2022 International Applied Computational Electromagnetics Society Symposium (ACES-China 2022)

Xuzhou, China
9-12 December 2022

Pages 1-678

IEEE Catalog Number: CFP22ACH-POD
ISBN: 978-1-6654-5237-3

Copyright © 2022 by the Institute of Electrical and Electronics Engineers, Inc.
All Rights Reserved

Copyright and Reprint Permissions: Abstracting is permitted with credit to the source. Libraries are permitted to photocopy beyond the limit of U.S. copyright law for private use of patrons those articles in this volume that carry a code at the bottom of the first page, provided the per-copy fee indicated in the code is paid through Copyright Clearance Center, 222 Rosewood Drive, Danvers, MA 01923.

For other copying, reprint or republication permission, write to IEEE Copyrights Manager, IEEE Service Center, 445 Hoes Lane, Piscataway, NJ 08854. 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:	CFP22ACH-POD
ISBN (Print-On-Demand):	978-1-6654-5237-3
ISBN (Online):	978-1-6654-5236-6

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

TABLE OF CONTENTS

A New Numerical Flux for the DGTD-GSTC Method in Simulation of Metasurfaces 1
Kaiming Wu, Qiang Ren

A Wearable RF Energy Harvester Based on Spoof Surface Plasmonic Antenna Array 3
Zhu Liu, Jinxin Li, Pei Xiao

A Miniaturized UWB High-Gain Vivaldi Antenna 6
Chen Songmin, Li Gaosheng, Liu Mengyao, Tian Zhongyu

Arbitrarily Shaped Metasurface for Wavefront Shaping 9
Zhenfei Li, Weiren Zhu

Research on Scattering Manipulation and Imaging Based on Metasurface 12
Jiaxing Wang, Jun Hu, Xiaofeng Que, Zaiping Nie, Yun Yang

Dual-Band Reconfigurable Backing Cavity Patch Antenna with Graphene-Loaded 14
Yanqing Cheng, Weitong Min, Yonghang Xiao, Qi Chen, Zuxue Xia

An Efficient Robust Adaptive Beamforming Based on Eigenvalue Decomposition and Interference Steering Vector Estimation 16
Huiyi Wang, Dan Zhao, Jiangong Shao, Peng Li, Yibin Rui, Renhong Xie

Broadband Conformal TCDA Antenna for Wide-Angle Scanning with a Compact Architecture 18
Qingfeng Ding, Mingchun Tang, Hanlin Li

Jamming of Inverse Synthetic Aperture Radar Imaging Using Time-Modulated Metasurface 21
Shiyuan Li, Tao Wang, Jianyang Wang, Guanghua Lu, Mengmeng Li

One Dimensional Direct Inversion of Electromagnetic Method Using Exploration Depth and Longitudinal and Transverse Resistivity 23
Dongxin Ou, Baolong Jin

Detailed Features Modeling of Vibrating Wing's Micro-Motion Characteristics 26
Jianzhou Li, Shuhui Chen, Haixuan Zhang, Chaoqun Fan, Lu Liu

Microwave Imaging for Dielectric-Magnetic Mineral Substances by Full Volume Integral Equations 29
Qi Ying Liang, Mei Song Tong

The Design of Isolator Based on Capacitive Loaded Coupler 32
Ziyu Huang, Jing Jiao, Shuaixin Hou, Chunxia Zhou

The Application of the ADI-FDTD Method in the 3D Hybrid Subgrid Technique 35
Ziheng Song, Guoda Xie, Zhixiang Huang, Guilin Hou, Pan Pan

A Surface Integral Equation-Based Sub-Structure Characteristic Mode Analysis Method for Printed Circuit Structures 38
Yuyu Lu, Ran Zhao, Kun Fan, Guangshang Cheng, Zhixiang Huang, King Abdullah

Effect of Radiation Pattern of Transmitting Antenna on Radio Wave Propagation in Rectangular Tunnel 41
Luyao Zhang, Junhong Wang

Tapered Fed Compact MIMO Antenna for 5G Communication 43
Zhongyuan Lu, Han Lin, Zhonggen Wang, Weidong Mu, Chenlu Li, Zhenzhen Chen

Analysis of Magnetoelectric Antenna Radiation Model 46
Guo Liu, Weibing He, Quan Hu, Jingfei Jiang, Na Li, Zhaozhao Gao

Design of an Ultra-Wideband Omnidirectional Array Antenna 48
Zhi-Han Jiang, Neng-Wu Liu, Guang Fu

Design of a Multi Band Slot Coupled Microstrip Antenna 50
Si Li, Rui Ge, Yunfei Li, Yunlong Mao

Design Concept and Implementation of Weighted-Polarization Antennas for Body-Centric Networks 53
Kun Li, Kazuhiro Honda, Xiaolong Wang

High-Precision Rotation Angle Detection Based on Optomechanical Microscale HRGs 56
Wenyi Huang, Jiangbo Wu, Xing Yan, Dingwei Chen, Xinwei Li, Yongjun Huang

A High-Efficiency and Wideband Water Antena Using Liquid Len Structure 58
Jianjiao Xu, Jie Yu, Mengyao Liu, Bing Fu, Gaosheng Li

A Dual-Band Inclined Polarized Hemispherical Luneberg-Lens Antenna for Wide-Angle Scanning 60
Chao Wu, Haibo Ding

A Circularly Polarized Antenna for GPS L1 Band with U-Shaped-Like Strips 63
Lulu Meng, Zhixiang Huang, Yingsong Li

Finite Element Method for Solving 1-D Boundary Value Problem 65
Jianxiang Yin, Yuxian Zhang, Qiao Wei, Naixing Feng

Deep Learning Accelerated GMRES Solution of Electromagnetic Scattering from Dielectric Objects 68
Ji-Yuan Wang, Bo-Wen Xue, Xiao-Min Pan

Design of Regular Subarray Tiling with Maximum Aperiodicity and Structural Repetitiveness 71
Lun Wei Mou, Yu Jian Cheng

A Novel Pointview of Independent and Identically Distributed Random Data in AI Electromagnetics 73
Wenhua Yu

Millimeter-Wave Ultrawideband and Gain Enhancement Planar End-Fire Antenna 75
Yurong Sun, Juan Xu

1-Bit Coding Metasurface for Wideband RCS Reduction 78
Yinfang Xu, Jiaqi Liu, Lu Gao, Xia Ai, Zhongjie Zhang, Huan Liang

Study of Difference Scattering from a Target Located Above a Rough Surface 81
An Qi Wang, Liu Xiang, Li Xia Yang

Study on Intrapulse Modulated Echo Simulation Method for Target with Micro-Motion 83
Yiqi Zhu, Zhiming Xu, Xiaofeng Ai, Feng Zhao, Xiaoyi Pan

Research on the Small Circular Arc Antenna Based on the Method of Moments 86
Xiaoxia Nie, Hailong Liu, Jinbo Liu, Jiming Song

A Weed Invasion and Genetic Hybrid Algorithm in Linear Sparse Array Synthesis 89
Longwei He, Qiang Li, Xiaofei Wang, Shigang Zhou, Wei Wang

Learning Low-Dimensional SAR Target Representations from Few Samples 92
Qian Guo, Feng Xu

Electromagnetic Wave Manipulations Via Liquid-Metal-Based Coding Metamaterial System 94
Si Ran Wang, Qun Yan Zhou, Jun Yan Dai, Qiang Cheng

Neural Contrast Source Inversion Method Based on Single-Frequency Data 97
Jinhong Zeng, Tao Shan, Maokun Li, Fan Yang, Shenheng Xu

A Miniaturized Dual-Polarized Patch Antenna with Low Cross Polarization 99
Wei-Jun Wu, Jun-Bo Chao, Huan-Huan Zhang, Xian-Liang Zeng, Jian-Pu Qiao

Study on the Multiple Tuning for VLF Umbrella Antenna 101
De Jun He, Haitao Chen, Longjun Zhou, Chengquan Li, Nengping Zhang

Response Control of Conformal and Near-Field Excited Magnetic Metasurfaces 104
Alessandro Dellabate, Danilo Brizi, Shengjun Zhang, Jiaqi Liu, Yichun Cui, Agostino Monorchio

An Clustering Routing Algorithm for Wireless Sensor Networks Based on Density 107
Xue Xiaoqin, Gang Meng, Zhang Yafei, Lu Gao, Jing Cao

Multi-Objective Optimization and Design of High-Efficiency OAM Antenna Based on Single-Sideband Time Modulation 111
Di Zhu, Jun Hu, Ben-Tong Lin, Yi-Bo Ma, Wei-Dong Li, Wen Wu

Design of X-Band Microstrip Leaky-Wave Antenna with Horizontal Beam Scanning 114
Henghui Wang, Sheng Sun

Prediction of Metasurface Transmission Spectrum Based on an A-CNN-LSTM Approach 116
Yi Ren, Menglin Zhai, Rui Pei, Peng Wang

Measurement of Permittivity of Air-Chaff Mixture 119
Lu Yawen, Peng Ao, Zuo Yanchun, Guo Lixin, Liu Wei

Comparison of Three 1-Bit Reflective Metasurfaces for Low-Cost Phased Array Antenna Applications 121
Huanhuan Yang, Tong Li, Sijia Li, Jianghao Tian, Zhiyun Zhang, Zexu Guo, Jingxin Qiao, Xiangyu Cao

Improved Reverse-Time Migration for Through-The-Wall Radar Imaging 123
Dajun Chen, Lei Kuang

A Solution for a Disaster Recovery Service System in Multi-Cloud Environment 126
Bin Liu, Yang Xin, Chunyong Zhang

Suppression of Microwave Leakage by Photonic Crystals 130
Qingyao Wang, Xinyang Shi, Chonghua Fang

Efficient Suppression of Edge Effects in Ultrawideband Tightly Coupled Phased Arrays 132
Feng Yang, Bingjun Wang, Shiwen Yang

A Switchable Absorption/Transmission Active Frequency Selective Surface 134
Minxin Zhao, Min Zhu, Zhen Wu, Bin Wang, Yi Wang, Qunsheng Cao

Fast Method for Calculation of Scattering Matrix in MIMO Radar 137
Xunwang Dang, Xiaoyu Xing, Chaoying Huo, Hongcheng Yin, Tao Shan

Experimental Verification of Polarization Reconfigurable Optomechanical Metasurface 139
Yuedan Zhou, Yifeng Liu, Chengwei Xian, Pengju Kuang, Guangjun Wen, Yongjun Huang

Physical Mechanisms of Passive Intermodulation: A Short Review 142
Wenbo Wang, Yimin Wang, Wenxuan Zang, Huali Duan, Wenchao Chen, Wei E. I. Sha

Wide-Angle Polarization Conversion Metasurface and Its Application to RCS Reduction 145
Feihong Lin, Ping Wang, Jiawei Chen, Yang Qiao, Zhongming Yan, Yu Wang

A KNN-Assisted Differential Evolution Algorithm for EM Optimization of Microwave Filters and Antennas 147
Yujie Han, Ping Li

Analysis of the Shielding Effectiveness of Chassis Based on DGTD Method 151
Zheng Lang Jia, Lei Zhao, Zhao Sheng Xue, Ying Liu, Huan Huan Zhang, L. J. Jiang

Radiation Effect Analysis on Human Head Caused by Different Frequencies of Mobile Phone Antenna 154
Xi-Yu Zhang, Wen-Ying Zhou

