

2022 IEEE 10th Asia-Pacific Conference on Antennas and Propagation (APCAP 2022)

**Xiamen, China
4-7 November 2022**

Pages 1-373



**IEEE Catalog Number: CFP2207S-POD
ISBN: 978-1-6654-8955-3**

**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: | CFP2207S-POD |
| ISBN (Print-On-Demand): | 978-1-6654-8955-3 |
| ISBN (Online): | 978-1-6654-8954-6 |

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 Single-Layer Stub-Loaded Dual-Polarized Patch Antenna with High Isolation | 1 |
| <i>Botao Jiang, Tianqi Fan, Jianping Xiu, Yue Lin, Hongtao Xu</i> | |
| Circularly Polarised Lenses Reduce Gate Flaps in Sparse Arrays..... | 3 |
| <i>Jiahong Chen, Yuehe Ge, Zhizhang Chen</i> | |
| Aperture Study of Partially Reflective Surface Antennas for Gain Enhancement..... | 5 |
| <i>Zhen Hu, Yuehe Ge, Zhizhang Chen</i> | |
| Ka-Band Tx and Rx Multibeam Reflector Antenna Using One Aperture | 7 |
| <i>Weibing Zhang, Siqi Wang, Long Zhang, Zhengxin Shi</i> | |
| Planar Low-Profile 2-D Wide-Angle Scanning Phased Array in X-Band Based on SIW | 9 |
| <i>Dong Fang Li, Yi Chen Zhong, Ying Liu</i> | |
| Array Antenna Design Using Spoof Surface Plasmon Polaritons for Phase Shifting Network..... | 11 |
| <i>Shizhao Gao, Weihan Li, Jiaxuan Wei, Wenxuan Tang</i> | |
| Low Profile Reconfigurable MIMO Antenna with High Isolation and Wideband Performance for 5G Smartphone..... | 13 |
| <i>Yi-Min Gan, Qing-Xin Chu</i> | |
| Wideband Millimeter-Wave SIW Two-Channel Crossover Based on Homogeneous Cylindrical Lens | 15 |
| <i>Chun Geng, Ji-Wei Lian, Dazhi Ding</i> | |
| A C-/Ka-Band CP Shared Aperture Antenna Array | 17 |
| <i>Yong Yang, Yong-Ling Ban, Qiang Sun</i> | |
| Parametric Study of a Wideband Endfire Circularly Polarized Antenna for Millimeter-Wave Applications..... | 19 |
| <i>Yingrui Yu, Qiaoyu Chen, Jin-Dong Zhang, Chunhong Chen, Zuping Qian, Wen Wu</i> | |
| High-Gain Broadband Reflectarray Considering Spatial Dispersion Effect..... | 21 |
| <i>Wei-Ting Niu, Yong-Ling Ban</i> | |
| An Optimum Method of Linear Thinned Array Based on Iterative FFT Algorithm..... | 23 |
| <i>Lu-Jie Zhou, Yong-Ling Ban, Ji-Wei Lian, Qiang Sun</i> | |
| Near-Field-Focusing Quasi-Nondiffraction Airy Beam with Waveguide Slot Array Antenna | 25 |
| <i>Qing You, Ya Fei Wu, Yu Jian Cheng</i> | |
| The Multifilament Current Method: Formulations and Applications | 27 |
| <i>Kai Wang</i> | |
| A Hybrid Method for Wideband Analysis of Periodic Composite Metallic and Dielectric Array Structures..... | 29 |
| <i>Kunpeng Fu, Hanru Shao</i> | |
| Improved Transmission Line Model of Double-Layer Metal Meshes for Reflection Coefficient Calculation..... | 31 |
| <i>Xiangang Sun, Bing Wei</i> | |

| | |
|---|----|
| Wideband RCS Reduction of Antenna Using Graphene-Based Absorptive/Transmissive Metasurface | 33 |
| <i>Zhoupeng Wei, Fuwei Wang, Chao Huang, Ke Li, Yuhui Ren</i> | |
| On the Design of Frequency Selective Structure with High UHF Bandpass and C X Bandstop | 35 |
| <i>Zhixin Yao, Zhili Zhou, Ke Xu, Jianchun Du</i> | |
| Fast Optimization of Dual-Mode Dielectric Waveguide Filters Based on Surrogate Model-Assisted Optimization Algorithm..... | 37 |
| <i>Xiaoli Wang, Guangfei Qi, Jiabiao Xue, Yongliang Zhang</i> | |
| Antenna Array Pattern Synthesize Based on Convolutional Neural Network..... | 39 |
| <i>Jiaxuan Han, Xiaoli Wang, Yongfeng Wei, Yongliang Zhang</i> | |
| Review of Neuro-Space Mapping Modeling for Heteromorphic RFID Antennas..... | 41 |
| <i>Shuxia Yan, Zhifeng Chen, Weiguang Shi, Feng Feng</i> | |
| Recent Advances in Parametric Modeling Using MOR-Based Neuro-TF with Different Formats for Microwave Components..... | 43 |
| <i>Wei Liu, Jianan Zhang, Feng Feng, Shuxia Yan, Kaixue Ma</i> | |
| A D-Band GCPW to SIW to Air-Filled RWG Cavity-Backed Transition for Integration of Communication System..... | 45 |
| <i>Ziqi Zhang, Yinshan Huang, Liang Zhou</i> | |
| Phase Analysis of Bifilar Helix Antenna Generating Multi-Modal OAM..... | 47 |
| <i>Yunqi Zhang, Rui Yang, Xuping Li</i> | |
| Design of a Wide-Band Spot Focusing Lens Conical Horn Antenna | 49 |
| <i>Nan Hu, Shuang Liu, Jianrui Liu, Lixin Zhao, Wenqing Xie</i> | |
| Design of a Wide Band Diagonal Horn Antenna..... | 51 |
| <i>Nan Hu, Shuang Liu, Jianrui Liu, Lixin Zhao, Wenqing Xie</i> | |
| A Low Profile Filtering Antenna Without Extra Circuit..... | 53 |
| <i>Sihao Liu, Junlei Guo, Lingxiao Wang, Lei Wu, Deqiang Yang, Yongpin Chen</i> | |
| A Miniaturized and Ultra-Wideband Antipodal Vivaldi Antenna with Triangular Slots | 55 |
| <i>Yixin Tong, Wenquan Cao, Chuang Wang, Wenyu Ma, Shilei Zhu</i> | |
| Omnidirectional Monopole Antenna with Embedded SIR as Reflectionless Band-Notched Structure for UWB Applications..... | 57 |
| <i>Jialin Wang, Hongtai Chen, Jinlun Li, Shunli Li, Hongxin Zhao, Xiaoxing Yin</i> | |
| Low-Profile Broadband Metasurface Antenna with Stable Gain..... | 59 |
| <i>Zijun Zheng, Wenmei Zhang, Guorui Han</i> | |
| Dual-Band Structure Reused Based on Reflectarray for S- and Ka-Band Satellite Communication | 61 |
| <i>Chuang Wang, Lu Zeng, Siyu Li, Chuyu Li, Wenquan Cao</i> | |
| A Miniaturized Interdigital Cavity Filter..... | 63 |
| <i>Jincong Hu, Zhihang Wu</i> | |
| Broadband Filtering Antenna with High Selectivity by Using Defected Ground Structure | 65 |
| <i>Quanxin Li, Chonghu Cheng</i> | |

| | |
|---|-----|
| Design of a Low Loss Interdigital Bandpass Filter | 67 |
| <i>Liuyu Wang, Zhihang Wu, Lei Zhu</i> | |
| Planar Inverted-F Antennas for Low Earth Orbit Satellite Applications | 69 |
| <i>Chong Li, Feng Fang, Wenjun Qi, Wenjun Xia, Lei Xing, Qian Xu</i> | |
| A Semi-Substrate-Integrated Coaxial Line Transverse Slot Array Antenna | 71 |
| <i>L. Zhu, B. Liu, Y. Zhang, D. M. Xu, P. Liu, X. Wang</i> | |
| Influence of Dummy Elements on the Performance of Array Antennas..... | 73 |
| <i>Zhu Qingchao, Fang Jia, Zhang Xiaolin, Jin Mouping</i> | |
| Research on High-Gain Flat Luneburg Lens | 75 |
| <i>Xin Che, Ju Gao</i> | |
| Design of a Dual-Band Dipole Antenna by Using Substrate-Integrated Double Line..... | 78 |
| <i>Y. Zhang, B. Liu, L. Zhu, D. M. Xu, P. Liu, X. Wang</i> | |
| Broadband High Gain Narrow-Edge Frequency Scanning Antenna with I-Shaped Resonators | 80 |
| <i>Peilong Wang, Wenquan Cao</i> | |
| Attention-Based Encoder-Decoder Network for Prediction of Electromagnetic Scattering Fields | 82 |
| <i>Ying Zhang, Mang He</i> | |
| Design of Broadband RCSR Based on Compound Mechanism of Absorption and Scattering Modulation | 84 |
| <i>Ying Zhang, Xinmi Yang, Jia Hou</i> | |
| A Miniaturized UWB Vivaldi Dual-Polarized Antenna Based on Resistance Loading..... | 86 |
| <i>Yuzhao Zhu, Sihan Lv, Hui Yang, Luyu Zhao</i> | |
| A Miniaturized Double-Sided UWB-MIMO Antenna with Four-Notched Band | 88 |
| <i>Qitao Chen, Yufa Sun</i> | |
| A 123 GHz Wideband Patch Antenna with Parasitic Modified Mushroom Structures..... | 90 |
| <i>Hao Cheng, Gaobiao Xiao, Xiaocheng Wang</i> | |
| An Ultra-Wideband Microstrip Antenna Utilizing Aperture Coupled Feeding | 92 |
| <i>Jiaye Liang, Huamei Zhang, Zhenghao Yuan</i> | |
| A Wideband Dual Polarized Sinuous Antenna with Tapered Microstrip Balun Feeds | 94 |
| <i>Pi Chu, Ji Shi-Hao</i> | |
| A Metasurface-Based Broadband Circularly Polarized Microstrip Antenna at X-Band..... | 96 |
| <i>Zhi Xuan Zhang, Yi Feng Fan, Hao Yang Zhang, Yong Zhi Sun</i> | |
| A Low Profile Dual Polarized Bunny Ear Array Antenna | 98 |
| <i>Bochen Jia, Zhipeng Zhou</i> | |
| A Broadband Meta-Surface Solar Cell Antenna with 100% Insolation..... | 100 |
| <i>Zilin Qiao, Juliang Lv, Qian Chen, Jian Chen, Songlin Yan, Zhixiang Huang</i> | |
| A Fast Analysis Method Based on Characteristic Mode Method for Large Scale Array Structure | 102 |
| <i>Mingxuan Zhang, Chunlai Jia, Zi He, Zhaolong Li, Dazhi Ding</i> | |

