

2023 24th International Vacuum Electronics Conference (IVEC 2023)

**Chengdu, China
25-28 April 2023**

Pages 1-524



**IEEE Catalog Number: CFP23VAM-POD
ISBN: 978-1-6654-7322-4**

**Copyright © 2023 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:	CFP23VAM-POD
ISBN (Print-On-Demand):	978-1-6654-7322-4
ISBN (Online):	978-1-6654-7321-7

Additional Copies of This Publication Are Available From:

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

CURRAN ASSOCIATES INC.
proceedings
.com

TABLE OF CONTENTS

Fold Staggered Grating Waveguide Slow Wave Structure for G-band TWT	1
<i>Jingrui Duan, Zhigang Lu, Junwan Zhu, Zhanliang Wang, Shaomeng Wang, Yubin Gong</i>	
Design and Experiment of a Long-Pulse High-Power 170GHz Gyrotron.....	3
<i>Bentian Liu, Bo Chen, Jixiang Liu, Xiaojie Wang, Huaichuan Hu, Fukun Liu</i>	
Interaction of Terahertz Waves with the RNA Hairpin.....	5
<i>Qin Zhang, Lixia Yang, Kaicheng Wang, Lianghao Guo, Hui Ning, Yubin Gong</i>	
Design of a High Efficiency Miniaturized W-Band Pulsed Traveling-Wave Tube.....	7
<i>Xinwen Shang, Wenkai Deng, Hongxia Yi, Xiaodong Cui, Zicheng Wang, Jiandong Zhao, Liu Xiao, Jing Ma, Feng Jin, Fei Li</i>	
Holographic Encryption Applications Using Multichannel Bessel Beam	9
<i>Zhi Li, Zewei Wu, Quanli Li, Shuai Huang, Minxing Wang, Youlei Pu, Jianxun Wang, Yong Luo</i>	
Design and Experiment of 220 GHz TWT Folded Waveguide Slow Wave Structure	11
<i>Rui Guo, Zhiqiang Zhang, Jian Wang, Zheng Wen, Jirun Luo</i>	
A K/Ka Band Planar Dual-Polarization Waveguide Diplexer	13
<i>Song Niu, Zewei Wu, Minxing Wang, Shuai Huang, Youlei Pu, Jianxun Wang, Yong Luo</i>	
Optimal Design and Analysis of Sheet Beam Electron Gun with High Compression Ratio	15
<i>Dong Li, Jianxun Wang, Yixin Wan, Xinjie Li, Zihao Dai, Yong Luo</i>	
Design of a Low-Voltage Miniaturized Broadband TWT	17
<i>Shuang Zeng, Fei Liu, Yuan Gan, Weihong Ren, Wei Wang</i>	
A Circularly Polarized and Wideband Transmitarray Using 1 Bit Magnetoelectric Dipole Elements	19
<i>Yatao Liu, Zewei Wu, Ran Yan, Shuai Huang, Tongxing Huang, Yong Luo</i>	
Thermionic Emission Mechanism of a Novel $Y_2Hf_2O_7$ Ceramic Cathode Applied in High-Power Magnetron Tubes of Medical Linear Accelerator	21
<i>Qi Shikai, Xiao Yinjie, Chen Dong, Xu Qin, He Jun, Wang Xingqi</i>	
Three-Dimensional Direction of Arrival Estimation of Sources in Impulsive Noise Environments.....	23
<i>Dong Chen, Shikai Qi, Jun He, Huicheng Xie, Qin Xu</i>	
A Rational Function Approximation Algorithm for the Frequency Sweep of Microwave Tube	25
<i>Chen Xue, Li Xu, Hao Wang, Hangxin Liu, Junhui Yin, Xing Li, Bin Li</i>	
Rising-Sun Relativistic Magnetron with Secondary Electron Material Axially Locally Composite Cathode.....	27
<i>Tingxu Chen, Tianming Li, Hao Fu, Hao Li, Haiyang Wang, Biao Hu</i>	
Development of a W-Band High-power Spatial Harmonic Magnetron.....	29
<i>Shengen Li, Fengling Li, Xuefeng Lei</i>	
Simulation Investigation of a 3-GW X-Band Relativistic Backward Wave Oscillator with Low Magnetic Field.....	31
<i>Shifeng Li, Yang Wu, Hua Huang, Falun Song, Zhenbang Liu, Limin Sun, Xiao Jin, B. N. Basu, Zhaoyun Duan</i>	

Smith-Purcell Radiation by a Two Layer Grating Structure.....	34
<i>Md Arifuzzaman Faisal, Peng Zhang</i>	
Free-Electron Radiation Nanophotonics.....	36
<i>Xiao Lin</i>	
Five-Stage Depressed Collector for High Electronic Efficiency Space TWT	38
<i>A. Mercy Latha, Vishant Gahlaut, S. K. Ghosh</i>	
Design and Experiment of S-Band High-power Pulsed Helix TWTs.....	40
<i>Wenxu Li, Yang Ji, Xuening Yang</i>	
Thermal Design of Helix Configuration of High Power Traveling Wave Tube	42
<i>Guangjiang Yuan, Jun He, Linlin Cao</i>	
Dual-Band Filter Synthesis with Frequency-Variant Couplings Based on Two Low-Pass Prototypes.....	44
<i>Guoqun Cao, Luanfeng Gao, Yulu Hu, Zheng Tan, Haiying Yuan, Kun Liu</i>	
A Novel Denoising Algorithm for Detection Signal of Gyro-TWT	46
<i>Kai Nie, Jin Ji Li, Lei Huang, Guo Liu, Hao Li</i>	
Calculation of the Floating Potential of the TWT Electron Gun in EOS.....	48
<i>Xiaobing Wang, Quan Hu, Xiaofang Zhu, Wenkai Deng, Shilong Zhu, Luanfeng Gao, Yulu Hu, Tao Huang, Bin Li, Zhonghai Yang</i>	
Preliminary Study of a Ka-Band Phase-locked High Power Microwave Amplifier Operating in Hybrid Theory	50
<i>Yunxiao Zhou, Jinchuan Ju, Jun Zhang, Wei Zhang, Ying Li, Zhuang Yu</i>	
A Method Suitable for Solving the Magnetic Field of Permanent Magnet and Energized Coil System	52
<i>Shaofei Liu, Quan Hu, Yulu Hu, Xiaofang Zhu, Tao Huang, Bin Li, Zhonghai Yang</i>	
Research on Efficient Testing of W-Band High-power Sheet Beam Extended Interaction Oscillator	54
<i>Daqing Xu, Jianxun Wang, Yixin Wan, Shaoqian Qin, Hao Li, Yong Luo</i>	
Development of Ka-Band 100W Radiation-cooled Space TWT	56
<i>Ping Chen, Xinyi Li, Xiaoran Zhang, Kai Chen, Zechun Song, Yuan Wang, Hongxia Cheng, Yiqun Liu, Daxi Ji</i>	
Design of Wide Stopband and High Suppression Cavity Filter.....	58
<i>Junyu Zhao, Chunguang Ma, Jinghan Zhou, Junhui Li, Jiaming Liu, Yong Luo</i>	
Experiment and Optimization on 0.34 THz Sheet Electron Beam TWT.....	60
<i>Ji Daxi, Wu Yaqin, Li Xinyi, Xu Hui, Liang Tian, Yang Mengyao, Wang Yuan, Chen Yun, Wang Zhanliang</i>	
Follower Jamming to UAV FH Communication System Based on Simulink	62
<i>Junhui Li, Chunguang Ma, Junyu Zhao, Jinghan Zhou, Yong Luo</i>	
A Photonic Crystal Loaded Double Sinusoidal Plate Slow Wave Structure for Terahertz TWT	64
<i>Haifeng Chen, Zechuan Wang, Zhigang Lu, Jingrui Duan, Junwan Zhu, Yubin Gong</i>	
Research on the Non-Linear Response Characteristic of Magnetron to Anode Voltage Ripple	66
<i>Zihao Zhang, Shimiao Lai, Yongjie Zhou, Ce Wang, Huacheng Zhu, Yang Yang</i>	

Terahertz Topological Photonic Integrated Transmission Line Based on Valley Spin States.....	68
<i>Xinfeng Zhang, Lan Wang, Yaxin Zhang, Ziqiang Yang</i>	
Study on Automated Design for Helix Traveling Wave Tubes.....	71
<i>Zhiqiang Hu, Jin Xu, Hairong Yin, Lingna Yue, Jinchi Cai, Pengcheng Yin, Guoqing Zhao, W. X. Wang, Y. Y. Wei</i>	
Study of a Cold Cathode Electron Gun for THz Traveling Wave Tube.....	73
<i>Ruirui Jiang, Gangxiong Wu, Jin Shi</i>	
A High Frequency Electronic Power Conditioner for MPM Using Series Connect Sine Amplitude Converters and SiC Power Semiconductors.....	75
<i>Yubo Gao, Weilin Li, Deqiang Peng, Li Cheng, Yang Qi, Zhanggui Xie</i>	
Study of Field Emission Gas Pressure Sensing Performances of Carbon Nanotubes with Different Crystallinities.....	77
<i>Weikang Jia, Wenbin Huang, Changkun Dong</i>	
A Broad Bandwidth Microwave Window Based on Metamaterial.....	79
<i>Yaoyao Cao, Xu Zeng, Pan Pan, Ningfeng Bai, Jinjun Feng, Xiaohan Sun</i>	
Ge Based Nano-Air-channel Photodiode for NIR Detector.....	81
<i>Peisheng Ma, Xiaoxu Li, Feiliang Chen, Jian Zhang, Jiachao Wang, Mo Li</i>	
Design of a 0.23THz Extended Interaction Amplifier with Trapezoidal Subwavelength Holes	84
<i>Yubo Liu, Sheng Yu, Zongjun Shi, Yu Ji, Kui Xiang, Jianjie Li</i>	
Micro-Focus Electron Source Based on High Current Density Carbon Nanotube Emitters	86
<i>Wenbin Huang, Weijun Huang, Weikang Jia, Changkun Dong</i>	
Hyperparameter-Free Weighted Median Operator for Robust Spectral Analysis in Heavy-Tailed Noise Environment.....	88
<i>Qingying Yi, Yongchao Zhang, Jianan Yan, Bin Tang</i>	
Simulation Study of a 36-Vane 2.5MW X-Band Coaxial Magnetron Interaction Cavity.....	91
<i>Li Xinyi, Chen Ping, Deng Meihua, Guo Fan, Jin Dejun, Sun Lingbin, Fan Yasong, Zhang Yi, Gong Yubin</i>	
A Compact Ku-Band Relativistic Triaxial Klystron Amplifier.....	93
<i>Ying Li, Jinchuan Ju, Ting Shu, Wei Zhang, Yunxiao Zhou</i>	
A Bilayer Substrate Dynode for the Performance Improvement of Box-And-grid Electron Multiplier.....	95
<i>Zhangcong Xia, Biye Liu, Jie Li, Yuchen Tai, Wenbo Hu, Shengli Wu</i>	
Electrothermal Coupling Analysis of Microwave Windows Using Finite Element Method	97
<i>Siyi Yang, Li Xu, Junhui Yin, Hao Wang, Xing Li, Bin Li</i>	
A High-Power, Broadband Gas-filled Microwave Switching Tube in Millimeter-wave Band.....	99
<i>Haiman Zhang, Bin Liu</i>	
Space Pulsed Terahertz Traveling Wave Tube Amplifier	101
<i>Tangpei Jiao, Peng Chen, Hui Li, Weibo Huang, Qianwen Chen, Hao Fu</i>	
Ka-Band Dual-port Coaxial Magnetron for Array Application	103
<i>Shengen Li, Zhaohui Wu, Jinjun Feng, Fang Yao, Linyu Li</i>	

Consistency Control of the Ka-Band Switching Tube Resonant Window.....	105
<i>Yue Xianning, Tang Zhonghua, Liang Tian, Tao Huanhang, Liu Yang, Li Man</i>	
Analysis of a W-Band Microstrip Meander-Line TWT with Novel Focusing Structure.....	107
<i>Zhengrong Deng, Lingna Yue, Pengcheng Yin, Wenbo Shan, Jin Xu, Hairong Yin, Jinchi Cai, Guoqing Zhao, Dongmei Liu, R. Guo, S. G. Wang, Wenxiang Wang, Yanyu Wei</i>	
Electron-Beam Gate-Controlled Field-Effect Transistor.....	109
<i>Yahui Cai, Bobo Wang, Xianghe Fu, Yuxuan Liu, Yongning He, Dan Wang</i>	
Inverse Synthetic Aperture Radar Imaging Based on a Multiple Norm Constrained GOMP Algorithm.....	111
<i>Xin Wang, Jing Yang, Yong Luo, Xiaoxue Li, Jiabin Qi</i>	
Study on Reliability of Long-HV-OFF-Mode of Cathode Assembly in Space Traveling Wave Tube.....	113
<i>Yasong Fan, Qing Zhao, Tian Liang, Jing Ma, Yuanyuan Wu, Sun Meng, Wengjing Zou, Ke Li, Xinyi Li</i>	
Study of Optimizing Stable Work of Q-Band Space TWT by Mearsuring the Hot-State Distance Variations of Cathode-Focusing Electrode.....	115
<i>Fan Yasong, Sun Meng, Liang Tian, Ma Jing, Zheng Zhaojuan, Yang Guang, Hu Wenjing, Zhao Qing, Li Xinyi</i>	
Research on the Processing Technology of RF Shield Bellows for High Energy Photon Source Storage Ring.....	117
<i>Bofeng Wang, Hongqi Zhang, Xujian Wang, Jinyu Zhao, Guanli Zhou, Xuhua Hu, Jianyong Zhou, Xiaoxia Wang</i>	
A Fast MGAWF Method Based on MORE.....	119
<i>Xing Li, Li Xu, Li Liao, Junhui Yin, Bin Li</i>	
Transient Thermal Analysis of Microwave Tube Based on Finite Element Method.....	121
<i>Jiayang Li, Li Xu, Siyi Yang, Junhui Yin, Hao Wang, Xing Li, Bin Li</i>	
Modified Fold Waveguide Slow Wave Structure for W-Band Dual-Beam TWT.....	123
<i>Zhigang Lu, Jingrui Duan, Junwan Zhu, Zhanliang Wang, Shaomeng Wang, Yubin Gong</i>	
Study on Plasma Instability of Nonuniform Two-Dimensional Electron Gas.....	125
<i>Zijian Qiu, Shengpeng Yang, Yubin Gong</i>	
Design and Experiment of the Pill-Box Window for 0.67THz TWT.....	127
<i>Yi Jiang, Zhang Luqi, Wenqiang Lei, Rui Song, Peng Hu, Ma Guowu, Hongbin Chen, Xiao Jin</i>	
Investigation of a Compact S-Band Coaxial Multi-Beam Relativistic Klystron Amplifier with Modular Periodic Permanent Magnet.....	129
<i>Ke He, Zhenbang Liu, Hua Huang, Shifeng Li, Limin Sun</i>	
Final version-Numerical Studies on Superradiant Relativistic Backward-wave Oscillator with Coupling Output of TE ₁₁ Mode.....	131
<i>Jiaoyin Wang, Tianming Li, Haiyang Wang, Hao Li, Yihong Zhou, Biao Hu</i>	
Research and Design of Cyclotron Wave Protector Cavity at 5.54GHz.....	133
<i>Xiaopeng Yin, Wenxiang Wang, Jin Xu, Lingna Yue, Jinchi Cai, Hairong Yin, Guoqing Zhao, Yanyu Wei, Zhiqiang Zhang, Qian Li</i>	

