PIERS 2005

Progress In Electromagnetics Research Symposium

Program

August 22–26, 2005
Hangzhou, China

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Progress in Electromagnetics Research Symposium

August 22–26, 2005

Hangzhou, China

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- Zhejiang University
- The Electromagnetics Academy
- IEEE Geoscience and Remote Sensing Society
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- Y. C. TANG Disciplinary Development Fund, Zhejiang University
- The Electromagnetics Academy at Zhejiang University
- MIT Center for Electromagnetic Theory and Application, Research Laboratory of Electronics

SYMPOSIUM SITE

The 2005 Progress in Electromagnetics Research Symposium (PIERS) will be held on August 22–26, 2005, at the Conference Center of Zhijiang Hotel, Hangzhou, China. During the symposium, the PIERS Office will be in the Zhijiang Hotel. The PIERS Office will open at 8:00 AM on Monday, August 22, 2005.

REGISTRATION

The PIERS technical sessions begin on Tuesday morning, August 23, 2005 at the conference center of Zhijiang Hotel, Hangzhou, China. You may register in the PIERS office at the Zhijiang Hotel starting Monday, August 22, at 8:00 AM through the symposium to 5:00 PM, August 26, 2005.

The on-site registration fee is US$395. The student registration fee is US$195; a valid student ID is required. If you have pre-registered, your name badge and symposium program will be ready for you to pick up at the registration desk during the symposium. Please wear your name badge throughout the meeting. Access will be prohibited to the exhibition, break, interactive areas, and technical sessions if a name badge is not visible.

SPECIAL EVENTS

Opening Reception

On Monday evening, August 22, 2005, from 6:30 to 8:30 PM, join your PIERS hosts and other participants for an informal opening reception with buffet dinner at the Zhijiang Hotel.

Symposium Banquet

On Wednesday evening, August 24, 2005, a symposium banquet is planned for PIERS participants and their guests. A brief tour around the city is also planned in late afternoon before the Banquet. A limited number of banquet tickets for non-registered participants will be sold on a first-come, first-served basis.

GUIDELINES FOR PRESENTERS

Oral Presentations

Each session room is equipped with a stationary computer connected to a LCD projector (beamer). A standard overhead projector for transparencies is also available. Presenters choosing to use electronic presentation must load their presentation files in advance onto the central PIERS computer in the PIERS office and use the session computer for their presentation. Presenters are not allowed to detach the session computer and attach their own notebook/laptop to the LCD projector.

The PIERS computer is equipped with a USB port and a CD-ROM drive. To load your presentation to the PIERS computer, you may choose the following methods:

- **Before checking in** at the registration desk at conference site, email your presentation slides to PIERS office at tpc@piers.org and/or piers@ewt.mit.edu. Please check with PIERS staff to make sure your slides have been loaded into the PIERS computer.
- **While checking in** at the registration desk at conference site, load your presentation into the PIERS computer.
- **After checking in** at registration desk at conference site, load your presentation at the PIERS Office at least half-day before your session.

A USB flash or CD-ROM can be used to transfer the presentation files (Power Point, Acrobat Reader, Windows Media Player and other main support available) into the PIERS computer. A technician personnel will be available to assist you. Presenters can test their presentation at the PIERS office no later than half-day before their session.

Scheduled time slots for presentation are 20 minute each, including questions and discussions. Presenters are required to report to their session room and to their session Chair at least 10 minutes prior to the start of their session. The session chair must be presented in the session room at least 15 minutes before the start of the session and must strictly observe the starting time and time limit of each paper and refrain from changing paper presentation sequence.

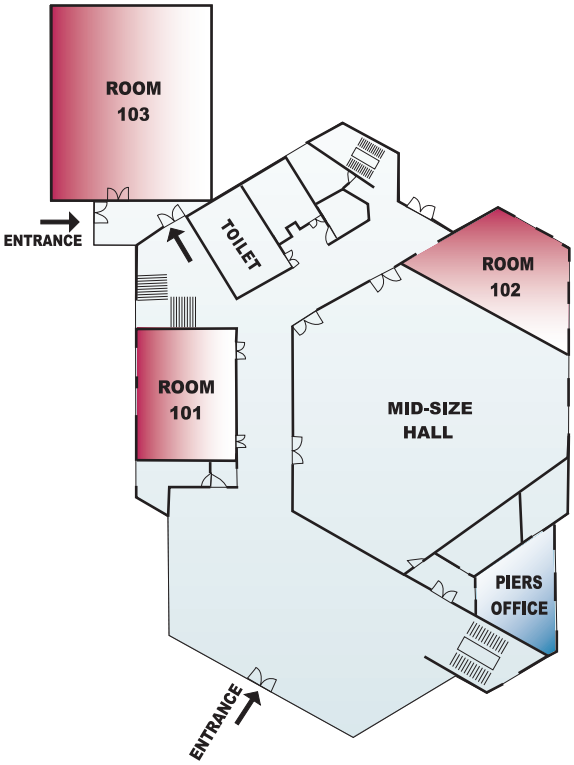
Poster Presentations

Presenters are requested to stand by their posters during their session.

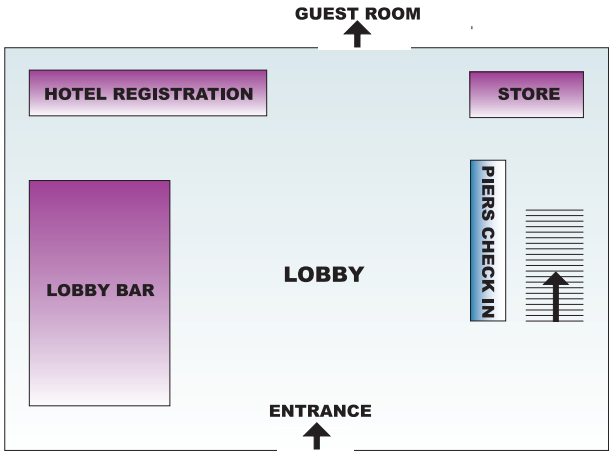
One panel (about 100 x 200 cm) will be available for each poster. Pins or thumbtacks are provided to mount your posters on the board.

The poster session 1 will be 9:00 AM to 11:00 AM and the poster session 2 will be 1:00 PM to 3:00 PM on Wednesday, August 24, 2005. All presenters are required to mount their papers one hour before the session and remove them at the end of their sessions.

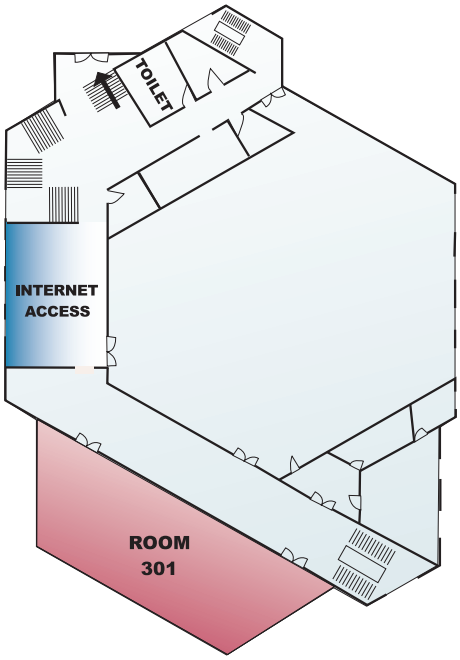
MAP OF CONFERENCE SITE



Hotel Meeting Floor 1



Hotel Lobby



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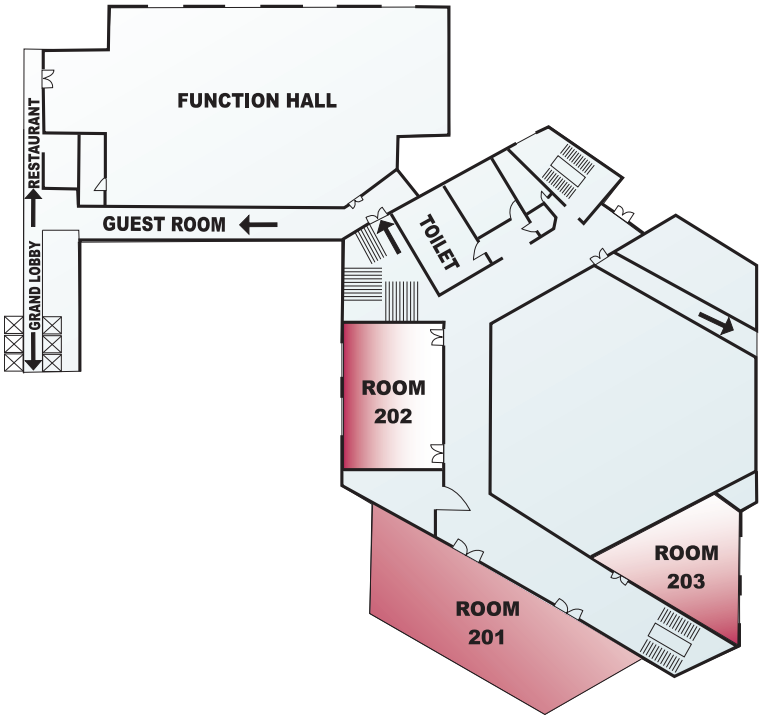

Hotel Meeting Floor 2

GENERAL INFORMATION

SYMPOSIUM VENUE

PIERS 2005 will be held at Zhejiang Conference Center of Zhijiang Hotel Hangzhou, China. The Zhejiang Conference Center is in the south of the main building and is a three-storied auxiliary building, connected with the main building by a joint corridor.

ADD: No.188-200, Moganshan Road, Hangzhou, China
TEL: 86 571 88066888
FAX: 86 571 88064966
WEB: http://www.zj-hotel.com.cn

Seven session rooms and PIERS office for PIERS 2005 are distributed on the conference center in the auxiliary building of Zhijiang Hotel. The Session Rooms: 101, 102, 103 and PIERS Office Room are on the first floor; the Session Rooms: 201, 202, 203 are on the second floor; the Session Room 301 and also an Internet Cafe are on the third floor. Registration desk is located in the Lobby of the main building. The sketch maps are presented on color pages.

ABOUT HANGZHOU

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. In late August, the average temperature is about $30^oC(86^oF)$. 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.

LANGUAGE

The official language for the Symposium is English. However, in the public society, Chinese mandarin is commonly spoken in Hangzhou.

CURRENCY AND CREDIT CARDS

China's currency is RMB with its monetary unit RMB *Yuan*. The exchange rate is 1 USD for about 8 RMB. The credit cards and cash in US dollars are acceptable on the registration desk in Zhijiang Hotel. This is also the case in most large shopping centers and other hotels.

TAX AND TIP

All the shopping is free of tax. Be sure to make big bargaining when buying merchandise from the Street Market. Tipping is by no means a traditional Chinese custom. Please help keep the good custom and do not tip a waiter/waitress or a taxi driver and other person who provides regular service. Take back any change that is rightfully yours.

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.

BUSINESS 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.

INTERNET ACCESS

The standard internet access jacks are provided in the internet cafe which is located in the lounge on the third floor of the conference center.

TOUR DESK

Tour agency supporting PIERS2005, China Hangzhou OTC Travel International LTD., will host a tour desk on site to assist conference guests with arranging day trips and to answer questions about the local area. Your tour reservation can be made via E-mail, Fax. It is highly recommended that your tour reservation be made 45 days prior to your traveling date. For detail information, please visit: http://emacademy.cn/piers2005/tours.html

PIERS 2005 HANGZHOU TECHNICAL PROGRAM

Session 2A1
Advances in Microwave Remote Sensing

Tuesday AM, August 23, 2005

Room 301 (3rd Floor)

Organized by Saibun Tjuatja, Adrian K. Fung
Chaired by Saibun Tjuatja, Adrian K. Fung

08:00 A Comparisons of Model Based and Image Based Surface Parameters Estimation from Polarimetric SAR
Hung-Wei Lee (*National Central University, Taiwan*); *Jong-Sen Lee* (*Naval Research Laboratory, USA*); *Kun-Shan Chen* (*National Central University, Taiwan*); *J. C. Shi* (*University of California, USA*);

08:20 Synthetic Aperture Radar Calibration and Field Experiment Setup
T. S. Lim (*Multimedia University, Malaysia*); *Y. K. Chan* (*Multimedia University, Malaysia*); *V. C. Koo* (*Multimedia University, Malaysia*); *H. T. Ewe* (*Multimedia University, Malaysia*); *H. T. Chuah* (*Multimedia University, Malaysia*);

08:40 A Comparison of Autofocus Algorithms for SAR Imagery
V. C. Koo (*Multimedia University, Malaysia*); *T. S. Lim* (*Multimedia University, Malaysia*); *H. T. Chuah* (*Multimedia University, Malaysia*);

09:00 A Coherent Forest Synthetic Aperture Radar Calculation for PolInSAR Studies
Mark L. Williams (*Defence Science and Technology Organisation, Australia*); *Shane R. Cloude* (*University of Adelaide, Australia*);

09:20 Microwave Sensing and Imaging of Buried Objects
Jonathan Bredow (*University of Texas at Arlington, USA*); *Saibun Tjuatja* (*University of Texas at Arlington, USA*);

09:40 A Scattering Model for Inhomogeneous Medium with Vertical Structural Variation
Saibun Tjuatja (*The University of Texas at Arlington, USA*); *A. K. Fung* (*The University of Texas at Arlington, USA*); *Jonathan Bredow* (*The University of Texas at Arlington, USA*);

10:00 **Coffee Break**

10:20 A Theoretical and Measurement Study of Sea Ice and Ice Shelf in Antarctica as Electrically Dense Media
Mohan Dass Albert (*Multimedia University, Malaysia*); *T. E. Tan* (*Multimedia University, Malaysia*); *H. T. Ewe* (*Multimedia University, Malaysia*); *H. T. Chuah* (*Multimedia University, Malaysia*);

10:40 Theoretical Modeling and Measurement Comparison of Season-long Rice Field Monitoring
J. Y. Koay (*Multimedia University, Malaysia*); *C. P. Tan* (*Multimedia University, Malaysia*); *H. T. Ewe* (*Multimedia University, Malaysia*); *H. T. Chuah* (*Multimedia University, Malaysia*); *Saiful Bahari* (*Malaysian Center for Remote Sensing, Malaysia*);

11:00 Backscattering from Multi-scale and Exponentially Correlated Surfaces
A. K. Fung (*The University of Texas at Arlington, U. S. A.*); *N. C. Kuo* (*The University of Texas at Arlington, U. S. A.*);

11:20 A Generalization of 2D-Simulation to 3D for Isotropically Rough Surfaces
Nathan C. Kuo (*The University of Texas at Arlington, USA*); *A. K. Fung* (*The University of Texas at Arlington, USA*);

11:40 An Application of Sampling Theorem to Moment Method Simulation in Surface Scattering
E. Huang (*The University of Texas at Arlington, USA*); *A. K. Fung* (*The University of Texas at Arlington, USA*);

Session 2A2
Metamaterials in Antenna and Microwave Engineering

Tuesday AM, August 23, 2005

Room 201 (2nd Floor)

Organized by Yang Hao

Chaired by Yang Hao

08:00 A Chiral Route to Negative Refraction
J. B. Pendry (*Imperial College, UK*);

08:20 Directive Beams from Small Apertures Loaded with Negative-Parameter Metamaterials
Andrea Alù (*University of Pennsylvania, USA*); *Nader Engheta* (*Università di Roma Tre, Italy*);

08:40 Near-perfect Tunneling in a Waveguide Filled by a Metamaterial Due to the Amplification of Evanescent Waves
J. D. Baena (*Universidad de Sevilla, Spain*); *L. Jelinek* (*Czech Technical University, Czech Republic*); *R. Marqués* (*Universidad de Sevilla, Spain*); *F. Medina* (*Universidad de Sevilla, Spain*);

09:00 Discussion on Negative Refraction and Perfect Lens
Long Gen Zheng (*Naval University of Engineering, China*); *Wen-Xun Zhang* (*Southeast University, China*);

09:20 Metamaterial Realisation and Its Applications to Antennas
Yang Hao (*University of London, UK*); *S. Sudhakaran* (*University of London, UK*); *D. Nyberg* (*Royal Institute of Technology, Sweden*); *C. Parini* (*University of London, UK*); *H. Cory* (*Technion, Israel*);

09:40 Active Radome Using Controllable Metamaterial
Bae-Ian Wu (*Massachusetts Institute of Technology, USA*); *Hongsheng Chen* (*Zhejiang University, China*); *Lixin Ran* (*Zhejiang University, China*); *Tomasz M. Grzegorczyk* (*Massachusetts Institute of Technology, USA*); *J. A. Kong* (*Massachusetts Institute of Technology, USA*);

10:00 **Coffee Break**

10:20 Application of EBG Materials to Antennas and Absorbers
H. Nakano (*Hosei University, Japan*); *P. Huang* (*Hosei University, Japan*); *Y. Asano* (*Hosei University, Japan*); *K. Hitosugi* (*Hosei University, Japan*); *H. Mimaki* (*Hosei University, Japan*); *J. Yamauchi* (*Hosei University, Japan*); *M. Miyata* (*Mitsumi Electric Co. Ltd, Japan*);

10:40 Canalization of Sub-wavelength Images by Electromagnetic Crystals
P. A. Belov (*Queen Mary University of London, UK*); *C. R. Simovski* (*St. Petersburg State University of Information, Technologies, Mechanics and Optics, Russia*);

11:00 Artificial Magnetic Conductor High Impedance Surface for Compact Directive Antennas
A. Ourir (*Universite Pairs-Sud, France*); *A. de Lustrac* (*Universite Pairs-Sud, France*);

11:20 Optimization of a 500 GHz Receiver Using EBG Technology
I. Ederra (*Universidad Pública de Navarra, Spain*); *R. Gonzalo* (*Universidad Pública de Navarra, Spain*); *B. Martínez* (*Universidad Pública de Navarra, Spain*); *C. Del Río* (*Universidad Pública de Navarra, Spain*); *L. Azcona* (*Rutherford Appleton Laboratory, UK*); *B. Alderman* (*Rutherford Appleton Laboratory, UK*); *P. G. Huggard* (*Rutherford Appleton Laboratory, UK*); *B. P. de Hon* (*Eindhoven University of Technology, The Netherlands*); *M. C. van Beurden* (*Eindhoven University of Technology, The Netherlands*); *A. Murk* (*University of Bern, Switzerland*); *L. Marchand* (*ESTEC, The Netherlands*); *P. de Maagt* (*ESTEC, The Netherlands*);

Session 2A3
Microwave and Millimeter-wave Antennas

Tuesday AM, August 23, 2005

Room 202 (2nd Floor)

Organized by Kin-Fai Tong

Chaired by Kin-Fai Tong

08:20 Probe Feed Stair Shaped Dielectric Resonator Antennas
R. Chair (*University of Mississippi, USA*); *A. A. Kishk* (*University of Mississippi, USA*); *K. F. Lee* (*University of Mississippi, USA*);

08:40 Wideband Aperture Coupled Rectangular Dielectric Resonator Antenna
Bin Li (*City University of Hong Kong, China*); *Kwok Wa Leung* (*City University of Hong Kong, China*);

09:00 A Circularly Polarized Low-Profile Loop Antenna with a Conducting Wall and Ring
H. Nakano, Y. Komine, J. Yamauchi (*Hosei University, Japan*);

09:20 An Unidirectional Magneto-electric Dipole Antenna
K. M. Luk (*City University of Hong Kong, Hong Kong*); *Hang Wong* (*City University of Hong Kong, Hong Kong*);

09:40 Internal Multi-band Antenna for Mobile Handset Applications
Soon-Ho Hwang (*Information and Communications University, Korea*); *Seong-Ook Park* (*Information and Communications University, Korea*);

10:00 **Coffee Break**

10:20 Broadband Low Cross-Polarization Patch Antenna Using A Wideband Balun Feeding Network
Y. X. Guo (*Institute for Infocomm Research, Singapore*); *L. C. Ong* (*Institute for Infocomm Research, Singapore*); *K. M. Luk* (*City University of Hong Kong, Hong Kong*);

10:40 K Band X Type Slot Antenna Design on Silicon Substrate
Xiuping Li (*Beijing University of Posts and Telecommunications, China*); *Hong Wang* (*Nanyang Technological University, Singapore*); *Junhui Zhao* (*Macao University of Science and Technology, Macao*);

11:00 Performance of Millimeter-wave Coplanar Patch Antennas on Low-k Materials
K. F. Tong (*University College London, United Kingdom*); *K. Li* (*National Institute of Information and Communications Technology, Japan*); *T. Matsui* (*National Institute of Information and Communications Technology, Japan*);

11:20 A Bandwidth Enhancement Technique for Rectangular Microstrip Patch Antennas
Zaiyu Li (*Chong Qing Three Gorges University, China*);

11:40 PBG Cells for the Harmonic Suppression of Microstrip Patch Antenna
Se-Hwan Choi (*Korea Electronics Technology Institute, Korea*); *Ho-Jun Lee* (*Korea Electronics Technology Institute, Korea*); *Jong-Kyu Kim* (*Korea Electronics Technology Institute, Korea*);

Session 2A4
Microwave and Optical Devices

Tuesday AM, August 23, 2005

Room 203 (2nd Floor)

Organized by Rodica Ramer

Chaired by Rodica Ramer, Gang-Ding Peng

08:20 Antenna Analysis Using Wavelet Representations
Thomas Herzberg (*University of New South Wales, Australia*); *Rodica Ramer* (*University of New South Wales, Australia*); *Stuart Hay* (*CSIRO ICT Centre, Australia*);

08:40 Numerical Analysis of Wave Instability in Nonlinear Ferrite Structure Using Bifurcation Points of the Nonlinear Maxwell's Operator
G. S. Makeeva (*Penza State University, Russia*); *O. A. Golovanov* (*Penza Military Institute of Artillery, Russia*); *M. Pardavi-Horvath* (*The George Washington University, USA*);

09:00 Mutual Coupling Effect on Thermal Noise in Multi-Element Antenna Systems
Snezana Krusevac (*University of NSW, Australia*); *Predrag Rapajic* (*University of NSW, Australia*); *Rodney Kennedy* (*ANU and NICTA, Australia*);

09:20 Realization of Novel Dual-Mode Bandpass Filter
A. S. Shen (*University of New South Wales, Australia*); *G. M. Banciu* (*National Institute of Materials Physics, Romania*); *Rodica Ramer* (*University of New South Wales, Australia*); *A. Ioachim* (*National Institute of Materials Physics, Romania*); *R. Mansour* (*University of Waterloo, Canada*);

09:40 Designing Optical Switches Based on Silica Multimode Interference Devices
Zhe Jin (*The University of New South Wales, Australia*); *Gangding Peng* (*The University of New South Wales, Australia*);

10:00 **Coffee Break**

10:20 Designing Weakly Guiding Multimode Interference Devices Using Self-imaging Theory
Zhe Jin (*The University of New South Wales, Australia*); *Gangding Peng* (*The University of New South Wales, Australia*);

10:40 Ytterbium-Codoping in Thulium Doped Silica Fiber
Jun Chang (*the University of New South Wales, Australia*); *Gangding Peng* (*the University of New South Wales, Australia*); *Qing-Pu Wang* (*Shandong University, China*);

11:00 RF Signal Distribution over Polymer Optical Fiber
Tao Jia (*Zhejiang University, China*); *Shilie Zheng* (*Zhejiang University, China*); *Xianmin Zhang* (*Zhejiang University, China*); *Xinyu Jin* (*Zhejiang University, China*); *Jian Xu* (*Institute of Chemistry, Chinese Academy of Sciences, China*);

11:20 All-optical Microwave Mixers Using Stimulated Brillouin Scattering
Yichun Shen (*Zhejiang University, China*); *Guofeng Shen* (*Zhejiang University, China*); *Xianmin Zhang* (*Zhejiang University, China*);

11:40 Photonic Microwave Filter Synthesis Using Tabu Algorithm
Jinyue Lu (*Zhejiang University, China*); *Hao Chi* (*Zhejiang University, China*); *Xianmin Zhang* (*Zhejiang University, China*);

Session 2A5
Computational Electromagnetics–Recent Advances

Tuesday AM, August 23, 2005

Room 103 (1st Floor)

Organized by W. C. Chew

Chaired by W. C. Chew, T. J. Cui

08:00 Advanced Numerical Techniques for Large PEC Cavity Modeling
C. F. Wang (*National University of Singapore, Singapore*); *Y. Xu* (*National University of Singapore, Singapore*); *F. G. Hu* (*National University of Singapore, Singapore*); *Yeow Beng Gan* (*National University of Singapore, Singapore*);

08:20 Broad-Band MLFMA and Plane-wave Expansions of the Green's Function
H. Wallén (*Helsinki University of Technology, Finland*); *J. Sarvas* (*Helsinki University of Technology, Finland*);

08:40 Scattering and Radiation Modeling Using Hybrid Integral Equation Approach and Mixed Mesh Element Discretization
Cai-Cheng Lu (*University of Kentucky, USA*); *Zhiyong Zeng* (*University of Kentucky, USA*);

09:00 Simulating Antennas on Complex Platforms
W. C. Chew (*University of Illinois, USA*); *I. T. Chiang* (*University of Illinois, USA*); *M. K. Li* (*University of Illinois, USA*); *G. Sorenson* (*University of Illinois, USA*); *A. Hesford* (*University of Illinois, USA*); *Y. Liu* (*University of Illinois, USA*); *Z. G. Qian* (*University of Illinois, USA*); *M. S. Tong* (*University of Illinois, USA*); *L. J. Jiang* (*IBM, USA*); *H. Y. Chao* (*NCTU, Taiwan*); *Y. H. Chu* (*Agilent, USA*); *S. Ohnuki* (*Nihon University, Japan*); *V. Bodrov* (*GM, USA*); *H. P. Hsu* (*HRL, USA*); *J. Song* (*HRL, USA*);

09:20 Modified C-PMCHW Formulation for Scattering from Dielectric Coated PEC Bodies
Jian Feng Zhang (*Southeast University, China*); *T. J. Cui* (*Southeast University, China*);

09:40 The Time-domain Finite Element Method for Electromagnetic Analysis
J.-M. Jin (*University of Illinois at Urbana-Champaign, USA*); *D. Jiao* (*University of Illinois at Urbana-Champaign, USA*); *Z. Lou* (*University of Illinois at Urbana-Champaign, USA*); *R. Petersson* (*University of Illinois at Urbana-Champaign, USA*);

10:00 **Coffee Break**

10:20 A Domain Decomposition Symmetric FEM-BEM Formulation, Free of Internal Resonances, for Solving Electromagnetic Problems
Seung Mo Seo (*The Ohio State University, USA*); *Kezhong Zhao* (*The Ohio State University, USA*); *Marinos N. Vouvakis* (*The Ohio State University, USA*); *Jin-Fa Lee* (*The Ohio State University, USA*);

10:40 Preconditioned Iterative Solution of the Combined-field Integral Equation with the MLFMA
Levent Gürel (*Bilkent University, Turkey*); *""Ozgür Ergül* (*Bilkent University, Turkey*); *Tahir Malas* (*Bilkent University, Turkey*);

11:00 Numerical Solutions of Random Rough Surface Scattering Problems Using the UV/SMCG Method
Peng Xu (*City University of Hong Kong, China*); *Leung Tsang* (*University of Washington, USA*);

11:20 A Strategy for Parallel Implementation of the FDTD Algorithm Using the Grid-enabled MPI
Juan Du (*East China Normal University, China*); *Shouzheng Zhu* (*East China Normal University, China*);

