2008 IEEE MIT-S International Microwave Workshop Series on Art of Miniaturizing RF and Microwave Passive Components

(IMWS 2008)

Chengdu, China 14 – 15 December 2008



IEEE Catalog Number: ISBN:

CFP08MWS-PRT 978-1-4244-2876-2

2008 IEEE MTT-S International Microwave Workshop Series (IMWS) on Art of Miniaturizing RF and Microwave Passive Components

December 14-15, 2008, Chengdu, China

Advanced Program

Date/Time	Contents	Page
Dec. 13	Registration (Hall of the Hotel, University of Electronic Science and Technology of China)	
Dec. 14	Meeting room of the Hotel, UESTC	
Opening so	ession (8:30~8:45) Chair: Bing-Zh	ong Wang
Address fr	om the General Chair of IMWS'08 om the UESTC om the IEEE MTT-S	
Keynote S _I	peech Session (8:45am-10:15am, Dec-14) Chairs: Xiao-Hong Tang an	nd Lei Zhu
8:45~9:15	Recent Progress in Miniature Microwave Filters Jia-Sheng Hong Heriot-Watt University, UK	1
9:15~9:45	Miniaturization of BPF Based on Broad-Side Coupled Strip Resonators Ikuo Awai Ryukoku University, Japan	7
9:45~10:15	Recent Advances in Microwave Filters Ian Hunter and Alaa Abunjaileh University of Leeds, UK	13
10:15~10:30	Coffee break	
Invited Spo	eech Session (10:30am-12:30pm, Dec-14) Chairs: Ikuo Awai and	Quan Xue
10:30~10:50	Advanced Design and Manufacturing of Microwave Components Based on Shape Optimization and Ceramic Stereolithography Process H. Khalil, N. Delhote, D. Baillargeat, S. Bila, M. Aubourg, S. Verdeyme, J. Puech, C Chaput, and C. Delage University of Limoges, France	15
10:50~11:10	Miniaturization Design for Planar Hybrid Ring Couplers Yi-Chyun Chiou, Cheng-Hsiu Tsai, Juo-Shiuan Wu, and Jen-Tsai Kuo National Chiao Tung University, Taiwan	19
11:10~11:30	Design of Minimized Electromagnetic Bandgap Structure High Temperature Superconducting Filter Hui-Fen Huang and Jun-Fa Mao Shanghai Jiao Tong University, Shanghai, China	23
11:30~11:50	Integrated Combined Amplifiers for Planar Circuits Kimberley W. Eccleston University of Canterbury, New Zealand	26
11:50~12:10	Dielectric Resonator Filters for UMTS Systems	30

	1. Cryoelectra GmbH, Wettinerstrasses 6H, D42287 Wuppertal, Germany; 2. Massey University, New Zealand; 3 James Cook University, Australia	
12:10~12:30	Miniaturization and Dual-Band Operation in Planar Microwave Components by Using Resonant-Type Metamaterial Transmission Lines Gerard Sisó, Jordi Bonache, and Ferran Martín Universitat Autònoma de Barcelona, Spain	34
12:30~13:30	Lunch: in the Hotel of UESTC	
Invited Sp	ech Session (13:45am-15:45pm, Dec-14) Chairs: Jen-Tsai Kuo and Janina Mazier	rska
13:45~14:05	Design of Compact Orthomode Transducers Yun Tao and Zhong-Xiang Shen Nanyang Technological University, Singapore	38
14:05~14:25	Miniaturized Hairpin Tunable Filter with the Single Control Voltage Seong-Sik Myoung ¹ , Young-Pyo Hong ¹ , Yongshik Lee ¹ , Jong-Gwan Yook ¹ , and Byoung-Jun Jang ² 1. Yonsei University, Seoul, Korea; 2. Kookmin University, Seoul, Korea	43
14:25~14:45	Planar Quasi-Elliptic Filters with Inline EM Coupled Open-Loop Resonators Qing-Xin Chu and Huan Wang South China University of Technology, Guangzhou, China	47
14:45~15:05	Miniature Dual-Mode Microstrip Bandpass Filters with Enhanced Parasitic Coupling Adnan Görür ¹ , Ceyhun Karpuz ² , G. Murat Eryılmaz ¹ , and Tolga Tümer ¹ 1: Nigde University, Turkey; 2: Pamukkale University, Turkey	51
15:05~15:25	Double Side Parallel Strip Line and its Applications <i>Quan Xue City University of Hong Kong, China</i>	55
15:25~15:45	Economical Compact Filters with Coupled Shorting Stubs Yuan-Hong Zhao, Qing-Yuan Wang, Xi Wang, and Zhe-Yu Wang University of Electronic Science and Technology of China, Chengdu, China	59
15:45~16:00	Coffee break	
Technical	ession (16:00am-17:20pm, Dec-14) Chairs: Qing-Yuan Wang and Jia-Sheng H	ong
16:00~16:20	Miniaturization Techniques of Substrate Integrated Waveguide Circuits Yan Ding and Ke Wu Poly-GRAMES Research Center, Department of Electrical Engineering, Ecole Polytechnique C. P. 6079, Succ. Centre-Ville, Montreal, QC, Canada	63
16:20~16:40	Shunt-Loaded Fractal-Meandered Microstrip Kimberley W. Eccleston University of Canterbury, New Zealand	67
16:40~17:00	Modified Small Asymmetric Impedance Transformers Hee-Ran Ahn and Bumman Kim POSTECH, Korea	7 1
17:00~17:20	A 11~20GHz Switched Filter Bank for Software Defined Radio System Kaixue Ma, Qiang Sun, Fang Cheng, and Rajanik Mark Jayasuriya ST Electronics (Satcom & Sensor Systems), ST Jurong building, Level 4, 100 Jurong East Street 21, Singapore	75

