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EuMW01 : EuMW/EuMC Opening Session

Chair: Guillaume Ducournau, Université de Lille, France

Co-Chair: Anthony Ghiotto, IMS (UMR 5218), France

10:30-12:45, Tuesday 24th September 2024, N01











- (NA)  **Welcome Address: Opening of the European Microwave Week 2024**
Guillaume Ducournau, EuMW 2024 General Chair
- (NA)  **EuMA Welcome Address**
Frank van den Bogaart, EuMA President
- (NA)  **Greetings from the IEEE MTT-S**
Maurizio Bozzi, Università di Pavia, Italy
- (NA)  **Greetings from the EuMW 2024 Platinum Sponsor**
- (NA)  **Technical Program of EuMW 2024**
Aurélian Crunteanu, EuMW 2024 General TPC Chair
- (NA)  **Announcements and Notifications**
Anthony Ghiotto, EuMC 2024 Chair
- (NA)   **Information Communication Technology for the Best and the Worst**
Jean-Pierre Raskin, UCLouvain, Belgium
- (NA)   **Ultra-Large Metasurface Apertures for Next Generation Communications, Sensing and Imaging**
David Smith, Duke University, USA
- (NA)  **Awards Ceremony**
Andy Gibson, Manchester Metropolitan University, UK

EuMC01 : Innovative Balun and Transition Structures and Applications

Chair: Jakub Sorocki, AGH UST, Poland

Co-Chair: Tarek Djerafi, INRS, Canada

08:30-10:10, Tuesday 24th September 2024, E04





- 3   **A Versatile Balun Based on a Power Divider Topology**
Lucie Jeannin¹, Larbi Boukhezar¹, Olivier Occello¹, Loïc Vincent², Guillaume Ducournau³, Marc Le Roy⁴, André Pérennec⁴, Philippe Ferrari¹
¹TIMA (UMR 5159), France; ²CIME Nanotech, France; ³IEMN (UMR 8520), France; ⁴Lab-STICC (UMR 6285), France
- 7   **Right-Angle D-Band Differential Microstrip to Waveguide Transition with Irises**
Maurice Schepers, Christian Krebs, Fraunhofer FHR, Germany
- 11   **Four-Element LC-Balun Topologies with Inherent DC-Feeding and DC-Blocking Properties and Complex Impedance Matching**
Rasmus Alexander Jepsen, Jan Henrik Ardenkjær-Larsen, T.K. Johansen, Vitaliy Zhurbenko, Technical University of Denmark, Denmark
- 15   **Phase-Tunable CMOS Hybrid Coupler for Dual-Mode Reflection Analysis**
Habibur Rahman, Adrian M. Lloca Recha, Dag Trygve Wisland, Kristian G. Kjelogård, University of Oslo, Norway
- 19   **Broadband Transition Between Substrate-Integrated Waveguide and Microstrip Line in Multilayer Substrate at 300-GHz Band**
Azuki Iwamoto, Shumpei Kishi, Yoshiki Sugimoto, Kunio Sakakibara, Takashi Shiraki, Nobuyoshi Kikuma, Nagoya Institute of Technology, Japan

EuMC02 : High Efficiency RF Power Amplification Techniques

Chair: Zoya Popović, University of Colorado Boulder, USA

Co-Chair: Anding Zhu, University College Dublin, Ireland

08:30–10:10, Tuesday 24th September 2024, E06

- 23  **C** **A Switch-Bank Approach for High-Power, High-Resolution, Fully-Digital Transmitters**
*R.J. Bootsman¹, D.P.N. Mul¹, M.R. Beikmirza¹, O. El Boustani², D. Maassen³,
B. van Velzen³, M. Rousstia³, R. Koster³, J.R. Gajadharsing³, T. Fritzsche⁴, Y. Shen⁵,
M.S. Alavi¹, L.C.N. de Vreede¹*
¹Technische Universiteit Delft, The Netherlands; ²TNO, The Netherlands; ³Ampleon, The
Netherlands; ⁴Fraunhofer IZM, Germany; ⁵Broadcom, The Netherlands
- 27  **C** **Analysis and Design of RF-Input Doherty-Like Circulator Load Modulated Amplifier**
Han Zhou, Haojie Chang, Christian Fager, Chalmers University of Technology, Sweden
- 31  **C** **Efficiency and Bandwidth Extension of Dual-Input Doherty Amplifiers Using
Frequency-Domain Adaptive Input Power Distribution**
*Mohammad Hossein Khazani, Fadhel M. Ghannouchi, Mohamed Helaoui, University of
Calgary, Canada*
- 35  **C** **Bandwidth and Efficiency Improvement in Sequential Load Modulated Balanced
Amplifiers**
*Mohammad Moussa, Ayssar Serhan, Pascal Reynier, Dominique Morche, Alexandre Giry,
CEA-Leti, France*
- 39  **C** **A Compact 2-GHz Band Inverse Class-E Power Amplifier with >70% Efficiency Over
440-MHz Bandwidth**
Y. Kawashima, S. Tanaka, Shibaura Institute of Technology, Japan

EuMC03 : Active Circuits and Modules I

Chair: Thomas Musch, Ruhr-Universität Bochum, Germany

Co-Chair: Manos M. Tentzeris, Georgia Tech, USA

08:30–10:10, Tuesday 24th September 2024, E07





- 43  **C** **2-D Phased Array Control Circuit for 8-Bit Infinite Phase Shifters with 1/8
Compressed Control Bus**
*Anji Miura, Asaka Kobayashi, Ren Imanishi, Hideyuki Nosaka, Ritsumeikan University,
Japan*
- 47  **C** **Concurrent Dual-Band Low Noise Amplifier Using Split-Type Filtering Networks**
Steven Matthew Cheng, Dimitra Psychogiou, University College Cork, Ireland
- 51  **C** **A 19–32.8GHz Low Power Down-Conversion Mixer with 8.2dBm IP1dB for 5G
Communication**
*Zhilin Chen, Wenbo Tian, Sheng Huang, Xiaoning Zhang, Yaxin Zhang, Xingcun Li,
Min Lu, Jie Hu, Keqing Ouyang, Zhijun Long, Sanechips Technology, China*
- 55  **C** **Machine Learning-Based Calibration Algorithm for Harmonic Rejection N-Path Mixers**
*Sana Ibrahim, Florence Podevin, Manuel Barragan, Sylvain Bourdel, TIMA (UMR 5159),
France*
- 59  **C** **MMIC Chipset Development for LO Block for 54GHz Millimetre Wave Test
Instrumentation**
*Sushil Kumar, Irfan Ashiq, Jeff Earls, Nicholas El-Takach, Trang Nguyen, Daniel Sangree,
Emerson, USA*

EuMC04 : Education in RF and Microwave

Chair: Mohamed Himdi, IETR (UMR 6164), France

Co-Chair: Simon Hemour, IMS (UMR 5218), France

13:50–15:30, Tuesday 24th September 2024, E03






- (NA)  **C** **Change the Way You Teach RF and Microwaves by Using Anyfields Tools** (*Industrial Keynote*)
Adrien Laffont, Anyfields, France
- 64  **C** **Fully Automated Python- and MATLAB-HFSS Interfaces Without VBA Scripts for Advanced Design Techniques**
Giacomo Giannetti, Università di Firenze, Italy
- 68  **C** **The Smith Chart Task Generator: Satisfying the Hunger for Exercising the Graphical Calculator**
Lukas Hüssen, Muh-Dey Wei, Renato Negra, RWTH Aachen University, Germany
- 72  **C** **The Great Microwave Education Opportunity of the Great Seal Bug (Also Known as “The Thing”)**
S. Hemour¹, Nicolas Barbot², F. Collin³, J.-L. Lachaud¹, S. Destor¹, J. Tomas¹
¹IMS (UMR 5218), France; ²LCIS (EA 3747), France; ³ENSEIRB-MATMECA, France

EuMC05 : Emerging Front-End Building Blocks

Chair: Etienne Perret, Université Grenoble Alpes, France

Co-Chair: Iлона Piekarz, AGH UST, Poland

13:50–15:30, Tuesday 24th September 2024, E04






- 76  **C** **Autonomous Nonlinear Passive Transmit-Receive Switch for Compact IoT Devices: A Three-Port Agile Network**
Rasool Keshavarz, Amber Abdullah, Negin Shariati, UTS, Australia
- 80  **C** **Crosstalk Reduction Enabled by Hybrid Metallo-Dielectric Waveguide Architecture**
Chun-Mei Liu, Ke Wu, Polytechnique Montréal, Canada
- 84  **C** **A 3.4–7.4-GHz Filtering Power Divider with Wide Stopband and Low Radiation Loss Using Triple-Mode Hybrid Microstrip/SIDGS Resonator**
Zhijian He, Xun Luo, UESTC, China
- 88  **C** **28-GHz GaN/SiC Series Gain Switch MMICs and Analysis of Their Power Handling Capabilities**
Hiroshi Mizutani¹, Ryo Ishikawa², Kazuhiko Honjo²
¹Tokyo KOSEN, Japan; ²University of Electro-Communications, Japan
- 92  **C** **Miniaturized Broadband Quadrature Coupler at Millimeter-Wave Band**
Sonu Kumar¹, Robin Kalyan², Zhenning Yang¹, Arokiaswami Alphones¹, Kevin Tshun Chuan Chai², Ranjan Singh¹
*¹NTU, Singapore; ²A*STAR, Singapore*

EuMC06: New Integration and Tuning Technologies for Planar and Quasi-planar Filters

Chair: Julien Lintignat, XLIM (UMR 7252), France

Co-Chair: Jorge Daniel Martínez Perez, Universitat Politècnica de València, Spain

13:50–15:30, Tuesday 24th September 2024, E05






- 96  **C** **Design of Lossy Filters in Silicon Technology by Means of Highly-Doped Resonators**
Miguel A. Sanchez-Soriano¹, Raul Diaz-Bastan¹, Cédric Quendo², Lisaidy Llano-Varela¹, Denis Le-Berre²
¹Universidad de Alicante, Spain; ²Lab-STICC (UMR 6285), France
- 100  **C** **Tunable Liquid Crystal Dual-Mode Filter in Substrate Integrated Waveguide Technology**
Marc Späth, Ersin Polat, Rolf Jakoby, Alejandro Jiménez-Sáez, Technische Universität Darmstadt, Germany
- 104  **C** **Liquid Metal-Based Reconfigurable Bandpass Filter**
Amir Ebrahimi, Haneen Abdelwahab, Greg Beziuk, Francisco Tovar-Lopez, Torben Daeneke, Kamran Ghorbani, RMIT University, Australia
- 108  **C** **Multi-Tunable Quasi-Circulator with Co-Designed Bandpass Filter and Switching-Off Functionality**
Kexin Li, Dimitra Psychogiou, University College Cork, Ireland
- 112  **C** **Diplexer at 67/77GHz for Future 6G Applications**
M. Wehbi¹, Gustavo A.P. Marcelo², Ariana L.C. Serrano², Gustavo P. Rehder², Loïc Vincent³, Philippe Ferrari⁴
¹ASYGN, France; ²Poli-USP, Brazil; ³CIME Nanotech, France; ⁴TIMA (UMR 5159), France

EuMC07: Non-planar Filters

Chair: Cristiano Tomassoni, Università di Perugia, Italy

Co-Chair: Raafat R. Mansour, University of Waterloo, Canada

13:50–15:30, Tuesday 24th September 2024, E06

- 116  **C** **Novel Resonant Coupling Structures for FVC Filters**
Cristiano Tomassoni¹, Enrique Lopéz-Oliver², Matteo Oldoni³, Giuseppe Macchiarella³
¹Università di Perugia, Italy; ²RS Microwave, USA; ³Politecnico di Milano, Italy
- 120  **C** **Design Procedure for Waveguide Comblines Filters Based on Flat Metallic Strips**
R. García¹, A.A. San-Blas¹, A. Coves¹, M. Guglielmi², V.E. Boria², Miguel A. Sanchez-Soriano³
¹Universidad Miguel Hernández de Elche, Spain; ²Universitat Politècnica de València, Spain; ³Universidad de Alicante, Spain
- 124  **C** **Synthesis of a Double-Mode SAW Resonator Filter Based on the Extracted-Pole Method**
Ángel Romero, Ricardo Pampliega, Jordi Verdú, Pedro de Paco, Universitat Autònoma de Barcelona, Spain
- 128  **C** **Method to Determine Parasitic Couplings in Microwave Filters**
Jedrzej Michalczyk, Jerzy Julian Michalski, SpaceForest, Poland
- 132  **C** **A Novel Approach to the Synthesis of Parallel-Connected Dual-Band Filters**
Jiyuan Fan, Ping Zhao, Zhi-Ang Xiong, Jinzhu Zhou, Xidian University, China