All-Optical Modulation of Polarization-Entangled Quantum States Based on Nonlinear Metasurfaces 157
Di Zhang, Yang Chen, Shengchao Gong, Wei Wu, Wei Cai, Mengxin Ren, Xifeng Ren, Shuang Zhang, Guangcan Guo, Jingjun Xu

Design of a Dual-Polarized Antenna Based on DRA 158
Xiaofei Shi, Donglei Ma, Guiqiang Du, Xiaoyang Kong

Plasma Checkerboard Electromagnetic Surfaces for Wideband Radar Cross Section Reduction 161
Xuebin Ji, Jinzu Ji, Wenxing Wu, Qi Chang

Sub-Wavelength Pitch Optical Antenna Array with Low Crosstalk for Optical Phased Array 164
Guangzhu Zhou, Chi Hou Chan, Shi-Wei Qu, Baojie Chen

Effects of Lightning Current Conduction on Rotating Bearings 167
Feng Jiang, Zheng-Yu Huang, Ming-Xin Du, Chao Li, Li-Xu Wang

A 1-Bit Wideband Beam Reconfigurable Metasurface Reflectarray Antenna 170
Hongbo Chu, Yuanfan Ning, Shichao Zhu, Pei Xiao, Zhu Liu, Gaosheng Li

A Novel Dual-Functional Method for Wide-Angle Scanning Phased Array 173
Dongyu Li, Feng Gao, Guang-Wei Yang

A Novel Wideband FSS Radome with Loaded Inductors 176
Shengjian Zhao, Ming Huang, Feng Yang, Chao Sun, Chen Chen, Shiwen Yang

A Switchable Linear-To-Linear Polarization Converter with Broadband Performance 178
Huizhu Zhu, Jiwen Sun, Guangchi Xie

Folded C-Type SIW Slot Array Antenna with Sidelobe Suppression for mm-Wave Application 180
Qiang Sun, Yong-Ling Ban, Xiao-Fei Li

A New Broadband Horn Antenna with Enhanced Gain for 1-18 GHz EMC Applications 183
Yuan Zhang, Yi Zhou, Lewu Deng, Yu Long, Lei Zhang

A Novel Radiated-Power-Based Sub-Structure Characteristic Mode Formulation Considering Lossy Background Structures 186
Chong Guo, Yong-Chang Jiao

Three-Layer Lunar Regolith Model of Inhomogeneous Layered Random Non-Spherical Particles 188
Peng Jiang, Wenjing Zheng, Zi He, Dazhi Ding

Radar HRRP Target Recognition Based on Composite Deep Networks 191
Yameng Kong, Dejun Feng, Jiang Zhang

Design and Analysis of Random Chessboard Structure for Broadband Radar Cross Section Reduction 196
Wenxing Wu, Jinzu Ji, Xuebin Ji, Qi Chang

Broadband External Rejection Miniaturized SIW Filter Based on C-Shaped Symmetric Structure 199
Shuang Xiao, Minquan Li, Xin Qu, Chen Li, Zufeng Zhang

Clutter Simulation of Two-Scale Rough Surface Under Multi-Main-Lobe Fuze Antenna 202
Xie Sifan, Ye Hongxia

Finite Element Tearing and Interconnecting Modeling of Finite Metasurfaces 205
Hang Chen, Chenyang Sun, Quanquan Wang, Ting Wan

Heterogeneous CPU-GPU Accelerated Parallel Subgridding FDTD Algorithm 208
Chenran Liu, Jian Feng, Ming Fang

1-Bit Wideband Fully-Metallic Reflectarray Antenna 211
Changjiang Deng, Xiaowei Cao

Substrate Influence for the WPT Efficiency of Metasurface-Inspired Domino-Coil System and Its CM-Based Physical Explanation 213
Kunyi Zhang, Ren-Zun Lian, Siyan Wang, Long Li

A Design of GUI Tool Software for Phased Array Antenna Beamforming 216
Chen Han, Xiongzhi Zhu, Jinling Zhang, Lifei Jia, Zhanqi Zheng, Lifeng Duan

On the Design Method of the Transition Section of GTEM Cell 218
Wang Chun, Li Mengxue, Ji Hang, Li Renjie

Semantic Segmentation Algorithm of Street View Image Via Deep Learning 220
Zihui Zhu, Wenlin Cai, Jianhua Li, Feng Xue, Lu Gao, Jiaqi Liu

An Orbital Angular Momentum (OAM) Generator Based on Fabry-Perot Resonator Antenna 223
Zeqing Du, Baiyang Liu, Ming Jiang, Jun Hu, Yin Li

Subgrid Surface Impedance Absorbing Boundary Condition for FDTD Method 226
Yunlong Mao, Jinxiang Wan, Si Li, Qingpeng Zhang

Electric Field Calculation of Capacitor Element in Arc Section by Extrapolation 229
Jinghui Shao, Lida Lin, Hongpeng You, Jie Li, Jiawei Wang, Xikui Ma

A Compact, Low Profile Log-Periodic Monopole Array with an Ultra-Wideband Stripline Transition 231
Changyu Liu, Ming Huang, Xiuqiong Huang, Feng Yang

Planar Circularly Polarization Filter Antenna Design for the 2.4GHz Bluetooth Band 234
Xinyu Song, Xianliang Wu, Yunfeng Hu

Study on 2D Plasma Photonic Crystals with Defect Modes Using FDTD Method 238
Hang Song, Yuning Zhang, Jiaqi Liu, Lihong Ai, Shengiun Zhang

High-Gain Ultra-Wideband Vivaldi Antenna Using Spoofing Surface Plasmons Polaritons 241
Huai-Zhen Wang, Yong-Gang Zhou, Hao-Min Yang, Xian-Jun Ma

Spaceborne SAR Image Simulation and Analysis of Dynamic Oceanic Eddies 244
Yuhao Lu, Xiongjing Shao, Qingsong Wang, Xiaoqing Wang, Haifeng Huang

SNR Modeling and Analysis of Interrupted Transmitting and Receiving in Radar Radiation Simulation 249
Mengjing Su, Qihua Wu, Xiaofeng Ai, Feng Zhao, Zhiming Xu, Wu Jing

A Brain-Inspired Unsupervised Learning Algorithm for SAR Target Classification 252
Sijia Lu, Feng Xu

A Fast Design Method for Ultra Broadband Absorbers Using RC Equivalent Circuit Model 254
Xianglin Kong, Lei Zhao, Fengjun Wang, Shengjun Zhang, Yixiang Fu, Xiaoyu Pang, Xiaochun Liu, Xiaopeng Shen

A Full-Link SAR Simulator for Ocean Remote Sensing 257
Xiaoqing Wang, Anqi Wang

Design of Broadband Asymmetric Multisection Directional Coupler 260
Xiaolei Geng, Xianliang Wu, Zhixiang Huang

High Order SF-SFDTD Method for Solving the Time-Dependent Schrödinger Equation 263
Pan Pan, Guoda Xie, Zhixiang Huang, Guilin Hou, Ziheng Song

Analytical Formulation for the Quantum Radar Scattering of the semi-Cylinder Surface 266
Chonghua Fang, Shi Xinyang

An Equivalent Circuit Modeling Method of Near-Field Probe Based on Vector Fitting Algorithm 268
Guang-Jin Lin, Qiang-Ming Cai, Shilu Deng, Xin Cao, Yuyu Zhu, Bo Pu, Anfeng Huang, Jun Fan

A Reconfigurable Frequency Selective Absorber Based on Liquid Metal 270
Wenyan Hu, Ying Liu, Yongtao Jia, Yichen Zhong

Design of WIFI6 Band Hairpin Filter Using Spur Line and Cross Coupling 273
Yunfeng Hu, Xianliang Wu

An Phase Compensation Method Based on Time Delay for Secondary Channels of Active Power Filter 277
Chunyu Yang, Chen Huang, Chengchao Hua

An Improved Envelope Fitting Algorithm for Frequency Spectrum Analysis 280
Ling-Yun Zhang, Hui Tan

Study on Direct Optically Controlled Frequency Selective Surface 283
Zonglun Du, Qunsheng Cao, Jianing Shi, Xiaofan Min

On Effective SNR Mapping Based on Independent Subcarriers for Throughput Modeling 286
Jianchuan Wei, Xiaoyu Huang, Xiaoming Chen

Design of Luneburg Lens Active Reflector with Tunable RCS 289
Zhen Wu, Jiahao Zhi, Bin Wang, Yi Wang, Minxin Zhao, Qunsheng Cao

In-Orbit Ka Band Multibeam Antenna Pattern Tests of High Throughput Satellite 291
Wei Ding, Xiao Tao, Jixiang Wan, Wenxi Ye, Xingang Zhang

Accurate Sub-Structure Characteristic Mode Analysis for Yagi-Uda Antennas 294
Shaode Huang, Jiejun Zhang, Jianhua Zhou

High-Q-Factor Spoof Localized Surface Plasmon Sensor for MIM Detection 296
Jiangpeng Wang, Haotian Shi, Junjie Xiao, Di Bao

A Wideband Dual Layer Frequency Selective Surface Shielding Screen..... 298
Zhendong Bai, Min Xu, Lu Gao, Jiaqi Liu

Periodically-Coded ITR Modulation Characteristics of PCM Signal in Radar Radiation Simulation 301
Tiehua Zhao, Qihua Wu, Xiaobin Liu, Xiaofeng Ai, Feng Zhao, Shunping Xiao

Compact MIMO Monopolar Patch Antenna for 4G and Full Band of 5G Wireless Applications..... 305
Yuning Yang, Shaobin Liu, Xiangyu Jin

A Radiation Pattern-Reconfigurable Patch Antenna with Tunable CSRR Based on Liquid Metal and 3-D Printed Microfluidics..... 308
Yumeng Wang, Lu Gao, Pei Zheng, Lingnan Song

Design of a Metamaterial Bandpass Filter in the Terahertz Region 311
Yifan Zeng, Zhe Chen, Wanhong Luo, Chaoyi Sun, Yuyuan Zhao, Lu Zhang

Fast Analysis of Dynamic Scattering for Group Targets Based on CM-FMA..... 314
Ling Guan, Chunzhu Dong, Chunlai Jia, Qinyuan Hu, Zi He

An Ultra-Wideband Metal Vivaldi Array Antenna for SKA MFAA..... 316
Jia Fang, Mouping Jin, Xiaolin Zhang

Interior Penalty DGTD Method for Anisotropic Magnetized Plasma 319
Qi Chang, Jinzu Ji, Wenxing Wu, Xuebin Ji

The Effect of a Reflecting Cylinder in Two-Dimensional Inverse Source Problem for Circumference Geometries..... 322
Mingliang Jiang, Gaobiao Xiao

Polarization Conversion Metasurface with Ultra-High Transmission for Arbitrary Polarization Angle 325
Ping Wang, Feihong Lin, Yu Wang, Hongcheng Zhou, Zhongming Yan

RCS Simulation of Small Multi-Rotor Unmanned Aerial Vehicle 328
Zuohao Xie, Hongkun Zhou, Yuhang Zou, Chengguo Liu

A New One-Dimensional Photonic Crystals for Infrared Emission Modulation..... 332
Yuning Zhang, Shengjun Zhang, Hang Song, Yichun Cui, Jiaqi Liu, Lihong Ai

The Diagnosis of Linear Array Antenna with Unknown Mutual Coupling..... 335
Wenshuo Fan, Yerong Zhang