A. $Knack^{1,2,3}$, J. $Mazierska^{2,3}$, and H. $Piel^l$

17:30~18:00	To Chengdu International Exhibition & Conference Center, (about 30-minute distance by bus)	
18:00~21:00	Welcome Banquet and Enjoying SICHUAN DRAMA	
Dec. 15	Meeting room of the Hotel, UESTC	
Technical S	Session (8:30am-10:30pm, Dec-15) Chairs: Qing-Xin Chu and Kimberley W. Eccle	ston
8:30~8:50	Coupling Matrix Synthesis for Asymmetric Filter Topologies Ruwan N Gajaweera ¹ and Larry F. Lind ² 1. University of York, UK; 2. University of Essex, UK	79
8:50~9:10	Compact Dual-Mode Patch Resonator for Filter Applications Jia-Lin Li, Shi-Wei Qu, and Quan Xue City University of Hong Kong, China	83
9:10~9:30	Novel Planar Band Pass Lump-Loaded Frequency Selective Surface H. Liu, K. L. Ford, and R. J. Langley Department of Electronic and Electrical Engineering, Mappin Street, Sheffield, S1 3JD, UK	87
9:30~9:50	A Compact Waveguide Resonator and its Application in a Quarter Wave Coupled Filter with Improved Stop-Band Response Mohammad Shahidzadeh Mahani, and Majid Tayarani Iran University of Science and Technology, Iran	90
9:50~10:10	Super Compact Miniaturization of CMOS RFICs Using Synthetic Quasi-TEM Transmission Lines Sen Wang, Kun-Hung Tsai, Meng-Ju Chiang, Hsien-Shun Wu, and Ching-Kuang C. Tzuang National Taiwan University, Taiwan	94
10:10~10:30	Realized Metamaterial CRLH Bandpass Filter for UHF-Band WLAN with Harmonics Suppressed Sungtek Kahng ¹ and Jeong-ho Ju ² 1. University of Incheon, Korea; 2. Electronics and Telecommunication Research Institute, Daejon, Korea	98
10:30~10:45	Coffee break	
Technical	Session(10:45am-12:25pm, Dec-15) Chairs: Fei Xiao and Hee-Ran	Ahn
10:45~11:05	Miniaturization of Triple-Mode UWB Bandpass Filters with Extended Upper-Stopband Sai Wai Wong and Lei Zhu Nanyang Technological University, Singapore	102
11:05~11:25	UWB Bandpass Filter with Multiple Frequency Notched Bands Jing Wang, Wei Hong, Hong-Jun Tang, Yan Zhang, Yuan-Dan Dong, and Ke Wu Southeast University, Nanjing, China	106
11:25~11:45	Design of Dual-Plane Filter Based on Center-Stubbed Resonator X. C. Zhang, J. Xu, Z. Y. Yu, and Y. L. Dong University of Electronic Science and Technology of China, Chengdu, China	110
11:45~12:05	A Novel Miniature Transmit Reject Filter for Ku-Band VSAT Transceivers Zheng-Bin Xu, Jian Guo, Cheng Qian, and Wen-Bin Dou Southeast University, Nanjing, China	113
12:05~12:25	A Microstrip SIR Dual-Mode Bandpass Filter with Simultaneous Size Reduction	116

and Spurious Responses Suppression Wai-Wa Choi and Kam-Weng Tam University of Macau, China

