



ISAP2012

2012 INTERNATIONAL SYMPOSIUM ON ANTENNAS AND PROPAGATION

October 29 - November 2, 2012

Nagoya Congress Center, Nagoya, Japan



THE INSTITUTE OF ELECTRONICS,
INFORMATION AND COMMUNICATION ENGINEERS

Contents

Chair's Message	3
Sponsorship and Support	4
Steering Committee	6
General Information	9
Floor Guide	12
Venue & Access	14
Social Program	15
Presenter's Instruction	18
Award	20
Exhibitions	23
Program at a Glance	24
Plenary Talk	34
Invited Talk	37
Workshop	41
Technical Program	
Monday, October 29	46
Tuesday, October 30	47
Wednesday, October 31	53
Thursday, November 1	66
Friday, November 2	79



ISAP2012



2012 INTERNATIONAL SYMPOSIUM ON ANTENNAS AND PROPAGATION

Chair's Message

Prof. Koichi Ito
General Chair, ISAP2012



On behalf of the Steering Committee, it is my great honor and pleasure to welcome you to attend the 2012 International Symposium on Antennas and Propagation (ISAP2012) to be held at Nagoya Congress Center in Nagoya, Japan, from October 29 (Monday) through November 2 (Friday), 2012.

This Symposium, the 17th ISAP, will return to Japan after ISAP2007. ISAP2012 is sponsored and organized by the Communications Society of the Institute of Electronics, Information and Communication Engineers (IEICE), and is held in cooperation with the Antennas and Propagation Society of the Institute of Electrical and Electronics Engineers (IEEE/AP-S), the International Union of Radio Science (URSI), the Antennas and Propagation Network of the Institute of Engineering and Technology (IET), the European Association on Antennas and Propagation (EurAAP), the Korean Institute of Electromagnetic Engineering and Science (KIEES), the China Institute of Communications (CIC), and the Electrical Engineering/Electronics, Computer, Communications and Information Technology Association of Thailand (ECTI).

Today we have three major international conferences in the fields of Antennas and Propagation in the world, namely, IEEE AP-S International Symposium and USNC/URSI National Radio Science Meeting in North America, European Conference on Antennas and Propagation (EuCAP) in Europe, and ISAP in Asia-Pacific region.

We have received more than 450 papers from 35 countries and regions. After a review process, about 410 papers have been accepted for presentation. Please note that two plenary talks and four invited talks are planned as shown in the technical program. Also, four workshops will be held on October 29, 2012. All the presented papers will be included in the ISAP Archives where you can search and read a complete set of ISAP papers since its foundation. Besides, this is the first case in our ISAP history, the presented papers will also be included in the IEEE Xplore.

The exhibition including nearly 30 companies and organizations will be held during the Symposium. It will be a good opportunity for participants to learn their recent technologies and products.

Nagoya, the fourth largest city in Japan with a population of 2.2 million, is situated at the central Japan and has good transportation from major cities in Japan and in the world. It is a city with strong cultural, historical and industrial identity. Also, Nagoya is very famous for its unique local foods which must entertain you.

I would like to express my sincere appreciation to all the participants, financial sponsors, exhibitors, supporting organizations and all the committee members who will make ISAP2012 successful. With these strong support, we are sure ISAP2012 will be beneficial and fruitful to all the participants, and you will enjoy the city of Nagoya.

We are looking forward to meeting you in Nagoya, Japan, in October/November 2012.

Sincerely,

Prof. Koichi Ito
General Chair, ISAP2012

Sponsorship and support

Organizer and Sponsor



IEICE Communications Society

Technical Co-sponsors



IEEE Antennas and Propagation Society



IET Antennas and Propagation Network



International Union of Radio Science



European Association on Antennas and Propagation



The Korean Institute of Electromagnetic Engineering and Science



China Institute of Communications



Electrical Engineering/Electronics, Computer, Telecommunications and Information Technology Association

Financial Sponsors



International Exchange Program of National Institute of Information and Communications Technology (NICT)

The Telecommunications Advancement Foundation



KDDI Foundation



NAGOYA CONVENTION & VISITORS BUREAU



TELECOM ENGINEERING CENTER (TELEC)

The Murata Science Foundation



Support Center for Advanced Telecommunications Technology Research (SCAT)

Research Foundation for the Electrotechnology of Chubu (REFEC)



Denki Kogyo Co., Ltd.

Support

Association for Promotion of Electrical, Electronic and Information Engineering

Steering Committee

Chairperson	Koichi Ito (Chiba Univ.)
Vice Chairperson	Toru Uno (Tokyo Univ. of Agriculture and Tech.)
Secretaries	Keizo Cho (Chiba Institute of Tech.) Hiroaki Miyashita (Mitsubishi Electric) Qiang Chen (Tohoku Univ.)
Secretary Assistant	Naobumi Michishita (National Defense Academy)

Technical Program Committee

Chairperson	Hiroyuki Arai (Yokohama National Univ.)
Vice Chairpersons	Hisato Iwai (Doshisha Univ.) Masaharu Takahashi (Chiba Univ.) Jiro Hirokawa (Tokyo Institute of Tech.) Hiroyoshi Yamada (Niigata Univ.)
Members	Tetsuro Imai (NTT DOCOMO) Yoshio Inasawa (Mitsubishi Electric) Nozomu Ishii (Niigata Univ.) Sung Tek Kahng (Univ. of Incheon) Kentaro Nishimori (Niigata Univ.) Noriaki Oodachi (Toshiba) Chuwong Phongcharoenpanich (KMILT) Toru Takahashi (Mitsubishi Electric) Hiroyuki Tsuji (NICT) Jang Yang (Tsinghua Univ.)

Local Arrangement Committee

Chairperson	Nobuyoshi Kikuma (Nagoya Institute of Tech.)
Vice Chairpersons	Kunio Sakakibara (Nagoya Institute of Tech.) Koichi Tsunekawa (Chubu Univ.) Satoshi Hori (Kojima Press)
Members	Yutaka Aoki (DENSO) Wataru Chujo (Meijo Univ.) Mitoshi Fujimoto (Univ. of Fukui) Hiroshi Hirayama (Nagoya Institute of Tech.) Kazunari Kihira (Mitsubishi Electric) Kenichi Koga (Tokai Rika) Yoshihiko Kuwahara (Shizuoka Univ.) Shinichiro Matsuzawa (Toyota Central R&D Labs.) Keisuke Noguchi (Kanazawa Institute of Tech.) Takuma Sawaya (TOYOTA) Takanobu Tabata (Kojima Press) Nobuyasu Takemura (Samsung Yokohama Research Institute) Satoshi Yagitani (Kanazawa Univ.) Akiko Yamada (Toshiba) Atsushi Yamamoto (Panasonic)

Exhibition Committee

Chairperson	Kazuo Sato (Toyota Central R&D Labs.)
Vice Chairpersons	Tomohiro Seki (NTT) Shoji Tanaka (NHK)
Secretary	Hideo Iizuka (Toyota Central R&D Labs.)
Members	Takuji Arima (Tokyo Univ. of Agriculture and Tech.) Hiroshi Iwai (Panasonic) Huiling Jian (NTT DOCOMO) Nobuyoshi Kikuma (Nagoya Institute of Tech.) Shinobu Nanba (KDDI R&D Labs.) Kengo Nishimoto (Mitsubishi Electric) Hideki Omote (SOFTBANK MOBILE) Masaharu Takahashi (Chiba Univ.) Yasuhiko Tanabe (Toshiba) Hiroyuki Tsuji (NICT)

Finance Committee

Chairperson	Masato Tanaka (NICT)
Vice Chairperson	Yoshiyuki Fujino (NICT)
Members	Wataru Chujo (Meijo Univ.) Amane Miura (NICT)

Advisory Board Committee

Chairperson	Hiroki Shoki (Toshiba)
Vice Chairperson	Takeshi Fukusako (Kumamoto Univ.)
Members	Steven R. Best (MITRE)
	Christophe Caloz (Ecole Polytechnique of Montreal)
	Dau-Chyrh Chang (Oriental Institute of Tech.)
	Zhi Ning Chen (Institute for Infocomm Research)
	Weng Cho Chew (Univ. of Hong Kong)
	Young-Ki Cho (Kyungpook National Univ.)
	Jaehoon Choi (Hanyang Univ.)
	Mazlina Esa (Univ. Teknologi Malaysia)
	Yang Hao (Queen Mary Univ. of London)
	Michael Jensen (Brigham Young Univ.)
	Buon Kiong Lau (Lund Univ.)
	Monai Krairiksh (King Mongkut's Institute of Tech., Ladkrabang)
	Joshua Le-Wei Li (UESTC)
	Kwai Man Luk (City Univ. of Hong Kong)
	Stefano Maci (Univ. of Siena)
	Dirk Manteuffel (Christian-Albrechts-Univ. of Kiel)
	Ananda Mohan (Univ. of Tech., Sydney)
	Eko Tjipto Rahardjo (Univ. of Indonesia)
	Ronan Sauleau (Univ. de Rennes 1)
	Giuseppe Schettini (Roma Tre Univ.)
	Satish K. Sharma (San Diego State Univ.)
	Kam Weng Tam (Univ. of Macau)
	Young Joong Yoon (Yonsei Univ.)
	K.J. Vinoy (IISc Bangalore)
	Kin-Lu Wong (National Sun Yat-Sen Univ. in Kaohsiung)
	Qun Wu (Harbin Institute of Tech.)
	R. Ziolkowski (Univ. of Arizona)

Honorary Members	Makoto Ando (Tokyo Institute of Tech.)
	W.-M. Boerner (Univ. Illinois at Chicago)
	P. S. Hall (Univ. of Birmingham)
	Naoki Inagaki (Nagoya Institute of Tech.)
	Tatsuo Itoh (UCLA)
	Per-Simon Kildal (Chalmers Univ. of Tech.)
	Raj Mittra (Pennsylvania State Univ.)
	Juan Ramon Mosig (École polytechnique fédérale de Lausanne)
	Robert Nevels (Texas A&M Univ.)
	Magdalena Salazar Palma (Universidad Carlos III de Madrid)
	Antoine Roederer (ESA-ESTEC)
	Tapan Sarkar (Syracuse Univ.)
	Kunio Sawaya (Tohoku Univ.)
	L. Shafai (Univ. of Manitoba)
	W. R. Stone (Stoneware Ltd.)
	Wen Xun Zhang (South-East Univ.)

General Information

Event Table

Event	Oct.29			Oct.30			Oct.31			Nov.1			Nov.2		Nov.3
	A M	P M	E v e n i n g	A M	P M	E v e n i n g	A M	P M	E v e n i n g	A M	P M	E v e n i n g	A M	P M	W h o l e d a y
Registration		●		●	●		●	●		●	●		●		
Internet Connection	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
Workshop		●													
Welcome Reception			●												
Opening Ceremony				●											
Plenary Session				●											
Technical Sessions					●	●	●	●	●	●	●	●	●	●	
Student Paper Contest						●									
Poster Sessions									●			●			
Exhibition				●	●		●	●		●	●				
Catering				●	●		●	●		●	●		●	●	
ISAP2012 Paper Award													●		
Student Paper Contest Prize													●		
Buffet Party													●		
Nagoya Tour								●							
Monozukuri Tour												●			
Technical Tour														●	
World Heritage Tour															●
Closing Ceremony														●	

Conference venue

ISAP2012 will be held at Nagoya Congress Center, Nagoya, Japan.
Address: 1-1 Atsuta-nishimachi, Atsuta-ku, Nagoya 456-0036, Japan
Tel.: +81-52-683-7711, Fax.: +81-52-683-7777
<http://www.nagoya-congress-center.jp/english/index.html>

Transportation

Central Japan International Airport (Centrair) is located at the southern part of Nagoya. It takes about 40 min. from the airport by Meitetsu Airport Express via Kanayama station to the Nagoya Congress Center by subway.

Shinkansen express train will take you to Nagoya Central Station from Tokyo, Osaka, Kyoto and many major cities in Japan. You will take Subway Higashiyama Line and transfer at Sakae station to Subway Meijo Line. Nagoya Congress Center is close to Nishi-takakura station of Subway Meijo Line and Hibino station of Subway Meiko Line. You can find the access map in the Venue & Access page of this program.

<http://www.nagoya-congress-center.jp/english/access/route.html>

Climate and weather

It is getting comfortably cooling at the beginning of autumn in Nagoya. However, it is still sometimes hot at the day time, while it is cold at night. The typical temperature is 25 degrees Celsius at the day time and 15 degrees at night. Light jacket is essential. The weather is almost stable with good sunny days but sometimes rainy days in October.

Registration

On-site registration: Registration desk will open on the 1st floor in the building 2 of the Nagoya convention center during the following hours:

October 29 (Monday):	13:00-17:30
October 30 (Tuesday):	8:30-17:40
October 31 (Wednesday):	8:30-17:40
November 1 (Thursday):	8:30-17:40
November 2 (Friday):	8:30-12:40

Official language

The official language will be English. No simultaneous translation will be provided.

Poster sessions

Poster sessions will take place from 16:00 on Wednesday and Thursday at the lobby on the 2nd floor.

Speaker ready room

A speaker preparation space will be available at the room #225 on the 2nd floor.

Internet connection

Free access to internet by wireless LAN is available at the lobby of the venue.

Catering

Free snacks and beverages will be served at the conference site from 8:30 a.m. every morning and between the oral and poster sessions.

Lunch

There are some restaurants inside/around Nagoya Convention Center. Limited number of free service lunch boxes will be available at the lobby on the 1st floor.

Social program

Full details of the social programs & dinners that are taking place during ISAP2012 can be found in the "Social Program" section of this program.

Proceeding on USB stick

All papers published for presentation at your conference will be on a USB stick given out at the registration.

Currency and credit cards

Japan's currency is Yen. The exchange rate is about 1 US\$ for 80 yen. All major hotels and most restaurants and shops will accept credit cards. It is advisable to carry other identification as well. Visa and MasterCard are the most widely accepted cards.

Electricity

Electricity is supplied at 100V, 60Hz with plug type A.

Travel information and assistance

Travel information desk will open near the registration desk. A staff of Kinki Nippon Tourist Co., Ltd (KNT) will kindly assist your travel and hotel reservation. The English hotline of Information Desk for Nagoya City described in the following is also helpful to obtain information regarding travel.

Information desk for Nagoya city

English service is available at:
Nagoya Convention & Visitors Bureau,
Tel: +81-52-201-5972, Fax: +81-52-201-5785
<http://www.ncvb.or.jp/en/contents/>

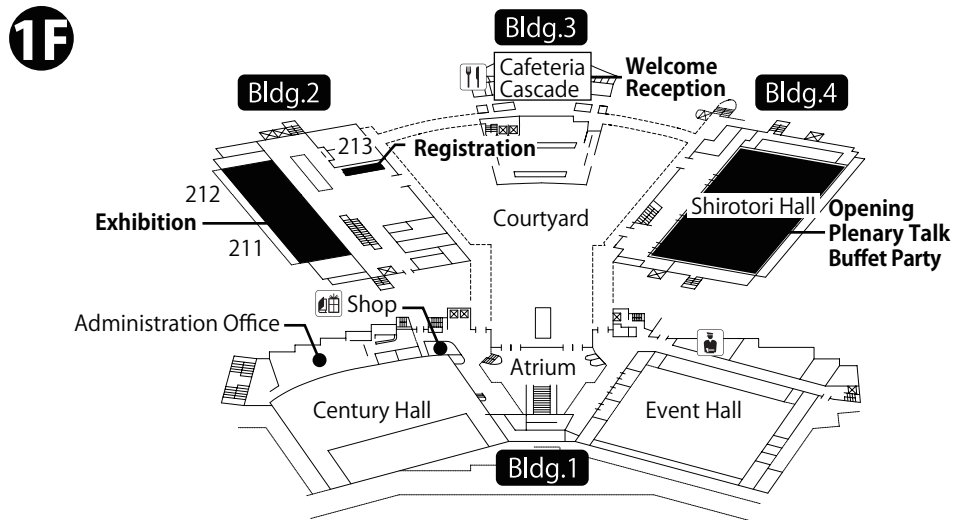
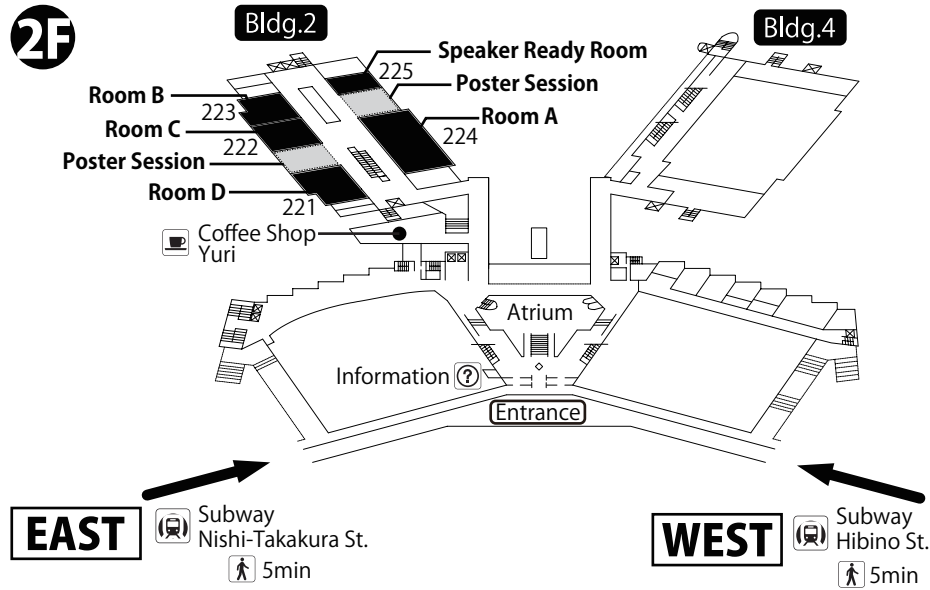
Other information

Travel & Registration
Kinki Nippon Tourist Co., Ltd (KNT), Event & Convention Branch, Nagoya
E-mail: ngo-event@or.knt.co.jp Fax.: +81-52-563-1846

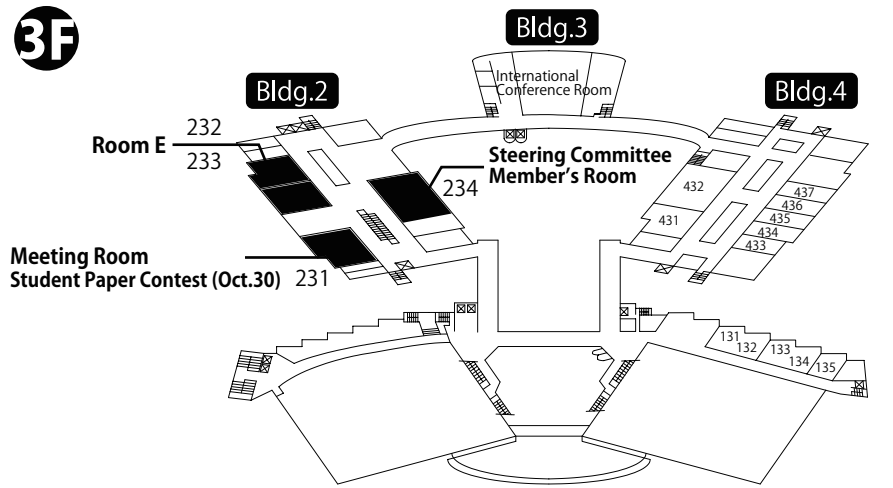
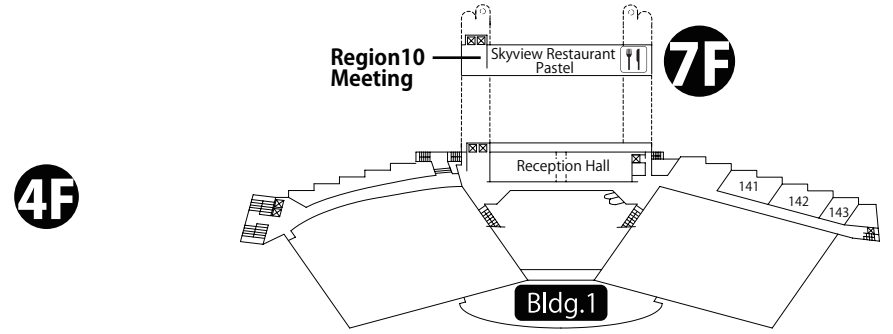
General Information
ISAP2012 Steering Committee
isap-jikko12@mail.ieice.org

Floor Guide

Nagoya Congress Center



How to find the room
Room No, 222
Bldg.2 ← | | → 2nd Room
2F

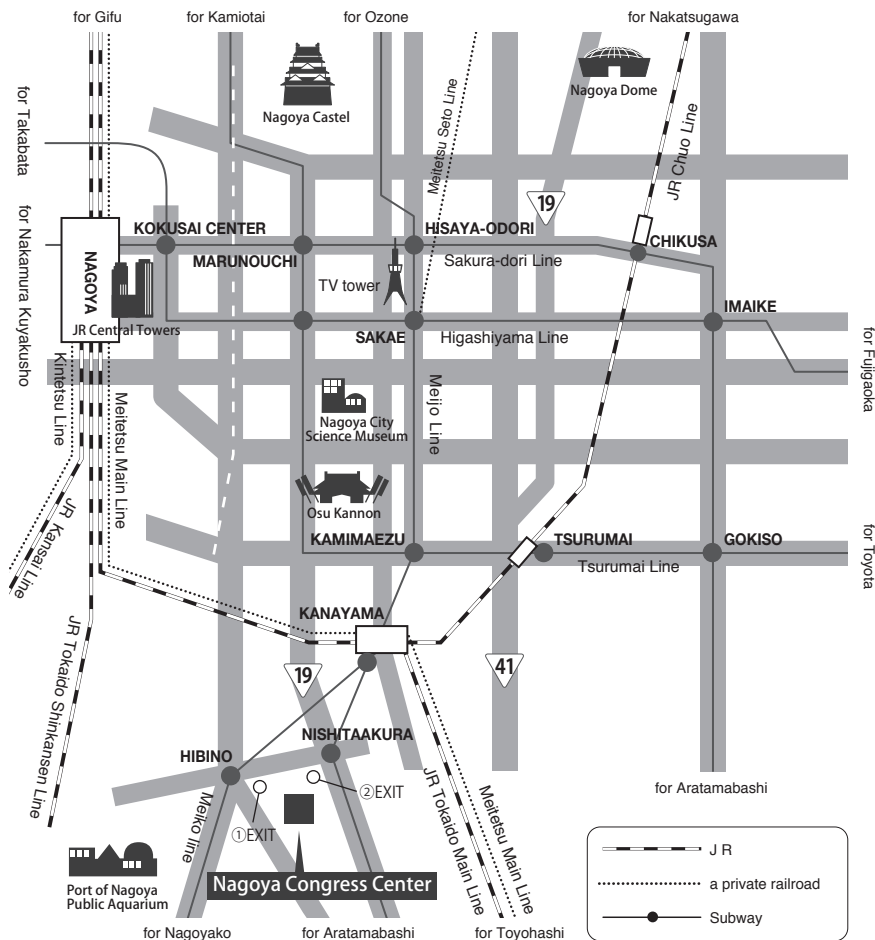


Venue & Access

Nagoya, with a population of 2.2 million, is situated at the central Japan and good transportation from Tokyo, Osaka, Kyoto and all around in Japan.

