University of Rennes 1, France); Mohamed Himdi (Université de Rennes 1, France); Olivier Lafond (IETR, France)

CS15a: COST Action TD1301, MiMed: Advances in Biomedical Electromagnetic Imaging and Therapeutics, Monitoring and Sensing Devices

Biomedical and wearable applications including biological effects
Room: A Seehorn
Chairs: Raquel C. Conceição (Instituto de Biofísica e Engenharia Biomédica, Faculdade de Ciências, Universidade de Lisboa & Institute of Biomedical Engineering, University of Oxford, Portugal), Martin O'Halloran (National University of Ireland, Galway, Ireland)

Convened

08:40 ***A Novel Miniature Spiral Sensor for Non-invasive Blood Glucose Monitoring***
Shao Jinjin, Yifan Chen, Fen Xia, Qingfeng Zhang and Fan Yang (South University of Science and Technology of China, P.R. China)

09:00 ***Initial Study for the Investigation of Breast Tumour Response with Classification Algorithms Using a Microwave Radar Prototype***
Raquel C. Conceição (Instituto de Biofísica e Engenharia Biomédica, Faculdade de Ciências, Universidade de Lisboa & Institute of Biomedical Engineering, University of Oxford, Portugal); Dallan Byrne (University of Bristol, United Kingdom); J. Alison Noble (University of Oxford, United Kingdom); Ian Craddock (University of Bristol, United Kingdom)

09:20 ***Microwave Ablation Monitoring Via Microwave Tomography: a Numerical Feasibility Assessment***
Ovidio Mario Bucci (University of Naples, Italy); Marta Cavagnaro (Sapienza University of Rome, Italy); Lorenzo Crocco (CNR - National Research Council of

Italy, Italy); Vanni Lopresto (ENEA, Italian National Agency for New Technologies, Energy and Sustainable Economic Development, Italy); Rosa Scapaticci (CNR-National Research Council of Italy, Italy)

09:40 ***Low-cost Hardware for a Time-Domain Microwave System for Breast Health Monitoring***
Adam Santorelli (McGill University, Canada); Emily Porter (National University of Ireland Galway, Ireland); Stefano Dantas (McGill, Canada); Milica Popović (McGill University, Canada); Joshua D Schwartz (Trinity University, USA)

10:00 ***Advances in Microwave Ablation Antennas for Breast Tumor Treatment***
R. Owen Mays, Luz Maria Neira, Hung Luyen, Lee Wilke and Nader Behdad (University of Wisconsin-Madison, USA); Susan C. Hagness (University of Wisconsin, Madison, USA)

P8: Channel model characterization in wireless links

Cellular and short-range communication
Room: A Sertig
Chairs: Nektarios Moraitis (National Technical University of Athens & Institute of Communications and Computers Systems, Greece), Ignacio Rodriguez (Aalborg Universitet, Denmark)

Regular

08:40 ***Geometry Based Large Scale Attenuation over Linear Massive MIMO Systems***
Liu Liu (Bejing Jiaotong University, P.R. China); David W Matolak (University of South Carolina, USA); Cheng Tao and Yanping Lu (Beijing Jiaotong University, P.R. China); Bo Ai (Beijing Jiaotong University & State Key Lab of Rail Traffic Control and Safety, P.R. China); Houjin Chen (Beijing Jiaotong University, P.R. China)

09:00 ***Outdoor-to-Indoor Path Loss Modeling for 0.8 to 37 GHz Band***
Tetsuro Imai, Koshiro Kitao and Ngochao Tran (NTT DOCOMO, INC., Japan); Nobutaka Omaki (NTT DOCOMO INC., Japan); Yukihiko Okumura (NTT DOCOMO, INC., Japan); Kentaro Nishimori (Niigata University, Japan)

09:20 ***Dual Polarized MIMO LMS Channel Measurements and Characterization in a Pedestrian Environment***
Viktor Nikolaidis (University of Piraeus, Greece); Nektarios Moraitis (National Technical University of Athens & Institute of Communications and Computers Systems, Greece); Athanasios G. Kanatas (University of Piraeus, Greece)

09:40 ***24 GHz cmWave Radio Propagation Through Vegetation: Suburban Tree Clutter Attenuation***
Ignacio Rodriguez (Aalborg Universitet, Denmark); Renato Abreu (INDT, Brazil); Erika Almeida (INDT - Institute of Technology Development, Brazil); Mads Lauridsen (Aalborg University, Denmark); Alexandre Loureiro (INDT, Brazil); Preben Mogensen (Aalborg University, Denmark)

10:00 ***SIMO LMS Wideband Channel Modeling Through Deterministic Simulation in a Dense Urban Environment***
Nektarios Moraitis (National Technical University of Athens & Institute of Communications and Computers Systems, Greece); Athanasios D. Panagopoulos (National Technical University of Athens, Greece)

CS36a: Terahertz Antennas

Multiple applications
Room: A Wisshorn
Chairs: Goutam Chattopadhyay (JPL, USA), Nuria LLombart (Delft University of Technology, The Netherlands)

Convened

08:40 ***Coupling of Terahertz Radiation to Two-dimensional Plasmons in a Resonant Cavity Via an On-chip Integrated Cross-dipole Antenna***

Valeria Giliberti (Sapienza University of Rome, Italy); Florestano Evangelisti (Università Roma Tre, Italy); Ennio Giovine (National Research Council of Italy CNR-IFN, Italy); Andrea Toma and Simone Panaro (Istituto Italiano di Tecnologia, Italy); Vyacheslav Popov (Russian Academy of Sciences, Russia); Denis Fateev (Russian Academy of Science, Russia); Alessandra Di Gaspare (Istituto Nazionale di Fisica Nucleare, Italy); Lucia Sorba and Giorgio Biasiol (Consiglio Nazionale delle Ricerche, Italy); Michele Ortolani (National Research Council of Italy CNR-IFN & Sapienza University of Rome, Italy)

09:00 ***Performance Comparison of a Planar Substrate-Integrated Fabry-Perot Cavity Antenna with Different Unit Cells At Terahertz Frequency***

Niamat Hussain (Ajou University, Korea); Truong Khang Nguyen (Ton Duc Thang University, Vietnam); Ikmo Park (Ajou University, Korea)

09:20 ***Optimization of THz Graphene FET Detector Integrated with a Bowtie Antenna***

Andrey Generalov, Michael Andersson, Xinxin Yang and Jan Stake (Chalmers University of Technology, Sweden)

09:40 ***Silicon Micromachined Modulated Metasurface Antennas in the Terahertz Range***

David González-Ovejero (California Institute of Technology, USA); Theodore Reck and Cecile Jung-Kubiak (NASA-JPL, Caltech, USA); Maria Alonso-delPino (Jet Propulsion Laboratory, USA); Goutam Chattopadhyay (JPL, USA)

10:00 ***Derivation of an Equivalent Norton Circuit Model for Photo-Conductive Antennas***

Alessandro Garufo (TU Delft, The Netherlands); Giorgio Carluccio, Nuria LLombart and Andrea Neto (Delft University of Technology, The Netherlands)

CS14a: Conformal Antennas

EM modelling and simulation
Room: B Jakhobshorn
Chairs: Vakur Erturk (Bilkent University, Turkey), Zvonimir Sipus (University of Zagreb, Croatia)

Convened

08:40 ***Analysis of Conformal Antennas with Cylindrical Medium Using Cylindrical Green's Functions***

Jun Wu and Chao-Fu Wang (National University of Singapore, Singapore)

09:00 ***Analysis of Slotted Sectoral Waveguide Arrays with Multilayered Radomes and Nonzero Wall Thickness***

Mert Kalfa and Vakur Erturk (Bilkent University, Turkey)

09:20 ***On-Body Performance of Wearable UWB Textile Antenna with Full Ground Plane***

Sen Yan and Linda Armelle Yimdjo Poffelie (KU Leuven, Belgium); Ping Jack Soh (Universiti Malaysia Perlis (UNIMAP) & Katholieke Universiteit Leuven, Malaysia); Xuezhi Zheng and Guy A. E. Vandenbosch (Katholieke Universiteit Leuven, Belgium)

09:40 ***On the Discretization for the Discrete Mode Matching Method for Conformal Microstrip Structures***

Marcos V. T. Heckler (Universidade Federal do Pampa, Brazil); Achim Dreher (German Aerospace Center (DLR), Germany)

10:00 ***Modeling of Cascaded Curved Metasurfaces by the Surface Impedance Approach***

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

CS02a: Advances in Commercial Electromagnetic Simulation Tools

EM modelling and simulation
Room: B Pisch+ Parsenn
Chairs: Marc Rütschlin (CST AG, United Kingdom), Winfried Simon (IMST GmbH, Germany)

Convened

08:40 ***Efficient EM-Simulation of Large Vehicles for Car2Car Communication***
Christos Oikonomopoulos-Zachos and Winfried Simon (IMST GmbH, Germany); Edlira Stavrou (IMST, Germany); Jasper Siemons and Jürgen Kunisch (IMST GmbH, Germany); Matthias Geissler (IMST, Germany)

09:00 ***Latest Extensions of the Electromagnetic Field Solver Package FEKO***
Ulrich Jakobus (Altair Development S.A. (Pty) Ltd, South Africa); Elia Attardo (Altair Engineering GmbH, Germany); Johann van Tonder, Marlize Schoeman, Renier Marchand, Peter Futter and Andries Maritz (Altair Development S.A. (Pty) Ltd, South Africa)

09:20 ***WIPL-D: Monostatic RCS Analysis of Fighter Aircrafts***
Milos Pavlovic (WIPL-D DOO, Serbia); Miodrag Tasic (University of Belgrade, Serbia); Branko Mrdakovic (WIPL-D, Serbia); Branko Kolundzija (University of Belgrade, Serbia)

09:40 ***New Analysis Capabilities for Electrically Large Antennas and Platforms***
Erik Jørgensen, Oscar Borries, Peter Meincke and Min Zhou (TICRA, Denmark); Niels Vesterdal (Ticra, Denmark)

10:00 ***Advancements in Asymptotic and Transient Solver Methods in ANSYS HFSS***
Matthew Commens, Lars Eric Rickard Petersson, Kezhong Zhao and Hsueh-Yung Chao (ANSYS, Inc., USA)

A48: Antenna and Feeding components for space applications

Space
Room: C Aspen
Chair: Jorge Teniente (Public University of Navarra & Anteral, Spain)

Regular

08:40 ***Design of Wideband Coaxial-TEM to Circular Waveguide TM01 Mode Transducer***
Ashish Chittora (Indian Institute of Technology Bombay, India); Sandeep Singh (Bhabha Atomic Research Centre, India); Archana Sharma (BARC, India); Jayanta Mukherjee (Electrical Engineering Department, India)

09:00 ***Development of Modular High Power Ku-Band Polarisation Devices for Telecommunication Satellites***
Philipp Kohl (Airbus Defence and Space, Germany); Enrico Reiche (Airbus DS GmbH, Germany); Christian Hartwanger (EADS Astrium GmbH, Germany); Ralf Gehring (Astrium GmbH, Germany); Michael Schneider (Airbus DS GmbH, Germany)

09:20 ***Feed Horn Antennas for Data Downlink and Uplink Spaceborne Communications***
Jorge Teniente (Public University of Navarra & Anteral, Spain); Daniel Valcazar (ANTERAL, Spain); Belen Larumbe-Gonzalo (Antenna Group. Public University of Navarra, Spain); Aitor Martinez (ANTERAL, Spain); Asier Ibanez-Loinaz (Anteral S. L. & Public University of Navarra, Spain); Ramon Gonzalo (Public University of Navarra, Spain)

09:40 ***Circularly Polarized Hemispherical Antennas for Telemetry and Telecommand Applications in Satellite Communication***
Ceyhan Turkmen and Mustafa Secmen (Yasar University, Turkey)

10:00 ***Electromagnetic Analysis and Optimization of a Cryogenic Receiver for VLBI Applications***
Andrea Martellosio and Marco Pasian (University of Pavia, Italy); Rémi Rayet, Steve Rawson and Thomas Bonhoure (Callisto, France)

Wednesday, April 13, 08:40 - 12:30 (Europe/Zurich)

WS4: Comparison of Near Field Modelling of Planar Antennas as a Base for Safety Distance Calculation on Cell Sites

Room: C Office 42

Wednesday, April 13, 08:40 - 10:20 (Europe/Zurich)

CS18a: Innovative Array Architectures for Next Generation Radar and Communications Systems

Space
Room: C Sanada1
Chairs: Ioan E. Lager (Delft University of Technology, The Netherlands), Giacomo Oliveri (University of Trento & ELEDIA Research Center, Italy)

Convened

08:40 ***Design of Non-uniform Metasurfaces for Beam Steering Performances***
Badreddine Ratni (Institut d'Electronique Fondamentale, France); André de Lustrac (Institut d'Electronique Fondamentale - Université Paris-Sud, France); Gerard-Pascal Piau (EADS CCR, France); Shah Nawaz Burokur (Institut d'Electronique Fondamentale - Université Paris-Sud, France)

09:00 ***Radiation Properties of Moving Constellations of (nano) Satellites: A Complexity Study***
Wessel Bruinsma, Robin Hes, Sjoerd Bosma and Ioan E. Lager (Delft University of Technology, The Netherlands); Mark J. Bentum (University of Twente, The Netherlands)

09:20 ***Antenna System for Simultaneous Radar and Communications Applications***
Samir Ouedraogo (SONDRA\CentraleSupélec, France)

09:40 ***Efficient Array Synthesis of Printed Arrays Including Mutual Coupling***
Ha Bui Van (Université Catholique de Louvain & ICTEAM, Belgium); Shambhu Nath Jha (ICOMS Detection S.A., Belgium); Christophe Craeye (Université Catholique de Louvain, Belgium)

10:00 ***Introducing Sparsity in a Spaceborne Ka-band SAR Antenna***
Sebastiaan Jacobs, Dave Bekers and Stefania Monni (TNO, The Netherlands); Chiara Germani (via Saccomuro 24, Italy); Danilo Fortini (Thales Alenia Space, The Netherlands); Pasquale Capece (Thales Alenia Space Italia, Italy); Giovanni Toso (European Space Agency, The Netherlands)

CS17a: Electromagnetic Scattering of Wind Turbines and Effects on Radar Systems

Radar, Defence and security
Room: C Sanada2
Chairs: David de la Vega (University of the Basque Country, Spain), Frank Weinmann (Fraunhofer FHR, Germany)

Convened

08:40 ***EM Scattering Effects Caused by Wind Turbines***
Frank Weinmann and Josef Worms (Fraunhofer FHR, Germany)

09:00 ***Modeling the Impact of Offshore Wind Farms on Safety Radars Onboard Oil and Gas Platforms***
Laith Danoon, Waleed Al-Mashhadani and Anthony Keith Brown (University of Manchester, United Kingdom)

09:20 ***Simplified Characterization of Radar Cross Section of Wind Turbines in the Air Surveillance Radars Band***
David de la Vega (University of the Basque Country, Spain); David Jenn (Naval Postgraduate School, USA); Itziar Angulo (University of the Basque Country UPV/EHU & Bilbao School of Engineering, Spain); David Guerra (University of the Basque Country, Spain)

09:40 ***Polarimetric Micro-Doppler Characterization of Wind Turbines***
Oleg Krasnov (Delft University of Technology, The Netherlands); Alexander Yarovoy (TU Delft, The Netherlands)

10:00 ***On Simulating the High-Resolution Radar Image of a Wind Turbine***
Chenchen J. Li and Hao Ling (The University of Texas at Austin, USA)

Wednesday, April 13, 10:50 - 12:30 (Europe/Zurich)

A41: Antennas for Wireless Communications

Cellular and short-range communication
Room: A Dischma
Chairs: Kwai-Man Luk (City University of Hong Kong, Hong Kong), Guy A. E. Vandenbosch (Katholieke Universiteit Leuven, Belgium)

Regular

10:50 ***2.4/5 GHz WLAN Crescent Antenna on Flexible Substrate***
Mai Sallam (The American University in Cairo & Katholieke Universteit Leuven, Egypt); Sara Magdy Kandil (Zewail City for Science and Technology, Egypt); Vladimir Volski (KU Leuven, Belgium); Guy A. E. Vandenbosch (Katholieke Universiteit Leuven, Belgium); Ezzeldin Soliman (The American University in Cairo, Egypt)

11:10 ***Compact Dual-band Antenna for IEEE 802.11ac***
Hau Wah Lai (City University of Hong Kong & State Key Laboratory of Millimeter Waves, Hong Kong); Kwai-Man Luk (City University of Hong Kong, Hong Kong)

11:30 ***Flexible Bow-Tie Antenna for WLAN/Wi-Max Applications***
Mai Sallam (The American University in Cairo & Katholieke Universteit Leuven, Egypt); Sara Magdy Kandil (Zewail City for Science and Technology, Egypt); Vladimir Volski (KU Leuven, Belgium); Guy A. E. Vandenbosch (Katholieke Universiteit Leuven, Belgium); Ezzeldin Soliman (The American University in Cairo, Egypt)

11:50 ***LTE MIMO Antenna Using Unbroken Metallic Rim and Non Resonant CCE Element***
Manoj Stanley and Yi Huang (University of Liverpool, United Kingdom); Hanyang Wang (Huawei Technologies, United Kingdom); Saqer S. Alja'afreh, Qian Xu and Lei Xing (University of Liverpool, United Kingdom)

12:10 ***Side-Edge LTE Antenna with a Narrow Ground Clearance for the Smartphone***
Li Yu Chen (National Sun Yat-sen University, Taiwan); Kin-Lu Wong (National Sun Yat-Sen University, Taiwan)

CS23b: Millimeter-wave propagation measurements and models for 5G systems and applications

Cellular and short-range communication
Room: A Flüela
Chair: Franco Fuschini (DEI - Bologna, Italy)

Convened

10:50 ***Millimeter-Wave Outdoor Access Shadowing Mitigation Using Beamforming Arrays***
Richard J. Weiler and Wilhelm Keusgen (Fraunhofer HHI, Germany); Alexander Maltsev (Intel Corporation & University of Nizhny Novgorod, Russia); Thomas Kühne (TU Berlin, Germany); Andrey Pudeyev (Intel, Russia); Liang Xian and Joongheon Kim (Intel Corporation, USA); Michael Peter (Fraunhofer HHI, Germany)

11:10 ***Analysis of Outdoor Propagation and Multi-Cell Coverage From Ray-Based Simulations in sub-6GHz and mmWave Bands***
Yoann Corre, Thierry Tenoux and Julien Stephan (SIRADEL, France); Florian Letourneux (Siradel, Canada); Yves Lostanlen (SIRADEL & University of Toronto, Canada)

11:30 ***User Mobility Impact on Millimeter-Wave System Performance***
Alexander Maltsev (Intel Corporation & University of Nizhny Novgorod, Russia); Ilya Bolotin (Intel, Russia); Artyom Lomayev (Intel Corp., Russia); Andrey Pudeyev (Intel, Russia); Maxim Danchenko (University of Nizhny Novgorod, Russia)

11:50 ***Millimeter-Wave Distance-Dependent Large-Scale Propagation Measurements and Path Loss Models for Outdoor and Indoor 5G Systems***
Shu Sun (NYU WIRELESS & New York University, USA); George R MacCartney, Jr. and Theodore Rappaport (New York University & NYU WIRELESS, USA)

12:10 ***MIMO Channel Modeling and Capacity Analysis for 5G Millimeter-Wave Wireless Systems***
Mathew Samimi (NYU WIRELESS, USA); Shu Sun (NYU WIRELESS & New York University, USA); Theodore Rappaport (New York University & NYU WIRELESS, USA)

CS04b: Advances in Plasma-based Antennas and Devices

Fundamental research
Room: A Schwartzhorn
Chairs: Vito Lancellotti (Eindhoven University of Technology, The Netherlands), Davide Melazzi (University of Padova, Italy)

Convened

10:50 ***Beam-Scanning Using Leaky-Wave Plasma Antenna: First Experimental Results***
Jerome Sokoloff (Université de Toulouse, UPS, INP & CNRS, France); Asma Kallel (Université Paul Sabatier-CNRS-LAPLACE, France); Thierry Callegari (Université de Toulouse - UPS INPT CNRS, France)

11:10 ***Analysis of a Reconfigurable Plasma Antenna***
Paola Russo and Graziano Cerri (Università Politecnica delle Marche, Italy)

11:30 ***Microwave Propagation in Plasma Layer Surrounding Metallic Monopole Antenna***
Alexandre Bambina (The University of Shiga Prefecture, Japan); Akinori Iwai (Kyoto University, Japan); Shigeyuki Miyagi and Osamu Sakai (The University of Shiga Prefecture, Japan)

11:50 ***Generation of Second Harmonic Wave in Plasma-Metamaterial Composite Operated in Microwave Range***
Akinori Iwai (Kyoto University, Japan); Alexandre Bambina and Osamu Sakai (The University of Shiga Prefecture, Japan)

12:10 ***Operation Modes and Signal Spectra of Plasma Asymmetrical Dipole Antenna***
Nikolay N. Bogachev (MoscowTechnological University & Prokhorov General Physics Institute, RAS, Russia); Irina Bogdankevich and Namik Gusein-zade (Prokhorov General Physics Institute, RAS, Russia)

CS15b: COST Action TD1301, MiMed: Advances in Biomedical Electromagnetic Imaging and Therapeutics, Monitoring and Sensing Devices

Biomedical and wearable applications including biological effects
Room: A Seehorn
Chairs: Raquel C. Conceição (Instituto de Biofísica e Engenharia Biomédica, Faculdade de Ciências, Universidade de Lisboa & Institute of Biomedical Engineering, University of Oxford, Portugal), Martin O'Halloran (National University of Ireland, Galway, Ireland)

Convened

10:50 ***High Resolution Millimeter Wave System for Body Imaging***
Min Zhou, Fan Yang, Yifan Chen, Qingfeng Zhang and Ge Zhang (South University of Science and Technology of China, P.R. China)

11:10 ***Experimental Feasibility Assessment of MNP Enhanced Microwave Diagnostics of Breast Cancer***
Ovidio Mario Bucci (University of Naples, Italy); Gennaro Bellizzi (University of Naples Federico II, Italy); Antonio Borgia and Sandra Costanzo (University of Calabria, Italy); Lorenzo Crocco (CNR - National Research Council of Italy, Italy); Giuseppe Di Massa (University of Calabria, Italy); Rosa Scapaticci (CNR-National Research Council of Italy, Italy)

11:30 ***Compressive Sensing Techniques for Brain Stroke Monitoring***
Marija Nikolic (University of Belgrade, Serbia); Rosa Scapaticci (CNR-National Research Council of Italy, Italy); Lorenzo Crocco (CNR - National Research Council of Italy, Italy)

11:50 ***Optimal Focused Electromagnetic Hyperthermia Treatment of Breast Cancer***
Domenica A. M. Iero (Università Mediterranea di Reggio Calabria, Italy); Lorenzo Crocco (CNR - National Research Council of Italy, Italy); Tommaso Isernia (University of Reggio Calabria, Italy); Erdal Korkmaz (Fatih University, Turkey)

12:10 ***Contributions to 3D Differential Microwave Imaging***
Mina Bjelogrlic (EPFL, Switzerland); Benjamin Fuchs (University of Rennes 1 - IETR, France); Michael Mattes (EPFL, Switzerland)

P9: Propagation for wireless network

Cellular and short-range communication
Room: A Sertig
Chairs: Yves Lostanlen (SIRADEL & University of Toronto, Canada), Kentaro Saito (Tokyo Institute of Technology, Japan)

Regular

10:50 ***WiFi Network Planning and Intra-Network Interference Issues in Large Industrial Warehouses***
David Plets (Ghent University - iMinds, Belgium); Emmeric Tanghe (Ghent University, Belgium); Alec Paepens (Volvo IT, Belgium); Luc Martens (Ghent University, Belgium); Wout Joseph (Ghent University/iMinds, Belgium)

11:10 ***Validation of 5G METIS Map-Based Channel Model At mmWave Bands in Indoor Scenarios***
Ines Carton and Wei Fan (Aalborg University, Denmark); Pekka Kyösti (Anite Telecoms Oy, Finland); Gert Pedersen (Aalborg University, Denmark)

11:30 ***Small-Cell Wireless Backhaul and Access Networks: Realistic Modeling and Holistic Analysis***
Florian Letourneux (Siradel, Canada); Gregory Gougeon, Mathieu Brau and Yoann Corre (SIRADEL, France); Yves Lostanlen (SIRADEL & University of Toronto, Canada)

11:50 ***Characteristics Evaluation of Dense Multipath Component in 11GHz-band Indoor Environment***
Kentaro Saito and Jun-ichi Takada (Tokyo Institute of Technology, Japan); Minseok

Kim (Niigata University, Japan)

12:10 ***Effects of Rain Fading in 5G Millimeter Wavelength Mesh Networks***
Árpád Drozdy (Aalto University, Finland); Péter Kántor and János Bitó (Budapest University of Technology and Economics, Hungary)

CS36b: Terahertz Antennas

Multiple applications
Room: A Wisshorn
Chairs: Goutam Chattopadhyay (JPL, USA), Nuria LLombart (Delft University of Technology, The Netherlands)

Convened

10:50 ***Phase-less Measurement Methods of CP Antennas in Sub-Mm-Wave and THz Bands***
Shubhendu Bhardwaj (The Ohio State University & ElctroScience Laboratory, USA); Niru Nahar (The Ohio State University, USA); John L. Volakis (Ohio State University, USA)

11:10 ***Novel Technologies for Fixed and Tuneable Terahertz Reflectarrays***
Michele Tamagnone (Ecole Polytechnique Fédérale de Lausanne, Switzerland); Santiago Capdevila (EPFL & École Polytechnique Fédérale de Lausanne, Switzerland); Hamed Hasani (Ecole Polytechnique Fédérale de Lausanne, Switzerland); Wolfgang Vitale (Ecole Polytechnique Federale de Lausanne, Switzerland); Clara Moldovan, Mihai Adrian and Anja K. Skrivervik (EPFL, Switzerland); Juan R Mosig (Ecole Polytechnique Federale de Lausanne, Switzerland)

11:30 ***Large Format Arrays of Antenna Coupled Kinetic Inductance Detectors for THz Astronomy***
Jochem Baselmans (SRON, The Netherlands); Juan Bueno (SRON Netherlands Institute for Space Research, The Netherlands); Ozan Yurduseven and Nuria LLombart (Delft University of Technology, The Netherlands); Stephen Yates (SRON, The Netherlands); Andrey Baryshev (SRON & University of Groningen, Kapteyn Astronomical Institute, The Netherlands); Akira Endo (TUDelft, The Netherlands); David Thoen (Kavli Institute of NanoScience, Delft University of Technology, The Netherlands); Andrea Neto (Delft University of Technology, The Netherlands)