12:30~13:30 Lunch: in the Hotel of UESTC

Technical Session	(14:00pm-16:00pm, Dec-15)	Chairs): Shao-Qiu Xiao and Sungtek	Kahng
14:00~14:20	Interconnect Application Wei Ma ¹ , Ke Wu ^{2,1} , Wei Hong ¹ , a	2. Department of Electrical Engineering, École	120
14:20~14:40	A Ka-Band Monopulse Micros Hai-Yan Huang , Bing-Zhong Wo University of Electronic Science		124
14:40~15:00	Filter with Metal Cylinders Da-Peng Wang ¹ , Wen-Quan Che 1. Nanjing University of Science	Waveguide (SIW) Dual-Mode Square Cavity 1,2, and Peter Russer ² & Technology, China; 2. Institute for High che Universitaet Munchen, Munich, Germany	128
15:00~15:20	Transmission Zeros for Blueto Yong-Sheng Dai ¹ , Zhong-Hua Ye Qi ¹ , Chao-Yu Wang ¹ , Zhi-Dong S	¹ , Bao-Shan Li ¹ , De-Long Lu ² , Yuan You ² , Gao-Pin Song ¹ , and Fei Wang ¹ and Technology, Nanjing, China;	132
15:20~15:40	Rui-Jie Mao ¹ , Xiao-Hong Tang ² , 1. Southwest China Research Ins	epped-Impedance Resonator Bandpass Filters and Ming Yang ¹ titute of Electronic Equipment, Chengdu, China; ce and Technology of China, Chengdu, China	135
15:40~16:00	Jun He, Bing-Zhong Wang, Wei	-Line Coupler with Capacitor Loading Shao, and Shaoqiu Xiao and Technology of China, Chengdu, China	139
16:00~18:00 Coffee	e break and Poster session		
Poster Session (16	:00pm-18:00pm, Dec-15)	hair: Jun Xu, Yu-Liang Dong and Xue-Song Yang	
	Compact UWB Bandpass Filte Shan-Shan Gao, Shao-Qiu Xiao, University of Electronic Science		142
	and Good Selectivity Ming-Qi Zhou, Xiao-Hong Tang,	Bandpass Filter with Controllable Bandwidths and Fei Xiao and Technology of China, Chengdu, China	145
	Asymmetrical Spurline Resona Amplifiers Hai-Wen Liu, Fu Tong, and Xiao Institute of Optics and Electronic		149
	Compact Microstrip-to-CPS T Teck Beng Lim and Lei Zhu	ransition for UWB Application	153