It is a city with strong cultural historical and industrial identity. Nagoya's history began with Nagoya Castle, built in 1612. Since then, it encouraged the growth of cultural arts. Many of Japan's world-renowned high-tech industries; those of automobiles, aviation, machine tools, fine ceramics and industrial robots, are based in and around Nagoya. Yet, what really sets Nagoya apart from other convention cities is our blend of country-style warmth and big city feeling atmosphere.

Access Map



Social Program

Nagoya Tour

Date: 13:00 to 18:30, October 31 (Wednesday)

Meeting time: 12:50

Meeting place: Reception Desk

Fee: 1,500JPY

Course: Nagoya Congress Center ⇒ Nagoya Castle ⇒ The Tokugawa Art Museum and The Tokugawaen ⇒ Osu Shopping Arcade ⇒ Kanayama Station ⇒ Nagoya Congress Center

Remarks: 40 Persons (Max)



(Nagoya Castle)



(Tokugawaen)

Nagoya aria has a long history and is the birthplace of three notable feudal lords, Oda Nobunaga, Toyotomi Hideyoshi and Tokugawa Ieyasu. This tour will visit the tourist attractions related to the history of Nagoya.

MONOZUKURI (Industrial) Inspection Tour (TOYOTA Techno Museum & Beer Factory)

Date: 13:00 to 17:10, November 1 (Thursday)

Meeting time: 12:50

Meeting place: Reception Desk

Fee: 1,000JPY

Course: Nagoya Congress Center ⇒ TOYOTA Commemorative Museum of Industry and Technology ⇒ Asahi Beer Factory ⇒ Kanayama Station ⇒ Nagoya Congress Center

Remarks: 40 Persons (Max)



(TOYOTA Techno Museum)



(Asahi Beer Factory)

In Nagoya, traditional industries like ceramics and textiles, and today's key industries like automobiles, aviation and machine tools have developed, and Nagoya has an important role in Japan's industrial society. This tour will visit the TOYOTA Commemorative Museum of Industry and Technology and Japanese famous beer factory.

You can see the history of TOYOTA's Textile Machinery and Automobile.

And also you can try drinking fresh beer in the factory.

Technical Tour (Yosami Radio Transmitting Station Memorial Museum)

Date: 12:30 to 18:00, November 2 (Friday)

Meeting time: 12:20

Meeting place: Reception Desk

Fee: 1,000JPY

Course: Nagoya Congress Center ⇒ Yosami Radio Transmitting Station Memorial Museum(IEEE Milestone) ⇒ Seto Digital Tower ⇒ Kanayama Station ⇒ Nagoya Congress Center

Remarks: 20 Persons (Max)



(Yosami Radio Transmitting Station Memorial Museum) IEEE Milestone
(Seto Digital Tower)

Yosami Radio Transmitting Station was built in 1929, as was done for the first time in Japan at that time to be sent to Europe by long-wave radio transmission facility in the world's largest.

Seto Digital Tower is a tower specializing in the aggregate to be sent to the digital terrestrial television broadcasting of Nagoya area.

You will enjoy a comparison of old and new transmission facilities.

The World Heritage SHIRAKAWAGO Tour

Date: 8:30 to 18:00, November 3 (Saturday)

Meeting time: 8:20

Meeting place: Kanayama station In front of "ANA CROWNE PLAZA HOTEL GRAND COURT NAGOYA"

Fee: 3,000JPY

Course: Kanayama Station ⇒ The World Heritage SHIRAKAWAGO ⇒ Seki Sword Tradition Museum ⇒ Kanayama Station

Remarks: 20 Persons (Max)



GASSHO-ZUKURI Village in SHIRAKAWAGO was listed as sites of The World Heritage in 1995. Gassho-zukuri is a Japanese classical house built of wooden beams combined to form a steep thatched roof that resembles two hands together. You will also enjoy nature and scenery of colorful autumn leaves in the countryside.

Seki Sword Tradition Museum:

Seki City is one of the most well-known and highly regarded blade-producing areas in the world. To this day, Japanese swords continue to be produced by swordsmiths in the traditional forging style that has been passed down for centuries. The Seki Sword Tradition Museum shows off the history and tradition of blade-making that date back over 700 years.

Welcome Reception

Date: 17:30 to 19:30, October 29 (Monday)

Place: Cafeteria Cascade, B1F Bldg.3 Nagoya Congress Center

Fee: Free (included in Registration fee)

All the registered participants and accompanying persons are coordinately invited to this reception.

The fee for this reception is included in the registration fee.

Banquet (Buffet Party)

Date: 18:00 to 20:00, November 1 (Thursday)

Place: Shirotori Hall, 1F Bldg.4 Nagoya Congress Center

Fee: Free (included in Registration fee)



Koto(Traditional Japanese instrument)



Omotenashi Busho-Tai

At the attraction of buffet party, we will prepare two attractions .

Female wearing Kimono will play Koto (Traditional Japanese instrument).

"Nagoya Omotenashi Busho-Tai" (PR group of Nagoya tourism) will perform dance mix with a sword fight.

Presenter's Instruction

Oral Presentations

The official language of the Symposium is English. Each oral presentation is allocated a 20-minute time slot. These 20-minutes must include the presentation, questions, any discussion, and the transition to the next presentation. It is strongly recommended that speakers plan on a 15-16 minute presentation to allow 4-5 minutes for questions.

Presenters should be in the session room 15 minutes before the session begins to meet with the session chair, who should be near the stage/lectern. Presentation shall be uploaded to the computer in the session room via either CD-ROM or USB flash memory stick during the break before the session. Presenters are advised when uploading their presentations to check if formulas/animations are shown correctly. A speaker ready room equipped with computers and LCD displays is also available on the second floor for the presenters to check their presentations.

Each session room will be equipped with a personal computer/LCD projector, a microphone, and a pointing device. The software installed on the computer includes:

- Windows 7
- MS Office 2010 Professional (PowerPoint)
- Adobe Acrobat Reader X
- Internet Explorer 8
- Windows Media Player 12

The media player is only available with the standard codecs. Use of standard True Type font is suggested for Power Point presentations. In the case Power Point contains videos, please ensure that both files (Power Point and Video) are in the same folder.

Presentations from personal laptops are not allowed, to ensure smooth program running to minimize transition time between presentations. The possibility to present from PCs other than the session room PC is not foreseen.

All papers must be presented at the assigned session in order to be included in the final proceedings appearing in IEEE Xplore and ISAP Archives. The session chair(s) for your session will have a Feedback Form where they will mark whether or not your paper was presented at the session. If the Form indicates that the paper was not presented, it will be automatically withdrawn from appearing in IEEE Xplore and ISAP Archives.

Poster Presentations

Poster sessions are a good medium for authors to present papers and meet with interested attendees for in-depth technical discussions. In addition, attendees find the poster sessions a good way to sample many papers in parallel sessions. Thus it is important that you display your message clearly and noticeably to attract people who might have an interest in your paper.

Your poster should cover the key points of your work. It need not, and should not, attempt to include all the details; you can describe them in person to people who are interested. The ideal poster is designed to attract attention, provide a brief overview of your work, and initiate discussion. Carefully and completely prepare your poster well in advance of the conference. Try tacking up the poster before you leave for the conference to see what it will look like and to make sure that you have all of the necessary pieces.

For each paper accepted within a poster session, one poster board in portrait format is reserved with a dimension of 150 cm (width) x 210 cm (height). Information about the location of the poster is provided at the entrance of the poster area (the 2nd floor in the 2nd building).

Poster shall be on display during the day dedicated to the specific poster session. Authors are invited to be on stand-by near their poster during the session breaks and must be near their poster during the dedicated poster sessions (16:00-17:40 on 10/31 and 16:00-17:40 on 11/1). All papers must be presented in person at the symposium in order to be included in the final proceedings appearing in IEEE Xplore and ISAP Archives.

The session chair(s) for your session will have a Feedback Form where they will mark whether or not your paper was presented during the session. If the Form indicates that the paper was not presented, it will be automatically withdrawn from appearing in IEEE Xplore and ISAP Archives. Thus, during your session, please approach the session chair and make sure that he/she has marked your presence.

Award

ISAP2012 hosts three categories of awards for the outstanding papers.

Best Paper Award: For all submitted papers.

Poster Presentation Award: For papers presented in the poster session.

Student Paper Contest (SPC): For papers written by students.

The winners of the three awards are announced at the conference banquet.

Best Paper Award

ISAP2012 features "Best Paper Awards" to award authors with excellent paper submission. 12 papers were selected as "Best Paper Award Finalists" based on the evaluation of the submitted papers. The finalists are requested to participate in the Banquet on November 1. The final Best Paper Award winners are selected from the finalists.

Best Paper Award Finalists

Yoshihiro Niwa, University of Electro-Communications, Japan,

"Accurate Image Expansion Method for Target Buried in Dielectric Medium Using Multi-static UWB Radar"

Kenshi Saho, Kyoto University, Japan,

"Pedestrian Classification Based on Radial Velocity Features of UWB Doppler Radar Images"

Fabrizio Frezza, Sapienza University, Italy,

"Advances in EBG-Resonator Antenna Research"

Makoto Yamazaki, Toyama University, Japan,

"Automatic Impedance Matching of a Tablet Type 4-Branch MRC Array Close to the Human Hands"

Jui-Hung Chou, National Taiwan University, Taiwan,

"Novel T-shape Slot Couple Feed Dual Circular Polarized Rectenna"

Yi Cui, Niigata University, Japan,

"On Exact Model-Based Scattering Decomposition of Polarimetric SAR Data"

Nathan R. Labadie, San Diego State University, U.S.A.,

"A Circularly Polarized Multimode Patch Antenna with Full Hemispherical Null Steering for GPS Applications"

Hiroshi Itakura, Chiba University, Japan,

"Evaluation of Heating Characteristics of Microwave Thermal Therapy using Biliary Stent fed by Coaxial Probe"

Sungjin Kim, Hanyang University, Korea,

"Miniaturized and High-Isolation Diversity Antenna for WBAN Applications"

Hong Yin Lam, Universiti Teknologi Malaysia, Malaysia,

"Assessment of Seasonal Asia Monsoon Rain Impact on the Earth-Space Propagation in Equatorial Kuala Lumpur"

Kohei Nishishita, Osaka University, Japan,

"Composite Right/Left-Handed Leaky-Wave Antenna with Polarization Control"

Karl Werner, Ericsson AB, Sweden,

"LTE-Advanced 8 x 8 MIMO Measurements in an Indoor Scenario"

Poster Presentation Award

"Poster Presentation Awards" are selected from papers presented in the poster sessions by attendees' vote.

Student Paper Contest

ISAP2012 awards "Student Paper Contest" to student authors. An applicant to SPC must be a student at the submission of the paper and a primary author of the paper. "Student Paper Contest Finalists" were selected based on the evaluation of the submitted papers. The SPC finalists are requested to show their valid documents to verify that they are students at the submission of the paper. The finalists must present their papers at a special SPC session scheduled on October 30, in addition to regular presentations. The finalists are requested to participate in the Banquet on November 1. The final SPC winners are selected from the finalists by ISAP2012 SPC Selection Board.

Student Paper Contest Finalists

Po-Wei Lin, National Sun Yat-Sen University, Taiwan,

"Internal WWAN Handset Antenna Formed by a Monopole Strip Radiator and a Clearance Region Thereof as Monopole Slot Radiator"

Yoshihiro Niwa, University of Electro-Communications, Japan,

"Accurate Image Expansion Method for Target Buried in Dielectric Medium Using Multi-static UWB Radar"

Gabriele Minatti, University of Siena, Italy,

"A Metasurface Antenna for Space Application"

Liang Zhang, Harbin Institute of Technology, China,

"Design of Active Frequency Selective Surface for Electronically Steerable Antenna"

Ngo Thi Thu, Gifu University, Japan,

"The Localized and Enhanced Optical Near-Field on The Asymmetric Metal-Coated Dielectric Probe"

Nathan R. Labadie, San Diego State University, U.S.A.,

"A Circularly Polarized Multimode Patch Antenna with Full Hemispherical Null Steering for GPS Applications"

Keita Ochiyama, National Defense Academy, Japan,

"Broadband Simplified SAR Measurement Method Using Solid Material"

Sungjin Kim, Hanyang University, Korea,

"Miniaturized and High-Isolation Diversity Antenna for WBAN Applications"

Keita Ushiki, Niigata University, Japan,

"Comparison of 4x1 SIMO and 2x2 MIMO sensors based on measured propagation channels"

Nguyen Xuan Tung, Tokyo Institute of Technology, Japan,

"Characteristics of a High Gain and Light Weight Radial Line Slot Antenna with Honeycomb Structure in 32GHz band for Data Link in Space Exploration"

Yu Ushijima, Saga University, Japan,

"Polarization Agile Slot-Ring Array Antenna using Magic-T Circuit"

Shaad Mahmud, American International University-Bangladesh, Bangladesh,

"Super Wide Band Wearable Antenna: Assessment of the Conformal Characteristics in terms of Impedance Matching and Radiation Properties"

ISAP2012 SPC Selection Board

Chair Yoshio Karasawa, *The University of Electro-Communications, Japan*

Members Kyeong-Sik Min, *Korea Maritime Univ., Korea*

Juan Ramon Mosig, *Ecole polytechnique federale de Lausanne, Switzerland*

Steven R. Best, *MITRE Corporation, United States*

Toshikazu Hori, *Univ. of Fukui, Japan*

Hiro Yoshi Yamada, *Niigata Univ., Japan*

Yoshio Inasawa, *Mitsubishi Electric Corporation, Japan*

YSTG

ISAP2012 Young Scientists Travel Grant (YSTG)

ISAP2012 awards Young Scientist Travel Grant (YSTG) to several young overseas speakers who need financial support to present their papers. The applicants must be less than 35 years old as of October 29, 2012 and a primary author of a submitted paper. The winners must present the paper in person at ISAP2012 and provide copies of their valid formal documents to show the date of birth at the symposium site (passport, driver's license, etc. passports are preferable). The Symposium Steering Committee selected the 13 winners based on the evaluation of the submitted papers as listed below.

ISAP2012 provides the following expenses to the winners:

- Traveling expenses. The amount of payment depends on the distance from Japan. At maximum about 100 thousand yen.
- Staying expenses. About 50 thousand yen.
- Free registration.

The grant is provided to the winners at the symposium site during the symposium period.

Winners of YSTG

Yury Yurovsky, Marine Hydrophysical Institute of National Academy of Sciences of Ukraine, Ukraine,
"Verification of the Sea Surface Radar Models from Collocated Radar Observations and Stereo-Photo Imaging"

Shi-Wei Qu, University of Electronic Science and Technology of China, China,
"Waveguide Fed Broadband Millimeter Wave Short Backfire Antenna"

Shih-Yuan Chen, National Taiwan University, Taiwan,
"An Electrically Small Planar Antenna Using Complementary Split-Ring Resonators"

Vakhtang Jandieri, Kyungpook National University, Korea,
"Rigorous Analysis of Dipole Source Radiation in Cylindrical Bandgap Structures with Defects"

Po-Wei Lin, National Sun Yat-Sen University, Taiwan,
"Internal WWAN Handset Antenna Formed by a Monopole Strip Radiator and a Clearance Region Thereof as Monopole Slot Radiator"

Gabriele Minatti, University of Siena, Italy,
"A Metasurface Antenna for Space Application"

Liang Zhang, Harbin Institute of Technology, China,
"Design of Active Frequency Selective Surface for Electronically Steerable Antenna"

Alice Pellegrini, University of London, United Kingdom,
"Body-centric Wireless Communications at 94GHz"

Jui-Hung Chou, National Taiwan University, Taiwan,
"Novel T-shape Slot Couple Feed Dual Circular Polarized Rectenna"

Nathan R. Labadie, San Diego State University, U.S.A.,
"A Circularly Polarized Multimode Patch Antenna with Full Hemispherical Null Steering for GPS Applications"

Hong Yin Lam, Universiti Teknologi Malaysia, Malaysia,
"Assessment of Seasonal Asia Monsoon Rain Impact on the Earth-Space Propagation in Equatorial Kuala Lumpur"

Shaad Mahmud, American International University-Bangladesh, Bangladesh,
"Super Wide Band Wearable Antenna: Assessment of the Conformal Characteristics in terms of Impedance Matching and Radiation Properties"

Sungjin Kim, Hanyang University, Korea,
"Miniaturized and High-Isolation Diversity Antenna for WBAN Applications"

Exhibitions

Show hours

Monday	October 29	13:00PM - 20:00PM (exhibitor set up)
Tuesday	October 30	9:00AM - 17:00PM
Wednesday	October 31	9:00AM - 17:00PM
Thursday	November 1	9:00AM - 15:00PM
	November 1	15:00PM - 20:00PM (exhibitor tear-down)

Exhibitors

We are thankful to our Exhibitors for their support.



ANSYS Japan K.K.



FARAD Corporation



TOKAI RIKA Co., Ltd.

- AET, INC.
- Anritsu Corporation
- Chukoh Chemical Industries, Ltd.
- Denso EMC Engineering Service Corporation
- Device Co., Ltd.
- E&C Engineering K.K.
- EM Software & Systems-SA (Pty) Ltd.
- ITOCHU Techno-Solutions Corporation
- KDDI R&D Laboratories Inc.
- Kojima Press Industry Co., Ltd.
- Kozo Keikaku Engineering Inc.
- MI Technologies - JAPAN
- Microwave Factory Co., Ltd.
- Mitsubishi Electric Corporation
- National Institute of Information and Communications Technology (NICT)
- NHK (Japan Broadcasting Corporation)
- Nihon Dengyo Kosaku Co., Ltd.
- Nippon Pillar Packing Co., Ltd.
- NTT DOCOMO, INC.
- PTT Company Limited
- Rohde & Schwarz Japan K.K.
- Toshiba Corporation
- Toyota Central R&D Labs.
- Toyota Motor Corporation
- WIPL-D (Japan), Inc.

Program at a glance

October 29 (Mon)

Time	Room A (#224)	Room B (#223)
14:00 } 17:00	Workshop3: Coexistence of Wireless Power Transmission and Wireless Communication Prof. Naoki Shinohara	Workshop1: Planar Reflector Design Using Metamaterials Prof. Young Joong Yoon

October 29 (Mon)

Room C (#222)	Room D (#221)
Workshop2: Metasurfing Wave Antennas Prof. Stefano Maci	Workshop4: Internal Handheld Device Antennas: Recent Advances and Future Perspectives Prof. Kin-Lu Wong

Program at a glance

October 30 (Tue)

Time	Shirotori Hall	Room A (#224)	Room B (#223)
9:00 ~ 9:40	Opening Ceremony		
9:40 ~ 10:30	1A1: Plenary Talk 1 Mr. Kimimori Hamada		
10:50 ~ 11:40	1A2: Plenary Talk 2 Prof. Juan R. Mosig		
13:00 ~ 14:40		1A3: Advanced Applications of Small Antennas I	1B3: Millimeter-wave Antennas
15:00 ~ 16:40		1A4: Advanced Applications of Small Antennas II	1B4: Millimeter-wave / THz Antennas

October 30 (Tue)

Room C (#222)	Room D (#221)	Room E (#232+#233)	
1C3: Emerging Techniques in Radar	1D3: Microstrip Antennas and Arrays	1E3: Various Wireless Power Transmission	
1C4: SAR Polarimetry and Interferometry	1D4: Slot Antennas and Arrays	1E4: Wireless Power Transmission Technologies I	#231
			16:30~ Student Paper Contest

Program at a glance

October 31 (Wed)

October 31 (Wed)

Time	Room A (#224)	Room B (#223)	Room C (#222)
9:00 ~ 10:40	2A1: Medical Applications I	2B1: Antennas and Feeding Circuits for Millimeter-wave Systems	2C1: Mobile and Indoor Propagation
11:00 ~ 12:40	2A2: Recent Antennas' Activities in Europe I	2B2: MIMO and Cooperative Communication Technologies I	2C2: Mobile Channel Characterization and Modeling
14:00 ~ 15:40	2A3: Recent Antennas' Activities in Europe II	2B3: Multiband / Wideband Antennas I	2C3: DOA
16:00 ~ 17:40			

Room D (#221)	Room E (#232+#233)	Lobby (2F)
2D1: High Frequency and Asymptotic Methods	2E1: Wireless Power Transmission Technologies II	
2D2: Scattering and Diffraction	2E2: Wireless Power Transmission Technologies III	
2D3: Inverse Problems	2E3: Medical Applications II	
		POS1: Poster Session I

Program at a glance

November 1 (Thu)

Time	Room A (#224)	Room B (#223)	Room C (#222)
9:00 ↕ 10:40	3A1: MIMO and Cooperative Communication Technologies II	3B1: Multiband / Wideband Antennas II	3C1: Array Antennas
11:00 ↕ 12:40	3A2: New Trends in MIMO Systems I	3B2: Reconfigurable Antennas	3C2: Metamaterial Antennas I
14:00 ↕ 15:40	3A3: New Trends in MIMO Systems II	3B3: UWB Antennas	3C3: Metamaterial Antennas II
16:00 ↕ 17:40			

November 1 (Thu)

Room D (#221)	Room E (#232+#233)	Lobby (2F)
3D1: Computational Electromagnetic I	3E1: Body-centric Wiress Communications	
3D2: Computational Electromagnetic II	3E2: Antenna Measurement Technologies I	
3D3: Computational Electromagnetic III	3E3: Antenna Measurement Technologies II	
		POS2: Poster Session II

Program at a glance

November 2 (Fri)

Time	Room A (#224)	Room B (#223)	Room C (#222)
9:00 ↕ 10:40	4A1: Reflector/Lens Antennas and Feeds	4B1: Small Antennas	4C1: Aperture Antennas
11:00 ↕ 12:40	4A2: Phased Array and Related Topics	4B2: EMI/EMC	4C2: Wire Antennas I
14:00 ↕ 15:40	4A3: Microstrip and Printed Antennas	4B3: Mobile Antennas	4C3: Wire Antennas II
16:00 ↕ 16:20	Closing Ceremony		

November 2 (Fri)

Room D (#221)	Room E (#232+#233)	Lobby (2F)
4D1: Recent Studies on Earth-space Propagation Paths I	4E1: Metamaterial Antennas and Systems with FSS, EBG, MTM, & Advanced Materials	
4D2: Recent Studies on Earth-space Propagation Paths II	4E2: EBG and Metamaterials I	
4D3: Propagation in Terrestrial and Space Enviroments	4E3: EBG and Metamaterials II	

The Role of Advanced Automotive Electronics : Recent Progress & Development

The automotive industry is pursuing a wide variety of technological developments, including reducing CO2 emissions and other measures to improve the environment, enhancing safety performance to help reduce the number of traffic accident fatalities and injuries to zero, and improving the performance of connection functions to make vehicles easier to use.