EuMC08: Active Circuits and Modules II

Chair: Kamal K. Samanta, AMWT, UK

Co-Chair: Almudena Suárez Rodríguez, Universidad de Cantabria, Spain

13:50–15:30, Tuesday 24th September 2024, E07






- 136  **C** **Digital GaN-Based Transceiver Module for Future Green 5G Networks**
Megha Krishnaji Rao, Andreas Wentzel, Thomas Hoffmann, Lars Schellhase, Serguei A. Chevtchenko, Matthias Rudolph, FBH, Germany
- 140  **C** **An Integrated Dual Channel LTCC Front-End Module for mm-Wave Communication Systems**
Xiyu Wang, Ruiqiang Zhang, Kai Cui, Wenming Li, Dehan Wang, Yu Zhang, ZTE, China
- 144  **C** **Elementary Back-Scattering Module Suitable for Active RIS Implementation Based on 5.8GHz Co-Polarized Antenna Pair**
Giovanni Lasagni, Giovanni Collodi, Monica Righini, Alessandro Cidronali, Università di Firenze, Italy
- 148  **C** **Spatially Distributed Polarization Receiver Array for Communication and Sensing Multifunction Systems**
Jie Deng, Pascal Burasa, Seyed Ali Keivaan, Ke Wu, Polytechnique Montréal, Canada
- 152  **C** **A 4-to-18GHz GaN Transmit/Receive Module for Next-Generation AESA Systems**
Eliás Antolinos¹, Marta Ferreras¹, Alfonso Ferreras², Álvaro Prieto², José Daniel Martínez², Eduardo Oreja-Gigorro², Javier Montero-de-Paz², Jesús Grajal¹, Juan José Sánchez-Martínez²
¹Universidad Politécnica de Madrid, Spain; ²Indra Sistemas, Spain

EuMC09: Integrated Non-reciprocal Devices and Circuits for System Applications

Chair: Ke Wu, Polytechnique Montréal, Canada

Co-Chair: Tân-Phu Vuong, IMEP-LAHC (UMR 5130), France

16:10–17:50, Tuesday 24th September 2024, E04

- 156  **C** **Operational Aggregation of Dual-Mode Circulator and Dual-Polarization Antenna with Built-In Tunable Self-Interference Cancellation for Full-Duplex**
Amir Afshani, Ke Wu, Polytechnique Montréal, Canada
- 160  **C** **A Reconfigurable Multiband Filtering Isolator Using Multimode Time-Modulated Resonators**
Yuhang Ning¹, Zhihua Wei¹, Pei-Ling Chi², Tao Yang¹
¹UESTC, China; ²NYCU, Taiwan
- 164  **C** **Multi-Functional Filtering Power Divider with Tunable Center Frequency and Isolator Functionality**
Girdhari Chaudhary, Palaystint Thorng, Phanam Pech, Yongchae Jeong, Jeonbuk National University, Korea
- 168  **C** **SMD Compatible Ku-Band LTCC Circulators**
Norbert Parker¹, Camilla Kärnfelt¹, Richard Lebourgeois², Vincent Laur¹, Laurent Roussel²
¹Lab-STICC (UMR 6285), France; ²Thales, France
- 172  **C** **Planar Isolator Based on Field Displacement in Ferrite Substrate**
Sokha Khim¹, Jehison Leon Valdes¹, Hervé Parvery², Laure Huitema¹, Thierry Monediere¹
¹XLIM (UMR 7252), France; ²CISTEME, France

EuMC10: Advanced Filter Synthesis and Design Methodologies

Chair: Eric Rius, Université de Brest, France

Co-Chair: Michael Höft, CAU, Germany

16:10–17:50, Tuesday 24th September 2024, E05





- 176  **C Improved Section Extraction Technique for Fully-Canonical Filters**
Matteo Oldoni¹, Stefano Tamiazzo², Giuseppe Macchiarella¹, Gian Guido Gentili¹, Steven Caicedo³
¹Politecnico di Milano, Italy; ²CommScope, Italy; ³SIAE MICROELETTRONICA, Italy
- 180  **C Direct Synthesis of Wideband Reactive Bandstop Filter Using the Coupling Matrix**
Mario Faura, Carlos Caballero, Jordi Verdú, Pedro de Paco, Universitat Autònoma de Barcelona, Spain
- 184  **C An Alternative Design Approach for the Design of Wideband Bandpass Filters Based on Cascaded Building Blocks**
Adnan Nadeem¹, Symeon Nikolaou¹, Dimitra Psychogiou², Photos Vryonides¹
¹Frederick Research Center, Cyprus; ²University College Cork, Ireland
- 188  **C Miniaturized Ka-Band Metasurface Filter with Wide Out-of-Band Rejection up to the 5th Harmonic**
Arash Arsanjani¹, Arezoo Abdi¹, Ziad Hatab¹, Ahmad Bader Alothman Alterkawi², Michael Ernst Gadringer¹, Wolfgang Bösch¹
¹Technische Universität Graz, Austria; ²AT&S, Austria

EuMC11: Innovative and 3D printed passive components and filters

Chair: Miguel A.G. Laso, Universidad Pública de Navarra, Spain

Co-Chair: Giuseppe Macchiarella, Politecnico di Milano, Italy

16:10–17:50, Tuesday 24th September 2024, E06


- 192  **C K-Band Waveguide Terminator Suitable for Additive Manufacturing Technology and its Applications**
Yu Ushijima, Hidenori Yukawa, Toru Takahashi, Naofumi Yoneda, Mitsubishi Electric, Japan
- 196  **C Fully 3D-Printed Filter Based on Helical Resonators with Elliptical Line Cross-Section**
Paolo Vallerotonda, Luca Pelliccia, RF Microtech, Italy
- 200  **C Design of Double-Ridge-Waveguide Twist for Ultra-Wideband Application**
Peng Liu¹, Jia-Lin Li², Zhi-Peng Li¹, Wen-Jie Li¹
¹CAEP, China; ²UESTC, China
- 204  **C Wideband Double-Ridge Waveguide-Coaxial Adaptor**
Gian Marco Zampa¹, Marco Farina¹, Lino Russo², Giandomenico Amendola³, Oilid Bouzekri⁴, Antonio Morini¹
¹Università Politecnica delle Marche, Italy; ²ST4I, Italy; ³Università della Calabria, Italy; ⁴ESA-ESTEC, The Netherlands

EuMC12: Additive Manufacturing for 90 GHz and Above

Chair: Hjalti H. Sigmarsson, University of Oklahoma, USA

Co-Chair: Thomas Zwick, KIT, Germany

08:30–10:10, Wednesday 25th September 2024, E02






- 208  **C** **Quasi-Optical Directional Coupler Based on 3D-Printed Dielectric Image Lines for Sub-THz Applications**
Leonhard Hahn¹, Lukas Bürk¹, Yu Zhu², Christian Carlowitz¹, Gerald Gold¹, Frank Ellinger², Martin Vossiek¹
¹FAU Erlangen-Nürnberg, Germany; ²Technische Universität Dresden, Germany
- 212  **C** **3D-Printed Dielectric Waveguides for Multi-Band mm-Wave Applications**
Nico Riese, Adrian Diepolder, Jonas Kunz, Matthias Linder, Christian Damm, Christian Waldschmidt, Universität Ulm, Germany
- 216  **C** **Investment Casting of Microwave Components for E-Band**
David Panusch, Christoph Birkenhauer, Gerald Gold, FAU Erlangen-Nürnberg, Germany
- 220  **C** **A D-Band Horn Antenna Made by a Proprietary Metallization Process of Photopolymer 3D-Prints**
Anil Cagri Atak¹, Andreas Frölich¹, Alexander Quint², Thomas Zwick², Christian Wolff¹
¹Horizon Microtechnologies, Germany; ²KIT, Germany
- 224  **C** **Additively Manufactured Leaky Wave Antenna in Dielectric Image Line Technology**
Tobias Bader, Gerald Gold, FAU Erlangen-Nürnberg, Germany

EuMC13: RIS and Tunable Surfaces

Chair: Ferran Martín, Universitat Autònoma de Barcelona, Spain

Co-Chair: Alejandro Jiménez-Sáez, Technische Universität Darmstadt, Germany

08:30–10:10, Wednesday 25th September 2024, E03






- 228  **C** **Unit Cell Design for Dual-Polarized Liquid Crystal Reconfigurable Intelligent Surface Based on Defected Delay Lines**
Robin Neuder, Yingzhe Liu, Nora Dzieia, Dongwei Wang, Alejandro Jiménez-Sáez, Technische Universität Darmstadt, Germany
- 232  **C** **Reconfigurable Intelligent Surfaces for OTA Testing: Wireless Cable**
Pavlo S. Krasov, Oleg A. Iupikov, Artem R. Vilenskiy, Yuqing Zhu, Marianna V. Ivashina, Chalmers University of Technology, Sweden
- 236  **C** **Dual Polarized 1-Bit Reconfigurable Reflective Unit Cell Design for Intelligent Reflective Surfaces Operating in the 5.8GHz ISM Band**
Andre Scheder, Johannes Fleischmann, Patrick Gröschel, Martin Vossiek, FAU Erlangen-Nürnberg, Germany
- 240  **C** **A 6GHz 8×8 Dual-Polarized PCB-Based RIS with 2-Bit Phase Configuration**
Kussai Ali, Magomet Torschchojew, Wilhelm Keusgen, Technische Universität Berlin, Germany
- N/A  **C** **Reconfigurable Frequency Selective Surface with Independent Tunability**
Hongwei Wang, Ning Liu, Xianjun Sheng, Dalian University of Technology, China

EuMC14: Characterisation of RF Devices and Circuits

Chair: Denis Barataud, XLIM (UMR 7252), France

Co-Chair: Dominique Schreurs, KU Leuven, Belgium

08:30–10:10, Wednesday 25th September 2024, E05






- 248  **C Identification of Parasitic Capacitances in Integrated Circuits by Contactless RF Voltage Sensing**
Mathias Poik¹, Thomas Hackl¹, Stefano Di Martino², Jin Dang², Georg Schitter¹
¹Technische Universität Wien, Austria; ²Infineon Technologies, Austria
- 252  **C Influence of On-Wafer Parasitic Effects on Mason's Gain of Down-Scaled InP HBTs**
Abhijeet Kanitkar¹, Ralf Doerner¹, T.K. Johansen², Wolfgang Heinrich¹, Thomas Flisgen¹
¹FBH, Germany; ²Technical University of Denmark, Denmark
- 256  **C Frequency-Domain Simulation and Time-Domain Measurements of a GaN Amplifier Driven by M-QAM Modulated Carrier Generator**
C. Hallepee, D. Passererieux, G. Neveux, D. Barataud, XLIM (UMR 7252), France
- 260  **C Induced Current Mismatch Correction Based on X Parameters Theory**
Mikel G. Palomo, Sergio Ortiz Ruiz, Alberto Medina-Rull, Enrique G. Marín, Mario F. Pantoja, Francisco Pasadas, Andrés Godoy, Francisco G. Ruiz, Universidad de Granada, Spain
- 264  **C On the Linearizability of a GaN Technology Process**
Ammar Issaoun, Konstantin Osipov, Aryan de Jong, Ampleon, The Netherlands

EuMC15: Innovative Antenna Designs for Radar and SatCom Applications

Chair: Thomas Fromentèze, XLIM (UMR 7252), France

Co-Chair: Steve Hang Wong, CityU, China

08:30–10:10, Wednesday 25th September 2024, E06

- 268  **C A Fresnel-Based Lens Antenna with Reduced Antenna Reflections for Millimeter Wave Radar**
Niklas Muckermann, Robin Schmitz, Jan Barowski, Nils Pohl, Ruhr-Universität Bochum, Germany
- 272  **C Waveguide Antenna Array Element with Minimized Power Amplifier Load Pull for LEO NTN**
Sören Harms¹, Martijn de Kok¹, Stefania Monni², Alessandro Garufo², Jean-Philippe Fraysse³, Thierry Girard³, Ulf Johannsen¹
¹Technische Universiteit Eindhoven, The Netherlands; ²TNO, The Netherlands; ³Thales, France
- 276  **C Ultra-Miniature Reactive-Loaded Antenna Micro-Array on Metallic Context for Sat-IoT**
S. Bories¹, J.-F. Pintos¹, M. Jadid¹, C. Delaveaud¹, V. Gamonal², C. Gracia²
¹CEA-Leti, France; ²Kinéis, France
- 280  **C Periodic Via Wall Shaped Substrate Integrated Waveguide Composite Right-Left Handed Frequency Scanning Antenna for Radar**
Dongyin Ren, Ryan Wu, Baokun Liu, Jun Li, NXP Semiconductors, USA
- 284  **C Polarization Diverse Ku-, K-Band Leaky-Wave Antenna Achieved Through Efficient Routing of Meandering Microstrips**
Pratik Vadher, Giulia Sacco, Denys Nikolayev, IETR (UMR 6164), France

