

# PIERS 2004

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Progress In Electromagnetics Research Symposium

Program

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August 28–31, 2004

Nanjing, China

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[www.ccem.edu.cn/piers2k4/](http://www.ccem.edu.cn/piers2k4/)

[www.emacademy.org](http://www.emacademy.org)

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For more information on PIERS, please visit us online at [www.emacademy.org](http://www.emacademy.org) or [www.piers.org](http://www.piers.org).

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## Progress in Electromagnetics Research Symposium

August 28–31, 2004

Nanjing, China

### PIERS 2004 NANJING ORGANIZATION

#### **PIERS Chair**

J. A. Kong, MIT, USA

#### **PIERS 2004 General Chair**

W. X. Zhang, Southeast University, China

#### **PIERS 2004 Vice General Chair**

D. G. Fang, Nanjing University of Science and Technology, China

#### **PIERS 2004 Technical Program Committee Chair**

W. Hong, Southeast University, China

#### **PIERS 2004 Technical Program Committee Vice Chair**

T. J. Cui, Southeast University, China

#### **PIERS 2004 Organizing Committee Chair**

J. P. Xu, Southeast University, China

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H. Ogura (Japan)	J. W. Ra (Korea)	L. W. Li (Singapore)
M. Salazar-Palma (Spain)	A. I. Nosich (Ukraine)	W. C. Chew (U.S.A.)
T. K. Sarkar (U.S.A.)		

## PIERS 2004 National Advisory Committee

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Gao Benqing	Gong Zhonglin	Gong Zhenquan	Jiao Peinan
Jin Yaqui	Liang Changhong	Nie Zaiping	Qian Jian
Song Wenmiao	Sun Zhongliang	Wang Baofa	Wang Wenbin
Wu Zhensen	Xu Deming	Xu Jiadong	Xu Penggen
Xu Shanxia	Yang Hongsheng	Yang Naiheng	Yang Rugui

## PIERS 2004 Technical Program Committee

Chen Zhihao	Chen Bin	Chen Rushan	Chu Qingxin
Feng Quanyuan	Gu Changqing	Gu Ning	Guan Boran
He Sailing	Huang Kama	Jin Lin	Ke Hengyu
Lin Heyuan	Mao Junfa	Shi Xiaowei	Sun Xiaohan
Wang Bingzhong	Wang Zhigong	Wu Xinbao	Wu Xianliang
Yuan Naichang	Zhu Hongbo	Zhu Shouzheng	

## PIERS 2004 NANJING SESSION ORGANIZERS

Alain Priou	Bing-Zhong Wang	Chao-Fu Wang	Chen Liao
C. H. Chan	De-Biao Ge	Emile J. Schweicher	Jitenra Behari
Jun-Fa Mao	John Huang	Jian-Ming Jin	Joseph Pribetich
Kazuya Kobayashi	Ka-Ma Huang	Kiyotoshi Yasumoto	Leung Tsang
Le-Wei Li	Mitsuo Tateiba	Pei-Nan Jiao	Qing-Huo Liu
Quan Xue	Ru-Shan Chen	Sai-Ling He	Stéphane Mainguy
Wei Cao	Wen-Yan Yin	Xiao-Dong Chen	Xiao-Han Sun
Yeow Beng Gan	Yang Hao	Yeong-Lin Lai	Yahya Rahmat-Samii
Yury V. Shestopalov	Zheng-Quan Gong	Zu-Han Gu	

## PIERS 2004 NANJING SPONSORSHIP

- The Electromagnetics Academy
- Southeast University



## SYMPOSIUM SITE AND OFFICE LOCATION

The 2004 Progress in Electromagnetics Research Symposium will be held on August 28–31, 2004, at the Zhongshan Hotel, Nanjing, China. During the symposium, the PIERS Office will be in the Zhongshan Hotel. The PIERS Office will open at 1:00 PM on Friday, August 27, 2004.

## REGISTRATION

The PIERS short courses begin on Saturday afternoon, August 28, and the technical sessions begin on Sunday morning, August 29, 2004 at the Zhongshan Hotel, Nanjing, China. You may register in the PIERS Office at the Zhongshan Hotel on Friday, August 27, from 1:00 PM to 7:00 PM, or during the symposium from 7:30 AM through 5:00 PM, August 28-31, 2004.

The on-site registration fee is US\$360. The student registration fee is US\$200; a valid student ID is required. If you have pre-registered, your badge and symposium program will be ready for you to pick up at the registration desk during the symposium.

## PROJECTION FACILITIES

Overhead and LCD projectors will be provided in each meeting room. Please note computers/laptops will be provided.

## SPECIAL EVENTS

### **Opening Reception**

On Saturday evening, August 28, 2004, from 6:00 to 9:00 PM, join your PIERS hosts and other participants for an informal opening reception at the Zhongshan Hotel.

### **Conference Dinner**

A conference dinner is planned for PIERS participants and their guests on Monday evening, August 30, 2004. Tickets will be sold at a price of US\$20 on a first-come, first-served basis. Detailed information can be obtained from the PIERS 2004 office.

## PIERS ONLINE

Information on PIERS 2004 and future PIERS is posted on the World Wide Web at [www.emacademy.org](http://www.emacademy.org) or [www.ccem.edu.cn/piers2k4/](http://www.ccem.edu.cn/piers2k4/).

## GENERAL INFORMATION

### SYMPOSIUM VENUE

The PIERS2004(NJ) will be held at Zhongshan Hotel (Jiangsu Conference Center) in Nanjing, Jiangsu Province. The site of the hotel was a part of famous Huangpu military college set up on January 1,1929.

ADD: 307, East Zhong-Shan Road, Nanjing, China  
TEL: 86 25 84818888 or 84808307  
FAX: 86 25 84809209  
WEB: <http://www.jszhotel.com>

Seven session rooms and two working rooms for PIERS 2004 (NJ) are distributed on the second and the third floors in the main building of Zhongshan Hotel. The Session Rooms: A, B, C, D and E, and a PIERS Office Room are on the second floor; the Session Rooms: F and G, and also an Internet Access Room are on the third floor. Registration desk is located in the Lobby of the main building. The sketch maps are presented on next page.

### TRANSPORTATION

#### **How to get to Zhongshan Hotel?**

A: For those arrive at Nanjing Lukou International Airport,

- a) By taxi directly from the airport [about 50 min., RMB~120 Yuan] ⇒ Zhongshan Hotel.
- b) By airport bus [about 50 min., RMB~25 Yuan] ⇒ Jin-Yu Hotel (the first stop), then take taxi [about 5min., RMB~7 Yuan] ⇒ Zhongshan Hotel.

B: For those arrive at Nanjing Railway (Main) Station,

- a) By taxi directly from the station [about 20 min., RMB~18 Yuan] ⇒ Zhongshan Hotel.
- b) By bus: No.17 or No.36 [about 25 min.] ⇒ Ming-Gu-Gong(Imperial Palace), then take walk westward [about 8~10min.] ⇒ Zhongshan Hotel.

C: For those arrive at Zhong-Yang-Men Long Distance Bus Terminal,

- a) By taxi directly from the station [about 35 min., RMB~20 Yuan] ⇒ Zhongshan Hotel.
- b) By bus: No.25 or Tourism No.1 ⇒ Jie-Fang-Lu; or No.1 ⇒ Da-Xing-Gong then transfer to No.5 ⇒ Jie-Fang-Lu, then walk eastward [3~5min.] ⇒ Zhongshan Hotel.

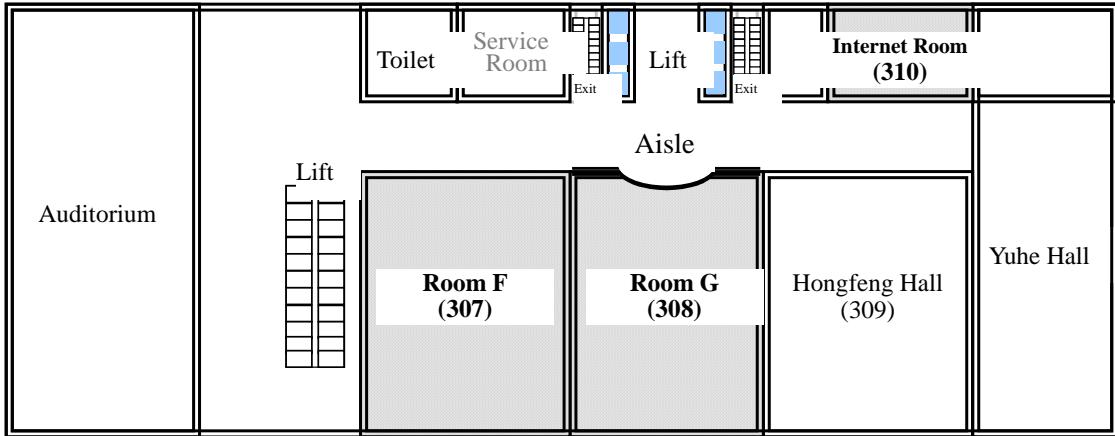
D: For those arrive at East Long Distance Bus Terminal,

- a) By taxi directly from the station [about 35 min., RMB~18 Yuan] ⇒ Zhongshan Hotel.
- b) By bus: No.2 ⇒ Suo-Jin-Cun, then transfer to No.17 or No.36 ⇒ Ming-Gu-Gong(Ming Imperial Palace), then walk westward for 8~10min.

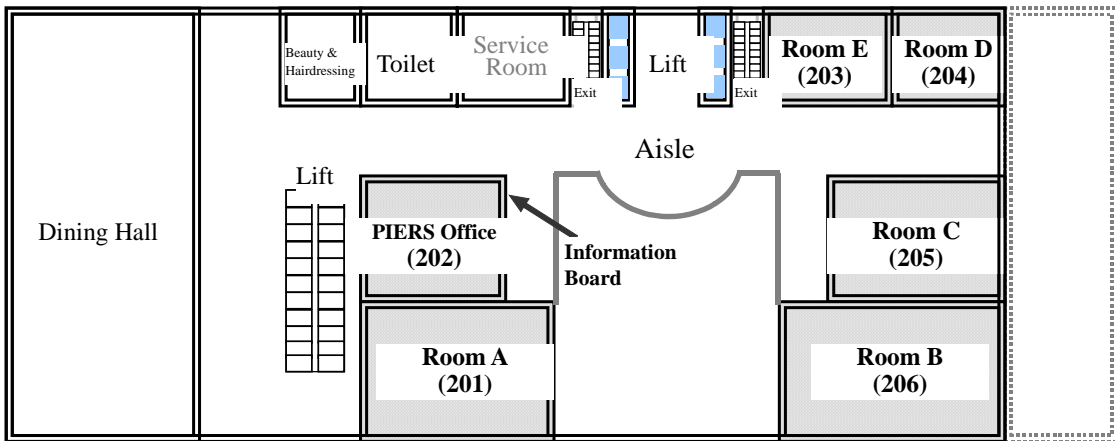
E: For those arrive at Han-Fu-Jie Long Distance Bus Terminal,

- a) By taxi directly from the station [about 15 min., RMB~7 Yuan] ⇒ Zhongshan Hotel.
- b) By bus: No.29, No.9 or No.65 ⇒ Jie-Fang-Lu, then walk eastward for 3~5min ⇒ Zhongshan Hotel.

