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PIERS 2001 TECHNICAL PROGRAM

PIERS 2001 Opening Ceremony

Wednesday AM, 18 July 2001, 9:00 – 9:30

- 9:00 **Opening Address**
H. Ogura (PIERS 2001 General Chair)
- 9:15 **Welcome Address**
J. A. Kong (PIERS Chair)

Special Lectures

Wednesday AM, 18 July 2001, 10:00 – 12:20

- 10:00 **Waves in Random Media and Applications in Object Detection, Geophysical Remote Sensing and Medical Imaging**
A. Ishimaru (University of Washington, USA)
- 11:00 **Coffee Break**
- 11:20 **Microscopic Distributions of Electric and Magnetic Fields Observed by Using Electron Waves -Electron waves feel vector potentials-**
A. Tonomura (Hitachi, Ltd., Japan)

Electromagnetic Theory and Nonlinear Electromagnetics

Wednesday PM, 18 July 2001, 13:40 – 18:20

Organized by T. Shiozawa
 Chaired by T. Shiozawa and O. A. Tretyakov

- 13:40 **Analytical Approach to Study of Nonlinear Electromagnetics**
O. A. Tretyakov (Gebze Institute of Technology, Turkey)
- 14:00 **Modulational Instability of Plane-wave Eigenmodes in Quadratic Nonlinear Media**
*R. Schiek (University of Applied Sciences, Germany);
 G. Stegeman (University of Central Florida, USA)*
- 14:20 **Transmission Control of Dispersion-Managed Soliton**
M. Matsumoto (Osaka University, Japan)
- 14:40 **Vector Bright and Dark Spatial Soliton Interactions in Modulated Magneto-optic Waveguides**
A. D. Boardman, M. Xie (University of Salford, UK)
- 15:00 **Characteristics of Magnetostatic Wave Envelope Soliton in the Microstrip Line**
M. Tsutsumi (Fukui University of Technology, Japan)
- 15:20 **Evanescence Electromagnetic Field in Multi-layered Dispersive Dielectric Medium**
J. Li, M. Agu (Ibaraki University, Japan)

- 15:40 **Investigation of the Periodic Boundary Condition in Single-Pass Electron Beam Devices**
A. Hirata, S. Hirosaka, T. Shiozawa (Osaka University, Japan)

16:00 **Coffee Break**

- 16:20 **Theory for Domain Boundary Magneto-optical Effect and Near-field Magneto-optical Effect**
I. Banno (Yamanashi University, Japan)

- 16:40 **The Induced Charge Density on the Surface of a Permeable and Conducting Sphere**
E. Baum (University of Applied Sciences Fulda, Germany); G. Mrozynski (University of Paderborn, Germany)

- 17:00 **Second Harmonic Excitation in Semiconductor Superlattice**
A. A. Bulgakov, O. V. Shramkova (Institute of Radiophysics and Electronics of the NAS of Ukraine, Ukraine)

- 17:20 **The Contribution of the Quadrupole Moment to Constitutive Equations**
A. P. Vinogradov, A. V. Aivazian (Russian Academy of Sciences, Russia)

- 17:40 **Electromagnetic Properties of Superlattice in the Long Wavelength Regime**
A. P. Vinogradov, A. M. Merzlikin (Russian Academy of Sciences, Russia)

- 18:00 **Relativistic Propagation Speed of Monochromatic CW Electromagnetic Waves**
T. K. Ishii (Marquette University, USA)

Periodic Structures

Wednesday PM, 18 July 2001, 13:40 – 18:20
 Organized by T. Hinata, T. Yamasaki, and Y. Okuno
 Chaired by Y. Okuno and T. Yamasaki

- 13:40 **The Diffraction Pattern of a Gaussian Beam Wave by Fourier Grating**
M. Ohki (Gunma University, Japan); H. Sakurai (Gunma College of Technology, Japan); K. Motojima, S. Kozaki (Gunma University, Japan)
- 14:00 **Efficient Computation of Dielectric Gratings in Conical Diffraction**
M. Komatsu, J. Yamakita (Okayama Prefectural University, Japan); K. Matsumoto (Osaka Sangyo University, Japan); M. Asai (Kinki University, Japan)
- 14:20 **Verification of Resistive Boundary of Scattering by a Plane Grating on Multilayered Substrates**
H. Wakabayashi, J. Yamakita (Okayama Prefectural University, Japan); M. Asai (Kinki University, Japan); K. Matsumoto (Osaka Sangyo University, Japan)

- 14:40 **Scattering of Electromagnetic Waves by Multilayered Gratings Composed of Dielectric Cylinders**
A. Matsushima (Kumamoto University, Japan); T. L. Zinenko (National Academy of Sciences of Ukraine, Ukraine)
- 15:00 **Scattering of Electromagnetic Waves by Multilayered Dielectric Gratings with Elliptically Layered Media**
T. Yamasaki, R. Terada, T. Hinata, T. Hosono (Nihon University, Japan)
- 15:20 **Resonance Absorptions of Light by a Doubly Periodic Metal Grating**
D. Zhou (NTT COMWARE Corporation, Japan); T. Matsuda (Kumamoto National College of Technology, Japan); Y. Okuno (Kumamoto University, Japan)
- 15:40 **Application of the Periodic Fourier Transform to the Theory of Wave Scattering**
J. Nakayama, H. Tsuji (Kyoto Institute of Technology, Japan)
- 16:00 **Coffee Break**
- 16:20 **Plane Wave Diffraction from a Periodic Array of Conducting Patches between Two Uniaxial Chiral Slabs**
M. Asai (Kinki University, Japan); J. Yamakita, H. Wakabayashi (Okayama Prefectural University, Japan); J. Ishii (Kinki University, Japan)
- 16:40 **Photonic Analysis of X-ray Crystal Waveguide Consisting Periodic Array of Cylinders**
R. Fukuo, Y. Miyazaki (Toyoashi University of Technology, Japan)
- 17:00 **Photonic Bandgap Structures in Gyrotropic Media**
M. Ohtaka, K. Wakabayashi (Fukui University, Japan); M. Tsutsumi (Fukui University of Technology, Japan)
- 17:20 **Analysis of Directional Coupler of Rectangular Waveguides for Fundamental Compound Mode Incidence**
M. Tomita, Y. Karasawa (The University of Electro-Communications, Japan)
- 17:40 **High-Frequency Diffraction by a Finite Sinusoidal Grating**
K. Kobayashi (Chuo University, Japan)
- 18:00 **Investigations on Dual-band PBG Microstrip Patch Antenna**
Y. Horii (Kansai University, Japan); M. Tsutsumi (Fukui University of Technology, Japan)
-
- Synthetic Aperture Radar Information Processing**
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- Wednesday PM, 18 July 2001, 14:00 – 18:20**
 Organized by J.-S. Lee and K. S. Chen
 Chaired by J.-S. Lee and K. S. Chen
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- 14:00 **Polarimetric Decomposition in Relation to Interferometric SAR Processing**
E. Krogager (Danish Defence Research Establishment, Denmark); E. Pottier (Universite de Rennes, France)
- 14:20 **A New Method for a Posteriori Polarimetric SAR Calibration**
T. L. Ainsworth, J.-S. Lee (Naval Research Laboratory, USA)
- 14:40 **Polarimetric SAR Land-Use Classification Using High Resolution X-band and L-band PI-SAR Data**
J.-S. Lee, M. R. Grunes, T. L. Ainsworth (Naval Research Laboratory, USA); T. Tadono, H. Wakabayashi (National Space Development Agency of Japan, Japan); M. Hosokawa (Fire and Disaster Management Agency, Japan)
- 15:00 **Classification of Polarimetric Interferometric SAR Data**
L. Ferro-Famil (The University of Rennes, France); E. Pottier (Universite de Rennes, France); J.-S. Lee (Naval Research Laboratory, USA)
- 15:20 **Fuzzy Neural Classification of SAR Image Based on Complex Gaussian Distribution**
C.-T. Chen (Institute of Space Science, Taiwan); K. S. Chen (National Central University, Taiwan); J.-S. Lee (Naval Research Laboratory, USA)
- 15:40 **Development of an Algorithm for Snow Parameters Mapping Using Multi-Temporal SAR Data and Its Validation**
T. Tadono (National Space Development Agency of Japan, Japan); K. Fukami (Ministry of Construction, Japan); J. Shi (University of California, USA)
- 16:00 **Coffee Break**
- 16:20 **Sea Ice Observation in the Sea of Okhotsk by Airborne L-band Polarimetric SAR**
H. Wakabayashi, T. Tadono, M. Shimada (National Space Development Agency of Japan, Japan); T. Matsuoka (Communications Research Laboratory, Japan); K. Nakamura, F. Nishio (Chiba University, Japan); Y. Fukamichi (Hokkaido University, Japan)
- 16:40 **Evidence of Azimuth Tilt Modulation in Polarimetric SAR Images of the Ocean Surface**
D. Kasilingam (University of Massachusetts, USA); D. L. Schuler, J.-S. Lee (Naval Research Laboratory, USA)
- 17:00 **Measurement of Surface Roughness Using Polarimetric SAR Data**
D. L. Schuler, J.-S. Lee (Naval Research Laboratory, USA); D. Kasilingam (University of Massachusetts, USA); E. Krogager (Danish Defence Research Establishment, Denmark); G. Nesti (EC Joint Research Centre, Italy)
- 17:20 **Terrain Correction for Surface Parameters Estimation**
I. Hajnsek (German Aerospace Center e.V., Germany); E. Pottier (Universite de Rennes, France); K. P. Papathanassiou (German Aerospace Center e.V., Germany); J.-S. Lee (Naval Research Laboratory, USA)
- 17:40 **Data Fusion of Remote Sensors by Genetic Algorithm**
W. Liu, Y. Lu, J. S. Fu (Nanyang Technological University, Singapore)
- 18:00 **Performance Evaluation of a Novel CFAR Processor Design**
L. Zhao, W. Liu, X. Wu, J. S. Fu (Nanyang Technological University, Singapore)

Microwave Heating and Electromagnetic Modeling: From Models to Equipment Design

Wednesday PM, 18 July 2001, 14:00 – 18:20

Organized by D. Stuerger and P. Pribetich

Chaired by D. Stuerger and P. Pribetich

- 14:00 **Finite-Element Modeling for Microwave and RF Heating**
A. C. Metaxas (*University of Cambridge, UK*)
- 14:20 **Analysis of Temperature Profiles of Microwave Heated Rubber Samples Covered by Dielectric Mould Materials**
J. Monzó-Cabrera (*Universidad Politécnica de Cartagena Campus Muralla del Mar, Spain*);
J. M. Catalá-civera, E. de los Reyes (*Universidad Politécnica de Valencia, Spain*)
- 14:40 **Numerical Optimization of Loaded Microwave Applicators**
A. Oktay, A. Akman (*Uludag University, Turkey*)
- 15:00 **Full-wave Analysis of the Lossy Loaded Rectangular Waveguides**
D. Stuerger, A. Calmels, P. Pribetich (*Université de Bourgogne, France*)
- 15:20 **The Experimental Analysis of 915MHz Microwave Curing of Composite Materials**
M. Delmotte, C. Moré (*CNRS UPRESA, France*)
- 15:40 **Microwave-Assisted Drying Modeling : A Review of the State of Art**
J. Monzó-Cabrera, A. Díaz-Morcillo (*Universidad Politécnica de Cartagena Campus Muralla del Mar, Spain*); J. M. Catalá-civera,
D. Sánchez-Hernández (*Universidad Politécnica de Valencia, Spain*)
- 16:00 **Coffee Break**
- 16:20 **Multigrid for Microwave Heating**
D. C. Dibben, T. Matsuo (*The Japan Research Institute, Ltd, Japan*)
- 16:40 **Temperature Distribution in Ceramic Compact Bodies During 28GHz Millimeter Wave Heating**
S. Sano, A. Tsuzuki (*National Institute of Advanced Industrial Science and Technology, Japan*); T. Ueno,
Y. Makino, S. Miyake (*Osaka University, Japan*)
- 17:00 **Microwave Radiometry as a Way to Measure and Control the Temperature in Industrial Process**
L. Dubois, J.-P. Sozanski, J.-C. Camart, M. Chive,
J. Pribetich (*Université des Sciences & Technologies de LILLE, France*)
- 17:20 **Design of Traveling Wave Applicators : How to Harness the Good Propagated Mode(s)**
D. Stuerger, P. Pribetich (*Université de Bourgogne, France*)
- 17:40 **Modeling of the Electric Field Distribution within a Material Characterized by a Spatial Dependence Permittivity. Experimental Correlations**
D. Ryckelynck, Y. Le Goff, F. Moule, R. Mendoza,
M. Delmotte (*CNRS UPRESA, France*)

- 18:00 **Exact Temperature Controlling System for Semiconductor Device Manufacturing**
M. N. Shahram, K. Ali, O. Saeed (*Iran University of Science and Technology, Iran*)

Computational Electromagnetics and Optics: Methods and Applications

Wednesday PM, 18 July 2001, 13:40 – 16:40

Organized by H. C. C. Fernandes

Chaired by H. C. C. Fernandes, C. L. S. S. Sobrinho, and S. Bose

- 13:40 **Marching Finite-Element Schemes for Nonlinear Optical Propagation**
M. L. Brandao (*Universidade Federal do Maranhao, Brasil*)
- 14:00 **A New Abordagem of Superconducting Linear and Planar Array of Microstrip Patch Antennas**
H. C. C. Fernandes, E. F. Silva, R. T. C. Filho (*Federal University of Rio Grande do Norte, Brasil*)
- 14:20 **Microstrip Resonators with Step in the Width and Triangular Discretization**
H. C. C. Fernandes, C. B. Beltrao (*Federal University of Rio Grande do Norte, Brasil*)
- 14:40 **FD-FD Analysis of 2-D Photonic Band Gap Anisotropic Materials**
C. L. S. S. Sobrinho, M. J. L. Alves (*Federal University of Pará, Brasil*)
- 15:00 **Unilateral Fin Line Resonator by the TTL Analysis**
M. C. Silva, I. M. Araújo, H. C. C. Fernandes (*Federal University of Rio Grande do Norte, Brasil*)
- 15:20 **Analytical Approach to Evaluate Unilateral Power Gain of Optically Biased GaAs MESFET**
S. Bose, M. Gupta, R. S. Gupta (*University of Delhi South Campus, India*)
- 15:40 **New Analysis of Microstrip Antennas with PBG-D, Photonic Bandgap-Dielectric, Using the TTL Method**
L. P. Rodrigues, H. C. C. Fernandes (*Federal University of Rio Grande do Norte, Brasil*)
- 16:00 **Coffee Break**
- 16:20 **Optical Analysis of Superconducting Microstrip Antennas**
H. C. C. Fernandes, L. P. Rodrigues (*Federal University of Rio Grande do Norte, Brasil*)
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- Interference in Radio Session**
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- Wednesday PM, 18 July 2001, 17:00 – 18:20
Organized by J. Gavan
-
- 17:00 **Collocated Radio Systems Interference and Radiation Effects: Analysis and Mitigation Techniques**
J. Gavan (*Holon Academic Institute of Technology, Israel*)

- 17:20 **Prediction of Cellular Characteristics for Various Microcell Urban Environments**
N. Blaustein (*Ben-Gurion University of the Negev, Israel*); J. Gavan (*Holon Academic Institute of Technology, Israel*)
- 17:40 **Preliminary Experimental Tests to Confirm the Hypothesis of Hornets Millimeter Waves Radiation**
J. S. Ishay (*Tel-Aviv University, Israel*); J. Gavan (*Holon Academic Institute of Technology, Israel*)
- 18:00 **Magnetic Fractal Dimensionality of the Dielectric Breakdown Under Strong Magnetic Field**
Y. Ben-ezra, I. Vagner, Y. Pershin (*Holon Academic Institute of Technology, Israel*)

EM-wave Absorbers and Composite Materials

Wednesday PM, 18 July 2001, 13:40 – 16:00

Organized by Y. Kotsuka

Chaired by A. Nishikata and Y. Kotsuka

- 13:40 **Development of Ferrite Fin Electromagnetic Wave Absorber Panel for VHF/UHF TV Band with PC Curtain Wall Structure**
T. Yamane, S. Numata (*Shimizu Corporation, Japan*); T. Mizumoto, Y. Naito (*Tokyo Institute of Technology, Japan*)
- 14:00 **Experiments on Propagation Characteristic Improvement in Data Transmission for 2.4-GHz-band 11Mbps Wireless LAN by Using Rock-wool Ceiling Panel Wave Absorber**
H. Hatanaka, M. Ohtsubo, S. Arikawa, H. Kojima (*Nitto Boseki Co., Ltd, Japan*); Y. Karasawa (*The University of Electro-Communications, Japan*)
- 14:20 **Matching Characteristics of Ferrite EM-Wave Absorber with Conductive Materials**
Y. Kotsuka, K. Katsuta, M. Amano (*Tokai University, Japan*)
- 14:40 **FDTD Analysis for Matching Characteristics of Ferrite Absorber with Multi-Holes**
Y. Kotsuka, M. Amano, K. Katsuta (*Tokai University, Japan*)
- 15:00 **Analysis for the Suppression of Coupling Between Two Microstrip Lines in Microwave Amplifier Modules by Using Stainless-Steel-Rubber Composite Material**
A. Saito (*Daido Steel Co., Ltd, Japan*); A. Nishikata (*Tokyo Institute of Technology, Japan*)
- 15:20 **The Development of the Demagnetizer for Reinforcing Bars in the Building**
G. Kajiwara, N. Ishiukawa, A. Inobushi (*Shimizu Corporation, Japan*)
- 15:40 **Suppression of TV-Ghosts Caused by Super Highrise Tower Using a Wave Absorber**
T. Aoyagi, Y. Shimizu (*Tokyo Institute of Technology, Japan*)

Subsurface Detection Technology

Wednesday PM, 18 July 2001, 16:20 – 18:20

Organized by E. J. Schweicher

Chaired by E. J. Schweicher and M. Piette

- 16:20 **Computation of Electromagnetic Field Vectors in the Neighbourhood of a Harmonic Current Source in a Multilayered Sea Medium by the Transfer Matrix Technique**
O. Thongsamouth (*Royal Military Academy, Belgium*); J.-P. Vigneron (*Facultés Universitaires Notre-Dame de la Paix, Belgium*); M. Piette (*Royal Military Academy, Belgium*)
- 16:40 **Migration Technique Based on the Time-Domain Model of the Ground Penetrating Radar**
B. Scheers, M. Acheroy (*Royal Military Academy, Belgium*); A. Vander Vorst (*Catholic University of Louvain, Belgium*)
- 17:00 **Nuclear Quadrupole Resonance Methods for Subsurface Detection**
A. Engelbeen (*Royal Military Academy, Belgium*); J. A. S. Smith (*King's College London, UK*)
- 17:20 **Advanced Detection of Anti-Personnel Landmines Using Multi-Spectral Low-Frequency Microwave Radiometry Techniques**
M. Peichl, S. Dill, H. Süß (*DLR Oberpfaffenhofen, Germany*)
- 17:40 **Improved Detection of Buried Landmines Using Image Segmentation and Mathematical Morphology**
A. Pizurica, P. Van Loo, A. Van Dierendonck, W. Philips (*Ghent University, Belgium*); M. Acheroy (*Royal Military Academy, Belgium*)
- 18:00 **Optical-digital Unit for On-line Fingerprint Identification**
V. A. Soifer, R. V. Skidanov, V. V. Kotlyar, S. N. Khonina, E. Farberov (*Russian Academy of Sciences, Russia*)

Antennas for Various Wireless Applications

Wednesday PM, 18 July 2001, 14:00 – 18:00

Organized by S. Nam

Chaired by S.-Y. Kim and S. Nam

- 14:00 **Ground-Penetrating Radar Probing on Wooden Column of Old Architectures**
S.-Y. Hyun, S.-Y. Kim (*Korea Institute of Science and Technology, Korea*)
- 14:20 **Wideband Impedance Matching Technique Using the Coupled Lines for Microstrip Antennas**
J. Il Kim, Y. J. Yoon (*Yonsei University, Korea*)
- 14:40 **The Wideband Microstrip Antenna Design for PCS/IMT-2000 Service**
J. Choi, T. Kim (*Hanyang University, Korea*)