EuMC16: Backscattering Techniques and Solutions for Sensing and Identification

Chair: Jasmin Grosinger, Technische Universität Graz, Austria

Co-Chair: Simon Hemour, IMS (UMR 5218), France

08:30–10:10, Wednesday 25th September 2024, E07






- 288  **Enhanced Third-Order Intermodulation Backscattering for Batteryless Sensor Nodes**
Yasser Qaragoz, Sofie Pollin, Dominique Schreurs, KU Leuven, Belgium
- 292  **Structural Health Monitoring of Reusable Launch System Using Endovibrator-Type Wireless Sensors**
Arnaud Kuakuvi¹, Corinne Dejous², David Barnoncel³, S. Hemour²
¹NXP Semiconductors, France; ²IMS (UMR 5218), France; ³ArianeGroup, France
- 296  **Polarization Shift Keying for Device Authentication in Wireless Sensor Network**
Lamoussa Sanogo, Eric Alata, Taki E. Djidjekh, Gaël Loubet, Alexandru Takacs, Daniela Dragomirescu, LAAS-CNRS, France
- 300  **Backscattering Rectifier for Security and Identification in the Context of Simultaneous Wireless Information and Power Transfer**
Taki E. Djidjekh¹, Gaël Loubet¹, Lamoussa Sanogo¹, Alassane Sidibé¹, Guillaume Delai², Daniela Dragomirescu¹, Alexandru Takacs¹
¹LAAS-CNRS, France; ²Ogoxe, France
- 304  **Low-Latency Chipless RFID Tag Reader: Real-World Implementation of Frequency Hopping-Sweeping Blind Detection Technique**
Mohamed El-Hadidy¹, Shahed I. Khan², Likitha Lasantha², Ines Bakri¹, Marc Tröge¹, Nemaï C. Karmakar²
¹Hochschule RheinMain, Germany; ²Monash University, Australia

EuMC17: Microwave Sensing Techniques for Biomolecules to Tissues

Chair: Katia Grenier, LAAS-CNRS, France

Co-Chair: Francesca Apollonio, Università di Roma “La Sapienza”, Italy

08:30–10:10, Wednesday 25th September 2024, E08




- (NA)  **The Evolution of MW Exposure Systems: Laboratory Experiments in the Era of 5G Technology (Industrial Keynote)**
Francesca Apollonio, Carmen Pisano, Noemi Dolciotti, Alessandra Paffi, Micaela Liberti, Università di Roma “La Sapienza”, Italy
- 309  **Post-Processing Scheme for EPR Spectroscopy Based on Planar Microwave Structures**
Selina Eckel, Ahmet Çağrı Ulusoy, KIT, Germany
- 313  **Ultra-High Frequency Dielectrophoresis to Characterize Mesenchymal Stem Cells Differentiation: Application to Bioceramics Synthesis**
Nina Blasco¹, Alice Abélanet², Eric Champion², Amandine Magnaudeix², Arnaud Pothier¹, Claire Dalmay¹
¹XLIM (UMR 7252), France; ²IRCER (UMR 7315), France
- 317  **Modeling a 4-Port Microwave-Based Biosensor for 3D Models Mapping**
Y. Li, O. Peytral-Rieu, D. Dubuc, K. Grenier, LAAS-CNRS, France
- 321  **Investigation of the Electromagnetic Wave-Tissue Interaction of a 75–110GHz Reflective Resonator Probe for Tissue Classification**
Damaris Hecht, Tim Pfahler, Martin Vossiek, FAU Erlangen-Nürnberg, Germany

EuMC18: Antennas for Microwave and Millimeter-Wave Systems

Chair: Tuami Lasri, IEMN (UMR 8520), France

Co-Chair: Ilona Rolfes, Ruhr-Universität Bochum, Germany

08:30–10:10, Wednesday 25th September 2024, 741A





- 325  **C** **W-Band Distributed Antenna System Using Low-Pass Sigma-Delta-over-Fiber**
Husileng Bao¹, Marcus Gavell², Christian Fager¹
¹Chalmers University of Technology, Sweden; ²Gotmic, Sweden
- 329  **C** **Power Detection for the H-Band in the Antenna Near Field**
Benjamin Röben¹, Karsten Lange², Priyanka Mondal³, Pierre Gellie³, Andreas Steiger¹
¹PTB, Germany; ²SLT Sensor- und Lasertechnik, Germany; ³Lytid, France
- 333  **C** **Utilization of Liquid Crystal Based Reflectarray Antennas for Multipath-Assisted Localization**
Gerzon Gomez-Bravo¹, Robert Guirado², Patrick Hödl¹, Reinhard Teschl¹, G. Perez-Palomino², Klaus Witrissal¹, Thomas Wilding¹, Eduardo Carrasco², Wolfgang Bösch¹
¹Technische Universität Graz, Austria; ²Universidad Politécnica de Madrid, Spain
- 337  **C** **Minimizing Intermodulation Distortion in a Transmitting Antenna Array with Matching**
Veli-Pekka Kutinlahti, Anu Lehtovuori, Ville Viikari, Aalto University, Finland
- 341  **C** **EVM Analysis of Chip-Integrated Phased Array Antenna Using USRP for 5G Communication**
Hyeon-Jeong Cho, Ji-Hoon Lee, Kyeong-Han Shin, Jong-Won Yu, KAIST, Korea

EuMC19: Sustainability and Environmental Impact

Chair: Jean-Pierre Raskin, UCLouvain, Belgium

Co-Chair: Pierre Blondy, XLIM (UMR 7252), France

10:40–12:20, Wednesday 25th September 2024, E01






- 345  **C** **Biodegradable On-Plant Resonator for Backscatter Communication Based Wireless Growth Monitoring**
Ahmet Bilir¹, Burak Ferhat Ozcan¹, Zeliha Cansu Canbek Ozdil², Sema Dumanli¹
¹Bogazici University, Türkiye; ²Yeditepe University, Türkiye
- 349  **C** **On the Use of Bio-Sourced Substrate to Realize High Performance and Low Environmental Impact RF Components**
Rim Berro, Nhu Huan Nguyen, Pascal Xavier, Tan Phu Vuong, CROMA (UMR 5130), France
- 353  **C** **Characterisation of the Humidity Effect on the Performance of Bio-Based Medium-Density Fiberboard (MDF) Substrate Patch Antenna**
C. Bourretère¹, V. Lourenço Martins², J.-Y. Deletage¹, Anthony Ghiotto¹
¹IMS (UMR 5218), France; ²ONERA, France
- 357  **C** **Minimalist Low-Power Batteryless Temperature Sensor Tag for Non-Invasive Long-Distance Wireless Continuous Monitoring**
Andrés Sere¹, Leonardo Steinfeld¹, S. Hemour², Pablo Pérez-Nicoli¹
¹Universidad de la República, Uruguay; ²IMS (UMR 5218), France

EuMC20: Versatility of 3D Printing Technologies for Microwave Devices

Chair: Rodica Ramer, UNSW, Australia

Co-Chair: Nicolas Delhote, XLIM (UMR 7252), France

10:40–12:20, Wednesday 25th September 2024, E02






- 361  **C** **A Compact Broadband Quadrature Coupler Using 3D-Printing Package Technology**
Zhiwei Win¹, He Zhu², Bobby Chan³, Ryan Bahr³, Yang Yang¹
¹UTS, Australia; ²CSIRO, Australia; ³Nano Dimension, USA
- 365  **C** **Monolithic Additive Manufacturing of a Dual-Mode Cavity Filter Based on Ellipsoidal Resonators**
Bastien Peres¹, Pierre Lemaitre-Auger², Fabien Schwartz³, Tan Phu Vuong¹
¹CROMA (UMR 5130), France; ²LCIS (EA 3747), France; ³AML Microtechnique Lorraine, France
- 369  **C** **Additively Manufactured S/X Dual-Band Antenna**
Lorenzo Giambuzzi¹, Fabrizio Andreaus¹, Alessia Colasante¹, Diego Vicentini¹, Monica Righini², Stefano Maddio², Stefano Selleri², Giuseppe Pelosi²
¹Rheinmetall, Italy; ²Università di Firenze, Italy
- 373  **C** **3D Printed Transmission Type Phase Shifter Based on Tunable Liquid Crystals**
S. Pietschmann¹, F. Bilchenko², H. Maune², J. Shi¹, F. Bachbauer¹, Gerald Gold¹
¹FAU Erlangen-Nürnberg, Germany; ²OvG Universität Magdeburg, Germany
- 377  **C** **Low-Cost Method for Effective Conductivity Improvement of Additively Manufactured All-Metal Waveguide Components**
Jakub Sorocki¹, Ilona Piekarz¹, Michal Baranowski², Adam Lamecki², Alberto Cattenone³, Stefania Marconi³, Gianluca Alaimo³, Nicolò Delmonte³, Lorenzo Silvestri³, Maurizio Bozzi³
¹AGH University of Krakow, Poland; ²Gdansk University of Technology, Poland; ³Università di Pavia, Italy

EuMC21: mm-Wave/THz Electromagnetic Surfaces

Chair: María García-Viguera, IETR (UMR 6164), France

Co-Chair: Esteban Menargues, SWISSto12, Switzerland






10:40–12:20, Wednesday 25th September 2024, E03

- 381  **C** **A Modular System Design for Chip-Based Reflectarrays at Sub-THz Frequencies**
Susanne Brandl, Mario Mueh, Christian Waldschmidt, Universität Ulm, Germany
- 385  **C** **AlGaIn/GaN Grating-Gate Plasmonic Crystals Towards Tunable Terahertz Filters and Modulators**
Pavlo Sai, Maksym Dub, Serhii Kukhtaruk, Vadym Korotyeyev, Wojciech Knap, Polish Academy of Sciences, Poland
- 389  **C** **Terahertz Digital Reconfigurable Metamaterial Array for Dynamic Beamforming Applications**
Eistiak Ahamed, Rasool Keshavarz, Negin Shariati, UTS, Australia
- 393  **C** **Q/V-Band 1-Bit Reconfigurable Metasurface for 6G Non-Terrestrial Network Applications**
Jakub Przepiorowski¹, Vladimir Lenets², Luca Santamaria², Mikhail A. Odit², Youssef Nasser², Max J. Ammann¹, Geoffroy Lerosey²
¹TU Dublin, Ireland; ²Greenerwave, France
- 397  **C** **Two Types of Rhombic Distributed Transmission-Line Models for Designing Topological Waveguides**
Tsutomu Nagayama, Kagoshima University, Japan

EuMC22 : High-Data Rate Millimeter-Wave and THz Communications

Chair: Akanksha Bhutani, KIT, Germany — Co-Chair: Robert B. Kohlhaas, Fraunhofer HHI, Germany

10:40–12:20, Wednesday 25th September 2024, E04






- 401  **C** **120Gbit/s Aggregated Channel Transmission in the 600GHz Band Using Topological Waveguide**
A.S. Mohammed¹, G. Lévêque¹, E. Lebouvier¹, Y. Pennec¹, M. Faucher¹, A. Amo², Pascal Szriftgiser², T. Nagatsuma³, Guillaume Ducournau¹
¹IEMN (UMR 8520), France; ²PhLAM (UMR 8523), France; ³Osaka University, Japan
- 405  **C** **A 64-Element D-Band Transmit Phased-Array with Antenna-on-Chip for Beyond-5G Wireless Communications**
Toshihide Kuwabara, Koki Tanji, Noriaki Tawa, Shinji Hachiyama, Tomoya Kaneko, NEC, Japan
- 409  **C** **A 57.6Gb/s D-Band Point-to-Point Link Based on Real Time Baseband Processors and Transmissive RIS**
J.L. González-Jiménez¹, A. Hamani¹, A. Siligaris¹, F. Foglia Manzillo¹, A. Clemente¹, Evangelos Pikasis², Dimitrios S. Kritharidis², E.D. Tsiaras², E.C. Loghis²
¹CEA-Leti, France; ²Intracom Telecom, Greece
- 413  **C** **Aggregated 0.3Tbit/s Link Using Photonics-Transmitter and Micromachined Flat Array Antenna Over 315–410GHz**
Hadjer Nihel Khelil¹, Alexandre Renau¹, Pascal Szriftgiser², Yannick Roelens¹, Redha Kassi¹, Mohammed Zaknoute¹, Malek Zegaoui¹, Joachim Oberhammer³, Guillaume Ducournau¹
¹IEMN (UMR 8520), France; ²PhLAM (UMR 8523), France; ³KTH, Sweden
- 417  **C** **D-Band Data Interconnect Based on Polymer Microwave Fiber in SiGe HBT Technology**
Haojie Chang¹, Victor Torres², Sining An³, Frida Strömbeck¹, Yu Yan¹, Herbert Zirath¹, Ioannis Papananos⁴, Jonas Hansryd³, Yinggang Li⁵
¹Chalmers University of Technology, Sweden; ²Anteral, Spain; ³Ericsson, Sweden; ⁴NTUA, Greece; ⁵Shenzhen Technology University, China

