

# **2011 IEEE International Workshop on Electromagnetics, Applications and Student Innovation**

**(iWEM 2011)**

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**Technical Program**  
**8/8 Monday**

**Opening Ceremony** **9:00~9:30**

**Keynote Speaker:** Prof. Magdalena Salazar-Palma **9:30~10:30**

**Chairman:** Prof. Raj Mittra

A Marching-on-in-Degree Method for the Time Domain Analysis of Electromagnetic Structures.

*Dpto. Señales, Sistemas y Radiocomunicaciones, ETSI Telecomunicación, Universidad Politécnica de Madrid, Ciudad Universitaria s/n, 28040 Madrid, Spain*

**Coffee Break** **10:30~10:50**

**Technical Session 1: Mobile and Base Station Antennas** **10:50~12:20**

**Chairmen:** Prof. Fa-Shian Chang, Prof. Cheng-Nan Hu

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*Wen-Shan Chen and Jing-Wei Wang, Southern Taiwan University, Tainan City, 710 Taiwan, R.O.C.*

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*(1) Palestine Cellular Communication Ltd., Ramallah, Palestine*

*(2) Palestine Polytechnic University, Hebron, Palestine*

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*(1) Palestine Cellular Communication Ltd., Ramallah, Palestine.*

*(2) Palestine Polytechnic University, Hebron, Palestine*

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Chen<sup>(1)</sup>

(1) Department of Electronic Engineering, National Taipei University of Technology, Taiwan

(2) Department of Electrical Engineering, Yuan Ze University, Taiwan

(3) Antenna and EMC Laboratory, HTC Corporation, Taiwan

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**Lunch (Lab tour) 12:20~13:20**

**Keynote Speaker:** Prof. Raj Mittra 13:20~14:20

**Chairman:** Prof. Jeffrey S. Fu

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Electromagnetic Communication Laboratory Penn State University University Park, USA

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**Technical Session 3: Microwave Devices** **17:00~18:30**

**Chairmen:** Prof. Hiroyuki Arai, Prof. Kuen-Fwu Fuh

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**Reception**

**19:00~21:00**

## 8/9 Tuesday

**Keynote Speaker:** Prof. Kwai-Man Luk **9:00~10:00**

**Chairman:** Prof. Tapan K Sarkar

Novel design of dual-polarized L-probe patch antenna

*Department of Electronic Engineering and State Key Laboratory of Millimeter Waves City University of Hong Kong Kwoloon, Hong Kong*

**Coffee Break** **10:00~10:20**

**Technical Session 4: Array Antennas, Phase Arrays and Feeding Circuits** **10:20~12:20**

**Chairmen:** Prof. Kwai-Man Luk, Dr. Hsiao-Bin Liang

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**Lunch (Lab tour)**

**12:20~13:20**

**Keynote Speaker:** Prof. Tapan K Sarkar

**13:20~14:20**

**Chairman:** Prof. Jean-Fu Kiang

Free Space Radiation Pattern Reconstruction from Non-Anechoic Measurements using an Impulse Response of the Environment

*Dept. of ECE, Syracuse University, Syracuse, NY 13244, USA*

**Coffee Break**

**14:20~14:40**

**Technical Session 5: Novel Application**

**14:40~16:40**

**Chairmen:** Prof. Le-Wei Li, Prof. Wen-Shan Chen

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**Coffee Break**

**16:40~17:00**

**Technical Session 6: EMC/EMI Simulation and Measurements**      **17:00~18:30**

**Chairmen:** Prof. Wenhua Yu, Prof. Shih-Chung Tuan

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*D. F. Liu<sup>(1)</sup>, L. Zhao<sup>(1,2)</sup>, H. D. Zhao<sup>(1)</sup>, G. Chen<sup>(1)</sup>, and W. Yu<sup>(1)</sup>, (1) Center for Computational Science and Engineering, School of Mathematical Sciences, Xuzhou Normal University, China(2) State Key Laboratory of Millimeter Waves, Southeast University, China*

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*Max Chung<sup>(1)(2)</sup> and Yui-Shun Huang<sup>(1)</sup>, (1) Department of Electronics Engineering, Southern Taiwan University, Tainan, Taiwan, ROC, (2) Center of Micro/Nano Science and Technology, National Cheng Kung University, Tainan, ROC*