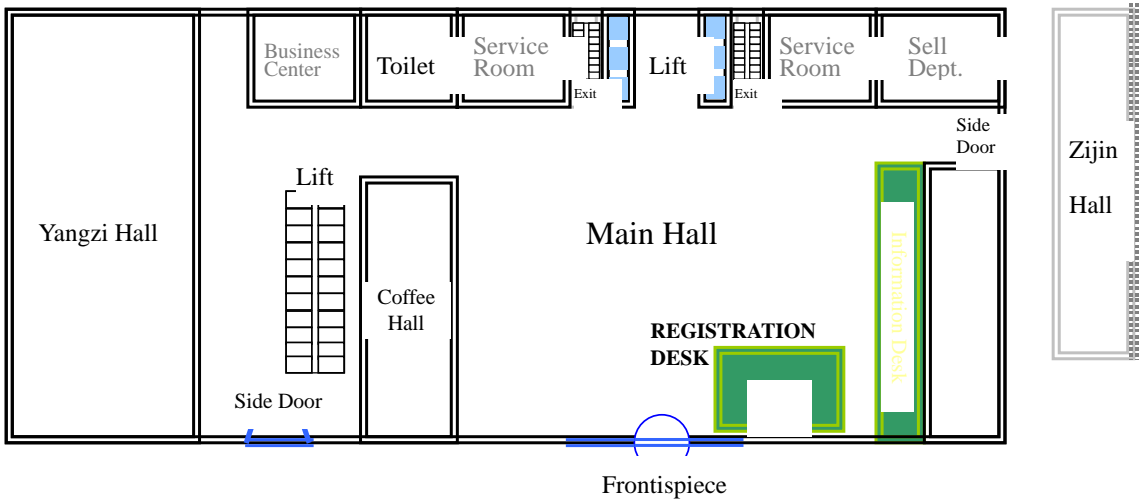
### The 3rd Floor of Main Building



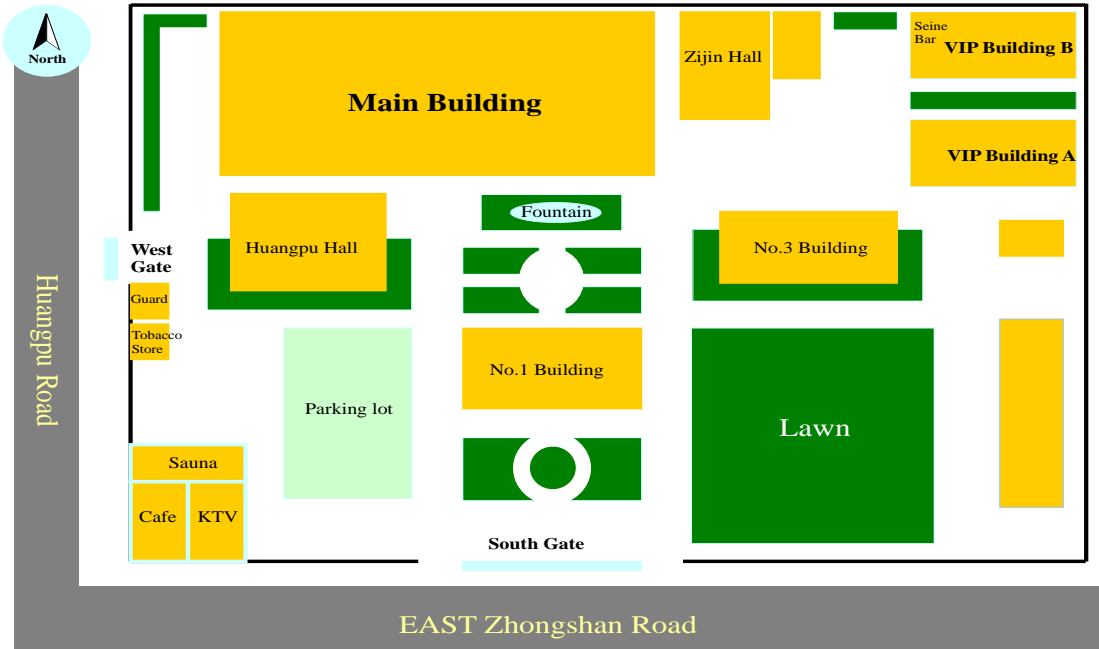
### The 2nd Floor of Main Building



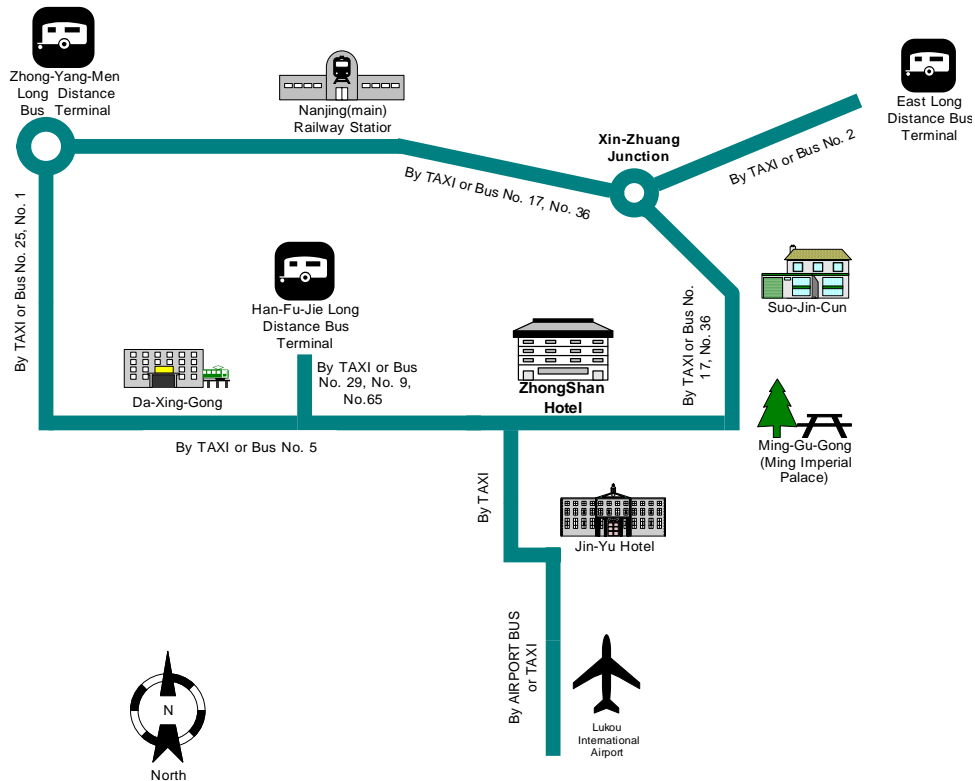
### The 1st Floor of Main Building



## Overall Sketch Map of Zhongshan Hotel



## Traffic Routes to Zhongshan Hotel



## **ABOUT NANJING**

Nanjing is located at 32°03' north latitude and 118°47' east longitude, to the south of Beijing over 1,100 km and to the west of Shanghai over 300 km. It has a history of over 2,400 years, and had been the capital of China for ten dynasties. Now Nanjing is the capital of Jiangsu Province. The city has a territory of 4,500 km<sup>2</sup> and a population of about 5 million. It is a center of electronic and information industry in China. Nanjing is a famous green city covered by trees and surrounded by a longest city-wall in the world with 33.4 km circumference. Many scenic spots and historical relics are distributed inside and outside the city-wall within one-hour bus distance, which attract several million tourists each year. In late August, the average temperature is about 25°C (77°F), and the relative humidity is around 80%. It is usually clear to start a nice season of gold autumn. Transportation is comprehensive, safe and inexpensive in Nanjing. The domestic airlines extend to 45 cities of China including Beijing, Shanghai, Hong Kong and Marco; the international airlines linked Osaka, Seoul, Singapore and Bangkok, etc. The railway and highway also connect Nanjing with Shanghai and the rest parts of the mainland of China.

## **LANGUAGE**

The official language for the Symposium is English. However, in the public society, Chinese mandarin is commonly spoken in Nanjing with slight different intonation and pronunciation.

## **VISA**

Each person from abroad, who wants to enter the Chinese Customs, needs to hold a visa issued by Chinese Embassy or Consulate. Usually, a Visa type of common tourist is convenient to be issued and valid for 30 days. If your local Chinese Embassy or Consulate requires an official invitation letter for your visa, please request the Organizing Committee early with the data of your full name, sex, birthday, citizenship, occupy in affiliation, and passport number. We will send the invitation letter by Fax or Airmail timely.

## **CURRENCY AND CREDIT CARDS**

China's currency is RMB with its monetary unit RMB *Yuan*. The credit cards and cash in US dollars are acceptable on the registration desk in Zhongshan Hotel. This is also the case in most large shopping centers and other hotels.

## **SHOPPING**

In Nanjing you can find whatever merchandise that you like. Large shopping square and market, such as the Xin-Jie-Kou zone, the Hu-Nan Road zone, and the Confucian Temple zone are more attractive for shopping. In detail please refer the Map of Nanjing City.

## **TAX AND TIP**

All the shopping is free of tax. Be sure to make big bargaining when buy merchandise from the Street Market. Tipping is by no means a traditional Chinese custom. It is not necessary to tip a waiter/waitress or a taxi driver and other person who provides regular service.

## **OPENING HOURS**

- **Bank and Post Office**

Opening hours: 8:30 a.m. to 5:30 p.m., from Monday to Sunday.

- **Government Office**

Opening hours: 8:00 a.m. - 5:00 p.m., from Monday to Friday.

- **Store**

Opening hours: usually 9:00 a.m. to 8:00 p.m., but the large shopping center serves till 10:00 p.m., from Monday to Sunday.

## **ELECTRICITY**

In China, the standard outlets provide AC of 220 V/50 Hz. If your laptop computers or other electrical appliances require a power supply of 110V, the owner of the appliances may ask the hotel service desk to provide a special adaptor.

## **TAXI**

Usually, a taxi is available along the roadsides, while you wave for it. However, at main streets it is only available at taxi stops or in front of a hotel.

## **INTERNET ACCESS**

The standard internet access jacks are provided in the internet room which is located in Room 310 on the third floor of the main building.

## **SPEAKER READY ROOM**

Room 310 also serves as a speaker-ready-room, where the computers and A/V equipments are provided for presenters to prepare and confirm in the last-minute details on presentation.

## **ANNOUNCEMENT AND MESSAGE BOARDS**

Any announcement on possible changes in the conference schedule or other affairs will be posted on an announcement board; Another message board provides the space to paste the messages for communication between participants. Both these boards are located in the aisle on the second floor in front of PIERS Office(Room 202). Please check them for your benefits.

## TOUR PROGRAMS

### A: City Tour Programs [Contract to the China Travel Service (CTS) of Jiangsu Province]

1. Museum Tour (Aug. 29 p.m. 13:30 - 17:30)  
Price: \$36 for 6~9 persons \$28 for 10+ persons  
Yue-Jiang Pagoda ⇒ Historical Museum ⇒ President House
2. Yangzhou City Tour (Aug. 30 a.m. 08:30 - p.m. 17:30)  
Price: \$55 for 6~9 persons \$39 for 10+ persons  
Slender West-Lake ⇒ Lunch ⇒ Da-Ming Temple ⇒ Ge-Yuan Garden
3. Mausoleum Temple Tour (Aug. 31 p.m. 13:30 - 20:30)  
Price: \$45 for 6~9 persons \$37 for 10+ persons  
Ming Tomb ⇒ Dr. Sun Yetsen's Mausoleum ⇒ Ling-Gu Temple ⇒ Dinner ⇒ Confusion's Temple

\* The payment covers traffic, entrance tickets, guide service in English or Japanese, and insurance; and also the lunch in #2 and the dinner in #3.

\*\* Pay on Registration Desk on Aug. 28.

### B: Post-Symposium Tour Routines [Contract to the China Travel Service (CTS) of Jiangsu Province]

1. Nanjing ⇒ Yellow Mountain (Huangshan) ⇒ Hangzhou ⇒ Shanghai  
(US\$400 for sharing a twin-bed room, plus US\$110 for single occupies room. \*\*\*)

Sept.1 (Wed.)	Early morning depart from Nanjing by bus, arrive Huangshan at noon. Uphill by Cable car, visit Jade screen, North-sea scenic area including Welcome pine, Lotus peak, Flying stone etc. Pass night on the mountain (***).
Sept.2 (Thu.)	Enjoy to visit the sunrise & cloud sea before breakfast (if weather is available). Visit Trust- peak and others. Downhill by Cable car to Cloud valley. Afternoon take bus to visit Hong-village and Tunxi Old Street. Pass night.
Sept.3 (Fri.)	Morning take bus for Hangzhou. Visit Dragon-well-village. Take boat to visit West-lake. Pass night.
Sept.4 (Sat.)	Visit Ling-yin temple, Silk factory. Take bus for Shanghai, visit Oriental pearl TV Tower, Nanjing Road and Bund. Pass night.
Sept.5 (Sun.)	Dissolve after breakfast. Note: The climate up Yellow Mountain is quite different from that at the foot of the mountain. Be sure to bring a windbreaker to prevent you from catching a cold.

2. Nanjing ⇒ Wuxi ⇒ Suzhou ⇒ Hangzhou ⇒ Shanghai  
(US\$370 for sharing a twin-bed room, plus US\$90 for single occupies room. \*\*\*)

Sept.1 (Wed.)	Early morning depart from Nanjing by bus. Visit Wuxi Lingshan Buddha, Tai-Lake, Xi-Hui Park. Evening arrive Suzhou for pass night.
Sept.2 (Thu.)	Visit Hanshan Monastery, Tiger hill and pagoda, West-garden, Humble administrator's garden, Panmen gate. Pass night again.
Sept.3 (Fri.)	Morning depart to visit Tongli town, afternoon arrive Hangzhou. Visit Dragon-well village. Take boat to visit West-lake. Pass night.
Sept.4 (Sat.)	Visit Ling-yin temple, Silk factory. Take bus for Shanghai, visit Oriental pearl TV Tower, Nanjing Road and Bund. Pass night.
Sept.5 (Sun.)	Dissolve after breakfast.

3. Nanjing ⇒ Xi'an ⇒ Beijing

(US\$455 for sharing a twin-bed room, plus US\$64 for single occupiers room. \*\*\*)

Sept.1 (Wed.)	Afternoon depart from Nanjing by Express train with soft sleeper for pass night.
Sept.2 (Thu.)	Early morning arrive Xi'an. Visit Qing-tomb with the terra-cotta, Huaqing-pool with hot spring, Historic museum. Pass night in Xi'an.
Sept.3 (Fri.)	Visit Big Wild-goose pagoda, Stele Forest, City wall. Afternoon depart for Beijing by Express train with soft sleeper for pass night.
Sept.4 (Sat.)	Morning arrive Beijing. Visit Tian-an-men square, Palace museum, Temple of Heaven, Summer palace. Pass night in Beijing.
Sept.5 (Sun.)	Visit Great wall, Emperors' tomb of Ming dynasty. Pass night again.
Sept.6 (Mon.)	Dissolve after breakfast.

\* These prices are based on that a tour-group of 6~9 persons. It will be discounted for more persons.

\*\* The payment covers traffic, food, lodging, entrance tickets, guide service in English or Japanese, and also insurance charge.

\*\*\* The payment excludes the service tip for guide and driver, around US\$3/day/person for each, pay in the last evening.

★ A brief note in both Chinese and English to ask a taxi/bus driver to take you to Zhongshan Hotel when you first arrive in Nanjing is attached as follows. You may print the note and bring with it to assist your traffic in Nanjing.

尊敬的司机先生/女士：

您好！

我要去中山东路307号钟山宾馆(位于黄埔路与中山东路相交处，请您送我去那里。非常感谢您的帮助！

Dear Mr./Ms. Driver,

I would like to go to Nanjing Zhongshan Hotel located at No. 307, Zhong-Shan-Dong Road (just at the cross of Huang-Pu Road and Zhong-Shan-Dong Road). Could you please take me there? Thank you very much for your kind help!



## SHORT COURSES ANNOUNCEMENT

**“Electromagnetic Band Gap (EBG) Structures and Meta-Materials in Antenna Engineering”**

**Prof. Yahya Rahmat-Samii**

*University of California, Los Angeles*

**“Introduction to Fast Multipole Method for Electrodynamics”**

**Prof. Weng Cho Chew**

*University of Illinois at Urbana-Champaign*

**“Millimeter-wave Technologies and Applications”**

**Prof. Ke Wu**

*Ecole Polytechnique, Montreal, also Southeast University*

\* All participants are invited to attend the short course which is free of charge and will be held on Saturday, August 28, 2004, 14 : 30 ~ 17 : 30 with a tea break.

## POST CONFERENCE SEMINAR

**CST Microwave Studio Seminar and Training Course for Beginners**

**by Dr. Min Zhang (CST China)**

**Dr. Xiaoxing Yin (CST Training Center at Southeast University)**

**Date:** September 1, 2004

**Venue:** Jianxiong Building, State Key Laboratory of Millimeter Waves, Southeast University

**Contact:**

CST China

Tel. +86 21 50802328

Fax: +86 21 50802326

Email: info@cst-china.cn

Web: www.cst-china.cn

\* All participants are invited to attend the seminar which is free of charge. For details, please visit <http://www.cst-china.cn>

## PIERS 2004 NANJING TECHNICAL PROGRAM

<hr/> <b>Session 1A1</b> <b>Microstrip and Printed Antennas (I)</b> <hr/>		
<b>Sunday AM, August 29, 2004</b> <b>Room F (3rd Floor)</b> Organized by J. Huang and Y. Rahmat-Samii Chaired by J. Huang and Y. Rahmat-Samii <hr/>		
8:00 Very Long Ku- and Ka-Band Microstrip Arrays for Advanced Precipitation Radar Application <i>J. Huang (California Institute of Technology, USA); Y. Rahmat-Samii (University of California, USA); S. Durden, E. Im (California Institute of Technology, USA);</i>	11:00 A Novel Dual-Frequency Dual-Polarized Stacked Patch Microstrip Array for Soil Moisture Remote Sensing Application <i>Keerti S. Kona, Majid Manteghi, Yahya Rahmat-Samii (University of California, Los Angeles, USA);</i>	
8:20 A Microstrip Grid Array Antenna Printed on a Dielectric Substrate with Air Gaps <i>H. Nakano, R. Aoki, H. Mimaki, J. Yamauchi (Hosei University, Japan);</i>	11:20 CPW-fed Patch Slot Antenna for Multiple Applications <i>Dua-Chyrh Chang, Ming-Yen Liu (Da Yeh University, Taiwan, China);</i>	
8:40 UWB Antenna for the Application of IEEE 802.15.3a <i>Dau-Chyrh Chang, Ming-Yen Liu (Da Yeh University, Taiwan, China);</i>	11:40 Compact Multi-Band Handset Antennas for Wireless Communications <i>Yongxin Guo, Hwee Siang Tan (Institute for Infocomm Research, Singapore);</i>	
9:00 Ultra-wideband Wireless Communications <i>Linna He, Wei Yin (Shanghai University of Engineering Science, China);</i>	12:00 Miniature and Dual-band Marchand Baluns in LTCC <i>Yong-Xin Guo (Institute for Infocomm Research, Singapore); Zhenyu Zhang (National University of Singapore, Singapore); Ling Chuen Ong (Institute for Infocomm Research, Singapore);</i>	
9:20 Diversity Arrays for Wireless Communications <i>Mohua Kar, Parveen F. Wahid (University of Central Florida, USA);</i>	<hr/> <b>Session 1A2</b> <b>Fast Algorithms and High-Order Methods</b> <hr/>	
9:40 Mutual Coupling Compensation in Adaptive Nulling by Using the In-Array Mutual Impedance <i>Yanping Xi, Dagang Fang, Lingling Wang (Nanjing University of Science &amp; Technology, China);</i>	<b>Sunday AM, August 29, 2004</b> <b>Room A (2nd Floor)</b> Organized by Chaired by W. C. Chew and L. W. Li <hr/>	
10:00 <b>Coffee Break</b>	8:00 UV Multi-level Partitioning Method in Solving Problems of Surface and Volume Scattering <i>Peng Xu (City University of Hong Kong, Hong Kong, China); Leung Tsang (University of Washington, USA); Qin Li (University of Washington, USA); Dong Chen (City University of Hong Kong, Hong Kong, China);</i>	
10:20 Design of Dual Wideband Patch Antenna Arrays for Mobile Communications <i>Kwai Man Luk, Pe Li (City University of Hong Kong, Hong Kong, China);</i>	8:20 Application of FRSIM in MLFMA Analysis of Microstrip Structures <i>Lei Li, Yongjun Xie, Peng Wang, Yu Zhang, Changhong Liang (Xidian University, China);</i>	
10:40 Reconfigurable Microstrip Antennas in Phased Arrays: Performance and Potential <i>G. H. Huff, K. Hietpas, J. T. Bernhard (University of Illinois at Urbana-Champaign, USA);</i>	8:40 Mixed-Order Interpolatory Vector Bases for Prism Elements <i>Yongling Ban, Zaiping Nie (University of Electronic Science and Technology of China, China);</i>	

