

2022 3rd URSI Atlantic and Asia Pacific Radio Science Meeting (AT-AP-RASC 2022)

**Gran Canaria, Spain
29 May - 3 June 2022**

Pages 1-504



**IEEE Catalog Number: CFP22BQ6-POD
ISBN: 978-1-6654-9986-6**

**Copyright © 2022, International Union of Radio Science (URSI)
All Rights Reserved**

****** This is a print representation of what appears in the IEEE Digital Library. Some format issues inherent in the e-media version may also appear in this print version.***

IEEE Catalog Number:	CFP22BQ6-POD
ISBN (Print-On-Demand):	978-1-6654-9986-6
ISBN (Online):	978-9-4639-6-8058

Additional Copies of This Publication Are Available From:

Curran Associates, Inc
57 Morehouse Lane
Red Hook, NY 12571 USA
Phone: (845) 758-0400
Fax: (845) 758-2633
E-mail: curran@proceedings.com
Web: www.proceedings.com

CURRAN ASSOCIATES INC.
proceedings
.com

TABLE OF CONTENTS

A Macroscopic Field Equation in Spacetime Algebra.....	1
<i>Matthew A. Morgan</i>	
Detecting Dispersed Radio Transients in Real Time Using Convolutional Neural Networks	5
<i>David Ruhé, Mark Kuiack, Antonia Rowlinson, Patrick Forré, Ralph Wijers</i>	
Compact Frequency Reconfigurable UWB Monopole Antenna Loaded with Parasitic Line for Wide Stopband	7
<i>Rushiraj Jawale, G. Shrikanth Reddy</i>	
Multifunctional and Deployable Origami Antennas.....	11
<i>Stavros V. Georgakopoulos, Abdul-Sattar Kaddour, Constantinos L. Zekios, Collin Ynchausti, Larry L Howell, Spencer P Magleby</i>	
Solution of Inverse Source Problems with Distributed Spherical Harmonics Expansions.....	14
<i>Thomas F. Eibert, Daniel Ostrzyharczik, Jonas Kornprobst, Josef Knapp</i>	
From TEM Pulse Switching to Computing with Light.....	18
<i>Alex Yakovlev, Ross G. Macdonald, Alex Ventisei, Tony Knightley, Wasem Aljuaid, Will Rogers, Joseph A. Riley, Victor Pacheco-Peña</i>	
Broadside Radiation Based on Even-Mode Spoof Surface Plasmon Polaritons Excited by Slot in AMC Ground Plane.....	21
<i>Abhishek Maganbhai Sonagara, Rakesh Singh Kshetrimayum</i>	
Statistical Properties of Mid-Latitude TEC Time Series Observed During Rapidly Developing Short-Term Geomagnetic Storms: A Contribution to GNSS-Related TEC Predictive Model Development	24
<i>Nenad Sikirica, Weinmin Zhen, Renato Filjar</i>	
Detection and Localization of Shallow Buried Targets: Experimental Results.....	28
<i>A. Brancaccio, G. Leone, R. Solimene</i>	
Multi-Utility Wearable Sensors for Motion Capture and Tissue Imaging.....	32
<i>Md. Asiful Islam, Vigyanshu Mishra, Zeke Dalisky, Asimina Kiourti</i>	
OTA 5G and Beyond Channel Evaluation in a Manufacturing Environment	35
<i>Erik Kampert, Mahyar J. Koshkouei, Yuen Kwan Mo, Matthew D. Higgins</i>	
A Compact Active Monitor Antenna for HF Spectral Occupancy Measurements	39
<i>A. Constantinides, H. Haralambous</i>	
Multi-Line TRL Calibration for the Characterization of Transmission Media.....	43
<i>Ana Buesa-Zubiria, Jaime Esteban</i>	
On the Performance of Plasmonic Meniscus Lenses for Surface Plasmon Focusing.....	47
<i>Joseph A. Riley, Noel Healy, Victor Pacheco-Peña</i>	
Exploiting Waveguide Junctions for the Switching of Transverse Electromagnetic Pulses of Non- Constant Amplitude.....	51
<i>Ross G. Macdonald, Alex Yakovlev, Victor Pacheco-Peña</i>	

Optical Instruments for Space-To-Ground Laser Communication.....	54
<i>Francis Bennet</i>	
A Rhesus Monkey Model and WBA SAR.....	56
<i>Ae-Kyoung Lee, Jin Seo Park, Hyung-Do Choi</i>	
A High Time Resolution All-Sky Monitor for Fast Radio Bursts and Technosignatures	58
<i>Marcin Sokolowski, Danny C. Price, Randall B. Wayth</i>	
Topology Optimization of Plasmonic Device Using Function Expansion Method and CMA-ES	62
<i>Y. Tsuji, K. Morimoto, A. Iguchi, T. Kashiwa</i>	
GNSS System Time Scales and Time Transfer Accuracy.....	65
<i>A. Druzhin, T. Primakina</i>	
Performance Optimization of Reconfigurable Intelligent Surfaces in Multipath Channels	67
<i>Alain Sibille</i>	
A Novel Faceted UTD Solver in Altair Feko for Antenna Placement Applications	71
<i>Andres G. Aguilar, Lorena Lozano, Renier G. Marchand, Ulrich Jakobus</i>	
Multi-System All-Sky Spherical Harmonic Transit Interferometry	74
<i>Michael A. Kriele, Randall B. Wayth, Mark J. Bentum, Budi Juswardy, Cathryn M. Trott</i>	
Alternative Definitions of the Field Anisotropy in a Reverberation Chamber	78
<i>Qian Xu, Xueqi Shen, Peng Peng, Tian Hong Loh, Yi Huang</i>	
Three-Dimensional Generalized Sources for Integral Equation Solvers.....	82
<i>Dor Zvulun, Yaniv Brick, Amir Boag</i>	
Multiband Tunable FSS Structure with Using Feeding Network Microstrip Lines Based on Microwave Circuit.....	85
<i>Farzad Mir, Aldo De Sabata, Ladislau Matekovits</i>	
Design and Implementation of a Prototype with a Low-Cost SDR Platform for the Next Generation of Maritime Communications.....	89
<i>D. Romero-Godoy, N. Molina-Adrón, F. Cabrera, V. Araña, E. Jiménez</i>	
Solving Electromagnetic Wave Equations with Time Varying Characteristics Curves	93
<i>Wending Mai, Jingwei Xu, Ping L. Werner, Douglas H. Werner</i>	
Front End Concept for the Next Generation Very Large Array	95
<i>W. Grammer, S. Sturgis, R. Selina</i>	
60 GHz mmWave Metasurface Superstrate for Gain and Bandwidth Improvement.....	98
<i>Asif Bilal, Abdul Quddious, Atsushi Kanno, Tetsuya Kawanishi, Marco A. Antoniadis, Stavros Iezekiel</i>	
Discussion on Time Rule Out of the Earth.....	101
<i>M. Liu, Q J. Wang, P. Shuai, J S. Ping, H B. Jin</i>	
Satellite Attitude Effects on the Reception of Transionospheric HF Signals: Examples from the Radio Receiver Instrument Onboard e-POP/Swarm-E.....	105
<i>E. C. K. Eyiguler, D. W. Danskin, G. C. Hussey, K. Pandey, R. G. Gillies, A. W. Yau</i>	

