

IET Ph.D Candidates Academic Seminar (China) on Vacuum Electronics (PhASe-VE 2021)

IET Conference Publications 802

Beijing, China and Online
18-19 December 2021

ISBN: 978-1-7138-6105-8

Printed from e-media with permission by:

Curran Associates, Inc.
57 Morehouse Lane
Red Hook, NY 12571



Some format issues inherent in the e-media version may also appear in this print version.

Copyright© (2021) by the Institution of Engineering and Technology
All rights reserved.

Printed with permission by Curran Associates, Inc. (2022)

For permission requests, please contact the Institution of Engineering and Technology
at the address below.

Institution of Engineering and Technology
P. O. Box 96
Stevenage, Hertfordshire
U.K. SG1 2SD

Phone: 01-441-438-767-328-328
Fax: 01-441-438-767-328-375

www.theiet.org

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
Email: curran@proceedings.com
Web: www.proceedings.com

TABLE OF CONTENTS

The Investigation on Transmission Characteristics of Sheet Beam TWT with V-Shaped Rectangle Groove Staggered Double Grating Waveguide Slow Wave Structure	1
<i>Y. Yang, Y. Dong, H. Wang, J. Guo, D. Xu, Z. Wang, H. Gong, S. Wang, Z. Duan, Z. Lu, Y. Gong</i>	
A Novel U-Shaped Meander-line Slow Wave Structure for Ka-band TWT	4
<i>Y. Wang, Y. Dong, H. Wang, D. Xu, S. Wang, Z. Wang, H. Gong, Z. Lu, Z. Duan, Y. Gong</i>	
Millimeter-Wave Near-field Holographic Imaging Based on VNA.....	7
<i>P. Liang, C. Zhang, X. Qi, Z. Yan, T. Song, W. Wang, K. Zhang, M. Hu, Y. Wei, Y. Gong, D. Liu</i>	
Electron Optical Design of Cold Cathode Based on Silicon Tip.....	10
<i>X. Qian, X. Yin, M. Li, X. Zhang</i>	
Design and Experiment of Device for Sheet Beam TWT Electron Gun Cathode and Focusing Electrode Assembly.....	13
<i>J. Wang, Y. Fan</i>	
The Modulation Investigation of 2π and Π Modes for Extended Interaction Klystron	17
<i>Y. Dong, S. Wang, J. Guo, Z. Wang, Z. Lu, H. Gong, Z. Duan, Y. Gong</i>	
Simulation on Input Coupler for Ka-Band TE ₂₁ Large Orbit gyro-TWT.....	20
<i>M. Ma, Q. Zhao, C. Lei, J. Feng</i>	
Preliminary Design of a Sub-Terahertz High-order Mode Double-staggered Grating Waveguide for Multiple-sheet Electron Beam Traveling Wave Tubes	24
<i>J. Ren, G. Shu, J. He, J. Liao, W. He</i>	
Folding-Brillouin-Zone-Induced Coherent Vortex Smith-Purcell Radiation	27
<i>Z. -W. Zhang, C. -H. Du, F. -H. Li, Z. -C. Gao, J. -F. Zhu, P. -K. Liu</i>	
Study of a Terahertz-Band High-order Mode Orthogonal Grating Waveguide Slow-wave Structure	30
<i>J. Liao, G. Shu, J. Ren, J. He, J. Lin, G. Lin, Q. Li, Z. Chang, W. He</i>	
Development of a High-Harmonics Gyrotron Based on Large-orbit Gun.....	34
<i>F. -H. Li, C. -H. Du, Z. -W. Zhang, S. -Q. Li, Z. -C. Gao, P. -K. Liu</i>	
Theoretical Study on the Empty Orbit for Atomic Bonding Layer of Graphene Covered Nickel Interface.....	37
<i>M. Peng, S. Lin, Y. -D. Li, C. -L. Liu</i>	
Multiband Polarization-Insensitive Tunable Absorber Based on Weyl Semimetals	44
<i>L. Dai, Q. Gao, Y. Zhagn, Y. Zhang, A. H. Zhang, L. Qi</i>	
Review on the Terahertz Metamaterial Biosensor.....	48
<i>L. Wen, J. Yang, J. Wu, L. Qi, D. Sun, J. Su, X. Tao</i>	
Theoretical Investigation on a 1-THz Third Harmonic Gyrotron.....	55
<i>X. Qi, Z. Yan, C. Zhang, J. Huang, T. Song, W. Wang, K. Zhang, M. Hu, Z. Wu, T. Zhao, D. Liu</i>	

Solutions for Short Circuit Failure of Spindt Cathode 58
P. Y. Han, X. H. Li, Q. Jiang, J. Cai, J. J. Feng

Author Index