| | |
|--|-----|
| Fast and Efficient Evaluation of Radome-Enclosed Antennas in Transmitting Mode by Modified Surface Integration | 104 |
| <i>Haiwen Ke, Mang He, Pengyuan Wang, Jingxin Xia</i> | |
| Hybrid MPI-OpenMP -VALU Parallelization to Accelerate the Solution of VSIE | 106 |
| <i>Pengyuan Wang, Mang He, Haiwen Ke</i> | |
| A Characteristic Mode-Based MoM/SBR Hybrid Method for Scattering Analysis of Array Structures Above a Rough Surface | 108 |
| <i>Jiancheng Fan, Chunlai Jia, Zi He, Gui Wang, Dazhi Ding</i> | |
| Two-Dimensional Scattering Center Extraction Algorithm Based on Continuous Dictionary | 110 |
| <i>Yi Jiang, Shengkai Sun, Zi He, Dazhi Ding</i> | |
| An Evaluation Method of Confidence Level Based on Hausdorff Distance | 112 |
| <i>Jiachen Shen, Huidong Huangfu, Xiaojun Meng, Sijin Xiong, Jiahua Zhang, Peng Zhang</i> | |
| An Ultra-Wideband and Wide Scanning Tightly Coupled Array with Metamaterial | 114 |
| <i>Yu Ze, Fan Hao, Chen Chang, Zhang Xiaolin</i> | |
| A Novel Design of Automotive Vehicle Radome | 116 |
| <i>Yuanyuan Zhang, Li Huang, Jinghu Sun, Tao Ban</i> | |
| Design of a 3-Bit Reconfigurable Meta-Surface Antenna for 5G Communication Application..... | 118 |
| <i>Jie Liang, Qiushi Li, Taolei Zhou, Shiyi Xiao</i> | |
| A Satellite-Borne Half Cylindrical Array Antenna..... | 120 |
| <i>Jia Fang, Hao Qin, Wei Guan</i> | |
| Subarray Rotation Technology for W-Band Aperiodic Sparse Phased Arrays | 122 |
| <i>Bin Li, Jinping Zhang, Ye Deng, Tianye Ma, Li Zhang</i> | |
| Wide Angle Scanning Millimeter Wave Array Antenna Based on Artificial Magnetic Conductor Surface with Layered Design | 124 |
| <i>Sihan Lv, Yuzhao Zhu, Yuqi He, Hui Yang, Luyu Zhao</i> | |
| Radiation Pattern Synthesis of Planar/Conformal Sparse Phased Array Using Subarray Technique | 126 |
| <i>Zheng Ma, Mang He</i> | |
| 2D-DOA Estimation Based on L-Shaped Arrays with Unknown Mutual Coupling Conditions | 128 |
| <i>Jia-Han Huang, Chun-Jie Zhang, Liang Tang</i> | |
| The Impact of Multi-Mode on the 5G NR RSRP Measurement Model | 130 |
| <i>Wang Hong, Li Bo, Li Sikai</i> | |
| Research on Numerical Calculation and Error Analysis of Corona Discharge Current Pulse | 132 |
| <i>Chenxu Zhang, Zhonghu Mao, Zedian Wang, Luqi Duan, Jianfeng Gu, Wanchun Tang</i> | |
| Study on Path Loss in Typical Indoor Environment for SHF Band..... | 134 |
| <i>Zhen Wang, Yuanjian Liu</i> | |
| Design of a UWB 64-Way Power Divider Based on Tapered Microstrip Line | 136 |
| <i>Guanghua Duan, Xinghe Nie, Jun Cao, Tianyang Yang, Yuxiang Ding, Wenrong Li, Shichun Huang</i> | |
| Adaptive Terahertz ISAR Phase Compensation Algorithm Based on Image Entropy..... | 138 |
| <i>Hetong Wang, Qi Yang, Bin Deng, Shaowei Yong, Hongqiang Wang</i> | |

| | |
|---|-----|
| Compressed Sensing Imaging Based on Microwave Frequency-Diverse Metamaterial Apertures..... | 140 |
| <i>Yufeng Liang, Jie Liang, Huanhuan Liu, Shiyi Xiao</i> | |
| Power Spectral Density Distribution Based GCN Construction for Through-The-Wall Target Detection | 142 |
| <i>Xiaolong Yang, Ting Tang, Jiawei Tu, Zhaoyu Li, Xinxing Tang</i> | |
| Measuring the Total Radiated Power of a LoRa Device in a Reverberation Chamber..... | 144 |
| <i>Xiaoyan Wang, Wenjun Qi, Chong Li, Lei Xing, Qian Xu</i> | |
| Electric Field Optimization in Multi-Physics Model of Drift Tube Ion Mobility Spectrometer | 146 |
| <i>Ziyi Fang, Mang He</i> | |
| Absorption Cross Section Measurements of Different Antenna Stands in a Reverberation Chamber | 148 |
| <i>Wenjun Xia, Rui Jia, Lifei Geng, Hao Guo, Lei Xing, Qian Xu</i> | |
| Prediction of Electromagnetic Radiation Level of Broadcast Antennas in Near- And Far-Field Zones | 150 |
| <i>Pengyuan Wang, Mang He</i> | |
| A Multipath Pairing Method Based on Matrix Pencil | 152 |
| <i>Xiaolong Yang, Quanchen Li, Qi Li, Mu Zhou, Yong Wang, Wei Nie</i> | |
| Indoor NLOS Localization Using Customized Active Reflectors..... | 154 |
| <i>Lin Zhang, Zengshan Tian, Kaikai Liu, Ze Li, Liangbo Xie</i> | |
| Influence of Varactor-Loading Manners on the Absorbing Performance of Active Metasurface | 156 |
| <i>Tong Li, Qi Li, Huanhuan Yang, Sijia Li, Lili Cong, Jia Lu, Zexu Guo, Xiangyu Cao</i> | |
| Design of a Broadband Switched Filter Bank Based on System in Package Technology | 158 |
| <i>Zhenghao Yuan, Tongsheng Zuo, Ren Rong Zhao, Chao Yu, Decai Zhang, Tingyu Jiang</i> | |
| Design and Implementation of Terahertz Detector | 160 |
| <i>Wei He, Weihua Yu, Xin Lv</i> | |
| Frequency Reconfigurable Planar Filtering Dipole Antenna with Omnidirectional Radiation Pattern | 162 |
| <i>Cong Yao, Jingfeng Li, Jin Xi Zhang, Xi Wang, Shu Han Liu, Chang Jiang You, Yuanwang Yang, Xueyong Zhu</i> | |
| Distributed Parameter Modeling for Coupled Striplines Based on Artificial Neural Network..... | 164 |
| <i>Qi Xiao, Min Tang, Zhiyuan Liu, Junfa Mao</i> | |
| A New Structure 0.3 THz Frequency Multiplier | 166 |
| <i>Tao Zhang, Bo Zhang</i> | |
| Terahertz Spoof Surface Plasmon Polaritons and Devices | 168 |
| <i>Yong Zhang, Hualiu Zhu, Yukun Li</i> | |
| Sum and Difference Beams Antenna Based on Odd-Even Mode Composite Waveguide | 170 |
| <i>Zhang-Biao Yang, Jianzhao Zhang, Dong-Fang Guan, Yangyi Chen, Zhixi Yang, Xin Ma</i> | |
| A Leaky-Wave Antenna with Wide-Beam Scanning Based on the Spoof Surface Plasmon Polaritons..... | 172 |
| <i>Guoteng An, Kanglin Wei, Longfang Ye</i> | |

| | |
|---|-----|
| Hybrid Spoof Surface Plasmon Polariton and Half-Mode Substrate Integrated Waveguide Bandpass Filter | 174 |
| <i>Hailong Yang, Yi Xiao, Xuping Li, Xueyan Song, Guirong Feng, Yunqi Zhang</i> | |
| Planar Bidirectional Dual-Sense Circularly Polarized Antenna with Adjustable Orthogonal Polarization Flared Angle | 176 |
| <i>Shan-Shan Gu, Heng Zhang, Zhi-Fang Wu, Meng-Li Zhao, Fei-Yan Ji, Wen-Jun Lu</i> | |
| Planar Spoof Surface Plasmon Polariton Waveguides, Circuits, and Antennas..... | 178 |
| <i>Longfang Ye</i> | |
| Bandpass Filter Based on Spoof Surface Plasmon Polaritons with Wide Stopband..... | 180 |
| <i>Shuangshuang Zhu, Yue Liu, Pin Wen</i> | |
| A Flexible Transmission Line of Spoof Surface Plasmon Polaritons at Microwave Frequencies | 182 |
| <i>Jiaxuan Wei, Weihan Li, Shizhao Gao, Wenxuan Tang</i> | |
| Low Pass Filter Based on Spoof Surface Plasmon Polaritons with Extremely Miniaturization..... | 184 |
| <i>Shuangshuang Zhu, Tian Jiang, Pin Wen</i> | |
| A Low-Profile Substrate Integrated Cavity Antenna Loaded with Periodic Irises in LTCC..... | 186 |
| <i>Binshan Zhao, Min Tang, Yaowei Hou, Yueping Zhang, Junfa Mao</i> | |
| Dual-Band Dual-Polarized Shared-Aperture Ku/Ka-Band Phased Array Antenna Using End-Fire Dipole Radiating Element | 188 |
| <i>Ai Hu Song, Yu Jian Cheng, Shi Yu Jia</i> | |
| A Microstrip Array Antenna with Low Cross-Polarization and Sidelobe Level Simultaneously | 190 |
| <i>Liangxin Xia, Shu-Kuan Zhao, Neng-Wu Liu, Guang Fu</i> | |
| Dual-Polarized OAM Beams Generation Using Huygens' Metasurface | 192 |
| <i>Huachen Zhao, Chunhua Xue, Xi Gao</i> | |
| A Reconfigurable 4-Bit Antenna Element for Beam-Scanning Application..... | 194 |
| <i>Zheng Xing Wang, Qiang Cheng, Tie Jun Cui</i> | |
| A Four Feeds Per Beam Method of Multibeam Reflector Antennas for HTS | 196 |
| <i>Liujie Lei, Jixiang Wan, Qi Gong, Fei Teng, Li Yu</i> | |
| Bidirectional Multi-Beam Transmit-Folded-Transmit Antenna Based on Polarization Rotating Metasurface | 198 |
| <i>Linfeng Zeng, Fan Qin, Hailin Zhang</i> | |
| A Frequency-Scanning Millimeter Wave Antenna Based on Phase Transforming of Slow-Wave Fin-Line..... | 200 |
| <i>Kun Wang, Yezhan Sun, Xianglin Gao, Qiuyi Zhang, Shunli Li</i> | |
| A Satellite Transponder Design to Support the Progressive Construction of Gateway Stations | 202 |
| <i>Jiangbo Xue, Jie He, Shang Ma</i> | |
| Database Protection Techniques for Electromagnetic Radiation Based on Machine Learning | 204 |
| <i>Xuan Cao, Bingchen Ge, Mengxue Li, Haipeng Wang, Jiuchun Ren</i> | |
| Ranging-Assisted Quantum Imaging Method Based on Coincidence Counting | 206 |
| <i>Changyin Ji, Mu Zhou, Yong Wang, Wei Nie, Jingyang Cao</i> | |

