

# Program

## 3rd Asia-Pacific Engineering Research Forum on Microwaves and Electromagnetic Theory

December 1–2, 2000  
Venture Business Laboratory  
Kyushu University, Fukuoka, Japan

Sponsored by  
Faculty of Information Science and Electrical Engineering  
Kyushu University



Technically Co-Sponsored by  
IEEE Fukuoka Section



## STEERING COMMITTEE

### General Chairman:

Kiyotoshi Yasumoto                      Kyushu University

### Members:

Mitsuo Tateiba                      Kyushu University  
Kuniaki Yoshitomi                      Kyushu University  
Kiyotaka Fujisaki                      Kyushu University  
Koki Watanabe                      Kyushu University  
Kenichi Ishida                      Kyushu University  
Tsuyoshi Matsuoka                      Kyushu University

### Secretary

Koki Watanabe                      Kyushu University

## INVITED SPEAKERS

Chan, C. H.                      City University of Hong Kong, China  
Chang, Hosung  
Iwashige, Jiro                      Fukuoka Institute of Technology, Japan  
Jia, Hongting                      Nagasaki University, Japan  
Jin, Ya-Qiu                      Fudan University, China  
Li, Hu                      University of Electronic Science and Technology of China, China  
Maeda, Hiroshi                      Fukuoka Institute of Technology, Japan  
Meng, Zhi Qi                      Fukuoka University, Japan  
Naka, Yoshihiro                      Kumamoto University, Japan  
Nishimoto, Masahiko                      Kumamoto University, Japan  
Park, Wee Sang                      Pohang University of Science and Technology, Korea  
Qian, Jingren                      University of Science and Technology of China, China  
Ra, Jung-Woong                      Korea Advanced Institute of Science and Technology, Korea  
Taguchi, Mitsuo                      Nagasaki University, Japan  
Tanaka, Mitsuru                      Oita University, Japan  
Watanabe, Koki                      Kyushu University, Japan  
Xu, Shan-jia                      University of Science and Technology of China, China  
Yasumoto, Kiyotoshi                      Kyushu University, Japan  
Yokota, Mitsuhiro                      Miyazaki University, Japan  
Yoon, Kwnag-Yeol                      Kyushu University, Japan

# TECHNICAL SESSIONS

**December 1 (Friday)**

9:00–9:10    **Opening Remarks**

**Session 1 (Chairman: C. H. Chan)**

9:10–9:40

Design of a Planar Magic-T Using Microstrip-Slotline Transitions

J. P. Kim (LG Innotek Co., Ltd., Korea)

W. S. Park (Pohang University of Science and Technology, Korea)

9:40–10:10

Coupled-Mode Theory and Its Application to Optical Waveguides

J. Qian and D. Chen (University of Science and Technology of China, China)

10:10–10:40

Reformulation of the Differential Theory for Anisotropic Gratings

K. Watanabe and K. Yasumoto (Kyushu University, Japan)

10:40–11:00    Coffee break

**Session 2 (Chairman: H. Ikuno)**

11:00–11:30

Fundamental Properties of Wavelength Multi/Demultiplexer Using Two-Dimensional Photonic Crystal L-Shaped Optical Bend Waveguides

Y. Naka and H. Ikuno (Kumamoto University, Japan)

11:30–12:00

Design of Thin-Film Color Filters Using Genetic Algorithms and the Characteristics of the Fabry-Perot Interferometers

G. Yoo and J. M. Jeong (Hanyang University)

H. Chang (Dankook University)

12:00–12:30

FDTD Analysis of Radiation Characteristics from Nonlinear Dielectric Waveguide with Grating Structure

H. Maeda and N. Tsumagari (Fukuoka Institute of Technology, Japan)

12:30–14:00    Lunch

**Session 3 (Chairman: J. W. Ra)**

14:00–14:30

Time-Frequency Processing of Backscattered data from a Dielectric Sphere

M. Nishimoto and H. Ikuno (Kumamoto University, Japan)

14:30–15:00

Scattering Fields with Slope Diffraction by a Building with a Rooftop Obstacle

J. Iwashige, K. Nakashima, and T. Ueda (Fukuoka Institute of Technology, Japan)

15:00–15:30

Scattering of a Hermite-Gaussian Beam Field by a Chiral Sphere

M. Yokota (Miyazaki University, Japan)

15:30–15:50 Coffee break

**Session 4 (Chairman: W. S. Park)**

15:50–16:20

Introduction of Complex Effective Dielectric Constant to the Analysis of Leakage for Guided Modes on Open Structures near the Cutoff Region

X. Zeng, S. Xu (University of Science and Technology of China, China)

K. Wu (École Polytechnique, Canada)

K. Luk (City University of Hong Kong, China)

16:20–16:50

Cavity-Backed Resistance-loaded Monopole Antenna for Impulse Radar

M. Taguchi, Y. Matsuoka, and K. Tanaka (Nagasaki University, Japan)

16:50–17:20

Analysis of Inset Dielectric Guide with a Modified Perfectly Matched Boundary

H. Jia (Nagasaki University, Japan)

K. Yasumoto and K. Yoshitomi (Kyushu University, Japan)

**December 2 (Saturday)**

**Session 5 (Chairman: M. Tateiba)**

9:10–9:40

Electromagnetic Inverse Scattering of Cylindrical Dielectric Objects

M. Tanaka (Oita University, Japan)

9:40–10:10

Problems in Inverse Scattering — Illposedness, Resolution, Local Minima, and Uniqueness

J. W. Ra (Korea Advanced Institute of Science and Technology, Korea)

10:10–10:40

Bistatic Cross-Sections of Conducting Circular Cylinders in Random Media — Effect of Spatial Coherence Length of Scattered Wave

Z. Q. Meng (Fukuoka University, Japan)

M. Tateiba (Kyushu University, Japan)

10:40–11:00 Coffee break

**Session 6 (Chairman: Y. Q. Jin)**

11:00–11:30

An Efficient Algorithm for Electromagnetic Scattering from Two-Dimensional Random Rough Surfaces

M. Y. Xia, C. H. Chan, and S. Q. Li (City University of Hong Kong, China)

11:30–12:00

A Numerical Study of Low-Grazing-Angle Scattering from Random Rough Surface with Gaussian Roughness Spectrum

K. Y. Yoon, M. Tateiba (Kyushu University, Japan)

K. Uchida (Fukuoka Institute of Technology, Japan)

12:00–12:30

Some Issues on Polarimetric Scattering from Non-Spherical Scatterers Media

Y. Q. Jin (Fudan University, China)

12:30-14:00    Lunch

### **Session 7 (Chairman: J. Qian)**

14:00–14:30

A Review of All-Fiber Velocity Interferometry

Hu Li, Ye Kunzheng, Jia Bo, and Liu Guoxiang

(University of Electronic Science and Technology of China, China)

Tan Hua, Peng Qixian, and Zhou Xianming (Institute of Fluid Physics, China)

14:30–15:00

Modeling of Electromagnetic Scattering from Multilayered Periodic Arrays of Two-Dimensional Cylindrical Composites Using Lattice Sums

K. Yasumoto, K. Watanabe, and K. Yoshitomi (Kyushu University, Japan)

15:00–15:10    **Closing Remarks**

## **BANQUET**

All of the guests are requested to participate in the banquet to be held in the evening of December 1 at the restaurant for the Faculty staff. The banquet will start at 17:30 and end at 19:30.