Measurement Uncertainty Analysis of Measurement Grid Reduction for 5G IoT OTA Testing 338
Xiaochen Chen, Xianhui Liu, Lei Chen

Influence of Clusters on Radiation Properties of Si_3N_4 Particles 341
Li Yanan, Wang Qun, Dong Shikui, Cui Yichun, Gao Lu, Ai Xia

A Wideband Horn Antenna with Dielectric Lens Loaded 344
Xing-He Nie, Yi-Feng Fan, Yong-Zhi Sun

An AWE-Enhanced Wideband Subdomain DG-RTC Algorithm in Solving Electromagnetic Problems 346
Shimin Liu, Li Jun Jiang, Ping Li

Analysis of Electromagnetic Fields in Air Radiated by Towed Antenna in Seawater 349
Wei Huang, Bin Zhang, Feng Liu, Xuesong Mei, Liang Lang

SAR Simulation of Kelvin Wakes Patterns Induced by Moving Ship on Time-Varying Ocean Surface 352
Chengji Xu, Xiaoqing Wang, Mingkai Tao

A Flexible and Efficient Approach for Computing Electromagnetic Scattering by Honeycomb Radar Absorbing Structures 355
Xiao-Wei Yuan, Zeng Yang, Ming-Lin Yang, Xin-Qing Sheng

Machine Learning Assisted Metal Corrosion Detection Based on Back-Scattering Sensor 358
Zhi Ying Zou, Wen Qi Li, Yong Jin Zhou

Scattering Center Modeling for Narrow Serrated Groove 361
Y. X. Chen, K. Y. Guo, X. Q. Sheng

Analysis of Plasmonic Optical Trapping Via Electromagnetic Numerical Computational Method 363
Qi Yang, Wenjing Wang, Jian Zhu, Ting Wan, Dazhi Ding

Optimized Design of Multi-Layer Metamaterial Absorber with Thin Thickness and Wide Bandwidth 366
Minjie Huang, Bingxue Lv, Binhan Xu, Changbao Pei, Shifei Tao

Adaptive-Correlation Back-Projection Imaging Algorithm for Ground Penetrating Radar in Complex Scenes 369
Qianqi Dai, Gao Lu, Tao Jiang

Design of Adaptive Electromagnetic Power Control System 372
Jingdong Zhang, Kun Wang, Minghou Sun, Mingxu Zhao, Runsheng Wang, Rongbin Zhang

Cooperative Jamming Resource Allocation Based on Artificial Bee Colony Multi-Objective Decomposition 375
Gao Lu, Qianqi Dai, Jiechen Xia

An L-Shaped Miniaturized Ultra Wideband Vivaldi Antenna 378
Zhan Heng, Li Yong, Zhao Jing

Magnetic Field Measurement and Analysis of Thin Septum for Diffraction Limited Storage Ring 380
Tong Jin, Liu Yongfang, Yuan Qibing

Broadband and Multiband Backscatter Enhancement of Dielectric Ellipsoid 383
Baoying Song, Lihong Ai, Lei Gu, Yiying Wang, Jinjun Mo

Surface Current Analysis in a 2D Metamaterial 385
Sami Barmada, Nunzia Fontana, Leonardo Sandrolini, Mattia Simonazzi

An Adaptive High-Order Time Integration Method for Discontinuous Galerkin Time-Domain Methods 387
Pengcheng Zhu, Xiaoping Sun, Yanmei Zhang, He Chen, Lihui Yang, Jiawei Wang

An LTCC Phaser-Integrated 0.1 THz Vivaldi Antenna for Dispersive Delay Radiation 390
Yufei Wu, Jiaqi Li, Baiyang Liu, Qingfeng Zhang

Modeling of the Negative Capacitance Converter for Capacitance Cancellation Applications..... 392
Guozheng Zhang, Anfeng Huang, Qiangming Cai, Xin Cao, Yuyu Zhu

Design of a Dual-Polarized Printed Dipole Antenna 394
Qian Wang, Hong Wang, Xiaomeng He, Lizhong Song

Electrothermal Coupling Solver Based on Cascaded Fourier Network..... 397
Yinpeng Wang, Hongyu Gao, Qiang Ren

Reflector-Based Dual-Polarized Multi-Beam Antenna for X-Band 399
Hong Wang, Lizhong Song, Tingting Chen, Xiaomeng He

Blockchain-Based Disaster Recovery Data Storage and Security Auditing Solution in Multi-Cloud Environment 402
Bin Liu, Yang Xin, Suhuan Dai

Equivalent Electromagnetic Parameter Inversion of Honeycomb Structures Based on BP Neural Network 406
Yu-Xin Zhang, Xiao-Wei Yuan, Ming-Lin Yang, Xin-Qing Sheng

Single-Layer Dual-Band Circularly Polarized Reflectarray Antenna..... 409
Xiaoming Mei, Pengfei Gu, Xiao Tao, Dazhi Ding

Contrastive Learning of Visual Representations-Based DDTF for Geophysical Data Denoising and Interpolation 412
Hang Qin, Luxi Cai, Yehui Cao, Jinghe Li, Weike Tong, Tingwei Yang

Simulated Analysis of PIN Diode Electro-Thermal Characteristics Under Electromagnetic Pulse Signal..... 415
Bing Ruan, Dongdong Wang, Shengquan Zheng, Xujing Huang, Wenzhuo Wang, Li Tao

Dual-Band Substrate Integrated Waveguide Cavity-Backed Antenna Based on LTCC in D-Band..... 419
Dongxu Wang, Kai-Da Xu

A Broadband Metamaterial Absorber Based on Split-Rings Frequency Selective Surface..... 422
Yutao Ma, Xiaojun Huang

W-Band Circularly-Polarized Antenna Based on Glass Substrate..... 425
Senlin Lu, Shi-Wei Qu, Wei Tang

Digital Coding Transmisive Metasurface for dual-OAM-Beam Generation..... 427
Zhuoyue Li, Sijia Li, Guoshuai Huang, Xiaobin Liu, Bowen Han, Xiangyu Cao

A Novel Mandelbrot Fractal Microstrip Antenna with Fourth Set Degree and Different Iteration Numbers 429
Yuan Chu Xu, Hou Yi Ding, Mei Song Tong

Simulation of Rain Attenuation to Electromagnetic Wave Propagation..... 431
Tan Hui, Zhang Ling-Yun, Zhao Yi-Fu, Si Yu-Jia

Fast Solution of Wideband RCS Using UCBFM and Compressive Sensing..... 433
Chenwei Li, Zhonggen Wang, Pan Wang

Composite EM Scattering from Targets Located Above Rough Ground Surface Covered by Vegetation Based on SBR-VRT Hybrid Method 436
Chai Shui-Rong, Zou Yu-Feng, Guo Li-Xin

Parametric Scattering Center Modeling Multi-Targets Considering Near Couplings 439
Xi Cheng, Mengmeng Li, Ke Lv, Dazhi Ding

A 3-12GHz Compact Broadband Circularly Polarized Archimedean Planar Spiral Antenna..... 442
Jie Huang, Yang Liu, Yanhui Liu

A New Criterion for Optimization of Total Variation Denoising..... 444
Feng Xue, Xia Ai, Lu Gao, Jiaqi Liu

A Single Notch Ultra-Wideband Filter with Wide Stopband..... 447
Minquan Li, Chen Li, Xin Qu, Shuang Xiao

A Design of a Multi Parameter Reconfigurable Array Antenna 450
Y. Zhang, P. F. Gu, J. Xu, D. Z. Ding

An Optimization Method of Echo Reconstruction in Radio Frequency Simulation..... 453
Ailun Xie, Xiaobin Liu, Feng Zhao, Xiaofeng Ai, Shunping Xiao

Four Dimensional Antenna Arrays for Reduced Scattering Cross Section..... 456
Zihao Li, Feng Yang, Ming Huang, Chao Sun, Shiwen Yang

Wideband Polarization Reconfigurable Antenna Based on Double C-Shaped Radiators..... 458
Weilong Liang, Long Li, Zhao Wu, Yanhu Huang, Qingxiu Ma, Jiajun Liang

Millimeter-Wave Slot-Coupled SIW Metasurface Antenna with Wide Bandwidth..... 461
Ji-Wei Lian, Dazhi Ding

Dual-Mode Circular-Shape Microstrip Patch Antenna for the Millimeter-Wave Bandwidth..... 463
Daniele Inserra, Chengwei Xian, Guangjun Wen

Dual-Band Dual Antenna Pair Suitable for 5G MIMO Mobile Terminal with Metallic Bezels..... 466
Le Chang, Xiaomin Chen

A Mode and Frequency Reconfigurable Liquid Antenna for Wifi&wimax Band 469
Jie Yu, Chao Zhang, Shichao Zhu, Jiagang He, Jianjiao Xu, Gaosheng Li

A Simple Equivalent Circuit Model for Metasurface Based Reflection-Type Polarization Converter..... 471
Qi Chang, Jinzu Ji, Xuebin Ji, Wenxing Wu

Calculation of the Transmission-Reflection Coefficients of Composite Periodic Structures Using Characteristic Mode Theory 474
Chong Guo, Yong-Chang Jiao

An Inflatable Wideband Stacked Microstrip Antenna with Circular Polarization..... 476
Chen Zichong, Li Gaosheng, Liu Qi

A Dual-Band Antenna Designed for 5G Communication Based on a Self-Decoupled Antenna..... 479
Rongzhen Fang, Xianliang Wu, Zhipeng Chen, Mengying Dong, Yunfeng Hu, Yuanyuan Li

Single-And Dual-Band Bandpass Filters Design Based on Spoof Surface Plasmon Polariton..... 481
Qian-Kun Xu, Xue-Mei Zheng, Hao-Kai Jia, Chen Wang, Lin Peng

The Design of Sparse Wideband Conformal Array in Wide Angle Scanning 484
Jun Cao, Yuxiang Ding, Tianyang Yang, Guanghua Duan, Pengfei Gu, Dazhi Ding

Data-Driven Modeling of Plasma Fluid Closure and Parameter Prediction 487
Kexin Liu, Wenjie Cheng, Haiyang Fu, Mingle Jiang, Jiayu Ma, Yilan Qin

3D Microwave Imaging as Point Cloud with Continous Normalizing Flows 490
Xueting Bi, Lianlin Li

FSS Design Using Surface Susceptibility and Porosity Models 492
Xiao Jia, Mingjiang Wang, Xiaotian Pan

Coplanar Waveguide Multiband Antenna Based on Open Resonant Ring 495
Minquan Li, Xin Qu, Shuang Xiao, Chen Li, Zufeng Zhang, Weiqiang Zhang

Broadband 1-Bit Active Coding Metasurface for Transmission Beam Scanning 498
Kexin Li, Xi Gao

Machine Learning-Assisted Automatic Filter Synthesis with Prior Knowledge and Its Application to Single-Mode Bandpass Filter Design 500
Jiahao Wei, Weiqi Chen, Qi Wu, Haiming Wang

A Novel Radar Waveform Based on Frequency-Phase Joint Coding 503
Hu Hui, Wang Xinhai

An Innovative Derivation for Reflection and Transmission of Electromagnetic Field in Planar-Stratified TI Medium 506
Xianghong He, Xizhou Yue, Guoyu Li, Tianlin Liu, Pengyun Zhang, Decheng Hong

Reflective Active Metasurface for Dynamic Manipulation of Electromagnetic Waves in X-Band 509
Yunfei Liu, Yueyi Yuan, Kuang Zhang