Wide Band Microstrip Patch Antenna Array with Parasitic Element for Automotive Radar Applications.....	109
<i>Sumit Srivastava, N. S. Rajput</i>	
Spatial Sensor Arrangement in Through-The Wall Radar Imaging: Numerical Results.....	112
<i>Maria Antonia Maisto, Mehdi Masoodi, Raffaele Solimene</i>	
Design of a X-Band Waveguide Slot Antenna for Radar Applications with Low Side Lobes and Back Lobe Reduction	116
<i>P. Maxia, T. Pisanu, P. Marongiu, P. Ortu, F. Gaudiomonte, G. A. Casula, G. Montisci, G. Valente</i>	
Direct Inversion of the MLNG Field Evaluation Operator for Fast Solution of Electromagnetic Scattering Problems.....	120
<i>Evgeny V. Chernokozhin, Amir Boag</i>	
Design and Numerical Analysis of a Birdcage Resonator Without Lumped Capacitors.....	123
<i>K. Jurik, P. Drexler</i>	
Microdosimetry in a Realistic Keratinocyte Cell Model at mmWave and HF Frequencies.....	125
<i>Zain Haider, Yves Le Dréan, Ronan Sauleau, Laura Caramazza, Micaela Liberti, Maxim Zhadobov</i>	
Photonic Synthesis of Mm-Wave and THz Signals for 5G and Beyond.....	129
<i>Stavros Iezekiel</i>	
Architecture of C-Band Phased Array Feed with RFSoc Digital Beamformer	132
<i>A. Navarrini, A. Melis, G. Comoretto, T. Pisanu, R. Nesti, P. Marongiu, P. Ortu, P. Maxia, A. Ladu, H. Ghobadi, R. Concu, G. Angius, A. Cabras, L. Schirru, P. Di Ninni, M. Belluso, S. Billotta</i>	
High Frequency Space Correlation Function in a 2D-Trunk Dominated Forest	135
<i>Saúl A. Torrico, Roger H. Lang</i>	
Reducing the Reflection Error of PML Absorbing Boundary Conditions Within a Generalized Maxwell-Bloch Framework.....	137
<i>Johannes Popp, Lukas Seitner, Michael Haider, Christian Jirauschek</i>	
Polarization Independent Dual Function Metasurface Using Transparent Materials	141
<i>Savvas Chalkidis, Evangelos Vassos, Alexandros Feresidis</i>	
Drone Classification with a Convolutional Neural Network Applied to Raw IQ Data	144
<i>S. Kunze, B. Saha</i>	
A Monte-Carlo Based Numerical Integration Method for Diffraction Computation in Ray Tracing.....	148
<i>Han Na, Mehmet Mert Taygur, Thomas F. Eibert</i>	
Transient Response for Slanted Gratings in Dispersion Medium.....	152
<i>R. Ozaki, T. Yamasaki</i>	
Novel Superman-Diamond Inspired DRA for X Band Applications	156
<i>Sumer Singh Singhwal, Ladislau Matekovits</i>	
Results of a Recently Concluded Interlaboratory Comparison on CISPR 25 ALSE Test Method.....	159
<i>Carlo Carobbi, Alessio Bonci</i>	

Analysis of Specific Energy Loss by Fast Inverse Laplace Transform	163
<i>Seiya Kishimoto, Shinichiro Ohnuki</i>	
Spaced-Position Coherence Function of the Transionospheric Signal Under Ionospheric Fluctuations with Finite Correlation Radius	166
<i>Nikolay N. Zernov, Vadim E. Gherm, Mikhail A. Bisyarin</i>	
Number of Sources Detection and AoA Estimation of a Wireless Transmitter in Multipath Channels	170
<i>Antonios Argyriou</i>	
AoA Estimation of Spatially Correlated MIMO Transmitters in Wireless Passive Radar Applications.....	174
<i>Antonios Argyriou</i>	
The Technological and Scientific Development of ASKAP	178
<i>Bärbel S. Koribalski</i>	
Spaced-Position Coherence Function of the Signal Through Stochastic Plasma Layer with Finite Correlation Radius of Fluctuations.....	182
<i>Nikolay N. Zernov, Vadim E. Gherm, Mikhail A. Bisyarin</i>	
Optimal Synthesis of Circular Ring Arrays for Targets Localization Via Orbital Angular Momentum Vortex Beams	186
<i>G. M. Battaglia, R. Palmeri, A. F. Morabito, T. Isernia</i>	
Concept for a Short-Range Fallback Communication System for Drones in Medical Applications.....	190
<i>R. Poeschl, S. Kunze</i>	
Innovative Antenna Solutions for Satellite Telecommunications.....	194
<i>G. M. Battaglia, T. Isernia, A. F. Morabito, R. Palmeri, R. Vitiello</i>	
Simulation of 5G MU-MIMO Radiation Patterns in the 3.5 GHz Band in Urban Environments for Future EMF Exposure Assessment.....	198
<i>Nicolas Noé, François Gaudaire</i>	
Reconfigurable Intelligent Surface-Assisted Classification of Modulations Using Deep Learning	202
<i>Mir Lodro, Hamidreza Taghvaei, Jean-Baptiste Gros, Steve Greedy, Geofroy Lerosey, Gabriele Gradoni</i>	
Food Spoilage Estimation Using a Sensing RFID Tag.....	206
<i>B. Saggin, J. Podlecki, A. Vena, B. Sorli, F. Coffigniez, V. Guillard, S. Silvestre, C. Ramade</i>	
Packaging of a Beamforming IC by Laser Enhanced Direct Print Additive Manufacturing (LE- DPAM)	210
<i>Ruoke Liu, Jeremy Braun, Gregory Mitchell, Jing Wang, Gokhan Mumcu</i>	
Detection and Classification of Interference Affecting LoRaWAN Communications in Railway Environment	213
<i>Jonathan Villain, Virginie Deniau, Eric Pierre Simon, Christophe Gransart, Artur Nogueira De São José, Florent Valenti, Norbert Becuwe</i>	
Identification and Quantification of Metallic-Conductive Objects Using Low Frequency Magnetic Field.....	217
<i>Ibrahim Ibrahim, Niclas-Alexander Mauß, Yannic Hafner, Karina Kolinsky, Tobias Draeger, Stephan Oswald</i>	

