PIERS 2011 Suzhou

Progress In Electromagnetics Research Symposium

Program

September 12 - 16, 2011

Suzhou, CHINA

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14:20 A Simple Calibration Method for the Shorted Stripline Permeability Measurement
Sergey N. Starostenko (*Institute for Theoretical and Applied Electromagnetics RAS, Russia*); *Konstantin N. Rozanov* (*Institute for Theoretical and Applied Electromagnetics RAS, Russia*);

14:40 GMI Output Stability of Glass-coated Co-based Microwires for Sensor Application
Jing-Shun Liu (*Harbin Institute of Technology, China*); *Xiao-Dong Wang* (*Harbin Institute of Technology, China*); *Fa Xiang Qin* (*University of Bristol, UK*); *Fu-Yang Cao* (*Harbin Institute of Technology, China*); *Da-Wei Xing* (*Harbin Institute of Technology, China*); *Hua-Xin Peng* (*University of Bristol, UK*); *Xiang Xue* (*Harbin Institute of Technology, China*); *Jian-Fei Sun* (*Harbin Institute of Technology, China*);

15:00 **Coffee Break**

Session 3P6b
Materials, Devices, Fabrications and Characterizations of Organic Electronics

Wednesday PM, September 14, 2011
Room F
Organized by Jwo-Huei Jou
Chaired by Jiun-Haw Lee

15:20 Electromagnetic Spinning of Nanofibers Using Polymer Bubbles
Ji-Huan He (*Soochow University, China*);

15:40 Very-high Color-rendering Index OLEDs
Jwo-Huei Jou (*National Tsing Hua University, Taiwan*);

16:00 Ambipolar Transporting Pyridine-containing Anthracene Derivatives for Highly Efficient OLEDs
Lian Duan (*Tsinghua University, China*); *Yong Qiu* (*Tsinghua University, China*);

16:20 All Phosphorescent White Organic Light-emitting Devices with High Color Stability and Low Efficiency Roll-off
Mao-Kuo Wei (*National Dong Hwa University, Taiwan, R.O.C.*); *Yi-Chi Bai* (*National Dong Hwa University, Taiwan, R.O.C.*); *Chih-Hung Hsiao* (*National Taiwan University, Taiwan*); *Yi-Hsin Lan* (*National Taiwan University, Taiwan*); *Jiun-Haw Lee* (*National Taiwan University, Taiwan, R.O.C.*); *Pei-Yu Lee* (*Yuan Ze University, Taiwan*); *Tien-Lung Chiu* (*Yuan Ze University, Taiwan*); *Chung-Chieh Lee* (*National Taiwan University, Taiwan*); *Chih-Chiang Yang* (*National Taiwan University, Taiwan*); *Man-Kit Leung* (*National Taiwan University, Taiwan*); *Shun-Wei Liu* (*Institute of Chemistry, Academia Sinica, Taiwan*); *Chin-Ti Chen* (*Institute of Chemistry, Academia Sinica, Taiwan*);

16:40 Toward Mass Production of OLED Lighting
Chung Chun Lee (*AU Optronics Corporation, Taiwan*); *Chieh Wei Chen* (*AU Optronics Corporation, Taiwan*); *Chih Jen Yang* (*AU Optronics Corporation, Taiwan*); *Chun Hsiang Fang* (*AU Optronics Corporation, Taiwan*);

Session 3P7
Poster Session 5

Wednesday PM, September 14, 2011
14:00 PM - 17:00 PM
Room G

1 Small Antenna Chamber Design and Measurement
Guan-Yu Chen (*National Taipei University of Technology, Taiwan*); *Kuo-Liang Wu* (*National Taipei University of Technology, Taiwan*); *Y. D. Chen* (*High Tech. Computer Corporation (HTC), Taiwan*); *Jwo-Shiun Sun* (*National Taipei University of Technology, Taiwan, R.O.C.*);

2 Phase Modulation for Spectral Switches of an Asymmetrical Slit
Pin Han (*National Chung Hsing University, Taiwan*);

3 On the Electrically Driven Motion
Sara Liyuba Vesely (*I.T.B. — C.N.R., Italy*); *Alessandro Alberto Vesely* (*Via L. Anelli 13, Italy*); *Caterina Alessandra Dolci* (*Liceo Einstein, Italy*);