EuMC23 : Characterisation of RF Material Properties

Chair: Xiaobang Shang, NPL, UK

Co-Chair: Stéphane Bila, XLIM (UMR 7252), France

10:40–12:20, Wednesday 25th September 2024, E05






- 421  **C** **Contact Free Electrical Conductivity Characterization Probe Using a Microwave Dielectric Resonator**
Roua Djebbi¹, Nicolas Delhote¹, Serge Verdeyme¹, Olivier Tantot¹, Elodie Pereira², Laurence Boyer², Olivier Durand²
¹XLIM (UMR 7252), France; ²CTTC, France
- 425  **C** **A Convenient Method for Measuring Permittivity Using the Slotted Rectangular Waveguide**
Yujie Liu, Changying Wan, Guobin Wan, Yingfan Wang, Limin Tu, Northwestern Polytechnical University, China
- 429  **C** **Multiphysics Approach for Temperature-Dependent Microwave Material Characterization**
Baptiste Henriot¹, Jesse Allens Touoyem Talla², Olivier Tantot¹, Nicolas Delhote¹, Serge Verdeyme¹, Jaona Randrianalisoa², Thierry Duvaut², Michael Charles³
¹XLIM (UMR 7252), France; ²ITheMM (EA 7548), France; ³CEA Le Ripault, France
- 433  **C** **Millimeter-Wave Re-Entrant Cavity Resonator Sensor for Liquid Dielectric Metrology**
Ali M. Mohammed¹, Yi Wang¹, Talal Shaik¹, Stephen M. Hanham²
¹University of Birmingham, UK; ²Imperial College London, UK
- 437  **C** **Package Material Characterization Using Multiline TRL Algorithm Up to 110GHz**
Robert Trieb, Andy Heinig, Fraunhofer IIS, Germany

EuMC24: Innovative Antenna Designs for Millimetre-Wave Wireless Applications

Chair: Diego Caratelli, Technische Universiteit Eindhoven, The Netherlands

Co-Chair: Laure Huitema, XLIM (UMR 7252), France

10:40–12:20, Wednesday 25th September 2024, E06

- 441  **C** **Leaky-Wave Antenna With Dielectric Structures Based on the Holographic Principle**
Karim El Isa, Guillaume François, Dirk Heberling, RWTH Aachen University, Germany
- 445  **C** **A Study on Efficiency and Frequency Scanning in Corrugated-Waveguide-Based Leaky-Wave Antennas**
Aritra Roy, Guido Valerio, Julien Sarrazin, GeePs (UMR 8507), France
- 449  **C** **A 135GHz Aperture-Coupled Antenna for D2D Communication Using Fused Silica and eWLB Technology**
Luca Valenziano¹, Elizabeth Bekker¹, Vadim Issakov², Thomas Zwick¹, Akanksha Bhutani¹
¹KIT, Germany; ²Technische Universität Braunschweig, Germany
- 453  **C** **Substrate-Integrated Coaxial Line Fed Air-Filled SIW Antenna for the 28GHz 5G Bands**
Laura Van Messem, Arno Moerman, Olivier Caytan, Hendrik Rogier, Sam Lemey, imec, Belgium
- 457  **C** **Circularly-Polarized Double-Curvature Conformal Leaky-Wave Antenna Based on Holographic Principle**
Mohammad Amin Chaychi Zadeh¹, Sajjad Zohrevand¹, Ehsan Farokhipour², Daniel Erni², Nader Komjani¹
¹IUST, Iran; ²Universität Duisburg-Essen, Germany

EuMC25: Recent Advances in Rectifiers and Power Beaming Systems

Chair: Nuno Borges Carvalho, Instituto de Telecomunicações, Portugal

Co-Chair: Alessandra Costanzo, Università di Bologna, Italy

10:40–12:20, Wednesday 25th September 2024, E07





- 461  **C** **2.08GHz GaN Doherty Rectifier with 20dB Input Dynamic Range**
Yoonjung Lee¹, Sooncheol Bae¹, Soohyun Bin¹, Young Chan Choi¹, Wonseob Lim², Youngoo Yang¹
¹Sungkyunkwan University, Korea; ²KERI, Korea
- 465  **C** **High-Efficiency 10-GHz Low-Cost Scalable Rectenna Subarrays**
Allie Montgomery, Jack Molles, Cody Scarborough, Zoya Popović, University of Colorado Boulder, USA
- 469  **C** **A Fully Passive Machine Learning Enabled Lens-Based mmID System for Enhanced Orientation Detection in 5G/mmWave and IoT Applications**
Marvin Joshi, Charles A. Lynch III, Kexin Hu, Genaro Soto-Valle, Manos M. Tentzeris, Georgia Tech, USA
- 473  **C** **A Novel Anode Current Stabilization Method for Improving Magnetrons' Output Characteristic**
Shaoyue Wang¹, Yan Zhao¹, Xiaojie Chen², Zhongqi He¹, Haoming He¹, Liping Yan¹, Changjun Liu¹
¹Sichuan University, China; ²Guangxi High People's Court, China
- 477  **C** **A Vivaldi Antenna Array Based Far-Field Wireless Power Beaming (WPB) System and Receiver Architecture Optimization for Constant η -Overall**
Adnan Basir Patwary, Rafsan Mahin, Ifana Mahbub, University of Texas at Dallas, USA

EuMC26: Biomedical Imaging and Diagnosis Systems

Chair: Ann Franchois, Ghent University, Belgium

Co-Chair: Simona Di Meo, Università di Pavia, Italy

10:40–12:20, Wednesday 25th September 2024, E08

- 481  **C** **Magnetically Coupled, Passive Birdcage Resonator for Boosting Sensitivity of 1.5T MRI**
Jóan Hofgaard Kötum¹, Mark Gosselink², Hans Hoogduin², Dennis Klomp², Vitaliy Zhurbenko¹
¹Technical University of Denmark, Denmark; ²University Medical Center Utrecht, The Netherlands
- 485  **C** **Portable Microwave (pMWI) System for Brain Stroke Imaging Using Off-the-Shelf Components**
M. Gugliermi¹, D.O. Rodriguez-Duarte¹, C. Origlia¹, Jorge Alberto Tobon Vasquez¹, R. Scapaticci², L. Crocco², Francesca Vipiana¹
¹Politecnico di Torino, Italy; ²CNR-IREA, Italy
- 489  **C** **Wireless Beamforming for Electromagnetic Field Focusing in Brain Tissue**
Woojun Lee¹, Pouya Faeghi¹, Alan D. Dorval², Jeffrey Sean Walling¹
¹Virginia Tech, USA; ²University of Utah, USA
- 493  **C** **Microwave Non-Invasive Blood Glucose Monitor: Wireless Implementation and Challenges**
Heungjae Choi¹, Steve Luzio², Adrian Porch¹
¹Cardiff University, UK; ²Swansea University, UK

EuMC27: Millimeter-Wave Systems

Chair: Mark Bentum, Technische Universiteit Eindhoven, The Netherlands

Co-Chair: Tuami Lasri, IEMN (UMR 8520), France



10:40–12:20, Wednesday 25th September 2024, 741A

- 497  **C** **Vital Signs Monitoring Using 61.4GHz CW MIMO Radar Sensor with LO-Scalable Low-Voltage Low-Power SiGe BiCMOS Chipset**
Batuhan Sutbas¹, Herman Jalli Ng², Mohamed Hussein Eissa¹, Corrado Carta¹, Gerhard Kahmen¹
¹IHP, Germany; ²Hochschule Karlsruhe, Germany
- 501  **C** **Printed Circuit Board Material Characterization at Millikelvin Temperatures for Cryogenic Microwave Circuit Design**
Nicole Zocher, Tim Pfahler, Martin Vossiek, Christian Carlowitz, FAU Erlangen-Nürnberg, Germany
- 505  **C** **Multi-User Beam Tracking with a Reconfigurable Intelligent Surface Using Stereo Camera Images**
Akira Ebihara¹, Akira Kumagai², Mizuki Kataoka², Yutaka Ui², Osamu Kagaya², Hiroyuki Morikawa¹, Yoshiaki Narusue¹
¹University of Tokyo, Japan; ²AGC, Japan
- 509  **C** **Over-the-Air 26GHz Receiver Hardware-Software Evaluation Towards Joint Communication and Radar Sensing**
Sandra George¹, Padmanava Sen¹, Muhammad Umar¹, Maximilian Matthé¹, Jan Adler¹, Mehrab Ramzan¹, Corrado Carta²
¹Barkhausen Institut, Germany; ²Technische Universität Berlin, Germany
- 513  **C** **Development and Characterization of 5.8GHz Reflective Amplifier with Variable Gain for Active Reconfigurable Intelligent Surfaces**
Giovanni Collodi, Giovanni Lasagni, Monica Righini, Stefano Maddio, Alessandro Cidronali, Università di Firenze, Italy

EuMC28: EuMC Poster 1







Chair: Tân-Phu Vuong, IMEP-LAHC (UMR 5130), France

10:40-12:20, Wednesday 25th September 2024, Exhibition Hall

- 517  **C** **Design and Synthesis of a Dualband Capacitive Resonant Coupler for Harmonic Backscattering Through an Isolation Barrier**
Lukas Hüssen, Muh-Dey Wei, Renato Negra, RWTH Aachen University, Germany
- 521  **C** **Ku/K-Band LTCC SMD Circulator for Space Applications**
S. Jemmeli¹, H. Turki¹, I. Marah¹, J.L. Roux², Camilla Kärfelt³, Richard Lebourgeois⁴
¹Exens Solutions, France; ²CNES, France; ³IMT Atlantique, France; ⁴Thales, France
- 525  **C** **A WR-15 High-Power Handling, Amplitude and Phase Stable Full Band Rotary Joint Based on TE01 Mode**
Alex H. Chen, Alexander Chen, Yonghui Shu, Eravant, USA
- 529  **C** **Monolithically-Integrated Quarter-Spherical Bandstop Filters**
Dimitra Psychogiou¹, Christian Elmiger², Symeon Nikolaou³, Photos Vryonides³
¹University College Cork, Ireland; ²Stryker, Ireland; ³Frederick Research Center, Cyprus
- 533  **C** **Passive Artificial Magnetic Conductor (AMC) Reflector for Far-Field Beam Steering**
Swad Al Nahiyani, Mehrab Ramzan, Shahanawaz Kamal, Padmanava Sen, Barkhausen Institut, Germany
- 537  **C** **Design of PCB Transitions with Low Return Loss to Interface with Suspended Stripline up to 100GHz**
Arezoo Abdi, Arash Arsanjani, Ziad Hatab, Gregor Steinbauer, Michael Ernst Gadringer, Wolfgang Bösch, Technische Universität Graz, Austria





EuMC28 continues next page...

EuMC28 continued...

- 541  **C** **Full-Band GCPW-to-WR3 E-Plane Transition for Chip-on-Carrier Packaging of THz Photodiodes**
Sumer Makhoulouf¹, Tom Neerfeld², Jose Luis Fernández Estévez², Vitaly Rymanov¹, Andreas Stöhr¹
¹Microwave Photonics, Germany; ²Universität Duisburg-Essen, Germany
- 545  **C** **Compact Parallelization of 1-Bit Bandpass Delta-Sigma Modulator with Direct Path Employing 1-Insertion Upsampling**
Takashi Maehata¹, Hirotaka Asami¹, Shuichi Nishimura¹, Hiroshi Yamamoto¹, Noriharu Suematsu²
¹Sumitomo Electric Industries, Japan; ²Tohoku University, Japan
- 549  **C** **300GHz Directional Coupler Enabled by Effective-Media**
Nikolaos Xenidis, Joachim Oberhammer, Dmitri Lioubtchenko, KTH, Sweden
- 553  **C** **Infrared Diffraction Radiation from Two Graphene Strips for Electron Beam Position Sensing**
Mstyslav E. Kaliberda, Sergey A. Pogarsky, Nina Tilichenko, Valeriia Bessarabova, V.N. Karazin Kharkiv National University, Ukraine
- 557  **C** **Evaluation of Electromagnetic Attenuation Using Multi-Point Measurement for Unshielded Facilities**
Chang Hee Hyoung, Jung Hwan Hwang, Jong Hwa Kwon, ETRI, Korea
- 561  **C** **Building Material Permittivity and Conductivity Estimation from 2 to 260GHz**
Jean-Marc Conrat¹, Mohamed Abdelbasset Aliouane¹, Jean-Christophe Cousin², Xavier Begaud²
¹Orange Labs, France; ²LTCI (UMR 5141), France

EuMC28 continues next page...