Investigation of Overmoded Brewster Window for Terahertz Traveling Wave Tube.....	135
<i>Youjie Luo, Yanyu Wei, Jin Xu, Lingna Yue, Hairong Yin, Jianwei Liu, Jinchi Cai, Pengcheng Yin, Guoqing Zhao, Wenxiang Wang, Wenxin Liu, Zhiqiang Zhang, Dazhi Li</i>	
Study of Influence of Magnetic Shielding on Penning Ion Source.....	137
<i>Mengwei Liu, Mengjun Xie, Laqun Liu</i>	
Research on High Parameter Consistency and High Yield Technology of Space Traveling Wave Tube.....	139
<i>Gao Zhiqiang, Wang Jin, Zhang Xinling, Liu Zhaojuan</i>	
Research on Emission Performance of TiO ₂ Modified Graphite.....	143
<i>Liu Yang, Tianming Li, Tingxu Chen, Hao Fu, Hao Li, Biao Hu</i>	
Circular Waveguide Polarizer for Gyrotron Traveling Wave Tube.....	145
<i>Qixiang Zhao, Mengshi Ma, Yanyan Liang, Ruiqi Lu, Jialang Ling</i>	
Effect of Cathode Surface Roughness on Quality of Electron Beam in a Gyrotron Electron Optical System.....	147
<i>Oleg Louksha, Pavel Trofimov, Alexander Malkin</i>	
Design of Side-Coupled Absorption Cavity to Suppress the Oscillation of Sheet Beam Traveling Wave Tube.....	149
<i>Zheng He, Jin Xu, Wuyang Fan, Hairong Yin, Lingna Yue, Jinchi Cai, Pengcheng Yin, Guoqing Zhao, Dongmei Liu, Q. Y. Song, J. F. Xiao, Y. Chen, R. Guo, S. G. Wang, Z. Q. Zhang, Wenxiang Wang, Yanyu Wei</i>	
Calculation of Coil Magnetic Field by Finite Element Method in MFS	151
<i>Jike Yang, Quan Hu, Yulu Hu, Xiaofang Zhu, Tao Huang, Bin Li, Xiaobing Wang, Huijiao Zhang, Zhenting Qin, Ling Mei, Zhonghai Yang</i>	
Sheet Beam Traveling Wave Tube Focused by Cross-Field.....	153
<i>Yupeng Jia, Hairong Yin, Lingqiao Wang, Jin Xu, Lingna Yue, Jinchi Cai, Pengcheng Yin, Guoqing Zhao, W. X. Wang, Y. Y. Wei, D. M. Liu</i>	
A Wideband 340GHz Backward Wave Oscillator with Sine-Shaped Ridge Waveguide Slow Wave Structure	155
<i>Linqi Feng, Lingna Yue, Jin Xu, Hairong Yin, Jinchi Cai, Guo Guo, Pengcheng Yin, Zhenhua Wu, Tianzhong Zhang, Sheng Yu, Wenxiang Wang, Yanyu Wei, D. M. Liu</i>	
High Power 340GHz TM ₃₁ Mode Extended Interaction Klystron.....	157
<i>Fengyuan Zhang, Wenxin Liu, Jianwei Zhong, Peng He, Fan Deng</i>	
Effect of Surface Features on Emission Properties of Impregnated Scandate Dispenser Cathode.....	159
<i>Benli Ao, Qiang Zheng, Ran Yan, Yong Luo</i>	
AIRCAS TWT Manufacturing Research Group Released a Complete Sets of Electron Gun Solutions.....	161
<i>Jian Wang, Yu Fan</i>	
Investigation of Trapezoid Double Staggered Grating SWS for G-Band CW TWT	163
<i>Jian Zhang, Jin Xu, Pengcheng Yin, Jinjing Luo, Dongdong Jia, Wuyang Fan, Yue Ouyang, Zixuan Shu, Wei Li, Hairong Yin, Lingna Yue, Jinchi Cai, Wengxiang Wang, Jinjun Feng, Dazhi Li, Yanyu Wei</i>	

Study on Ballistic Transport Electronics—A Vacuum Field Emission Transistor with Carbon Nanotube Cold Cathode	165
<i>Hui Tao, Qilong Wang</i>	
High Frequency Field Enhanced Structure Based on Photonic Crystal.....	167
<i>Zhenpeng Wang, Zhile Yu, Zihan Gu, Yuehong Du, Xiaobing Zhang, Zhuoya Zhu</i>	
Investigation on E-Band Hybrid-Serpentine Slow-wave Circuit.....	169
<i>Fei Li, Liu Xiao, Jiandong Zhao, Zicheng Wang, Hongxia Yi, Xinwen Shang, Yuhui Sun</i>	
Methods for Enhancing the Radiation of Photonic Crystal	171
<i>Jing Shu, Ping Zhang, Shaomeng Wang, Yubin Gong</i>	
A Method for Detecting High Energy Density Electron Beams in Traveling Wave Tubes	173
<i>Wanli Shi, Yulu Hu, Wenkai Deng, Yufan Yang, Luanfeng Gao, Bin Li</i>	
Fabrication and Measurement of Millimeter Wave Co-Planar Slow Wave Structure.....	175
<i>Shuo Tian, Chen Zhao</i>	
Study on Spindle Waveguide SWS for Sheet Beam	177
<i>Luanfeng Gao, Yulu Hu, Wenkai Deng, Zheng Tan, Xiaofang Zhu, Quan Hu, Bin Li</i>	
Development of Quasi-Optical Mode Converter Based on Metamaterials	179
<i>Wenjie Fu, Meng Han, Dun Lu, Yang Yan</i>	
Study on a Miniaturized Microwave Near-Field Probe Based on Split Ring Resonator.....	181
<i>Yunji Li, Wenjie Fu, Xiaoyun Li</i>	
Improved Based on 9-Fold Helical Corrugated Waveguide High-power TM_{01} - TE_{01} Mode Converter.....	183
<i>Sidi Liu, Hao Li, Jianing Zhao, Haiyang Wang, Biao Hu, Tianming Li, Yihong Zhou</i>	
Multi-Mode Simulation for an Output Window of Gyrotron Based on Transfinite Element Method.....	185
<i>Hangxin Liu, Li Xu, Xuesong Yuan, Siyi Yang, Hao Wang, Junhui Yin, Xing Li, Bin Li</i>	
Characteristics of Secondary Electron Emission from Textured Structure Surface.....	187
<i>Cheng Wenjie, Cao Meng</i>	
0.22THz Double-Beams Staggered Double-Blade Backward Wave Oscillator	189
<i>Peng He, Wenxin Liu, Jianwei Zhong, Fengyuan Zhang, Fan Deng, Jianliang Wang</i>	
Design and Experiment of Sapphire Output Window for 170 GHz Gyrotron.....	191
<i>Yichi Zhang, Xu Zeng, Jing Gong, Jinjun Feng</i>	
Characteristic Analysis of Radius Changing Coaxial Waveguide	193
<i>Jianjie Li, Sheng Yu</i>	
Q-Band MPM for LEO Satellite Application	195
<i>Yukai Zhou, Zhongning Jiang, Yong Wang, Bin Zhou, Yan Fang, Bin He</i>	
THz Cherenkov Oscillator Efficiency Increase by Use of Long Structures	197
<i>Eduard Khutoryan, Alexei Kuleshov, Sergey Ponomarenko, Kostyantyn Lukin, Yoshinori Tatematsu, Masahiko Tani</i>	
Sub-THz CW Clinotron Cavity Design.....	199
<i>Sergey Vlasenko, Sergey Ponomarenko, Eduard Khutoryan, Sergey Kishko, Alexander Zabrodskiy, Alexei Kuleshov</i>	

Indian Scenario of Vacuum Electron Devices Research and Development.....	201
<i>Baidyanath Basu</i>	
Design and Experimental Study on a 263 GHz Frequency-Tunable Gyrotron.....	203
<i>Tao Song, Wei Wang, Diwei Liu</i>	
Development of a Terahertz Harmonic Gyrotron	205
<i>Chao-Hai Du, Fan-Hong Li, Zi-Wen Zhang, Si-Qi Li, Yu Zhu, Pu-Kun Liu, Qi-Li Huang, Guo-Wu Ma, Hong-Ge Ma</i>	
First Principles Investigation on the Work Function of Osmium-Coated Ba-W Dispenser Cathode	208
<i>Ruoqi Zhang, Xiaoxia Wang, Jirun Luo</i>	
A Terahertz Magnetless Circulator Based on Spatia-Temporal Modulated Varactor Diodes with Microstrip Resonators	210
<i>Sheng Xuan, Yang Ziqiang, Liang Huajie, Zou Lin, Liang Dan, Zhang Yaxin</i>	
A New K-Band 1-Bit Broadband Reconfigurable Reflectarray Antenna	212
<i>Shengge Zhang, Youlei Pu, Zewei Wu, Yong Luo</i>	
The Effect of Terahertz Wave on Neuron	214
<i>Yuankun Sun, Shaomeng Wang, Yubin Gong</i>	
Preliminary Study of X-Band Phase-Locking Magnetrons	217
<i>Yu Qin, Yong Yin, Liangjie Bi, Bin Wang, Hailong Li, Lin Meng, Dagui Shen, Pan Cui, Rui Guo, Xiaolian Zhang</i>	
X-Band High-Gain Wide-Angle Beam Scanning Phased Array-Fed Reflector Antenna	219
<i>Zhiwei Zhou, Youlei Pu, Yong Luo</i>	
High-Power Terahertz Source and Transmission Line for 400MHz DNP NMR System	221
<i>Diwei Liu, Wei Wang, Tao Song</i>	
An Ultra-Broadband Transmission Terahertz Device Based on Multi-layer Ring Aperture Arrays.....	223
<i>Jiahao Zeng, Shuzhan Yan, Qianqian Hu, Shasha Peng, Xue Zhang</i>	
A Mode Perturbation Scheme for Suppressing Upper Sideband Oscillations of Sheet Beam Traveling Wave Tubes	225
<i>Yixin Wan, Jianxun Wang, Xinjie Li, Zihao Dai, Wei Jiang, Yong Luo</i>	
Research of a High Average Power G-Band Pulsed Traveling Wave Tube	227
<i>Lei Wenqiang, Zhang Luqi, Song Rui, Jiang Yi, Hu Peng, Ma Guowu</i>	
Development of the Plasma Limiter for High Power Microwave Weapon Protection	230
<i>Xiaoqian Liu, Yu Chen, Junxiao Liu, Nan Liu, Haijun Yu</i>	
Study of a 0.34THz Confocal Gyrotron Traveling Wave Tube	232
<i>Shouxi Xu, Jian Zhang, Zhihui Geng, Rui Zhang</i>	
Power Capacity and Stability Investigation of Collector in the 50-KW-Average-Power Q-Band Gyro-TWT.....	234
<i>Wei Jiang, Chaoxuan Lu, Binyang Han, Boxin Dai, Jianxun Wang, Guo Liu, Zewei Wu, Youlei Pu, Yong Luo</i>	
A Novel Rectangular Groove Sine Waveguide TWT Operating at 0.34 THz.....	236
<i>Shuanzhu Fang, Liuxia Xie, Tiesang Wang, Fangfang Song, Baojun Qiu, Yanyu Wei</i>	

R/Q Measurements of Multi-Gap Metamaterial Extended Interaction Resonant Cavity Using Perturbation Method.....	238
<i>Ning Li, Xuanming Zhang, Shaozhe Wang, Jianjun Zou, Junjie Huang, Shifeng Li, Yongming Li, Yurong Liu, Huarong Gong, Yubin Gong, Zhaoyun Duan</i>	
L-Band 20MW High Power Klystron.....	240
<i>Xiu Liu, Dong-Feng Li, Yue Dou, Hang Zhou, Jun Zhou, Kun Wang, Jia-Jia Ouyang</i>	
A New Measurement Method for Secondary Electron Yield Based on SEM Platform.....	242
<i>Na Zhang</i>	
Formation and Electromagnetic Radiation of Ion-Focused Virtual Cathode Oscillation	244
<i>Shengpeng Yang, Changjian Tang, Yubin Gong</i>	
Recent Development to High-Frequency Circuit Simulator.....	246
<i>Honghai Fan, Li Xu, Hao Wang, Junhui Yin, Hangxin Liu, Bingqi Liu, Xing Li, Bin Li</i>	
A Dual-Beam 0.1THz Extended Interaction Klystron Amplifier	248
<i>Hanbang Wu, Yuan Zheng, Yang Dong, Shaomeng Wang, Zhanliang Wang Ping Zhang, Yubin Gong</i>	
Investigation of a Megawatt-Class Gyro-TWT Based on Rectangular Dielectric-Loaded Circuit.....	250
<i>Chaoxuan Lu, Wei Jiang, Guo Liu, Jianxun Wang, Zewei Wu, Youlei Pu, Yong Luo</i>	
THz Electromagnetic Distribution in a Layered Medium Uses Dyadic Green Function	252
<i>Bingyang Liang, Yuanguo Zhou, Shaomeng Wang, Yubin Gong</i>	
Heat Dissipation Design Based on Porous Medium Structure for Gyro-TWT Collector	254
<i>Dongshuo Gao, Xu Zeng</i>	
Design of 140 GHz Broadband Subharmonic Mixer Based on Schottky Diode	256
<i>Xuechun Sun, Penglin Yang, Yaxin Zhang, Ziqiang Yang, Tianchi Zhou, Huajie Liang</i>	
Study of an Axis-Encircling Large-Orbit Cusp Electron-gun for Ka-band Gyrotron Traveling Wave Amplifiers.....	258
<i>Lei Chaojun, Zhao Qixiang, Wang Efeng, Li Shufeng, Zhuang Shuangshi, Jinjun Feng</i>	
Design of a Novel High Power Octagonal Ring-Bar Traveling-Wave Tube	260
<i>Mingjing Ma, Lexin Yang, Ningfeng Bai, Xiaoran Zhang, Meng Sun, Hongxia Chen</i>	
Study on Temperature Characteristics of Capacitance Diaphragm Gauge	262
<i>Chengyao Wu, Yongjun Cheng, Wenjun Sun, Xiaoqiang Pei, Qihao Yang, Xin Ran</i>	
Terahertz Reflective Phase Shifter Based on HEMT.....	264
<i>Meng Hao, Dan Liang, Huajie Liang, Kexiang Hu, Ziqiang Yang, Lin Zou</i>	
Effect of Ir on the Emission Property of Ba Dispenser Cathode	266
<i>Jinshu Wang</i>	
Thermal Analysis of a Microstrip Meander-Line Slow Wave Structure with Thermal Pyrolytic Graphite Layer.....	268
<i>Wenbo Shan, Lingna Yue, Wei Li, Lewei Xu, Wenxiang Wang, Jin Xu, Hairong Yin, Jinchi Cai, Pengcheng Yin, Guoqing Zhao, Yanyu Wei</i>	
Resistant to Ion Bombardment Field Emitters of a New Type and Features of Electron Flows Formed by Electron-Optical Systems with Such Emitters	270
<i>G. G. Sominskii, V. E. Sezonov, E. P. Taradaev, S. P. Taradaev</i>	