11:50 ***Terahertz Frequency Quantum Cascade Lasers for Use as Waveguide-Integrated Local Oscillators***
E. Linfield (School of Electronic and Electrical Engineering, University of Leeds, United Kingdom); Olivier Auriacombe (University of Leeds, Rutherford Appleton Laboratory, STFC, United Kingdom); Helen Fraser (The Open University, United Kingdom)

12:10 ***Engineering Considerations for Clinical Translation of Tissue Water Content Mapping with THz Radiation***
Zachary Taylor (University of California at LosAngeles, USA); Shijun Sung, Neha Bajwa and Skyler Slevin (University of California at Los Angeles, USA); Haochong Huang (Beijing University of Technology, P.R. China); Warren Grundfest and Maie St. John (University of California at Los Angeles, USA)

CS14b: Conformal Antennas

EM modelling and simulation
Room: B Jakhobshorn
Chairs: Vakur Erturk (Bilkent University, Turkey), Zvonimir Sipus (University of Zagreb, Croatia)

Convened

10:50 ***Fast Predesigning of Circumferential Arrays of Probe-Fed Microstrip Antennas***
Alexis F. Tinoco-S. (Instituto Tecnológico de Aeronaútica & Laboratório de Antenas e Propagação - LAP, Brazil); Prêntice Ribeiro Filho (Laboratório de Antenas e Propagação - LAP, Brazil); Marcos V. T. Heckler (Universidade Federal do Pampa, Brazil); da Silva Lacava (Laboratório de Antenas e Propagação - LAP, Brazil); Odilon Pereira Filho (UFPE, Brazil)

11:10 ***An Ultrawideband Conformal Loop Antenna for Ingestible Capsule Endoscope System***
Md Miah (Aalto University & School of Electrical Engineering, Finland); Katsuyuki Haneda (Aalto University, Finland); Clemens Icheln (Aalto University & School of Electrical Engineering, Finland); Afroza Khatun (Aalto University School of Electrical Engineering, Finland); Kenichi Takizawa (National Institute of Information and Communications Technology, Japan)

11:30 ***Wideband Textile-Based Conformal Antennas for WLAN Band Using Conductive Thread***
Muhammad M. Tahseen and Ahmed A. Kishk (Concordia University, Canada)

11:50 ***Implementation Scenario of Phase Array Antennas with Beam-Scan Functionality for RFID Applications***
Hsi-Tseng Chou (National Taiwan University, Taiwan); Ming-Yu Lee and Chien-Te Yu (Yuan Ze University, Taiwan)

12:10 ***A Conical Frustum-Type Array Devoted to a Mars-based Transponder***
Sumit Karki and Christophe Craeye (Université Catholique de Louvain, Belgium); Michel Mitrovic and Véronique Dehant (Royal Observatory of Belgium, Belgium)

CS02b: Advances in Commercial Electromagnetic Simulation Tools

EM modelling and simulation
Room: B Pisch+ Parsenn
Chairs: Marc Rütschlin (CST AG, United Kingdom), Winfried Simon (IMST GmbH, Germany)

Convened

10:50 ***Phased Antenna Array Design with CST STUDIO SUITE***
Marc Rütschlin (CST AG, United Kingdom); Tilmann Wittig (CST AG, Germany); Zeev Iluz (CST - Computer Simulation Technology AG, Germany)

11:10 ***Numerical Design of Wireless Body Area Networks by Sim4Life: Challenges, Requirements and Solutions***
Nicolas Chavannes (Zurich MedTech AG (ZMT), Switzerland)

11:30 ***FDTD Simulation of Real Lumped Components and RF Devices***
Yong Wang and Scott Langdon (Remcom Inc., USA)

11:50 ***FDTD XPU Technology on Systems with Non Uniform Computer Memory (NUMA) Architecture***
Winfried Simon and Andreas Lauer (IMST GmbH, Germany); Andreas Wien (IMST, Germany)

Wednesday, April 13, 10:50 - 14:00 (Europe/Zurich)

WS5: SPEAG Workshop: Free Up Time for Innovation

Room: B Rinerhorn

Wednesday, April 13, 10:50 - 12:30 (Europe/Zurich)

A8: Antenna interaction and coupling I

Multiple applications

Room: C Aspen

Chairs: Fabien Ferrero (University Nice Sophia Antipolis, CNRS, LEAT & CREMANT, France), Cyrille Menudier (XLIM - UMR CNRS 7252 - University of Limoges & Antenna and Associated Waves Dept, France)

Regular

10:50 ***Determination of the Scattering Matrix of Large Periodic Antenna Arrays***
Amel Maati (University of Limoges & XLIM, France); Cyrille Menudier (XLIM - UMR CNRS 7252 - University of Limoges & Antenna and Associated Waves Dept, France); Marc Thevenot (XLIM-UMR 6172-CNRS, University of Limoges, France); François Torres (University of Limoges-XLIM - UMR CNRS N°7252, France); Thierry Monediere (XLIM-UMR 6172-CNRS, University of Limoges, France)

11:10 ***Towards a mm-Wave Planar Biomimetic Antenna Array with Enhanced Phase Sensitivity***
Patrik Grüner, Tobias Chaloun and Christian Waldschmidt (University of Ulm, Germany)

11:30 ***Investigation of Hand Effect on a Handheld Terminal At 11 GHz***
Cyril Buey (Orange Labs - La Turbie, France); Fabien Ferrero (University Nice Sophia Antipolis, CNRS, LEAT & CREMANT, France); Philippe Ratajczak (Orange Labs, France); Leonardo Lizzi (University Nice-Sophia Antipolis, CNRS, LEAT, France); Laurent Brochier (Université de Nice-Sophia Antipolis, France); Yoan Benoit (Université of Nice Sophia Antipolis, France)

11:50 ***Embedded Matching Networks for Electrically Small Antennas***
Ana Lopez Yela, Fernando Albarracín-Vargas and Daniel Segovia-Vargas (Universidad Carlos III de Madrid, Spain); Francisco Javier Herraiz-Martínez (Carlos III University in Madrid, Spain); Vicente Gonzalez-Posadas (Universidad Politecnica de Madrid, Spain)

12:10 ***Cavity-Backed Vivaldi Array Antenna***
Elie Tianang and Dejan Filipovic (University of Colorado, Boulder, USA); Mohamed Elmansouri (University of Colorado at Boulder, USA)

CS18b: Innovative Array Architectures for Next Generation Radar and Communications Systems

Space

Room: C Sanada1

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

Convened

10:50 ***Two-port Dual-band Microstrip Square-Ring Antenna for Radar Applications***
Jan Puskely and Alex Yarovoy (Delft University of Technology, The Netherlands); Antoine Roederer (Technical University of Delft, The Netherlands)

11:10 ***Fast Design of Next Generation Reflectarrays Through Advanced LBE Strategies***
Lorenza Tenuti (ELEDIA Research Center, University of Trento, Italy); Giacomo Oliveri (University of Trento & ELEDIA Research Center, Italy); Daniele Bresciani (Thales Alenia Space, France); Andrea Massa (University of Trento, Italy)

11:30 ***Different Gap Waveguide Slot Array Configurations for mmWave Fixed Beam Antenna Application***
Ashraf Uz Zaman and Per-Simon Kildal (Chalmers University of Technology, Sweden)

11:50 ***Side-lobe Reduction with Overlapped Beam-Forming Network for Ku-band Hybrid Antenna Array***
Francisco Javier Biosca Vergara (ViaSat Antenna Systems, SA, Switzerland); Daniel

Llorens (ViaSat Antenna Systems SA, Switzerland); Maria Carolina Vigano (Viasat Antenna Systems SA, Switzerland)

12:10 ***Parametric Analysis of Flat Top Beam Patterns Generated by Linear Periodic Arrays***
Piero Angeletti (European Space Agency, The Netherlands); Giulia Buttazzoni (University of Trieste, Italy); Giovanni Toso (European Space Agency, The Netherlands); Roberto Vescovo (University of Trieste, Italy)

CS17b: Electromagnetic Scattering of Wind Turbines and Effects on Radar Systems

Radar, Defence and security
Room: C Sanada2
Chairs: David de la Vega (University of the Basque Country, Spain), Frank Weinmann (Fraunhofer FHR, Germany)

Convened

10:50 ***Overview of Some Numerical Techniques for the Analysis of the Electromagnetic Scattering by Wind Turbines***
Felipe Cátedra, Maria Jesús Algar, Alvaro Somolinos and Javier Moreno (University of Alcala, Spain); Ivan Gonzalez (Universidad de Alcala, Spain)

11:10 ***Radar Cross Section Evaluation of a Wind Turbine, Based on an Asymptotic Method***
Pierrick Hamel, Jean-Pierre Adam and Yannick Béniguel (IEEA, France); Gildas Kubické (DGA, France); Philippe Pouliguen (DGA/Direction de la Stratégie, France)

11:30 ***A Method for Computing the VOR Multipath Error - Comparisons with In-flight Measurements***
Ludovic Claudepierre, Remi Douvenot, Alexandre Chabory and Christophe Morlaas (ENAC, France)

11:50 ***Obstruction of Fresnel Zones by Wind Turbine on Illuminated Ground Plane***
Thomas Fickenscher and Muhammad Bilal Raza (Helmut Schmidt University, Germany)

12:10 ***Degree-of-Polarization Model Incorporating an Environmental Disturbance Factor***
Bo Ren and Longfei Shi (National University of Defense Technology, P.R. China); Guoyu Wang (University of Defense Technology, P.R. China)

Wednesday, April 13, 13:30 - 15:00 (Europe/Zurich)

PS5: Poster 5

Radar, Defence and security
Room: Foyer A2

Regular

A Transportable Hybrid Antenna-Transmitter System for the Generation of Elliptically Polarized Waves for NVIS Propagation Research
Ben Witvliet (University of Twente & Radiocommunications Agency Netherlands, The Netherlands); Geert J. Laanstra (University of Twente, The Netherlands); Erik Van Maanen (Radiocommunications Agency Netherlands, The Netherlands); Rosa Maria Alsina (Enginyeria i Arquitectura La Salle - Ramon Llull University, Spain); Mark J. Bentum, Cornelis H Slump and Roel Schiphorst (University of Twente, The Netherlands)

Electromagnetic Horizons and Convex-Spherical Reflectionless Absorber Coatings
Dong-Yeop Na (The Ohio State University, USA); Kamalesh Sainath (Ohio State University & ElectroScience Laboratory, USA); Fernando Teixeira (The Ohio State

University, USA)

Improving the Performance of the Zoned Fishnet Metalens Using the Reference Phase Technique

Victor Pacheco-Peña (Universidad Publica de Navarra, Spain); Miguel Navarro-Cía (University of Birmingham, United Kingdom); Bakhtiyar Orazbayev (Universidad Publica de Navarra, Spain); Igor Vladilenovich Minin (Siberian State Academy of Geodesy, Russia); Oleg Vladilenovich Minin (National Research Tomsk State University, Russia); Miguel Beruete (Universidad Publica de Navarra, Spain)

Analytical Expressions for the Scattering by an Electrically Small Circular Aperture on an Infinite Conducting Ground Plane

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

Low-Profile Planar Eleven Antenna Over a Magnetic Plane

Abolfazl Haddadi (AmirKabir University of Technology, Iran); Parastoo Taghikhani (Amirkabir University of Technology, Iran); Jian Yang and Per-Simon Kildal (Chalmers University of Technology, Sweden)

Degrees of Freedom of the Field and Maximum Directivity

Stefano Maci and Enrica Martini (University of Siena, Italy); Per-Simon Kildal (Chalmers University of Technology, Sweden)

Design Proposal for Ridge Gap Waveguide and Comparison with Other Technologies in Ka to W Bands

Adrián Tamayo (ETSI. Telecomunicación. Technical University of Madrid, Spain); José-Manuel Fernández-González, José Manuel Inclán-Alonso and Manuel Sierra-Pérez (Universidad Politécnica de Madrid, Spain)

Conformal Timed Antenna Array for Optimum Scanned Energy Patterns

Alberto Reyna (Autonomous University of Tamaulipas, Mexico); Marco Panduro (CICESE Research Center, Mexico); Carlos Del-Río (Public University of Navarra & Antenna Group, Spain)

Conformal Phased Array Antenna with Low SLL Based on QCTO

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

Analysis of the Differential Phase Shift in the Circular Waveguide, Containing an Azimuthally Magnetized Ferrite Cylinder and a Dielectric Toroid

Mariana Nikolova Georgieva-Grosse (Consulting and Researcher in Physics and Computer Sciences, Germany); Georgi Nikolov Georgiev (University of Veliko Tirnovo "St. St. Cyril and Methodius", Bulgaria)

Development of a Patch Antenna Based on a Polyaniline/Carbon Coated Cobalt Composite

Zahir Hamouda (Institut Aéronautique, Université de Blida, Algeria); Jean-Luc Wojkiewicz (Université Lille Nord de France, France); A Pud (Institut of Bioorganic Chemistry and Petrochemistry of NASU, Ukraine); S Bergheul (Laboratoire des Sciences Aéronautiques, Université de Blida, Algeria); Tuami Lasri (IEMN - University of Lille, France)

Shielding Effectiveness of Screen Printed Graphene Laminate At C Band

Xianjun Huang (Manchester University, United Kingdom); Ting Leng, Jia Cing Chen, Kuo Hsin Chang and Zhirun Hu (University of Manchester, United Kingdom)

Capacity Simulation and Analysis of an IEEE 802.11n System in a Residential House

Emmeric Tanghe (Ghent University, Belgium); Davy P Gaillot (University of Lille 1, France); Wout Joseph (Ghent University/iMinds, Belgium); Martine Liénard (University of Lille, France); Wim De Ketelaere (Excentis, Belgium); Luc Martens (Ghent University, Belgium)

Miniature Rectangular Cavity Antennas with Circular Polarization

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 and Armin Schneider (ISL, France)

Investigation and Study of Composite Right / Left Handed Integrated Waveguide

Filter (CRLH-IWF) Design Structure for Microwave Applications
Yasser M. Madany (IEEE, Senior Member, Alexandria University, Egypt); Hassan El Kamchouchi and Bishoy Halim (Alexandria University, Egypt)

A High Selective Low Profile CPW Fed Meta-material Antenna
Mahmoud Abdelrahman Abdalla (MTC, Cairo, Egypt); Mohamed Hassan and Mohamed Sherif Elsonbaty (MSA University, Egypt)

The Influence of Parameters of Ceramic Tile Covering on the Reflection Coefficient
Maksim Vakhitov and Denis Klygach (South Ural State University, Russia)

Measurement of a Resistive High Impedance Surface Electromagnetic Absorber
Yenny C Pinto and Stefan Varault (Institut Mines Telecom, Telecom ParisTech, France); Anne-Claire Lepage (Institut Mines-Telecom, Telecom ParisTech, France); Xavier Begaud (Institut TELECOM, TELECOM ParisTech, France); Nicolas Capet (CNES, France)

Material Influence in a TO Superstrate for Antipodal Radiation
Chetan Joshi (Telecom Paristech, France); Mark Clemente Arenas (Institut Mines Telecom, Telecom ParisTech & LTCI CNRS UMR 5141, France); Anne-Claire Lepage (Institut Mines-Telecom, Telecom ParisTech, France); Xavier Begaud (Institut TELECOM, TELECOM ParisTech, France)

Aperture Efficiency Improvement Using Metasurface
Hailiang Zhu and William S. W. Cheung (The University of Hong Kong, Hong Kong); Y. Jay Guo (University of Technology, Sydney, Australia); Can Ding (University of Technology Sydney (UTS), Australia); Ti Yuk (The University of Hong Kong, Hong Kong)

Nearly-perfect Circular Polarization Converter Formed by Triangular-Geometric Chiral Metamaterial
Rajkumar Jaiswar (Université Catholique de Louvain, Belgium); Isabelle Huynen (Université catholique de Louvain, Belgium)

Series Iteration of Fractal Koch Antenna At UHF Band
Nur Syahirah Mohd Yaziz and Mohamad Kamal A. Rahim (Universiti Teknologi Malaysia, Malaysia); Farid Zubir (Universiti Teknologi Malaysia & Faculty of Electrical Engineering, Malaysia); Noor Asniza Murad (Universiti Teknologi Malaysia, Malaysia)

Theoretical Derivation of Antenna Parameters for Thin-Wire Nanoloops
Mario F Pantoja (University of Granada, Spain); Jogender Nagar, Bingqian Lu and Taiwei Yue (The Pennsylvania State University, USA); Douglas H Werner (Pennsylvania State University, USA)

Design of Mantle Cloaks Through a System-by-Design Approach
Lorenza Tenuti (ELEDIA Research Center, University of Trento, Italy); Giacomo Oliveri (University of Trento & ELEDIA Research Center, Italy); Alessio Monti ("Roma Tre" University, Italy); Filiberto Bilotti (University Roma Tre, Italy); Alessandro Toscano (University Roma Tre (IT), Italy); Andrea Massa (University of Trento, Italy)

Identification of FMCW Radar in Mutual Interference Environments Using Frequency Ramp Modulation
Youngwook Kim (California State University, Fresno, USA)

A Novel Multipactor Suppression Method and Application in High-power Antenna Feed System
Wanzhao Cui (504th Research Institute, P.R. China); Yun Li (China Academy of Space Technology Xi an, P.R. China); Tiancun Hu (China Academy of Space Technology, P.R. China); Yongning He (Xi'an Jiaotong University, P.R. China)

Groove Gap Waveguides: A Contactless Solution for Multilayer Slotted-Waveguide Array Antenna Assembly
Miguel Ferrando-Rocher, Alejandro Valero-Nogueira and José Ignacio Herranz-Herruzo (Universidad Politécnica de Valencia, Spain); Antonio Berenguer (Universitat Politecnica de Valencia & Instituto de Telecomunicaciones y Aplicaciones Multimedia, Spain); Bernardo Bernardo-Clemente (Universitat Politècnica de València, Spain)

PS4: Poster 4

Multiple applications
Room: Foyer C1

Regular

New Method for 3D Miniature Antenna Fabrication Based on Liquid Metal and 3D Printer
Mathieu Cosker and Leonardo Lizzi (University Nice-Sophia Antipolis, CNRS, LEAT, France); Fabien Ferrero (University Nice Sophia Antipolis, CNRS, LEAT & CREMANT, France); Robert Staraj (University of Nice-Sophia Antipolis, France); Jean-Marc Ribero (Université de Nice Sophia Antipolis, France)

Design of a NIC Active Oscillating Patch Antenna Using NDF as Linear Design Tool
Angel Parra-Cerrada, Vicente Gonzalez-Posadas and Jose Luis Jimenez-Martin (Universidad Politecnica de Madrid, Spain); Daniel Segovia-Vargas (Universidad Carlos III de Madrid, Spain)

Q-Bandwidth Enhancement of an Antenna Using Non-Foster Circuit Based on Negative Differential Resistance Devices
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)

Suspended Patch Antenna with Switchable Polarization
Jeen-Sheen Row, Yan-Ming Lin and Jhe-sheng Yang (National Changhua University of Education, Taiwan)

Polarization Reconfigurable Slotted Circular Patch
Ka Ming Mak (State Key Laboratory of Millimeter Wave & City University of Hong Kong, Hong Kong); Hau Wah Lai (City University of Hong Kong & State Key Laboratory of Millimeter Waves, Hong Kong)

A Reconfigurable Patch Antenna Printed on YIG-Epoxy Composite Substrate
Evmorfili Andreou (NCSR Demokritos & National Technical University of Athens, Greece); Theodore Zervos (NCSR "Demokritos", Institute of Informatics & Telecommunications, Greece); Eirini Varouti (NCSR Demokritos, Institute for Advanced Materials, Greece); Antonis A Alexandridis (NCSR "Demokritos", Greece); Fotis Lazarakis (NCSR Demokritos, Institute of Informatics & Telecommunications, Greece); George Fikioris (National Technical University of Athens, Greece)

An Optically-Switched Frequency Reconfigurable Antenna for Cognitive Radio Applications
Andre Sarker Andy, Peter Alizadeh and Khalid Z Rajab (Queen Mary University of London, United Kingdom); Theo Kreouzis and Robert Donnan (Queen Mary, University of London, United Kingdom)

Mechanically Tunable Meander Antenna for Cognitive Radio
Jean-marie Floch and Imen Ben Trad (IETR-INSA Rennes, France); Ines Rouissi (FACULTE DES SCIENCES DE TUNIS, Tunisia)

Fade Mitigation in Marine Environments
Tomasz Wojtaszek (Department of the Navy & Space and Naval Warfare Center, USA); Karl Moeller (Navy - SPAWAR, USA)

Compact Microstrip Antenna with Triple-Band Triple-Mode and Triple-Polarization Characteristics
Yingsong Zhang (Institute of Communication Engineering, P.R. China); Wenquan Cao and Yang Cai (PLA University of Science and Technology, P.R. China)

Improving Harmonics Generation by "zeroing- Stubs" in a Slot-Ring Antenna
Mélusine Pigeon, Rostyslav Dubrovka, Robert Donnan and Theo Kreouzis (Queen Mary, University of London, United Kingdom); Clive Parini (Queen Mary University of London, United Kingdom)

Excitation of Medium by Heaviside Step Function of Electric Field
Victor Naydenko (National Technical University of Ukraine "KPI", Ukraine); Denys

Shumakov (McMaster University, Canada)

Development of Antenna Array Using Defected Ground Structure
Mohd Aziz Aris (Universiti Teknologi MARA Terengganu, Malaysia); Mohd Tarmizi Ali (Universiti Teknologi Mara, Malaysia)

X-Band Phase- And Amplitude Distribution Network for Phased Array Antenna Measurements
Dennis Vollbracht (Chemnitz University of Technology, Germany); Gereon Michalek (Universität Duisburg-Essen, Germany)

DS-based Thinned Planar Arrays with Arbitrary Non-Square Lattice
Lorenzo Poli (University of Trento, Italy); Giacomo Oliveri (University of Trento & ELEDIA Research Center, Italy); Mohammad Hannan (ELEDIA Research Center, University of Trento, Italy); Andrea Massa (University of Trento, Italy)

Array Antennas Diagnostics Through Phaseless Measurements: A Compressive-Sensing-Inspired Approach
Andrea Francesco Morabito (University Mediterranea of Reggio Calabria, Italy); Roberta Palmeri (University of Reggio Calabria, Italy); Martina Teresa Bevacqua (University Mediterranea, Italy); Tommaso Isernia (University of Reggio Calabria, Italy)

Application of TLBO to Synthesis of Sparse Concentric Ring Arrays
Xiaowen Zhao, Qingshan Yang and Yunhua Zhang (National Space Science Center, Chinese Academy of Sciences, P.R. China)

Comparison of Echo Reduction Techniques for One-Single Cut Antenna Measurements
Manuel José López Morales (Universidad Politécnica de Madrid, Spain); Francesco Saccardi (SATIMO, Italy); Manuel Sierra-Castañer (Universidad Politécnica de Madrid, Spain); Lars Foged (Microwave Vision Italy, Italy)

A Modified Gradient Descent Reconstruction Algorithm for Breast Cancer Detection Using Microwave Radar and Digital Breast Tomosynthesis
Matthew Tivnan (Northeastern University & L2S, CNRS-CentraleSupélec, USA); Dominique Lesselier and Marc Lambert (CNRS, France); Carey Rappaport (Northeastern University, USA)

A Preview of Draft ANSI C63.25 Time Domain site VSWR Method
Zhong Chen (ETS-Lindgren, USA)

Frequency Selective Surface with Simple Configuration Stepped-Impedance Elements
Muaad Hussein, Jiafeng Zhou and Yi Huang (University of Liverpool, United Kingdom); Muayad Kod (The University of Liverpool & The University of Kerbala, United Kingdom); Abed Pour Sohrab (The University of Liverpool, United Kingdom)

Quadrupole Illumination for Improving the Signal to Noise Ratio in Microwave Imaging
Denys Shumakov, Alexander Beaverstone, Justin McCombe and Natalia Nikolova (McMaster University, Canada)

Clustering Method Based on Scatterer Locations for Indoor Dynamic MIMO Channel
Panawit Hanpinitsak, Kentaro Saito and Jun-ichi Takada (Tokyo Institute of Technology, Japan); Minseok Kim (Niigata University, Japan); Lawrence Materum (De La Salle University, Philippines)

Spatial Radio Channel Sounding for Static Environment At 10 GHz
Cláudio Dias (Universidade Estadual de Campinas, Brazil); Nuutti Tervo (University of Oulu, Finland); Antti Roivainen (Centre for Wireless Communications, University of Oulu, Finland); Veikko Hovinen and Marko Tapani Sonkki (University of Oulu, Finland); Gustavo Fraidenraich (Unicamp & Communication Department, Brazil); Matti Latva-aho (UoOulu, Finland)

Linearly Polarized High Gain Rectangular Dielectric Resonator Antenna
Michal Mrnka and Zbynek Raida (Brno University of Technology, Czech Republic)

On the Bandwidth and Geometry of Dual-Band AMC Structures
Mohamad Mantash (University of Rennes 1, France); Anne-Claude Tarot (University

of Rennes1, IETR, France)

Quasi-Periodic PBG Structure with 6 and 12-Fold Symmetries Applied in Microstrip Antennas Design
Ádller Oliveira Guimarães (Federal University of Rio Grande do Norte & Federal University of Rio Semiarid Region, Brazil); José da Silva (Universidade Federal do Rio Grande do Norte, Brazil); Jonathan Pereira (Federal University of Rio Grande do Norte & Federal Institute Rio Grande do Norte - Câmpus Mossoró, Brazil); Dênnyson Santos and Jose Neto (Federal University of Rio Grande do Norte, Brazil)

Near-Field Focusing Employing Sinusoidally Modulated Reactance Surfaces
Ioannis Iliopoulos (IETR, Universite de Rennes 1, France); Marc Esquius Morote (Ecole Polytechnique Fédérale de Lausanne, Switzerland); Juan R Mosig (Ecole Polytechnique Federale de Lausanne, Switzerland); María García-Vigueras (IETR-INSA Rennes, France)

Modified Substrate Integrated Wave Guide (SIW) Horn Antenna
Seyed Ali Razavi (Graduate University of Advanced Technology, Kerman, Iran); Mohmmad H Neshati (Ferdowsi University of Mashhad, Iran)

A Dual Band Hat Feed for Reflector Antennas in Q-V Band
Francesco Greco (Universita' delle Calabria, Italy); G. Amendola (Universita della Calabria, Italy); Luigi Boccia and Emilio Arnieri (University of Calabria, Italy)

Design of Photo-Conductive Connected Arrays for Pulsed Terahertz Radiation
Alessandro Garufo (TU Delft, The Netherlands); Giorgio Carluccio, Nuria LLombart and Andrea Neto (Delft University of Technology, The Netherlands)