EuMC28 continued...






- 565  **C Separation of TRL Calibration and Time-Domain Gating to Evaluate Uncertainty in Permittivity Measurements Using VNA-Based Material Characterization Kit**
Tae-Weon Kang, Hyunji Koo, Chihyun Cho, Jae-Yong Kwon, Woohyun Chung, KRISS, Korea
- 569  **C Characterizing Ultra-Low Intermodulation Distortion in RF Switches for Sub-6GHz Applications**
M. Ben-Sassi¹, H. Saleh¹, F. Drillet¹, O. Sow¹, I. Lahbib¹, Greg D. U'Ren¹, C. Hallepee², D. Passererieux², G. Neveux², D. Barataud²
¹X-FAB, France; ²XLIM (UMR 7252), France
- 573  **C Microwave-Assisted Detection of Physical Intrusions in Commercial Food Packaged Products via Machine Learning**
Ali Darwish¹, Marci Ricci¹, Jorge Alberto Tobon Vasquez¹, Claire Migliaccio², Francesca Vipiana¹
¹Politecnico di Torino, Italy; ²LEAT (UMR 7248), France
- 577  **C A Comprehensive Analysis of Confinement of the Guided Modes of the Dielectric Waveguide**
V. Mikhnev, Wojciech Knap, Polish Academy of Sciences, Poland

EuMC29: Interconnects and Packaging

Chair: Yinggang Li, Shenzhen Technology University, China

Co-Chair: Ilona Piekarz, AGH UST, Poland

13:50–15:30, Wednesday 25th September 2024, E02






- 581  **C Silicon-Micromachined Waveguide Systems as a Packaging Solution for Sub-THz and THz Active Circuits**
Vladimir Ermolov, Antti Lamminen, Mikko Varonen, Henri Ailas, Markku Lahti, Henrik Forstén, Mikko Kaunisto, Mikko Kantanen, Dristy Parveg, Pekka Pursula, VTT, Finland
- 585  **C Broadband Sub-THz Dielectric Waveguides Characterization**
S. Lagoug¹, B. Blampey², Anthony Ghiotto¹, Eric Kerhervé¹, A. Hamani², L. Petit³, M. Leze³, J.L. González-Jiménez²
¹IMS (UMR 5218), France; ²CEA-Leti, France; ³Radiall, France
- 589  **C A DC to 125GHz Probe Pad Design**
Martin Pittermann, Thomas Zwick, Akanksha Bhutani, KIT, Germany
- 592  **C Dielectric Slot-Waveguide Interconnection for THz Systems**
Kristof Dausien, Lisa Schmitt, Christian Schulz, Ilona Rolfes, Martin Hoffmann, Jan Barowski, Ruhr-Universität Bochum, Germany
- 596  **C Assembly and Electrical Tolerance Analysis for Silicon-IC-to-Waveguide Integration Using a Contactless Transition at mm-Wave Frequencies**
P. Kaul, A. Aljarosha, A. Bart Smolders, M.K. Matters-Kammerer, R. Maaskant, Technische Universiteit Eindhoven, The Netherlands

EuMC30: Metasurfaces I

Chair: María García-Vigueras, IETR (UMR 6164), France

Co-Chair: Guido Valerio, Sorbonne Université, France

13:50–15:30, Wednesday 25th September 2024, E03




- 600  **C** **Efficient Nonreciprocal Frequency Conversion with Space-Time Josephson Junction Metasurfaces**
Sajjad Taravati, University of Southampton, UK
- 604  **C** **Design and Characterization of a Transmitting and Reflecting Metasurface at 30GHz**
Alessio Berto¹, Francesco Foglia Manzillo¹, Guido Valerio²
¹CEA-Leti, France; ²GeePs (UMR 8507), France
- 608  **C** **Polarization-Independent RIS for Radiation Beam Steering**
Chandresh Dhote, Anamika Singh, Prabhat Kumar Sharma, VNIT Nagpur, India
- 612  **C** **Investigating Striking Efficiency in Morphogenetic Metasurface Antennas with Low Modulation**
Chidinma N. Uche¹, Cyril Decroze¹, Nasibeh Parsaei², Thomas Fromentèze¹
¹XLIM (UMR 7252), France; ²CISTEME, France
- 616  **C** **SIW-Based Reflectarray Cell as a Means of Reducing Local Periodicity Approximation Errors**
Andrés Gómez-Álvarez¹, Nicolò Delmonte², Lorenzo Silvestri², Maurizio Bozzi², Manuel Arrebola¹, Marcos R. Pino¹
¹Universidad de Oviedo, Spain; ²Università di Pavia, Italy

EuMC31: Sources and Photonic Methods for THz and sub-THz Devices



Chair: Guillaume Ducournau, Université de Lille, France

Co-Chair: Joachim Oberhammer, KTH, Sweden

13:50–15:30, Wednesday 25th September 2024, E04

- 620  **C** **RF Pulse Distribution Network for a Compact Photon Pulse Source for Quantum Key Distribution**
Uwe Stehr¹, Shradda Supreeti¹, Mahsa Kaltwasser¹, Marcus Babin², Christopher Spiess², Shadia Chowdhury², Erik Beckert², Michael Zimmer³, Ana Cutuk³, Lena Engel³, Michael Jetter³, Peter Michler³, Jens Müller¹, Matthias A. Hein¹
¹Technische Universität Ilmenau, Germany; ²Fraunhofer IOF, Germany; ³Universität Stuttgart, Germany
- 624  **C** **Photonic Mixers as Tx and Rx in a Bidirectional mmWave Real-Time Link**
Simon Nellen¹, Milan Deumer¹, Garritt Schwanke¹, Efsthios Andrianopoulos², Nikolaos K. Lyras², Georgios Megas², Evangelos Pikasis³, Dimitrios S. Kritharidis³, E.D. Tsirbas³, E.C. Loghis³, Tianwen Qian¹, David de Felipe¹, Maria Massaouti², Christos Kouloumentas⁴, Panos Groumas⁴, Hercules Avramopoulos², Martin Schell¹, Norbert Keil¹, Robert B. Kohlhaas¹
¹Fraunhofer HHI, Germany; ²NTUA, Greece; ³Intracom Telecom, Greece; ⁴Optagon Photonics, Greece
- 628  **C** **105-GHz Electric Field Visualization by Electro-Optic Imaging System Using Polarization Image Sensor**
Kiyotaka Sasagawa¹, Ryoma Okada¹, Maya Mizuno², Hironari Takehara¹, Makito Haruta¹, Hiroyuki Tashiro¹, Jun Ohta¹
¹NAIST, Japan; ²NICT, Japan

EuMC31 continued...

- 632  **C** **Design, Fabrication and Broadband High-Resolution Characterization of a 415GHz Rectangular Waveguide Bandpass Filter**
Sebastian Müller¹, Thomas Puppe¹, Timo Noack², Martin Wittmann², Gerd Hechtfisher², Nico Vieweg¹
¹TOPTICA Photonics, Germany; ²Rohde & Schwarz, Germany
- 636  **C** **A Full-Band 500–750GHz Transceiver Based on Discrete Schottky Diodes**
V. Lain-Rubio, D. Moro-Melgar, J. Martinez Gil, I. Oprea, M. Keyn, S. Rastocky, O. Cojocari, ACST, Germany

EuMC32: Terahertz Permittivity Measurements

Chair: Vincent Laur, Lab-STICC (UMR 6285), France

Co-Chair: Xiaobang Shang, NPL, UK

13:50–15:30, Wednesday 25th September 2024, E05






- 640  **C** **Characterisation of Dielectric Substrates at Millimetre-Wave and Sub-Terahertz Frequencies Using a VNA-Based Guided-Wave Technique**
Liam Ausden, Daniel Stokes, James Skinner, Nick Ridler, Xiaobang Shang, NPL, UK
- 644  **C** **Characterization of Complex Permittivity of Microwave Substrates in Sub-THz/THz Range**
Milad Entezami, Seyed Ali Hosseini Farahabadi, Mohammad-Reza Nezhad-Ahmadi, University of Waterloo, Canada
- 648  **C** **Material Characterization of Various Soil Types Using the Transmission Reflection Method in a Free-Space Setup**
Manuel Funk, Irwin Barengolts, Christian Schulz, Jan Barowski, Ilona Rolfes, Ruhr-Universität Bochum, Germany
- 652  **C** **Characterization of Skin Permittivity for Human Fingers by Open-Ended Waveguide at Sub-THz**
Bing Xue, Katsuyuki Haneda, Clemens Icheln, Juha Ala-Laurinaho, Aalto University, Finland

EuMC33 : Innovative Array Antenna Systems

Chair: Mohamed Himdi, IETR (UMR 6164), France

Co-Chair: Daniel Segovia-Vargas, Universidad Carlos III de Madrid, Spain

13:50-15:30, Wednesday 25th September 2024, E06





- 656  **C** **Fast Beamforming Calibration of mMIMO Radios — An Information Theory Perspective**
Lin Lin¹, Gabriel Rebeiz²
¹Jabil, USA; ²University of California San Diego, USA
- 660  **C** **Massive MIMO Performance Under 256QAM Using Sub-6GHz Active Antenna System for 5G**
Takuji Mochizuki, Tomohiro Kikuma, Yuta Mizuno, Takahiro Tsuji, Takahiro Sato, Naohiro Matsui, Kunifusa Maruyama, Takuma Miura, NEC, Japan
- 664  **C** **Specificity of Nonlinear Distorted Radiation in Massive MIMO by Sub-6GHz Active Antenna System for 5G Using GaN Doherty Amplifiers**
Takuji Mochizuki, Naohiro Matsui, Tomohiro Kikuma, Yuta Mizuno, Yusuke Ikuma, Takahiro Tsuji, NEC, Japan
- 668  **C** **An Aperiodic mm-Wave Phased Array Controlled by Multi-Channel Analog Beamforming ICs**
Marta Buenaventura-Camps¹, Yanki Aslan², Philipp Freidl³, Pascal Aubry², Nehir Berk Onat², Johan Janssen³, Marcel Geurts³, Alexander Yarovoy²
¹Robin Radar Systems, The Netherlands; ²Technische Universiteit Delft, The Netherlands; ³NXP Semiconductors, The Netherlands
- 672  **C** **Wideband 2-D Beam-Scanning Phased Array Based on Metasurface Elements**
Lianwei Zhang, Yu Gan, Hongfu Meng, Southeast University, China

EuMC34 : Wireless Power Technologies for Near-Field Applications

Chair: Alessandra Costanzo, Università di Bologna, Italy

Co-Chair: Nuno Borges Carvalho, Instituto de Telecomunicações, Portugal

13:50-15:30, Wednesday 25th September 2024, E07






- 676  **C** **An Analysis of FPGA Enabled Magnetic Sensor Based Automatic Beam Tracking System for Wireless Power Transfer System in Brain Implant**
Nabanita Saha, Erik Pineda-Alvarez, Ifana Mahbub, University of Texas at Dallas, USA
- 680  **C** **Resonant Scatterer Quality Factor Increasing Based on Sustained Excitation by Multiple Reflections for Wireless Sensor Applications**
Etienne Perret¹, Filippo Costa²
¹LCIS (EA 3747), France; ²Università di Pisa, Italy
- 684  **C** **Injection-Locked Oscillator Coupled to Two External Resonators for Wireless Power Transfer**
Franco Ramírez, Almudena Suárez, Universidad de Cantabria, Spain
- 688  **C** **Wireless Full-Duplex Data Transmission of 100Mbps Using a Resonant Inductive Coupler**
Markus Theil, Reinhard Stolle, Technische Hochschule Augsburg, Germany