A New Vertical Structure Gate-All-Around Nano Air Channel Transistor	272
<i>Haiquan Zhao, Jianpeng Zhao, Ruihan Huang, Mo Li, Feiliang Chen, Jian Zhang</i>	
A Suspended Micro-Bridge Structure Nano-air-channel Triode with a Deformable Anode	274
<i>Ruihan Huang, Haiquan Zhao, Yazhou Wei, Feiliang Chen, Jian Zhang, Mo Li</i>	
GaN Nanoscale Air-Channel Diodes with High Rectification Ratio and Irradiation Resistance.....	276
<i>Yazhou Wei, Ruihan Huang, Haiquan Zhao, Feiliang Chen, Jian Zhang, Mo Li</i>	
Preparation of Miniature Thermionic Cathode to Be Used in THz Devices	278
<i>Min Zhang, Ke Zhang, Yujuan Gao</i>	
Design of a Circular Electron Injection Gun for Terahertz Traveling Wave Tubes	280
<i>Hang Ren, Weihua Ge, Rutai Chen, Yubo Liu, Tao Wang, Sheng Yu</i>	
Progress of Microwave Power Combining Based on S-Band Injection Locked CW Magnetrons	282
<i>Shaoyue Wang, Yan Zhao, Chongwei Liao, Changjun Liu</i>	
MMW Broadband Radar Compressed Sensing Imaging Based on SAMP Optimization Algorithm	284
<i>Jinghan Zhou, Chunguang Ma, Jiaming Liu, Zhenqian Yuan, Yong Luo</i>	
The Measurement of W-Band Pulsed Traveling Wave Tubes' Phase Consistency	286
<i>Yinghua Du, Bing Chen, Hao Fu, Hanshuo Mu, Cai Jun, Jinjun Feng</i>	
Micro Composite Vacuum Gauge for Space Applications.....	288
<i>Gang Li, Xiaodong Han, Zhengyi Ren, Yongjun Cheng, Detian Li</i>	
Investigation of Novel Compact and Lightweight C-Band Transit-time Oscillator with Low Magnetic Field.....	290
<i>Junpu Ling, Yufang He, Juntao He, Xiaobo Deng</i>	
An X-Band Relativistic Triaxial Klystron Amplifier Towards Repetitive Phase-Locked High Power Microwave Generation	293
<i>Jinchuan Ju, Wei Zhang, Fangchao Dang, Yunxiao Zhou, Fuxiang Yang, Tengfang Wang, Xingjun Ge, Juntao He</i>	
Development of Visible Light Extraction System for High Energy Photon Source	295
<i>Hongqi Zhang, Bofeng Wang, Jinyu Zhao, Jiaming Liu, Pengcheng Wang, Dechong Zhu, Jianyong Zhou, Xiaoxia Wang</i>	
Volcano-Structured Double-gated Field Emitter Arrays; Emission Characteristics and Applications.....	297
<i>Hidenori Mimura, Yoichiro Neo, Masayoshi Nagao, Kunio Tsutaki, Yoshihiro Kajikawa, Takatsugu Munehiro</i>	
Output Performance of Coaxial X-Band Magnetron	299
<i>Sandeep Kumar Vyas, N. Nayek, T Tiwari</i>	
The Study on Focusing Properties of Electron Beam with Ferromagnetic Loaded Vanes	301
<i>Xuechun Shi, Yang Liu, Li Qiu, Na Fei</i>	
Design of Low-Noise Electron Gun for Traveling Wave Tube Transmitter/Receiver	303
<i>Long Li, Baorong Qiu, Yan Chen, Xiwen Ling, Jianfeng Xiao, Qiongying Song, Zijian Wang, Rui Guo, Shuguang Wang, Zugen Guo</i>	
Weak Optical-Field Assisted Field Emission in Vertically Structure with Nano-vacuum-gap	305
<i>Jing Zhao, Kaiqiang Yang, Ruirui Jiang, Jiangleong Liu, Yubin Gong, Baoqing Zeng</i>	

Continuous Disinfection and Sterilization System Based on Ultra-Strong Ultraviolet Electrodeless Lamp.....	307
<i>Zongqi Yan, Jianlong Liu, Baoqing Zeng</i>	
Design of a Ladder-Type W-band Extended Interaction Circuit for Facilitating Dual π -Mode Switching.....	309
<i>Che Xu, Zhiwei Chang</i>	
Design of a Second Harmonic MW-Level Coaxial Gyrotron Cavity	311
<i>Lukas Feuerstein, Alexander Marek, Chuanren Wu, Stefan Illy, Manfred Thumm, John Jelonnek</i>	
Free-Electron-Driven Terahertz Laser on a Micro-Nano-Grating Dielectric Waveguide.....	313
<i>Ji-Tao Yang, Shao-Meng Wang, Chao-Hai Du, Zi-Wen Zhang</i>	
A HPM Dual Transmission Array Lens for Arbitrary Polarization Rotation.....	315
<i>Shige Shu, Biao Hu, Hao Li, Tianming Li, Yihong Zhou, Haiyang Wang</i>	
Design of a C-Band Klystron with High Power and High Efficiency	317
<i>Zixuan Su, Jinchi Cai, Shan Chen, Rui Guo, Jin Xu, Hairong Yin, Lingna Yue, Pengcheng Yin, Guoqing Zhao, Dagui Shen, Wenxiang Wang, Yanyu Wei</i>	
Design of a Novel Segmented Staggered Double Grating Slow Wave Structure for 340 GHz TWT	319
<i>Junwan Zhu, Zechuan Wang, Zhigang Lu, Jingrui Duan, Haifeng Chen, Yubin Gong</i>	
Design of a Planar Helix Slow Wave Structure for TWT Applications in the K-Band	321
<i>Salvatore Stivala, Giuseppe Lipari, Giuseppe Paterna, Eleonora Traina, Roberto Dionisio, Alessandro Busacca, Antonino Muratore, Patrizia Livreri</i>	
Design of a Q-Band High Efficiency Helix TWT	323
<i>Wei Li, Lingna Yue, Jin Xu, Hairong Yin, Jinchi Cai, Guoqing Zhao, Wenxiang Wang, Yanyu Wei, Jun He, Zhiqiang Zhang</i>	
Research on Phase-Locking of Ten-Vane 2.45GHz Microwave Oven Magnetron.....	325
<i>Zuoxin Tian, Hailong Li, Minsheng Song, Liangjie Bi, Yong Yin, Lin Meng, Bin Wang</i>	
Optimized Design of a Low Perveance and High Current Density Pierce Gun for Ka-Band TWT	327
<i>Jibran Latif, Zhanliang Wang, Huarong Gong, Atif Jameel, Yubin Gong</i>	
Research on S-Band High Efficiency Air Cooled Pulse TWT	329
<i>Yao Huixiang, Shen Yong, Liu Yiqun, Ren Jun, Xu Zhun, Chen Yuzhou, Liu Bin, Xu Hui, Zou Wenjing</i>	
Influence of the Boron-Doped Layer on the Secondary Electron Emission and Morphology of Diamond Film.....	331
<i>Yunrong Wang, Qiang Wei, Ruozheng Wang, Zhangcong Xia, Jie Li, Shengli Wu</i>	
Design of an Ultra-Wideband G-Band Gyro-TWT with Nonlinearly Tapered Circuit.....	333
<i>YeLei Yao, Guo Liu, Wei Jiang, Ran Yan, Jianxun Wang, Yong Luo</i>	
Research on High Power and High Efficiency X-Band Pulse Space Traveling Wave Tube for Spaceborne S*R	335
<i>Liu Yiqun, Zhang Xiaoran, Yao Huixiang, Shen Yong, Xu Hui, Zou Wenjing</i>	
Design and Electromagnetic Uniformity Study of a Novel Dual-Source Dual-Frequency Microwave Oven	337
<i>Wenlong Li, Hailong Li, Yong Yin, Bin Wang, Lin Meng</i>	

Demonstration of 0.34THz Traveling Wave Tube Amplifier.....	339
<i>Lin Zhang, Pan Pan, Meng Jia, Bowen Song, Kexin Ma, Jun Cai</i>	
Development of the Terahertz Sheet-Beam TWT Amplifier in BVERI	341
<i>Changqing Zhang, Pan Pan, Jun Cai, Xueliang Chen, Hanwen Tian, Siming Su, Kangcheng Zhou, Na Li, Ke Zhang, Jingjun Feng</i>	
Multi-Station Traveling Wave Tube Aging Test Information-based System	343
<i>Kehao Li, Dapeng Gong, Xiaochen Wei, Liguu Wu, Wenqing Wang, Tao Huang</i>	
32GHz Frequency Space Traveling-Wave Tubes for Deep Space Exploration TH4606/THL32070C / THL32150C.....	345
<i>Victor Guivarch, Jean Gastaud, Thibaut Dubois, Salma Sabil, Clément Vourch, Sylvain Caroopen, Frédéric André, R. Dionisio, F. Mentgen, J. Carron</i>	
Evaluating Mode Purity of Vortex Smith-Purcell Radiation	347
<i>Zi-Wen Zhang, Chao-Hai Du, Yu-Lu Lei, Juan-Feng Zhu, Fan-Hong Li</i>	
Communication Jamming of High Power Microwave Pulse to UAV.....	349
<i>Ruilong Song, Jingzhi Zheng, Mingwen Zhang, Xu Chen, Chunguang Ma, Yong Lu</i>	
Development of Cathode-Grid Assembly for Accelerator Application	351
<i>O. Z. Xiao, D. Y. He, S. C. Wang, B. L. Deng, Z. S. Zhou, J. Y. Li</i>	
Folded Waveguide Traveling-Wave Tube with Frequency-Selective Attenuator	353
<i>Yang Xie, Ningfeng Bai, Xiaohan Sun, Pan Pan, Jun Cai, Jinjun Feng</i>	
Research on Numerical Simulation Method of High-Power Microwave Breakdown Based on Fluid Mode.....	355
<i>Jianhuang Liu, Dagan Liu, Huihui Wang, Laqun Liu</i>	
Optimization of Phase Nonlinear Characteristics of Folded Waveguide Traveling-Wave Tube	357
<i>Han Lai, Jiezhong Luo, Feng Lan, Hang Du, Ruifeng Zhang, Huarong Gong</i>	
Final Version - The Low-Voltage X, K _u and W-Bands Magnetrons with Two Energy Outputs: New Possibilities.....	359
<i>Gennadiy Churyumov, Shuang Qiu, Nan-Nan Wang</i>	
Frequency-Tunable Sub-THz Gyrotron with External Reflectors: Design and Simulations.....	361
<i>Andrei Savilov, Yuriy Kalynov, Ivan Osharin, Ilya Bandurkin, Evgeniy Semenov</i>	
A Field Emission Performance Testing Device with Adjustable Electrode Spacing	363
<i>Xiaoqiang Pei, Yongjun Cheng, Wenjun Sun, Chengyao Wu, Dong Ding</i>	
Third-Harmonic 1 THz Large-Orbit Gyrotron for Creation of a Point-Like Plasma Discharge in a Gas Media.....	365
<i>Andrei Savilov, Yuriy Kalynov, Vladimir Manuilov, Boris Movshevich, Sergey Razin, Ilya Bandurkin, Alexander Sidorov, Alexander Vodopyanov, Alexey Veselov</i>	
Quasi-Analytical Spatio-Temporal Theory of the Gyro-BWO with Zigzag Electrodynamical System	367
<i>Ekaterina Novak, Andrei Savilov, Sergey Samsonov</i>	
Fabrication of G-Band Double Corrugated Waveguide by Precision Cutting	369
<i>Claudio Paoloni, Juan Socuellamos, Rupa Basu, Purushothaman Narasimhan, Rosa Letizia</i>	
The Optimization of a Miniature Mattauch Herzog Mass Spectrometer.....	371
<i>Zhengyi Ren, Meiru Guo, Zhe Yang, Gang Li, Jian Geng, Yongjun Cheng</i>	

Cold-Test of the W-Band Nonperiodic Concentric Arc FW-SWS Based on the Beam-Wave Resynchronization Method.....	373
<i>Zheng Wen, Fang Zhu, Jian Wang, Jirun Luo, Jun Zhang, Juntao He</i>	
Fast Microfocus Cold Cathode X-Ray Tube Based on Carbon Nanotube Array.....	375
<i>Yan Wang, Pengcheng Zhang, Siming Yu, Leicheng Wang, Zexiang Chen</i>	
Research on Simulation and Optimization of Micro-Heat Plate Structure of MEMS Gas Sensor	377
<i>Na Li, Yinghao Liu, Yanguang Zhang, Jianqun Cheng, Tianjun Ma, Wenjing Yue</i>	
Environmental Stability of 612-Aluminate with Different Phase Structures.....	379
<i>Tiantian Gong, Yanbo Zhou, Zhuang Zhang, Luxiang Xu, Xiaoyu Zhou, Hao Fu</i>	
Design of a Sheet Beam Electron Gun for a 220 GHz Traveling Wave Tube	381
<i>Huaxing Pan, Guoxiang Shu, Xinlun Xie, Jiakai Liao, Jingcong He, Wenlong He</i>	
KlyC Expansion: Traveling Wave Module in Klystron Simulation Code	383
<i>Jinchi Cai, Wei Li, Zixuan Su, Jin Xu, Linna Yue, Hairong Yin, Pengcheng Yin, Guoqing Zhao, Wenxiang Wang, Yanyu Wei, Igor Syratchev, Graeme Burt</i>	
Simulation and Experiment of G-Band Folded Waveguide Traveling-Wave Tube	385
<i>Hang Du, Rui Guo, Hongfei Li, Jiezhong Luo, Yujiang Liu, Huarong Gong</i>	
Machine Learning Study on the Electron Emission Properties of the Thermionic Cathode Impregnants	387
<i>Yizhuo Wang, Zhuang Zhang, Xiaoyu Zhou, Tiantian Gong, Hao Fu, Qinsheng Zhu</i>	
Design of the W-Band Smooth Gaussian Radiator.....	389
<i>Lianmin Zhao, Jianwei Liu, Xinjian Niu</i>	
Design and Experiment of Terahertz Pillbox Window	391
<i>Yuxin Zhang, Yachun Wan, Hang Du, Yujiang Liu, Hongfei Li, Jianfeng Xiao, Qiongying Song, Yan Chen, Zijian Wang, Rui Guo, Shuguang Wang, Huarong Gong</i>	
High Density ECR Discharge with Gyrotron Plasma Heating as a Multipurpose Ion Source	393
<i>Vadim A. Skalyga, Ivan V. Izotov, Sergey S. Vybin, Roman L. Lapin, Elena M. Kiseleva, Andrey V. Polyakov</i>	
Thermal Test of a Millimeter Wave Dual-Mode TWT	395
<i>Guangqiang Wang, Li Zheng</i>	
Design of a Low Temperature Plasma Generator	397
<i>Bin Xu, Bin Wang, Qinwen Xue, Yong Yin, Lin Meng, Hailong Li, Xuesong Yuan</i>	
Simulation Design of a 28 GHz Third Harmonic Cyclotron Magnetron Electron Gun.....	399
<i>Jun Feng, Kai Jia, Youheng Liu, Zhuofeng Li, Yinghui Liu</i>	
Effect of Nonuniform Electron Beam Generated by Electron Gun on Output Performance of Helix TWT	401
<i>Jingze Wang, Changsheng Shen, Jin Zhang, Hehong Fan, Ningfeng Bai, Xiaohan Sun</i>	
Study of W-Band High Efficient Extended Interaction Devices	404
<i>Jin Han, Tianzhong Zhang, Rongxing Zeng, Muhammad Shahab Sarwar, Xinjian Niu</i>	
Formation of Ba ₃ Sc ₂ WO ₉ on the Ba ₂ ScAlO ₅ Thermionic Cathode Surface.....	406
<i>Zhuang Zhang, Yanbo Zhou, Tiantian Gong, Luxiang Xu, Xiaoyu Zhou, Hao Fu</i>	