4 Novel Nonlocal Gauge Functions in Electrodynamics and Their Effect on Quantum Mechanical Phases
Constantinos Moulopoulos (*University of Cyprus, Cyprus*);

5 Investigation of Illusion Optics Devices Implemented by Transmission-line Metamaterials with Full Tensors
Guo Chang Liu (*Institute of Electronics, Chinese Academy of Sciences, China*); *Chao Li* (*Southwest Jiaotong University, China*); *Guangyou Fang* (*Institute of Electronics, Chinese Academy of Sciences, China*);

6 About the Zero Point Energy, Zero Point Mass, Zero Point Temperature and Zero Point Motion in the Subatomic World and Photonics
Antonio Puccini (*Order of Malta, Italy*);

7 Comment on "Permanence of Light Velocity" by Applying the New Theory on Electromagnetic Wave
Yelin Xu (*Institute of Biophysics, Chinese Academy of Sciences, China*); *Qiang Xu* (*Institute of Theoretical Physics of Haikou, China*);

8 A Note on Variational Theory for Piezoelectricity with Voids
Ji-Huan He (*Soochow University, China*);

9 Microwave Permeability of Planar Anisotropy Ce $_2$Fe$_{17}$N $_{3-\delta}$ Powders and Its Composite
Wenliang Zuo (*Lanzhou University, China*); *Jianqiang Wei* (*Lanzhou University, China*); *Tao Wang* (*Lanzhou University, China*); *Fashen Li* (*Lanzhou University, China*);

10 Investigation on Peak Frequency of the Microwave Absorption for Planar $Ce_2Fe_{17}N_{3-\delta}$/resin Composite
Jianqiang Wei (*Lanzhou University, China*); *Wenliang Zuo* (*Lanzhou University, China*); *Tao Wang* (*Lanzhou University, China*); *Fashen Li* (*Lanzhou University, China*);

11 A Design of Size-reduced Low Pass Filter Using Artificial Dielectric Substrate Structure
Jakyung Koo (*Soonchunhyang University, Korea*); *Jaehoon Lee* (*Soonchunhyang University, Republic of Korea*); *Jun Lee* (*Soonchunhyang University, Republic of Korea*); *Jongsik Lim* (*Soonchunhyang University, Republic of Korea*); *Yongchae Jeong* (*Chonbuk National University, South Korea*); *Sang-Min Han* (*Soonchunhyang University, Korea*); *Dal Ahn* (*Soonchunhyang University, Korea*);

12 Performance Comparison of Radar Target Classification for Monostatic and Bistatic RCS
Sung-Jun Lee (*Hannam University, Korea*); *In-Sik Choi* (*Hannam University, Korea*); *Seung-Jae Lee* (*Hannam University, Korea*);

13 Wavelength Tunable Micro-Fabry-Perot Interferometers Based on Thermal-optic Effect
Yu-Hsin Hsieh (*National United University, Taiwan*); *Nan-Kuang Chen* (*National United University, Taiwan*); *Junjie Zhang* (*Shanghai Institute of Optics and Fine Mechanics, Chinese Academy of Science, China*);

14 Research on Encode Methods of Train-ground Wireless Credible Transmission System
Guochun Wan (*Tongji University, China*); *Mei Song Tong* (*Tongji University, China*);

15 Parametric Transformation and Parametric Resonance of Confined Acoustic Phonons and Confined Optical Phonons by an External Electromagnetic Wave in Doping Superlattices
Nguyen Quang Bau (*National University in Hanoi, Vietnam*); *Nguyen Van Nghia* (*National University in Hanoi, Vietnam*); *Le Thai Hung* (*Hanoi National University, Vietnam*);

16 Imaging of 3D Objects Located in a Layered Media with Rough Interfaces: An Accelerated Contrast Source Inversion Algorithm
Tolga Ulaş Gürbüz (*Istanbul Technical University, Turkey*); *Birol Aslanyurek* (*Yildiz Technical University, Turkey*); *Ibrahim Akduman* (*Istanbul Technical University, Turkey*); *Tuba Alpay* (*Istanbul Technical University, Turkey*);

17 Remote Monitoring Systems of Detection and Classification of the Phenomena on Sea Surface
Ferdenant A. Mkrtchyan (*V.A. Kotelnikov's Institute of Radioengineering and Electronics, Russian Academy of Sciences, Russia*);