Keeping SKA1-LOW Station Beamforming Errors Acceptable	221
<i>Stefan J. Wijnholds</i>	
Drone-Borne Synthetic Aperture Radar for GPR Applications: Buried Pipe Inspection	225
<i>John J. Pantoja, Felix Vega, Luciano Prado, Qingjie Yang, Bader Alali, Chaouki Kasmi, Laila Moreira, Dieter Lübeck, Christian Wimmer</i>	
The Relation Between Type III Radio Storms and CIR Energetic Particles	227
<i>Nat Gopalswamy, Pertti Mäkelä, Seiji Yashiro, Sachiko Akiyama, Hong Xie</i>	
Near Field Imaging System for Orthopedic Prosthesis.....	231
<i>L. Copin, S. Dutrieux, A. Vena, B. Sorli, S. Naudi</i>	
Integration of Reconfigurable Intelligent Surfaces in Dynamical Energy Analysis.....	235
<i>Sergio Terranova, Martin Richter, Neekar Mohammed, Gabriele Gradoni, Gregor Tanner</i>	
On the Influence of the Vertical Variability on the Earth-To-Satellite Communication Link Rain Retrievals.....	238
<i>Elisa Adirosi, Luca Facheris, Filippo Giannetti, Fabiola Sapienza, Giacomo Bacci, Attilio Vaccaro, Alessandro Mazza, Alberto Ortolani, Luca Baldini</i>	
Can Type III Radio Storms Be a Source of Seed Particles to Shock Acceleration?.....	242
<i>Nat Gopalswamy, Sachiko Akiyama, Pertti Mäkelä, Seiji Yashiro, Hong Xie</i>	
User-Friendly, Reconfigurable All-Optical Signal Processing with Integrated Photonics	246
<i>Bennet Fischer, Mario Chemnitz, Benjamin Wetzel, Piotr Roztocki, Benjamin Maclellan, Christian Reimer, Brent Little, Sai Chu, Evgeny Viktorov, David Moss, Michael Kues, José Azaña, Alessia Pasquazi, Marco Peccianti, Roberto Morandotti</i>	
A Novel H-Shaped Microstrip Patch Antenna Array for Automotive Radar Applications.....	249
<i>Sumit Srivastava, Aakanksha Verma, Piyush Yadav, Anshu Singh</i>	
Variation of TEC Over South Africa During a Geomagnetic Storm.....	252
<i>Tshimangadzo M. Matamba, Donald W. Danskin</i>	
On the Impact of Transfer Impedance and Grounding on RF Measurement Results.....	256
<i>Carlo Carobbi, Lorenzo Capineri, Leonardo Vignoli</i>	
On Frequency Scaling of Rain Attenuation.....	260
<i>O. Fiser, M. Kovalchuk</i>	
Analysis of the Surface Plasmon Resonances of a Graphene Disk Stack: A Guaranteed and Fast Convergence Method.....	264
<i>Mario Lucido</i>	
RF-EMF Exposure Induced by Distributed Antenna System in the Subway Station.....	268
<i>Taghrid Mazloun, Shanshan Wang, Joe Wiart</i>	
High Gain Circularly Polarized Cylindrical DRA for Mm-Wave On-Chip Applications.....	270
<i>Saikiran Kongari, Mohit Mishra, Rakesh Singh Kshetrimayum</i>	
A Threshold-Based Detection Approach to Detect Fake Access Points and Jamming Attacks on IEEE 802.11 Networks: Implementation, Results and Limitations.....	273
<i>Andy Amoordon, Virginie Deniau, Christophe Gransart, Anthony Fleury, Jonathan Villain</i>	
Short-Period Variability in the Ionosphere and the Stratosphere Related to Winter Jet Stream.....	277
<i>Anna S. Yasyukevich, Artem M. Vesnin</i>	

Evidence of Sublimation in the Vertical Profiles of Radar Reflectivity and Its Impact on Snowfall Estimation at the Ground at Mario Zucchelli Antarctic Station	280
<i>Alessandro Bracci, Luca Baldini, Nicoletta Roberto, Elisa Adirosi, Mario Montopoli, Claudio Sarchilli, Paolo Grigioni, Virginia Ciardini, Vincenzo Levizzani, Federico Porcù</i>	
3D Miniaturization Method and Its Application to a Wearable Vivaldi Antenna	284
<i>Mehmet Akif Acar, Ozan Furkan Sezgen, Oguz Kaan Erden, Sema Dumanli</i>	
Electromagnetic Fields in the Environment: An Update of Monitoring Networks in Europe.....	288
<i>Christos Apostolidis, Athanasios Manassas, Serafeim Iakovidis, Theodoros Samaras</i>	
Intelligent System for Recommendation of Mobile Services to Consumers	291
<i>Ivan Ganchev, Zhanlin Ji, Máirtín O'Droma</i>	
Designing a Low-Cost High-End Android-Based Wireless Board for the EMULSION IoT Platform.....	295
<i>Ivan Ganchev, Zhanlin Ji, Máirtín O'Droma</i>	
Coaxial Slot Antenna Array Design for Microwave Ablation and Monitoring.....	299
<i>Ahmet Bilir, Oguz Kaan Erden, Sema Dumanli</i>	
Reconfigurable Intelligent Surface Design in Phase-Space.....	303
<i>Neekar M Mohammed, Stephen C Creagh, Sergio Terranova, Hamidreza Taghvaei, Mir Lodro, Gregor Tanner, Gabriele Gradoni</i>	
Skeletal Muscle-Actuated Bio-Hybrid Implant and Wearable Reader Antenna System.....	307
<i>Cagla Karabulut, Ahmet Bilir, Macit Emre Lacin, Arda Deniz Yalcinkaya, Sema Dumanli</i>	
Physics Informed Neural Network (PINN) for Noise-Robust Phase-Based Magnetic Resonance Electrical Properties Tomography	311
<i>Adan J. Garcia Inda, Shao Y. Huang, Nevrez Immamoglu, Wenwei Yu</i>	
Advancing Radio Diagnostics of Space Weather Plasma Processes	315
<i>M. Messerotti</i>	
Switchable Frequency Selective Surface Based on Polydimethyl-Siloxane Composite Flexible Substrate for WLAN and 5G Sub-6GHz Applications.....	319
<i>Hijab Zahra, Sujan Shrestha, Arslan Kiyani, Syed M. Abbas, Subhas Mukhopadhyay, Karu P. Esselle</i>	
Time Domain Scattering of Waves from Perfectly Conducting Half-Plane in Dispersive Space: Field-State Approach.....	322
<i>T. Sengor</i>	
Plasmonics in Future Radio Communications: Potential and Challenges	325
<i>Juerg Leuthold, Yannik Horst, Tobias Blatter, Laurenz Kulmer, Loïc Chérix, David Moor, Marco Eppenberger, Michael Baumann, Stefan M. Koepfli, Benedikt Baeuerle, Wolfgang Heni, Claudia Hoessbacher, Eva De Leo, Yuriy Fedoryshyn, Ueli Koch, Maurizio Burla, Jasmin Smajic</i>	
Optical Design and Performance Evaluation of a Mini Spectrometer for Space Applications	329
<i>A. Bouchalkha, J. Coronel, A. Hableel, M. Meriac, G. Matras, C. Kasmí</i>	
Design of Electromagnetic Spatial Filters Exploiting the Normal Polarization of All-Dielectric Metasurfaces.....	333
<i>Alessio Monti, Andrea Alù, Alessandro Toscano, Filiberto Bilotti</i>	