- 9:00 General Transmission Line Equation of Wire Structure with Arbitrary Central Load  
*Z. L. Mei (Southeast University, China); Y. W. Liu, K. K. Mei (City University of Hong Kong, China); W. B. Dou (Southeast University, China);*
- 9:20 Computational Electromagnetics at Very Low Frequencies  
*W.C. Chew, L.J. Jiang, Y.H. Chu (University of Illinois, USA);*
- 9:40 Preconditioning Techniques for Adaptive Integral Method Implementation in Fast Codes  
*Wei-Bin Ewe, Le-Wei Li, Mook Seng Leong (National University of Singapore, Singapore);*
- 10:00 **Coffee Break**
- 10:20 Effective Permittivity Simulation of Mixture Using IMLMQR Method on Preconditioned EFIE  
*Haogang Wang, Chihou Chan, Leung Tsang, Kafai Chan (City University of Hong Kong, Hong Kong, China);*
- 10:40 General Transmission Line Equation of Electromagnetic Radiation and Scattering Problems  
*Y. W. Liu (City University of Hong Kong, China); Z. L. Mei (Southeast University, China); K. K. Mei (City University of Hong Kong, China); W. B. Dou (Southeast University, China);*
- 11:00 A Fast Hybrid Method for Analysis of EM Scattering from a Large Open-Ended Cavity – IPO+FMM  
*Hui Yue, Benqing Gao, Weiming Li, Xuettian Wang (Beijing Institute of Technology, China);*
- 11:20 Fuzzy Multi-Layer Perceptron Neural Network Based on Genetic Algorithm and Its Application  
*Yubo Tian, Jian Qian, Wenfeng Guo (Nanjing University, China);*
- 11:40 An Investigation on Examining the Frequency Characteristic of Electromagnetic Field Testing System  
*Changqing Zhu, Shanghe Liu (Ordnance Engineering College, China);*
- 8:00 Polarimetric Pulse Echoes from a Layer of Random Non-Spherical Particles above a Rough Surface  
*Feng Xu, Yaqiu Jin (Fudan University, China);*
- 8:20 Numerical Approach for Rough Surface Scattering Using Single Integral Equation and Two Grid Method  
*M. Y. Xia, M. M. Wang (Peking University, China); C. H. Chan, L. Tsang (City Univ. of Hong Kong, Hong Kong, China);*
- 8:40 The Design of One-dimensional Randomly Rough Surfaces That Act as Collett-Wolf Sources  
*T. A. Leskova, A. A. Maradudin (University of California, USA); E. R. Méndez (Educación Superior de Ensenada, México);*
- 9:00 Parameterization of the Tapered Incident Wave for Numerical Simulation of Electromagnetic Scattering from Rough Surface  
*Hongxia Ye, Yaqiu Jin (Fudan University, China);*
- 9:20 Study on the Electromagnetic Scattering from the Rough Surface Using the Small Slope Approximation  
*Lixin Guo, Jianjun Chen (Xidian University, China);*
- 9:40 Grazing Angle Enhanced Backscattering from a Dielectric Film on a Reflecting Metal Substrate  
*Zuhan Gu (Surface Optics Corporation, USA); I. M. Fuks (LLC and NOAA/Environmental Technology Laboratory, USA); Mikael Ciftan (U.S. Army Research Office, USA);*
- 10:00 **Coffee Break**
- 10:20 New Features from the Interference of a Collett-Wolf Source  
*Zuhan Gu (Surface Optics Corporation, U. S. A.); T. A. Leskova (University of California, U. S. A.);*
- 10:40 A Double Kirchhoff Approximation for Very Rough Surface Scattering Using Stochastic Functional Approach  
*Zhiliang Wang, Yaqiu Jin, Hisanao Ogura (Fudan University, China);*
- 11:00 Model of Microwave Remote Sensing of Snow Using DMRT with Random Rough Surfaces  
*Yunhua Tan (City University of Hong Kong, China); Leung Tsang (University of Washington, USA); Zhongxin Li (City University of Hong Kong, China); Qin Li (University of Washington, USA); Lin Zhou (Duke University, USA);*
- 11:20 Scattering of Gaussian Beam by Two Dimensional Dielectric Rough Surface  
*Hui Chen, Zhensen Wu (Xidian University, China);*

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**Session 1A3**  
**Rough Surface Scattering**

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**Sunday AM, August 29, 2004**

**Room C (2nd Floor)**

Organized by

Chaired by Z.-H. Gu and Y. Q. Jin

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- 11:40 Examination of Surface Roughness on Light Scattering by Long Ice Columns Using a 2-D FDTD Algorithm  
*Wenbo Sun, Norman G. Loeb (Hampton University, USA); Gordon Videen (U.S. Army Research Laboratory, USA); Qiang Fu (University of Washington, USA);*

- 10:20 Experimental Investigations on an Electromagnetic Band Gap Ground Plane Backed Rectangular Microstrip Antenna  
*Sreedevi K Menon, B Lethakumary, C K Aanandan, K Vasudevan, P Mohanan (Cochin University of Science and Technology, India);*

- 10:40 Guided Wave Properties of Synthetic Periodic Waveguide for Substrate Integrated Circuits (SICs)  
*Yves Cassivi, Ke Wu (École Polytechnique de Montréal, Canada);*

- 11:00 Exact Dispersion Relation of a One-Dimensional Chiral Photonic Crystal  
*Kihong Kim (Ajou University, Korea); Dong-Hun Lee (Kyung Hee University, Korea); H. Lim (Ajou University, Korea);*

- 11:20 Discontinuities in Left-handed Slab Waveguide  
*Hao Dong, Thomas X. Wu (University of Central Florida, U. S. A.);*

- 11:40 Designs and Applications of Artificial Complex Ground Planes: A New Paradigm in Antenna Developments  
*Fan Yang, Yahya Rahmat-Samii (University of California at Los Angeles, USA);*

- 12:00 Laser Induced Transparency in Photonic Crystals  
*Mahi R. Singh (The University of Western Ontario, Canada);*

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**Session 1A4**  
**PBG and Photonic Circuits**  


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**Sunday AM, August 29, 2004**  
**Room G (3rd Floor)**  
 Organized by Y. Hao and X.-H. Sun  
 Chaired by Y. Hao and X.-H. Sun

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- 8:00 Resonant Bandgap of a Compact Microstrip Band-stop Filter  
*Wenzian Song, Hongqiang Li, Li He, Hong Chen, Yewen Zhang (Tongji University, China);*

- 8:20 Efficient Coupling from Dielectric Rib Waveguide to Two-dimensional Photonic Crystal Waveguide  
*Ningfeng Bai, Jinbiao Xiao, Mingde Zhang, Xiaohan Sun (Southeast University, China);*

- 8:40 Propagation and Amplification of an Anomalous Refraction Effect in a PBG-Prism at Microwave Frequencies: Calculation and Experimental Demonstration  
*S. Massaoudi, A. Ourir, O. Reynet, F. Gadot, E. Akmansoy, A. de Lustrac (Université Paris-sud Bât 220, France);*

- 9:00 On the Finite-Difference Time-Domain Simulation of Photonic Wire Devices  
*Minfeng Chen, Chongting Hong, Hungchun Chang (National Taiwan University, Taiwan, China);*

- 9:20 Quasi-Vectorial Analysis for Optical Rib Waveguides and Couplers Based on the InGaAs/InAlAs Multiple Quantum Well  
*Jinbiao Xiao, Changfeng Ma, Xiaodong Zou, Mingde Zhang, Xiaohan Sun (Southeast University, China);*

- 9:40 Analysis of Guide Modes of Photonic Crystal Waveguides Consisting of Periodic Dielectric Rods with Arbitrary Cross Section  
*Hongting Jia, Kiyotoshi Yasumoto (Kyushu University, Japan);*

- 10:00 **Coffee Break**

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**Session 1A5**  
**Electromagnetic Inverse Scattering and Imaging**  


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**Sunday AM, August 29, 2004**  
**Room D (2nd Floor)**  
 Organized by  
 Chaired by Q. H. Liu and C. Liao

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- 8:00 An Image Reconstruction Method Based on Time-Domain Genetic Algorithm  
*Xuanming Zhong, Dan Yang, Cheng Liao (Southwest Jiaotong University, China);*

- 8:20 A Method to Estimate the Depth of Shallowly Buried Line-like Objects from GPR Data  
*J. Chen, G.Y. Fang, F. Li (Institute of Electronics, Chinese Academy of Sciences, China);*

- 8:40 Landmine Detection by Stepped-Frequency Continuous-Wave Ground Penetrating Radar(SFCW-GPR)  
*Guangyou Fang (Institute of Electronics, Chinese Academy of sciences, China); Motoyuki Sato (Tohoku University, Japan);*

- 9:00 Multimodality Inversion for Image Reconstruction of Objects Buried in Multilayered Media with Radar and Seismic Measurements  
*Qing H. Liu (Duke University Durham, USA); Fenghua Li (Institute of Acoustics, Chinese Academy of Sciences, China); Lin-Ping Song (Duke University Durham, USA);*
- 9:20 Fast Forward and Inverse Scattering Methods for 3D Objects Buried in Multilayered Media  
*Qing H. Liu, Lin-Ping Song (Duke University Durham, USA); Xuemin Millard (University of West Florida, USA); Fenghua Li (Institute of Acoustics, Chinese Academy of Sciences, China);*
- 9:40 Simulation of Scattering and Inverse Problem for an Anisotropic Dielectric Plate  
*Bing Wei, Debiao Ge, Haijun Qin (Xidian University, China);*
- 10:00 **Coffee Break**
- 10:20 Inversion of Two-Dimensional Axisymmetric Inhomogeneous Media Using the Hybrid Iteration Method  
*Feng Yang, Zaiping Nie (University of Electronic Science and Technology of China, China);*
- 10:40 Estimation of Soil Moisture with L-band Multipolarization Radar  
*Jiancheng Shi (University of California, USA); K. S. Chen (National Central University, Taiwan, China); Quoqing Sun (NASA/GSFCs, USA); Y. Kim, J. J. Van Zyl, E. G. Njoku (NASA/JPL, USA); T. Jackson (USDA/ARS, USA); P. O'Neill (NASA/GSFCs, USA); D. Entekhabi (MIT, USA);*
- 11:00 Dynamic Holographic Sensor Using Photorefractive Crystals: Recent Achievements and Applications in Various Metrological Problems  
*Philippe C. Lemaire, Marc P. Georges, Marie-Laure Hellin (Université de Liège, Belgium);*
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- Session 1A6**  
**Electromagnetic Biological Effects and Medical Applications (I)**
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- Sunday AM, August 29, 2004**  
**Room B (2nd Floor)**  
Organized by X. D. Chen and J. Pribetich  
Chaired by X. D. Chen and J. Pribetich
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- 8:00 Numerical Dosimetry for Electromagnetic Fields Inside Biological Matter at the Cellular Scale  
*Y. Alfadhil, X. Chen (Queen Mary University of London, UK); E. X. Xu (Vector Fields Ltd., UK);*
- 8:20 The Action Potential of the Plant *Mimosa pudica*, the Memory of the Plant *Venus Dionaea muscipula*, and the Genome of *Arabidopsis* under Mobile Phone Radiation  
*G. Nimtz (Universitaet Koeln, Germany);*
- 8:40 The Design of Circuit for Magnetic Focus Imaging System  
*Lin Fu, Kama Huang, Xiaoqing Yang (Sichuan University, China);*
- 9:00 Role of Low Level Microwave Radiation on PKC Activity in Developing Rats' Brain  
*Paulraj R, J. Behari (Jawaharlal Nehru University, India);*
- 9:20 Investigation and Research on Electromagnetic Radiation of Mobile Phones  
*Hongbo Wang, Dianyuan Qi, Nan Wang (China Academy of Telecomm. Research of the Ministry of Information Industry, China);*
- 9:40 Bone Fracture and Osteoporosis Treatment by Low Level Pulsed Radio Frequency Field  
*Jitendra Behari, Jayanand (Jawaharlal Nehru University, India);*
- 10:00 **Coffee Break**
- 10:20 Development of a Solid Phantom for 3 to 6 GHz Application and Measurement of SAR Distributions Based on the Thermographic Method  
*Koichi Ito, Ryo Ishido (Chiba University, Japan); Teruo Onishi (Chiba University, NTT DoCoMo, Inc., Japan); Kazuyuki Saito (Chiba University, Japan); Shinji Uebayashi (NTT DoCoMo, Inc., Japan);*
- 10:40 Applicators for Deep Local Microwave Thermotherapy  
*J. Vrba, J. Cvek, R. Chovanec, J. Herza, L. Oppl, H. Trefna, J. Pavlas (Czech Technical University in Prague, Czech Republic); J. Kvec, J. Kubes, M. Vesela (Institute of Radiation Oncology in Prague, Czech Republic);*
- 11:00 Microwave Antenna Techniques for the Cure of Cardiac Rhythm Disorders  
*A. S. Mohan, H. M. Chiu (University of Technology, Australia);*
- 11:20 Microwave Applicator for Animal Experiments  
*Vrba J., Chovanec R., Oppl L., Herza J., Cvek J., Trefna H. (Czech Technical University, Czech Rep.); Zuna I., Peschke P. (German Cancer Research Institute, German Federal Republic);*

- 11:40 Measurement of Temperatures by Microwave Radiometry in Medical Applications  
*V. Thomy, L. Dubois, M. Otter, P. -Y. Cresson, J. Pribetich (Université des Sciences & Technologies de LILLE1, France);*
- 12:00 Threshold of Pain in Chronic Magnetic Field (50 Hz, 17.9  $\lambda$ T) Exposed Rats: Effect of Sucrose Ingestion  
*R. Mathur (All India Institute of Medical Sciences, India);*

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**Session 1A7**

**Microwave Plasma and High-Power Microwave**

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**Sunday AM, August 29, 2004**

**Room E (2nd Floor)**

Organized by H. S. Yang

Chaired by H. S. Yang

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- 8:00 The Study of Several Factors on Microwave Discharge in Methane Coupling  
*Chunlei Xu (Nanjing Normal University, China); Jialu Dong (Nanjing University, China); Hongsheng Yang (Southeast University, China); Ke Gong (South-east University, China); Dekun Sun (Nanjing University, China); Chun Yang (Nanjing Normal University, China);*
- 8:20 The Impedence of Radial Transmission-Line at Different Positions in Circular Groove Guide  
*Xuefeng Guo, Hongsheng Yang, Jing Yao, Licheng Cui (Southeast University, China);*
- 8:40 Application of Neural Network to Design of TWT  
*Wei Liu, Shi Li, Hejun Yin (Institute of Electronics, Chinese Academy of Sciences, China);*
- 9:00 Effect of Helical Slow-wave Structure Parameter Variations on TWT Cold-Test Characteristics  
*Shi Li, Wei Liu, Xiaobao Su, Hejun Yin (Institute of Electronics, Chinese Academy of Sciences, China);*
- 9:20 Study on Exciting Microwave Plasma at Normal Atmospheric Pressure  
*Gong Ke, Hongsheng Yang, Chunlei Xu, Jialu Dong, Dekun Sun, Xiaosheng Hua (Southeast University, China);*
- 9:40 The Variation of Input Impedance with Radial Disk Diameter in W-Band Circular Groove Guide  
*Huiyan Wang, Hongsheng Yang (Southeast University, China);*
- 10:00 **Coffee Break**

- 10:20 The Simulation of Electromagnetic Field in Microwave Chemistry Reactor  
*Yongzhi Sun, Hongsheng Yang (Southeast University, China);*
- 10:40 The Study on Accumulation Carbon of Coupling of Methane under Microwave Discharge  
*Qin Zhang, Hong-Sheng Yang, Chang-Sheng Shen, Yong-Zhi Sun, Gang-Shan Cheng (Southeast University, China);*
- 11:00 Simulations of 100kW L-band CW Broadband Multi-Beam Klystron  
*Bin Shen, Yaogen Ding (Institute of Electronics, Chinese Academy of Sciences, China); Aleksandr N. Sandalov, Vladimir E. Rodjakin, Aleksandra N. Chashurina (M.V. Lomonosov Moscow State University, Russia);*
- 11:20 A Study on Coupling of Methane under Microwave Plasma and Hydrogen Surroundings  
*Guangshan Cheng, Hongsheng Yang, Yongzhi Sun, Changsheng Shen, Qin Zhang, Fuping Zheng (South-east University, China);*
- 11:40 A Continuous Reaction of Methane Coupling to C<sub>2</sub> Hydrocarbons with Microwave Plasma  
*Changsheng Shen, Hongsheng Yang, Qin Zhang, Yongzhi Sun, Guangshan Cheng (Southeast University, China);*

