

# 4<sup>th</sup> Pan-Pacific EMC Joint Meeting –PPEMC'10–

*“Let Us Build a New EMC Silk Road in the New Traffic Revolution Era.”*

May 27-28, 2010

Cyberscience Center, Tohoku University, Sendai, Japan



## Advance Program (as of May 16, 2010)

Sponsored and Organized by  
IEICE Technical Committee on Electromagnetic Compatibility

Co-sponsored by  
IEEJ Technical Committee on Electromagnetic Compatibility  
IEEE EMC Society Japan Chapter/Sendai Chapter

Supported by  
Cyberscience Center, Tohoku University  
Telecom Engineering Center

## **PPEMC'10**

**is sponsored and organized by**  
IEICE Technical Committee on Electromagnetic Compatibility (EMCJ),

**co-sponsored by**  
IEEJ Technical Committee on Electromagnetic Compatibility  
and  
IEEE EMC Society Japan Chapter/Sendai Chapter,

**and supported by**  
Cyberscience Center, Tohoku University  
and  
a grant from Telecom Engineering Center (TELEC).

### **PPEMC'10 Steering Committee**

#### **General Chair**

Prof. Osamu Fujiwara, *Nagoya Institute of Technology*

#### **Vice Chair**

Prof. Nobuo Kuwabara, *Kyushu Institute of Technology*

#### **Secretary**

Dr. Eiji Hankui, *NEC Corporation*

Dr. Kimitoshi Murano, *Tokai University*

#### **Technical Program**

Prof. Nobuo Kuwabara, *Kyushu Institute of Technology*

Dr. Kimitoshi Murano, *Tokai University*

Dr. Yoshitaka Toyota, *Okayama University*

Dr. Eiji Hankui, *NEC Corporation*

Mr. Yoshiharu Akiyama, *NTT Corporation*

#### **Liaison**

Prof. Jianqing Wang, *Nagoya Institute of Technology*

#### **Publications & Registration**

Mr. Yoshiharu Akiyama, *NTT Corporation*

#### **Local Arrangements**

Prof. Hideaki Sone, *Tohoku University*

Dr. Yu-ichi Hayashi, *Tohoku University*

## Author's Information

### Presentation

Contributed papers are allotted 20 minutes (15 minutes for presentation, 5 minutes for questions), and invited papers are allotted 45 minutes (40 minutes for presentation, 5 minutes for questions). Please plan your presentation accordingly. A video projector and a PC (WINDOWS 7) will be available for presentation in the conference room. Power Point 2007 is installed on the PC. All speakers may bring your Power Point presentation with a USB memory or your own PC.

### Student Award

IEEE EMC Society Japan/Sendai Chapters Student Award will be presented to student authors selected by the Committee (up to 2 student speakers). All IEEE Student Members are eligible for this Award. This Award carries a certificate and a cash reward of JPY20,000. The Award Ceremony will be held at PPEMC'10 Banquet on May 27.

## Social Event

### PPEMC'10 Banquet

PPEMC'10 Banquet will be held on the 5th floor of the CyberScience Center, Tohoku University, on May 27 at 6:00 pm in a simple and informal style. All the participants are welcome to enjoy this buffet party. The Student paper award winners will be announced at this event. The Banquet registration will be received at the registration desk.

## General Information

### Venue

PPEMC'10 will be held at the **Cyberscience Center**, Tohoku University, Sendai, Japan.  
6-3 Aoba, Aramaki, Aoba-ku, Sendai 980-0845, JAPAN

<http://www.isc.tohoku.ac.jp/HTML/>

The conference room is located on 5<sup>th</sup> floor.

### Registration

PPEMC'10 registration desk will be opened beside the conference room in Cyberscience Center from 8:30 a.m. to 16:00 p.m.

Registration fee: JPY7,000 (JPY2,000 for students)

The registration fee includes admission to the technical sessions and symposium proceedings but excludes banquet.

### Official Language

The official language of PPEMC'10 is English.

## Official Currency

The official currency is Japanese Yen.

## Temperature and Clothing

May is a very pleasant season in Sendai. The average daily high temperature is about 20°C (68 °F) and the daily low temperature is about 11°C. Light clothes are recommended plus a jacket or sweater for cool evenings.

## How to Reach Cyberscience Center

Attendees to PPEMC'10 are recommended to take a taxi from the JR Sendai Station to the conference site. It requires 20 minutes and about JPY1,800 for a ride. Public bus transportation is also available from Sendai Station to the conference site, but Japanese language is necessary to utilize the bus service. If you would like to have further information please visit the following site.

**<http://www.kotsu.city.sendai.jp/english/>**

## Lunch

There are some restaurants near Cyberscience Center. Please see the guide map on page 5.