In recent years, hybrid vehicles (HVs) led by the Prius have entered the mainstream of environmentally friendly vehicles. Attention is now beginning to shift to the next-generation, such as plug-in hybrid (PHV) and electric (EV) vehicles. As this occurs, the development of inductive power supply systems is regarded as a useful way of increasing the popularity of PHVs and EVs.

Safety technology development has moved beyond a single focus on passive safety systems such as airbags that operate when a collision occurs. Automakers are also actively developing active safety systems that detect objects in front of the vehicle using millimeter wave radar and other sensors to help prevent collisions from occurring. Issues in this development include improving the performance of sensors, developing more precise recognition technology for the detection objects, and cost reduction to encourage the widespread adoption of these systems.

Moving, turning, and stopping are regarded as the fundamental aspects of a vehicle' s performance. In addition, automakers are also focusing on connecting vehicles to society through information and communication technology (ICT). Although ICT promises to create new added value by improving vehicle usability, highly reliable and high-quality communication must be achieved before connection functions can properly deliver this value potential. Consequently, various efforts are underway to develop new wireless and on-board antenna technologies.

This presentation describes the activities of Toyota Motor Corporation in the field of automotive electronics for improving the environmental friendliness, safety, and comfort of its vehicles, and discusses Toyota' s hopes for radio wave technologies.

About the speaker

Mr. Kimimori Hamada / Toyota Motor Corporation



1985: Graduate for Osaka Prefecture Univ. Electronics Engineering MS degree

1985: Joined Toyota Motor Corporation

2009-: General Manager / Electronics Development Division 3 / responsible for semiconductor development

Member of Program Committee for ISPSD2003/2010/2011/2012/2013, IPEC-Niigata2005, PCC-Nagoya2007, APE2006/2007/2009/2011

From Green and Sommerfeld to Takahasi and Mori: recent developments in Computational Electromagnetics

Since their introduction in the seventies, microstrip antennas have become one of the most popular and successful type of antenna. Nowadays, the original printed microstrip patch antenna has evolved into a very general class of planar antennas, used in frequencies from 100 MHz to 100 GHz, where thin metallizations (patches, ground planes, slots) occupy the interfaces of a multilayered dielectric substrate, with eventual metallic probes and/or via-holes possibly connecting the different interfaces.

The most successful computational model for these antennas is provided by an integral equation formulation, where the associated Green's functions are originally expressed as Sommerfeld integrals (SIs). Currently, some of the most popular commercial Computational ElectroMagnetics software codes are directly based on this strategy. Hence, the robust and accurate evaluation of Sommerfeld integrals is of paramount relevance, since any improvement in their calculation will directly result in faster and more accurate software tools.

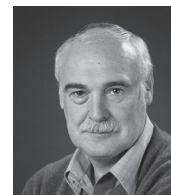
This paper reviews two of the most successful algorithms that have recently been applied to the numerical evaluation of these Sommerfeld integrals: the Weighted Averages (WA) algorithm and the Double Exponential (DE) quadrature. Although their use by the Antennas&Propagation community is quite recent, both algorithms are solidly rooted on well established numerical mathematics. Weighted Averages can be considered as an adaptation of the classic Euler transformation, while the Double Exponential quadrature was introduced in 1974 by two Japanese mathematicians, Takahasi and Mori.

Together, WA and DE combine to provide a numerical evaluation of Sommerfeld integrals of unprecedented quality. This paper will provide a historical perspective of both algorithms together with numerical results showing their practical interest, which clearly go far beyond the Sommerfeld integrals' realm.

Prof. Juan R. Mosig /

About the speaker

École polytechnique fédérale de Lausanne (EPFL)



Juan R. Mosig was born in Cadiz, Spain. He received the Electrical Engineer degree from the Universidad Politecnica de Madrid, Madrid, Spain, in 1973, and the Ph.D. degree from the Ecole Polytechnique Fédérale de Lausanne (EPFL), Lausanne, Switzerland, in 1983. Since 1991, he has been a Professor in the Laboratory of Electromagnetics and Acoustics (LEMA) at EPFL and its Director since 2000. He has held scientific appointments with the Rochester Institute of Technology, Rochester, NY, USA; the Syracuse University, Syracuse, NY, USA; the University of Colorado at Boulder, USA; University of Rennes, Rennes, France; University of Nice, Nice, France, the Technical University of Denmark, Lyngby, Denmark.

Dr. Mosig has been a member of the Swiss Federal Commission for Space Applications, the Chairman of the

EPFL Space Center, the Director of the Electrical Engineering Section at EPFL and a Vice-Dean of the Humanities and Social Sciences College at EPFL.

He has authored four chapters in books on microstrip antennas and circuits and over 150 reviewed papers. His research interests include electromagnetic theory, numerical methods, and planar antennas. Dr. Mosig is a Fellow of IEEE (1999). He has been the Swiss Delegate for European COST Antenna Actions since the 1980's and the Chair for the two last Actions 284 and IC0603 ASSIST (2003–2011).

During 2004-7 he was Vice-Coordinator of the European FP6 Network of Excellence ACE, that enabled the EuCAP Conference series. He has also served as member of the Board in the Coordination Actions ARTIC (FP6) and CARE (FP7) and as Transnational Delegate in the IEEE APS AdCom. Currently, he is also Associate Editor of the IEEE AP Magazine.

He is a founding member and Chair of the European Association on Antennas and Propagation (EurAAP) and he also chairs the EuCAP Conference series and its Steering Committee.

2A1

Invited Talk 1

Various Antenna Design Techniques for Medical Applications

In this talk, various antenna design techniques for medical applications are introduced. Three types of antennas for medical application are proposed. To minimize the body effect, high dielectric material, zeroth-order resonance configuration, and an inverted-F structure with a meandered strip line techniques are utilized.

I. An implanted compact antenna for an artificial cardiac pacemaker is proposed. The dimension of the pacemaker system, including the antenna element, is 30 mm × 35 mm × 7 mm. Taconic CER-10 with a relative permittivity of 10 is used for the substrate and two superstrates to reduce the effect of high conductive body tissue on the antenna. When the antenna is embedded in a semi-solid flat phantom with equivalent electrical properties as the human body, S11 value is -19.2 dB at 403.5 MHz. The measured specific absorption ratio (SAR) value of the proposed antenna is 0.0079 W/Kg (1 g tissue). Moreover, to estimate the communication performance of the proposed antenna operated in the real environment, a link budget analysis is performed.

II. An implantable zeroth-order resonance (ZOR) antenna is proposed. By using chip inductors, an epsilon negative ZOR was generated, while achieving an extremely compact antenna size. The antenna has the overall dimensions of $0.021\lambda \times 0.017\lambda \times 0.002\lambda$ at the Medical Implantable Communication Service (MICS) band (402 - 405 MHz). Furthermore, the performance of the proposed antenna is insensitive to the electrical properties of the human body by virtue of the ZOR phenomenon.

III. A capsule antenna used in an ingestible medical device is proposed. To achieve miniaturization and a wide bandwidth, an inverted-F antenna with a meandered strip line was used. The antenna performance in a human voxel model is analyzed through simulation, and the performance of the fabricated antenna is verified by comparing the measured data with that of the simulation when the antenna is placed in a human-equivalent liquid phantom.

About the speaker

Prof. Jaehoon Choi / Hanyang University



Jaehoon Choi received the B.S. degree from Hanyang University, Korea, the M.S. degree and the Ph.D. degree from Ohio State University, Ohio, in 1980, 1986, and 1989, respectively. From 1989-1991, he was a research analyst with the Telecommunication Research Center at Arizona State University, Tempe, Arizona. He had worked for the Korea Telecom as a team leader of the Satellite Communication Division from 1991 to 1995. Since 1995, he has been a professor in the Department of Electronics and Communication Engineering at Hanyang University, Korea. He has published more than 120 refereed journal articles and numerous conference proceeding papers. He also holds over 50 patents. His research interests include antenna, microwave circuit design, and EMC. Currently, his research is mainly focused on the design of compact, multi-band antenna for mobile wireless communication, software defined radio (SDR) systems, ultra-wideband (UWB) systems, and wireless body area network (WBAN). He was a former chair of AP technical group of KIEES. He now serves as the chair of IEEE AP-S Seoul chapter and the executive vice president of KIEES. He was Dean of Engineering College II, Hanyang University from 2010 to 2011. Currently, He is Dean of Engineering College, Hanyang University.

The Receiving and Scattering Properties of Antenna Elements and Finite Arrays

An interesting and somewhat controversial topic is the receiving and scattering properties of the general antenna. In recent years, this topic has been given considerable attention in the IEEE AP-S Magazine. In this presentation, we consider the fundamental receiving and scattering properties of antenna elements and finite arrays. We examine the general validity and application of the Thevenin and Norton equivalent circuits to resonant and antiresonant antennas in terms of predicting both received and scattered powers. We consider the concept of scattered power in view of it being non-recoverable and in terms of its relation to the received power and the law of conservation of power. We consider the receiving and scattering properties of electrically small antennas as well as finite arrays and the concept of whether a finite array absorbs or receives all available power. Circuit theory and numerical simulations of the receiving and scattering properties of both single elements and finite arrays are used as examples. We demonstrate that the law of conservation of power necessitates the fact that any antenna or array that receives power must also scatter power.

About the speaker

Dr. Steven Best / The MITRE Corporation



Steven R. Best is a Principal Sensor Systems Engineer with the MITRE Corporation in Bedford, MA. He received the B.Sc.Eng and the Ph.D. degrees in Electrical Engineering in 1983 and 1988 from the University of New Brunswick in Canada. Dr. Best has over 25 years of experience in business management and antenna design engineering in both military and commercial markets. Prior to joining MITRE, Dr. Best was with the Air Force Research Laboratory (AFRL) at Hanscom AFB, where his research interests included electrically small antennas, wideband radiating elements, conformal antennas, antenna arrays and communications antennas. Prior to joining AFRL, he was President of Cushcraft Corporation in Manchester, NH from 1997 to 2002. He was Director of Engineering at Cushcraft from 1996 to 1997. Prior to joining Cushcraft, he was co-founder and Vice President and General Manager of Parisi Antenna Systems from 1993 through 1996. He was Vice President and General Manager of D&M/Chu Technology, Inc (formerly Chu Associates) from 1990 – 1993. He joined Chu Associates as a Senior Electrical Engineer in 1987.

Dr. Best is the author or co-author of 3 book chapters and over 100 papers in various journal, conference and industry publications. He frequently presents a three-day short course – Antennas and Propagation for Wireless Communication, he is the author of a CD-ROM series on antenna theory and design, and he has presented several Webinars on antenna topics. He has also authored an IEEE Expert Now module on electrically small antennas. Dr. Best is a former Distinguished Lecturer for IEEE Antennas and Propagation Society (AP-S), a former member of the AP-S AdCom, a former Associate Editor for the IEEE Transactions on Antennas and Propagation, and Senior Past Chair of the IEEE Boston Section. He is currently the AP-S Electronic Communications Editor-in-Chief. Dr Best is a Fellow of the IEEE and the current President of the IEEE Antennas and Propagation Society.

Evolution of Mobile Broadband and Smart-phones ~LTE-A Technologies and New Antenna Era~

The mobile phones to which high-speed data transmission became possible over the 3rd generation mobile communication network are rapidly shifted to smart-phones with the advent of Android OS and iOS over the world. This worldwide trend brings major impacts on mobile communication operators, especially massive traffic expansion, and accommodating huge traffic becomes most important issue.

In order to handle the traffic expansion and realize further broadband services, the Long Term Evolution (LTE) has been standardized by the 3rd generation partnership project (3GPP). In Japan, NTT DOCOMO launched a commercial LTE service in December 2010 under the new service brand of “Xi” (crossy), and its service is continuously expanding. LTE allows significant improvement of the spectrum use efficiency and user data throughput. The LTE downlink peak throughput has been improved up to 300 Mbps compared to 14 Mbps of 3G (W-CDMA/HSDPA). Moreover, toward further enhancement of LTE, the standardization of LTE-Advanced (LTE-A) is now progressing in 3GPP. Here, further improvement of spectrum use efficiency and user data throughput e.g. the maximum of 1 Gbps at downlink can be achieved in LTE-A.

In this talk, the evolution of mobile broadband and smart-phones is introduced. Furthermore outline of the LTE-A with touching the latest experimental results of the LTE-A prototype in NTT DOCOMO is presented. Requirements and directions of antenna and propagation research contributing to the LTE-A technologies and systems are also discussed.

About the speaker

Dr. Narumi Umeda / NTT DOCOMO, INC.



He is Managing Director of Radio Access Network Development Department, NTT DOCOMO. He received his B.S., M.S. and Ph.D. degrees in Electronics Engineering from Hokkaido University, Hokkaido, Japan in 1985, 1987, and 2007, respectively. He joined the Nippon Telegraph and Telephone Corporation (NTT) Laboratories in 1987, and in 1992 he was transferred to NTT Mobile Communications Network, Inc. (now NTT DOCOMO, INC.).

He has broad experiences on research and development of mobile communication systems especially for the radio access networks for almost 25 years in NTT and NTT DOCOMO. He actually has been engaged in research on the radio link control for Personal Digital Cellular (PDC), IMT-2000 and 4th generation mobile communication systems (beyond 3G).

He was a co-recipient of the Japan Institute of Invention and Innovation (JIII) Imperial Invention Prize in 1998 and the Best Paper Award of the International Conference on Telecommunications (ICT2002). He is a member of IEICE and IEEE.

Atacama Large Millimeter/submillimeter Array (ALMA)

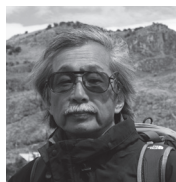
The Atacama Large Millimeter/submillimeter Array (ALMA) is the largest astronomical project under an international partnership of East Asia, Europe, and North America in cooperation with the Republic of Chile. ALMA will be composed of 66 high precision antennas with two antenna sizes, 54 12-m antennas and 12 7-m antennas. By reconfiguring antennas, the array can achieve an angular resolution equivalent to an antenna diameter up to 18km using aperture synthesis technique. All antennas will be equipped with front end receivers covering the frequency range from 84 GHz to 950GHz. The signals received by all antennas are transmitted through very long optical fibers to a large scale digital correlator which can process the broad band signal of 16GHz/baseline with 4096 spectral channels in real time.

With unprecedented angular resolution and spectral line capabilities, ALMA is expected to enable transformational research in various areas of millimeter and submillimeter astronomy, such as detailed structure of proto-planetary disks, detection of high redshift galaxies, and evolution of matter in the Universe. At present more than 30 antennas are located at the 5000m plateau in northern Chile, a part of which are used for the science verification and the initial science operation. The general view and current status of the ALMA project will be reported with a special emphasis on antenna and propagation topics. This document gives formatting instructions for authors preparing manuscripts for ISAP2012. The authors must follow the instructions given in this document. Entire document should be in Times New Roman Font with single space.

Prof. Masato Ishiguro /

National Astronomical Observatory of Japan

About the speaker



Masato Ishiguro received the B.E. and M.E. degrees in Electrical Engineering from Nagoya University, and the Ph.D degree in Astronomy from the University of Tokyo. He started his research in radio astronomy at Nagoya University in 1970 where he investigated radio interferometry techniques. In 1980, he moved to Tokyo Astronomical observatory of the University of Tokyo to join the project to construct large millimeter-wave telescopes at the Nobeyama Radio Observatory (NRO). He was in charge of constructing the Nobeyama Millimeter Array and also contributed to the open use of the telescopes. From 1990 to 1996, he was the director of NRO.

While doing research at NRO, he worked over a plan of large array at millimeter and submillimeter wavelengths. Since 1998, he had been leading the Japanese part of the international project to construct Atacama Large Millimeter/submillimeter Array (ALMA) in Chile. He was a professor of National Astronomical Observatory of Japan (NAOJ) since 1988 until he retired from NAOJ in 2009. He is now a professor emeritus of NAOJ and a member of International Astronomical Union (IAU).

Planar Reflector Design Using Metamaterials

Reflectors are used in various microwave and millimeter-wave applications such as satellite antennas, broadcasting antennas, and military radars to direct beams to the target directions. Generally, the reflectors are designed with common metals but recent researches on metamaterials have been shown that conventional metallic reflectors can be replaced by planar metamaterials reflectors. The concept of metamaterials was first proposed in 1960s, and there have been various and intense researches on the field of electromagnetic metamaterials. So far, various types of metamaterials with diverse shapes and characteristics have been proposed, and their application areas are continuously expanding to microwave and millimeter-wave technologies. Among the many types of metamaterials, planar metamaterials called "artificial magnetic conductors (AMCs)" have been applied as reflectors by a number of researchers. AMCs have been drawn attentions due to the interesting reflection phase characteristic, i.e. no phase reversal of normally incident electric fields. Researchers also found that the reflection phase can be arbitrarily controlled by changing the unit cell structure of AMCs. The capability to attain any desired reflection phase enables the design of planar reflectors with desired reflection phase distribution. For instance, curved metallic reflectors (like parabolic reflectors) can be replaced by planar reflectors composed of metamaterials unit cells with required reflection phases to compensate the differences between the curved surfaces and the planar surfaces.

This course is about such various planar reflector design technology using metamaterials. In this course, after the brief introduction on electromagnetic metamaterials, the basic theory of AMCs will be overviewed. Next, various types of AMCs including a conventional mushroom type AMC and AMCs with various patch shapes or slot-loadings will be presented with their individual characteristics. Also, the methods of attaining desired reflection phases by modifying AMC structures will be presented. In the latter part of this course, various reflector applications (including low-profile reflector antennas, circular polarized antennas, reflectarrays and etc.) of metamaterials will be introduced. In the conclusion, the overall contents of the course will be summarized.

About the speaker

Prof. Young Joong Yoon / Yonsei University



Young Joong Yoon received the B.S. and M.S. degrees in electronic engineering from Yonsei University, Seoul, Korea, in 1981 and 1986, respectively, and the Ph.D. degree in electrical engineering from the Georgia Institute of Technology, Atlanta, in 1991. From 1992 to 1993, he was a Senior Researcher with the Electronics and Telecommunications Research Institute (ETRI), Daejeon, Korea. In 1993, he joined the faculty of Yonsei University, where he is currently a Professor with the Department of Electrical and Electronics Engineering. He was a president at the Korean Institute of Electromagnetic Engineering & Science (KIEES) in 2011. His research interests are antennas, RF devices, metamaterials, and radio propagations.

Metasurfing Wave Antennas

Metasurfaces constitute a class of thin metamaterials, which can be used from microwave to optical frequencies to create new electromagnetic engineering devices. They are obtained by a dense periodic texture of small elements printed on a grounded slab without or with shorting vias. These have been used in the past for realizing electromagnetic bandgaps (EBG) or equivalent magnetic-walls. Changing the dimension of the elements, being the sub-wavelength 2D-periodicity equal, gives the visual effect of a pixelated image and the electromagnetic effect of a modulation of the equivalent local reactance. The modulated metasurface reactance (MMR) so obtained is able to transform surface or guided waves into different wavefield configurations with required properties. This MMR-driven wavefield transformation is referred to as "Metasurfing". The MMR allows in fact a local modification of the dispersion equation and, at constant operating frequency, of the local wavevector. Therefore, the general effects of metasurface modulation are similar to those obtained in solid (volumetric) inhomogeneous metamaterial as predicted by the Transformation Optics; namely, re-addressing the propagation path of an incident wave. However, significant technological simplicity is gained.

When the MMR is covered by a top ground plane (Parallel-plate waveguide Metasurfing) the real part of the Poynting vector follows a generalized Fermat principle as happen in ray-field propagation in inhomogeneous solid medium. This may serve for designing lenses or point-source driven beam-forming networks. When the MMR is uncovered, wave propagation is accompanied by leakage; i.e., a surface wave is transformed into a leaky-wave, and the structure itself becomes an extremely flat antenna. In every case, introducing slots in the printed elements allows a polarization control. In such cases, the metasurface associated with can be described by an anisotropic surface impedance.

In this lecture, after illustration of the design method of metasurfing-wave antennas, various examples are presented and discussed, including Luneburg lenses, Maxwell's Fish-eyes, isoflux antennas, Doppler-guide antennas and new transmission lines.

About the speaker

Prof. Stefano Maci / University of Siena



Stefano MACI is a Professor the University of Siena (UNISI), with scientific responsibility of a group of 15 researchers (<http://www.dii.unisi.it/~lea/>). He is the Director of the UNISI PhD School of Information Engineering and Science, which presently includes about 60 PhD students. His research interests include high-frequency and beam representation methods, computational electromagnetics, large phased arrays, planar antennas, reflector antennas and feeds, metamaterials and metasurfaces.