Tapered Waveguide Fed Cylindrical Dielectric Resonator Antenna
Jasmine Muhammed (Cochin University of Science and Technology, India); Parambil Abdulla (Cochin University for Science & Technology, India); Raphika Muhammed (Cochin University of Science and Technology, India)

Design Considerations for Slotted Substrate Integrated Waveguide Leaky-Wave Antennas
Trevor R. Cameron and George V. Eleftheriades (University of Toronto, Canada)

Radiation Influence of ACP Probe in S11 Measurement
Mirmehdi Seyyedesfahlan and Ibrahim Tekin (Sabanci University, Turkey)

Reconfigurable Millimeter-Wave Antennas Using Paraffin Phase Change Materials
Behnam Ghassemiparvin (The Ohio State University & ElectroScience Lab, USA); Nima Ghalichechian (ElectroScience Laboratory & The Ohio State University, USA)

Impact of lossy feed on S-parameter based envelope correlation coefficient
Adam Narbudowicz (Dublin Institute of Technology \ RWTH Aachen University, Germany); Max James Ammann (Dublin Institute of Technology, Ireland); Dirk Heberling (RWTH Aachen University, Germany)

An Improved Indirect Holographic Method for Antenna Near-Field Phase Reconstruction
Giuseppe Di Massa and Sandra Costanzo (University of Calabria, Italy)

Variable-Fidelity Design Optimization of Antennas with Automated Model Selection
Slawomir Koziel (Reykjavik University, Iceland); Adrian Bekasiewicz (Gdansk University of Technology, Poland)

A Structure and Design of Novel Compact UWB Slot Antenna
Adrian Bekasiewicz (Gdansk University of Technology, Poland); Slawomir Koziel (Reykjavik University, Iceland); Tom Dhaene (Ghent University, Belgium)

Frequency-Domain and Time-Domain Performance Enhancements of Ultra-Wideband Antennas Using Multiobjective Optimization Techniques
Yen-Sheng Chen (National Taipei University of Technology, Taiwan)

What to Do with Water Pipe From an Antenna Designers Perspective
Rainer Mueller and Ralf Lorch (Airbus DS Electronics and Border Security, Germany)

K-Band Substrate Integrated Waveguide Variable Phase Shifter
Deisy Mamedes (Instituto Federal de Educação, Ciência e Tecnologia da Paraíba &

GTEMA, Brazil); Mahbubeh Esmaeili and Jens Bornemann (University of Victoria, Canada)

Electromagnetic Compatibility Lecture and Laboratory Course for Undergraduate and Graduate Students
Indira Chatterjee (University of Nevada, Reno, USA)

Antenna Configurations for Over-the-air Testing of Wireless Automotive Communication Systems
Frank Wollenschläger, Philipp Berlt and Christian Bornkessel (Technische Universität Ilmenau, Germany); Matthias Hein (Ilmenau University of Technology, Germany)

Compact Low-Profile Planar Elliptical Antenna for UWB Applications
Mousa Hussein and Ali Hakam (UAE University, UAE); Mohammed Ouda (Majmaah University, Saudi Arabia); Raed Shubair (MIT, USA)

Novel Circular Antenna with Elliptical Rings for Ultra-Wide-Band
Ali Hakam and Mousa Hussein (UAE University, UAE); Mohammed Ouda (Majmaah University, Saudi Arabia); Raed Shubair (MIT, USA); Elham Serria (UAE University, UAE)

Bondwire Impedance Compensation Using a Series Transmission Line Section
Bedilu Adela (Eindhoven University of Technology, The Netherlands); Paul Zeijl (Omniradar, The Netherlands); A. B. (Bart) Smolders (Eindhoven University of Technology, The Netherlands)

A Grid Array Antenna Composed of Diamond-Shaped Cells
Toru Kawano (National Defense Academy, Japan); Hisamatsu Nakano (Hosei University, Japan)

Outdoor-to-Indoor Path Loss Modeling At 10.1 GHz
Antti Roivainen (Centre for Wireless Communications, University of Oulu, Finland); Veikko Hovinen and Nuutti Tervo (University of Oulu, Finland); Matti Latva-aho (UoOulu, Finland)

Wideband Transmitarray Using Double Hexagonal Rings
Peng-Yu Feng (UESTC, P.R. China); Shi-Wei Qu (University of Electronic Science and Technology of China, P.R. China); Chi Hou Chan (City University of Hong Kong, Hong Kong)

Reflectarray Cell for Analog Row-Column Beam Scanning Control
Xavier Artiga (Centre tecnològic de Telecomunicacions de Catalunya (CTTC), Spain)

A Reconfigurable Reflectarray Antenna in Ka-Band Using Optically Excited Silicon
Peter Alizadeh, Andre Sarker Andy, Clive Parini and Khalid Z Rajab (Queen Mary University of London, United Kingdom)

Frequency Performances of Reflectarray Element with Varactor-Loaded Radial Phasing Line
Sandra Costanzo, Francesca Venneri and Giuseppe Di Massa (University of Calabria, Italy)

A Compact Reflector Based Beam Forming Network in SIW Technology for K Band Applications
Emilio Arnieri (University of Calabria, Italy); G. Amendola (Universita della Calabria, Italy); Francesco Greco (Universita' delle Calabria, Italy); Luigi Boccia (University of Calabria, Italy)

Investigation of the Frequency Influence on the Miniaturization Efficiency of Microstrip Devices Using LPFs
Denis Letavin, Yury E Mitelman and Victor Chechetkin (Ural Federal University, Russia)

Split-Ring Resonator-Based Sensor for Thin-Film Sensing Applications
Gabriel Galindo-Romera, Francisco Javier Herraiz-Martínez, Marta Gil and José Juan Martínez-Martínez (Carlos III University in Madrid, Spain); Daniel Segovia-Vargas (Universidad Carlos III de Madrid, Spain)

On the Use of the Radiometer Formula for Atmospheric Attenuation Measurements

At GHz Frequencies
George Brost and Kevin Madge (Air Force Research Laboratory, USA)

Modeling of Joint Rain Attenuation in Earth-Space Diversity Systems Using Gaussian Copula
Arsim Kelmendi (Jozef Stefan Institute, Slovenia); Charilaos Kourogiorgas (National Technical University of Athens, Greece); Andrej Hrovat (Jožef Stefan Institute, Slovenia); Athanasios D. Panagopoulos (National Technical University of Athens, Greece); Gorazd Kandus and Andrej Vilhar (Jozef Stefan Institute, Slovenia)

Near- Field to Far-field Transformation for Concave Structures
Jiaojiao Dang (Northwestern Polytechnical University, P.R. China); NanJing Li and ChuFeng Hu (Northwest Polytechnical University, P.R. China)

Efficient Small Switchable Ribbon Monopole Antenna for VHF/UHF Maritime Applications
Adjo Sokpor and Mohamad Mantash (University of Rennes 1, France); Anne-Claude Tarot (University of Rennes1, IETR, France)

Comparison of Different Hilbert Fractal Antennas for PD Detection and Classification
Abd Almonam Zahed (American University of Shajah, UAE); Ayman El-Hag and Nasser Qaddoumi (American University of Sharjah, UAE)

Reconfigurable Frequency with Circular Polarization for On-Body Wearable Textile Antenna
Shakhirul Mat Salleh (University Malaysia Perlis, Malaysia); Muzammil Jusoh (Universiti Malaysia Perlis & School of Computer and Communiction Engineering, Malaysia); Abdul Hafiizh Ismail (UniMAP, Malaysia); Muhammad Ramlee Kamarudin (Universiti Teknologi Malaysia, Malaysia); Hasliza A Rahim (Universiti Malaysia Perlis & Bioelectromagnetics Research Group, Malaysia); Thennarasan Sabapathy (University Malaysia Perlis, Malaysia)

PS6: Poster 6

Fundamental research
Room: Foyer C2

Regular

Broadband Antenna Design Using Different 3D Printing Technologies and Metallization Processes
Karina Hoel (FFI & University of Oslo, Norway); Stein Kristoffersen and Jonas Moen (FFI, Norway); Kristian Kjelgård and Tor Sverre Lande (University of Oslo, Norway)

A Dual-Antenna Active-Echo-Cancellation Method for Synthetic Aperture Radar
Letao Xu, Dejun Feng, Dahai Dai, Xiaoyi Pan and Xuesong Wang (National University of Defense Technology, P.R. China)

Parametric Interaction of Electromagnetic Waves with Space-Time Periodically Modulated Medium in a Waveguide
Eduard Gevorkyan (Plekhanov Russian University of Economics, Russia)

Two Monopole Antennas for Generating Radio OAM Waves in Circular Waveguide
Wenlong Wei (University of Rennes 1, France); Kouroch Mahdjoubi (Université de Rennes, France); Christian Brousseau and Olivier Emile (Université de Rennes 1, France); Ala Sharaiha (Université de Rennes 1 & IETR, France)

Ultra Wideband Electromagnetic DORT Time-Reversal Localization of Single-Defect in Metal Pipes
Javad Ebrahimi Zadeh (The University of Tehran, Iran); Mojtaba Dehmollaian (University of Tehran, Iran); Karim Mohammadpour-Aghdam (University of Tehran & KUL, Iran)

Pulse Characteristics of Antenna Array Radiating UWB Signals
Yury Shestopalov (University of Gävle, Sweden); Boris Lagovsky (Moscow State Institute of Radio Engineering and Automation, Russia); Alexander Samokhin

(Moscow Technological University, Russia)

Optimum Phase Excitations and Probe- Feed Positions Inside Antenna Arrays for the Reduction of Cross Polarization Radiation in Demanding Phased Array Weather Radar Applications

Dennis Vollbracht (Chemnitz University of Technology, Germany)

A Study on Modulation Method for Transmission System Using Phased Array Antennas

Jun Goto (Mitsubishi Electric Corporation, Japan)

Optimization of 2D Sparse Array Antenna for FMCW Radar

Farah Nadia Mohd Isa, Huda Adibah Mohd Ramli and Ahmad Fadzil Ismail (International Islamic University Malaysia, Malaysia)

Design of Non-Uniform Circular Antenna Arrays by Convex Optimization

Xiaowen Zhao, Yunhua Zhang and Qingshan Yang (National Space Science Center, Chinese Academy of Sciences, P.R. China)

A Cosecant Square Pattern Substrate Integrated Waveguide Slot Array for Radar Applications

Nicola Bartolomei, Agnese Mazzinghi and Angelo Freni (University of Florence, Italy)

Increasing the Energy Efficiency of Time-Modulated Reflector-Arrays Using Double Layer Designs

Yang Wang and Feng Lin (Chongqing University of Posts and Telecommunications, P.R. China); Alan Tennant (University of Sheffield, United Kingdom)

Estimation of DOA Using a Cumulant Based Quadricovariance Matrix

Prabha Gopinathan (Amrita Vishwa Vidyapeetham & Amrita School of Engineering, India); GA Shanmugha Sundaram (Amrita Vishwa Vidyapeetham University & Center for CEN, India)

BEM/MoM Fast Direct Computation for RCS and ISAR Applications

Alexandre Piche (EADS France, France); Gerard-Pascal Piau (EADS CCR, France); Olivier Urrea (EADS France, France); Guy Sabanowski (EADS IW, France); Jerome Robert, Guillaume Sylvand and Pierre Benjamin (Airbus Group Innovations, France); Richard Perraud (Airbus Group, France); Gilles Peres (Airbus Group Innovations, France)

Full-Wave Scattering Analysis of Electrically Large Objects in Wide-Band Synthetic Aperture Radar Systems

Branko Mrdakovic (WIPL-D, Serbia); Milos Pavlovic (WIPL-D DOO, Serbia); Dragan I. Olcan and Branko Kolundzija (University of Belgrade, Serbia)

An Algorithm for Finding Carriers of Amplitude-modulated Electromagnetic Emanations in Computer Systems

Christopher Wang (Georgia Institute of Technology, USA); Robert Callan (Georgia Tech, USA); Alenka Zajic and Milos Prvulovic (Georgia Institute of Technology, USA)

Fast Simulation Technique for ACC Radar Integration in Complex Environments At 76-77GHz

Eddy Jehamy (Altair FEKO, France); Markus Schick (Altair FEKO, Germany); René Fiedler (Altair / FEKO, France)

A Novel Barrage Repeater Jamming Against SAR-GMTI

Jingke Zhang, Dahai Dai, Shiqi Xing, Shunping Xiao and Bo Pang (National University of Defense Technology, P.R. China)

Block Sparse Bayesian Learning Based Strip Map SAR Imaging Method

Yongqiang Zou (College of Electronic Science and Engineering, National University of Defense Technology, P.R. China); Xunzhang Gao and Xiang Li (National University of Defense Technology, P.R. China)

Bistatic Imaging of Linear Structures for Polarimetric Ultrawideband Radar

Matthias Röding (Ilmenau University of Technology, Germany); Thomas Dallmann (RWTH Aachen University, Germany); Reiner S. Thomä (Ilmenau University of Technology, Germany); Dirk Heberling (RWTH Aachen University, Germany)

Distributed Sensor Fusion Using Covariance Intersection and Particle Filtering Based on Adaptive Genetic Algorithm

Siyuan Zou (Shanghai Jiao Tong University, P.R. China); Dongying Li (Shanghai Jiaotong University, P.R. China); Wenxian Yu (Shanghai Jiao Tong University, P.R. China)

Simultaneous Localization and Mapping Embedded with Particle Filter Algorithm

Wei Wang (Shanghai Jiao Tong University & Shanghai Key Laboratory of Intelligent Sensing and Recognition, P.R. China); Dongying Li (Shanghai Jiaotong University, P.R. China); Wenxian Yu (Shanghai Jiao Tong University, P.R. China)

Radar Cross Section (RCS) of Metamaterial Absorbers

Mahdi Oliaei (Telecommunication Engineering (KNTU), Iran); Ramezan Ali Sadeghzadeh (K. N. Toosi University of Technology, Iran)

Delay Spread Characterization of Millimeter-Wave Indoor Backscattering Channel

Anna Guerra (CNIT - University of Bologna, Italy); Francesco Guidi (CEA LETI, France); Antonio Clemente (CEA-LETI Minatec, France); Raffaele D'Errico (CEA, LETI, Minatec Campus & Univ\. Grenoble-Alpes, France); Davide Dardari (University of Bologna, Italy)

Radar-based Detection of Bats: Experiments in a Laboratory Flight Tunnel

Jochen Moll, Moritz Mälzer and Nikolas Scholz (Goethe University Frankfurt am Main, Germany); Viktor Krozer (Goethe University of Frankfurt am Main, Germany); Dimitry Pozdniakov (HF Systems Engineering GmbH & Co. KG, Germany); Rahmi Salman (HF Systems Engineering GmbH & Co. KG & Hübner Holding GmbH, Germany); Ralp Zimmerman (HF System Engineering, Germany); Julio Hechavarria, M. Jerome Beetz and Manfred Kössl (Goethe University Frankfurt am Main, Germany)

Modelling the Ionospheric Effects in HF Radar Long Term Integration

Marie José Abi Akl (Université Pierre et Marie Curie & ONERA, France); Florent Jangal (Onera - The French Aerospace Lab, France); Muriel Darces and Marc Hélier (UPMC Univ Paris 6, France)

The Radar Cross Section of Small Propellers on Unmanned Aerial Vehicles

Tamas Peto (Budapest University of Technology and Economics, Hungary); Sandor Bilicz (BUTE, Hungary); László Szűcs (Budapest University of Technology and Economics, Hungary); Szabolcs Gyimothy (BUTE, Hungary); József Pávó (Budapest University of Technology and Economics, Hungary)

Improved LFM Pulse Compression with Optimum Anti-Aliasing

Ramezan Ali Sadeghzadeh and Mahmood Karami (K. N. Toosi University of Technology, Iran); Mahdi Oliaei (Telecommunication Engineering (KNTU), Iran); Mohammad Khalili (Unit8 No22 Derayat Alley Bostan10th Estakhr Tehranpars Tehran, Iran)

Isolation Enhanced Multiway Power Divider for Wideband (3:1) Beamforming Array

Dooheon Yang, Byungjoon Kim, Kihyun Kim, Minyoung Yoon and Sangwook Nam (Seoul National University, Korea)

Scattering for Doubly Curved Functional Surfaces and Corresponding Planar Designs

Andreas Ericsson and Daniel Sjöberg (Lund University, Sweden); Christer Larsson (Lund University & Saab Dynamics, Sweden); Torleif Martin (Lund University, Sweden)

Bicycles and Human Riders Backscattering At 77 GHz for Automotive Radar

Domenic Belgiovane, Jr. and Chi-Chih Chen (The Ohio State University & ElectroScience Laboratory, USA)

Wireless Indoor Positioning System with Inertial Sensors and Infrared Beacons

Lukasz Januszkiewicz (Lodz University of Technology, Institute of Electronics, Poland); Jarosław Kawecki, Robert Kawecki and Paweł Oleksy (Lodz University of Technology, Poland)

Wednesday, April 13, 15:00 - 16:20 (Europe/Zurich)

InvWed-A: Invited Speakers Wednesday - Track A

Room: B Pisch+ Parsenn
Chair: Christoph F Mecklenbräuker (Vienna University of Technology, Austria)

Invited

15:00 ***Massive MIMO Antennas in Conventional Bands***
Jürgen Rumold and Maximilian Goettl (KATHREIN-Werke KG, Germany)

15:40 ***Antennas and Propagation in Physical Layer Security: Encryption Key Establishment***
Michael Jensen (Brigham Young University, USA)

InvWed-B: Invited Speakers Wednesday - Track B

Room: C Aspen
Chair: Koichi Ito (Chiba University, Japan)

Invited

15:00 ***Vehicular Channel Characterization and Modeling***
Claude Oestges (Université Catholique de Louvain, Belgium)

15:40 ***Antennas for Wireless Power Transmission***
Naoki Shinohara (Kyoto University, Japan)

Wednesday, April 13, 16:50 - 18:30 (Europe/Zurich)

A42: Antennas for Mobile applications

Cellular and short-range communication
Room: A Dischma
Chairs: Christophe Delaveaud (CEA-LETI, France), Pavel Hazdra (Czech Technical University in Prague, Czech Republic)

Regular

16:50 ***Inverted-F Antenna-Based On-Frame GPS/WLAN Antenna for the Metal-Casing Tablet Computer***
Chih-Yu Tsai (National Sun Yat-sen University, Taiwan); Kin-Lu Wong (National Sun Yat-Sen University, Taiwan)

17:10 ***Suitable Multiantenna Placement in Mobile Handsets Based on Electromagnetic Isolation***
Janne Ilvonen, Jari Holopainen and Kimmo Rasilainen (Aalto University School of Electrical Engineering, Finland); Anu Lehtovuori and Ville Viikari (Aalto University & School of Electrical Engineering, Finland)

17:30 ***Applying Bandwidth Estimators to Tablet Antenna Design***
Anu Lehtovuori (Aalto University & School of Electrical Engineering, Finland); Risto Valkonen (Nokia Networks, Finland); Ville Viikari (Aalto University & School of Electrical Engineering, Finland)

17:50 ***The Design of Dual-polarized Antenna for Base Station Appications***
Dong-Ze Zheng and Qing-Xin Chu (South China University of Technology, P.R. China)

18:10 ***A Tunable Miniaturized Notch Antenna for Low-Band LTE Applications***
Essia Ben Abdallah (CEA, LETI, MINATEC Campus, Univ. Grenoble-Alpes, France); Dominique Nicolas (CEA, Leti, France); Serge Bories and Alexandre Giry (CEA,

France); Christophe Delaveaud (CEA-LETI, France)

CS07: Analogue frontends and control circuits for agile antenna arrays

Cellular and short-range communication
Room: A Flüela
Chairs: Mark Beach (University of Bristol, United Kingdom), Frank Ellinger (Technische Universität Dresden, Germany)

Convened

16:50 ***Millimeter-Wave Front-End Integration Concept Using Beam-Switched Lens Antenna***
Jan Hesselbarth (University of Stuttgart & IHF -- Institute of Radio Frequency Technology, Germany); Daniel López Cuenca (University of Stuttgart, Germany); Hernán V. Barba Molina (University of Stuttgart & IEEE, Germany)

17:10 ***Electronically Reconfigurable Phase Shifter for Reflectarray Applications At Microwave Bands***
Pablo Padilla (University of Granada, Spain); Juan Valenzuela-Valdés (Universidad de Granada, Spain); Jose Luis Padilla (Ecole Polytechnique Fédérale de Lausanne, Switzerland); José-Manuel Fernández-González and Manuel Sierra-Castañer (Universidad Politécnica de Madrid, Spain)

17:30 ***Real-field Performance of Multiple-beam Beam-former with Polarization Compensation***
Diego Dupleich (Ilmenau University of Technology, Germany); Stephan Haefner (Technische Universität Ilmenau, Germany); Robert Müller (TU Ilmenau, Germany); Christian Schneider and Reiner S. Thomä (Ilmenau University of Technology, Germany); Jian Luo and Egon Schulz (Huawei Technologies Duesseldorf GmbH, Germany); Xiaofeng Lu (Huawei Technology Company, P.R. China); Guangjian Wang (Huawei Technologies Co., Ltd., P.R. China)

17:50 ***Agile Beamsteering Frontends in Future Traffic and Industrial Applications***
Jens Wagner (Technische Universität Dresden & Chair for Circuit Design and Network Theory, Germany); Elena Sobotta and Frank Ellinger (Technische Universität Dresden, Germany)

18:10 ***60-GHz CMOS TX/RX Chipset on Organic Packages with Integrated Phased-Array Antennas***
Steven Brebels, Khaled Khalaf, Giovanni Mangraviti, Kristof Vaesen, Michael Libois and Bertrand Parvais (IMEC, Belgium); Vojkan Vidojkovic (Intel, Germany); Viki Szortyka (Vrije Universiteit Brussel, Belgium); Andre Bourdoux (IMEC, Belgium); Piet Wambacq (IMEC/VUB, Belgium); Charlotte Soens (Imec, Belgium); Wim Van Thillo (IMEC, Belgium)

CS05: Advances on Metasurfaces

Fundamental research
Room: A Schwartzhorn
Chairs: George V. Eleftheriades (University of Toronto, Canada), Stefano Maci (University of Siena, Italy)

Convened

16:50 ***Low-profile Antennas with 100% Aperture Efficiency Based on Cavity-excited Omega-type Biansiotropic Metasurfaces***
Ariel Epstein, Joseph Wong and George V. Eleftheriades (University of Toronto, Canada)

17:10 ***Homogenization and Characterization of Metasurfaces: General Framework***
Mohammad Albooyeh, Sergei Tretyakov and Constantin Simovski (Aalto University, Finland)

17:30 ***Ultrathin Nonlinear Metasurfaces with Continuous Phase Control At the Nanoscale***
Mykhailo Tymchenko (The University of Texas at Austin, USA); Juan Sebastián Gomez-Diaz (The Universit of Texas at Austin, USA); Jongwon Lee (Ulsan National Institute of Science and Technology, USA); Mikhail Belkin and Andrea Alù (The University of Texas at Austin, USA)

17:50 ***Wireless Power Transfer with Bessel Beams***
Anthony Grbic (University of Michigan, Ann Arbor, USA); Jason Heebl (University of Michigan, USA); Mauro Ettorre (University of Rennes 1 & UMR CNRS 6164, France)

18:10 ***Two-dimensional Optics for Surface Waves***
Mario Mencagli, Jr. and Enrica Martini (University of Siena, Italy); David González-Ovejero (California Institute of Technology, USA); Stefano Maci (University of Siena, Italy)

A23: Dosimetry, exposure ans SAR assessment

Biomedical and wearable applications including biological effects
Room: A Seehorn
Chair: Mikhail Kozlov (MR:comp GmbH, Germany)

Regular

16:50 ***Evaluation of Human Exposure to an HPM Pulsed Signal in the Near Field of a Horn Antenna***
Marta Martínez-Vázquez and Winfried Simon (IMST GmbH, Germany); Edlira Stavrou (IMST, Germany); Stylianos P. Savaidis (Technological Educational Institute of Piraeus, Greece)

17:10 ***Influence of Cerebrospinal Fluid on Specific Absorption Rate Generated by 300 MHz MRI Transmit Array***
Mikhail Kozlov (Max Planck Institute for Human Cognitive and Brain Sciences, Germany); Pierre-Louis Bazin (Max Planck Institute for Human Cognitive and Brain Sciences Leipzig, Germany); Harald Moeller and Nikolaus Weiskopf (Max Planck Institute for Human Cognitive and Brain Sciences, Germany)

17:30 ***Relationship Between Electric Field Exposure and Whole-Body Averaged SAR in Automotive Environments***
Seongkyu Lee, Juneseok Lee, Sungjoon Yoon and Jaehoon Choi (Hanyang University, Korea)

17:50 ***Personal Radio-Frequency Exposimeters in Indoor Diffuse Environments: Measurement and Simulation***
Reza Aminzadeh (Ghent University, Belgium); Arno Thielens (Ghent University & IBBT, Belgium); Aliou Bamba (Université Grenoble-Alpes, France); Lamine Kone (University of Lille, France); Davy P Gaillot (University of Lille 1, France); Martine Liénard (University of Lille, France); Luc Martens (Ghent University, Belgium); Wout Joseph (Ghent University/iMinds, Belgium)

18:10 ***Effect of Dispersive and High Precision Age-Dependent Dielectric Properties on SAR Assessments***
Muhammad Qureshi, Yasir Alfadhl and Xiaodong Chen (Queen Mary University of London, United Kingdom); Azadeh Peyman (Health Protection Agency, United Kingdom)

P2: Microwave imaging I

Multiple Applications
Room: A Sertig
Chairs: Martina Teresa Bevacqua (University Mediterranea, Italy), Juan Heredia-Juesas (Northeastern University, USA)

Regular

16:50 ***Development of a Slotted Triangular Patch Antenna for Microwave Tomography***
Syed Ahsan and Panagiotis Kosmas (King's College London, United Kingdom); Efthymios Kallos (MediWise, United Kingdom); Ioannis Gouzouasis (King's College London, United Kingdom)

17:10 ***Interferometric Sounding Using a Compressive Reflector Antenna***
Jose Martinez Lorenzo, Ali Molaei, Gregory Allan and Juan Heredia-Juesas (Northeastern University, USA); William Blackwell (MIT Lincoln Laboratory, USA)

17:30 ***Evaluating the Impact of Breast Model Complexity on Microwave Imaging Signals***
Muhammad Omer, Douglas Kurrant and Elise Fear (University of Calgary, Canada)