Multistep Electricity Load Forecasting Method Based on the Hybrid GRU Neural Network 512
Yali Cheng, Haiqing Chang, Kai Tang, Jianhang Zou, Jianming Zhuo, Yijun Cai

Wide-View Association of 3D Scattering Centers Based on Muti-Manifold Clustering 515
Jinwen Lu, Hua Yan, Lei Zhang, Hongcheng Yin

Physics-Informed Neural Networks for the Solution of Electromagnetic Scattering by Integral Equations 517
Jun-Bo Zhang, Da-Miao Yu, Xiao-Min Pan

A SISL Coupler Using Two Layers of Coupled Line Structure with Dense Interconnecting Vias 519
Yu Yi, Guangfei Qi, Xianfang Zhang, Yongliang Zhang, Linping Feng, Haiwen Liu, Chen Yang

3D LOD-FDTD for the Multi-Pole Debye Dispersive Media Using Z-Transform 522
Guilin Hou, Ziheng Song, Guoda Xie, Pan Pan, Zhixiang Huang

Research on an Automatic Design Method of Wearable Antenna Based on Python 525
Lifeng Shi, Libin He

Metasurface Loaded Dual-Mode Wideband Dipole Antenna Using Characteristic Mode Analysis 527
Yi Hui Zhu, Feng Han Lin

Electromagnetic Information Characterizations for Information Metasurface Systems 529
Xuyang Bai, Shurun Tan

Modeling of Short-Wave Propagation in the Anisotropic Ionosphere Using Parabolic Equation 532
Dongmin Zhang, Song Fu, Longjian Zhou, Wensheng Qiao, Xiuqiong Huang

Ultra-Broadband and Dual-Polarized Antenna with High Isolation for LTE Base Station Applications..... 534
Lanqing Yang, Yihong Qi, Shenglin Rao, Qiang-Ming Cai, Xin Cao, Yuyu Zhu, Jun Fan

Double Split-Rings Cross Polarization Converter with Ultrawideband and High-Efficiency 536
Xuebin Ji, Jinzu Ji, Wenxing Wu, Qi Chang

Ultra-Wideband Stealth Antenna System Based on Multilayer Wave-Absorbing Structure 539
X. Chen, X. W. Chen, P. F. Gu, Z. He, J. X. Wang, D. Z. Ding

Simulation on the Effects and Solution of Frequency Mismatch Phenomenon for Narrowband Active Power Filter Application..... 542
Chen Huang, Chunyu Yang, Chengchao Hua, Peng Yang

Wideband Slot Antenna with Characteristic Mode Theory 544
Hui Pang, Juan Xu, Jianping Zhao

SAR Echo Cancellation Using Azimuth Interrupted Sampling Modulation 547
Qihua Wu, Tiehua Zhao, Xiaobin Liu, Feng Zhao, Xiaofeng Ai, Shunping Xiao

Modeling of Conducted Electromagnetic Interference in DC-DC Converters of Shipping Platforms..... 551
Zhenya Chen, Qifeng Liu, Yongming Li, Yinxiang Xu

1D Scattering Center Extraction Based on Electromagnetic Simulation Data by Improved TLS-ESPRIT Algorithm 554
Chai Shui-Rong, Zhu Fang-Yin, Guo Li-Xin

Study of Conductor Surface Roughness Effects on Signal Propagation for High-Speed PCB Traces 557
Maochun Zhai, Ping Li, Xinyue Feng, Qiang-Ming Cai, Xin Cao, Yuyu Zhu

Characteristics Analysis on Dynamic Forward Scattering Echoes..... 559
Yuqing Zheng, Xiaofeng Ai, Zhiming Xu, Feng Zhao, Yong Yang

Nonlinear Response Analysis of Broadband Dipole Antenna Electric Performance Under Wind Load..... 562
Longjun Zhou, Zhenji Liu, Bo Deng, Lin Zhang, Shengbang Ji, Ling Wang

A Design of Reflective Metasurface for Microwave Power Transmission with Focusing Characteristics 564
Zhan Xiao, Jinling Zhang, Chenchen Wang, Lifeng Duan, Lifei Jia

Increasing Electric Field Uniformity in Insulator Under Pulse Excitation by Varying Its Conductivity 567
Minyu Mao, Zhiqiang Chen, Jinghui Shao

Transmission Control with a Tunable Chiral Metamaterial..... 569
Shufang Dong, Qi Hu, Ke Chen, Yijun Feng

Comparison of Three 1-Bit Reflective Metasurfaces for Low-Cost Phased Array Antenna Applications..... 571
Huanhuan Yang, Tong Li, Sijia Li, Jianghao Tian, Zhiyun Zhang, Zexu Guo, Jingxin Qiao, Xiangyu Cao

An Improved DSDV Protocol Based on Link Stability with Adaptive Period for Intra-Cluster Routing in High-Dynamic Flying UAV Networks 573
Yiguo Zhang, Xiaoqin Xue, Wei Wang, Lai Qian

Application of Graphic Electromagnetic Computing in Electrically Large Scale Composite Target Scattering 577
Lu Gao, Ning Fang, Mingliang Wang, Jiaqi Liu, Yanan Li, Runhui Wu, Yinfang Xu

Design of Reflective Time-Modulation Metasurfaces for Generating Multiple Doppler Shifts 579
Shengjie Huang, Shu Yue Dong, Yun Bo Li

The Influence of Transmitting Antennas on the E-Field Distribution in Boundary Deformation Reverberation Chamber 582
Erwei Cheng, Pingping Wang, Cui Meng

Deep Learning Enabled Inverse Design and Optimization of the Frequency Selective Surface (FSS) 585
Chenxiao Zhang, Yuchen He, Hongyu Gao, Yinpeng Wang, Qiang Ren

Synthesis and Design of a New Class of High-Performance Miniaturized Multiport Filtering Power Dividers 588
Gang Zhang

Real-Time Path Planning Based on the Lock Loss Model 590
Xun Luo, Li Liu, Xin Liu

A Wide Beam Dipole Antenna in the E- And H-Plane with a Novel Structure 593
Dongyu Li, Feng Gao

Multi-Spatial-Harmonic Intensity Tailoring Based on Nonlinearly-Phased Reprogrammable Grating 596
Han Wei Tian, Wei Xiang Jiang

Study on Broadband and Wide-Angle Scanning of Circular Array 598
Linqian Du, Juan Xu

A Passive RFID-Based Security Detection Sensor for Doors and Windows 601
Tong Kun, Wang Jian, Weng Weiming

Ballistic Target Micro-Motion Parameters Identification with CNN Denoiser Based on Deep Learning 603
Ruixin Lai, Xia Ai, Shaoran Wang, Mengmeng Li, Jiaqi Liu, Dazhi Ding

A Novel Adaptive Beamforming Method Based on Steering Vector and Interference Estimation 606
Yuquan Mei, Peng Li, Ke Liu, Huiyi Wang, Yue Zhang, Renhong Xie, Yibin Rui

Oscillation Reduction for ADI Method in Transient Thermal Simulation of IC Packages 608
Jie Li, Min Tang, Junfa Mao

An Electromagnetic Inverse Scattering Imaging Method Based on U-Net Structure 610
Peng Ao, Zuo Yanchun, Liu Wei, Guo Lixin

A Circularly Polarized Hybrid Liquid Antenna 612
Liu Mengyao, Chen Songmin, Xu Jianjiao, Zhao Zitong, Li Gaosheng

Reverse Time Migration Method of Ground Penetrating Radar Based on gprMax 615
Jianrong Geng, Hongxia Ye

Design and Implementation of a Broadband Power Division Phase Shifter 618
Xu Lu, Wang Changsheng, Wu Suyun

A Broadband and Highly Efficient Power Amplifier Based on Simplified Real Frequency Technique 621
Ze-Bin Zhang, Fu-Chang Chen

Broadband Circularly Polarized Wearable Metasurface Antenna Based on Flexible Material 624
Rigeng Wu, Kexin Liao, Meng Wang, Jian Dong

Review and Generalization of the Orthogonality of Scattering Characteristic Modes 626
Ren-Zun Lian, Kunyi Zhang, Long Li, Ming-Yao Xia

Kirigami-Inspired Reconfigurable Phase Gradient Metasurface 630
Huiling Luo, Yanzhao Wang, He-Xiu Xu

A Low-Profile Dual-Layer Top-Hat Monopole Antenna with Gain Enhancement 632
Zikang Chen, Li Zhang, Jin Xu

Approximation of Numerical Green's Function Based on Deep Neural Network with Residual Blocks for Three-Dimensional Dielectric Objects 635
Yue Lu, Jun Hu, Jietao Wang

Dynamically Tunable Power Divider Based on Graphene Flakes 638
Yuli Xin, Renjun Kuang, Bian Wu

Surface Simulation and Design of C-Band Energy Selective Surface 641
Shangyu Lu, Guohui Yang, Kuang Zhang, Yingsong Li

A Novel Frequency Reconfigurable Mode Reconfigurable Ultra-Wideband Antenna 645
Chen Guo, Xianliang Wu, Zhixiang Huang

High-Rejection Compact Wideband Bandpass Filter Based on Bent Coupled Lines 648
Keyan Li, Weimin Wang, Yongle Wu, Yuanan Liu, Haopeng Wu

A Novel Wideband Dual-Polarized Magneto-Electric Dipole Antenna 651
Miaomiao Cao, Feng Su, Xiaoning Huo, Qiang Li, Xiaofei Wang, Qiang Zhang

A Design of Honeycomb-Shape Coil for Wireless Charging of Leadless Cardiac Pacemaker 653
Feifan He, Jinling Zhang, Zhan Xiao, Chenchen Wang, Lifeng Duan

Research on a Fast Multi-Channel Time-Domain Measurement Method for Low-Frequency Electromagnetic Interference 656
Li Jianxuan, Wang Xiangxiang, Zhang Lei, Shi Jialin, Jin Zusheng, Chen Rui

A Transmitted Cross-Polarization Converter with High Frequency Selectivity 659
Xixi Fu, Tao Su, Yu-Tong Zhao, Bian Wu, Jianzhong Chen

Low-Cost 1-Bit Coding Array with Planar Phase-Delay-Line 662
Yan Wang, Feng Xu

An Efficient Measurement Method for Scattering Pattern of Individual Meta-Atom in the Metasurface 665
Qun Yan Zhou, Si Ran Wang, Jun Chen Ke, Jun Wei Zhang, Jun Yan Dai, Qiang Cheng

Artificial Neural Network Based Radio Wave Propagation Model for Multi-Shape Tunnels 668
Siyi Huang, Shiqi Wang, Xingqi Zhang

High-Gain Millimeter-Wave Reflectarray Antenna 670
Shi-Kang Xie, Yu-Zhuo Deng, Nan Yang, Kai Lu, Ze-Hai Wu

Characteristic Analysis and Test Evaluation of Ship Lightning Effect 673
Yong Zhang, Zusheng Jin, Rui Tao, Jialin Shi, Zao Bingqiu, Chen Rui

Nested Equivalence Source Approximation for Multiscale and Penetrable Medium Simulations 676
Yuhan Zuo, Mengmeng Li, Dazhi Ding

An Absorptive/Transmissive Frequency Selective Surface with Wide Transmission Band and Low Insertion Loss 679
Hang Song, Jiaqi Liu, Shengjun Zhang

Microstrip Antenna Array Based on LTCC for 5G Millimeter-Wave Application 683
Jinghui Xue, Yuke Guo, Luyu Zhao