Design and Experimental Study of the W-Band TWT with Four-port Structure.....	408
<i>Xiaoqing Zhang, Hanshuo Mu, Chang Gao, Yinghua Du, Cai Jun, Jinjun Feng</i>	
Development and Modeling of W-Band Sheet-Beam Tubes with Grating Slow-Wave Structures	410
<i>Roman A. Torgashov, Andrey V. Starodubov, Ivan A. Chistyakov, Vladimir N. Titov, Dmitry N. Zolotykh, Igor A. Navrotsky, Nikita M. Ryskin</i>	
Demonstration of High Reliability RF Chain Based on High Power Gridded Tubes for Scientific Applications.....	412
<i>Tifenn Martin, André Boussaton, Philippe Chabert</i>	
Duality-Based Error Estimation and Mesh Adaptation in Electromagnetic Modelling.....	414
<i>Yin-Da Wang, Qiwei Zhan, Wen-Yan Yin</i>	
Test of Miniaturized Pseudo Spark Switch.....	416
<i>Yang Hongfei, Di Heyang</i>	
Microwave Drill Based on Frequency Adaptive Solid-State Sources	418
<i>Ting Zheng, Qiang Yang, Jianlong Liu, Baoqing Zeng</i>	
Investigation on the Electrical Characteristics of Vacuum Diode with Nanoscale Channel.....	420
<i>Wenhua Tang, Zhenfei Hou, Lu Gan, Shengli Wu, Yiwei Liu, Xiao Wang, Zhihua Shen</i>	
A Miniaturized kW-Level Metamaterial-Inspired Extended Interaction Klystron at 650 MHz	422
<i>Xuanming Zhang, Ning Li, Shaozhe Wang, Jianjun Zou, Hexin Wang, Junjie Huang, Yongming Li, Yurong Liu, Yubin Gong, Zhaoyun Duan</i>	
Design of Depressed Collector for 0.22THz Traveling Wave Tube	424
<i>Jianwei Zhong, Wenxin Liu, Jianliang Wang, Fengyuan Zhang, Peng He, Zhaochuan Zhang</i>	
SrVO ₃ Electron Emission Cathodes with Stable, >250 mA/cm ² Current Density.....	426
<i>Md Sariful Sheikh, Lin Lin, Ryan Jacobs, Dane Morgan, John Booske</i>	
Novel Broadband Dual-Polarization Four-way Power Divider for Waveguide Array Antennas.....	428
<i>Li Chen, Zewei Wu, Jie Yang, Mingxing Wang, Shuai Huang, Youlei Pu, Yong Luo</i>	
Theoretical Investigations on Static After Cavity Interaction in a Terahertz Gyrotron	430
<i>Zhinan Jing, Wei Wang, Tao Song, Na Yao, Jiao Jiao, Diwei Liu</i>	
The Development of a Miniature Double Focusing Mass Spectrometer.....	432
<i>Zhe Yang, Detian Li, Zhengyi Ren, Meiru Guo, Jian Geng, Yongjun Cheng</i>	
Study on Mutual Coupling of Two Magnetrons for Multi-Source Heating System	434
<i>Chaojie Guo, Zihao Zhang, Yang Yang, Huacheng Zhu</i>	
Research Progress of Oxide Cathode	436
<i>Xiaoxia Wang, Mingfeng Meng, Ruoqi Zhang, Qinglan Zhao, Yun Li</i>	
Research on Parallel Algorithms for High-Power Microwave Devices Based on GPU.....	438
<i>Binrong Shi, Hengye Zhu, Dagang Liu</i>	
Development of MBK Based LINAC in BVERI	440
<i>Zhizhi Wan, Xianghua Zuo, Peixing Zhu</i>	
Design and Optimization of Water Load on Waveguide Structure	442
<i>Youheng Liu, Jianwei Liu, Xinjian Niu</i>	

Suppression of Parasitic Modes in Gyrotrons with an Additional Resonator Coil	444
<i>Xianfei Chen, Gregory S. Nusinovich, Houxiu Xiao, Donghui Xia, Xiaotao Han, Liang Li</i>	
Research on the Electrostatic Field Calculation of Double-Sided Dielectric-loaded Parallel Plate Waveguide	446
<i>Tao Wang, Xue Zhang, Ding Li</i>	
A Broadband Sapphire Disc Pillbox Window for Terahertz Traveling-Wave Tubes	448
<i>Zhifang Lyu, Zhanliang Wang, Jibo Dong, Zhaowei Qu, Mingcheng Han, Shengkun Jiang, Xuyuan Chen, Tao Tang, Yubin Gong, Zhiqiang Zhang, Zhaoyun Duan</i>	
A 2.45 GHz Microwave-Excited Atmospheric Pressure Plasma Jet Source of Low Breakdown Power Threshold.....	450
<i>Juncheng Xu, Yubin Peng, Yongning He</i>	
Recent Test Results on the Terahertz Gyrotron Under Development in the WHMFC	452
<i>Houxiu Xiao, Xianfei Chen, Yu Huang, Donghui Xia, Zhenglei Wang, Xiaotao Han</i>	
Advanced Bragg Structures Open Laterally as a Way to Enhance Selectivity	454
<i>Nikolai Yu. Peskov, Ekaterina D. Egorova</i>	
Powerful Long-Pulse FEL Based on Linac LIU: Simulations and Optimization of Parameters for Initial Experiments at 0.3 THz Range	456
<i>Nikolai Yu. Peskov, Naum S. Ginzburg, Yulia S. Oparina, Andrey V. Savilov, Alexander S. Sergeev, Vladislav Yu. Zaslavsky, Ekaterina D. Egorova, Andrey V. Arzhannikov, Danila A. Nikiforov, Evgeny S. Sandalov, Stanislav L. Sinitsky</i>	
Wide-Band Pulsed Travelling Wave Tube Amplifier of Kilowatt Scale for Space Application	458
<i>Hui Li, Zehua Liang, Qianwei Chen, Weibo Huang, Hao Fu, Xiaoyue Lu</i>	
Monte Carlo Simulation and Experimental Demonstration of Low-Pressure Microwave Breakdown in Parallel Plates	461
<i>Yubin Peng, Zhangsong Mao, Juncheng Xu, Yongning He</i>	
Measurements of a G-Band Broadband TWT with Driving Voltage Over Designed Operating Voltage.....	463
<i>Yuan Feng, Bowen Song, Ying Li, Xingwang Bian, Pan Pan, Jinjun Feng</i>	
Design of a High-Power W-band Rising-Sun Spatial Harmonic Magnetron for Fusion Power Generation	465
<i>Jin Zhang, Tianzhong Zhang, Xiaodong Chen</i>	
Two Surface Multipactor with Non-Sinusoidal RF Fields and Space Charge Effects.....	467
<i>Asif Iqbal, De-Qi Wen, John Verboncoeur, Peng Zhang</i>	
Study on Wide-Band Elliptic Staggered Vane Slow-wave Structure.....	469
<i>Xueliang Chen, Changqing Zhang, Pan Pan, Jun Cai, Jinjun Feng</i>	
A Sheet Beam Electron Gun Using Thermal Emission with Large Beam Current for 0.22 THz Traveling-Wave Tubes.....	471
<i>Xuyuan Chen, Shengkun Jiang, Lin Xu, Jibo Dong, Yasong Fan, Guang Yang, Wenjing Zou, Lili Li, Jinjun Feng, Yubin Gong, Zhaoyun Duan</i>	
Design and Test of an E-Band CW Space TWT	473
<i>Zhiliang Li, Mengyuan Li, Guoqiang Shi, Wenlong Liang, Xiaofeng Liang, Bo Qu</i>	

Optimization of 340GHz EIK High-Frequency Structure	475
<i>Tianzhong Zhang, Rongxing Zeng, Muhammad Shahab Sarwar, Guo Guo, Xinjian Niu, Yanyu Wei</i>	
Design and Simulation for Three-Dimensional Integrated Electron Optics System	477
<i>Pengpeng Wang, Cunjun Ruan</i>	
Simulation Investigation of Reversed Cherenkov Radiation Amplifier	480
<i>Chuanhao Wang, Xiaoyi Li, Zhifang Lyu, Shengkun Jiang, Xuanming Zhang, Huarong Gong, Yubin Gong, Zhaoyun Duan</i>	
Novel Semi-Ellipse Bending Waveguide Slow Wave Structure for Traveling-Wave Tube.....	482
<i>Feng Lan, Han Lai, Zugen Guo, Ruifeng Zhang, Hang Du, Jiezhong Luo, Huarong Gong</i>	
Final Version-Orbital Performance of L-band TWTA for BeiDou Navigation Satellites	484
<i>Feng Xixian, Sun Peng, Miao Guoxing, Su Yuansheng, Cheng Hongxia, Liu Yiqun</i>	
Preliminary Experimental Verification of High Efficiency Q-Band Helix Traveling-Wave Tube.....	486
<i>Jibo Dong, Pu Zhang, Silong Huang, Guang Yang, Ying Li, Hongxia Cheng, Chuanhao Wang, Zhifang Lyu, Shaomeng Wang, Yubin Gong, Zhaoyun Duan</i>	
Microwave-Assisted Reactive Distillation: Simulation and Experimental Validation	488
<i>Chang Shu, Xin Gao</i>	
A 0.65THz Extended Interaction Amplifier with Shifted Beam Tunnel.....	490
<i>Hanghui Deng, Shaomeng Wang, Yang Dong, Hanbang Wu, Ping Zhang, Zhanliang Wang, Yubin Gong</i>	
A Miniaturized 220 GHz Circular WaveguideTE ₀₁ -Rectangular Waveguide TE ₁₀ Mode Converter.....	492
<i>Guo Guo, Zongyao Yang, Jian Huang, Yubin Gong, Naichang Pei</i>	
An Electric Field Compression Technique Based on the TM ₀₂₀ Mode Cylindrical Resonant Cavity	494
<i>Jin Cheng, Jiawei Long, Chong Gao, Yong Gao, En Li</i>	
Deposition and Characterization of Ammonia-Free PECVD Silicon Nitride.....	496
<i>Yue Li, Yi Luo, Zhizeng Fang, Dengqin Xu, Qi Li, Xing Zhang, Yi Wang, Dedong Han</i>	
Study on Logarithmic Dual Gradient Helix Slow Wave Structure	499
<i>Tenglong He, Hailong Wang, Duo Xu, Yubin Gong</i>	
Work Function Mapping of Single-Crystal Graphene	501
<i>Kaiqiang Yang, Jianlong Liu, Jing Zhao, Yubin Gong, Baoqing Zeng</i>	
A 5.0 MW, 805 MHz, Long Pulsed Klystron for Spallation Neutron Source at the Oak Ridge National Laboratory.....	503
<i>Naoya Munemoto, Mitsunori Sakamoto, Akihito Hara, Hiroto Urakata, Takahito Harada, Yoshihisa Okubo</i>	
Three-Dimensional Parallel Particle Simulation Software Based on the Linux System	505
<i>Qizhi Guan, Liudong Nie, Huihui Wang</i>	
G-Band Traveling Wave Tube Based on the Elliptical Pillar Defect Photonic Crystal	507
<i>Zechuan Wang, Junwan Zhu, Zhigang Lu, Jingrui Duan, Haifeng Chen, Yubin Gong</i>	
Development of High Efficiency Klystron at IHEP*	509
<i>Z. S. Zhou, O. Z. Xiao, G. X. Pei, Z. J. Lu, J. D. Liu, N. C. Zhou, M. Iqbal, X. He, Z. D. Zhang, J. L. Wang, C. Meng, Y. Liu, Y. A. Wang, Dong Dong, Y. L. Chi, A. Aleem</i>	

Research on Fast-Warm Cathode with High Emission for Vacuum Electronic Device.....	511
<i>Hui Wang, Ke Zhang</i>	
A High Frequency Characteristic Test Scheme of Nanoscale Vacuum Channel Triode	513
<i>Yingao Sun, Mei Xiao, Yuehong Du, Boyu Chen, Xiaobin Zhang</i>	
Effect Analysis of Local-Regional Increment of Secondary Emission Yield on Multipactor Formation	515
<i>Shu Lin, Huan Zhong, Cheng Chen, Yongdong Li, Patrick Y. Wong, Peng Zhang</i>	
Development and Modeling of a V-Band Traveling-Wave Tube with a Microstrip Meander-Line Slow-Wave Structure	517
<i>Nikita M. Ryskin, Andrey V. Starodubov, Ilya O. Kozhevnikov, Roman A. Torgashov, Viktor V. Galushka, Igor A. Navrotsky, Dmitry A. Nozhkin, Alexey A. Serdobintsev, Andrey G. Rozhnev</i>	
Research on Testing of Positive-Negative Polarity Pseudo-spark Switch	519
<i>Heyang Di, Hongfei Yang, Guantong Meng, Zheng Zhao</i>	
Multipactor Dynamic Modeling with Variable Secondary Emission Property Caused by Damage Accumulation	521
<i>Shu Lin, Hao Qu, Ming Weng, Yongdong Li, Patrick Y. Wong, Peng Zhang</i>	
A X-Band Tunable Diplexer Based on Talbot Effect.....	523
<i>Xin Feng, Hao Li, Biao Hu, Tianming Li, Haiyang Wang, Yihong Zhou</i>	
An X-Band Over-mode Relativistic Backward Wave Oscillator.....	525
<i>Jingfan Zuo, Shifeng Li, Falun Song, Yang Wu, Hua Huang, Limin Sun</i>	
Simulation of Sub-THz Backward-Wave Oscillators with a Self-Focused Pseudospark-Sourced Sheet Electron Beam	527
<i>Vladimir Titov, Roman A. Torgashov, Niraj Kumar, Om Ranjan, Anand Abhishek, Nikita M. Ryskin</i>	
Study of Mode-Competition Processes in a High Power Multimode Gyrotron Using Modified Quasilinear Model	529
<i>Nataliia V. Grigorieva, Asel. A. Adilova, Andrew G. Rozhnev, Nikita M. Ryskin</i>	
Design of a Sheet Beam Electron Gun and a Depressed Collector for Terahertz TWT	531
<i>Weihua Ge, Hang Ren, Jianjie Li, Sheng Yu</i>	
Simulation of the Starting Process of a 94GHz Cyclotron Oscillator.....	533
<i>Shuangshi Zhang, Chaojun Lei, Xinjian Niu, Yanyu Wei, Yinghui Liu, Hongfu Li</i>	
Investigation on Scadium Thin Films on Dispenser Cathodes	535
<i>Junhao Sun, Junyan Gao, Yunfei Yang, Ruimin Zhang, Hexiong Liu, Jinshu Wang</i>	
Design of an H-Band Rectangular TE ₃₀ Mode Power Coupling Structure for High-Order Overmoded Multiple Sheet Electron Beam Devices	537
<i>Guangxin Lin, Guoxiang Shu, Jujian Lin, Qi Li, Jingcong He, Junchen Ren, Jiakai Liao, Wenlong He</i>	
A Mode-Suppression Circuit for the Ka-Band TE ₀₁ Gyrotron Travelling Wave Tube: Design and Measurement	539
<i>Yuan Ma, Guo Liu, Yingjian Cao, Weijie Wang, Yu Wang, Wei Jiang, Yelei Yao, Jianxuan Wang, Yong Luo</i>	