17:50 ***Microwave Imaging Via Iterated Virtual Experiments***
Martina Teresa Bevacqua (University Mediterranea, Italy); Roberta Palmeri (University of Reggio Calabria, Italy); Loreto Di Donato (University of Catania, Italy); Lorenzo Crocco (CNR - National Research Council of Italy, Italy); Tommaso Isernia (University of Reggio Calabria, Italy)

18:10 ***Two-Step Reconstruction Process for Microwave Tomography Without A Priori Information***
Paul M Meaney, Shireen Geimer and Keith D. Paulsen (Dartmouth College, USA)

A1: 3D Printed/Additive Manufacturing Technologies of Electromagnetic Structures

Multiple Applications
Room: A Wisshorn
Chairs: Karina Hoel (FFI & University of Oslo, Norway), Erja Sipilä (Tampere University of Technology, Finland)

Regular

16:50 ***Realization of RFID Tag Antenna with 3D Printing Technology***
Shayan Hasan Naushahi and Kimmo Rasilainen (Aalto University School of Electrical Engineering, Finland); Ville Viikari (Aalto University & School of Electrical Engineering, Finland)

17:10 ***Additive Manufacturing of Antennas From Copper Oxide Nanoparticle Ink: Toward Low-Cost RFID Tags on Paper- And Textile-based Platforms***
Erja Sipilä (Tampere University of Technology, Finland); Jun Liu and Jianhua Wang (Guangdong University of Technology, P.R. China); Johanna Virkki (Tampere University of Technology, Finland); Toni Björninen (Tampere University of Technology & BioMediTech, Finland); Cheng Liang lun (Guangdong University of Technology, P.R. China); Lauri Tapio Sydänheimo and Leena Ukkonen (Tampere University of Technology, Finland)

17:30 ***Characterization of a 3D Printed Wideband Waveguide and Horn Antenna Structure Embedded in a UAV Wing***
Karina Hoel (FFI & University of Oslo, Norway); Stein Kristoffersen and Jonas Moen (FFI, Norway); Gjermund Holm (University of Southhampton, United Kingdom); Tor Sverre Lande (University of Oslo, Norway)

17:50 ***Multi-Layer Off-Axis Patch Antennas Fabricated Using Polymer Extrusion 3D Printing***
Eric MacDonald and Corey Shemelya (University of Texas at El Paso, USA); Michael Zemba (NASA, USA); David Espalin and Ryan Wicker (University of Texas at El Paso, USA); Craig Kief (Configurable Space Microsystems Innovations and Applications Center & University of New Mexico, USA)

18:10 ***Dielectric Pyramid Antenna for GPR Applications***
Hugo Jenks (University of Bath, United Kingdom)

A22: Conformal antennas

Multiple applications
Room: B Jakhobshorn
Chairs: Akram Alomainy (Queen Mary University of London, United Kingdom), Paola Pirinoli (Politecnico di Torino, Italy)

Regular

16:50 ***Planar Millimeter-Wave Antenna on Low-Cost Flexible PET Substrate for 5G Applications***
Syeda Fizzah Jilani and Akram Alomainy (Queen Mary University of London, United Kingdom)

17:10 ***Conformal Array Antenna Fed by Radial-Waveguide Divider for Omnidirectional Coverage At Ku Band***
Pablo Sanchez-Olivares (Universidad Autonoma de Madrid, Spain); Raul Haro-Baez (Universidad de las Fuerzas Armadas - ESPE, Spain); Paula Sanchez-Dancausa and Jose Luis Masa-Campos (Universidad Autonoma de Madrid, Spain); Jorge A Ruiz-Cruz (Universidad Autonoma de Madrid & Escuela Politecnica Superior, Spain)

17:30 ***Investigation on Convex Conformal Reflectarray Antennas Exploiting Double Parameter Technique***
Michele Beccaria, Paola Pirinoli and Mario Orefice (Politecnico di Torino, Italy)

17:50 ***Sparse Conformal Array Synthesis with Mutual Coupling Effect Consideration***
Bin Sun (National University of Defense Technology, P.R. China); Yang Liu (Northern Institute of Electronic Equipment of China, P.R. China); Jingke Zhang, Yongzhen Li and Xuesong Wang (National University of Defense Technology, P.R. China)

18:10 ***Conformal Antenna Array Modelling, FDTD Predictions and Measurements for Dual Circular Patch in Variable Geometry Conformal Antenna Array Test Rig***
Timothy Pelham, Geoffrey Hilton and Evangelos Mellios (University of Bristol, United Kingdom); Chris Railton (University of Bristol & Communications Systems and Networks group, United Kingdom); Rob Lewis (BAE Systems Advanced Technology Centre, United Kingdom)

A18: Computational and numerical techniques I

EM modelling and simulation
Room: B Pisch+ Parsenn
Chairs: Francesco Andriulli (Ecole Nationale Superieure des Telecomunications de Bretagne, France), Matthys M. Botha (Stellenbosch University, South Africa)

Regular

16:50 ***A Single Domain Approach to Weak Near-Singularity Cancellation Quadrature on Triangle Domains***
Matthys M. Botha (Stellenbosch University, South Africa)

17:10 ***Solving the Low-Frequency Breakdown of the Wire-EFIE Without the Search for Global Loops***
Bruno Quercia and Francesco Andriulli (Ecole Nationale Superieure des Telecomunications de Bretagne, France); Kristof Cools (University of Nottingham, United Kingdom)

17:30 ***Loop-Star Decomposition for any Order Basis Functions with processing of Weak and Nearly Singularities for the Surface Integral Equation***
José Gil (Universidad Politécnica de Madrid, Spain); Rafael Gómez Alcalá (University of Extremadura, Spain); Miguel A. González (Universidad Politécnica de Madrid, Spain); Jesus Garcia (Universidad Politecnica de Madrid, Spain)

17:50 ***Improving Linear Embedding Via Green's Operators with Characteristic Basis Functions***
Vito Lancellotti (Eindhoven University of Technology, The Netherlands)

18:10 ***Comparison of the Iterative Jacobi Method and the Iterative Domain Green's***

Function Method for Finite Array Analysis
Danie Ludick and Matthys M. Botha (Stellenbosch University, South Africa); Rob Maaskant (CHALMERS, Sweden); David B Davidson (University of Stellenbosch, South Africa)

WS6: ALTAIR Workshop

Room: B Rinerhorn

A49: Reflector antennas

Multiple applications
Room: C Aspen
Chairs: Andrés Alayon Glazunov (Chalmers University of Technology, Sweden), Marco Pasian (University of Pavia, Italy)

Regular

16:50 ***A Confocal Reflector for a Reflectarray-based Scanning System***
Antonio García-Pino, Borja Gonzalez-Valdes and Oscar Rubiños-López (University of Vigo, Spain); Jose A. Encinar (Universidad Politecnica de Madrid, Spain)

17:10 ***Array-fed Cylindrical Reflector Antenna for Automotive OTA Tests in Random Line-Of-Sight***
Aidin Razavi, Andrés Alayon Glazunov and Per-Simon Kildal (Chalmers University of Technology, Sweden); Rob Maaskant (CHALMERS, Sweden)

17:30 ***A Comparative Study on the Parabolic and Spherical FPA-Fed Reflector Antenna***
Ali Al-Rawi, Aleksei Dubok, Sander Geluk, Matti Herben and A. B. (Bart) Smolders (Eindhoven University of Technology, The Netherlands)

17:50 ***Prototype of a Dual-Circularly Polarized Parabolic Reflector Antenna with Microstrip Antenna Array for 12-GHz Band Satellite Broadcasting Reception***
Masafumi Nagasaka and Susumu Nakazawa (NHK, Japan); Shoji Tanaka (NHK Science and Technical Research Laboratories, Japan)

18:10 ***Ka-band High-Gain Mesh Deployable Reflector Antenna Enabling the First Radar in a CubeSat: RainCube***
Nacer Chahat (NASA-JPL, Caltech, USA); Jonathan Sauder and Richard Hodges (NASA-JPL / Caltech, USA); Mark Thomson (NASA-JPL / Caltech, France); Yahya Rahmat-Samii (University of California, Los Angeles (UCLA), USA); Eva Peral (Jet Propulsion Laboratory, USA)

CS33: AMTA/EurAPP Session, Satellite and Aerospace Antenna Measurements

Space
Room: C Sanada1
Chairs: Luca Salghetti Drioli (European Space Agency-ESTEC, The Netherlands), Hans-Juergen Steiner (Airbus Defence & Space & Electronics Devision, Germany)

Convened

16:50 ***Full-Wave Analysis of Compensated Compact Ranges Including Absorber Structures***
Thomas M Gemmer, Carsten H Schmidt, Alexander Geise and Josef Migl (Airbus DS GmbH, Germany)

17:10 ***Full-wave Optimization of Large Compact Antenna Test Ranges***
Oscar Borries, Erik Jørgensen, Peter Meincke and Hans Henrik Viskum (TICRA, Denmark)

17:30 ***RF Tests Cycles State of the Art for Ka-band Multiple Beam Antenna At Primary Feeds and Antennas Levels and Applications on Current Antenna***

Programs
Christian Féat, Sylvain Leroy, Paul Mongrand and Jean-Christophe Lafond (Thales Alenia Space, France)

17:50 ***Measurement of Bepicolombo Mission Medium Gain Antenna Parameters***
Victor Sánchez and Aingeru Barrio (SENER Ingeniería y Sistemas S.A., Spain); Fernando Martín Jiménez (SENER, Spain); Iñaki Pinto (SENER Ingeniería y Sistemas S.A., Spain); Rafael García Sánchez (Rymsa Espacio S.A., Spain); Leandro de Haro y Ariet (Universidad Politécnica de Madrid, Spain); Jose Luis Besada (Universidad Politécnica de Madrid (Technical University of Madrid), Spain); Belen Galocha (Universidad Politecnica de Madrid, Spain); Manuel Sierra-Castañer (Universidad Politécnica de Madrid, Spain)

18:10 ***Measurement of Losses on High Temperature Coatings of Space Antennas***
Elena Saenz, Luis Rolo, Eric van der Houwen and Marco Mascarello (European Space Agency, The Netherlands)

A12: Array antennas II

Radar, Defence and security
Room: C Sanada2
Chair: Jian Yang (Chalmers University of Technology, Sweden)

Regular

16:50 ***A General Look on Time-Modulated Antenna Array***
A-Min Yao (Nanjing University of Science and Technology, P.R. China); Wen Wu and Da-Gang Fang (Nanjing University of Science & Technology, P.R. China)

17:30 ***Comparison of Beamforming Algorithms for Retro-Directive Arrays with Faulty Elements***
Alian Engroff (Universidade Federal do Pampa, Brazil); Lukasz A Greda (German Aerospace Center (DLR), Germany); Marcelo Magalhães (Federal University of Pampa, Brazil); Andreas Winterstein (German Aerospace Center (DLR), Germany); Lucas Santos Pereira, Alessandro Girardi and Marcos V. T. Heckler (Universidade Federal do Pampa, Brazil)

17:50 ***On the Performance of Real Dual-Polarized Antenna Arrays for 2D Unconditional Direction of Arrival Estimation***
Mariana G Pralon (Technische Universität Ilmenau, Germany); Leandro Pralon (Grenoble Institute of Technology-INP, France); Dominik Schulz and Reiner S. Thomä (Ilmenau University of Technology, Germany)

18:10 ***X Band Phased Array Design for Radar Application***
Jhon Cárdenas Triana and Ivan Duarte Brito (Corporación de Alta Tecnología para la Defensa, Colombia); José-Manuel Fernández-González and Manuel Sierra-Castañer (Universidad Politécnica de Madrid, Spain)

Wednesday, April 13, 19:30 - 23:59 (Europe/Zurich)

CD: Conference Dinner

Room: Davos

Thursday, April 14

Thursday, April 14, 08:40 - 10:20 (Europe/Zurich)

A31: Antennas for 60GHz applications

Cellular and short-range communication
Room: A Dischma
Chairs: Jan Hesselbarth (University of Stuttgart & IHF -- Institute of Radio Frequency Technology, Germany), Jiro Hirokawa (Tokyo Institute of Technology, Japan)

Regular

08:40 ***Differential-feed Patch Antenna on the Thick Resin in a 60GHz Band Silicon Chip***

Jiro Hirokawa and Naoya Oikawa (Tokyo Institute of Technology, Japan); Yasutake Hirachi (AMMSYS Inc., Japan); Makoto Ando (Tokyo Institute of Technology, Japan)

09:00 ***Dual-Polarized Antenna with Orthomode Transducer for 60 GHz Communications***

Zunnurain Ahmad (University of Stuttgart, Institute of Radio Frequency Technology, Germany); Jan Hesselbarth (University of Stuttgart & IHF -- Institute of Radio Frequency Technology, Germany)

09:20 ***A Long Slot Array Fed by a Multilayer True-Time Delay Network in LTCC for 60-GHz Communications***

Francesco Foglia Manzillo (University of Rennes 1 - IETR, France); Mauro Ettorre (University of Rennes 1 & UMR CNRS 6164, France); Markku Lahti (VTT Electronics, Finland); Kari Kautio (VTT Technical Research Centre of Finland Ltd, Finland); Delphine Lelaidier and Eric Seguenot (Orange Labs, France); Ronan Sauleau (University of Rennes 1, France)

09:40 ***A Study of the 60 GHz-Band Compact Range Wireless Access System Using Large Array Antennas***

Makoto Ando and Jiro Hirokawa (Tokyo Institute of Technology, Japan); Miao Zhang (Xiamen University, P.R. China); Masahiro Wakasa and Kiyomichi Araki (Tokyo Institute of Technology, Japan)

10:00 ***A High Gain Ridge Gap Waveguide Fed Slot Antenna Array for 60 GHz Applications***

Davoud Zarifi (University of Kashan, Iran); Ali Farahbakhsh (Graduate University of Advanced Technology of Kerman, Iran); Ashraf Uz Zaman and Per-Simon Kildal (Chalmers University of Technology, Sweden)

CS31a: Radio channel measurements, and modelling above 6 GHz for 5G radio networks

Cellular and short-range communication
Room: A Flüela
Chair: Sana Salous (Durham University, United Kingdom)

Convened

08:40 ***Calibration of Millimeter-wave Channel Sounders for Super-resolution Multipath Component Extraction***

Peter Papazian (NIST & NTIA, USA); Jae-Kark Choi (National Institute of Standards and Technology, USA); Jelena Senic, Peter Jeavons, Camillo Gentile and Nada Golmie (NIST, USA); Ruoyu Sun (National Institute of Standards and Technology, USA); David Novotny (US National Institute of Standards and Technology, USA); Kate A. Remley (NIST, USA)

09:00 ***300 GHz Path Loss Measurements on a Computer Motherboard***

Seunghwan Kim (Georgia Tech, USA); Alenka Zajic (Georgia Institute of Technology, USA)

09:20 ***Experimental Investigation of 60 GHz WLAN Channel for Office Docking Scenario***

Artyom Lomayev (Intel Corp., Russia); Yaroslav Gagiev and Ilya Ershov (Intel Corporation, Russia); Alexander Maltsev (Intel Corporation & University of Nizhny Novgorod, Russia); Michael Genossar and Michael Bogdanov (Intel Corporation, Israel)

09:40 ***Path Loss Characteristics At Multiple Frequency Bands From 0.8 to 37 GHz in Indoor Office***

Motoharu Sasaki (NTT Access Network Service Systems Laboratories, Japan); Minoru Inomata (NTT Corporation, Japan); Wataru Yamada (Nippon Telegraph and

Telephone Cooporation, Japan); Naoki Kita (Nippon Telegraph and Telephone Corp., Japan); Takeshi Onizawa (NTT Corporation, Japan); Masashi Nakatsugawa (NTT, Japan)

10:00 ***Characterization of mm-Wave Channel Sounders Up to W-Band and Validation of Measurement Results***
Michael Peter, Richard J. Weiler and Wilhelm Keusgen (Fraunhofer HHI, Germany); Taro Eichler (Rohde & Schwarz, Germany); Meik Kottkamp (Rhode & Schwarz, Germany); Alexander Nähring (RWTH Aachen University, Germany)

CS24a: IET Session, New antenna systems involving metamaterials and metasurfaces

Fundamental research
Room: A Schwartzhorn
Chairs: Rob Lewis (BAE Systems Advanced Technology Centre, United Kingdom), Hisamatsu Nakano (Hosei University, Japan)

Convened

08:40 ***Metamaterial-inspired Configurations to Enhance the Directivity of Electrically Small Antennas***
Richard W. Ziolkowski (University of Arizona, USA)

09:00 ***Metamaterial-based Omnidirectional Circularly Polarized Antenna Array for 2.4-GHz WLAN Applications***
Xianming Qing (Institute for Infocomm Research, Singapore); Jin Shi (Nantong University, P.R. China); Zhi Ning Chen (National University of Singapore & Institute for Infocomm Research, Singapore)

09:20 ***Controlling Leaky Waves by Modulated Metasurfaces***
Gabriele Minatti, Marco Faenzi, Francesco Caminita, Enrica Martini and Alice Benini (University of Siena, Italy); Marco Sabbadini (Esa Estec, The Netherlands); Stefano Maci (University of Siena, Italy)

09:40 ***Tri-band Circularly Polarized Metaloop Antennas***
Hisamatsu Nakano, Tomohiro Yoshida and Junji Yamauchi (Hosei University, Japan)

10:00 ***Design of Metasurface-Backed Printed Dipoles***
Muhammad Kamran Khattak (Incheon National University, Korea); Sungtek Kahng (University of Incheon, Korea); Aurora Andújar and Jaume Anguera (Fractus, Spain)

CS16a: COST Action TD1301, MiMed: Recent Developments in Breast Microwave Imaging

Biomedical and wearable applications including biological effects
Room: A Seehorn
Chairs: Raquel C. Conceição (Instituto de Biofísica e Engenharia Biomédica, Faculdade de Ciências, Universidade de Lisboa & Institute of Biomedical Engineering, University of Oxford, Portugal), Daniel Flores Tapia (108 Allen Building & University of Manitoba, Canada)

Convened

08:40 ***Experimental Phantom for Contrast Enhanced Microwave Breast Cancer Detection Based on 3D-Printing Technology***
Jochen Moll and Dennis Wörtge (Goethe University Frankfurt am Main, Germany); Dallan Byrne and Maciej Klemm (University of Bristol, United Kingdom); Viktor Krozer (Goethe University of Frankfurt am Main, Germany)

09:00 ***Easy-to-produce Adjustable Realistic Breast Phantoms for Microwave Imaging***
Nadine Joachimowicz (GeePs-CentraleSupelec, France); Bernard Duchêne (Laboratoire des Signaux et Systèmes/Supèlec/CNRS, France); Christophe Conessa and Olivier Meyer (GeePs-CentraleSupelec, France)

09:20 ***A Singular Value Decomposition Approach for Microwave Holography Imaging of the Breast: A Feasibility Study***
Daniel Flores Tapia (108 Allen Building & University of Manitoba, Canada); Mario Solis Nepote and Diego Rodriguez Herrera (University of Manitoba, Canada); Raffaele Solimene (Second University of Naples, Italy); Stephen Pistorius (University of Manitoba & CancerCare Manitoba, Canada)

09:40 ***An Adaptive Multi-Threshold Iterative Shrinkage Algorithm for Microwave Imaging Applications***
Michele Ambrosanio (Università di Napoli Parthenope, Italy); Panagiotis Kosmas (King's College London, United Kingdom); Vito Pascazio (Università di Napoli Parthenope, Italy)

10:00 ***Average Breast Permittivity Measurements: Preliminary Results From Current Patient Study***
Jeremie Bourqui and Elise Fear (University of Calgary, Canada)

Thursday, April 14, 08:40 - 10:00 (Europe/Zurich)

CS09: Antenna for IoT applications

RFID and Wireless networks
Room: A Sertig
Chairs: Fabien Ferrero (University Nice Sophia Antipolis, CNRS, LEAT & CREMANT, France), Nicolas Sornin (Semtech, France)

Convened

08:40 ***Enabling Miniature Position Tracker Using LoRa and GPS Technology***
Printice Monin (Abeeway, France); Fabien Ferrero (University Nice Sophia Antipolis, CNRS, LEAT & CREMANT, France); Leonardo Lizzi (University Nice-Sophia Antipolis, CNRS, LEAT, France); Christophe Danchesi (Abeeway, France); Nicolas Sornin (Semtech, France); Stephane Boudaud (Abeeway, France)

09:00 ***Methodology to Keep the Same Radiation Efficiency While Miniaturizing an Antenna***
Laure Huitema (Xlim Laboratory, France); Yaakoub Dia (University of Limoges, France); Christophe Delaveaud (CEA-LETI, France); Stéphane Bila (Xlim Laboratory, France); Marc Thevenot (XLIM-UMR 6172-CNRS, University of Limoges, France); Eric Arnaud (XLIM, France)

09:20 ***UHF Antennas for Machine-to-Machine Communications and Internet of Things***
Yue Gao (Queen Mary University of London, United Kingdom); Runbo Ma (MPI-QMUL Information System Research Centre, P.R. China); Qianyun Zhang and Clive Parini (Queen Mary University of London, United Kingdom)

09:40 ***Textile Antenna for RF Energy Harvesting Fully Embedded in Clothing***
Caroline Loss (Universidade da Beira Interior & Instituto de Telecomunicações-Aveiro, Portugal); Ricardo Gonçalves (Instituto de Telecomunicações, Portugal); Catarina Lopes and Luisa Salvado (Universidade da Beira Interior, Portugal); Pedro Pinho (IT - Instituto de Telecomunicações & ISEL - Instituto Superior de Engenharia de Lisboa, Portugal)

Thursday, April 14, 08:40 - 10:20 (Europe/Zurich)

A46: SIW antennas

Multiple Applications
Room: A Wisshorn
Chair: Eva Rajo-Iglesias (University Carlos III of Madrid, Spain)

Regular

08:40 ***4 x 4 Stacked Patch Array with SIW and Microstrip Corporate Feeding Network for Ku-band***
Eduardo Garcia-Marin, Jose Luis Masa-Campos and Pablo Sanchez-Olivares (Universidad Autonoma de Madrid, Spain)

09:00 ***Multi-beam Slotted Waveguide Pillbox Antenna with Reduced Side Lobe Level and High Beam Crossover***
Karim Tekkouk (Tokyo Institute of Technology, Japan); Mauro Ettorre (University of Rennes 1 & UMR CNRS 6164, France); Ronan Sauleau (University of Rennes 1, France)

09:20 ***Amplitude Monopulse Pillbox Antenna in SIW Technology***
Karim Tekkouk (Tokyo Institute of Technology, Japan); Mauro Ettorre (University of Rennes 1 & UMR CNRS 6164, France); Ronan Sauleau (University of Rennes 1, France)

09:40 ***Millimeter Wave Cavity Backed Aperture Coupled Microstrip Patch Antenna***
Mohammad Mosalanejad (IMEC & ESAT-TELEMIC, KU Leuven, Belgium); Steven Brebels (IMEC, Belgium); Ilja Ocket (IMEC & ESAT-TELEMIC, KU Leuven, Belgium); Charlotte Soens (Imec, Belgium); Guy A. E. Vandenbosch (Katholieke Universiteit Leuven, Belgium); Andre Bourdoux (IMEC, Belgium)

10:00 ***Low Profile Circularly Polarized SIW-Like Cavity-Backed Slot Antennas***
Qi Wu, Haiming Wang, Chen Yu and Hong Wei (Southeast University, P.R. China)

P5: Propagation modelling and simulation IV

EM modelling and simulation
Room: B Jakhobshorn
Chairs: Emmanuel H. Van Lil (Katholieke Universiteit Leuven, Belgium), Jean-Frederic Wagen (University of Applied Sciences of Western Switzerland, Fribourg, Switzerland)

Regular

08:40 ***Measurements Based Specular Reflection Formulation for Point Cloud Modelling***
Jean-Frederic Wagen (University of Applied Sciences of Western Switzerland, Fribourg, Switzerland); Usman Tahir Virk and Katsuyuki Haneda (Aalto University, Finland)

09:00 ***STEMO, a Stabilized Toolkit for Embedded Dielectric Structures with MOment Methods***
Emmanuel H. Van Lil and Jan-willem De Bleser (Katholieke Universiteit Leuven, Belgium)

09:20 ***Near Field and Transmission Loss Behind Finite and Infinite Very Dry Concrete Slab***
Thierry Gilles (Royal Military Academy & LEMA, Belgium)

09:40 ***RCS Complex Target, Gaussian Beam Summation Method***
Papa Ousmane Leye (Lab-STICC UMR CNRS 6285, ENSTA Bretagne, France); Ali Khenchaf (ENSTA Bretagne & LAB-STICC UMR CNRS 6285, France); Pouliguen Philippe (DGA, France)

10:00 ***Universal Approach to Polynomial Chaos Expansion for Stochastic Analysis of EM Field Propagation on Convex Obstacles in an UWB Channel***
Piotr Górniak and Wojciech Bandurski (Poznań University of Technology, Poland)

A19: Computational and numerical techniques II

EM modelling and simulation
Room: B Pisch+ Parsenn
Chair: Ioan E. Lager (Delft University of Technology, The Netherlands)

Regular

08:40 ***Time-Domain Green's Functions of Layered Media Using Modified Complex-Time Method***
Mohsen Ghaffari-Miab (Tarbiat Modares University, Iran); Reza Faraji-Dana (Center of Excellence on Applied Electromagnetic Systems, Iran); Eric Michielssen (University of Michigan, USA)

09:00 ***Time-domain EM Numerical Modelling: A Pulse Shape Causality and Temporal Support Analysis***
Ioan E. Lager, Sven van Berkel, Nuria LLombart and Andrea Neto (Delft University of Technology, The Netherlands)

09:20 ***Construction of 3D FDTD Schemes with Frequency-Dependent Operator Coefficients***
Theodoros T. Zygiridis (University of Western Macedonia, Greece); Nikolaos V. Kantartzis (Aristotle University of Thessaloniki, Greece); Christos S. Antonopoulos (Aristotle University of Thessaloniki & ELKE AUTH, Greece); Theodoros D. Tsiboukis (Aristotle University of Thessaloniki, Greece)

09:40 ***Empirical Study of a Reduced Order Model for Electromagnetic Scattering Problems***
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); Francesca Vipiana and Giuseppe Vecchi (Politecnico di Torino, Italy)

10:00 ***Fast Computation of the Impedance Matrix for the Periodic Method of Moments Using a Plane Wave Decomposition***
Denis Tihon (Université Catholique de Louvain & ICTEAM Institute, Belgium); Christophe Craeye (Université Catholique de Louvain, Belgium)

Thursday, April 14, 08:40 - 12:30 (Europe/Zurich)

WS8: AMTA Special Session

Revision and Changes to the IEEE 149 Standard on Antenna Measurements
Room: B Rinerhorn