11:40 Scattering of Electromagnetic Waves from Vibrating Perfect Surfaces: Simulation Using Relativistic Boundary Conditions
Mingtsu Ho (*WuFeng Institute of Technology, Taiwan*);

Session 2A6
Electromagnetic Modeling and Inversion (Faraday)

Tuesday AM, August 23, 2005

Room 102 (1st Floor)

Organized by Ganquan Xie, Yanzhong Luo

Chaired by Ganquan Xie, Yanzhong Luo, Michael Oristaglio

08:00 New Global and Local Electromagnetic Field Modeling and Inversion
Ganquan Xie (*GL Geophysical Laboratory, USA*); *Jianhua Li* (*GL Geophysical Laboratory, USA*); *Feng Xie* (*GL Geophysical Laboratory, USA*);

08:20 New Topography Inversion Using EM Field
Baiyao Ruan (*Guilin University of Technology, China*); *Youxue Wang* (*Guilin University of Technology, China*);

08:40 A Laser Gauge Blocks Using GL Electromagnetic Filed
Kuoyi Chang (*National Huwei University of Sciences &Technology, Taiwan*); *Jianhua Li* (*GL Geophysical Laboratory, USA*);

09:00 The Manufacturing and Analysis for the Calibration System of the Precision Square
Kuoyi Chang (*National Huwei University of Sciences & Technology, Taiwan*);

09:20 Simulation of the Grounding Grid by Coupling the Unidemensional Finite Element Method(FEM) and the Three-dimensional FEM
Yan Gan (*Wuhan University, China*); *Jiang Jun Ruan* (*Wuhan University, China*);

09:40 A New Novel Means of Transducing Tensile Stresses
Wei-Chih Wang (*University of Washington at Seattle, USA*); *Chi-Ting Ho* (*National Formosa University, Taiwan*); *Yi-Ru Lian* (*National Taiwan University of Science and Technology, Taiwan*); *Ching-Kong Chao* (*National Taiwan University of Science and Technology, Taiwan*); *Ruey Fang Shyu* (*National Formosa University, Taiwan*); *Wei-Ching Chuang* (*National Formosa University, Taiwan*);

10:00 **Coffee Break**

10:20 A New Method to Fabricate Polymer Waveguides
Wei-Ching Chuang (*National Formosa University, Taiwan*); *Chi-Ting Ho* (*National Formosa University, Taiwan*); *Ruey Fang Shyu* (*National Formosa University, Taiwan*);

10:40 Hard Magnetic Material for Perpendicular Magnetic Anisotropic Field in Electromagnetic Actuator Fabrication
Ruey Fang Shyu (*Department of Mechanical Manufacturing Engineering, National Formosa University, Taiwan*); *H. Yang* (*Institute of Precision Engineering, National Chung Hsing University, Taiwan*); *C.-T. Pan* (*Department of Mechanical and Electro-Mechanical Engineering, National Sun Yat-Sen University, Taiwan*); *Peter Tsai* (*IDEC Taiwan Corporation, Taiwan*);

11:00 Optimal Design of Matched Load by Immune Micro Genetic Algorithm
Yubo Tian (*Jiangsu University of Science and Technology, China*); *Jian Qian* (*Nanjing University, China*); *Fei Meng* (*Jiangsu University of Science and Technology, China*);

11:20 Advanced GILD EM Modeling And Inversion
Ganquan Xie (*GL Geophysical Laboratory, U.S.A.*); *Jianhua Li* (*GL Geophysical Laboratory, U.S.A.*); *Feng Xie* (*GL Geophysical Laboratory, U.S.A.*);

11:40 Manufacturing of Micro Tungsten Carbide Electrode Using Supersonic Aided Electrolysis
Feng-Tsai Weng (*National Huwei University of Science and Technology, Taiwan*);

Session 2A7
Microwave Dielectric Measurements

Tuesday AM, August 23, 2005

Room 101 (1st Floor)

Organized by Biju Kumar Sreedharan Nair

Chaired by Biju Kumar Sreedharan Nair

08:20 Anisotropic Vortex Dynamics Related to Screening Currents and Microwave Currents under Magnetic Fields on High Tc Superconductors
Tamio Endo (*Mie University, Japan*); *Hong Zhu* (*Mie University, Japan*); *Takahisa Sakurada* (*Mie University, Japan*); *Ajay K. Sarkar* (*Mie University, Japan*); *Masanori Okada* (*Mie University, Japan*); *Hirofumi Yamasaki* (*National Institute of AIST, Japan*); *Kazuhiro Endo* (*National Institute of AIST, Japan*); *M. Shahabuddin* (*University of Jamia Millia Islamia, India*);

08:40 Effect of Particle Size on the Microwave Dielectric & Mechanical Properties of PTFE-ceramic Based Compsite Substrates
R. Ratheesh (*Government of India, India*); *S. N. Potty* (*Government of India, India*); *K. P. Murali* (*Government of India, India*); *V. Priyadarshini* (*Government of India, India*); *P. Mohanan* (*Cochin University of Science & Technology, India*);

09:00 Novel Low Loss Temperature Stable Ca5-xZnx Nb2TiO12 Dielectrics
P. V. Bijumon (*Regional Research Laboratory, India*); *M. T. Sebastian* (*Regional Research Laboratory, India*); *Sreedevi K Menon* (*Cochin University of Science & Technology, India*); *P. Mohanan* (*Cochin University of Science & Technology, India*);

09:20 Microwave Heating and Quasi-simultaneous Measurement of Temperature Dependent Dielectric Parameters
S. B. Kumar (*University of Huddersfield, U.K.*); *G. M. B. Parkes* (*University of Huddersfield, U.K.*); *P. A. Barnes* (*University of Huddersfield, U.K.*); *M. J. N. Sibley* (*University of Huddersfield, U.K.*); *G. Bond* (*University of Central Lancashire, U.K.*);

09:40 A Novel Technique for Localizing the Scatterer in Inverse Profiling of Two Dimensional Circularly Symmetric Dielectric Scatterers Using Degree of Symmetry and Neural Networks
Vinu Thomas (*Cochin University of Science and Technology, India*); *C. Gopakumar* (*Cochin University of Science and Technology, India*); *Jaimon Yohannan* (*Cochin University of Science and Technology, India*); *Anil Lonappan* (*Cochin University of Science and Technology, India*); *G. Bindu* (*Cochin University of Science and Technology, India*); *A. V. Praveen Kumar* (*Cochin University of Science and Technology, India*); *V. Hamsakutty* (*Cochin University of Science and Technology, India*); *K. T. Mathew* (*Cochin University of Science and Technology, India*);

10:00 **Coffee Break**

10:20 Synthesis of Dielectric Resonator for Microwave Filter Designing
Jaimon Yohannan (*Cochin University of Science and Technology, India*); *A. V. Praveen Kumar* (*Cochin University of Science and Technology, India*); *V. Hamsakutty* (*Cochin University of Science and Technology, India*); *Vinu Thomas* (*Cochin University of Science and Technology, India*); *K. T. Mathew* (*Cochin University of Science and Technology, India*);

10:40 The Determination of Scattering Parameters of Microwave Networks with Nonstandard Connectors and Its Applications
Ping Chen (*Nanjing University, China*); *Wenfeng Guo* (*Nanjing University, China*); *Ruixin Wu* (*Nanjing University, China*); *Jian Qian* (*Nanjing University, China*);

11:00 Electrical Properties of Biological Materials at Microwave Frequencies
S. B. Kumar (*University of Huddersfield, U.K.*); *J. Jacob* (*Newman College, India*); *K. T. Mathew* (*Cochin University of Science and Technology, India*);

11:20 Electromagnetic Characterization of Concrete over 1 GHz for Subsurface Radar Applications
M. Adous (*LEST-UMR CNRS 6165, France*); *P. Queffelec* (*LEST-UMR CNRS 6165, France*); *X. Derobert* (*LCPC de Nantes, France*); *J. L. Mattei* (*LEST-UMR CNRS 6165, France*); *L. Laguerre* (*LCPC de Nantes, FRANCE*); *V. Baltazart* (*LCPC de Nantes, France*);

Session 2P1a
Synergy in Passive and Active Electromagnetic Sensing

Tuesday PM, August 23, 2005

Room 301 (3rd Floor)

Organized by Eni Njoku, Simon Yueh

Chaired by Eni Njoku, Simon Yueh

13:40 Polarimetric Microwave Remote Sensing of Ocean Surface Vector Winds
Simon Yueh (*California Institute of Technology, USA*); *William J. Wilson* (*California Institute of Technology, USA*); *S. Vincent Hsiao* (*Jet Propulsion Laboratory, California Institute of Technology, USA*);

14:00 A Comparison of Radar and Radiometer Responses to Soil Moisture at L-band Using Simulations and Experimental Data
Eni Njoku (*California Institute of Technology, USA*); *Tsz K. Chan* (*California Institute of Technology, USA*);

14:20 A Combined Radar and Radiometer Concept for a Next-Generation Surface-to-Depth Soil Moisture Mission
M. Moghaddam (*University of Michigan, USA*); *Y. Rahmat-Samii* (*University of California, USA*); *Eni Njoku* (*Jet Propulsion Laboratory, USA*); *E. Rodriguez* (*Jet Propulsion Laboratory, USA*); *D. Entekhabi* (*Massachusetts Institute of Technology, USA*);

14:40 A Simple Method for Spatial Disaggregation of Radiometer Derived Soil Moisture Using Higher Resolution Radar Observations
Ujjwal Narayan (*University of South Carolina, Taiwan*); *Venkat Lakshmi* (*University of South Carolina, Taiwan*);

15:00 **Coffee Break**

Session 2P1b
Techniques in Microwave Remote Sensing of Snow and Soil Moisture

Tuesday PM, August 23, 2005

Room 301 (3rd Floor)

Organized by Jiancheng Shi, Leung Tsang

Chaired by Jiancheng Shi, Leung Tsang

15:20 A Simplified Soil Moisture Inversion Model Based on IEM over Bare Soil from ERS Wind Scattermeter Data
Jianming Wang (*Institute of Remote Sensing Applications, CAS, China*); *J. C. Shi* (*University of California, USA*); *Wei Liu* (*University of California, USA*);

15:40 Monitoring of Seasonal Snow in Finland with Passive and Active Microwave Sensors
Martti Hallikainen (*Helsinki University of Technology, Finland*); *Panu Lahtinen* (*Helsinki University of Technology, Finland*); *Matias Takala* (*Helsinki University of Technology, Finland*); *Jouni Pulliainen* (*Helsinki University of Technology, Finland*);

16:00 Dense Media Scattering, Absorption and Emission in Snow Based on Numerical Maxwell Model of 3 Dimensional Simulations (NMM3D)
Kaki Tse (*City University of Hong Kong, Hong Kong*); *Zhongxi Li* (*City University of Hong Kong, Hong Kong*); *Yunhua Tan* (*City University of Hong Kong, Hong Kong*); *Leung Tsang* (*University of Washington, USA*); *C. H. Chan* (*City University of Hong Kong, Hong Kong*);

16:20 Study of Snow Water Equivalence Inversion Technique with Experimental Data
Lingmei Jiang (*University of California, USA*); *Jiancheng Shi* (*University of California, USA*);

16:40 Snow Water Equivalence Retrieval Using Dual-Frequency and Polarization Ku-Band Radar
Jiancheng Shi (*University of California, Santa Barbara, USA*);

17:00 Estimation of Snow Wetness Using Multi-polarized SAR Data in C Band
Qin Yu (*Institute of Remote Sensing Applications, CAS, China*); *Jiancheng Shi* (*California Institute of Technology, USA*);

17:20 The Development of Geometry-optics Method for Vegetation Single Scattering Albedo
Zhongjun Zhang (*Beijing Normal University, China*); *Min Chen* (*Beijing Normal University, China*);

17:40 Multifrequency Microwave Radiometry of the Snow Melting Cycle and the Retrieval of Snow Water Equivalent
P. Pampaloni (*IFAC-CNR, Italy*); *M. Brogioni* (*IFAC-CNR, Italy*); *G. Macelloni* (*IFAC-CNR, Italy*); *S. Paloscia* (*IFAC-CNR, Italy*); *R. Ranzi* (*University of Brescia, Italy*);

Session 2P2
Selected Topics in Metamaterials and Plasmonic Media

Tuesday PM, August 23, 2005

Room 201 (2nd Floor)

Organized by Said Zouhdi, Nader Engheta

Chaired by Said Zouhdi, Nader Engheta

13:00 Nano-Concentration of Optical Energy in Graded Nanoplasmonic Waveguides
Mark I. Stockman (*Georgia State University, USA*);

13:20 Sub Wavelength Focussing Using Silver Nanolayers
J. B. Pendry (*Imperial College London, UK*);

13:40 Series and Parallel Arrangements of Optical Nanocircuit Elements
Nader Engheta (*University of Pennsylvania, USA*); *Alessandro Salandrino* (*University of Pennsylvania, USA*); *Andrea Alù* (*University of Pennsylvania, USA*);

14:00 Homogenization of 3D Structured Composites of Complex Shaped Inclusions
O. Ouchetto (*Laboratoire de Génie Electrique de Paris LGEP-Supélec, France*); *Said Zouhdi* (*Laboratoire de Génie Electrique de Paris LGEP-Supélec, France*); *A. Bossavit* (*Laboratoire de Génie Electrique de Paris LGEP-Supélec, France*); *G. Griso* (*Université Pierre et Marie Curie, France*); *B. Miara* (*ESIEE, Laboratoire de Modélisation et Simulation Numérique, France*);

14:20 Homogenization Methods for Negative Index Media
Vasundara V. Varadan (*University of Arkansas, USA*);

14:40 Free-Space Electromagnetic Characterization of Materials for Microwave and Radar Applications
Habiba Hafdallah Ouslimani (*University Paris X, France*); *Redha Abdeddaim* (*University Paris X, France*); *A. Priou* (*University Paris X, France*);

15:00 **Coffee Break**

15:20 DNG-NRD Directional Couplers
António L. Topa (*Instituto Superior Técnico, Portugal*); *Carlos R. Paiva* (*Instituto Superior Técnico, Portugal*); *Afonso M. Barbosa* (*Instituto Superior Técnico, Portugal*);

15:40 The Surface Wave Modes Coupling on the Boundary of Metamaterial
G. Granet (*Universite Blaise Pascal, France*); *A. Poyedinchuk* (*IRE NAS of Ukraine, Ukraine*); *N. Yashina* (*IRE NAS of Ukraine, Ukraine*);

16:00 Higher-order Resonant Modes of a Metasolenoid
L. Jylhä (*Helsinki University of Technology, Finland*); *Stanislav Maslovski* (*Helsinki University of Technology, Finland*); *S. A. Tretyakov* (*Helsinki University of Technology, Finland*);

16:20 THz Spectroscopy and Ellipsometry of Magnetic Metamaterials
W. J. Padilla (*Los Alamos National Laboratory, USA*); *Ta Jen Yen* (*University of California at Los Angeles, USA*); *N. Fang* (*University of California at Los Angeles, USA*); *D. C. Vier* (*University of California San Diego, USA*); *David R. Smith* (*Department of Electrical & Computer Engineering, UK*); *J. B. Pendry* (*Imperial College, UK*); *X. Zhang* (*University of California at Los Angeles, USA*); *D. N. Basov* (*University of California San Diego, USA*);

16:40 Perfect Electromagnetic Conductor (PEMC) in Electromagnetics
I. V. Lindell (*Helsinki University of Technology, Finland*); *A. Sihvola* (*Helsinki University of Technology, Finland*);

17:00 Scattering Properties of PEMC (Perfect Electromagnetic Conducting) Materials
A. Sihvola (*Helsinki University of Technology, Finland*); *I. V. Lindell* (*Helsinki University of Technology, Finland*); *P. Yla-Oijala* (*Helsinki University of Technology, Finland*);

17:20 Negative Refraction of Magnetic Metamaterial
Yanyan Liu (*University of Delaware, USA*); *Xiaokai Zhang* (*University of Delaware, USA*); *Michael Border* (*University of Delaware, USA*); *Rong Cao* (*University of Delaware, USA*); *John Q. Xiao* (*University of Delaware, USA*);

17:40 Conception, Simulation and Characterization of a Controllable Left-handed Material
A. Djermoun (*Université Paris X, France*); *A. de Lustrac* (*Université Pairs-Sud, France*); *F. Gadot* (*Université Paris-Sud, France*); *E. Akmansoy* (*Université Paris-Sud, France*);

18:00 An Analysis of Dispersion Relations for Left Hand Media Exhibiting Backward Wave Propagation
J. F. Woodley (*Univ. of Toronto, Canada*); *M. Mojahedi* (*Univ. of Toronto, Canada*);

Session 2P3a
Array Antennas

Tuesday PM, August 23, 2005

Room 202 (2nd Floor)

Chaired by Kai-Fong Lee, Ahmed A. Kishk

13:00 Large Finite Array Performance Prediction from Small Array Results
A. A. Kishk (*University of Mississippi, USA*);

13:20 A New Hybrid Method for the Analysis of Radome Enclosed Slot Antenna/Arrays
Xiao-Chun Nie (*National University of Singapore, Singapore*); *Yeow Beng Gan* (*National University of Singapore, Singapore*); *Ning-Yuan* (*National University of Singapore, Singapore*); *Le-Wei Li* (*National University of Singapore, Singapore*);

13:40 Scattering from Waveguide-Fed Planar Slot Arrays
Sembiam R. Rengarajan (*California State University, USA*);

14:00 Sparsity Analysis of Two-Dimensional Ultra-Wideband Focused Array
Ayman Al-Zayed (*Kuwait University, Kuwait*); *Malek G. M. Hussain* (*Kuwait University, Kuwait*);

14:20 Experimental System of a Wideband Optically Controlled Phased Array Antenna
Mou-Ping Jin (*East China Research Institute of Electronic Engineering, China*); *Wei Guan* (*East China Research Institute of Electronic Engineering, China*); *Mei-Qing Qi* (*East China Research Institute of Electronic Engineering, China*); *Jun Guo* (*East China Research Institute of Electronic Engineering, China*);

14:40 Switched Parasitic Yagi-uda Diversity Antenna for MIMO Base Station
Yan Cheng (*University of Electronic Science and Technology of China, China*); *Xi-Yu Zhang* (*University of Electronic Science and Technology of China, China*); *Zaiping Nie* (*University of Electronic Science and Technology of China, China*); *Wei-Hong Xiao* (*University of Electronic Science and Technology of China, China*);

15:00 **Coffee Break**

Session 2P3b
Dielectric Waveguides and Antennas

Tuesday PM, August 23, 2005

Room 202 (2nd Floor)

Organized by Kemin Sheng

Chaired by Anjan Biswas, Dongxiao Yang

15:20 A New Design for Terahertz Photonic Crystal Fiber Using the Finite-Difference Time-domain Method
Liang Wang (*Zhejiang University, P. R. China*); *Dongxiao Yang* (*Zhejiang University, P. R. China*); *Qing Chang* (*Zhejiang University, P. R. China*);

15:40 Study of Broadband Dielectric Resonator Antennas
Qinjiang Rao (*University of Quebec, Canada*); *Tayeb A. Denidni* (*University of Quebec, Canada*);

16:00 Design of A DGPS Beacon Active Receiving Antenna
Da-Fang Yi (*Southwest China Institute of Electronics Technology, China*); *Tianxin Xiong* (*Southwest Jiaotong University, China*); *Kemin Sheng* (*Southwest Jiaotong University, China*);

16:20 The High-Mode-Merging Technique for Dielectric Waveguides
Jinsheng Tang (*Southwest Jiaotong University, China*); *Kemin Sheng* (*Southwest Jiaotong University, China*); *Jun Gao* (*Southwest Jiaotong University, China*);

16:40 Properties of Focused Flat-topped Multi-Gaussian Laser Beam by a Lens with Spherical Aberration
Xiqing Wang (*Southwest Jiaotong University, China*); *Qingfeng Wang* (*Southwest Jiaotong University, China*); *Qing Huang* (*Southwest Jiaotong University, China*);

17:00 Propagation Characteristics of Confocal Elliptical Coaxial Lines Filled with Multilayered Media
Tianxin Xiong (*Southwest Jiaotong University, China*); *Rugui Yang* (*Southwest Jiaotong University, China*);

17:20 Propagation Characteristics of Elliptical Waveguide Filled with Multilayered Confocal Chiral Mediums
Tianxin Xiong (*Southwest Jiaotong University, China*); *Rugui Yang* (*Southwest Jiaotong University, China*); *Kemin Sheng* (*Southwest Jiaotong University, China*);

17:40 Propagation Properties of Flat-topped Multi-gaussian Laser Beams Passing through ABCD Optical System
Li Wang (*Southwest Jiaotong University, China*); *Qingfeng Wang* (*Southwest Jiaotong University, China*); *Xiqing Wang* (*Southwest Jiaotong University, China*);

Session 2P4
Scattering and Radiative Transfer: Basic Research and Applications 1

Tuesday PM, August 23, 2005

Room 203 (2nd Floor)

Organized by Ping Yang, Warren Wiscombe

Chaired by David M Winker, Yongxiang Hu

13:00 Landmarks in the Development of the 3D Cloud Radiation Field since 1970
Warren Wiscombe (*NASA Goddard Space Flight Center, USA*);

13:20 Effects of Multiple Scattering on Lidar Signals and Influences of Particle Characteristics
David M Winker (*NASA Langely Research center, Virginia*);

13:40 Towards Generalized Boundary Conditions in DISORT
I. Laszlo (*National Oceanic and Atmospheric Administration, USA*); *Warren Wiscombe* (*National Aeronautics and Space Administration, USA*); *S-C. Tsay* (*National Aeronautics and Space Administration, USA*); *K. Stamnes* (*Stevens Institute of Technology, USA*);

14:00 Evaluation of an Improved Parameterization of Radiative Properties of Clouds Using Cloud Model Simulations and Earth Observing System Satellite Observations
Kuan-Man Xu (*NASA Langley Research Center, USA*); *Yali Luo* (*National Institute of Aerospace, USA*); *Ping Yang* (*Texas A& M University, USA*);

14:20 Small-scale Drop Size Variability: Empirical Models for Drop-size-dependent Clustering and Its Impact on Estimation of Cloud Optical Properties
Alexander Marshak (*NASA/GSFC, Climate and Radiation Branch, USA*); *Yuri Knyazikhin* (*Boston University, USA*); *Michael Larsen* (*Michigan Technological University, USA*); *Warren Wiscombe* (*NASA/GSFC, Climate and Radiation Branch, USA*);

14:40 Effects of Aerosol Size Distribution and Vertical Profile on the Polarization Spectra in the Oxygen A-band
Qilong Min (*State University of New York at Albany, USA*); *Minzheng Daun* (*State University of New York at Albany, USA*);

15:00 **Coffee Break**

15:20 Approximation of Single-Scattering Properties of Ice and Snow Particles for High Microwave Frequencies
Guosheng Liu (*Florida State University, USA*);

15:40 Accounting for Unresolved Clouds in a 1D Solar Radiative Transfer Model
Jiangnan Li (*University of Victoria, Canada*);

16:00 The Radiative Characteristics of Ice-over-water Cloud Systems
J. Huang (*Lanzhou University, China*); *B. Lin* (*NASA Langley Research Center, USA*); *P. Minnis* (*NASA Langley Research Center, USA*); *Y. Yi* (*Analytical Service & Material Inc., USA*); *T. F. Fan* (*SAIC, One Enterprise Parkway, USA*); *R. Arduini* (*SAIC, One Enterprise Parkway, USA*);

16:20 A Monte Carlo Simulation Study of the Polarimetric Signature of Stochastic Media
Yongxiang Hu (*NASA Langely Research Center, USA*);

16:40 On the Scattering and Absorption Properties of Nonspherical Ice Crystals in the Earth's Atmosphere
Ping Yang (*Texas A & M University, USA*); *K. N. Liou* (*University of California, USA*); *Bryan A. Baum* (*NASA Langley Research Center, U.S.A.*); *Yongxiang Hu* (*NASA Langley Research Center, U.S.A.*);

17:00 A New Approach to Solve Correlated k-Distribution Function
Hua Zhang (*National Climate Center, China*); *Guangyu Shi* (*Institute of Atmospheric Physics, China*);

17:20 Application of a Vector Radiative Transfer Model in Satellite Remote Sensing of Aerosol Optical Properties over Land
Xuehua Fan (*Institute of Atmospheric Physics, CAS, China*); *Hongbin Chen* (*Institute of Atmospheric Physics, CAS, China*); *Zhigang Han* (*Beijing Institute of Applied Meteorology, China*); *Philippe Goloub* (*University of Sciences and Technology of Lille, France*);

Session 2P5a
Inverse Scattering Methods for Imaging and Structure Synthesis

Tuesday PM, August 23, 2005

Room 103 (1st Floor)

Organized by Michael A. Fiddy

Chaired by Michael A. Fiddy

13:20 Minimum Phase and Inverse Scattering
Mike A. Fiddy (*University of North Carolina, USA*);

13:40 Synthetic Spectra from Rough Surface Scattering
A. A. Maradudin (*University of California, USA*); *T. A. Leskova* (*University of California, USA*); *W. Zierau* (*Westfaelische Wilhelms-Universitaet Muenster, Germany*);

14:00 A Modified Perturbation Method for Three-Dimensional Time Harmonic Impedance Tomography
D. G. Drogoudis (*Democritus University of Thrace, Greece*); *G. C. Trichopoulos* (*Democritus University of Thrace, Greece*); *G. A. Kyriacou* (*Democritus University of Thrace, Greece*); *J. N. Sahalos* (*Aristotle University of Thessaloniki, Greece*);

Session 2P5b
FDTD

Tuesday PM, August 23, 2005

Room 103 (1st Floor)

Chaired by Jin-Fa Lee, Xin-Qing Sheng

14:20 On the Essential Reason of Numerical Reflection from the PML
Yong Zhang (*Huazhong University of Science and Technology, China*); *K. R. Shao* (*Huazhong University of Science and Technology, China*); *X. W. Hu* (*Huazhong University of Science and Technology, China*); *J. D. Lavers* (*University of Toronto, Canada*);

14:40 The Real-world Performance of Staircased and Conformal ADI-FDTD
H. Songoro (*Schmid & Partner Engineering AG, Switzerland*); *S. Benkler* (*Foundation for Research on Information Technologies in Society, Switzerland*); *N. Chavannes* (*Foundation for Research on Information Technologies in Society, Switzerland*); *P. Futter* (*Schmid & Partner Engineering AG, Switzerland*);

15:00 **Coffee Break**

15:20 Transient Propagation in Media with a Negative Refractive Index Simulated by ADI-FDTD Method
Hong-Xing Zheng (*Tianjin University, China*); *Dao-Yin Yu* (*Tianjin University, China*);

15:40 Modeling and Simulation of Optical Planar Chirality by ADI-FDTD Algorithm
Hong-Xing Zheng (*Tianjin University, China*);

16:00 High Frequency Crosstalk Analysis of PCB Layouts Using FDTD Method
C. N. Pai (*National Cheng Kung University, Taiwan*); *J. H. Chou* (*National Cheng Kung University, Taiwan*);

16:20 The Iterative Multi-Region Technique Based on the FDFD Method for Electromagnetic Scattering from Multiple Three Dimensional Objects
Mohamed H. Al Sharka (*University of Mississippi, USA*); *Veysel Demir* (*University of Mississippi, USA*); *Atef Z. Elsherbeni* (*University of Mississippi, USA*);