EuMC35: Advances in Radar Antennas Design and Characterisation

Chair: Alexander G. Yarovoy, Technische Universiteit Delft, The Netherlands

Co-Chair: Kamil Yavuz Kapusuz, Ghent University, Belgium







13:50–15:30, Wednesday 25th September 2024, 741A

- 692  **C Scalable Space-Efficient Antenna Array Techniques Using Convolved Electric and Magnetic Currents**
Amirhossein Askarian¹, Pascal Burasa¹, Jianping Yao², Zhenguo Lu³, Ke Wu¹
¹Polytechnique Montréal, Canada; ²University of Ottawa, Canada; ³NRC, Canada
- 696  **C Dual-Polarized On-Chip Patch Antenna with Increased Bandwidth for mm-Wave Radar Systems**
Benedikt Sievert¹, Jonathan Bott², Nils Pohl², Daniel Erni³, Andreas Rennings³
¹Fraunhofer FHR, Germany; ²Ruhr-Universität Bochum, Germany; ³Universität Duisburg-Essen, Germany
- 700  **C A DDMA TX Channel Characterization for MIMO Radar Systems**
Simon Heining¹, Reinhard Feger¹, Christoph Wagner², Andreas Stelzer¹
¹Johannes Kepler Universität Linz, Austria; ²Silicon Austria Labs, Austria
- 704  **C RX Characterization of mmWave Antenna Arrays Using an Active Probe Array Structure**
Martin Obermaier¹, Johannes Lange², Thomas Deckert², Marc Vanden Bossche³, Dirk Plettemeier¹
¹Technische Universität Dresden, Germany; ²National Instruments, Germany; ³National Instruments, Belgium
- 708  **C Efficient 2-D Array Calibration of Radar Sensors in the Near Field by Modal Wave Expansion**
Matthias Linder, Robin Bord, Dominik Schwarz, Nico Riese, Christian Waldschmidt, Universität Ulm, Germany

EuMC36: EuMC Poster 2

Chair: Baudouin Martineau, CEA-Leti, France






13:50–15:30, Wednesday 25th September 2024, Exhibition Hall

- 712  **C A Theoretical Model Based on Image Theory to Model Scattering from Metasurfaces**
Amirmasood Bagheri, Seyed Ehsan Hosseinijad, Pei Xiao, Mohsen Khalily, University of Surrey, UK
- 716  **C Tunable Metasurface Based on Crossed Strip Gratings Consisting of Nonreciprocal Materials**
Vladimir V. Yachin¹, Vyacheslav V. Khardikov², Liudmyla A. Kochetova¹, Sergiy L. Prosvirnin¹
¹NASU, Ukraine; ²V.N. Karazin Kharkiv National University, Ukraine
- 720  **C Dynamical Changes Non-Reciprocal Bistability in a Metasurface with a Nonlinear Element on Wood's Anomaly Resonances**
Liudmyla A. Kochetova, Vladimir V. Yachin, Sergiy L. Prosvirnin, NASU, Ukraine
- 724  **C Layering it All: Stripline-to-Waveguide Transitions for Corrugated Horns at W-Band**
Sonja Nozinic, Adam Rämer, Eugen Dischke, Thomas Flisgen, Wolfgang Heinrich, Viktor Krozer, FBH, Germany
- 728  **C Development of a Planar LTCC GRIN Lens for 60GHz Open-Ended Waveguide Antenna**
Martin Ihle¹, Birgit Manhica¹, Kamil Trzebiatowski², Weronika Kalista², Lukasz Kulas², Krzysztof Nyka²
¹Fraunhofer IKTS, Germany; ²Gdansk University of Technology, Poland
- 732  **C Additively Manufactured Phase-Shifted Antenna Array Model in V-Band**
J. Shi¹, V. Akula², F. Bachbauer¹, S. Pietschmann¹, H. Maune², Gerald Gold¹
¹FAU Erlangen-Nürnberg, Germany; ²OvG Universität Magdeburg, Germany

EuMC36 continued...

- 736  **C One-Dimensional Phased Array Beamformer with Halved Signal Lines for Fast Beam Steering**
Asaka Kobayashi, Ren Imanishi, Hideyuki Nosaka, Ritsumeikan University, Japan
- 740  **C RCS Minimization Using Bayesian Optimization**
Ahmad Bilal, Abdul Hadee, Yash H. Shah, Sohom Bhattacharjee, Choon Sik Cho, Korea Aerospace University, Korea
- 744  **C Optimizing the Synthesis of Radiation Patterns Through a Fast Quasi-Null-Filling**
Cibrán López-Álvarez¹, M^a Elena López-Martín², Juan A. Rodríguez-González², Francisco J. Ares-Pena²
¹Universitat Politècnica de Catalunya, Spain; ²Universidad de Santiago de Compostela, Spain
- 748  **C Reconfigurable Vortex Antenna Based on Spoof Surface Plasmon Polaritons**
Hao Feng¹, Wei Wei¹, Longjie Wang¹, Xingyang Tang¹, Shah Nawaz Burokur², Jiahui Fu¹
¹Harbin Institute of Technology, China; ²LEME (EA 4416), France
- 752  **C A Compact Self-Multiplexing Antenna for Quadband Applications**
Sounik Kiran Kumar Dash¹, Taimoor Khan², Qingsha S. Cheng³
¹SRMIST Kattankulathur, India; ²NIT Silchar, India; ³SUSTech, China
- 756  **C Additively-Manufactured, Magnetically-Controlled Reconfigurable Array Antenna**
Ulan Myrzakhan¹, Farhan A. Ghaffar², Mohammad Vaseem¹, Atif Shamim¹
¹KAUST, Saudi Arabia; ²Lakehead University, Canada
- 760  **C Dual-Ring, Dual Circular Polarized Scarabaeus Antenna with Circuit for Satellite Applications**
A. Meredov, Maximilian Holzner, Stefan Lindenmeier, Universität der Bundeswehr München, Germany

EuMC37: Emerging Materials and Integration Technologies for RF and mm-Wave*Chair: Leonor Genthon, Thales, France**Co-Chair: Gerald Gold, FAU Erlangen-Nürnberg, Germany**16:10–17:50, Wednesday 25th September 2024, E02*






- 764  **C A BST-Based Monolithically Integrated Miniaturized Phase Shifter for 27–33GHz**
Mehran Golcheshmeh, Raafat R. Mansour, University of Waterloo, Canada
- 768  **C Integration of InP Based Double Heterojunction Bipolar Transistor on Silicon Interposer and Associated RF Characterization**
A. Oliveira¹, Olivier Valorge¹, A. Divay¹, H. Boutry¹, T. Mourier¹, F. Berger¹, Christophe Dubarry¹, J. Lugo-Alvarez¹, Yannick Roelens², Mohammed Zaknoue²
¹CEA-Leti, France; ²IEMN (UMR 8520), France
- 772  **C PCM-Based Matching Networks with Memory for the Mitigation of Transistor Manufacturing Variations**
Kariny Nunes-Maia, Audrey Martin, Pierre Medrel, Pierre Blondy, XLIM (UMR 7252), France
- 776  **C Fabrication and Characterization of MoS₂-Based RF Memristor Switches for Terahertz Applications**
Pierre Troussset, Bruno Reig, Lucie Le Van-Jodin, Clotilde Ligaud, Hanako Okuno, Stéphane Cadot, Matthieu Jamet, CEA-Leti, France
- 780  **C QFN Packaging of Millimeter-Wave PCM Switches**
Mohamed Lajaate¹, Léonor Genthon², Pierre Renard², Frédéric Dumas Bouchiat³, Pierre Blondy¹
¹XLIM (UMR 7252), France; ²Thales, France; ³IRCER (UMR 7315), France

EuMC38: Metasurfaces II

Chair: Ferran Martin, Universitat Autònoma de Barcelona, Spain

Co-Chair: Vahid Nayyeri, IUST, Iran

16:10–17:50, Wednesday 25th September 2024, E03






- 784  **C** **Wide-Band Compact Dielectric Dome for Wide-Angle Beam-Steering**
*Marc Emin¹, Matthieu Bertrand¹, Ronan Sauleau², David González Ovejero²,
Mauro Ettorre², Brigitte Loiseaux¹*
¹Thales, France; ²IETR (UMR 6164), France
- 788  **C** **Thin, Wideband, and High-Efficiency Transmissive Cross-Polarization Converter**
Negin Pouyanfar¹, Javad Nourinia², Changiz Ghobadi², Vahid Nayyeri¹
¹IUST, Iran; ²Urmia University, Iran
- 792  **C** **Four-Bit Phase-Coded Metamaterial Based on Honeycomb Electromagnetic Structure for Ultra-Wideband Scattering Manipulation**
Weizhi Chen, Xin Xiu, Jiawei Liu, Wenjie Feng, Quan Xue, Wenquan Che, SCUT, China
- 796  **C** **Design Approaches for Enhancing Polarization Insensitivity and Increasing Bandwidth of Metasurface Energy Harvesters**
Alireza Ghaneizadeh¹, Sören Peik², Mojtaba Joodaki¹
¹Constructor University, Germany; ²Hochschule Bremen, Germany
- 800  **C** **Pixelation-Driven Phase Shift Tailoring in X-Band Dual Layer Metasurface**
Chengtao Xu, Jayaprakash B. Shivakumar, Eduardo A. Rojas-Nastrucci, Embry-Riddle Aeronautical University, USA

EuMC39: THz and sub-THz Antennas and Devices

Chair: Antonio Clemente, CEA-Leti, France

Co-Chair: Alexandre Siligaris, CEA-Leti, France

16:10–17:50, Wednesday 25th September 2024, E04






- 804  **C** **Design and Measurement Characterization of Two 300GHz Fan-In Antennas in Package for Upcoming Sub-THz Applications**
Tim Pfahler, Martin Vossiek, FAU Erlangen-Nürnberg, Germany
- 808  **C** **Sub-THz Beam-Steering Antenna in Silicon Interposer Technology**
*Akanksha Bhutani¹, Luca Valenziano¹, Patrick Krüger², Thomas Voß², Thomas Zwick¹,
Corrado Carta², Matthias Wietstruck²*
¹KIT, Germany; ²IHP, Germany
- 812  **C** **Graded Index Lens Antenna in Silicon Micromachining with Circular Polarization at 500-750 GHz**
Alireza Madannejad, Mohammad Mehrabi Gohari, Umer Shah, Joachim Oberhammer, KTH, Sweden
- 816  **C** **A 225–264GHz Wideband Amplifier in 65nm CMOS with Optimized 10 μ m Transistor Layout**
Olivia Angel Yong, Chun Wang, Kazuaki Kunihiro, Hiroyuki Sakai, Atsushi Shirane, Kenichi Okada, Tokyo Tech, Japan
- 820  **C** **A 92–100GHz 100W SSPA for the HUSIR Deep-Space Upgrade**
*Jason C. Soric¹, Nicholas J. Koliás¹, Matthew Walsh¹, Jeffery Kotce¹, Timothy Shum¹,
James Surette¹, Matthew Murray¹, Ronald Gyurcsik¹, Michael MacDonald²,
Mohamed Abouzahra²*
¹RTX, USA; ²MIT Lincoln Laboratory, USA

EuMC40: Terahertz Characterisation Measurements

Chair: Nick Ridler, NPL, UK

Co-Chair: Sylvain Bollaert, IEMN, France

16:10–17:50, Wednesday 25th September 2024, E05






- 824  **C** 250MHz to 1.1THz Measurement of an InP-HEMT Using On-Wafer Multiline Thru-Reflect-Line Calibration
R. Younes, M. Samnoui, Sylvie Lepilliet, N. Wichmann, Guillaume Ducournau, S. Bollaert, IEMN (UMR 8520), France
- 828  **C** Investigation and Modeling of Signal-Dispersion Caused by Polymer Microwave Fibers (PMF) at Sub-THz Frequencies
Stefan Wögerbauer¹, Michael Ernst Gadringer¹, Helmut Paulitsch¹, Siegfried Krainer²
¹Technische Universität Graz, Austria; ²Infineon Technologies, Austria
- 832  **C** Microwave Characterization of Plasmonic Transmission Line Through Non-Contact Near-Field Imaging at THz Frequencies
Igor Getmanov, Atif Shamim, KAUST, Saudi Arabia
- 836  **C** Simultaneous Time and Frequency Domain Characterization of a Superheterodyne Terahertz Communication Frontend
Benjamin Schoch¹, Dominik Wrana¹, Simon Haussmann¹, Laurenz John², Ingmar Kallfass¹
¹Universität Stuttgart, Germany; ²Fraunhofer IAF, Germany
- 840  **C** Fabrication and Characterization of Submillimeter-Wave GaAs Quasi-Vertical Schottky Diodes Diffusion Bonded to Silicon
Christopher Moore¹, Richard Zhou¹, Dustin Widmann¹, Louis Lukaczyk¹, Michael Cyberey¹, Matthew Bauwens², Scott Barker¹, Robert Weikle¹, Arthur Lichtenberger¹
¹University of Virginia, USA; ²Dominion Microprobes, USA