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**Session 1P1**

**Electromagnetic Scattering**

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**Sunday PM, August 29, 2004**

**Room F (3rd Floor)**

Organized by

Chaired by Z. P. Nie and X. Q. Sheng

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- 13:20 Near-Field Targets Electromagnetic Scattering Calculation Technology Based on CAD Geometry Modelling  
*Jun Gu, XiaoBing Wang, Kun Cai, Zichang Liang (No.802 Institute of SAST, China);*
- 13:40 Fast RCS Simulation Tool Based on MLFMA-PO and ANSYS Geometry Modeling  
*Jun Wang, Jun Hu, Zaiping Nie (University of Electronic Science and Technology of China, China);*
- 14:00 Spectral and High-Order Time-Domain Methods for Transient Electromagnetics  
*Qing H. Liu, Tian Xiao, Gang Zhao (Duke University Durham, USA);*

- 14:20 A Spectral Integral Method (SIM) for the Scattering of Periodic and Nonperiodic Structures  
*Qing H. Liu, Jianguo Liu (Duke University Durham, USA);*
- 14:40 Scattering from Targets in the Subsurface Using MoM  
*Jijun Yu, Xinqing Sheng (Chinese Academy of Science, China);*
- 15:00 Electromagnetic Scattering of a Plane Wave by an Uniaxial Anisotropic Spherical Shell  
*Youlin Geng (Hangzhou Institute of Electronic Engineering, China); Xinbao Wu (Shanghai Research Institute of Microwave Technology, China); Boruan Guan (Hangzhou Institute of Electronic Engineering, China);*
- 15:20 **Coffee Break**
- 15:40 Application of ADI-FDTD for Three-Dimensional Scattering  
*Wang Yu, Naichang Yuan (School of Electronic Science and Engineering, NUDT, China);*
- 16:00 Electromagnetic Scattering of Gaussian Beams from a Cylindrical Wire Grid  
*Yunfei Liu (Nanjing University of Aeronautics and Astronautics; Purple Mountain Observatory, Chinese Academy of Sciences; Nanjing Forestry University, China); Shengcai Shi (Purple Mountain Observatory, Chinese Academy of Sciences, China); Shenglin Yu (Nanjing University of Aeronautics and Astronautics, China);*
- 16:20 The Effect of Plasma on the RCS of Three Dimensional Objects  
*Zhefeng Yu, Lezhu Zhou, Mingzhi Li (Peking University, China);*
- 16:40 Study of Target Orientation Identification Using Scattering Field in Time Domain  
*Bo Liu, Benqing Gao, Feng Xue (Beijing Institute of Technology, China);*
- 17:00 An Engineering Expansion of the GRECO Method for Bistatic Scattering Simulation  
*Weixia Wang, Baofa Wang (Beihang University, China);*
- 13:20 LTCC Passive Component for X-band T/R Module  
*Peng Fu, Jun Zou (Nanjing Research Institute of Electronics Technology, China);*
- 13:40 Design of Low-power 0.35 $\mu$ m SiGe Low Noise Mixer for 5GHz Wireless Application  
*Christina F. Jou, Kuo-Hua Cheng, Ping Hung Liu (CM, NCTU, Taiwan, China);*
- 14:00 Simulation of a Wide-band Short Wave Conformal UF Antenna Using Communication  
*Yi Yang (Xihua University, China); Zhiyuan Yu (University of Electronic Science and Technology of China, China);*
- 14:20 Compact Lowpass Filter Using CMRC  
*Xiaochuan Zhang (University of Electronic Science and Technology of China, China); Quan Xue (City University of Hong Kong, China); Zhiyuan Yu (University of Electronic Science and Technology of China, China);*
- 14:40 Analysis of Auxiliary Amplifier's Nonlinearity on Feedforward System  
*Hui Liu (Xidian University, China); Boran Guan (Hangzhou Institute of Electronic Engineering, China);*
- 15:00 A Novel Ultra-Wideband MMIC Digital Attenuator  
*Huizhi Wang, Fuxiao Li (Nanjing Electronic Device Institute(NEDI), China);*
- 15:20 **Coffee Break**
- 15:40 Research in W-Band Planar Gunn VCOs  
*Feng Gao, Ruimin Xu (University of Electronic Science & Technology of China, China);*
- 16:00 Design of a MCM 4-Bit Switch-Line Phase Shifter  
*Dengxue Liu (University of Electronic Science and Technology of China, China);*
- 16:20 Synthesis of General Chebyshev Filters with Finite Transmission Zeros  
*Qingxin Chu (South China University of Technology, China); Rong Ye (South China University of Technology; Xidian University, China);*
- 16:40 Design of Low Cost and Low Noise Amplifier Using an Embedded SIW Filter  
*Hao Jing, Jixin Chen, Yulin Zhang, Tiejun Cui, Wei Hong (Southeast University, China);*
- 17:00 Design of Low-pass Filter Prototype Based on Legendre Multinomial  
*Wenzhou Wu, Yongshun Zhang (The Missile Institute, AFEU., China);*

**Session 1P2****RF Components and Modules****Sunday PM, August 29, 2004****Room B (2nd Floor)**

Organized by

Chaired by B. R. Guan and Z. Y. Yu

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**Session 1P3**  
**Computational Electromagnetics (I)**

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**Sunday PM, August 29, 2004**

**Room A (2nd Floor)**

Organized by C. F. Wang and Y. B. Gan

Chaired by J. F. Lee and C. F. Wang

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- 13:20 A Fast TVFEM Preconditioned with MICCG in the Full-Wave Analysis of Driven Wave-Propagation Problems  
*Yaohua Ding, Xiaoxiang He, Rushan chen (Nanjing University of Science & Technology, China);*
- 13:40 Calculation of the Field Coverage of Indoor Antenna and Leaky Coaxial Cable  
*Bin Liu, Lin Shu, Junhong Wang (Beijing Jiaotong University; Ministry of Education, China);*
- 14:00 Calculation of the Static Distributed Capacitance of the Non-Uniform Microstrip Line  
*Lin Shu, Junhong Wang (Beijing Jiaotong University; Ministry of Education, China);*
- 14:20 Domain Decomposition Method in Conjunction with DP-FETI for Modeling Large Finite Arrays  
*Kezhong Zhao, Marinos Vovakis, Seung-Choel Lee, Jinfa Lee (The Ohio State University, USA);*
- 14:40 Improved Implementation of CG-FFT Algorithm in Distributed Memory System for Electromagnetic Scattering  
*Hong Xin, Lewei Li, Yeow-Beng Gan (National University of Singapore, Singapore);*
- 15:00 A Simple Model for Electrical Contacts in Fiber Composite Materials  
*Xin Xu, Anyong Qing, Yeow Beng Gan Yuanping Feng (National University of Singapore, Singapore);*
- 15:20 **Coffee Break**
- 15:40 Hybrid FD-MoM Technique for Evaluating Shielding Effectiveness of Metallic Enclosures  
*Chao Feng, Zhongxiang Shen (Nanyang Technological University, Singapore);*
- 16:00 Improved Mode Matching Analysis of Cylindrical Cavity by Using Modified Characteristic Equation and PTD Correction  
*F. G. Hu, C. F. Wang, Y. B. Gan (National University of Singapore, Singapore);*
- 16:20 FAFFA-FIM for Large PEC Cavity Modeling  
*C. F. Wang, Y. Xu, F. G. Hu, Y. B. Gan (National University of Singapore, Singapore);*

- 16:40 Fast Algorithm for Electromagnetic Scattering from Finite Arrays of Arbitrary Elements  
*Ming Zhang, Tat Soon Yeo, Lewei Li Yeow Beng Gan (National University of Singapore, Singapore);*
- 17:00 Design of a Low Sidelobe Printed Dipole Array with Time Modulation  
*Shiwen Yang, Yeow Beng Gan, Peng Khiang Tan (National University of Singapore, Singapore);*

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**Session 1P4**  
**Waveguides and Microwave Components**

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**Sunday PM, August 29, 2004**

**Room C (2nd Floor)**

Organized by

Chaired by J. Zehentner and W. B. Dou

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- 13:20 A Design of Magic Tee with Coplanar Arms  
*Z.X. Wang, W.B. Dou (Southeast University, China);*
- 13:40 Analysis for Waveguide Discontinuities by a Hybrid Method Combining Helmholtz Weak Form and Mode Expansion  
*Hongchao Wu, Wenbin Dou (Southeast University, China);*
- 14:00 Numerical Simulation and Microwave Breakdown Analysis on a Waveguide to Coaxial Line Transformer  
*Changjun Liu, Kama Huang, Liping Yan (Sichuan University, China);*
- 14:20 Robust Knowledge-Based Neural Network Model for CPW-M Transition by Using the Generalized Telegrapher Equation Method  
*Jingsong Hong, Qiuju Zhang (University of Electronic Science and Technology of China, China);*
- 14:40 The Design of a Two-channel Rotary Joint  
*Jun Ju, Naiheng Yang (Nanjing Research Institute of Electronics Technology, China);*
- 15:00 Network Analysis of Isolator in Multimode Feed Network  
*Xiaoyan Du, Zhongxia Niu, Dongfang Zhou, Xiugang Zhang, Huawei Zhan (Information Engineering University, China);*
- 15:20 **Coffee Break**
- 15:40 Waveguide with a Partition in the H-plane Analyzed by the Spectral Domain Method  
*Jan Zehentner, Jan Mrkvica, Jan Machac (Czech Technical University, Czech Republic);*



- 16:00 Discontinuities in Parallel-plate Waveguides Partially Filled with Chiral Media  
*Jianfeng Dong (Ningbo University, China); Shanjia Xu (University of Science & Technology of China, China);*
- 16:20 Mode Analyses of Quasi-rectangular Waveguides and its Applications in Ridge Waveguides by Using PMOBG  
*Wenbin Fu, Huan He (Air Force Radar Academy, China);*
- 16:40 Radiation Q-Factor of Rectangular Dielectric Resonator  
*Mamta Senger (Kasturba Polytechnic, D.T.T.E, India);*
- 17:00 A New Tunable HTS Resonator  
*Huifen Huang, Junfa Mao (Shanghai Jiao Tong University, China);*
- 17:20 Microwave Absorbing Material Temperature Character Induces Resonator's Instability  
*Jingpu Ren (Information Engineering University, China); Dongfang Zhou (Zhejiang University, China); Zhongxia Niu, Mingshan Yang (Information Engineering University, China);*
- 14:40 Novel Techniques for Very High-Frequency Scattering Problems  
*S. Ohnuki (Nihon University, Japan); W. C. Chew (University of Illinois at Urbana-Champaign, USA);*
- 15:00 Deformation of the Spatial Spectrum of Scattered Radiation by Randomly Absorbing Slab  
*G. V. Jandieri, G. D. Aburjania (Georgian Technical University, Georgia);*
- 15:20 **Coffee Break**
- 15:40 Application of Angular and Range Correlation Functions in Resolution Refinement  
*Guifu Zhang (NCAR/RAP, U.S.A); Tian-You Yu (SECE, University of Oklahoma, U.S.A); Richard J. Doviak (NSSL, 1313, Halley Circle, U.S.A);*
- 16:00 On Inhomogeneities, Anisotropy and Turbulence: Fundamental Preliminary Study for Propagation and Scattering of Radio Waves through Such Random Medium  
*R. Talhi, A. Lebrere, M. Pyee (C.N.R.S-L.P.C.E, France);*
- 16:20 Backscattering Enhancement of Partially Convex Targets with Large Sizes in Random Media  
*Hosam El-Ocla (Lakehead University, Canada); Mitsuo Tateiba (Kyushu University, Japan);*
- 16:40 Integrated Analysis of Scattering and Emission from Non-Gaussian Correlated Randomly Rough Surfaces  
*Tzong-Dar Wu (National Taiwan Ocean University, China); Kun-Shan Chen (National Central University, China); J. C. Shi (University of California at Santa Barbara, USA);*

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**Session 1P5**
**Wave Scattering in Radom Media**
**Sunday PM, August 29, 2004**
**Room E (2nd Floor)**

Organized by M. Tateiba

 Chaired by M. Tateiba and S. Ohnuki
 

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- 13:20 A New Phenomenon of Scattering Enhancement in Random Medium  
*Zhiqi Meng (Fukuoka University, Japan); Mitsuo Tateiba (Kyushu University, Japan);*
- 13:40 Power Coupling Coefficient between Cores of Random Waveguide Systems  
*Akira Komiyama (Osaka Electro-Communication University, Japan);*
- 14:00 The Implementation of High-order Nyström Method for Integral Equation in EM Scattering  
*Xiaojuan Zhang, Shuguang Liu (Institute of Electronics, Academy of Chinese Sciences, China);*
- 14:20 Multilevel Fast Inhomogeneous Plane Wave Algorithm (MLFIPWA) for Solving Electromagnetic Scattering from 2D Cylinder  
*Jun Hu, Zaiping Nie, Lin Lei, Liming Xu (University of Electric Science and Technology of China, China);*

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**Session 1P6**
**Metamaterial and PBG**
**Sunday PM, August 29, 2004**
**Room G (3rd Floor)**

Organized by

 Chaired by F. Li and Y. J. Feng
 

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- 13:20 Analysis of TEM Transmission-lines with Double Negative Materials  
*Chao Li, Qiang Sui, Fang Li (Academia Sinica, China);*
- 13:40 Film Thickness Effect on the Microwave Properties of 1-D YBCO PBG Microstrip Line  
*Huifen Huang, Junfa Mao (Shanghai Jiao Tong University, China);*

- 14:00 Characteristics of Resonant Type Microwave Photonic Bandgap Structures Using Dielectric Resonators  
*Yunqi Fu, Naichang Yuan (National University of Defense Technology, China);*
- 14:20 Experimental Observation of Superluminal and Negative Group Velocities in a Coaxial Photonic Crystals  
*Yuanwei Tong (Tongji University, China); Yewen Zhang, Hongqiang Li, Li He, Hong Chen (Tongji University, China);*
- 14:40 Radiation Properties of  $\lambda/4$  Monopole Antennas in Meta-material  
*Qiang Sui, Chao Li, Lianli Li, Fang Li (Chinese Academy of Science, China);*
- 15:00 Realization of Left-Handed Transmission Line and Its Applications  
*Qi Zhu, Zhongxiang Zhang, Jun Zhang, Shanjia Xu (University of Science & Technology of China, China);*
- 15:20 **Coffee Break**
- 15:40 Electromagnetic Scattering of a Cylinder Made of Coaxial Layers Containing Left-Handed Metamaterial  
*Yijun Feng, Jun Sun, Tian Jiang (Nanjing University, China);*
- 16:00 Higher-order Bloch Modes and Their Applications  
*Longgen Zheng, Wenxun Zhang (Southeast University, China);*
- 16:20 Producing Negative Permittivity and Permeability via Quantum Coherence  
*Jing Cheng, Jianying Zhou, Jian Zhu, Juntao Li, Zhengzheng Zhang, Fang Chen (Zhejiang University, China);*
- 16:40 Meta-materials Supporting Backward Waves in the Microwave Range  
*C. Simovski, S. Tretyakov, S. Maslovski (Helsinki University of Technology, Finland);*
- 17:00 Restoration of Evanescent Wave by a Left-Handed Metamaterial in Rectangular Waveguide  
*Jianlan Guo, Lixin Ran, Hongsheng Chen, Kangsheng Chen, J. A. Kong (Zhejiang University, China);*
- 13:20 Reconstruction of the  $f_0F_2$  Ionosphere Over Extended Geographical Regions by the Artificial Neural Network  
*Shikai Wang, Wen Liu, Junmei Fan, Peinan Jiao (China Research Institute of Radiowave Propagation, China);*
- 13:40 Sea-State Sounding with HF Backscatter Technology  
*Peinan Jiao, Junmei Fan, Haipeng Wu, Guangjun Sun, Tiecheng Li (China Research Institute of Radiowave Propagation, China);*
- 14:00 Research on the Effects of Ionosphere on Sea Echo Doppler Spectra Measured with HF Sky Wave Radar  
*Haipeng Wu, Peinan Jiao, Junmei Fan (China Research Institute of Radiowave Propagation, China);*
- 14:20 A Study of the Created Hole in the Ionosphere Using Ray Trace Technology  
*Peinan Jiao (Xidian University, China); Wen Liu (Xidian University, China); Junjiang Wang (China Research Institute of Radiowave Propagation, China);*
- 14:40 Comparisons of a New Evaporation Duct Model with Experiment and Other Research  
*Chengguo Liu (China Research Institute of Radiowave Propagation, China); Jiyang Huang (Science School, Xidian University, China);*
- 15:00 Analysis of Electromagnetic Field for a Horizontal Dipole Buried inside a Dielectric Layer Coated High Lossy Half Space  
*Hongqi Zhang, Weiyang Pan (China Research Institute of Radiowave Propagation at Qingdao, China); Kai Li (Nanyang Technological University, Singapore); Kaixian Shen (National Time Service Center of Chinese Academy of Science, China);*
- 15:20 Two-Frequency Mutual Coherence Function of Laser Pulse Wave Propagation in Clouds  
*Ruike Yang, Zhensen Wu (Xidian University, China);*