- 15:00 **A Compact Folded Patch Antenna for IMT-2000**
*Y. H. Suh, M. Kim, I. Park (Ajou University, Korea);
 Y. G. Seo, C. M. Song (Samsung Advanced Institute of
 Technology, Korea)*
- 15:20 **Low-Cost Circularly Polarized Microstrip Antenna
 for DBS Reception**
*Y.-B. Jung, S.-O. Park (Information and Communication
 University, Korea); J.-K. Ha (BlueWaveTel, Korea)*
- 15:40 **Design for Control of Circular Polarization Using
 Cross Slot Element**
K.-S. Min, J.-W. Ko (Korea Maritime University, Korea)
- 16:00 **Coffee Break**
- 16:20 **Multiple Beam Antennas Using Folded Reflectarray**
H. Chae, S. Nam (Seoul National University, Korea)
- 16:40 **IF Module Using Saw IF Channel Filter for High
 Speed Satellite Communication Antenna**
*S. Chun, J. Kim, C. Seo (Soongsil University, Korea);
 N. Kim, Y. Kim (Electronics and Telecommunications
 Research Institute, Korea)*
- 17:00 **New Designs of Microstrip Antennas Integrating
 Switching Capabilities**
*L. Dussopt, C. Luxey, J.-M. Laheurte (Université de
 Nice-Sophia Antipolis, France)*
- 17:20 **A Novel Active Antenna Amplifying Array Using
 Patch-Coupling Microstrip Antennas: Design and
 Measurement**
*J.-H. Tsai, S.-J. Chung (National Chiao Tung University,
 Taiwan); K. Chang (Texas A&M University, USA)*
- 17:40 **Asymmetrical Scanning Dual-Beam Leaky-Wave
 Antenna with Resistive Upconverter**
*Y.-H. Sheu, H.-L. Kuan, C.-J. Wang, C. F. Jou (National
 Chiao Tung University, Taiwan)*

Computational Electromagnetics I

Thursday AM, 19 July 2001, 9:00 – 12:20

Organized by H. Ikuno and K. Tanaka

- 9:00 **A Comparison of the Numerical Reflection from the
 Split PML, the Unsplit PML, and the CFS PML**
J.-P. Bérenger (Centre d'Analyse de Défense, France)
- 9:20 **The Non-Standard FDTD Method and Its
 Application to Scattering Analysis of Large Scale
 Cavities**
*T. Kashiwa (Kitami Institute of Technology, Japan);
 T. Ohtani (Mitsubishi Heavy Industries, Ltd., Japan);
 H. Kudo (Kitami Institute of Technology, Japan)*
- 9:40 **Optical Waveguide Analysis by a Modified FDTD
 Method for an Arbitrary Dielectric Interface**
*T. Ando, H. Nakayama, J. Yamauchi, H. Nakano (Hosei
 University, Japan)*
- 10:00 **Analysis of Line Losses and Radiation Losses in
 Microstrip-Type Microwave Integrated Circuits
 Based on the FD-TD Method**
N. Morita (Chiba Institute of Technology, Japan)

- 10:20 **Simulation Techniques Based on Maxwell's
 Equations for Opto-electronic Devices**
K. Kawano (NTT Photonics Laboratories, Japan)
- 10:40 **Coffee Break**
- 11:00 **Unified Analyses of Photonic Crystal Waveguide with
 Various Medium Conditions by Condensed Node
 Spatial Network for Vector Potential**
*H. Satoh, N. Yoshida, Y. Miyanaga (Hokkaido
 University, Japan)*
- 11:20 **Numerical Simulation of 2-D Air-Hole Type Photonic
 Crystal Optical Waveguide Devices Using the FD-TD
 Method Based on the Principles of MD-WDFs**
Y. Naka, H. Ikuno (Kumamoto University, Japan)
- 11:40 **Full-Vectorial Fourier Modal Analysis of
 Three-Dimensional Optical Waveguide**
*T. Miyamoto, M. Momoda (Fukuoka University, Japan);
 K. Yasumoto (Kyushu University, Japan)*
- 12:00 **Analysis of Microwave and Millimeter Wave Devices
 with Arbitrary Shape Including Anisotropic
 Materials**
R. Pregla, S. F. Helfert (Fern Universität, Germany)

**Electromagnetic Diagnostic
 Techniques I: Algorithms**

Thursday AM, 19 July 2001, 9:00 – 12:20

Organized by J.-C. Bolomey, S. Caorsi, and A. Massa

- 9:00 **Inverse Scattering for Strongly Scattering Objects
 and the Representation of Scattered Fields**
*M. A. Fiddy, M. Testorf (University of Massachusetts,
 USA)*
- 9:20 **A New Image Reconstruction Algorithm for Borehole
 Radar**
*H. Jia, T. Tanaka, T. Takenaka (Nagasaki University,
 Japan)*
- 9:40 **Detection of Buried Objects with D.O.R.T. Method**
*G. Micolau, M. Saillard (Institut Fresnel, UMR CNRS
 6133, France)*
- 10:00 **Radial Basis Function Neural Networks for On-Line
 Inverse Scattering Applications**
*I. T. Rekanos (Helsinki University of Technology,
 Finland)*
- 10:20 **Inverse Scattering Techniques and the Evaluation of
 the Electromagnetic Deposition in Exposed Biological
 Structures: Current Strategies and Future
 Developments**
*E. Bermani, S. Caorsi (University of Pavia, Italy);
 A. Massa (University of Trento, Italy)*
- 10:40 **Coffee Break**
- 11:00 **Inverse Scattering Related to Inhomogeneous
 Impedance Boundaries**
*I. Akduman (Technical University of Istanbul, Turkey);
 A. Yapar (Istanbul Technical University, Turkey);
 C. Utku (Technical University of Istanbul, Turkey)*

- 11:20 **Reconstruction of Conducting Cylinders by Using the Asymptotic Waveform Evaluation Technique Based on Ipswich Data**
Z. Y. Ding, W. Hong (*Southeast University, China*)
- 11:40 **Team of Autonomous Software Agents (TASA) to Solve ENDE Inverse Problems**
D. Ioan, A. Duca, M. Rebican (*"Politehnica" University of Bucharest, Romania*)
- 12:00 **Recovery of Images Deformed by a Linear Tomography System**
A. A. Vertiy, S. P. Gavrilov,
A. M. Kudelya (*Turkish-Ukrainian Joint Research Laboratory, Turkey*)
- 11:20 **Monitoring of Crop Potato by X-Band Scatterometer**
D. Singh, Y. Yamaguchi (*Niigata University, Japan*);
S. K. Sharan, K. P. Singh (*Banaras Hindu University, India*)
- 11:40 **Spatial Size and Radar Contrast Distributions of Natural Origin, Slight Contrast Sea Surface Signatures**
A. K. Arakelyan (*Armenian National Academy of Sciences, Armenia*); A. K. Hambaryan (*ECOSER V Remote Observation Center, Armenia*)
- 12:00 **Precipitation Signatures Observed by EDOP, AMPR and MIR During TRMM-LBA**
J. R. Wang, G. Heymsfield (*NASA Goddard Space Flight Center, USA*); W. Manning,
G. M. Skofronick-Jackson (*University of Maryland, USA*); R. Hood (*Marshall Space Flight Center, USA*)

Remote Sensing of the Earth, Ocean and Atmosphere I

Thursday AM, 19 July 2001, 8:40 – 10:40

Organized by S. Mukai
Chaired by T. Kusaka

- 8:40 **Estimation of the Spatial Distribution and Optical Properties of Yellow Sand from Satellite-level Data**
H. Takenaka, H. Shibata, T. Kusaka (*Kanazawa Institute of Technology, Japan*)
- 9:00 **Aerosol Retrieval Over the Ocean and the Land Based on the ADEOS/POLDER Data**
I. Sano, S. Mukai (*Kinki University, Japan*)
- 9:20 **Retrieval of Single Scattering Albedo and Optical Thickness of Cloud from ADEOS Radiative Measurement**
I. Melnikova (*Russian Academy of Sciences, Russia*)
- 9:40 **Retrieval of Cloud Geometrical Parameters Using Remote Sensing Data**
M. Kuji (*Nara Women's University, Japan*);
T. Nakajima (*University of Tokyo, Japan*)
- 10:00 **Retrieval of Clouds on a Global Scale**
M. Yasumoto, S. Mukai (*Kinki University, Japan*)
- 10:20 **Pattern Decomposition Method for Hyper-multispectral Satellite Data Analysis**
M. Daigo (*Doshisha University, Japan*); A. Ono (*Nara Women's University, Japan*); R. Urabe (*Tokyo Institute of Technology University, Japan*); N. Fujiwara (*Nara Women's University, Japan*)

Remote Sensing of the Earth, Ocean and Atmosphere II

Thursday AM, 19 July 2001, 11:00 – 12:20

- 11:00 **Exploration of Titan by Cassini RADAR and Radiometry**
R. D. Lorenz (*University of Arizona, USA*)

Medical Applications and Biological Effects I

Thursday AM, 19 July 2001, 9:00 – 12:20

Organized by K. Shimizu
Chaired by H. Matsuki and K. Shimizu

- 9:00 **Induced Current Inside a Multilayered Spherical Model of the Human Head near an Electric Shaver**
Y. Kamimura, M. Kojima, Y. Yamada (*Utsunomiya University, Japan*)
- 9:20 **Attempt of Imaging Turbid Medium Using Near-axis Scattered Light**
K. Shimizu, F. Sato, Y. Kato (*Hokkaido University, Japan*); M. Kitama (*Hokkaido Institute of Technology, Japan*)
- 9:40 **Clinical Results in Microwave Radiometric Mammography (MRM)**
B. Bocquet, G. Tittlein, R. Ringot (*Université des Sciences & Technologies de LILLE, France*)
- 10:00 **A Fundamental Study on Physiological Effects of ELF Electric Field Exposure**
H. O. Shimizu (*Hokkaido Institute of Technology, Japan*); K. Shimizu (*Hokkaido University, Japan*)
- 10:20 **Effect of ELF Current on Immune Cells - Possibility of Immunomodulation by Electric Field -**
T. Shimooka, I. Fuji, Y. Morita, K. Shimizu (*Hokkaido University, Japan*); K. Ohsaki (*Hakuju Institute for Health Science Co. Ltd., Japan*)
- 10:40 **Coffee Break**
- 11:00 **Energy Transmission Utilizing Proximate Electromagnetic Fields**
H. Matsuki, F. Sato, N. Hoshimiya (*Tohoku University, Japan*)
- 11:20 **Measurement of Bio-signals in Strong ELF Electric Field**
M. Yamashita (*Hokkaido Institute of Technology, Japan*);
K. Osaki (*Hakuju Institute for Health Science Co. Ltd., Japan*); K. Shimizu (*Hokkaido University, Japan*)

11:40 **Development of a Retractor with the Capability of Oxygenation Monitoring**
Y. Onodera, Y. Yamada (Ministry of International Trade and Industry, Japan); K. Sakatani (China-Japan Friendship Hospital, China); T. Hori (Tokyo Women's Medical University, Japan)

12:00 **Development of a Portable Instrument for Skin Color and Its Clinical Evaluation**
L. Yang (Niigata University, Japan); M. Akimoto, S. Takata (Shiseido Research Center (Shin Yokohama), Japan); M. Miyakawa (Niigata University, Japan)

Coherent Effects in Random Media I

Thursday AM, 19 July 2001, 8:40 – 12:20
 Organized by V. Freilikher and H. Ogura
 Chaired by V. Freilikher and H. Ogura

8:40 **Polarization Characteristics of Second Order Angular Correlation Function of Distributed Particles**
S. Kotani, R. Naito, S. Yamamoto (Osaka University, Japan); Y. Okamura (Wakayama University, Japan)

9:00 **Anomalous Phenomenon of Backscattering Enhancement for Partially Convex Targets in Continuous Random Media**
H. E. Ocla, M. Tateiba (Kyushu University, Japan)

9:20 **Weak Scattering of Nonlinear Waves in Random Media**
F. Bass, V. Freilikher, V. Prosentsov (Bar-Ilan University, Israel)

9:40 **Nonlinear Wave Interaction in Periodic Dielectric Media**
A. Figotin (University of California, USA)

10:00 **Signal Detection Characteristics of Subsurface Radar Pulse by Buried Objects in Random Media using 3-Dimensional FDTD Method**
K. Takahashi, Y. Miyazaki (Toyoashi University of Technology, Japan)

10:20 **Wave Reflection and Transmission from a One-dimensional Random Thin Film**
Y. Tamura, J. Nakayama (Kyoto Institute of Technology, Japan)

10:40 **Coffee Break**

11:00 **Statistics of the Lengths of the Paths of a Wave Propagating Through a Random System**
G. Cwilich (Yeshiva University, USA)

11:20 **Random Cylindrical Waves in 2 Dimensional Homogeneous and Isotropic Random Medium**
H. Ogura (Kinki University, Japan)

11:40 **Resonant Processes and Exciton Propagation in a Frozen Gas**
V. Celli, J. S. Frasier (University of Virginia, USA)

12:00 **An Evaluation of Bit Errors due to the Atmospheric Turbulence in Ka-band Satellite Communication**
K. Yamada, K. Fujisaki, M. Tateiba (Kyushu University, Japan)

High Frequency Method

Thursday AM, 19 July 2001, 9:00 – 12:20
 Organized by T. Ishihara and H. Shirai
 Chaired by T. Ishihara and H. Shirai

9:00 **Scattering of Obliquely Incident Plane Wave from an Impedance Cylinder with Convex Cross Section**
K. Hongo (Toho University, Japan); T. Moriyama, H. Kobayashi (Fujitsu System Integration Laboratories, Japan)

9:20 **An Extension of PTD by Including the Virtual Ray-Tracing Terms in the Complementary Region of a Composite Wedge**
S.-Y. Kim (Korea Institute of Science and Technology, Korea)

9:40 **Shadow Boundary Incremental Length Diffraction Coefficients Applied to Bistatic Scattering from 3-D Bodies**
R. A. Shore, A. D. Yaghjian (Air Force Research Laboratory/SNHA, USA)

10:00 **Line Integral Representation for Diffracted Fields in Physical Optics Approximation**
K. Sakina, M. Ando (Tokyo Institute of Technology, Japan)

10:20 **High-Frequency Analysis of Electromagnetic Field Radiated from a Parallel-Plate Waveguide**
E. Murohara (National Defense Academy, Japan); T. Ishihara (National Defence University, Japan)

10:40 **Coffee Break**

11:00 **Wiener-Hopf Analysis of the High-Frequency Diffraction by a Strip: Higher Order Asymptotics**
K. Kobayashi (Chuo University, Japan)

11:20 **A Ray-Tracing-Based Mobile Communication Channel Modeling Scheme Harmonization of Deterministic EM Theory and Stochastic Channel Characterization**
J.-I. Takada, H. Zhu, J. Fu, I. I. Khumaedi, T. Kikuchi, Y. Mita (Tokyo Institute of Technology, Japan); T. Kobayashi (YRP Mobile Telecommunications Key Technology Research Laboratories Co.,Ltd., Japan)

11:40 **Time-Frequency Analysis of Scattering Data from Dielectric Objects and Its Ray Theoretical Interpretation**
M. Nishimoto, H. Ikuno (Kumamoto University, Japan)

12:00 **High Frequency EM Scattering by Automobile Models**
H. Shirai, K. Okawa, T. Hayashi (Chuo University, Japan)

Microwave and Millimeter-Wave Circuits I

Thursday AM, 19 July 2001, 9:00 – 12:20

- 9:00 **Application of a Point Matching Method to Resonance Characteristics of Quasi-TE Whispering Gallery Modes**
Y. Tomabechi, M. Matsubara, Y. Kogami, K. Matsumura (Utsunomiya University, Japan)
- 9:20 **Modelling of Couplings on Silicon Based Technology from Fullwave Analysis**
S. Wane (ENSEEIH, France); D. Bajon (SUPAERO, France); H. Baudrand (ENSEEIH, France)
- 9:40 **Modeling of Microwave Interconnects IC's with Iterative Procedure Using Fast Modal Algorithm**
S. Akatimagool, D. Bajon (SUPAERO, France); H. Baudrand (ENSEEIH, France)
- 10:00 **Optimum Design of Broadband Multisection Coupled-Line Couplers with Impedance Matching**
H. Oraizi, G.-R. Gabaran (Iran University of Science and Technology, Iran)
- 10:20 **Driver-Enhanced Broadband Millimeter Wave PIN Switches Design**
W. Y. L. Lee, B. C. Kwok, J. S. Fu, S. H. Tan, C. Lu (Nanyang Technological University, Singapore)
- 10:40 **Coffee Break**
- 11:00 **Design and Assembly of a Wide Band Acoustic Signal Amplifier to Drive Electrostatic Transducers**
M. N. Shahram, S. Mehdi, O. Saeed (Iran University of Science and Technology, Iran)
- 11:20 **Phase Measurement of a Ramsey Cavity Using 2 Ring Type Cavities at the Both Ends for Automatic Microwave Cavity Phase Tuning of Cesium Beam Frequency Standard**
W.-Q. Zhang (Shanghai Observatory of China, China); K. Nakagiri (Kinki University, Japan)
- 11:40 **Microwave Devices with Invariance Characteristics**
O. V. Stoukatch, E. D. Golovin (Tomsk State University, Russia)
- 12:00 **A Quick and Robust Method for Designing Ridge to Rectangular Waveguide Transition**
L. L. Low, B. L. Ooi, P. S. Kooi (National University of Singapore, Singapore)

Computational Electromagnetics II

Thursday PM, 19 July 2001, 14:00 – 18:20
 Organized by H. Ikuno and K. Tanaka

- 14:00 **Determining the Propagation of Waves in Optical Waveguides-particular Algorithms for Special Devices**
S. F. Helfert, R. Pregla (Fern Universität, Germany)

- 14:20 **Investigations to Improve the Performance of MEMS Switches by Means of Circuit Design**
L. Vietzorreck, P. Russer (TU Muenchen/HFT, Germany)
- 14:40 **Finite Element Analysis by Mixed Order Vector Elements**
M. Hano, T. Miyamura, M. Hotta (Yamaguchi University, Japan)
- 15:00 **Finite Element Analysis of Optical Waveguides Based on the Cross-Sectional Shape Recognition Using Photographic Images**
Y. Tsuji, M. Koshiba (Hokkaido University, Japan)
- 15:20 **Finite Element Beam Propagation Method with Anisotropic PMLs for Anisotropic Optical Waveguides**
K. Saitoh, M. Koshiba (Hokkaido University, Japan)
- 15:40 **Beam Propagation Analysis of Ridge-Type QPM-SHG Devices Fabricated by Ultraprecision Machining Techniques**
T. Yasui, M. Koshiba (Hokkaido University, Japan)
- 16:00 **Coffee Break**
- 16:20 **Minimal Boundary Elements for Electromagnetics**
Y. O. Shlepnev (Innoveda Inc., USA)
- 16:40 **Sparse Matrix/Canonical Grid Method for Time-Domain Integral Equation**
J.-L. Hu, C. H. Chan (City University of Hong Kong, China)
- 17:00 **A Simulation Code of Near Field Optics by 3D Volume Integral Equation with GMRES**
K. Tanaka, M. Yan, M. Tanaka (Gifu University, Japan)
- 17:20 **Computer Aided Design of 2-Dimensional Near-field Microscope by Boundary Element Method**
M. Tanaka, K. Tanaka (Gifu University, Japan)
- 17:40 **The Method of Auxiliary Sources in the Scattering Problems upon the Complicated 3D Objects of Complex Materials**
F. G. Bogdanov, D. D. Karkashadze (Tbilisi State University, Georgia); R. S. Zaridze (Tbilisi State University, USA)
- 18:00 **Numerical Analysis of Electromagnetic Scattering from 3-D Dielectric Object Using Yasuura Method**
K. Koba, H. Ikuno (Kumamoto University, Japan); M. Kawano (Kumamoto National College of Technology, Japan)