16:40 Automated and Robust Conformal Mesher for Complex Conformal FDTD Applications
S. Benkler (*Foundation for Research on Information Technologies in Society, Switzerland*); *H. Songoro* (*Foundation for Research on Information Technologies in Society, Switzerland*); *N. Chavannes* (*Foundation for Research on Information Technologies in Society, Switzerland*); *N. Kuster* (*Foundation for Research on Information Technologies in Society, Switzerland*);

17:00 An Upwind Leapfrog Scheme for Computational Electromagnetics: CL-FDTD
Yong Zhang (*Huazhong University of Science and Technology, China*); *K. R. Shao* (*Huazhong University of Science and Technology, China*); *X. W. Hu* (*Huazhong University of Science and Technology, China*); *J. D. Lavers* (*University of Toronto, Canada*);

Session 2P6
Electromagnetic Modeling and Inversion (Maxwell)

Tuesday PM, August 23, 2005

Room 102 (1st Floor)

Organized by Ganquan Xie, Yanzhong Luo

Chaired by Ganquan Xie

13:00 Simultaneous Inversion of Formation Resistivity and Geometric Boundary Location from Phase Induction Logging Data
Xiaobo Deng (*University of Electronic Science and Technology of China, China*); *Zaiping Nie* (*University of Electronic Science and Technology of China, China*); *Yan-Wen Zhao* (*University of Electronic Science and Technology of China, China*); *Feng Yang* (*University of Electronic Science and Technology of China, China*);

13:20 Transmission and Reflection in a Periodic Superconductor/Dielectric Film Multilayer Structure
Chien-Jang Wu (*National University of Kaohsiung, Taiwan*);

13:40 Efficient Analysis of Multilayered Planar Periodic Structures Using the MOL-FFT and GSM
Dao-Xiang Wang (*City University of Hong Kong, Hong Kong*); *E. K. N. Yung* (*City University of Hong Kong, Hong Kong*); *R. S. Chen* (*Nanjing University of Science and Technology, China*);

14:00 Space Electromagnetism: Modeling Magnetic Levitation of Superconducting Saturn Rings
V. V. Tchernyi (*Russian Academy of Sciences, Russia*); *Andrew Yu. Pospelov* (*Russian Academy of Sciences, Russia*);

14:20 New AGILD EMS Electromagnetic Field Modeling
Ganquan Xie (*GL Geophysical Laboratory, U. S. A.*); *Jing Li* (*Yue Yang Ke Mei Da Mechanics Company, *); *Jianhua Li* (*GL Geophysical Laboratory, U. S. A.*);

14:40 Electromagnetic Stirring Using GL Electromagnetic Field
Jing Li (*Yue Yang Ke Mei Da Mechanical Company, China*); *Ganquan Xie* (*GL Geophysical Laboratory, USA*); *Zhiqiang Liao* (*Yue Yang Ke Mei Da Mechanical Company, China*);

15:00 **Coffee Break**

15:20 Applications and Advantages of the KMD_EMS System
Zhiqiang Liao (*Yue Yang Ke Mei Da Mechanical Company, China*); *Jing Li* (*Yue Yang Ke Mei Da Mechanical Company, China*); *Ganquan Xie* (*GL Geophysical Laboratory, USA*);

15:40 On the Solution of the Inverse Problems in Non Destructive Electromagnetics Measurements
S. Calcagno (*University Mediterranea, Italy*); *F. C. Morabito* (*University Mediterranea, Italy*); *M. Versaci* (*University Mediterranea, Italy*);

16:00 Absence of Poles in Integrand of Green's Function for a Three-layer Medium
Evgeny G. Saltykov (*Moscow State University, Russia*);

16:20 A New Method for the Inverse Electromagnetic Scattering Problems
C. J. Jiang (*Institute of Electronics, Chinese Academy of Science, China*); *Lianlin Li* (*Institute of Electronics, Chinese Academy of Science, China*); *Fang Li* (*Institute of Electronics, CAS, China*);

16:40 Nondestructive Testing Using a New GL Electromagnetic Inversion
Tieqi Wang (*Hunan Electric Power Test Research Institute, China*); *Ganquan Xie* (*GL Geophysical Laboratory, USA*);

17:00 New Two Dimensional MT Inversion
Chein-Chang Lin (*National Formosa University, Taiwan*); *Ganquan Xie* (*GL Geophysical Laboratory, USA*); *How-Wei Chen* (*National Chung Cheng University, Taiwan*); *C. S. Chen* (*National Center University, Taiwan*);

17:20 New GL And GILD Superconductor Electromagnetic Modeling
Ganquan Xie (*GL Geophysical Laboratory, U.S.A.*); *Feng Xie* (*GL Geophysical Laboratory, U.S.A.*); *Jianhua Li* (*GL Geophysical Laboratory, U.S.A.*);

17:40 Comparisons between the Vector Finite Element Method and Staggered-grid Finite Difference Method for MT forward Modeling
Xueming Shi (*China University of Geosciences, China*); *Jiaying Wang* (*China University of Geosciences, China*); *Hisashi Utada* (*University of Tokyo, Japan*); *Wenli Wu* (*Institute of Geophysical & Geochemical Exploration, China*);

Session 2P7
On-Chip EMC/EMI Problems in RFIC/MMIC/RFMEMS

Tuesday PM, August 23, 2005

Room 101 (1st Floor)

Organized by Wen-Yan Yin

Chaired by Wen-Yan Yin

13:20 The Enhancement of Q-factor for Patterned Ground Shield (PGS) Inductors at High Temperatures
Jinglin Shi (*Institute of Microelectronics, Singapore*); *Wen-Yan Yin* (*National University of Singapore, Singapore*);

13:40 Transfer Functions of On-chip Global Interconnects Based on Distributed RLCG Models
Kai Kang (*National University of Singapore, Singapore*); *Wen-Yan Yin* (*National University of Singapore, Singapore*); *Le-Wei Li* (*National University of Singapore, Singapore*);

14:00 Electromagnetic-thermal Investigation of On-chip Multi-layer and Multiple Coupled (A)Symmetrical Interconnects
Wen-Yan Yin (*National University of Singapore, Singapore*); *X. T. Dong* (*National University of Singapore, Singapore*); *Yeow Beng Gan* (*National University of Singapore, Singapore*);

14:20 Distributed Parameter Extraction of High-Density 3D Interconnects in High-speed Circuits Using Finite Element Method
Jianfen Xu (*Shanghai Jiaotong University, China*); *Jun-Fa Mao* (*Shanghai Jiaotong University, China*);

14:40 Study on the Scattering Properties of the Chamfered 90° Bent Microstrip Line
Ke Wei Wang (*Beijing Jiaotong University, China*); *Jun Hong Wang* (*Beijing Jiaotong University, China*);

15:00 **Coffee Break**

15:20 A Semi-discrete Method for Transient Analysis of High-speed Interconnects with Frequency-dependent Parameters
Min Tang (*Shanghai Jiao Tong University, China*); *Jun-Fa Mao* (*Shanghai Jiao Tong University, China*); *Xiaochun Li* (*Shanghai Jiao Tong University, China*);

15:40 Optimization of Spiral Inductors on Silicon Based on Annealing Accuracy Penalty Function with Genetic Algorithms(GA)
Haili Lin (*Shanghai Jiaotong University, China*); *Jun-Fa Mao* (*Shanghai Jiaotong University, China*);

16:00 Frequency Selective Broadband Stabilization of pHEMT Transistor
Lingyun Li (*Shanghai Jiao Tong University, China*); *Jun-Fa Mao* (*Shanghai Jiao Tong University, China*);

16:20 A Fully Integrated CMOS High-Speed Amplifier
Fuhua Li (*Suzhou University, China*); *Zhengfan Li* (*Shanghai Jiaotong University, China*); *Jun-Fa Mao* (*Shanghai JiaoTong University, China*); *Jixiang Zhao* (*China Jiliang University, China*);

16:40 High-speed Clock Tree Simulation Method Based on Moment Matching
Xiaochun Li (*Shanghai Jiao Tong University, China*); *Jun-Fa Mao* (*Shanghai Jiao Tong University, China*); *Min Tang* (*Shanghai Jiao Tong University, China*);

Session 3A1
Rough Surface Scattering

Wednesday AM, August 24, 2005

Room 301 (3rd Floor)

Organized by Zu-Han Gu, Alexei A. Maradudin

Chaired by Zu-Han Gu, Alexei A. Maradudin

08:20 Discrimination of Metallic and Colored Surface States by Optical Pattern Projection Method
T. Inari (*Kinki University, Japan*); *N. Aoki* (*Kinki University, Japan*);

08:40 Young's Interference Pattern Formed with Symmetrical Partially Coherent Sources
Zu-Han Gu (*Surface Optics Corporation, USA*);

09:00 The Interference of Two Collett-Wolf Beams
Zu-Han Gu (*Surface Optics Corporation, USA*); *E. R. Méndez* (*CICESE, Mexico*); *M. Ciftan* (*Army Research Office, USA*); *T. A. Leskova* (*University of California, Irvine, USA*); *A. A. Maradudin* (*University of California, Irvine, USA*);

09:20 Surface Scattering in Dispersive Media
F. Bass (*Bar-Ilan University, Israel*); *V. Freilikher* (*Bar-Ilan University, Israel*); *D. Mykhaylova* (*Bar-Ilan University, Israel*);

09:40 Scattering and Transmission of Light by a Thin Metal Film with Corrugated Surfaces
E. R. Méndez (*Centro de Investigación Científica y de Educación Superior de Ensenada, México*); *T. A. Leskova* (*University of California, Irvine, USA*); *A. A. Maradudin* (*University of California, Irvine, USA*);

10:00 **Coffee Break**

10:20 Scattering from Randomly Rough Surfaces with Very High Slopes Using the Kirchhoff Approximation
Neil C. Bruce (*Universidad Nacional Autónoma de México, Mexico*);

10:40 Scattering of Surface Plasmon Polaritons by Surface Structures
T. A. Leskova (*University of California, Irvine, USA*); *A. A. Maradudin* (*University of California, Irvine, USA*); *J. A. Sanchez-Gil* (*Instituto de Estractura de la Materia, C.S.I.C., Spain*);

11:00 Symmetries and Backscattering Effects in the Second-harmonic Generation by Random Systems of Two-dimensional Particles
E. R. Méndez (*Física Aplicada - CICESE, México*); *C. I. Valencia* (*CCMC - UNAM, México*);

11:20 A Statistical Kirchhoff Model for EM Scattering from Gaussian Rough Surface
Yang Du (*Zhejiang University, China*); *Tao Xu* (*Zhejiang University, China*); *Yingliang Luo* (*Zhejiang University, China*); *J. A. Kong* (*Massachusetts Institute of Technology, U.S.A.*);

Session 3A2
Meta-materials and Structures with Negative Refraction 1

Wednesday AM, August 24, 2005

Room 201 (2nd Floor)

Organized by Sailing He

Chaired by Sailing He

08:00 Negative Index Materials: New Designs and Results
C. M. Soukoulis (*Iowa State University, USA*);

08:20 Subwavelength Focusing Properties and Mechanisms of a Photonic Crystal Slab with Negative Refraction
Sailing He (*Zhejiang University, China*);

08:40 On the Character of Negative Parameter Values in Homogenized Metamaterials
A. Sihvola (*Helsinki University of Technology, Finland*); *J. C. Doe* (*Physics Department MIT, USA*);

09:00 Mechanisms for High Electromagnetic Wave Transmissions
Lei Zhou (*Fudan University, China*); *Weijia Wen* (*Hong Kong University of Science and Technology, China*); *C. T. Chan* (*Hong Kong University of Science and Technology, China*); *Ping Sheng* (*Hong Kong University of Science and Technology, China*);

09:20 Left-Handed Spin Waves
Daniel D. Stancil (*Carnegie Mellon University, USA*);

09:40 Negative Refraction and Anomalous Reflection in Anisotropic Metamaterial: an Analogical Study on Anisotropic L-C Transmission-line Network
Yijun Feng (*Nanjing University, China*); *Xiaohua Ten* (*Nanjing University, China*); *Yan Chen* (*Nanjing University, China*); *Tian Jiang* (*Nanjing University, China*);

10:00 **Coffee Break**

10:20 Calculation of the Index of Refraction of Metamaterials
Qiang Sui (*Institute of Electronics, CAS, China*); *Cixiang Liu* (*Institute of Electronics, CAS, China*); *Chao Li* (*Institute of Electronics, CAS, China*); *Fang Li* (*Institute of Electronics, CAS, China*);

10:40 Negative Refraction in the Polariton Regime
David W. Ward (*Massachusetts Institute of Technology, USA*); *Keith A. Nelson* (*Massachusetts Institute of Technology, USA*); *Kevin J. Webb* (*Purdue University, USA*);

11:00 Polarimetric Scattering from a Layer of Spatially-Oriented Metamaterial Small Spheroids
Hongxia Ye (*Fudan University, China*); *Ya-Qiu Jin* (*Fudan University, China*);

11:20 Research on the Negative Permittivity Effect of the Thin Wires Array in Matematerial by Transmission Line Theory
Qun Wu (*Harbin Institute of Technology, China*); *Fan-Yi Meng* (*Harbin Institute of Technology, China*); *Ming-Feng Wu* (*Harbin Institute of Technology, China*); *Jian Wu* (*National Key Laboratory of Electromagnetic Environment, China*); *Le-Wei Li* (*Harbin Institute of Technology, China*);

Session 3A3
Nanoscopic Electromagnetics

Wednesday AM, August 24, 2005

Room 202 (2nd Floor)

Organized by David J. Bergman, Mark I. Stockman

Chaired by David J. Bergman, Mark I. Stockman

08:20 Surface-enhanced Raman Scattering in Small Noble-metal Nanoparticles
V. N. Pustovit (*Jackson State University, USA*); *T. V. Shahbazyan* (*Jackson State University, USA*);

08:40 Lifetimes of Quasi-Static Eigenstates of a Nano-Cluster
David J. Bergman (*Tel Aviv University, Israel*); *Uri Evra* (*Tel Aviv University, Israel*); *Xiangting Li* (*Tel Aviv University, Israel*);

09:00 Electromagnetic Properties of Aggregated Metal Nanospheres Revisited
Vadim A. Markel (*University of Pennsylvania, USA*);

09:20 New Method to Calculate Electrical Forces Acting on a Sphere in an Electrorheological Fluid
David G. Stroud (*Ohio State University, USA*); *Kwangmoo Kim* (*Ohio State University, USA*); *Xiangting Li* (*Tel Aviv University, Israel*); *David J. Bergman* (*Tel Aviv University, Israel*);

09:40 Electromagnetic Interactions of Solid State Nanocrystals with Their Nanoenvironment
Thomas A. Klar (*Ludwig-Maximilians-Universität München, Germany*);

10:00 **Coffee Break**

10:20 Broken Symmetry and the Optical Responses of Metal Nanostructures
Martti Kauranen (*Tampere University of Technology, Finland*); *Brian K. Canfield* (*Tampere University of Technology, Finland*); *Sami Kujala* (*Tampere University of Technology, Finland*); *Konstantins Jefimovs* (*University of Joensuu, Finland*); *Tuomas Vallius* (*University of Joensuu, Finland*); *Jari Turunen* (*University of Joensuu, Finland*);

10:40 Coherent, Nonlinear, and Active Nanoplasmonics
Mark I. Stockman (*Georgia State University, USA*); *David J. Bergman* (*Tel Aviv University, Israel*);

11:00 Polarization Conversion and "Focusing" of Light Propagating through a Small Chiral Hole in a Metallic Screen, Geometrical Chirality and the Reyleigh-wien Paradox
A. V. Krasavin (*University of Southampton, UK*); *A. S. Schwanecke* (*University of Southampton, UK*); *N. I. Zheludev* (*University of Southampton, UK*); *M. Reichelt* (*Philipps-University, Germany*); *T. Stroucken* (*Philipps-University, Germany*); *S. W. Koch* (*Philipps-University, Germany*);

11:20 Optical Negative-Refraction Metamaterials, Nano-Layers and Nano-Transmission Lines
Nader Engheta (*University of Pennsylvania, USA*); *Andrea Alù* (*University of Pennsylvania, USA*); *Alessandro Salandrino* (*Università di Roma Tre, Italy*);

Session 3A4
Scattering and Radiative Transfer: Basic Research and Applications 2

Wednesday AM, August 24, 2005

Room 203 (2nd Floor)

Organized by Ping Yang, Warren Wiscombe

Chaired by Hua Zhang, Hong-Bin Chen

08:40 Iterative Approach to Scattering from the Targets above a Rough Surface
Hongxia Ye (*Fudan University, China*); *Ya-Qiu Jin* (*Fudan University, China*);

09:00 Radiation-Transfer Calculations for the Diffuse Reflectance from Pigmented Coatings
Fernando Curiel (*Centro de Investigación en Polímeros, Grupo Comex, México*); *Rubén G. Barrera* (*Universidad Nacional Autónoma de México, México*); *Eduardo Nahmad-Achar* (*Centro de Investigación en Polímeros, Grupo Comex, México*);

09:20 Light Scattering Statistics of Particle Aggregates
F. Moreno (*Universidad de Cantabria, Spain*); *F. González* (*Universidad de Cantabria, Spain*); *J. M. Saiz* (*Universidad de Cantabria, Spain*); *O. Merchiers* (*Universidad de Cantabria, Spain*);

09:40 The Computations of the Scattering and Absorption Properties of Nonspherical Ice Crystals at the Infrared Wavelength
Heli Wei (*Anhui Institute of Optics & Fine Mechanics, Chinese Academy of Sciences, China*); *Ping Yang* (*Texas A & M University, USA*); *Hung-Lung Huang* (*University of Wisconsin-Madison, USA*); *Bryan A. Baum* (*University of Wisconsin-Madison, USA*); *Yongxiang Hu* (*NASA Langely Research Center, USA*);

10:00 **Coffee Break**

10:20 A Geometric Optical Model and Its Combination with 1-D Vegetation Radiative Transfer Model
Qing He (*Institute of Atmospheric Physics, Chinese Academy of Science, China*); *Daren Lu* (*Institute of Atmospheric Physics, Chinese Academy of Science, China*);

10:40 Interaction between a Couple of Spherical Particles: Analogy with Circular Young Slits
S. Lecler (*Louis Pasteur University of Strasbourg, France*); *Y. Takakura* (*Louis Pasteur University of Strasbourg, France*); *P. Meyrueis* (*Louis Pasteur University of Strasbourg, France*);

11:00 A Fast Radiation Code for Data Processing of FY-4/Atmospheric Infrared Sounder
Xuan Feng (*National Satellite Meteorological Center, China*); *Fengsheng Zhao* (*National Satellite Meteorological Center, China*);

11:20 Parameterization for Longwave Scattering of Ice Cloud for Use in Atmospheric Model
Joon-Bum Jee (*University of Kangnung, Republic of Korea*); *K.-T. Lee* (*University of Kangnung, Republic of Korea*); *Ping Yang* (*Texas A&M University, USA*); *W.-H. Lee* (*University of Kangnung, Republic of Korea*);

11:40 The Study on Fast Radiative Transfer Model under Cloudy Condition
Jianguo Niu (*Texas A & M University, USA*); *Ping Yang* (*Texas A & M University, USA*); *Heli Wei* (*Anhui Institute of Optics & Fine Mechanics, Chinese Academy of Sciences, China*);

Session 3A5
Poster Session 1

Wednesday AM, August 24, 2005
9:00 AM - 11:00 AM
Room 103 (1st Floor)

1 SAR Imagery Classification Using Multi-Class Support Vector Machines
G. Angiulli (*Univ. Mediterranea, Italy*); *V. Barrile* (*Univ. Mediterranea, Italy*); *M. Cacciola* (*Univ. Mediterranea, Italy*);

2 Intrinsic Optical Anisotropy in Zinc-blende Semiconductor Quantum Wells
Chun-Nan Chen (*Far-East College, Taiwan*); *Wei-Chih Chien* (*Far-East College, Taiwan*); *Kao-Feng Yarn* (*Far-East College, Taiwan*); *Sheng-Hsiung Chang* (*Far-East College, Taiwan*); *Meei-Ling Hung* (*Far-East College, Taiwan*);

3 Existence of Electromagnetic Radiation in Humans in ELF Band
Jolana Lipkova (*University of defence, Czech republic*); *Jaroslav Cechak* (*University of defence, Czech republic*);

4 TFBAR Size Effects on the Impedance Characteristics in Out-of-band Rejection
Yong-Dae Kim (*Yonsei University, Korea*); *Sung-Hoon Choa* (*Samsung Advanced Institute of Technology, Korea*); *In-Sang Song* (*Samsung Advanced Institute of Technology, Korea*); *Jong-Gwan Yook* (*Yonsei University, Korea*);

5 The Optimal Design Method of Completely Open Architecture Permanent Magnet for Magnetic Resonance Imaging
Yingying Yao (*Zhejiang University, China*); *Youtong Fang* (*Zhejiang University, China*); *Guangzheng Ni* (*Zhejiang University, China*); *Chang Seop Koh* (*Chungbuk National University, Korea*);

6 Loss of Information in Random Electromagnetic Field as a Quality Coefficient
Konrad Skowronek (*Poznan University of Technology, Poland*); *Jerzy Frąckowiak* (*Poznan University of Technology, Poland*); *Piotr Szymkowiak* (*Poznan University of Technology, Poland*); *Grzegorz Trzmiel* (*Poznan University of Technology, Poland*); *Piotr Walczak* (*Poznan University of Technology, Poland*); *Artur Woéniak* (*Poznan University of Technology, Poland*);

7 General Analysis on Nonmatched Characteristics of the PML and a Novel Parameter Optimization Method
Yong Zhang (*Huazhong University of Science and Technology, China*); *K. R. Shao* (*Huazhong University of Science and Technology, China*); *X. W. Hu* (*Huazhong University of Science and Technology, China*); *J. D. Lavers* (*University of Toronto, Canada*);

8 Modified Wilkinson Power Divider with EBG
B. L. Ooi (*National University of Singapore, Singapore*); *D. X. Xu* (*National University of Singapore, Singapore*); *Guang Zhao* (*National University of Singapore, Singapore*);

9 A Global Optimization Algorithm Based on Constructing a Surrogate Objective Function with Design Sensitivity Analysis
Yingying Yao (*Zhejiang University, China*); *Guangzheng Ni* (*Zhejiang University, China*); *Shiyou Yang* (*Zhejiang University, China*); *Chang Seop Koh* (*Chungbuk National University, Korea*);

10 Coaxial Antenna for Microwave Hyperthermia
A. Rhattoy (*Université Moulay Ismail Meknes, Morocco*); *S. Bri* (*Université Moulay Ismail Meknes, Morocco*); *M. Audhuy-Peudecede* (*ENSEEIHT-INPT, France*);

11 Analysis of Circular Patch Microstrip Antennas on Anisotropic Substrates Using Hertz Potential Method
Giordano Miranda Feitoza (*Federal University of Rio Grande do Norte, Brazil*); *Sandro Gonçalves da Silva* (*Federal University of Rio Grande do Norte, Brazil*); *José de Ribamar Silva Oliveira* (*Centro Federal de Educação Tecnológica do Rio Grande do Norte, Brazil*); *Adaildo Gomes d'Assunção* (*Federal University of Rio Grande do Norte, Brazil*);

12 A Quick Capacitance Extraction Tool for IC Interconnections
Jintao Xue (*Wuhan University, China*); *Gaofeng Wang* (*Wuhan University, China*); *Yong Feng* (*Wuhan University, China*); *Yang Yang* (*Wuhan University, China*); *Qing Xu* (*Wuhan University, China*);

13 A Circuit Model for Cylindrical Plasma Waveguide
Bin Yuan (*Shanghai JiaoTong Univ., China*); *Fang Cheng* (*Shanghai JiaoTong Univ., China*); *Wei Xu* (*Shanghai JiaoTong Univ., China*); *He Zhou* (*Shanghai JiaoTong Univ., China*); *Lei Zhao* (*Shanghai JiaoTong Univ., China*);

14 Feature Enhanced of Stripmap SAR Images Based a Conjugate Gradient Method
Cheng-Yen Chiang (*National Central University, Taiwan*); *Kun-Shan Chen* (*National Central University, Taiwan*); *Tzong-Dar Wu* (*National Taiwan Ocean University, Taiwan*); *Chi-Huei Tseng* (*National Central University, Taiwan*); *Yu-Chang Tzeng* (*National United University, Taiwan*);

15 A Modification to the Rytov and Born Approximation
Y. L. Liu (*Institute of Electronics, Chinese Academy of Science, China*); *Lianlin Li* (*Institute of Electronics, Chinese Academy of Science, China*); *Fang Li* (*Institute of Electronics, Chinese Academy of Science, China*);

16 A New Algorithm for the Electromagnetic Computation
Lianlin Li (*Institute of Electronics, Chinese Academy of Science, China*); *C. J. Jiang* (*Institute of Electronics, Chinese Academy of Science, China*); *Fang Li* (*Institute of Electronics, CAS, China*);

17 Ionospheric Radio Tomography Using ARMA
Lianlin Li (*Institute of Electronics, Chinese Academy of Science, China*); *C. J. Jiang* (*Institute of Electronics, Chinese Academy of Science, China*); *Y. L. Liu* (*Institute of Electronics, Chinese Academy of Science, China*); *Fang Li* (*Institute of Electronics, CAS, China*);

18 Rigorous Nonlinear Analysis of Propagating Waves in the Strip-slot Waveguiding Structure with a Strongly Nonlinear Semiconductor Discontunity
G. S. Makeeva (*Penza State University, Russia*); *O. A. Golovanov* (*Penza Military Institute of Artillery, Russia*); *M. Pardavi-Horvath* (*The George Washington University, USA*);

19 DDWS Radar Signal Generator
Heng Qi (*Zhejiang University, China*); *Lixin Ran* (*Zhejiang University, China*);

20 Analysis of Strip Gratings Placed Close to DNG Slabs
Masamitsu Asai (*Kinki Univ., Japan*); *Jiro Yamakita* (*Okayama Pref. Univ., Japan*);

21 Magnetic Fields Computation and Optimal Design of High Temperature Superconducting YBCO Flywheel Models
Guo Qiang Zhang (*the Institute of Electrical Engineering, Chinese Academy of Sciences, China*); *Archie M. Campbell* (*Cambridge University, UK*); *Amit Rastogi* (*Cambridge University, UK*); *Tim Coombs* (*Cambridge University, UK*);

22 Multiuser Adaptive Modulation for MIMO-OFDM System
Ling-Yun Cai (*Institute of Wireless Communications Technology, China*); *Chun-Ling Zhang* (*Institute of Wireless Communications Technology, China*); *You-Yu Xu* (*Institute of Wireless Communications Technology, China*); *Hai-Bin Zhang* (*Institute of Wireless Communications Technology, China*); *Wen-Tao Song* (*Institute of Wireless Communications Technology, China*);

23 Bipolar Optical Correlation Implemented by Incoherent Spectral Amplitude/Polarization Coding on Differential Photo-detectors
Yao-Tang Chang (*National Cheng Kung University, Taiwan*); *Jen-Fa Huang* (*National Cheng Kung University, Taiwan*);

24 The High Dimension of Chaotic Attractors in Gyrotron with Non-Fixed Field Structure
E. V. Blokhina (*Saratov State University, Russia*); *A. G. Rozhnev* (*Saratov State University, Russia*); *S. P. Kuznetsov* (*Institute of Radio-Engineering and Electronics of RAS, Russia*);

25 The Hybrid Method for Arbitrary Weak Guidance Optical Waveguides Simulation
Maxim V. Eliseev (*Saratov State University, Russia*); *A. G. Rozhnev* (*Saratov State University, Russia*); *Alexander B. Manenko* (*Russian Academy of Sciences, Russia*);