**Banquet**

**19:00~21:00**

**8/10 Wednesday**

**Keynote Speaker:** Prof. Le-Wei Li **9:00~10:00**

**Chairman:** Prof. Jeffrey S. Fu

*Institute of Electromagnetics and School of Electronic Engineering University of Electronic Science and Technology of China*

**Coffee Break** **10:00~10:20**

**Technical Session 7: Computational Electromagnetics** **10:20~12:20**

**Chairmen:** Prof. Ruey-Bing Hwang

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**Lunch (Lab tour) 12:20~13:20**

**Technical Session 8: Innovation Competition (Poster) 13:20~15:20**

**Chairmen:** Prof. Ching-Wen Hsue, Prof. Raj Mittra

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*ZOY cpi . 'NONk' \ ONkpi . '[ OY w' \ OY w*

Comparison of Specific Absorption Rate Induced in Prolate Head Model and SAM Phantom Exposed to a Dipole Antenna  
*D. F. Liu<sup>(1)</sup>, L. Zhao<sup>(1,2)</sup>, H. D. Zhao<sup>(1)</sup>, G. Chen<sup>(1)</sup>, and W. Yu<sup>(1)</sup>, (1) Center for Computational Science and Engineering, School of Mathematical Sciences, Xuzhou Normal University, China(2) State Key Laboratory of Millimeter Waves, Southeast University, China*

Miniaturized Branch-line Coupler with Wide Upper Stopband Using Novel Synthesized Microstrip Lines with Series LC Tanks  
*Jyun-Yu Zou, Cheng-Hsun Wu, and Tzyh-Ghuang Ma, Department of Electrical Engineering, National Taiwan University of Science and Technology, No. 43, Sec. 4, Keelung Rd., Taipei 10607, Taiwan (R.O.C.)*

## Noise Reduction Method based on the Gating Technique for Time-Reversal MUSIC Imaging

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## Leaky Wave Antenna Using Composite Right/Left-Handed Transmission Line Composed of Parallel Plate Capacitor

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## RCS Reduction of a Composite AMC Structure

*Yueh-Lin Tsai, Ruey-Bing Hwang, Institute of Communication Engineering, National Chiao-Tung University, Hsinchu, Taiwan*

## Calculation of Sommerfeld Integrals for Conductive Media at Low Frequencies

*Yingkang Wei<sup>(1)</sup>, Bengt Holter<sup>(2)</sup>, Ingve Simonsen<sup>(1)</sup>, Jacob Kuhnle<sup>(2)</sup>, Karsten Husby<sup>(2)</sup>, Lars Norum<sup>(1)</sup>, (1) Norwegian University of Science and Technology (NTNU), NO-7491, Trondheim, Norway (2) SINTEF, Forskningsveien 1, Pb. 124. Blindern, NO-0314, Oslo, Norway*

## A Feeding Circuit for Switching Omni-Directional and Directive Patterns

*Daisuke Uchida<sup>(1)</sup>, Hiroyuki Arai<sup>(1)</sup>, and Young Joong Yoon<sup>(2)</sup>, (1) Division of Electrical and Computer Engineering, Yokohama National University 79-5, Tokiwadai, Hodogaya-ku, Yokohama-shi, 240-8501 Japan (2) Department of Electrical & Electronic Engineering, Yonsei University 134, Shinchon-dong, Sudaemoon-gu, Seoul, 120-49 Korea*

## Bandwidth enhancement analysis of slot antenna through gap between tuning stub and ground plane

*Pei Cheng Ooi and Krishnasamy T. Selvan, Applied Electromagnetics and Telecommunications Group (Affiliated to the George Green Institute for Electromagnetic Research, Nottingham, UK). Department of Electrical and Electronic Engineering, The University of Nottingham Malaysia Campus Jalan Broga, Semenyih Selangor Darul Ehsan, Malaysia*

## Antipodal Dual Exponentially Tapered Slot Antennas (DETTSA) with Corrugations for Front-to-back Ratio Improvement

*Ting-Jui Huang and Heng-Tung Hsu, Department of Communication Engineering Yuan Ze University, Taiwan*