Electromagnetic Diagnostic Techniques II: Applications

Thursday PM, 19 July 2001, 13:40 – 16:00
 Organized by J.-C. Bolomey, S. Caorsi, and A. Massa

- 13:40 **Spatial Interaction of a Modulated PIN Diode-Loaded Dipole Antenna and Open-Ended Rectangular Waveguide Probes**
D. Hughes (University of Missouri-Rolla, USA); D. Leathers (Colorado State University, USA); R. Zoughi (University of Missouri-Rolla, USA)

- 14:00 **Space-Time Microwave Imaging for Breast Cancer Detection**
*E. J. Bond, X. Li, B. D. Van Veen,
 S. C. Hagness (University of Wisconsin-Madison, USA)*
- 14:20 **Resonator Tomography: Theory and Applications**
*A. S. Omar, A. Jöstingmeier (University of Magdeburg,
 Germany)*
- 14:40 **Emissivity Measurement in Microwave Radiometric Mammography (MRM)**
*B. Bocquet, R. Ringot, J. C. Van de Velde,
 E. Constant (Université des Sciences & Technologies de
 LILLE, France)*
- 15:00 **Microwave Tomographic Imaging of Biological Objects. Three-Dimensional versus Two-Dimensional Approach.**
*S. Y. Semenov, R. H. Svenson,
 A. E. Suvorov (Carolinas Medical Center, USA);
 A. E. Bulyshev (National Center for Biological
 Information, USA); Y. E. Sizov (Troitsk Institute of
 Innovative and Thermonuclear Research, Russia);
 A. G. Nazarov (RRC "Kurchatov's Institute", Russia);
 V. G. Posukh (Institute of Laser Physics, Russia);
 B. A. Voinov (Scientific Research Institute of
 Experimental Physics, Russia)*
- 15:20 **Stable and Unstable Field Distributions in Slotted Cavities**
*Yu. V. Shestopalov (Karlstad University, Sweden);
 U. V. Kotik (Moscow State University, Russia)*
- 15:40 **Two Dimensional Imaging System for Low Density Plasma**
*Y. Nishida, A. Saito, K. Tsuchida, H. Ito,
 N. Yugami (Utsunomiya University, Japan)*

Electromagnetic Inverse Problems

Thursday PM, 19 July 2001, 16:20 – 18:40
 Organized by S. He and T. Takenaka
 Chaired by T. Takenaka

- 16:20 **Application of the Conjugate Gradient Method to Fast Image Reconstruction of Cylindrical Dielectric Objects**
M. Tanaka (Oita University, Japan)
- 16:40 **A New Approach to the Problem of Diffraction Tomography**
M. Tateiba, K. Ishida (Kyushu University, Japan)
- 17:00 **MEG Inversion Using Spherical Head Model Combined with Brain-Shaped Head Model**
J. Li, H. Zhu (Zhejiang University, China)
- 17:20 **Data Continuation and Full Explicit Identification of Multiple Dipole Sources in a Conductor**
*M. Popov, M. Norgren, S. He (Royal Institute of
 Technology, Sweden)*
- 17:40 **Recent Advances on Optimization Techniques based on Genetic Algorithms (GAs) for Electromagnetic Inverse Scattering Problems**
*S. Caorsi (University of Pavia, Italy);
 A. Massa (University of Trento, Italy);
 M. Pastorino (University of Genoa, Italy)*

- 18:00 **Electromagnetic TE-wave Inverse Scattering of a Single Perfectly Conducting Cylinder**
*A. Qing (University of Kassel, Germany);
 C. K. Lee (Nanyang Technological University,
 Singapore)*
- 18:20 **Application of Genetic Algorithm to Estimation of the Nonlinear Refractive Index of Photorefractive Medium**
*M. Yokota (Miyazaki University, Japan);
 Z. Q. Meng (Fukuoka University, Japan);
 T. Takenaka (Nagasaki University, Japan)*

Dielectric Resonator Antennas and Applications

Thursday PM, 19 July 2001, 13:40 – 16:00
 Organized by Z. Wu
 Chaired by Z. Wu and K. M. Luk

- 13:40 **Dual-Polarized Dielectric Resonator Antennas**
*Y. X. Guo, K. M. Luk (City University of Hong Kong,
 China)*
- 14:00 **A Novel Dielectric Resonator Antenna for Dual-Band PCS/IMT-2000**
*J.-I. Moon, S.-O. Park (Information and Communication
 University, Korea)*
- 14:20 **Full-Wave Analysis of Cavity-Backed Dielectric Resonator Antenna**
*Z. Shen, Z. Jiang (Nanyang Technological University,
 Singapore)*
- 14:40 **Cylindrical Dielectric Resonator Antenna Arrays**
Z. Wu, L. E. Davis, G. Drossos (UMIST, UK)
- 15:00 **DRAs as Low RCS Radar Antennas**
*S. P. Kingsley (Sheffield University, UK);
 S. G. O'Keefe (Griffith University, Australia);
 J. C. Bennett, K. M. Lim, T. J. Palmer (Sheffield
 University, UK)*
- 15:20 **Subminiature 3D Radiant Filters for Spatial Telecommunications in Kaband**
*H. Blondeaux, D. Baillargeat, P. Leveque,
 S. Verdeyme (University of Limoges, France)*
- 15:40 **Investigation of Polarisation Diversity Using a Rectangular Dielectric Resonator Antenna**
M. H. Neshati, Z. Wu (UMIST, UK)

Ultra-Wideband Radar

Thursday PM, 19 July 2001, 16:20 – 17:20
 Organized by J. D. Taylor
 Chaired by J. D. Taylor

- 16:20 **Ultra Wide Band Interferometry of the Moving Target**
V. I. Kalinin (Russian Academy of Sciences, Russia)

- 16:40 **Ultra-wideband Signal Radiation**
*I. I. Immoreev (Moscow State Aviation Institute, Russia);
 J. D. Taylor (J.D. Taylor Associates, USA)*
- 17:00 **Future Ultra-Wideband Radar Technology Applications**
J. D. Taylor (J.D. Taylor Associates, USA)

Signal Processing in Remote Sensing II

Thursday PM, 19 July 2001, 13:40 – 16:00
 Organized by N. Nakasako

- 13:40 **Development of Image Processing Technique for Detection of a Particular Object under Various Conditions**
T. Sumimoto (Okayama University Medical School, Japan); K. Kuramoto (Maritime Safety Academy, Japan); S. Okada, H. Miyauchi, M. Imade (Chugoku National Industrial Research Institute, Japan); H. Yamamoto (Okayama University, Japan); Y. Arvelyna (BPP Teknologi., Indonesia)
- 14:00 **Surface Roughness Measurement Using Together a Video Camera and Photo-sensors for Detection of Intensity Distribution of Diffraction Pattern Produced from the Surface**
T. Inari, N. Aoki (Kinki University, Japan)
- 14:20 **Experimental Study of a Long-Span Wind Velocimetry System Using Scintillation of Laser Beam**
N. Kagawa (Fukuyama University, Japan); O. Wada, R. Koga (Okayama University, Japan)
- 14:40 **Detection of Wind Speed Using Spectrum Analysis for Scintillation of Laser Beam in Open Atmosphere**
Y. Mitani, N. Kagawa, K. Tsutsumoto (Fukuyama University, Japan)
- 15:00 **A Signal Detection and Correction Method Using Neural Networks for Roughly-quantized Observations in Non-linear Systems and Its Application to the Actual Measurement**
N. Nakasako, T. Yamamoto (Kinki University, Japan)
- 15:20 **An Implementation for Switching Median Filters Based on Neural Networks without Image for Learning**
M. Muneyasu, T. Ochiai, T. Kajiwara, Y. Kobayashi, T. Hinamoto (Hiroshima University, Japan)
- 15:40 **Estimation Method of Frequency Using the Complex Least-mean-square Algorithm and Its Application to Dynamic Measurement of Mass and Weight**
T. Umemoto (Osaka Prefectural College of Technology, Japan)

SAR Over Ocean

Thursday PM, 19 July 2001, 16:20 – 18:40
 Organized by K. Ouchi
 Chaired by K. Ouchi and G. Engen

- 16:20 **Texture Estimation of Ocean SAR Clutter**
G. Davidson, H. D. Griffiths (University College London, UK)
- 16:40 **Ship Detection Using N-Quoit Filter**
T. Okumura (Sendai National College of Technology, Japan); H. Kawamura (Tohoku University, Japan)
- 17:00 **Ship Detection by Cross-Correlation of Split-Look SAR Images**
M. Iehara (Mitsubishi Heavy Industries, Japan); K. Ouchi (Kochi University of Technology, Japan); K. Morimura, S. Kumano (Mitsubishi Heavy Industries, Japan)
- 17:20 **Dependence of Ships' Pitching Motion on Azimuth Image Displacement in RADARSAT Data**
K. Ouchi (Kochi University of Technology, Japan); M. Iehara, K. Morimura, S. Kumano (Mitsubishi Heavy Industries, Japan)
- 17:40 **SAR Imaging of Ocean Waves and Wind and Its Application for ENVISAT ASAR**
G. Engen, H. Johnsen (NORUT IT, Norway); B. Chapron (IFREMER, France)
- 18:00 **Study on L-Band Geophysical Model Function for Ocean Surface Wind Retrieval Using JERS1/SAR**
H. Kawamura, T. Shimada (Tohoku University, Japan); M. Shimada (NASDA/EORC, Japan)
- 18:20 **Radar and Optical Studies of Organic Marine Slicks in ERS-2/Platform Experiment**
S. A. Ermakov, I. A. Sergievskaya, Yu. B. Shchegolkov, V. Yu. Goldblat (Russian Academy of Sciences, Russia)

Coherent Effects in Random Media II

Thursday PM, 19 July 2001, 13:40 – 18:40
 Organized by V. Freilikher and H. Ogura
 Chaired by V. Freilikher and H. Ogura

- 13:40 **Spectral Coherence from Rough Surface Scattering with a Secondary Source**
Z. H. Gu (Surface Optics Corporation, USA)
- 14:00 **Scattering of Electromagnetic Waves from One-Dimensionally Rough Surfaces Containing Surface Resonant Structures**
A. R. McGurn (Western Michigan University, USA); R. A. Fitzgerald (University of Texas El Paso, USA)
- 14:20 **SNOM Image of Scattered Wave from Slightly Rough Dielectric Surfaces**
T. Kawanishi (Communications Research Laboratory, Japan)

- 14:40 **Redistribution of Modes in a Surface Disorderd Waveguide**
E. I. Chaikina, N. P. Puente, T. A. Leskova, E. R. Méndez (Centro de Investigación Científica y de Educación Superior de Ensenada, Mexico)
- 15:00 **Special Propagation Constants in Modal Density of States of Waveguide Systems with Binary Disorder**
A. Komiyama (Osaka Electro-Communication University, Japan)
- 15:20 **Very Anisotropic Coherent Thermal Emission and Spectral Selective Reflection by a SiC Grating Supporting a Surface-Phonon Polariton**
S. Mainguy, N. Caillard, T. Donval, T. Lanternier (Centre d'Etudes Scientifiques et Techniques d'Aquitaine, France); J.-P. Mulet, K. Joulain, R. Carminati, J.-J. Greffet (Ecole Centrale Paris, France); Y. Chen (Laboratoire de Microstructures et Microélectronique, France); P. Valle (Universidad Cantabrisa, Spain)
- 15:40 **New Insight into Resonance Diffraction**
A. V. Kats (Kharkiv Military University, Ukraine)
- 16:00 **Coffee Break**
- 16:20 **Diffraction of Electromagnetic Waves for Close to Normal Incidence and Surface Polaritons Minigaps**
A. V. Kats, N. A. Balakhonova, I. S. Spevak (Kharkiv Military University, Ukraine)
- 16:40 **Resonance Diffraction of Electromagnetic Wave for Grazing Incidence**
A. V. Kats, N. A. Balakhonova (Kharkiv Military University, Ukraine)
- 17:00 **Coherent Diffraction and Incoherent Scattering from a Periodic Random Surface Generated by a Stationary Binary Sequence**
K. Hattori, J. Nakayama (Kyoto Institute of Technology, Japan)
- 17:20 **Numerical Simulations on Polydisperse Composite Media. The Influence of the Size Distribution on the Effective Properties.**
A. Spanoudaki, R. Pelster (II. Physikalisches Institut der Universität zu Köln, Germany)
- 17:40 **Variations of the Radar Absorptivity of Dielectrics with Imbedded Microspheres with Particle Size**
A. J. Stoyanov, E. C. Fischer (Naval Surface Warfare Center, USA); H. Überall (Catholic University of America, USA)
- 18:00 **Electromagnetic Properties of Some Simple Bodies Consisting of Matter with Negative Permeability and Permittivity**
V. N. Kisel, A. N. Lagarkov (Russian Academy of Sciences, Russia)
- 18:20 **Orientationally Modulated Sweep Electron Paramagnetic and Nuclear Magnetic Resonances (OM EPR, OM NMR). Nontraditional Possibilities in Investigation of Solids Natural Media**
B. F. Alekseev (St. Electrotechnical University, Russia); R. F. Demyanenko, P. O. Demyanenko (National Technical University of Ukraine "KPI", Ukraine)

Microstrip and Printed Antennas

Thursday PM, 19 July 2001, 13:40 – 18:20

- 13:40 **Active Suspended Microstrip Patch Antenna**
M. Kumar, A. Basu, S. K. Koul, B. Bhat (Indian Institute of Technology, India)
- 14:00 **Microstrip Linear Array Antenna on Ferrite Substrate in Plasma Environment**
L. Dixit, P. K. S. Pourush (Dr. B.R. Ambedkar University, India)
- 14:20 **Input Impedance of Microstrip Radiator, Base in Structure of an Antenna Array**
A. O. Kasyanov (Taganrog State University of Radio Engineering, Russia)
- 14:40 **High Gain Proximity- and Aperture-fed Microstrip Antennas with a High Permittivity Focusing Layer**
A. Hoorfar (Villanova University, USA)
- 15:00 **A Novel Dual-frequency Operation of Hybrid-coupled Triangular Microstrip Antenna**
H.-M. Chen, Y.-F. Lin (National Kaohsiung University of Applied Sciences, Taiwan)
- 15:20 **Dual-frequency Design of Single-feed Triangular Microstrip Antenna**
J.-H. Lu (National Kaohsiung Institute of Marine Technology, Taiwan)
- 15:40 **Coplanar Waveguide Fed Wideband Coplanar Patch Antennas**
K. Li, K. F. Tong, T. Matsui, M. Izutsu (Communications Research Laboratory, Japan)
- 16:00 **Coffee Break**
- 16:20 **Circularly Polarized Microstrip Antenna Using a Coplanar-Waveguide Feed**
C.-Y. Huang (Yung-Ta Institute of Technology, Taiwan)
- 16:40 **Determination of Stripline Parameters by Simultaneous Matching of Scalar Potentials on Two Orthogonal Surfaces**
M. J. Lahart, C. Fazi (Army Research Laboratory, USA); I. Kohlberg (Kohlberg Associates Inc., USA)
- 17:00 **Microstrip Slot Antenna and Its Arrays**
S. F. Farida, P. V. Hunagund, R. M. Vani, S. N. Mulgi, M. Girija (Gulbarga University, India)
- 17:20 **Analysis of Surface Waves in Microstrip Array on Multilayer Dielectric**
M. Wnuk, W. Kolosowski, M. Amanowic, R. Dufrene (Military University of Technology, Poland)
- 17:40 **Optimization of Parasitic Element for Enhancement of Bandwidth of Rectangular Microstrip Antenna**
S. N. Mulgi, R. M. Vani, P. V. Hunagund, S. F. Farida (Gulbarga University, India)
- 18:00 **Bluetooth LTCC (Low Temperature Cofired Ceramics) Antenna**
R.-S. Chu, S.-Y. Peng (Advanced Antenna Technology, Inc., USA); K.-F. Fuh (Industrial Technology Research Institute, Taiwan)

Microwave and Millimeter-Wave Circuits II

Thursday PM, 19 July 2001, 14:00 – 17:40

- 14:00 **A Rigorous Approach to Circularly Bent H-Waveguides and NRD Waveguides**
K. Ono, R. Kawamura, M. Matsunaga, Y. Konishi (*Ehime University, Japan*)
- 14:20 **Precise Short Range Pulse Radar Using NRD guide at 60GHz**
F. Kuroki, M. Yamaguchi (*Kure National College of Technology, Japan*); T. Yoneyama (*Tohoku Institute of Technology, Japan*); H. Sato (*Sharp Corporation, Japan*)
- 14:40 **A Study on Band Widening of NRD Guide Band-Pass Filter with Ceramic Resonators at Millimeter-Wavelength**
F. Kuroki, S. Shinke (*Kure National College of Technology, Japan*); T. Yoneyama (*Tohoku Institute of Technology, Japan*); H. Sato (*Sharp Corporation, Japan*)
- 15:00 **Superconducting Frequency Stable Electrical Components for Wireless Communications**
F. Abbas (*Lucent Technologies, UK*)
- 15:20 **Analysis of a Proposed Si-Ge TRAPATT Diode**
H. A. El-Motaafy (*Higher Technology Institute, Egypt*); E. A. El-Badawy (*Alexandria University, Egypt*)
- 15:40 **A Proposed Super High-Power Gyro-TWT**
H. A. El-Motaafy (*Higher Technology Institute, Egypt*); E. A. El-Badawy (*Alexandria University, Egypt*)
- 16:00 **Coffee Break**
- 16:20 **Electro-Magnetic Analysis for Ceramic RF Functional Devices**
T. Ishizaki, T. Yamada, K. Uriu (*Matsushita Electric Industrial Co.,Ltd., Japan*)
- 16:40 **Large Signal Modeling of MESFETs and PHEMTs by Pulsed Measurements**
K. Lan, B. L. Ooi, M. S. Leong (*National University of Singapore, Singapore*)
- 17:00 **Structural and Mechanical Design Issues for Integration of Conformal Antennas on Wing Leading Edges**
D. S. Winkler, D. A. Wingert (*Boeing Phantom Works, USA*)
- 17:20 **Implementation of IPT Processes for Achievement of Integrated Supportable Products**
D. A. Wingert (*Boeing Phantom Works, USA*)
- 9:00 **Analytical Approach to Study of Electromagnetic Signals**
O. A. Tretyakov (*Gebze Institute of Technology, Turkey*)
- 9:20 **Transient Scattering Caused by the Sudden Appearance of Interior Terminative Conducting Screen in Homogeneously Filled Waveguide**
M. Shimoda, T. Matsuda, R. Iwaki, M. Miyoshi (*Kumamoto National College of Technology, Japan*); O. A. Tretyakov (*Gebze Institute of Technology, Turkey*)
- 9:40 **A Generalized Vector Wiener-Hopf Equation and Its Application in n-part Transmission Problems**
M. Idemen (*Isik University, Turkey*); A. Alkumru (*Gebze Institute of Technology, Turkey*)
- 10:00 **Plane Wave Diffraction by Imperfectly Conducting Strips: Solution by the Fractionalization Methods**
E. I. Veliev (*National Academy of Sciences of Ukraine, Ukraine*)
- 10:20 **Boundary Conditions for Electromagnetic Fields on the Bicomplex Plane**
M. Hashimoto (*Osaka Electro-Communication University, Japan*)
- 10:40 **Coffee Break**
- 11:00 **On the Reciprocity Theorem in Complex Point Source Scattering by Periodic Inhomogeneities in Open Planar Guides**
A. S. Andrenko (*Mitsubishi Electric Corporation, Japan*)
- 11:20 **Generalized Wiener-Hopf Technique for Isorefractive Wedges of Arbitrary Angles**
V. Daniele (*Politecnico di Torino, Italy*); R. E. Zich (*Politecnico di Milano, Italy*)
- 11:40 **Edge Functions and Their Application to Solution of Canonical Problems of Scattering in Wedge-shaped Domains**
A. Osipov (*DLR Institute of Radio Frequency Technology and Radar Systems, Germany*)
- 12:00 **An Approximate Scattering Analysis for Detecting Cracks**
R. Sato (*Niigata University, Japan*); H. Shirai, H. Sekiguchi (*Chuo University, Japan*)
- 12:20 **Circular-disk Microstrip Antennas on Flat and Spherical Substrates Analyzed in Accurate Manner**
A. I. Nosich (*National Academy of Sciences of Ukraine, Ukraine*)