Reinforcement Learning for Microwave Windows Tuning.....	541
<i>Li Liao, Zheng Tan, Haiying Yuan, Yulu Hu, Luanfeng Gao, Guoqun Cao</i>	
Phase Synchronization Principle in 5.8 GHz Magnetron Phased Array	543
<i>Bo Yang, Xiaojie Chen, Tomohiko Mitani, Naoki Shinohara</i>	
Terahertz Computed Tomography Imaging Based on an Improved Back-Projection Algorithm	545
<i>Zhen Ding, Jun Zhou, Jiajia Qian, Luyang Liu, Xiuxiu Yang, Qianfei Wang</i>	
Fabrication of Sub-10 Nm Gap by Using Electron Beam Lithography.....	547
<i>Bingnan Yan, Xuecou Tu, Chen Zhang, Wohu Wang, Ziyao Ye, Xiaoqing Jia, Lin Kang, Peiheng Wu</i>	
A Multi-Stage Depressed Collector for 0.22 THz Sheet Beam Traveling-Wave Tubes	549
<i>Xinyuan Zhang, Shengkun Jiang, Zhanliang Wang, Zhifang Lyu, Tao Tang, Huarong Gong, Yubin Gong, Zhaoyun Duan</i>	
Nondestructive Testing Based on Near Field THz SAR Imaging.....	551
<i>Jiajia Qian, Jun Zhou, Zhen Ding, Luyang Liu, Xiuxiu Yang, Qianfei Wang</i>	
Design and Cold Test of a Mode-Suppression Circuit for the G-Band Gyro-TWT.....	553
<i>Yingjian Cao, Guo Liu, Yuan Ma, Yu Wang, Weijie Wang, Wei Jiang, Yelei Yau, Jianxun Wang, Yong Luo</i>	
Theoretical Analysis and Model Design of a Sub-Terahertz Band Rectangular TE ₁₀ to TE ₃₀ Mode Converter.....	555
<i>Jujian Lin, Guoxiang Shu, Guangxin Lin, Qi Li, Jingcong He, Junchen Ren, Jiakai Liao, Wenlong He</i>	
Spectroscopic Study of Ballast Resistance on the Supersonically Expanding Argon Using a Micrometer Hollow Cathode Discharge	557
<i>Yu Gu, Nicolas Suas-David, Jordy Bouwman, Yongdong Li, Harold Linnartz</i>	
Multiphysics Simulation of Terahertz Pulse Induced Photoacoustic Wave	559
<i>Luyang Liu, Jun Zhou, Lin Huang, Zheng Liang, Kui Zhou, Peng Li</i>	
Design of S-Band High-efficiency Magnetrons Based on Cooker Magnetron.....	561
<i>Yunqi Ge, Yong Yin, Hailong Li, Liangjie Bi, Lin Meng, Bin Wang</i>	
A Low Reflection Folded Waveguide Slow Wave Structure for Millimeter Wave Traveling Wave Tube.....	563
<i>Luqi Zhang, Wenqiang Lei, Rui Song, Yi Jiang, Peng Hu, Guowu Ma, Hongbin Chen</i>	
Research on S-Band 3.3MW Pulsed Magnetron	565
<i>Yurong Liu, Yongming Li, Shengming Li, Rui Ge, Feng Pan, Qingsong Xu, Junjie Huang, Shaozhe Wang, Janjun Zou, Enyao Qin, Hao Huang, Qilong Wang</i>	
Source of Submm Wave Flux with Multimegawatt Pulse Power Based on Relaxation of a Relativistic Electron Beam in a Plasma Column	567
<i>Andrey Arzhannikov, Denis Samtsov, Stanislav Sinitsky, Evgeny Sandalov, Sergey Popov, Petr Kalinin, Konstantin Kuklin, Magomedrizy Atlukhanov, Vasilii Stepanov</i>	
Theoretical Study on the Effect of THz Waves on Nerve Action Potential	569
<i>Lianghao Guo, Kaicheng Wang, Shaomeng Wang, Yubin Gong</i>	
Investigation of Photonic Crystal Structure for Staggered Double Grating Slow Wave Structure	571
<i>Chang Wang, Jianxun Wang, Yixin Wan, Xinjie Li, Zihao Dai, Yong Luo</i>	

Uniformity Detection of Covering Layers for Workpieces with Near-Field Microwave Microscopy	573
<i>Haoyun Liu, Juntao Guo, Zhe Wu</i>	
Design of an Electron Optical System for a 263 GHz Sheet Beam TWT	575
<i>Shasha Qiu, Yuan Zheng</i>	
Design of Coaxial Input Cavity with Coupler for Inductive Output Tube.....	577
<i>Vaishali Singh, Vishant Gahlaut, A Mercy Latha, Meenu Kaushik</i>	
Tunability Enhancement of Ku-Band Oscillator Using Distributed Bragg Reflectors.....	579
<i>Muhammad Khawar Nadeem, Shaomeng Wang, Zhanliang Wang, Bilawal Ali, Atif Jameel, Yubin Gong</i>	
A Passive Microwave Pulse Compressor Using Dual Spherical Cavities	581
<i>Liangping Chen, Yong Yin, Hailong Li, Bin Wang, Liangjie Bi, Haixia Liu, Yu Qin, Minsheng Song, Lin Meng</i>	
Qualitative Analysis of Heavy Metals in Onion Epidermal Cells by Near-Field Microwave Microscopy.....	583
<i>Jun-Tao Guo, Hao-Yun Liu, Zhe Wu</i>	
The Study of Dielectric Constant of Sapphire Based on Terahertz Time-Domain Spectroscopy.....	585
<i>Wei Xu, Xuan Dong, Jie Shu, Chengyao Peng, Hongzhu Xi</i>	
Rising-Sun Magnetron with Axial Extraction of Radiation TE ₀₁ -mode	587
<i>Haixia Liu, Husen Zhang, Yong Yin, Lin Meng, Bin Wang, Hailong Li</i>	
Development of Metrological-Grade Spinning Rotor Gauge	589
<i>Zhenhua Xi, Meiru Guo, Wenjie Jia, Zhengyi Ren, Huzhong Zhang, Yongjun Cheng</i>	
Online Measurement Approach of the Transformer Parasitics for the LCLC Resonant Converter in the Space TWTA Applications.....	591
<i>Bin Zhao, Jianxiao Dai, Han Ma, Yuhang Xu, Gang Wang</i>	
Design of Broadband Window for D Band Traveling Wave Tube.....	593
<i>Qingmei Xie, Ji Chen, Zhangxiong Zi, Jinjun Feng</i>	
High-Selective Bragg Resonators with 3D Distributed Feedback for Free-Electron Lasers of sub-THz/THz Band	595
<i>Ekaterina D. Egorova, Nikolai Yu. Peskov, Alexander S. Sergeev</i>	
Low-Threshold Microstrip Limiter Based on Polycrystalline YIG	597
<i>Longhai Huang, Haiyang Wang, Tianming Li, Hao Li, Yihong Zhou, Biao Hu</i>	
The Random Vibration Analysis of Electron Gun Based on Finite Element Method.....	599
<i>Zaichao Yang, Li Xu, Junhui Yin, Hao Wang, Xing Li, Bin Li</i>	
Investigation on the Short-Circuit Withstand Capability of Press-pack IGBT Modules with Optimized Package Structures.....	601
<i>Renkuan Liu, Hui Li, Ran Yao, Wei Lai, Zeyu Duan, Francesco Iannuzzo</i>	
The Analysis of THz Electromagnetic Waves Effect on Acetylcholine Synthesis Based on MD Simulation	607
<i>Hui Ning, Kaicheng Wang, Qin Zhang, Lianghao Guo, Shaomeng Wang, Yubin Gong</i>	
Effect of Ultra Violet Light on Planar Field Emitters.....	609
<i>Ranajoy Bhattacharya, Marco Turchetti, P. Donald Keithley, Karl K. Berggren, Jim Browning</i>	

Finite Element Method Based on High Order Mesh for Traveling-Wave Tube Simulation.....	611
<i>Yiyao Wang, Qiwei Zhan, Wen-Yan Yin</i>	
High Mode Purity TE ₀₁ Input Coupler for Ka-Band Gyro-TWT	613
<i>Chenyan Tian, Yong Xu, Gaolei Wang, Weiqing Zhao, Wei Wang</i>	
High-Order Discontinuous Galerkin Method for Vacuum Electron Device Modeling.....	616
<i>Haoqiang Feng, Wen-Yan Yin, Qiwei Zhan</i>	
Novel Extra-Wide Tunnel Rectangular Folded Waveguide Traveling Wave Tube.....	619
<i>Yuxin Wang, Yuan Zheng, Shaomeng Wang, Ping Zhang, Zhanliang Wang, Yubin Gong</i>	
Effect of Deposition Temperature on Al ₂ O ₃ Films Deposited by Atomic Layers Deposition	621
<i>Yi Luo, Yue Li, Zhizeng Fang, Xing Zhang, Yi Wang, Dedong Han</i>	
Simulation and Experimental Study on Secondary Electron Emission of Magnesium Oxide Under Electron Incident	623
<i>Lei Guo, Chunke Shi, Yilei He, Duoshu Wang</i>	
A Novel Design of Electron Gun for Terahertz Traveling Wave Tube	626
<i>Zugen Guo, Ruifeng Zhang, Feng Lan, Han Lai, Zhanliang Wang, Zhigang Lu, Zhaoyun Duan, Yubin Gong, Huarong Gong, Zijian Wang, Rui Guo, Shuguang Wang, Qiongying Song</i>	
Modeling of a Complex Cavity Resonator with Unequal Cavity Lengths for the Frequency-Tunable Sub-THz Gyrotron.....	628
<i>Maria M. Melnikova, Andrey G. Rozhnev, Nikita M. Ryskin</i>	
Study of a 0.67 THz TWT Based on Slotted Quasi Sine Waveguide	630
<i>Jinjing Luo, Jin Xu, Pengcheng Yin, Jian Zhang, Dongdong Jia, Wuyang Fan, Yue Ouyang, Jinchi Cai, Lingna Yue, Hairong Yin, Zhanliang Wang, Yubin Gong, Yanyu Wei</i>	
Design of a High Average Power Gyro-TWT Loaded with Dielectric High-frequency System	632
<i>Weiqing Zhao, Yong Xu, Chenyan Tian, Wei Wang, Gaolei Wang</i>	
A MEMS-Type Hot-cathode Ionization Gauge with Carbon Nanotube-based Electron Emitters.....	635
<i>Yuwei Wang, Xianlong Wei</i>	
Design of Ka-Band Single-Anode Magnetron Injection Gun with Low Velocity Spread.....	637
<i>Wei Wang, Yong Xu, Weiqing Zhao, Chenyan Tian, Gaolei Wang</i>	
Analysis of Electromagnetic Characteristics of an Interaction Extended Cavity	639
<i>Shi Ningjie, Changqing Zhang, Zhanliang Wang, Shaomeng Wang, Zhigang Lu, Huarong Gong, Tao Tang, Zhaoyun Duan, Yubin Gong</i>	
Design and Fabrication Aspects of an E-Band Double Corrugated Waveguide Traveling Wave Tube	641
<i>Claudio Paoloni, Rupa Basu, Vincent Da Costa, Jonathan Gates, Purushothaman Narasimhan, Rosa Letizia</i>	
Design of a Broad-Band and High-power Water-load for Q-Band Gyro-TWT.....	643
<i>Gaolei Wang, Yong Xu, Chenyan Tian, Weiqing Zhao, Wei Wang</i>	
Development of a Ka-Band 100-W Space TWT	646
<i>Linlin Cao, Dan Zhu, Dehui Zhai, Jun He, Yuhui Sun, Qinglun Liu, Haiqiang Li, Mingguang Huang</i>	

High-Dimensional Uncertainty Quantification in Multi-Physics Simulation for 3D Large-Scale High-Power Microwave System.....	648
<i>Bozhao Sun, Wen-Yan Yin, Qiwei Zhan</i>	
Simulation and Cold Test of a W-Band Staggered Double Vane Traveling Wave Tube.....	651
<i>Shaokun Xu, Xing Liu, Feifei Du, Zhanliang Wang, Shaomeng Wang, Zhixuan Zhang, Qidi Luo, Yuan Zheng, Ping Zhang, Yubin Gong</i>	
Keynote Speaker: Towards Miniaturized Vacuum Tubes for Millimeter and Terahertz Waves.....	653
<i>Oktay Yilmazoglu</i>	
Design of X-Band RBWO Output System	655
<i>Ran Liu, Liangjie Bi, Hailong Li, Qinwen Xue, Yong Yin, Lin Meng, Huihui Wang</i>	
Design of a Tunable PCM-QM Focusing System for a 220 GHz Sheet Beam Traveling-Wave Tube	657
<i>Xinlun Xie, Guoxiang Shu, Huaxing Pan, Shaochen Ma, Jiawei Tang, Wenlong He</i>	
Exploration of New Self-Limiting Atomic Layer Etching Methods for Molybdenum.....	659
<i>Zhizeng Fang, Yue Li, Yi Luo, Xing Zhang, Yi Wang, Dedong Han</i>	
Experimental Study of a Low Voltage, 100s'-KW, X-Band, Multiport Magnetron for Phased Array Applications.....	661
<i>Liangjie Bi, Yu Qin, Xinyu Jiang, Hailong Li, Yong Yin, Bin Wang, Lin Meng, Pan Cui, Dagui Shen, Rui Guo, Xiaolian Zhang</i>	
Project of Pulsed Undulator with Millimeter Period for THz and X-Ray Sources.....	663
<i>Ilya Bandurkin, Alexei Fedotov, Naum Ginzburg, Pavel Loginov, Nikolai Peskov, Andrei Savilov</i>	
Design of Two-Stage Flat-roofed Sine Waveguide SWS for a 6kW Level Traveling Wave Tube	665
<i>Zhenxing Li, Xinke Zhang, Jin Xu, Zheng He, W. Y. Fan, H. R. Yin, Lingna Yue, Jinchi Cai, Pengcheng Yin, Wenxiang Wang, D. Z. Li, Yanyu Wei</i>	
3-D PIC Simulation of a 0.14 THz Traveling Wave Tube with Varying Emission Angles.....	667
<i>Shirui Miao, Yu Fan, Linlin Cao, Kangsong Tang</i>	
Amorphous SiO _{2-x} Nanoparticles Synthesized by Pulsed Plasma in Liquid Method.....	669
<i>Weijian Ma, Tsutomu Mashimo, Shinichi Yoda, Hiroshi Isobe, Akira Yoshiasa, Yulai Wu</i>	
Investigation of Photocathodes Based on Phosphorus Doped Nanocrystalline Diamond Films	671
<i>Aleksey Gorbachev, Alexander Vikharev, Andrei Afanasiev, Anatoly Vikharev, Ilya Bandurkin, Dmitry Radishev, Michail Drozdov, Sergey Bogdanov</i>	
Multiple Beam Higher Order Mode W-Band Extended Interaction Oscillator with Improved Transmission Rate	673
<i>Muhammad Shahab Sarwar, Xinjian Niu, Yinghui Liu, Tianzhong Zhang, Lina Wang, Rongxing Zeng</i>	
Study of the Influence of Synchronization on the Mode Competition in a Gyrotron.....	676
<i>Asel B. Adilova, Andrey G. Rozhnev, Nikita M. Ryskin</i>	
Inter-Dynode Voltage Optimization of Discrete Dynode Electron Multipliers by Numerical Simulation	678
<i>Li Liu, Wenbo Hu, Dezhen Zhao, Jie Li, Shengli Wu, Hulin Liu</i>	
The Study of Intensity of Surface Plasmon in a Metal Film Excited by Free Electrons	680
<i>Yin Dong, Ping Zhang, Jing Shu, Shuhe Zhang, Weiming Rong, Shaomeng Wang, Yubin Gong</i>	