A Test Methodology to Assess the Susceptibility of LTE Communications in a Railway Electromagnetic Environment	336
<i>Nathan Chopinet, Virginie Deniau, Eric Pierre Simon, Artur Nogueira De São José, Jonathan Villain</i>	
Contribution to the Design of Smart Jamming Waveforms for UAVs Counter-Measurement	340
<i>Driss Aouladhadj, Ettien Kpre, Mauro De Freitas, Virginie Deniau, Christophe Gransart, Christophe Gaquière</i>	
A Dual Polarized Super-Wideband Frequency Selective Surface with Equivalent Circuit Model	343
<i>Surajit Kundu, Somnath Mahato</i>	
Stacked Metal Hole Array as an Antenna Gain Enhancer at 300 GHz Band	347
<i>Yu Katsuue, Yusuke Tanaka, Keizo Inagaki, Atsushi Kanno, Norihiko Sekine, Ayumu Yabuki, Junichi Nakajima, Shintaro Hisatake</i>	
Quality Assessment Tool for SKA Continuum Imaging Pipelines.....	349
<i>Ying-He Celeste Lü, Gabriella Hodosán, Feng Wang, Simon Daley-Yates, Tim Cornwell</i>	
Additive Manufacturing for Item Identification	353
<i>Simone Genovesi, Filippo Costa, Giuliano Manara</i>	
Microstrip C Patch Antenna for Hyperthermia Treatment: A Comparative Numerical Study with Cavity Backed C Patch Antennas	357
<i>Muthu Rattina Subash Ramu, Kavitha Arunachalam</i>	
mmWave-Over-Fiber Distributed Antenna Systems for Reliable multi-Gbps Wireless Communication	361
<i>Arno Moerman, Joris Van Kerrebrouck, Olivier Caytan, Igor Lima De Paula, Laurens Bogaert, Guy Torfs, Piet Demeester, Marc Moeneclaey, Hendrik Rogier, Sam Lemey</i>	
Exploiting the NIE Model for the Inverse Obstacle Scattering Problem in Case of Strong Or Metallic Scatterers.....	365
<i>Martina T. Bevacqua, Tommaso Isernia</i>	
Time Reversal in Reverberating Environments for Electromagnetic Focusing in Biological Bodies.....	368
<i>E. Colella, L. Bastianelli, V. Mariani Primiani, F. Moglie</i>	
Analysis on the Accuracy of the Embedded Element Patterns for One Station of SKA-Low by Using a Radius of Influence Approach.....	372
<i>Mirko Bercigli, Pietro Bolli, Paola Di Ninni</i>	
Direction of Arrival Estimation Applied to Antenna Arrays Using Convolutional Neural Networks	376
<i>Giorgos Kokkinis, Zaharias D. Zaharis, Pavlos I. Lazaridis, Nikolaos V. Kantartzis</i>	
Efficient Dual-Band Meandered Loop Antenna for RF Energy Harvesting Applications at FM and GSM Bands	380
<i>N. Nikkhah, M. Rad, H. Abedi</i>	
End-Fire Antenna Array with Metamaterial Decoupling Structures for UAV-Borne Radar.....	384
<i>Christos Miliadis, Rasmus B. Andersen, Pavlos I. Lazaridis, Zaharias D. Zaharis, Bilal Muhammad, Jes T. B. Kristensen, Albena Mihovska, Dan D. S. Hermansen</i>	
Resonance and Time-Delay Annihilation with Bandpass NGD Active Circuit	388
<i>Blaise Ravelo, Fayu Wan, Mathieu Guerin, Wenceslas Rahajandraibe, Glauco Fontagalland, George Chan</i>	

ULISS-2G Ultra Stable Cryocooled Microwave Sapphire Oscillator: A Mature and Reproducible Technology.....	392
<i>C. Fluhr, B. Dubois, G. Le Tetu, J. Paris, E. Rubiola, V. Giordano</i>	
Self-Dual Power Splitters for Wide-Scan, Wideband Phased Array Applications.....	395
<i>Roe Geva, Raphael Kastner</i>	
HF Spectral Occupancy Dependence on Antenna Elevation Angle.....	399
<i>A. Constantinides, H. Haralambous</i>	
Intelligent and QoE-Aware Open Radio Access Networks.....	403
<i>Georgios Kougioumtzidis, Vladimir Poulkov, Zaharias D. Zaharis, Pavlos I. Lazaridis</i>	
A Novel Utilization of NARX for Antenna Array Adaptive Beamforming.....	407
<i>Ioannis Mallioras, Zaharias D. Zaharis, Pavlos I. Lazaridis, Nikolaos V. Kantartzis, Traianos V. Yioultsis, Bo Liu, Stavros Kalafatis</i>	
Antenna Array Beamforming Based on Deep Learning Neural Network Architectures.....	411
<i>Haya Al Kassir, Zaharias D. Zaharis, Pavlos I. Lazaridis, Nikolaos V. Kantartzis, Traianos V. Yioultsis, Ioannis P. Chochliouros, Alben Mihovska, Thomas D. Xenos</i>	
Compressive Sensing as Applied to Channel Characterization and Beam Synthesis at Microwave Frequencies.....	415
<i>Okan Yurduseven, Muhammad Ali Babar Abbasi, Thomas Fromenteze, Vincent Fusco</i>	
On the Optimality of IRS-User Association for Rank-1 Channel Conditions	419
<i>Alberto Tarable, Alessandro Nordio</i>	
Propagation Characterization for Intra-Ship Scenario Towards 5G-Enabled Smart Maritime.....	423
<i>Xinjian Ou, Xinghai Guo, Ke Guan, Ziang Ma, Jingjing Liao</i>	
Physically Based Radar Simulation Parameter of Road Surfaces in OpenMATERIAL	427
<i>Vera Kurz, Ludwig Friedmann, Carlo Van Driesten, Erwin Biebl</i>	
Observations of Electron Fluxes in the Radiation Belts with PROBA-V/EPT at Polar Low Earth Orbit and Van Allen Probes/MagEIS at Near Equatorial Elliptical Orbit	429
<i>Viviane Pierrard, Edith Botek, Jean-François Ripoll, G. Reeves, S. A. Thaller</i>	
A 20GHz-Band Optical-Fiber-Feed 1-Bit Bandpass Delta-Sigma Direct Digital RF Transmitter Using First Image Component of the QSFP28 Module Output.....	433
<i>Junhao Zhang, Noriharu Suematsu</i>	
High Linearity Receiver Unit for LOFAR 2.0.....	437
<i>P. Krüger, J. Monari, F. Perini, G. Schoonderbeek, S. Damstra</i>	
Response of the 3 rd Nov 2021 Storm Over Cyprus and Russia	441
<i>H. Haralambous, K. S. Paul, Christina Oikonomou, T. L. Gulyaeva, V. A. Panchenko</i>	
Two Co-Planar Resistive Half-Planes: A Uniform Asymptotic Solution for the Plane Wave Diffraction by the Discontinuity.....	444
<i>G. Riccio, G. Gennarelli, F. Ferrara, C. Gennarelli, R. Guerriero</i>	
Calibration and Imaging Pipeline Processing Baseline-Dependent Averaged Visibilities.....	448
<i>Chiara Salvoni, Rob R. Van Den Bergh, Tammo Jan Dijkema, Jakob Maljaars, Maik Nijhuis, André R. Offringa, Sebastiaan Van Der Tol, Mark De Wever, Stefan J. Wijnholds</i>	