18 All-optical Controllable Double State Switch Based on DIT by Using QD
Karim Abbasian (*University of Tabriz, Iran*); *Nasibeh Pasyar* (*University of Tabriz, Iran*); *Ali Rostami* (*University of Tabriz, Iran*);

19 Annealing Temperature Optimization for Maximizing the Faraday Rotation and Magnetic Circular Dichroism of RF-magnetron Co-sputtered $Bi_3Fe_5O_{12}$–$Bi_2Dy_1Fe_4Ga_1O_{12}$ Films
Viacheslav A. Kotov (*V.A. Kotelnikov Institute of Radio Engineering and Electronics RAS, Russia*); *Mikhail Vasiliev* (*Edith Cowan University, Australia*); *Kamal E. Alameh* (*Edith Cowan University, Australia*); *D. E. Balabanov* (*Moscow Institute of Physics and Technology, Russia*); *V. I. Burkov* (*Moscow Institute of Physics and Technology, Russia*); *V. G. Shavrov* (*V.A. Kotelnikov Institute of Radio Engineering and Electronics, RAS, Russia*);

Session 3P7
Poster Session 5

A Design of Size-reduced Low Pass Filter Using Artificial Dielectric Substrate Structure

Jakyung Koo[1], **Jaehoon Lee**[1], **Jun Lee**[1], **Jongsik Lim**[1], **Yongchae Jeong**[2], **Sang-Min Han**[1], **and Dal Ahn**[1]

[1]Soonchunhyang University, Korea
[2]Chonbuk National University, Korea

Abstract— A design of size-reduced microwave low pass filter using artificial dielectric substrate (ADS) structure is described in this paper. The ADS structure in Fig. 1, which has been proposed by Caloz group in 2007, consists of the upper layer on which microstrip lines and circuit patterns are printed, and the lower layer which has a lot of metalized via-holes. The effective permittivity and permeability of the ADS structure increase due to the lots of metalized via-holes, so they contribute to the size-reduction of high frequency circuits. In this work, a low pass filter (LPF), as an example, which is one of widely used high frequency circuits for wireless systems is designed and measured for the verification of the proposed idea of size-reduction using the ADS structure. A stub-type 2 GHz LPF is designed on the normal microstrip substrate (Fig. 2) and compared to the size-reduced LPF patterned on the ADS structure (Fig. 3). When the thicknesses of the upper and lower substrates are 5mils and 31mils, respectively, and their dielectric constant is 2.2, the core size of the normal LPF (the dotted area in Fig. 2) on the 36mil-thick substrate is 653.71 mm^2(= 32.25 mm × 20.27 mm). However the dotted box for the pure LPF area (Fig. 3) of the miniaturized design using the ADS structure is only 330.7 mm^2(= 21.93 mm × 15.08 mm), which is only 50.6% of the normal design. The measured S-parameters shown in Fig. 4 present typical performances as a LPF with the worst S_{21} and S_{11} are −0.85 dB and −11.4 dB without a critical degradation in the characteristics as a LPF.

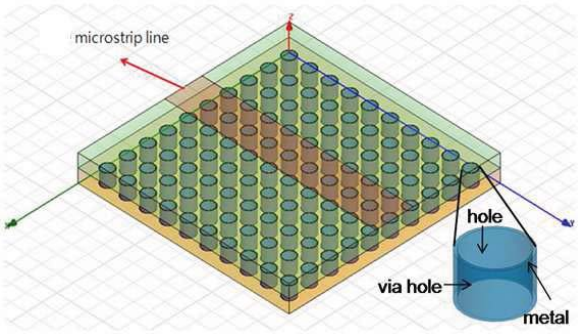

Figure 1.

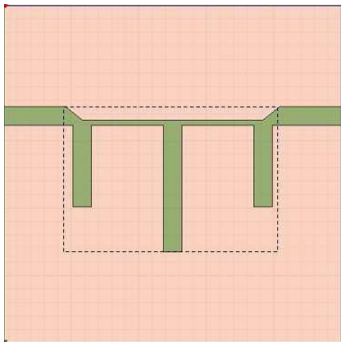

Figure 2.

Figure 3.

Figure 4.

ACKNOWLEDGMENT

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