WS7: COST Action TU1208

Electromagnetic-modelling and inversion techniques for Ground Penetrating Radar
Room: B Strela

Thursday, April 14, 08:40 - 10:20 (Europe/Zurich)

CS28a: Propagation Channels for Wide-Sense Vehicle-to-X Communications

Cellular and short-range communication
Room: C Aspen
Chairs: Cesar Briso (Universidad Politecnica de Madrid & ETSIS Telecomunicacion, Spain), Ke Guan (Beijing Jiaotong University, P.R. China)

Convened

08:40 ***Direction-of-Arrival Estimation Using Single Antenna in High-Speed-Train Environments***
Xuesong Cai (Tongji Unversity, P.R. China); Xuefeng Yin (Tongji University, P.R. China); Antonio Perez Yuste (Technical University of Madrid, Spain)

09:00 ***Integrating Composite Urban Furniture Into Ray-Tracing Simulator for 5G Small Cells and Outdoor Device-to-Device Communications***
Ke Guan and Bo Ai (Beijing Jiaotong University, P.R. China); Thomas Kürner

(Technische Universität Braunschweig, Germany); Ruisi He (Beijing Jiaotong University, P.R. China); Andreas Möller (Technische Universität Braunschweig, Germany); Zhangdui Zhong (Beijing Jiaotong University, P.R. China)

09:20 ***Modal Wave Propagation Characteristics in Tunnels of Different Cross Sections***

Jorge Avella Castiblanco (IFSTTAR, LEOST & Université Lille Nord de France, France); Divitha Seetharamdoo (IFSTTAR, LEOST & Univ Lille Nord de France, France); Marion Berbineau (IFSTTAR, COSYS & University Lille Nord de France, France); Michel Ney (TELECOM Bretagne Institute, France)

09:40 ***Experimental Study on Wave Propagation in Railway Cuttings At 950 MHz and 2150 MHz***

Lei Zhang (Universidad Politecnica de Madrid, Spain); Jian-wen Ding and Bei Zhang (Beijing Jiaotong University, P.R. China); Cesar Briso (Universidad Politecnica de Madrid & ETSIS Telecomunicacion, Spain); Ke Guan (Beijing Jiaotong University, P.R. China)

10:00 ***Experimental Evaluation of 4G Technologies in Metro Tunnel Scenarios***

Lei Zhang (Universidad Politecnica de Madrid, Spain); Pedro Suárez-Casal (University of A Coruña, Spain); Jean Fernandez (Universidad Politecnica de Madrid, Spain); José Rodríguez-Piñeiro (University of A Coruña, Spain); Jaime Calle-Sánchez (Universidad Politécnica de Madrid, Spain); José A. García-Naya and Luis Castedo (University of A Coruña, Spain); Carlos Rodríguez Sánchez and Juan Moreno (Metro de Madrid S.A., Spain); Cesar Briso (Universidad Politecnica de Madrid & ETSIS Telecomunicacion, Spain); José I. Alonso (Universidad Politécnica de Madrid, Spain)

CS10a: Antenna Systems for Radio Astronomy

Space
Room: C Sanada1
Chairs: David B Davidson (University of Stellenbosch, South Africa), Eloy de Lera Acedo (University of Cambridge, United Kingdom)

Convened

08:40 ***Recent Developments in Measuring Signal and Noise in Phased Array Feeds At CSIRO***

Aaron Chippendale, David McConnell and Keith Bannister (CSIRO, Australia); Nasiha Nikolic (CSIRO Computational Informatics, Australia); Aidan Hotan (CSIRO, Australia); Ken Smart (CSIRO Computational Informatics, Australia); Robert Shaw and Douglas B Hayman (CSIRO, Australia); Stuart G Hay (CSIRO ICT Centre, Australia)

09:00 ***Development of a Vivaldi Tile for the SKA Mid Frequency Aperture Array***

Mark Ruiter, Wim A. van Cappellen and Erik van der Wal (ASTRON, The Netherlands); Michel Arts (ASTRON, the Netherlands Institute for Radio Astronomy, The Netherlands); Raymond van den Brink and Klaas Visser (ASTRON, The Netherlands)

09:20 ***Progress on the Development of a Dual-Polarized Dense Dipole Array for the SKA Mid-Frequency Aperture Array***

Jacki Gilmore (Stellenbosch University, South Africa); David B Davidson (University of Stellenbosch, South Africa); Jan Geralt bij de Vaate (Netherlands Institute for Radio Astronomy, The Netherlands)

09:40 ***Antenna Pattern Measurement with UAVs: Modeling of the Test Source***

Giuseppe Virone (Consiglio Nazionale delle Ricerche, Italy); Fabio Paonessa (IEIIT - CNR, Italy); Oscar Peverini (Istituto di Elettr. e di Ingegneria dell'Inform. e delle Telecom. (IEIIT- CNR), Italy); Giuseppe Addamo (Istituto di Elettr. e di Ingegneria dell'Inform. e delle Telecom. (IEIIT- CNR), Italy); Renato Orta (Politecnico di Torino, Italy); Riccardo Tascone (Istituto di Elettr. e di Ingegneria dell'Inform. e delle Telecom. (IEIIT- CNR), Italy); Andrea Lingua and Marco Piras (Politecnico di Torino, Italy); Pietro Bolli (Osservatorio Astrofisico di Arcetri, Italy); Giuseppe Pupillo (INAF ORA, Italy); Jader Monari (INAF-IRA, Italy)

10:00 ***A Multiphysics Analysis of Dish Reflector Antennas for Radio Astronomy Applications***
Danie Ludick and Martin Venter (Stellenbosch University, South Africa); David B Davidson (University of Stellenbosch, South Africa); Gerhard Venter (Stellenbosch University, South Africa)

Thursday, April 14, 08:40 - 10:00 (Europe/Zurich)

A53: Waveguide and leaky-wave antennas

Radar, Defence and security
Room: C Sanada2
Chair: María García-Vigueras (IETR-INSA Rennes, France)

Regular

08:40 ***Leaky-Wave Radiation Analysis for CRLH Waveguide with Long Slot on Its Broadwall***
Qingshan Yang, Xiaowen Zhao and Yunhua Zhang (National Space Science Center, Chinese Academy of Sciences, P.R. China)

09:00 ***3D Near-Field Shaping of a Focused Aperture***
Ioannis Iliopoulos (IETR, Universite de Rennes 1, France); Mauro Ettorre (University of Rennes 1 & UMR CNRS 6164, France); Massimiliano Casaletti (Sorbonne Universités UPMC, France); Ronan Sauleau (University of Rennes 1, France); Philippe Pouliguen (DGA/Direction de la Stratégie, France); Patrick Potier (DGA/Maîtrise de l'Information, France)

09:20 ***A Novel Feedback Network for Maximizing the Gain of a Finite-Length Leaky Wave Antenna***
Jeng Hau Lu, Jou and Lin-Kun Wu (National Chiao Tung University, Taiwan)

09:40 ***Matching and Gain Enhancement of Leaky-wave Dielectric Horn Antenna***
Lei Wang (Ecole Polytechnique Fédérale de Lausanne (EPFL), Switzerland); María García-Vigueras (IETR-INSA Rennes, France); Juan R Mosig (Ecole Polytechnique Federale de Lausanne, Switzerland)

Thursday, April 14, 10:50 - 12:10 (Europe/Zurich)

A32: Superstrate, lenses, for mm-wave applications

Cellular and short-range communication
Room: A Dischma
Chair: Ala Sharaiha (Université de Rennes 1 & IETR, France)

Regular

10:50 ***Design of Bowtie-Slot On-chip Antenna Backed with E-Shaped FSS At 94 GHz***
M. Saad Khan 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)

11:10 ***Wideband and High-Efficiency Radiation From Chip with Artificial Dielectric Superstrates***
Daniele Cavallo, Alejandro Pascual Laguna and Waqas Hassan Syed (Delft University of Technology, The Netherlands)

11:30 ***IPO Analysis of Performance of Arbitrary Shaped Radome***
Jae-Won Rim and Il-Suek Koh (INHA University, Korea); Kwang Sik Choi (KOREAN AIR, Korea)

11:50 ***High Gain Patch-Type Frequency Selective Surface Superstrate Antenna At***

79 GHz
Hamsakutty Vettikalladi, Basem Aqlan and Majeed Alkanhal (King Saud University, Saudi Arabia); Mohamed Himdi (Université de Rennes 1, France)

Thursday, April 14, 10:50 - 12:30 (Europe/Zurich)

CS31b: Radio channel measurements, and modelling above 6 GHz for 5G radio networks

Cellular and short-range communication
Room: A Flüela
Chair: Sana Salous (Durham University, United Kingdom)

Convened

10:50 ***Multi-band Multi-antenna Chirp Channel Sounder for Frequencies Above 6 GHz***
Sana Salous (Durham University, United Kingdom)

11:10 ***28 GHz Channel Measurements and Modeling in a Ski Resort Town in Pyeongchang for 5G Cellular Network Systems***
Junghoon Ko (KAIST, Korea); Sooyoung Hur (Samsung Electronics Co., Korea); Sunguk Lee and Youngseok Kim (Korea Telecom, Korea); Yun-Seok Noh and Yeon-Jea Cho (KAIST, Korea); Shinhwan Kim, Seungyong Bong and Sunghyun Kim (Korea Telecom, Korea); Jeongho Park (Samsung Electronics, Korea); Dong-Jo Park and Dong-Ho Cho (Korea Advanced Institute of Science and Technology, Korea)

11:30 ***Directional Multipath Propagation Characteristics Based on 28GHz Outdoor Channel Measurements***
Myung-Don Kim, Jinyi Liang, Juyul Lee, Jae-Joon Park and Bonghyuk Park (ETRI, Korea)

11:50 ***Estimation of DoA Based on Large-scale Virtual Array Data***
Hung-Anh Nguyen, Kim Mahler, Michael Peter and Wilhelm Keusgen (Fraunhofer HHI, Germany); Taro Eichler and Heinz Mellein (Rohde & Schwarz, Germany)

12:10 ***Simultaneous Multi-Band Channel Sounding At mm-Wave Frequencies***
Robert Müller (TU Ilmenau, Germany); Stephan Haefner (Technische Universität Ilmenau, Germany); Diego Dupleich and Reiner S. Thomä (Ilmenau University of Technology, Germany); Gerhard Steinboeck (Aalborg University, Denmark); Jian Luo and Egon Schulz (Huawei Technologies Duesseldorf GmbH, Germany); Xiaofeng Lu (Huawei Technology Company, P.R. China); Guangjian Wang (Huawei Technologies Co., Ltd., P.R. China)

CS24b: IET Session, New antenna systems involving metamaterials and metasurfaces

Fundamental research
Room: A Schwartzhorn
Chairs: Rob Lewis (BAE Systems Advanced Technology Centre, United Kingdom), Hisamatsu Nakano (Hosei University, Japan)

Convened

10:50 ***Optimization as an Alternative to Transformation Optics***
Brian Tierney and Anthony Grbic (University of Michigan, Ann Arbor, USA)

11:10 ***Spatiotemporal Modulation for Non-Reciprocal Radiation and Scattering***
Yakir Hadad, Jason Soric, Dimitrios Sounas and Andrea Alù (The University of Texas at Austin, USA)

11:30 ***A Generic Design Approach for Metasurfaces to Manipulate Surface Waves***
Luigi La Spada (Queen Mary University of London, United Kingdom); Yang Hao (Queen Mary University, United Kingdom)

11:50 ***Evaluation of High Impedance Surfaces for MRI RF Coil Applications - Simulations of RF Field and Specific Absorption Rate***
Ismail Issa, Kenneth Lee Ford, Madhwesha Rao and James Wild (University of Sheffield, United Kingdom)

12:10 ***Innovative Antenna Architectures Exploiting Metamaterials for New Generation Radars***
Giacomo Oliveri (University of Trento & ELEDIA Research Center, Italy); Lorenza Tenuti (ELEDIA Research Center, University of Trento, Italy); MArco Salucci (ELEDIA Research Center, Italy); Andrea Massa (University of Trento, Italy)

CS16b: COST Action TD1301, MiMed: Recent Developments in Breast Microwave Imaging

Biomedical and wearable applications including biological effects
Room: A Seehorn
Chairs: Raquel C. Conceição (Instituto de Biofísica e Engenharia Biomédica, Faculdade de Ciências, Universidade de Lisboa & Institute of Biomedical Engineering, University of Oxford, Portugal), Daniel Flores Tapia (108 Allen Building & University of Manitoba, Canada)

Convened

10:50 ***Experimental Testing of a Low-Cost Microwave Imaging System for Early Breast Cancer Detection***
Jorge Tobon Vasquez, Francesca Vipiana, Mario Roberto Casu, Marco Vacca and Azzurra Pulimeno (Politecnico di Torino, Italy)

11:10 ***Multistatic Microwave Holography: Initial Results on Anthropomorphic Phantoms***
Daniel Flores Tapia (108 Allen Building & University of Manitoba, Canada); Mario Solis Nepote, Diego Rodriguez Herrera, Lei Fu, Yonsheng Gui, Valerie Benyon and Can-Min Hu (University of Manitoba, Canada); Stephen Pistorius (University of Manitoba & CancerCare Manitoba, Canada); Saeed Latif (University of South Alabama, USA)

11:30 ***Clinical Investigation of Time-Domain Microwave Radar with Breast Cancer Patients***
Emily Porter (National University of Ireland Galway, Ireland); Katherine Duff, Milica Popović and Mark Coates (McGill University, Canada)

11:50 ***Estimating Average Dielectric Properties for Microwave Breast Imaging Using Focal Quality Metrics***
Declan O'Loughlin and Finn Krewer (National University of Ireland Galway, Ireland); Martin Glavin, Edward Jones and Martin O'Halloran (National University of Ireland, Galway, Ireland)

12:10 ***Contrast Enhanced UWB Microwave Breast Cancer Detection by Magnetic Nanoparticles***
Sebastian Ley and Marko Helbig (Technische Universität Ilmenau, Germany); Jürgen Sachs (Ilmenau University of Technology, Germany)

CS21: Measurements and Simulations in Channel Modelling in Wireless Body Area Networks

RFID and Wireless networks
Room: A Sertig
Chairs: Slawomir J. Ambroziak (Gdansk University of Technology, Poland), Luis M. Correia (IST - University of Lisbon & INESC, Portugal)

Convened

10:50 ***Fading Modelling in Dynamic Off-Body Channels***
Slawomir J. Ambroziak (Gdansk University of Technology, Poland); Kenan Turbic (IST

- University of Lisbon & INOV-INESC, Portugal); Carla Oliveira (University of Lisbon, Instituto Superior Tecnico & INOV - INESC, Portugal); Luis M. Correia (IST - University of Lisbon & INESC, Portugal); Ryszard Katulski (Gdansk University of Technology, Poland)

11:10 ***Encrypted Body-to-Body Wireless Sensor Node Employing Channel-State-Based Key Generation***
Patrick Van Torre, Thijs Castel and Hendrik Rogier (Ghent University, Belgium)

11:30 ***SAR Studies for UWB Implanted Antenna for Brain-Machine-Interface Application***
Kamya Yekeh Yazdandoost (University of Oulu, Japan); Ryu Miura (NICT, Japan)

11:50 ***Macro- And Micro-Diversity in Indoor Body-to-Body Channels***
Francesco Mani (CEA-LETI, France); Raffaele D'Errico (CEA, LETI, Minatec Campus & Univ\. Grenoble-Alpes, France)

12:10 ***Geometrical Modeling of Shadowing Between On-body Nodes and Off-body Antennas During Various Human Movements in WBAN***
Takahiro Aoyagi and Jun-ichi Takada (Tokyo Institute of Technology, Japan); Minseok Kim (Niigata University, Japan)

A35: Lens antennas

Multiple applications
Room: A Wisshorn
Chairs: Benjamin Fuchs (University of Rennes 1 - IETR, France), Jesús Rubio (University of Extremadura, Spain)

Regular

10:50 ***Modelling of Effects of Nose Radomes on Radar Antenna Performance***
Jesper Lansink Rotgerink and Harmen van der Ven (Netherlands Aerospace Centre, The Netherlands); Torben Voigt (Altair FEKO, Germany); Eddy Jehamy (Altair FEKO, France); Markus Schick (Altair FEKO, Germany); Harmen Schippers (Netherlands Aerospace Centre, The Netherlands)

11:10 ***Beam-Steerable Integrated Lens Antenna with Waveguide Feeding System for 71-76/81-86 GHz Point-to-Point Applications***
Andrey Mozharovskiy, Alexey Artemenko, Alexey Sevastyanov, Vladimir Ssorin and Roman Maslennikov (Radio Gigabit LLC, Russia)

11:30 ***3D Printed Dielectric Fresnel Lens***
Shiyu Zhang (Loughborough University, United Kingdom)

11:50 ***Millimeter-Wave Fresnel Zone Plate Lens Based on Foam Gradient Index Technological Process***
Antoine Jouade (IETR, France); Jonathan Bor (IETR - University of Rennes 1, France); Olivier Lafond (IETR, France); Mohamed Himdi (Université de Rennes 1, France)

12:10 ***Application of Modal Domain Decomposition for Fast Analysis of Lens-based Antennas with Steering Capabilities***
Pedro Robustillo (École Polytechnique Fédérale de Lausanne, Switzerland); Jesús Rubio (University of Extremadura, Spain); Juan Zapata (Universidad Politécnica de Madrid, Spain); Juan R Mosig (Ecole Polytechnique Federale de Lausanne, Switzerland)

A24: Frequency and polarization selective surfaces

EM modelling and simulation
Room: B Jakhobshorn
Chairs: Cecilia Cappellin (TICRA, Denmark), Dmitry E Zelenchuk (Queen's University of Belfast, United Kingdom)

Regular

10:50 ***Design Method for Circularly Polarized Frequency Selective Surfaces***
Dmitry E Zelenchuk (Queen's University of Belfast, United Kingdom); Vincent Fusco (Queen's University Belfast, United Kingdom)

11:10 ***Equivalent Circuit Model of Twisted Split Ring Frequency Selective Surfaces***
Dmitry E Zelenchuk (Queen's University of Belfast, United Kingdom); Vincent Fusco (Queen's University Belfast, United Kingdom)

11:30 ***229 GHz FSS for the MetOp Second Generation Microwave Sounder Instrument***
Raymond Dickie (Queens University Belfast, United Kingdom); Ville Kangas (European Space Agency, The Netherlands); Robert Cahill (Queens University Belfast, United Kingdom); Vincent Fusco (Queen's University Belfast, United Kingdom)

11:50 ***Low-cost Inkjet-printed FSS Band-pass Filters for 100 and 300 GHz***
Oleksandr Sushko (Queen Mary University of London, United Kingdom); Mélusine Pigeon and Theo Kreouzis (Queen Mary, University of London, United Kingdom); Clive Parini (Queen Mary University of London, United Kingdom); Robert Donnan and Rostyslav Dubrovka (Queen Mary, University of London, United Kingdom)

12:10 ***Design and Analysis of a Reflector Antenna System Based on Doubly Curved Circular Polarization Selective Surfaces***
Cecilia Cappellin (TICRA, Denmark); Daniel Sjöberg and Andreas Ericsson (Lund University, Sweden); Peter Balling (ASC, Antenna Systems Consulting ApS, Denmark); Giampiero Gerini (TNO - Defence, Security and Safety, The Netherlands); Nelson Fonseca and Peter de Maagt (European Space Agency, The Netherlands)

A20: Computational and numerical techniques III

EM modelling and simulation
Room: B Pisch+ Parsenn
Chairs: John Sahalos (Aristotle University of Thessaloniki, GR, Thessaloniki & University of Nicosia, CY, Nicosia, Greece), Ari Sihvola (Aalto University, Finland)

Regular

10:50 ***Modal Analysis Via Transformation Electromagnetics***
Theodoros Kaifas (Aristotle University of Thessaloniki, Greece); Elias E Vafiadis (Aristotle University of Thessaloniki & Physics Department, Greece); Xenofon Mitsalas (Democritus University of Thrace, Greece); Gerard Granet (Blaise Pascal University, France); John Sahalos (Aristotle University of Thessaloniki, GR, Thessaloniki & University of Nicosia, CY, Nicosia, Greece); George Kyriacou (Democritus University of Thrace, Greece)

11:10 ***Numerical Study of Multilayered Nonlinear Inhomogeneous Waveguides in the Case of TE Polarization***
Eugene Smolkin and Yury Shestopalov (University of Gävle, Sweden)

11:30 ***Mode Propagation Analysis of Magnetically Biased Curved Graphene Microstrips***
Vasileios N. Salonikios, Stamatios A. Amanatiadis, Nikolaos V. Kantartzis and Traianos Yioultsis (Aristotle University of Thessaloniki, Greece); Christos S. Antonopoulos (Aristotle University of Thessaloniki & ELKE AUTH, Greece)

11:50 ***Spectral Properties of Plasmonic Nanoantennas: Comparison of Quasistatic and Full-Wave Analyses***
Ari Sihvola, Dimitrios C Tzarouchis and Pasi Ylä-Oijala (Aalto University, Finland)

12:10 ***Scattering Operator Eigendecomposition in the Low Frequency Domain: Relationship Between Eigenvalues and Surface Impedance***
Sylvain Morvan (CEA-DAM & Centre des Etudes Scientifiques et Techniques

Aquitaine, France); Olivier Vacus and Fabien Degery (CEA-DAM, France)

CS28b: Propagation Channels for Wide-Sense Vehicle-to-X Communications

Cellular and short-range communication
Room: C Aspen
Chair: Ke Guan (Beijing Jiaotong University, P.R. China)

Convened

10:50 ***Delay Analysis for Base Station to Vehicle Communication At 3.35 and 5.4 GHz***
Wei Li (The State Radio Monitoring Center, P.R. China); Tian Lei (Beijing University of Posts and Telecommunications & Wireless Technology Innovation Institute, P.R. China); Chongpeng Xu and Jianhua Zhang (Beijing University of Posts and Telecommunications, P.R. China)

11:10 ***On the Influence of Mobility: Doppler Spread and Fading Analysis in Rapidly Time-Varying Channels***
Jingya Yang (Beijing Jiaotong University, P.R. China); Bo Ai (Beijing Jiaotong University & State Key Lab of Rail Traffic Control and Safety, P.R. China); Ke Guan, Ruisi He and Zhangdui Zhong (Beijing Jiaotong University, P.R. China); ZhuYan Zhao, Deshan Miao and Hao Guan (Nokia Siemens Networks, P.R. China)

11:30 ***Assessment of Channel Propagation Conditions for FDD LTE Transmissions in the Spanish High-Speed Railways***
José Rodríguez-Piñeiro, José A. García-Naya and Pedro Suárez-Casal (University of A Coruña, Spain); Cesar Briso (Universidad Politecnica de Madrid & ETSIS Telecomunicacion, Spain); José I. Alonso (Universidad Politécnica de Madrid, Spain); Luis Castedo (University of A Coruña, Spain)

11:50 ***Cluster-Based Non-Stationary Vehicular Channel Model***
Zhinan Xu, Mingming Gan and Thomas Zemen (AIT Austrian Institute of Technology GmbH, Austria)

12:10 ***Path Loss Modeling and Fading Analysis for Channels with Various Antenna Setups in Tunnels At 30 GHz Band***
Guangkai Li (Beijing Jiaotong University, P.R. China); Bo Ai (Beijing Jiaotong University & State Key Lab of Rail Traffic Control and Safety, P.R. China); Ke Guan, Ruisi He and Zhangdui Zhong (Beijing Jiaotong University, P.R. China); Li Tian and Jianwu Dou (ZTE Corporation, P.R. China)

Thursday, April 14, 10:50 - 12:10 (Europe/Zurich)

CS10b: Antenna Systems for Radio Astronomy

Space
Room: C Sanada1
Chairs: David B Davidson (University of Stellenbosch, South Africa), Eloy de Lera Acedo (University of Cambridge, United Kingdom)

Convened

10:50 ***Further Validation of Fast Simulation Method At the Element and Array Pattern Levels for SKA***
Ha Bui Van (Université Catholique de Louvain & ICTEAM, Belgium); Jens Abraham (Cavendish Laboratory, University of Cambridge, United Kingdom); Quentin Gueuning (Université Catholique de Louvain, Belgium); Eloy de Lera Acedo (University of Cambridge, United Kingdom); Christophe Craeye (Université Catholique de Louvain, Belgium)

11:10 ***A 16-element LPDA Random Sparse Prototype Array for the SKA AA-Mid Instrument***

Jens Abraham (Cavendish Laboratory, University of Cambridge, United Kingdom); Edgar Colin-Beltran, Eloy de Lera Acedo and Andrew Faulkner (University of Cambridge, United Kingdom)

11:30 ***Synergy in Design of Phased Array Antennas for Modern Radio Astronomy and Wireless Communication Systems***
David S Prinsloo (ASTRON & Netherlands Institute for Radio Astronomy, The Netherlands); Rob Maaskant (CHALMERS, Sweden); Marianna Ivashina and Andrés Alayon Glazunov (Chalmers University of Technology, Sweden); Petrie Meyer (Stellenbosch University, South Africa)

11:50 ***A Wide-band Feed System for SKA Band 1 Covering Frequencies From 350 - 1050 MHz***
Bhushan Billade (Onsala Space Observatory & Chalmers University of Technology, Sweden); Jonas Flygare (Onsala Space Observatory, Chalmers University of Technology, Sweden); Magnus Dahlgren (Onsala Space Observatory, Chalmers, Sweden); Bo Wästberg (Efield AB, ESI Group Sweden, Sweden); Miroslav Pantaleev (Onsala Space Observatory, Chalmers University of Technology, Sweden)

Thursday, April 14, 10:50 - 12:30 (Europe/Zurich)

A7: Scattering and general propagation topics

Radar, Defence and security
Room: C Sanada2
Chair: Mario Orefice (Politecnico di Torino, Italy)

Regular

10:50 ***Complex Characteristic Impedance of Transmission Lines At High Frequencies***
Sven van Berkel, Nuria LLombart and Andrea Neto (Delft University of Technology, The Netherlands)

11:10 ***Electromagnetic Radiation of a Line Source Placed Inside an Anisotropic Coating on a PEMC Cylindrical Core***
Nasser Montaseri (Shahed University, Tehran, Islamic Republic of Iran, Iran); Reza Karimian, Bahnemiri (The National Institute of Scientific Research, Canada); Tayeb A. Denidni (INRS-EMT, Canada)

11:30 ***A Multiphysics Theoretical Approach for Cloaking: Strong and Weak Solutions***
Giuseppe Labate and Ladislau Matekovits (Politecnico di Torino, Italy); Tommaso Isernia (University of Reggio Calabria, Italy)