EuMC41: Array Antennas — Synthesis and Implementation

Chair: Dirk Heberling, RWTH Aachen University, Germany

Co-Chair: Ioan E. Lager, Technische Universiteit Delft, The Netherlands

16:10–17:50, Wednesday 25th September 2024, E06






- 844  **C** HALO Antenna — A High Gain Directive Circularly Polarized Antenna for Space-Ground Applications
Maximilian Holzner, A. Meredov, Stefan Lindenmeier, Universität der Bundeswehr München, Germany
- 848  **C** A Compact Vivaldi-Shaped Array Using Antipodal Vivaldi Antennas for Beamforming Application
Julien Harel¹, Mohamed Himdi¹, Olivier Lafond¹, Olivier Clauzier², Olivier Vivares²
¹IETR (UMR 6164), France; ²Avantix, France
- 852  **C** 40–44GHz Frequency-Tunable MMIC Butler Matrix
Laila Marzall, Paige Danielson, Joeun Lee, Zoya Popović, University of Colorado Boulder, USA
- 856  **C** Reducing the Elements in a Uniform Concentric Circular Array Using Variable Projection
Ramonika Sengupta¹, Ferre Knaepkens², Annie Cuyt¹, David S. Prinsloo¹, Thomas Schäfer³, A. Bart Smolders¹
¹Technische Universiteit Eindhoven, The Netherlands; ²Universiteit Antwerpen, Belgium; ³Satcube, Sweden
- 860  **C** Evaluation of the Beamforming Performance of a 4-Port Multi-Mode Antenna for Integrated Sensing and Communication Applications
Tim Hahn, Dirk Manteuffel, Leibniz Universität Hannover, Germany

EuMC42: Efficient Energy Harvesting and Identification Solutions

Chair: Simon Hemour, IMS (UMR 5218), France

Co-Chair: Jasmin Grosinger, Technische Universität Graz, Austria

16:10–17:50, Wednesday 25th September 2024, E07


- 864  **C** A 5G NR2 Gate-Biased CMOS Rectifier with Enhanced PDR
Edoh Shaulov, Tal Elazar, Eran Socher, Tel Aviv University, Israel
- 868  **C** CMOS Schottky Diode Impedance Modeling for Varying Input Power to Achieve a High η_{RF-DC} Rectifier Design Over a Wide Input Power Range
Rafsan Mahin, Ifana Mahbub, University of Texas at Dallas, USA
- 872  **C** An Energy Harvester Using Stacked Flexible-PCB Coils on a Ship Propulsion Shaft for Wireless Sensor System Applications
Van Ai Hoang, Yang Gon Kim, Young Chul Lee, Mokpo National Maritime University, Korea
- 876  **C** Joint RF Energy Harvesting and Nanoelectronics for Self-Powered Water Leak Detection
Roshan Nepal, Mohammadreza Rouhi, Norman Zhou, George Shaker, University of Waterloo, Canada
- 880  **C** Harmonic Transponder Concept with Chipless RF Identification Capability
Giorgi Aptsiauri¹, Milan Svanda², Jeff Frolik³, Milan Polivka²
¹University of California Santa Barbara, USA; ²Czech Technical University in Prague, Czechia; ³University of Vermont, USA

EuMC43: Integrated Antennas for Beyond 5G Communication Systems

Chair: Bart Smolders, Technische Universiteit Eindhoven, The Netherlands

Co-Chair: Langis Roy, Ontario Tech University, Canada

16:10–17:50, Wednesday 25th September 2024, 741A






- 884  **C** Dual-Band Filtenna with High Selectivity for 5G Millimeter-Wave Applications
Behrooz Rezaee, Wolfgang Bösch, Technische Universität Graz, Austria
- 888  **C** Efficient D-Band On-Chip Antennas in Silicon Germanium Technologies
Alexander Haag¹, Teng Li², Karina Disch³, Ahmet Çağrı Ulusoy¹, Thomas Zwick¹
¹KIT, Germany; ²Southeast University, China; ³Roche Diabetes Care, Germany
- 892  **C** 5G NR Transceiver and 24GHz Wireless Power Receiver Utilizing a Low Insertion Loss Differential Output Butler Matrix for Long-Range Wireless Transmission
Keito Yuasa, Michihiro Ide, Sena Kato, Takashi Tomura, Kenichi Okada, Atsushi Shirane, Tokyo Tech, Japan
- 896  **C** A Novel RIS Unit Cell Design Enabling Seamless Integration with VO₂ Switches
Afsaneh Hojjati-Firoozabadi, Raafat R. Mansour, University of Waterloo, Canada
- 900  **C** 40GHz Beam-Steering Two-Elements Array Antenna Using GaN Varactors for Millimeter-Wave Applications
Abdelaziz Hamdoun¹, Farid Medjdoub², Mohamed Himdi³, Malek Zegaoui², Olivier Lafond³
¹XLIM (UMR 7252), France; ²IEMN (UMR 8520), France; ³IETR (UMR 6164), France

EuMC44: Electromagnetic Theory, Modeling, and Numerical Techniques

Chair: Alessandro Galli, Università di Roma "La Sapienza", Italy

Co-Chair: Francisco Mesa, Universidad de Sevilla, Spain

08:30-10:10, Thursday 26th September 2024, E01

- 904  **C Reformulation of the Complex Poynting Theorem**
Ingo Wolff, IMST, Germany
- 908  **C Analytical Equivalent Circuit for Cross-Strip Scatterers by Using an Eigenstate Approach**
Alberto Hernández-Escobar¹, Francisco Mesa², Jaime Esteban³, Elena Abdo-Sánchez¹, Teresa M. Martín-Guerrero¹, Carlos Camacho-Peñalosa¹
¹Universidad de Málaga, Spain; ²Universidad de Sevilla, Spain; ³Universidad Politécnica de Madrid, Spain
- 912  **C Analysis of Leaky Modes in Fabry-Perot Cavity Antennas Based on Thin and Thick Partially Reflecting Sheets**
Edoardo Negri¹, Elena Ballarini¹, Walter Fuscaldo², Paolo Burghignoli¹, Alessandro Galli¹
¹Università di Roma "La Sapienza", Italy; ²CNR-IMM, Italy
- 916  **C Full-Wave Vectorial Solution for the Calculation of the Cutoff Frequencies and Propagation Constants of Arbitrarily Shaped Dielectric Waveguides**
Konstantinos Delimaris, Giorgos Gkrimpogiannis, Grigorios P. Zouros, NTUA, Greece
- 920  **C Generalized FDTD Numerical Modeling of Space-Time-Varying Media**
Sajjad Taravati, University of Southampton, UK

EuMC45: Microwave Sensing Systems

Chair: Kamran Ghorbani, RMIT University, Australia

Co-Chair: Holger Maune, OvG Universität Magdeburg, Germany

08:30-10:10, Thursday 26th September 2024, E02






- 924  **C Highly Sensitive and Compact Transmission-Mode Phase-Variation Permittivity Sensor**
Xavier Canalias, Paris Vélez, Pau Casacuberta, Lijuan Su, Ferran Martín, Universitat Autònoma de Barcelona, Spain
- 928  **C Active Sensor Design Based on Large-Signal Stability Analysis with Pole-Zero Identification**
Sandra Santiago-Mesas¹, Elizabeth Fernández-Aranzamendi¹, Adrián Amor-Martín¹, Vicente González-Posadas², Daniel Segovia-Vargas¹
¹Universidad Carlos III de Madrid, Spain; ²Universidad Politécnica de Madrid, Spain
- 932  **C A Non-Invasive, Machine Learning Assisted Skin-Hydration Microwave Sensor**
S. Trovarello, O. Afif, A. Di Florio Di Renzo, D. Masotti, M. Tartagni, A. Costanzo, Università di Bologna, Italy
- 936  **C Absolute Electromagnetic Encoders with 5-mm Resolution and 12 Bits per Position Based on Phase and Frequency Modulation**
Amirhossein Karami-Horestani, Ferran Paredes, Ferran Martín, Universitat Autònoma de Barcelona, Spain
- 940  **C Effect of Dry Layers in Solute Concentration Sensing with Planar Resonant Microwave Sensors**
Enrique Bronchalo, Carlos G. Juan, Universidad Miguel Hernández de Elche, Spain

EuMC46: Advanced Measurement Techniques for Characterizing S-parameters and Noise

Chair: Manoj Stanley, NPL, UK

Co-Chair: Yasser Qaragoz, KU Leuven, Belgium

08:30-10:10, Thursday 26th September 2024, E05






- 944  **C** **A Novel Approach to Significantly Reduce Noise-Based Measurement Uncertainty**
Karolin Werthmüller, Ezer Bennour, Florian Ramian, Michael Simon, Rohde & Schwarz, Germany
- 948  **C** **Measurement Error Detection for Calibration Standards Based on Cluster Analysis**
Jiefeng Zhou, Ling Zhang, Ziyang Chen, Er-Ping Li, Zhejiang University, China
- 952  **C** **Comparison of Two SOLR Calibration Approaches for Oscilloscope-Based S-Parameter Measurements**
Daanish Smellie¹, Rana ElKashlan¹, Ahmad Khaled¹, Bertrand Parvais¹, Dominique Schreurs²
¹imec, Belgium; ²KU Leuven, Belgium
- 956  **C** **A 110-GHz Probing System for S-Parameter Measurements of Three-Dimensional Objects**
Yoichi Sakuraba¹, Masanori Shimasue¹, Hiroyuki Shimada¹, Yasuo Kawahara¹, Takuya Adachi¹, Takahito Motoki¹, Takayuki Fukushi¹, Yuta Tsubouchi², Ryuichi Fujimoto²
¹MoDeCH, Japan; ²Kioxia, Japan
- 960  **C** **High-Frequency Multiport Vector Network Analysis Methodology Using Port Extension Across Multiple VNAs**
Jens Löffler, Manuel Koch, Sascha Breun, Robert Weigel, FAU Erlangen-Nürnberg, Germany

EuMC47: Optimization by Artificial Intelligence and Machine Learning

Chair: Luca Perregrini, Università di Pavia, Italy

Co-Chair: Guy A.E. Vandenbosch, KU Leuven, Belgium

10:40-12:20, Thursday 26th September 2024, E01






- 964  **C** **Accelerating the Physical Optics-Geometrical Optics Method for Calculating RCS by Machine Learning**
Javad Ebrahimzadeh, Guy A.E. Vandenbosch, KU Leuven, Belgium
- 968  **C** **Reconfigurable Intelligent Surface Assisted Interference Suppression with Impedance Regulated Deep Neural Network (IR-DNN)**
Sakib Reza, Rafid Umayer Murshed, Mohammad Saquib, Ifana Mahbub, University of Texas at Dallas, USA
- 972  **C** **A Systematic Application of AI Techniques to Antenna Design, Analysis, and Optimization**
Sudarshan Sivaramakrishnan¹, Vishwanath Iyer¹, Tina Gao¹, Giorgia Zucchelli²
¹MathWorks, USA; ²MathWorks, The Netherlands
- 976  **C** **Deep Learning-Based Electromagnetic Inverse Scattering for High-Contrast Objects**
Mohammed Farook Maricar, Amer Zakaria, Nasser Qaddoumi, American University of Sharjah, UAE
- 980  **C** **Deep Neural Network-Assisted mm-Wave Transmissive Polarization Converter Metasurface for Automotive Radar Application**
Abu Hena Murshed, Mohammad Saquib, Ifana Mahbub, University of Texas at Dallas, USA

EuMC48: Active and Passive Remote Sensing Systems

Chair: Qiaowei Yuan, Tohoku Institute of Technology, Japan

Co-Chair: Lorenzo Silvestri, Università di Pavia, Italy

10:40-12:20, Thursday 26th September 2024, E02






- 984  **C** **Low-Loss Frequency Selective Surface for Sub-Millimeter Wave Radiometer Applications**
Veronika Kienle¹, Mauro Ettorre², Olivier de Sagazan³, Ronan Sauleau³, Christian Waldschmidt¹, Tobias Chaloun¹
¹Universität Ulm, Germany; ²Michigan State University, USA; ³IETR (UMR 6164), France
- 988  **C** **Near-Field Analog Correlation of Thermal Noise Signals at X-Band**
Joseph Dunbar¹, Gabriel Santamaría-Botello², Zoya Popović¹
¹University of Colorado Boulder, USA; ²Colorado School of Mines, USA
- 992  **C** **A pHEMT Based Power Detector for Radar Applications**
Prabhav Manchanda¹, Cristina Andrei¹, Frank Tost¹, Matthias Rudolph²
¹BTU, Germany; ²FBH, Germany
- 996  **C** **An Advanced Concept for Coherent Ultra-Low Phase-Noise Clock, LO and Trigger Generation & Distribution in 6G Massive-MIMO Systems**
Andre Scheder¹, Lukas Witte¹, Jonas Rottinghaus¹, Patrick Gröschel¹, Christian Karle², Marc Neu², Benjamin Nuss², Martin Vossiek¹
¹FAU Erlangen-Nürnberg, Germany; ²KIT, Germany
- 1000  **C** **A Monolithically Integrated InP HBT-Based THz Detector**
Adam Rämer, Edoardo Negri, Hady Yacoub, Jonas Theumer, Joost Wartena, Viktor Krozer, Wolfgang Heinrich, FBH, Germany