26 An Efficient Time Synchronization for Radio Spectrum Monitoring and Wireless Sensor Networking
Cheung-Ching Wang (*National Changhua University of Education, Taiwan*); *Yih-Chuan Lin* (*National Formosa University, Taiwan*);

27 Space-time Block Codes with Optimal Coupling Antenna Selection
Ling-yun Cai (*Institute of Wireless Communications Technology, China*); *Haibin Zhang* (*Institute of Wireless Communications Technology, China*); *You-yu Xu* (*Institute of Wireless Communications Technology, China*); *Wentao Song* (*Institute of Wireless Communications Technology, China*);

28 Satellite Interference Detection by Source Signal Processing
Cheung-Ching Wang (*National Changhua University of Education, Taiwan*); *Yih-Chuan Lin* (*National Formosa University, Taiwan*);

29 Synthesize of Multilayer Passive Structures Using Genetic Algorithms
Ricardo Cardoso de Souza (*Federal University of Campina Grande, Brazil*); *Glauco Fontgalland* (*Federal University of Campina Grande, Brazil*); *Marcos A. Barbosa de Melo* (*Federal University of Campina Grande, Brazil*);

30 Dynamic ANN and Its Application on Optimizing the Electric Apparatus
Yundong Cao (*Shenyang University of Technology, China*); *Xiaoming Liu* (*Shenyang University of Technology, China*); *Dong Liu* (*Shenyang University of Technology, China*);

31 Parallel Couple Computation of Electric and Flow Field in HV SF_6 Circuit Breaker
Yundong Cao (*Shenyang University of Technology, China*); *Luze Zhao* (*Shenyang University of Technology, China*); *Xiaoming Liu* (*Shenyang University of Technology, China*);

32 Optimization on Electrical Apparatus Based on Compensated Fuzzy Neural Network
Yundong Cao (*Shenyang University of Technology, China*); *Feng Li* (*Shenyang University of Technology, China*); *Xiaoming Liu* (*Shenyang University of Technology, China*);

33 Computation of Insulating Performance of SF_6/N_2 Mixtures Gas HV Circuit Breaker
Xiaoming Liu (*Shenyang University of Technology, China*); *Lei Li* (*Shenyang University of Technology, China*); *Yundong Cao* (*Shenyang University of Technology, China*);

34 Remote Sensor of Methane Pipeline Leakage Using a Tunable Diode Laser Absorption Spectroscopy
Hong Fan (*Anhui Institute of Optics & Fine Mechanics, Chinese Academy of Sciences, China*); *Xiaoming Gao* (*Anhui Institute of Optics & Fine Mechanics, Chinese Academy of Sciences, China*); *Bao Jian* (*Anhui Institute of Optics & Fine Mechanics, Chinese Academy of Sciences, China*); *Xia Wang* (*Anhui Institute of Optics & Fine Mechanics, Chinese Academy of Sciences, China*); *Teng Huang* (*Anhui Institute of Optics & Fine Mechanics, Chinese Academy of Sciences, China*); *Xiaoyun Li* (*Anhui Institute of Optics & Fine Mechanics, Chinese Academy of Sciences, China*); *Wei Huang* (*Anhui Institute of Optics & Fine Mechanics, Chinese Academy of Sciences, China*); *Zhensong Cao* (*Anhui Institute of Optics & Fine Mechanics, Chinese Academy of Sciences, China*); *Weijun Zhang* (*Anhui Institute of Optics & Fine Mechanics, Chinese Academy of Sciences, China*);

35 Fuzzy Calculation in Non Destructing Testing
S. Calcagno (*Univ. Mediterranea, Italy*); *F. C. Morabito* (*Univ. Mediterranea, Italy*); *M. Versaci* (*Univ. Mediterranea, Italy*);

36 The Design of a RF Photonic Bandgap Wideband Filter
Linshu Shi (*Zhejiang University, China*); *Dongwu Lou* (*Zhejiang University, China*);

37 LDPC Based Differential Unitary Space-frequency Coding for MIMO-OFDM Systems
Haining Jiang (*Shanghai Jiaotong University, China*); *Hanwen Luo* (*Shanghai Jiaotong University, China*); *Jifeng Tian* (*Shanghai Jiaotong University, China*); *Wentao Song* (*Shanghai Jiaotong University, China*);

38 Sub-Matrix Interleaved Differential Space-Time Modulation for Fast Fading Channels
Jifeng Tian (*Shanghai Jiaotong University, China*); *Youyun Xu* (*Shanghai Jiaotong University, China*); *Haining Jiang* (*Shanghai Jiaotong University, China*); *Wentao Song* (*Shanghai Jiaotong University, China*);

39 Towards Realizing Devices Based on Lefthanded Materials
P. V. Parimi (*Northeastern University, U.S.A.*); *P. Vodo* (*Northeastern University, U.S.A.*); *W. T. Lu* (*Northeastern University, U.S.A.*); *E. Di Gennaro* (*Northeastern University, U.S.A.*); *S. Sridhar* (*Northeastern University, U.S.A.*); *J. S. Derov* (*Air Force Research Laboratories, U.S.A.*);

40 Improved Genetic Algorithm and Its Application on Computation of Electric Field
Xiaoming Liu (*Shenyang University of Technology, China*); *Yundong Cao* (*Shenyang University of Technology, China*); *Erzhi Wang* (*Shenyang University of Technology, China*);

41 A Numerical Comparative Experiment of Three CG-FFT Methods for 3D Inhomogeneous Scatterer Problems
Zhenhong Fan (*Nanjing University of Science and Technology, China*); *R. S. Chen* (*Nanjing University of Science and Technology, China*);

42 Computation of Planar Structures Using Nonuniform Fast Fourier Transforms (NUFFT)
L. Zhou (*Nanjing University of Science and Technology, China*); *Z. H Fan* (*Nanjing University of Science and Technology, China*); *L. Mo* (*Nanjing University of Science and Technology, China*); *R. S. Chen* (*Nanjing University of Science and Technology, China*);

43 A Wideband CPW-Fed Monopole Antenna
S.-B. Chen (*Xidian University, China*); *Y.-C. Jiao* (*Xidian University, China*); *F.-S. Zhang* (*Xidian University, China*); *N.-B. Wang* (*Xidian University, China*); *Q.-Z. Liu* (*Xidian University, China*);

44 Tunable Compact Feeder Network for Shaped Beam Antennas of Long Range 3D Surveillance Radar
Shubha Elizabeth (*Defense Research & Development Organisation, C.V.Raman Nagar, India*); *Anil Kumar Singh* (*Defense Research & Development Organisation, C. V. Raman Nagar, India*); *Y. Mohan Rao* (*Defense Research & Development Organisat, C. V. Raman Nagar, India*); *S. Christopher* (*Defense Research & Development Organisation, Belur, Yemlur Post, India*);

Session 3A6
Electromagnetic Modeling and Inversion (Einstein)

Wednesday AM, August 24, 2005

Room 102 (1st Floor)

Organized by Ganquan Xie, Yanzhong Luo

Chaired by Michael Oristaglio, Ganquan Xie, Yanzhong Luo

08:00 A Robust Preconditioner for GMRES Method Applied to Finite Network Method
A. Farschtschi (*University of Technology Chemnitz, Germany*); *T. Richter* (*University of Technology Chemnitz, Germany*);

08:20 The One Dimensional Stochastic Electromagnetic Field and Applications
Sheng Yan Wang (*National Huwei University Of Sciences & Technology, Taiwan*); *Feng Hsieh* (*GL Geophysical Laboratory, USA*);

08:40 A New EM Integrodifferential Equation and GL Method
Ganquan Xie (*GL Geophysical Laboratory, USA*); *Feng Xie* (*GL Geophysical Laboratory, USA*); *Jianhua Li* (*GL Geophysical Laboratory, USA*);

09:00 Diamagnetic Levitating Rotor
Joe Nhut Ho (*University of Washington, USA*); *Wei-Chih Wang* (*University of Washington, USA*);

09:20 New Computational Mirage
Feng Xie (*GL Geophysical Laboratory, USA*); *Lee Xie* (*GL Geophysical Laboratory, USA*);

09:40 New GL and GILD Fast Parallel Computational Visualization
Feng Xie (*GL Geophysical Laboratory, USA*); *Lee Xie* (*GL Geophysical Laboratory, USA*); *Jianhua Li* (*GL Geophysical Laboratory, USA*);

10:00 **Coffee Break**

10:20 A New GL EM Modeling and Inversion Based on Dual Boundary Integral Equation
Ganquan Xie (*GL Geophysical Laboratory, USA*); *Jianhua Li* (*GL Geophysical Laboratory, USA*); *Feng Xie* (*GL Geophysical Laboratory, USA*);

10:40 Accurate and Efficient Modeling of Monostatic GPR Signal of Dielectric Targets Buried in Stratified Media
I. van den Bosch (*Catholic University of Louvain, Belgium*); *S. Lambot* (*Delft University of Technology, The Netherlands*); *M. Acheroy* (*Royal Military Academy, Belgium*); *I. Huynen* (*Catholic University of Louvain, Belgium*); *P. Druyts* (*Royal Military Academy, Belgium*);

11:00 Numerical Modeling on Transient Electromagnetic Responses of a 3-D Electric Dipole Source on 2-D Plarizable Earth Surface
Yanjun Chang (*China University of Geosciences, China*); *Yanzhong Luo* (*China University of Geosciences, China*); *Yongliang Meng* (*China University of Geosciences, China*);

11:20 Study on Characteristics of Transient Electric Field by an Electrical Dipole Source on One-dimensional Polarizable Earth Surface
Yanjun Chang (*China University of Geosciences, China*); *Yanzhong Luo* (*China University of Geosciences, China*); *Quiqing Zhang* (*China University of Geosciences, China*); *Ying Zhang* (*China University of Geosciences, China*); *Zhonglin Cao* (*China University of Geosciences, China*);

11:40 Inversion Study of Spectral Induced Polarization Based on Improved Genetic Algorithm
Zhonglin Cao (*China University of Geosciences, China*); *Yanjun Chang* (*China University of Geosciences, China*); *Yanzhong Luo* (*China University of Geosciences, China*);

Session 3A7
Electronically Controllable Microwave and Millimeter-wave Devices and Antennas 1

Wednesday AM, August 24, 2005

Room 103 (1st Floor)

Organized by George Kyriacou, Alexander V. Kudrin
Chaired by George Kyriacou, Alexander V. Kudrin

08:40 Artificial Transmission Lines in the Design of Broadband Tunable Phase Shifters
I. S. Nefedov (*Helsinki University of Technology, Finland*); *S. A. Tretyakov* (*Helsinki University of Technology, Finland*);

09:00 Applications of Electromagnetic Bandgap and Tunable Left-handed Materials
Viktor Krozer (*Technical University of Denmark, Denmark*); *Elisa Sbarra* (*Technical University of Denmark, Denmark*); *Martin Schüßler* (*Technische Universität Darmstadt, Germany*); *Christian Damm* (*Technische Universität Darmstadt, Germany*); *Rolf Jakoby* (*Technische Universität Darmstadt, Germany*);

09:20 Eigenvalue Analysis of Curved Open Waveguides Using a Finite Difference Frequency Domain Method Employing Orthogonal Curvilinear Coordinates
C. S. Lavranos (*Democritus University of Thrace, Greece*); *G. A. Kyriacou* (*Democritus University of Thrace, Greece*);

09:40 Finite Element Method and FDTD Method for Open Electromagnetic Structures
A. V. Brovko (*Saratov State University, Russia*); *A. G. Rozhnev* (*Saratov State University, Russia*); *A. B. Manenkov* (*Institute for Physical Problems, Russian Academy of Sciences, Russia*);

10:00 **Coffee Break**

10:20 Analysis of Wave Diffraction on Irises by the Combined FDTD Method and Variational Technique
A. V. Brovko (*Saratov State University, Russia*); *A. B. Manenkov* (*Institute for Physical Problems, Russia*);

10:40 Cylindrical Horn Antennas Analysis Using a Hybrid Mode Matching-Auxiliary Sources Technique
S. G. Diamantis (*Democritus University of Thrace, Greece*); *A. P. Orfanidis* (*Democritus University of Thrace, Greece*); *G. A. Kyriacou* (*Democritus University of Thrace, Greece*); *J. N. Sahalos* (*Aristotle University of Thessaloniki, Greece*);

11:00 Development of an Adaptive and a Switched Beam Smart Antenna System for Wireless Communications
F. E. Fakoukakis (*Democritus University of Thrace, Greece*); *S. G. Diamantis* (*Democritus University of Thrace, Greece*); *A. P. Orfanides* (*Democritus University of Thrace, Greece*); *G. A. Kyriacou* (*Democritus University of Thrace, Greece*);

11:20 Modulation of mm-waves by an Acoustically Controlled Monocrystalline Hexagonal Ferrite Resonator
M. Y. Koledintseva (*University of Missouri-Rolla, USA*);

Session 3P1
Meta-materials and Structures with Negative Refraction 2

Wednesday PM, August 24, 2005

Room 201 (2nd Floor)

Organized by Sailing He

Chaired by Sailing He

13:00 Characterization of Metamaterials in Terahertz Region by Terahertz Time Domain Spectroscopy
Baogang Quan (*Institute of physics, &Institute of electronics, Chinese Academy of Sciences, China*); *Xin-Long Xu* (*Institute of physics, &Institute of electronics, Chinese Academy of Sciences, China*); *Chao Li* (*Institute of physics, &Institute of electronics, Chinese Academy of Sciences, China*); *Xiao-Xiang Xia* (*Institute of physics, &Institute of electronics, Chinese Academy of Sciences, China*); *Qiang Wang* (*Institute of physics, &Institute of electronics, Chinese Academy of Sciences, China*); *Li Wang* (*Institute of physics, &Institute of electronics, Chinese Academy of Sciences, China*); *C. Z. Gu* (*Institute of physics, &Institute of electronics, Chinese Academy of Sciences, China*);

13:20 Resonant and Negative Index Behavior of Non-reciprocal Omega Media at MW Frequencies
Vasundara V. Varadan (*University of Arkansas, U.S.A*);

13:40 Engineering Nanostructures for Plasmonic Near-field Optics and Applications
Din Ping Tsai (*National Taiwan University, Taiwan*);

14:00 Impact of Loss on the Performance of a Negative Refractive Index Lens
Kevin J. Webb (*Purdue University, USA*); *M. Yang* (*Purdue University, USA*); *David W. Ward* (*Massachusetts Institute of Technology, USA*); *Keith A. Nelson* (*Massachusetts Institute of Technology, USA*);

14:20 Study on the Quality of Subwavelength Focusing with a Slab of Left-handed Material (LHM)
Chao Li (*Institute of Electronics, Chinese Academy of Sciences, China*); *Cixiang Liu* (*Institute of Electronics, Chinese Academy of Science, China*); *Qiang Sui* (*Institute of Electronics, Chinese Academy of Science, China*); *Fang Li* (*Institute of Electronics, CAS, China*);

14:40 Low-Frequency Superprism Effect and Hybridization of Transmission-Line Modes in Two- and Three-Dimensional Wire Media
P. A. Belov (*Queen Mary University of London, UK*); *C. R. Simovski* (*St. Petersburg State University of Information Technologies, Mechanics and Optics, Russia*); *I. S. Nefedov* (*Helsinki University of Technology, Finland*); *S. A. Tretyakov* (*Helsinki University of Technology, Finland*);

15:00 **Coffee Break**

Session 3P2
Poster Session 2

Wednesday PM, August 24, 2005

1:00 PM - 3:00 PM

Room 103 (1st Floor)

1 Analysis of Metasurface with Periodic Apertures of SRRs or Spiral Structure
Wei Sun (*Nanjing University, China*); *Yijun Feng* (*Nanjing University, China*); *Hongying Liu* (*Nanjing University, China*); *Junming Zhao* (*Nanjing University, China*);

2 Design and SAR Analysis of Broadband PIFA with Triple Band
D. G. Choi (*Chungbuk Na'l Univ., Korea*); *C. S. Shin* (*Chungbuk Na'l Univ., Korea*); *N. Kim* (*Chungbuk Na'l Univ., Korea*); *H. S. Shin* (*Kunsan Nat'l Univ., Korea*);

3 Internal Monopole Antenna Design for Multi-band Operation and SAR Analysis
C. S. Shin (*Chungbuk Na'l Univ., Korea*); *D. G. Choi* (*Chungbuk Na'l Univ., Korea*); *N. Kim* (*Chungbuk Na'l Univ., Korea*); *J. I. Choi* (*Electronics and Telecommunications Research Institute, Korea*);

4 Two Port Representation in the Frequency Domain of Long Range Guided Waves for Non Destructive Testing of Pipes
F. Bertoncini (*Università di Pisa, Italy*); *S. Barmada* (*Università di Pisa, Italy*); *A. Musolino* (*Università di Pisa, Italy*); *M. Raugi* (*Università di Pisa, Italy*);

5 Wavelet Based Characterization of Defects for Long Range Guided Waves Non Destructive Testing of Pipes
F. Bertoncini (*Università di Pisa, Italy*); *S. Barmada* (*Università di Pisa, Italy*); *A. Musolino* (*Università di Pisa, Italy*); *M. Raugi* (*Università di Pisa, Italy*); *R. Rizzo* (*Università di Pisa, Italy*);

6 Optimized Design Method of Microstrip Parallel-coupled Bandpass Filters with Compensation for Center Frequency Deviation
Houle Gan (*Zhejiang University, China*); *Dongxiao Yang* (*Zhejiang University, China*); *Dongwu Lou* (*Zhejiang University, China*);

7 New Configuration of Microstrip Coupled SIR and Its Application in Bandpass Filters
Houle Gan (*Zhejiang University, China*); *Dongxiao Yang* (*Zhejiang University, China*); *Dongwu Lou* (*Zhejiang University, China*);

8 The GPR Technology on the Seisimic Damageability Assessment of Reinforced Concrete Building
G. Angiulli (*Univ. Mediterranea, Italy*); *V. Barrile* (*Univ. Mediterranea, Italy*); *M. Cacciola* (*Univ. Mediterranea, Italy*);

9 An Integrated GPS-GIS Surface Movement Ground Control System
V. Barrile (*University "Mediterranea" of Reggio Calabria, Italy*); *M. Cacciola* (*University "Mediterranea" of Reggio Calabria, Italy*);

10 Analysis of Transient Scattering from 2-D Rough Surface Using Time Domain Integral Equation Method
Siyuan He (*Wuhan University, China*); *Boxun Xiao* (*Changjiang Water Resources Committee, China*); *Guoqiang Zhu* (*Wuhan University, China*);

11 Characteristics of Different Kinds of UWB Antennas
Dua-Chyrh Chang (*Da Yeh University, Taiwan*); *Ming-Yen Liu* (*Da Yeh University, Taiwan*);

12 The Roles of UWB TEM Horn in Antenna Measurement System
Dau-Chyrh Chang (*Da Yeh University, Taiwan*); *Jr-Hung Lee* (*Da Yeh University, Taiwan*); *Shih-Hung Lee* (*Da Yeh University, Taiwan*);

13 Pictorial Visualization of Antipersonnel Mines Using Ground Penetrating Radar
L. Capineri (*University of Florence, Italy*); *P. Falorni* (*University of Florence, Italy*); *L. Masotti* (*University of Florence, Italy*); *C. G. Windsor* (*116, New Road, East Hagbourne, OX11 9LD, U.K.*);

14 The Major Insulation Optimal Design of Power Transformer with the Combined Arithmetic of Sensitivity Analyses and Evolution Strategies
Guoqiang Zhang (*Chinese Academy of Sciences, China*); *Youtong Fang* (*Zhejiang University, China*); *Xiang Cui* (*Department of North China Electric Power University of China, China*); *Daniel J. Tschudi* (*H. Weidmann AG, Switzerland*);

15 Curl-Slot Loaded Microstrip Antennas for Dual-Band and Wideband Operation
C. Y. Huang (*National Kaohsiung Normal University, Taiwan*); *Hsueh-Fen Tsai* (*Asia-Pacific Research Foundation, Taiwan*);

16 Rigorous Approach to Modelling Electromagnetic Characteristic of Finite-size Printed Antennas Based on Surface Integral Equation Methods
Jian Dong (*National University of Defence Technology, China*); *Shunlian Chai* (*National University of Defence Technology, China*); *Junjie Mao* (*National University of Defence Technology, China*);

17 Interface Heterobond Effects in (hkl) InAs/GaSb Superlattices Solved by Bond Orbital Model
Chun-Nan Chen (*Far-East College, Taiwan*); *Kao-Feng Yarn* (*Far-East College, Taiwan*); *Wei-Chih Chien* (*Far-East College, Taiwan*); *Sheng-Hsiung Chang* (*Far-East College, Taiwan*); *Meei-Ling Hung* (*Far-East College, Taiwan*);

18 The Dynamic Performance Analysis Model of EMS-MAGLEV System Utilizing Coupled Field-Circuit-Movement Finite Element Method
Yingying Yao (*Zhejiang University, China*); *Youtong Fang* (*Zhejiang University, China*); *Guanzhong Hu* (*Zhejiang University, China*);

19 Dynamic Monitoring of Indigenous Coking Sites in China by Using Multi-temporal Landsat Images
Xiangsheng Kong (*Chengdu University of Technology, China*); *Fang Miao* (*Chengdu University of Technology, Sichuan, China*); *Hongfu Liu* (*Taiyuan University of Technology, China*); *Yuyang Dong* (*Taiyuan University of Technology, China*);

20 Transient GPR Signals Modelling for Non-destructive Testing of Pavement
F. Liu (*Laboratoire Central des Ponts et Chaussées, France*); *L. Laguerre* (*Laboratoire Central des Ponts et Chaussées, France*);

21 Wave Propagation in a Composite Metamaterial Cylinder
Cixiang Liu (*Chinese Academy of Science, China*); *Chao Li* (*Chinese Academy of Sciences, China*); *Qiang Sui* (*Chinese Academy of Science, China*); *Fang Li* (*Institute of Electronics, CAS, China*);

22 The Effect of Whole Body Exposure of 50 GHz Microwave Radiation on Reproductive Patterns in Male Rats
Jitendra Behari (*Jawaharlal Nehru University, India*); *Yadwinder Singh* (*Jawaharlal Nehru University, India*);

23 Is Electronmagnetic Force a Possible Means for Life Transmission in the Universe
Vladimir V. Tchernyi (*General Physics Institute, Russia*); *Sergey V. Kapranov* (*General Physics Institute, Russia*);

24 Determination of the CFL Number for FD-ADI-FDTD Based on the Required Accuracy
Arnaud Thiry (*University of Manchester, U.K.*); *Fumie Costen* (*University of Manchester, U.K.*);

25 Efficient Absorbing Boundary Condition for UWB Simulation in Frequency Dependent ADI-FDTD
Arnaud Thiry (*The University of Manchester, UK*); *Fumie Costen* (*The University of Manchester, UK*);

26 A Joint Timing and Frequency Synchronization Used in DVB-T System
Jun Zhou (*Shanghai Jiaotong University, China*); *Haibin Zhang* (*Shanghai Jiaotong University, China*); *Wentao Song* (*Shanghai Jiaotong University, China*);

27 A Fading Channel Model Based on Complex M-Distribution
Jun Zhou (*Shanghai Jiaotong University, China*); *Haibin Zhang* (*Shanghai Jiaotong University, China*); *Wentao Song* (*Shanghai Jiaotong University, China*);

28 Study on the Interaction of Electric Field and Gas Flow for HV SF6 Circuit Breaker
Xiaoming Liu (*Shenyang University of Technology, China*); *Yundong Cao* (*Shenyang University of Technology, China*); *Erzhi Wang* (*Shenyang University of Technology, China*);

29 Numerical Simulation of Unbounded Electric Field Using the Improved Charge Simulation Method
Xiaoming Liu (*Shenyang University of Technology, China*); *Yundong Cao* (*Shenyang University of Technology, China*); *Erzhi Wang* (*Shenyang University of Technology, China*);

30 Fast Analysis of Microwave Integrated Circuits Using Preconditioned SMCG Method
X. P. Feng (*Nanjing University of Science and Technology, China*); *J. Q. Chen* (*Nanjing University of Science and Technology, China*); *L. Mo* (*Nanjing University of Science and Technology, China*); *R. S. Chen* (*Nanjing University of Science and Technology, China*); *W. Zhuang* (*Nanjing University of Science and Technology, China*);

31 Application of Adaptive Integral Method (AIM) for Analyzing Microstrip Structures
W. Zhuang (*Nanjing University of Science and Technology, China*); *L. Mo* (*Nanjing University of Science and Technology, China*); *R. S. Chen* (*Nanjing University of Science and Technology, China*);

32 The ADI-FDTD Method for Planar Circuits Analysis
Y. Yang (*Nanjing University of Science and Technology, China*); *R. S. Chen* (*Nanjing University of Science and Technology, China*); *Z. B. Ye* (*Nanjing University of Science and Technology, China*);

33 Parallel Realization of Algebraic Domain Decomposition for the Vector Finite Element Analysis of 3D Time-harmonic EM Field Problems
X. W. Ping (*Nanjing University of Science and Technology, China*); *R. S. Chen* (*Nanjing University of Science and Technology, China*); *E. K. N. Yung* (*City University of Hong Kong, Hong Kong*); *C. H. Chan* (*City University of Hong Kong, Hong Kong*);

34 The Perturbed RIC2 Preconditioning of Finite Element Equations for the Three-dimensional Helmhotz Equations
X. W. Ping (*Nanjing University of Science and Technology, China*); *X. X. He* (*Nanjing University of Science and Technology, China*); *R. S. Chen* (*Nanjing University of Science and Technology, China*); *E. K. N. Yung* (*City University of Hong Kong, Hong Kong*); *C. H. Chan* (*City University of Hong Kong, Hong Kong*);

35 Sea-wave Fractal Spectrum and Scattering Coefficient Evaluation from an Improved Two-Dimensional Fractal Sea Surface
Lixin Guo (*Xidian University, China*); *Yunhua Wang* (*Xidian University, China*);

36 Analysis of an Electrically Small Cylindrical Monopole Surrounded by Double Negative Materials Using FDTD Method
N.-B. Wang (*Xidian University, China*); *Y.-C. Jiao* (*Xidian University, China*); *F.-S. Zhang* (*Xidian University, China*);

37 An Assessment of Ionospheric Faraday Rotation Using Total Electron Content GPS Measurements
Wei Zou (*Information Engineering University, China*); *Deting Hou* (*Information Engineering University, China*); *Jianhong Yang* (*Information Engineering University, China*); *Dongfang Zhou* (*Information Engineering University, China*); *Zhongxia Niu* (*Information Engineering University, China*);

38 Guideline for a UWB Waveform Robust to the Numerical Dispersion in FDTD Schemes
Arnaud Thiry (*The University of Manchester, U.K.*); *Fumie Costen* (*The University of Manchester, U.K.*);

39 The Two or More Scale Models in Heterogeneous Media Electrodynamics
V. S. Travkin (*Hierarchical Scaled Physics and Technologies, U.S.A.*);

40 Adaptive Integral Method (AIM) Combined with the Enhanced GMRES Algorithms for Planar Structures Analysis
L. Mo (*Nanjing University of Science and Technology, China*); *P. L. Rui* (*Nanjing University of Science and Technology, China*); *W. Zhuang* (*Nanjing University of Science and Technology, China*); *R. S. Chen* (*Nanjing University of Science and Technology, China*);

41 Comparison of Real Formulations to Solve Complex Linear Systems Arising in Computational Electromagnetics
G. Angiulli (*Univ. Mediterranea, Italy*); *M. Versaci* (*Univ. Mediterranea, Italy*);