11:50 ***An Inline Microstrip-to-Waveguide Transition Operating in the Full W-Band Based on a Chebyshev Multisection Transform***
Jose Perez Escudero (Universidad Publica de Navarra, Spain); Ainara Rebollo and Ramon Gonzalo (Public University of Navarra, Spain); Iñigo Ederra (Universidad Publica de Navarra, Spain)

12:10 ***Investigations on Transparent Scatterers for the Control of Near-Field Levels***
Giuseppe Labate, Ladislau Matekovits and Mario Orefice (Politecnico di Torino, Italy)

Thursday, April 14, 13:30 - 15:00 (Europe/Zurich)

PS9: Best Paper Posters

Room: Foyer A2

PS7: Poster 7

RFID and Wireless networks
Room: Foyer C1

An Electrically Small Wideband Antenna with Tunable Non-Foster Matching Network

Sagar Kumar Dhar (University of Calgary, Canada); Mohammad S. Sharawi (King Fahd University of Petroleum and Minerals (KFUPM), Saudi Arabia); Fadhel Ghannouchi (University of Calgary, Canada)

Air-substrate Compact High Gain Rectennas for Low RF Power Harvesting

Parisa Momenroodaki (University of Colorado at Boulder, USA); Ricardo Fernandes (Instituto de Telecomunicações & Universidade de Aveiro, Portugal); Zoya Popović (University of Colorado at Boulder, USA)

A Wideband Polarization Reconfigurable Antenna for WLAN Applications

Luyang Ji (Xidian University, P.R. China); Peiyuan Qin and Y. Jay Guo (University of Technology, Sydney, Australia); Guang Fu (Xidian University, P.R. China); Raj Mittra (Penn State University, USA)

A Simple Polarization Reconfigurable Antenna

William S. W. Cheung, Changfei Zhou, Qinlong Li and Ti Yuk (The University of Hong Kong, Hong Kong)

Active Antenna Based on a New Cylindrical Frequency Selective Surface

Moufida Bouslama (Faculty of Science of Tunis, Tunisia)

Design and Optimization of Magnetic Resonance Coupling by Using Relay Effect

Mohd Najib Mohd Yasin and Mohd Natashah Norizan (Universiti Malaysia Perlis, Malaysia); Sabira Khatun (University Malaysia Perlis (UNIMAP), Malaysia); Sohiful Anuar Bin Zainol Murad and Ili Salwani Mohamad (Universiti Malaysia Perlis, Malaysia); Mohamad Ismail Sulaiman (Universiti Kuala Lumpur & British Malaysia Institute, Malaysia)

Directivity Enhancement of a Dual-Band Antenna Based on Partially Reflective Surface

Misagh Khosronejad and Gian Gentili (Politecnico di Milano, Italy)

An Inkjet Printed Meandered Dipole Antenna for RF Passive Sensing Applications

Abdul Quddious (SEECS, National Uni. of Science & Technology, Pakistan); Munawar Masood Khan (SEECS, National University of Science and Technology, Pakistan); Farooq A. Tahir (National University of Sciences and Technology, Pakistan); Atif Shamim (King Abdullah University of Science and Technology, Saudi Arabia); Hammad Cheema (School of Elect. Engineering and Comp. Science, National Uni. of Science & Technology, Pakistan)

Millimeter Wave Phase Array Antenna for Modern Wireless Communication Systems

Kamil Yavuz Kapusuz and Ugur Oguz (Remote Sensing Technologies, Turkey)

Optimization of Non-Galvanic HF RFID Cards

Shrief Rizkalla (Vienna University of Technology, Austria); Ralph Prestros (NXP Semiconductors Austria GmbH, Austria); Christoph F Mecklenbräuker (Vienna University of Technology, Austria)

Low-Profile Loop Antenna with Doubled Gain for RFID Application

Pavel Turalchuk and Irina Munina (St. Petesburg Electrotechnical University LETI, Russia); Vladimir Yashenko and Orest Vendik (St. Petersburg Electrotechnical University, Russia)

Investigation on Graphene Based Multilayer Thin Film Patch Antenna

Natalia Abdullah (Multimedia University, Malaysia); Noorlindawaty Md Jizat (Universiti Teknologi Malaysia Skudai & Multimedia University, Malaysia); Sharul Kamal A. Rahim and Mursyidul idzam Sabran (Universiti Teknologi Malaysia, Malaysia); Asm Mukter-Uz-Zaman (MMU, Malaysia)

Cavity-Backed Slot Antennas for Wireless Portable Devices

Rohit Chandra and Axel von Arbin (Sunway Communication AB, Sweden)

A Twisted Loop Antenna to Enhance HF RFID Detection for Different Tag Positioning

Benamara Megdouga (University Paris Est Marne La Vallee, France); Marjorie Grzeskowiak (University of Paris-Est Marne-la-Vallée, France); Antoine M Diet (Paris Saclay - Université Paris Sud (GeePs UMR 8507 - IUT de Cachan), France); Gaelle Lissorgues (ESIEE, France); Yann Le Bihan (LGEP UMR 8507, France); Stéphane Protat (Université Marne La Vallée, France); Christophe Conessa (GeePs/CentraleSupélec/CNRS, France)

Dual Band Sleeve Dipole Antenna for WLAN Applications

Tariq Rahim (Northwestern Polytechnic University Xian China, P.R. China); Fahim Abbasi (Northwestern Polytechnical University & IBCAST Islamabad, P.R. China); Jiadong Xu (Northwestern Polytechnical University, P.R. China)

On the Backscattering From RFID Tags Installed on Objects

Angélica Parra, John Pantoja and Ernesto Neira (Universidad Nacional de Colombia, Colombia); Felix Vega (National University of Colombia, Colombia)

Printed Microstrip Antenna for Harvesting Energy From Mobile Phone Base Stations

Ivan Ivanov and Masood Ur Rehman (University of Bedfordshire, United Kingdom); Ben Allen (University of Oxford, United Kingdom)

Near-field Beamforming Planar Loop Array for Misaligned Wireless Power Transfer

Bo-Hee Choi and Jeong Hae Lee (Hongik University, Korea)

Method to Reduce Distance-Sensitivity Within an Operating Range in HF-RFID WPT Links

Akaa A Eteng, Sharul Kamal A. Rahim, Chee Yen (Bruce) Leow and Husameldin Elmobarak (Universiti Teknologi Malaysia, Malaysia)

Analysis of A Hybrid Wireless Power Harvester for Low Power Applications

Md Rabiul Awal (University Malaysia Perlis, Malaysia); Muzammil Jusoh (Universiti Malaysia Perlis & School of Computer and Communiction Engineering, Malaysia); Muhammad Ramlee Kamarudin (Universiti Teknologi Malaysia, Malaysia)

Evaluating 2-D Grid Interpolation Techniques for Predicting Ambient RF Power Density in Automobile Factories

Elijah Adegoke (Loughborough University & HSSMI, United Kingdom); Robert Michael Edwards and William Whittow (Loughborough University, United Kingdom); Axel Bindel (HSSMI, United Kingdom)

Dual Band Koch Antenna for RF Energy Harvesting

Vladimir Hebelka, Zbynek Raida and Jan Velim (Brno University of Technology, Czech Republic)

Efficient RF Energy Harvesting Circuitry Study

Chi-Chih Chen (The Ohio State University & ElectroScience Laboratory, USA); Matthew Straughn (The Ohio State University, USA)

Differentially-fed Omnidirectional Circularly Polarized Patch Antenna for RF Energy Harvesting

Xiu Long Bao, Kansheng Yang, Oisin O'Conchubhair and Max James Ammann (Dublin Institute of Technology, Ireland)

Performance Analysis of Multiuser MIMO System Based on Zero Forcing for Moving Targets

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

Adaptive Subcarrier Modulation for Indoor Public Safety Body-to-Body Networks

Thijs Castel, Sam Lemey, Sam Agneessens, Patrick Van Torre and Hendrik Rogier (Ghent University, Belgium); Claude Oestges (Université Catholique de Louvain, Belgium)

Human Body Equivalent Phantom for Analyzing Surface and Space Propagation in MHz-Band Signal Transmission

Shin Hasegawa (Kyoto Institute of Technology, Japan); Yuichi Kado (Kyoto Institute of Technology & Graduate School of Science and Technology, Japan); Ibuki Yokota (Kyoto Institute of Technology, Japan); Daisuke Saito and Kyoji Ohashi (Nippon Signal Co., Ltd., Japan)

Magnetically Coupled Resonator Moving in Elliptical Orbit
Alberto Delgado (National University of Colombia, Colombia)

Graph Representations of Frequency Duplexing Used for Interference Elimination
Dávid Jocha (Ericsson, Hungary); István Gódor (Ericsson Research, Hungary)

Challenges in Safety and Compliance Assessment in Wireless Power Transfer Applications Using Numerical Analysis: Guidelines and Solutions
Elaine Barretto (ZMT - Zurich Med Tech AG, Switzerland); Nicolas Chavannes (Zurich MedTech AG (ZMT), Switzerland); Mark Douglas (IT'IS Foundation ETH Zurich, Switzerland)

Design of a Finger Ring Antenna for Wireless Sensor Networks
Waqas Farooq and Masood Ur Rehman (University of Bedfordshire, United Kingdom); Qammer Hussain Abbasi (Texas A & M University, Qatar); Xiaodong Yang (Xidian University, P.R. China); Khalid A. Qaraqe (Texas A&M University at Qatar, USA)

Computational Model Validation of Wireless Devices for Specific Absorption Rate Evaluation
Bálint Horváth, Peter Horvath and József Pávó (Budapest University of Technology and Economics, Hungary); Zsolt Badics (Tensor Research, USA); László Csurgai-Horváth (Budapest University of Technology and Economics, Hungary)

A Dual-Band Sine-Square FSS Design
David Ferreira (University of Vigo & Instituto de Telecomunicações, Portugal); Iñigo Cuiñas (University of Vigo, Spain); 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)

Design of a Thin Frequency Selective Surface with Miniaturized-element for Angle and Polarization Stability
Ic Pyo Hong and In Gon Lee (Kongju National University, Korea)

Use of Parabolic Equation Wide-Angle for Calculation of Path Loss in Indoor Environment
João Souza (Universidade Federal do Pará, Brazil); Romulo Oliveira (Instituto Federal do Para, Brazil); Fátima Magno and Klaus Cozzolino (Universidade Federal do Pará, Brazil); Gervásio Cavalcante (UFPA, Brazil)

Area Based Indoor Tracking Algorithm Based on Sequence Detection and Maximum Likelihood Metrics
Piotr Wawrzyniak, Slawomir Hausman and Piotr Korbel (Lodz University of Technology, Poland)

A Software Defined Radio Comparison of Received Power with Quadrature Amplitude Modulation and Phase Modulation Schemes with and Without a Human
Dina Al-Saffar and Robert Michael Edwards (Loughborough University, United Kingdom)

A Low-cost and Modular Receiver for MIMO SDR
Jo Verhaevert and Patrick Van Torre (Ghent University, Belgium)

MIMO Keyholes on Tunnels: Measurements
Juan Moreno and Jose M Riera (Universidad Politécnica de Madrid, Spain); Leandro De Haro Ariet and Luis Cuéllar Navarrete (Polytechnic University of Madrid, Spain); Carlos Rodríguez Sánchez (Metro de Madrid S.A., Spain); Cesar Briso (Universidad Politecnica de Madrid & ETSIS Telecomunicacion, Spain)

Multisystem Antenna for Applications in WiFi Networks
Leszek Nowosielski and Marian Wnuk (Military University of Technology, Poland)

Wideband Low-Profile Monopole Antenna for Mobile and Wireless Monitoring Applications
Bilal El Jaafari (Institut d'Electronique et de Télécommunications de Rennes & Institut National des Sciences Appliquées de Rennes, France); Jean-marie Floch (IETR-INSA Rennes, France)

A Wideband Frequency Reconfigurable Rectangular Dielectric Resonator Antenna
Shadi Danesh (Wireless Communication Centre, Faculty of Electrical Engineering,

Universiti Teknologi Malaysia, Malaysia); Muhammad Ramlee Kamarudin (Universiti Teknologi Malaysia, Malaysia); Mohammad Abedian (Universiti Teknologi Malaysia (UTM) & Wireless Communication Centre, Malaysia); Mohsen Khalily (University of Surrey & 5G Innovation Centre, Institute for Communication Systems (ICS), United Kingdom); Tharek Abdul Rahman (Wireless Communication Centre, Malaysia)

Enhanced-Bandwidth Planar LPDA with Conical Arms
Fidel A. Fernández Carcasés and Daniel Rodas (Polytechnic José Antonio Echeverría (CUJAE), Cuba); Danelys Rodriguez Avila (EPFL, Switzerland); Francisco Marante (Instituto Superior Politécnico "José A. Echeverría" CUJAE, Cuba)

UWB Coplanar Waveguide-Fed-Coplanar Strips Spiral Antenna
Amjad Omar (American University of Ras Al Khaimah, UAE); Raed Shubair (MIT, USA)

Expedited Design of Dual-Band Antennas Using Feature-Based Optimization
Slawomir Koziel (Reykjavik University, Iceland); Adrian Bekasiewicz (Gdansk University of Technology, Poland); Leifur Leifsson (Iowa State University, USA)

ESPAR Antenna Positioning for Truck-to-Truck Communication Links
Leonidas Marantis (University of Piraeus, Greece); Konstantinos Maliatsos (University of Piraeus & National Technical University of Athens, Greece); Athanasios G. Kanatas (University of Piraeus, Greece)

Spatial Correlation in Spherical and Cylindrical 3D MIMO Over-The-Air Tests Setups
Mounia Belhabib and Raffaele D'Errico (CEA, LETI, Minatec Campus & Univ\. Grenoble-Alpes, France); Bernard Uguen (University of Rennes I, France)

Towards Eco-Friendly and Cost-Effective Passive RFID Applications
Mitra Akbari, Johanna Virkki, Muhammad Waqas Khan, Lauri Tapio Sydänheimo, Leena Ukkonen and Erja Sipilä (Tampere University of Technology, Finland)

A Semi-deterministic Method for Predicting Indoor Cellular Coverage in Dense Urban Areas
Vittorio Degli-Esposti (University of Bologna, Italy); Jonathan S. Lu, Jeffrey N. Wu, Jian J. Zhu and Jerome A. Blaha (Polaris Wireless, USA); Enrico M. Vitucci (University of Bologna, Italy); Franco Fuschini (DEI - Bologna, Italy); Marina Barbiroli (University of Bologna, Italy)

Design of Near-Field Focused Power-Combining Reflectarray
Shixing Yu and Long Li (Xidian University, P.R. China)

Effect of Shape and Surroundings on Harmonic Transponder Performance
Kimmo Rasilainen (Aalto University School of Electrical Engineering, Finland); Ville Viikari (Aalto University & School of Electrical Engineering, Finland)

Small Array Design Using Parasitic Superdirective Antennas
Abdullah Haskou (IETR UMR CNRS 6164, Université de Rennes1, France); Sylvain Collardey (University of Rennes 1, France); Ala Sharaiha (Université de Rennes 1 & IETR, France)

A Passive RFID-to-I²C Bridge
Michael Heiss, Ralf Hildebrandt and Christian Scheibner (Fraunhofer IPMS, Germany)

Slot Antenna for Wireless Temperature Measurement Systems
Öncel Acar and Kaj Bjarne Jakobsen (Technical University of Denmark, Denmark)

Smart Cable for Radio Frequency Identification in Aeronautical Applications
Victoria Gómez-Guillamón Buendía (Heriot-Watt University, United Kingdom); Scott Kenny (Heriott-Watt University, United Kingdom); Symon K. Podilchak and George Goussetis (Heriot-Watt University, United Kingdom); Alessandra Costanzo (DEI, University of Bologna, Italy); Pierre Nicole (Thales, France)

Performance of AF Relaying Schemes in Wireless UWB Body Networks
Billel Amouri (Badji Mokhtar University, Algeria)

Performance of an Automotive Antenna Module on a Carbon-Fiber Composite Car Roof
Gerald Artner and Robert Langwieser (Vienna University of Technology, Austria)

On-Body Surface Electromagnetic Wave Propagation: Modeling and Measurements
Vladimir Pleskachev (St. Petersburg Electrotechnical University & Simicon Ltd., Russia); Irina Vendik (St. Petersburg electrotechnical university, Russia); Orest Vendik and Vitaliy Kirillov (St. Petersburg Electrotechnical University, Russia); Pavel Turalchuk (St. Petesburg Electrotechnical University LETI, Russia); Mikhail Odit (National Research University of Information Technologies, Russia)

Reconfigurable Textile-Based Ultra-Wideband Antenna for Wearable Applications
Syeda Fizzah Jilani, Aline Andrade, Izabela Fonseca and Akram Alomainy (Queen Mary University of London, United Kingdom)

PS8: Poster 8

Space
Room: Foyer C2

Regular

Comparison of Different Feeding Techniques of a Low-Profile Dual-band Circularly Polarized Microstrip Antenna
Amro A. Nour and Faycel Fezai (University of Limoges-XLIM - UMR CNRS N°7252, France); Thierry Monediere (XLIM-UMR 6172-CNRS, University of Limoges, France)

Modeling the Effect of a Large Communication Mast in Front of a Reflector Antenna System
Robert Lehmensiek (EMSS Antennas (Pty) Ltd, South Africa); Dirk de Villiers (Stellenbosch University, South Africa); Isak Theron (EMSS Antennas (Pty) Ltd, South Africa)

The Role of Array Antennas in Commercial Telecommunication Satellites
Hector T. Fenech (Eutelsat S.A., France); Sonya Amos (Eutelsat, France); Tim Waterfield (Airbus Defence and Space, United Kingdom)

Low-Profile Multi-Function Antenna System for Small Satellites
Tomislav Debogovic (Ecole Polytechnique Fédérale de Lausanne (EPFL), Switzerland); Pedro Robustillo (École Polytechnique Fédérale de Lausanne, Switzerland); Nevena Saponjic (Viasat Antenna Systems SA, Switzerland); Frédéric Bongard (JAST SA, Switzerland); Marco Sabbadini (Esa Estec, The Netherlands); Ferdinando Tiezzi (JAST SA, Switzerland); Juan R Mosig (Ecole Polytechnique Federale de Lausanne, Switzerland)

Overlapping Efficiency of Multiple Feed Per Beam Concepts Including Orthogonality Constraints
Maxime Romier, Romain Contreres and Baptiste Palacin (CNES, France)

Radial Line Slot Antenna Design for Monopulse Space Debris Radar
Manuel Sierra-Castañer, Juan Ignacio Gayá Fuertes and José María Seguí Gómez de Olea (Universidad Politécnica de Madrid, Spain); Raúl Martín Gallego (Universitat Politècnica de Catalunya, Spain); Fernandez-Jambrina (, Spain)

A Multi-Array Antenna System with Optimal Lattice for Rectangular Pyramidal Scanning of Space Debris
Giuseppe Siciliano (University of Pavia, Italy); Magdalena Mendijur (European Space Agency, Germany); Pier Mario Besso (Esa – Esoc, Germany); Marco Pasian, Maurizio Bozzi and Luca Perregrini (University of Pavia, Italy)

A Novel Sparse Array Synthesis Method Based on Two-Step Convex Optimization
Bin Sun and Jingke Zhang (National University of Defense Technology, P.R. China); Fei Li (Northern Institute of Electronic Equipment of China, P.R. China); Yongzhen Li and Xuesong Wang (National University of Defense Technology, P.R. China)

Circularly Polarized Patch Antenna Array for Satellite Communication in Ku Band
Kwok Kan SO and Chi Hou Chan (City University of Hong Kong, Hong Kong)

A Dual Band Circularly Polarized SIW Interleaved Antenna Array
Christos Kalialakis (Centre Tecnologic de Telecomunicacions de Catalunya & EETT, Spain); Apostolos Georgiadis (CTTC, Spain)

Tri-Band FSS for Ku/Ka Bands Reflector Antennas
Mousa Abdollahvand (Tarbiat Modares University (TMU) Tehran, Spain); Jose A. Encinar (Universidad Politecnica de Madrid, Spain); Keyvan Forooraghi (Tarbiat Modarres University, Iran); Zahra Atlasbaf (Tarbiat Modares University, Iran); Juan Page (Universidad Politecnica de Madrid, Spain)

Measuring Antenna Noise Parameters Using a Set of Wheeler Caps
Patricia Groves, Philip Conroy and Leonid Belostotski (University of Calgary, Canada); Michal Okoniewski (University of Calgary & Acceleware Ltd, Canada)

A Beam Steerable Back-to-Back Yagi-Uda Dielectric Resonator Antenna Array
Vernon Davids and Robert Lehmensiek (Cape Peninsula University of Technology, South Africa)

Microwave Lens Using Multi-Layer Substrates for Antenna Gain Enhancement
William S. W. Cheung, Qinlong Li, Di Wu and Ti Yuk (The University of Hong Kong, Hong Kong)

Dual-Band 20/30 GHz Circularly Polarized Transmitarray for SOTM Applications
Hamed Hasani (Ecole Polytechnique Fédérale de Lausanne, Switzerland); Joana S. Silva (Laboratory of Electromagnetics and Acoustics / École Polytechnique Fédérale de Lausanne & LEMA, Switzerland); Juan R Mosig (Ecole Polytechnique Federale de Lausanne, Switzerland); María García-Vigueras (IETR-INSA Rennes, France)

A New Metric Taking Into Account Statistical Variability for Testing Rain Attenuation or Rainfall Rate Statistical Models
Gaëtan Fayon (ONERA, France); Laurent Féral (Laboratoire LAPLACE, France); Xavier Boulanger, Laurent Castanet and Nicolas Jeannin (ONERA, France)

Temperature/Absorption Cross Integrals and the Validation of Radiometric Temperatures for Space-Based Radiometers
Axel Murk (Univerity of Bern, Switzerland); Arne Schroeder (University of Bern, Switzerland); Mike Winser (AIRBUS D&S UK, United Kingdom); Yichen Qian (ANSYS UK Ltd, United Kingdom); Richard Wylde (Thomas Ketaing Ltd & University of St.Andrews, United Kingdom)

A Wideband Omnidirectional Circularly Polarized Spiral Antenna
Mayumi Matsunaga (Ehime University, Japan)

A Design Methodology of the Wideband Orthogonal Mode Transducer for the SKA Band 2 Feed
Robert Lehmensiek (EMSS Antennas (Pty) Ltd, South Africa)

Compact Microwave Cavity with Increased Magnetic Field Homogeneity
Anton E. Ivanov and Anja K. Skrivervik (EPFL, Switzerland); Christoph Affolderbach and Gaetano Mileti (Université de Neuchâtel, Switzerland)

A High Gain X-Band Isoflux Helix Antenna
Johan Wettergren (RUAG Space AB, Sweden); Patrik Dimming (RUAG Space Sweden, Sweden); Joakim F Johansson and Mikael Öhgren (RUAG Space AB, Sweden)

New Compact S-band Antenna for Nanosatellite TeleMetry and TeleCommand Applications - EyeSat Program
Anthony Bellion, Kevin Elis and Stephanie De Gaetano (CNES, France)

Peculiarities of the Second Order Statistical Moments of the Electromagnetic Waves Muptiply Scattered in a Collisional Turbulent Magnetized Plasma
George V. Jandieri (Georgian Technical University, Georgia); Irma Takidze (Batumi State Maritime Academy, Georgia)

Investigation of the Path Reduction Factor on Terrestrial Links for the Development of a Physically-Based Rain Attenuation Model
Riccardo Ghiani (Università di Cagliari, Italy); Lorenzo Luini (Politecnico di Milano, Italy); Alessandro Fanti (University of Cagliari, Italy)

Worst-Month Tropospheric Attenuation Prediction: Application of a New Approach
Lorenzo Luini (Politecnico di Milano, Italy); Luis Emiliani (SES S.A., Luxemburg); Carlo Capsoni (Politecnico di Milano, Italy)

Single-Layer Dual-Frequency Reflectarray for Ka-Band Antennas

Mousa Abdollahvand (Tarbiat Modares University (TMU) Tehran, Spain); Jose A. Encinar (Universidad Politecnica de Madrid, Spain); Keyvan Forooraghi (Tarbiat Modarres University, Iran); Zahra Atlasbaf (Tarbiat Modares University, Iran); Mariano Barba (Universidad Politecnica de Madrid, Spain)

Planar Lens Antenna with Multilevel Band-Pass Unit-Cells

Hon Ching Moy-Li and Daniel Sanchez-Escuderos (Universidad Politécnica de Valencia, Spain); Eva Antonino-Daviu (Universidad Politecnica de Valencia, Spain); Miguel Ferrando-Bataller (Universidad Politecnica De Valencia, Spain)

Compact Ka-Band Cassegrain Antenna with Multimode Monopulse Tracking Feed for Satcom-on-the-Move Applications

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

Enhancements to Satellite Feed Chain Performance, Testing and Lead-times Using Additive Manufacturing

Paul Booth, Jason Gilmore, Elena Valles Lluch and Mark Harvey (Airbus Defence and Space Ltd., United Kingdom)

Doppler Spectrum Measurements for Land Mobile Satellite Systems Around 2.2 GHz and 3.8 GHz

Mehdi Ait-Ighil (ONERA - The French Aerospace Lab, France); Thierry Deloues, Joel Lemorton and Francois Issac (ONERA, France); Sebastien Rougerie (CNES, France)

Polarization Based Measurement System for Analysis of GNSS Multipath Signals

Markus Berg and Rameez UR Rahman Lighari (University of Oulu, Finland); Jani Kallankari (Verkotan Ltd., Finland); Ville Majava (Polar Electro Ltd., Finland); Aarno Pärssinen and Erkki T. Salonen (University of Oulu, Finland)

A Five-year Study of Experimental Drop Size Distributions for Rain Attenuation in Madrid

Jose Garcia-Rubia (Virginia International University, USA); Ana Benarroch (Universidad Politécnica de Madrid, Spain); Pedro Garcia-del-Pino (Universidad Politecnica de Madrid, Spain); Jose M Riera (Universidad Politécnica de Madrid, Spain)

Design and Characterization of a Beam-Steered CP Antenna Array with a Circular Geometry

Laura Garcia Gamez and Loic Bernard (ISL, France); Vincent Jaeck (French-German Research Institute of Saint-Louis, France); Armin Schneider (ISL, France)

Distortion of Modulated Signals by Time-Variant Channels - Measurement Concepts and Algorithms

Robert Geise, Georg Zimmer and Björn Neubauer (Technische Universität Braunschweig, Germany)

Reduction of the Multipath Channel Impulse Response for GNSS Applications

Florian Ribaud (ONERA, France); Mehdi Ait-Ighil (ONERA - The French Aerospace Lab, France); Sebastien Rougerie (CNES, France); Joel Lemorton (ONERA, France); Olivier Julien (ENAC, France); Fernando Pérez-Fontán (University of Vigo, Spain)