Researches on Miniaturization of Planar Microwave Passive Components in CEMLAB at UESTC BZ Wang, Y. X. Wang, J. P. Wang, X. H. Wang, J. H. Deng, and S. S. Gao University of Electronic Science and Technology of China, Chengdu, China	157
Millimeter-Wave Imaging Using Reverse-Microscope and Scanning System Zu-Cun Zhang, and Wen-Bin Dou Southeast University, Nanjing, China	161
A Band-Stop Filter with Far Spurious Stop Bands Bao-Xin Wang, Qing-Yuan Wang, and Rong-Jun Liu University of Electronic Science and Technology of China, Chengdu, China	164
Wideband Circularly Polarized Patch Antenna with A Single Feeding Y.X. Guo, Diana Tan Chia Hua, and J.P. Wang Nanjing University of Science and Technology, Nanjing, China	167
Design of a Compact Diplexer Xi Wang, Qing-Yuan Wang, Yuan-Hong Zhao, and Hong Li University of Electronic Science and Technology of China, Chengdu, China	170
Design of a FSS Waveguide Filter at 8.05 GHz Shu-Feng Cai, Qing-Yuan Wang, Zhe-Yu Wang, and Yan-Fen Zhai University of Electronic Science and Technology of China, Chengdu, China	173
Design of Multilayer LTCC Bandpass Filter with Low Loss and High Suppression Using SIR Structure Zi-Wei Mu, Ya-Li Qin, Yu-Jie Zhao, and Zhe-Fu Wu Zhejiang University of Technology, Hangzhou, China	176
A New Broadband Miniature RF Power Splitter Yan-Xiang Wang, Hao-Quan Hu, and Jun Xu University of Electronic Science and Technology of China, Chengdu, China	180
A Novel Miniaturized Microwave Microstrip Filter Used Cross-Coupled Square Resonators Ji-Gang Cao and Hao-Quan Hu University of Electronic Science and Technology of China, Chengdu, China	183
Application of the Particle Swarm Optimization in Microwave Engineering Fei Xiao, Xiao-Hong Tang, Ling Wang, and Tao Wu University of Electronic Science and Technology of China, Chengdu, China	187
Left-Handed Metamaterials for RF and Microwave Filter Miniaturization Wei Tong, Zhi-Run Hu, Jing-Bo Xu, and Hai-Ying Zhang Southwest Institute of Electronic Equipments, Chengdu, China	190
Contrast on Performances of Different Planar Patten RFIC Spiral Inductors with Equal Perimeter Hua-Qing Xiao, Xiang-Zheng Xiong, and Cheng Liao Southwest Jiaotong University, Chengdu, China	194
Research on the Parasitic Passband Suppression of Microstrip Stepped Impedance Resonator Filters Tao Wu, Xiao-Hong Tang, and Fei Xiao University of Electronic Science and Technology of China, Chengdu, China	197
A Novel Double Negative Substrate for Miniature Patch Antenna Tian-Le Pu and Ka-Ma Huang	201

Competitive Algorithm of Simulating Natural Tree Growth and its Application in Antenna Design Bo Lu and Ka-Ma Huang Sichuan University, Chengdu, China	205
Simple Formulas of the Capacitances for Broadside Coupled Stripline by Synthetic Asymptote Xiao-Bin Hu ¹ , Zheng-Yong Yu ² , Wan-Chun Tang ³ , and Xiao-Ke Wang ³ 1. Northwestern Polytechnical University, Xi'an, China; 2. Huai'an College of Information Technology, Jiangsu, China; 3. Nanjing University of Science & Technology, Nanjing, China	209
A Miniaturized P-Band Coupler with Multi-Layer Dielectric and High Performance Yong-Sheng Dai ¹ , Bao-Shan Li ¹ , De-Long Lu ² , Yuan You ² , Gao-Pin Qi ¹ , Fei Wang ¹ , Chao-Yu Wang ¹ , Zhong-Hua Ye ¹ , and Zhi-Dong Song ¹ 1. Nanjing University of Science and Technology, Nanjing, China; 2. Zhejiang Zhengyuan Electric CO., LTD., Zhejiang, China	212
An Unequal Power Divider Using Composite Right/Left-Handed Transmission Line Couplers Chang-Jun Liu ¹ , Ka-Ma Huang ¹ , and Wolfgang Menzel ² 1. Sichuan University, Chengdu, China 2. Ulm University, Ulm, Germany	216
Time-Domain Analysis of Photonic Band Gap Structure by a Finite-Element Tearing and Interconnecting Algorithm L. Du ¹ , Y. Yang ² , Z. B. Ye ¹ , J. L. Yang ¹ , and R. S. Chen ¹ 1. Nanjing University of Science and Technology, Nanjing, China; 2. Nanjing University of Aeronautics and Astronautics, Nanjing, China	220
An Efficient Technique for Analysis of Frequency Selective Surface in Spectral Domain with RWG Basis Functions W. Zhuang, Z. H. Fan, D. Z. Ding, and R. S. Chen Nanjing University of Science & Technology, Nanjing, China	224
Miniaturized Microstrip Wilkinson Power Divider with Harmonic Suppression Jian-Peng Wang ¹ , Jia Ni ¹ , Yong-Xin Guo ² , and Da-Gang Fang ¹ 1. Nanjing University of Science and Technology, Nanjing, China; 2. Institute for Infocomm Research, Singapore	227
Asymmetrical Two $\lambda/2$ Resonators Bandpass Filter Design by Artificial Neural Network Modeling Hui-Sheng Wang and Xiu-Ping Li Beijing University of Posts and Telecommunications, Beijing, China	230
A Novel Spatial Power Combiner Based on SIW and HMSIW Hai-Yan Jin, Guang-Jun Wen, and Yan-Bin Jin University of Electronic Science and Technology of China, Chengdu, China	233