Probing Equatorial Ionosphere Using GMRT at sub-GHz Frequencies.....	452
<i>Sarvesh Mangla, Abhirup Datta</i>	
Active and Continuous Compensation of Clock Jitter in CT Delta-Sigma ADCs.....	454
<i>Shishira S Venkatesha, Pavol Pitonak, Dirk Killat</i>	
A GPU-Based Imager with Polarised Primary-Beam Correction.....	458
<i>Chris J. Skipper, Anna M. M. Scaife, J. Patrick Leahy</i>	
SDR SAR Target: Corner Reflector and Communication.....	462
<i>A. Piccioni, R. Alesii, F. Santucci, F. Graziosi</i>	
An Efficient Iterative Scheme for HEMP Simulation with Consideration of Self-Consistency.....	466
<i>Ning Dong, Yan-Zhao Xie</i>	
Impact of Antenna Element Directivity and Reflection-Interference on Line-Of-Sight Multiple Input Multiple Output Terahertz Systems	471
<i>Duschia M. Bodet, Josep M. Jornet</i>	
Modelling of Radiowave Propagation Through Small-Scale Forest Fire.....	475
<i>Stefânia Faria, Mário Vala, Nuno Leonor, João Felício, Carlos Fernandes, Carlos Salema, Rafael Caldeirinha</i>	
Radio Frequency Interference Detection in Microwave Radiometry: A Novel Feature-Based Statistical Approach.....	479
<i>Imara Mohamed Nazar, Mustafa Aksoy</i>	
Indoor Localization Using Software Defined Radio: A Non-Invasive Approach	483
<i>Muhammad Zakir Khan, Ahmad Taha, William Taylor, Akram Alomainy, Muhammad Ali Imran, Qammer. H. Abbasi</i>	
A Microstrip Quasi-Yagi Antenna Based on Optimised Waning Crescent Elements for WSN.....	487
<i>Tiago E. Oliveira, João R. Reis, Rafael F. S. Caldeirinha</i>	
Energy Efficiency Optimization for Radar-Communication Coexistence with Statistical CSIT	491
<i>Yuqi Ye, Li You</i>	
Cross-Platform Evaluation for Software Defined Radio GNSS Receiver	495
<i>Ángel Luis Zuriarrain Sosa, Roberto Alesii, Fortunato Santucci</i>	
4-Port Microstrip Planar Resonator for Multiband Microwave Material Characterization Applications.....	499
<i>Sujith Raman, Anja K. Skrivervik</i>	
Microwave Tomography for Hydration Assessment in Newborn Cattle: In Silico Proof of Concept.....	502
<i>Brendon C. Besler, Elise Fear</i>	
Climatology of Lightning Activities Across the Equatorial African Region.....	505
<i>R. Chakraborty, P. S. Menghal, M. Harshitha, M. A. Sodunke</i>	
Evaluation of DMSO Effects on Cell Electrical Parameters Using Dielectrophoresis.....	509
<i>I. Tivig, L. Vallet, M. G. Moisescu, M. Radu, T. Savopol, L. M. Mir</i>	
Load Effects on Quantum Dots Antennas Connected with Nanowires	512
<i>A. Maffucci, A. Tamburrino, G. Y. Slepian</i>	

A High-Power Bipolar Sub-Nanosecond Pulser Based on Power Synthesis Method	514
<i>Yangxin Qiu, Yifan Wang, Qihua Song, Tong Zhou, Lanqi Zhang, Yu Yang, Puqing Zhang, Yanzhao Xie</i>	
Statistical Analysis of RF Exposures Depending on Body Surface Area.....	518
<i>Yuwei Jiang, Tongning Wu</i>	
Microwave Microfabricated Sensor Dedicated to the Dielectric Characterization of Biological Microtissues.....	521
<i>Olivia Peytral-Rieu, David Dubuc, Katia Grenier</i>	
Measurement Scheme for Millimeter-Wave Electric Field Based on IQ-Mixing Technique	525
<i>Wenwen Zhu, Xu Xu, Tongning Wu, Congsheng Li</i>	
Time-Continuous Delta-Sigma-Modulator with Switchable Resistors in 65 Nm CMOS Technology	528
<i>P. Pitonak, D. Killat</i>	
Topside Investigation Over Cyprus and Russia Using Swarm Data	532
<i>H. Haralambous, K. S. Paul, T. L. Gulyaeva</i>	
Fast Non-Equilibrium Pitch Angle Diffusion in a Plasmaspheric Plume Associated with BARREL Precipitation.....	536
<i>Robyn M. Millan, Jean-Francois Ripoll</i>	
V-Band Rain Attenuation Measurement Setup	540
<i>Brecht De Beelde, David Plets, Emmeric Tanghe, Chenglong Li, Wout Joseph</i>	
Thermographic Image Super-Resolution Based on Neural Networks.....	544
<i>A. Galván-Hernández, J. R. Ticay-Rivas, V. Alonso-Eugenio, V. Araña, F. Cabrera</i>	
1×4 Antenna Array Corporately Fed by a Novel Half-Mode Groove Gap Waveguide Network.....	548
<i>Miguel Ferrando-Rocher, Jose Ignacio Herranz-Herruzo, Alejandro Valero-Nogueira, Stephan Marini</i>	
Design Concept for Multiple-Band Multi-Functional Metasurfaces with Hybrid Feeding	551
<i>Quang M. Nguyen, Amir I. Zaghoul</i>	
Design of a Mobile RFI Monitoring Station for DSA-2000 Candidate Sites Surveys	553
<i>V. Prayag, G. Hellbourg, M. Virgin</i>	
Simulations of Angular Super-Resolution with the Active Surface of the Sardinia Radio Telescope	557
<i>Luca Olmi, Pietro Bolli, Renzo Nesti</i>	
Earthquake Epicenter Localization Using Fiber Optic Distributed Acoustic Sensing.....	560
<i>Hasan Yetik, Mucahit Kavakli, Umut Uludag, Ali Eksim, Selçuk Paker</i>	
High-Gain Slotted Waveguide Antennas for Wireless THz and Optical Fiber Front-Ends	564
<i>Yusuf N. Wijayanto, Ken Paramayudha, Atsushi Kanno</i>	
A Dual-Band Circularly Polarized Bi-Sectoral Waveguide Horn Antenna for High Power LEOP TT&C Systems	566
<i>Esra Alkin, Ceyhan Turkmen, Mustafa Secmen</i>	
Evaluating the Soil Moisture Retrievals for Agricultural Drought Monitoring Over Brazil.....	570
<i>Luciana Rossato Spatafora, Patrizia Savi, Regina C. S. Alvalá, Ana Paula Cunha, José Marengo, Marcelo Zeri, Mercè Vall-Llossera, Miriam Plablos</i>	