The Phase Fluctuations of GPS Signals At High Latitudes During 7January2015 Geomagnetic Storm

Irk Shagimuratov (WD IZMIRAN, Russia); Sergey Chernous (PGI, Russia); Ivan Ephishov, Iurii Cherniak, Nadezda Tepenitsyna, Luiza Koltunenko and Galina Yakimova (WD IZMIRAN, Russia)

Radio Astronomy Ultra Wideband Receiver Covering the 2−14 GHz Frequency Band for VGOS Applications

Luis-Enrique Garcia-Muñoz (University Carlos III of Madrid, Spain); Francisco Colomer (IGN, Spain); Félix Tercero, Jose Manuel Serna and José Antonio López (IGN Spain, Spain); Magdalena Salazar-Palma, Sergio Llorente-Romano and Kerlos Atia Abdalmalak (Universidad Carlos III de Madrid, Spain)

Leaky-Wave-based Dual-Band Phased Array for Satellite Communications

Francesco Scattone (University of Rennes 1 & IETR, France); Mauro Ettorre (University of Rennes 1 & UMR CNRS 6164, France); Ronan Sauleau (University of Rennes 1, France); Nelson Fonseca (European Space Agency, The Netherlands)

Thursday, April 14, 15:00 - 16:20 (Europe/Zurich)

InvThu-A: Invited Speakers Thursday - Track A

Room: B Pisch+ Parsenn
Chairs: Koichi Ito (Chiba University, Japan), Stefano Maci (University of Siena, Italy)

Invited

15:00 ***Tomorrow's Metamaterials: Manipulation of Electromagnetic Waves in Space, Time and Spacetime***
Christophe Caloz (Ecole Polytechnique de Montreal, Canada)

15:40 ***Microwave Diagnostic and Therapeutic Technologies for Medical Applications***
Susan C. Hagness (University of Wisconsin, Madison, USA)

InvThu-B: Invited Speakers Thursday - Track B

Room: C Aspen
Chairs: Olav Breinbjerg (Technical University of Denmark, Denmark), Thomas F. Eibert (FGAN, Germany)

Invited

15:00 ***Phased Array Antenna Calibration Measurement Techniques and Methods***
Kimberly Hassett (NSI-MI Technologies, USA)

15:40 ***State of the Art and Innovative Measurements for Large Antennas and Antenna Farms***
Hans-Juergen Steiner (Airbus Defence & Space & Electronics Devision, Germany)

Thursday, April 14, 16:50 - 18:30 (Europe/Zurich)

A14: Array antennas III

Cellular and short-range communication
Room: A Dischma
Chairs: Andrés Alayon Glazunov (Chalmers University of Technology, Sweden), David S Prinsloo (ASTRON & Netherlands Institute for Radio Astronomy, The Netherlands)

Regular

16:50 ***Switched Parasitic Dielectric Resonator Antenna Array Using Capacitor Loading for 5G Applications***
Muhammad Ramlee Kamarudin and Nor Hidayu Shahadan (Universiti Teknologi Malaysia, Malaysia); Muzammil Jusoh (Universiti Malaysia Perlis & School of Computer and Communiction Engineering, Malaysia); Mohd Haizal Jamaluddin (Universiti Teknologi Malaysia, Malaysia); Mohsen Khalily (University of Surrey & 5G Innovation Centre, Institute for Communication Systems (ICS), United Kingdom)

17:10 ***Designing a Dual-Polarized Octave Bandwidth Bowtie Antenna for a Linear Array***
Sadegh Mansouri Moghaddam, Per-Simon Kildal, Andrés Alayon Glazunov and Jian Yang (Chalmers University of Technology, Sweden)

17:30 ***Capabilities and Fundamental Limitations of Multi-Mode Antennas in an Array Environment***
Marianna Ivashina (Chalmers University of Technology, Sweden); Elena Redkina

(Sevastopol National Technical University, Russia); Rob Maaskant (CHALMERS, Sweden); David S Prinsloo (ASTRON & Netherlands Institute for Radio Astronomy, The Netherlands)

17:50 ***Low Power Advanced Wireless Communication Exploiting Reconfigurable Antennas***
Simone Ciccia (Politecnico di Torino, Italy); Giorgio Giordanengo (Istituto Superiore Mario Boella & Politecnico di Torino, Italy); Flavio Renga (Istituto Superiore Mario Boella, Italy); Giuseppe Vecchi (Politecnico di Torino, Italy)

18:10 ***Polarization Aspects on a Wideband Antenna Array Based on Asymmetrical Elements***
Christos Kolitsidas and Lars Jonsson (KTH Royal Institute of Technology, Sweden)

CS08a: Analysis of randomness due to user and environment on MIMO antenna systems

Cellular and short-range communication
Room: A Flüela
Chairs: Per-Simon Kildal (Chalmers University of Technology, Sweden), Alain Sibille (Telecom ParisTech, France)

Convened

16:50 ***Analyzing Smart Phones' 3D Accelerometer Measurements to Identify Typical Usage Positions in Voice Mode***
Per H. Lehne (Telenor Research, Norway); Andrés Alayon Glazunov (Chalmers University of Technology, Sweden); Kashif Mahmood (Telenor, Norway); Per-Simon Kildal (Chalmers University of Technology, Sweden)

17:10 ***Ellipticity Statistics of Ultra Wideband MIMO Channels for Body Centric Wireless Communication***
Qammer Hussain Abbasi (Texas A & M University, Qatar); Hassan El-Sallabi (TAMUQ, Qatar); Erchin Serpedin (Texas A&M University, USA); Khalid A. Qaraqe (Texas A&M University at Qatar, USA); Akram Alomainy (Queen Mary University of London, United Kingdom); Yang Hao (Queen Mary, University of London, United Kingdom)

17:30 ***Performance of Randomly Placed Textile SIW MIMO Antennas on the Human Body***
Ping Jack Soh (Universiti Malaysia Perlis (UNIMAP) & Katholieke Universiteit Leuven, Malaysia); Sen Yan (KU Leuven, Belgium); Herwansyah bin Lago (Universiti Malaysia Perlis UniMAP, Malaysia); Xuezhi Zheng (Katholieke Universiteit Leuven, Belgium); Faizal Jamlos (Universiti Malaysia Perlis, Malaysia); Guy A. E. Vandenbosch (Katholieke Universiteit Leuven, Belgium)

17:50 ***Measurement-based Analysis of the Handset Multi-antenna by Using A Specialized MIMO System***
Daqing Liu, Richie Zhang, Su Xu and Xueliang Shi (Huawei Technologies Co. Ltd, P.R. China); Hejia Luo (Huawei Technologies Co., Ltd., P.R. China); Dali Qin, Huailin Wen and Justin Wang (Huawei Technologies Co. Ltd, P.R. China)

18:10 ***Planar Eleven Antenna as a Wideband MIMO Micro-base Station Antenna***
Wenjie Yu, Jian Yang and Per-Simon Kildal (Chalmers University of Technology, Sweden)

A29: Metamaterials II

Fundamental research
Room: A Schwartzhorn
Chairs: Alexandros I. Dimitriadis (Ecole Polytechnique Fédérale de Lausanne & SWISSto12 SA, Switzerland), Raj Mittra (Penn State University, USA)

Regular

16:50 ***Metamaterial Lens for Beam Steering***
Jianjia Yi (IEF - Université Paris Sud, France); André de Lustrac and Shah Nawaz Burokur (Institut d'Electronique Fondamentale - Université Paris-Sud, France)

17:10 ***Soret Lens-Antenna Based on the Fishnet Metamaterial***
Bakhtiyar Orazbayev, Miguel Beruete and Victor Pacheco-Peña (Universidad Publica de Navarra, Spain); Gonzalo Crespo (Anteral, Spain); Jorge Teniente (Public University of Navarra & Anteral, Spain); Miguel Navarro-Cía (University of Birmingham, United Kingdom)

17:30 ***Calculation of the Total Q-Factor for Electrically Small Antennas with Metamaterials Using Characteristic Modes***
Mhamad Hassanein Rabah (IFSTTAR & University Lille 1 Nord de France, France); Divitha Seetharamdoo (IFSTTAR, LEOST & Univ Lille Nord de France, France)

17:50 ***Asymmetric Chiral Metamaterial Superstrate for Patch Antenna Polarization Transformation***
Oscar Fernandez Fernandez, Alvaro Gomez, Angel Vegas and Jose Basterrechea (University of Cantabria, Spain)

18:10 ***Metamaterial-based 3D Luneburg Lens Antenna Design for Microwave Frequencies***
Despoina C Kampouridou and Theodosios Karamanos (Aristotle University of Thessaloniki, Greece); Alexandros I. Dimitriadis (Ecole Polytechnique Fédérale de Lausanne & SWISSto12 SA, Switzerland); Nikolaos V. Kantartzis (Aristotle University of Thessaloniki, Greece)

A5: Beam Shaping and spatial diversity

Cellular and short-range communication
Room: A Seehorn
Chair: Luigi Vallozzi (Ghent University, Belgium)

Regular

16:50 ***Analysis and Design of CP Bessel Beam Launchers***
Santi Concetto Pavone (Università degli Studi di Siena, Italy); Mauro Ettorre (University of Rennes 1 & UMR CNRS 6164, France); Massimiliano Casaletti (Sorbonne Universités UPMC, France); Matteo Albani (University of Siena, Italy)

17:10 ***Generation of Limited-Diffraction Electromagnetic Pulses At Millimeter Waves***
Walter Fuscaldo (Sapienza University of Rome, Italy); Santi Concetto Pavone (Università degli Studi di Siena, Italy); Guido Valerio (Sorbonne Universités UPMC, France); Alessandro Galli (Sapienza University of Rome, Italy); Matteo Albani (University of Siena, Italy); Mauro Ettorre (University of Rennes 1 & UMR CNRS 6164, France)

17:30 ***Enhancement of Directivity of an OAM Antenna by Using Fabry-Perot Cavity***
Wenlong Wei (University of Rennes 1, France); Kouroch Mahdjoubi (Université de Rennes, France); Christian Brousseau and Olivier Emile (Université de Rennes 1, France); Ala Sharaiha (Université de Rennes 1 & IETR, France)

17:50 ***Patch Antenna with Slanted ±45º Dual Polarization and Performance Comparison with H/V Diversity***
Luigi Vallozzi (Ghent University, Belgium)

18:10 ***Secure Array Synthesis for Encryption Key Establishment in Multipath Channels***
Rashid Mehmood (Brigham Young University, USA); Jon Wallace (Lafayette College, USA); Michael Jensen (Brigham Young University, USA)

CS40: COST Action IC1301, Wireless Power Transmission and RF Energy Harvesting Circuits and Applications

RFID and Wireless networks
Room: A Sertig
Chairs: Nuno Borges Carvalho (University of Aveiro/IT Aveiro, Portugal), Apostolos Georgiadis (CTTC, Spain)

Convened

16:50 ***Dual Band RF Harvesting with Low-Cost Lossy Substrate for Low-Power Supply System***
Spyridon-Nektarios Daskalakis (Technical University of Crete, Greece); Apostolos Georgiadis (CTTC, Spain); Aggelos Bletsas (Technical University of Crete, Greece); Christos Kalialakis (Centre Tecnologic de Telecomunicacions de Catalunya & EETT, Spain)

17:10 ***WPT Related Applications Enabling Internet of Things Evolution***
Luca Roselli, Chiara Mariotti, Marco Virili, Federico Alimenti, Giulia Orecchini, Valentina Palazzi and Paolo Mezzanotte (University of Perugia, Italy); Nuno Borges Carvalho (University of Aveiro/IT Aveiro, Portugal)

17:30 ***Beam Stearing Antenna and Network Design for WPT Applications***
Andreia Costa and Ricardo Gonçalves (Instituto de Telecomunicações, Portugal); Pedro Pinho (IT - Instituto de Telecomunicações & ISEL - Instituto Superior de Engenharia de Lisboa, Portugal); Nuno Borges Carvalho (University of Aveiro/IT Aveiro, Portugal)

17:50 ***A Wideband UHF RFID Reader Antenna Array with Bow-tie Elements***
Achilles Boursianis and 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)

18:10 ***Theoretical and Experimental Characterization of Moving Wireless Power Transfer Systems***
Alex Pacini and Franco Mastri (University of Bologna, Italy); Riccardo Trevisan (University of Bologna & IMA Industries, Italy); Alessandra Costanzo (DEI, University of Bologna, Italy); Diego Masotti (University of Bologna, Italy)

A36: Multiband antennas

Multiple applications
Room: A Wisshorn
Chair: Cyril Mangenot (European Space Agency, The Netherlands)

Regular

16:50 ***A Square Loop Antenna Modified for Circular Polarization—in Application to Multiband and Wideband Antennas***
Kazuhide Hirose and Hiroki Nakagawa (Shibaura Institute of Technology, Japan); Hisamatsu Nakano (Hosei University, Japan)

17:10 ***Broadband Circular Polarized Field Generation in Single Layer Microstrip Patch Antennas***
Alicia E Torres-García (Public University of Navarra, Spain); Francisco Marante (Instituto Superior Politécnico "José A. Echeverría" CUJAE, Cuba); Antonio Tazon (University of Cantabria, Spain); Juan Vassal´lo (CSIC, Spain); Jorge Teniente (Public University of Navarra & Anteral, Spain); Miguel Beruete (Universidad Publica de Navarra, Spain)

17:30 ***Compact E5a/E1 Antenna Array for GNSS***
Stefano Caizzone (German Aerospace Center (DLR), Germany)

17:50 ***Multiband CPW-fed Slot Antennas***
Danelys Rodriguez Avila (EPFL, Switzerland); Susana Pereira, Yan Paz and Alejandro Saavedra (Polytechnic José Antonio Echeverría (CUJAE), Cuba); Francisco

Marante (Instituto Superior Politécnico "José A. Echeverría" CUJAE, Cuba); ´Juan Vassallo (CSIC - ITEFI Torres Quevedo, Spain); Antonio Tazon (University of Cantabria, Spain)

18:10 ***On the Beamwidth of a Dual Polarized Dipole Above a Finite Groundplane***
Philipp Gentner (KATHREIN-Werke, Germany); Susanne Kürschner and Manfred Sampl (KATHREIN-Werke KG, Germany); Robert Kinker (KATHREIN-Werke, Germany)

A30: Microwave imaging II

Biomedical and wearable applications including biological effects
Room: B Jakhobshorn
Chair: Jose Martinez Lorenzo (Northeastern University, USA)

Regular

16:50 ***Characterization of a Laboratory Set-up for Assessing the Feasibility of Magnetic Nanoparticles Enhanced Microwave Imaging***
Ovidio Mario Bucci (University of Naples, Italy); Gennaro Bellizzi (University of Naples Federico II, Italy); Antonio Borgia and Sandra Costanzo (University of Calabria, Italy); Lorenzo Crocco (CNR - National Research Council of Italy, Italy); Giuseppe Di Massa (University of Calabria, Italy); Rosa Scapaticci (CNR-National Research Council of Italy, Italy)

17:10 ***Optimization of Working Conditions for Magnetic Nanoparticle Enhanced Ultra-Wide Band Breast Cancer Detection***
Gennaro Bellizzi (Mediterranea University of Reggio Calabria, Italy); Gennaro Bellizzi (University of Naples Federico II, Italy); Ovidio Mario Bucci (University of Naples, Italy); Lorenzo Crocco (CNR - National Research Council of Italy, Italy); Marko Helbig and Sebastian Ley (Technische Universität Ilmenau, Germany); Jürgen Sachs (Ilmenau University of Technology, Germany)

17:30 ***Detection of Varying Glucose Concentrations in Water Solutions Using a Prototype Biomedical Device for Millimeter-Wave Non-invasive Glucose Sensing***
Ioannis Gouzouasis (King's College London, United Kingdom); Helena Cano-Garcia (MediWise| Medical Wireless Sensing Ltd & King's College London, United Kingdom); Ioannis Sotiriou, Shimul Saha and George Palikaras (MediWise| Medical Wireless Sensing Ltd, United Kingdom); Panagiotis Kosmas (King's College London, United Kingdom); Efthymios Kallos (MediWise, United Kingdom)

17:50 ***Hematologic Characterization and 3D Imaging of Red Blood Cells Using a Compressive Nano-Antenna and ML-FMA Modeling***
Jose Martinez Lorenzo (Northeastern University, USA); Hipólito Gómez-Sousa and Oscar Rubiños-López (University of Vigo, Spain)

18:10 ***A Dual Polarized Leaky Lens Antenna for Wideband Focal Plane Array Applications***
Ozan Yurduseven, Nuria LLombart and Andrea Neto (Delft University of Technology, The Netherlands)

A21: Physical optics and theory of diffraction

EM modelling and simulation
Room: B Pisch+ Parsenn
Chairs: Lale Alatan (METU, Turkey), Prabbakar Pathak (The Ohio State University, USA)

Regular

16:50 ***Acceleration of Multiple Reflection Physical Optics Scattering Analysis with the MLFMM***
Dao P. Xiang and Matthys M. Botha (Stellenbosch University, South Africa)

17:10 ***UTD-Type Ray Analysis of Electromagnetic Scattering From Planar Finite Periodic Structures***

Hsi-Tseng Chou (National Taiwan University, Taiwan)

17:30 ***Edge Diffraction Computation Using GRECO***
Juan M. Rius and Alex Carbo (Universitat Politècnica de Catalunya, Spain); Eduard Ubeda (Universitat Politècnica de Catalunya (UPC), Spain); Alexander Heldring (Polytechnical University of Catalunya, Spain)

17:50 ***Verification of Reciprocity Condition Using Curved Screen UTD-type Diffraction Coefficient***
Divyabramham Kandimalla (Indian Institute of Technology Kharagpur, India); Arijit De (Indian Institute of Technology, Kharagpur, India)

18:10 ***Accuracy and Efficiency Improvements in Iterative Hybridization of the Method of Moments (MoM) and Physical Optics (PO)***
Mustafa Akbaş (Turkish Air Force Academy & Middle East Technical University, Turkey); Lale Alatan (METU, Turkey); Ozgur Ergul (Middle East Technical University, Turkey)

Thursday, April 14, 16:50 - 18:10 (Europe/Zurich)

CS27: Propagation aspects in remote sensing

Multiple applications
Room: C Aspen
Chairs: Michael Schönhuber (Joanneum Research, Austria), Merhala Thurai (Colorado State University, USA)

Convened

16:50 ***Propagation Effects At X-band From the 2015 Rain Measurement Campaign in Greeley, Colorado***
Merhala Thurai, Patrick Kennedy and Viswanathan Bringi (Colorado State University, USA); Branislav Notaros (Colorado State University at Fort Collins, USA); Steven Rutledge (Colorado State University, USA)

17:10 ***Time Evolution of Synthetic Rain Cells for the Synthesis of Attenuation Time Series***
Simone Ghirardin, Carlo Capsoni and Lorenzo Luini (Politecnico di Milano, Italy)

17:30 ***3D Reconstruction of 2DVD-measured Raindrops for Precise Prediction of Propagation Parameters***
Michael Schönhuber, Martin Schwinzerl and Guenter Lammer (Joanneum Research, Austria)

17:50 ***Model for Synthesis of Short-Term Tropospheric Amplitude Scintillation***
Petr Dvorak (CTU in Prague, Czech Republic); Carlo Capsoni (Politecnico di Milano, Italy)

Thursday, April 14, 16:50 - 18:30 (Europe/Zurich)

A25: Metamaterials and Metasurfaces

Space
Room: C Sanada1
Chairs: Andrea Alù (The University of Texas at Austin, USA), Sergei Tretyakov (Aalto University, Finland)

Regular

16:50 ***Half-height Pins -- a New Pin Form in Gap Waveguide for Easy Manufacturing***
Fangfang Fan (Xidian University & Chalmers University of Technology, P.R. China);

Jian Yang and Per-Simon Kildal (Chalmers University of Technology, Sweden)

17:10 ***Synthesis Design of Single Notched-band UWB Antenna Using the CSRR Dynamic resonance***
Azzeddin Naghar (Dept. of Teoría de la Señal y comunicación, University of Vigo, Pontevedra, Vigo, Spain, Spain); Ana Alejos (Universidade de Vigo, Spain); Francisco Falcone (Universidad Publica de Navarra, Spain); Otman Aghzout (UAE, Morocco)

17:30 ***Radiation-Enhancing Reflector***
Constantinos A Valagiannopoulos (Nazarbayev University, Kazakhstan); Sergei Tretyakov (Aalto University, Finland)

17:50 ***Performance Enhancement of CP Reconfigurable Monopole Antenna Using MS***
Yunfei Cao, William S. W. Cheung and Ti Yuk (The University of Hong Kong, Hong Kong)

18:10 ***Radar Cross Section Reduction of a Plate with Textile-Based Single Negative Metamaterial***
Sultan Can and Asim Yilmaz (Ankara University, Turkey)

CS26: Polarimetric Radar Cross Section Analysis

Radar, Defence and security
Room: C Sanada2
Chair: Dirk Heberling (RWTH Aachen University, Germany)

Convened

16:50 ***Exploiting Polarimetric Radar Cross Section Characteristics for Clustering of Ultrawideband Radar Signals***
Matthias Röding and Reiner S. Thomä (Ilmenau University of Technology, Germany)

17:10 ***Principal Component Analysis for Polarimetric Radar Cross-Section Imaging***
Thomas Dallmann and Dirk Heberling (RWTH Aachen University, Germany)

17:30 ***Polarimetric Imaging Method for a Surface Adaptive Permittivity Estimation for 60 GHz FMCW Radar***
Benedikt Friederich (Universitn, Germany); Dilyan Damyanov (University of Duisburg-Essen, Germany); Thorsten Schultze (Universität Duisburg-Essen, Germany); Ingolf Willms (University Duisburg-Essen, Germany)

17:50 ***Residual Video Phases in Polarimetric FMCW Radars with Dual-Orthogonal LFM Signals***
Oleg Krasnov (Delft University of Technology, The Netherlands); Alexander Yarovoy (TU Delft, The Netherlands)

18:10 ***3-D Imaging Using Polarimetric Diversity, Processing Techniques and Applications***
Laurent Ferro-Famil (University of Rennes 1, France); Yue Huang (INRIA, France); Bassam El Hajj Chehade (University of Rennes, France); Andreas Reigber (German Aerospace Center (DLR), Germany); Stefano Tebaldini (Politecnico di Milano, Italy)

Friday, April 15

Friday, April 15, 08:40 - 10:20 (Europe/Zurich)

A38: Vehicle-to-vehicle communications

Cellular and short-range communication
Room: A Dischma
Chairs: Francesco D'Agostino (University of Salerno, Italy), Dirk Heberling (RWTH Aachen University, Germany)

Regular

08:40 ***Introduction of a New Vehicular Test Environment for Validation of Communication Based Systems***
Thomas Kopacz and Dirk Heberling (RWTH Aachen University, Germany)

09:00 ***Evaluation of the V2V Channel and Diversity Potential for Platooning Trucks***
Kristian Karlsson and Jan Carlsson (SP Technical Research Institute of Sweden, Sweden); Marcus Larsson (Qamcom Research and Technology AB & Halmstad University, Sweden); Carl Bergenhem (Qamcom Research And Technology, Sweden)

09:20 ***Directional Analysis of Multipath Propagation in Vehicle-2-Vehicle Channels***
Christian Schneider, Martin Käske and Gerd Sommerkorn (Ilmenau University of Technology, Germany); Antti Roivainen (Centre for Wireless Communications, University of Oulu, Finland); Valtteri Tervo and Juha Meinila (University of Oulu, Finland); Reiner S. Thomä (Ilmenau University of Technology, Germany)

09:40 ***Sphiral Near-Field Scanning for Automotive Antenna Measurements***
Jeffrey Fordham (MI Technologies, USA); Francesco D'Agostino (University of Salerno, Italy)

10:00 ***Relay Selection in V2V Communications Based on 3-D Geometrical Channel Modeling***
Emmanouel T. Michailidis (University of Piraeus, Greece); Konstantinos Maliatsos (University of Piraeus & National Technical University of Athens, Greece); Athanasios G. Kanatas (University of Piraeus, Greece)

CS08b: Analysis of randomness due to user and environment on MIMO antenna systems

Cellular and short-range communication
Room: A Flüela
Chairs: Per-Simon Kildal (Chalmers University of Technology, Sweden), Alain Sibille (Telecom ParisTech, France)

Convened

08:40 ***Comparison of Live Person Test to Head and Hand Phantom Test in Reverberation Chamber***
John Kvarnstrand and Anton Skårbratt (Bluetest AB, Sweden); Madeleine Schilliger Kildal (Chalmers University of Technology & Bluetest AB, Sweden); Susanne Schilliger Kildal (Technische Universität München, Sweden)

09:00 ***Downlink Massive MIMO Performance of a Vertically Polarized Uniform Linear Array in Random Line-Of-Sight***
Andrés Alayon Glazunov (Chalmers University of Technology, Sweden)

09:20 ***MIMO Indoor Propagation: A Geometry-Based Model Including Time-Variant Fading Statistics***
Evgenii Vinogradov (Universite Catholique de Louvain, Belgium); Wout Joseph (Ghent University/iMinds, Belgium); Claude Oestges (Université Catholique de Louvain, Belgium)

09:40 ***Influence of Nearby Objects and Body Motion on Body-Centric Wireless Communications***
Koichi Ito (Chiba University, Japan)

10:00 ***Antenna De-embedding in WBAN Channel Modeling Using Spherical Wave Functions: Transmit Antenna Model Validation***
Jun-ichi Naganawa (Electronic Navigation Research Institute, Japan); Jun-ichi Takada and Takahiro Aoyagi (Tokyo Institute of Technology, Japan); Minseok Kim (Niigata University, Japan)

OTHER: Bridging other areas

Fundamental research
Room: A Schwartzhorn
Chair: Dimitrios Sounas (The University of Texas at Austin, USA)

Regular

08:40 ***Magnetless Circulators for Electromagnetic and Acoustic Waves***
Romain Fleury (University of Texas at Austin, USA); Dimitrios Sounas and Andrea Alù (The University of Texas at Austin, USA)

09:00 ***Non-Linear Isolators: Fundamental Bounds and Optimal Designs***
Dimitrios Sounas and Andrea Alù (The University of Texas at Austin, USA)

09:20 ***Radiation From a Loop Antenna Located on the Surface of a Magnetized Plasma Column and Excited by a Wideband Signal***
Tatyana M. Zaboronkova, Alexander Kudrin and Anna Zaitseva (University of Nizhny Novgorod, Russia)

09:40 ***Electromagnetic Inspired Acoustic Leaky-wave Antenna***
Hussein Esfahlani and Sami Karkar (EPFL, Switzerland); Hervé Lissek (LEMA-EPFL, Switzerland); Juan R Mosig (Ecole Polytechnique Federale de Lausanne, Switzerland)