42 Time Domain Numerical Calculation of Wave Spread in Electric Power Cable and Its Application in Fault Positioning
Shizuo Li (*Guangxi University, China*); *Yuanzhong Liao* (*Guangxi University, China*); *Hanyi Huang* (*Guangxi University, China*);

43 The Correct Solution for the Upper (Bulk) Scale Two-Phase Multilayer Media Electrostatics and Electrodynamics Problems
V. S. Travkin (*Hierarchical Scaled Physics and Technologies, USA*);

Session 3P3
Electronically Controllable Microwave and Millimeter-wave Devices and Antennas 2

Wednesday PM, August 24, 2005

Room 101 (1st Floor)

Organized by George Kyriacou, Alexander V. Kudrin

Chaired by George Kyriacou, Alexander V. Kudrin

13:00 Modeling Fronzen Modes in Finite Three-Dimensional Magnetic Photonic Crystals
Seung-Cheol Lee (*Ohio State University, USA*); *Jin-Fa Lee* (*Ohio State University, USA*);

13:20 Figure of Merit and Limiting Characteristics of Tunable Ferroelectric Microwave Devices
Irina Vendik (*St. Petersburg Electrotechnical University, Russia*); *Vladimir Pleskachev* (*St.Petersburg Electrotechnical University, Russia*); *Orest Vendik* (*St.Petersburg Electrotechnical University, Russia*);

13:40 Novel High-power Electronically Tunable Helical Resonator Filter
Rui-Feng Xue (*Shanghai Jiao Tong University, China*); *Bin Yuan* (*Shanghai Jiao Tong University, China*); *Jun-Fa Mao* (*Shanghai Jiao Tong University, China*); *Chang-Hong Liang* (*Xidian University, China*);

14:00 Design of the PLL Module for Dual-band Repeater
Jin-Sup Kim (*Korea Electronics Technology Institute, Korea*); *Sang-Gi Byeon* (*Korea Electronics Technology Institute, Korea*); *Yong-Cheol Kang* (*Korea Electronics Technology Institute, Korea*);

14:20 Broadband THz Generation from Photoconductive Antenna
Qing Chang (*Zhejiang University, China*); *Dongxiao Yang* (*Zhejiang University, China*); *Liang Wang* (*Zhejiang University, China*);

14:40 Nonlinear Loaded Loop Antennas with a Dielectric Core
T. M. Zaboronkova (*Technical University of Nizhny Novgorod, Russia*); *A. A. Gorbachev* (*Radiophysical Research Institute, Russia*); *A. A. Vasenkov* (*Radiophysical Research Institute, Russia*);

15:00 Application of Scatterers Loaded by a Parametric Contour with Self-modulation as Markers of Objects
T. M. Zaboronkova (*Technical University of Nizhny Novgorod, Russia*); *P. A. Gorbachev* (*Radiophysical Research Institute, Russia*);

Session 4A1
Advances in Detection and Classification Techniques by Radar

Thursday AM, August 25, 2005

Room 301 (3rd Floor)

Organized by Lorenzo Capineri, Colin G. Windsor

Chaired by Lorenzo Capineri, Colin G. Windsor

08:00 Automatic Detection of Buried Pipes from Ground Penetrating Radar Data
P. Falorni (*University of Florence, Italy*); *L. Capineri* (*University of Florence, Italy*); *L. Masotti* (*University of Florence, Italy*); *G. Alli* (*I.D.S. S.p.A, Italy*); *G. Pinelli* (*I.D.S. S.p.A, Italy*);

08:20 Detection and Characterization of Targets Buried Below a Rough Surface
O. Cmielewski (*Institut Fresnel, CNRS, France*); *M. Saillard* (*Universite du Sud Toulon-Var, France*); *H. Tortel* (*Institut Fresnel, CNRS, France*);

08:40 Progress in the Research of Ground Bounce Removal for Landmine Detection with Ground Penetrating Radar
Renbiao Wu (*Civil Aviation University of China, China*); *Jiaxue Liu* (*Civil Aviation University of China, China*); *Tang Li* (*Civil Aviation University of China, China*); *Qian Gao* (*Civil Aviation University of China, China*); *Hongyu Li* (*Civil Aviation University of China, China*); *Bei Zhang* (*Civil Aviation University of China, China*);

09:00 Localized Parametric Electromagnetic Inversion for Pavement Profiling with Ground Penetrating Radar
Weikun He, Jiaxue Liu, Renbiao Wu (*Civil Aviation University of China, China*);

09:20 The Estimation of Buried Pipe Diameters by Generalized Hough Transform of Radar Data
C. G. Windsor (*116, New Road, East Hagbourne, OX11 9LD, UK*); *L. Capineri* (*University of Florence, Italy*); *P. Falorni* (*University of Florence, Italy*);

09:40 Application of Tomographic Inverse Scattering Techniques to Microwave Imaging Radars
Rui-Feng Xue (*Shanghai Jiao Tong University, China*); *Bin Yuan* (*Shanghai Jiao Tong Univ., China*); *Jun-Fa Mao* (*Shanghai Jiao Tong University, China*);

10:00 **Coffee Break**

10:20 Microwave Imaging via Adaptive Beamforming Methods for Breast Cancer Detection
Bin Guo (*University of Florida, USA*); *Yanwei Wang* (*University of Florida, USA*); *Jian Li* (*University of Florida, USA*); *Petre Stoica* (*Uppsala University, Sweden*); *Renbiao Wu* (*Civil Aviation University of China, China*);

10:40 Experiment on Artificial Frozen Soil Boundary GPR Detection During Cross-passage Construction in Tunnels
Yong-Hui Zhao (*Tongji University, China*); *Xiang-Dong Hu* (*Tongji University, China*); *Guo-Qiang Zhao* (*Shanghai No.2 Municipal Engineering Co., China*);

11:00 Detection of Groundwater by Ground Penetrating Radar
Said I. Elkhetali (*The Higher Institute of Electronics, Libya*);

11:20 Urban Road Network Extraction from Spaceborne SAR Image
Guangzhen Cao (*Fudan University, China*); *Yaqiu Jin* (*Fudan University, China*);

11:40 Numerical Simulation of Targets Deorientation and Its Application to Unsupervised Classification in Polarimetric SAR Images
Feng Xu (*Fudan University, China*); *Ya-Qiu Jin* (*Fudan University, China*);

Session 4A2
Plasmonic Nanophotonics 1: Experimental Research

Thursday AM, August 25, 2005

Room 201 (2nd Floor)

Organized by Din Ping Tsai

Chaired by Din Ping Tsai, Hong-Bo Sun

08:00 Light Scattering and Absorption by Plasmonic Resonances of Metallic Nanoparticles
Hiroharu Tamaru (*The University of Tokyo, Japan*); *Kenjiro Miyano* (*The University of Tokyo, Japan*);

08:30 Metal Nano-shelled Three-dimensional Photonic Lattices
Hong-Bo Sun (*Osaka University, Japan*); *Koshiro Kaneko* (*Osaka University, Japan*); *Satoshi Kawata* (*Osaka University, Japan*);

09:00 Plasmonic Coupling in Corrugated Metallic Microcavity
H. L. Tam (*Hong Kong Baptist University, China*); *R. Huber* (*Lawrence Berkeley National Laboratory, USA*); *K. F. Li* (*Hong Kong Baptist University, China*); *W. H. Wong* (*City University of Hong Kong, China*); *Y. B. Pun* (*City University of Hong Kong, China*); *J. B. Xia* (*Hong Kong Baptist University, China*); *K. W. Cheah* (*Hong Kong Baptist University, China*);

09:30 Optical Properties of Metal and Metal-semiconductor Hybrid Nanoparticles in Polymer Matrix
Xuan-Ming Duan (*Technical Institute of Physics and Chemistry, Chinese Academy of Sciences, China*); *Zheng-Bin Sun* (*Technical Institute of Physics and Chemistry, Chinese Academy of Sciences, China*); *Xi-Ming Xia* (*Wuhan University, China*); *Xian-Zi Dong* (*Technical Institute of Physics and Chemistry, Chinese Academy of Sciences, China*); *Wei-Qiang Chen* (*Technical Institute of Physics and Chemistry, Chinese Academy of Sciences, China*);

10:00 **Coffee Break**

10:20 A Planar Metallic Collimator Based on Controlling Surface Plasmons's Phase
Pei Wang (*University of Science and Technology of China, China*); *Xiaojin Jiao* (*University of Science and Technology of China, China*); *Ling Tang* (*University of Science and Technology of China, China*); *Douguo Zhang* (*University of Science and Technology of China, China*); *Yonghua Lu* (*University of Science and Technology of China, China*); *Jianping Xie* (*University of Science and Technology of China, China*); *Hai Ming* (*University of Science and Technology of China, China*);

10:40 Design, Fabrication and Characterization of Very Small Aperture Lasers
Jiying Xu (*Tsinghua University, China*); *Jia Wang* (*Tsinghua University, China*); *Qian Tian* (*Tsinghua University, China*);

11:00 Nanolithography Structure Using Surface Plasmon Interference with a Planar Silver Lens
Xiaojin Jiao (*University of Science and Technology of China, China*); *Pei Wang* (*University of Science and Technology of China, China*); *Douguo Zhang* (*University of Science and Technology of China, China*); *Ling Tang* (*University of Science and Technology of China, China*); *Hai Ming* (*University of Science and Technology of China, China*); *Jianping Xie* (*University of Science and Technology of China, China*);

Session 4A3a
EMC Analysis, Spectrum Efficiency, and Wireless Communication

Thursday AM, August 25, 2005

Room 202 (2nd Floor)

Organized by Xuemin Huang

Chaired by Xuemin Huang

08:20 Planning Future Heterogeneous Wireless Networks
Jijun Luo (*Siemens AG, Germany*); *Xuemin Huang* (*LS telcom AG, Germany*);

08:40 A New Neural Blind Beamforming Algorithm for Cyclostationary Signals
Hongsheng Li (*Naval Aeronautical Engineering Institute, China*); *You He* (*Naval Aeronautical Engineering Institute, China*); *Rijie Yang* (*Naval Aeronautical Engineering Institute, China*);

09:00 Improved Iterative Receiver for Turbo Coded G-STBC MIMO-OFDM System
Le Zhang (*Shanghai Jiaotong University, China*); *Youyun Xu* (*Shanghai Jiaotong University, China*); *Hanwen Luo* (*Shanghai Jiaotong University, China*); *Xingzhao Liu* (*Shanghai Jiaotong University, China*);

09:20 Analysis of the Frequency Reuse Efficiency for the Reverse Channel in a DS-CDMA System
Halysson Barbosa Mendonça (*Federal University of Rio Grande do Norte, Brazil*); *Adaildo Gomes d'Assuncao* (*Federal University of Rio Grande do Norte, Brazil*);

09:40 Comparative Study of Perfluorinated Polymer and Silica Multimode Fibre System Operating at 850 nm for Local Area Networks
Goffin Andre (*Royal Military Academy, Belgium*); *Lethien Christophe* (*Royal Military Academy, Belgium*);

10:00 **Coffee Break**

Session 4A3b
Antenna Technology for UWB

Thursday AM, August 25, 2005

Room 202 (2nd Floor)

Organized by Ronghong Jin

Chaired by Ronghong Jin

10:20 Dual-polarized Broadband Aperture-coupled Stacked Patch Antenna Array
Wei Wang (*East China Research Institute of Electronic Engineering, China*); *Shun-Shi Zhong* (*Shanghai University, China*); *Xian-Ling Liang* (*Shanghai University, China*);

10:40 The Design and Analysis of Wide-Band Dual Polarized Probe Antenna
Yun-Hi Choi (*Information and Communications University, Korea*); *Jung-Hwan Choi* (*Information and Communications University, Korea*); *Seong-Ook Park* (*Information and Communications University, Korea*);

11:00 Interference Suppression in Ultra-wideband Adaptive Array Antennas
Junjie Chen (*Shanghai Jiaotong University, China*); *Ronghong Jin* (*Shanghai Jiaotong University, China*); *Xiaojing Huang* (*University of Wollongong, Australia*);

11:20 A Conformal Archimedean Spiral Antenna for Ultrawide-band Systems
Qi Wu (*Shanghai Jiaotong University, China*); *Ronghong Jin* (*Shanghai Jiaotong University, China*); *Xiaojing Huang* (*University of Wollongong, Australia*);

11:40 A Conformal Vivaldi Array Antenna for Ultrawide-Band Aystems
Qi Wu (*Shanghai Jiaotong University, China*); *Ronghong Jin* (*Shanghai Jiaotong University, China*); *Xiaojing Huang* (*University of Wollongong, Australia*);

12:00 The Characteristic of Sleeve Antenna
Jian-Ying Li (*National University of Singapore, Singapore*); *Yeow Beng Gan* (*National University of Singapore, Singapore*);

Session 4A4
Nanostructures and Systems

Thursday AM, August 25, 2005

Room 203 (2nd Floor)

Chaired by R. Blaikie, Thomas X. Wu

08:20 Scattering Properties in Quantum Waveguide for Nanoelectronic Devices
Yupeng Chen (*University of Central Florida, USA*); *Thomas X. Wu* (*University of Central Florida, USA*);

08:40 Electromagnetics Properties of Nanocomposites Powder Compacts
Philippe Talbot (*Université de Bretagne Occidentale, France*); *Christian Brosseau* (*Université de Bretagne Occidentale, France*);

09:00 Magnetization Curve Characteristic Changes of Nano-Magnetic Structures in Irradiated Thin Films
D. Bajalan (*Vienna University of Technology, Austria*);

09:20 First-Principles Calculation of Electrical Forces among Nanospheres in a Uniform Applied Electric Field
Xiangting Li (*Tel Aviv University, Israel*); *David J. Bergman* (*Tel Aviv University, Israel*); *David G. Stroud* (*The Ohio State University, USA*);

09:40 A Novel Lane Detection Algorithm Based on Support Vector Machine
Hao Zhang (*Zhejiang University, China*); *Dibo Hou* (*Zhejiang University, China*); *Zekui Zhou* (*Zhejiang University, China*);

10:00 **Coffee Break**

10:20 Matrix Converter Control System
Jiri Lettl (*Czech Technical University in Prague, Czech Republic*); *Stanislav Fligl* (*Czech Technical University in Prague, Czech Republic*);

10:40 Advanced Modeling Technology of RF SAW Packages
Hao Dong (*University of Central Florida, USA*); *Thomas X. Wu* (*University of Central Florida, USA*);

11:00 Modeling the Effects of Randomly Rough Surface of Conductors on Wave Propagation in Interconnects in the GHz Range
Xiaoxiong Gu (*University of Washington, U.S.A*); *Leung Tsang* (*University of Washington, U.S.A*); *Henning Braunisch* (*Intel Corporation, Components Research, U.S.A*);

11:20 Design of Microwave Chaotic Colpitts Oscillator Module with a 25 GHz Bipolar Junction Transistor
Zhiguo Shi (*Zhejiang University, China*); *Lixin Ran* (*Zhejiang University, China*);

Session 4A5a
Electromagnetic Theory 1

Thursday AM, August 25, 2005

Room 103 (1st Floor)

Chaired by Jan Zehentner, W. X. Zhang

08:00 Fourier Transformation and Boundary Conditions in the Special Domain
Jan Zehentner (*Czech Technical University, Czech Republic*); *Jan Mrkvica* (*Czech Technical University, Czech Republic*); *Jan Machac* (*Czech Technical University, Czech Republic*);

08:20 Axisymmetric Spherical Travelling Electromagnetic Waves in Isotropic Medium
Yuri A. Zyurykin (*Saratov State Technical University, Russia*); *Mariya V. Pavlova* (*Saratov State Technical University, Russia*);

08:40 Electromagnetic Field Generated by a Horizontal Electric Dipole in a Spherical Earth Covered by N-Layered Dielectrics
Kai Li (*Zhejiang University, China*); *Yilong Lu* (*Nanyang Technological University, Singapore*);

09:00 Electromagnetic Scattering from an Anisotropic Uniaxial-coated Conducting Sphere
You-Lin Geng (*Xidian University, China*); *Xin-Bao Wu* (*Shanghai Research Institute of Microwave Technology, China*); *Bo-Ran Guan* (*Hangzhou Dianzi University, China*);

09:20 Losses in Frequency Selective Surfaces
Maurizio Bozzi (*University of Pavia, Italy*); *Luca Perregrini* (*University of Pavia, Italy*);

09:40 About Magnetic Field Distribution in Granular Superconductors
M. V. Belodedov (*Russian Academy of Sciences, Russia*); *V. V. Tchernyi* (*Russian Academy of Sciences, Russia*); *P. V. Makhno* (*Russian Academy of Sciences, Russia*);

10:00 **Coffee Break**

Session 4A5b
EM Methods for VLSI

Thursday AM, August 25, 2005

Room 103 (1st Floor)

Organized by Charlie C. P. Chen, Ruey-Beei Wu

Chaired by Ruey-Beei Wu, Charlie C. P. Chen

10:20 Optimization for the Locations of Decoupling Capacitors in Suppressing the Ground Bounce by Genetic Algorithm
Kai-Bin Wu (*National Taiwan University, Taiwan*); *An-Shyi Liu* (*National Taiwan University, Taiwan*); *Guang-Hwa Shiue* (*National Taiwan University, Taiwan*); *Chien-Min Lin* (*Taiwan Semiconductor Manufacturing Company, Ltd., Taiwan*); *Ruey-Beei Wu* (*National Taiwan University, Taiwan*);

10:40 Collocation Method based RC/RLC Extraction with Process Variation
Janet M Wang (*University of California at Berkeley, USA*); *A. Mitev* (*University of California at Berkeley, USA*); *N. Kankani* (*University of California at Berkeley, USA*);

11:00 ICCAP: A Linear Time Sparse Transformation and Reordering Algorithm for Three-dimensional BEM Capacitance Extraction
Rong Jiang (*University of Wisconsin, USA*); *Charlie Chung-Ping Chen* (*National Taiwan University, Taiwan*);

11:20 A Real-Time Wireless Physiological Monitoring System for Nursing Center
Jeng-Pang Wang (*National Taiwan University, Taiwan*); *Fok-Ching Chong* (*National Taiwan University, Taiwan*);

Session 4A6
Optics and Photonics, Lasers, Gyrotrons

Thursday AM, August 25, 2005

Room 101 (1st Floor)

Organized by Faliang Ao

Chaired by Faliang Ao

08:40 Research of ATP Technology for Underwater Laser Communication System
Jun Ma (*Guilin University of Electronic Technology, China*); *Xing Jiang* (*Guilin University of Electronic Technology, China*); *Faliang Ao* (*Guilin University of Electronic Technology, China*);

09:00 Stability Analysis of Mode Locked Figure-Eight Fiber Laser
M. K. Islam (*City university of Hong Kong, Hong Kong*); *P. L. Chu* (*City university of Hong Kong, Hong Kong*);

09:20 A Routing Algorithm for ASON
Xiaoyun Gong (*Guilin University of Electronic Technology, China*); *Faliang Ao* (*Guilin Institute of Electronic Technology, China*);

09:40 40 GHz Distributed Amplifier for OEIC Optical Receiver
Shilong Jiao (*University of Electronic Science and Technology, China*); *Feng Qian* (*Nanjing Electronic Devices Institute, China*); *Yuan Zheng* (*Nanjing Electronic Devices Institute, China*); *Tangsheng Chen* (*Nanjing Electronic Devices Institute, China*); *Yutang Ye* (*University of Electronic Science and Technology, China*);

10:00 **Coffee Break**

10:20 The Application of PIM in Laser Communication System
Ming-Song Chen (*Guilin Institute of Electronic Technology, China*); *Tian-Song Li* (*Guilin Institute of Electronic Technology, China*); *Fa-Liang Ao* (*Guilin Institute of Electronic Technology, China*);

10:40 The Implementation for Synchronization Controlling Set of the Laser Underwater Imaging System
Ming-Song Chen (*Guilin Institute of Electronic Technology, China*); *Wei-Ping Cao* (*Guilin Institute of Electronic Technology, China*);

11:00 Simultaneous Measurement of Pressure and Temperature Using a Single Fiber Bragg Grating
Shilie Zheng (*Zhejiang University, China*); *Xianmin Zhang* (*Zhejiang University, China*);

11:20 High Speed Low Loss Fiber Optic Switch
Xiaofeng Jin (*Zhejiang University, China*); *Shilie Zheng* (*Zhejiang University, China*); *Xianmin Zhang* (*Zhejiang University, China*);

Session 4P1a
Remote Sensing

Thursday PM, August 25, 2005

Room 301 (3rd Floor)

Chaired by Paolo Pampaloni, Mahta Moghaddam

13:20 Review of Electromagnetic Inverse Scattering and Subsurface Sensing
W. C. Chew (*University of Illinois at Urbana-Champaign, USA*); *G. L. Wang* (*University of Illinois at Urbana-Champaign, USA*); *A. Hesford* (*University of Illinois at Urbana-Champaign, USA*); *A. A. Aydiner* (*Intel Corporation, USA*); *T. J. Cui* (*Southeast University, China*);

13:40 Surveillance of Sub-Surface Sanctuaries Using Earth-Penetrating Radiators
John Norgard (*US Air Force Academy, U.S.A.*); *Randall Musellman* (*US Air Force Academy, U.S.A.*);

14:00 Physical and Mathematical Understanding of High-Resolution Synthetic Aperture Radar
Yunhua Zhang (*Center for Space Science and Applied Research, CAS, China*); *Haibin Li* (*Center for Space Science and Applied Research, CAS, China*); *Jie Wu* (*Center for Space Science and Applied Research, CAS, China*); *Xiangkun Zhang* (*Center for Space Science and Applied Research, CAS, China*); *Jingshan Jiang* (*Center for Space Science and Applied Research, CAS, China*);

14:20 Locating Multiple Objects in the Radar Volume Using Multiple-receiver Radar Interferometry
Jenn-Shyong Chen (*Chienkuo Technology University, Taiwan*);

14:40 Variability Analysis of Ka Band Rain Attenuation in Taiwan
Chi-Huei Tseng (*National Central University, Taiwan*); *Kun-Shan Chen* (*National Central University, Taiwan*); *Chih-Yuan Chu* (*National Central University, Taiwan*); *Yu-Chang Tzeng* (*National United University, Taiwan*); *Pay-Liam Lin* (*National Central University, Taiwan*);

15:00 **Coffee Break**

Session 4P1b
RF Multipath Environments

Thursday PM, August 25, 2005

Room 301 (3rd Floor)

Organized by Marc Piette

Chaired by Marc Piette

15:20 Experimental Field Statistics Validation in a Cubic Reverberation Chamber with Mechanical Mode Stirring & Bistatic Illumination
M. Piette (*Royal Military Academy, Belgium*); *K. Moesen* (*Royal Military Academy, Belgium*); *S. Montezuma* (*Royal Military Academy, Belgium*);

15:40 Propagation Path Loss Prediction for Outdoor Environment Using Adaptive Neuro-fuzzy Inference Systems
Supachai Phaiboon (*Mahidol University, Thailand*); *Pisit Phokharatkul* (*Mahidol University, Thailand*); *Suripon Somlurnpanic* (*Kingmonkul Institute of Technology Ladkrabang, Thailand*);

16:00 Antennas and Propagation for Wireless Body-centric Networks
Yang Hao (*Queen Mary University of London, UK*); *P. S. Hall* (*University of Birmingham, UK*); *A. Alomainy* (*Queen Mary University of London, UK*); *Y. I. Nechayev* (*University of Birmingham, UK*); *C. Parini* (*Queen Mary University of London, UK*); *C. C. Constantinou* (*University of Birmingham, UK*);

16:20 A Measurement System Using Dual-phase Lock-in Amplifier for Optically Modulated Scattering Microwave Fields
Jung-Hwan Choi (*Information and Communications University, Korea*); *Seong-Ook Park* (*Information and Communications University, Korea*);

Session 4P1c
Subsurface Identification & Modelling

Thursday PM, August 25, 2005

Room 301 (3rd Floor)

Organized by Marc Piette

Chaired by Marc Piette

16:40 Diagnosis of Concrete Structure Using Microwave
Toshiyuki Tanaka (*Nagasaki University, Japan*); *Syogo Kijima* (*Nagasaki University, Japan*); *Kenzo Nagatomi* (*Nagasaki University, Japan*); *Takayuki Ohnishi* (*Nagasaki University, Japan*); *Takashi Takenaka* (*Nagasaki University, Japan*);

17:00 Steel Bars Identification in Reinforced Concrete Structures by Using ANN and Magnetic Fields
N. P. de Alcantara Jr. (*São Paulo State University, Brazil*); *M. E. L. Gasparini* (*São Paulo State University, Brazil*);

17:20 Measurement of Layer Thickness and Permittivity Using a New Multi-Layer Model from GPR Data
Chien-Ping Kao (*University of Houston, U.S.A.*); *Jing Li* (*University of Houston, U.S.A.*); *Richard Liu* (*University of Houston, U.S.A.*);

17:40 Inverse Electromagnetic Modeling of a Submerged Source in Shallow Sea Water
O. Thongsamouth (*Royal Military Academy, Belgium*); *M. Piette* (*Royal Military Academy, Belgium*);

Session 4P2
Plasmonic Nanophotonics 2: Theoretical Research

Thursday PM, August 25, 2005

Room 201 (2nd Floor)

Organized by Din Ping Tsai

Chaired by Chien-Cheng Chang, Hirokazu Hori

13:00 Evaluation of Tunneling Excitation Transfer and Dissipation in Plasmon-related Optical Near-field Interactions Based on Angular Spectrum Representation
Hirokazu Hori (*University of Yamanashi, Japan*); *Tetsuya Inoue* (*Yamanashi Industrial Technology Junior College, Japan*); *Yasuo Ohdaira* (*Niigata University, Japan*);

13:30 Design of Metal-claded Near-field Fiber Probes with a Dispersive Body-of-revolution Finite-difference Time-domain Method
Sailing He (*Zhejiang University, China*); *Liu Liu* (*Zhejiang University, China*);

14:00 Surface Plasmon Polaritons Computed by the Approach of an Interfacial Operator
Chien-Cheng Chang (*National Taiwan University, Taiwan*); *Ruey-Lin Chern* (*National Taiwan University, Taiwan*); *Chien-Chung Chang* (*National Taiwan University, Taiwan*);

14:30 Shaping Surface Plasmon Modes with Weakly-distorted Metallic Surfaces
Wei-Chih Liu (*National Taiwan Normal University, Taiwan*);

15:00 **Coffee Break**

15:20 Optical Tunneling Effect of Surface Plasmon Polaritons: a Simulation Study Using Particles Method
Yung-Chiang Lan (*National Cheng Kung University, Taiwan*);

15:40 Size Effects of Localized Surface Plasmon Induced by Embedded Silver Nanoparticles in Near-field Optical Disk
T. C. Chu (*National Taiwan University, China*); *W. C. Liu* (*National Taiwan Normal University, China*); *D. P. Tsai* (*National Taiwan University, China*);

16:00 2D Simulation of Surface Plasmon Resonance
Jiunn-Woei Liaw (*Industrial Technology Research Institute, Taiwan*); *M. K. Kuo* (*National Taiwan University, Taiwan*); *J.-K. Wang* (*National Taiwan University, Taiwan*);

16:20 Focusing the Enhanced Near-field by Manipulating the Nano-Plasmon-Driving Intensifiers
Sheng Chung Chen (*Far East College, Taiwan*); *Tieh Ming Chang* (*National Taiwan University, Taiwan*); *Din Ping Tsai* (*National Taiwan University, Taiwan*);