Millimeter-Wave D-Band Antenna-Coupled Electrode Electro-Optic Modulator	575
<i>Shotaro Kodama, Yui Otagaki, Hiroshi Murata</i>	
Modeling the Radio Wave Polarization in Transionspheric Propagation.....	578
<i>Kuldeep Pandey, Robert G. Gillies, E. C. K. Eyiguler, Glenn C. Hussey, Donald W. Danskin, Andrew W. Yau</i>	
Far-Field Numerical Radio-Frequency Dosimetry of Insects.....	582
<i>Arno Thielens</i>	
A Superconducting Quantum Interference Device Model for the Design and Optimization of Quantum-Limited Microwave Amplifiers in Harmonic Balance Simulators.....	586
<i>Alirio S. Boaventura</i>	
Automatic Detection of e-Callisto Solar Radio Bursts by Deep Neural Networks	589
<i>Fernández Ruiz Mario, Bussons Gordo Javier, Prieto Mateo Manuel, Monstein Christian</i>	
Initial Observations Regarding the Measurement of Dielectric Properties of Human Teeth	593
<i>Mariya Berezhanska, Daniela Godinho, Paulo Maló, Raquel C. Conceição</i>	
A Simulation Study on the Effect of Phase-Shift of Temporal Interference Stimulation.....	595
<i>Yukihiro Enomoto, Shao Ying Huang, Wenwei Yu</i>	
Optical Burst Switching and Wireless Communications - Are They Similar?.....	599
<i>Nuno M. Garcia</i>	
Multi-Satellite Rain Sensing: Design Criteria and Implementation Issues.....	601
<i>Filippo Giannetti, Attilio Vaccaro, Fabiola Sapienza, Giacomo Bacci, Vincenzo Lottici, Luca Baldini</i>	
Design and Implementation of a Communications Circuit Based on LoRa Chip	605
<i>J. Monzón-Monedero, V. Araña, F. Cabrera, P. Dorta</i>	
Status of the Multibeam S Band Receiver for the Sardinia Radio Telescope.....	609
<i>T. Pisanu, G. Valente, P. Marongiu, P. Maxia, P. Ortu, A. Navarrini, A. Ladu, L. Schirru, R. Ghiani, R. Concu, F. Gaudiomonte, G. Angius, A. Cabras, E. Egron, N. Iacolina, V. Vacca</i>	
Overview of the Single Pixel Feed Receiver System of Square Kilometer Array MID Telescope.....	613
<i>Jayashree Roy, Michael Pleasance, Stephen Harrison, Andreas Wolfgang, Kris Caputa</i>	
3D Simulation for Disaster Management: Toward a New Approach.....	617
<i>Tullio J. Tanzi, Ludovic Aprville</i>	
Exploring Pitch-Angle Diffusion During High Speed Streams with Neural Networks.....	621
<i>J.-F. Ripoll, G. Kluth, S. Has, A. Fischer, M. Mougeot, E. Camporeale</i>	
How the 15 January 2022 Hunga Tonga- Hunga Ha’pai Volcano Eruption Shook the Ionosphere.....	625
<i>E. Astafyeva, B. Maletckii, M. Ravanelli, L. Rolland, D. Mikesell, P. Coisson, F. Manta, E. Munaibari, P. Lognonné</i>	
Exploiting Composite Vortices in the Design of Reconfigurable Intelligent Surfaces.....	627
<i>Mirko Barbuto, Andrea Alù, Filiberto Bilotti, Alessandro Toscano</i>	
Wide Band RF ADC Conversion Artefacts and Their Impact on Radio Astronomy	629
<i>John Tuthill, Paul Roberts, Samantha Gordon, George Hobbs</i>	

From the Electromagnetic Power of Lightning on Earth to Lightning-Generated Whistlers in Space.....	633
<i>J.-F. Ripoll, T. Farges, D. M. Malaspina, G. S. Cunningham, E. H. Lay, G. B. Hospodarsky, C. A. Kletzing, J. R. Wygant, S. Pédeboy</i>	
Optical Beam Stabilizer for Free-Space Optical Communication Systems.....	635
<i>Abdelmoula Bekkali, Hideo Fujita, Michikazu Hattori, Yuichiro Hara</i>	
Joint Optimization of Energy Consumption and Spectral Efficiency for 5G/6G Point-To-Point Networks	637
<i>Mohamad Younes, Yves Louet</i>	
Comparison of the Transmission Modes of 5G Networks with a High Density of Base Stations Distributed According to Poisson Point Process	641
<i>Mohamad Younes, Yves Louet</i>	
Atmospheric Propagation Effects in the D-Band with Application to 5G-6G Wireless Communication Systems.....	645
<i>José Manuel Riera, Domingo Pimienta-Del-Valle, Pedro Garcia-Del-Pino</i>	
High Speed Optical Feeder Link Communication System Onboard ETS-9 Using a New Screening Process for Space Photonics.....	649
<i>Dimitar R. Kolev, Hiroyuki Tsuji</i>	
Time-Domain Science Pipelines for the OVRO-LWA	652
<i>Yuping Huang, Mei-Ling Laures, Marin M. Anderson, Casey J. Law, Gregg Hallinan</i>	
Design of an Impedance Matched Near Field Passive Antenna for Medical Microwave Radiometry.....	657
<i>Jeslin P Issac, Kavitha Arunachalam</i>	
Millimeter-Wave Radar Measurement and Ray-Tracing Simulation for Urban Street Environment.....	660
<i>Wenbin Li, Danping He, Ke Guan, Xiangyu Shi, Zhangdui Zhong</i>	
Ex-Vivo Dielectric Properties of Tissues in Athymic Nude Mice.....	664
<i>Annah J. Wilson, Panagiotis Kosmas, Maya Thanou</i>	
Advanced Numerical Modeling Methods for the Characterization and Optimization of Metasurfaces.....	668
<i>M. Binois, R. Duvigneau, M. Elsayy, P. Genevet, S. Kahir, S. Lanteri, N. Lebbe</i>	
Complex Waves in the Inhomogeneous Dielectric Lossy Goubau Line	672
<i>Valeria Martynova, Eugene Smolkin</i>	
Optimization of Inverse Problems Involving Surface Reconstruction: Least Squares Application	676
<i>Ahmet Sefer</i>	
Tensor Decompositions Applied to Electromagnetics: A Review.....	680
<i>Mingyu Wang, Cheng Qian, Abdulkadir C. Yucel</i>	
Experimental Evaluation of the Passive RFID Technology in Pulse Wave Mode	684
<i>Y. Merakeb, J. Huillery, A. Bréard, Y. Duroc</i>	
A CPW Loaded Quasi-T Shaped Planar Antenna for WLAN and X-Band Applications	687
<i>Syed Naheel Raza Rizvi, Abir Zaidi, Mohammad Alibakhshikenari, Mariana Dalarsson, Shah Nawaz Burokur</i>	

Compact Multi-Band Flexible Antenna for ISM, WLAN, Wi-Fi, and 5G sub-6-GHz Applications	690
<i>Syed Muhammad Rizvi Jarchavi, Mohsin Iqbal, Mariana Dalarsson, Mohammad Alibakhshikenari, Iyad Dayoub</i>	
Dual-Band, Polarization Insensitive, and Flexible EM Wave Absorber with High Angular Stability and Low Cross Reflection Level	693
<i>Awanish Kumar, G. Shrikanth Reddy, Shiv Narayan</i>	
A Characteristic Analysis of Low-Latitude NavIC Signal Intensity Fading	697
<i>Deepthi Ayyagari, Abhirup Datta</i>	
Front to Back Ratio Improvement Using Higher Order Mode in Substrate Integrated Coaxial Line (SICL) Based Cavity Backed Slot Antenna.....	701
<i>Naman Baghel, Soumava Mukherjee</i>	
Some Improvements to Field Intensity Shaping for Biomedical Applications: Preliminary Results	705
<i>Martina T. Bevacqua, Sabrina Zumbo, Tommaso Isernia</i>	
Indirect Propagation of Body-UAV LoRa Links Over Wood and Suburb.....	709
<i>Giulio M. Bianco, Gaetano Marrocco</i>	
Finite Volumes Method for the Cell Electrical Model	713
<i>Thomas Bonnafont, Delphine Bessieres, Jean Paillol</i>	
A Two-Way Split-Step Wavelet Method for the 2D Tropospheric Propagation.....	717
<i>Thomas Bonnafont, Ali Khenchaf</i>	
A Compressed Sensing Faraday Depth Reconstruction Framework for the MeerKAT MIGHTEE-POL Survey	721
<i>Miguel Cárcamo, Anna Scaife, Russ Taylor, Matt Jarvis, Micah Bowles, Srikrishna Sekhar, Lennart Heino, Jeroen Stil</i>	
Impact of Lithium Mining on Climate Change in the Atacama Desert, South America	725
<i>R. Chakraborty, B. Srinivas, A. Chakraborty</i>	
Evidence of Changes in the Low-Latitude Plasma Drift Under IMF Bz Coupling: A TIEGCM Simulation Approach.....	729
<i>Sumanjit Chakraborty</i>	
Climate Regionalization to Assess Change in Extreme Rainfall Over Indian Subcontinent.....	733
<i>Chandrani Chatterjee, Saurabh Das</i>	
Anisotropic Time-Varying Metasurface for Real-Time Polarization Conversion.....	737
<i>Qi Hu, Ke Chen, Yijun Feng</i>	
Scalable Production of Light-Sensitive Devices from Liquid-Phase Exfoliated Transition Metal Monochalcogenide Flakes	740
<i>Nicola Curreli</i>	
Performance of Low-Cost, Dual-Frequency GNSS Modules for Ionospheric Studies.....	744
<i>Sukabya Dan, Atanu Santra, Somnath Mahato, Chaitali Koley, P Banerjee, Anindya Bose</i>	
868 MHz Path Loss Model for an Industrial Container Terminal	748
<i>Brecht De Beelde, Emmeric Tanghe, Marwan Yusuf, David Plets, Wout Joseph</i>	