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**Session 2A1**
**Microstrip and Printed Antennas (II)**


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**Monday AM, August 30, 2004**
**Room F (3rd Floor)**

Organized by

 Chaired by S. Z. Zhu
 

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**Session 1P7**
**Radar for Atmosphere and Ionosphere**


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**Sunday PM, August 29, 2004**
**Room D (2nd Floor)**

Organized by P. N. Jiao

 Chaired by P. N. Jiao and J. Y. Huang
 

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- Session 2A2**  
**Metamaterials**
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- Monday AM, August 30, 2004**  
**Room C (2nd Floor)**  
Organized by S. L. He and Y. Hao  
Chaired by S. L. He and A. Djermoun
- 
- 8:00 An Aperture-Coupled Broadband High-Temperature Superconducting Microstrip Antenna  
*Shufang Liu (Xidian University, China); Boran Guan (Hangzhou Institute of Electronic Engineering, China);*
- 8:20 Wideband Printed Dipole Antenna Comprising Tapered Stub  
*Huilin Jiang, Tamami Maruyama, Keizo Cho, Yoshio Ebine (NTT DoCoMo, Inc., Japan);*
- 8:40 The Application of Semi-Smart Antenna Technology: A Novel Microstrip Phased Array with Wideband Element  
*Hongyan Tang, Robert Donnan, Clive Parini (Queen Mary, University of London, U.K.);*
- 9:00 A New Design of RF-MEMS Switched Reconfigurable Dual-Band Antenna  
*Bakir Mohammed, Belhachat Messaouda, Shouzheng Zhu, Jingao Liu (East China Normal University, China);*
- 9:20 A New Design of Broadband Planar Inverted-F Antenna Array with High Gain  
*Juan Du, Belhachat Messaouda, Bakir Mohammed, Shouzheng Zhu, Jingao Liu (East China Normal University, China);*
- 9:40 A Study on the Radiation Characteristic of Microstrip Compound Dipole  
*Guang Hua, Xiang Zhou, Hai Song, Wei Hong, Xiaowei Zhu (Southeast University, China);*
- 10:00 **Coffee Break**
- 10:20 Planar Antenna Design on LTCC Multilayer Technology  
*Bo Chen, Ban Leong Ooi, Lewei Li, Mook Seng Leong, Siou Teck Chew (National University of Singapore, Singapore);*
- 10:40 Higher-Order Vector Finite Element-Boundary Integral Method for Calculation of Input Impedance of Cavity-Backed Microstrip Antenna  
*Yongling Ban, Zaiping Nie (University of Electronic Science and Technology of China, China);*
- 11:00 A New Compact Stacked Patch Antenna  
*Yunlin Liu, Yong Wang, Rugui Yang (Southwest Jiaotong University, China);*
- 8:00 Tunable Microwave Filter Based on Negative Refractive Index Periodic Structure  
*Suling Wang, Yewen Zhang, Li He, Hongqiang Li, Hong Chen (Tongji University, China);*
- 8:20 Enhanced Near Field Imaging, Phase Compensation and Spatial Compression by Layered Left-Handed Meta-Materials Structure  
*Lu L., Hao Y., C. G. Parini (Queen Mary, University of London, U. K.);*
- 8:40 How to Realize a High Transmission Left Handed Material?  
*A. Djermoun (Université Paris X, France); O. Reynet, F. Gadot, E. Akmansoy, A. de Lustrac (Université Paris-Sud - Bât 220, France); A. Priou (Université Paris X, France);*
- 9:00 Resonant Modes in Sub-wavelength Rectangular Cavity Containing Left-handed Metamaterial  
*Yijun Feng, Tian Jiang, Yan Chen, Jun Sun (Nanjing University, China);*
- 9:20 Some Recent Studies of Meta-materials of Negative Refraction  
*Sailing He, L. Chen, LF Shen, S. S. Xiao, L. Wu, Z. C. Ruan (Zhejiang University, China);*
- 9:40 Some Subtle Details of Imaging Using a Negative Refractive Medium  
*L. Zhou, Jensen Li, C.T. Chan (Hong Kong University of Science and Technology, Hong Kong, China);*
- 10:00 **Coffee Break**
- 10:20 Super-Resolution Analysis of a Left-Handed Material Slab  
*W.C. Chew (University of Illinois, Urbana, USA);*
- 10:40 Effectively Negative Index in One Dimensional Periodic Composite Material  
*R. X. Wu, P. Chen, T. E. Zhao, F. Yang (Nanjing University, China);*
- 11:00 Electromagnetic Energy in Left-Handed Medium  
*Tiejun Cui (Southeast University, China); Jin Au Kong (Zhejiang University, Yu-Quan, China);*
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- 11:20 Experimental Verification of Left-handed Property of a New Metamaterial Composed of S-shaped Inclusion  
*Hongsheng Chen, Lixin Ran, Jiangtao Huangfu, Jianlan Guo, Xianmin Zhang, Kangsheng Chen, J. A. Kong (Zhejiang University, China);*
- 11:40 Controlling the Nonlinearity of RCE-Metamaterial  
*M. Lapine, M. Gorkunov (University of Osnabrück, Germany);*

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**Session 2A3**
**Integral Equation Methods and MOM**


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**Monday AM, August 30, 2004**
**Room A (2nd Floor)**

Organized by

 Chaired by L. Tsang and Y. J. Xie
 

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- 8:00 The Basis Functions from Group Theory in MoM for 2D EM Scattering Problems  
*Liu Zhao, Feng Zhu, Xiangyang Sun (Southwest Jiaotong University, China);*
- 8:20 Full-wave Analysis of Via Discontinuity on Printed Circuit Boards (PCBs) with Fast Layered-Medium Green's Function  
*Kin Lun Lai (City University of Hong Kong, HongKong, China); Leung Tsang, Xiaoxiang Gu, Chungchi Huang, Chongjin Ong (University of Washington, USA);*
- 8:40 For Calculating the CPW Parameters Using Moment Method  
*Jinxin Li, Lingling Sun (Hangzhou Institute of Electronic Engineering, China); Zhineng Li (Zhejiang University, China);*
- 9:00 A Method-of-Moment Analysis of Finite Microstrip Antenna: Input Impedance and Far Field Pattern  
*Wenjun Lv, Guangxing Jiang, Cao Wei, Hongbo Zhu (Nanjing University of Posts & Telecommunications, China);*
- 9:20 The Analysis of Scattering of Dielectric Bodies of Revolution by Dimension-Decent Technique  
*Qiang Zhang (Nanjing University of Posts & Telecommunications, China); Mingchun Hu (Nanjing Research Institute of Electronic Technology, China); Wei Cao (Nanjing University of Posts & Telecommunications, China); Jianfeng zhang (Nanjing Research Institute of Electronic Technology, China);*

- 9:40 Efficient Methods to Model EM Radiation and Scattering from Objects Near to or Penetrating a Half-space Interface  
*Liming Xu, Zaiping Nie, Jun Hu (College of Electronic Engineering, UESTC, China);*

**10:00 Coffee Break**

- 10:20 Method-of-Moments Analysis Approach to Shielded Multiconductor Transmission Lines Filled with Stratified Dielectric Media  
*Yunfeng Zhang, Wei Cao (Nanjing University of Posts & Telecommunications, China);*
- 10:40 Analysis of Package Effects of MMIC Circuits by MPIE  
*Peng Wang, Yongjun Xie, Yu Zhang, Changhong Liang (Xidian University, China);*
- 11:00 The Evaluation of Singularity Integral in 3D MoM  
*Lianlin Li, Fang Li (Institute of Electronics, Chinese Academy of Science, China);*
- 11:20 Surface Wave, Leaky Wave and Lossy Poles' Extraction for Multi-layered Microstrip Structure  
*Y. Wang, B. L. Ooi, M. S. Leong (National University of Singapore, Singapore);*

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**Session 2A4**
**Special Session**


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**Monday AM, August 30, 2004**
**Room E (2nd Floor)**

Organized by E. J. Schweicher

 Chaired by E. J. Schweicher
 

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- 8:00 Characterization of NbN Hot-Electron-Bolometer Devices Cryogenically Cooled by a Close-Cycled 4-K Refrigerator  
*L. Jiang, J. Li, Q. J. Yao, X. F. Shen, W. Zhang, S. C. Shi (Purple Mountain Observatory, NAOC, CAS, China); S. I. Svechnikov, Yu. B. Vachtomin, S. V. Antipov, B. M. Voronov, N. S. Kaurova, G. N. Goltsman (Moscow State Pedagogical University, Russia);*
- 8:20 Progress in Holographic and Diffractive Technology  
*S. Habraken, D. Vandormael, P. A. Blanche (Centre Spatial de Liege, Belgium);*
- 8:40 Multispectral and Hyperspectral Sensors: Review and Perspectives  
*Emile Schweicher (Royal Military Academy, Belgium);*
- 9:00 Measurement of the FTS Responses of Submm SIS and HEB Mixers  
*X. F. Shen, Q. J. Yao, Z. H. Lin, S. C. Shi (Purple Mountain Observatory, NAOC, CAS, China);*

- 9:20 3D Facial Surface Capture  
*Charles Beumier (Royal Military Academy, Belgium);*
- 9:40 Polymer Optical Fibre: New Prospects in Local Area Networks  
*André Goffin (Royal Military Academy, Belgium);*
- 10:00 **Coffee Break**
- 10:20 A Comparative Study of Gigabit Ethernet Transmission Performance in Silica and Plastic-based Multimode Fibres  
*André Goffin (Royal Military Academy, Belgium); Baudouin Bareel (Nexans Cabling Solutions, Belgium);*
- 10:40 High Density Hybrid Integration with Electroplated Indium Solder Bumps  
*Patrick Merken (IMEC; RMA, Belgium); Joachim John, Lars Zimmermann, Chris Van Hoof (IMEC, Belgium);*
- 11:00 Airborne Hyperspectral Potential for Coastal Biogeochemistry of the Scheldt Estuary and Plume  
*M. Shimonia (Royal Military Academy, Belgium); D. Sirjacobs, A. V. Borges (Liege University, Belgium); L. Chou (Free University of Brussels, Belgium); M. Frankignoulle (Liege University, Belgium); W. Vyvermans (Gent University, Belgium); S. Djenidi (Liege University, Belgium); M. Acheroy (Royal Military Academy, Belgium);*
- 11:20 The Research on the Electric Field Sensor with No Electrode in X-cut LiNbO<sub>3</sub>  
*Lei Feng (Engineering Physics Academy of China, China);*
- 11:40 Numerical Simulations of High-Power Optical Laser Beam Propagation: Influence of Nature and Size of Surface Contamination Particles  
*Stéphane Mainquy, Isabelle Tovenà, Bruno Le Garrec (CEA/CESTA, France);*
- 8:20 Novel Millimetre-wave Sr Ca Hexaferrite  
*Quanyuan Feng (Southwest Jiaotong University, China);*
- 8:40 Investigation of the Stability of the IF Output Power of a 100-GHz Superconducting SIS Mixer  
*J. Li, S. C. Shi (Purple Mountain Observatory, NAOC, CAS, China);*
- 9:00 A New Scheme for High-Efficiency Linear Amplifiers  
*Tsz Yin Yum, Leung Chiu, Quan Xue, Chi Hou Chan (City University of Hong Kong, Hong Kong, China);*
- 9:20 A Novel Microminiature 1-26GHz 22.5° MMIC Phase Shifter with Microstrip Radial Stubs  
*Yongsheng Dai (Nanjing University of Science & Technology, China);*
- 9:40 A Novel Low Insertion Loss X-Band Four-Bit GaAs MMIC Phase Shifter  
*Yongsheng Dai (Nanjing University of Science & Technology, China); Tangsheng Chen (Nanjing Electronic Devices Institute, China);*
- 10:00 **Coffee Break**
- 10:20 An Accurate GaAs Devices Modeling and Optimization Using Genetic Algorithm  
*Lei Wang, Ruimin Xu (University of Electronic and Scientific Technology of China, China);*
- 10:40 A Fully Integrated Integer-N Low Power Synthesizer for Global Position System  
*M. -S. Kao, Christina F. Jou, Young Wang, Kuo-Hua Cheng (CM, NCTU, Taiwan, China);*
- 11:00 A Miniaturized 60 GHz GaAs PHEMT Sub-Harmonic Mixer  
*Sam Kuo, Hsien-Shun Wu (National Chiao-Tung University, Taiwan, China); Ching-Kuang C. Tzuang (National Taiwan University, Taiwan, China);*
- 11:20 Quasi-Optical Techniques and Parallel-Processing Architecture for RF and Millimetre-Wave Circuits and Systems  
*Ke Wu (École Polytechnique de Montréal, Canada);*
- 11:40 CMOS Integrated Antenna for 60 GHz WPAN Applications  
*Hsien-Shun Wu (National Chiao-Tung University, Taiwan, China); Ching-Kuang C. Tzuang (National Taiwan University, Taiwan, China);*
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- Session 2A5**  
**Microwave and Millimeter-Wave Circuits**
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- Monday AM, August 30, 2004**  
**Room D (2nd Floor)**  
Organized by Q. Xue  
Chaired by K. Wu and Q. Xue
- 
- 8:00 A Wideband Transition between Microstrip and Coplanar Stripline  
*Quan Xue, Cheuk Wah Chow, Ching-Hong K. Chin, Chi Hou Chan (City University of Hong Kong, China);*

12:00 Root-of-Area Formula of Electrical Capacitance, for Thermal Conduction of an HBT-IC on a GaAs Substrate with Temperature Dependent Conductivity  
*Y. L. Chow (University of Waterloo, Canada); K. F. Tsang, S. C. Lee, S. W. Ping (City University of Hong Kong, China);*

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**Session 2A6**  
**Theoretical and Computational**  
**Electromagnetics**

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**Monday AM, August 30, 2004**

**Room B (2nd Floor)**

Organized by

Chaired by I. V. Lindell and W. M. Song

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8:00 A Redefense for the Gibbs' Symbol  
*Feng Zhu, Jingsheng Tang, Xuemei Huang, Kemin Sheng (Southwest Jiaotong University, China);*

8:20 Differential Forms and Electromagnetic Media  
*Ismo V. Lindell (Helsinki University of Technology, Finland);*

8:40 A Straightforward Practical Technique of Spherical-wave Expansions  
*Changqing Gu, Yonggang Zhou (Nanjing University of Aeronautics & Astronautics, China);*

9:00 An Efficient FAFFA-PC-MLFMA for 3D Large Scale Problems  
*Jie Hu, Jun Wang, Jun Hu, Zaiping Nie (University of Electronic Science and Technology of China, China);*

9:20 Analysis of the Transmission Property of TEM Cell by Operator Theory  
*Liehui Ren, Zhiyu Chen, Wenmiao Song (Institute of Electronics, Chinese Academy of Sciences, China);*

9:40 PML Technique and Non-local Boundary Conditions for the Parabolic Equation Algorithm  
*Zhixiang Huang, Xianliang Wu (Anhui University, China);*

10:00 **Coffee Break**

10:20 Discussion on the Problems of Entrance Electromagnetic Cavity by Green's Function  
*Liehui Ren, Wenmiao Song (Institute of Electronics, Chinese Academy of Science, China); Bo Qu, Ming Zhu (Beijing Vacuum Electronics Research Institute, China);*