Since 2000, he was responsible of 5 projects funded by the European Union (EU); in particular, in 2004-2007 he was WP leader of the Antenna Center of Excellence (ACE, FP6-EU) and in 2007-2010 he was International

Coordinator of a 24-institution consortium of a Marie Curie Action (FP6). He also carried out several projects supported by the European Space Agency (ESA-ESTEC), the European Defense Agency (EDA), the US-Army Research Laboratory (ARL), and by various industries and research institutions: EADS-MATRA, (Tolosa, Francia), IDS (Pisa, Italia), TICRA (Copenhagen), ALENIA MARCONI SYSTEM (Rome, Italy), SAAB-ERICSON SPACE (Gotheborg, Svezia), THALES (Paris, France), TNO (L'Aia, Olanda), OTO MELARA (La Spezia, Italia), OFFICINE GALILEO (Florence, Italy), SELEX Communication (Rome), Thales Alenia Space (Rome).

Since 2001 he was a member the Technical Advisory Board of 11 international conferences, member of the Review Board of 6 International Journals; in the same period, he organized 23 special sessions in international conferences, and he held 10 short courses in the IEEE Antennas and Propagation Society (AP-S) Symposia about metamaterials, antennas and computational electromagnetics. He was an Associate Editor of IEEE Trans on EMC and of IEEE Trans. on AP and two times Guest Editor of special issues of the latter journal. In 2003 he was elected Fellow of IEEE.

In 2004 he founded the European School of Antennas (ESoA), a PhD school that presently comprises 30 courses on Antennas, Propagation, Electromagnetic Theory, and Computational Electromagnetics. ESoA counts about 150 among the best teachers of Europe (which include eleven IEEE Fellows) and it is frequented by an average of 220 students per year. The ESoA consortium presently comprises 33 European research centers and offers 12 one-week courses per year.

In 2005-2007, he was Italian National representative of the NATO SET-TG 084 "Emerging Technology for Sensor and Front-ends", and he is presently involved as co-representative in the NATO SET-181 RTG on "Metamaterials for Defense and Security Applications". Stefano Maci was co-founder of two spinoff-companies and since 2008 he is honorary President of LEAntenne e Progetti SPA (Valeggio sul Mincio, VE).

Stefano Maci is presently Director of ESoA, a member of the Board of Directors of the European Association on Antennas and Propagation (EuRAAP), a member of the Technical Advisory Board of the URSI Commission B, a member elected of the AdCom of IEEE Antennas and Propagation Society, a member of the Governing Board of the European Science Foundation (ESF) Project "NewFocus", a member of the Governing board of the FP7 coordination action "CARE" (Coordinating the Antenna Research in Europe), a member of the Award Committee of the IEEE Antennas and Propagation Society (AP-S), a member of the Antennas and Propagation Executive Board of the Institution of Engineering and Technology (IET, UK), and a member of the Focus Group on METAMATERIALS in the Finmeccanica project "Mind-Share".

His research activity is documented in 10 book chapters, 110 papers published in international journals, (among which 76 on IEEE journals), and about 300 papers in proceedings of international conferences. His h index is 24, with a record of more than 2000 citations (source Google Scholar).

Coexistence of Wireless Power Transmission and Wireless Communication

A merit of Wireless Power Transmission (WPT) is combination of the WPT and wireless communication. Among various WPT technologies or battery-less technologies, such as inductive coupling, resonance coupling, radio wave, and energy harvesting, WPT via radio wave, especially microwave, is most suitable combination system of the WPT and wireless communication because higher frequency such as microwave is used in wireless communication systems. RF-ID is one of representative combination system of the WPT via radio wave and the wireless communication.

Our group proposed and carried out ZigBee sensor network driven by the microwave wireless power. In order to save frequency resource, the same frequency band should be used in the WPT and the ZigBee wireless communication. Difference of radio wave between the WPT and the ZigBee wireless communication is only characteristic of spectrum. We use only continuous wave without any modulation for the WPT against modulated radio wave for communication. Conversely speaking, noise from the WPT to the ZigBee is not white noise but very pure and spiky spectrum. To suppress interference from the WPT, we proposed pulse-WPT to drive the ZigBee like Time Division Multiplexing. We have two problems to realize ZigBee driven by the pulse-WPT. One is change of RF-DC conversion efficiency of rectenna, rectifying antenna, in the pulse-WPT system. All rectenna were developed only as receivers of continuous wave. The other is necessary of previous estimation of maximum power density of the WPT without any interference to ZigBee. To suppress the interference, lower power WPT is better against users, like ZigBee, require higher power to drive it. In this paper, I describe possibility of coexistence of the WPT and the wireless communication with experimental results of ZigBee driven pulse-WPT.

About the speaker

Prof. Naoki Shinohara / Kyoto University



Naoki Shinohara received the B.E. degree in electronic engineering, the M.E. and Ph.D (Eng.) degrees in electrical engineering from Kyoto University, Japan, in 1991, 1993 and 1996, respectively. He was a research associate in the Radio Atmospheric Science Center, Kyoto University from 1998. He was a research associate of the Radio Science Center for Space and Atmosphere, Kyoto University by recognizing the Radio Atmospheric Science Center from 2000, and there he was an associate professor since 2001. He was an associate professor in Research Institute for Sustainable Humanosphere, Kyoto University by recognizing the Radio Science Center for Space and Atmosphere since 2004. From 2010, he has been a professor in Research Institute for Sustainable Humanosphere, Kyoto University. He has been engaged in research on Solar Power Station/Satellite and Microwave Power Transmission system.

Internal Handheld Device Antennas: Recent Advances and Future Perspectives

Internal handheld device antennas have recently shown great advances for WWAN/LTE operation. Traditional antenna design was mainly based on the 1/4-wavelength PIFA. A variety of antenna design with the printed 1/8-wavelength PIFA, 1/4-wavelength loop, 1/8-wavelength half-loop, and 1/4-wavelength slot elements have recently been demonstrated to be promising for achieving much smaller antenna size and wideband operation. Compact integration of the internal WWAN/LTE antennas with nearby system ground plane and electronic elements in the handset is also promising. These recent advances and applied techniques in achieving wideband/multiband operation with small antenna size will be addressed.

It is also demanded that the internal antennas have high far-field radiation efficiency yet low near-field emission to achieve acceptable HAC and Head/Hand or Body SAR values for practical applications. The devices with embedded antennas therein having acceptable HAC/SAR values with respect to human exposure are considered as bio-compatible handheld devices. The related near-field radiation theory and the design techniques for the bio-compatible handheld devices will be presented. Future trends for the handheld device antennas that can be adaptive to environmental changes or tunable to cover different bands will be discussed. The perspectives for the ground antenna with shaped system circuit board in the slim handset are also introduced.

About the speaker **Prof. Kin-Lu Wong / National Sun Yat-sen University**



Prof. Kin-Lu Wong is Sun Yat-sen Chair Professor of National Sun Yat-sen University and an IEEE Fellow. He has published more than 500 refereed journal papers and 250 conference articles and has personally supervised 51 graduated PhDs. He holds over 200 patents and is the author of three books including Compact and Broadband Microstrip Antennas (Wiley, 2002) and Planar Antennas for Wireless Communications (Wiley, 2003). Dr. Wong's published works have been cited over 10,000 times in Google Scholar.

Dr. Wong received many awards including NSC (National Science Council) Distinguished Researcher in 2005 and top 50 NSC scientific achievements in past 50 years (1959~2009) in Taiwan. He was selected as top 100 honor of Taiwan by Global Views Monthly in August 2010 for his contribution in mobile communication antenna researches. Dr. Wong was awarded the 2008 APMC Prize. His graduate students were the winners of Best Student Paper Award in 2008 APMC, 2009 ISAP, and 2010 ISAP, and also won the first prize of 2007 and 2009 Taiwan National Mobile Handset Antenna Design Competition. Dr. Wong is General Chair of 2012 APMC and 2014 ISAP, both to be held in Kaohsiung, Taiwan.

Technical Program

October 29, 2012

Workshop 1

Room B

WS-1 **Planar Reflector Design Using Metamaterials** 14:00-17:00
#Young Joong Yoon, *Yonsei University*

Workshop 2

Room C

WS-2 **Metasurfing Wave Antennas** 14:00-17:00
#Stefano Maci, *University of Siena*

Workshop 3

Room A

WS-3 **Coexistence of Wireless Power Transmission and Wireless Communication** 14:00-17:00
#Naoki Shinohara, *Kyoto University*

Workshop 4

Room D

WS-4 **Internal Handheld Device Antennas:Recent Advances and Future Perspectives** 14:00-17:00
#Kin-Lu Wong, *National Sun Yat-sen University*

October 30, 2012

1A1: Plenary I

Chair: K.Cho (*Chiba Inst. of Tech.*)

09:40-10:30

1A1 **The Role of Advanced Automotive Electronics: Recent Progress & Development**
#Kimimori Hamada, *Toyota Motor Corporation, Japan*

1A2: Plenary II

Chair: K.Cho (*Chiba Inst. of Tech.*)

10:50-11:40

1A2 **From Green and Sommerfeld to Takahasi and Mori: Recent Developments in Computational Electromagnetics**
#Juan R. Mosig, *École Polytechnique Fédérale de Lausanne, Switzerland*

Technical Program

October 30, 2012

1A3: Advanced Applications of Small Antennas I

Co-Chairs: H.Arai (*Yokohama Natl. Univ.*), K.Wong (*Natl. Sun Yat-sen Univ.*) 13:00-14:40

- 1A3-1 The Receiving and Scattering Properties of Antenna Elements and Finite Arrays (Invited)**
#Steven Best, *The MITRE Corporation, United States*
- 1A3-2 Characteristics of Antennas with Folded Structure**
#Hisashi Morishita and Hung T. Nguyen, *National Defense Academy, Japan*
- 1A3-3 Isolation Enhancement of MIMO System Using Metamaterial Zeroth-order Resonant Antennas**
#Hojun Choi and Bomson Lee, *Kyung Hee University, South Korea*
- 1A3-4 Novel Inkjet-printed Ferromagnetic-based Solutions for Miniaturized Wireless Power Transfer (WPT) Inductors and Antennas**
#Hoseon Lee⁽¹⁾, Manos M. Tentzeris⁽¹⁾, Yoshihiro Kawahara⁽²⁾ and Apostolos Georgiadis⁽³⁾,
⁽¹⁾*Georgia Institute of Technology, United States*, ⁽²⁾*University of Tokyo, Japan*, ⁽³⁾*Centre Tecnologic de Telecomunicacions de Catalunya, Spain*

1A4: Advanced Applications of Small Antennas II

Co-Chairs: S.Best (*MITRE*), H.Morishita (*Natl. Defense Academy*) 15:00-16:40

- 1A4-1 On Near-Field Radiation Characteristics of the Internal Handset Antenna with a Curved Metal Pattern**
#Hsuan-Jui Chang and Kin-Lu Wong, *National Sun Yat-sen University, Taiwan*
- 1A4-2 Non-Foster Enhancements of Electrically Small Antennas**
#Richard W. Ziolkowski, Ning Zhu and Ming-Chun Tang, *University of Arizona, United States*
- 1A4-3 Frequency Reconfigurable Applicator for Superficial Hyperthermia System**
#Woo Cheol Choi, Ki Joon Kim, Hyeong Soon Park and Young Joong Yoon, *Yonsei University, South Korea*
- 1A4-4 Compact CPW-fed Ultra-Wideband (UWB) Antenna Using Denim Textile Material**
#Mohd Ezwan B. Jalil, Mohammad Kamal B. Rahim, Muhammad Azfar B. Abdullah and Osman B. Ayop, *University Technology Malaysia, Malaysia*
- 1A4-5 Multiband Dipole Antenna with Reflector Comprising Additional Reflector Composed of FSS**
#Keizo Cho, *Chiba Institute of Technology, Japan*

October 30, 2012

1B3: Millimeter-wave Antennas

Co-Chairs: T.Hirano (*Tokyo Inst. of Tech.*), W.Hong (*Southeast Univ.*) 13:00-14:40

- 1B3-1 Analysis of an X-shaped Cavity-backed Wide Slot 2x2-element Sub-array by Hybrid MoM/FEM with Numerical Eigenmode Basis Functions**
#Takashi Tomura, Jiro Hirokawa, Takuichi Hirano and Makoto Ando, *Tokyo Institute of Technology, Japan*
- 1B3-2 60-GHz Substrate Integrated Waveguide-fed Transverse Aperture Antennas**
#Zhi Ning Chen⁽¹⁾, Ke Gong⁽³⁾, Xianming Qing⁽²⁾, Peng Chen⁽³⁾ and Wei Hong⁽³⁾, ⁽¹⁾*National University of Singapore and Institute for Infocomm Research, Singapore*, ⁽²⁾*Institute for Infocomm Research, Singapore*, ⁽³⁾*Southeast University, China*
- 1B3-3 Gain Bandwidth of Microstrip-line-feeding Waveguide Aperture Antenna on LTCC Substrate in the Millimeter-Wave Band**
#Hiroki Hori, Kunio Sakakibara, Nobuyoshi Kikuma and Hiroshi Hirayama, *Nagoya Institute of Technology, Japan*
- 1B3-4 Dual-polarized Corporate-feed Plate-laminated Waveguide Slot Array Antenna for 60 GHz-band**
#Dongjin Kim, Miao Zhang, Jiro Hirokawa and Makoto Ando, *Tokyo Institute of Technology, Japan*
- 1B3-5 Design of Microstrip Antennas fed by Four-microstrip-port Waveguide Transition with Slot Radiators**
#Daiki Kawase⁽¹⁾, Kunio Sakakibara⁽¹⁾, Kazuyuki Seo⁽²⁾, Nobuyoshi Kikuma⁽¹⁾ and Hiroshi Hirayama⁽¹⁾,
⁽¹⁾*Nagoya Institute of Technology, Japan*, ⁽²⁾*Nippon Pillar Packing Co., Ltd., Japan*

1B4: Millimeter-wave / THz Antennas

Co-Chairs: Z.Chen (*Natl. Univ. of Singapore*), K.Sakakibara (*Nagoya Inst. of Tech.*) 15:00-16:40

- 1B4-1 Waveguide Fed Broadband Millimeter Wave Short Backfire Antenna**
#Shi-Wei Qu⁽¹⁾, Kung Bo Ng⁽²⁾ and Chi Hou Chan⁽²⁾, ⁽¹⁾*University of Electronic Science and Technology of China, China*, ⁽²⁾*City University of Hong Kong, China*
- 1B4-2 60 GHz On-chip Patch Antenna Integrated in a 0.18- μ m CMOS Technology**
#Takuichi Hirano, Kenichi Okada, Jiro Hirokawa and Makoto Ando, *Tokyo Institute of Technology, Japan*
- 1B4-3 Electrical Field Characteristics for Rectangular Patch Antenna with Perturbation Slot at THz Range**
Mohd Khairul Hisham B. Ismail, #Mazlina B. Esa, Nik Noordini B. Nik Abdul Malik, Noor Asniza B. Murad, Nurul Muazzah B. Abdul Rashid, Rashidah B. Arsat, Nor Asmawati B. Samsuri, Mohd Rijal B. Hamid and Shipun Anuar B. Hamzah, *Universiti Teknologi Malaysia, Malaysia*
- 1B4-4 60 GHz Membrane Antennas fed by Substrate Integrated Waveguide**
Tristan Sarrazin^(1,2), Hamsakutty Vettikalladi⁽¹⁾, #Olivier Lafond⁽¹⁾, Mohamed Himdi⁽¹⁾ and Nathalie Rolland⁽²⁾, ⁽¹⁾*University of Rennes 1, France*, ⁽²⁾*University of Lille 1, France*
- 1B4-5 Guided Tapered Slot Antenna for Near Field Millimeter-wave Imaging**
#Shoji Mochizuki, Souichi Oka, Naoki Matsumiya, Hiroyoshi Togo and Naoya Kukutsu, *Nippon Telegraph and Telephone Corporation, Japan*

Technical Program

October 30, 2012

1C3: Emerging Techniques in Radar

Co-Chairs: K.Kangwook (*Gwangju Inst. of Science and Tech.*), H.Kobayashi (*Niigata Univ.*) 13:00-14:40

- 1C3-1 Transmitting Phase Comparison Monopulse Estimation Using MIMO Radar Technique for Distributed Array**
#Toshihiro Ito, Kazufumi Hirata and Ryuhei Takahashi, *Mitsubishi Electric Corporation, Japan*
- 1C3-2 Angular Resolution Improvement of Ocean Surface Current Radar**
#Naoki Ozawa⁽¹⁾, Hiroyoshi Yamada⁽¹⁾, Yoshio Yamaguchi⁽¹⁾, Keizo Hirano⁽²⁾ and Hiroyuki Ito⁽²⁾, ⁽¹⁾*Niigata University, Japan*, ⁽²⁾*Nagano Japan Radio Co., Ltd., Japan*
- 1C3-3 Angle-and-time-domain Gating Technique for Time-reversal MUSIC Imaging**
#Heedong Choi, Yasutaka Ogawa, Toshihiko Nishimura and Takeo Ohgane, *Hokkaido University, Japan*
- 1C3-4 Pedestrian Classification Based on Radial Velocity Features of UWB Doppler Radar Images**
#Kenshi Saho⁽¹⁾, Takuya Sakamoto⁽¹⁾, Toru Sato⁽¹⁾, Kenichi Inoue⁽²⁾ and Takeshi Fukuda⁽²⁾, ⁽¹⁾*Kyoto University, Japan*, ⁽²⁾*Panasonic Corporation, Japan*
- 1C3-5 A Time Shift Parameter Setting of Temporal Decorrelation Source Separation for Periodic Signals**
#Takeshi Amishima and Kazufumi Hirata, *Mitsubishi Electric Corporation, Japan*

1C4: SAR Polarimetry and Interferometry

Co-Chairs: W.M.Boerner (*Illinois Univ. at Chicago*), H.Yamada (*Niigata Univ.*) 15:00-16:40

- 1C4-1 Future Perspectives of Advancing Multimodal POLSAR Technology, its Rapid Worldwide Expansion, and its Plethora of Diversified Applications**
#Wolfgang-Martin Boerner, *University of Illinois at Chicago, United States*
- 1C4-2 Sandbar Analysis of Polarimetric SAR Images Using Four-Component Scattering Decomposition**
#Chih-Yuan Chu⁽¹⁾, Tzu-Yu Cheng⁽¹⁾, Hsiu-Wen Wang⁽¹⁾, Kun-Shan Chen⁽¹⁾, Yoshio Yamaguchi⁽²⁾ and Jon-Sen Lee⁽¹⁾, ⁽¹⁾*National Central University, Taiwan*, ⁽²⁾*Niigata University, Japan*
- 1C4-3 On Exact Model-based Scattering Decomposition of Polarimetric SAR Data**
#Yi Cui⁽¹⁾, Yoshio Yamaguchi⁽¹⁾, Jian Yang⁽²⁾ and Hirokazu Kobayashi⁽¹⁾, ⁽¹⁾*Niigata University, Japan*, ⁽²⁾*Tsinghua University, China*
- 1C4-4 Comparison of Parameters Derived from Dual-polarization SAR Data and their Application**
#Mitsunobu Sugimoto, Kazuo Ouchi and Yasuhiro Nakamura, *National Defense Academy, Japan*
- 1C4-5 Classification Features in Phase Components of Mechanism Vectors in PolInSAR Optimization**
#Fang Shang and Akira Hirose, *The University of Tokyo, Japan*

October 30, 2012

1D3: Microstrip Antennas and Arrays

Co-Chairs: E.Nishiyama (*Saga Univ.*), M.Sierra-Perez (*Technical Univ. of Madrid*) 13:00-14:40

- 1D3-1 Design of a Linearly Polarized Radial Line MSA Array with Stacked Circular Patch Elements**
#Yuki Kimura, Sakuyoshi Saito and Yuichi Kimura, *Saitama University, Japan*
- 1D3-2 A High-gain Beam-steering Quasi-Yagi Antenna**
#Peiyuan Qin, Can Ding and Y. Jay Guo, *CSIRO ICT Centre, Australia*
- 1D3-3 Switched Beam Triangular Microstrip Antenna Fed by Hybrid Coupler**
#Indra Surjati, Yuli K. N and Awan Septianggono, *Trisakti University, Indonesia*
- 1D3-4 Grid Array Antenna Radiating a Circularly Polarized Wave**
#Yasushi Iitsuka⁽¹⁾, PHAN H. Phuong⁽²⁾, Junji Yamauchi⁽¹⁾ and Hisamatsu Nakano⁽¹⁾, ⁽¹⁾*Hosei University, Japan*, ⁽²⁾*Ho Chi Minh City University of Technology, Vietnam*
- 1D3-5 Parametric Analysis of the Radiation Characteristics of a Multiple-folded Phased Array Antenna**
#Tadashi Takano, Tomoya Ishikawa, Hiroki Nishikawa, Kenji Saegusa and Hiroyuki Hosono, *Nihon University, Japan*

1D4: Slot Antennas and Arrays

Co-Chairs: I.Surjati (*Trisakti Univ.*), M.Yamamoto (*Hokkaido Univ.*) 15:00-16:40