Wideband Unequal Filtering Power Divider Without Additional Impedance-Matching Circuits at Outputs 685
Di Wang, Xin Guo, Wen Wu

Study on Electromagnetic Scattering from Sea Surface in Limited Depth Sea Area Using Finite Difference Time Domain Method 688
Tong Zhang, Xin-Cheng Ren, Yu-Qing Wang

A Prediction Model of HPEMP Effect for Vehicles Based on CNN 691
Le Cao, Hao-Wei Yuan, Cheng-Cheng Li

Numerical Dispersion Analysis of Isosceles Triangular Meshes in the Finite-Element Method 693
Yuhua Niu, Jinbo Liu, Wen Luo, Jiming Song

Three-Band Tunable Metamaterial Absorber Based on Varactor Diode 695
Yuxuan Li, Jinzu Ji, Ji Liu

Design of a Wideband Circularly Polarized Antenna 698
Ying Di Xu, Yong Li

A Compact Circularly Polarized Beidou Antenna Loaded with U-Slot Parasitic Patch 700
Zhuolin Deng, Xiaochao Xu, Zhongyu Tian, Chenhe Duan, Jiagang He, Gaosheng Li

Fast Three-Dimension Imaging Simulation Based on Scattering Center Model 703
Leyang Li, Kunyi Guo, Zun Zhang, Xinqing Sheng

The Effects of Base Shape on Cone Scattering Feature 706
Yongtao Shui, Shengjun Zhang, Hang Song, Lei Mu, Xianglin Zhang, Yuning Zhang, Yichun Cui, Weidong Wang, Mingliang Wang, Ligen Cai, Yinfang Xu, Song Chai, Jiaqi Liu, Chao Dong, Fengju Wang, Zhengyu Yong, Chunshou Shao, Minghao Wang, Zhaohui Qi, Yuan Sun, Chenxin Sun

Bandpass Filter with Ultra-Wideband External Suppression Based on Half Mode Substrate Integrated Waveguide 710
Wei Tang, Jun Wang, Ruofeng Xu, Lei Zhao

Design of a Quadrature Signal Generator with Filtering Response Using Stub-Loaded Resonators 712
Jiamin Zeng, Feng Huang, Lei Zhu

Dual-Wideband Metasurface for Radar Cross Section Reduction 715
Zan Kui Meng, Yan Shi

A Beam Deflector with Polarization Independence Double-Sector Units 718
Zhi Ren, Siqi Chang, Ruoxing Wang, Guiyin Zhang, Songtao Li

The Design of Active Metasurface for Non-Reciprocal Transmission 722
Qianwei Zhang, Shiyu Wang, Yunbo Li

Equivalence Between Work-Energy Theorem (WET) and Poynting's Theorem (PT) 725
Ren-Zun Lian, Kunyi Zhang, Long Li, Ming-Yao Xia

SAR Image Shadow Effect Simulation by Target Facet Model and Parameterized Scattering Model..... 729
Zun Zhang, Yuan Mou, Kun-Yi Guo, Xin-Qing Sheng

Realization of Micro Vi-SAR Imaging Processing Based on Multi-Core DSP 732
Tao Wang, Lan Dong, Daiyin Zhu

A Method for Designing Single-Layer Broadband High-Gain Metasurface Antenna 734
Kun Gao, Xiangyu Cao, Tong Li, Huanhuan Yang, Jia Lu, Jianghao Tian

Design of a Wideband Compact L-Band 5-Bit MMIC Phase Shifter..... 736
Qingyu Luo, Yongle Wu, Weimin Wang, Weijuan Chen

Research on Luneburg Lens Reflector with Switchable Working State 739
Zhifeng Lian, You Li, Mingchu Huang, Zhixuan Zhang, Guanghua Duan, Qunsheng Cao

Generation and Applications of Spatiotemporally Modulated Vortex Beams 741
Baiyang Liu, Xiaonan Jiang, Jiachen Du, Qingfeng Zhang

An Incident Angle Insensitive Absorption Frequency Selective Surface 742
Zhendong Bai, Min Xu, Peng Liu, Lu Gao, Jiaqi Liu

Design of 10-DB Symmetric Broadband Multi-Sectional Directional Coupler 745
Haoyu Jin, Bo Wu, Meng Kong, Xianliang Wu, Ruikang Wang, Xin Li

Analysis of Electromagnetic Scattering from Three-Dimensional Time-Varying Magnetized Plasma by Newton-ADE-FDTD Method..... 748
H. Liu, L. X. Yang, W. Chen, Y. Bo

Multifunctional Active Frequency Selective Surface with Switchable Modes of Absorption, Transmission and Reflection 751
Huangyan Li, Xiang Wang, Minxin Zhao, Wen Wu, Youyi Feng, Agostino Monorchio

On the Phase Change of Electric Field in the Elliptical Polarization of Antennas 753
Shan Tian Qin, Mei Song Tong

A Water-Based Switchable Frequency Selective Rasorber..... 756
Hang Yuan, Qunsheng Cao, Huangyan Li

MT Inversion Based on U_Net Neural Network 759
Yuan Zhang, Kangjun Bao, Changwei Li, Lili Li, Bo Li, Zhan Wang

Intelligent Ultrasonic Distance Measurer System with Temperature Compensation Algorithm 762
Yuwen Wu, Qiang Yang, Kai Tang, Jianhang Zou, Jianming Zhuo, Naixing Feng, Yijun Cai

An Improved Stereo Matching Network Based on Modified PSMNet 765
Hua Shen, Yun Lin, Kai Tang, Jianhang Zou, Jianming Zhuo, Yijun Cai

A Compact Millimeter-Wave Multibeam Folded Transmitarray Antenna Based on Metasurface..... 769
Weixu Yang, Ke Chen, Junming Zhao, Yijun Feng

Antenna Measurement in Outdoor Environment Based on a Unmanned Aerial Vehicle 772
Zhiming Luo, Zhengpeng Wang, Yulei Miao, Haibo Chen

Simulation of Ionospheric Higher Order Effects in Navigation Signals Based on Ray Tracing 775
Wei Guo, Kangning Wang, Haiyang Fu

A Beam-Steering Antenna Using Characteristic Mode Analysis..... 778
Yongxin Sha, Yang Zheng, Zhiwei Li, Jiquan Qi, Liying Nie, Zhaoneng Jiang

Design of a 1-Bit Coding Broadband Metasurface..... 780
Yanli Ma, Weipeng Wan, Zhongbao Wang, Qiang Chen, Liang Ding, Yuejun Zheng, Yunqi Fu

Design of Reflectarray Antenna Based on Amplitude-Phase Metasurface and Convex Optimization..... 782
Qiong Hua, Jun Wei Wu, Qiang Cheng, Jie Ming Lv

Design and Application of Off-Focus Multi-Feed Compact Range for 5G Over-The-Air Test..... 785
Chong Pan, Miaoshan Song, Xiaohang Yang, Zhengpeng Wang, Zonghe Ning

Antenna Arrays Design Based on Hyperuniform Disordered Structure..... 788
Haoyang Zhang, Xinghe Nie, Zhixuan Zhang

An Wideband Orthogonal Dipole Antenna for LTE Base Station Applications 791
Maochun Zhai, Ping Li, Xinyue Feng, Qiang-Ming Cai, Xin Cao, Yuyu Zhu

Kalman Filter Algorithm in the Presence of Multipath 793
Liu Yuzi, Xu Zhenhai, Dai Dahai

Polarization Conversion and Beam Separation Based on All-Dielectric Metasurface 796
Cong Chen, Xing Y Feng, Hai Liu, Xun Y Li

Band Gap Analysis of Graphene-Plasmonic Photonic Crystals Based on Gaussian Beams..... 798
Weisen Li, Wei Chen, Qingqing Deng, Lixia Yang

Parameter Estimation for Interrupted-Sampling Jamming Recognition Based on Piecewise Shannon Entropy..... 802
Mengfei Liu, Jiyuan Chen, Xiaoyi Pan, Feng Zhao

Asymmetric Three-Dimensional Metamaterial Absorber for Microwave Application..... 805
Yanjie Wu, Hai Lin, Jie Xiong, Didi Wang, Qiuyu Li, Zixin Liu

A Low RCS Slot Antenna Array Based on Polarization Conversion Metasurfaces..... 808
Chenhe Duan, Bing Fu, Zhongyu Tian, Zhuolin Deng, Gaosheng Li

Efficient Time Domain Electromagnetic Simulation of One-Dimensional Finite Periodic Structure 811
Lingyun Wang, Yijun Sheng, Dazhi Ding

Ultra-Wideband Low-Profile Antenna Loaded with Matching Circuit 814
Yi Qi, Ming Huang, Chao Sun, Chen Chen, Feng Yang

A Design of Honeycomb-Shape Coil for Wireless Charging of Leadless Cardiac Pacemaker..... 816
Feifan He, Jinling Zhang, Zhan Xiao, Chenchen Wang, Lifeng Duan

Efficient Electromagnetic Simulation of Large Antenna Array with Non-Conformal FE-BI-DDM 819
Genbao Xu, Ming Jiang, Yin Li, Jun Hu

A Poisson's Equation Solver Based on Neural Network Precondtioned CG Method 822
Tianchen Shao, Tao Shan, Maokun Li, Fan Yang, Shenheng Xu

Low-Sidelobe Beamscanning Based on Time-Modulated Programmable Metasurface..... 824
Mengmeng Sun, Yanting Lv, Jingyi Qian, Fanwei Kong, Xudong Bai, Jun Ding

A Low-Profile Dual-Polarized Dipole Antenna with an EBG Reflector 826
Jun Bo Chao, Yi Wei Wang, Li Feng Gong, Yun Peng Zhu, Huan Huan Zhang, Ying Liu

Compressed Sensing for Solving Electromagnetic Scattering Problems of Multi-Scale Complex Structures Over a Wide Range of Incident Angle..... 829
Jin-Hua Hu, Ming-Sheng Chen, Xian-Liang Wu

A Compact Portable Programmable Array Antenna with Beam Scanning..... 832
Yuanfan Ning, Shichao Zhu, Chen Ma, Hongbo Chu, Gaosheng Li

Frequency Beam Scanning Antenna Based on the Quasi-Coplanar Waveguide..... 834
Jun Wang, Kai Xuan Xu, Yu Qi Yao, Ruo Feng Xu, Lei Zhao

On the Use of Skeletonization Technique to Accelerate the Solution of the Radome-Antenna System in Receiving Mode..... 837
Chen Yang, Jinbo Liu, Zengrui Li

Enhancing Farfield Isolation Between Nearby Base Station Array Antennas by a Resistive Film Wall 839
Haochen Yang, Enzong Wu, Xuan Chen, Liqiao Jing, Dashuang Liao, Zuojia Wang

Recognition of Continuous Phase Modulation Signals Based on Synchrosqueezing Wavelet Transform 842
Guangxin Ruan, Liu Zhao, Zheng Liu

Reconfigurable Antenna with Sum and Difference Patterns Based on Liquid Metal..... 844
Junfeng Li, Bian Wu, Kexin Guo

3D-Printed Pyramid Broadband Absorber Using Carbon Black / Polypropylene Composite 846
Ruiyang Tan, Fangkun Zhou, Baoshan Zhang, Ping Chen

Near-Field to Far-Field Transformation with an Equivalent Magnetic Current Approach 849
Lei Zhang, Haoyun Zhu, Wei-Dong Li