10:40 An Efficient Algorithm for Method of Lines Analysis of Planar Periodic Structures  
*Daoxiang Wang, Edward Ningyung Kai (City University of Hongkong, Hongkong, China); Rushan Chen (Nanjing University of Science and Technology, China);*

11:00 A New Operator for the Electromagnetics Characterization in Time Domain  
*Oleg Stoukatch, Evgeniy Golovin (Tomsk Polytechnic University, Russia);*

11:20 Analysis of the Scattering of Anisotropic Dielectric-Filled Apertures by FEM-BI Method  
*Ning Yang (Fourteenth Institute of Zhongdian Group, China);*

11:40 Some Notes on Vector Symbol Method in Electromagnetic Theory  
*Jinsheng Tang, Kemin Sheng, Feng Zhu, Rugui Yang, Xuemei Huang (Southwest Jiaotong University, China);*

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**Session 2A7**  
**Poster Session**

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**Monday AM, August 30, 2004**

**Room G (3rd Floor) 10:00-12:00**

Organized by

Chaired by

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2A7-1 Analysis and Design of Archimedean Spiral Antenna Using PBG Structure as the Reflector  
*Yan Xu, Mojie Zhang (No.802 Institute of SAST, China);*

2A7-2 Subharmonic Mixer for Wireless LAN Applications  
*Christina F. Jou, Kuo-Hua Cheng, Cheng-Liang Chen (CM, NCTU, Taiwan, China);*

2A7-3 Design of a New RF CMOS Micromixer with Low Power and High Performance  
*Christina F. Jou, Kuo-Hua Cheng, Eing-Tsang Lu (CM, NCTU, Taiwan, China);*

2A7-4 A Waveguide to Microstrip Transition in Millimeter-Wave LTCC Modules  
*Guangsheng Pan, Bo Yan, Ruimin Xu (University of Electronic Science and Technology of China, China);*

2A7-5 A Novel Type of Two-layer Power Divider Based on the LTCC Balun Network Design  
*Ban Leong Ooi, Daoxian Xu, Guang Zhao (National University of Singapore, Singapore);*

- 2A7-6 Uniform Method to Calculate Effects on Common-Mode Radiations  
*Haifeng Song, Zhiyu Chen (Institute of Electronics, Chinese Academy of Science, China);*
- 2A7-7 An Effective and Low-Cost Dynamic Task Scheduling on Cluster System  
*Xing Chen, Kama Huang, Xiang Zhao (Sichuan University, China);*
- 2A7-8 Hybrid TDOA/AOA Wireless Position Based on Kalman Filter in NLOS Situation  
*Jing Li, Ju Liu (Shandong University, China);*
- 2A7-9 Fast Decomposition Projective Method Applications to the Scattering Problem of Electrically Large Objects  
*Lianyou Sun, Wei Hong, Xin Wu (Southeast University, China);*
- 2A7-10 Research on a Holistic Design Measure to UWB Antenna  
*Tao Jiang, Lewei Li (National University of Singapore, Singapore);*
- 2A7-11 First Brillouin Zone and Refraction Index  
*Longgen Zheng, Wenxun Zhang (Southeast University, China);*
- 2A7-12 An Investigation on the Absorption Characteristic of PML Applied in FEM  
*Ou Xu, Jinping Xu (Southeast University, China);*
- 2A7-13 Fast and Accurate Simulations of Periodic Structures for Left-Handed Media  
*W. B. Lu, T. J. Cui, H. Zhao, X. X. Yin, W. Hong (Southeast University, China); J. A. Kong (Massachusetts Institute of Technology, USA);*
- 2A7-14 A Miniaturized RF Module for 340MHz Wireless Data Transmission Application  
*Pinpin Yan, Jin Liu, Wei Hong (Southeast University, China);*
- 2A7-15 Design of the RF-ID Backscattered Tag at 2.45GHz by the Bipolar Transistor  
*Jin-Sup Kim, Sang-Gi Byeon, Yong-Cheol Kang (Korea Electronics Technology Institute, R. O. Korea); Young-Soo Na (Kwangwoon University, R. O. Korea);*
- 2A7-16 Research in Low-loss Ka-band 3-dB Power Divider  
*Fang Wang, Ruimin Xu (University of Electronics Science and Technology of China, China);*
- 2A7-17 The Impulse Response Duration of a Parabolic Reflector Antenna  
*R. de Oliveira (LSS / University of Versailles, France);*
- 2A7-18 A Non-Uniform Length Coupled Model for Square Spiral Inductor  
*Yuyang Wang, Zhengfan Li (Shanghai Jiaotong University, China);*
- 2A7-19 A Novel Robust Beamforming Algorithm in Smart Antennas  
*Bei Yang, Xiaofei Zhang (Nanjing University of Aeronautics & Astronautics, China);*
- 2A7-20 Dual-Band Internal Mobile Handset Antenna  
*Ho-Jun Lee, Jae-Young Lee, Jong-Kyu Kim (Korea Electronics Technology Institute, Korea); Seok-Hong Choi, Jae-Gun Lee, Sin-Ja Min (MEERAE Tech. Inc, Korea); Byungje Lee (Kwangwoon University, Korea);*
- 2A7-21 Research on Privacy Mechanism and Design of Application Model in Wireless Data Acquisition System  
*Yuhua Huang, Bingxin Yao, Aiqun Hu (Southeast University, China);*
- 2A7-22 A Fast Algorithm of PBSV-DDM for Electrically-Large 2D Electromagnetic Scattering Problems  
*Xiang An, Zhiqin Lv, Wei Hong, Tiejun Cui (Southeast University, China);*
- 2A7-23 Subsection\_PML Boundary Condition for ADI-FDTD Analysis of Optical Waveguides  
*Jingcao Dai, Wangyun Ming, Mingde Zhang, Xiaohan Sun (Southeast University, China);*

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**Session 2P1****Remote Sensing of the Earth and Atmosphere**

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**Monday PM, August 30, 2004****Room D (2nd Floor)**

Organized by

Chaired by B. Z. Kaplan and Z. S. Wu

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- 13:20 A Novel Approach of Hierarchical Classification for Multi-sensor Data Over Urban Areas  
*Jingbo Zhang, Yaqiu Jin (Fudan University, China);*
- 13:40 Fusion of Infrared and Radar Remote Sensing for Urban Areas Classification by Using BP-GA Algorithm  
*Guangzhen Cao, Yaqiu Jin (Fudan University, China);*
- 14:00 Investigation on Statistic Properties of SAR Return Signals Using MLFMA  
*Xiaomin Pan, Xinqing Sheng (Chinese Academy of Sciences, China);*

- 14:20 On the Transfer of Power in DC Field Sensors  
*U. Suissa (Negev Academic College of Engineering, Israel); L. Frumkis, B. Z. Kaplan (Ben-Gurion University of the Negev, Israel);*
- 14:40 System Simulation of Synthetic Aperture Interferometer Radiometer (SAIR)  
*Jian Huang (10<sup>th</sup> Institute of Chinese Electronic Technology Corporation(CETC), China);*
- 15:00 Research on IR Weapon System Effect Interval to Phased Array Radar  
*Yanqun Zhang, Zhensen Wu (Xidian University, China);*
- 15:20 **Coffee Break**
- 15:40 3mm Band Characteristic Measure of Gaseous Mass with a 94GHz Radiometer/Receiver  
*Shusheng Peng (Nanjing University of Science & Technology, China); Xinghui Yin, Zicai Xu (Purple Mountain Observatory, China);*
- 16:00 Propagation Anomaly of Oversea Broadcasting Waves in VHF Band Possibly Associated with Earthquakes  
*Toshiaki Takano, Kurt Sakai, Atsushi Yamada, Satoshi Ujigawa, Ikuo Nagashima, Han Higasa, Youhei Kawamura, Hiroyuki Nakata, Shin Shimakura (Chiba University, Japan);*
- 16:20 A Possible Mechanism of Satellite Signals of Infrared Band Directly Monitored Real Time Thermal Pattern of the Earth Surface  
*Shigehisa Nakamura (Kyoto University, Japan);*
- 16:40 Performance of the Newly Developed Cloud Profiling FM-CW Radar at 95 GHz  
*Toshiaki Takano, Yumiro Suga, Kenichi Akita, Hiroshi Kubo, Youhei Kawamura (Chiba University, Japan); Hiroshi Kumagai, Tamio Akamura (CREST of Japan Science and Technology Corporation, Japan); Yuji Nakanishi (SciTech, Japan); Teruyuki Nakajima (The University of Tokyo, Japan);*
- 13:40 Study on a Novel Sleeve Koch Monopole Antenna  
*Qi Wang, Chengli Ruan (UEST of China, China);*
- 14:00 On Study of a Novel Organic Magnetic Radome  
*Zhengtao Guan, Rugui Yang (Southwest Jiaotong University, China);*
- 14:20 Antennas Receiving Property and Experimental Research  
*Hengyi Duan (The 10<sup>th</sup> Research Institute of Electronics, China Electronic Scientific Group, China);*
- 14:40 Research about Mutual Influence of Antennas and Experiment  
*Duan Hengyi (The 10<sup>th</sup> Research Institute of Electronics, China Electronic Scientific Group, China);*
- 15:00 Triple-Band Base Station Antennas Comprising Slender Metal Conductors  
*Yasuko Kimura, Yoshio Ebine (NTT DoCoMo Inc., Japan);*
- 15:20 **Coffee Break**
- 15:40 Radiation Pattern Equalization for Multimode Circular Horns  
*Xinghui Yin, Shencai Shi (Purple Mountain Observatory, NAOC, CAS, China);*
- 16:00 The Use of an Optically Modulated Scatterer to Measure Near and Far fields of the R-Band Standard Horn Antenna  
*Jung-Hwan Choi, Jung-Ick Moon, Seong-Ook Park (Information and Communications University, Korea);*
- 16:20 Quad-EMC Reflectarray Antenna  
*The Nan Chang, Hong Ru Sue (Tatung University, Taiwan, China);*
- 16:40 Novel Measurement of Radiation Characteristics Considering the Feed Cables on Small Antenna  
*Chi-Hun Lee, Jung-Hwan Choi, Seong-Ook Park (Information and Communication University, Korea);*

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**Session 2P2**
**Antennas and Measurements**


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**Monday PM, August 30, 2004**
**Room E (2nd Floor)**

Organized by

 Chaired by S. C. Shi and Z. Q. Gong
 

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- 13:20 Analysis and Design Parameters of Stepped-Index Luneburg Lens Antenna  
*Zhengquan Gong, Xianjin Li (Nanjing Telecomm. Engr. Res. Inst., China);*

- 17:00 The Analysis of Medium-Wave Antenna Using Elevated Radials  
*Yijiang Zhang, Wenxun Zhang (Southeast University, China);*
- 17:20 The Analysis of the Methods and System of Obtaining the Electromagnetic Radiation Polarization Parameters  
*Shujuan Li, Ying Li (Shanghai University, China);*



**Session 2P3****Finite Difference Time-Domain Methods**

Monday PM, August 30, 2004

Room C (2nd Floor)

Organized by

Chaired by W.-K. Leung and B. Chen

- 13:20 The Model and FDTD Simulation of the Influence of Crosstie in Roadbed Detecting  
*Di Zhu, Yansheng Jiang, Zhensheng Shi, Wenbing Wang (Xi'an Jiaotong University, China);*
- 13:40 Analysis on the Scattering of an Obliquely Incident Plane-Wave from Bodies of Revolution Using BOR-FDTD Method  
*Fuhong Guan, Bin Chen (Nanjing Engineering Institute, China); Dagang Fang, Wenming Yu (Nanjing University of Science & Technology, China);*
- 14:00 A New Implementation of Berenger PML Absorbing Boundary Condition for Evanescent Waves  
*Tongbin Yu, Bihua Zhou (Nanjing Engineering Institute, China); Shanghe Liu (Ordnance Engineering College, China);*
- 14:20 A Study for Fast Transient Near to Far Field Transformation in FDTD  
*Tao Wei, Dan Yang, Yunlin Liu, Cheng Liao (Southwest Jiaotong University, China);*
- 14:40 The Development of 10Hz~1.7GHz Electromagnetic Pulse Field Testing System  
*Changqing Zhu, Shanghe Liu (Ordnance Engineering College, China);*
- 15:00 Analysis of a Singularity-Enhanced Method for Sharp Metal Edge Diagonal to the Cell Cube in FDTD Grid  
*Feng Lu, Bin Chen (Nanjing Engineering Institute, China);*
- 15:20 **Coffee Break**
- 15:40 Some Study of Numerical Solutions of Wave Equation Based on Crank-Nicolson Scheme  
*Yu Zhiyuan, Lin Weigan (University of Electronic Science and Technology of China, China);*
- 16:00 An Adaptive Domain Decomposition FDTD (ADD-FDTD) Algorithm Using a Method of Boundary Testing  
*Hua Zhang, Wei Hong, Tiejun Cui (Southeast University, China);*
- 16:20 Efficient Simulation and Visualization Using Multi-mode PSTD Method  
*Wing-Kai Leung (Hong Kong Polytechnic University, Hong Kong, China);*

- 16:40 A Hybrid Algorithm of ADI-FDTD and R-FDTD  
*Yonggang Zhou (Nanjing University of Aeronautics & Astronautics, China); Jinping Xu (Southeast University, China);*
- 17:00 Design of Stratified Luneberg Lens Antenna by Genetic Algorithm and FDTD Analysis  
*Yiwei He, Kenji Hosono (Osaka Electro-Communication University, Japan); Tohru Iwai (Sumitomo Electric Industries, Ltd., Japan);*
- 17:20 Transformed-Space Pseudo-Spectral Time-Domain Method  
*Wing-Kai Leung (Hong Kong Polytechnic University, Hong Kong, China);*

**Session 2P4****Computational Electromagnetics (II)**

Monday PM, August 30, 2004

Room A (2nd Floor)

Organized by J. M. Jin and B. Z. Wang

Chaired by J. M. Jin and B. Z. Wang

- 13:20 A Multivariable Interpolation Algorithm Based on the Weight Function of Distance's Reciprocal and its Application in the Design of Microwave Device  
*Li Ma (Information Engineering University, China); Dongfang Zhou (Zhejiang University, China); Zhongxia Niu, Yu Sun (Information Engineering University, China);*
- 13:40 Fast Analysis of Microwave Integrated Circuits by Use of the Inner-outer Flexible GMRES-FFT method  
*Lei Mo, X. P. Feng, Li Zhou, R. S. Chen (Nanjing University of Science and Technology, China);*
- 14:00 Measured Equation of Invariance for Three-dimensional Scattering Problems  
*Mingyi Gu, Kan Wang, Yunsheng Xu (University of Science and Technology of China, China);*
- 14:20 The Perturbed ILUP ILUT Preconditioning of Finite Element Equations for the Three-dimensional Helmholtz Equations  
*X W Ping, R. S. Chen (Nanjing University of Science and Technology, China); Edward K. N. Yung, C. H. Chan (City University of Hong Kong, Hong Kong, China);*