- 1D4-1 Versatility of MoM-FMP Technique for Designing Linear Arrays of Slots on Rectangular Waveguide**
Ignacio Montesinos-Ortego⁽¹⁾, Miao Zhang⁽²⁾, #Manuel Sierra-Perez⁽¹⁾, Jiro Hirokawa⁽²⁾ and Makoto Ando⁽²⁾, ⁽¹⁾*Technical University of Madrid, Spain*, ⁽²⁾*Tokyo Institute of Technology, Japan*
- 1D4-2 Linear Array of Longitudinal Slots Excited by Metal Supports on a Hollow Rectangular Coaxial Line**
#Makoto Sano, Jiro Hirokawa and Makoto Ando, *Tokyo Institute of Technology, Japan*
- 1D4-3 Design of a Miniaturized Square Slot Antenna Using Y-strips for Enhancement of Circularly Polarization Bandwidth**
#Suwhan Kim, Soonyong Lee, Kyeol Kwon, Eunman Joo and Jaehoon Choi, *Hanyang University, South Korea*
- 1D4-4 Resonant Frequency of a Circular Microstrip Antenna in a Parallel-plate Waveguide**
#Narihiro Nakamoto, Hiroshi Ban and Kiyoshi Kobayashi, *ATR, Japan*
- 1D4-5 Characteristics of a High Gain and Light Weight Radial Line Slot Antenna with Honeycomb Structure in 32GHz band for Data Link in Space Exploration**
#Tung X. Nguyen⁽¹⁾, Rushanthi S. Jayawardene⁽¹⁾, Yasutomu Takano⁽¹⁾, Kimio Sakurai⁽¹⁾, Jiro Hirokawa⁽¹⁾, Makoto Ando⁽¹⁾, Takaomi Matsuzaki⁽¹⁾, Osamu Amano⁽²⁾, Shuichi Koreeda⁽²⁾, Tomoaki Toka⁽³⁾, Yukio Kamata⁽³⁾, Kosuke Kawahara⁽³⁾, Yuichi Tsuda⁽³⁾ and Makoto Yoshikawa⁽³⁾, ⁽¹⁾*Tokyo Institute of Technology, Japan*, ⁽²⁾*NEC-Toshiba Space System, Japan*, ⁽³⁾*Japan Aerospace Exploration Agency, Japan*

Technical Program

October 30, 2012

1E3: Various Wireless Power Transmission

Co-Chairs: N. Shinohara (*Kyoto Univ.*), N. Myung (*KAIST*) 13:00-14:40

- 1E3-1 System and Electromagnetic Compatibility of Resonance Coupling Wireless power Transfer in On-line Electric Vehicle**
Yang-Bae Chun⁽¹⁾, Seongwook Park⁽²⁾, Jiseong Kim⁽²⁾, Hongseok Kim⁽²⁾, Kiwon Hwang⁽²⁾, Joungho Kim⁽²⁾ and #Seungyoung Ahn⁽²⁾, ⁽¹⁾*Chungbuk National University, South Korea*, ⁽²⁾*KAIST, South Korea*
- 1E3-2 Novel Spatial Modulation Method Using Dual Scatterers for Wireless Power Transmission**
#Akira Saitou, Kohei Hasegawa, Ryo Ishikawa and Kazuhiko Honjo, *The University of Electro-Communications, Japan*
- 1E3-3 Frequency Characteristic of Transmission Efficiency Depended on Matching Condition of Transducer in Ultrasonic Wireless Power Transmission System**
Kazuhiro Fujimori, #Shota Tominaga, Koichiro Tanda, Kenji Tsuruta and Shigeji Nogi, *Okayama University, Japan*
- 1E3-4 A Consideration of Electric and Magnetic Coupling Coefficient of Spiral Antenna for Wireless Power Transfer**
#Kanao Komatsu, Tomohiro Amano, Hiroshi Hirayama, Nobuyoshi Kikuma and Kunio Sakakibara, *Nagoya Institute of Technology, Japan*
- 1E3-5 Power Delivery Optimization for a Mobile Power Transfer System Based on Resonator Arrays**
William Yerazunis, Bingnan Wang and #Koon Hoo Teo, *Mitsubishi Electric Research Labs, United States*

1E4: Wireless Power Transmission Technologies I

Co-Chairs: N. Honma (*Iwate Univ.*), P. Akkaraekthalin (*King Mongkut's Univ. of Tech. North Bangkok*) 15:00-16:40

- 1E4-1 Novel T-shape Slot Couple Feed Dual Circular Polarized Rectenna**
#Jui-Hung Chou⁽¹⁾, Ding-Bing Lin⁽²⁾, Kuo-Lin Weng⁽²⁾ and Hsueh-Jyh Li⁽¹⁾, ⁽¹⁾*National Taiwan University, Taiwan*, ⁽²⁾*National Taipei University of Technology, Taiwan*
- 1E4-2 Proposal of Tunable Decoupling Network Comprising Transmission Lines and Lumped Element**
#Shumo Li, Naoki Honma and Naoya Yamaki, *Iwate University, Japan*
- 1E4-3 Harmonic Matching and Reflecting Amplifiers with 2nd and 3rd Harmonic Phase Tuning**
#Ken Hiraga, Takashi Hikage, Manabu Yamamoto and Toshio Nojima, *Hokkaido University, Japan*
- 1E4-4 Characteristics of RF-DC Conversion Circuit for Wireless Power Transmission using the Low Resistance GaN Schottky Barrier Diode**
Kazuhiro Fujimori⁽¹⁾, #Teruhiko Wagi⁽¹⁾, Kenji Tsuruta⁽¹⁾, Shigeji Nogi⁽¹⁾, Yuichiro Ozawa⁽²⁾, Minoru Furukawa⁽³⁾ and Teruo Fujiwara⁽⁴⁾, ⁽¹⁾*Okayama University, Japan*, ⁽²⁾*IHI AEROSPACE Company, Japan*, ⁽³⁾*Nihon Dengyo Kosaku Company, Japan*, ⁽⁴⁾*Sho Engineering Company, Japan*
- 1E4-5 An Investigation for Optimum Design of Matching Circuit in Highly Efficient RF-DC Conversion Circuit by Genetic Algorithm**
#Yoshihiro Kondo, Kazuhiro Fujimori and Kenji Tsuruta, *Okayama University, Japan*

October 31, 2012

2A1: Medical Applications I

Co-Chairs: J. Choi (*Hanyang Univ.*), A. Hirata (*Nagoya Inst. of Tech.*) 09:00-10:40

- 2A1-1 Various Antenna Design Techniques for Medical Applications (Invited)**
#Jaehoon Choi, *Hanyang University, South Korea*
- 2A1-2 An Experiment of the Dipole Antenna with Glass Coating for In-body Wireless Communication**
#Ho Yu Lin, Masaharu Takahashi, Kazuyuki Saito and Koichi Ito, *Chiba University, Japan*
- 2A1-3 Novel Pair Electrode with Coils Sensing Magnetic Energy on Human Body Surface for Intrabody Communication**
#Takafumi Ohishi, Kazuhiro Inoue and Shuichi Obayashi, *Toshiba Corporation, Japan*
- 2A1-4 Temperature Elevation in the Human Body Model for RF Plane-wave Exposure**
#Akimasa Hirata, Ryuto Hanatani and Ilkka Laakso, *Nagoya Institute of Technology, Japan*

2A2: Recent Antennas' Activities in Europe I

Co-Chairs: J. Hirokawa (*Tokyo Inst. of Tech.*), J.R. Mosig (*EPFL*) 11:00-12:40

- 2A2-1 Multiple Antenna Integration in Small Terminals**
#Dirk Manteuffel and Robert Martens, *University of Kiel, Germany*
- 2A2-2 Antenna Research at CHASE - Chalmers Antenna Systems Excellence Centre**
#Jan Carlsson⁽¹⁾ and Staffan Sjödin⁽²⁾, ⁽¹⁾*SP Technical Research Institute of Sweden, Sweden*, ⁽²⁾*Chalmers University of Technology, Sweden*
- 2A2-3 Body-centric Wireless Communications at 94GHz**
#Alice Pellegrini, Alessio Brizzi, Lianhong Zhang and Yang Hao, Queen Mary, *University of London, United Kingdom*
- 2A2-4 A New Type of Printed Ku-Band SIW Horn Antenna with Enhanced Performances**
#Marc Esquius-Morote, Benjamin Fuchs and Juan R. Mosig, *EPFL, Switzerland*
- 2A2-5 Sectorial Cylindrical Patch Antenna for Broadband at Sea Wireless Nodes Installed on Vessels**
#Pawel Kabacik⁽¹⁾, Arkadiusz Byndas⁽¹⁾, Fritz Bekkadal⁽²⁾ and Kay E. Fjørtoft⁽²⁾, ⁽¹⁾*Wroclaw University of Technology, Poland*, ⁽²⁾*e-Maritime, Marintek, Norway*

Technical Program

October 31, 2012

2A3:Recent Antennas' Activities in Europe II

Co-Chairs: M.Takahashi (*Chiba Univ.*), S.Maci (*Univ. of Siena*) 14:00-15:40

- 2A3-1 Measurement of a 1.3 m Reflectarray Antenna in Flat Panels in Ku Band**
#Hervé Legay⁽¹⁾, Daniele Bresciani⁽¹⁾, Eric Labiole⁽¹⁾, Renaud Chiniard⁽¹⁾, Raphael Gillard⁽²⁾ and Giovanni Toso⁽³⁾, ⁽¹⁾Thales Alenia Space, France, ⁽²⁾JETR, France, ⁽³⁾ESA - ESTEC, Netherlands
- 2A3-2 Research Activities of Spanish Antenna Groups**
#Manuel Sierra-Perez, *Technical University of Madrid, Spain*
- 2A3-3 Microwave to THz Properties of Graphene and Potential Antenna Applications**
#Juan Sebastian Gomez-Diaz and Julien Perruisseau-Carrier, *EPFL, Switzerland*
- 2A3-4 Gap Waveguide Components for Millimetre-Wave Systems: Couplers, Filters, Antennas, MMIC Packaging.**
#Esperanza Alfonso, Ashraf U. Zaman, Elena Pucci and Per-Simon Kildal, *Chalmers University of Technology, Sweden*
- 2A3-5 Some Spanish Contributions to UHF Dense Arrays (SKA Project) and THz Imaging Arrays**
#Daniel Segovia-Vargas⁽¹⁾, Francisco Javier Herraiz-Martínez⁽¹⁾, Luis Enrique García-Muñoz⁽¹⁾, Luis Emilio García-Castillo⁽¹⁾, Iñigo Ederria⁽²⁾, Inés Palacios⁽²⁾ and Ramón Gonzalo⁽²⁾, ⁽¹⁾Universidad Carlos III de Madrid, Spain, ⁽²⁾Universidad Pública de Navarra, Spain

2B1:Antennas and Feeding Circuits for Millimeter-wave Systems

Co-Chairs: O.Laford (*Univ. of Rennes 1*), M.Zhang (*Tokyo Inst. of Tech.*) 09:00-10:40

- 2B1-1 Range Enhancement of Nulling Angle in FN-PMMW Imaging Using Cooling Dielectric Tube Array**
#Hiroyasu Sato, Kohei Kuriyama and Kunio Sawaya, *Tohoku University, Japan*
- 2B1-2 Design of Rotman-lens Feeding-circuit for Multi-layer Beam-scanning Microstrip Antenna in Millimeter-wave Band**
#Hirotoshi Nishiwaki, Kunio Sakakibara, Nobuyoshi Kikuma and Hiroshi Hirayama, *Nagoya Institute of Technology, Japan*
- 2B1-3 Waveguide Slot Antennas with Different Aperture Sizes Developed for the MMW Short Range Wireless Access Gate System**
#Miao Zhang, Jiro Hirokawa and Makoto Ando, *Tokyo Institute of Technology, Japan*
- 2B1-4 An Active Transmitter Antenna with Beam Scanning and Beam Shaping Capability for 60GHz Application**
#Olivier Lafond⁽¹⁾, Mohamed Himdi⁽¹⁾, Herve Merlet⁽²⁾ and Philippe Lebars⁽²⁾, ⁽¹⁾University of Rennes 1, France, ⁽²⁾Canon Research Centre France, France
- 2B1-5 Design of Via-less Planer Microstrip-to-waveguide Transition with Choke Structure**
#Keisuke Murase, Kunio Sakakibara, Nobuyoshi Kikuma and Hiroshi Hirayama, *Nagoya Institute of Technology, Japan*

October 31, 2012

2B2: MIMO and Cooperative Communication Technologies I

Co-Chairs: K.Kihira (*Mitsubishi Electric*), G.Lerosey (*Inst. Langevin*) 11:00-12:40

- 2B2-1 A Remark on the Definition of Correlation Coefficient by Propagation Modeling**
Daisuke Uchida, Takero Asai and #Hiroyuki Arai, *Yokohama National University, Japan*
- 2B2-2 Evaluation of Distributed MIMO Antennas for Mobile Terminal**
#Masakazu Hirokawa⁽¹⁾, Masaharu Takahashi⁽¹⁾, Koichi Ito⁽¹⁾, Issei Kanno⁽²⁾, Yoshiaki Amano⁽²⁾, Masayuki Nakano⁽²⁾ and Akira Yamaguchi⁽²⁾, ⁽¹⁾Chiba University, Japan, ⁽²⁾KDDI R&D Laboratories Inc., Japan
- 2B2-3 Arrival Angle Distribution Control in MIMO-OTA Measurement Environment Using Double-layered Reverberation Chamber**
#Ichiro Oshima⁽¹⁾ and Yoshio Karasawa⁽²⁾, ⁽¹⁾Denki Kogyo Co., Ltd., Japan, ⁽²⁾The University of Electro-Communications, Japan
- 2B2-4 Improvement of MIMO Channel Capacity Using Tunable Transmit-array Antenna**
#Yuta Takahashi, Naoki Honma and Yuto Suzuki, *Iwate University, Japan*
- 2B2-5 A New Eigenvector Beam-forming Method without First Eigenvector for Reducing Interference inside Relay Station**
#Takaaki Shirai⁽¹⁾, Kentaro Nishimori⁽¹⁾, Kota Shishido⁽¹⁾, Naoki Honma⁽²⁾ and Hideo Makino⁽¹⁾, ⁽¹⁾Niigata University, Japan, ⁽²⁾Iwate University, Japan

2B3:Multiband / Wideband Antennas I

Co-Chairs: P.Akkaraekthalin (*King Mongkut's Univ. of Tech. North Bangkok*), T.Maeda (*Ritsumeikan Univ.*) 14:00-15:40

- 2B3-1 A Study on the Ground Plane Size for a Balanced-fed Dual-band Antenna Fabricated in a Multi-layer Dielectric Substrate**
#Yoshitaka Nakamura and Tadahiko Maeda, *Ritsumeikan University, Japan*
- 2B3-2 A Triple Band Printed Monopole Antenna for WLAN/WiMAX Applications**
#Pichet Moeikham, Chatree Mahatthanajatuphat and Prayoot Akkaraekthalin, *King Mongkut's University of Technology North Bangkok, Thailand*
- 2B3-3 A Multi-Polarization Multi-Band Cross Spiral Antenna for Mobile Communication Devices**
#Mayumi Matsunaga⁽¹⁾ and Toshiaki Matsunaga⁽²⁾, ⁽¹⁾Ehime University, Japan, ⁽²⁾Fukuoka Institute of Technology, Japan
- 2B3-4 A Multiband Antenna with Double Y-shape Monopole and Modified Ground Plane**
#Narintra Srisoontorn, Chatree Mahatthanajatuphat and Prayoot Akkaraekthalin, *King Mongkut's University of Technology North Bangkok, Thailand*
- 2B3-5 2GHz/3.5GHz Dual-band Omni Directional Slend Antenna**
#Huilin Jiang and Taisuke Ihara, *NTT DOCOMO, INC., Japan*

Technical Program

October 31, 2012

2C1: Mobile and Indoor Propagation

Co-Chairs: T. Imai (NTT DOCOMO), A. Yamamoto (Panasonic) 09:00-10:40

- 2C1-1 UHF Wireless Communication Channel in a Tree Canopy**
Pobsook Sooksumrarn and #Monai Krairiksh, *King Mongkut's Institute of Technology Ladkrabang, Thailand*
- 2C1-2 Analysis of Angular Spread Characteristics of Mobile Radio Wave Dispersion through Foliage**
#Hung V. Le⁽¹⁾, Jun-ichi Takada⁽¹⁾, Mir Ghoraiishi⁽¹⁾, Chaymaly Phakasoum⁽¹⁾, Koshiro Kitao⁽²⁾ and Tetsuro Imai⁽²⁾, ⁽¹⁾*Tokyo Institute of Technology, Japan*, ⁽²⁾*NTT DOCOMO, INC., Japan*
- 2C1-3 Disconnection Time Improvement by Using Artificial Multi Reflectors for Millimeter-wave Indoor Communications**
#Hirokazu Sawada, Shunya Takahashi and Shuzo Kato, *Tohoku University, Japan*
- 2C1-4 Applicability to Different Environment of Path Loss Model with Low Antenna Height in Residential Area**
#Motoharu Sasaki, Wataru Yamada, Naoki Kita and Takatoshi Sugiyama, *NTT Corporation, Japan*
- 2C1-5 Numerical Estimations of the Propagation Characteristics of Wireless Links in High-speed Train Cars**
#Takashi Hikage⁽¹⁾, Masami Shirafune⁽¹⁾, Toshio Nojima⁽¹⁾, Wataru Yamada⁽²⁾ and Takatoshi Sugiyama⁽²⁾, ⁽¹⁾*Hokkaido University, Japan*, ⁽²⁾*NTT Access Network Service Systems Laboratories, Japan*

2C2: Mobile Channel Characterization and Modeling

Co-Chairs: N. Kita (NTT), M. Krairiksh (King Mongkut's Inst. of Tech. Ladkrabang) 11:00-12:40

- 2C2-1 Calibration Techniques for Fully Parallel 24 X 24 MIMO Sounder**
#Yuyuan Chang, Yohei Konishi, Minseok Kim and Jun-ichi Takada, *Tokyo Institute of Technology, Japan*
- 2C2-2 Multi-link Indoor MIMO Measurements at 11 GHz Using Scalable Wideband Channel Sounder**
#Yohei Konishi, Yuyuan Chang, Minseok Kim, Yuta Maruichi, Pham H. Van and Jun-ichi Takada, *Tokyo Institute of Technology, Japan*
- 2C2-3 MIMO Throughput Measurement in an Urban Area Using a LTE Mobile Terminal**
#Tutomu Sakata⁽¹⁾, Atsushi Yamamoto⁽¹⁾, Kim Olesen⁽²⁾, Jesper Ø. Nielsen⁽²⁾ and Gert F. Pedersen⁽²⁾, ⁽¹⁾*Panasonic Corporation, Japan*, ⁽²⁾*Aalborg University, Denmark*
- 2C2-4 Propagation Loss Properties in Case Human Bodies Exist between Transmitter and Receiver**
#Mitsuhiro Yokota⁽¹⁾, Kazuhisa Shiiya⁽¹⁾, Yoshichika Ohta⁽²⁾ and Teruya Fujii⁽²⁾, ⁽¹⁾*University of Miyazaki, Japan*, ⁽²⁾*Softbank Mobile Corp., Japan*
- 2C2-5 Capacity of MIMO System Using Polarimetric Antenna Elements**
#Tuan M. Dao and Seong-Ook Park, *KAIST, South Korea*

October 31, 2012

2C3: DOA

Co-Chairs: M. Fujimoto (Fukui Univ.), W. Kotterman (Ilmenau Univ. of Tech.) 14:00-15:40

- 2C3-1 High-Resolution and Low-cost DOA Estimation by Modified Root-SUMWE Method**
#Hiroki Ikenaga, Koichi Ichige and Hiroyuki Arai, *Yokohama National University, Japan*
- 2C3-2 Evaluation and Comparison of DOA Estimation Methods with Estimated Number of Signals**
#Kazuto Sugimoto, Nobuyoshi Kikuma, Hiroshi Hirayama and Kunio Sakakibara, *Nagoya Institute of Technology, Japan*
- 2C3-3 Evaluation of DOA Estimation Accuracy Using Spectrum Width**
#Yuuyou Jin, Mitoshi Fujimoto and Toshikazu Hori, *University of Fukui, Japan*
- 2C3-4 Location Estimation of Multiple Near-field Broadband Sources by Combined Use of DOA-matrix Method and SAGE Algorithm in Array Antenna Processing**
#Takahiro Hirano, Nobuyoshi Kikuma, Hiroshi Hirayama and Kunio Sakakibara, *Nagoya Institute of Technology, Japan*
- 2C3-5 Near-field Target Location Estimation by Using Khatri-Rao Product Array**
#Satoshi Shirai, Hiroyoshi Yamada and Yoshio Yamaguchi, *Niigata University, Japan*

2D1: High Frequency and Asymptotic Methods

Co-Chairs: K. Goto (Natl. Defence Academy), H. Matzer (Holon Inst. of Tech.) 09:00-10:40

- 2D1-1 A Uniform Asymptotic Solution for Reflected and Scattered Fields over Half-space Metamaterials**
#Toru Kawano⁽¹⁾ and Toyohiko Ishihara⁽²⁾, ⁽¹⁾*National Defense Academy, Japan*, ⁽²⁾*Retired from National Defense Academy, Japan*
- 2D1-2 Asymptotic Solutions of Transient Scattered Fields Excited by One of the Edges of a Curved Conducting Surface**
#Keiji Goto and Le H. Loc, *National Defense Academy, Japan*
- 2D1-3 Asymptotic Analysis Methods for Scattered Fields by a Coated Conducting Cylinder**
#Le H. Loc and Keiji Goto, *National Defense Academy, Japan*
- 2D1-4 Asymptotic Solutions for Transmitted Gaussian Beam through a Plane Dielectric Interface**
#Quang T. Dinh⁽¹⁾, Keiji Goto⁽¹⁾ and Toyohiko Ishihara⁽²⁾, ⁽¹⁾*National Defense Academy, Japan*, ⁽²⁾*Retired from National Defense Academy, Japan*
- 2D1-5 Application of the Complex Source Point Method for a Gaussian Beam Illumination of an Impedance Cylinder using UTD Concept**
#Titipong Lertwiriayaprapa⁽²⁾, Kittisak Phaeabua⁽¹⁾, Chuwong Phongcharoenpanich⁽¹⁾ and Monai Krairiksh⁽¹⁾, ⁽¹⁾*King Mongkut's Institute of Technology Ladkrabang, Thailand*, ⁽²⁾*King Mongkut's University of Technology North Bangkok, Thailand*

Technical Program

October 31, 2012

2D2:Scattering and Diffraction

Co-Chairs: K.Watanabe (*Fukuoka Inst. of Tech.*), T.Lertwiriyaprapa (*King Mongkut's Univ. of Tech. North Bangkok*) 11:00-12:40