An Electromagnetic Compatibility Prediction Method Based on the Transmitter Spectrum and Receiver Sensitivity..... 851
Yijiahe Gao, Yaoyao Li, Shaoxiong Cai

A Wideband Differentially-Driven Dual-Polarized Antenna for 5G mmWave Terminal Application..... 854
Lei Xiang, Fan Wu, Chao Yu, Zhi Hao Jiang, Guangwen Jin, Yu Yao, Wei Hong

Near-Field Measurement Method for Electromagnetic Scattering of Electrically Large-Scale Plasma 856
Jiaqi Liu, Lu Gao, Runhui Wu, Xia Ai, Song Chai, Xin Liu, Shengjun Zhang, Yichun Cui

Maximal Peak Derivative and Peak Impulse Induced on Vivaldi Antenna Port by Radiated IEMI of Non-Specifed Waveform 858
Tao Liang, Yan-Zhao Xie, Zhihao Xi

Low-Complexity Direction Finding Method Based on Space-Time Modulated Metasurface 861
Ziyang Lai, Xinyu Fang, Mengmeng Li, Dazhi Ding

Design of Satellite-Borne VDES Receiver 863
Ke Liu, Peng Li, Yuquan Mei, Huiyi Wang, Yue Zhang, Renhong Xie, Yibin Rui

Robot-Type Miniaturized Planar Ultra-Wideband Triple-Notch Antenna 865
Jialin Shi, Xiuming Xu, Tao Jiang

Numerical and Experimental Demonstrations of a Si-Based Photonic Crystal Optomechanical Cavity 868
Dingwei Chen, Sohail Muhammad, Xiang Zheng, Xinwei Li, Guangjun Wen, Yongjun Huang

Endfire Antenna Based on Spoof Surface Plasmon Polaritons 872
Yang Zheng, Yixuan Wang, Yongxin Sha, Zhiwei Li, Jiquan Qi, Zhaoneng Jiang

Analysis of Infrared Radiation Properties of SiC Particles with Different Microstructures 874
Li Yanan, Wang Qun, Dong Shikui, Cui Yichun, Gao Lu, Ai Xia

A High Isolation MIMO Monopole Antenna Realized by a Rectangular Parasitic Patch with I-Shaped Slots 877
Yitao Liu, Zhuo Yang, Ping Chen, Jun Xiao, Qiubo Ye

Wideband Isolation Reconfigurable Technique for MIMO Antenna Array 879
Chunyan Yin, Jinxin Li, Pei Xiao, Zhu Liu, Jun Dong

Piecewise Linear Recursive Convolution Method Applied in One-Dimensional Unmagnetized Plasma 882
Jiaqi Liu, Gang Meng, Lei Mu, Lu Gao, Jinjun Mo, Runhui Wu, Weidong Wang

Efficient Transient Thermal Simulation of Interconnects Under ESD Stress by Laguerre-Based Finite Element Method 885
Bo Li, Min Tang, Junfa Mao

Development of a Chipless RFID Water Leakage Detecting Sensor Using Defected Ground Structure 887
Weng Weiming, Wang Jian, Tong Kun

Parameter Optimization Based on PSO for Equivalent Circuit Model of Injection Probe 889
Jing Yang, Zhitong Cui, Zhizhen Zhu, Chuan He, Fei Cao

Multiple-Resonance-Based Wideband Phase Shifter with High-Performance and Extended Applications 893
Yun-Peng Lyu, Lei Zhu, Chong-Hu Cheng

A Wireless Communication System Based on Metasurfaces Supporting Frequency Hopping 896
Xinyu Zhang, Jingcheng Zhao, Changda Xu, Hongyan Jian, Xiangkun Kong, Nan Qi

An Improved Rasorber Based on Frequency Selective Surface 899
Min Zhu, Minxin Zhao, Yi Wang

Dual-Frequency Vortex Beam Generation Using Coding Metasurface 901
Junfeng Li, Xianglin Kong, Fengjun Wang, Zhuowei Miao, Xiaoyi Wang, Xiaopeng Shen, Shengjun Zhang, Lei Zhao

Research on Ionospheric Es Characteristics in Qinghai-Tibet Region 904
Dan Liu, Kun Xue, Haisheng Zhao, Zhengwen Xu, Yaowu Wang

An Eight-Element MIMO Array Based on Triple-Band Antenna Pair for 5G Smartphone Applications 906
Aidi Ren, Haoran Yu, Zhanhao Zhang, Hu Liu

Design of a Dual-Band Waveform Selective Surface 908
Xiaofan Min, Yi Wang, Zonglun Du, Ronghao Li

Broadband RCS Reduction Using Single Layer Random Coding Polarization Conversion Metasurface 910
Jianglong Du, Yongjiu Zhao, Wenjun Qi

A Stable Hybrid Implicit-Explicit FDTD Subgridding Method for TE Analysis 912
Langran Deng, Yuhui Wang, Xianghua Wang, Xingqi Zhang, Shunchuan Yang

Decoupling Reflector Based on Reflected Phase Regulation for MIMO Array Antenna 914
Wenlu Qiu, Jinxin Li, Pei Xiao, Zhu Liu, Jun Dong

Efficient Extraction of SAR Attributed Scattering Center Based on Alternating Optimization and Serialized OMP Method 917
Bo Long, Feng Wang

Wide-Passband Reconfigurable Frequency Selective Rasorber Design Based on Fluidity of EGaIn 920
Zuwei Cao, Weihao Lin, Xiangkun Kong, He Wang, Xuemeng Wang, Xin Jin

Intelligent Metasurface with Machine Learning for Non-Contact Hand Gesture Recognition 923
Guodong Liu, Haipeng Wang, He Li, Yunbo Li

Periodic Structures and Its Interaction to EM Wave Spectrum, Ideas from X-Ray to MW Wave 926
Yunhui Tang, Lu Gao, Ruzhi Wang, Shengjun Zhang, Hang Song, Yuning Zhang, Xia Ai, Lei Xie, Luting Jiao, Xiaoling Zhang, Jing He, Jiaqi Liu

High-Precision Vibration Detection Based on Nano-Cavity Optomechanical Accelerometer 929
Xinwei Li, Xing Yan, Wenyi Huang, Jiangbo Wu, Dingwei Chen, Yongjun Huang

Research on Data Augmentation for Garbage Classification with Target Detection Algorithm 932
Jiansong Chen, Shikai Zuo, Yun Lin, Kai Tang, Jianhang Zou, Naixing Feng, Yijun Cai

Pulse Signal Denoising Method Based on Frequency Domain Wavelet Transform 936
Zhao Liu, Guangxin Ruan, Zheng Liu

Development of an Integrative Electromagnetic Simulation Software 938
Li Jianzhou, Zhang Haixuan, Chen Shuhui

Design of High Performance Reed-Solomon Encoder Based on a Novel Half-Multiplier 941
Shuaihua Ren, Qiang-Ming Cai, Xin Cao, Bowen Luo, Yuyu Zhu, Jun Fan

A Beamforming Microstrip Array Antenna for K-Band Applications 943
Zijian Yu, Wenwen Feng, Xiaodi Song

MIMO Channel Characterization Through Electromagnetic Analysis 945
Haonan Chen, Xuyang Bai, Shurun Tan, Said Mikki

Comparative Analysis of Monostatic and Bistatic RCS Scattering Characteristics for Corner Reflector 947
Mengqi Qiu, Xiaofeng Ai, Zhiming Xu, Feng Zhao

Active Bianisotropic Metasurfaces: From Dynamic Polarization-Dependent Wavefront Tailoring to Arbitrary Polarization Control 950
Qi Hu, Ke Chen, Na Zhang, Yijun Feng

Substrate Integrated Waveguide Leaky-Wave Antenna Featuring Complete Backward Scanning 953
Wenhua Li, Shuai Ma, Haoran Zu, Bian Wu, Hanyu Xie

Design of a Two-Stage Rectifier with Wide Input Power Range 956
Mei Yang, Qinghua Wang, Lixia Yang, Yuxian Zhang

Topological Rainbow Trapping Based on non-Hermitian Twisted Piecing Photonic Crystals 959
Wen Zhao, Yanji Zheng, Cuicui Lu

Single Sideband Modulation Based Phase-Coded Continuous Wave Inverse Synthetic Aperture Ladar Demonstration and Outdoor Experiment 960
Anpeng Song, Chen Xu, Jian Li, Kai Jin, Kai Wei

Study on the Cylindrical Bending Effects of a Ku-Band Antenna Array Feeding Network 964
Sirui Yu, Jian Bai, Ying Zhou, Lingnan Song, Donglin Su

Radome Time-Domain Far-Field Measurement and Analysis 967
Baixiang Liu, Qunying Li, Minghao Gong, Bing Wei

A S-Band Orbital Angular Momentum Antenna with Frequency Reconfigurable 970
Sixian Qian, Jie Wu, Junjie Han, Jing Fang, Lulu Meng, Zhixiang Huang

Simulation Experiment of Stripmap SAR Imaging Using Planar Near Field Measurement System 972
Yu Le, Zuo Yanchun, Liu Wei, Liu Songhua, Guo Lixin

Design of a Switch-Controlled Multi-Mode Doherty Power Amplifier 974
Junqi Cai, Gang Bu

Design of Frequency Selective Rasorber with Absorption and Transmission 977
Linjia Shi, Min Zhu, Lingling Wang

A Dual-Polarized and Reconfigurable Metasurface for Manipulation of Electromagnetic Waves 979
Dashuang Liao, Liqiao Jing, Zuojia Wang

Circularly Polarized Tightly Coupled Quarter-Circle Truncated Patch Array 982
Xianting Xie, Long Zhang, Minqing Wang, Wenting Li, Chunxu Mao, Yejun He

Study on Langmuir Perturbation Under Non-Uniform Mesh Nesting 985
Chao Liu, Yaxin Liu, Lixia Yang, Qingliang Li, Yubo Yan

Study on the Scattering and Imaging Characteristics by the Focused EM Vortex Beams 988
Shaoqing Guo, You Li, Wenrong Li, Yongzhi Sun

Design of 3D Printed Coaxial Sleeve Bandpass Filter 991
Wenlei Wang, Gang Zhang, Mingyue Pan, Xinyuan Yang, Chenyang Yuan, Zhengyu Sun

A Broadband Dielectric Resonator Antenna Array with High Gain 994
Geng Zhang, Xiaofei Wang, Qiang Li, Yufang Zhou, Wei Wang, Xuan Wang

Dual-Polarization High-Gain Array Antenna Without Power Division Network for 5G Base Station 996
Zhi-Peng Zhao, Feng Liu, Kui Niu, Lei Sun, Yong Xu, Hao Zhang, Nan Shen, Shen Tian, Guangde Wu

Altitude Estimation for Forward-Looking Radar Based on Doppler Sharpening 999
Zhu Hongwei, Hu Hong

Stochastic FDTD for Statistical Analysis of Thermal Field 1001
Zijing Xiao, Kaikun Niu, Zhixiang Huang

A Single-Port Polarization Reconfigurable Antenna Using a Stacked Structure with Broad Bandwidth 1004
Haomin Yang, Yonggang Zhou, Huaizhen Wang, Xianjun Ma

A Dual Circularly Polarized Microstrip Antenna 1007
Wei Wang, Xiaofei Wang, Longwei He, Chuo Yang, Yufang Zhou