| | |
|--|-----|
| A Fast Dynamic Gesture Recognition Method Based on 3D Trajectory | 208 |
| <i>Wei He, Yong Wang, Mu Zhou, Liangbo Xie, Quan Long, Li Fu</i> | |
| Simulation and Experimental Verification of a Reverberation Chamber with Customized Dimensions | 210 |
| <i>Wenjun Qi, Wenjun Xia, Yongjiu Zhao, Lei Xing, Qian Xu</i> | |
| Design of a Lumbar Muscle Fatigue Monitoring System Based on Electrical Impedance Myography | 212 |
| <i>Xu Li, Jingting Shi, Yueming Gao, Pan Xu</i> | |
| Reconfigurable Stripline in Anechoic Chamber for Electromagnetic Compatibility Testing | 214 |
| <i>Yuhui Li, Hao Shen, Xiaoxing Yin, Xueqi Shen, Peng Peng, Hongxin Zhao, Shunli Li</i> | |
| A Notch Absorber Based on Frequency Selective Surface with Improvement of Ring Cross Structure | 216 |
| <i>Yaqi Jiang, Yalin Guan</i> | |
| A High-Efficiency Doherty Power Amplifier Design with Continuous Inverse Class-F..... | 218 |
| <i>Chunyu Wang, Guohu Deng, Zhenxin Cao</i> | |
| A 6–18 GHz GaAs Multifunction Transmitter and Receiver Chipset | 220 |
| <i>Xiao-Liang Wu, Jian-Bo Wang, Jian-Yu Ye, Guang Hua</i> | |
| Reflectionless Bandstop Filter Based on Suspended Microstrip Line..... | 222 |
| <i>Yi Miao, Jian-Kang Xiao</i> | |
| Antenna-in-Package Millimeter-Wave Sensor for Monitoring Heart Rate Variability | 224 |
| <i>Li Wen, Shuqin Dong, Changzhan Gu, Jun-Fa Mao</i> | |
| An Efficient Method of Two-Way PE Based on ANN for Solving Field Value in Obstacle Environment | 226 |
| <i>Anqi Li, Chengyou Yin, Qianqian Zhang, Shujie Shi</i> | |
| Influence of Time Scale of Lightning Discharge in Ionosphere | 228 |
| <i>Changfan Yang, Qiang Ren</i> | |
| Development of Broadband Spectrum Monitor..... | 230 |
| <i>Hailong Wang, Ling Tian, Xiaokang Wang, Chen Yang, Minyu Yan</i> | |
| High-Selectivity Filtering Phase Shifter with Multiple Transmission Zeros | 232 |
| <i>Qun Li, Guokai Xu, Shaoqiu Xiao</i> | |
| A Broadband Four-Way Waveguide In-Phase Power Divider with High Port-Port Isolation..... | 234 |
| <i>Pu Deng, Bo Zhang</i> | |
| Balanced Bandpass Filter with Reconfigurable Frequency and Bandwidth Based on Multi-Mode Resonator..... | 236 |
| <i>Zhuofan Jiao, Jingfeng Li, Ruiyi Guan, Jinxi Zhang, Changjiang You, Zhiguo Wang, Guangqiang Yin</i> | |
| A Low-Profile Quadrifilar Helix Antenna for Beidou Navigation System..... | 238 |
| <i>Jiahong Wang, Junwei Qi, Yingsong Li</i> | |
| Compact Rotman Lens Design Using Klopfenstein Taper Lines | 240 |
| <i>Ravi Kumar Arya, Aswin Chowdary Undavalli, Abhishek Anand, Ayush Yadav, Vishnu Kumar, Junwei Dong, Raj Mittra</i> | |

| | |
|---|-----|
| An Ultra-Wideband and Wide-Angle Absorber Based on Tightly Coupled Dipole Array | 242 |
| <i>Shengchi Zhu, Huaimin Zhou, Xin Quan, Zhenxin Cao</i> | |
| Terahertz Chiral Metasurface for Independent Control of Dual-Band Spin-Selective Absorption..... | 244 |
| <i>Yue Gou, Hui Feng Ma</i> | |
| A SIW Fed High-Gain Metal Cavity Millimeter Antenna | 246 |
| <i>Songlin Yan, Cao Qu, Jianhua Liu, Qian Chen</i> | |
| An Efficient Topology Optimization Strategy Based on the Combination of GA and SIMP | 248 |
| <i>Lan-Lan Wang, Xue-Song Yang, Jian Wang</i> | |
| Design of a Low-Profile Omnidirectional Dipole Antenna with Filtering Function | 250 |
| <i>Zihui Zhang, Hongfei Yu, Caitao Hui, Yongchang Jiao</i> | |
| A Compact Wideband Dielectric Resonator Antenna with Filtering Response | 252 |
| <i>Dian Liu, Li Zhang, Cai-Tao Hui, Yu-Da Sun</i> | |
| High Gain and Low RCS Huygens' Metasurface Lens Antenna | 254 |
| <i>Chunzi Tang, Liangliang Liu, Shuying Li, Liyang Zhang, Yuying Jiang, Yuan Feng, Guodong Han, Changqing Gu, Zhuo Li, Zhengzhi Luo</i> | |
| Obtaining Antenna Array with Enhanced Gain Using Dielectric Lens | 256 |
| <i>Mengyu Zhang, Juan Liu, Shengying Liu, Tianliang Yu</i> | |
| Design of a Dual Band Feed Antenna with Large Frequency Ratio | 258 |
| <i>Zihao Liu, Xiaohe Cheng, Qi Li, Linshuai Hu, Yaohui Yang, Yuan Yao</i> | |
| A Design Method of Reconfigurable Single-Layer Reflective Orbital Angular Momentum Antenna | 260 |
| <i>Huanhuan Lv, Xiaopeng Lu, Jinlin Liu, Zicheng Zhou</i> | |
| Planar Metallic Lens with a Novel Type of “Strip Combination” Element Structure | 262 |
| <i>Jinlin Liu, Xiaolin Zhang, Huanhuan Lv, Peng Li</i> | |
| A Design of Low Profile Broadband Discone Antenna..... | 264 |
| <i>Huihu Zhu, Hongjun Nie, Guangchi Xie, Jiawei Qian, Baijie Xu, Peng Yang</i> | |
| Design of Step-Shaped Dielectric Resonator Antenna Element | 266 |
| <i>Sun Sibo</i> | |
| A Dual-Linear Polarized Ultrawideband TCDA with Low-Profile | 268 |
| <i>Lichao Wang, Lu Zhuang, Jun Ouyang</i> | |
| Effect of Auxiliary Antenna Distance on Sidelobe Canceller..... | 270 |
| <i>Zhimeng Zhang, Zhenhai Xu, Hui Zeng</i> | |
| A Simple Irregular Phased Array Method for Base-Station Beam-Scanning Applications | 272 |
| <i>Shuqia Ma, Wanchen Yang, Wenjie Feng, Wenquan Che, Quan Xue</i> | |
| Creation of a Sub-Diffraction Limit 3D Focal Spot Array | 274 |
| <i>Jing Tian, Yanzhong Yu, Zhixiong Xie, Mingxiang Wu</i> | |
| A Tunable Bandpass Frequency Selective Surface..... | 276 |
| <i>Juliang Lv, Zilin Qiao, Qian Chen, Jian Chen, Songlin Yan, Zhixiang Huang</i> | |

| | |
|--|-----|
| A Dual Polarization Optical Transparent Antenna for 5G Communication Application | 278 |
| <i>Te Shao, Yonglei Liu, Lei Sun, Yong Xu, Shengwei Kong, Shuiping Liu, Bin Xia, Mingding Li, Nan Shen, Shen Tian</i> | |
| Beam-Steering Transmitarray Based on 180° Reconfigurable Element | 280 |
| <i>Zhan Hong Wang, Jun Wei Wu, Zheng Xing Wang</i> | |
| Patch Array with High Mutual Coupling Reduction Using π -Shaped Structure and Coplanar Ground..... | 282 |
| <i>Xin Geng, Kai Xu, Jin Shi</i> | |
| Effect of Phase Variation of Calibration Network on Array Performance at Low Temperature..... | 284 |
| <i>Peng Li, Xiaolin Zhang, Jinlin Liu, Bangjun Che</i> | |
| Design of Phased Array Feed for Reflector Antenna..... | 286 |
| <i>Kai Wang, Hao Yan, Liang Cao</i> | |
| Joint Range, Elevation, and Azimuth Estimation for 77 GHz FMCW Radar with a Rectangular Array..... | 288 |
| <i>Jing Qi, Yu Zhang, Guangzhi Xie, Xiang Yu</i> | |
| Radar Forward-Looking Imaging Method for Complex Targets Based on L1-Regularized Least Squares | 290 |
| <i>Qingping Liu, Yongqiang Cheng, Kang Liu, Hongqiang Wang</i> | |
| DOA Estimation of Coherent Signals Based on Noise Subspace Reconstruction | 292 |
| <i>Ken Long, Guifang Zhao, Yangzhou Mei, Jinsong Lin, Yunhong Zhou</i> | |
| Robust Adaptive Beamforming with Null Broadening Based on Projection Transformation and Constraint Matrix Reconstruction | 294 |
| <i>Ziling Chen, Wenxing Li</i> | |
| Pix2Pix-Based DOA Estimation with Low SNR..... | 296 |
| <i>Xianglin Cao, Fuwei Wang, Bobo Yi, Zhoupeng Wei, Lu Liu</i> | |
| A Broadband 195-245GHz AMC Embedded On-Chip Antenna Based on InP Substrate | 298 |
| <i>Xinyue Wang, Yao Li, Gang Gao, Weihua Yu</i> | |
| A W-Band Fully-Integrated Phased Array Based on the Organic HDI Substrate | 300 |
| <i>X. Xin, L. Wang, S. J. Wang, J. Liu</i> | |
| A Novel Polarization Tracker for Satellite Communication Based on Septum Polarizer | 302 |
| <i>Xuejian Jiang, Zhengbin Xu</i> | |
| An Algorithm of Modulated Signal Recognition Based on Statistical Parameters..... | 304 |
| <i>Yang Liu, Dalong Xu, Wenwen Xu, Hao Wang, Xiang Li, Liang Qi</i> | |
| Design and Implementation of LFMCW Radar Target Detection System Based on Zynq | 306 |
| <i>Mingbo Tang, Dalong Xu, Wenwen Xu, Hao Wang, Xiang Li, Liang Qi</i> | |
| UAV Indoor Localization Using 3D Laser Radar..... | 308 |
| <i>Huaizhi Wen, Wei Nie, Xiaolong Yang, Mu Zhou</i> | |
| A Parallel Carrier Synchronization Structure for High-Speed Communication System | 310 |
| <i>Ying Wang, Juan Liu, Changxing Lin, Xianjin Deng</i> | |