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| <p>14:40 A New Two-Step Preconditioning Strategy for Edge Finite Element Analysis of Helmholtz Equations<br/><i>P. L. Rui, R. S. Chen (Nanjing University of Science and Technology, China);</i></p> <p>15:00 Symplectic Integrator Method and its Application in the Area of the Electromagnetic Scattering<br/><i>Lele Jiang, Xianliang Wu (Anhui University, China);</i></p> <p>15:20 <b>Coffee Break</b></p> <p>15:40 A Novel PS-FGCPW Low Pass Filter<br/><i>Jianpeng Wang, Bingzhong Wang, Wei Shao (University of Electronic Science and Technology of China, China);</i></p> <p>16:00 Iterative Domain Decomposition Method for EM Scattering from an Object at the Height of Hundreds of Wavelength above Rough Oceanic Surface<br/><i>Peng Liu, Yaqiu Jin (Fudan University, China);</i></p> <p>16:20 Parameter Optimization Based on GA and HFSS<br/><i>Shuhui Sun, Bingzhong Wang, Wei Shao (University of Electronic Science and Technology of China, China);</i></p> <p>16:40 Analysis of a Novel Low-pass Filter Using the Fast FDTD Method<br/><i>Y. Yang, S. M. Hu, R. S. Chen (Nanjing University of Science and Technology, China);</i></p> <p>17:00 MLFMA for Solution of Scattering from 3D Conducting Body Coated with a Thin Lossy Magnetic Material<br/><i>Jun Hu, Zaiping Nie, Lin Lei, Jun Wang (University of Electric Science and Technology of China, China);</i></p> | <p>14:00 A Novel Cross-Shaped High Impedance Surface Structure<br/><i>Dunbao Yan, Yunqi Fu, Guohua Zhang, Qiang Gao, Naichang Yuan (National University of Defense Technology, China);</i></p> <p>14:20 A Novel Multi-layers Compact EBG Structure<br/><i>Dunbao Yan, Yunqi Fu, Qiang Gao, Guohua Zhang, Naichang Yuan (National University of Defense Technology, China);</i></p> <p>14:40 Electromagnetic Band-Gap High Impedance Surface with Supercell<br/><i>Hongqiang Li, Yaqin Qin, Hong Chen, Yewen Zhang (Tongji University, China);</i></p> <p>15:00 Electromagnetic Bandgap Properties of Complex Stratified Media with Fractal Structure<br/><i>Yuannong Zhang, Zhengyu Zhao, Tianxi Huang (Wuhan University, China);</i></p> <p>15:20 <b>Coffee Break</b></p> <p>15:40 Numerical and Experimental Study of Effective Microwave Properties of Composites with Long Conductive Fibers<br/><i>L. Liu, S. M. Matitsine, Y. B. Gan (National University of Singapore, Singapore); K. N. Rozanov (Institute for Theoretical and Applied Electromagnetics, RAS, Russia);</i></p> <p>16:00 Analysis of Vertical Full Posts and Electromagnetic Crystals in Rectangular Waveguides<br/><i>Kiyotoshi Yasumoto, Hongting Jia (Kyushu University, Japan);</i></p> <p>16:20 The Stratified Dielectric Gratings Used as 3-D EBG Structure<br/><i>Xiujuan Li, Wenxun Zhang, Longgen Zheng, Peng Lu (Southeast University, China);</i></p> <p>16:40 A New EBG Structure Microstrip Antenna Array<br/><i>Wenmei Zhang, Junfa Mao (Shanghai Jiao Tong University, China);</i></p> <p>17:00 New Light-weighted Electromagnetic Radiation Absorbing Material Employing Doubly Layered Hollow Particles<br/><i>Kaichang Zhou, Lina Xu, Hongfei Xu, Ning Gu (Southeast University, China);</i></p> <p>17:20 Complex Permittivity and Permeability of Metallic Magnetic Granular Composite: General Effective Medium Theory Approach<br/><i>P. Chen, R. X. Wu, F. Yang, T. E. Zhao (Nanjing University, China);</i></p> |
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- Session 2P5**  
**EBG and Composite Materials**
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- Monday PM, August 30, 2004**  
**Room F (3rd Floor)**  
Organized by  
Chaired by K. Yasumoto and R. X. Wu
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| <p>13:20 High-Impedance Electromagnetic Surface by Using of Lumped-Elements<br/><i>Haitao Liao, Yewen Zhang, Li He, Hongqiang Li, Hong Chen (Tongji University, China);</i></p> <p>13:40 A Novel Photonic Band Gap Structural Element<br/><i>Yun Sun, Zhiyuan Yu (University of Electronic Science and Technology of China, China); Xiaowei Sun (Shanghai Institute of Micro-system &amp; Information Technology, China);</i></p> |  |
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**Session 2P6**
**RF, Microwave and Millimeter-wave Circuits**


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**Monday PM, August 30, 2004**
**Room B (2nd Floor)**

Organized by Y. L. Lai

 Chaired by Y. L. Lai and B. L. Ooi
 

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- 13:20 A Novel Compact Planar Microstripline Branch-Line Coupler  
*Shry-Sann Liao, Nien-Chung Chin, Chih-Wei Hsu, Pou-Tou Sun, Ya-Wen Yang, Yu-Chi Chang (Feng-Chia University, Taiwan, China);*
- 13:40 A New 5.2 GHz CMOS Mixer with High Linearity and Gain  
*Fan-Hsi Kung, Man-Long Her, Chun-Wei Kuo, Yu-Kai Hung, Pou-Tou Sun (Feng Chia University, Taiwan, China); Chung-I G. Hsu, Tzu-Yi Wu (Da-Yah University, Taiwan, China);*
- 14:00 A New Non-Line-of-Sight Location Algorithm Based on TDOA  
*Dengke Yuan, Quanyuan Feng (Southwest Jiaotong University, China);*
- 14:20 Microwave Filters with Novel CPW Periodic Structures  
*Yeong-Lin Lai, Chih-Hong Chang (National Changhua University of Education, Taiwan, China);*
- 14:40 Design of the Differential-Type Monolithic- Microwave VCO for Low Phase Noise with a Large Tuning Range from 5 to 6 GHz  
*Chan-Yen Yu, Don-Gey Liu, Hong-Chong Wu, Shui-Yuan Yang, Miin-Shyue Shiau (Feng Chia University, Taiwan, China);*
- 15:00 Bridged T Attenuators Design by Genetic Algorithms  
*Shang-Hsien Yu, Jan-Dong Tseng (National Chin Yi Institute of Technology, Taiwan, China);*
- 15:20 **Coffee Break**
- 15:40 Miniature Low-Loss EBG Periodic Structures for Filter Applications  
*Hoi Yan Fong, Ban Leong Ooi (National University of Singapore, Singapore);*
- 16:00 Diversity Antenna Characteristics Evaluation in Narrow Band Rician Fading Channel Using Random Phase Generation Process  
*A. Khaleghi, A. Azoulay, J. C. Bolomey (DRE, Supélec, 3, rue Joliot-curie, France);*

- 16:20 Accurate Modeling of Pad Geometries from S-Parameter Measurements  
*Jayasanker Jayabalan, Bin Wu, Daoxian Xu, B. L. Ooi, M. S. Leong (National University of Singapore, Singapore); M. K. Iyer (Institute of Microelectronics, Singapore);*
- 16:40 A Novel Direction-of-Arrival Estimation Method in Uniform Linear Array Antenna  
*Xiaofei Zhang, Dazhuan Xu (Nanjing University of Aeronautics and Astronautics, China);*
- 17:00 A Novel Adaptive Beamforming Algorithm Based on Wavelet Theory  
*Xiaofei Zhang, Dazhuan Xu (Nanjing University of Aeronautics & Astronautics, China);*
- 17:20 Design of Microwave Micromachined Switches with a Systematic Electro-Mechanical Method  
*Yeong-Lin Lai, Yi-De Wen (National Changhua University of Education, Taiwan, China);*

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**Session 3A1**
**Computational Electromagnetics (III)**


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**Tuesday AM, August 31, 2004**
**Room A (2nd Floor)**

Organized by R. S. Chen

 Chaired by R. Lee and R. S. Chen
 

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- 8:00 The Multilevel Adaptive Cross-Approximation Algorithm for Modeling Electromagnetic Radiation and Scattering Problems  
*Kezhong Zhao, Marinos Vouvakis, Jinfa Lee (The Ohio State University, USA);*
- 8:20 Higher-Order Finite Element Solutions for 3D Wave Scattering  
*J. M. Jin, M. Botha, D. Jiao, Y. J. Li, J. Liu, Z. Lou, T. Rylander (University of Illinois at Urbana-Champaign, U.S.A);*
- 8:40 An Efficient Preconditioning Technique in Finite Element-Boundary Integral Method  
*D. Z. Ding, W. Zhuang, R. S. Chen (Nanjing University of Science and Technology, China);*
- 9:00 A TLQSA Simulation of the Doppler Spectrum from a Flying Object above Dynamic Oceanic Surface  
*Peng Liu and Yaqiu Jin (Fudan University, China);*
- 9:20 The Weighted Average FDTD Crank-Nicolson Scheme for Wave Equation in the Rectangular Waveguide  
*Yu Zhiyuan, Lin Weigan (University of Electronic Science and Technology of China, China);*

- 9:40 A Dual-Bands Planar Inverted-F Antenna with a L-Shaped Slot for WLAN Applications  
*Shouxin Du, Zhiyuan Yu (University of Electronic Science and Technology of China, China); Quan Xue (City University of Hong Kong, China);*
- 10:00 **Coffee Break**
- 10:20 Planar Transmission-line Equation Excited by a Nonuniform Electromagnetic Field  
*Xiaohua Wang, Bingzhong Wang, Jingsong Hong, Weixia Wu (University of Electronic Science and Technology of China, China);*
- 10:40 Hybrid 2D FDTD Method for the Analysis of Lossy Transmission Lines  
*Wei Shao, Bingzhong Wang, Jianpeng Wang (University of Electronic Science and Technology of China, China);*
- 11:00 A  $p$ -Refinement Approach for Finite Element Time Domain Method  
*Yudapoom Srisukh, Robert Lee (ElectroScience Laboratory, Department of Electrical and Computer Engineering, U. S. A.);*
- 11:20 Using LS-SVM to Improve the Computational Efficiency of FD-TD Technique  
*Y. Yang, S. M. Hu, R. S. Chen (Nanjing University of Science and Technology, China);*
- 11:40 The Least Square Algorithm to Calculation of Scattering of Dielectric Bodies of Revolution  
*Qiang Zhang (Nanjing University of Posts & Telecommunications, China); Mingchun Hu (Nanjing Research Institute of Electronic Technology, China); Wei Cao (Nanjing University of Posts & Telecommunications, China); Jianfeng zhang, Naiheng Yang (Nanjing Research Institute of Electronic Technology, China);*
- 8:20 Radio Frequency Power Level Statistics in Presence of People for Wireless Networks Standards  
*Iñigo Cuiñas, Manuel García Sánchez (Universidade de Vigo, Spain);*
- 8:40 The Spatial Correlation and Channel Capacity of MIMO System  
*C. F. Li (Xi'dian University, China); P. N. Jiao (China Research Institute of Radiowave Propagation, China); M. H. A. J. Herben, E. F. T. Martijn (Eindhoven University of Technology, The Netherlands);*
- 9:00 Effect of Array Orientation on Performance of MIMO Wireless Channels  
*Xin Li, Zaiping Nie (University of Electronic Science and Technology of China, China);*
- 9:20 Temporal Variation of Electric Field Levels in Populated Areas  
*Manuel García Sánchez, Iñigo Cuiñas (Universidade de Vigo, Spain);*
- 9:40 Reflection Consideration in LMDS Propagation Analysis  
*Jinming Pei, Shouzheng Zhu (East China Normal University, China);*
- 10:00 **Coffee Break**
- 10:20 Coverage Prediction for LMDS at 40 GHz: Simulations and Measurements  
*L. AGBA - B. JECKO (IRCOM, CNRS UMR n°6615 - équipe "CREAPE", France);*
- 10:40 Mobile Propagation Path Loss Models for Suburban Areas Using Fuzzy Logic Approximation  
*Supachai Phaiboon, Pisit Phokharutkul (Mahidol University Salaya, Thailand); Suripon Somkurnpanich (Kingmonkul Institute of Technology Ladkrabang, Thailand);*

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**Session 3A2**
**Propagation in Radio Communications**


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**Tuesday AM, August 31, 2004**
**Room B (2nd Floor)**

Organized by

 Chaired by L. AGBA and I. Cuinas
 

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- 8:00 The Proposal of a New Adapted Decomposition Basis for Multichannel Signal Processing  
*Vladimir A. Fesechko, Anton A. Popov (National Technical University of Ukraine "Kyiv Polytechnic Institute", Ukraine);*
- 11:00 Capacity Characteristics of the Indoor Propagation Channel for MIMO System at 5.25GHz  
*Jae Ho Seok (RRL, Ministry of Information Communication, Korea);*
- 11:20 Adaptive Neuro-Fuzzy Inference Systems for Indoor Propagation Prediction  
*Supachai Phaiboon (Kingmonkul Institute of Technology, Thailand); Pisit Phokharatkul (Mahidol University, Thailand); Suripon Somkurnpanich (Kingmonkul Institute of Technology, Thailand);*
- 11:40 A New Method for Propagation Prediction in Urban Environments  
*Lizhi You, Lin Feng (University of Electronic Science and Technology of China, China);*

- 12:00 Monte Carlo Simulation Approach in the Lost-call Simulation in LAN  
*Jiuming Lv (Electronic Engineering Institute, China);*

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**Session 3A3**

**Antenna Array and UWB Antennas**

**Tuesday AM, August 31, 2004**

**Room F (3rd Floor)**

Organized by

Chaired by L. Landesa and J. Qian

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- 8:00 A Complete Array Model Based on the Embedded Element Pattern for Multi-Antenna Systems  
*S. B. Chen, Y. C. Jiao, F. S. Zhang, Q. Z. Liu (Xidian University, China);*
- 8:20 Application of Adaptive Signal Processing to Receiving Ultra-Wide Band (UWB) Array  
*Ang Li, Yansheng Jiang, Wenbing Wang (Xi'an Jiaotong University, China);*
- 8:40 Analysis of the Optimal Excitation for Maximum Power Gain of Log-periodic Dipole Antenna Arrays  
*Shilong Wu (Hefei Electronic Engineering Institute, China);*
- 9:00 New Study about Antipodal Vivaldi Antenna  
*Guangyou Fang (Chinese Academy of sciences, China); Motoyuki Sato (Tohoku University, Japan);*
- 9:20 Large Phased Array Antenna Calibration Using Mid-field Method  
*Xuefei Zheng, Tie Gao, Xueli Cheng (Nanjing Research Institute of Electronics Technology, China);*
- 9:40 Research on a Small Side Leakage UWB Antennas  
*Xianghui Wang, Yansheng Jiang, Wenbing Wang (Xi'an Jiaotong University, China);*
- 10:00 **Coffee Break**
- 10:20 Effect of the Ground Plane on the Operation of a UWB Monopole  
*J. Liang, C. C. Chiau, X. Chen (Queen Mary University of London, U.K.); J. Yu (Beijing University of Posts and Telecom, China);*
- 10:40 Suitability of the Compensation Matrix Technique in Antenna Array Analysis  
*L. Landesa, J. M. Taboada (Avda. Universidad s/n. Universidad de Extremadura, Spain); F. Obelleiro (Universidad de Vigo, Spain); I. T. Castro (Avda. Universidad s/n. Universidad de Extremadura, Spain);*
- 11:00 A Dual-Polarized Array Antenna Consisting of Traveling-Wave Radiators  
*Zhenguo Liu, Wenxun Zhang (Southeast University, China);*
- 11:20 Break Through the Chebyshev Barrier of Linear Array Via Genetic Algorithms  
*Jian Qian, Yubo Tian, Yun Liu (Nanjing University, China);*
- 11:40 Array Synthesis Using Improved Genetic-Simulated-Annealing-Algorithm  
*Yubo Tian, Jian Qian (Nanjing University, China);*

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**Session 3A4**

**Time-Domain or Short-Pulse Electromagnetics**

**Tuesday AM, August 31, 2004**

**Room C (2nd Floor)**

Organized by W. Y. Yin

Chaired by W. Y. Yin and J. H. Wang

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- 8:00 Numerical Solution for HPM Pulses Propagation through the Atmosphere  
*Dan Yang, Xuanming Zhong, Cheng Liao (Southwest Jiaotong University, China); Jian Fang (Southwest China Research Institute of Electronic Equipment, China);*
- 8:20 Electromagnetic Scattering of Gaussian Beams from a Cylindrical Wire Grid  
*Jin Zhao, Shanxia Xu (University of Science & Technology of China, China); Xianliang Wu (University of Anhui, China);*
- 8:40 Radiation Characteristics of the Dielectric Parallely Loaded Dipole Antenna for Pulse Radiation  
*Zengfu Han, Junhong Wang (Beijing Jiaotong University, China);*
- 9:00 Stable and Accurate Solution of Time-Domain Electric Field Integral Equation  
*Yanwen Zhao, Shengbo Wu, Zaiping Nie, Jianhua Xu (University of Electronic Science and Technology of China, China);*
- 9:20 FDTD Study of Wave Propagation Through Left-Handed Material  
*Xiaoting Dong, Wenyan Yin, Yeow Beng Gan (National University of Singapore, Singapore);*
- 9:40 FDTD Simulation of Metal-Insulator-Semiconductor (MIS) Interconnects  
*Xiaoting Dong, Wenyan Yin, Yeow Beng Gan (Temasek Laboratories, National University of Singapore (NUS), Singapore);*