Ultra-Miniaturized Broadband Metamaterial Rasorber Using 2.5-D Structure 1009
Beibei Xing, Ding Zhang, Sibo Mao, Wenhua Li, Yifeng Fan, Bian Wu

Microstrip Antenna Sensor for Dielectric Constant Detection of Solid-State Media 1012
Shuwen Chang, Wenmei Zhang

Dual-Notch Ultra-Wideband Bandpass Filter Based on Folded Dual-Mode Resonator 1015
Qingqing Li, Xianliang Wu, Zhixiang Huang

Digital Predistortion in MIMO-OFDM Systems Using Power-Injection Technique 1018
Moushu Yang, Yongle Wu, Xin Hu, Weimin Wang, Yuhao Yang

Planar Spatial-Fed Antenna Arrays for Terahertz Beamforming Applications 1021
Zhuo-Wei Miao, Zhang-Cheng Hao

A Novel Structure of Magnetoelectric Antenna Based on Multiferroic Materials 1024
Tianhao Han, Biao Dong, Jinhua Feng, Yu Wang, Zhongming Yan

A Method of Suppressing the Velocity Deception Jamming 1027
Qingqing Song, Yuxi Zhang, Hu Song, Hao Zhou, Xinran Zong

Two-Dimensional Direction Finding Based on Time-Modulated Array with Double Long Baselines and Spectrum Harmonic Analysis 1030
Wu Ji Wang, Jun Wei Wu, Han Qing Yang, Zheng Xing Wang

A Wide-Band and Wide-Beam Antenna for Wide-Angle Scanning Linear Phased Array 1033
Zhongyu Tian, Chenhe Duan, Zhuolin Deng, Gaosheng Li

Electromagnetic Effective Degree of Freedom of MIMO System in Nonfree Space 1036
Xiao Qi Zhang, Rui Wen Shao, Hui Xu, Jun Wei Wu, Tie Jun Cui

Broadband Radar Cross Section Reduction Realized by Complicated Metasurface 1039
Sijie Yin, Xi Gao

A Lowpass Filter Based on Microstrip Splitter-Combiner Section Loaded with Multiple CSRR Coupled Units 1041
Shanshan Xue, Shuai Wang, Dayong Liu, Nan Zhang, Xiaolong Wang, Chun-Ping Chen

Design of PSOAM Vortex Antenna Based on Spoof Surface Plasmon Polaritons 1044
Xin Zhang, Yuping Liu, Yixin Yan, Zhen Liao

A Hybrid Method for Antenna Radiation with Parameters Variation 1047
Kunpeng Fu, Hanru Shao

Landfill Leakage Detection Method Based on Resistivity Anomaly 1050
Jingrui Xiao, Yanli Ding, Xin Zhang, Pengfei Qi, Liang Liu

A Novel Compact Dual Band-Notched Antenna Design Based on Semicircular Split Ring Resonator Electromagnetic-Bandgap Structure 1053
Jing Jing Shi, Yi Ying Wang, Jian Min Tu

Mechanically Tunable Lowpass Filter in Form of Suspended Substrate Stripline 1056
Xiao Wei, Chen Liang, Yun Liu

A Flexible Microwave Sensor Based on Spoof Surface Plasmon Polaritons and Spoof Localized Surface Plasmons 1058
Junkai Bai, Hongfu Guo

Ultra-Wideband and Wide-Scanning Dual-Linear Polarized Phased Array with High Polarization Isolation and Low Cross-Polarization 1060
Yuan Ye, Yun Jiang, Zhaoyu Huang, Jingjian Huang, Chang Zhu, Naichang Yuan, Quan Xue

A Handle-Like Antenna for Narrow Band Internet of Things 1063
Peng Zhang, Lei Zhang, Cunfeng Zhang

Mixing Matrix Estimation Based on Density Clustering for Blind Source Separation 1066
Rou Wen, Xiyuan Sun, Zi He, Pengfei Gu, Dazhi Ding, Li Li, Yuanyuan Wen, Dawei Song, She Shang

A Approximate Method for Evaluating Common-Mode Voltage Frequency Spectrum of a Twelve-Phase Generator Rectifier System 1069
Peng Yang, Chen Huang, Chengchao Hua, Chunyu Yang, Yuxin Du, Wenwu Song

A Wideband Circularly Polarized Planar Array for Millimeter-Wave Applications 1072
Qingquan Tan, Kuikui Fan, Guoqing Luo

Modelling the Honeycomb Composite for Multilayer Structural Absorbing Composite Design 1075
Yongzhi Song, Hao Li, Genliang Hou, Nengjun Yang, Song Bi, Zhaohui Liu

Study on the Reference Level of Shielding Effectiveness for Electromagnetic Shielding Doors 1079
Zusheng Jin, Jialin Shi, Yong Zhang, Yu Zuo, Jianxuan Li, Wenli Wu

Design of Broadband Frequency-Selective Rasorber with Square Resonators 1082
Yukun Yang, Shaobin Liu, Kun Liao, Lingling Wang

Broadband Wide-Angle Linear-To-Circular Polarization Converter Based on Metal Strips Loaded Metasurface 1085
Jingwen Wang, Shasha Deng, Weidong Chen, Zhongxiang Zhang, Chang Chen

5.8GHz Channel Characteristics of a Real Arm 1087
Chenggui Zhou, Zhaofeng Zeng, Yoghui Qin, Jinjun Mo, Yiying Wang

EM Scattering of Land-Sea Junction Area Based on DEM and SBR 1090
Chai Shui-Rong, He Zhen-Xiang, Guo Li-Xin

Reconfigurable Phase Planar Transmitarray Unit Cell for mm-Wave Communication 1093
Daniele Inserra, Essohan-Eyouemou Abalo, Guangjun Wen, Chengwei Xian, Zehua Li, Yuqiong Zhang

The Advantages of Surface Susceptibility Model Over Surface Impedance Model in Characterizing Metasurfaces 1095
Yu Sheng, Xiao Jia, Mingjiang Wang, Yinghong Wen

A Reconfgurable Patch Antenna Design Based on Characteristic Mode Theory 1097
Liang Mingli, Li Jiaying

Scattering Center Modelling from Geometrical Model of Target 1100
Jiuxiang Liu, Kunyi Guo, Tao Feng, Xinqing Sheng

Study of a 500GHz Second Harmonic Gyrotron Oscillator with Confocal Cavity 1103
Yulu Lei, Shaomeng Wang, Yubin Gong

Design of Dual-Band 5G Millimeter-Wave Fan-Shaped Antenna Based on Characteristic Mode Analysis 1106
Xiangjun Zhang, Shunshun Tong

Analysis of Boresight Error for an Ablating Radome with Full Wave MLFMA 1109
X. Y. He, D. H. Kong, M. Y. Xia

Design of a 400-Element Reflectarray Antenna Fed by Tapered Slot Antenna 1111
Si Yu Miao, Feng Han Lin

Design of Ultra-Wideband Terahertz Wavelength Division Multiplexer Based on Inverse Design Algorithm 1113
Zhicheng Xiao, Kaihong Song, Ming Fang

Broadband Infrared Absorber Based on Metamaterial 1116
Meijun Kang, Jian Feng, Mandi Rong, Ming Fang

Scattering by a Buried Anisotropic Cylinder 1119
Youlin Geng, Tao Lu, Pengquan Zhang

A Provably Stable SBP-SAT FDTD Subgridding Method Using Staggered Yee's Grids 1122
Yuhui Wang, Yu Cheng, Langran Deng, Xiang-Hua Wang, Xingqi Zhang, Shunchuan Yang

Numerical Calculation of THz Emission of a GaN HEMT Using Coupled Hydrodynamic-Maxwell Equations 1124
Hongyang Guo, Ping Zhang, Shengpeng Yang, Zhanliang Wang, Shaomeng Wang, Yubin Gong

Multipath Exploitation Based on Subspace Detector 1127
Chun Cao, Chongyi Fan, Huagui Du, Jian Wang, Xiaotao Huang

Contrastive Research on Performance of Face Detection Based on Classical and Deep Learning Algorithms 1131
Chunpeng Luo, Jianming Zhuo, Kai Tang, Jianhang Zou, Shikai Zuo, Yijun Cai

A 2-D Half Maxwell Fish-Eye Lens for Beam Scanning Antenna 1135
Peng Hu, Ji-Wei Lian, Dazhi Ding

The Scattering Characteristics of Uncertain Hybrid Metal-Dielectric Objects by Disturbance EFIE-PMCHWT Method 1137
Jiachen Shen, Huidong Huangfu, Sijin Xiong, Jianhua Zhang, Haiyan Chen, Wei Tao

Adaptive Track Fusion Method Based on Uncertainty 1140
Wu Jing, Ai Xiaofeng, Xu Zhiming, Zhao Feng, Xu Zhenhai

A Planar Dual Polarized Shared-Aperture Array for K-/Ka-Band Satcom Application 1143
Zi-Jun Guo, Zhang-Cheng Hao, Hao-Jie Gang

On the Concept of Semantic Electromagnetics 1146
Feng Xu, Xu Zhang

GPU Accelerated DGTD Method for Analyzing Electromagnetic Scattering Problems....1149
Ziang Shen, Zhuo Li, Jia Yu, Changqing Gu, Xinlei Chen, Lei Zhao

FFT-FFG for Electromagnetic Scattering from Random Rough Surfaces....1152
Jiaye Xie, Min Pan

A Compact Model for Electro-Thermal Co-Simulation of One Diode-One Resistor Random Access Resistive Memory....1155
Xingyu Zhai, Wen-Yan Yin, Yanbin Yang, Wenchao Chen

Electromagnetic Scattering from Metal Targets in Half-Space Environment with Three-Dimensional Spatial Interpolation Method....1158
Yujie Wang, Qian Yuan, Peiyang Zhou, Zi He, Liping Zha, Dazhi Ding, Li Li, Yuanyuan Wen, Dawei Song, She Shang

A Dual-Port Microstrip Patch Antenna with Improved Isolation for Wide-Angle Phased Scanning 1161
Yu-Dong Liang, Neng-Wu Liu, Guang Fu

Miniature and Near-3D Omnidirectional Antenna Based on Simple Structure for UHF Band RFID Tag....1164
Hailong Liu, Jinbo Liu, Jiming Song

Analysis of Broadband Electromagnetic Scattering Based on RFG-FFT with Cube Polynomial Inter/Extrapolation Method 1166
Yong-Tao Zheng, Yu-Bin Song, Wei-Bin Kong, Xiao-Fang Yang, Zhong-Qing Fang, Jia-Ye Xie

Amplitude Adjustable Balanced Bandpass Filter Based on Graphene Nanoplates 1168
Yingxin Cheng, Jianzhong Chen, Yu-Tong Zhao, Tao Su, Bian Wu, Liang Li

Design of a Square Metasurface Antenna Based on Characteristic Mode Analysis 1171
Fangzheng Ji, Jiquan Qi, Yixuan Wang, Yongxin Sha, Yang Zheng, Zhaoneng Jiang

A Broadband Stripline Wilkinson 2-Way Power Divider 1175
Xin Li, Bo Wu, Meng Kong, Xianliang Wu, Xiaolei Geng, Chen Guo

Synthesis of Non-Equiripple All-Pole Ladder Filters Using Darlington Network Synthesis Method....1178
Shang Fu, Sheng Sun

Selection of "Time Window" in Time Domain Measurement 1181
Zhe Jia, Qunying Li, Minghao Gong, Bing Wei