| | |
|--|-----|
| Orthogonal Waveform-Based Electromagnetic Vortex Generation and Analysis..... | 312 |
| <i>Rongrong Mao, Kang Liu, Huaitie Xiao, Hongyan Liu</i> | |
| Micro-Doppler Parameter Estimation Based on Short-Time Parametric Sparse Representation | 314 |
| <i>Yang Yang, Yongqiang Cheng</i> | |
| A Single-Notched UWB Bandpass Filter Using a Ring Resonator Loaded Transmission Line | 316 |
| <i>Guangyong Wei, Yunxiu Wang, Jie Liu</i> | |
| A Digital Representation Method for Nonlinear Model of a Receiver | 318 |
| <i>Jun Xing, Mingqiang Bai, Biao Sun, Chengcheng Xie, Zhengzheng Yang, Changyou Li</i> | |
| RF Filter Classification and Identification Based on Fingerprint Feature | 320 |
| <i>Qifei Dai, Wei Nie, Mu Zhou</i> | |
| Generating Orbital Angular Momentum (OAM) Beam with Continuously Tunable Operating Frequency/Topological Charge Without Phase-Shifter..... | 322 |
| <i>Xiangguo Meng, Xiaona Li, Yuliang Zhou, Haiyan Jin</i> | |
| A Checkerboard Pattern-Coded Absorber Based on RCS Reduction | 324 |
| <i>Yanpei Guo, Guiyang Liu, Senfeng Lai</i> | |
| RCS Reduction Using 2-Bit Coding Metasurface with Anisotropic Unit Cell and Random Phase Distribuin..... | 326 |
| <i>Mustafa K. Taher Al-Nuaimi, Guan-Long Huang</i> | |
| Low RCS Shallow Cavity Design for Antenna Placement..... | 328 |
| <i>Guangchi Xie, Minhuan Chen, Huihu Zhu, Baijie Xu, Jiawei Qian, Peng Yang</i> | |
| An Angle Insensitive Chipless Tag Using Frequency Domain and Polarization Coding | 330 |
| <i>Sen Li, Yijia Tian, Lu Zhuang, Jun Ouyang</i> | |
| Research of GaN HEMT Against High-Power Microwave Radiation | 332 |
| <i>Xinxing Fei, Yong Wang, Biao Sun, Zhan Wang</i> | |
| Passive Human Tracking Based on IMM Kalman Filter Using WiFi Signal | 334 |
| <i>Xuan Zuo, Zengshan Tian, Yue Jin, Ze Li, Mu Zhou</i> | |
| A Phase Error Elimination Method in Asynchronous Communication System | 336 |
| <i>Jie Xu, Zengshan Tian, Kaikai Liu, Ze Li, Zhaoyu Li</i> | |
| A Metamaterial-Based Absorptive Reflector Improved Angular Stability | 338 |
| <i>Hongtao Zhong, Jifei Zou, Li Ye, Pu Tang, Jing Tian</i> | |
| Dual-Frequency Dual-Polarized Folded Metasurface for Bessel Beam Based on Time Reversal | 340 |
| <i>Hui-Fen Huang, Hong-Ming Huang</i> | |
| A Low-Profile Spin-Decoupled Multifunctional Transmissive OAM Metasurface with Reconfigurable | 342 |
| <i>Hui-Fen Huang, Jun-Jie Ye</i> | |
| Non-Conformal Domain Decomposition Method for Thermal Analysis of Integrated Packages | 344 |
| <i>Xiaodi Zhang, Min Tang</i> | |
| Low-Loss Through Silicon Vias (TSVs) for RF System 3D Integration..... | 346 |
| <i>Xinxing Fei, Yong Wang, Wei Wei</i> | |

| | |
|---|-----|
| Compact Dual-Band Bandpass Filter with Open Stub Loaded Resonator Using Substrate Integrated Suspended Line Technology..... | 348 |
| <i>Cai-Tao Hui, Zheng Zhang, Zi-Hui Zhang, Dian Liu</i> | |
| Design of E-Band High-Isolation and Low-Loss Diplexer | 350 |
| <i>Tao Xiu, Yuan Yao, Zihao Liu, Junsheng Yu, Xiaodong Chen</i> | |
| A 2.5 Watt 2.6 GHz HBT Power Amplifier Using Transformer-Based Matching Networks | 352 |
| <i>Lin Peng, Jing Yan, Yuhua Guan, Dandan Yuan, Gary Zhang</i> | |
| Piezoelectric-Thermal Co-Simulation of Bulk Acoustic Wave Devices..... | 354 |
| <i>Hongyu Bai, Min Tang, Junfa Mao</i> | |
| A Compound THz Meta-Surface Absorber with Polarization Insensitivity and Angular Stability..... | 356 |
| <i>Kai Wang, Hailiang Zhu, Ganyu Liu, Jinchao Mou, Pei Zheng, Gao Wei</i> | |
| Design of G-Band Radial Power Combiner | 358 |
| <i>Yang Xiong, Nai-Chang Pei</i> | |
| Compact Omnidirectional Circularly Polarized Antenna Realized by a Parallel ME-Dipole Pair | 360 |
| <i>Zeng-Pei Zhong, Cheng Chen, Ying-Xin Lai, Shan-Jin Wang, Tao Yuan</i> | |
| An Ultra-Wideband Antenna Based on Co-Planar Waveguide Feeding | 362 |
| <i>Xian-Jing Lin, Geng-Tao Huang, Shan-Jin Wang, Miao-Wang Zeng, Yan-Yu Ding</i> | |
| Circularly Polarized Broadband Patch Antenna with H-Shaped Metal Sheet Feeding..... | 364 |
| <i>Xian-Jing Lin, Yan-Bin Zhang, Shan-Jin Wang, Miao-Wang Zeng, Yan-Yu Ding</i> | |
| A Novel C-Band High Conversion Efficiency Large Power Rectifier | 366 |
| <i>An Yan, Shanjin Wang, Yingxin Lai, Cheng Chen</i> | |
| Design of a High Conversion Efficiency L-Band Rectenna | 368 |
| <i>An Yan, Shanjin Wang, Yingxin Lai</i> | |
| High Efficiency Dual-Band Fabry-Perot Cavity Antenna Based on All-Metal Metasurface..... | 370 |
| <i>Jiakang Rao, Cheng Chen, Shanjin Wang, Shan Meng, An Yan</i> | |
| No Vias Mode-Selective Transmission Line | 372 |
| <i>Tingting Xie, Xiaohe Cheng, Yuan Yao, Tao Xiu, Yaohui Yang, Ting Zhang, Junsheng Yu, Xiaodong Chen</i> | |
| QR-Coded Metasurfaces for RCS Reduction: Theory and Realization at Microwave and mmWave: (Invited Paper)..... | 374 |
| <i>Mustafa K. Taher Al-Nuaimi, Guan-Long Huang</i> | |
| Terahertz OAM Multiplexing Based on Ultrathin Dual-Polarized Huygens' Metasurface..... | 376 |
| <i>Nan Li, Shilie Zheng, Tong He, Hang Yang, Donghui Shen, Xianbin Yu</i> | |
| A Single-Layer Wideband Reflectarray Antenna with Novel Hybrid Elements..... | 378 |
| <i>Jiamei Qin, Min Wang, Aixin Chen</i> | |
| Compact and Wideband Fabry-Perot Cavity Antenna Using Single Partially Reflective Surface | 380 |
| <i>Min Wang, Jiamei Qin, Aixin Chen</i> | |
| Design of Planar Wide-Beam Array Antenna Based Equivalent Complementary Sources Radiation..... | 382 |
| <i>Kai Sun, Lingxiao Wang, Chunyi Gao, Sihao Liu, Deqiang Yang</i> | |

| | |
|--|-----|
| Generation of High-Gain High-Focus Dual-Mode OAM Beams Using a Four-Feed Patch Antenna Based on a Metalens..... | 384 |
| <i>Yuhan Huang, Fan Lu, Nan Dong, Zhijia Liu, Xiangni Zhao, Yang Si, Liangjie Qiu, Xiuping Li</i> | |
| A 19×19 Screen Printed Flexible Membrane Reflectarray Based on 1-Bit Metasurface..... | 386 |
| <i>Ziheng Ren, Hantao Xu, Guanchao Chen, Yufei Fu, Liang Ding, Dong-Fang Guan</i> | |
| Design of a High-Gain Dual-Band Magneto-Electric Dipole Antenna | 388 |
| <i>Cangcang Wang, Feng Shang</i> | |
| 1-Bit Dual-Polarized Ultrathin Huygens' Transmitarray Antenna..... | 390 |
| <i>Qingqi He, Chunhua Xue, Xi Gao</i> | |
| The Weakly Conditionally Stable HIE-FDTD Method Including Lumped Networks | 392 |
| <i>Hong-Tao Fang, Yong-Dan Kong</i> | |
| A Low-Cost and Low-Power 2.4 GHz Wake-Up Receiver | 394 |
| <i>Bobo Yi, Fuwei Wang, Chao Huang, Xianglin Cao, Ke Li</i> | |
| A Decimeter-Level Positioning Method Based on UWB for Navigations in Large Indoor Scenarios | 396 |
| <i>Hongze Yang, Sheng Liu, Xuying Xu, Qianen He</i> | |
| Entangled Quantum Detection Based on Constant False Alarm Rate Model..... | 398 |
| <i>Qian Wang, Mu Zhou, Yong Wang, Liangbo Xie</i> | |
| Cost-Efficient Entangled Light Quantum Imaging Based on Compressed Sensing..... | 400 |
| <i>Zhongyin Hu, Mu Zhou, Wei Nie, Xiaolong Yang, Jingyang Cao</i> | |
| A High Isolation Dual-Linearly Polarized Ultra Thin Transparent Patch Antenna with Metal Mesh for Wearable Glasses | 402 |
| <i>Lina Ma, Changzhan Gu, Junfa Mao</i> | |
| Wideband Radar Variable Scale Processing: Coherent Integration, Diversity Detection and Reconstruction Imaging..... | 404 |
| <i>Tingkun Lu, Feng He</i> | |
| A Compact Commercialization-Aimed 120 GHz Radar Module for Vital Sign Detection | 406 |
| <i>Wogong Zhang, Nannan Li, Dongsheng Wang, Jialin Yao, Lulu Wang, Weipeng Li, Mengmei Li, Wolfgang Winkler, Jinzhong Yu, Erich Kasper</i> | |
| An ISSA-SVM-Based Approach for Identifying the Radar Working State of Non-Cooperator..... | 408 |
| <i>Tong Zhao, Wenxu Zhang</i> | |
| Tunable Multiband Analogue of Electromagnetically Induced Transparency in Metamaterials | 410 |
| <i>R. X Ning, Y. F Zhang, S. B Liu</i> | |
| A Wideband Circularly Polarized Unit Cell for Ka-Band Transmitarray Antennas | 412 |
| <i>Xin Dai</i> | |
| A 39 GHz Antenna-In-Package Design Based on Multi-Layer Liquid-Crystal Polymer for 5G Applications..... | 414 |
| <i>Zhi-Xia Du, Bintao Tang, Chunbing Guo, Bo Sun, Sha Xu, Gary Zhang</i> | |