- 2D2-1 The Localized and Enhanced Optical Near-field on the Asymmetric Metal-coated Dielectric Probe**
#Thu T. Ngo⁽¹⁾, Kazuo Tanaka⁽¹⁾, Masahiro Tanaka⁽¹⁾ and Chien D. Ngoc⁽²⁾, ⁽¹⁾*Gifu University, Japan*, ⁽²⁾*Hanoi University of Science and Technology, Vietnam*
- 2D2-2 Rigorous Analysis of Dipole Source Radiation in Cylindrical Bandgap Structures with Defects**
#Vakhtang Jandieri⁽¹⁾, Kiyotoshi Yasumoto⁽²⁾ and Young-Ki Cho⁽¹⁾, ⁽¹⁾*Kyungpook National University, South Korea*, ⁽²⁾*Nanjing Forestry University, China*
- 2D2-3 Electromagnetic Scattering Problem of Periodic Circular Cylinder Array Including an Impurity Cylinder**
#Koki Watanabe and Yoshimasa Nakatake, *Fukuoka Institute of Technology, Japan*
- 2D2-4 Scattering of Electromagnetic Waves by an Optically Controlled Subwavelength Slot Grating on a Dielectric Slab**
#Kazuo Nishimura, *Ryukoku University, Japan*
- 2D2-5 Plasmon and Periodicity Assisted Scattering and Absorption of Light by Finite Nanowire Gratings**
#Denys M. Natarov⁽¹⁾, Ronan Sauleau⁽²⁾ and Alexander I. Nosich⁽¹⁾, ⁽¹⁾*Institute of Radiophysics and Electronics of NAS of Ukraine, Ukraine*, ⁽²⁾*University of Rennes 1, France*

2D3:Inverse Problems

Co-Chairs: H.Miyashita (*Mitsubishi Electric*), M.Nishimoto (*Kumamoto Univ.*) 14:00-15:40

- 2D3-1 Detection Algorithm for Two Air Holes in Underground Using Particle Swarm Optimization**
#Atsushi Kusunoki, *Oita University, Japan*
- 2D3-2 An Application of Multi-objective Particle Swarm Optimization to Reconstruction of a Layered Dielectric Circular Cylinder**
#Kenichi Ishida, *Kyushu Sangyo University, Japan*
- 2D3-3 Accurate Image Expansion Method for Target Buried in Dielectric Medium Using Multi-static UWB Radar**
#Yoshihiro Niwa, Shouhei Kidera and Tetsuo Kirimoto, *University of Electro-Communications, Japan*
- 2D3-4 Image Reconstruction Theory of Electromagnetic Wave CT Based on Spatial Beam Sampling Characteristics**
#Yasumitsu Miyazaki, *Aichi University of Technology, Japan*
- 2D3-5 Target Response Extraction from Measured GPR Data**
#Masahiko Nishimoto, Daisuke Yoshida, Kohichi Ogata and Masayuki Tanabe, *Kumamoto University, Japan*

October 31, 2012

2E1:Wireless Power Transmission Technologies II

Co-Chairs: K.Fujimori (*Okayama Univ.*), H.Hirayama (*Nagoya Inst. of Tech.*) 09:00-10:40

- 2E1-1 Proposal of Electric Far Field Suppression Helical Antenna for High Efficiency WPT System**
#Koichi Tsunekawa, *Chubu University, Japan*
- 2E1-2 A Consideration of Helical Antennas for Coupled Resonant Wireless Power Transfer Using Equivalent Circuit**
#Tomohiro Amano, Hiroshi Hirayama, Nobuyoshi Kikuma and Kunio Sakakibara, *Nagoya Institute of Technology, Japan*
- 2E1-3 Orthogonal Array by Helical Dipoles for High Flexible Wireless Power Transmission**
#Takashi Uesaka and Hiroyuki Arai, *Yokohama National University, Japan*
- 2E1-4 Fractal Antenna for Wireless Power Transmission**
#Junki Oasa, Daiki Iwahori and Yoshihiko Kuwahara, *Shizuoka University, Japan*
- 2E1-5 AC Resistance of Copper Clad Aluminum Wires**
#Ning Guan⁽¹⁾, Chihiro Kamidaki⁽¹⁾, Takashi Shinmoto⁽¹⁾ and Ken'ichiro Yashiro⁽²⁾, ⁽¹⁾*Fujikura Ltd., Japan*, ⁽²⁾*Chiba Univ., Japan*

2E2:Wireless Power Transmission Technologies III

Co-Chairs: T.Hikage (*Hokkaido Univ.*), W.Yerazunis (*Mitsubishi Electric Research Labs*) 11:00-12:40

- 2E2-1 Consideration of Use of Arrayed Transmitting Coils in Wireless Power Transfer with Magnetically Coupled Resonance**
#Keishi Miwa, Junya Kaneda, Nobuyoshi Kikuma, Hiroshi Hirayama and Kunio Sakakibara, *Nagoya Institute of Technology, Japan*
- 2E2-2 Effect of Metal Plate on Position Error Tolerance in Wireless Power Transfer**
#Noriaki Ueda⁽¹⁾, Mitoshi Fujimoto⁽¹⁾, Toshikazu Hori⁽¹⁾, Takanobu Tabata⁽²⁾ and Satoshi Hori⁽²⁾, ⁽¹⁾*University of Fukui, Japan*, ⁽²⁾*Kojima Press Industry Co., Ltd., Japan*
- 2E2-3 Spatial Modulation Module Consisting of a Microstrip Array Antenna and Dual Scatterers for Wireless Power Transmission**
#Taihei Inoue, Kohei Hasegawa, Akira Saitou, Ryo Ishikawa and Kazuhiko honjou, *The University of Electro-Communications, Japan*
- 2E2-4 Wireless Reactive Networks -- A Paradigm for Near Field Coupled Antenna Systems --**
#Naoki Inagaki⁽¹⁾, Takanobu Tabata⁽²⁾ and Satoshi Hori⁽²⁾, ⁽¹⁾*Nagoya Institute of Technology, Japan*, ⁽²⁾*Kojima Press Industry Co., Ltd., Japan*
- 2E2-5 Beam Focused Slot Antenna for Microchip Implants**
#Yuji Tanabe, Hang Wong, Sanghoek Kim, John S. Ho and Ada S.Y. Poon, *Stanford University, United States*

Technical Program

October 31, 2012

2E3:Medical Applications II

Co-Chairs: Y.Kuwahara (*Shizuoka Univ.*), A.S.Mohan (*Univ. of Tech., Sydney*) 14:00-15:40

- 2E3-1 Breast Cancer Localization in Three Dimensions Using Time Reversal DORT Method**
#Md Delwar Hossain and Ananda S. Mohan, *University of Technology Sydney, Australia*
- 2E3-2 Dual Layer UWB Dielectric Probe for Bistatic Breast Cancer Detection System**
#Laxmikant Minz, Nikolai Simonov, Soon IK Jeon and Jong Moon Lee, *ETRI, South Korea*
- 2E3-3 Microwave Imaging for Breast Cancer Detection Using Vivaldi Antenna Array**
Fan Yang and #Ananda S. Mohan, *University of Technology, Sydney, Australia*
- 2E3-4 Clinical Setup of Microwave Mammography : Phase 2**
#Yusuke Nishina⁽¹⁾, Saori Miura⁽¹⁾, Yoshihiko Kuwahara⁽¹⁾, Harumi Sakahara⁽²⁾ and Hiroyuki Ogura⁽²⁾, ⁽¹⁾*Shizuoka University, Japan*, ⁽²⁾*Hamamatsu University School of Medicine, Japan*
- 2E3-5 About Equivalency of Two Methods of Information Gathering in Microwave Imaging**
#Nikolai A. Simonov, Soon-Ik Jeon, Seong-Ho Son, Jong-Moon Lee and Hyuk-Je Kim, *ETRI, South Korea*

October 31, 2012

POS1:Poster Session I

16:00-17:40

- POS1-1 A Compact Monopole Antenna for WWAN/LTE Applications**
#Wen-Shan Chen⁽¹⁾, Wei-Chiang Jhang⁽¹⁾ and Bau-Yi Lee⁽²⁾, ⁽¹⁾*Southern Taiwan University, Taiwan*, ⁽²⁾*Tung Fang Design University, Taiwan*
- POS1-2 Design of Compact and Low Mutual-coupling Quasi-Yagi Antenna Using Stepped-width Resonator**
#Wen-Hua Tu⁽¹⁾, Shi-Jie Zeng⁽²⁾ and Yu-Hsiang Tseng⁽¹⁾, ⁽¹⁾*National Central University, Taiwan*, ⁽²⁾*Quanta Computer Inc, Taiwan*
- POS1-3 TE-monopole Radiation Pattern DRA for UAVs**
#Derek Gray and Bame R. Motlhabane, *University of Nottingham, Malaysia*
- POS1-4 Placement of Broad Beam Beacon Antennas within Wing of HALE UAV**
#Derek Gray, *University of Nottingham, Malaysia*
- POS1-5 Design of a Multiband Antenna with LTE B13 MIMO Characteristic in Mobile Handsets**
#Seongcheol Lee⁽¹⁾, Jae Sik Kim⁽²⁾ and Young Joong Yoon⁽²⁾, ⁽¹⁾*LG Electronics, South Korea*, ⁽²⁾*Yonsei University, South Korea*
- POS1-6 A Switching Order Optimization for an Adaptive Array with a Single Receiver Using Time-division Multiplexing**
#Ken-ici Koga^(1,2), Nobuyoshi Kikuma⁽²⁾, Hiroshi Hirayama⁽²⁾, Kunio Sakakibara⁽²⁾, Tatsuya Koike⁽¹⁾, Hiroaki Iwashita⁽¹⁾ and Yoshiyuki Mizuno⁽¹⁾, ⁽¹⁾*Tokai Rika Co., Ltd., Japan*, ⁽²⁾*Nagoya Institute of Technology, Japan*
- POS1-7 Diversity Effect of the Adaptive Antenna Using Blind Algorithm**
#Sindhuja Patchaikani and Yoshihiko Kuwahara, *Shizuoka University, Japan*
- POS1-8 Development of Human Centric Antenna System for Digital Terrestrial Broadcasting**
#Yuma Ono and Yoshinobu Okano, *Tokyo City University, Japan*
- POS1-9 Measurement Characteristics of LTE-MIMO Antenna for 4G Mobile Handy Terminal**
#Chan Jin Park⁽¹⁾, Dea Hwan Park⁽²⁾, Kyeong Sik Min⁽¹⁾, Jeong Won Kim⁽¹⁾ and In Hwan Kim⁽¹⁾, ⁽¹⁾*Korea Maritime University, South Korea*, ⁽²⁾*HCT Ltd., South Korea*
- POS1-10 A Horizontally Polarized Omni-directional Antenna**
#Takayuki Shimizu, Takeda Shigeki and Kenichi Kagoshima, *Ibaraki University, Japan*
- POS1-11 A Half-loop Antenna with Dual Band-notched Characteristics Using Three Parallel Line Elements**
#Kenichiro Imai, Masanobu Suzuki and Manabu Sawada, *DENSO Corporation, Japan*
- POS1-12 Ka-band Beam Switchable Fresnel Reflector**
#Akiko Kohmura^(1,2), Jérôme Lanteri⁽¹⁾, Fabien Ferrero⁽¹⁾, Claire Migliaccio⁽¹⁾, Shunichi Futatsumori⁽²⁾ and Naruto Yonemoto⁽²⁾, ⁽¹⁾*LEAT, France*, ⁽²⁾*ENRI, Japan*
- POS1-13 A Novel UWB Impedance Matching for Planar Circular Monopole Antenna via Meandering the Microstrip Feed Line**
#Yasser A. Fadhel⁽¹⁾ and Khalil H. Sayidmarie⁽²⁾, ⁽¹⁾*Institute of Technology, Mosul, Iraq*, ⁽²⁾*University of Mosul, Iraq*
- POS1-14 Meander Patch Effect on a Simple Printed Dipole Antenna**
#Pei Cheng Ooi and Krishnasamy T. Selvan, *The University of Nottingham Malaysia Campus, Malaysia*

Technical Program

October 31, 2012

POS1:Poster Session I

16:00-17:40

- POS1-15 Design of Modified Dual Mode Horn Antenna to Improve E/H-plane Radiation Pattern Symmetry**
#Jae Sik Kim⁽¹⁾, Ji Hwan Yoon⁽¹⁾, Young Joong Yoon⁽¹⁾, Woo-Sang Lee⁽²⁾ and Chang-gu Kim⁽²⁾,
⁽¹⁾Yonsei University, South Korea, ⁽²⁾Agency for Defense Development, South Korea
- POS1-16 Reflectarray Element for Beam Scanning with Polarization Flexibility**
#Eduardo Carrasco⁽¹⁾, Mariano Barba⁽²⁾, José Encinar⁽²⁾ and Julien Perruisseau-Carrier⁽¹⁾,
⁽¹⁾Ecole Polytechnique Federale de Lausanne, Switzerland, ⁽²⁾Universidad Politecnica de Madrid, Spain
- POS1-17 Design X-circular Polarized with Slanted Rectangular Slot by Using Single Port**
Mohamad Zoinol Abidin Abd Aziz⁽¹⁾, Nurul Alyaa Diyana Ahmad Mufit⁽¹⁾, Mohd Kadim Suaidi⁽¹⁾,
Mohd. Kamal A. Rahim⁽²⁾ and #Mohamad Ramlee Kamaruddin⁽²⁾, ⁽¹⁾Universiti Teknikal Malaysia Melaka, Malaysia, ⁽²⁾Universiti Teknologi Malaysia, Malaysia
- POS1-18 L-probe Fed Stacked Rectangular Microstrip Antenna combined with Ring Antenna for Triple Band (GPS/VICS/ETC) Operation in ITS**
#Daisuke Tanaka, Takafumi Fujimoto and Takashi Takenaka, Nagasaki University, Japan
- POS1-19 Super Wide Band Wearable Antenna: Assessment of the Conformal Characteristics in terms of Impedance Matching and Radiation Properties**
#Shaad Mahmud, Shuvashis Dey and Nandita Saha, American International University-Bangladesh, Bangladesh
- POS1-20 Current Distributions and Radiation Characteristics of a Bent Unbalanced Dipole Antenna with Semicircular and Trapezoidal Elements for Ultra Wideband Radio**
#Yusuke Akiyama⁽¹⁾, Fukuro Koshiji⁽¹⁾ and Kohji Koshiji⁽²⁾, ⁽¹⁾Kokushikan University, Japan, ⁽²⁾Tokyo University of Science, Japan
- POS1-21 Design of the UWB Antenna Using Ring Resonator**
#Seung-Sik Lee, Jung-Nam Lee, Kwang-Chun Lee and Sang-Sung Choi, ETRI, South Korea
- POS1-22 Planar Arc-shaped Monopole Antenna with Broadband Operation for UWB System**
#Jui-Han Lu, Chih-Hsuan Yeh and Hai-Ming Chin, National Kaohsiung Marine University, Taiwan
- POS1-23 Application of Single Point Fed Wide Band Circularly Polarized Coplanar Antenna**
#Kanya Hirabayashi⁽¹⁾ and Masanobu Kominami⁽²⁾, ⁽¹⁾Central Glass Co., Ltd., Japan, ⁽²⁾Osaka Electro-Communication University, Japan
- POS1-24 Dual Band Coupled-fed MIMO Antennas for WLAN Application**
#Wen-Hsiu Hsu⁽¹⁾, Chi-Hsiung Huang⁽¹⁾, Shan-Cheng Pan⁽¹⁾ and Chia-Lun Tang⁽²⁾, ⁽¹⁾HSU-TE University, Taiwan, ⁽²⁾Auden Techno Corp., Taiwan
- POS1-25 Compact Metamaterial-inspired Broadband Monopole Antenna for WLAN/WiMAX Applications**
#Hsin-Lung Su⁽¹⁾ and Wen Po Ho⁽²⁾, ⁽¹⁾National Pingtung Institute of Commerce, Taiwan, ⁽²⁾Micro-Star INTL CO., LTD., Taiwan

October 31, 2012

POS1:Poster Session I

16:00-17:40

- POS1-26 Mean Effective Gain Calculation in Realistic Environments based on Ray-tracing**
#Hyung-ju Kim and Noh-Hoon Myung, Korea Advanced Institute of Science and Technology, South Korea
- POS1-27 Identification of the Scale-free Interval in HF Radar Sea Clutter Correlation Dimension Calculation**
#Chunlei Yi, Zhenyuan Ji, Junhao Xie and Yang Li, Harbin Institute of Technology, China
- POS1-28 Verification of the Sea Surface Radar Models from Collocated Radar Observations and Stereo-photo Imaging**
#Yury Yurovsky, Mariya Kosnik, Vladimir Malinovsky and Vladimir Dulov, Marine Hydrophysical Institute of National Academy of Sciences of Ukraine, Ukraine
- POS1-29 Software Analysis of RF Interference Effect on the GPS Receiver**
#Ji-Hoon Park and Noh-Hoon Myung, Korea Advanced Institute of Science and Technology, South Korea
- POS1-30 Modified HHT Analysis of Micro-Doppler Signatures Scattered from Rotating Flat Blades**
#Ji-Hoon Park⁽¹⁾, Ik-Hwan Choi⁽²⁾ and Noh-Hoon Noh⁽¹⁾, ⁽¹⁾Korea Advanced Institute of Science and Technology, South Korea, ⁽²⁾Agency for Defense Development, South Korea
- POS1-31 Correction of Platform Motion Effects in Airborne Downward-looking Thinned Array 3D SAR**
Wen Hong^(1,2), Xueming Peng^(1,2,3), #Weixian Tan^(1,2), Yanping Wang^(1,2) and Yirong Wu^(1,2), ⁽¹⁾Institute of Electronics, Chinese Academy of Sciences, China, ⁽²⁾Science and Technology on Microwave Imaging Laboratory, China, ⁽³⁾Graduate University of Chinese Academy of Sciences, China
- POS1-32 Radar Imaging by Using GTD Near-field Model and Antenna Array-factor**
#Hirokazu Kobayashi, Mao Inami, Sang-Eun Park, Yoshio Yamaguchi, Gulab Singh and Yi Cui, Niigata University, Japan
- POS1-33 Time Series SAR Polarimetric Analysis of Rice Crop Based on Four-component Scattering Decomposition**
#Tzu-Yu Cheng⁽¹⁾, Chih-Yuan Chu⁽¹⁾, Kun-Shan Chen⁽¹⁾, Yoshio Yamaguchi⁽²⁾ and Jong-Sen Lee⁽¹⁾,
⁽¹⁾National Central University, Taiwan, ⁽²⁾Niigata University, Japan
- POS1-34 Fundamental Study on Resolution Enhancement of Three-dimensional Imaging in SAR Tomography**
#Toshihiro Yamada, Hiroyoshi Yamada and Yoshio Yamaguchi, Niigata University, Japan
- POS1-35 Fully Isotropic Singularity-spreading Phase Unwrapping**
#Gen Oshiyama and Akira Hirose, The University of Tokyo, Japan
- POS1-36 Propagation Measurements in a Wide Range of Elevation Angles Using a Remote-controlled Airship**
#Milan Kvicera and Pavel Pechac, Czech Technical University in Prague, Czech Republic
- POS1-37 Electromagnetic Power Transmission through Two Circular Apertures in Parallel Conducting Planes Penetrated by a Long Cylinder**
#Young Seung Lee and Seung Keun Park, Electronics and Telecommunications Research Institute, South Korea

Technical Program

October 31, 2012

POS1:Poster Session I

16:00-17:40

- POS1-38 Three-dimensional FDTD Analysis of Radio Wave Propagation at Intersection Surrounded by Compound Walls in Residential Area for Inter-vehicle Communications Using 720MHz band**
#Kenji Taguchi, Ryosuke Aoyama, Suguru Imai and Tatsuya Kashiwa, *Kitami Institute of Technology, Japan*
- POS1-39 Analysis of Multipath Propagation Characteristics for Digital Terrestrial Broadcasting in UHF Band on Urban Street Using Ray Tracing Method**
#Suguru Imai⁽¹⁾, Kenji Taguchi⁽¹⁾, Tatsuya Kashiwa⁽¹⁾, Hiroshi Kuribayashi⁽²⁾ and Satoru Komatsu⁽²⁾, ⁽¹⁾*Kitami Institute of Technology, Japan*, ⁽²⁾*Honda R&D Co., Ltd., Japan*
- POS1-40 Transmission Characteristics of a Thin Metal Film Sandwiched between Dielectric Gratings**
Yuu Wakabayashi, #Takato Fukui, Junji Yamauchi and Hisamatsu Nakano, *Hosei University, Japan*
- POS1-41 The Convergence Property of the Method of Moment for Dipole Antenna Using New Segmentation.**
#Saki Arahata, Toru Uno and Takuji Arima, *Tokyo University of Agriculture & Technology, Japan*
- POS1-42 Grating and Plasmon Resonances in the Light Scattering by Finite Silver Nanostrip Grating**
#Olga V. Shapoval⁽¹⁾, Ronan Sauleau⁽²⁾ and Alexander I. Nosich⁽¹⁾, ⁽¹⁾*Institute of Radiophysics and Electronics NASU, Ukraine*, ⁽²⁾*University of Rennes 1, France*
- POS1-43 Research of the Indoor Reflection Wave Control with Phase Control Wall**
#Ryokei Kitta and Yoshinobu Okano, *Tokyo City University, Japan*
- POS1-44 Multilayer Rotman Lens Fed Antenna Array for System Packaging**
#Jaeheung Kim, Woosung Lee and Young Joong Yoon, *Yonsei University, South Korea*
- POS1-45 Wearable Multi-band Antenna with Tuning Function for On-body and Off-body Communications**
#Chia-Hsien Lin, Kazuyuki Saito, Masaharu Takahashi and Koichi Ito, *Chiba University, Japan*
- POS1-46 Equivalent Circuit of Intra-body Communication Channels Based on a Lossy Conductor Model**
#Nozomi Haga⁽¹⁾ and Koichi Ito⁽²⁾, ⁽¹⁾*Gunma University, Japan*, ⁽²⁾*Chiba University, Japan*
- POS1-47 Whole-body Averaged SAR Measurements of Postured Phantoms Exposed to E-/H-polarized Plane-wave Using Cylindrical Field Scanning**
#Yoshifumi Kawamura⁽¹⁾, Takashi Hikage⁽¹⁾, Toshio Nojima⁽¹⁾, Tomoaki Nagaoka⁽²⁾ and Soichi Watanabe⁽²⁾, ⁽¹⁾*Hokkaido University, Japan*, ⁽²⁾*National Institute of Information and Communications Technology, Japan*
- POS1-48 Evaluation of SAR around an Implanted Cardiac Pacemaker Caused by Mobile Radio Terminal**
#Yuta Endo⁽¹⁾, Kazuyuki Saito^(1,2), Soichi Watanabe⁽²⁾, Masaharu Takahashi⁽¹⁾ and Koichi Ito⁽¹⁾, ⁽¹⁾*Chiba University, Japan*, ⁽²⁾*National Institute of Information and Communications Technology, Japan*
- POS1-49 Construction of a Realistic Calculation Model of a Flip Phone for SAR Evaluations**
#Kensuke Tanaka⁽¹⁾, Akihiro Tateno⁽¹⁾, Kazuyuki Saito⁽²⁾, Tomoaki Nagaoka⁽²⁾, Masaharu Takahashi⁽¹⁾ and Koichi Ito⁽¹⁾, ⁽¹⁾*Chiba University, Japan*, ⁽²⁾*National Institute of Information and Communications Technology, Japan*