Nonstandard Mathematical Techniques in Contemporary Electromagnetics I

Friday AM, 20 July 2001, 8:40 – 12:40
Organized by M. Idemen and K. Kobayashi
Chaired by K. Kobayashi and M. Idemen

- 8:40 **Analysis of Linear Conducting Scatterers by Atomic Model**
H. Hosono, T. Hosono (*Nihon University, Japan*)

Computational Electromagnetics III

Friday AM, 20 July 2001, 8:40 – 12:20

- 8:40 **Numerical Simulation of the Electromagnetic Waves from a Rotating Body Using the FD-TD Method**
K. Kawano, M. Kuroda (*Tokyo University of Technology, Japan*)

- 9:00 **FDTD Analysis of Unidirectionally Conducting Screens**
R. K. Gupta, S. Aditya, A. Basu (*Indian Institute of Technology, India*)
- 9:20 **A Novel Finite-Difference Time-Domain Algorithm for the EM scattering Analysis of FSS**
L. Yan, W. Hong, L. Tian, W. Jiang (*Southeast University, China*)
- 9:40 **Finite Difference Time Domain Simulation of Artificial Dielectric Media**
M. C. Miller, D. A. Wingert (*Boeing Phantom Works, USA*)
- 10:00 **A Hybrid Technique Combining FDTD and Exact Expression for Near-to-Far-Field Transformation**
K. Motojima, M. Ohki (*Gunma University, Japan*);
H. Sakurai (*Gunma College of Technology, Japan*);
S. Kozaki (*Gunma University, Japan*)
- 10:20 **Analysis of Waveguides and Resonance Cavities by TLM and FDTD Techniques**
M. O. Özyalçin (*Turkish Airforce Academy, Turkey*);
L. Sevgi (*Istanbul Technical University, Turkey*)
- 10:40 **Coffee Break**
- 11:00 **The Finite Element Method Coupled with the Method of Lines for the Analysis of Multilayered Transmission Lines**
H.-H. Chen, S.-M. Chu (*Huafan University, Taiwan*)
- 11:20 **Characteristic Impedance Calculations of Microstrip Line on Ferrite-Dielectric Substrate Using the Method of Lines**
I. Barseem, E. Abdallah (*Electronics Research Institute, Egypt*); E. Hashish, M. El-Said (*Cairo University, Egypt*); H. Taher (*Electronics Research Institute, Egypt*)
- 11:40 **A Novel Pseudospectral Technique based Method of Lines for Three-Dimensional MIC/MMIC Circuits**
R. S. Chen (*Nanjing University of Science & Technology, China*); E. K.N. Yung (*City University of Hong Kong, China*)
- 12:00 **A Novel Spline-Function Beam-Propagation-Method (SF-BPM) for Optical Waveguides with Large Permittivity Steps**
L. Sumichrast (*Slovak University of Technology, Slovakia*)

Numerical Analysis of Wave Scattering in Random Media and/or from Random Rough Surfaces I

Friday AM, 20 July 2001, 8:40 – 12:40
Organized by M. Tateiba
Chaired by A. Ishimaru and M. Tateiba

- 8:40 **Review of Monte-Carlo Methods for Wave Propagation and Scattering Through Random Media**
R. Talhi, M. Pyée, M. R. Tripathy (*Centre National de la Recherche Scientifique, France*)

- 9:00 **Statistical Characteristics of Magnetohydrodynamic and Gradient Waves in a Randomly-Inhomogeneous Plasma**
G. Jandieri (*Georgian Technical University, Georgia*);
Zh. Diasamidze (*Batumi State University, Georgia*);
V. Jandieri (*Georgian Technical University, Georgia*);
M. Diasamidze (*Batumi State University, Georgia*)
- 9:20 **Evaluation Technique of Microwave Emission Using Electromagnetic Simulator**
K. Komiyama (*Electrotechnical Laboratory, Japan*)
- 9:40 **Numerical Analysis of Scattering Cross Section of a Random Medium Layer by Radiative Transfer Theory**
T. Matsuoka, M. Tateiba (*Kyushu University, Japan*)
- 10:00 **Polarized Pulse Waves in Discrete Random Media**
S. Jaruwatanadilok, A. Ishimaru, Y. Kuga (*University of Washington, USA*)
- 10:20 **Bistatic Cross-Sections of Conducting Cylinders Embedded in Continuous Random Media - H-wave Incidence Case**
Z. Q. Meng (*Fukuoka University, Japan*);
M. Tateiba (*Kyushu University, Japan*)
- 10:40 **Coffee Break**
- 11:00 **Numerical Simulation of Gaussian Beam Scattering from a Dielectric Cylinder with Double Rough Surfaces**
T. Kojima, H. Arita (*Kansai University, Japan*)
- 11:20 **Wave Transport Along Random Surfaces**
G. Bal (*University of Chicago, USA*);
V. Freilikher (*Bar-Ilan University, Israel*);
G. Papanicolaou (*Stanford University, USA*);
L. Ryzhik (*University of Chicago, USA*)
- 11:40 **A Numerical Study of Low Grazing Angle Backscattering from Ocean-Like Surfaces**
K. Y. Yoon, M. Tateiba (*Kyushu University, Japan*);
K. Uchida (*Fukuoka Institute of Technology, Japan*)
- 12:00 **A Theoretical Model of Scattering and Emission from Rough Surfaces Based on Integral Equation Method**
T. D. Wu (*National Science Council, Taiwan*);
K. S. Chen (*National Central University, Taiwan*); J. Shi,
Q. Li (*University of California, USA*)
- 12:20 **Inversion of Roughness Profile of Complex Fractal Surface Using Gaussian Beam Incidence at Low Grazing Angle**
Y. Q. Jin, Z. Li (*Fudan University, China*)

Electromagnetic Inverse Methods and Techniques for Imaging Buried Objects

Friday AM, 20 July 2001, 9:00 – 12:00
Organized by Ch. Pichot, S. Caorsi, and M. Raffetto
Chaired by Ch. Pichot, S. Caorsi, and M. Raffetto

- 9:00 **Imaging of Buried Objects Using Leaky Waves of a Dielectric Waveguide**
S. Aksoy, A. A. Vertiy, S. P. Gavrilov (*Turkish-Ukrainian Joint Research Laboratory, Turkey*)

- 9:20 **The Nearfield Electromagnetic Holography Method for Locating Underground Objects**
Y. Guo, H. W. Ko, D. M. White (*The Johns Hopkins University, USA*)
- 9:40 **An Iterative Method for the Inverse Scattering Problem Based on a T-Operator Equation**
K. Ishida, M. Tateiba (*Kyushu University, Japan*)
- 10:00 **Imaging of the Buried Objects Having Inhomogeneous Impedance Boundaries**
A. Yapar (*Istanbul Technical University, Turkey*);
I. Akduman, C. Utku (*Technical University of Istanbul, Turkey*)
- 10:20 **Exploiting Different Neural-Network-Based Algorithms for the Detection and the Characterization of Cylindrical Buried Objects**
E. Bermiani, S. Caorsi (*University of Pavia, Italy*);
M. Raffetto (*University of Genoa, Italy*)
- 10:40 **Coffee Break**
- 11:00 **New Microwave Imaging System for Tomographic Detection and Reconstruction of Buried Objects**
E. Guillanton, E. L. Brusq (*University of Nice-Sophia Antipolis / CNRS, France*); I. Aliferis (*National Technical University of Athens, Greece*);
J. Y. Dauvignac, Ch. Pichot (*University of Nice-Sophia Antipolis / CNRS, France*)
- 11:20 **Iterative Reconstruction of Dielectric and Conducting Cylinders Buried in the Lossy Half Space**
J.-S. Kim, J. W. Ra (*Korea Advanced Institute of Sci. and Tech., Korea*)
- 11:40 **Image Reconstruction of Buried Cylindrical Objects Using Time Domain Data**
T. Tanaka, H. Jia, T. Takenaka (*Nagasaki University, Japan*)

RF, Microwave, and Millimeter-Wave Devices and Circuits I

Friday AM, 20 July 2001, 9:00 – 12:20

Organized by Y.-L. Lai

Chaired by Y.-L. Lai and M.-L. Her

- 9:00 **Improvement Techniques of Out-of-Band Characteristics for Planar Microwave Filters**
K. Wada, O. Hashimoto (*Aoyama Gakuin University, Japan*)
- 9:20 **Design and Analysis for a High Performance Mixer MMIC by Using HBT Device**
M.-L. Her, C.-Y. Yang, C.-Y. Xie (*Feng Chia University, Taiwan*); J.-D. Tseng (*National Chin Yi Institute of Technology, Taiwan*); K.-Y. Lin, C.-A. Wang (*Feng Chia University, Taiwan*)
- 9:40 **An HBT MMIC Wide-Band Amplifier Using a New Loss-Compensated Active Inductor**
Y.-L. Lai, C.-Y. Jeng, D.-G. Liu, C.-Y. Chang,
C.-T. Chen, M.-L. Her, M.-S. Shiau, S.-Y. Yang (*Feng Chia University, Taiwan*)

- 10:00 **An Optimization Method for the Microstrip Amplifiers Using the Performance Triplets and Gradients**
F. Günes (*Yildiz Technical University, Turkey*);
M. Günes (*Adam Electronic Ltd., Turkey*);
I. Aliyev (*Yildiz Technical University, Turkey*)
- 10:20 **Quantum Determining Gate Dielectric Constant for High-Speed Miniaturized MOS Devices**
D.-G. Liu, Y.-L. Lai (*Feng Chia University, Taiwan*);
A. Chin (*National Chiao Tung University, Taiwan*);
M.-S. Shiau, S.-Y. Yang, K.-Y. Liao (*Feng Chia University, Taiwan*)
- 10:40 **Coffee Break**
- 11:00 **Double-way Broadwall Directional Coupler Design**
R. Ramiz (*Yildiz Technical University, Turkey*)
- 11:20 **Uni-planar Bandpass Filter Using Parallel-coupled Coplanar Stripline**
C.-W. Chiu (*Minghsin Institute of Technology, Taiwan*)
- 11:40 **Math Model of the Active Four-pole Describing a Functional Amplifying Feed-back Module**
G. N. Jakushevitch (*Tomsk State University of Control Systems and Radioelectronics, Russia*)
- 12:00 **The Characteristics of Circular Waveguide Transition with Circular Profile**
J.-D. Tseng, C.-C. Lin (*National Chin Yi Institute of Technology, Taiwan*); F. Tai (*Chun Shan Institute of Science & Technology, Taiwan*)

SAR and SAR Interferometry

Friday AM, 20 July 2001, 8:40 – 12:40

- 8:40 **Baseline Estimation from Orbit Data**
S. Knedlik, O. Loffeld, C. Arndt, H. Nies (*University of Siegen, Germany*)
- 9:00 **Complex MRF Model for Interferometric SAR Image Restoration and Its Application to Phase Unwrapping Problem**
A. B. Suksmo, A. Hirose (*The University of Tokyo, Japan*)
- 9:20 **Polarimetric SAR Interferometry for Vegetation Analysis Using ESPRIT Algorithm**
H. Yamada, Y. Yamaguchi (*Niigata University, Japan*);
E. Rodriguez, Y. Kim (*California Institute of Technology, USA*)
- 9:40 **On Polarimetric Coherency Matrix in Optimized POL InSAR Image**
K. Sato, H. Yamada, Y. Yamaguchi (*Niigata University, Japan*)
- 10:00 **Improvement of High-Resolution (HR) SAR Image Ground Registration Using an IF-SAR Derived Digital Elevation Model (DEM)**
X. Dupuis, J. Dupas (*Office National d'Études et de Recherches Aérospatiales, France*)

- 10:20 **SRTM - Results from the Calibration Phase**
M. Eineder, N. Adam, H. Breit, S. Suchandt, J. Holzner, B. Rabus, W. Knöpfle (DLR Oberpfaffenhofen, Germany)
- 10:40 **Coffee Break**
- 11:00 **SRTM - The German Processing Facility and the Products**
S. Suchandt, H. Breit, M. Eineder, B. Schätler, H. Runge, A. Roth, E. Mikusch (DLR Oberpfaffenhofen, Germany)
- 11:20 **Accuracy of Interferometrically Derived Digital Elevation Models over Rain Forested Mountains of the Western Ghats of India**
P. Balan (Indian Institute of Remote Sensing, India); P. M. Mather (University of Nottingham, England)
- 11:40 **Polarimetric Calibration of PI-SAR Image Data and its Image Analyses**
K. Kimura, Y. Yamaguchi, H. Yamada (Niigata University, Japan)
- 12:00 **Polarimetric Correlation Coefficient Applied to Tree Classification**
M. Murase, Y. Yamaguchi, H. Yamada (Niigata University, Japan)
- 12:20 **Recognition of Hailstones in Clouds by the Method of Potential Functions on the Basis of Radar Polarimetric Data**
F. J. Yanovsky, R. B. Sinitsyn, I. M. Braun (National Aviation University, Ukraine)

Numerical Analysis Methods for Antennas and Scatterers

Friday AM, 20 July 2001, 9:00 – 12:00

Organized by H. Nakano

Chaired by H. Nakano and K. M. Luk

- 9:00 **Design of Small Wideband Patch Antennas Using the FDTD Method**
Y. X. Guo, K. M. Luk (City University of Hong Kong, China); K. F. Lee (University of Mississippi, USA)
- 9:20 **FDTD Analysis of a Spiral Antenna Sandwiched by Dielectric Layers**
H. Nakano, T. Ishii, H. Yasui, Y. Okabe, H. Mimaki, J. Yamauchi (Hosei University, Japan)
- 9:40 **Analysis of a Waveguide Matching Crossed Slot by Method of Moments Using Eigenmode Numerical Basis Functions**
J. Hirokawa, T. Hirano, M. Ando (Tokyo Institute of Technology, Japan)
- 10:00 **Method of Moment for Dielectric Scatters by Using Block Modeling with Sinusoidal Reaction Matching Technique**
D. Koizumi, Q. Chen, K. Sawaya (Tohoku University, Japan)

- 10:20 **The Moment Method Solution for Printed Wire Antennas on Dielectric Half-Space – Efficient Calculation of Impedance Matrix Elements**
K. Hirose (Tokyo Denki University, Japan); H. Nakano (Hosei University, Japan)
- 10:40 **Coffee Break**
- 11:00 **Application of Various Absorbing Boundary Conditions to the Finite-Difference Time-Domain Beam Propagation Method**
J. Shibayama, T. Takahashi, J. Yamauchi, H. Nakano (Hosei University, Japan)
- 11:20 **Application Range of the IE-MEI Method for 2D Scattering Analysis**
M. Hirose (Electrotechnical Laboratory, Japan); J.-I. Takada (Tokyo Institute of Technology, Japan); I. Arai (The University of Electro-Communications, Japan)
- 11:40 **Evaluation of Cavity Model and Integral Equation Method for Analysis of Microstrip Antennas**
T. Fujimoto, K. Tanaka, M. Taguchi (Nagasaki University, Japan)

Nonstandard Mathematical Techniques in Contemporary Electromagnetics II

Friday PM, 20 July 2001, 13:40 – 16:00

Organized by M. Idemen and K. Kobayashi

Chaired by M. Idemen and K. Kobayashi

- 13:40 **The Method of Asymptotic Currents Applied to the Analysis of Mutual Coupling of Antennas Located on or Close to a Perfectly Conducting Convex Surface**
F. Molinet, S. Tort (Société MOTHEM, La Boursidière, France)
- 14:00 **Numerical Analysis of Diffraction from a Multilayer-Coated Bigrating**
T. Matsuda (Kumamoto National College of Technology, Japan); D. Zhou (NTT COMWARE Corporation, Japan); Y. Okuno (Kumamoto University, Japan)
- 14:20 **Electromagnetic Wave Scattering by a Thin Arbitrary Conducting Obstacle**
Z. T. Nazarchuk (National Academy of Sciences of Ukraine, Ukraine)
- 14:40 **A Uniform Time-Domain Asymptotic Solution for Scattered Electromagnetic Fields by a Cylindrically Curved Conducting Open Surface**
K. Goto (Signal School of the Japan Ground Self Defense Force, Japan); A. Imase (National Defense Academy, Japan); T. Ishihara (National Defence University, Japan)
- 15:00 **Wiener-Hopf Technique for the Diffraction by a Circular Waveguide Cavity**
D. B. Kuryliak (National Academy of Sciences of Ukraine, Ukraine); S. Koshikawa (Antenna Giken Co., Ltd., Japan); K. Kobayashi (Chuo University, Japan); Z. T. Nazarchuk (National Academy of Sciences of Ukraine, Ukraine)

- 15:20 **Semi-Analytical Technique for Wave Scattering from Rough Interface**
A. G. Yarovoy, L. P. Ligthart (Delft University of Technology, Netherlands)
- 15:40 **Semi Inversion Approach for Resonant Waveguide Junctions in Time and Frequency Domain**
N. P. Yashina (Universite Blaise Pascal LASMEA, France)

Scattering and Diffraction

Friday PM, 20 July 2001, 16:20 – 18:20

- 16:20 **A Formalism Free Form Maxwell's Boundary Condition Based on Dual Electromagnetic Potential**
I. Banno (Yamanashi University, Japan)
- 16:40 **Scattering of Obliquely Incident Plane Waves from Subsurface Cylindrical Pipeline Tunnels**
I. O. Vardiambasis, F. Vallianatos (Technological Educational Institute of Crete, Branch of Chania, Greece)
- 17:00 **Evaluation of the RCS of the Film Coated Parallel Plate Waveguide**
K. Hongo (Toho University, Japan); T. Moriyama, H. Kobayashi (Fujitsu System Integration Laboratories, Japan); M. Tadokoro (The Yokohama Rubber Co., Ltd., Japan)
- 17:20 **Simultaneous Extrapolation of RCS in Both Angular and Frequency Domains Based on AWE Technique**
C. Tong, W. Hong, W. Jiang, L. Tian (Southeast University, China)
- 17:40 **A PO Based Evaluation of the Monostatic RCS of a Bragg Grating Reflector**
F. Ferrara, C. Gennarelli (Università di Salerno, Italy); G. Pelosi (Università di Firenze, Italy); G. Riccio (Università di Salerno, Italy)
- 18:00 **On the Uniqueness of a Solution to the Time-Domain Integral Equation on a Perfectly Conducting Scatterer**
E. Irina (Moscow State University, Russia)

Computational Electromagnetics IV

Friday PM, 20 July 2001, 14:00 – 16:00

- 14:00 **Efficient Numerical Integration of Near-Singularity Term in Integral Equation**
J. Hu, Z. Nie (University of Electronic Science and Technology of China, China)
- 14:20 **Dual Surface Electric-Field Integral Equation**
R. A. Shore, A. D. Yaghjian (Air Force Research Laboratory/SNHA, USA)

- 14:40 **Experimental Verification of PEEC Based Electric Field Simulations**
J. Ekman (Lulea University of Technology, Sweden)
- 15:00 **Simplified PEEC Models for PCB Structures and Comparison to Experimental Data**
J. Ekman (Lulea University of Technology, Sweden)
- 15:20 **Minimization of Radiation of an Antenna inside a Multilayered Dielectric Spherical Shell by Genetic Algorithm**
B. K. Jelehkaran, M. S. Abrishamian (K. N. Toosi University of Technology, Iran)
- 15:40 **A Novel Approach for Analysis and Modeling of Electromagnetic Problems Using Fuzzy Inference System**
M. Tayarani, Y. Kami (The University of Electro-Communications, Japan)