## Internet

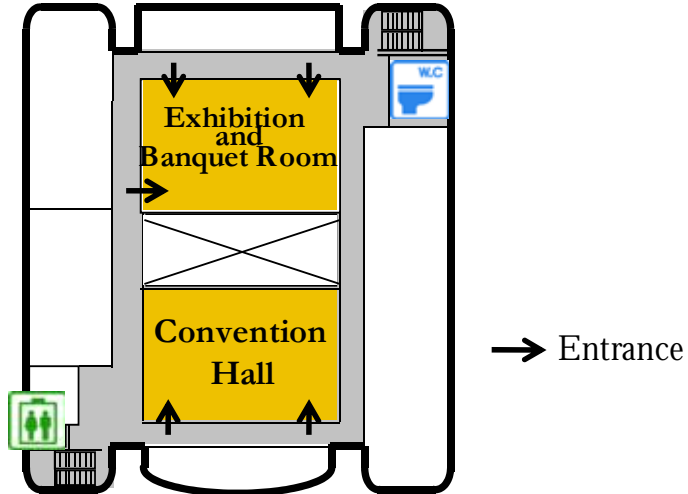
Wireless LAN environment is available at the conference room. If you want to use wireless LAN, please visit the registration desk.

## Local Office

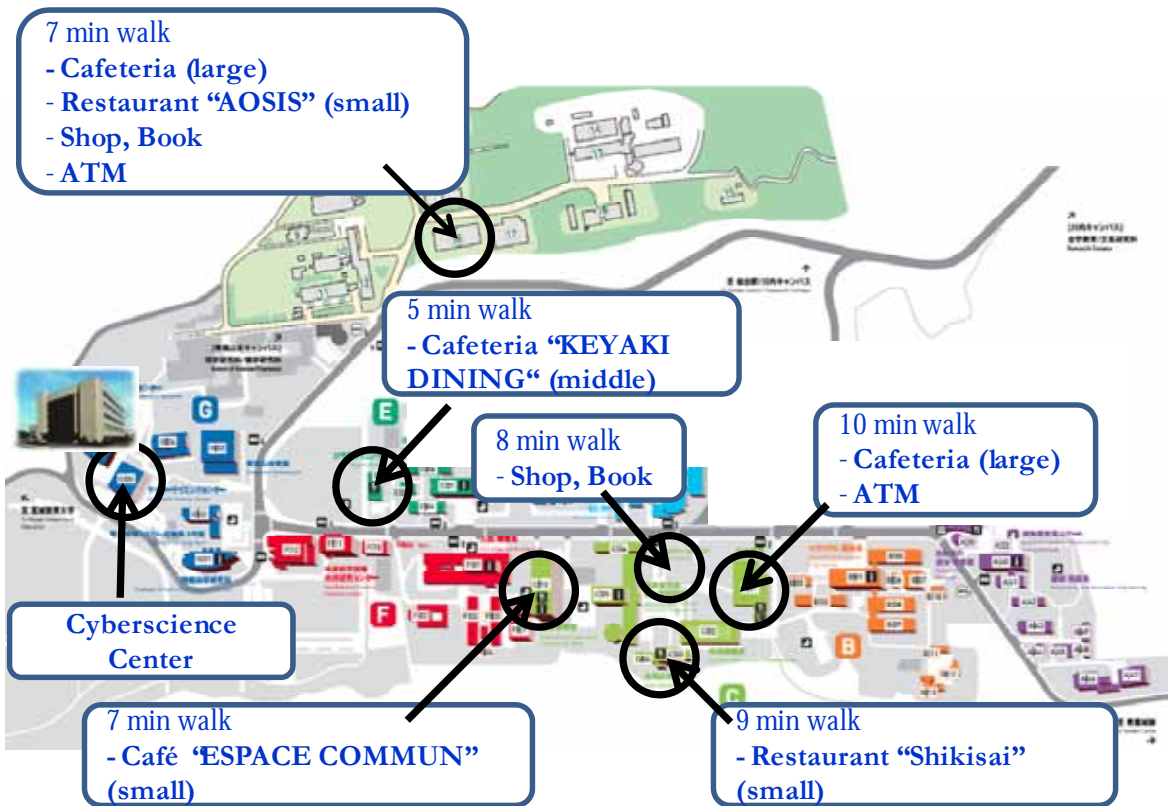
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## Guide Map