Characteristic Modes Theory Exploitation for Wideband Circularly Polarized Metasurface Antenna Design.....	752
<i>F. A. Dicandia, S. Genovesi</i>	
Bi-Modal Tissue-Mimicking Breast Phantoms: Comparison Between the Performance of Agar- And Gelatin-Based Phantoms.....	756
<i>Simona Di Meo, Alessia Cannatà, Chiara Macchello, Simone Morganti, Marco Pasian, Giulia Matrone</i>	
Wearable Chipless Sensor for Breath Rate Monitoring.....	760
<i>Mahmoud Elgeziry, Filippo Costa, Alessandro Tognetti, Simone Genovesi</i>	
Predictions of Liver Dielectric Properties Using Bruggemann Mixture Equation for Microwave Medical Applications.....	764
<i>Jonathan Farrugia, Julian Bonello, Iman Farhat, Lourdes Farrugia, Charles Sammut</i>	
A Short-Time Stationarity Test of Radio Signals from the Vela Pulsar Using Polyspectra.....	768
<i>A. Faustmann, L. Schwaradt, V. Van Tonder, J. Gilmore, S. Buchner</i>	
Analytical Approach to Matching Layer Design for Electric Field Maximization in Biological Tissues.....	772
<i>D. Gasperini, F. Costa, L. Daniel, G. Manara, S. Genovesi</i>	
A Dual-Band Circularly Polarized Antenna with Slotted Reflector for GPS Applications.....	776
<i>A. Gharaati, A. Goudarzi, R. Mirzavand</i>	
Wireless Sensor for Precision Grasping of Objects and Tools by Robotic Hands	779
<i>A. Gharibi, F. Costa, S. Genovesi</i>	
A 2.5-Dimensional Miniaturized Frequency Selective Surface Based on Convolved Geometry	783
<i>Saptarshi Ghosh</i>	
A Millimeter-Wave Resonant Cavity Antenna with High Gain and Low Sidelobe Level	787
<i>A. Goudarzi, M. M. Honari, A. Gharaati, R. Mirzavand</i>	
Statistical Scintillation Indices in Polar Ionospheric Climatology	791
<i>Ishita Gulati, Jyoti Kumar Atul, Oleg V Kravchenko, Satnam Dlay</i>	
Classification Based Detection of Geomagnetic Storms Using LSTM Neural Network.....	795
<i>Ishita Gulati, Handong Li, Martin Johnston, Satnam Dlay</i>	
A Fast RFI Mitigation Approach Via Alternating Projection in Real SAR Data	799
<i>Yan Huang, Ruizhe Zhang, Jiang Liu, Zhangcheng Hao, Guisheng Liao, Wei Hong</i>	
Scattering Properties of High-Permittivity Dielectric Resonators Embedded with Impedance Sheets	803
<i>Rasmus E. Jacobsen, Andrei V. Lavrinenko, Samel Arslanagic</i>	
Electromagnetic Tracking in Guided Medical Interventions.....	807
<i>Herman Alexander Jaeger, Kilian O'Donoghue, Pádraig Cantillon-Murphy</i>	
A Novel Algorithm for High Fidelity Spectro-Polarimetric Snapshot Imaging of the Low-Frequency Radio Sun Using SKA-Low Precursor	811
<i>Devojoyoti Kansabanik, Divya Oberoi, Surajit Mondal</i>	
Multi-Frequency Microwave Radiometry for Retrieving Antarctic Firn Subsurface Temperatures.....	815
<i>Rahul Kar, Mustafa Aksoy, Dua Kaurejo</i>	

TEMPEST Attack Against High-Resolution Displays Using Differences in the Transfer Function of EM Waves.....	819
<i>Taiki Kitazawa, Yoshiki Kitamura, Yougwoo Kim, Daisuke Fujimoto, Hideaki Sone, Yuichi Hayashi</i>	
A Hybrid Design Technique for Realizing Metasurface Based Wideband and Wide Dual-Band Circularly Polarized Dielectric Resonator Antennas	823
<i>Arslan Kiyani, Nasimuddin Nasimuddin, Syed Muzahir Abbas, Mohsen Asadnia, Karu P. Esselle</i>	
Si-Based High Responsivity Germanium-Tin MQW p-i-n Photodetectors for Broadband Applications.....	827
<i>Harshvardhan Kumar, Ankit Kumar Pandey</i>	
Deep Learning Enables Robust Drone-Based UHF-RFID Localization in Warehouses.....	830
<i>Chenglong Li, Emmeric Tanghe, Pieter Suanet, David Plets, Jeroen Hoebeke, Luc Martens, Eli De Poorter, Wout Joseph</i>	
Development of General-Purpose Digital Backend for Single-Dish Centimetre and Millimetre-Wave Telescopes.....	834
<i>Chao Liu, Michael E. Jones, Angela C. Taylor</i>	
A Comparative Study of Butterfly-Enhanced Direct Integral and Differential Equation Solvers for High-Frequency Electromagnetic Analysis Involving Inhomogeneous Dielectrics	838
<i>Yang Liu</i>	
Fast Beam Splitting Technique for STAR-RISs with Coupled T&R Phase Shifts.....	842
<i>Yuanwei Liu, Jiaqi Xu, Xidong Mu</i>	
Investigation and First Experiment of BeiDou-Based Passive Radar Vessel Target Imaging	845
<i>Zhongyu Li, Chuan Huang, Junjie Wu, Jianyu Yang</i>	
Effects of the Inhomogeneous Loading of Magnetic Nanoparticles in Thermoseeds for Bone Tumors Hyperthermia	849
<i>Matteo Bruno Lodi</i>	
On Usability of Dual-Frequency, Compact GNSS Modules for Long Baseline RTK	853
<i>Somnath Mahato, Mrinal Goswami, Surajit Kundu, Anindya Bose</i>	
Estimation of Polarization Effects on Sky Visibilities for FARSIDE	857
<i>Nivedita Mahesh, Bharat Gehlot, Judd Bowman, Daniel Jacobs</i>	
Study on the Effect of Using Different Weighting Techniques in a Time Scale Algorithm to Generate an Ensemble Time.....	862
<i>Shilpa Manandhar, Yu Song Meng</i>	
Characteristic Mode Analysis of SIR Coupled Dual Band Dipole Antenna	866
<i>Manoj Mani, Remsha Moolat, Mohanan Pezholil</i>	
Numerical Method for Solving Hybrid TE-TE Wave Propagation Problems in a Shielded Plane Nonlinear Waveguide.....	870
<i>Valeria Martynova, Eugene Smolkin</i>	
Novel Digital Impedance Bridges for the Realization of the Farad from Graphene Quantum Standards	874
<i>Martina Marzano, Yaowaret Pimsut, Mattias Kruskopf, Marco Kraus, Massimo Ortolano, Stephan Bauer, Ralf Behr, Luca Callegaro</i>	