| | |
|--|-----|
| A Patch Antenna Based on Filtering Feed Structure with Cross-Polarization Suppression..... | 418 |
| <i>Zhi-Tao Du, Xuan Yi, Kai-Xu Wang</i> | |
| A Wideband Air-Filled Slot Antenna for Millimeter-Wave Applications | 420 |
| <i>Riyao Guo, Qing-Yi Guo, Lei Ge, Wenlong He</i> | |
| A 220-GHz Third Harmonic Mixer Design Based on Finline | 422 |
| <i>Xiaojie Xie, Bo Zhang, Zhongqian Niu</i> | |
| A 3D Non-Stationary THz Channel Model for Indoor Communications | 424 |
| <i>Hui Li, Weimin Wang, Yongle Wu, Yuan Liu</i> | |
| A Wideband Filtering Coupler Based on LCP Suspended Coplanar Waveguide | 426 |
| <i>Ruo-Nan Shi, Jian-Kang Xiao</i> | |
| Indoor Localization Based on Semi-Tensor Product Compression Sensing..... | 428 |
| <i>Xin Lan, Qiaolin Pu, Mu Zhou, Xiaolong Yang, Youkun Chen, Quan Long, Li Fu</i> | |
| Ultra-Wideband Asymmetric Transmission Based on Chiral Metamaterials | 430 |
| <i>Jun Xia, Chen Xi Huang, Jingjing Zhang, Tie Jun Cui</i> | |
| Miniaturized Reflection-Type Metasurface for Generating High-Purity Vortex Beams..... | 432 |
| <i>Xinbo Chen, Weiwen Li, Jianyang Zhou</i> | |
| A Broadband Transmissive Linear-to-Circular Polarization Converter Based on Metasurfaces..... | 434 |
| <i>Ang Dong, Xueyan Song, Xuping Li</i> | |
| A Low Profile Dual Band Dual-Polarization Shared-Aperture Base Station Antenna | 436 |
| <i>Zhi-Xi Meng, Qing-Xin Chu</i> | |
| Stable and Fast Method for Solving Bistatic RCS of Three-Dimensional Objects | 438 |
| <i>Yalan Gao, Pan Wang, Panpan Fu, Sheng Wang</i> | |
| A Linear Sampling Imaging Scheme Based on Convolutional Neural Network..... | 440 |
| <i>Qianqian Zhang, Chengyou Yin, Anqi Li, Shujie Shi</i> | |
| A Novel Passive Millimeter-Wave Local Encryption Algorithm Research..... | 442 |
| <i>Fengchen Xu, Chuan Yin, Haochen Zhu, Pengpeng Xu</i> | |
| Performance Compensation Method for Spaceborne Active Phased Array Antennas Under Thermal Loads | 444 |
| <i>Rong Yu, Pengying Xu, Xing Yang, Guangda Chen, Longyang Wang, Congsi Wang, Zhihai Wang, Wenzhi Wu, Kunpeng Yu, Guojun Leng, Meng Wang, Yan Wang</i> | |
| A Low-Cost Vortex Electromagnetic Wave Generation Method with Beam Steering and Topological Charge Tunability | 446 |
| <i>Kaiyuan Yao, Yuliang Zhou, Xiaona Li, Haiyan Jin</i> | |
| The Design of a Wide Bandwidth Tightly Coupled Array Antenna | 448 |
| <i>Feng-Si Xie, Li-Li Sheng, Guo Liu, Wei-Ping Cao</i> | |
| Indoor RFID Localization Algorithm Based on WOA..... | 450 |
| <i>Yuyang Li, Liangbo Xie, Yong Wang, Mu Zhou, Wei Nie, Chenhui Xia</i> | |
| Leveraging 3D Multipath Projection in Indoor Localization System with a Single Access Point | 452 |
| <i>Chenglin Huang, Wei He, Zengshan Tian, Kaikai Liu</i> | |

| | |
|--|-----|
| A Frequency Hopping Phase-Based Indoor Tracking System Using Particle Filter for Passive RFID Tags | 454 |
| <i>Chenhui Xia, Liangbo Xie, Mu Zhou, Yong Wang, Wei Nie, Yuyang Li</i> | |
| Single Base Station Massive MIMO Fingerprint Location Based on GAN | 456 |
| <i>Ken Long, Yangzhou Mei, Guifang Zhao, Jinsong Lin, Yunhong Zhou</i> | |
| High-Precision Phase-Based Ranging Algorithm in Multipath Environments..... | 458 |
| <i>Xin Wang, Zengshan Tian, Ze Li, Kaikai Liu, Liangbo Xie</i> | |
| DOA-Based 3-D Positioning Algorithm for Single-Station in NLOS Environment | 460 |
| <i>Yukun Zhang, Liangbo Xie, Yong Wang, Wei Nie, Mu Zhou</i> | |
| Indoor Wi-Fi Localization Based on CNN Feature Fusion Network..... | 462 |
| <i>Youkun Chen, Qiaolin Pu, Mu Zhou, Xiaolong Yang, Xin Lan, Quan Long, Li Fu</i> | |
| Multi-Hand Gesture Separation and Recognition Using Millimeter-Wave Radar..... | 464 |
| <i>Di Wang, Yong Wang, Mu Zhou, Liangbo Xie</i> | |
| Millimeter-Wave Radar Ranging Based on CEEMDAN with SVD..... | 466 |
| <i>Heng Liu, Yong Wang, Mu Zhou, Liangbo Xie, Quan Long, Li Fu</i> | |
| A Compact Chipless RFID Tag Sensor for Humidity Monitoring..... | 468 |
| <i>Lu Yi Liu, Lan Chen, Mei Song Tong</i> | |
| A Low-RCS Holographic Metasurface Antenna Based on Transmissive/absorptive Metasurface..... | 470 |
| <i>Zhengzhi Luo, Liangliang Liu, Yuying Jiang, Shuying Li, Chunzi Tang, Guodong Han, Changqing Gu, Zhuo Li</i> | |
| A Novel Multiband Patch Antenna Based on Mandelbrot Fractal..... | 472 |
| <i>Xiao Yan Li, Yuan Chu Xu, Mei Song Tong</i> | |
| Design of a Dual-Band Dual-Polarized Shared-Aperture Antenna Based on Structure Reuse..... | 474 |
| <i>Xiaocheng Wang, Gaobiao Xiao, Hao Cheng</i> | |
| Single Panel Adjustment Method of Reflective Surface Antenna Based on Convolutional Neural Network..... | 476 |
| <i>Shang Shi, You Ban</i> | |
| Simulation Method of Active Adjustment of Large Reflector Antenna Based on Simplified Actuators | 478 |
| <i>You Ban, Peiyuan Chai</i> | |
| Research and Analysis of Antenna Wheel-Rail Surface Defect Detection Based on Electromagnetic Ultrasonic Method..... | 480 |
| <i>Cong Jin, You Ban</i> | |
| Design of a 229 GHz Freestanding Double Layer FSS for Quasi-Optical Networks..... | 482 |
| <i>Fei Teng, Jixiang Wan, Jia Liu, Liujie Lei, Li Yu</i> | |
| Reflection-Type Metasurface for Generating Two Orbital Angular Momentum Modes Based on Orthogonal Polarization..... | 484 |
| <i>Sen Li, Yang Cai, Yufan Cao, Hong Ma, Tao Wu, Shuo Chang</i> | |
| A Ka-Band Broadband Reflectarray for 5G Applications | 486 |
| <i>Quan Wang, Bang Jun Che, Li Wei Zhang, Peng Li, Mou Ping Jin</i> | |

| | |
|--|-----|
| A Design Method of the 3-D-Printed Luneburg Lens Antenna | 488 |
| <i>Mingqian Wang, Zesen Liao, Jingfeng Chen, Xiaonan Zhao, Ronghong Jin</i> | |
| A Compact Planar UWB Antenna with Five Band-Notched Characteristics | 490 |
| <i>Zitong Zhao, Chao Zhang, Zhonghao Lu, Gaosheng Li</i> | |
| Dual Frequency and Dual Polarization Fabry-Perot Resonant Cavity Antenna | 492 |
| <i>Kai Xu, Yongchang Jiao</i> | |
| An X-Band Dual Polarization Broadband Reflect-Array | 494 |
| <i>Kaiyang Kang, Ziyang Wang, Xinyu Xue, Weizhao Guo, Donglin Su</i> | |
| Design of Ultra-Broadband 3-DB 90° Directional Coupler | 496 |
| <i>Yiming Zhang, Xiaodong Zheng, Tingting Zhang</i> | |
| Design of a Low-Cost Broadband Miniaturized Sleeve Loaded Monopole Antenna..... | 498 |
| <i>Ji-Yuan Zhao, Wei-Ping Cao, Lu-Cong Lu</i> | |
| Design of a Broadband Directional Monopole End-Fire Antenna..... | 500 |
| <i>Jian Zhou, Wei-Ping Cao, Lu-Cong Lu</i> | |
| A Coding Reflective Metasurface for Multi-Beam Antenna Application..... | 502 |
| <i>Liping Li, Lili Sheng, Weiping Cao</i> | |
| Reflective 1-Bit Coding Metasurface for Beam Switching..... | 504 |
| <i>Yang-Yang Li, Li-Li Sheng, Wei-Ping Cao</i> | |
| Diagonally Correlation Matrix for MIMO Systems with Increased Antenna Amount..... | 506 |
| <i>W. T. Hua, Z. Y. Mei, X. Liu, M. Xu, L. Hai</i> | |
| Sparse Conformal Array Synthesis Based on Multiagent Genetic Algorithm | 508 |
| <i>Ganyu Liu, Hailiang Zhu, Kai Wang, Jinchao Mou, Pei Zheng, Gao Wei</i> | |
| Analysis of Transmission Characteristics on FSK-Based Rotating-Magnet Based Mechanical Antenna | 510 |
| <i>Qiang Zhou, Jianya Zhang, Xie He</i> | |
| Magneto- Electric Dipole Antenna Array with Asymmetrical Beam Patterns at 26 GHz | 512 |
| <i>Yinxue Zhao, Xiao-Wei Zhu</i> | |
| Gain Enhancement of Millimeter-Wave On-Chip Antenna Through Low-Cost Packaging Technology | 514 |
| <i>Yanjun Wang, Xiang Yi, Jinxu Xu, Beixiong Zheng, Wenquan Che, Quan Xue</i> | |
| K-Nearest Neighbor Algorithm Method for Phased Array Calibration | 516 |
| <i>Ling-Xiao Wang, Xin-Yang, Bang-Rui Zhu, Bo-Wen Cheng, De-Qiang Yang</i> | |
| A Fast Ray Tracing Algorithm for Urban Areas | 518 |
| <i>Keyi Long, Weimin Wang, Yongle Wu, Yuanan Liu</i> | |
| Entangled Light Quantum Imaging for Target Recognition Based on Denoising RestoreGAN..... | 520 |
| <i>Huishi Xia, Yong Wang, Mu Zhou, Wei Nie, Quan Long, Li Fu</i> | |
| Differential Isolated Integrated Analog Front-End Circuit for Conductive Intracardiac Communication | 522 |
| <i>Tao Liu, Chengfeng Wu, Yueming Gao</i> | |