Transport Phenomena on Electron Wave

Friday PM, 20 July 2001, 16:20 – 18:20

Organized by T. Miyoshi
 Chaired by T. Miyoshi

- 16:20 **Quantum Electron Transport in Nano-Scale Devices**
M. Ogawa, T. Miyoshi (Kobe University, Japan)
- 16:40 **Transmission-Line Circuit Model**
N. Nagai (Hokkaido University, Japan)
- 17:00 **Particle Description Model for Quantum Transport Behavior of Electron Wave**
H. Tsuchiya (Kobe University, Japan); U. Ravaioli (University of Illinois, USA)
- 17:20 **Phase Breaking Effects Observed in I-V Curves of Resonant Tunneling Diodes**
K. Furuya, M. Nagase, N. Machida (Tokyo Institute of Technology, Japan)
- 17:40 **Nanoscale Silicon Devices**
T. Hiramoto, H. Ishikuro, M. Saito, H. Majima (University of Tokyo, Japan)
- 18:00 **Atomistic Effects on Transport Characteristics: Threshold Voltage Variations by Discrete Random Dopants**
N. Sano (University of Tsukuba, Japan)

Numerical Analysis of Wave Scattering in Random Media and/or from Random Rough Surfaces II

Friday PM, 20 July 2001, 14:00 – 16:00

Organized by M. Tateiba
 Chaired by A. Ishimaru and M. Tateiba

- 14:00 **Study on Rough Ocean Surfaces with Full Spatial Spectrum Based on the Multilevel Expansion Method**
S. Q. Li, C. H. Chan (City University of Hong Kong, China); L. Tsang (University of Washington, USA)

- 14:20 **Numerical Analysis of Electromagnetic Field Near Rough Air-Ground Interface**
A. G. Yarovoy, L. P. Ligthart (Delft University of Technology, Netherlands); C. N. Vazouras (Hellenic Naval Academy, Greece); J. G. Fikioris (National Technical University of Athens, Greece)
- 14:40 **Electromagnetic Wave Scattering by Objects on the Stratified and Rough Surface Ground for Microwave Remote Sensing**
J. Sonoda, Y. Miyazaki (Toyohashi University of Technology, Japan)
- 15:00 **Numerical Simulation of Radar Echo from a Ship in Ocean Clutter Using the GFBM/SAA Method**
Y. Q. Jin, Z. Li (Fudan University, China)
- 15:20 **An Approach to the Measurement of Ocean Wavelengths by Satellite Altimeters**
K. Fujisaki, M. Tateiba (Kyushu University, Japan)
- 15:40 **Scattering from Two-Dimensional Random Rough Surfaces: Influence of Polarization and Roughness Random Statistics**
S. Mainguy, E. Sibé (Centre d'Etudes Scientifiques et Techniques d'Aquitaine, France)

Inverse Scattering

Friday PM, 20 July 2001, 16:20 – 18:20

- 16:20 **A Linearization Approach to Time-Domain Inverse Scattering Problem for a Stratified Medium**
T. Kudou (Oita University, Japan)
- 16:40 **Using Conjugate Gradient Algorithm to Solve Inverse Scattering Problems Regulated by Total Variation Method**
J.-H. Lin, C. Y. Tsai, S. Y. Gang (National Taiwan Ocean University, Taiwan)
- 17:00 **An Inversion Algorithm by Complete Lattice Orthogonalization for Microwave Diffraction Tomography**
I. Erer (Technical University of Istanbul, Turkey); M. Kartal (Istanbul Technical University, Turkey)
- 17:20 **Modelling and Identification of Targets in ISAR Imaging by 2-D Orthogonal Lattice Predictors**
I. Erer (Technical University of Istanbul, Turkey); M. Kartal (Istanbul Technical University, Turkey)
- 17:40 **Comparison of Different Optimization Algorithms to Determine the Target Position in Synthetic Aperture Radar**
S. Kargin (Air Force Academy, Turkey); B. Yazgan (Istanbul Technical University, Turkey)
- 18:00 **Reconstruction of a Singular Potential in the Multidimensional Schroedinger Operator**
V. S. Serov (Moscow State University, Russia)

Borehole Electromagnetics

Friday PM, 20 July 2001, 13:40 – 16:40
 Organized by M. Sato and J. W. Ra

- 13:40 **Polarimetric Borehole Radar Measurement for Cavity Detection**
M. Sato (Tohoku University, Japan); J. W. Ra (Korea Advanced Institute of Sci. and Tech., Korea)
- 14:00 **Data Analysis of Subsurface Cavity Measurement by Polarimetric Borehole Radar**
T. Abe, M. Sato, S. Ebihara (Tohoku University, Japan)
- 14:20 **Identification of Deeply Buried Air Tunnel from the Cross-Borehole Tomogram**
H.-K. Choi, J. W. Ra (Korea Advanced Institute of Sci. and Tech., Korea)
- 14:40 **Image of Subsurface Cavity by Cross-hole Borehole Radar Measurement**
H. Zhou (Ocean University of Qingdao, China); M. Sato (Tohoku University, Japan)
- 15:00 **Polarimetric Cross-hole Measurement for Characterization of Subsurface Tunnel in Granite**
T. Miwa (The University of Electro-Communications, Japan); M. Sato (Tohoku University, Japan); I. Arai (The University of Electro-Communications, Japan)
- 15:20 **Cross-Borehole Radar Measurement for Pipe Detection**
J. Fujiwara, H. Tai (Tokyo-Gas Co.,Ltd., Japan); M. Sato (Tohoku University, Japan)
- 15:40 **A Borehole EM Logging Technique based on Borehole Radar**
S. Liu, M. Sato (Tohoku University, Japan)
- 16:00 **Coffee Break**
- 16:20 **Directional Borehole Radar with an Optical Electric Field Sensor Array**
S. Ebihara, M. Sato (Tohoku University, Japan)

Time-Domain Electromagnetics

Friday PM, 20 July 2001, 17:00 – 18:20

- 17:00 **Construction of Algorithms for the Two Dimensional Electromagnetic Analysis with Arbitrary Distribution Permittivity and Permeability in the Time Domain Mode**
C. N. Klimov (Moscow State Institute of Electronics and Mathematics, Russia); B. V. Sestroretsky (Lavochkin Association, Russia)
- 17:20 **Multi-Term Debye Modeling of Dispersive Media for the Scattered Field FDTD Formulation**
M. A. Eleiwa (Military Technical College, Egypt); A. Z. Elsherbeni (The University of Mississippi, USA)

- 17:40 **Transient Scattering of a Gaussian Pulse by a Conducting Rectangular Cylinder with an Open Side-wall**
D. Kobayashi, S. Furukawa (Sano International and Information College, Japan); T. Yamasaki, T. Hinata (Nihon University, Japan)
- 18:00 **Transient Scattering of Electromagnetic Waves by a Plasma Sphere**
A. Itoh (Tokyo National College of Technology, Japan); T. Hosono (Nihon University, Japan)

RF, Microwave, and Millimeter-Wave Devices and Circuits II

Friday PM, 20 July 2001, 14:00 – 16:00
 Organized by Y.-L. Lai
 Chaired by Y.-L. Lai and M.-L. Her

- 14:00 **Modified Dual-Fed Distributed Power Amplifier**
K. W. Eccleston (National University of Singapore, Singapore)
- 14:20 **Modeling of Coplanar Line Tapered Structures**
S.-G. Mao, M.-I. Chen (Da-Yeh University, Taiwan)
- 14:40 **Design and Analysis of Multi-layered Printed-circuit Board 4x4 Butler Matrix**
J.-D. Tseng, C.-H. Shu (National Chin Yi Institute of Technology, Taiwan); M.-L. Her (Feng Chia University, Taiwan)
- 15:00 **A New Approach to the Functional Feedback Modules Design**
G. N. Jakushevitch (Tomsk State University of Control Systems and Radioelectronics, Russia)
- 15:20 **Clarification of Magnetic Symmetry Groups in the Interaction of EM Waves with Complex Media**
W.-Y. Yin, L.-W. Li, O. B. Ooi, P. S. Kooi, M. S. Leong (National University of Singapore, Singapore)
- 15:40 **Mode Characteristics in Packaged Multiconductor Microstrip Devices and the Temperature Compensation Effects in Multilayered (An)isotropic Superstrate-Substrate**
W.-Y. Yin, M. Miao, L.-W. Li, B. L. Ooi, P. S. Kooi, M. S. Leong (National University of Singapore, Singapore)

Microwaves in Medical Applications

Friday PM, 20 July 2001, 16:20 – 18:20
 Organized by J. Pribetich
 Chaired by J. Pribetich

- 16:20 **Complex Spectrum of Electromagnetic Waves for Neurological Disease Treatment**
A. A. Tamelo (Belarussian State University of Informatics and Radioelectronics, Belarus); V. B. Shalkevich (Belarussian Institute of Neurology, Neurosurgery and Physiotherapy, Belarus)

- 16:40 **Thin and Light Applicator for Localized Microwave Heating**
Y. Nikawa (Kokushikan University, Japan); M. Yamamoto (Kanto Gakuin University, Japan)
- 17:00 **3-D Localization of Malignant Breast Tumors using Confocal Microwave Imaging**
X. Li, S. C. Hagness (University of Wisconsin-Madison, USA); E. Fear, M. Stuchly (University of Victoria, Canada)
- 17:20 **Conformal Microwave Array Applicator for Heating and Radiometric Thermometry of Large Area Superficial Disease**
P. R. Stauffer (University of California, USA); S. Jacobsen (University of Tromsø, Norway); D. Neuman, F. Rossetto (University of California, USA)
- 17:40 **Microwave Ablation of Atrial Fibrillation during Cardiac Surgery**
D. Bérubé, P.-A. Chapelon, R. Chin, R. Woodard (AFx inc., USA)
- 18:00 **Study of Clinical Configurations of Interstitial Antennas Used in Microwave Hyperthermia**
J.-C. Camart, L. Dubois, M. Chive, J. Pribetich (Université des Sciences & Technologies de LILLE, France)

Computational Electromagnetics in EMC Applications

Friday PM, 20 July 2001, 13:40 – 16:00
 Organized by O. Fujiwara
 Chaired by G. Yougang and O. Fujiwara

- 13:40 **Design of a Log-Periodic Dipole Array for Pulsed Electromagnetic Compatibility Testing Using a Genetic Algorithm**
F. Xiao, Y. Kami (The University of Electro-Communications, Japan)
- 14:00 **Calculation of Transient Response on Circuits Constructed with Resistors and Equi-length Transmission Lines**
H. Echigo, R. Sato (Tohoku Gakuin University, Japan)
- 14:20 **Matrix Analysis Method for Calculating the Shielding Characteristics of Multi-layer Cylinder Shield**
L. Chuanjun, G. Yougang (Beijing University of Posts and Telecommunications, China); W. Zhongan (Zhengzhou Rail Zhongan Eng. Industrial Co. Ltd., China)
- 14:40 **Shielding Characteristics of Infinite Metallic Plate with Small Aperture**
G. Yougang, M. Shuangwu (Beijing University of Posts and Telecommunications, China); W. Zhongan (Zhengzhou Rail Zhongan Eng. Industrial Co. Ltd., China)
- 15:00 **FDTD Modeling of Shielding Effectiveness of Metal-Plated Plastics for Portable Information Devices**
J. Wang, O. Fujiwara (Nagoya Institute of Technology, Japan)

15:20 **Study on Frequency and Spatial Electromagnetic Distribution Characteristics near a PCB by FDTD Calculation and Experiment**
H. Inoue, T. Kasuga, M. Tanaka (Akita University, Japan)

15:40 **Analysis of NSA Characteristics in Anechoic Chamber Using FDTD Method**
Y. Takiguchi, M. Tokuda (Kyushu Institute of Technology, Japan)

Electromagnetic Wave Interaction with Complex Media

Friday PM, 20 July 2001, 16:20 – 18:00

Organized by M. Tanaka

Chaired by M. Tanaka

16:20 **Reflection of Electromagnetic Waves by Artificial Anisotropic Chiral Materials Placed on Metallic Surface**
I. V. Semchenko, S. A. Khakhomov, E. A. Fedosenko (Gomel State University, Belarus)

16:40 **Plane Wave Scattering from a Thin Metallic Grating in a Planar-Stratified Uniaxial Chiral Medium**
M. Asai (Kinki University, Japan); J. Yamakita, H. Wakabayashi (Okayama Prefectural University, Japan); J. Ishii (Kinki University, Japan)

17:00 **The Effective Propagation Constant of a Sparse Medium Containing Randomly Distributed Chiral Spheres**
Y. Nanbu (Sasebo National College of Technology, Japan); W. Ren (McMaster University, Canada); T. Matsuoka, M. Hiramoto, M. Tateiba (Kyushu University, Japan)

17:20 **Numerical Analysis of the Effective Propagation Constant of a Random Medium Containing Chiral Spheres Using Quasi-Crystalline Approximation**
M. Tateiba, D. Ochi, M. Hiramoto, T. Matsuoka (Kyushu University, Japan); Y. Nanbu (Sasebo National College of Technology, Japan)

17:40 **Electromagnetic Wave Propagation in a Chiral Photonic Crystal**
A. Kusunoki, M. Tanaka (Oita University, Japan)

LED Technology and Applications

Friday PM, 20 July 2001, 13:40 – 18:20

Organized by T. Taguchi

Chaired by T. Taguchi and Y. S. Liu

13:40 **Introductory Talk - Technological Development of InGaN-based Light-emitting Diodes System -**
T. Taguchi (Yamaguchi University, Japan)

14:00 **Progress in Epitaxial Lateral Overgrowth of GaN**
H. Miyake, K. Hiramatsu (Mie University, Japan); Y. Honda, Y. Iyechika, T. Maeda (Sumitomo Chemical Co., Ltd, Japan); Y. Yamada, T. Taguchi (Yamaguchi University, Japan)

14:20 **Properties of Free Standing GaN Substrate Grown by HVPE**
C.-C. Tsai, W.-C. Lai, T.-Y. Chen, C.-S. Chang, M. Yokoyama, J.-D. Guo, W.-C. Tsai, J.-S. Tsang, S.-H. Chan, W.-I. Lee, C. Y. Chang, S. M. Sze (Advance Epitaxy Technology, Taiwan)

14:40 **Luminescence Properties of InGaN Single Quantum Wells Grown by Different Temperatures**
A. Sasaki, N. Kumatani, K. Nishizuka (Osaka Electro-Communication University, Japan)

15:00 **Inter-Diffusion of InGaN/GaN Multiple Quantum Wells Grown by Metalorganic Chemical Vapor Deposition**
J.-I. Chyi, C.-C. Chuo (National Central University, Taiwan)

15:20 **Carrier Recombination Processes in GaInN/GaN Multiple Quantum Well LEDs with varying In Composition**
S. Watanabe, M. S. Minsky, N. Yamada (Agilent Laboratories, Japan); T. Takeuchi (Agilent Laboratories, USA)

15:40 **Optical Properties of InN Nanostructures in InGaN-based Light Emitting Diodes**
R. Zheng (Yamaguchi University, Japan)

16:00 **Coffee Break**

16:20 **Long Wavelength InGaN-Based Green Light-Emitting Diode with Multiple Quantum Well Structure**
J. Ou (National Chiao Tung University, Taiwan); C. N. Huang, M. J. Jou, B. J. Lee (Epistar Corporation, Taiwan)

16:40 **InGaN LED on Sapphire Substrate Grown by MOCVD**
T. Egawa, H. Ishikawa, M. Umeno (Nagoya Institute of Technology, Japan); N. Akutsu, K. Matsumoto (Nippon Sanso Co., Japan)

17:00 **InGaN/AlInGaN Multiquantum Well Light Emitting Diodes**
Y. K. Su (National Cheng Kung University, Taiwan); J. K. Sheu, G. C. Chi (National Central University, Taiwan)

17:20 **The Synthesis of Yttrium Aluminum Garnet (YAG) Phosphor -The Citrate Gel Reaction**
J. Su (Lite-On Electronics, Inc., Taiwan)

17:40 **Flip Chip Packaging of GaN-based Light Emitting Diodes**
A. Lo, C. C. Chen, J. W. Chen (Industrial Technology Research Institute, Taiwan)

18:00 **Characteristics of Emission Spectra in Modulated White Light Emitting Diode**
N. Izuhara, T. Shiina, M. Ito, Y. Okamura (Wakayama University, Japan)

Analytical and Numerical Techniques in Photonics I

Saturday AM, 21 July 2001, 8:40 – 12:20
Organized by K. Yasumoto and H.-C. Chang
Chaired by H.-C. Chang and K. Yasumoto

- 8:40 **A New Model for Propagation in Microstructured Optical Fibres**
T. P. White, C. M. de Sterke, R. C. McPhedran (University of Sydney, Australia); L. C. Botten (University of Technology, Sydney, Australia)
- 9:00 **Electromagnetic Theory of Optical Fibers Made with Photonic Crystals**
B. Kuhlmeiy, D. Maystre, G. Renversez (Institut Fresnel, France)
- 9:20 **Finite Difference Modal Analysis of Photonic Crystal Fibers**
C.-P. Yu, H.-C. Chang (National Taiwan University, Taiwan)
- 9:40 **An Analytical Approximation Method to Obtain the Highly Reliable Standard Solutions on the Photonic Crystal Waveguides**
M. Ohtaka, K. Wakabayashi, A. Miyagawa, T. Santo, A. Hashimoto (Fukui University, Japan)
- 10:00 **Electromagnetic Scattering from Periodic Arrays of Composite Cylindrical Objects Embedded in Dielectric Slab**
K. Yasumoto, H. Toyama, T. Kushta (Kyushu University, Japan)
- 10:20 **Polarization State Changes of Reflected Beams from Periodical Structures with Magnetic Ordering**
J. Pistora, O. Bárta, D. Ciprian, J. Vlcek (Technical University Ostrava, Czech Republic)
- 10:40 **Coffee Break**
- 11:00 **Multi-Layer Optical Coatings with Random Errors**
H. E. Rowe (Stevens Institute of Technology, USA)
- 11:20 **Multigrid Method for Lightwave Propagation Problem**
M. Yokota, N. Sugio (Miyazaki University, Japan)
- 11:40 **H-Field Analysis of Step-Index Optical Waveguides by a Modified Finite-Difference Beam-Propagation Method**
J. Yamauchi, T. Murata, H. Nakano (Hosei University, Japan)
- 12:00 **S-polarized Surface Waves on the Interface of Two Quadratic Nonlinear Media**
M. Neviere (Faculté des Sciences et Techniques de Saint Jérôme, France); S. Darmanyany (Russian Academy of Sciences, Russia)

Computational Electromagnetics V

Saturday AM, 21 July 2001, 9:00 – 12:00
Organized by X.-Q. Sheng
Chaired by X.-Q. Sheng

- 9:00 **A Genetic Algorithm Approach for FSS Filter Design**
Y. Yuan, C. H. Chan, K. F. Man (City University of Hong Kong, China)
- 9:20 **A Fourth-Order Orthogonal Curvilinear Staggered Grid FDTD Scheme for the Maxwell Equations**
B. Zhang, Z. Xie (Coventry University, UK); C. H. Chan (City University of Hong Kong, China)
- 9:40 **On the Computing Algorithms of the Hybrid FEM/MLFMA**
X.-Q. Sheng, E. K.N. Yung (City University of Hong Kong, China)
- 10:00 **Computation of Scattering from Large Conducting Bodies with Complex and Thick Coating Using MoM and FMM**
H.-Y. Yao, X.-Q. Sheng, E. K.N. Yung (City University of Hong Kong, China)
- 10:20 **Alternative Expressions for the Evaluation of Electric Field in the Source Region**
H. T. Hui, E. K.N. Yung (City University of Hong Kong, China)
- 10:40 **Coffee Break**
- 11:00 **Numerical Calculation of a Two-Dimensional Scattering Problem by Using Greengard's Fast Multipole Algorithm**
N. Nakashima, M. Tateiba (Kyushu University, Japan)
- 11:20 **Parallel FDTD Computation Based on Message-Passing Interface**
E. Okamoto, T. Shiina, M. Ito, Y. Okamura (Wakayama University, Japan)
- 11:40 **Numerical Simulation of Slot Array Antenna Fed by Twisted Microstrip Line**
Y. Long, K. W. Lam, E. K.N. Yung (City University of Hong Kong, China)