Design of Compact Dual-Band Filter Based on Quarter Wavelength SIRs....1183
Wanhong Luo, Zhe Chen, Yifan Zeng, Lu Zhang, Yuyuan Zhao, Chaoyi Sun

Fast Scattering Compuation of Group Targets Based on Current Iteration 1186
Jingyue Sun, Kunyi Guo, Tao Feng, Xinqing Sheng

Optically Transparent Broadband All-Dielectric Water-Based Metasurface Microwave Absorber Based on Composited Cylindrical Structure....1189
Jingda Wen, Qiang Ren, Yingyi Qi, Ruiguang Peng, Hui Li, Qian Zhao

High Gain End-Fire Antenna Based on Spoof Surface Plasmon Polariton 1191
Yue Xie, Juan Xu, Jianping Zhao

AI-TCM-Based Solver for Scattering Problems by Two-Dimensional PEC Objects 1194
Wenwei Zhang, Dehua Kong, Xiaoyang He, Mingyao Xia

Triple-Mode Resonant Planar Antenna with Enhanced Endfire Radiation 1197
Meng-Li Zhao, Xiu-Qiong Xing, Yong Xiao, Da-Shuai Zhang, Wen-Jun Lu

Decoupling of MIMO Antenna with Dummy Antennas for 5G Mobile Terminals 1199
Yuke Guo, Jinghui Xue, Luyu Zhao

Four-Antenna System Design Based on Characteristic Mode Theory 1201
Jinbo Yu, Hui Li

Accurate Integration Strategy of the Magnetic Field Integral Equation in Layered Medium 1203
Shuo Wang, Qiang Ren

Investigation on ULA Fitting Promoting Low Coupling Sparse Arrays 1205
Yichang Yao, Wanlu Shi, Yingsong Li, Zhixiang Huang, Guohui Yang, Kuang Zhang

A Miniaturized UWB Monopole Microstrip Antenna 1208
Chao Zhang, Zitong Zhao, Zhonghao Lu, Pei Xiao, Gaosheng Li

A Shooting and Bouncing Ray Method for Scattering from Anisotropic Material 1211
Yi Zhu, Gao Wei, Jianzhou Li

A Da-Shaped Slotted Circularly-Polarization Antenna for 5G Applications 1214
Lulu Meng, Zhixiang Huang, Yingsong Li

X-Band High-Gain Three-Layer Transmittarray Antenna 1216
Zhiwei Li, Yongxin Sha, Yixuan Wang, Yang Zhen, Liying Nie, Zhaoneng Jiang

Deep Learning Based Pixelized Forward Simulator and Inverse Designer of the Frequency Selective Surface 1218
Hongyu Gao, Yinpeng Wang, Qiang Ren

Derivation of Hydrodynamic Equations for One-Dimensional Single Particle in Plasma 1221
Yaxin Liu, Yuxian Zhang, Lixia Yang, Chao Liu, Naixing Feng

Design of a Pulse Transformer for X-Band Klystron 1223
Yongfang Liu, Lin Li, Zhihao Chen

Research on Heterogeneous Parallel Algorithms for Radar Signal Processing in OpenCL Platform 1226
Yingfei Wang, Xiaoqin Xue, Wei Wang

Wireless Channel Modeling in Complex Urban Environment Based on High Frequency Asymptotic Method 1228
Xiao-Yu Wang, Nan Mei, Xiao Fan, Xin Wang, Hui Gao, Yan-Di Huang

Triple-Band Hexagonal Loop Antenna with Capability of Beam Switching 1231
Wei Zheng, Junhong Wang, Wenmei Zhang

Simulation and Analysis of Repeater Deceptive Jamming to SAR Based on Shift-Frequency 1234
Daixuan Li, Jiaqi Liu, Jianhua Li, Lu Gao, Pei Zheng, Zhonghang He

Study on Electromagnetic Scattering from the Grassland Based on Method of Moment 1238
Shi-Ni Fang, Xin-Cheng Ren, Yu-Qing Wang

Design of an Ultra-Wideband Vivaldi Antenna 1241
Liuyi Wu, Dayong Gong, Yili Zhang, Weiliang Yu, Yufeng Yu

Characteristics Mode Inspired Circularly Polarized Selective Metasurface 1244
Jingxin Ye, Teng Li, Qiangming Zeng

Flight Mode Identification of Multi-Rotor UAVs Based on Convolutional Neural Network 1247
Xiaofeng Ai, Yiqi Zhu, Linyu Zhang, Wenhui Fu, Yabo Huang

Research on the Scattering Characteristics of the Van Atta Cube Scatterer 1250
Lin Gan, Zehao Wu, Jianbing Li

Highly Squinted Spotlight SAR Imaging Based on Four DSPs 1253
Lan Dong, Tao Wang, Daiyin Zhu

Optimal Imaging and Semantic Segmentation of the Human Body for Passive THz Security Inspection 1255
Chengchao Yu, Zhaoyang Xia, Feng Xu, Qing Wang

Design of Multi-Layer Metamaterial Absorbers Using Kriging Surrogate Model 1258
Changbao Pei, Sixing Liu, Zhendong Ding, Beichen Liu, Fan Wu, Shifei Tao

An Optimal Design of a Flat-Top Beam Pattern of the OAM Wave Emitting Through a Concentric Sequentially Rotating Circular-Polarization Array 1261
Bentong Lin, Jun Hu, Di Zhu, Yibo Ma, Junxia Miao, Wen Wu

Research on Electromagnetic Scattering from 3D Magnetized Ferrite Media Based on Padé-FCC-FDTD Method 1264
C. L. Du, W. Chen, Y. Bo, L. X. Yang

Predicting Ground Penetrating Radar A-Scan Signal Using Convolutional Neural Networks 1267
Chengke Zhu, Hongxia Ye

A Reconfigurable Switched Notchband UWB Antenna 1270
Zitong Zhao, Chao Zhang, Zhonghao Lu, Gaosheng Li

A Quad-Band Meta-Hologram Based on Reflective Metasurface with Complex-Amplitude Control 1273
Meihao Chen, Zhen Gu, Rensheng Xie, Jun Ding

Design and Analysis of Frequency-Selective Rasorber Based on Square-Loop Using Circular Spiral Inductor 1277
Wenxing Wu, Jinzu Ji, Xuebin Ji, Qi Chang

UHF Wideband Dual-Polarized Tightly Coupled Dipole Array Antenna 1280
Jian Lou, Shaobin Liu, Xing Zhao, Junyin Wang

Application of Clustering Technology and Gerchberg-Papoulis Algorithm for Spherical Near Field Antenna Measurements 1282
Fangyun Peng, Junhao Zheng, Xiaobo Liu, Zhengpeng Wang, Lei Zhao, Xiaoming Chen

Metallic Rings Loaded Dielectric Rod Antenna with Enhanced Gain and Bandwidth 1285
Chuyue Chen, Long Zhang, Yaling Chen, Chunxu Mao, Wenting Li, Yejun He

A Wideband Tightly Coupled Antenna with Wide-Angle Scanning Range 1288
Yongyu Chang, Yongling Chang, Haoming Li

Electromagnetic-Thermal Characterization of Microstrip Antenna Array 1291
Chuanchuan Song, Ting Wan, Mengyang Yan, Yunqin Hu

0.1 THz Linear Group-Delay Engineered Transmission Line All-Pass Network with LTCC Substrate 1294
Jiaqi Li, Baiyang Liu, Qingfeng Zhang

Design and Analysis of a Metamaterial Inspired Peano Fractal Antenna 1297
Si Li, Minghui Zhu, Shitao Sun, Yunlong Mao, Biao Jin

MT Inversion Based on Improved Particle Swarm Optimization Algorithom 1300
Lili Li, Kangjun Bao, Changwei Li, Yuan Zhang, Zhan Wang, Bo Li

Low SLL and High Gain Reflectarray Antenna Based on Metasurface 1303
Pengfei Zhang, Wenmei Zhang

The Enhancement of Second Harmonic Generation with the Double Resonance 1306
Kaikun Niu, Zhixiang Huang

Electromagnetic-Thermal Co-Simulation of Microstrip Filter 1309
Xin Yi Liu, Zheng Lang Jia, Huan Huan Zhang, Ying Liu, W. E. I. Sha, L. J. Jiang

Design and Optimization of a Dual Pass-Band FSS Based on Curve Fitting and PSO Algorithm 1311
Yaxi Pan, Yan Ma, Jian Dong

Dual-Beam Metasurface with Abitrary Power Allocations Based on Anisotropic Modulation of Complex Reflection Coefficients 1313
Tianyi Chen, Yunbo Li, Tie Jun Cui

A Band Stop Decoupling Structure for Circularly Polarized Antennas with Different Intervals 1316
Yuhang Ding, Shasha Deng, Weidong Chen, Zhongxiang Zhang, Chang Chen

Near-Field High-Speed Target InISAR Imaging Based on Wavenumber Domain Interpolation 1318
Yijiang Chen, Guohua Wei, Yuzhao Li, Xu Wang, Jichi Chen

Design and Analysis of an Ultra-Compact Magnetoelectric Antenna 1321
Jinhua Feng, Tianhao Han, Biao Dong, Yu Wang, Hongcheng Zhou, Zhongming Yan

Linear PolarizationConverter Basedon V-Bar-Shaped Metasurface 1323
Yanbing Wang

A Compact mm-Wave Bandpass Filter Based on Transversal Signal Interference Concept in IPD Technology 1326
Xinyu Zhang, Yongle Wu, Yuhao Yang, Huiting Yu, Weimin Wang, Weimin Wang

A Millimeter Wave 3-Way Power Divider Based on Buried Resistance Technology 1329
Xu Lu, Wang Changsheng, Zhang Zucun

A Dual-Band Common Aperture Waveguide Slotted Antenna 1332
Yuheng Tian, Ziting Li, Guodong Liu, Jingfeng Li, Xiaofei Wang, Mengfei Feng

Comparison of Simulation and Measurements of Time-Domain Field-To-Line Coupling in Bounded Wave Simulator 1335
Longquan Zhong, Jiangchuan Lin, Feng Qin, Chun Yang, Chang Liu, Hua Huang

Investigation on 650 GHz Sheet-Beam Staggered Double-Vane Traveling Wave Tube..... 1338
Yuxin Wang, Shaomeng Wang, Yang Dong, Jingyu Guo, Duo Xu, Hexin Wang, Yubin Gong

Wideband Frequency-Selective Rasorber Based on 2.5-D Circuit Analog Absorber..... 1341
Kun Duan, Fengjin Guo, Junming Zhao, Ke Chen, Yijun Feng

An Ultra-Wideband Dual-Polarized Sinuous Antenna 1344
Yang Chuo, Wang Xiaofei, Zhang Qiang, Wang Wei, Huo Xiaoning, Li Ziting

Near Field Coupling with a Twisted Bundle of Twisted Wire Pairs (TBTWPs) Above Ground Plane 1346
Jie Liao, Oussama Gassab, Jingxiao Li, Zhizhen Su, Fang He, Wen-Yan Yin

Research on the Scattering Characteristics of Fully Ionized Dusty Plasma for FPL Model..... 1349
Hai Huang, Wei Chen, Qingqing Deng, Lixia Yang

Parameter Inversion of Rough Surface Based on GBDT Model..... 1352
Xiang Fei Min, An Qi Wang, Li Xia Yang

A C-Band Antenna Sensor Element for Monitoring Reflective Water Quality 1354
Xiao Jie Lu, Xiao Yu Li, Mei Song Tong

Author Index