| | |
|---|-----|
| Impedance Matching Method for Magnetic Resonance Coupling Human Body Communication..... <i>Yupei Zheng, Ziliang Wei, Hongli Yan, Lixuan Huang, Yueming Gao</i> | 524 |
| Design of a Chipless Sensor System for Continuous Intraocular Pressure Monitoring..... <i>Qi Yang, Lu-Yang Sun, Jun-Lin Zhan, Cong Ding, Hao Chen, Zhen-Guo Liu, Wei-Bing Lu</i> | 526 |
| A High-Resolution Entangled Quantum Imaging Method Based on Elamassie Underwater Weak-Turbulence Environment <i>Jingyang Cao, Wie Nie, Mu Zhou, Zhongyin Hu</i> | 528 |
| Application of Time-Domain Electric Field Distribution in Switchgear Based on LOLA-Voronoi and Curvelet Transform..... <i>Zedian Wang, Luqi Duan, Chenxu Zhang, Zhonghu Mao, Jianfeng Gu, Wanchun Tang</i> | 530 |
| Design of Phase Gradient Metasurface for Broadband RCS Reduction..... <i>Weinan Zhang, Feng Lin, Yiqun Feng, Yang Wang, Muying Tan</i> | 532 |
| Structure Design and Simulation of a High Performance Double-Layer Shielding Box..... <i>Wang Yang, Hu Maozhen, Liu Qi, Jiao Zhenpeng, Shen Yangxin, Tang Jing</i> | 534 |
| Respiratory Monitoring Method Based on Pharynx Impedance Measurements..... <i>Yanyan Liu, Hongli Yan, Wei Ma, Yueming Gao</i> | 536 |
| A Personal Identification Method Based on Surface Electromyography..... <i>Xudong Yang, Jingwen Ye, Pan Xu, Yueming Gao</i> | 538 |
| 360° Phase Control at High Transmission with Huygens' metasurface..... <i>Yuxiang Wang, Xiaojun Huang</i> | 540 |
| Automatic Mesh Refinement with Multi-Branch RWG Basis Functions..... <i>Ziwei Li, Xinlei Chen, Guiyue Yu, Fan Gao, Changqing Gu</i> | 542 |
| Design of High Efficiency X-Band Power Amplifier Based on GaN HEMT <i>Di Tao, Yifeng Lu, Xiaohui Mo, Qingyu Guo, Jinfeng Zhu</i> | 544 |
| An Ultra-Wideband Power Amplifier Designed with Gain Flatness and Small Size <i>Xiaohui Mo, Yifeng Lu, Di Tao, Qingyu Guo, Jianyang Zhou</i> | 546 |
| A Miniaturized Isolator Based on Lumped Elements..... <i>Ren-Jie Li, Lei Liu, Zheng-Bin Wang, Jun-Ma Zhang</i> | 548 |
| The Design of Ultra-Broadband Gap Waveguide Structure for Terahertz Wave Transmission <i>Ting Zhang, Fushun Nian, Shunli Han, Mo Wang, Dinghong Jia, Yaohui Yang, Jinpeng Yang</i> | 550 |
| Design of a 340 GHz GaN-Based Frequency Doubler with High Output Power..... <i>Yiyuan Zheng, Kai Zhang, Kunpeng Dai, Yuechan Kong, Gang Lin, Tangsheng Chen</i> | 552 |
| An Ultrathin Orthogonally Polarized Transmitarray/Reflectarray Bi-Functional Antenna <i>Yingxiang Xiong, Chunhua Xue, Jingsi Li, Xi Gao</i> | 554 |
| Design of Spaceborne Multibeam Antenna Feed Assembly with User/Gateway/Tracking Function..... <i>Ding Wei, Tao Xiao, Ye Wenxi, Wan Jixiang</i> | 556 |
| A Novel Circular-Polarized Helical Antenna at UHF Bands for Satellite Communication Applications..... <i>Long Zhang, Jin-Wen Shi, Wei-Bing Zhang, Jian Hou</i> | 558 |

| | |
|---|-----|
| Time-Domain Analysis on Pulse Radiation Properties of Antennas Based on Goubau Line and Spoof Surface Plasmon Polariton | 560 |
| <i>Jiacheng Yu, Jinlun Li, Shunli Li, Hongxin Zhao, Xiaoxing Yin</i> | |
| Performance Analysis of Flat-Topped Beam Array for Millimeter Wave Application | 562 |
| <i>Yan Zhang, Qianshuai Li, Liangfa Liao</i> | |
| Design of Cross Resonator with a Slot for Improving Matching and Isolation on Two Antennas Array..... | 564 |
| <i>Shun Li, Qing-Xin Chu</i> | |
| A Special-Shaped Millimeter-Wave Circularly-Polarized Dielectric Resonator Antenna | 566 |
| <i>Jin-Feng Gan, Wu-Sheng Ji, Li-Ying Feng, Cheng-Guang Sun, Lin-Lin Cheng</i> | |
| Coupled Microstrip Patch Antennas | 568 |
| <i>Zijian Shao, Yueping Zhang</i> | |
| A Broadband Circularly Polarized Patch Antenna Using Characteristic Mode Analysis | 570 |
| <i>Zhi-Jie Tu, Yong-Dan Kong</i> | |
| Broadband Omnidirectional Circularly Polarized Antenna with High Gain | 572 |
| <i>Jiawen Xu, Hui Li, Qiang Chen</i> | |
| Ultra-Compact Omnidirectional Multiband Antenna for Railway Application..... | 574 |
| <i>Zengrui Duan, Qimin Sun, Dong Wang, Zhaodong Gao</i> | |
| Circularly Polarized Single-Ended Dipole-Like Antenna for IoT Applications | 576 |
| <i>Tianqi Ao, Yuandan Dong</i> | |
| Propagation Characteristics Analysis of Air-Sea-Rock Three-Layer Medium Environment with Rotating Permanent Magnet Mechanical Antenna | 578 |
| <i>Shipeng Chen, Qiang Zhou, Jianya Zhang, Shenyun Wang</i> | |
| A Compactly Arranged 4-Port Antenna Array with High Isolation..... | 580 |
| <i>Jifeng Lv, Ming Su, Yuan'An Liu</i> | |
| A Simple Controllable Left-Right-Hand Circularly Polarized Antenna for GPS L2 Using Arc-Like Slots..... | 582 |
| <i>Lulu Meng, Sixian Qian, Zhixiang Huang, Yingsong Li</i> | |
| A Dual-Polarized Antenna for 5G N78 Application | 584 |
| <i>Jiakang Pan, Junwei Qi, Yingsong Li</i> | |
| Self-Decoupling 5G MIMO Antenna Via Grounding for Mobile Phones | 586 |
| <i>Wei Zhou, Junwei Qi, Yingsong Li</i> | |
| Design of MEMS Step Impedance Microstrip Filter in Ku Band..... | 588 |
| <i>Tianyu Bai, Guohui Yang, Kuang Zhang, Yingsong Li, Tao Jiang</i> | |
| Design of 3-Bit Multibeam Vortex Metasurface Based on Phase Encoding..... | 593 |
| <i>Jialin Shi, Zhenyi Xu, Tao Jiang</i> | |
| Perfect Beam Deflection Design Based on Nonlinear Gradient Correction for Vortex Beam Generation | 595 |
| <i>Zhenyi Xu, Jialin Shi, Tao Jiang</i> | |

| | |
|--|-----|
| Design of 1Bit Broadband Transmission Digital Metasurface | 597 |
| <i>Tao Sun, Ping Xu, Tao Jiang</i> | |
| CFAR Detector Based on Riemann Manifold for Radar Signal Detection..... | 599 |
| <i>Yuxuan Liang, Xin Wang, Tao Jiang</i> | |
| Study on Resonance Frequency of Miniaturized Lithium Niobate Antenna | 601 |
| <i>Xin Wang, Jialin Shi, Tao Jiang</i> | |
| Linear Channel Characteristics Analysis for Conductive Intracardiac Communication..... | 603 |
| <i>Chengfeng Wu, Tao Liu, Yueming Gao, Ziliang Wei</i> | |
| An UHF Tri-Band Compact Planar Monopole Antenna with Periodic Structure Loading..... | 605 |
| <i>Shuping Li, Chung-Tse Michael Wu</i> | |
| Transmitarray Antenna Based on 3-D Frequency Selective Structures | 607 |
| <i>Nan-Ke Wu, Bo Li, Yin Li</i> | |
| Fast Filter Bank Technique for Multiple Antennas Wireless Communication System..... | 609 |
| <i>Zhennan Wu, Wenxu Zhang</i> | |
| A Personnel-Free Method for Array Synthesis Based on Artificial Intelligence | 611 |
| <i>Ji Wang, Fuwei Wang, Bokai Ding, Wenhui Luo, Siying Niu</i> | |
| A K-Band Liquid Crystal-Based Circularly-Polarized Phased Array | 613 |
| <i>Fengshuo Wan, Xin Yu Wu, Lifeng Shi, Hongyuan Feng, Dunge Liu, Yuqian Yang, Longzhu Cai, Zhi Hao Jiang, Shichao Jin, Wei Hong</i> | |
| Broadband Millimeter-Wave Endfire Array with a Low-Loss Feeding Structure | 615 |
| <i>Xin Xu, Feng Shang, Chuxuan Ren</i> | |
| Mutual Coupling Influence on MIMO System Channel Capacity Based on Method of Moments | 617 |
| <i>Jinyan Ma, Ruifeng Li, Da Li, Erping Li</i> | |
| Sparse Linear Array Designed Via ULA Fitting | 619 |
| <i>Wanlu Shi, Yingsong Li, Zhixiang Huang</i> | |
| A Novel Sparse MIMO Array with Higher Uniform DOF and Sensor Separation..... | 621 |
| <i>Wanlu Shi, Yingsong Li, Zhixiang Huang</i> | |
| Wideband and Wide-Angle Anti-Reflection Coatings Based on Dielectric Metamaterials..... | 623 |
| <i>Dan Yang Wang, Wei Xiang Jiang</i> | |
| Removing the Froissart Doublets in a Rational Interpolation for S-Parameters..... | 625 |
| <i>Haobo Yuan, Jungang Ren, Yujie Li, Longge Su</i> | |
| New Strategies for Computational Electromagnetic Simulation of Antennas and Related Circuits in the Context of 5G and Beyond | 627 |
| <i>Raj Mittra, Abdelkhalek Nasri, Prashant Chaudhary, Vikrant Kaim, Ravi Kumar Arya, Junwei Dong</i> | |
| GPU-Accelerated DGTD Method Based on Automatic Batch Processing Technique to Solve Large-Size Electromagnetic Scattering Problem | 629 |
| <i>Chao Li, Qiang Ren, Yuanguo Zhou</i> | |
| Machine-Learning-Based Optimization Method for Large-Phase-Shift Metacells (Invited) | 631 |
| <i>Peiqin Liu, Shengkai Xu, Xin Peng, Zhi Ning Chen</i> | |