Numerical Synthesis Method of a Dual Frequency Waveguide Directional Coupler for Miter Bend.....	682
<i>Lina Wang, Jianwei Liu, Xianjian Niu, Yinghui Liu, Sarwar Muhammad Shahab</i>	
Diamond Substrate Planar Slow-Wave Structures for Millimeter Wave Traveling Wave Tubes.....	684
<i>G. Ulisse, V. Krozer</i>	
Research on High-Resolution Displacement Detection Technology in Space	686
<i>Hengtong Xu, Detian Li, Jungang Lei, Wenze Tao, Yunpeng Li</i>	
Electric Properties of GaAs PCSSs with Ni/Ge/Au/Ni/Au Electrodes Under Different Annealing Conditions	688
<i>Jinhong Wei, Fanzheng Zeng, Song Li, Hong Chen, Zebin Fu, Lanqi Zhang</i>	
Introduction of Recent Research Progress on RM at IAE, CAEP	690
<i>Dong Wang, Fen Qin, Yong Zhang, Sha, Xu Lurong Lei, Xianghe Fang, Binquan Ju</i>	
Improved Laser Microprocessing of 2D Planar Microstrip Slow-Wave Structures for Millimeter- Band Vacuum Microelectronic Devices	695
<i>Dmitrii Nozhkin, Andrey Starodubov, Ilya Kozhevnikov, Viktor Galushka, Alexey Serdobintsev, Alexey Lededev, Anton Kozyrev, Nikita Ryskin</i>	
Simulation Study of High-Power Annular Beam Extended Interaction Device	697
<i>Qinwen Xue, Zhongtao Cui, Rongxing Zeng, Xuesong Yuan, Yang Yan</i>	
Simulation of RTD Material System	699
<i>Weiming Rong, Ping Zhang, Guohao Yu, Shaomeng Wang, Bingliang Zhang, Yubin Gong</i>	
Oscillation Threshold in the Recirculating Planar Crossed-Field Amplifier	701
<i>Christopher Swenson, Ryan Revolinsky, Emma Guerin, Y. Y. Lau, Nicholas Jordan, Ryan McBride, Ronald Gilgenbach</i>	
Multiple-Tunnel Microfabricated Slow-Wave Structures for Millimeter-Band Traveling-Wave Tubes with Multiple Sheet Electron Beams	703
<i>Nikita M. Ryskin, Andrey V. Starodubov, Roman A. Torgashov, Alena A. Rostuntsova, Igor A. Navrotsky, Andrey G. Rozhnev</i>	
Study on Multiphysical Fields of S-Band Multi-Beam Klystron Electron Gun	705
<i>Yaqi Zhao, Cunjun Ruan, Feng Zhang</i>	
Study on High-Gain Reflectarray Antenna for X-band Based on Phase Gradient Ultra-thin Surface Structure	707
<i>Kexiang Hu, Yaxin Zhang, Lin Zou, Huajie Liang, Tao Jiang</i>	
Design and Analysis of Electron Optics System for 0.67 THz Staggered Grating Backward Wave Oscillators.....	709
<i>Jianliang Wang, Wenxin Liu, Zhiqiang Zhang, Fan Deng, Jianwei Zhong, Peng He</i>	
Angle-Controlled Simth-Purcell Radiation Excited by Free Electron Beam.....	711
<i>Xiaoqiuyan Zhang, Tianyu Zhang, Tao Zhao, Zhenhua Wu, Shenggang Liu, Min Hu</i>	
Experimental Study of Quasi-Optical 170 GHz Pulse Compressor with Laser-Driven GaAs Switch	713
<i>Gregory Denisov, Alexey Palitsin, Dmitriy Sobolev, Vladimir Parshin, Mikhail Glyavin</i>	
A Chamfered-Shaped Microstrip Meander Line Slow-wave Structure for D-band Traveling-wave Tube.....	715
<i>Jing Zeng, Guo Guo, Zongyao Yang, Xinjian Niu, Yinghui Liu, Yanyu Wei</i>	

Design and Simulation of Electron Optics System for 1.0 THz Backward-Wave Oscillator	717
<i>Kedong Zhao, Cunjun Ruan, Wenxin Liu</i>	
Improved Synthesis of Quasi-Optical Launchers Used in Injection Locked Gyrotrons.....	719
<i>Jianbo Jin, Gerd Gantenbein, Stefan. Illy, John Jelonnek, Manfred. Thumm</i>	
Design and Simulation Study of C-Band Ridge-Loaded Magnetically Insulated Line Oscillator	721
<i>Bilawal Ali, Shaomeng Wang, Zhanliang Wang, Muhammad Khawar Nadeem, Atif Jameel, Yang Dong, Yubin Gong</i>	
Implementation of the Simple Algorithm for Space Charge Limited Emission in a 1-D Particle-in-Cell Simulation	723
<i>Guo-Ning Wang, Kaviya Aranganadin, Hua-Yi Hsu, John P. Verboncoeur, Ming-Chieh Lin</i>	
Numerical Simulation of Relativistic Backward-Wave Tubes	725
<i>Cong Lin, Dagang Liu</i>	
Sub-GW Power W-band Oversized Surface-Wave Oscillator with 2D-Periodical Slow-Wave Structure of Cylindrical Geometry	727
<i>Naum S. Ginzburg, Vladislav Zaslavsky, Nikolay Yu. Peskov, Edward B. Abubakirov, Andrey N. Denisenko, Andrey M. Malkin, Mikhail D. Proyavin, Alexander S. Sergeev</i>	
Transformation and Adaptation of the Kiloampere Electron Beam Generated in the Linear Induction Accelerator for Pumping a Terahertz FEL.....	729
<i>Evgeny S. Sandalov, Stanislav L. Sinitsky, Danila A. Nikiforov, Andrey V. Arzhannikov, Naum S. Ginzburg, Nikolai Yu. Peskov, Pavel V. Logachev, Petr A. Bak, Vadim A. Pavluchenko, Kseniya K. Ryabchenko, Igor N. Mescheryakov, Roman V. Protas</i>	
A Planar Extended Interaction Oscillator Working at π - Mode	731
<i>Yunhui Li, Yang Dong, Yuxin Wang, Shaomeng Wang, Ping Zhang, Zhanliang Wang, Yubin Gong</i>	
Research on a Terahertz Transmission Line Used for Solid-State 400MHz DNP-NMR Spectrometer	733
<i>Zhang Aoge, Wang Wei, Jiao Jiao, Yao Na, Song Tao, Liu Diwei</i>	
Low-Power Field Emission Arrays with Sharp Emitters.....	735
<i>Shabnam Ghotbi, Saeed Mohammadi</i>	
Final Version - Improvements on Distortion of Frequency Spectrum for a Type of X Band Magnetron Via PIC Simulation	737
<i>Jianzhong Mu, Wendou Niu, Zhengjun Ma, Jie Zhao, Zhicheng Ma, Shijian Wang</i>	
Study on 1THz Staggered Double-Grating Backward Wave Oscillator	739
<i>Fan Deng, Wenxin Liu, Jianliang Wang, Fengyuan Zhang, Peng He</i>	
Carbon Nano Materials Vacuum Electronics.....	741
<i>Peng Liu, Kaili Jiang, Shoushan Fan</i>	
Optimal Design of Electron Gun for an X-Ray Tube	745
<i>Shuai Tang, Yan Bai, Hehong Fan, Liucheng Wang</i>	
A Measurement Apparatus for Outgassing Rate of Packaging Materials and Its Background Compensation Method.....	747
<i>Chuansen Yang, Yaowen Lu, Qianrui Chen, Junru Chen, Chunyao Song, Yuyang Guo</i>	
Multi-Frequency THz Source Based on Coherent Smith-Purcell Radiation	749
<i>Hanqi Feng, Fang Liu, Yidong Huang</i>	

Design and Simulation of an L-Band Ferrite Waveguide Circulator for Industrial Applications	751
<i>Kaviya Aranganadin, Hua-Yi Hsu, Ming-Chieh Lin</i>	
Frequency Multiplication in Relativistic Gyrotrons for Providing High-Power Submillimeter Radiation	753
<i>Irina Zotova, Naum Ginzburg, Alexander Leontyev, Andrey Malkin, Roman Rozental, Alexander Sergeev</i>	
The Study of Micro-Nano Structure Design for Radiation Excited by Free Electron Beam.....	755
<i>Ping Zhang, Jing Shu, Bingyang Liang, Shengpeng Yang, Shaomeng Wang, Yubin Gong</i>	
Advanced Developments for Gyrotrons Considering Designs, Tools and Test Facilities at KIT	757
<i>John Jelonnek, Gerd Gantenbein, Stefan Illy, Tomasz Rzesnicki, Benjamin Ell, Lukas Feuerstein, Jianbo Jin, Laurent Krier, Alexander Marek, Tobias Ruess, Sebastian Stanculovic, Manfred Thumm, Max Vöhringer, Chuanren Wu</i>	
The Development of a 1.5kW Terahertz Gyro-TWA with 20GHz Instantaneous Bandwidth	759
<i>Wenlong He, Junqiang Gao, Bo Li, Wenjie Yu, Yang Chen, Zhiwei Chang, Huabi Yin</i>	
The Coherent Smith-Purcell Radiation from Composite Subwavelength Holes Array	761
<i>Ping Zhang, Weiming Rong, Jing Shu, Hongyang Guo, Shengpeng Yang, Binyang Liang, Shaomeng Wang, Yubin Gong</i>	
Experiment of a 140GHz Quasi-Optical Mode Converter	763
<i>Chen Yang, Yu Fan, Wei Guo, Jirun Luo, Min Zhu</i>	
Experiments on a Dual-Frequency, Harmonic, Magnetically Insulated Line Oscillator	765
<i>Ryan Revolinsky, Emma Guerin, Stephen Langellotti, Chris Swenson, Levi Welch, Drew Packard, Nicholas Jordan, Y. Y. Lau, Ronald Gilgenbach</i>	
Hot Electron Light Assisted Cathode by Electronically Tunable Negative Electron Affinity	767
<i>Hyun Uk Chae, Anika Tabassum Priyoti, Juan Sanchez Vazquez, Ragib Ahsan, Rehan Kapadia</i>	
Space Qualification of Dual mini-TWT for Active Array Antenna.....	769
<i>Frédéric André, Jean-Claude Racamier, Amel Maati, Stéphane Cholet, Martin Hecht, Peter Ehret, Florian Corbel, Anne-Cecile Martin, Franck Beillevaire</i>	
Design of a Ku Band 400W Radiation-Cooled Space TWT	771
<i>Hongxia Yi, Fei Li, Xinwen Shang, Jiandong Zhao, Zicheng Wang, Liu Xiao</i>	
Research Progresses of Terahertz Vacuum Electronic Devices in AIRCAS.....	773
<i>Wenxin Liu, Xiangpeng Liu, Zhiqiang Zhang, Zhaochuan Zhang, Zhenxia Zhang, Fengyuan Zhang, Zhihao Jin, Kedong Zhao, Peng He, Jianwei Zhong</i>	
Research on Terahertz Near-Field Irrnging Device for Broadband Electronics Based on Probe Scattering.....	775
<i>Jinpeng Yang, Fushun Nian, Wanshun Jiang, Jianqin Deng, Shunli Han, Xiaolin Liang, Yaohui Yang, Ting Zhang</i>	
An Noval High-Efficiency Microwave Plasma Torch.....	777
<i>Fenming Yang, Huacheng Zhu, Yang Yang, Kama Huang</i>	
Preliminary Design of Improvement of Output Power and Bandwidth for Terahertz EIK	779
<i>Lin Zhou, Kui Xiang, Jielong Li, Zongjun Shi, Zhenhua Wu</i>	