16:40 Plasmon Resonances of Spherical and Ellipsoidal Nanoparticles
Jiunn-Woei Liaw (*Industrial Technology Research Institute, Taiwan*); *M. K. Kuo* (*National Taiwan University, Taiwan*); *C. N. Liao* (*National Taiwan University, Taiwan*);

Session 4P3a
Special Session on Radar Polarimetry and Polarimetric SAR Interferometry

Thursday PM, August 25, 2005

Room 202 (2nd Floor)

Organized by Wolfgang-Martin Boerner, Jian Yang

Chaired by Wolfgang-Martin Boerner, Jian Yang

13:40 Polarimetric SAR Interferometry: Applications in Ground Based Remote Sensing of Vegetation
Zheng-Shu Zhou (*University of Adelaide, Australia*); *Shane R. Cloude* (*University of Adelaide, Australia*);

14:00 The Dependence of Forest Biomass on the Order Parameter of K-distribution of High-resolution Airborne Polarimetric SAR Images of Forests
Haipeng Wang (*Kochi University of Technology, Japan*); *Kazuo Ouchi* (*Kochi University of Technology, Japan*); *Manabu Watanabe* (*Japan Aerospace Exploration Agency, Japan*); *Masanobu Shimada* (*Japan Aerospace Exploration Agency, Japan*); *Takeo Tadono* (*Japan Aerospace Exploration Agency, Japan*); *Ake Rosenqvist* (*Japan Aerospace Exploration Agency, Japan*); *Shakil Ahmad Romshoo* (*The Energy and Resources Institute, India*); *Masayuki Matsuoka* (*Research Institute for Humanity and Nature, Japan*); *Seiho Uratsuka* (*National Institute of Information and Communications Technology, Japan*);

14:20 On the Need of Developing Multi-band Differental (Multiple Pass) POLinSAR Theory and Algorithms for Remote Sensing and Monitoring Severe Environment Stress Changes (Disarters)-Such as Earthqukes, Severe Storms, Typhoons and Floods
Wolfgang-Martin Boerner (*University of Illinois at Chicago, U.S.A.*); *Jorge J. Morisaki* (*University of Illinois at Chicago, U.S.A.*); *Alberto Moreira* (*DLR (German Aerospace Centre), Germany*); *Kostas P. Papathanassiou* (*DLR (German Aerospace Centre), Germany*); *Irena Hajnsek* (*DLR (German Aerospace Centre), Germany*); *Eric Pottier* (*IETR, UMR CNRS-6164, France*); *Laurent Ferro-Famil* (*IETR, UMR CNRS-6164, France*); *Andreas Reigber* (*IETR, UMR CNRS-6164, France*); *Motoyuki Sato* (*Tohoku University, Japan*); *Takeshi Hamasaki* (*Tohoku University, Japan*); *Koichi Iribe* (*Tohoku University, Japan*); *Shane R. Cloude* (*University of Adelaide, Australia*); *Zheng-Shu Zhou* (*University of Adelaide, Australia*); *Yoshio Yamaguchi* (*Niigata University, Japan*); *Hiroyoshi Yamada* (*Niigata University, Japan*); *Jong-Sen Lee* (*Naval Research Laboratory (NRL), U.S.A.*); *Tom L. Ainsworth* (*Naval Research Laboratory (NRL), U.S.A.*); *Dale L. Schuler* (*Naval Research Laboratory (NRL), U.S.A.*); *Mitchell Grunes* (*Naval Research Laboratory (NRL), U.S.A.*); *Kun-Shan Chen* (*National Central University, Taiwan*); *Chih-Tien Wang* (*National Central University, Taiwan*); *Chung-Pai Chang* (*National Central University, Taiwan*); *Jeffrey K. Weissel* (*Columbia University, U.S.A.*); *Kristina Rodriguez-Czuchlewski* (*Columbia University, U.S.A.*); *Wooil Moon* (*Seoul National University, Korea*); *Sang-Eun Park* (*Seoul National University, Korea*); *Joong-Sun Won* (*Yonsei University, Korea*); *Seung-Kuk Lee* (*Yonsei University, Korea*);

14:40 On the Need of Development High-Altitude Drones (UAVs) for Implementation of Multi-band Single and Multiple Pass Differential POLinSAR Technology towards in Situ Montoring of Severe Environmental Stress Changes
Wolfgang-Martin Boerner (*University of Illinois at Chicago, USA*); *Jorge J. Morisaki* (*University of Illinois at Chicago, USA*); *Alberto Moreira* (*DLR (German Aerospace Centre), Germany*); *Kostas P. Papathanassiou* (*DLR (German Aerospace Centre), Germany*); *Irena Hajnsek* (*DLR (German Aerospace Centre), Germany*); *Eric Pottier* (*IETR, UMR CNRS-6164, France*); *Laurent Ferro-Famil* (*IETR, UMR CNRS-6164, France*); *Andreas Reigber* (*IETR, UMR CNRS-6164, France*); *Motoyuki Sato* (*Tohoku University, Japan*); *Takeshi Hamasaki* (*Tohoku University, Japan*); *Koichi Iribe* (*Tohoku University, Japan*); *Yoshio Yamaguchi* (*Niigata University, Japan*); *Hiroyoshi Yamada* (*Niigata University, Japan*); *Shane R. Cloude* (*University of Adelaide, Australia*); *Zheng-Shu Zhou* (*University of Adelaide, Australia*); *Jong-Sen Lee* (*Image Science Section/Remote Sensing Division, USA*); *Tom L. Ainsworth* (*Image Science Section/Remote Sensing Division, USA*); *Dale L. Schuler* (*Image Science Section/Remote Sensing Division, USA*); *Mitchell Grunes* (*Image Science Section/Remote Sensing Division, USA*); *Kun-Shan Chen* (*National Central University, Taiwan*); *Chih-Tien Wang* (*National Central University, Taiwan*); *Chung-Pai Chang* (*National Central University, Taiwan*); *Jeffrey K. Weissel* (*Columbia University, USA*); *Kristina Rodriguez-Czuchlewski* (*Columbia University, USA*); *Wooil Moon* (*Seoul National University, Korea*); *Sang-Eun Park* (*Seoul National University, Korea*); *Joong-Sun Won* (*Yonsei University, Korea*); *Seung-Kuk Lee* (*Yonsei University, Korea*);

15:00 **Coffee Break**

Session 4P3b
Remote Sensing of Ionosphere and Ocean

Thursday PM, August 25, 2005

Room 202 (2nd Floor)

Chaired by Marc Saillard, Yunhua Zhang

15:20 The Survey of Ionospheric Scattering Function
Zhengyu Zhao (*Wuhan University, China*); *Gang Chen* (*Wuhan University, China*);

15:40 Radioemission by a Modulated Electron Beam Injected into the Ionosphere from Spacecraft
Yong Yang (*Wuhan University, China*); *Zhengyu Zhao* (*Wuhan University, China*); *I. O. Anisimov* (*Taras Shevchenko National University of Kyiv, Ukraine*);

16:00 The Approach Based on Cumulant of Received Signals' Increment in Spaced Antenna Wind Measurements
Weiping Shu (*Wuhan University, China*); *Zhengyu Zhao* (*Wuhan University, China*);

16:20 Mars Advanced Radar for Subsurface and Ionosphere Sounding (MARSIS)
G. Picardi (*University of Rome, Italy*); *R. Seu* (*University of Rome, Italy*); *J. Plaut* (*Jet Propulsion Laboratory, U.S.A.*); *W. T. K. Johnson* (*Jet Propulsion Laboratory, U.S.A.*); *R. Orosei* (*CNR/IAS, Italy*); *O. Bombaci* (*Alenia Spazio ALS, Italy*); *D. Calabrese* (*Alenia Spazio ALS, Italy*); *E. Zampolini* (*Alenia Spazio ALS, Italy*);

16:40 A Study on the Relation between Ocean Surface Coherence Time and Speckle Cross-correlation in Multilook SAR Images Produced by Partially Overlapped Subapertures
Haipeng Wang (*Kochi University of Technology, Japan*); *Kazuo Ouchi* (*Kochi University of Technology, Japan*);

17:00 Two-dimensional Ocean Surface Doppler Spectrum at Microwave Frequency
G. Soriano (*Université Paul Cézanne, France*); *M. Joelson* (*Université d'Avignon, France*); *M. Saillard* (*Université du Sud Toulon-Var, France*);

17:20 Focusing Infrared Beams Out of Sea Surface Found in Satellite Thermal Pattern in the Ocean
Shigehisa Nakamura (*Kyoto University, Japan*);

17:40 Numerical Simulation of Concentration Field Distribution of Non-corona High-Temperature Electrostatic Cyclone Precipitation
Guanghua Tang (*South East University, China*); *Shiming Wang* (*South East University, China*); *Zhongzhu Gu* (*Nanjing Normal University, China*);

Session 4P4a
NIM & EBG

Thursday PM, August 25, 2005

Room 203 (2nd Floor)

Chaired by Alain Priou, Fang Li

13:20 Simulation of a Novel Structure for Two-dimensional Left-handed Material
Jiangtao Huangfu (*Zhejiang University, China*); *Lixin Ran* (*Zhejiang University, China*); *Hongsheng Chen* (*Zhejiang University, China*); *Xianmin Zhang* (*Zhejiang University, China*); *J. A. Kong* (*Zhejiang University, China*);

13:40 A Microwave Coupler Filled with Left-handed Material
Yu Yuan (*Zhejiang University, China*); *Lixin Ran* (*Zhejiang University, China*); *Hongsheng Chen* (*Zhejiang University, China*); *Jiangtao Huangfu* (*Zhejiang University, China*); *Dongxing Wang* (*Zhejiang University, China*); *Xianmin Zhang* (*Zhejiang University, China*); *J. A. Kong* (*Zhejiang University, China*);

14:00 Direct Measurement of Negative Permittivity and Permeability of a Left-handed Material
Dongxing Wang (*Zhejiang University, China*); *Jiangtao Huangfu* (*Zhejiang University, China*); *Hongsheng Chen* (*Zhejiang University, China*); *Lixin Ran* (*Zhejiang University, China*); *Yu Zhong* (*Zhejiang University, China*); *Xianmin Zhang* (*Zhejiang University, China*); *Tomasz M. Grzegorczyk* (*Massachusetts Institute of Technology, U.S.A.*); *J. A. Kong* (*Zhejiang University, China*);

14:20 Analysis of Radiation Characteristics for Step Discontinuity in Planar Left-handed Waveguide
Xiaobo Wang (*University of Science & Technology of China, China*); *Shanjia Xu* (*University of Science & Technology of China, China*);

15:00 **Coffee Break**

Session 4P4b
Electromagnetic Theory 2

Thursday PM, August 25, 2005

Room 203 (2nd Floor)

Chaired by M. Tateiba, K. Sivaprasad

15:20 Accurate Numerical Modeling Method for Ceramic/Polymer Composites
L. Jylhä (*Helsinki University of Technology, Finland*); *J. Honkamo* (*University of Oulu, Finland*); *H. Jantunen* (*University of Oulu, Finland*); *A. Sihvola* (*Helsinki University of Technology, Finland*);

15:40 A Single Arm Phase Tracking Interferometer Based on a Plate Beamsplitter-Quarter Waveplate Combination and Using a Linearlyn Polarized Source
G. P. Riblet (*Microwave Development Laboratories, Inc., U.S.A.*);

16:00 Wave Polarization and Left-handed Materials in Metallic Magnetic Thin Films
Ruixin Wu (*Nanjing University, China*); *Xiaokai Zhang* (*University of Delaware, U.S.A.*); *John Q. Xiao* (*University of Delaware, U.S.A.*);

16:20 Improved Analysis of the Coupling of Optical Waves into Multimode Waveguides Using Overlap Integrals
M. Stallein (*University of Paderborn, Germany*); *C. Kolleck* (*University of Paderborn, Germany*); *G. Mrozynski* (*University of Paderborn, Germany*);

16:40 Model for Differential Model Delay Distribution in Multimode Fibers
Nishi Sharma (*University of New Hampshire, U.S.A*); *Abhijit S. Chitambar* (*University of New Hampshire, U.S.A*); *Charles H. Bianchi* (*University of New Hampshire, U.S.A*); *K. Sivaprasad* (*University of New Hampshire, U.S.A*);

17:00 Zero-filling Technique in Fresnel Transform Image Reconstruction for MR Image Denoising
Bin Rong Wu (*University of Utsunomiya, Japan*); *Satoshi Ito* (*University of Utsunomiya, Japan*); *Yoshitsugu Kamimura* (*University of Utsunomiya, Japan*); *Yoshifumi Yamada* (*University of Utsunomiya, Japan*);

17:20 A New Model for the Computation of Differential Group Delay from Polarization Distortion in Single Mode Fibers
Abhijit S. Chitambar (*Univ. Of New Hampshire, USA*); *K. Sivaprasad* (*University Of New Hampshire, USA*); *Charles H. Bianchi* (*Univ. Of New Hampshire, USA*); *Nishi Sharma* (*Univ. Of New Hampshire, USA*);

Session 4P5
Novel Mathematical Methods in Electromagnetics I

Thursday PM, August 25, 2005

Room 103 (1st Floor)

Organized by Kazuya Kobayashi, Yury Shestopalov

Chaired by Valentin Freilikher, Kazuya Kobayashi

13:20 A Preconditioner for Solving the Finite Element-Boundary Integral Matrix Equation of Scattering by Three-Dimensional Cavity
Yong-Ling Ban (*University of Electronic Science and Technology of China, China*); *Zaiping Nie* (*University of Electronic Science and Technology of China, China*); *Yan-Wen Zhao* (*University of Electronic Science and Technology of China, China*); *Shengbo Wu* (*University of Electronic Science and Technology of China, China*);

13:40 Numerical Technique for the Analysis of MEMS Structures including the Complex Motion Effect
Michiko Kuroda (*Tokyo University of Technology, Japan*);

14:00 Element Free Method with Numerical Grid Generation for Large Complicated Waveguide Analysis
G. Zhao (*National University of Singapore, Singapore*); *B. L. Ooi* (*National University of Singapore, Singapore*); *D. X. Xu* (*National University of Singapore, Singapore*); *M. S. Leong* (*National University of Singapore, Singapore*);

14:20 Influence of Parameters Uncertainties in Equivalent Circuit Modeling of 3D Electromagnetic Devices
S. Barmada (*Univ., Pisa, Italy*); *G. Becherini* (*Accademia Navale di LivornoViale, Italy*); *A. Musolino* (*Univ., Pisa, Italy*); *M. Raugi* (*Univ., Pisa, Italy*);

14:40 Image Reconstruction from Experimental Data Using the Forward-backward Time-stepping Method
Takashi Takenaka (*Nagasaki University, Japan*); *Toshiyuki Tanaka* (*Nagasaki University, Japan*); *Yoshinori Tanaka* (*Nagasaki University, Japan*); *Eiichiro Iwaya* (*Nagasaki University, Japan*);

15:00 **Coffee Break**

15:20 An Accurate Solution of Time-domain Magnetic Integral Equation Using Higher Vector Order Basis Function
Yan-Wen Zhao (*University of Electronic Science and Technology of China, China*); *Shengbo Wu* (*University of Electronic Science and Technology of China, China*); *Zaiping Nie* (*University of Electronic Science and Technology of China, China*); *Xi Luo* (*University of Electronic Science and Technology of China, China*); *Jianghua Xu* (*University of Electronic Science and Technology of China, China*);

15:40 Solitary Waves in Unbounded Cubic-nonlinear Media
Yury Shestopalov (*Karlstad University, Sweden*);

16:00 Location of Zeros of Electromagnetic H-waves on the Complex Plane
Masahiro Hashimoto (*Osaka Electro-Communication University, Japan*);

16:20 Statistical Aspects of Radar & Sar Polarimetry
Wolfgang-Martin Boerner (*University of Illinois at Chicago, U.S.A.*); *Dedicated to late Ernst Lüneburg* (*EML Consultants, Georg-Schmid Weg 4, Germany*);

16:40 Integral Approach to General Eddy Currents in Linear Structures
Ivo Doležel (*Institute of Electrical Engineering ASCR, Czech Republic*); *Pavel Karban* (*Faculty of Electrical Engineering UWB, Czech Republic*); *BohušUlrych* (*Faculty of Electrical Engineering UWB, Czech Republic*);

17:00 Method of Integrodifferential Equations for Solving Three-dimensional Diffraction Problems Using Supercomputers
Yu. G. Smirnov (*Penza State University, Russia*);

Session 4P6
Coherent Effects in Random Media

Thursday PM, August 25, 2005

Room 102 (1st Floor)

Organized by Valentin Freilikher

Chaired by Valentin Freilikher

13:00 Spectral Theory of Time Dispersive and Dissipative Systems
Alexander Figotin (*University of California at Irvine, U.S.A.*); *Jeffrey Schenker* (*Institut für Theoretische Physik, Switzerland*);

13:20 Scattering of TE Plane Wave from Periodic Grating with Defects
Kazuhiro Hattori (*Kyoto Institute of Technology, Japan*); *Junichi Nakayama* (*Kyoto Institute of Technology, Japan*);

13:40 Dicke Effect for Strongly Copled Quantum Dots
Richard Berkovits (*Bar-Ilan University, Israel*); *Felix von Oppen* (*Freie Universität Berlin, Germany*); *Jan W. Kantelhardt* (*Martin-Luther-University Halle-Wittenberg, Germany*);

14:00 Optical Properties of Complex Photonic Materials
Riccardo Sapienza (*European Laboratory for Nonlinear Spectroscopy (LENS) and INFM, Italy*); *Stefano Gottardo* (*European Laboratory for Nonlinear Spectroscopy (LENS) and INFM, Italy*); *Costanza Toninelli* (*European Laboratory for Nonlinear Spectroscopy (LENS) and INFM, Italy*); *Dominique Delande* (*École Normale Supérieure et Université Pierre et Marie Curie, France*); *Diederik Wiersma* (*European Laboratory for Nonlinear Spectroscopy (LENS) and INFM, Italy*);

14:20 Light Propagation through Randomly Spaced Partial Reflectors in a Single Mode Optical Fiber
H. Pérez (*Centro de Investigación Científica y de Educación Superior de Ensenada, México*); *N. Lizárraga* (*Centro de Investigación Científica y de Educación Superior de Ensenada, México*); *E. I. Chaikina* (*Centro de Investigación Científica y de Educación Superior de Ensenada, México*); *E. R. Méndez* (*Centro de Investigación Cientfica y de Educación Superior de Ensenada, México*); *J. A. Sánchez-Gil* (*Instituto de Estructura de la Materia, CSIC, Spain.*);

14:40 The Scattering of Light from a Moving Metal Surface
T. A. Leskova (*University of California, U.S.A.*); *A. A. Maradudin* (*University of California, U.S.A.*);

15:00 **Coffee Break**

15:20 Time Reversal and Detection in Random Media
Guillaume Bal (*Columbia University, U.S.A.*); *Olivier Pinaud* (*Columbia University, U.S.A.*);

15:40 Conductance of Photons in Disordered Photonic Crystals
A. A. Asatryan (*University of Technology, Australia*); *L. C. Botten* (*University of Technology, Australia*); *M. A. Byrne* (*University of Technology, Australia*); *T. N. Langtry* (*University of Technology, Australia*); *N. A. Nicorovici* (*University of Technology, Australia*); *R. C. McPhedran* (*University of Sydney, Australia*); *C. M. de Sterke* (*University of Sydney, Australia*); *P. A. Robinson* (*University of Sydney, Australia*);

16:00 The Twilight Zone in the Over-barrier Scattering: between Perturbation Theory and Quasiclassics
N. M. Makarov (*Universidad Autónoma de Puebla, México*); *K. Yu. Bliokh* (*Institute of Radio Astronomy, Ukraine*); *V. Freilikher* (*Bar-Ilan University, Israel*);

16:20 Tunneling and Localization in Two-level Systems Subjected to an Electromagnetic Field
M. Gitterman (*Bar-Ilan University, Israel*);

16:40 Localization of Transverse Waves in Randomly Layered Media at Oblique Incidence
K. Yu. Bliokh (*Institute of Radio Astronomy, Ukraine*); *V. Freilikher* (*Bar-Ilan University, Israel*);

Session 4P7a
Wavelet Application and Other Computational Method

Thursday PM, August 25, 2005

Room 101 (1st Floor)

Organized by Hai Deng

Chaired by Hai Deng

13:20 Fast Solution of Electromagnetic Integral Equations Using BCR Non-Standard Wavelet Decomposition
Hai Deng (*University of North Texas, U.S.A.*);

13:40 Data Hiding Method Apply to the Wireless Network
Wen-Chung Kuo (*National Formosa University, Taiwan*); *Yu-Chih Huang* (*Tainan Woman's College of Arts and Technology, Taiwan*);

14:00 Aeromagnetic Search using Genetic Algorithm
A. Sheinker (*R&D Integrated Systems Section, Propulsion Division, Soreq NRC, Israel*); *N. Salomonski* (*R&D Integrated Systems Section, Propulsion Division, Soreq NRC, Israel*); *B. Ginzburg* (*R&D Integrated Systems Section, Propulsion Division, Soreq NRC, Israel*); *L. Frumkis* (*Department of Electrical and Computer Engineering, Ben-Gurion University of the Negev, Israel*); *B. Z. Kaplan* (*Department of Electrical and Computer Engineering, Ben-Gurion University of the Negev, Israel*);

14:20 Frames and Dual Frames in Computational Electromagnetics
A. R. Baghai-Wadji (*RMIT University, Australia*); *A. S. Kahttab* (*Vienna University of Technology, Austria*);

14:40 Finite Element Based Transformer Operational Model for Dynamic Simulations
O. A. Mohammed (*Florida International University, U.S.A.*); *Z. Liu* (*Florida International University, U.S.A.*); *S. Liu* (*Florida International University, U.S.A.*); *N. Y. Abed* (*Florida International University, U.S.A.*); *L. J. Petersen* (*Office of Naval Research, U.S.A.*);

15:00 **Coffee Break**

Session 4P7b
Antennas

Thursday PM, August 25, 2005

Room 101 (1st Floor)

Chaired by K. M. Luk, Johnson J. H. Wang

15:20 Fast FEM Frequency Sweep of Patch Antenna Using Robust Well-Conditioned Asymptotic Waveform Evaluation
Li-Ping Hu (*University of Electronic Science and Technology of China, China*); *Yong-Ling Ban* (*University of Electronic Science and Technology of China, China*); *Zaiping Nie* (*University of Electronic Science and Technology of China, China*); *Feng Yang* (*University of Electronic Science and Technology of China, China*);

15:40 Analysis of Probe-fed Conformal Microstrip Antennas on Finite Ground Plane and Substrate
Ning Yuan (*National University of Singapore, Singapore*); *Tat Soon Yeo* (*National University of Singapore, Singapore*); *Xiao-Chun Nie* (*National University of Singapore, Singapore*); *Yeow Beng Gan* (*National University of Singapore, Singapore*); *Le-Wei Li* (*National University of Singapore, Singapore*);

16:00 Analysis of a Strip Monopole Mounted Near an Edge or a Vertex
Xiaofeng Que (*University of Electronic Science and Technology of China, China*); *Zaiping Nie* (*University of Electronic Science and Technology of China, China*);

16:20 Strip-Type AMC Structure and Analysis to Its Band-Gap Characteristic
Dunbao Yan (*National University of Defense Technology, China*); *Qiang Gao* (*National University of Defense Technology, China*); *Chao Wang* (*National University of Defense Technology, China*); *Naichang Yuan* (*National University of Defense Technology, China*);

16:40 A Critique and New Concept on Gain Bandwidth Limitation of Omnidirectional Antennas
Johnson J. H. Wang (*Wang Electro-Opto Corporation, U.S.A.*);

17:00 Multi-Band Meander Antenna
The-Nan Chang (*Tatung University, Taiwan*);

17:20 Wearable Antennas Adopted at Mobile Terminal in MIMO System
Wei-Hong Xiao (*University of Electronic Science and Technology of China, China*); *Zaiping Nie* (*University of Electronic Science and Technology of China, China*); *Yan Cheng* (*University of Electronic Science and Technology of China, China*);

17:40 Printed Dipole Antenna Designed with Microstrip Balun on V-shaped Ground Plane
Zhiguang Fan (*Zhejiang University, China*); *Lixin Ran* (*Zhejiang University, China*); *Kangsheng Chen* (*Zhejiang University, China*);

Session 5A1
Passive Microwave Imaging Technology and Applications

Friday AM, August 26, 2005

Room 301 (3rd Floor)

Organized by Ji Wu

Chaired by Ji Wu, Manuel Martin-Neira

08:00 Research Activity on Synthetic Aperture Radiometry in CSSAR/CAS
Ji Wu (*Center for Space Science and Applied Research, Chinese Academy of Sciences, China*); *Hao Liu* (*Center for Space Science and Applied Research, Chinese Academy of Sciences, China*); *Shouzheng Ban* (*Center for Space Science and Applied Research, Chinese Academy of Sciences, China*); *Xiaolong Dong* (*Center for Space Science and Applied Research, Chinese Academy of Sciences, China*); *Jingshan Jiang* (*Center for Space Science and Applied Research, Chinese Academy of Sciences, China*);

08:20 SMOS In-Orbit External Calibration and Validation
M. Martín-Neira (*European Space Agency, The Netherlands*); *M. Suess* (*European Space Agency, The Netherlands*); *J. Kainulainen* (*European Space Agency, The Netherlands*);

08:40 Evaluation of Imaging Performance for Sub-Y-type Interferometric Synthetic Aperture Radiometer
Ho-Jin Lee (*Gwangju Institute of Science and Technology, Korea*); *Hyuk Park* (*Gwangju Institute of Science and Technology, Korea*); *Sung-Hyun Kim* (*Gwangju Institute of Science and Technology, Korea*); *Yong-Hoon Kim* (*Gwangju Institute of Science and Technology, Korea*);

09:00 FY3 Microwave Radiometer Image(MWRI) Surface Parameters Inversion Algorithm and Validation in China
Yang Hu (*National Satellite Meteorological Center, China*); *Jiancheng Shi* (*University of California, Santa Barbara, U.S.A.*);

09:20 Application of Synthetic Aperture Radiometer Technology in Solar Wind Remote Sensing
Ji Wu (*Center for Space Science and Applied Research, Chinese Academy of Sciences, China*); *Hao Liu* (*Center for Space Science and Applied Research, Chinese Academy of Sciences, China*); *Weiying Sun* (*Center for Space Science and Applied Research, Chinese Academy of Sciences, China*); *Chi Wang* (*Center for Space Science and Applied Research,Chinese Academy of Sciences, China*); *Shui Wang* (*Chinese University of Science and Technology, China*); *Chingsheng Wu* (*Chinese University of Science and Technology, China*);

09:40 Optimization of Fourier Plane Coverage of Antenna Arrays for SPORT
Weiying Sun (*Center for Space Science and Applied Research, Chinese Academy of Sciences, China*); *Baoyu He* (*Center for Space Science and Applied Research, Chinese Academy of Sciences, China*); *Ji Wu* (*Center for Space Science and Applied Research, Chinese Academy of Sciences, China*);

10:00 **Coffee Break**

10:20 On-board Calibration Instruments of MIRAS
Andreas Colliander (*Helsinki University of Technology, Finland*); *Josu Uusitalo* (*Ylinen Electronics Ltd, Finland*); *Lasse Ruokokoski* (*Ylinen Electronics Ltd, Finland*); *Ville Kangas* (*Ylinen Electronics Ltd, Finland*); *Aleksi Aalto* (*Helsinki University of Technology, Finland*); *Janne Lahtinen* (*Ylinen Electronics Ltd, Finland*); *Martti Hallikainen* (*Helsinki University of Technology, Finland*);