- 10:00 **Coffee Break**
- 10:20 Experimental and Theoretical Characterizations of Finite-Ground Coplanar Waveguides with Discontinuities  
*Kai Kang, JingLin Shi, WenYan Yin, LeWei Li, Tat-Soon Yeo (National University of Singapore, Singapore);*
- 10:40 Effects of Frequency-Dependent Coupling Between On-chip Two Neighboring Spiral Inductors  
*Kai Kang, LeWei Li, WenYan Yin, B. Wu, S. C. Hui, L. Guo (National University of Singapore, Singapore);*
- 11:00 Simulation on Transient Electromagnetic Scattering of Underground Objects  
*Weihong Zhou, Jianguo He, Kecheng Liu (National Univ. of Defense Technology, China);*
- 11:20 Frequency Responses of Ferrite and Chiral Composites Using Hybrid Finite Element and Boundary Integral Method  
*Yaojiang Zhang, Erping Li (Computational Electromagnetics & Electronics Institute of High Performance Computing, Singapore);*
- 11:40 Peak and Average Power Handling Capabilities of Different Passive Interconnects over Ultra-Wide Frequency Ranges  
*Wenyan Yin, Xiaotong Dong, Yeow-beng Gan (National University of Singapore, Singapore);*
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- Session 3A5**  
**Microwave Circuit Design and Modeling**
- 
- Tuesday AM, August 31, 2004**  
**Room D (2nd Floor)**  
Organized by Y. L. Lai  
Chaired by Y. L. Lai and D. Z. Xu
- 
- 8:00 A Novel Lowpass Filter Using Hairpin and SIR Structure  
*Shry-Sann Liao, Wei-Hsien Chu, Yu-Lin Wei, Chen-Yen Lai (Feng-Chia University, Taiwan, China);*
- 8:20 Element Free Galerkin Method for Hollow Conducting Waveguides Cutoff Wavenumbers Computation  
*B. L. Ooi, G. Zhao, M. S. Leong (National University of Singapore, Singapore);*
- 8:40 Application of Quaternion Algebra in Finite Element Method  
*Ban Leong Ooi, Yijing Fan, Mook Seng Leong (National University of Singapore, Singapore);*
- 9:00 A New DC Coupling Current-Folded Mixer with Active Balun  
*Man-Long Her, Fu-Lung Teng, Fan-Hsi Kung, Wu-Chin Peng (Feng Chia University, Taiwan, China); Kun-Ying Lin, Chou-Jung Hsu, Ching-Chou Huang (Nan-Kai College, Taiwan, China);*
- 9:20 Novel Reconfigurable Design of Circularly Polarized Microstrip Patch Antenna for Wireless Applications  
*Belhachat Messaouda, Bakir Mohammed, Juan Du, Shouzheng Zhu, Jingao Liu (East China Normal University, China);*
- 9:40 Power Dissipation Analysis of Pi, T and bridged-T Attenuators  
*Jan-Dong Tseng, Rong-Jie Ke (National Chin Yi Institute of Technology, Taiwan, China);*
- 10:00 **Coffee Break**
- 10:20 Novel FDTD Algorithm Based On Bicomplex Number  
*Ban Leong Ooi, Yuan Gao, Mook-Seng Leong (National University of Singapore, Singapore);*
- 10:40 A New Channel Estimation Model in OFDM System Based on Improved Pilot Training Sequence  
*Jiaming He (Ningbo University Communication Technology Institute, China); Yong Su (PLA University of Science and Technology, China); Xingbin Zeng, Xiang Gao, Xiaojun Yu (Ningbo University Communication Technology Institute, China);*
- 11:00 Maximum Doppler Frequency Estimation with Multifractal Theory  
*Xiaofei Zhang, Dazhuan Xu (Nanjing University of Aeronautics & Astronautics, China);*
- 11:20 Analysis and Design of Some MW Circuits Which Bring Group Delay Ripples and a Study of the Influence on Broadband Communication System  
*Derui Fan (Nanjing Telecom Institute, China);*
- 11:40 RF Modeling of Quad Flat No-Lead Packages for Wireless Communication Applications  
*Yeong-Lin Lai, Cheng-Yu Ho (National Changhua University of Education, Taiwan, China);*
- 12:00 Simultaneous Signal and Noise Modeling of HBT by Wave Approach  
*Bo Chen, Ban Leong Ooi, Pang Shyan Kooi, Mook Seng Leong (National University of Singapore, Singapore);*

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**Session 3A6**  
**Electromagnetic Biological Effects and**  
**Medical Applications(II)**

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**Tuesday AM, August 31, 2004**

**Room E (2nd Floor)**

Organized by K. M. Huang

Chaired by K. M. Huang and Koichi Ito

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|------|---|-------|--|
| 8:00 | The Empirical Formula for Calculating the Effective Permittivity of Chemical Reaction<br><i>Kama Huang, Xiaoqing Yang (Sichuan University, China);</i>                                    | 10:00 | <b>Coffee Break</b>  |
| 8:20 | The Design and Field Calculation of Coil Array for Magnetic Focus Based on Genetic Algorithm<br><i>Jicheng Liu, Kama Huang, Wei Hua (Sichuan University, China);</i>                      | 10:20 | A Preliminary Study on a New Compound for Microwave Thermo-chemotherapy of Tumor<br><i>Wei Hua, Ling He, Xu Bao, Kama Huang (Sichuan University, China);</i>                                     |
| 8:40 | Numerical Simulation of the Radiation From a 2450MHz Helix Antenna to Human Body<br><i>Qinggong Guo, Liping Yan, Changjun Liu, Kama Huang (Sichuan University, China);</i>                | 10:40 | The Optimal Parameters of Electric Pulses in Treatment of S-180 Sarcomas<br><i>Hong Zhang, Baoyi Wang, Zishu Wang, Kama Huang (Sichuan University, China);</i>                                   |
| 9:00 | The Simulation of Temperature Distribution in Cancer Tissue Heated Alternately with Interstitial Hyperthermia<br><i>Xiaoli Xi (Xi'an University of Technology, China);</i>                | 11:00 | Probability Distribution of Maximal Received Power of Electronic Receiver in Lightning Electromagnetic Environment<br><i>Xiang Zhao, Kama Huang (Sichuan University, China);</i>                 |
| 9:20 | Measurement of Dielectric Properties of Thin Biological Tissues Using an Open-Ended Probe<br><i>Yonggang Chen, Yasir Alfadhl, Xiaodong Chen (Queen Mary, University of London, U.K.);</i> | 11:20 | The Empirical Formula for Calculating the Effective Permittivity of Electrolyte Aqueous Solution at Microwave Frequency<br><i>Xiaoqing Yang, Kama Huang, Lin Fu (Sichuan University, China);</i> |
| 9:40 | Safety Areas around Radio Broadcasting Antennas<br><i>Antonio García Pino, Iñigo Cuiñas, Manuel García Sánchez (Universidade de Vigo, Spain);</i>   | 11:40 | Study on 3-Dimensional Reconstruction of Electric Properties of Superficial Tissues on Human Body<br><i>Liping Yan, Kama Huang, Changjun Liu (Sichuan University, China);</i>                    |
|      |   | 12:00 | Human Systolic Signal with Forward Scatter Microwave Telemetry<br><i>Xiaoying Fang, Yingxia Xiong, Qiuyan Yin (East China Normal University, China);</i>   |

## PIERS SURVEY

This is to inform you about future Progress in Electromagnetics Research Symposium (PIERS).

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A. For the next PIERS to be held on 22–26 August, 2005 in Hangzhou, China

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D. I have the following comments about PIERS:

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# PIERS 2005

## Progress in Electromagnetics Research Symposium

August 22 – 26, 2005

Hangzhou, CHINA

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### CALL FOR PAPERS

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PIERS (Progress in Electromagnetics Research Symposium) provides an international forum for reporting progress and recent advances in all aspects of electromagnetics. Spectra range from statics to RF, microwave, photonics, and beyond. Topics include radiation, propagation, diffraction, scattering, guidance, resonance, power, energy and force issues, and all applications and modern developments. Potential session organizers are welcome to propose specific technical topics by filling out the PIERS survey at website <http://piers.org>.

#### SUGGESTED TOPICS:

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| 1. Electromagnetic theory                                       | 17. Microwave remote sensing and polarimetry, SAR            |
| 2. Computational electromagnetics, hybrid methods               | 18. Subsurface imaging and detection technology, GPR         |
| 3. Spectra, time, and frequency domain techniques               | 19. Active and passive remote sensing systems                |
| 4. Fast iteration, large scale and parallel computation         | 20. EM signal processing, wavelets, neural network           |
| 5. Transmission lines and waveguide discontinuities             | 21. Rough surface scattering and volume scattering           |
| 6. Resonators, filters, interconnects, packaging, MMIC          | 22. Remote sensing of the earth, ocean, and atmosphere       |
| 7. Antenna theory and radiation                                 | 23. Scattering, diffraction, and inverse scattering          |
| 8. Microstrip and printed antennas, phase array antennas        | 24. Microwave and millimeter wave circuits and devices, CAD  |
| 9. Mobile antennas, conformal and smart skin antennas           | 25. Optics and photonics, lasers, gyrotrons                  |
| 10. RF and wireless communication, multipath                    | 26. Quantum well devices, microwave photonic systems         |
| 11. Power electronics, superconducting devices                  | 27. Medical electromagnetics, RF biological effects, MRI     |
| 12. Systems and components, electromagnetic compatibility       | 28. Fiber optics, optical sensors, quantum computing         |
| 13. Nano scale electromagnetics, MEMS                           | 29. Biological media, composite and random media             |
| 14. Magnetic levitation, transportation and collision avoidance | 30. Plasmas, nonlinear media, fractal, chiral media, LHM     |
| 15. Precision airport landing systems, GPS                      | 31. Constitutive relations and bianisotropic media           |
| 16. Radar sounding of atmosphere, ionospheric propagation       | 32. Moving media, relativity, field quantization, and others |

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### ONE-PAGE ABSTRACT MUST BE RECEIVED BY DECEMBER 10, 2004

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#### Paper Guidelines:

Authors are invited to submit a **one-page** abstract of no less than 250 words in English. No full-length paper is required. The abstract should explain clearly the content and relevance of the proposed technical contribution, require no copyright transfer agreement, and contain no acknowledgements. Below the abstract, on a separate page list the following information: (1) Title of the paper, (2) Name of the author(s), (3) Affiliation(s), (4) E-mail address of each author, (5) Complete mailing address, (6) Telephone / Fax number, (7) Corresponding author and presenting author, (8) Topic or Session organizer, if applicable. (9) State if poster presentation is preferred.

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We strongly recommend that you use On-Line-Submission (<http://piers.org>) to submit your abstract or via email ([tpc@piers.org](mailto:tpc@piers.org) and/or [piers@ewt.mit.edu](mailto:piers@ewt.mit.edu)) by attachments. Authors are recommended to use \*.pdf, \*.doc, or \*.tex as the file format. The abstract deadline is **Dec. 10, 2004**. If by mail or fax, please sent to

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## PRESENTING AUTHOR MUST PRE-REGISTER BY MARCH 10, 2005

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### Registration:

We strongly recommend that you use On-Line-Registration (<http://piers.org>) to pre-register. Each presenting author must pay a non-refundable registration fee and is limited to pre-register for no more than three papers. Before March 10, 2005, the pre-registration fee is US\$357 and for students with valid identification, US\$175. After March 10, 2005 and during the symposium the registration fee will be increased to US\$395 and for students US\$195. The abstracts will be posted in its entirety on the web at <http://piers.org> after the pre-registration is completed. Only pre-registered abstracts will be scheduled in the symposium program.

Participant	Before March 10, 2005	After March 10, 2005
Regular	US\$357	US\$395
Student	US\$175	US\$195

### Extended Papers:

Authors of accepted abstract may (but are not required to) submit an extended paper to be published in the Journal of Electromagnetic Waves and Applications (on SCI database). Extended papers must follow the format as described in the web and will be subject to a peer review process. Extended papers must be submitted before 5 March 2005 and will not be printed if the presenting author does not complete pre-registration by 10 March 2005.

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## ABOUT HANGZHOU *Heaven on Earth*

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Hangzhou, one of the financial and commercial centers in China, is located on the low reaches of Qiantang River in southeast China and 180 kilometers from Shanghai. Over the course of thousands of years, Hangzhou has been famous for the West Lake it hosts, one of the most elegant lakes in the world, with a neighborhood that blends the famous hilly and aqueous scenery, as well as historical and cultural sites. Radiance and beauty is perceivably resonated by the "double ten scenic spots". Predictably, the natural beauty of Hangzhou has helped lay the foundation as one of the cradles of Chinese civilization; its unique "Liangzhu Culture" can be dated back to 4700 years ago. At its peak, Hangzhou had served as the capitals of Wu and Yue kingdoms of Five Dynasties during the 10th Century and of Southern Song Dynasty during the 12-13th Century. Its continuing preeminence nowadays as capital of Zhejiang province, one of the most prosperous provinces in a country that has been stunning the world with its steaming economy, underscores its role as the center of provincial politics, economy, culture, science and education. The tourists may take advantage of its comprehensive transportation system, composed of airlines, railways, highways and taxis to enjoy a safe, convenient and inexpensive trip to Hangzhou. Once in the city, they may find in addition to the tempting landscape, various items are simply irresistible to grab, such as silk and Longjing (Dragon Well) tea which are among the finest in the world. No wonder the famous Italian traveler Marco Polo (1254-1324) described this city as "the finest and most splendid city in the world." The same opinion was echoed in the following poem by famous poet Su Dongpo (960-1127) of Song Dynasty, where he compared the West Lake to Xizi, the acknowledged most beautiful woman in ancient China,

*"Ripping water on sunny day shimmering;  
Mountains shroud mist while raining;  
Plain or gaily decked out like Xizi;  
West Lake is always alluring."*



	<b>SUNDAY AM 8:00</b>	<b>SUNDAY PM 13:20</b>	<b>MONDAY AM 8:00</b>	<b>MONDAY PM 13:20</b>	<b>TUESDAY AM 8:00</b>
<b>ROOM A</b>	<b>1A2 - Fast Algorithms and High-Order Methods</b>	<b>1P3 - Computational Electromagnetics (I)</b>	<b>2A3 - Integral Equation Methods and MOM</b>	<b>2P4 - Computational Electromagnetics (II)</b>	<b>3A1 - Computational Electromagnetics (II)</b>
<b>ROOM B</b>	<b>1A6 - Electromagnetic Biological Effects and Medical Applications (I)</b>	<b>1P2 - RF Components and Modules</b>	<b>2A6 - Theoretical and Computational Electromagnetics</b>	<b>2P6 - RF, Microwave and Millimeter-wave Circuits</b>	<b>3A2 - Propagation in Radio Communications</b>
<b>ROOM C</b>	<b>1A3 - Rough Surface Scattering</b>	<b>1P4 - Waveguides and Microwave Components</b>	<b>2A2 - Metamaterials</b>	<b>2P3 - Finite Difference Time-Domain Methods</b>	<b>3A4 - Time-Domain or Short-Pulse Electromagnetics</b>
<b>ROOM D</b>	<b>1A5 - Electromagnetic Inverse Scattering and Imaging</b>	<b>1P7 - Radar for Atmosphere and Ionosphere</b>	<b>2A5 - Microwave and Millimeter-Wave Circuits</b>	<b>2P1 - Remote Sensing of the Earth and Atmosphere</b>	<b>3A5 - Microwave Circuit Design and Modeling</b>
<b>ROOM E</b>	<b>1A7 - Microwave Plasma and High-Power Microwave</b>	<b>1P5 - Wave Scattering in Random Media</b>	<b>2A4 - Special Session</b>	<b>2P2 - Antennas and Measurements</b>	<b>3A6 - Electromagnetic Biological Effects and Medical Applications (II)</b>
<b>ROOM F</b>	<b>1A1 - Microstrip and Printed Antennas (I)</b>	<b>1P1 - Electromagnetic Scattering</b>	<b>2A1 - Microstrip and Printed Antennas (II)</b>	<b>2P5 - EBG and Composite Materials</b>	<b>3A3 - Antenna Array and UWB Antennas</b>
<b>ROOM G</b>	<b>1A4 - PBG and Photonic Circuits</b>	<b>1P6 - Metamaterial and PBG</b>	<b>2A7 - Poster Session</b>		