Design and Simulation of a Microwave Plasma Enhanced Chemical Vapor Deposition System Operated at 2.45 GHz Using the Multiphysics Modeling Based on a Finite Element Method	781
<i>Kaviya Aranganadin, Hua-Yi Hsu, Ming-Chieh Lin</i>	
Multipactor Suppression Via 3D-Printed Conductors	783
<i>Stephen V. Langellotti, Adam Brusstar, Nicholas M. Jordan, Y. Y. Lau, Ronald M. Gilgenbach</i>	
Automatic Threat Object Detection from THz Images Using Artificial Intelligence Algorithms	785
<i>A. Mercy Latha, A. S. Nirmala Devi</i>	
Symmetric Vlasov-Type Antenna for High Power Microwave Applications	788
<i>Giuseppe Lipari, Giuseppe Paterna, Eleonora Traina, Antonino Muratore, Alessandro Busacca, Patrizia Livreri, Salvatore Stivala</i>	
Development of Ka-Band 300W CW Helix TWT	790
<i>Juan Wang, Baoliang Hao, Wei Li, Xiaojun Meng, Lingli Zheng</i>	
Design and Fabrication Aspects of an E-Band Double Corrugated Waveguide Traveling Wave Tube	792
<i>Rupa Basu, Vincent Da Costa, Jonathan Gates, Rosa Letizia, Purushothaman Narasimhan, Claudio Paoloni</i>	
Development of ITER Gyrotrons in JADA	794
<i>Ken Kajiwara, Ryosuke Ikeda, Takahiro Shinya, Satoru Yajima, Hibiki Yamazaki, Takayuki Kobayashi</i>	
Introduction of Recent Research on Relativistic Magnetron at IAE	796
<i>Dong Wang, Fen Qin, Yong Zhang, Sha Xu, Lurong Lei, Xianghe Fang, Binqun Ju</i>	
Design of an Input Coupler with a Bragg Reflector for a THz Band Gyro-TWA	797
<i>Yang Chen, Wenlong He</i>	
Theoretical Study on Life Ion Flow Via Cell Membrane Under Symmetrical and Unsymmetrical Terahertz Stimulation	799
<i>Wenfei Bo, Feng Jia, Rong Che, Xiaobo Zhang, Shaomeng Wang, Yubin Gong</i>	
3-D-FDTD-PIC Simulation of Magnetic-Field Tuning in a THz Gyrotron.....	801
<i>Zongkun Zhang, Siqi Li, Chaohai Du, Mingzhi Li</i>	
Terahertz Cherenkov Radiation Based on Hyperbolic Metamaterials.....	803
<i>Juan-Feng Zhu, Zi-Wen Zhang, Lin Wu, Chao-Hai Du</i>	
Enhanced Field Electron Emission from ZnO Nanowires by Bi _{0.5} Sb _{1.5} Te ₃ Coating.....	805
<i>Zufang Lin, Guichen Song, Xiuqing Cao, Jun Chen</i>	
Research on Variable Temperature Reflectivity Measurement System of Stealth Coating	807
<i>Yixuan Zou, Yihang Tu, En Li</i>	
Analysis and Design of a 90° Compact TE ₀₁ -Mode Bend Based on the Corrugated Waveguide Structure for Gyrotron Traveling-wave Tube System.....	809
<i>Meiling Ou, Hao Li, Dagang Liu, Haiyang Wang, Tianming Li, Biao Hu</i>	
The First-Principles Calculations of Composite Interfaces for a Robust Correction of Monte Carlo Simulation on Secondary Electron Yield.....	811
<i>Min Peng, Liang Zhang, Yongdong Li, Meng Cao, Wenjie Cheng, Chunliang Liu</i>	
Analytical Investigation of I-V Characteristics of Gated Nanowire Field Emitters	813
<i>Zhuoran Ou, Yicong Chen, Chengyun Wang, Guofu Zhang, Shaozhi Deng, Jun Chen</i>	

Thermal Characteristics of Modulation Gate in Cold Cathode X-Ray Source.....	815
<i>Zihan Li, Yizi Cao, Bicheng Guo, Zhuoya Zhu, Xiaobing Zhang, Wei Lei</i>	
Illustration of a Novel 220GHz Symmetrical Double Slots Elliptical-Like Coupled-Cavity Slow Wave Structure	817
<i>Hanwen Tian, Changqing Zhang, Xueliang Chen, Pan Pan, Jun Cai, Yubin Gong, Jinjun Feng</i>	
Preparation of ZnO Nanowire Cold Cathode on Hemisphere Brass Substrate for Radiotherapy X-Ray Source Application.....	819
<i>Yun Yao Zhang, Song Kang, Guofu Zhang, Shaozhi Deng, Jun Chen</i>	
Power Handling Capacity Analysis for Patch Antenna.....	821
<i>Runjie Wu, Linkai Hu, Sitao Zhu, Meng Cao</i>	
Simulation of the Second and Third Harmonic Cavity Relativistic Klystron Amplifier with a Genetic Algorithm in S-Band	823
<i>Limin Sun, Hua Huang, Shifeng Li, Zhenbang Liu, Hu He, Ke He, Jingfan Zuo</i>	
Study on the Efficiency of Two-Beam Extended Interaction Oscillator Toward 200 kW at Ka-band.....	825
<i>Xinyu Jiang, Liangjie Bi, Yong Yin, Hailong Li, Bin Wang, Lin Meng</i>	
Fin-Line Based Double Layer Terahertz On-chip Phase Shifter	827
<i>Huajie Liang, Hanyu Zhao, Ziqiang Yang, Lin Zou, Kexiang Hu, Tao Jiang</i>	
Beam-Wave Interaction and Electron Optical System Investigation for a W-Band Planar TWT	829
<i>Hexin Wang, Hui Zhang, Zhencheng Mu, Shaomeng Wang, Zhanliang Wang, Zhaoyun Duan, Yang Yang, Yubin Gong</i>	
Design of Field Emission Electron Gun for W-Band Photonic Crystal (PhC) Based High Power Source.....	831
<i>Subham Chowdhury, Hasina Khatun, Anirban Bera</i>	
Design and Simulation of 1.2 MW Long Pulse Klystron for CSNS-II*	833
<i>O. Z. Xiao, Z. S. Zhou, H. Zhang, L. Y. Rong, G. X. Pei, Munawar Iqbal</i>	
Recent Activity and Results on Gyro-TWT at the IAP.....	835
<i>Sergey V. Samsonov, Grigoriy G. Denisov, Alexander A. Bogdashov, Igor G. Gachev, Naum S. Ginzburg, Roman M. Rozental</i>	
A Review on Recent Progress of High-Temperature Direct-heated Cathode	837
<i>Xingqi Wang, Xiaoxia Wang, Jirun Luo, Shikai Qi</i>	
Terahertz Gauss-Bessel Beam Generation Using Free Electrons to Drive an Axicon.....	839
<i>Minghao Liu, Zhi Tao, Weihao Liu</i>	
Research on Sheet Beam Folded arc-Shaped Ridge-loaded Groove Waveguide for Terahertz TWT	842
<i>Yanyan Tian, Huabi Yin, Zhiwei Chang, Yubin Gong, Wenlong He</i>	
Design of a G-Band Quasi-optics Mode Converter.....	844
<i>Chenyu Liu, Jin Xu, Jinchi Cai, Lingna Yue, Hairong Yin, Hui Wang, Jianwei Liu, Xinjian Niu, Yanyu Wei, Qian Li</i>	
A Bitter-Type Magnet for a Low-Voltage Compact Gyrotron	846
<i>Dun Lu, Wenjie Fu, Qiuyu Zeng, Yang Yan</i>	
Recent Results of a 50 GHz High Power Gyrotron for ECRH at XL-50 Tokamak.....	848
<i>Dimin Sun, Qili Huang, Linlin Hu, Tingting Zhuo, Peng Hu, Guowu Ma, Hongbin Chen</i>	

Modeling of Serpentine Waveguide Traveling Wave Tube to Calculate Gain Diagram.....	850
<i>Kasra Rouhi, Robert Marosi, Tarek Mealy, Alexander Figotin, Filippo Capolino</i>	
Progress of European Industrial Gyrotron Developments for Nuclear Fusion	852
<i>Alberto Leggieri, Ferran Albajar, Stefano Alberti, Konstantinos A. Avramidis, David Bariou, William Bin, Alex Bruschi, Ioannis Chelis, Rosa Difonzo, Benjamin Ell, F. Fanale, Lukas Feuerstein, Eleonora Gajetti, Gerd Gantenbein, J�r�my Genoud, Timothy P. Goodman, Jean-Philippe Hogge, Stefan Illy, Zisis Ioannidis, John Jelonnek, Jianbo Jin, Sophie Kohler, George Latsas, Heinrich Laqua, Fran�ois Legrand, Christophe Lievin, Rodolphe Marchesin, Alexander Marek, Stefan Marsen, Frank Noke, D. Peponis, Sergiy Ponomarenko, Tobias Ruess, Tomasz Rzesnicki, Francisco Sanchez, Laura Savoldi, Sebastian Stanculovic, Torsten Stange, Ioannis Tigelis, Humberto Torreblanca, Etienne Vall�e, Robert Wolf, A. Zelkas, Manfred Thumm</i>	
Design of a 110GHz to 170GHz Terahertz Wideband Low Noise Amplifier Chip	854
<i>Lian Hu, Ziqiang Yang, Qinwen Tong, Qingfeng Li, Dan Liang, Yaxin Zhang</i>	
Modified Accurate Dispersion Characteristics with Field Restricted Current Density Distribution for Open Rectangular Planar Tape Helix	856
<i>Naveen Babu G, Nameesha Chauhan, Pushparaj Katiyar, Aavesh Kumar, Vanaparthi Vishnu Sai Gupta, Madhur Upadhyay, Jitendra Prajapati</i>	
Russian Gyrotrons: Overview and Challenge.....	858
<i>M. Yu. Glyavin, G. G. Denisov, E. M. Tai, A. L. Litvak</i>	
A New Concept of an Electron-Optical System with Two Counter-propagating Electron Beams for Advanced Gyrotron Designs	860
<i>Alexander Tsvetkov, Vladimir Manuilov</i>	
Synthesis of Graphene Oxide and Used as a Field Emitter of Vacuum Electronics Devices	862
<i>S Manna, A K Singh, A Mall, V S Rawat, T P Singh, S K Shukla, D Chattapadhyay, R K Barik</i>	
198GHz 140W Pulsed EIK Subsystem	864
<i>H. Deng, M. Hyttinen, A. Roitman, P. Gandhi, D. Berry, T. Sertic</i>	
Plasmonic Spectrum and Resonance of Grating-Gate GaN/AlGaN HEMTs	866
<i>Hongyang Guo, Ping Zhang, Shengpeng Yang, Yuan Zheng, Shaomeng Wang, Yubin Gong</i>	
The Study on the Uniformity of Electric Field Distribution in the Coaxial Cavity Output Circuit of the Multi-Beam Klystron.....	868
<i>Yaogen Ding, Dongping Gao, Bin Shen, Haibing Ding</i>	
The Effect of the High Order Mode of Cavity on Performances of the High Power Klystron.....	870
<i>Yaogen Ding, Jian Zhang, Shouxi Xu, Yong Wang</i>	
Study on 0.65THz EIKs Operating at Π - And 2π - Modes.....	872
<i>Yang Dong, Jingyu Guo, Shaomeng Wang, Duo Xu, Youfeng Yang, Yuxin Wang, Yuxin Wang, Yuan Zheng, Ping Zhang, Zhanliang Wang, Yubin Gong</i>	
A 0.65-THz Traveling Wave Tube Based on Staggered Double L-shaped Vane SWS	874
<i>Jingyu Guo, Yang Dong, Zhanliang Wang, Zhigang Lu, Yuan Zheng, Ping Zhang, Shaomeng Wang, Yubin Gong</i>	
Theoretical Analysis of the Effects of THz-IR Modulation of Ion Channel Permeability on Neuronal Electrical Activity	876
<i>Kaicheng Wang, Lianghao Guo, Qin Zhang, Hui Ning, Shaomeng Wang, Yubin Gong</i>	

Tunable Optical Topological Transition of Free-Electron-Based Cherenkov Radiation	878
<i>Tianyu Zhang, Tao Zhao, Shenggang Liu, Min Hu</i>	
W-Band Dielectric-Supported Suspended Ridged Micro-Strip Meander Line Slow-Wave Structure.....	880
<i>Xing Liu, Zhanliang Wang, Shaomeng Wang, Feifei Du, Yang Dong, Ping Zhang, Yuan Zheng, Bingyang Liang, Yubin Gong</i>	
Planar Slot-Line Slow-Wave Structure of a V-band Backward Wave Oscillator.....	882
<i>Yuxin Wang, Shaomeng Wang, Yang Dong, Jingyu Guo, Duo Xu, Yuan Zheng, Yubin Gong</i>	
Design and Fabrication of a Series of 33GHz~1100GHz Horn Antenna.....	884
<i>Jiawen Sun, Shu Zhang, Qiang Wu, Xianbao Shi, Weifeng Zhu</i>	
Efficient Waveguide Port Excitation for Symmetric Structures Based on Conformal Non-Uniform Mesh.....	886
<i>Guanjie Lin, Tao Huang, Xiaolin Jin</i>	
Thermal Analysis of Traveling-Wave Tubes Considering Thermal Contact Resistance	888
<i>Li Liao, Li Xu, Junhui Yin, Hao Wang, Xing Li, Bin Li</i>	
Non-Adiabatic Electron Optic Systems for High Power and Medium Power Gyrotrons.....	890
<i>M. Yu. Glyavin, A. L. Goldenberg, D. S. Krupin, K. A. Leshcheva, V. N. Manuilov, M. M. Melnikova, I. V. Zhelezov, I. V. Zotova</i>	
A K-Band Waveguide with Integrated Reconfigurable Circular Polarizer	892
<i>Yuxiang Gan, Zewei Wu, Li Chen, Minging Wang, Youlei Pu, Yong Luo</i>	
Design of a Coherent Smith-Purcell Superradiation Source at W-band	894
<i>Zicheng Zheng, Shaomeng Wang, Yuan Zheng, Ping Zhang, Zhanliang Wang, Yubin Gong</i>	
Quasi-Optical Gyro-BWO with Zigzag Transmission Line as One-Octave Bandwidth Sub-THz Source.....	896
<i>Sergey V. Samsonov, Grigoriy G. Denisov, Alexander A. Bogdashov, Igor G. Gachev, Maxim V. Kamenskiy, Kseniya A. Leshcheva</i>	
Multi-Physics Analysis of Traveling-wave Tube Based on Integrated Framework.....	898
<i>Junhui Yin, Li Xu, Zaichao Yang, Siyi Yang, Hao Wang, Xing Li, Bin Li</i>	
Acceleration of Electrons by Subnanosecond Superradiant Pulses: Modeling and Experiments.....	900
<i>Mikhail Yalandin, Naum Ginzburg, Irina Zotova, Alexander Vikharev, Konstantin Sharypov, Sergey Shunailov, Valeri Shpak, Alexey Fedotov, Sergey Kuzikov</i>	
Modified Dispersion Characteristics with Field Restricted Current Density Distribution for Dielectric Loaded Planar Rectangular Tape Helix TWTs.....	902
<i>Naveen Babu G, Pushparaj Katiyar, Nameesha Chauhan</i>	
Tunable X-Rays from Free Electrons Interacting with Van Der Waals Materials	904
<i>Sunchao Huang, Ruihuan Duan, Nikhil Pramanik, Chris Boothroyd, Zheng Liu, Liang Jie Wong</i>	
Measurement of Electromagnetic Property of Dielectric Material Based on Transmission/Reflection Method	906
<i>Wei Ziyao, Zeng Zhongming, Wang Zhanliang</i>	
Dielectric Loss Analysis of Anisotropically Conducting Tape Helix Slow Wave Structure in Travelling Wave Tube.....	909
<i>Naveen Babu G, Jitendra Prajapati, Madhur Upadhyay</i>	