10:40 Image Simulator for One Dimensional Synthetic Aperture Microwave Radiometer
Qiong Wu (*Center for Space Science and Applied Research, CAS, China*); *Hao Liu* (*Center for Space Science and Applied Research, CAS, China*); *Ji Wu* (*Center for Space Science and Applied Research, CAS, China*);

11:00 Wavelet Interpolation Algorithm for Synthetic Aperture Radiometer
Chunxia Fu (*Center for Space Science and Applied Research, Graduate School of Chinese Academy of Sciences, China*); *Ji Wu* (*Center for Space Science and Applied Research, Graduate School of Chinese Academy of Sciences, China*);

11:20 Design and Implementation of Digital Correlator for CAS Synthetic Aperture Radiometer
Jingye Yan (*Center for Space Science and Applied Research, Chinese Academy of Sciences, China*); *Ji Wu* (*Center for Space Science and Applied Research, Chinese Academy of Sciences, China*); *Hao Liu* (*Center for Space Science and Applied Research, Chinese Academy of Sciences, China*); *Xiaolong Dong* (*Center for Space Science and Applied Research, Chinese Academy of Sciences, China*); *Jingshan Jiang* (*Center for Space Science and Applied Research, Chinese Academy of Sciences, China*);

11:40 Tsunami Detection Using the PARIS Concept
M. Martín-Neira (*European Space Agency, The Netherlands*); *C. Buck* (*European Space Agency, The Netherlands*); *S. Gleason* (*University of Surrey, U.K.*); *M. Unwin* (*University of Surrey, U.K.*); *M. Caparrini* (*Edifici de l'Observatori Fabra, Muntanya del Tibidabo, Spain*); *E. Farrés* (*Edifici de l'Observatori Fabra, Muntanya del Tibidabo, Spain*); *Olivier Germain* (*Edifici de l'Observatori Fabra, Muntanya del Tibidabo, Spain*); *G. Ruffini* (*Edifici de l'Observatori Fabra, Muntanya del Tibidabo, Spain*); *F. Soulat* (*Edifici de l'Observatori Fabra, Muntanya del Tibidabo, Spain*);

Session 5A2
Periodic Structures I: Photonic Crystals and Related Topics

Friday AM, August 26, 2005

Room 201 (2nd Floor)

Organized by Yoichi Okuno, Tsuneki Yamasaki

Chaired by T. J. Cui, Y. J. Feng

08:40 Research on the Wide-angle and Broadband 2D Photonic Crystal Polarization Splitter
Y. Y. Li (*Zhejiang University, China*); *P. F. Gu* (*Zhejiang University, China*); *M. Y. Li* (*Zhejiang University, China*); *H. Yan* (*Zhejiang University, China*); *X. Liu* (*Zhejiang University, China*);

09:00 Tunable Study of Frequency Selective Filter Based on Photonic Crystal
Gang Bi (*Zhejiang University, China*); *Yongjin Zhang* (*Zhejiang University, China*); *Huajuan Wang* (*Zhejiang University, China*);

09:20 Superprism Effect in Thin Film Fabry-Perot Filter
Xue-Zheng Sun (*Zhejiang University, China*); *Pei-Fu Gu* (*Zhejiang University, China*); *Hai-Xing Chen* (*Zhejiang University, China*); *Bo Jin* (*Zhejiang University, China*); *Hai-Feng Li* (*Zhejiang University, China*); *Xu Liu* (*Zhejiang University, China*);

09:40 Difference between Homogeneous and Inhomogeneous Methods While Simulating Nonlinear Kerr Type Photonic Crystals
J-J. Bonnefois (*GEA, France*); *G. Guida* (*GEA, France*); *A. Priou* (*GEA, France*);

10:00 **Coffee Break**

10:20 Unification of Gap Soliton Classes
Xunya Jiang (*Shanghai Institute of Mircrosystems and Information Technology, China*); *Mingrui Zhang* (*Shanghai Institute of Mircrosystems and Information Technology, China*); *Chuanhong Zhou* (*Shanghai Institute of Mircrosystems and Information Technology, China*); *J. D. Joannopoulos* (*Massachusetts Institute of Technology, U. S. A.*);

10:40 Lamb Shift of Sources Embedded in Finite Two-dimensional Photonic Clusters
A. A. Asatryan (*University of Technology, Australia*); *L. C. Botten* (*University of Technology, Australia*); *N. A. Nicorovici* (*University of Technology, Australia*);

11:00 A Theoretical Study of the Chirped and Apodized Photonic Crystals
Gang Bi (*Zhejiang University, China*); *Huajuan Wang* (*Zhejiang University, China*);

11:20 Dielectric 2-D PBG Sheet Used as Substrate or Superstrate of Patch Antennas
Zhi-Chen Ge (*Southeast University, China*); *Wen-Xun Zhang* (*Southeast University, China*); *Ying-Ying Gu* (*Southeast University, China*); *Zhen-Guo Liu* (*Southeast University, China*);

Session 5A3
Antenna Design and EMC Problems for the Car-based Communications

Friday AM, August 26, 2005

Room 202 (2nd Floor)

Organized by Hsi-Tseng Chou, S. T. Peng

Chaired by Hsi-Tseng Chou, S. T. Peng

08:00 A Vehicle-mounted Conformal Dual-band GPS/GSM Antenna
Wen-Jiao Liao (*Yuan Ze University, Taiwan*); *Yan-Chun Peng* (*Yuan Ze University, Taiwan*);

08:20 Applications of Mounted Horns and R-cards to Improve the Radiation Performance of Microstrip Antennas Installed on the Car Roof
Hsi-Tseng Chou (*Yuan Ze University, Taiwan*); *Chung-Yi Chung* (*Yuan Ze University, Taiwan*); *Yu-Ting Hsiao* (*Yuan Ze University, Taiwan*);

08:40 Currents Induced in Human Bodies Sitting inside a Vehicle Exposed to Lightning Electromagnetic Pulse Waves
Hsing-Yi Chen (*Yuan Ze University, Taiwan*); *Yu-Feng Kuo* (*Yuan Ze University, Taiwan*);

09:00 A Compact CPW-Fed Monopole Antenna for WLAN Systems
Yuehe Ge (*Macquarie University, Australia*); *Karu P. Esselle* (*Macquarie University, Australia*); *Trevor S. Bird* (*CSIRO ICT Centre, Australia*);

09:20 Signal Modulation Recognizer Based on Method of Artificial Neural Networks
M. Richterova (*University of Defence, Czech Republic*);

09:40 Dual-Band(PCS/IMT-2000) Mobile Handset Antenna
Ho-Jun Lee (*Korea Electronics Technology Institute, Korea*); *Se-Hwan Choi* (*Korea Electronics Technology Institute, Korea*); *Jae-Young Lee* (*Korea Electronics Technology Institute, Korea*); *Jong-Kyu Kim* (*Korea Electronics Technology Institute, Korea*); *Byungje Lee* (*Kwangwoon University, Korea*);

10:00 **Coffee Break**

10:20 Determination of Resonant Frequencies of Triangular and Retangular Microstrip Antennas, Using Artificial Neural Networks
E. R. Brinhole (*Londrinense Metropolitan Faculty-UMP, Brazil*); *J. F. Z. Destro* (*CEFET at Cornélio Procpio, Brazil*); *A. A. C. de Freitas* (*CEFET at Cornlio Procpio, Brazil*); *N. P. de Alcantara Jr.* (*São Paulo State University-Unesp, Brazil*);

10:40 A LTCC-MLC Balance Filter with Two Transmission Zeros Using Image Parameter Method
Yng-Huey Jeng (*National Chung Cheng University, Taiwan*); *Yi-Ming Chen* (*National Chung Cheng University, Taiwan*); *Sheng-Fuh Chang* (*National Chung Cheng University, Taiwan*); *Hsiao-Kuang Lin* (*National Chung Cheng University, Taiwan*);

11:00 A Miniaturized Dual-mode Bandpass Filter Using Self-coupled Step-impedance Resontaors
Yi-Ming Chen (*National Chung Cheng University, Taiwan*); *Yng-Huey Jeng* (*National Chung Cheng University, Taiwan*); *Sheng-Fuh Chang* (*National Chung Cheng University, Taiwan*);

11:20 Step-impedance Pseudo Interdigital Bandpass Filter with Multi Octave Stop-band Suppression
Sheng-Fuh Chang (*National Chung Cheng University, Taiwan*); *Chia-Chan Chang* (*National Chung Cheng University, Taiwan*); *Sheng-Chi Hsieh* (*National Chung Cheng University, Taiwan*); *Yi-Ming Chen* (*National Chung Cheng University, Taiwan*); *Gong-Hong Chou* (*National Chung Cheng University, Taiwan*);

11:40 Development of Prime Feed Reflector Antenna for Site Survey Applications
Dau-Chyrh Chang (*Da Yeh University, Taiwan*); *Chao-Hsiang Liao* (*Da Yeh University, Taiwan*);

Session 5A4a
Device

Friday AM, August 26, 2005

Room 203 (2nd Floor)

Chaired by Jan Vrba, D. Stancil

08:00 Design and Simulation of RSFQ/RISC Computer System
Zhong-Hai Zhang (*Xidian University, China*); *Bo-Ran Guan* (*Hangzhou Dianzi University, China*);

08:20 Characterization of a Quasi-optical NbN Superconducting Hot-Electron Bolometer Mixer
L. Jiang (*Purple Mountain Observatory, NAOC, CAS, China*); *W. Zhang* (*Purple Mountain Observatory, NAOC, CAS, China*); *Q. J. Yao* (*Purple Mountain Observatory, NAOC, CAS, China*); *Z. H. Lin* (*Purple Mountain Observatory, NAOC, CAS, China*); *S. C. Shi* (*Purple Mountain Observatory, NAOC, CAS, China*); *Y. B. Vachtomin* (*Moscow State Pedagogical University, Russia*); *S. V. Antipov* (*Moscow State Pedagogical University, Russia*); *S. I. Svechnikov* (*Moscow State Pedagogical University, Russia*); *B. M. Voronov* (*Moscow State Pedagogical University, Russia*); *G. N. Gol'tsman* (*Moscow State Pedagogical University, Russia*);

08:40 Study of Flicker Noise for Zero-IF Receiver
Jun Gao (*Southwest Jiaotong University, China*); *Jinsheng Tang* (*Southwest Jiaotong University, China*); *Kemin Sheng* (*Southwest Jiaotong University, China*);

09:00 An Improved Design for Ka-Band Phase Shifter Using Distributed MEMS Transmission Line Structure
Bo-Shi Jin (*Harbin Institute of Technology, China*); *Yu-Ming Wu* (*Harbin Institute of Technology, China*); *Qun Wu* (*Harbin Institute of Technology, China*); *Hao-yuan She* (*Harbin Institute of Technology, China*); *Le-Wei Li* (*Harbin Institute of Technology, China*);

09:20 Improving Design of Symmetrical Six-Port Microstrip Coupler
Yuan Chen (*National University of Singapore, Singapore*); *Ji-Jun Yao* (*National University of Singapore, Singapore*); *Swee Ping Yeo* (*National University of Singapore, Singapore*);

09:40 Research on the Method of Neural Network Modeling Based on FCM Algorithm and Its Application on Vision-based Sensors
D. B. Hou (*Zhejiang University, China*); *D. Yu* (*Zhejiang University, China*); *Z. K. Zhou* (*Zhejiang University, China*);

10:00 **Coffee Break**

Session 5A4b
Medical Applications

Friday AM, August 26, 2005

Room 203 (2nd Floor)

Organized by Joseph P Pribetich, Xiaodong Chen

Chaired by Joseph P Pribetich, Xiaodong Chen

10:20 Theory of Evanescent Mode Applicators
Jan Vrba (*Czech Technical University in Prague, Czech Republic*); *Jakub Cvek* (*Czech Technical University in Prague, Czech Republic*); *Ladislav Oppl* (*Czech Technical University in Prague, Czech Republic*); *Josef Kvěch* (*Institute of Radiation Oncology in Prague, Czech Republic*); *Jiří Kubeš* (*Institute of Radiation Oncology in Prague, Czech Republic*);

10:40 Arrays of Waveguide Applicators for Microwave Thermotherapy
Jan Vrba (*Czech Technical University in Prague, Czech Republic*); *Roman Chovanec* (*Czech Technical University in Prague, Czech Republic*); *Hana Trefná* (*Czech Technical University in Prague, Czech Republic*); *Jan Herza* (*Czech Technical University in Prague, Czech Republic*); *Josef Kvěch* (*Institute of Radiation Oncology in Prague, Czech Republic*); *Jiří Kubeš* (*Institute of Radiation Oncology in Prague, Czech Republic*);

11:00 Comparison of Two Different Absorbing Boundary Conditions in Numerical Dosimetry of Animals Using FDTD Code
Y. Alfadhl (*Queen Mary University of London, UK*); *X. Chen* (*Queen Mary University of London, UK*);

11:20 Development of a Miniature Sensor for the Temperature Follow-up Using Microwave Radiometry in Chronobiology
L. Dubois (*Université des Sciences and Technologies de LILLE, France*); *C. Ricard* (*Universite des Sciences and Technologies de LILLE, France*); *L. Beghin* (*Centre d'Investigation Clinique du Centre Hospitalier Régional et Universitaire de Lille Hôpital Cardiologique, France*); *P.-Y. Cresson* (*Universite des Sciences and Technologies de LILLE, France*); *J. Pribetich* (*Universite des Sciences and Technologies de LILLE, France*);

Session 5A5
Novel Mathematical Methods in Electromagnetics II

Friday AM, August 26, 2005

Room 103 (1st Floor)

Organized by Kazuya Kobayashi, Yury Shestopalov

Chaired by Sami Barmada, Rachid Talhi

08:20 An Accurate and Stable Solution of Time-domain Integral Equation for Electromagnetic Scattering from 3-D Dielectric Bodies
Xi Luo (*University of Electronic Science and Technology of China, China*); *Yan-Wen Zhao* (*University of Electronic Science and Technology of China, China*); *Shengbo Wu* (*University of Electronic Science and Technology of China, China*); *Zaiping Nie* (*University of Electronic Science and Technology of China, China*);

08:40 A Method of Solution for a Large-sized Least-squares Problem with a Block-diagonal Jacobian
M. Ohtsu (*Kumamoto University, Japan*); *Y. Okuno* (*Kumamoto University, Japan*); *T. Matsuda* (*Kumamoto National College of Technology, Japan*);

09:00 Analysis of Strip Gratings Using a Parametric Modal Method by Fourier Expansions
G. Granet (*Université Blaise Pascal, France*); *J. P. Plumey* (*Université Blaise Pascal, France*); *N. Yashina* (*I.R.E.N.A.S. of Ukraine, Ukraine*); *F. Tinasoa* (*Université de Fianarantsoa Madagascar, Madagascar*); *K. Raniriharinosy* (*Université de Fianarantsoa Madagascar, Madagascar*);

09:20 Efficient Computation of Z-parameter for the Rectangular Planar Circuit Analysis
Ping Liu (*Shanghai Jiaotong University, China*); *Zhengfan Li* (*Shanghai Jiaotong University, China*);

09:40 Bistatic Scattering Enhancement Phenomenon in a Random Medium
Z. Q. Meng (*Fukuoka University, Japan*); *M. Tateiba* (*Kyushu University, Japan*);

10:00 **Coffee Break**

10:20 Effect of Absorption on the Resonances in One-dimensional Random Systems
K. Yu. Bliokh (*Bar-Ilan University, Israel*); *Yu. P. Bliokh* (*Department of Physics, Israel*); *V. Freilikher* (*Bar-Ilan University, Israel*); *A. Genack* (*Queens College of CUNY, USA*); *B. Hu* (*Queens College of CUNY, USA*); *J. Klosner* (*Queens College of CUNY, USA*); *P. Sebah* (*Queens College of CUNY, USA*);

10:40 A Nonlinear Eigenvalue Hybrid FEM Formulation for Two Dimensional Open Waveguiding Structures
P. C. Allilomes (*Democritus University of Thrace, Greece*); *G. A. Kyriacou* (*Democritus University of Thrace, Greece*);

11:00 Comparative Study of Synchrotron and Cherenkov Radiations - Tutorial Review
Toshiyuki Shiozawa (*Chubu University, Japan*);

11:20 Rigorous Representations of Source-excited Electromagnetic Fields in Cylindrically Stratified Gyrotropic Media
A. V. Kudrin (*University of Nizhny Novgorod, Russia*); *E. Yu. Petrov* (*University of Nizhny Novgorod, Russia*); *L. L. Popova* (*University of Nizhny Novgorod, Russia*); *T. M. Zaboronkova* (*Technical University of Nizhny Novgorod, Russia*);

Session 5A6a
Metamaterials & Novel Structures

Friday AM, August 26, 2005

Room 102 (1st Floor)

Organized by Le-Wei Li

Chaired by Le-Wei Li

08:40 Realization of PEMC (Perfect Electromagnetic Conductor) Boundary
I. V. Lindell (*Helsinki University of Technology, Finland*); *A. Sihvola* (*Helsinki University of Technology, Finland*);

09:00 Split Ring Resonators and Complementary Split Ring Resonators: Left-handed Lines and Applications in Microwave Planar Technology
M. A. G. Laso (*Universidad Pública de Navarra, Spain*); *T. Lopetegi* (*Universidad Pública de Navarra, Spain*); *F. Falcone* (*Universidad Pública de Navarra, Spain*); *E. Jarauta* (*Universidad Pública de Navarra, Spain*); *J. D. Baena* (*Universidad de Sevilla, Spain*); *J. Bonache* (*Universitat Autònoma de Barcelona, Spain*); *J. García-García* (*Universitat Autònoma de Barcelona, Spain*); *J. Illescas* (*Pol. Plazaola F-Nave 1, Spain*); *A. Marcotegui* (*Universidad Pública de Navarra, Spain*); *F. Martín* (*Universitat Autònoma de Barcelona, Spain*); *R. Marqués* (*Universidad de Sevilla, Spain*); *M. Sorolla* (*Universidad Pública de Navarra, Spain*);

09:20 Stability and Quality Factor of Sub-wavelength Rectangular Cavity Partially Filled with Left-handed Material
Tian Jiang (*Nanjing University, China*); *Yijun Feng* (*Nanjing University, China*); *Yan Chen* (*Nanjing University, China*);

09:40 SRRs' Artificial Magnetic Metamaterials Modeling Using Transmission Line Theory
Ming-Feng Wu (*Harbin Institute of Technology, China*); *Fan-Yi Meng* (*Harbin Institute of Technology, China*); *Qun Wu* (*Harbin Institute of Technology, China*); *Jian Wu* (*National key Laboratory of Electromagnetic Environment, China*); *Le-Wei Li* (*Harbin Institute of Technology, China*);

10:00 **Coffee Break**

Session 5A6b
Nanophotonics and Surface-enhanced Raman Scattering

Friday AM, August 26, 2005

Room 102 (1st Floor)

Organized by Kevin J. Webb

Chaired by Kevin J. Webb

10:20 Surface-plasmon-enhanced Optical Transmission through Planar Metal Films
L. Lin (*University of Canterbury, New Zealand*); *R. J. Blaikie* (*University of Canterbury, New Zealand*); *R. J. Reeves* (*University of Canterbury, New Zealand*);

10:40 A Model for Surface-Enhanced Raman Scattering
Kevin J. Webb (*Purdue University, USA*); *J. Li* (*Purdue University, USA*);

11:00 Plasmon Enhanced Near-Field Optical Lithography
D. O. S. Melville (*University of Canterbury, New Zealand*); *R. J. Blaikie* (*University of Canterbury, New Zealand*);

Session 5A7
RF Safety Issues

Friday AM, August 26, 2005

Room 101 (1st Floor)

Organized by C. K. Chou

Chaired by C. K. Chou

08:40 The State of the Science of Radiofrequency Health Effects
M. L. Swicord (*Motorola Florida Research Laboratories, USA*); *J. A. Elder* (*Motorola Florida Research Laboratories, USA*); *J. J. Morrissey* (*Motorola Florida Research Laboratories, USA*);

09:00 Studies in the Radiofrequency Literature Relevant to the Use of Mobile Phones by Children
J. A. Elder (*Motorola Florida Research Laboratories, USA*);

09:20 Effects of Microwaves from GSM Mobile Phones on the Blood-brain Barrier and Neurons in Rat Brain
Bertil R. R. Persson (*Lund University Hospital, Sweden*); *Jacob Eberhardt* (*Lund University Hospital, Sweden*); *Lars Malmgren* (*Lund University Hospital, Sweden*); *Mikael B Persson* (*Lund University Hospital, Sweden*); *Arne Brun* (*Lund University Hospital, Sweden*); *Leif G Salford* (*Lund University Hospital, Sweden*);

09:40 Toxicity Effects of 4T Superconductive Static Magnetic Field on Rat and It's Embryo
Xiao-Yun Zhang (*Shenzhen University, China*); *Yu Zhang* (*Shenzhen University, China*);

10:00 **Coffee Break**

10:20 In Vivo Exposure Setup for Large Scale Toxicity/Carcinogenicity Studies with Rats at 900/1800MHz
S. Ebert (*Foundation for Research on Information Technologies in Society (IT'IS), Switzerland*); *N. Nikoloski* (*Foundation for Research on Information Technologies in Society (IT'IS), Switzerland*); *V. Berdiñas* (*Foundation for Research on Information Technologies in Society (IT'IS), Switzerland*); *J. Fröhlich* (*Foundation for Research on Information Technologies in Society (IT'IS), Switzerland*); *N. Kuster* (*Foundation for Research on Information Technologies in Society (IT'IS), Switzerland*);

10:40 Energy Absorption in Layered Biological Tissue and Its Consequences on the Compliance Testing of Body-Mounted Wireless Devices
A. Christ (*Foundation for Research on Information Technologies in Society , Switzerland*); *A. Klingenböck* (*Foundation for Research on Information Technologies in Society , Switzerland*); *N. Kuster* (*Foundation for Research on Information Technologies in Society, Switzerland*);

11:00 Study of SAR Reduction in the Human Head with Metamaterials
Jiunn-Nan Hwang (*National Chiao Tung University, Taiwan*); *Fu-Chiarng Chen* (*National Chiao Tung University, Taiwan*);

11:20 Harmonization of International RF Safety Standards
C-K. Chou (*Institute of Electrical and Electronics Engineers, USA*); *J. A. D'Andrea* (*Institute of Electrical and Electronics Engineers, USA*); *R. A. Tell* (*Institute of Electrical and Electronics Engineers, USA*); *E. R. Adair* (*Institute of Electrical and Electronics Engineers, USA*); *M. L. Swicord* (*Institute of Electrical and Electronics Engineers, USA*); *Sakari Lang* (*Institute of Electrical and Electronics Engineers, USA*); *John DeFrank* (*Institute of Electrical and Electronics Engineers, USA*); *R. C. Petersen* (*Institute of Electrical and Electronics Engineers, USA*);

Session 5P1a
Application of Remote Sensing Techniques in Earth Sciences

Friday PM, August 26, 2005

Room 301 (3rd Floor)

Organized by V. Sudarshan

Chaired by V. Sudarshan

13:20 The Effect of Tree Crown Structure on Radar Backscatter Using Model Analysis
Zhifeng Guo (*Institute of Remote Sensing Applications, Chinese Academy of Sciences, China*); *Guoqing Sun* (*University of Maryland, USA*); *Xuan Li* (*National Meteorological Center, China*);

13:40 Radiometric Cross-calibration of MODIS and CMODIS Based on Dunhuang Test Site
Xuan Li (*National Meteorological Center, China*); *Zhifeng Guo* (*Institute of Remote Sensing Applications, Chinese Academy of Sciences, China*);

14:00 New Model of Atmospheric Radio Noise at Low and Very Low Frequencies in the Atlantic Area
Sophie Fieve (*DGA/CTSN, France*); *Philippe Portala* (*DGA/CTSN, France*); *Louis Bertel* (*Université de Rennes 1, France*);

14:20 The Landslide Analysis of Taiwan in 2004
Long-Shin Liang (*National Central University, Taiwan*); *Kun-Shan Chen* (*National Central University, Taiwan*); *Chin-Lun Wang* (*National Chung Hsing University, Taiwan*);

14:40 An Advanced Technology for Multi-layered Cloud Properties Retrievals
J. Huang (*Lanzhou University, China*); *B. Lin* (*NASA Langley Research Center, USA*); *P. Minnis* (*NASA Langley Research Center, USA*); *Y. Yi* (*Analytical Service & Material Inc., USA*); *T. F. Fan* (*SAIC, One Enterprise Parkway, USA*); *R. Arduini* (*SAIC, One Enterprise Parkway, USA*);

15:00 **Coffee Break**

Session 5P1b
Randomly Rough Surface and Volume Scattering

Friday PM, August 26, 2005

Room 301 (3rd Floor)

Organized by Gerard Berginc

Chaired by Gerard Berginc

15:20 Reduced Rayleigh Equations in the Scattering of Light from and Its Transmission through a Film with Two One-dimensional Randomly Rough Surfaces
T. A. Leskova (*University of California, Irvine, USA*); *A. A. Maradudin* (*University of California, Irvine, USA*);

15:40 Non-local Effective Medium for the Electromagnetic Response of Colloidal Systems: a T-matrix Approach
Rubén G. Barrera (*Universidad Nacional Autónoma de México, México*); *Alejandro Reyes-Coronado* (*Universidad Nacional Autónoma de México, México*); *A. García-Valenzuela* (*Universidad Nacional Autónoma de México, México*);

16:00 Surface Effects on the Coherent Reflection of Light from a Polydisperse Colloid
A. García-Valenzuela (*Universidad Nacional Autónoma de México, México*); *C. Sánchez-Pérez* (*Universidad Nacional Autónoma de México, México*); *Rubén G. Barrera* (*Universidad Nacional Autónoma de México, México*); *Alejandro Reyes-Coronado* (*Universidad Nacional Autónoma de México, México*);

16:20 Measurement of the Effective Refractive Index of a Turbid Colloidal Suspension Using Light Refraction
Alejandro Reyes-Coronado (*Universidad Nacional Autnoma de México, México*); *A. García-Valenzuela* (*Universidad Nacional Autnoma de México, México*); *C. Sánchez-Pérez* (*Universidad Nacional Autnoma de México, México*); *Rubén G. Barrera* (*Universidad Nacional Autnoma de México, México*);

16:40 Ellipsometry of Inhomogeneous Media Interfaces
E. R. Méndez (*Centro de Investigación Científica y de Educación Superior de Ensenada, México*); *A. García-Valenzuela* (*Universidad Nacional Autónoma de México, México*); *Alejandro Reyes-Coronado* (*Universidad Nacional Autónoma de México, México*); *Rubén G. Barrera* (*Universidad Nacional Autónoma de México, México*);

17:00 Reconstruction of Small Inclusions
H. Ammari (*CMAP, France*);

17:20 Nanosecond Laser Pulse Scattering from Arbitrarily Shaped Objects with Rough Surfaces
Gérard Berginc (*Thalès Optronique, France*);

Session 5P2
Periodic Structures II

Friday PM, August 26, 2005

Room 201 (2nd Floor)

Organized by Yoichi Okuno, Tsuneki Yamasaki

Chaired by Yoichi Okuno, Tsuneki Yamasaki

13:20 Improving the Fourier Modal Method for Crossed Gratings with C_4 Symmetry by Use of a Group-theoretic Approach
Benfeng Bai (*Tsinghua University, China*); *Lifeng Li* (*Tsinghua University, China*);