| | |
|--|-----|
| Entangled Quantum Positioning Based on Scattering Free Path Model..... | 633 |
| <i>Jing Zhang, Mu Zhou, Wei Nie, Yong Wang, Jingyang Cao</i> | |
| Study on Passive Millimeter-Wave Radiation Image of Exponential Rough Surface | 635 |
| <i>Pengpeng Xu, Chuan Yin, Haochen Zhu, Fengchen Xu</i> | |
| Study on Adaptive Densification Model Applied to Passive Millimeter Imaging of Covered Scenes | 637 |
| <i>Haochen Zhu, Chuan Yin, Fengchen Xu, Pengpeng Xu</i> | |
| Fast Prediction of Electromagnetic Scattering Fields Based on Machine Learning and PSO Algorithm | 639 |
| <i>Zhourui Zhang, Mang He</i> | |
| Application of Adaptive AWE Technique in Higher-Order Solution of 3D Scattering from Objects with Uncertain Shape | 641 |
| <i>Yuzhe Luan, Shengkai Sun, Min Zhao, Zi He</i> | |
| Parabolic Equation Algorithm Based on Three Dimensional Domain Decomposition | 643 |
| <i>Xiaonong Ye, Yin-Song Shen, Zi He, Dazhi Ding</i> | |
| Algorithm of Electromagnetic Modeling of Creeping Waves for Complex Targets Based on the Mesh Model..... | 645 |
| <i>Qi Huang, Siyuan He, Weihao Huang, Wancong Li</i> | |
| An Improved GO-PO High Frequency Method for the RCS Prediction of Radar Target in Multi- Core Architecture | 647 |
| <i>Weihao Huang, Siyuan He, Qi Huang, Wancong Li</i> | |
| A Novel Microwave Antenna and Optical Antenna Integrated Antenna Array | 649 |
| <i>Zichao Li, Jinlin Liu, Liangyong Yang, Xiaolin Zhang</i> | |
| Equivalent Lumped-Circuit Analysis of the Filtering Two-Elements Series-Fed Array Antenna | 651 |
| <i>Lin Ling Wu, Huafeng Su, Jun Zhang, Xiu Yin Zhang</i> | |
| A Miniaturized Differential-Fed Tag Antenna | 653 |
| <i>Shengteng Shi, Tao Zhou, Lu Zhuang, Jun Ouyang</i> | |
| A Design of High Gain Dual Circularly Polarized Lens Horn Array Antenna | 655 |
| <i>Li Li, Zhi-Ya Zhang, Chengbin Zhang, Tao Ni</i> | |
| A High Efficiency Millimeter Wave Rectenna Based on Interdigitated Capacitance..... | 657 |
| <i>Yuan Chen, Tong Wu, Zhi-Ya Zhang, Chengbin Zhang, Tao Ni</i> | |
| A Lightweight and Portable Design of Antenna Feed for 1.8M S/X-Band Auto-Tracking Ground Station..... | 659 |
| <i>Jia-Rong Ye, Zhi-Ya Zhang, Chengbin Zhang, Pei-Hua Zhang</i> | |
| A Wide-Band Wide-Beam Conformal Antenna Based on AMC | 661 |
| <i>Chen-Hui Dai, Zhi-Ya Zhang, Cheng-Bin Zhang, Tao Ni</i> | |
| An Endfire Antenna Based on Antipodal Symmetric Spoof Surface Plasmon Polaritons | 663 |
| <i>Junjie Huang, Yu Shao, Kai Zhu, Changhong Zhang, Jie Zhang</i> | |
| Performance Analysis of Planar Luneburg Lens and Full Dielectric Lens | 665 |
| <i>Yinsen Luo, Ran Ji, Yan Zhang</i> | |

| | |
|--|-----|
| Design of a Conformal On-Glass Antenna for Vehicle Communication | 667 |
| <i>Fan Yang, Lei Zhang, Hongwei Wu</i> | |
| A Novel Design for Vortex Electromagnetic Wave Antenna Based on Transmission Array | 669 |
| <i>Zhen Wang, Xiao Yu Li, Mei Song Tong</i> | |
| A Flexible RFID Strain Sensor Based on Rectangular Patch Antenna | 671 |
| <i>Zi Cheng Jiang, Guo Chun Wan, Mei Song Tong</i> | |
| Design of an All-Metal Vivaldi Antenna for Plasma Microwave Diagnostics | 673 |
| <i>Qiang Wei, Yanming Liu, Chao Sun, Chengwei Zhao, Bin Li, Rui Li</i> | |
| A High-Isolation Millimeter-Wave Dual-Polarized Antenna for 5G Applications | 675 |
| <i>Chengtao Dong, Zhiya Zhang, Yu Wang</i> | |
| Design of VHF/UHF Wideband Airborne Antenna | 677 |
| <i>Zhen-Hao Tian, Zhi-Ya Zhang, Cheng-Bin Zhang, Tao Ni</i> | |
| A Dual-Band Broadband Omnidirectional Antenna | 679 |
| <i>Zhi-Jie Yue, Zhi-Ya Zhang, Chengbin Zhang, Peihua Zhang</i> | |
| A Wideband Detection Array Antenna Based on Novel Multi-Section Matching Network | 681 |
| <i>Shu-Huan Dong, Luo-Lun Zhang, Zhi-Ya Zhang, Tao Ni</i> | |
| A Compact Wi-Fi Dual-Band Antenna with a Loaded Resistor for Routers | 683 |
| <i>Yuping Tan, Qingfeng Lin, Lidong Chi, Fuhai Li, Yihong Qi, Yunlong Luo</i> | |
| An Internal Antenna Solution for Wi-Fi 6E Routers | 685 |
| <i>Xi Li, Lidong Chi, Yihong Qi</i> | |
| A Wide Beam Steering Antenna Based on Reconfigurable Metasurface | 687 |
| <i>Muying Tan, Feng Lin, Yiqun Feng, Yang Wang, Weinan Zhang</i> | |
| Planar Ultra-Wideband Dual-Polarization Tightly Coupled Dipole Array | 689 |
| <i>Hui Li, Wen Zhang, Le Kang</i> | |
| Design of a Variable Inclination Continuous Transverse Stub Array Antenna with Linear-Gradient Stub..... | 691 |
| <i>Jie Liu, Shufu Dong, Qiurong Zhen, Jiayu Yu, Xiaobin Liu</i> | |
| Wideband Filtering Antenna Array with Reduced Sidelobe Level and High Selectivity | 693 |
| <i>Yuhua Liu, Xin Guo, Wen Wu</i> | |
| 1-Bit Unit-Cell for Transmitarray at C-Band Based on 3-D Frequency Selective Structure | 695 |
| <i>Tao Zhu, Yumei Chang, Bo Li, Lei Zhu</i> | |
| Differential Isolation Integrated Circuit Design in Galvanic-Coupled Human Body Communication | 697 |
| <i>Fengjie Lin, Ziliang Wei, Yueming Gao</i> | |
| Wavefront Characteristics of Transmitted Orbital Angular Momentum Wave at 30 GHz..... | 699 |
| <i>Yi Tian, Yang Wang, Xi Liao, Yanli Tu, Jie Zhang</i> | |
| Human Blockage Modeling Based on Multiple Knife-Edge Diffraction in Millimeter-Wave Bands | 701 |
| <i>Xingxing Feng, Yu Shao, Yanyang Zhang, Jie Zhang</i> | |
| Path Loss of OAM Wave in Indoor Office Scenario at Millimeter-Wave Band..... | 703 |
| <i>Zhejia Zhang, Yang Wang, Xi Liao, Yanli Tu, Jie Zhang</i> | |

| | |
|---|-----|
| A Region Searching Based Artifact Removal Method for Millimeter Wave Image | 705 |
| <i>Le Xin, Shize Shang, Yuanji Li</i> | |
| Design Considerations and Examples of Planar Integrated Array Antennas for W-Band Radars | 707 |
| <i>Jin Zhu, Jun Xu, Ken Chen, Hui Zhang</i> | |
| Design of a Wide-Band Isolation Cavity on HTCC | 709 |
| <i>Shushan. Xie</i> | |
| A Microstrip Planar UWB Bandpass Filter with Dual Notched Bands Using Dual-Mode Resonator | 711 |
| <i>Guangyong Wei, Yunxiu Wang, Jie Liu</i> | |
| A 24 GHz Equal Gain Power Divider for Heterogeneous Combined Antenna | 713 |
| <i>Qingfeng Lin, Lidong Chi, Fuhai Li, Yihong Qi, Yunlong Luo, Yang Yang</i> | |
| The Experiment Study of Thermocouple Power Sensor with Porous Ground Plane..... | 715 |
| <i>Yiran Yu, Ting Zhang, Fushun Nian, Shunli Han, Yanfeng Xu, Wenzheng Zhang</i> | |
| Measure and Predict the Receiver's Electromagnetic Susceptibility Fast..... | 717 |
| <i>Yan Chen, Zhonghao Lu, Bing Xie</i> | |
| A Review of the Research on the Measurement Methods of the Sub-Reflector of Large Aperture Radio Telescopes | 719 |
| <i>Jiang Qiao, Shangmin Lin, Hu Wang, Yu Jin</i> | |
| Design of Polarization-Insensitive Frequency Selective Rasarber | 721 |
| <i>Kai Cheng, Jun Ouyang</i> | |
| Millimeter-Wave Non-Line-Of-Sight Imaging..... | 723 |
| <i>Yuanji Li, Zhan Ou, Siming Li</i> | |
| Multifunctional Metasurface for Radiation and Scattering Manipulation | 725 |
| <i>Yuewen Gou, Yikai Chen, Shiwen Yang</i> | |
| Scattering Center Location Registration Method for Non-Cooperative Target Components Based on Physical Interpretation of Forward Modeling..... | 727 |
| <i>Wancong Li, Siyuan He, Weihao Huang, Qi Huang</i> | |
| A Low-Frequency-Ratio Frequency-Multiplexed Reflective Meta-Atom..... | 729 |
| <i>Zhichao Pang, Hexiu Xu, Mingzhao Wang</i> | |
| High Efficiency Metasurfaces with Independent Control of Phase, Amplitude, and Polarization | 731 |
| <i>Yufei Yang, Yongzhong Zhu, Lijun Bu, Yadan Zang, Leng Han, Wenxuan Xie, Qiqi Guo</i> | |
| Frequency Selective Surface on Doublet with Flexible Response | 733 |
| <i>Xian Wang, Yue Wang, Dongfang Zhou, Dewei Zhang, Mengyao Yan</i> | |
| Low-Profile Double-Layer Substrate Integrated Gap Waveguide with Staggered EBG Structure..... | 735 |
| <i>Honghuan Zhu, Rao Tang, Guihong Li, Wei Hong, Yanhua Cao, Tianling Zhang</i> | |
| High-Selectivity Wideband Balanced Bandpass Filter with Multiple Transmission Zeros and Poles..... | 737 |
| <i>Shipeng Zhao, Zhongbao Wang, Hongmei Liu, Shaojun Fang</i> | |
| Design of a Miniaturized KU Band Low-Pass Filter..... | 739 |
| <i>Botao Ye, Zhiyong Liu, Pei Qian, Wenjie Xu, Fei Chen</i> | |