Electromagnetic Precursors of Earthquakes I

Saturday AM, 21 July 2001, 8:40 – 12:40
Organized by M. Hayakawa

- 8:40 **Fractal Investigation of Correlations between Geoelectrical Signals and Seismicity in Southern Italy**
V. Cuomo (Istituto di Metodologie Avanzate di Analisi Ambientale, Italy); M. Macchiato (Università "Federico II", Italy); L. Telesca (Istituto di Metodologie Avanzate di Analisi Ambientale, Italy)
- 9:00 **ULF/ELF Magnetic Field Measurement in Seikoshi, Izu Japan**
Y. Hobara (National Space Development Agency of Japan, Japan); H. Yamaguchi, M. Hayakawa (The University of Electro-Communications, Japan); H. C. Koons, J. L. Roeder (The Aerospace Corporation, USA)

- 9:20 **The Micro-Satellite DEMETER**
M. Parrot (*LPCE/CNRS, France*)
- 9:40 **ULF/ELF Emissions Observed in Japan, Possibly Associated with Taiwan Earthquake**
M. Hayakawa (*The University of Electro-Communications, Japan*); K. Ohta, K. Umeda, N. Watanabe (*Chubu University, Japan*)
- 10:00 **Reception of Over-Horizon FM Signals Associated with Earthquakes**
M. Hayakawa, Y. Fukumoto (*The University of Electro-Communications, Japan*); H. Yasuda (*Taiyo Musen Co., Ltd., Japan*)
- 10:20 **Detection of Magma Movements Based on Transient Streaming Potential**
Y. Fujinawa, T. Matsumoto (*National Research Institute for Earth Science and Disaster Prevention, Japan*); H. Itaka (*Electrotechnical Laboratory, Japan*); K. Takahashi (*Communications Research Laboratory, Japan*)
- 10:40 **Coffee Break**
- 11:00 **ULF Geomagnetic Anomalies Associated with Earthquakes around Izu Islands in 2000**
K. Hattori (*RIKEN International Frontier Research Group on Earthquake, Japan*); Y. Kopytenko (*IZMIRAN St. Petersburg Filial, Russia*); K. Gotoh, M. Hayakawa (*The University of Electro-Communications, Japan*); T. Nagao (*Tokai University, Japan*); S. Uyeda (*RIKEN International Frontier Research Group on Earthquake, Japan*)
- 11:20 **Lithosphere-atmosphere-ionosphere Coupling Through Gravity Waves as Observed from Propagation of VLF Subionospheric Signals and Satellite Recordings**
O. A. Molchanov (*National Space Development Agency of Japan, Japan*); M. Hayakawa (*The University of Electro-Communications, Japan*)
- 11:40 **ULF Magnetic Emission Induced by Seismic Activity Due to Inductive Seismo-electromagnetic Effect**
O. A. Molchanov (*National Space Development Agency of Japan, Japan*); A. Kulchitsky (*The University of Electro-Communications, Japan*); N. V. Korovkin (*Saint Petersburg State Technical University, Russia*); M. Hayakawa (*The University of Electro-Communications, Japan*)
- 12:00 **Electromagnetic-wave Radiation due to Usu and Izu-Miyake Volcanic Eruptions and West-Tottori Earthquakes in Japan in 2000**
M. Hata (*Aichi Prefectural University, Japan*); I. Takumi (*Nagoya Institute of Technology, Japan*); H. Yasukawa (*Aichi Prefectural University, Japan*)
- 12:20 **Latest Aspects of Geoelectrical Monitoring Activities(1995-1999) in a Seismic Active Area of Southern Italy**
V. Cuomo, V. Lapenna (*Istituto di Metodologie Avanzate di Analisi Ambientale, Italy*); M. Macchiato, D. Patella (*Università "Federico II", Italy*)

Superconducting Filter Designs and Instrumentations

Saturday AM, 21 July 2001, 9:00 – 12:20
Organized by K. Yoshida

- 9:00 **Design of Miniaturized Superconducting Coplanar Waveguide Filters with Highly Packed Meanderlines**
H. Kanaya, T. Shinto, Y. Koga, K. Yoshida (*Kyushu University, Japan*)
- 9:20 **Design of a 5GHz Band Pass Filter Using HTS Quarter-Wavelength Coplanar Waveguide Resonators**
H. Suzuki, Z. Ma, Y. Kobayashi (*Saitama University, Japan*); K. Satoh, S. Narahashi, T. Nojima (*NTT DoCoMo, Inc, Japan*)
- 9:40 **A Low-Linear-Distortion HTS Filter by a New Self-Equalization Technique**
S. Takeda, Y. Matsunaga, T. Inoue (*Kyocera Corp., Japan*)
- 10:00 **X-band Characteristics of Superconductive Elliptic Function Filter**
K. Suzuki, T. Suzuki, Y. Enomoto (*Superconducting Research Laboratory, ISTEK, Japan*)
- 10:20 **HTS Microwave Filter for RF Receivers for Mobile Telecommunication Base Station**
K. Murayama, F. Imai, Y. Maeda (*Daikin Environmental Laboratory, Ltd, Japan*); T. Kumagai, T. Manabe, I. Yamaguchi, S. Mizuta (*National Institute of Materials and Chemical Research, Japan*)
- 10:40 **Coffee Break**
- 11:00 **Superconducting Tunable Filter with Steep Attenuation**
F. Aiga, Y. Terashima, M. Yamazaki, H. Fuke, H. Kayano, R. Katoh (*Toshiba Corporation, Japan*)
- 11:20 **A High-Temperature Superconductor Microstrip Filter with Steep Attenuation**
T. Yoshitake, W. Hattori, K. Takahashi (*NEC Corporation, Japan*)
- 11:40 **High Temperature Superconducting Filter for Radio Frequency Front-end of Wireless Base Station**
M. Suzuki, K. Saito, N. Sakakibara (*Cryodevice Inc., Japan*)
- 12:00 **Electrically and Magnetically Tunable Superconducting Microwave Filter Based on All Oxide Superconductor/Ferroelectric/Ferromagnetic Heterostructures**
S. Hontsu, T. Sakatani, H. Nishikawa (*Kinki University, Japan*); M. Nakamori (*Kinki University Technical College, Japan*); A. Fujimaki (*Nagoya University, Japan*); T. Kawai (*Osaka University, Japan*)

Propagation in Tropical Zone and Antenna Technology

Saturday AM, 21 July 2001, 8:40 – 12:40

Organized by T. Wakabayashi and Y. Moriya
Chaired by N. Hemmakorn and M. Krairiksh

- 8:40 **Ku-band Scintillation Characteristics in Thailand**
T. Boonchuk, N. Hemmakorn, P. Tangtisanan (King Mongkut's Institute of Technology Ladkrabang, Thailand); Y. Moriya, K. Takagi (Tokai University, Japan)
- 9:00 **Statistical Analysis of S-band Satellite Signal Effectuated by Ionospheric Scintillation**
K. Makaratat, A. Decharat, N. Hemmakorn (King Mongkut's Institute of Technology Ladkrabang, Thailand)
- 9:20 **Rain and Rain Attenuation Characteristics in Unique High Rainfall Region in Tropical Zone**
P. Nakonrat, T. Boonchuk, N. Hemmakorn (King Mongkut's Institute of Technology Ladkrabang, Thailand)
- 9:40 **Measurement Examination of the Relation Between Scintillation Expression Methods**
V. Chutchavong, O. Sangaroon, N. Anantrasirichai, J. Ngamwiwit, K. Janchitraponvej (King Mongkut's Institute of Technology Ladkrabang, Thailand); Y. Moriya (Tokai University, Japan)
- 10:00 **A Non-Invasive Steerable Array Applicator for Large Surface Hyperthermia**
M. Krairiksh, C. Thongsopa, A. Mearnchu, D.-A. Srimoon (King Mongkut's Institute of Technology Ladkrabang, Thailand); T. Wakabayashi (Tokai University, Japan)
- 10:20 **A Bidirectional Antenna Using a Probe Excited Circular Ring**
S. Kosulvit, M. Krairiksh, C. Phongcharoenpanich (King Mongkut's Institute of Technology Ladkrabang, Thailand); T. Wakabayashi (Tokai University, Japan)
- 10:40 **Coffee Break**
- 11:00 **A Switched-Beam Flat Diversity Antenna**
P. Ngamjanyaporn, M. Krairiksh (King Mongkut's Institute of Technology Ladkrabang, Thailand)
- 11:20 **Characteristics of Aperture Array Antenna Coupled by Microstrip Line**
N. Anantrasirichai, P. Ruglure (King Mongkut's Institute of Technology Ladkrabang, Thailand); T. Kunii, T. Wakabayashi (Tokai University, Japan); H. Matsui (Nissan Motor Co. Ltd., Japan)
- 11:40 **Screen Antennas Printed on Dielectric Substrate with Conductor Frame**
Y. Ukawa, N. Yoshida (Tokai University, Japan); H. Matsui (Nissan Motor Co. Ltd., Japan); T. Wakabayashi (Tokai University, Japan)
- 12:00 **Estimation of the Monthly Median foF2 Value by Using Neural Networks**
M. A. Kanaki (PATHE, Special Service of Public Works, Greece); I. T. Rekanos (Helsinki University of Technology, Finland)

- 12:20 **A Comparison of the CCIR Noise Model in VLF and Acquisitions of the CTSN Network**
P. Portala (Centre Technique des Systèmes Naval, France)

Antenna Theory and Measurements I

Saturday AM, 21 July 2001, 8:40 – 12:20

- 8:40 **Microstrip Reflectarray Antenna**
T. N. Chang, Y.-C. Wei (Tatung University, Taiwan)
- 9:00 **Cavity-Backed Slot Antenna with Sidewalls Consisted of Thin Wires**
M. Omiya, T. Hikage, K. Murakami, K. Itoh (Hokkaido University, Japan)
- 9:20 **A Study on Planar Antenna Fed by LSE-NRD Guide at 60GHz**
F. Kuroki, M. Yamaguchi (Kure National College of Technology, Japan); T. Yoneyama (Tohoku Institute of Technology, Japan)
- 9:40 **Fan Beam Antenna Fed by LSE-NRD Guide at 35GHz**
F. Kuroki, M. Yamaguchi (Kure National College of Technology, Japan); Y. Minamitani (New Japan Radio Co. Ltd., Japan); T. Yoneyama (Tohoku Institute of Technology, Japan)
- 10:00 **Radiation Pattern Control of NRD Guide Compatible Pyramidal Horn Antenna at 60GHz**
F. Kuroki, A. Takada, M. Eguchi (Kure National College of Technology, Japan); T. Yoneyama (Tohoku Institute of Technology, Japan)
- 10:20 **Beam Shaping of V-Slot Waveguide Array Antenna by Chiral Flanges**
P. V. Hunagund, S. F. Farida, R. M. Vani, S. N. Mulgi, P. M. Hadalgi, C. M. Girija (Gulbarga University, India)
- 10:40 **Coffee Break**
- 11:00 **Pattern Modeling of the LTR Phased Antenna Array inside a Square Cylindrical Conducting Fence**
Q. Rao, H. Hashiguchi, S. Fukao (Kyoto University, Japan)
- 11:20 **"Anomalous" Behaviour of the Extremely Short Dipole Capacitance**
B.-Z. Kaplan (Ben-Gurion University of the Negev, Israel); U. Suissa (Negev Academic College of Engineering, Israel); L. Frumkis (Ben-Gurion University of the Negev, Israel)
- 11:40 **A New Approach to the Characterization of the Near-Field Radiated by a Base Station Antenna for Cellular Communications**
L. Casavola (Bouygues Telecom, France); A. Ziyat, D. Picard (Supélec, Plateau de Moulon, France); L. Gattoufi, R. Veysset (Bouygues Telecom, France); J.-C. Bolomey (Supélec, Plateau de Moulon, France)
- 12:00 **Diagnostics of Phased Arrays with the Near-field Antenna Measuring Technique**
P. Kabacik, R. Hossa (Wroclaw University of Technology, Poland)

Photonics and Microwave Devices

Saturday AM, 21 July 2001, 9:00 – 12:00

Organized by C.-T. Lee
Chaired by C.-T. Lee and W.-S. Wang

- 9:00 **Short Pulse Amplification Characteristics of Er-Yb Codoped Garnet Crystal Waveguide-Type Optical Amplifiers**
R. Balasubramanian, Y. Fukuyama, Y. Miyazaki (*Toyohashi University of Technology, Japan*)
- 9:20 **Wavelength Add/Drop Multiplexer for Optical Communication Using Volume Holographic Gratings**
S. H. Lin, K. Y. Hsu (*National Chiao Tung University, Taiwan*)
- 9:40 **A Study of the Cross Section of a Distributed Bragg Reflector on Lithium Niobate Waveguide**
Y.-T. Kuo, S.-D. Yang, W.-S. Wang (*National Taiwan University, Taiwan*)
- 10:00 **Thermal Degradation Mechanism of Cu/Au Contact to InGaP Photodetector**
D.-S. Liu, C.-D. Tsai, C.-T. Lee (*National Central University, Taiwan*)
- 10:20 **Optical Performances of Double- δ -Doped InAlGaP/GaAs/InGaAs MESFET**
H.-Y. Lee, I.-J. Lin, C.-T. Lee (*National Central University, Taiwan*)
- 10:40 **Coffee Break**
- 11:00 **(NH₄)₂S_x-treated Ohmic Formation in Blue Light Emitting Diode**
C.-T. Lee, Y.-J. Lin (*National Central University, Taiwan*)
- 11:20 **ITO/ZnO/GaN Heterostructures and Contact Performances in Blue LED**
Q.-X. Yu (*University of Science and Technology of China, China*); B.-T. Tang, C.-T. Lee (*National Central University, Taiwan*)
- 11:40 **850nm VCSEL with Transparent Thin Metal and ITO Film**
L.-H. Laih, L.-W. Laih, W.-J. Ho, Y.-K. Tu (*Chunghwa Telecon Co.,Ltd., Taiwan*)

Analytical and Numerical Techniques in Photonics II

Saturday PM, 21 July 2001, 14:00 – 16:00

Organized by K. Yasumoto and H.-C. Chang
Chaired by H.-C. Chang and K. Yasumoto

- 14:00 **Confinement Property of Optical Waves Guided by a Very Thin Metal Waveguide**
Y. Satomura, T. Tsuchiya (*Osaka Institute of Technology, Japan*)

- 14:20 **Propagation Characteristics of Nonlinear Surface Waves in Abruptly Bent Nonlinear Interfaces**
H. Chang (*Dankook University, Korea*)
- 14:40 **Field Analysis of Optical Image Transmission Using Graded Index Waveguides**
Y. Inoue, Y. Miyazaki (*Toyohashi University of Technology, Japan*)
- 15:00 **Wavelength Tuning in Distributed Feedback Lasers by Quantum Well Intermixing**
L. Zhan, E. Y. B. Pun, H. P. Ho, K. S. Chan, H. P. Ho (*City University of Hong Kong, China*)
- 15:20 **Numerical Analysis of Polarization Splitter Constructed from Two Optical Fibers with a Circular Hollow Pit Outside a Core**
K. Kameda, S. Furukawa (*Sano International and Information College, Japan*); T. Hinata, T. Hosono (*Nihon University, Japan*)
- 15:40 **Improved Full-Vectorial Finite-Difference Mode Solver for Optical Waveguides**
Y.-C. Chiang, H.-C. Chang (*National Taiwan University, Taiwan*)

Photonic Crystals

Saturday PM, 21 July 2001, 16:20 – 18:20

- 16:20 **A Multipole Theory for Layered, Crossed Cylinder Gratings**
G. H. Smith, L. C. Botten (*University of Technology, Sydney, Australia*); N. A. Nicorovici, R. C. McPhedran (*University of Sydney, Australia*)
- 16:40 **Study on 2-D Dielectric PBG Material**
L. G. Zheng, W. X. Zhang (*Southeast University, China*)
- 17:00 **Photonic Tunnelling**
G. Nimtz (*University of Cologne, Germany*)
- 17:20 **Theory of Photonic Crystal Circuits**
A. R. McGurn (*Western Michigan University, USA*)
- 17:40 **Local Density of States in Two-Dimensional Photonic Crystals**
L. C. Botten (*University of Technology, Sydney, Australia*); A. A. Asatryan (*University of Sydney, Australia*); K. Busch (*University of Karlsruhe, Germany*); R. C. McPhedran, C. M. de Sterke, N. A. Nicorovici (*University of Sydney, Australia*); T. N. Langtry (*University of Technology, Sydney, Australia*)
- 18:00 **Simulation of an UMTS Antenna Using a Cylindrical Controllable Photonic Band Gap**
A. de Lustrac (*Paris XI University, France*); T. Brillat (*Paris X University, France*); F. Gadot (*Paris XI University, France*)

Single-Source Surface Integral Equation Methods for Wave Scattering

Saturday PM, 21 July 2001, 13:40 – 16:00

Organized by D. R. Swatek and I. R. Ciric

Chaired by D. R. Swatek and I. R. Ciric

- 13:40 **Use of the Single Integral Equation Method in Scattering Problems**
D. Maystre (Institut Fresnel, France)
- 14:00 **Single-Integral-Equation Method for Scattering by Dielectric Cylinders**
E. Marx (National Institute of Standards and Technology, USA)
- 14:20 **Formulation of Single Surface Integral Equations via the Equivalence Principle for Scattering by Dielectric Bodies**
A. W. Glisson (The University of Mississippi, USA)
- 14:40 **Single-Integral-Equation Method for Three-Dimensional Scattering**
E. Marx (National Institute of Standards and Technology, USA)
- 15:00 **A Numerical Criterion for the Stable Solution of Single-Source Surface Integral Equations for Electromagnetic Wave Scattering**
*D. R. Swatek (Manitoba Hydro, Canada);
I. R. Ciric (The University of Manitoba, Canada)*
- 15:20 **A Recursive Equivalent Surface Representation for Wave Scattering by General 2-D Structures**
*D. R. Swatek (Manitoba Hydro, Canada);
I. R. Ciric (The University of Manitoba, Canada)*
- 15:40 **Extension of the Single Integral Equation Method to Scattering Problems Involving Randomly Rough Surfaces and Multi-Dielectric Coated Surfaces**
D. Maystre (Institut Fresnel, France)

Kobayashi Potential and the Related Analytical Methods

Saturday PM, 21 July 2001, 16:20 – 18:20

Organized by K. Hongo

Chaired by H. J. Eom and K. Hongo

- 16:20 **Review of the Kobayashi Potential and its Relation to the Method of Moment**
K. Hongo (Toho University, Japan)
- 16:40 **An Analysis of Electromagnetic Scattering from an Annular Aperture in a Conducting Plane**
H. S. Lee (LG Electronics Institute of Technology, Korea); H. J. Eom, Y. B. Park (Korea Advanced Institute of Science and Technology, Korea)
- 17:00 **Field Distributions of a Flanged Rectangular Waveguide**
*H. Serizawa (Numazu College of Technology, Japan);
K. Hongo (Toho University, Japan)*

17:20 **Radiation from an Oliquely-Flanged Parallel-Plate Waveguide**

H. J. Eom, J. Y. Kwon (Korea Advanced Institute of Science and Technology, Korea); J. W. Lee (Electronics and Telecommunications Research Institute, Korea)

17:40 **Electrostatic Potential of Rectangular Plate on the Grounded Dielectric Substrate**

K. Hongo (Toho University, Japan); R. Yotsukura (The Yokohama Rubber Co., Ltd., Japan)

18:00 **Green's Function of Rectangular Plate on a Grounded Dielectric Layer**

*K. Hongo (Toho University, Japan);
H. Serizawa (Numazu College of Technology, Japan)*