### Cyberscience Center The Fifth Floor



### Campus MAP



## Technical Program

Thursday, May 27, 2010

09:00 – 09:10

**Opening Address** Prof. Osamu Fujiwara, *Nagoya Institute of Technology*

09:10 – 10:10 TH-AM1

### Technical Session 1

Chair: Prof. Tzong-Lin Wu, *National Taiwan University*

Co-chair: Dr. Yu-ichi Hayashi, *Tohoku University*

09:10 – 09:30 TH-AM1-1

#### **An analysis of the standing wave on the imbalanced power line**

Masahiro Kinugawa, Yu-ichi Hayashi, Takaaki Mizuki, Hideaki Sone, *Tohoku Univ.*

09:30 – 09:50 TH-AM1-2

#### **Influence of device structure on electromagnetic (EM) information leakage from the device**

Kouhei Ohmura, Yu-ichi Hayashi, Takaaki Mizuki, Hideaki Sone, *Tohoku Univ.*

09:50 – 10:10 TH-AM1-3

#### **Improved SPM Method for Estimating Location of Multiple Coherent Current Sources**

Jerdvisanop Chakarothai, Yuan Zhen, Qiang Chen, Kunio Sawaya, *Tohoku Univ.*

10:10 – 10:30 TH-AM1-4

#### **A Measurement Method for 2-D EMF Distributions Using Optical Tracker**

Ken Sato, Hiroaki Kawata, Yoshitsugu Kamimura, *Utsunomiya Univ.*

10:30 – 10:45 Break

10:45 – 12:05 TH-AM2

### Technical Session 2

Chair: Prof. Fengchao Xiao, *University of Electro-Communications*

Co-chair: Prof. Nobuo Kuwabara, *Kyushu Institute of Technology*

10:45 – 11:05 TH-AM2-1

#### **Equivalent Circuit Analysis of F-SIR Structure with Negative Group Time Delay**

Ryosuke Yanagisawa, Yoshiki Kayano, Hiroshi Inoue, *Akita Univ.*

11:05 – 11:25 TH-AM2-2

#### **Technical Session 2A Proposal of Complex Electromagnetic Field Measurement Method**

Toshihiro Takatsu, Fengchao Xiao, *Univ. of Electro-Communications*

Kimitoshi Murano, *Tokai Univ.*, Yoshio Kami, *Univ. of Electro-Communications*

11:25 – 11:45 TH-AM2-3

#### **Variability in Electromagnetic Fields Caused by Indirect Discharges onto Vertical Coupling Plane**

Takuro Tsuji, Yoshinori Taka, Osamu Fujiwara, *Nagoya Inst. of Tech.*

Norio Yamamoto, *Industrial Research Center of Shiga Pref.*

11:45 – 12:05 TH-AM2-4

**Conservative Calculation of Whole-Body Averaged SARs over 1 GHz in Infants**

Hironobu Miwa, Akimasa Hirata, Osamu Fujiwara, *Nagoya Inst. of Tech.*

Tomoaki Nagaoka, Soichi Watanabe, *Natl. Inst. of Information and Communications Tech. (NICT)*

12:05 – 13:30 Lunch Break

13:30 – 14:30 TH-PM1

**Technical Session 3**

Chair: Prof. Jianqing Wang, *Nagoya Institute of Technology*

Co-chair: Dr. Kimitoshi Murano, *Tokai University*

13:30 – 13:50 TH-PM1-1

**In-vivo Measurement of Dielectric Properties for Human-Body Skin Tissue with Semi-rigid Coaxial Probe**

Yusuke Sato, Akimasa Hirata, Osamu Fujiwara, *Nagoya Inst. of Tech.*

13:50 – 14:10 TH-PM1-2

**Physics-Based Modeling of DGS Filter Formed on Return Plane of Printed Circuit Boards**

Keisuke Matsumoto, Yoshitaka Toyota, Kengo Iokibe, Ryuji Koga, *Okayama Univ.*

14:10 – 14:30 TH-PM1-3

**Impact of wireless body area network to medical electronic equipment**

Shinobu Ishigami, *Natl. Inst. of Information and Communications Tech. (NICT)*

Kengo Kitaichi, Yuji Goto, *Tokyo City Univ.*

Kenichi Takizawa, Sung Grace Hui Hsia, *Natl. Inst. of Information and Communications Tech. (NICT)*, Masamitsu Tokuda, *Tokyo City Univ.*

14:30 – 14:45 Break

14:45 – 15:45 TH-PM2

**Technical Session 4**

Chair: Prof. Yougang Gao, *Beijing University of Posts & Telecommunications*

Co-chair: Prof. Qiang Chen, *Tohoku University*

14:45 – 15:05 TH-PM2-1

**Numerical Analyses of Electromagnetic Near Fields around Perfectly Conductive Thin Wire Arrays Illuminated by Plane Waves**

Kazuo Aizawa, Hiroshi Echigo, *Tohoku Gakuin Univ.*

15:05 – 15:25 TH-PM2-2

**Evaluation of Site Deviation Reduction Effect in Ferrite Cores Array using Imitated Equipment**

Tatsuro Honda, Nobuo Kuwabara, *Kyushu Inst. of Tech.*, Jiro Kawano, *VCCI Council*