New Design Approach for Mutual Coupling Reduction in Two-Port Compact Antenna Array for W-LAN MIMO Applications	878
<i>Mohit Mishra, Sumantra Chaudhuri, Rakesh Singh Kshetrimayum, Koushik Dutta</i>	
Non-Invasive Measurement of Complex Permittivity Using a Compact Planar Microwave Sensor	882
<i>Remsha Moolat, Manoj Mani, Mohanan Pezhilil</i>	
Near Field Sampling of Conformal Sources	886
<i>Raffaele Moretta, Giovanni Leone</i>	
Machine Learning Ensemble Approach for Ionosphere and Space Weather Forecasting with Uncertainty Quantification	890
<i>Randa Natras, Benedikt Soja, Michael Schmidt</i>	
Towards Identification for Harmonic Transponders	894
<i>Nicolas Barbot, Smail Tedjini</i>	
A Study on Cross-Carrier Scheduler for Carrier Aggregation in Beyond 5G Networks	897
<i>Nidhi, Bahram Khan, Albenah Mihovska, Ramjee Prasad, Fernando J. Velez</i>	
The Combined Real-Time Global Ionospheric Map for Operational Ionospheric Space Weather Monitoring	901
<i>Ningbo Wang, Yan Zhang, Andrzej Krankowski, Zishen Li, Ang Li, Kacper Kotulak, Adam Fron</i>	
An Effective Ray-Tracing by Homing-In Method and Direct Approach in Anisotropic Inhomogeneous Ionosphere	904
<i>Igor A. Nosikov, Artem M. Padokhin, Maksim V. Klimenko, Vladimir N. Bokov, Kupriyan V. Belyuchenko, Pavel F. Bessarab</i>	
Calculation of Ionospheric Disturbances of Earthquakes in Europe with TEC Anomalies	908
<i>M. Baran Ökten, Zehra Can, Ö. Faruk Aydin, Almina Dokur, Anjelika Aydin</i>	
What is the Temporal Analogue of the Spatial Brewster Angle?	912
<i>Victor Paheco-Peña, Nader Engheta</i>	
Optimization and Simulation of Helix Loaded with Dielectric Dispersion Characteristics Using TLBO Algorithm	915
<i>Ajay K. Pandey, Rasilla R. Hirani, Surya K. Pathak</i>	
An Energy-Autonomous SWIPT RFID Tag for Communication in the 2.4 GHz ISM Band	919
<i>Giacomo Paolini, Abdul Quddious, David Chatzichristodoulou, Diego Masotti, Symeon Nikolaou, Alessandra Costanzo</i>	
Detection of Blood Clots Inside the Brain Using Microwave Imaging	923
<i>Farhana Parveen, Parveen Wahid</i>	
Challenges of Global-Scale Ionospheric Tomography Using GNSS: A Brief Overview	927
<i>Fabricio S. Prol</i>	
Radiofrequency Antenna Helmet Array for Thermal Magnetic Resonance of Brain Tumours at 297 MHz	931
<i>Faezeh Rahimi, Mostafa Berangi, Thomas W. Eigentler, Bilguun Nurzed, Jason M. Millward, Rolf Schuhmann, Thoralf Niendorf</i>	
Surface Impedance Estimation of a Stretchable Material	934
<i>S. Rodini, S. Genovesi, G. Manara, F. Costa</i>	

Double EBG Waveguides for a Contactless Estimation of the Surface Impedance	938
<i>S. Rodini, S. Genovesi, G. Manara, F. Costa</i>	
Moving Forward to Real-Time Imaging-Based Monitoring of Cerebrovascular Diseases Using a Microwave Device: Numerical and Experimental Validation	942
<i>D. O. Rodriguez-Duarte, J. A. Tobon Vasquez, F. Vipiana</i>	
Fluid Simulation of the Farley–Buneman Instability	946
<i>Enrique Rojas, David Hysell</i>	
Experimental Study of the Microwave Signal Backscattered from the Ice Cover at Low Incidence Angles.....	948
<i>M. Ryabkova, V. Karaev, M. Panfilova, Yu. Titchenko, Eu. Meshkov, E. Zuikova, Dmitry Kovaldov</i>	
Floquet Mode Circulation Using a Coarsely Discretized Dielectric Huygens’ Metasurface.....	951
<i>Abhishek Sharma, Alex M. H. Wong</i>	
Surface Waves in an Open Circular Waveguide Filled with Inhomogeneous Chiral Media.....	955
<i>M. O. Snegur, Yu. G. Smirnov, E. Yu. Smolkin, A. Lapich</i>	
Electromagnetic Illusion in Smart Environments.....	963
<i>Hamidreza Taghvaei, Mir Lodro, Neezar M Mohammed, Sergio Terranova, Sendy Phang, Martin Richter, Gabriele Gradoni</i>	
Recent TWSTFT Experiments at INRiM Time and Frequency Laboratory.....	967
<i>Tung Thanh Thai</i>	
Machine Learning-Based Uncertainty Quantification of Passive Intermodulation in Aluminum Contact	970
<i>Felipe Treviso, Riccardo Trincheri, Flavio G. Canavero</i>	
Bispectra of Simulated GPS Data for Potential RFI Mitigation	974
<i>V. Van Tonder, L. Schwardt, A. Faustmann, J. Gilmore</i>	
Functionalized Metasurfaces Enabling Frequency and Radiation Pattern Reconfigurability for Intelligent Antennas.....	978
<i>S. Vellucci, A. Monti, M. Barbuto, M. Longhi, A. Toscano, F. Bilotti</i>	
Phase-Accurate Analytical Transmission Line Model and for a 1–50 GHz Millimeter-Wave Textile-Based Wearable Goubau Single Wire Transmission Line (SWTL).....	983
<i>Mahmoud Wagih</i>	
A Frequency-Domain Analysis of a Time-Reversal Cavity for Electromagnetic Waves in Transmission Line Networks.....	987
<i>Zhaoyang Wang, Hamidreza Karami, Elias Le Boudec, Marcos Rubinstein, Farhad Rachidi</i>	
Finite Element-Boundary Integral Simulation of Icing Effects on a Marine Radar Reflector.....	991
<i>Niklas Wingren, Daniel Sjöberg</i>	
Modeling and Analysis of Microwave Emission from Multiscale Soil Surface.....	995
<i>Ying Yang, Kun-Shan Chen</i>	
Analysis of a Circular Loop Antenna Located on a Hyperbolic Metamaterial Cylinder.....	999
<i>Anna S. Zaitseva, Alexander V. Kudrin, Tatyana M. Zaboronkova</i>	

The Motion of Electrons Under the Action of Inertial Forces in the Rarefied Medium..... 1003
K. M. Zeyde

Frequency-Coded mm-Wave RFID Tags Using Cross Polarization 1007
Yuting Zhao, Simone Genovesi, Guliano Manara, Filippo Costa

Author Index