The concept of microwave detecting safety alarm card using microwave energy  
*Tai-Shan Liao*<sup>(1)</sup> and *Yi-Jwu Liao*<sup>(2)</sup>, (1) Instrument Technology Research Center, National Applied Research Laboratories, Taiwan, R.O.C, (2) Electrical Engineering Department, National Taiwan Ocean University, Taiwan, R.O.C

Comparison of Time-Domain and Frequency-Domain Characterization Procedures for Printed Circuit Board Interconnects

*Kuen-Fwu Fuh*<sup>(1)</sup>, *Kuan-Yu Chen*<sup>(1)</sup>, *En-Ting Chen*<sup>(1)</sup>, *Tzuang-Han Lin*<sup>(1)</sup>, *Anderson Cheng*<sup>(2)</sup>, and *Tristan Lin*<sup>(2)</sup>, (1) National United University, Miaoli, Taiwan, (2) ITEQ Corporation, Ping Chen, Taoyuan, Taiwan

Internal Compact Small-Size Printed Compound Monopole Antenna for Mobile Phone

*Tsang-Yen Hsieh*, *Jyh-Liang Wang*, and *Wei-Chuan Chen*, Electronic Engineering Department, Mingchi University of Technology Taishan, New Taipei City, Taiwan

A T-Matched Dipole Antenna with a Dielectric Superstrate for UHF RFID Tag

*Wei-Chih Chen*<sup>(1)</sup>, *Hua-Ming Chen*<sup>(1)</sup>, Senior Member, IEEE, *Yi-Fang Lin*<sup>(1)</sup>, *Jyun-Wei Jhuang*<sup>(1)</sup>, *Sue-Wei Chang*<sup>(1)</sup> and *Chien-Hung Chen*<sup>(2)</sup>, (1) Institute of Photonics and Communications, National Kaohsiung University of Applied Sciences, Kaohsiung 807, Taiwan (2) Department of Avionics Engineering, Air Force Academy, Taiwan

A 6.5-9 GHz Vector-Sum Phase Shifter for Heterodyne Transceiver with IF Beamforming

*Yu-Tsung Lo* and *Jean-Fu Kiang*, National Taiwan University, Taipei, Taiwan

Long-range Pulse Propagation over Different Surfaces Using Domain-decomposition FDTD Method

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Reconstruction Algorithm Applied to Low-Frequency Array (LOFAR) Image

*Mu-Min Chiou* and *Jean-Fu Kiang*, Graduate Institute of Communication Engineering, National Taiwan University, Taipei, Taiwan, R.O.C.

A Ray Tracing Technique for Radio Occultation

*Ming-Xian Li* and *Jean-Fu Kiang*, Graduate Institute of Communication Engineering, National Taiwan University, Taipei, Taiwan, R.O.C

## The Effects of Reflectors on Log-periodic Antenna used for High Frequency Surface Wave Radars

*Max Chung<sup>(1)(2)</sup> and Yui-Shun Huang<sup>(1)</sup>, (1) Department of Electronics Engineering, Southern Taiwan University, Tainan, Taiwan, ROC, (2) Center of Micro/Nano Science and Technology, National Cheng Kung University, Tainan, ROC*

## Tunable plasmonic resonance associated with symmetry broken nanobeads

*You Je He<sup>(1)</sup>, Wei Ting Chen<sup>(1)</sup>, Yao-Wei Huang<sup>(1)</sup>, Pin Chieh Wu<sup>(1)</sup>, Yuan-Fong Chau<sup>(2)</sup>, and Din Ping Tsai<sup>(1),(3),(4)</sup>, (1) Department of Physics, National Taiwan University, Taipei 10617, Taiwan, (2) Department of Electronic Engineering, Ching Yun University, Jung-Li 320, Taiwan, (3) Research Center for Applied Sciences, Academia Sinica, Taipei 11529, Taiwan, (4) Instrument Technology Research Center, National Applied Research Laboratory, Hsinchu, 300, Taiwan*

## Design and Implementation of Charge-Pump Phase-Locked Loop

*Min-Chin Lee, Ming-Chia Hsieh, and Ya-Ciou Lin, Orient Institute of Technology, New Taipei City, Taiwan*