October 31, 2012

POS1:Poster Session I

16:00-17:40

- POS1-50 Effects of Dipole Angle Variation at 900MHz in Frontal Phantom Face to Specific Absorption Rate**
#Mohd Hafizuddin Mat, Mohd Fareq Abd. Malek and Muhammad Solihin Zukefli, *Universiti Malaysia Perlis, Malaysia*
- POS1-51 Whole-body Averaged SAR Measurements for Small Phantom by Calorimetric Method**
#Takuya Akiyama^(1,2), Kanako Wake⁽²⁾, Takuji Arima^(1,2), Soichi Watanabe⁽²⁾ and Toru Uno⁽¹⁾, ⁽¹⁾*Tokyo University of Agriculture and Technology, Japan*, ⁽²⁾*National Institute of Information and Communications Technology, Japan*
- POS1-52 Analysis of Mushroom-like EBG Structure and UC-EBG for SAR Reduction**
#Nurul Hafizah Mohd Hanafi^(1,2), Mohammad Tariqul Islam⁽²⁾ and Norbahiah Misran⁽²⁾, ⁽¹⁾*Universiti Tun Hussein Onn Malaysia, Malaysia*, ⁽²⁾*Universiti Kebangsaan Malaysia, Malaysia*
- POS1-53 Whole Body SAR Measurement Technique by Using Wheeler Cap Method for Human Head Size Phantom**
#Takuji Arima and Toru Uno, *Tokyo University of Agriculture and Technology, Japan*
- POS1-54 Low Frequency Emission Simulation Using 3D Electromagnetic Solver Based on CISPR25**
#Chihiro Ueda, *AET INC. Japan*
- POS1-55 The Effective Design Approach of Radar Absorbing Leading Edge Structure of Airfoil**
#Won-Ho Choi⁽¹⁾, Hong-Kyu Jang⁽¹⁾, Jae-Hwan Shin⁽¹⁾, Tae-Hoon Song⁽¹⁾, Jin-Kyu Kim⁽¹⁾, Jin-Bong Kim⁽²⁾, Young-Sik Joo⁽³⁾ and Chun-Gon Kim⁽¹⁾, ⁽¹⁾*Korea Advanced Institute of Science and Technology, South Korea*, ⁽²⁾*Korea Institute of Materials Science, South Korea*, ⁽³⁾*Agency for Defense Development, South Korea*
- POS1-56 Pedestrian-to-vehicle Communication Access Method and Field Test Results**
#Makoto Nagai, Ken Nakaoka and Yoshiharu Doi, *Panasonic Corporation, Japan*
- POS1-57 A Study on Locations of Electrical Discharge in a Motor**
#Kenichi Nakayama, Yukari Matsutake, Takahisa Yanagisawa, Shigeki Takeda and Kenichi Kagoshima, *Ibaraki University, Japan*
- POS1-58 Experimental Study for DBF and Channelizer for Satellite/Terrestrial Integrated Mobile Communication System**
#Yoshiyuki Fujino, Hiroyuki Tsuji, Norio Komiyama and Teruaki Orikasa, *National Institute of Informaion and Communications Technology, Japan*
- POS1-59 Study of Indirect Lightning Effects on an Airborne Ultra Shortwave Antenna**
#Jianqiang Wang⁽¹⁾, Shuguo Xie⁽¹⁾ and Hui Guo⁽²⁾, ⁽¹⁾*Beijing University of Aeronautics and Astronautics, China*, ⁽²⁾*Harbin Engineering University, China*
- POS1-60 Evaluation of Heating Characteristics of Microwave Thermal Therapy Using Biliary Stent Fed by Coaxial Probe**
#Hiroshi Itakura, Kazuyuki Saito, Masaharu Takahashi and Koichi Ito, *Chiba University, Japan*
- POS1-61 Development of the Coagulation Device by Microwave Energy for Biological Tissue.**
#Mizuki Inoue, Kazuyuki Saito, Masaharu Takahashi and Koichi Ito, *Chiba University, Japan*

Technical Program

November 1, 2012

3A1:MIMO and Cooperative Communication Technologies II

Co-Chairs: S.Obayashi (*Toshiba*), N.Jalden (*Ericsson Research*) 09:00-10:40

- 3A1-1 Evolution of Mobile Broadband and Smart-phones - LTE-A Technologies and New Antenna Era -**
#Narumi Umeda, *NTT DOCOMO, INC. Japan*
- 3A1-2 An MMI based Adaptive Modulation and Coding for Cooperative MIMO-OFDM in Frequency Selective Channels**
#Masayuki Miyashita, Manabu Mikami and Hitoshi Yoshino, *Softbank Mobile Corp., Japan*
- 3A1-3 Elimination of Wireless Service Blind Spot by Co-operation between Mobile Terminals**
#Kazuhiro Hashiba, Mitoshi Fujimoto and Toshikazu Hori, *University of Fukui, Japan*
- 3A1-4 Performance Evaluation of D3LS and NCLS Smart Antenna in Mobile Communications**
#Akkarat Boonpoonga⁽¹⁾, Phichet Nilswan⁽²⁾, Jukkrit Tagapanij⁽²⁾ and Phaophak Sirisuk⁽³⁾,
⁽¹⁾King Mongkut's University of Technology North Bangkok, Thailand, ⁽²⁾Mahanakorn University of Technology, Thailand, ⁽³⁾King Mongkut's Institute of Technology Ladkrabang, Thailand

3A2:New Trends in MIMO Systems I

Co-Chairs: B.Lau (*Lund Univ.*), K.Ogawa (*Toyama Univ.*) 11:00-12:40

- 3A2-1 LTE-advanced 8x8 MIMO Measurements in an Indoor Scenario**
Karl Werner, Henrik Asplund, Daniel V.P. Figueiredo, #Niklas Jaldén and Björn Halvarsson, *Ericsson AB, Sweden*
- 3A2-2 A Method for Controlling Phase Difference between Propagation Channels for Short-range MIMO Transmission**
#Kazumitsu Sakamoto, Ken Hiraga, Tomohiro Seki, Tadao Nakagawa and Kazuhiro Uehara, *NTT Corporation, Japan*
- 3A2-3 Effect of Vertical Angle Spread of Multi-cluster on MIMO-OTA Spatial Channel Emulation**
#Shuichi Obayashi⁽¹⁾, Takafumi Ohishi⁽¹⁾, Ippei Kashiwagi⁽²⁾ and Yoshio Karasawa⁽³⁾,
⁽¹⁾Corporate Research & Development Center, Toshiba, Japan, ⁽²⁾Digital Products & Services Company, Toshiba, Japan, ⁽³⁾The University of Electro-Communications, Japan
- 3A2-4 Secure Communications Using Interference Alignment in MIMO Interference Channels**
#Satoshi Sasaki, Takayuki Shimizu, Hisato Iwai and Hideichi Sasaoka, *Doshisha University, Japan*
- 3A2-5 Comparison of 4x1 SIMO and 2x2 MIMO Sensors Based on Measured Propagation Channels**
#Keita Ushiki⁽¹⁾, Kentaro Nishimori⁽¹⁾ and Naoki Honma⁽²⁾, ⁽¹⁾Niigata University, Japan, ⁽²⁾Iwate University, Japan

November 1, 2012

3A3:New Trends in MIMO Systems II

Co-Chairs: K.Nishimori (*Niigata Univ.*), D.Manteuffel (*Univ. of Kiel*) 14:00-15:40

- 3A3-1 Compact Antenna Arrangement for MIMO Sensor in Indoor Environment**
#Naoki Honma⁽¹⁾, Kentaro Nishimori⁽²⁾, Hiroaki Sato⁽¹⁾ and Yoshitaka Tsunekawa⁽¹⁾, ⁽¹⁾Iwate University, Japan, ⁽²⁾Niigata University, Japan
- 3A3-2 Compact MIMO Antenna Arrays Using Metamaterial Hybridization Band Gaps**
#Geoffroy Lerosey⁽¹⁾, Christian Leray⁽²⁾, Fabrice Lemoult⁽¹⁾, Julien de Rosny⁽¹⁾, Arnaud Tourin⁽¹⁾ and Mathias Fink⁽¹⁾, ⁽¹⁾CNRS, France, ⁽²⁾Time Reversal Communications, France
- 3A3-3 Compact UWB MIMO Antenna for USB Dongles with Angle and Polarization Diversity**
#Buon Kiong Lau⁽¹⁾, Shuai Zhang^(2,3), Anders Sunesson⁽⁴⁾ and Sailing He^(2,3), ⁽¹⁾Lund University, Sweden, ⁽²⁾Royal Institute of Technology, Sweden, ⁽³⁾Zhejiang University, China, ⁽⁴⁾European Spallation Source ESS AB, Sweden
- 3A3-4 The Impact of a Matching Circuit of a Handset MIMO Antenna on the Wideband Channel Capacity**
#Takeshi Kitamura, Kazuhiro Honda and Koichi Ogawa, *Toyama University, Japan*
- 3A3-5 Increasing the Volume of Test Zones in Anechoic Chamber MIMO Over-the-air Test Set-ups**
#Wim Kotterman, *Ilmenau University of Technology, Germany*

3B1:Multiband / Wideband Antennas II

Co-Chairs: D.Chang (*Oriental Inst. of Tech.*), M.Matsunaga (*Ehime Univ.*) 09:00-10:40

- 3B1-1 12/21GHz Dual-band Feed Antenna for Satellite Broadcasting Receiving Reflector Antenna**
#Masafumi Nagasaka, Susumu Nakazawa and Shoji Tanaka, *Japan Broadcasting Corporation, Japan*
- 3B1-2 A Wideband, Low Profile P- and Ku-band Dual Polarized Shared Aperture Antenna**
#Shi Gang Zhou and Tan Huat Chio, *National University of Singapore, Singapore*
- 3B1-3 Dual-wideband and Dual-polarized Shared Aperture Antenna**
#Shi Gang Zhou and Tan Huat Chio, *National University of Singapore, Singapore*
- 3B1-4 Triple Band Spiral Antenna for Non-Linear Junction Detector**
#Jeong-won Kim, Kyeong-sik Min, In-hwan Kim and Chan-jin Park, *Korea Maritime University, South Korea*
- 3B1-5 A Novel Metamaterial Microstrip Antenna of Broadband and High-Gain**
#Long Wang and Joshua Le-wei Li, *University of Electronic Science and Technology of China, China*

Technical Program

November 1, 2012

3B2:Reconfigurable Antennas

Co-Chairs: Y.Kimura (*Saitama Univ.*), J.Lu (*Natl. Kaohsiung Marine Univ.*) 11:00-12:40

- 3B2-1 Frequency Control of Multi-band Ring Microstrip Antennas with Variable Reactance Circuits**
#Shuhei Sato, Sakuyoshi Saito and Yuichi Kimura, *Saitama University, Japan*
- 3B2-2 PIN Diodes Slotted Microstrip Antenna as Frequency Reconfigurable Antenna**
#Bambang S. Nugroho, Fitri Y. Zulkifli and Eko T. Rahardjo, *Universitas Indonesia, Indonesia*
- 3B2-3 Novel Reconfigurable Loop Antenna for Compact Mobile Phone**
Dau-Chyrh Chang and #Hsin-Chi Li, *Oriental Institute of Technology, Taiwan*
- 3B2-4 Frequency Reconfigurable Substrate Integrated Waveguide Antenna**
#Somarith Sam and Sungjoon Lim, *Chung-Ang University, South Korea*
- 3B2-5 Ultra-Wide to Narrow Band Agile Reconfigurable Frequency Microstrip Slot Antenna**
#Majid Huda, Rahim Mohamad Kamal, Hamid Mohamad Rijal and Ismail Mohd Faizal, *Universiti Teknologi Malaysia, Malaysia*

3B3: UWB Antenna

Co-Chairs: Y.Nishioka (*Mitsubishi Electric*), L.Guo (*Natl. Univ. of Singapore*) 14:00-15:40

- 3B3-1 A Study of a Leaf-shaped Bowtie Slot Antenna for UWB Applications**
#Soh Fujita, Manabu Yamamoto and Toshio Nojima, *Hokkaido University, Japan*
- 3B3-2 Planar Cone-shaped Monopole Antenna with Tapered Ground for UWB Application**
Hashimu U. Iddi⁽¹⁾, #Muhammad R. Kamarudin⁽¹⁾, Tharek A. Rahman⁽¹⁾ and Raimi Dewan⁽¹⁾,
⁽¹⁾*Universiti Teknologi Malaysia, Malaysia*, ⁽²⁾*University of Dar es Salaam, Tanzania*
- 3B3-3 A Wideband Antenna with Fan-shaped and Trapezoidal Elements for Ultra Wideband Radio**
#Fukuro Koshiji⁽¹⁾, Yusuke Akiyama⁽¹⁾, Shunsuke Itaya⁽¹⁾ and Kohji Koshiji⁽²⁾, ⁽¹⁾*Kokushikan University, Japan*, ⁽²⁾*Tokyo University of Science, Japan*
- 3B3-4 Analysis of SLL at UWB Scanning Array Based on TTD BFN**
#Dau-Chyrh Chang and Chao-Hsiang Liao, *Oriental Institute of Technology, Taiwan*
- 3B3-5 Propeller-shaped Ultra-wideband Planar Adaptive Antenna**
#Erika Takemoto and Akira Hirose, *The University of Tokyo, Japan*

November 1, 2012

3C1:Array Antennas

Co-Chairs: H.Shoki (*Toshiba*), K.Min (*Korea Maritime Univ.*) 09:00-10:40

- 3C1-1 A Compact 8-element Antenna Array for GPS Digital Beamforming**
#Lu Guo, Peng-Khiang Tan and Tan-Huat Chio, *National University of Singapore, Singapore*
- 3C1-2 Design of A Shared Arm Slot Array for Imaging Radar Applications**
#Woong Kang⁽¹⁾, Dong Won Yang⁽²⁾, Seongjoon Kim⁽¹⁾ and Kangwook Kim⁽¹⁾, ⁽¹⁾*Gwangju Institute of Science and Technology, South Korea*, ⁽²⁾*Agency for Defense Development, South Korea*
- 3C1-3 Linear Polarization Switchable Microstrip Array Antenna Using Magic-T Circuit**
#Tomoya Onishi, Md. A. Hossain, Eisuke Nishiyama and Ichihiko Toyoda, *Saga University, Japan*
- 3C1-4 Adaptive Genetic Algorithm for Damaged Beam Pattern Re-synthesis of Active Phased Array**
#Jung-Hoon Han, Sang-Ho Lim and Noh-Hoon Myung, *Korea Advanced Institute of Science and Technology, South Korea*
- 3C1-5 Designing an Arbitrary Tilt Angle of Dual-beam Pattern by Using Genetic Algorithm**
#Yuko Rikuta and Yoshio Ebine, *Nihon Dengyo Kosaku Co., Ltd., Japan*

3C2:Metamaterial Antennas I

Co-Chairs: T.Hori (*Fukui Univ.*), M.Islam (*Univ. Kebangsaan Malaysia*) 11:00-12:40

- 3C2-1 A Metasurface Antenna for Space Application**
#Gabriele Minatti⁽¹⁾, Stefano Maci⁽¹⁾, Paolo De Vita⁽²⁾, Angelo Freni⁽³⁾ and Marco Sabbadini⁽⁴⁾,
⁽¹⁾*University of Siena, Italy*, ⁽²⁾*Ingegneria dei Sistemi, IDS s.p.a, Italy*, ⁽³⁾*University of Florence, Italy*, ⁽⁴⁾*European Space Agency, Netherlands*
- 3C2-2 Enhance Efficiency of High Frequency Antennas Using Lossy Metamaterials**
#Florent Jangal and Nicolas Bourey, *Onera - The French Aerospace Lab, France*
- 3C2-3 A C-Band High-gain Microstrip Antenna Using Negative Permeability Metamaterial on Low Temperature Co-fire Ceramic (LTCC) Substrate**
#Zhenzhe Liu and Peng Wang, *University of Electronic Science and Technology of China, China*
- 3C2-4 A Novel Textile Antenna for Passive UHF RFID Tag**
#Rita Saba⁽¹⁾, Thibaut Deleruyelle⁽²⁾, Juvenal Alarcon⁽¹⁾, Michel Al Khoury⁽¹⁾ and Philippe Pannier⁽¹⁾,
⁽¹⁾*IM2NP, France*, ⁽²⁾*IM2NP/ISEN, France*
- 3C2-5 Design of Active Frequency Selective Surface for Electronically Steerable Antenna**
#Liang Zhang, Guohui Yang and Qun Wu, *Harbin Institute of Technology, China*

Technical Program

November 1, 2012

3C3:Metamaterial Antennas II

Co-Chairs: F.Jangal (ONERA), R.W.Ziolkowski (Univ. of Arizona) 14:00-15:40

- 3C3-1 Single-element ZOR Antenna with Circularly Polarization Using CRLH Transmission Line**
#Mitsuhiro Habuta, Yuto Maejima, Kazuhiro Kitatani and Yasuyuki Okamura, *Osaka University, Japan*
- 3C3-2 Composite Right/Left-handed Leaky-wave Antenna with Polarization Control**
#Kohei Nishishita, Kazuhiro Kitatani and Yasuyuki Okamura, *Osaka University, Japan*
- 3C3-3 Size Reduction of Microstrip Antenna with CRLH-TL Metamaterial and Partial Ground Plane Techniques**
#Eko T. Rahardjo, Willy Yuswardi and Fitri Y. Zulkifli, *Universitas Indonesia, Indonesia*
- 3C3-4 Verification of On-vehicle Media Applicability of a Metamaterial Antenna**
#Kazushi Kawaguchi⁽¹⁾, Yuji Sugimoto⁽¹⁾, Takafumi Nishi⁽²⁾ and Ichiro Shigetomi⁽²⁾,
⁽¹⁾NIPPON SOKEN, Inc., Japan, ⁽²⁾DENSO Corporation, Japan
- 3C3-5 Patch Antenna Miniaturization Using Artificial Magneto-dielectric Metasubstrate**
#Sarawuth Chaimool, Atcharaporn Pinsakul and Prayoot Akkaraekthalin, *King Mongkut's university of Technology North Bangkok, Thailand*

3D1:Computational Electromagnetic I

Co-Chairs: B.M.Kolundzija (Univ. of Belgrade), S.Ohnuki (Nihon Univ.) 09:00-10:40

- 3D1-1 Optimum Block Division in CBFM for Fast MoM**
#Keisuke Konno, Qiang Chen and Kunio Sawaya, *Tohoku University, Japan*
- 3D1-2 Acceleration of FGMRES Using Fast Multipole Method for Method of Moments Based on Combined Tangential Formulation**
#Hidetoshi Chiba, Toru Fukasawa, Hiroaki Miyashita and Yoshihiko Konishi, *Mitsubishi Electric Corporation, Japan*
- 3D1-3 GPU Accelerated EM Modelling in Frequency Domain: Comparison of Performance of Various GPU Cards**
Dusan P. Zoric⁽¹⁾, Dragan I. Olcan⁽²⁾ and #Branko M. Kolundzija⁽²⁾, ⁽¹⁾WIPL-D d.o.o., Serbia, ⁽²⁾University of Belgrade, Serbia
- 3D1-4 Error Prediction of a 3-D Mode Matching Technique for a Simple Geometry**
#Kenichiro Kobayashi, Shinichiro Ohnuki and Tsuneki Yamasaki, *Nihon University, Japan*
- 3D1-5 Comparing between Current and Field Basis Functions in Moment Method Solutions**
#Haim Matzner and zalman Ibragimov, *Holon Institute of Technology, Israel*

November 1, 2012

3D2:Computational Electromagnetic II

Co-Chairs: A.I.Nosich (IRE NASU), Q.Chen (Tohoku Univ.) 11:00-12:40

- 3D2-1 Rotationally Symmetric (RS)-LOD-FDTD with CPML for Analysing Resonant Structures**
Md. Masud Rana and #Ananda S. Mohan, *University of Technology Sydney, Australia*
- 3D2-2 Improvement of FDTD Calculation Accuracy for Printed Bent Dipole and Loop Antennas**
#Wataru Akaishi, Toru Uno and Takuji Arima, *Tokyo University of Agriculture and Technology, Japan*
- 3D2-3 Nonstandard Finite Difference Models for the Discrete Green's Function of the Scattered Field**
#James B. Cole and Naoki Okada, *University of Tsukuba, Japan*
- 3D2-4 Transient Analysis of Localized Circularly Polarized Light for All-optical Magnetic Recording**
Hiroshi Iwamatsu⁽¹⁾, #Tsukasa Kato⁽¹⁾, Shinichiro Ohnuki⁽¹⁾, Yoshito Ashizawa⁽¹⁾, Katsuji Nakagawa⁽¹⁾ and Weng C. Chew⁽²⁾, ⁽¹⁾Nihon University, Japan, ⁽²⁾University of Illinois, Armenia
- 3D2-5 Statistical Analysis of Multiple Scattering and Attenuation due to Many Raindrops Using FDTD**
Yasumitsu Miyazaki⁽¹⁾, #Koichi Takahashi⁽¹⁾ and Nobuo Goto⁽²⁾, ⁽¹⁾Aichi University of Technology, Japan, ⁽²⁾The University of Tokushima, Japan