13:40 Plasmon Resonance-absorption in a Metal Grating and Its Application for Refractive-index Measurement
T. Suyama (*Kumamoto University, Japan*); *Y. Okuno* (*Kumamoto University, Japan*); *T. Matsuda* (*Kumamoto National College of Technology, Japan*);

14:00 Resonant Scattering by a Multilayered Grating
T. Matsuda (*Kumamoto National College of Technology, Japan*); *Y. Okuno* (*Kumamoto University, Japan*); *T. Suyama* (*Kumamoto University, Japan*); *M. Ohtsu* (*Kumamoto University, Japan*); *A. Wakahara* (*Toyohashi University of Technology, Japan*); *T. Nakamura* (*Kushiro National College of Technology, Japan*);

14:20 Realization of EM-wave Localization Using a Left-handed Transmission-line Super Lens
T. J. Cui (*Southeast University, China*); *Qiang Cheng* (*Southeast University, China*); *Zhi Zhong Huang* (*Southeast University, China*); *Yijun Feng* (*Nanjing University, China*);

14:40 Nano-magnetic Structures Characterization in Thin Films
D. Bajalan (*Vienna University of Technology, Austria*);

15:00 **Coffee Break**

15:20 Nano Segregation Effects on Nano Magnetic Properties in Multi-layer Thin Films
D. Bajalan (*Vienna University of Technology, Austria*);

15:40 Light Propagation in Random Waveguide Systems
Akira Komiyama (*Osaka Electro-Communication University, Japan*);

16:00 A Recursive Solution of a Linear Equation System and Its Application to Wave Scattering
Junichi Nakayama (*Kyoto Institute of Technology, Japan*); *Lan Gao* (*5 Calmwater Crescent, Oyster Cove, Hope Island, Qld 4212, Australia, Australia*); *Kazuhiro Hattori* (*Kyoto Institute of Technology, Japan*);

16:20 Wave Propagation in Periodically Stratified Inhomogeneous Media by Fourier Series Expansion Methods
Tsuneki Yamasaki (*Nihon University, Japan*); *Kastuji Isono* (*Nihon University, Japan*); *Takashi Hinata* (*Nihon University, Japan*);

Session 5P3a
Volume and Rough Surface Scattering in Remote Sensing

Friday PM, August 26, 2005

Room 202 (2nd Floor)

Chaired by J. Bredow, S. Nakamura

13:00 Analysis of Brightness Temperature Data from a Corn Canopy with Vertical Temperature Gradient and Leaf Stress
S. Paloscia (*Institute of Applied Physics -IFAC-CNR, Italy*); *P. Pampaloni* (*Institute of Applied Physics - IFAC-CNR, Italy*); *M. A. Karam* (*Northrop Grumman Navigation and Space Sensors Division, Litton Systems, Inc., USA*); *W. J. Massman* (*USDA/Forest Service, Rocky Mountain Station, USA*);

13:20 Effect of Wave Polarization on Radar Cross Section of Conducting Targets in Random Media
Hosam El-Ocla (*Lakehead University, Canada*);

13:40 Impact of Volume Scattering from Tilled Soil Using a 2D Numerical Model
C. Onier (*Climate soil and environment reseach unit, France*); *A. Chambarel* (*Climate soil and environment reseach unit, France*); *A. Chanzy* (*Climate soil and environment reseach unit, France*); *H. Bolvin* (*Climate soil and environment reseach unit, France*); *M. Chanet* (*Technologies, information support systems and processes for agriculture and food industry research unit, France*); *R. Rouveure* (*Technologies, information support systems and processes for agriculture and food industry research unit, France*);

14:00 Efficient Analysis of Periodic Structures with Arbitrary Shape Using Volume-surface Integral Equation Method
Da-Zhi Ding (*City University of Hong Kong, China*); *Edward Kai-Ning Yung* (*City University of Hong Kong, China*); *Dao-Xiang Wang* (*City University of Hong Kong, China*); *R. S. Chen* (*Nanjing University of Science and Technology, China*);

14:20 A Statistical Integral Equation Model for EM Scattering from Rough Surface
Yang Du (*Zhejiang University, China*); *Zhuoyuan Wang* (*Zhejiang University, China*); *Liang Peng* (*Zhejiang University, China*); *Wenzhe Yan* (*Zhejiang University, China*); *J. A. Kong* (*Massachusetts Institute of Technology, U.S.A*);

14:40 Scattering of the Transmitted Light by Randomly Rough Dielectric Surface
D. A. Rogatkin (*Russian Academy of Science, Russia*); *V. V. Tchernyi* (*Russian Academy of Science, Russia*);

15:00 **Coffee Break**

Session 5P3b
Detection & Characterization of Aerosol (or Small Airborne Particles) by Optics

Friday PM, August 26, 2005

Room 202 (2nd Floor)

Organized by Yong-Le PAN, Jianqi Shen

Chaired by Gorden Videen

15:20 Aerodynamic Sorting and Regrouping of Bioaerosols Cue from Their UV-LIF Spectroscopy
Yong-Le Pan (*Yale University, USA*); *Richard K. Chang* (*Yale University, USA*);

15:40 Study on the Thermophoretic Deposition Efficiency of PM2.5 Using Grey System Theory
Tao Zhou (*Tsinghua University, China*); *Ruichang Yang* (*Tsinghua University, China*); *Lei Zhao* (*Tsinghua University, China*);

16:00 Experimental Research on Real-time Detection for Aerosol Particle Aerodynamic Diameter
Fenping Cui (*Anhui Institute of Optics and Fine Mechanics, Chinese Academy of Sciences, China*); *Xiaoming Gao* (*Anhui Institute of Optics and Fine Mechanics, Chinese Academy of Sciences, China*); *Fang Li* (*Anhui Institute of Optics and Fine Mechanics, Chinese Academy of Sciences, China*); *Haiyang Zheng* (*Anhui Institute of Optics and Fine Mechanics, Chinese Academy of Sciences, China*); *Wei Huang* (*Anhui Institute of Optics and Fine Mechanics, Chinese Academy of Sciences, China*); *Shixin Pei* (*Anhui Institute of Optics and Fine Mechanics, Chinese Academy of Sciences, China*); *Weizheng Li* (*Anhui Institute of Optics and Fine Mechanics, Chinese Academy of Sciences, China*); *Weijun Zhang* (*Anhui Institute of Optics and Fine Mechanics, Chinese Academy of Sciences, China*);

16:20 The Research of Magnetorheological Fluid Damper
Yan Yang (*Chongqing Institute of Technology, China*); *Qi Lin Tang* (*Chongqing Institute of Technology, China*); *Jing Zhou* (*Chongqing Institute of Technology, China*); *Hui Li* (*Chongqing Institute of Technology, China*);

16:40 Algorithm of Numerical Calculation on Lorentz Mie Theory
Jianqi Shen (*University of Shanghai for Science and Technology, China*); *Xiaoshu Cai* (*University of Shanghai for Science and Technology, China*);

17:00 Elastic Scattering of Irregular Aerosol Particles
Gorden Videen (*Army Research Laboratory AMSRD-ARL-CI-EM, USA*);

Session 5P4a
Optical Fibers and Photonic Crystals

Friday PM, August 26, 2005

Room 203 (2nd Floor)

Chaired by C. R. Simovski, Wang Chao-Fu

13:00 Exact Modelling of Defect Modes in Photonic Crystal Structures Using the Fictitious Source Superposition Model
L. C. Botten (*University of Technology, Australia*); *S. Wilcox* (*University of Sydney, Australia*); *R. C. McPhedran* (*University of Sydney, Australia*); *C. M. de Sterke* (*University of Sydney, Australia*);

13:20 Guided-Mode Analysis of an Optical Waveguide Using the Imaginary-distance Beam-propagation Method with Efficient Absorbing Layers
J. Shibayama (*Hosei University, Japan*); *T. Yamazaki* (*Hosei University, Japan*); *J. Yamauchi* (*Hosei University, Japan*); *H. Nakano* (*Hosei University, Japan*);

13:40 Development of Fiber-optic Waveplates and Their Application in All-fiber Electric Current Sensing Architectures
Hung-Chia Huang (*Shanghai University, China*); *Shou-Qiuan Yao* (*Shanghai University, China*); *Ming-Jue Tang* (*Shanghai University, China*);

14:00 The Application of Photonic Bandgap Structure in Microwave Filters
Qiang Gao (*National University of Defense Technology, China*); *Dunbao Yan* (*National University of Defense Technology, China*); *Guo-Hua Zhang* (*National University of Defense Technology, China*); *Naichang Yuan* (*National University of Defense Technology, China*);

14:20 Novel Compact Inter-embedded AMC Structure for Suppressing Surface Wave
Dunbao Yan (*National University of Defense Technology, China*); *Qiang Gao* (*National University of Defense Technology, China*); *Chao Wang* (*National University of Defense Technology, China*); *Naichang Yuan* (*National University of Defense Technology, China*);

14:40 Resonance of Compact Frequency Selective Surface Arrays
Qiang Gao (*National University of Defense Technology, China*); *Dunbao Yan* (*National University of Defense Technology, China*); *Naichang Yuan* (*National University of Defense Technology, China*); *Yun-Qi Fu* (*National University of Defense Technology, China*);

15:00 **Coffee Break**

Session 5P4b
Periodic Structures and Their Relation to Negative-Refractive-Index Structures

Friday PM, August 26, 2005

Room 203 (2nd Floor)

Organized by R. B. Hwang, S. T. Peng

Chaired by R. B. Hwang, S. T. Peng

15:20 Waveguide with Transversely Periodic Walls
S. T. Peng (*National Chiao Tung University, Taiwan*); *R. B. Hwang* (*National Chiao-Tung University, Taiwan*);

15:40 Excitation of TE Mode in the Left Handed Slab Waveguides
Makoto Tsutsumi (*Fukui University of Technology, Japan*);

16:00 Compact Bandpass Filter Using Left-Handed Transmission Line
Chao Li (*Chinese Academy of Sciences, China*); *Cixiang Liu* (*Chinese Academy of Science, China*); *Fang Li* (*Institute of Electronics, CAS, China*);

16:20 The Characteristics of Parallel-connected Transmission Lines
Jan-Dong Tseng (*National Chin Yi Institute of Technology, Taiwan*);

16:40 The Correlation between Negative-group-delay and Slanted Stop-band in a Two-dimensionally Periodic Structure
R. B. Hwang (*National Chiao-Tung University, Taiwan*);

17:00 Ultrarefractive Effect in a Dielectric and Metallic PBG-prisms at Microwave Frequencies: Calculation and Experimental Verification
S. Massaoudi (*Université Paris-Sud, France*); *A. Ourir* (*Université Paris-Sud, France*); *A. de Lustrac* (*Université Paris-Sud, France*);

17:20 An Omni-directional Stop-band by Using Composite 2-D Photonic Crystals
R. B. Hwang (*National Chiao-Tung University, Taiwan*); *D. C. Pu* (*National Chiao-Tung University, Taiwan*);

Session 5P5
Novel Mathematical Methods in Electromagnetics III

Friday PM, August 26, 2005

Room 103 (1st Floor)

Organized by Kazuya Kobayashi, Yury Shestopalov

Chaired by George Kyriacou, Yury Shestopalov

13:20 Electromagnetic Scattering and Polarization : Theory and Application
R. Talhi (*University of Tours, France*); *A. Lebrere* (*University of Tours, France*);

13:40 Analysis of Electromagnetic Absorption and Scattering Characteristics of Conducting Elliptic Cylinder Coated with Absorber Film Using Conformal Mapping Method
Yasumitsu Miyazaki (*Aichi University of Technology, Japan*);

14:00 Computation of Wave Scattering Problems from a Spheric Body: Derivation of the New Sommerfeld-Watson Transformation
Hai-Long Wang (*Harbin Institute of Technology, China*); *Qun Wu* (*Harbin Institute of Technology, China*); *Xun-Jun He* (*Harbin Institute of Technology, China*); *Le-Wei Li* (*National University of Singapore , Singapore*);

14:20 The Problems of Numerical Solution of Many-dimensional Integral Equations of Electromagnetics
A. B. Samokhin (*Moscow Institute of Radiotechnics, Electronics and Automatics, Russia*);

14:40 The Problems of Numerical Solution of Many-dimensional Integral Equations of Electromagnetics. Numerical Examples.
A. B. Samokhin (*Moscow Institute of Radiotechnics, Electronics and Automatics, Russia*); *A. S. Samokhina* (*Institute of Control Science of Russian Academy of Sciences, Russia*);

15:00 **Coffee Break**

15:20 Analysis of Electromagnetic Field in Inhomogeneous Medium by Fourier Series Expansion Methods
Tsuneki Yamasaki (*Nihon University, Japan*); *Kastuji Isono* (*Nihon University, Japan*); *Takashi Hinata* (*Nihon University, Japan*);

15:40 Virtual Ray-Tracing in Composite Wedge and Constructing the Diffraction Coefficients
Se-Yun Kim (*Korea Institute of Science and Technology, Korea*);

16:00 FDTD Analysis of Dynamic Characteristics in Er-Yb Codoped Garnet Waveguide-Type Optical Amplifier
Yasumitsu Miyazaki (*Aichi University of Technology, Japan*); *Nobuaki Himeno* (*Toyohashi University of Technology, Japan*); *Nobuo Goto* (*Toyohashi University of Technology, Japan*);

16:20 An Efficient Optical Soft Memory Hardware Description through Optical Device Level Programming
Dipnarayan Guha (*Information and Communications University, Republic of Korea*); *Jun Kyun Choi* (*Information and Communications University, Republic of Korea*);

Session 5P6a
Electromagnetic Theory 3

Friday PM, August 26, 2005

Room 102 (1st Floor)

Chaired by I. V. Lindell, A. R. Baghai-Wadji

13:00 Multipole Expansion Factorization of Electromagnetic Fields in Cylindrical Coordinates without Utilizing the Addition Theorem
A. R. Baghai-Wadji (*RMIT University, Australia*);

13:20 Multiquantum Magnetic Vortices in Complicated Josephson Structures
Mikhail Vladimirovich Belodedov (*Russian Academy of Sciences, Russia*); *Makhno Pavel Viktorovich* (*Russian Academy of Sciences, Russia*);

13:40 Exact Formulas for Lateral EM Pulses Excited by a Horizontal Electric Dipole on the Boundary between an Isotropic Medium and One-Dimensionally Anisotropic Medium
Kai Li (*Zhejiang University, China*); *Yilong Lu* (*Nanyang Technological University, Singapore*);

14:00 Electronic Conductivity, Scattering Theory, Quantized Fields, and Coherent States
A. R. Baghai-Wadji (*RMIT University, Australia*); *S. W. Yang* (*Institute of High Performance Computing, Singapore*); *V. B. C. Tan* (*National University of Singapore, Singapore*);

14:20 Distribution of Poles Affected by the Object Surface Discontinuity
Anxue Zhang (*Xi'an Jiaotong University, China*); *Zhensheng Shi* (*Xi'an Jiaotong University, China*); *Xueping Xu* (*Xi'an Jiaotong University, China*); *Yansheng Jiang* (*Xi'an Jiaotong University, China*); *Wenbing Wang* (*Xi'an Jiaotong University, China*);

14:40 Effective Propagation Constants for Sparse Media Containing Pairs of Dielectric or Chiral Spheres
Yukihisa Nanbu (*Sasebo National College of Technology, Japan*); *Daisuke Ochi* (*Nippon Telegraph and Telephone Corporation, Japan*); *Tsuyoshi Matsuoka* (*Kyushu Sangyo University, Japan*); *M. Tateiba* (*Kyushu University, Japan*);

15:00 **Coffee Break**

Session 5P6b
EMHD, Gravito-Electrodynamics, and Electrobiology

Friday PM, August 26, 2005

Room 102 (1st Floor)

Organized by Hiroshi Kikuchi

Chaired by Hiroshi Kikuchi, Dirk K. Callebaut

15:20 Chasma Perturbations
Dirk K. Callebaut (*University of Antwerp, Belgium*); *Geoffrey K. Karugila* (*Faculty of Science, SUA, Tanzania*); *A. H. Khater* (*Cairo University, Egypt*);

15:40 Powerful Nonlinear Plasma Waves from Moderate First Order Perturbations
Dirk K. Callebaut (*University of Antwerp, Belgium*); *Geoffrey K. Karugila* (*Sokoine University of Agriculture, Tanzania*);

16:00 On Vladimirov's Approximation for Ideal Inhomogeneous MHD
Dirk K. Callebaut (*University of Antwerp, Belgium*); *Geoffrey K. Karugila* (*Faculty of Science, SUA, Tanzania*); *A. H. Khater* (*University of Cairo, Egypt*);

16:20 The Basic Common Concept of Plasma Universe and Thunderclouds Symmetry and Symmetry Breakdown, Dipoles, Electric Reconnection, and Critical Ionization Velocities
Hiroshi Kikuchi (*Institute for Environmental Electromagnetics, Japan*);

16:40 Low Level Pulsed Radio Frequency Field and Its Remedial Effect on Osteoporosis and Bone Fracture
Jitendra Behari (*Jawaharlal Nehru University, India*); *Jayanand* (*Jawaharlal Nehru University, India*);

17:00 EHD Effects for Activation and Life Elongation of Plants-experiments by Cage-type Devices
Hiroshi Kikuchi (*Institute for Environmental Electromagnetics, Japan*); *T. Igarashi* (*Study Group of Shimotsuke-Archeology, Japan*);

Session 5P7
Computational Electromagnetics

Friday PM, August 26, 2005

Room 101 (1st Floor)

Chaired by A. Z. Elsherbeni, Jun Hu

13:00 Controlling the Accuracy of MoM Applied to Complex Shaped Dielectric Objects, while Minimizing Computation Time and Memory
Thierry Gilles (*Royal Military Academy, Belgium*); *M. Piette* (*Royal Military Academy, Belgium*); *Christophe Craeye* (*Université Catholique de Louvain la Neuve, Belgium*);

13:20 Parallel MLFMA for Scattering by Large Conducting Bodies on the Beowulf Linux Clusters
Xiao-Min Pan (*Institute of Electronics, Chinese Academy of Sciences, China*); *Xin-Qing Sheng* (*Graduate School, Chinese Academy of Sciences, China*);

13:40 RCS of Aircraft Using HPC/CEM Hybrid Codes
John Norgard (*US Air Force Academy, USA*); *Randall Musellman* (*US Air Force Academy, USA*);

14:00 CST MWS in Practice: Full-wave Time-domain Simulation of Radiation and Scattering Problems on Electrically Large Objects
Xiaoxia Zhou (*CST China, China*); *Zhiyuan Yu* (*University of Electronic Science and Technology of China, China*); *Min Zhang* (*CST China, China*);

14:20 Using Parallel Iterative Multilevel Fast Multipole Method Solve the Electromagnetic Scattering From PEC Plate
Yun Lin (*University of Electronic Science and Technology of China, China*); *Jun Hu* (*University of Electronic Science and Technology of China, China*); *Zaiping Nie* (*University of Electronic Science and Technology of China, China*); *Yongpin Chen* (*University of Electronic Science and Technology of China, China*);

14:40 Solving Scattering from 3D Conducting Object by Multilevel Fast Inhomogeneous Plane Wave Algorithm (MLFIPWA) with Partly Approximate Iteration Technique
Jun Hu (*University of Electronic Science and Technology of China, China*); *Zaiping Nie* (*University of Electronic Science and Technology of China, China*); *Lin Lei* (*University of Electric Science and Technology of China, China*); *Liming Xu* (*University of Electric Science and Technology of China, China*); *Yongpin Chen* (*University of Electronic Science and Technology of China, China*);

15:00 **Coffee Break**

15:20 A Fast Algorithm for Solving Scattering from Multiple Inhomogeneous Dielectric Cylinders
Yongpin Chen (*University of Electronic Science and Technology of China, China*); *Jun Hu* (*University of Electronic Science and Technology of China, China*); *Zaiping Nie* (*University of Electronic Science and Technology of China, China*); *Yun Lin* (*University of Electronic Science and Technology of China, China*);

15:40 A Numerical Study of the Localization Uncertainty for Enhancing the EM Source Localization Accuracy
Ruopeng Liu (*Zhejiang University, China*); *Yu Luo* (*Zhejiang University, China*); *Da Huang* (*Zhejiang University, China*); *Xi Chen* (*Zhejiang University, China*); *Mengyu Wang* (*Zhejiang University, China*); *Haogang Wang* (*Zhejiang University, China*); *T. J. Cui* (*Southeast University, China*);

16:00 Local Multilevel Fast Multipole Algorithm for 3D Electromagnetic Scattering
Jun Hu (*University of Electronic Science and Technology of China, China*); *Zaiping Nie* (*University of Electronic Science and Technology of China, China*); *Lin Lei* (*University of Electric Science and Technology of China, China*); *Jun Wang* (*University of Electronic Science and Technology of China, China*);

16:20 Exploring Independent Component Analysis for GPR Signal Processing
Anxing Zhao (*Xi'an Jiaotong University, China*); *Yansheng Jiang* (*Xi'an Jiaotong University, China*); *Wenbing Wang* (*Xi'an Jiaotong University, China*);

16:40 Signal-to-Noise Ratio Enhancement in Multichannel GPR Data via the Karhunen-Loéve Transform
Anxing Zhao (*Xian Jiaotong University, China*); *Yansheng Jiang* (*Xian Jiaotong University, China*); *Wenbing Wang* (*Xian Jiaotong University, China*);

17:00 Research of 3 Dimensional FEM Simulation on MFL of Steel Pipe
Zhiye Du (*Wuhan University, China*); *Jiangjun Ruan* (*Wuhan University, China*); *Xianqin Wang* (*Wuhan University, China*); *Shifeng Yu* (*Wuhan University, China*);

17:20 Cylindrical Target Reconstruction Using RCS Values
Hiroshi Shirai (*Chuo University, Japan*);

PIERS SURVEY

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

Should you be interested in organizing a session, please return this PIERS Survey Form to J. A. Kong, Room 26-305, 77 Massachusetts Avenue, Cambridge MA 02139, USA (fax: 617-258-8766 or 617-258-9525). Please visit also the web site at http://www.emacademy.org or http://www.piers.org.

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( ) I will be interested in organizing and chairing a session, the proposed title is

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( ) I will not be able to attend the Symposium.

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( ) I suggest the following technical topic(s)

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be changed to

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( ) 1994 PIERS in Noordwijk	( ) 1995 PIERS in Seattle	( ) 1996 PIERS in Innsbruck
( ) 1997 PIERS in Hong Kong	( ) 1997 PIERS in Cambridge	( ) 1998 PIERS in Nantes
( ) 1999 PIERS in Taipei	( ) 2000 PIERS in Cambridge	( ) 2001 PIERS in Osaka
( ) 2002 PIERS in Cambridge	( ) 2003 PIERS in Singapore	( ) 2003 PIERS in Honolulu
( ) 2004 PIERS in Pisa	( ) 2004 PIERS in Nanjing	( ) 2005 PIERS in Hangzhou

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

ONE-PAGE ABSTRACT MUST BE RECEIVED BY 7 SEPTEMBER 2005

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PRESENTING AUTHORS MUST PRE-REGISTER BY 7 NOVEMBER 2005

Updated information will be posted at http://www.piers.org

	TUESDAY AM 8:00 AUGUST 23	TUESDAY PM 13:00 AUGUST 23		WEDNESDAY AM 8:00 AUGUST 24	WEDNESDAY PM 13:00 AUGUST 24
ROOM 301	2A1 - Advances in Microwave Remote Sensing	2P1a - Synergy in Passive and Active Electromagnetic Sensing	2P1b - Techniques in Microwave Remote Sensing of Snow and Soil Moisture	3A1 - Rough Surface Scattering	
ROOM 201	2A2 - Metamaterials in Antenna and Microwave Engineering	2P2 - Selected Topics in Metamaterials and Plasmonic Media		3A2 - Meta-materials and Structures with Negative Refraction 1	3P1 - Meta-materials and Structures with Negative Refraction 2
ROOM 202	2A3 - Microwave and Millimeter-wave Antennas	2P3a - Array Antennas	2P3b - Dielectric Waveguides and Antennas	3A3 - Nanoscopic Electromagnetics	
ROOM 203	2A4 - Microwave and Optical Devices	2P4 - Scattering and Radiative Transfer: Basic Research and Applications 1		3A4 - Scattering and Radiative Transfer: Basic Research and Applications 2	
ROOM 103	2A5 - Computational Electromagnetics–Recent Advances	2P5a - Inverse Scattering Methods for Imaging and Structure Synthesis	2P5b - FDTD	3A5 - Poster Session 1	3P2 - Poster Session 2
ROOM 102	2A6 - Electromagnetic Modeling and Inversion (Faraday)	2P6 - Electromagnetic Modeling and Inversion (Maxwell)		3A6 - Electromagnetic Modeling and Inversion (Einstein)	
ROOM 101	2A7 - Microwave Dielectric Measurements	2P7 - On-Chip EMC/EMI Problems in RFIC/MMIC/RFMEMS		3A7 - Electronically Controllable Microwave and Millimeter-wave Devices and Antennas 1	3P3 - Electronically Controllable Microwave and Millimeter-wave Devices and Antennas 2

	THURSDAY AM 8:00 AUGUST 25		THURSDAY PM 13:00 AUGUST 25			FRIDAY AM 8:00 AUGUST 26		FRIDAY PM 13:00 AUGUST 26	
ROOM 301	4A1 - Advances in Detection and Classification Techniques by Radar		4P1a - Remote Sensing	4P1b - RF Multipath Environments	4P1c - Subsurface Identification & Modelling	5A1 - Passive Microwave Imaging Technology and Applications		5P1a - Application of Remote Sensing Techniques in Earth Sciences	5P1b - Randomly Rough Surface and Volume Scattering
ROOM 201	4A2 - Plasmonic Nanophotonics 1: Experimental Research		4P2 - Plasmonic Nanophotonics 2: Theoretical Research			5A2 - Periodic Structures I: Photonic Crystals and Related Topics		5P2 - Periodic Structures II	
ROOM 202	4A3a - EMC Analysis, Spectrum Efficiency, and Wireless Communication	4A3b - Antenna Technology for UWB	4P3a - Special Sessions on Radar Polarimetry and Polarimetric SAR Interferometry	4P3b - Remote Sensing of Ionosphere and Ocean		5A3 - Antenna Design and EMC Problems for the Car-based Communications		5P3a - Volume and Rough Surface Scattering in Remote Sensing	5P3b - Detection & Characterization of Aerosol (or Small Airborne Particles) by Optics
ROOM 203	4A4 - Nanostructures and Systems		4P4a - NIM & EBG	4P4b - Electromagnetic Theory 2		5A4a - Device	5A4b - Medical Applications	5P4a - Optical Fibers and Photonic Crystals	5P4b - Periodic Structures and Their Relation to Negative-Refractive-Index Structures
ROOM 103	4A5a - Electromagnetic Theory 1	4A5b - EM Methods for VLSI	4P5 - Novel Mathematical Methods in Electromagnetics I			5A5 - Novel Mathematical Methods in Electromagnetics II		5P5 - Novel Mathematical Methods in Electromagnetics III	
ROOM 102	4A6 - Optics and Photonics, Lasers, Gyrotrons		4P6 - Coherent Effects in Random Media			5A6a - Metamaterials & Novel Structures	5A6b - Nanophotonic and Surface-enhanced Raman Scatting	5P6a - Electromagnetic Theory 3	5P6b - EMHD, Gravito-Electrodynamics, and Electrobiology
ROOM 101			4P7a - Wavelet Application and Other Computational Method	4P7b - Antennas		5A7 - RF Safety Issues		5P7 - Computational Electromagnetics	