10:00 ***Transmitted and Reflected Graphene Surface Waves Due to Substrate Discontinuities***
Stamatios A. Amanatiadis (Aristotle University of Thessaloniki, Greece); Alexandros I. Dimitriadis (Ecole Polytechnique Fédérale de Lausanne & SWISSto12 SA, Switzerland); Theodoros T. Zygiridis (University of Western Macedonia, Greece); Nikolaos V. Kantartzis (Aristotle University of Thessaloniki, Greece)

A50: RFID Antennas

Cellular and short-range communication
Room: A Seehorn
Chairs: Sergio López-Soriano (Universitat Autònoma de Barcelona, Spain), Hakim Takhedmit (Paris-Est Marne-la-Vallée University, France)

Regular

08:40 ***Comparitive Study of Inkjet and Thermal Printing for Fabrication of Passive UHF RFID Tags***
Muhammad Rizwan and Ajith Adhur Kutty (Tampere University of Technology, Finland); Monageng Kgwadi (University of Glagow, United Kingdom); Timothy Drysdale (The Open University, United Kingdom); Leena Ukkonen and Johanna Virkki (Tampere University of Technology, Finland)

09:00 ***Reliability Study of Flexible Inkjet- And Thermal- Printed RFID Antennas in High Humidity Conditions***
Muhammad Rizwan and Ajith Adhur Kutty (Tampere University of Technology, Finland); Monageng Kgwadi (University of Glagow, United Kingdom); Timothy Drysdale (The Open University, United Kingdom); Leena Ukkonen and Johanna Virkki (Tampere University of Technology, Finland)

09:20 ***Evaluation of Reading RF Tags by Free Access Transmission Line for Smart Shelf Applications***
Takuya Okura and Hiroyuki Arai (Yokohama National University, Japan)

09:40 ***Parallel Plate Antenna for UHF RFID Tags Operating Over Metallic Objects***
Sergio López-Soriano and Josep Parrón (Universitat Autònoma de Barcelona, Spain)

10:00 ***A Wideband Fractal Rectenna for Energy Harvesting Applications***
Hichem Mahfoudi and Mohamed Tellache (University of Sciences and Technology Houari Boumediene, Algeria); Hakim Takhedmit (Paris-Est Marne-la-Vallée University, France)

P3: Indoor Propagation

RFID and Wireless networks
Room: A Sertig
Chairs: Gloria Makhoul (CEA-LETI & ICTEAM Electrical Engineering, Université Catholique de Louvain (UCL), France), Pascal Pagani (Telecom Bretagne, France)

Regular

08:40 ***Time Correlation Properties of Dynamic Mobile to Mobile Channels in Indoor Environments***
Gloria Makhoul (CEA-LETI & ICTEAM Electrical Engineering, Université Catholique de Louvain (UCL), France); Francesco Mani (CEA-LETI, France); Raffaele D'Errico (CEA, LETI, Minatec Campus & Univ\. Grenoble-Alpes, France); Claude Oestges (Université Catholique de Louvain, Belgium)

09:00 ***Wireless Backscatter Communication Using Multiple Transmitter Scheme***
Ali Khaleghi (Oslo University Hospital, Norway); Amin Ollah Hasanvand (K. N. Toosi University of Technology, Norway); Ilangko Balasingham (Norwegian University of Science and Technology, Norway)

09:20 ***Delay Spread in mmWave Bands for Indoor Using Game Engines 3D Ray Based Tools***
Andres Navarro (Universidad Icesi, Colombia); Dinael Guevara (Francisco de Paula Santander University, Colombia); Diego Escalante (Universidad Francisco de Paula Santander, Colombia); William Cruz (Universidad Icesi, Colombia); Narcis Cardona (The Polytechnic University of Valencia, Spain); Jordi Joan Giménez (Universitat Politècnica de València, Spain); Jorge Gomez (Universidad del Magdalena, Colombia)

09:40 ***Time Domain HF Geolocation: Experimental Measurements and Preliminary Results***
Pascal Pagani (Telecom Bretagne, France); Imen El Mejri (Ecole Nationale d' Ingénieurs de Tunis, Syscom Laboratory, France); Rolland Fleury, Yvon Le Roux and Jacky Ménard (Telecom Bretagne, France); Michel Ney (TELECOM Bretagne Institute, France); Denis Le Jeune (Ministère de la Défense, France)

10:00 ***Exploiting EM Simulation Modelling for Wireless Indoor Localization***
Federico Viani and Alessandro Polo (University of Trento & ELEDIA Research Center, Italy); Enrico Giarola (ELEDIA Research Center, Italy)

A43: Biomedical application

Multiple Applications
Room: A Wisshorn
Chairs: Stavros Koulouridis (University of Patras, Greece), Hubregt J. Visser (imec The Netherlands, The Netherlands)

Regular

08:40 ***Inductive Feeding Tube Position Determination***
Hubregt J. Visser (imec The Netherlands, The Netherlands); Ad Reniers, Rob Mestrom and Baochang Guo (Eindhoven University of Technology, The Netherlands)

09:00 ***Dual Band PIFA Design for Biomedical Applications***
Damla Alptekin (Middle East Technical University, Turkey); Lale Alatan (METU, Turkey); Nevzat Gençer (Middle East Technical University, Turkey)

09:20 ***Novel Wideband Multi-Layer Archimedean Spiral Antenna with Integrated Coupler for Radiometric Measurement in Medical Applications***
Raid Hadi, Hasan Abufanas, Carl Sandhagen and Axel Bangert (University of Kassel, Germany)

09:40 ***Comparison of Microwave Breast Cancer Detection Results with Breast Phantom Data and Clinical Trial Data: Varying the Number of Antennas***
Yunpeng Li, Adam Santorelli and Mark Coates (McGill University, Canada)

10:00 ***Design of a Novel Miniature Implantable Rectenna for In-Body Medical Devices Power Support***
Sofia Bakogianni and Stavros Koulouridis (University of Patras, Greece)

CS20a: AMTA/EurAPP Session, Measurement of Millimeter-Wave Antennas

Multiple applications
Room: B Jakhobshorn
Chairs: Stuart Gregson (Nearfield Systems Inc. & Queen Mary, University of London, USA), Daniel J. Janse van Rensburg (Near Field Systems Inc., USA)

Convened

08:40 ***Multi-purpose Configurable Range for Antenna Testing Up to 220 GHz***
Mike Francis (NIST, USA); David Novotny, Ronald Wittmann, Joshua Gordon, Jeffrey Guerrieri and Alexandra Curtin (US National Institute of Standards and Technology, USA)

09:00 ***Accuracy Evaluation for Antenna Measurements At mm-Wave Frequencies***
Linus Boehm, Frank Bögelsack, Martin Hitzler, Stefan Wiehler and Christian Waldschmidt (University of Ulm, Germany)

09:20 ***Review of the Accuracy and Precision of mm-Wave Antenna Simulations and Measurements***
Ad Reniers, Qiang Liu, Matti Herben and A. B. (Bart) Smolders (Eindhoven University of Technology, The Netherlands)

09:40 ***Probe Positioing Errors in Planar Phaseless Near Field Measurement for Millimeter Wave Antenna***
Hiroyuki Arai (Yokohama National University, Japan)

10:00 ***Spherical Near-field Probe Fed Antenna Techniques for Accurate Millimeter Wave Measurements***
Fabien Ferrero (University Nice Sophia Antipolis, CNRS, LEAT & CREMANT, France); Stuart Gregson (Nearfield Systems Inc. & Queen Mary, University of London, USA); Jerome Lanteri (Université Nice Sophia Antipolis, France); Yoan Benoit (Université of Nice Sophia Antipolis, France); Laurent Brochier (Université de Nice-Sophia Antipolis, France); Claire Migliaccio (Université Nice Sophia Antipolis, France); Jean-Yves Dauvignac (Université de Nice-Sophia Antipolis, France)

CS37a: The Alphasat Aldo Paraboni scientific experiment: results on the Ka- and Q-band propagation campaigns

Space
Room: C Sanada1
Chairs: Lorenzo Luini (Politecnico di Milano, Italy), Jose M Riera (Universidad Politécnica de Madrid, Spain)

Convened

08:40 ***Markovian Properties of the Q-band Satellite Channel with Rain Attenuation***
László Csurgai-Horváth (Budapest University of Technology and Economics, Hungary)

09:00 ***Wind Intensity Inferred From the Alphasat Ka- And Q-band Beacon Measurements***
Carlo Riva and Lorenzo Luini (Politecnico di Milano, Italy); James Nessel (NASA, USA); Martin Rytir (Norwegian Defence Research Establishment (FFI), Norway)

09:20 ***Microdiversity on a 20 GHz Slant Path in Norway***

Martin Rytir and Lars Erling Brăten (Norwegian Defence Research Establishment (FFI), Norway)

09:40 ***Alphasat Propagation Experiment in Madrid: Processing of the First Year of Measurements***
Jose M Riera (Universidad Politécnica de Madrid, Spain); Gustavo Siles (Agencia Boliviana Espacial, Bolivia); Pedro Garcia-del-Pino (Universidad Politecnica de Madrid, Spain); Ana Benarroch (Universidad Politécnica de Madrid, Spain)

10:00 ***Large Scale Assessment of Ka/Q Band Atmospheric Channel Across Europe with ALPHASAT TDP5: A New Propagation Campaign***
Spiros Ventouras (STFC Rutherford Appleton Laboratory, United Kingdom); Fernando Pérez-Fontán (University of Vigo, Spain); Armando C Rocha (University of Aveiro & Institute of Telecommunications, Portugal); Flávio M. da Silva Jorge (Instituto de Telecomunicações & Universidade de Aveiro, Portugal); Apostolos Z. Papafragkakis, Athanasios D. Panagopoulos and Charilaos Kourogiorgas (National Technical University of Athens, Greece); Danielle Vanhoenacker-Janvier (Université catholique de Louvain, Belgium); Alberto Graziani (Université Catholique de Louvain, Belgium); Antonio Martellucci (European Space Agency, The Netherlands)

CS35: Sparse arrays for short-range imaging

Radar, Defence and security
Room: C Sanada2
Chairs: Goutam Chattopadhyay (JPL, USA), Alexander Yarovoy (Delft University of Technology, The Netherlands)

Convened

08:40 ***Performance Evaluation of F-K Kirchhoff Migration Using Ultra-wideband Radar with Sparse Array***
Takuya Sakamoto (University of Hyogo & Kyoto University, Japan); Toru Sato (Kyoto University, Japan); Pascal Aubry (IRCTR, The Netherlands); Alexander Yarovoy (Delft University of Technology, The Netherlands)

09:00 ***MIMO Radar Transmit Array Fed by a 1xM Passive Chaotic Cavity***
Ettien Lazare Kpré (Limoges University & XLIM Laboratory, France); Thomas Fromenteze (University of Limoges & XLIM, France); Cyril Decroze (XLIM, France)

09:20 ***Rotating Array Design for Full Polarimetric Imaging***
Jianping Wang and Alexander Yarovoy (Delft University of Technology, The Netherlands)

09:40 ***MIMO Radar Array Thinning Using Almost Difference Sets***
Jian Dong and Ronghua Shi (Central South University, P.R. China); Huabin Ren and Donglin Li (Dongguan Xinheng Electronic Technology Co., Ltd., P.R. China)

10:00 ***Application of L1 Norm Approach to Data Acquired by the Array GPR "Yakumo"***
Li Yi, Kazunori Takahashi and Motoyuki Sato (Tohoku University, Japan)

Friday, April 15, 10:50 - 12:30 (Europe/Zurich)

A39: MIMO, diversity and smart antennas

Cellular and short-range communication
Room: A Dischma
Chairs: Thomas F. Eibert (Technische Universität München, Germany), Wojciech Krzysztofik (Wroclaw University of Technology, Poland)

Regular

10:50 ***MIMO Capacity Enhancement beyond that of the Ideal Rayleigh Multipath by***

virtue of a Leaky Feeder Cable

Nima Jamaly (Swisscom, Switzerland); Ruben Merz (Swisscom, Group Strategy & Innovation, Switzerland); Adrian Schumacher, Damiano Scanferla and Daniel Wenger (Swisscom, Switzerland)

11:10 ***An Evaluation of the Channel Capacity of MIMO Systems with Practical Compact Antenna Arrays***

Kun Wang, Thomas F. Eibert and Gerhard Franz Hamberger (Technische Universität München, Germany)

11:30 ***Effects of User's Hand on the Measurement Setup in MIMO Over-the-air Testing***

Md Miah (Aalto University & School of Electrical Engineering, Finland); Afroza Khatun (Aalto University School of Electrical Engineering, Finland); Katsuyuki Haneda (Aalto University, Finland); Lassi Hentila (Anite, Finland); Antti Karilainen (Microsoft, Finland)

11:50 ***Over-the-Air Aided Precoding for DL Massive MIMO with Distributed Antenna Sites***

Jocelyn Aulin (Huawei Technologies Sweden AB, Sweden)

12:10 ***Space Diversity Parameters of MIMO Systems Small Antenna Array for Mobile Terminal***

Wojciech Krzysztofik (Wroclaw University of Technology, Poland)

A2: Adaptive and reconfigurable antennas

Cellular and short-range communication
Room: A Flüela
Chair: Stefan Lindenmeier (Universität der Bundeswehr, Germany)

Regular

10:50 ***Low-cost directional modulation for small wireless sensor nodes***

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

11:10 ***Adaptive Switchable FM/DAB Windscreen Antenna Matched with a High-Impedance Amplifier***

Alexander Böge and Jonas Kotschor (University of the Bundeswehr Munich, Germany); Stefan Lindenmeier (Universität der Bundeswehr, Germany)

11:30 ***LTE System-Level Evaluation of Directive Compact Antennas for Small-Cell Networks***

Gregory Gougeon and Yoann Corre (SIRADEL, France); Antonio De Domenico and Antonio Clemente (CEA-LETI Minatec, France); Abdul Kaddour (CEA-LETI, Minatec Campus, France); Serge Bories (CEA, France); Yves Lostanlen (SIRADEL & University of Toronto, Canada)

11:50 ***Multi-Walled Carbon Nanotube Thin Film Loading for Tuning Microstrip Patch Antennas***

Patrizia Savi (Politecnico di Torino, Italy); Krishna Naishadham (Georgia Institute of Technology, USA); Ahmad Bayat and Mauro Giorcelli (Politecnico di Torino, Italy); Simone Quaranta (University of Ontario, Canada)

12:10 ***Base-station Antenna Pattern Reconfiguration for LTE Heterogeneous Network Planning Optimization***

Ioannis Valavanis, Dimitra Zarbouti, Georgia E. Athanasiadou and George Tsoulos (University of Peloponnese, Greece)

A45: Other antenna topics

Multiple Applications
Room: A Schwartzhorn

Regular

10:50 ***Design and Measurement of a Monopole Plasma Antenna in the C-band***
Kazuhiro Takahagi (Ministry of Defense, Japan); Shingo Yamaura, Teruki Naito, Takashi Yanagi, Toru Fukasawa, Tai Tanaka, Yuichiro Fukuma and Hiroaki Miyashita (Mitsubishi Electric Corporation, Japan); Daiki Taniguchi (Ministry of Defence, Japan); Makoto Hierano (Ministry of Defense, Japan)

11:10 ***Multilayer SIW Rotman Lens Antenna in 24 GHz Band***
Karim Tekkouk (Tokyo Institute of Technology, Japan); Mauro Ettorre (University of Rennes 1 & UMR CNRS 6164, France); Ronan Sauleau (University of Rennes 1, France)

11:30 ***Active Multiple-Feed On-Chip Radiator with In-Antenna Power-Combining Approach***
Benjamin Goettel, Daniel Müller, Heiko Gulan and Akanksha Bhutani (Karlsruhe Institute of Technology, Germany); Thomas Zwick (Karlsruhe Institute of Technology (KIT), Germany)

11:50 ***Flying Relays for 4G Service-on-Demand Applications***
Michael Batistatos, Dimitra Zarbouti, George Tsoulos and Georgia E. Athanasiadou (University of Peloponnese, Greece)

12:10 ***Simulation Performance of NLOS Wireless Backhaul Using Automatically Aligned Antennas with Limited Scan Range***
Mona Hashemi, Lars Manholm and Martin Johansson (Ericsson Research, Sweden); Mikael Coldrey (Ericsson Research & Ericsson AB, Sweden)

A51: Miniaturized and small antennas

Cellular and short-range communication
Room: A Seehorn
Chairs: Myles Capstick (IT'IS Foundation, Switzerland), Oleksiy S. Kim (Technical University of Denmark, Denmark)

Regular

10:50 ***Highly Miniaturized Dual band Patch Antenna***
Ahmad Salih (King Fahd University for Petroleum and Minerals (KFUPM), Saudi Arabia); Mohammad S. Sharawi (King Fahd University of Petroleum and Minerals (KFUPM), Saudi Arabia)

11:10 ***Superdirective Dual-Polarized First-Order Probe for SNF Measurements at Low Frequencies***
Oleksiy S. Kim (Technical University of Denmark, Denmark)

11:30 ***Improved Efficiency Electrically Small Planar Inverted-F Antenna***
Saad Mufti, Christopher Smith, Alan Tennant and Luke Seed (University of Sheffield, United Kingdom)

11:50 ***Low Perturbation Measurement of Electrically Small Antennas***
Myles Capstick, Sven Kuhn and Niels Kuster (IT'IS Foundation, Switzerland)

12:10 ***Miniature and Wide-Band ILA Antenna with Non-Foster Matching***
Abdullah Haskou (IETR UMR CNRS 6164, Université de Rennes1, France); Dominique Lemur (IETR, Universite' de Rennes 1, France); Sylvain Collardey (University of Rennes 1, France); Ala Sharaiha (Université de Rennes 1 & IETR, France)

M2+P13: Scattering and Radar

RFID and Wireless networks
Room: A Sertig

Chairs: Claude Oestges (Université Catholique de Louvain, Belgium), Thomas Pairon (Université Catholique de Louvain, Belgium)

Regular

10:50 ***Performance Comparison of Millimeter-Wave Communications System with Different Antenna Beamwidth***
Tuan Dao (Samsung Electronics, Korea); Yuuichi Aoki (Samsung Electronics, Co., Ltd., Korea); Yonghoon Kim (Samsung Electronics Co Ltd, Korea); Yonghun Cheon (Samsung Electronics, Korea)

11:10 ***Near-field Electromagnetic Scattering Measurement and Imaging Approach Based on Compressed Sensing***
Yang Fang, Baoping Wang and Chao Sun (Northwestern Polytechnical University, P.R. China)

11:30 ***Doppler Spectrum of a Rotating Smooth Cylinder***
Thomas Pairon, Christophe Craeye and Claude Oestges (Université Catholique de Louvain, Belgium)

11:50 ***Wildlife Road-Crossing Monitoring System: Advances and Test-Site Validation***
Federico Viani (University of Trento & ELEDIA Research Center, Italy); Fabrizio Robol (ELEDIA Research Center, Italy); Alessandro Polo (University of Trento & ELEDIA Research Center, Italy); Enrico Giarola (ELEDIA Research Center, Italy)

12:10 ***A Surface Wave Radar Simulator***
Yannick Béniguel (IEEA, France); Muriel Darces and Marc Hélier (UPMC Univ Paris 6, France); Alain Reineix (University of Limoges, France); Philippe Pouliguen (DGA/Direction de la Stratégie, France)

P16: Ground Penetrating Radar - COST TU1208

Radar, Defence and security
Room: A Wisshorn
Chairs: Davide Comite (Villanova University, USA), Lara Pajewski ("Roma Tre" University of Rome, Italy)

Regular

10:50 ***Multi-Aperture Processing for Improved Target Detection in Forward-Looking GPR Applications***
Davide Comite, Fauzia Ahmad and Moeness G. Amin (Villanova University, USA); Traian Dogaru (US Army Research Lab, USA)

11:10 ***Design and Realization of a Cheap Ground Penetrating Radar Prototype @ 2.45 GHz***
Vincenzo Ferrara, Filippo Troiani, Fabrizio Frezza and Fabio Mangini (Sapienza University of Rome, Italy); Lara Pajewski ("Roma Tre" University of Rome, Italy); Patrizio Simeoni and Nicola Tedeschi (Sapienza University of Rome, Italy)

11:30 ***A Two-Step Multifrequency Imaging Technique for Ground Penetrating Radar***
Alessandro Fedeli, Matteo Pastorino and Andrea Randazzo (University of Genoa, Italy)

11:50 ***An Evaluation of Finite-Difference and Finite-Integration Time-Domain Modelling Tools for Ground Penetrating Radar Antennas***
Craig Warren (University of Edinburgh, United Kingdom); Lara Pajewski and Alessio Ventura ("Roma Tre" University of Rome, Italy); Antonios Giannopoulos (University of Edinburgh, United Kingdom)

12:10 ***Short-Term Scientific Missions on Electromagnetic Modelling and Inversion Techniques for Ground Penetrating Radar - COST Action TU1208***
Lara Pajewski ("Roma Tre" University of Rome, Italy); Antonios Giannopoulos

(University of Edinburgh, United Kingdom); Sebastien Lambot (Universite catholique de Louvain, Belgium); Marian Marciniak (National Institute of Telecommunications, Poland); Simone Meschino ("Roma Tre" University, Italy); Nicolas Pinel (Alyotech, France); Zoubir Mehdi Sbartaï (University of Bordeaux & I2M, France); Craig Warren (University of Edinburgh, United Kingdom)

CS20b: AMTA/EurAPP Session, Measurement of Millimeter-Wave Antennas

Multiple applications
Room: B Jakhobshorn
Chairs: Stuart Gregson (Nearfield Systems Inc. & Queen Mary, University of London, USA), Daniel J. Janse van Rensburg (Near Field Systems Inc., USA)

Convened

10:50 ***A Compact, Low-Cost Millimetre-Wave Anechoic Chamber***
Edward Hunter and Tinus Stander (University of Pretoria, South Africa)

11:10 ***A Volumetric Near-Field Scanner for Millimeter-Wave Antenna Measurements***
Christian Koenen, Gerhard Franz Hamberger, Uwe Siart and Thomas F. Eibert (Technische Universität München, Germany)

11:30 ***Thermoelastic Analysis of a Carbon-Fiber Compact Antenna Test Range Reflector***
John Hatzis (Nearfield Systems Inc., USA); Stuart Gregson (Nearfield Systems Inc. & Queen Mary, University of London, USA); Clive Parini (Queen Mary University of London, United Kingdom)

11:50 ***A Novel E-band Nearfield Scanner for Wafer Probed On-Chip Antenna Characterisation***
Keagan Ladds, Hendrik Nel and Tinus Stander (University of Pretoria, South Africa)

12:10 ***Mitigation of Multiple Reflections in Antenna Pattern Retrieval Method***
Gaurav Khairkar and Juha Ala-Laurinaho (Aalto University, Finland); Ville Viikari (Aalto University & School of Electrical Engineering, Finland); Vasilii Semkin (Aalto University School of Electrical Engineering, Finland); Antti V. Räisänen (Aalto University, Finland)

CS37b: The Alphasat Aldo Paraboni scientific experiment: results on the Ka- and Q-band propagation campaigns

Space
Room: C Sanada1
Chairs: Lorenzo Luini (Politecnico di Milano, Italy), Jose M Riera (Universidad Politécnica de Madrid, Spain)

Convened

10:50 ***Ka/Q-band Propagation Experiments in South of France: Site Diversity Statistics and First Results From Alphasat***
Xavier Boulanger and Laurent Castanet (ONERA, France); Frederic Lacoste (CNES, France); Bouchra Benammar (Centre National d'Etudes Spatiales (CNES), France)

11:10 ***Alphasat Experiment At Aveiro***
Armando C Rocha (University of Aveiro & Institute of Telecommunications, Portugal); Tiago Pereira (Universidade de Aveiro, Portugal); Susana Mota (University of Aveiro & Institute of Telecommunications, Portugal); Flávio M. da Silva Jorge (Instituto de Telecomunicações & Universidade de Aveiro, Portugal)

11:30 ***Statistical Analysis of Instantaneous Frequency Scaling Factor as Derived From Optical Disdrometer Measurements At K/Q Bands***
Michael Zemba and James Nessel (NASA, USA); Jacquelynne Houts (NASA Glenn Research Center, USA); Lorenzo Luini and Carlo Riva (Politecnico di Milano, Italy)

11:50 ***The Alphasat Aldo Paraboni Scientific Experiment: An Overview of the Activities of the European Space Agency***

Antonio Martellucci (European Space Agency, The Netherlands); Juan J. Rivera Castro (ESA, The Netherlands); Philippe Sivac (ESA ESTEC, Germany); Edoardo Benzi (ESA ESTEC, The Netherlands)

12:10 ***Alphasat Aldo Paraboni Propagation Experiment in Graz - Frequency Scaling Analysis***

Félix Cuervo, Karin Plimon and Michael Schönhuber (Joanneum Research, Austria); Antonio Martellucci (European Space Agency, The Netherlands); Juan J. Rivera Castro (ESA, The Netherlands)

A9: Antenna interaction and coupling II

Radar, Defence and security
Room: C Sanada2
Chair: Angelo Freni (University of Florence, Italy)

Regular

10:50 ***Optimized Direction of Arrival Antenna Array Placement on Airborne Platforms***

Ralf Lorch and Rainer Mueller (Airbus DS Electronics and Border Security, Germany)

11:10 ***Wideband Focal Plane Connected Array***

Aleksei Dubok, Ali Al-Rawi, Matti Herben and A. B. (Bart) Smolders (Eindhoven University of Technology, The Netherlands)

11:30 ***Wide-Angle Scanning Cavity Antenna Element for Mobile Satcom Applications At Ka Band***

Tobias Chaloun, Christian Waldschmidt and Wolfgang Menzel (University of Ulm, Germany)

11:50 ***Deviations in EM Radiation Absorption Due to Mechanical Deformation of Dual-Band Dipole Textile Antenna***

Norfatin Akma Binti Elias, Noor Asmawati Samsuri and Mohamad Kamal A. Rahim (Universiti Teknologi Malaysia, Malaysia); Nazirah Othman (University Teknologi Malaysia, Malaysia)

12:10 ***Enhanced RF Behaviour Multi-Layer Thermal Insulation***

Agnese Mazzinghi and Angelo Freni (University of Florence, Italy); Enrica Martini (University of Siena, Italy); Marco Sabbadini (Esa Estec, The Netherlands)

Friday, April 15, 12:40 - 13:40 (Europe/Zurich)

Closing: Closing Ceremony

Room: C Aspen
Chairs: Cyril Mangenot (European Space Agency, The Netherlands), Juan R Mosig (Ecole Polytechnique Federale de Lausanne, Switzerland)