Electromagnetic Precursors of Earthquakes II

Saturday PM, 21 July 2001, 13:40 – 15:00

Organized by M. Hayakawa

- 13:40 **Scaling Laws of ULF Electromagnetic Earthquake Precursors as a Signature of a SOC System: a Physical Model**
F. Vallianatos (Technological Educational Institute of Crete, Branch of Chania, Greece)
- 14:00 **Study of ELF/VLF Electromagnetic Noise Based on Amplitude Probability Distribution (APD) Models**
F. Vallianatos, J. Makris (Technological Educational Institute of Crete, Branch of Chania, Greece)
- 14:20 **Study of the Natural Electromagnetic Field of the Earth (NEMFE) and Its Connection with the Earth Crust Deformation and Seismicity**
*A. M. Popov (Russian Academy of Science, Russia);
A. V. Mordvinov (Solar-Terrestrial Institute of Physics, Russia)*
- 14:40 **Statistical Study of Ionospheric Precursors of Strong Earthquakes in Taiwan Area**
Y. I. Chen, J. Y. Liu, Y. J. Chuo (National Central University, Taiwan)

Gravito-Electrodynamics, Gravitation, and Relativistic Electrodynamics with Space and Laboratory Applications

Saturday PM, 21 July 2001, 15:20 – 18:20

Organized by H. Kikuchi and J. Chiba

- 15:20 **An Extended Electromagnetic Theory of the Vacuum State**
B. Lehnert (Royal Institute of Technology, Sweden)
- 15:40 **A Model of the Dust Solar Ring**
D. Maravilla (Instituto de Geofisica, UNAM, Mexico)
- 16:00 **Coffee Break**

- 16:20 **Electrodynamics of Uncharged or Charged Dust not in the Ecliptic Plane of a Quadrupole and Its Application to Tornadoic Thunderstorms**
H. Kikuchi (*Institute for Environmental Electromagnetics, Japan*)
- 16:40 **Relativistic Electrodynamics of a Charged or Uncharged Particle in an Electric Cusp and in a Periodical Electric Cusps and Its Application to an Electric Undulator**
H. Kikuchi (*Institute for Environmental Electromagnetics, Japan*)
- 17:00 **Vertical Gravity Force Due to Seismic Waves**
T. Obata, K. Iso, M. Koshizuka (*Gunma National College of Technology, Japan*); J. Chiba (*Tohoku Institute of Technology, Japan*)
- 17:20 **A Non-geodesic Equation of Motion in 3-dimensional Space: Correct Altitude-control of Bulky Space-crafts**
S. Ohkuro (*Hachinohe Inst. Tech., Japan*)
- 17:40 **On the Turbulence of Gravitational Field Produced by Large Seismic Waves**
J. Chiba (*Tohoku Institute of Technology, Japan*); T. Obata (*Gunma National College of Technology, Japan*); Y. Nemoto (*Tohoku University, Japan*)
- 18:00 **Absorption Characteristics of Gravitational Waves in Water**
J. Chiba (*Tohoku Institute of Technology, Japan*); T. Obata (*Gunma National College of Technology, Japan*)

RF and Microwave CAD and Modeling

Saturday PM, 21 July 2001, 13:40 – 16:00

Organized by F. Günes

Chaired by F. Günes

- 13:40 **Design of Microwave Amplifiers Using Distributed Equalizers with Lumped Discontinuities for Hybrid and Monolithic MIC Realizations**
A. Aksen, B. S. Yarman (*Isik University, Turkey*)
- 14:00 **Performance Characterisation of a Microwave Transistor with Feedback**
H. Torpi, F. Günes (*Yildiz Technical University, Turkey*)
- 14:20 **A Genetic Approach for the Design of Microstrip Broadband Shottky Diode Detector**
S. Kent, T. Günel, M. Kartal, A. Yapar (*Istanbul Technical University, Turkey*)
- 14:40 **A Reflectance based Method to Design Microwave Amplifiers with Optimum Performance**
B. S. Yarman (*Isik University, Turkey*); F. Günes (*Yildiz Technical University, Turkey*)
- 15:00 **Multi-Hole Sidewall Directional Coupler Design by Using Bernstein Polynomial**
A. Kavas, R. Ramiz (*Yildiz Technical University, Turkey*)

- 15:20 **Improved Design for Symmetrical Five-Port Microstrip Couplers**
F. Choong (*Center for Wireless Communications, Singapore*); S. Yeo (*National University of Singapore, Singapore*)
- 15:40 **A Low-Noise Ion-Implanted MMIC Amplifier with Optimized Matching Techniques for Wireless Applications**
Y.-L. Lai, K.-H. Hsu, D.-G. Liu, C.-T. Chen, M.-L. Her, M.-S. Shiau, S.-Y. Yang (*Feng Chia University, Taiwan*)

Material Measurements I

Saturday PM, 21 July 2001, 16:20 – 18:00

- 16:20 **High Frequency Permeability of Ferrite under Compressive Perpendicular Stress**
M. Ledieu, O. Acher (*CEA / Le Ripault, France*)
- 16:40 **Concrete Electromagnetic Properties Study Using Open-ended Coaxial Probe Method**
J. Hu, J. S. Fu, J.-G. Ma, H. C. Jong (*Nanyang Technological University, Singapore*)
- 17:00 **Precise Evaluation for Complex Permittivity of Dielectric Materials on 100GHz Band by the Whispering Gallery Mode Method**
Y. Kogami, H. Tamura, K. Matsumura (*Utsunomiya University, Japan*)
- 17:20 **The Dielectric Constant Measurement of the Civil Engineering Structures Using FMCW Ground Penetrating Radar**
X. Gan, R. C. Liu (*University of Houston, USA*)
- 17:40 **The Microwave Dielectric Properties of (Bi_{0.95}Sm_{0.05})NbO₄ Ceramics**
W.-C. Tzou (*National Sun Yet-Sen University, Taiwan*); C.-F. Yang (*Chinese Air Force Academy, Taiwan*); Y.-C. Chen, P.-S. Cheng (*National Sun Yet-Sen University, Taiwan*)

Radar Applications for Atmosphere and Ionosphere I

Saturday PM, 21 July 2001, 14:00 – 16:00

Organized by S. Fukao and T. Sato

- 14:00 **Atmospheric Turbulence Studies Using Balloon and Radar Data Collected During the MUTSI Campaign**
H. Luce, S. Fukao (*Kyoto University, Japan*); F. Dalaudier (*Paris VI University, France*); M. Crochet (*Université de Toulon et du Var, CNRS, France*)
- 14:20 **Radar Observations of Field-aligned Irregularities in the Ionospheric E-region over Japan**
M. Yamamoto, S. Fukao (*Kyoto University, Japan*)

- 14:40 **The Interpretation of Polar Mesosphere Summer Echoes (PMSE) Using Observations with the EISCAT Svalbard Radar and the SOUSY Svalbard Radar**
J. Röttger (*Max-Planck-Institut für Aeronomie, Germany*)
- 15:00 **Incoherent Scatter Studies Using the MU Radar**
N. Balan (*University of Sheffield, UK*); S. Kawamura, T. Nakamura, M. Yamamoto, S. Fukao (*Kyoto University, Japan*)
- 15:20 **Development of Transportable S-band Boundary Layer Radar**
K. Imai, T. Kishimoto, T. Iwai (*Sumitomo Electric Industries Ltd., Japan*); Y. Shibano (*Shibano Communications Laboratory, Japan*); H. Hashiguchi, S. Fukao (*Kyoto University, Japan*)
- 15:40 **Precise Orbit Determination of Meteors Using the MU Radar**
T. Sato, K. Nishimura, T. Nakamura (*Kyoto University, Japan*)

Radar Applications for Atmosphere and Ionosphere II

Saturday PM, 21 July 2001, 16:20 – 18:20

- 16:20 **The Velocity Profile of a Projectile Inside the Barrel Based on Electromagnetic Waves**
M. C. Pirlot, E. J. Schweicher (*Royal Military Academy, Belgium*)
- 16:40 **Understanding of Monsoon Precipitation Using Atmospheric Wind Profilers and Disdrometer**
K. K. Reddy (*Communications Research Laboratory, Japan*); T. Kozu (*Shimane University, Japan*); K. Nakamura (*Nagoya University, Japan*); Y. Ohno (*Communications Research Laboratory, Japan*); A. R. Jain (*National MST Radar Facility, India*); D. N. Rao (*Sri Venkateswara University, India*)
- 17:00 **Naturally Enhanced Ion Acoustic Lines Observed with the EISCAT Svalbard Radar**
R. Fujii, Y. Ogawa, S. C. Buchert (*Nagoya University, Japan*)
- 17:20 **In-line Type Lidar System for Cloud Measurement**
E. Minami, T. Shiina, M. Ito, Y. Okamura (*Wakayama University, Japan*)
- 17:40 **Tomographic Imaging of the Ionosphere Using the GPS/MET and NNSS Data**
L.-C. Tsai, W. H. Tsai, C. T. Liu (*National Central University, Taiwan*)
- 18:00 **The Chung-Li Dynasonde**
L.-C. Tsai (*National Central University, Taiwan*); F. T. Berkey (*Utah State University, USA*); W. H. Tsai (*National Central University, Taiwan*)

Antenna Theory and Measurements II

Saturday PM, 21 July 2001, 13:40 – 18:00

- 13:40 **Radar Target RCS and Its Image by Near Field Measurement**
D.-C. Chang, L. Chung, M.-C. Tzay (*Da Yeh University, Taiwan*)
- 14:00 **Estimation by Moment Method about Effect of Non-Uniformity Current on Loops in 3-Antenna Method for Loop Antenna Factor**
K. Furuya, T. Kawakami, H. Yajima (*Electrotechnical Laboratory, Japan*)
- 14:20 **The Pattern Synthesis of Nonuniformly Spaced Arrays under the Fourier Relation**
A. M. E. S. Casimiro (*Universidade do Algarve, Portugal*); R. Xianfeng (*Universidade da Madeira, Portugal*)
- 14:40 **SVD based Approach for Electromagnetic Field Recovery from Nonuniform Samples**
F. Ferrara, C. Gennarelli, G. Riccio (*Università di Salerno, Italy*); C. Savarese (*Istituto Universitario Navale, Italy*)
- 15:00 **A Design Method for Array Antennas Taking Account of Mutual Element Coupling**
K. Sakaguchi, N. Hasebe (*Nihon University, Japan*)
- 15:20 **Imperfect Antenna Array Beamforming with Adaptive H^∞ Algorithm**
C.-T. Chiang (*I-SHOU University, Taiwan*); A.-C. Chang (*Ordnance Readiness & Development Center, Taiwan*)
- 15:40 **Solution of Hallen and Pocklington Integral Equations for Cylindrical Antennas by the Method of Least Squares**
H. Oraizi, A. Hajhoseini-Mesgar (*Iran University of Science and Technology, Iran*)
- 16:00 **Coffee Break**
- 16:20 **Analysis of Tapered Slot Antennas by the Method of Least Squares**
S. Jam (*Shiraz University, Iran*); H. Oraizi (*Iran University of Science and Technology, Iran*)
- 16:40 **Novel Dual Frequency Antenna with Same Beam Width Generated by GA-ICT**
T. Maruyama, T. Hori (*Nippon Telegraph and Telephone Corporation, Japan*)
- 17:00 **Use of Gaussian Beams to Optimize Shaped Reflectors**
P. Schott, F. Lemaitre (*ONERA (DEMR), France*); O. Pascal (*Université Paul Sabatier, France*)
- 17:20 **Membrane Antenna for SAR Satellite**
G. Séguin (*Canadian Space Agency, Canada*); P. Wood (*EMS Technologies, Canada*)
- 17:40 **Antenna Estimation with Polarization Characteristics**
M. Mimura, Y. Nakagawa, K. Miyano (*Matsushita Research Institute Tokyo, Inc., Japan*); Y. Koyanagi (*Matsushita Communication Industrial Co., Ltd., Japan*); K. Fujimoto (*University of Tsukuba, Japan*)

Plastic Optical Fibers and Plastic Integrated Optics

Saturday PM, 21 July 2001, 13:40 – 18:20

Organized by Y. Miyazaki

Chaired by Y. Miyazaki, G.-D. Peng, and M. Kagami

13:40 **Partial Coherence Characteristics of Polarization and Field Intensity of Propagating Modes in Plastic Optical Fibers with Random Anisotropic Inhomogeneities**
Y. Miyazaki (*Toyohashi University of Technology, Japan*)

14:00 **Laser Activity in Polymer Optical Fibres Doped with New Organic Optical Materials**
G.-D. Peng (*University of New South Wales, Australia*);
A. D. Li (*Washington State University, USA*)

14:20 **Electro-Optic and Polarisation Effect in Polymer Optical Fibres**
G.-D. Peng, P. Ji, P. L. Chu (*University of New South Wales, Australia*)

14:40 **Neodymium-, Praseodymium-, and Erbium-chelates-doped Plastic Optical Fibers for Optical Amplification**
K. Kuriki, S. Nishihara, Y. Nishizawa, A. Tagaya, Y. Koike (*Keio University, Japan*);
Y. Okamoto (*Polytechnic University, USA*)

15:00 **User-Friendly and High Bandwidth Graded Index-POF**
I. Yamanouchi (*Asahi Glass Company, Japan*)

15:20 **Possibility of Long Range Transmission by Plastic Optical Fiber**
T. Yoshimura, Y. Miyazaki (*Toyohashi University of Technology, Japan*)

15:40 **Characteristics of Narrow Beam Digital Fiber Sensor**
R. Bhandari, C. Adachi, H. Ichihara, M. Ibusuki (*SUNX Limited, Japan*)

16:00 **Coffee Break**

16:20 **Low-loss Polynorborene Materials for Waveguide Applications**
K. Glukh, J.-H. Lipian, R. Mimna, P. S. Neal, R. Ravikiran, L. F. Rhodes, R. A. Shick, X.-M. Zhao (*The BFGoodrich Company, USA*)

16:40 **A Light-induced Self-written Optical Waveguide Circuit Using Photopolymerizing Resins**
T. Yamashita, M. Kagami, H. Ito (*Toyota Central Research & Development Labs., Inc., Japan*);
Y. Inui (*Toyoda Gosei Co., Ltd, Japan*)

17:00 **Polymeric Nonlinear Waveguide Components Formation Based-on Simultaneous Embossing and Poling at Elevated Temperatures**
O. Sugihara, Y. Che, S. Shibata, H. Fujimura, N. Okamoto, C. Egami (*Shizuoka University, Japan*)

17:20 **Collinear Acoustooptic Devices Consisting of Polymer Waveguides for WDM Networks**
N. Goto, Y. Miyazaki (*Toyohashi University of Technology, Japan*)

17:40 **Wide-band Thermo-optic Wavelength Tunable Filter Using Polymer Arrayed-waveguide Grating Phase Shifters in 1.55- μm Band**
S. Toyoda, N. Ooba, T. Kitoh, Y. Katoh, T. Kurihara, T. Maruno (*NTT Photonics Laboratories, Japan*)

18:00 **Optical Response to an Applied Alternating Electric Field with Low Frequency on an Integrated Optical Intensity Modulator Fabricated from an Electro Optic Polymer**
O. Watanabe, T. Ichikawa, M. Tsuchimori, M. Kagami, H. Itoh (*Toyota Central Research & Development Labs., Inc., Japan*)

Novel Mathematical Methods in Electromagnetics I

Sunday AM, 22 July 2001, 9:00 – 12:20

Organized by Yu. V. Shestopalov and K. Kobayashi

Chaired by Yu. V. Shestopalov and K. Kobayashi

9:00 **A Condensed Node 2-D FDTD Method in Cylindrical Coordinate System and Its Evaluation**
K. Ichige, A. Hirota, H. Arai (*Yokohama National University, Japan*)

9:20 **Magnetic Polarizability for Two Circular Apertures in a Conducting Plane**
J. W. Zeong (*Korea Advanced Institute of Sci. and Tech., Korea*); H. J. Eom (*Korea Advanced Institute of Science and Technology, Korea*)

9:40 **Excitation of a Lossy Dielectric Cylinder Covered by a Lossy Dielectric Surface**
Yu. V. Shestopalov (*Karlstad University, Sweden*)

10:00 **Reflection and Scattering Analysis of Coated Elliptic Cylinders with Absorption Magnetic Films Using Conformal Mapping Method**
Y. Miyazaki (*Toyohashi University of Technology, Japan*)

10:20 **Gaussian Beam Propagation in a Uniaxial Crystal**
S. R. Seshadri (*Nihon University, Japan*)

10:40 **Coffee Break**

11:00 **Scattering and Diffraction of a TM Plane Wave from a Randomly Rough Half-plane - An Approximation for the Diffraction Kernel -**
Y. Tamura, J. Nakayama (*Kyoto Institute of Technology, Japan*)

11:20 **Two Iterative Methods for Solution of Electromagnetic Scattering Problems**
A. B. Samokhin, U. U. Kapustin (*Moscow Institute of Radiotechnics, Russia*)

11:40 **FD-TD Method for Solving the Electromagnetic Field in the Vicinity of a Moving Body - An Application of the Body Fitted Grid Generation Method with Moving Boundaries**
M. Kuroda, T. Mishima, K. Kawano (*Tokyo University of Technology, Japan*)

12:00 **Diffraction by a Rectangular Dielectric Cylinder**
 Yu. V. Shestopalov (*Karlstad University, Sweden*);
 D. V. Lobysheva, V. V. Lozhechko (*Moscow State
 University, Russia*); K. Kobayashi (*Chuo University,
 Japan*)

**Near-Field Optics and Electromagnetic
 Interactions at Nanometer Scales**

Sunday AM, 22 July 2001, 9:00 – 12:20

Organized by H. Hori
 Chaired by H. Hori

9:00 **Simulation of 2D Photon Scanning Tunneling
 Microscope with Metal-Coated Aperture Probe**
 T. Yoshida, K. Tanaka, M. Tanaka (*Gifu University,
 Japan*)

9:20 **Various Optical Effects in Near-field Regime based
 on Dual Electromagnetic Potential**
 I. Banno (*Yamanashi University, Japan*)

9:40 **Near-field Quantum Optical Theory towards
 Nano/Atom Photonics**
 K. Kobayashi, M. Ohtsu (*Japan Science and Technology
 Corporation, Japan*)

10:00 **Force Imaging of Optical Near Field Using
 Noncontact Atomic Force Microscopy**
 Y. Sugawara, K. Masumitsu, S. Morita (*Osaka
 University, Japan*)

10:20 **Linear and Nonlinear Optical Phenomena of
 Dielectric Spheres in ATR Geometry**
 M. Haraguchi, T. Okamoto, M. Fukui (*The University of
 Tokushima, Japan*)

10:40 **Coffee Break**

11:00 **Near-Field Coupling of Whispering Gallery Modes of
 a Sphere with Surface Plasmons**
 S. Hayashi (*Kobe University, Japan*)

11:20 **Nano-Structure Optical Waveguides Using
 Low-Dimensional Optical Wave**
 J. Takahara, T. Kobayashi (*Osaka University, Japan*)

11:40 **Interaction between Low-Energy Electrons and
 Optical Evanescent Waves**
 J. Bae, R. Ishikawa, K. Mizuno (*Tohoku University,
 Japan*)

12:00 **Interaction between Electron and Photon on a Single
 Molecule in a Tunnel Barrier**
 H. Nejo (*National Research Institute for Metals, Japan*)

Microwave Filters

Sunday AM, 22 July 2001, 9:00 – 11:40

Organized by I. Awai
 Chaired by I. Awai

9:00 **Rigorous Design of Microwave Filters Applying
 Direct Electromagnetic Optimization Method**
 S. Bila, D. Baillargeat, S. Verdeyme,
 P. Guillon (*University of Limoges, France*)

9:20 **The Rigorous Analysis for a New Structure of a
 Balanced-type Circular Disk Resonator Excited by
 Coaxial Cable Lines**
 H. Kawabata, Y. Kobayashi (*Saitama University, Japan*)

9:40 **Design and Analysis of Narrow-line-coupled Stripline
 Elliptic-function Filter Using F-form Resonator for
 Transmission Zeros**
 M. Miyazaki, T. Ohwada, T. Nishino (*Mitsubishi
 Electric Corporation, Japan*)

10:00 **Miniaturization of Compline Band Elimination Filter
 in a Microstripline Configuration**
 I. Awai, H. Yamaguchi, M. Tsuchiyama (*Yamaguchi
 University, Japan*); H. Miyake, S. Kitazawa (*Matsushita
 Nittoh Electric Co.,Ltd., Japan*); T. Ishizaki (*Matsushita
 Electric Industrial Co.,Ltd., Japan*)