Endoscopic Real-Time Electro-Optic Sensing System for High-Power RF Signal Measurement	911
<i>Ingeun Lee, Yoon Seon Choi, Sungjun Yoo, Jinwoo Shin, Sunghoon Jang</i>	
Dual-Band Self-Decoupled MIMO Antenna for 5G Mobile Terminals	913
<i>Qian Li, Gangxiong Wu, Xia Lei</i>	
State Feedback Control of Distributed Radar System with Packet Dropouts and Time-Varying Delays.....	915
<i>Xiaoxue Li, Yunjiao Zhang, Jing Yang, Qiaoyu Li, Xu Chen</i>	
Terahertz High-Speed On-chip Modulator Based on SRR.....	917
<i>Kesen Ding, Shixiong Liang, Lin Zou, Sen Gong, Yaxin Zhang</i>	
Particle-In-cell Simulation of Plasma Wave Excitation in Two-dimensional Electron Gas	919
<i>Mi Tian, Shengpeng Yang, Yubin Gong</i>	
Research on High Reliability 100MHz Signal Generation and Distribution System.....	921
<i>Yonggang Guo, Lili Zhu, Shifu Cheng, Jian Chang, Wei Yang, Wenxin Li</i>	
Simulation of Small Signal Characteristics of Open Planar Tape Helix Slow Wave Structure with Straight Edge Rectangular Connections	923
<i>Naveen Babu Gnanamoorthi, Nameesha Chauhan, Pushpraj Katiyar, Jitendra Prajapati, Madhur Deo Upadhyay</i>	
Simulation Study of a Double States Input Coupler for K/Ka Dual-Band Gyro-TWT	925
<i>Rutai Chen, Qianyu Zhang, Sheng Yu</i>	
Development of Cr Doped M-Type Dispenser Cathode.....	927
<i>Na Li, Peixian Zhang, Ke Zhang, Wensheng Shao</i>	
Terahertz Broadband Frequency Doubler Based on GaAs Monolithic	929
<i>Yazhou Dong, Huajie Liang, Lan Wang, Yaxin Zhang</i>	
Design, Simulation and Test of a 1.7kW W-Band Sheet Beam Staggered Double-grating TWT	932
<i>Yu Fan, Yalin Liu, Jian Wang, Chen Yang, Shuzhong Wang, Wei Guo, Jirun Luo, Min Zhu, Zhenxia Zhang, Shuyun Zhang, Jianyong Zhou, Lidong Liu, Tongli Ma</i>	
Simulation of a MW Level 140GHz Gyrotron Operating in TE _{28,8} Mode by CST PIC Code.....	934
<i>Yu Fan, Yalin Liu, Chen Yang, Jirun Luo, Min Zhu, Lidong Liu, Jianghua Zhang</i>	
Near-Field Enhancement Resonance of Organophosphate-Functionalized Conjugated Polymer with Metastructure in Terahertz Region	936
<i>Lin Zou, Lan Wang, Huajie Liang, Dan Liang, Kexiang Hu, Ziqiang Yang</i>	
Research on UV-LIGA Process of a Folded Waveguide for 850GHz TWTs.....	938
<i>Shuo Qin, Qi Jiang, Yunzhu Xie, Lin Zhang, Pan Pan, Jun Cai, Xinghui Li, Jinjun Feng</i>	
Study of Electron Beam Harmonic Amplification Methods.....	940
<i>Shaojie Chang, Zhenhua Wu, Diwei Liu, Renbin Zhong, Min Hu</i>	
Studies on Additive Microfabrication of the Millimeter-Band Components by LCD 3D Printing and Magnetron Sputtering.....	942
<i>Andrei Starodubov, Igor Bakhteev, Ilya Kozhevnikov, Sergei Molchanov, Timur Amanov, Viktor Galushka, Alexey Serdobintsev, Nikita Ryskin</i>	
Research on a Wideband High Power Microwave Planar Antenna Array	944
<i>Xiangbao Zhu, Xu Sun, Lingxuan Qian</i>	

Q/V Band 80W TWT Amplifier for Satellite to Groud Uplink	946
<i>Weibo Huang, Jinwei Fan, Fei Lang, Yukai Zhou, Kang Yin, Xiaoyue Lu</i>	
Design and Test of Q/V Band TWT Linearizer	948
<i>Weibo Huang, Yan Fang, Yukai Zhou, Xiaoyue Lu, Bin He, Fei Lang</i>	
THz Pulse Compressors	950
<i>E. L. Claveau, G. Li, M. A. Shapiro, R. J. Temkin</i>	
Confocal-Cavity Terahertz Gyrotron Based on Sheet E-beam	952
<i>Yu-Lu Lei, Chao-Hai Du, Zi-Wen Zhang, Fan-Hong Li, Yu Zhu</i>	
Design of a Ku-Band Traveling-Wave Tube Based on Optimization Design Tool.....	954
<i>Wenkai Deng, Liu Xiao, Xinwen Shang, Yulu Hu, Gubin Li, Xiaobing Wang, Shilong Zhu, Luanfeng Gao, Zhonghai Yang, Bin Li, Tao Huang</i>	
High Responsivity Nano-Air-channel Photomixer for mmWave Generation.....	956
<i>Feiliang Chen, Mo Li, Xiaoxu Li, Peisheng Ma, Yuchao Liu, Hao Jiang, Fan Yang, Jian Zhang</i>	
Design of a Coupling Structure for Peer-To-Peer Phase-Locked All-Cavity-Extraction Multiport Relativistic Magnetron	958
<i>Renjie Cheng, Tianming Li, Haiyang Wang, Hao Li, Yihong Zhou, Biao Hu</i>	
Bioimaging Experiment Based on Terahertz Near-Field Scanning System.....	960
<i>Wenbing Zhang, Chengyao Peng, Shun Bai, Xiaohua Jiang, Min Hu, Fengting Jiang, Minjian Huang, Fukun Liu</i>	
Application of Single Crystal Diamond in the Microwave Window of 3mm Wide Band TWT	962
<i>Ren Zhong, Liang Tian, Yang Mengyao, Song Zechun, Zheng Wenxin, Li Xinyi</i>	
Uniform Electron Emission from SiO _x Tunneling Diode Arrays Under Rough Vacuum	964
<i>Fangyuan Zhan, Xianlong Wei</i>	
The Design and Performance of an X-Band Broadband Klystron with Peak Power of 1MW	966
<i>Honghong Gu, Yaogen Ding, Bin Shen, Xin Guo, Yuan Liang, Caiying Wang</i>	
A Novel Domian Decomposition Simulator for the Transmission Analysis of Travelling-Wave Tube.....	968
<i>Hao Wang, Li Xu, Junhui Yin, Hangxin Liu, Xing Li, Bin Li</i>	
Compact Rat-Race Ring Couplers with T Type Capacitor Loading and T Type Stepped Impedance Loading.....	970
<i>Ni Fulin, Jun He, Qi Shikai, Chen Dong, Luo Jing, Cao Hui</i>	
Some Studies on Resistive-Wall Amplifier in a Silicon Carbide Coated Resistive Wall.....	972
<i>Chenyang Li, Hairong Yin, Zhaoyi Zhu, Jin Xu, Lingna Yue, Jinchi Cai, Guoqing Zhao, Wenxin Liu, W. X. Wang, Y. Y. Wei</i>	
How to Effectively Collect Emission Current from a Horizontal-Tunneling-junction Electron Source?	974
<i>Zhiwei Li, Xianlong Wei</i>	
Eigen Analysis and Optimization of Rising Sun Anode of Magnetron Using Backtracking Search Algorithm	976
<i>Anilkumar Patibandla, Pamu Dobbidi, Tapeshwar Tiwari</i>	

Preliminary Study of a Low-Voltage W-band Traveling-wave Tube for High-data-rate Wireless Communication	978
<i>Gangxiang Wu, Ruirui Jiang, Jin Shi, Mei Yu, Wanxin Hou, Qian Li</i>	
R-Band Backward Wave Oscillator Based on Metamaterial Structure and Multi-electron Beams	980
<i>Yuming Feng, Kaichun Zhang, Lin Tang, Jincheng Hu, Xiaoyan Zhao, Diwei Liu</i>	
Investigation on Maximum Operating Bandwidth for Sheet Beam Slow-Wave Structures	982
<i>Zihao Dai, Jianxun Wang, Yixin Wan, Xiniie Li, Yelei Yao, Yong Luo</i>	
Room Temperature Terahertz Emission from Biased AlGaIn/GaN Grating-Gate HEMT Array	985
<i>Runxian Xing, Ping Zhang, Guohao Yu, Zhongming Zeng, Jiandong Sun, Baoshun Zhang, Yubin Gong</i>	
Investigation on Thermal Efficiency Enhancement and Trapped Electron Suppression	987
<i>Binyang Han, Wei Jiang, Chaoxuan Lu, Boxin Dai, Guo Liu, Yong Luo</i>	
A 600 GHz Quasi TM ₅₁ Mode Extended Interaction Oscillator with Low Injection.....	989
<i>Youfeng Yang, Yang Dong, Ping Zhang, Yuan Zheng, Shaomeng Wang, Zhanliang Wang, Zhigang Lu, Yubin Gong</i>	
High-Q Cavity with Distributed Bragg Reflector for Second-Harmonic Gyrotrons Driven by Low-Power Electron Beams	991
<i>Vitalii I. Shcherbinin, Manfred Thumm, John Jelonnek</i>	
The Discussion on the Multimode Extended Interaction Circuit.....	993
<i>Zhiwei Chang, Guoxiang Shu, Yanyan Tian, Wenlong He</i>	
A Three-Stage Depressed Collector for a V-band TWT	995
<i>Wenjie Yu, Yanyan Tian, Huabi Yin, Wenlong He</i>	
Research on High Frequency Structure of a Novel Dual-Beam 0.14THz EIO	997
<i>Biao Xu, Qing You, Jielong Li, Zongjun Shi, Zhenhua Wu</i>	
The Design of Electron Optical System for X-Band Klystron	999
<i>Lei Huang, Hao Li, Jinji Li, Kai Nie, Yong Luo</i>	
Highly Efficient Technological Gyrotron System with Magnetically Shielded Solenoid	1001
<i>Mikhail D. Proyavin, Mikhail V. Morozkin, Vladimir N. Manuilov, Elena A. Soluyanova, Evgeniy M. Tai, Maxim V. Kamenskiy, Alexey A. Orlovskiy, Dmitriy I. Sobolev, Mikhail Yu. Glyavin</i>	
Calculation of Qualification Gain for Terahertz Antennas	1003
<i>Jiangmei Tang, Shaomeng Wang, Yubin Gong</i>	
Study of Microwave Components Fabricated by SLA 3D-Printing and Metallization	1005
<i>Mikhail Prioyavin, Alexey Fedotov, Dmitriy Sobolev, Alexey Orlovskiy, Valentina Kotomina</i>	
Magnetic Force Calculation of Static Magnetic Field of Two-Dimensional Element in MFS	1007
<i>Huijiao Zhang, Quan Hu, Yulu Hu, Xiaofang Zhu, Tao Huang, Bin Li, Xiaobing Wang, Jike Yang, Ling Mei, Zhenting Qin, Zhonghai Yang</i>	
Velocity and Position Spread of Electron Beam in Gyrotrons.....	1009
<i>Yu Huang, Xianfei Chen, Hanqing Zhou, Zhiyu Qiu, Houxiu Xiao</i>	

Experimental Studies of 75 GHz Relativistic Surface-Wave Oscillator of Planar Configuration	1011
<i>Vladislav Zaslavsky, Alexey Palitsin, Yury Rodin, Mikhail Goykhman, Alexander Gromov, Yury Guznov, Alexander Panin, Vladimir Parshin, Naum Ginzburg</i>	
Development of a 3-D Multistage Depressed Collector Simulation Program	1013
<i>Xinke Zhang, Zhenxing Li, Jin Xu, Jinchai Cai, Zheng He, W. Y. Fan, Pengcheng Yin, H. R. Yin, Lingna Yue, Wenxiang Wang, D. Z. Li, Yanyu Wei</i>	
Research on the Length Design of Three-Section Cylindrical Waveguide Resonator.....	1015
<i>Qunchao Zhang, Min Zhu, Chen Yang, Yu Fan, Jirun Luo</i>	
An On-Chip Vacuum Transistor Based on a Multiwalled Carbon Nanotube*	1017
<i>Yidan He, Zhiwei Li, Shuyu Mao, Fangyuan Zhan, Xianlong Wei</i>	
Temperature Uniformity Analysis of 140GHz Magnetron Injection Electron Gun.....	1019
<i>Mingzhe Yang, Xiaoxia Wang, Yu Fan, Jirun Luo</i>	
Research on Thickness Measurement Technology Based on FMCW Radar.....	1021
<i>Qiuyu Zeng, Hengliang Li, Dun Lu, Tongxing Huang, Wenjie Fu, Yang Yan</i>	
Optimization of High-Power Microwave Sources Based on Deep Artificial Neural Network.....	1023
<i>Wenjin Yang, Yongdong Li, Hongguang Wang, Meng Cao, Chunliang Liu</i>	
Scattering Matrix Analysis for Main and Parasitic Oscillations of a Gyrotron Oscillator Cavity with Disc Type Output Window	1025
<i>Fanqi Zeng, Tao Song, Wei Wang, Diwei Liu</i>	
Theoretical Investigation of a 1.16 THz Fourth-Harmonic Large-Orbit Gyrotron.....	1027
<i>Xianshu Lan, Tao Song, Wei Wang, Diwei Liu, Shenggang Liu</i>	
THz Absorption Properties of Three Kidney Stone Components.....	1029
<i>Kangpeng Duan, Lixia Yang, Bingyang Liang, Shaomeng Wang, Yubin Gong</i>	
Theoretical Investigation on a W-Band High-Power Gyrotron	1031
<i>Jingcheng Wang, Tao Song, Wei Wang, Diwei Liu</i>	
Cross-Polarization Amplitude Modulator Based on THz Dynamic Metasurface	1033
<i>Xuan Cong, Shiqi Wang, Hongxin Zeng, Yaxin Zhang, Huajie Liang, Dan Liang</i>	
A Second-Harmonic Extended Interaction Klystron Multiplier-Amplifier	1035
<i>Yichen Liu, Yang Dong, Jingyu Guo, Duo Xu, Shaomeng Wang, Zhanliang Wang</i>	
Design of a Broadband Mode Converter for G Band TE ₀₂ Mode Gyro-TWT	1037
<i>Xu Zeng, Yichi Zhang, Jinjun Feng</i>	
Study on the Influence of Plasma on the Radar Cross Section Characteristics of Target.....	1039
<i>Zhao Li, Wenjie Fu, Dun Lu, Yang Yan</i>	
Laser-Based Technologies for Microfabrication of Key Electromagnetic Components of Miniaturized Vacuum Electron Devices	1041
<i>Andrei Starodubov, Viktor Galushka, Nikita Ryskin, Alexander Galkin, Dmitrii Bessonov, Dmitrii Tuzhilin, Dmitrii Nozhkin</i>	
Development of a 500W XKu-Band Miniaturized Pulse MPM.....	1043
<i>Wenlei Gao, Yinchuan Liu, Xuechun Shi, Yafeng Wang, Yinxing Chen</i>	

220-GHz Extended Interaction Klystron Based on Single-mode and Multimode Operation..... 1045
*Zhaowei Qu, Naining Guo, Shuzhong Wang, Qingsheng Li, Ding Zhao, Qianzhong Xue,
Zhiqiang Zhang*

Study of a G-Band Magnetron Injection Gun with High Transportation Stability 1047
Boxin Dai, Wei Jiang, Yelei Yao, Guo Liu, Chaoxuan Lu, Binyang Han, Yong Luo

Author Index