15:25 – 15:45 TH-PM2-3

**Evaluation method of information in electromagnetic disturbance radiated from PC display using time varying stripe image**

Toshihide Tosaka, Yukio Yamanaka, Kaori Fukunaga, *Natl. Inst. of Information and Communications Tech. (NICT)*

15:45 – 16:00 Break

16:00 – 17:30 TH-PM3

**Invited Session 1**

Chair: Prof. Osamu Fujiwara, *Nagoya Institute of Technology*

16:00 – 16:45 TH-PM3-1

**A brief model of the common-mode excitation in non-uniform transmission lines**

Ryuji Koga, *Okayama University*

16:45 – 17:30 TH-PM3-2

**Technical Trends in High-speed Power Line Communication**

Masamitsu Tokuda, *Tokyo City University*

18:00 – 20:00

**Banquet**

Friday, May 28, 2010

09:00 – 10:30 FR-AM1

**Invited Session 2**

Chair: Prof. Yoshio Kami, *University of Electro-Communications*

09:00 – 09:45 FR-AM1-1

**Some recent research works on low frequency EM bioeffect in China**

Youngang Gao, *Beijing University of Posts & Telecommunications*

09:45 – 10:30 FR-AM1-2

**Review of the Development of Breast Cancer Detection System Using Microwave Tomography Technology**

Jeong-Ki Pack, *Chungnam National University*

10:30 – 10:50 Break

10:50 – 12:20 FR-AM2

**Invited Session 3**

Chair: Prof. Hiroshi Inoue, *Akita University*

10:50 – 11:35 FR-AM2-1

**Broadband Common-mode Noise Rejection for GHz Differential Signals Using Defected Ground Structures**

Tzong-Lin Wu, *National Taiwan University*

11:35 – 12:20 FR-AM2-2

**How to enhance EMC self learning**

Khan-ngern Werachet, *King Monkut's Institute of Technology Ladkrabang*

12:20 – 14:00 Lunch Break

14:00 – 15:20 FR-PM1

**Technical Session 5**

Chair: Prof. Jeong-Ki Pack, *Chungnam National University*

Co-chair: Dr. Shinobu Ishigami, *National Institute of Information and Communications Technology*



14:00 – 14:20 FR-PM1-1

**Measurement of the radiated electromagnetic field intensity using spherical electrodes and a horn antenna**

Ken Kawamata, *Hachinohe Inst. of Tech.*, Shigeki Minegishi, *Tohoku Gakuin Univ.*  
Osamu Fujiwara, *Nagoya Inst. of Tech.*

14:20 – 14:40 FR-PM1-2

**Severity Estimation of Air discharge of an ESD-gun with Low Charge Voltages**

Ikuko Mori, *Suzuka Natl. College of Tech.*, Osamu Fujiwara, *Nagoya Inst. of Tech.*

14:40 – 15:00 FR-PM1-3

**Frequency Spectra and Their Uncertainty of Discharge Currents for Contact Discharges of ESD-Gun**

Yoshinori Taka, Fumihiko Toya, Osamu Fujiwara, *Nagoya Inst. of Tech.*

15:00 – 15:20 FR-PM1-4

**Lightning surge test for internal port of broadband telecommunication installation**

Kazuo Murakawa, Hironori Makino, *NTT East Corp.*  
Shoichi Kuramoto, *NTT E&E Labs.*

15:20 – 15:35 Break

15:35 – 16:35 FR-PM2

**Technical Session 6**

Chair: Prof. Khan-ngern Werachet, *King Monkut's Institute of Technology Ladkrabang*

Co-chair: Prof. Hideaki Sone, *Tohoku University*

15:35 – 15:55 FR-PM2-1

**Development of low-frequency, wideband magnetic field dosimeter and its application to measurement of conducted emission from appliances**

Kenichi Yamazaki, Kiyotomi Miyajima, *Central Research Inst. of Electric Power Industry (CRIEPI)*

15:55 – 16:15 FR-PM2-2

**An Unified Phantom for the SAR Compliance Test of Mobile Phones**

Lira Hamada, *Natl. Inst. of Information and Communications Tech. (NICT)*  
Takahiro Iyama, Teruo Onishi, *NTT DOCOMO, INC.*  
Soichi Watanabe, *Natl. Inst. of Information and Communications Tech. (NICT)*

16:15 – 16:35 FR-PM2-3

**A conductive noise filter in PCB using a  $\lambda/4$  resonance plate**

Jun Sakai, Kouichirou Nakase, Eiji Hankui, *NEC Corp.*

16:35 – 16:45

**Closing Address**

Prof. Nobuo Kuwabara, *Kyushu Institute of Technology*