10:20 **Millimeter-wave BPF with Low Loss and Steep
 Attenuation Characteristics**
 M. Matsuo, H. Yabuki (*Matsushita Research Institute
 Tokyo, Inc., Japan*)

10:40 **Coffee Break**

11:00 **High Power Filter using Multi Mode Dielectric
 Resonators**
 J. Hattori, H. Wakamatsu, Y. Ishikawa (*Murata
 Manufacturing Company, Japan*)

11:20 **Proposed Multi-stage Band Pass Filter with
 Multi-mode Cavities Coupled through a Cutoff
 Waveguide**
 Y. Konishi (*K Laboratory Co., LTD, Japan*)

**Subsurface Detection Technology and
 Related Topics**

Sunday AM, 22 July 2001, 9:00 – 12:20

9:00 **Space-borne Low Frequency Radar Sounding: An
 Engineering Perspective**
 A. Safaeinili, R. L. Jordan, W. T. K. Johnson (*California
 Institute of Technology, USA*)

9:20 **Impulse Ground Penetrating Radar Data Processing
 Based on Wavelet Transform**
 F. Guangyou (*ICS-UNIDO, Italy*)

9:40 **Development of T-bar Fed Slot Antenna with Taper
 Matching Section**
 Y. Wakita, S. Watabe (*Niigata College of Technology,
 Japan*); H. Yamada, Y. Yamaguchi (*Niigata University,
 Japan*)

10:00 **Modelling Kimberlite Pipes Using the Radio Imaging
 Method**
 L. N. Wood, G. H. Smith (*University of Technology,
 Sydney, Australia*)

10:20 **Radio Reflection Tomography: Application to
 Tomographic Imaging of Asteroids and Comets**
 A. Safaeinili, R. L. Jordan, S. Gulkis (*California
 Institute of Technology, USA*); M. Belton (*Kitt Peak
 National Observatory, USA*); M. Hofstadter (*California
 Institute of Technology, USA*)

10:40 Coffee Break

11:00 **About Possibility of Electrophysical Characteristics Determination of the High Ground Layers by Reflection Factor Measuring of the Vertical and Horizontal Polarization Ultra-Wideband Microwave Signals**

S. P. Lukjanov, A. S. Shostak, V. V. Zagoskin, R. V. Potemin (*Siberian Physical-Technical Institute, Russia*); O. V. Stoukatch (*Tomsk State University, Russia*)

11:20 **Control of the Radiowave Parameters of Upper Ground Layers on a Corner of Wave Electrical Vector, Extending Along the Plane Separating Media Boundary**

A. S. Shostak, S. P. Lukjanov, V. V. Zagoskin (*Siberian Physical-Technical Institute, Russia*); O. V. Stoukatch (*Tomsk State University, Russia*)

11:40 **Surface Defect Detection Method Using Photorefractive Media**

T. Kuroiwa, T. Yamasaki, M. Matsubara (*Nihon University, Japan*)

12:00 **Portable Optical Coherence Tomography with Long Depth and High Speed Scanning**

Y. Moritani, T. Shiina, M. Ito, Y. Okamura (*Wakayama University, Japan*)

Electromagnetic Compatibility

Sunday AM, 22 July 2001, 8:40 – 12:20

8:40 **A Study of Three-Dimensional RF Radiated Immunity Test Method Using EM Fields of Low Speed Rotation**

K. Murano, K. Nakada, T. Sanpei, Y. Kami (*The University of Electro-Communications, Japan*)

9:00 **Effects of a Wire Beneath the Ground Plane through a Slot**

T. Morioka, K. Komiyama (*Electrotechnical Laboratory, Japan*); K. Hirasawa (*University of Tsukuba, Japan*)

9:20 **A Measurement of Propagation Characteristics of a Single Wire Line on a Boundary**

T. Nakamura, H. Sawada (*Gifu University, Japan*)

9:40 **A Countermeasure Method for Background Noise in Electromagnetic Environment by Using a Digital Filter**

A. Ikuta (*Hiroshima Prefectural Women's University, Japan*); M. Ohta (*Hiroshima University, Emeritus, Japan*)

10:00 **Current Distribution on Rectangular Metal Rod for Arbitrary Incidence**

T. Iwai, T. Yamashita (*Sumitomo Electric Industries Ltd., Japan*); K. Hatakeyama (*Himeji Institute of Technology, Japan*)

10:20 **Characteristics of Plane Wave Scattering and Absorption by a Conducting Elliptic Cylinder Coated with Ferrite Absorber**

T. Masuda, Y. Miyazaki (*Toyohashi University of Technology, Japan*)

10:40 Coffee Break

11:00 **Shielding Properties of a Plane Rectangular Screen Calculated by a Boundary Integral Equation**

L. O. Fichte (*Universität der Bundeswehr Hamburg, Germany*)

11:20 **Performance of 2.4GHz-band DS-SS Wireless LAN System Using Adaptive Multicode Transmission under Man-made Noise Environment**

K. Watanabe, S. Miyamoto, N. Morinaga (*Osaka University, Japan*)

11:40 **FDTD Modeling of the Bridging Effect of the Isolation Moat on the EMI Caused by Ground Bounce Noise between Power/Ground planes of PCB**

J.-N. Hwang, T.-L. Wu (*National Sun Yat-sen University, Taiwan*)

12:00 **Non-Woven Fabric Type EM-Wave Absorber Containing Metal Fibers**

T. Iwai (*Sumitomo Electric Industries Ltd., Japan*); S. Matsufuji, M. Yoshizawa, Y. Masuda (*Kanto Wire Products Corp., Japan*); K. Matsumura (*Utsumomiya University, Japan*)

Electromagnetic Compatibility: Natural Noise

Sunday AM, 22 July 2001, 9:00 – 12:20

Organized by Z. Kawasaki

9:00 **Theoretical Analysis on the Penetration of Power Line Harmonic Radiation into the Ionosphere**

Y. Ando, M. Hayakawa (*The University of Electro-Communications, Japan*)

9:20 **Wave Characteristics of Tweek Atmospherics Deduced from the Direction-finding Measurement and Theoretical Interpretation**

M. Hayakawa (*The University of Electro-Communications, Japan*); K. Ohta, K. Baba (*Chubu University, Japan*)

9:40 **ELF Transients and Ionospheric Disturbances in Association with Sprites and Elves**

Y. Hobara (*National Space Development Agency of Japan, Japan*); N. Iwasaki, T. Hayashida, M. Hayakawa (*The University of Electro-Communications, Japan*); K. Ohta (*Chubu University, Japan*); H. Fukunishi (*Tohoku University, Japan*)

10:00 **Denoising of EM-waves Emitted from Partial Discharge by Wavelet Thresholding**

A. Tungkanawanich, Z. Kawasaki, K. Matsuura (*Osaka University, Japan*)

10:20 **Minimum Field Profiles and Active Shielding of Power Frequency Magnetic Fields**

H. El-Kishky (*The University of Texas at Tyler, USA*)

10:40 Coffee Break

- 11:00 **Locating Global Lightning from a Single Station Based on ELF Transient Observation**
N. Iwasaki, M. Hayakawa (The University of Electro-Communications, Japan); Y. Hobara (National Space Development Agency of Japan, Japan); E. R. Williams (Massachusetts Institute of Technology, USA)
- 11:20 **Virtual Instrument for Lightning Discharge Analysis and Real-time Lightning Monitoring**
R. Mardiana, T. Morimoto, Z. Kawasaki (Osaka University, Japan)
- 11:40 **3D Observation of Lightning Discharge Using Interferometer**
S. Yoshihashi, Z. Kawasaki (Osaka University, Japan)
- 12:00 **Comparison of Hard- and Soft-Switching in terms of EMI**
D. Wang, H. Ishikawa, H. Naitoh (Gifu University, Japan)

- 11:00 **The Effect of Ground Plane Dimensions of Microstrip Antenna on VSWR Characteristics**
K. N. Rao, V. V.N. Sastri (Defence Research and Development Laboratory (DRDL), India)
- 11:20 **The Effect of Feed Diameter of Microstrip Antenna on VSWR Characteristics**
K. N. Rao, V. V.N. Sastri (Defence Research and Development Laboratory (DRDL), India)
- 11:40 **Estimation of Emissivity of the Dry and Wet Soil at Microwave Frequencies**
O. Calla, S. R. K. Singh (International Centre for Radio Science, India)
- 12:00 **Estimation of the Emissivity of Foam Covered Water Surface**
O. Calla, S. I. Rajesh B. (International Centre for Radio Science, India)
- 12:20 **Corporate Feed for the Phased Array Antenna Systems**
O. Calla (International Centre for Radio Science, India)

Antennas and Electromagnetic Theory

Sunday AM, 22 July 2001, 8:40 – 12:40
 Organized by B.N. Das
 Chaired by B.N. Das

- 8:40 **Experimental Investigation on the Frequency Selective Property of an Array of Narrow Rectangular Patches**
P. P. Sarkar (University of Kalyani, India); R. Bhattacharjee (Jadavpur University, India); S. Das (Bengal Engineering College, India); S. Sarkar, S. K. Chowdhury (Jadavpur University, India)
- 9:00 **A New Microstrip Frequency Selective Surface**
P. P. Sarkar (University of Kalyani, India); R. Bhattacharjee (Jadavpur University, India); S. Das (Bengal Engineering College, India); S. Sarkar, S. K. Chowdhury (Jadavpur University, India)
- 9:20 **Characterization of Coupled Lines Shielded with Semi-circular Housing by 3-D TLM Technique for High Directivity Coupler Application**
S. Valibabu, A. Biswas (Indian Institute of Technology, India)
- 9:40 **A New Slant Polarized Dual Band Microstrip Antenna**
A. De, T. Chakravarty (Delhi College of Engineering, India)
- 10:00 **A Space Borne Hemispherical Active Phased Array at X-Band for High Bit Rate QPSK Data Transmission**
S. Pal, V. K. Lakshmeesha, V. S. Rao, P. K. Reddy, V. V. Srinivasan (ISRO Satellite Centre, India)
- 10:20 **A Novel X&S Band Monopulse Tracking Feed for Remote Sensing Data Reception**
S. Pal, V. K. Lakshmeesha, V. V. Srinivasan, V. S. Kumar (ISRO Satellite Centre, India)
- 10:40 **Coffee Break**

Novel Mathematical Methods in Electromagnetics II

Sunday PM, 22 July 2001, 14:00 – 16:00
 Organized by Yu. V. Shestopalov and K. Kobayashi
 Chaired by K. Kobayashi and Yu. V. Shestopalov

- 14:00 **Backscattering Enhancement from a Sphere Over a Random Rough Surface: Stochastic Green Function Approach**
Z. L. Wang (Okayama University, Japan); H. Ogura (Kinki University, Japan); O. Wada, R. Koga (Okayama University, Japan)
- 14:20 **Treatment of the Gauge Conditions in the Condensed Node Spatial Network for the Vector Potential**
N. Yoshida (Hokkaido University, Japan)
- 14:40 **Expansion of the Correction Fields in the Dielectric Interfaces for the Scattering by Dielectric Wedges**
J. W. Ra (Korea Advanced Institute of Sci. and Tech., Korea)
- 15:00 **Scattering of Electromagnetic Waves by Columnar Dielectric Gratings with Inhomogeneous Media Consisting of Inhomogeneous Layer**
T. Yamasaki, T. Hinata, T. Hosono (Nihon University, Japan)
- 15:20 **On the Theory of TE Polarized Waves Guided by a Lossless Nonlinear Three-Layer Structure**
H. W. Schürmann (University of Osnabrück, Germany); V. S. Serov (Moscow State University, Russia); Yu. V. Shestopalov (Karlstad University, Sweden)
- 15:40 **Pseudodifferential Equation Method for Solving of Electromagnetic Scattering Problem on Screens of Arbitrary Shape in R^3**
Y. G. Smirnov (Penza State University, Russia)

Material Measurements II

Sunday PM, 22 July 2001, 14:00 – 15:40

Organized by Z. H. Zaidi

- 14:00 **Local Density of Phonon States and Impurity Induced Infrared Lattice Absorption in Ionic Crystals**
P. N. Ram (*M.J.P. Rohilkhand University, India*)
- 14:20 **Characterization of Vacuum Evaporated PbS Thin Films**
S. Kumar, T. P. Sharma (*C. C. S. University, India*);
M. Husain (*Jamia Millia Islamia, India*)
- 14:40 **Optical Investigation of a-Ga₅Se_{95-x}Sb_x & Ga₁₀Te_{90-x}Sb_x Semiconducting Thin Films**
M. Husain, S. A. Khan, Z. H. Khan,
M. Zulfequar (*Jamia Millia Islamia, India*)
- 15:00 **Activation Energies of Crystallization in Glassy Bi_{0.5}Se_{99.5-x}Zn_x Alloys**
M. Zulfequar, S. A. Khan, M. Husain, Z. H. Zaidi (*Jamia Millia Islamia, India*)
- 15:20 **Estimation of Density of Localized States of a-Se_{100-x}Bi_x Films Using Electrical Properties**
S. Singh (*Hindu College (M.J.P. Rohilkhand University), India*); M. A. Majeed Khan, M. Zulfequar,
M. Husain (*Jamia Millia Islamia, India*)

Optics and Microwave Technologies

Sunday PM, 22 July 2001, 13:40 – 16:00

Organized by Y. Konishi

Chaired by Y. Konishi and K. Honjo

- 13:40 **High Reliability Components for Gigabit, Undersea Transmission Systems (Specially Invited Paper)**
K.-W. Wang, R. H. Knerr (*Lucent Technologies, USA*)
- 14:00 **Application of Microwave Photonics to Wireless Access Systems**
H. Ogawa (*Ministry of Posts and Telecommunications, Japan*)
- 14:20 **IMT-2000 pico-cell Base Station**
A. Yamamoto, M. Shimada, H. Asakura,
K. Ogawa (*Matsushita Electric Industrial Co.,Ltd., Japan*)
- 14:40 **21GHz Band Receiving Planar Antenna for Next-Generation Broadcasting Satellite**
T. Tsugawa, M. Sakamoto (*Osaka Institute of Technology, Japan*); Y. Sugio (*Setsunan University, Japan*)
- 15:00 **Improvement in the Response Time of Microwave Variable Delay Line Using Dual-Frequency Switching Mode Liquid Crystal**
T. Kuki, H. Fujikake, T. Nomoto, Y. Utsumi (*NHK Science and Technical Research Laboratories, Japan*)

15:20 **Progress of Multi-Layer Ceramic Technology for RF Application**

T. Miura (*TDK Techno Corporation, Japan*)

15:40 **Optical Modulator with Resonant Type Electrode for Band Operation at Millimeter-Wave Region**

T. Kawanishi, M. Izutsu (*Communications Research Laboratory, Japan*); S. Oikawa (*Sumitomo Osaka Cement, Japan*)

Direct and Inverse Problems Including Chiral Materials

Sunday PM, 22 July 2001, 14:00 – 16:00

Organized by T. Sengör

Chaired by T. Sengör

- 14:00 **Inversion Algorithm for Chiralic Materials**
T. Sengör (*Helsinki University of Technology, Finland*)
- 14:20 **Chiralic Circuits**
N. S. Sengör, T. Sengör (*Helsinki University of Technology, Finland*)
- 14:40 **Diagonalization, Fast-MoM, and Green's Function-based Wavelets for Accuracy-enhanced and Accelerated EM Computing in Complex Media**
A. R. Baghai-Wadji (*Vienna University of Technology, Austria*)
- 15:00 **Fields in Soft and Hard Surface Waveguides Filled with Chiral Medium**
A. J. Viitanen (*Helsinki University of Technology, Finland*)
- 15:20 **Chiralic Printed Antennas**
A. Kavas (*Yildiz Technical University, Turkey*);
T. Sengör (*Helsinki University of Technology, Finland*)
- 15:40 **Shock Structure in Bianisotropic Media**
D. Sjöberg (*Lund Institute of Technology, Lund University, Sweden*)

Mobile Antennas

Sunday PM, 22 July 2001, 13:40 – 16:00

- 13:40 **Stripline-fed Surface Mount Antenna**
N. Adachi, J. Sato (*Matsushita Research Institute Tokyo, Inc., Japan*)
- 14:00 **Talk-position Characteristics of a Rod Antenna with a Meander Element Forhand-held Phone**
N. Odachi, S. Sekine, H. Shoki (*Toshiba Corporation, Japan*)
- 14:20 **A Horizontal Polarization Broad-Beam Antenna with Patch and Monopole Elements**
N. Kuga (*Tokyo Institute of Polytechnics, Japan*);
H. Arai (*Yokohama National University, Japan*)

- 14:40 **Broadband Sleeve Monopole Type Antenna for Dual-Band PCS/IMT-2000**
J.-I. Moon, S.-O. Park (*Information and Communication University, Korea*)
- 15:00 **Smart Antenna Base Station for IMT-2000**
H.-J. Im, S. Choi (*Hanyang University, Korea*)
- 15:20 **A Compact L1/L2 Dual Band Antenna for Palm-Held GPS Receiver**
R.-S. Chu, S.-Y. Peng (*Advanced Antenna Technology, Inc., USA*)
- 15:40 **A New Symmetrical Planar Inverted F Antenna for Dual Band Low-tilt Base Station**
T.-G. Ma, H.-J. Li, S.-K. Jeng (*National Taiwan University, Taiwan*)
- 14:20 **Fundamental Characteristics of Ion Density and Electric Potential Distributions in Cell Membrane Model containing Ionic Channels**
H. Sasaki, Y. Miyazaki (*Toyohashi University of Technology, Japan*)
- 14:40 **Orientation-modulated Electron Paramagnetic Resonance Introscopy for Medical Applications and Study of Biological Effects**
B. F. Alekseev (*St. Electrotechnical University, Russia*);
R. F. Demyanenko, P. O. Demyanenko (*National Technical University of Ukraine "KPI", Ukraine*)
- 15:00 **Microwave Application in Dental Caries Treatment**
Y. Nikawa (*Kokushikan University, Japan*); K. Kawai, S. Ebisu (*Osaka University, Japan*)
- 15:20 **Electromagnetic Effect on Neuronal System**
H. Wang, X. Wang (*Northeastern University, China*)

Propagation at Radio Communications

Sunday PM, 22 July 2001, 14:00 – 16:00

- 14:00 **A Study on the Adaptive Beam Control Corresponding to Traffic Distribution in the Area for Micro Cell Base Stations**
T. Fukagawa, M. Mimura, T. Kishigami, K. Miyano, M. Hasegawa (*Matsushita Research Institute Tokyo, Inc., Japan*)
- 14:20 **The Estimation Error in 2-D Superresolution Techniques**
R. Hara, T. Nakazawa, H. Yamada, Y. Yamaguchi (*Niigata University, Japan*)
- 14:40 **Comparison of Measured and Predicted Reduction Factors Models from the Network Rain Gauges in Malaysia**
A. R.S. Kamal, A. R. Tharek, J. Din (*University of Technology Malaysia, Malaysia*)
- 15:00 **Prediction Analysis of the Carrier-to-Interference Ratio (CIR) Statistics for a Dual Polarized Fixed Satellite System by Two Adjacent Interfering Satellites**
J. D. Kanellopoulos, A. D. Panagopoulos, T. D. Kritikos (*National Technical University of Athens, Greece*)
- 15:20 **Ground Wave Propagation over Non-Homogeneous Earth**
F. Akleman, L. Sevgi (*Istanbul Technical University, Turkey*)
- 15:40 **The Wireless Optical Home Link**
E. D. Golovin, O. V. Stoukatch (*Tomsk State University, Russia*)

Medical Applications and Biological Effects II

Sunday PM, 22 July 2001, 14:00 – 15:40

- 14:00 **Temperature Rises in the Human Eye Exposed to EM waves from Dipole Antenna at Various Microwave Frequencies**
M. Kita, M. Morita, A. Hirata, T. Shiozawa (*Osaka University, Japan*)