EuMC49: Design and Optimization of Advanced Microwave and Terahertz Devices

Chair: Christian Damm, Universität Ulm, Germany

Co-Chair: Alessandro Galli, Università di Roma "La Sapienza", Italy

13:50-15:30, Thursday 26th September 2024, E01

- 1004  **C** **Optimization of GND Contact Placements for Cavity Resonance Suppression**
Jan Krummenauer¹, Yuming Du¹, Nesrine Kammoun¹, Jürgen Götze²
¹Robert Bosch, Germany; ²Technische Universität Dortmund, Germany
- 1008  **C** **Efficient Yield Optimization of a 100GHz Filter Using the Novel Combination of a Performance Guided Random Walk and NLPLS-Based PCE**
Leanne Johnson, Dieter Klink, Werner Steyn, Petrie Meyer, Stellenbosch University, South Africa
- 1012  **C** **Highly Linear Phase Shifter with L-Topology PIN Diode-Based Switch**
Farhad Ghorbani¹, Jiafeng Zhou¹, Mattias Gustafsson², Yi Huang¹
¹University of Liverpool, UK; ²Huawei Technologies, Sweden
- 1016  **C** **Luneburg Lens Focusing Improvement with the Aid of Graphene Strip Tuned to Plasmon Resonance**
Iryna O. Mikhailikova, Sergii V. Dukhopelnykov, V.N. Karazin Kharkiv National University, Ukraine
- 1020  **C** **Polarization Discrimination in the Terahertz Range Using Graphene Strip-on-Substrate Grating**
Fedir O. Yevtushenko, NASU, Ukraine

EuMC50: EuMC Closing Session

Chair: Anthony Ghiotto, IMS (UMR 5218), France

Co-Chair: Pierre Blondy, XLIM (UMR 7252), France

16:10-17:50, Thursday 26th September 2024, N01

- (NA)  **Session Welcome**
Anthony Ghiotto¹, Pierre Blondy²
¹EuMC 2024 Chair; ²EuMC 2024 TPC Chair

- (NA)  **The Unprecedented Wave of Change in Satellite Communication**
Didier Le Boulc'h, Thales, France

- (NA)  **SWISSto12's Additive Manufacturing: From Early Days to 3D Printed-Based Satellite Payloads**
Esteban Menargues, SWISSto12, Switzerland

- (NA)  **Awards Ceremony**
Olivier Lafond, EuMW 2024 Awards Chair

- (NA)  **Closing Remarks**
Guillaume Ducournau, EuMW 2024 General Chair

EuMIC/EuMC01: EuMIC/EuMC Poster

Chair: Anne-Laure Billabert, CNAM, France

13:50-15:30, Tuesday 24th September 2024, Exhibition Hall

- 1026  **A Low-Loss 220GHz – 325GHz Marchand Balun in 65nm CMOS Technology**
Anyi Tian, Chenxin Liu, Hiroyuki Sakai, Kazuaki Kunihiro, Atsushi Shirane, Kenichi Okada, Tokyo Tech, Japan







- 1030  **Cooling of GaN-On-Si Transistors Using Integrated Micromachined Channels**
Benjamin Prat¹, Arnaud Pothier¹, Olivier Vendier², Kateryna Kiryukhina³, Olivier Puig³, Pierre Blondy¹
¹XLIM (UMR 7252), France; ²Thales, France; ³CNES, France

- 1034  **Demonstration of CVD Diamond Heat Spreaders for Performance Improvement of a 400W AlGaN/GaN S-Band Power Amplifier MMIC**
Marc van Heijningen¹, Frans Meeuwssen², Edsger Smits², Ian Friel³
¹TNO, The Netherlands; ²CITC, The Netherlands; ³Element Six, UK

- 1038  **W-Band GaAs LNA Chip Set for Space Telecommunications**
Pratik D. Deshpande¹, Thomas Moody¹, Jim Mayock¹, David Cuadrado-Calle², Mark Howard³
¹Viper RF, UK; ²ESA-ESTEC, The Netherlands; ³Spectrum Control, UK



- 1042  **Single-Ended and Balanced Frequency Doublers 2.45 to 4.9GHz Using GaN FETs**
Ainhoa Morales-Fernandez¹, Maria Marante-Boado¹, Pedro Toimil-Cornado¹, Monica Fernandez-Barciela¹, Fernando Martin-Rodriguez¹, Paul J. Tasker²
¹Universidad de Vigo, Spain; ²Cardiff University, UK

EuMIC/EuMC01 continued...

- 1046  **C** **A Highly Efficient Compact 200MHz GaN Buck Converter Module**
Thomas Hoffmann, Deguang Sun, Serguei A. Chevtchenko, Mihaela Wolf, Lars Schellhase, Andreas Wentzel, FBH, Germany
- 1050  **C** **Digital Pre-Distortion with Deep Reinforcement Learning for 5G Power Amplifiers**
Christian Spano¹, Damiano Badini², Lorenzo Cazzella¹, Matteo Matteucci¹
¹Politecnico di Milano, Italy; ²Huawei Technologies, Italy
- 1054  **C** **A Simple Analytical Theory of Class-C Power Amplifiers for Large-Signal Intermodulation Distortion Behaviour Investigation**
Tsz-Wai Wendy Wong, Kwok-Keung Michael Cheng, CUHK, China
- 1058  **C** **Joint Communication and Computation Using RF Amplifier-Based Neural Network**
Siqi Wang¹, Ayça Özçelikkale², Aziz Benlarbi-Delai¹
¹GeePs (UMR 8507), France; ²Uppsala University, Sweden
- 1062  **C** **Probing Plasmon Resonances in AlGaIn/GaN Heterostructures with 300K Black-Body Radiation**
Maksym Dub¹, Pavlo Sai¹, Dmytro B. But², Sergey Romyantsev², Wojciech Knap¹
¹Warsaw University of Technology, Poland; ²Polish Academy of Sciences, Poland
- (NA)  **C** **6–12.5GHz, 0.0076mm², Low-Power PLL in 22nm FDSOI for Multi Lane Applications**
Santhosh Selvaraj¹, Erkan Bayram², Mohamed Saeed², Oner Hanay², Renato Negra¹
¹RWTH Aachen University, Germany; ²InCirT, Germany

EuMIC/EuMC01 continues next page...

EuMIC/EuMC01 continued...






- (NA)  **C** **Cascaded 4:1 AMUX-DAC Using Novel Clocking and Advanced DSP**
Jonathan Andree¹, Sanket Khatdeo¹, Christian Schmidt¹, Oliver Peters¹, Markus Grözing², Tobias Tannert², Volker Jungnickel¹, Georg Rademacher², Friedel Gerfers³, Ronald Freund¹
¹Fraunhofer HHI, Germany; ²Universität Stuttgart, Germany; ³Technische Universität Berlin, Germany
- 1074  **C** **Carbon Nanotube Based Waveguide and Application to Digital Communication in mmW Band**
Rong Tao Jiang¹, Chong Wei Tan², Xing Hai Zhao², Stephane Bila³, Dominique Baillargeat⁴, Philippe Coquet¹, Beng Kang Tay¹, Pascal Szriftgiser⁵, Guillaume Ducournau⁶
¹CINTRA UMI 3288, Singapore; ²NTU, Singapore; ³XLIM (UMR 7252), France; ⁴CNRS@CREATE, Singapore; ⁵PhLAM (UMR 8523), France; ⁶IEMN (UMR 8520), France

EuMC/EuRAD01 : Antenna Arrays

Chair: Mario Pauli, KIT, Germany

Co-Chair: Benjamin Nuss, KIT, Germany







10:40-12:20, Thursday 26th September 2024, E04

- (NA)  **C Mutual Coupling Reduction in Waveguide-Based Antenna Systems at mm-Wave Frequencies**
Claudia Vasanelli¹, Mohammad Vatankhah Varnoosfaderani², Zachary Crawford², Hassan Ali², Venkatesh Srinivasan², Brian Ginsburg², Swaminathan Sankaran²
¹Texas Instruments, Germany; ²Texas Instruments, USA
- (NA)  **C Design of Ridged and Double-Slot Waveguide Array for Corner Automotive Radar**
Yunsu Kang, HL Klemove, Korea
- 1086  **C A 77-GHz Quasi-Monopulse Tracking Radar with Metamaterial Lens and Transceiver Feeds**
Christoph Kohlberger¹, Reinhard Feger², Richard Hüttner², Andreas Haderer¹, Andreas Stelzer²
¹Joby Austria, Austria; ²Johannes Kepler Universität Linz, Austria
- (NA)  **C A Front End Design in K- and Ka-Band for a Hybrid Steerable Multi-Beam Satellite Antenna Array**
Andreas Krause, Engelbert Tyroller, Stefan Lindenmeier, Universität der Bundeswehr München, Germany
- (NA)  **C Influence of the Low-Scattering, Low-Band Dipole on the Co-Existing High-Band Array**
Mikko K. Leino¹, Juha Ala-Laurinaho², Anders Höök³, Bengt Svensson³, Ville Viikari²
¹Radiantum, Finland; ²Aalto University, Finland; ³Saab, Sweden






EuMC/EuRAD02 : EuMC/EuRAD Poster

Chair: Olivier Lafond, IETR (UMR 6164), France

10:40-12:20, Thursday 26th September 2024, Exhibition Hall

- 1098  **C Analog Radio Over Fiber Transmission of OTFS Modulated Signals**
Stanislav Winkler, Sebastian Kulig Villanueva, Tolga Tekin, Michail Symeonidis, Sevag Abadian, Bogdan Sirbu, Fraunhofer IZM, Germany
- 1102  **C Modified Wheeler Caps for Antennas Used in IoT Applications**
Joshua Howorth¹, Alejandro Buitrago Bernal¹, Ying Wang¹, Langis Roy¹, Denis Zheng², Phil Lafleur²
¹Ontario Tech University, Canada; ²ORBCOMM, Canada
- 1106  **C Orthogonal Vector Approach for Reducing Loadpulling Effect in MIMO Transmitters**
Jiayu Hou, Haijun Fan, Yuan Ding, George Goussetis, Heriot-Watt University, UK
- 1110  **C Harmonizing Energy Harvesting and Backscattering Communications Through Agile Power Allocation**
Kai Xu¹, Yishan Wang¹, Wei Gong², Jayakrishnan Methapettyparambu Purushothama¹, Chaoyun Song³, George Goussetis¹, Yuan Ding¹
¹Heriot-Watt University, UK; ²USTC, China; ³King's College London, UK
- 1114  **C A Dual-Principle Fluidic Level Sensor**
Zsolt Szabó, PPKE, Hungary
- 1118  **C On-the-Fly Interrogation of Mobile Passive Sensors from the Fusion of Optical and Radar Data**
Ali Hadj Djilani, Dominique Henry, Patrick Pons, Hervé Aubert, LAAS-CNRS, France

EuMC/EuRAD02 continued...

- 1122  **6** **Dual Band Rectenna on Flexible Bio-Sourced Substrate for Ambient Electromagnetic Energy Harvesting**
A. Sid¹, G. Boussatour¹, P.-Y. Cresson¹, N. Joly², T. Lasri¹
¹IEMN (UMR 8520), France; ²UT&A (ULR 7519), France
- 1126  **6** **A Zero-Power DC Voltage-to-RF Impedance Converter Enabling Sustainable & Frugal Wireless Sensor Networks**
Raphaël Dauny¹, Xiaoqiang Gu², Corinne Dejous¹, S. Hemour¹
¹IMS (UMR 5218), France; ²University of Bristol, UK
- (NA)  **6** **A Simple Solution to Enhance the Bandwidth and Return Loss of DR Loaded Monopole Antenna**
Stefan Simion, MTA, Romania
- (NA)  **6** **A D-Band Radar-Based Channel Measurement Setup for Joint Communication and Sensing**
Tobias Körner, Jochen Altholz, Ilona Rolfes, Jan Barowski, Ruhr-Universität Bochum, Germany
- (NA)  **6** **FMCW Radar Signal Processing Pipeline for Aircraft Marshalling Signals Classification**
Jim Vermunt, Federico Corradi, Technische Universiteit Eindhoven, The Netherlands