## Adaptive Beamforming Method for Arc Length Based Virtual Antenna Array

*Wenxing Li<sup>(1)</sup>, Yipeng Li<sup>(1)</sup>, Lili Guo<sup>(1)</sup>, Wenhua Yu<sup>(2)</sup>, (1) Harbin Engineering University, Harbin 150001, China, (2) The Pennsylvania State University, University Park, PA 16802, USA*

## Synthesis of Broadband Filters with Dual-Mode Stepped Impedance Resonators

*Jeng-Shien Hsieh, Shang-Yu Yang, and Chih-Ming Tsai, Institute of Computer and Communication Engineering and Department of Electrical Engineering, National Cheng Kung University, Tainan, 70101, Taiwan*

## Design of Flexible Platform for Various Free-Space, Broadband Dielectric Analysis Measurement Techniques

*Yaqiang Liu<sup>(1)</sup> and Dr. Paul O'Leary<sup>(1)</sup>, (1) Waterford Institute of Technology, Waterford, Ireland*

## Balanced Dual-Band BPF Design using Ring Resonators

*Jhih-Hong Chang<sup>(1)</sup>, Yu-Sen Lin<sup>(2)</sup>, Ching-Her Lee<sup>(3)</sup>, Chung-I G. Hsu<sup>(4)</sup>, (1) (2) (3) Graduate Institute of Communications Engineering, National Changhua University of Education, Changhua 500, Taiwan, (4) Department of Electrical Engineering, National Yunlin University of Science and Technology, Yunlin 640, Taiwan*

## Band Rejection Controlled Amplitude Modulated Non-uniform Electromagnetic

## Bandgap Structure

*Dong-Hua Yang<sup>(1)</sup>, Basudeb Ghosh<sup>(1)</sup>, Jeffrey S. Fu<sup>(1)</sup>, Hamze Msheikh<sup>(2)</sup> and Nemai C. Karmakar<sup>(2)</sup>,*

*(1) Dept. of Electronic Engineering, Chang Gung University, Kwei-Shan, Taoyuan, Taiwan 333.*

*(2) Dept. of Electrical and Computer Systems Engineering, Monash University, Clayton, VIC., Australia 3800*

## Plasmonic Toroidal Response of four U-shaped resonant rings at Optical Frequencies

*Yao-Wei Huang<sup>(1)</sup>, Wei Ting Chen<sup>(1)</sup>, Pin Chieh Wu<sup>(1)</sup>, Yuan-Fong Chau<sup>(2)</sup>, Din Ping Tsai<sup>(1),(3),(4)</sup>,*

*Vassili A. Fedotov<sup>(5)</sup>, Vassili Savinov<sup>(5)</sup> and Nikolay I.Zheludev<sup>(5)</sup>, (1) Department of Physics, National Taiwan University, Taipei 10617, Taiwan.(2) Department of Electronic Engineering, Ching Yun University, Jung-Li 320, Taiwan. (3) Instrument Technology Research Center, National Applied Research Laboratories, Hsinchu 300, Taiwan. (4) Research Center for Applied Sciences, Academia Sinica, Taipei 115, Taiwan. (5) Optoelectronics Research Centre and Centre for Photonic Metamaterials, University of Southampton, Southampton SO17 1BJ, UK.*

## The Design and Implementation of the E-BIKE Physiological Monitoring Prototype System for Cyclists

*Chien-Nan Lee<sup>(1)</sup>, Lung Chan<sup>(2)</sup>, Chan-Yueh Yang<sup>(3)</sup>, Guan-Ying Lee<sup>(1)</sup>, Ci-Ruei Ciou<sup>(1)</sup>, (1)*

*Department of Electronic Engineering, Oriental Institute of Technology, NewTaipei City, Taiwan, (2) Section of Neurology, Department of Internal Medicine, Far Eastern , Memorial Hospital, New Taipei City, Taiwan, (3) Department of Information and Communication Engineering, Oriental, Institute of Technology, New Taipei City, Taiwan*

## Coffee Break

**15:20~15:40**

**Keynote Speaker:** Prof. Hiroyuki Arai

**15:40~16:40**

**Chairman:** Prof. Magdalena Salazar-Palma

Design of MIMO Antennas for Indoor Base Station and Hand Terminal

*Yokohama National University, Japan*

## Coffee Break

**16:40~17:00**

## ISC Meeting

**17:00~18:00**

## Closing and Award Banquet

**19:00~21:00**