| | |
|--|-----|
| The Design of Four-Channel X-Band TR Module | 741 |
| <i>Shuai Ji Jingdong, Wang Yi Wang</i> | |
| A Sub-2 dB Noise-Figure 6–18 GHz LNA Based on GaAs Using Current Reuse Technique | 743 |
| <i>Siyang Han, Baoshuai Wang, Ziyuan Lu, Yixuan Fan</i> | |
| Design of FBAR Filter Chip Based on Space Mapping Optimization Algorithm | 745 |
| <i>Hongliang Zhu, Shitao Chen, Cong Hu, Qiupeng Yin, Yaohua Xu, Zhixiang Huang</i> | |
| A 105–115 GHz Quadrupler MMIC with 4.2 dBm Output Power | 747 |
| <i>Yangjiajun Hu, Xiaojun Bi</i> | |
| Terahertz Dual-Band Coding Metasurface for Vortex Beam Manipulation..... | 749 |
| <i>Xueqi Zheng, Gong Cheng, Pengcheng Tang, Genhao Wu, Liming Si</i> | |
| Efficient Handset Antennas in User Scenarios with N-Port CM Analysis..... | 751 |
| <i>W. Zheng, H. Li</i> | |
| Low Side Lobe Circularly Polarized Array Using Random Sequential Rotation Technique Based on Characteristic Mode Analysis..... | 753 |
| <i>Xiaoli Wei, Lianxing He, Zhenyu Kang, Huijie Liu</i> | |
| A 1-Bit Cassegrain Reflectarray Using Characteristic Modes Inspired Polarization Twisting Element..... | 755 |
| <i>Rui Wang, Teng Li, Qiangming Zeng</i> | |
| Compact Wideband Three-Port Metasurface Antenna Using Characteristic Mode Analysis | 757 |
| <i>Yi Zheng, Feng Han Lin</i> | |
| Review of Space-Based Antenna Technology for Low Frequency Radio Astronomy | 759 |
| <i>Jia Liu, Jixiang Wan, Zhengjun Li, Hao Wang, Qiaoshan Zhang</i> | |
| Metasurface-Loaded Tri-Mode Wideband Monopole Antenna Using Characteristic Mode Analysis..... | 761 |
| <i>Yi Hui Zhu, Feng Han Lin</i> | |
| Recent Progress in Characteristic Mode Analysis and Design of Lossy Structures | 763 |
| <i>Zicheng Song, Feng Han Lin, Jiaqi Zhu</i> | |
| Low-Profile Complementary Dipole Antenna Using Semicircular Sector Electric Dipoles | 766 |
| <i>Heng Zhang, Fei-Yan Ji, Meng-Li Zhao, Xiao-Hui Mao, Wen-Jun Lu</i> | |
| Extremely Low Frequency (ELF) Acoustics Promoted Antenna for Submarine Applications..... | 768 |
| <i>Chenwei Zhang, Junwei Qi, Yingsong Li</i> | |
| Wide-Angle TM-Wave Polarization Passive Huygens' Metasurface for Gain Enhancement of Millimeter-Wave Multibeam Array Antennas | 770 |
| <i>Qiang Sun, Yong-Ling Ban</i> | |
| A Dual-Band Orthogonally Polarized Huygens Meta-Lens Antenna | 772 |
| <i>Shuo Cao, Chunhua Xue, Guangsheng Qin, Xi Gao</i> | |
| Method of Antenna Optimization Based on Gaussian Regression and Genetic Algorithm..... | 774 |
| <i>Dali Mi, Xiwang Dai, Haotian Wu, Hui Hong, Guoqing Luo</i> | |
| Design of Dual-Polarized ME Dipole Antenna for 2/3/4G and 5G Sub-6 GHz Base Station Applications..... | 776 |
| <i>Zhiwei Song, Xiaoming Xu, Hongxiang Miao</i> | |

| | |
|---|-----|
| A Quad-Beam Leaky-Wave Antenna Supporting Wide-Scanning Angle for mm-Wave Applications | 778 |
| <i>Yaling Chen, Long Zhang, Yejun He, Chunxu Mao, Wenting Li</i> | |
| A Wideband Reflectarray Antenna for Millimeter-Wave Applications | 780 |
| <i>Zhenqin Zheng, Long Zhang, Qi Luo, Chunxu Mao, Yejun He</i> | |
| A High Gain Antenna for Millimeter-Wave Applications | 782 |
| <i>Honglin Lan, Jun Xiao, Tongyu Ding, Qiubo Ye</i> | |
| Hybrid Near- And Far-Field Source Localization Using Symmetric Sparse Array | 784 |
| <i>Jiawen Zhang, Junwei Qi, Yingsong Li</i> | |
| The Profile Reduction of an Electronically-Steerable Parasitic Array Radiator Based on Inductance Loaded Quarter Wavelength Dipole | 786 |
| <i>Boshan Liu, Yan Deng, Shunli Li, Hongxin Zhao, Xiaoxing Yin</i> | |
| A Novel Multi-Linear Polarization Reconfigurable Antenna Array | 788 |
| <i>Dingzhao Chen, Ming Li, Pan Guo, Yanhui Liu</i> | |
| An Angle-Insensitive Programmable Amplitude-Phase-Joint-Coding Metasurface..... | 790 |
| <i>Hai Lin Wang, Hui Feng Ma</i> | |
| A Broadband Low-Profile Dual-Circularly Polarized Reflect-Array for <i>Ka</i> -Band Application..... | 792 |
| <i>Yuhui Zhang, Xiwang Dai, Haotian Wu, Hui Hong, Guoqing Luo</i> | |
| A Wideband Decoupling Technique for Closely Located SICL-Fed Dipole Antennas | 794 |
| <i>Yulin Zhang, Kuikui Fan, Qingquan Tan, Guoqing Luo</i> | |
| Characteristic Mode Inspired Modal Manipulation Methods for Metasurface Antenna Design | 796 |
| <i>Teng Li, Rui Wang, Jingxin Ye</i> | |
| Designing a Wideband and Miniaturized C-Slotted Metamaterial Patch Antenna | 798 |
| <i>Hao Lu, Bei Zhang, Xiaofei Xu</i> | |
| Nonuniform Surface Accuracy Design of Reflector Antenna Oriented Toward Side-Lobe Performance..... | 800 |
| <i>Yinwei Zhang, Peiyuan Lian, Liang Yao, Shuai Li, Yuefei Yan, Congsi Wang</i> | |
| Evaluation of Electromagnetic Performance of Array Antennas Considering Mutual Coupling and Structural Deformation..... | 802 |
| <i>Yan Wang, Biaolin Yan, Zheping Wu, Zhiji Wang, Zhongxing Duan, Hongping Fu, Zhihai Wang, Kunpeng Yu, Wenzhi Wu, Congsi Wang</i> | |
| Compact Wideband Antennas Based on Substrate Integrated Waveguide Using for sub-5G..... | 804 |
| <i>Yanlin Li, Ziwen Yang, Xiaolin Yang</i> | |
| An Ultra-Wideband $\pm 45^\circ$ Dual-Polarized Multi-Resonant 5G Base Station Antenna..... | 806 |
| <i>Jia-Bin Chen, Qing-Xin Chu</i> | |
| Ka-Band Non-Uniform Coverage Multi-Feed Synthetic Multi-Beam Antenna | 808 |
| <i>Ye Wenxi, Yu Fei, Ding Wei, Tao Xiao, Wan Jixiang</i> | |
| A Cylindrical Dielectric Resonator Antenna with Nested Structure..... | 810 |
| <i>Lin-Lin Cheng, Wu-Sheng Ji, Meng Wang, Xin-Yue Liu, Jin-Feng Gan</i> | |
| A Duplex Patch Antenna with High Radiation Gain | 812 |
| <i>Junhao Chen</i> | |

| | |
|---|-----|
| Review of Mechanical Technology of Communication Antenna Worked in High Temperature Environment for Deep Space Exploration..... | 814 |
| <i>Xudong Wang, Jixiang Wan, Peiyun Zhu</i> | |
| A Non-Uniform Metasurface-Based Wideband CP Antenna with Additional Filtering Response | 816 |
| <i>Jiayan Zhang, Huayan Jin, Wenlei Wang, Guo Qing Luo</i> | |
| A Beam-Switching Millimeter Wave Radar Antenna with Minkowski Fractal Patch | 818 |
| <i>Yanpeng Zhang, Guo-Min Yang, Qingmian Wan</i> | |
| Gravity-Controlled Polarization Reconfigurable Liquid Dielectric Resonator Antenna | 820 |
| <i>Jiaying Han, Lei Li, Anbang Fu</i> | |
| A Novel Pattern Reconfigurable Antenna Based on Liquid Metal | 822 |
| <i>Anbang Fu, Lei Li, Jiaying Han, Wan Ying Wu</i> | |
| Endfire Circularly Polarized Antenna Based on Spoof Surface Plasmon Polaritons Coupled-Line..... | 824 |
| <i>Fangfei Zhao, Kelin Zhang, Qiuyi Zhang, Shunli Li, Hongxin Zhao, Xiaoxing Yin</i> | |
| A Bandwidth-Enhanced Quadrifilar Helix Antenna Using Gaps on Arms for Satellite Communication | 826 |
| <i>Wen Zhang, Qiuyi Zhang, Shunli Li, Hongxin Zhao, Xiaoxing Yin</i> | |
| Design of Multi-Patch Planar Filtering Antenna | 828 |
| <i>Tian Fu, Feng Shang, Linyi Fu</i> | |
| Low-Profile Circularly Polarized Metasurface Antenna..... | 830 |
| <i>Wenyu Zhao, Xiuping Li, Zhi Ning Chen</i> | |

Author Index