3D3: Computational Electromagnetic III

Co-Chairs: M.Tanaka (Gifu Univ.), J.Li (UESTC) 14:00-15:40

- 3D3-1 Alternative and Robust Technique for the Calculation of Dispersion Relations in Grounded Layered Media**
#Juan Sebastian Gomez-Diaz⁽¹⁾, Alejandro Alvarez-Melcon⁽²⁾ and Julien Perruisseau-Carrier⁽¹⁾,
⁽¹⁾EPFL, Switzerland, ⁽²⁾Universidad Politécnic de Cartagena, Spain
- 3D3-2 Distribution of Energy Flow by Dielectric Waveguide with Rhombic Dielectric Structure along a Middle Layer**
#Ryosuke Ozaki and Tsuneki Yamasaki, *Nihon University, Japan*
- 3D3-3 Electromagnetic Scattering by Multi-spheres Systems and its Application for Calculating Rain Attenuation**
#Nguyen T. Dong, Masahiro Tanaka and Kazuo Tanaka, *Gifu University, Japan*
- 3D3-4 Efficient Numerical Method for Computing Per-unit-length Impedance of Transmission Lines with Lossy Substrate**
#Makoto Matsuki and Akira Matsushima, *Kumamoto University, Japan*
- 3D3-5 Studying the Microcavity Lasers as Active Dielectric Resonator Antennas**
Elena I. Smotrova⁽¹⁾, Iryna Gozhyk⁽²⁾, Melanie Lebental⁽²⁾ and #Alexander Nosich⁽¹⁾, ⁽¹⁾Institute of Radio-Physics and Electronics NASU, Ukraine, ⁽²⁾Ecole Nationale Supérieure de Cachane, France

Technical Program

November 1, 2012

3E1:Body-centric Wiress Communications

Co-Chairs: J.Takada (*Tokyo Inst. of Tech.*), A.Pellegrini (*Queen Mary, Univ. of London*) 09:00-10:40

- 3E1-1 Shadowing Analysis of a BAN Diversity Antenna Based on Statistical Measurements of the Human Walking Motion**
#Kazuhiro Honda and Koichi Ogawa, *Toyama University, Japan*
- 3E1-2 A wideband ZOR On-body Antenna for WBAN Applications**
#Jisoo Baek, Youngki Lee and Jaehoon Choi, *Hanyang University, South Korea*
- 3E1-3 Miniaturized and High-isolation Diversity Antenna for WBAN Applications**
#Sungjin Kim, Soonyong Lee, Kyeol Kwon, Hyungsang Park and Jaehoon Choi, *Hanyang University, South Korea*
- 3E1-4 On Point Source and Observation Modeling for Path Loss Calculation Using FDTD Method**
#Jun-ichi Naganawa, Minseok Kim and Jun-ichi Takada, *Tokyo Institute of Technology, Japan*
- 3E1-5 Use of Motion Capture for Path Gain Modelling of Millimetre-wave On-body Communication Links**
#Yuriy Nechayev⁽¹⁾, Costas Constantinou⁽¹⁾, Srijittra Swaisaenyakorn⁽²⁾, Osman Rakibet⁽²⁾, John Batchelor⁽²⁾, Peter Hall⁽¹⁾, Clive Parini⁽³⁾ and John Hunt⁽⁴⁾, ⁽¹⁾*University of Birmingham, United Kingdom*, ⁽²⁾*University of Kent, United Kingdom*, ⁽³⁾*Queen Mary University of London, United Kingdom*, ⁽⁴⁾*Roke Manor Research Ltd., United Kingdom*

3E2:Antenna Measurement Technologies I

Co-Chairs: M.Hirose (*AIST*), C.Cho (*Korea Research Inst. of Standards and Science*) 11:00-12:40

- 3E2-1 An Experimental Consideration on the Effect of Antenna Gain on the Observed PIMs for an External PIM-source**
#Kohei Takada⁽¹⁾, Nobuhiro Kuga⁽¹⁾ and Keizo Cho⁽²⁾, ⁽¹⁾*Yokohama National University, Japan*, ⁽²⁾*Research Laboratories, NTT DOCOMO, INC., Japan*
- 3E2-2 Advanced Wheeler Cap Method for Measuring the Antenna Efficiency**
#Chihyun Cho⁽¹⁾, Hosung Choo⁽²⁾, No-Weon Kang⁽³⁾ and Jin-Seob Kang⁽³⁾, ⁽¹⁾*Samsung Thales, South Korea*, ⁽²⁾*Hongik University, South Korea*, ⁽³⁾*Korea Research Institute of Standards and Science, South Korea*
- 3E2-3 Novel Techniques of Avoiding Dips of Radiation Efficiency Measured by Improved Wheeler Method**
#Nozomu Ishii, *Niigata University, Japan*
- 3E2-4 Measurement Using the S-parameter Method for Radiation Characteristics and Mutual Coupling of Multiport Antennas on a Small Ground**
#Takashi Yanagi, Toru Fukasawa, Hiroaki Miyashita and Yoshihiko Konishi, *Mitsubishi Electric Corporation, Japan*
- 3E2-5 A Study on Jig Fabricated by Microstrip Line for S-parameter Method**
#Takayuki Sasamori, Teruo Tobana and Yoji Isota, *Akita Prefectural University, Japan*

November 1, 2012

3E3:Antenna Measurement Technologies II

Co-Chairs: N.Ishii (*Niigata Univ.*), J.Carlsson (*SP Technical Research Inst. of Sweden*) 14:00-15:40

- 3E3-1 Time Domain Analysis of Antenna Return Loss**
#Dae-Chan Kim⁽¹⁾, Tae-Hwan Jung⁽²⁾, Tae-Weon Kang⁽¹⁾ and Dong-Joon Lee⁽¹⁾, ⁽¹⁾*Korea Research Institute of Standards and Science, South Korea*, ⁽²⁾*Chungnam National University, South Korea*
- 3E3-2 Relation between Phase Center and Amplitude Center of Antenna by Kern Transmission Formula**
#Masanobu Hirose, Michitaka Ameya and Satoru Kurokawa, *AIST, Japan*
- 3E3-3 Accurate Gain Measurement for Millimeter-wave Horn and Open-ended Waveguide Antennas**
#Katsushige Harima, *National Institute of Information and Communications Technology, Japan*
- 3E3-4 Propagation and Mismatch Analysis of 50 GHz Guided Pulses Based on Optical Sampling**
#Dong-Joon Lee, Joo-Gwang Lee, Jin-Seob Kang and No-Weon Kang, *Korea Research Institute of Standards and Science, South Korea*
- 3E3-5 Pseudo EMI Measurement Using VNA and Optical Feeding Antenna for Site Performance Comparison among Public Testing Laboratories in Kanto-area in Japan**
#Michitaka Ameya and Satoru Kurokawa, *AIST, Japan*

POS2: Poster Session II

16:00-17:40

- POS2-1 Effects of Shell and Body Tissue Stimulating Liquid (BTSL) on the Horseshoes Crab Planar Monopole Antenna (HC-PMA) Performance**
#Muhammad Solihin Zulkefli⁽¹⁾, Mohd Fareq Abd Malek⁽¹⁾, Faizal Jamlos⁽¹⁾, Syed Idris Syed Hassan⁽¹⁾, Mohd Hafizuddin Mat⁽¹⁾, Suzanna Harun Ronald⁽¹⁾, Khairudi Mohd Juni⁽²⁾, Mohd Iskandar Mohd Saleh⁽²⁾ and Mohd Shaharom Idris⁽²⁾, ^{(1)Universiti Malaysia Perlis, Malaysia, (2)Politeknik Tuanku Syed Sirajuddin, Malaysia}
- POS2-2 Band-notched Small Slot Antenna with Enhanced Bandwidth by Using Parasitic Structures inside Slots for UWB Applications**
#Shervin Amiri⁽¹⁾, Nasser Ojaroudi⁽²⁾ and Mohammad Ojaroudi⁽³⁾, ^{(1)Department of Iranian Research Organization for Science and Technology, Iran, (2)Shahid Rajaei Teacher Training University, Iran, (3)Islamic Azad University, Iran}
- POS2-3 Application of Planar Folded Dipole Antenna with Feed Line to Small Terminal for WiMAX**
#Tutomu Ito⁽¹⁾, Mio Nagatoshi⁽¹⁾, Shingo Tanaka⁽²⁾ and Hisashi Morishita⁽¹⁾, ^{(1)National Defense Academy, Japan, (2)Yazaki Corporation, Japan}
- POS2-4 Compact Dual-band Quasi-self-complementary Antenna for WLAN Application**
Li Chang, Hsuan-Yu Chien and #Ching-Her Lee, *National Changhua University of Education, Taiwan*
- POS2-5 Compact Size Dual-band Antenna Printed on Flexible Substrate for WLAN Operation**
#Hsuan-Yu Chien⁽¹⁾, Chow-Yen-Desmond Sim⁽²⁾ and Ching-Her Lee⁽¹⁾, ^{(1)National Changhua University of Education, Taiwan, (2)Feng Chia University, Taiwan}
- POS2-6 A Novel Textile UWB Antenna**
Song-Tao Yu, #Ying Liu, Wen Jiang and Shu-Xi Gong, *Xidian University, China*
- POS2-7 Practical Design Considerations for Tri-band Microstrip Patch Antennas**
#Mustafa E. Aydemir⁽¹⁾, Ahmet S. Turk⁽²⁾, Ersin Gose⁽¹⁾ and Mustafa Ilarslan⁽¹⁾, ^{(1)Turkish Air Force Academy, Turkey, (2)Yildiz Technical University, Turkey}
- POS2-8 Design of the Dual-polarized Dipole Antenna for Small Base Station**
#Jung-Nam Lee, Kwang-Chun Lee, Gweon-Do Jo, Heon-Kook Kwon, Byung-Su Kang, Jung-Hoon Oh, Myung-Don Kim and Nam-Hoon Park, *Electronics and Telecommunications Research Institute, South Korea*
- POS2-9 Asymmetric Dipole Antenna Current Integral Equation**
#Siyu Chen⁽¹⁾ and Yonghong Liu⁽²⁾, ^{(1)Tsinghua University, China, (2)Wino science&technology Co.Ltd, China}
- POS2-10 Vertical Transmission from Catenaries**
Jean-Claude Jodogne and #Stan Stankov, *Royal Meteorological Institute (RMI), Belgium*
- POS2-11 A Wideband Open-slot Antenna with High Front-to-end Ratio**
Chien-Jen Wang, #Kai-Long Hsiao and Yang Tai, *National University of Tainan, Taiwan*
- POS2-12 Low-cost Antenna Elements for Reducing Grating Lobes**
#Haim Matzner and Max Loifer, *Holon Institute of Technology, Israel*

POS2: Poster Session II

16:00-17:40

- POS2-13 Novel Band-stop Small Square Monopole Antenna by Using Interdigital Strip Protruded inside the Rectangular Slot as a Band-stop Filter with its Equivalent Circuit Based on TDR Analysis for UWB Applications**
#Mohammad Ojaroudi and Esfandiar Mehrshahi, *Shahid Beheshti University, Iran*
- POS2-14 Continuous Transverse Stub (CTS) Array Antenna**
#Yunxue Xu, Hailing Dong, Ying Liu and Pengfei Zhang, *Xidian University, China*
- POS2-15 Near-field Gain Measurement of Waterproofed Shielded Loop Antenna in Tissue-equivalent Liquid**
#Hidenori Toyoshima⁽¹⁾, Nozomu Ishii^(1,2), Lira Hamada⁽²⁾ and Soichi Watanabe⁽²⁾, ^{(1)Niigata University, Japan, (2)National Institute of Information and Communications Technology, Japan}
- POS2-16 A Consideration of Interference Prevention Technique for Doppler Weather Radars**
#Atsumu Hattori, Nobuyoshi Kikuma, Hiroshi Hirayama and Kunio Sakakibara, *Nagoya Institute of Technology, Japan*
- POS2-17 Free Space Antenna Gain Measurements by way of Tracing the Reflected Waves in Time Domain**
#Jungkuy Park and Woo Nyun Kim, *National Radio Research Agency of KCC, South Korea*
- POS2-18 x2 Scale Breast Phantom for Reproducing Human Breast Cancer Tissue**
#Fumiaki Komori, Shou Kato and Tadahiko Maeda, *Ritsumeikan University, Japan*
- POS2-19 Measured Electrical Characteristics of an Array Feed Offset Parabolic Reflector Antenna**
#Junichi Shinohara⁽¹⁾, Naobumi Michishita⁽¹⁾, Yoshihide Yamada⁽¹⁾, Mohammad T. Islam⁽¹⁾ and Norbahiah Misran⁽¹⁾, ^{(1)National Defense Academy, Japan, (2)Universiti Kebangsaan Malaysia, Malaysia}
- POS2-20 Radiation Efficiency Measurement Based on Wheeler Method Using 90-degree 3dB Hybrid Coupler and Sliding Short**
#Hirofumi Iguchi and Nozomu Ishii, *Graduate School of Science and Technology, Niigata University, Japan*
- POS2-21 Frequency and Pattern Reconfigurable Antenna with Chip Inductors and Parasitic Elements**
#Se mi Lee, Ki joon Kim and Young Joong Yoon, *Yonsei University, South Korea*
- POS2-22 Reflectarray with Arbitrary Shape Elements Suppressing their Mutual Coupling**
#Tomoya Asada, Hiroyuki Deguchi, Mikio Tsuji and Yuki Aoki, *Doshisha University, Japan*
- POS2-23 Orthogonal Linear Polarization Detection Slot-ring Antenna**
#Md. A. Hossain, Eisuke Nishiyama and Ichihiko Toyoda, *Saga University, Japan*
- POS2-24 Direction of Arrival Estimating Array Antenna**
#Hirotohi Sakai, Eisuke Nishiyama and Ichihiko Toyoda, *Saga University, Japan*
- POS2-25 Considerations on a Frequency Correlation for Distributed Antenna Systems**
#Kanakano Yamaguchi, Yasutaka Ogawa, Toshihiko Nishimura and Takeo Ohgane, *Hokkaido University, Japan*

Technical Program

November 1, 2012

POS2:Poster Session II

16:00-17:40

- POS2-26 Nonlinear Prediction of Frequency-Domain Channel Parameters for Channel Prediction in Fading and Fast Doppler-shift Change Environment**
Hiroaki Matsui and #Akira Hirose, *The University of Tokyo, Japan*
- POS2-27 Passive MIMO Transmission Using Load Modulation**
#Keisuke Terasaki, Kosuke Kinami and Naoki Honma, *Iwate University, Japan*
- POS2-28 Novel 3-D Array Configuration Based on CRLB Formulation for High-resolution DOA Estimation**
#Hiroki Moriya⁽¹⁾, Koichi Ichige⁽¹⁾, Hiroyuki Arai⁽¹⁾, Takahiro Hayashi⁽²⁾, Hiromi Matsuno⁽²⁾ and Masayuki Nakano⁽²⁾, ⁽¹⁾*Yokohama National University, Japan*, ⁽²⁾*KDDI R&D Laboratories, Japan*
- POS2-29 A Consideration of Performance Improvement of Location Estimation of Scatterers in MIMO Radar**
#Tatsuya Hayashi, Nobuyoshi Kikuma, Hiroshi Hirayama and Kunio Sakakibara, *Nagoya Institute of Technology, Japan*
- POS2-30 DOA Estimation Using Subspacing Tracking Method for Coherent Waves**
#Yosuke Kajimura, Nobuyoshi Kikuma, Hiroshi Hirayama and Kunio Sakakibara, *Nagoya Institute of Technology, Japan*
- POS2-31 Monopulse Angle Estimation for Unresolved Targets with a Fourth Order Cumulant**
#Ryuhei Takahashi, Rokuzo Hara, Teruyuki Hara and Atsushi Okamura, *Mitsubishi Electric Corporation, Japan*
- POS2-32 Performance Analysis of SURE Method for DOA Estimation of Coherent Sources by Uniform Linear Array**
#Koichi Ichige, Hanyang Li and Hiroyuki Arai, *Yokohama National University, Japan*
- POS2-33 Electromagnetic Coupling on Solar -terrestrial System: Possible Effects on Seismic Activities**
#Mohamad Huzaimy B. Jusoh^(1,2), Yumoto Kiyohumi⁽¹⁾, Nurul Shazana B. Abdul Hamid⁽¹⁾ and Liu Huixin⁽¹⁾, ⁽¹⁾*Kyushu University, Japan*, ⁽²⁾*Universiti Teknologi MARA, Malaysia*
- POS2-34 The GPS Phase Fluctuations Observed at Wuhan, and Comparison with Spread F and Medium-scale Traveling Ionospheric Disturbances**
#Chien-Chih Lee⁽¹⁾, Wei-Sheng Chen⁽¹⁾ and Fang-Dar Chu⁽²⁾, ⁽¹⁾*Chien Hsin University of Science and Technology, Taiwan*, ⁽²⁾*National Standard Time and Frequency Lab of Telecommunication Laboratories, Taiwan*
- POS2-35 Effects of Azimuthal Difference on Orbital Diversity Using Multiple Satellites**
#Ayumi Iwasa⁽¹⁾, Takeshi Manabe⁽¹⁾, Wataru Chujo⁽²⁾ and Shin-ichi Yamamoto⁽³⁾, ⁽¹⁾*Osaka Prefecture University, Japan*, ⁽²⁾*Meijo University, Japan*, ⁽³⁾*NICT, Japan*
- POS2-36 Angular Power Spectrum of Scattered Electromagnetic Waves in Randomly Inhomogeneous Plasma with Electron Density Fluctuations**
#George V. Jandieri⁽¹⁾, Akira Ishimaru⁽²⁾ and Nino F. Mchedlishvili⁽¹⁾, ⁽¹⁾*Georgian Technical University, Georgia*, ⁽²⁾*University of Washington, United States*
- POS2-37 Compact and Triple Band Meta-material Antenna for All WiMAX Applications**
#Mahmoud Abdalla, Usama Abdelnaby and Abdelazez Mitkees, *MTC University, Egypt*

November 1, 2012

POS2:Poster Session II

16:00-17:40

- POS2-38 Mutual Coupling Suppression in Microstrip Lines Using Metamaterial on Low Temperature Co-fire Ceramic (LTCC) Substrate**
#Zhenzhe Liu and Peng Wang, *University of Electronic Science and Technology of China, China*
- POS2-39 A Miniaturized Microstrip Antenna Based on the Backward Waves Property of LTCC Left-handed Metamaterial Substrate**
#Zhenzhe Liu and Peng Wang, *Research Institute of Electronic Science and Technology of UESTC, China*
- POS2-40 Effect of Spiral Split Ring Resonator (S-SRR) structure on Truncated Pyramidal Microwave Absorber Design**
Normikman Hassan⁽¹⁾, Badrul Hisham Ahmad⁽¹⁾, Mohamad Zoinol Abidin Abd Aziz⁽¹⁾, #Muhammad Ramlee Kamarudin⁽²⁾ and Abdul Rani Othman⁽¹⁾, ⁽¹⁾*Universiti Teknikal Malaysia Melaka, Malaysia*, ⁽²⁾*Universiti Teknologi Malaysia, Malaysia*
- POS2-41 Reconfigurable Frequency Using Electromagnetic Band Gap Structures for Single Band and Wideband**
#Osman Ayop, Mohamad Kamal A. Rahim and Noor Asniza Murad, *Universiti Teknologi Malaysia, Malaysia*
- POS2-42 Parametric Study of the Position of Textile Dipole Antenna above the Textile Artificial Magnetic Conductor**
Muhammad Azfar B. Abdullah, Mohd Ezwan B. Jalil, Mohammad K. A. Rahim, Osman B. Ayop and #Noor Asniza B. Murad, *University Teknologi Malaysia, Malaysia*
- POS2-43 A Compact Rectenna Module for Wireless Charging System**
Sen Wang, #Rui-Xian Wang and Chun-Tuan Chang, *National Taipei University of Technology, Taiwan*
- POS2-44 Magnetic Field Forming of Spatial Multiple Antennas for Wireless Power Transfer**
Wei Chen⁽¹⁾, #Duan Zhao⁽¹⁾, Rani Al-Maharmah⁽¹⁾, Shinjae Kang⁽²⁾, Seung-Ok Lim⁽²⁾, Guido Bruck⁽¹⁾ and Peter Jung⁽¹⁾, ⁽¹⁾*Duisburg-Essen University, Germany*, ⁽²⁾*Electronics Technology Institute, South Korea*
- POS2-45 Relation Analysis between Feeding Structures and Effect of Shield for Coils in Wireless Power Transfer with Magnetically Coupled Resonance**
#Junya Kaneda, Keishi Miwa, Nobuyoshi Kikuma, Hiroshi Hirayama and Kunio Sakakibara, *Nagoya Institute of Technology, Japan*
- POS2-46 Inverter Noise Suppression System Using PI Algorithm**
#Taketo Matsuoka, Mitoshi Fujimoto and Toshikazu Hori, *University of Fukui, Japan*
- POS2-47 Connectivity Evaluation for Unmanned Aircraft System Using 5GHz WLAN**
#Naoki Kanada⁽¹⁾, Yasuto Sumiya⁽¹⁾, Naruto Yonemoto⁽¹⁾, Shunichi Futatsumori⁽¹⁾, Akiko Kohmura⁽¹⁾, Yasuhiro Yama⁽¹⁾ and Eiju Isozaki⁽²⁾, ⁽¹⁾*Electronic Navigation Research Institute, Japan*, ⁽²⁾*Japan Radio Air Navigation Systems Association, Japan*
- POS2-48 Design of Optimal MIMO Channel under Line-of-sight Environment by Using Directional Antenna**
#Yusuke Hori, Daisuke Uchida and Hiroyuki Arai, *Yokohama National University, Japan*

Technical Program

November 1, 2012

POS2:Poster Session II

16:00-17:40

- POS2-49 An Iterative CFO Estimator for QO-STBC Uplink MC-CDMA MIMO Systems**
#Tsui-Tsai Lin and Jian-Shiuan Lin, *National United University, Taiwan*
- POS2-50 Performance Evaluation by MIMO Transmission in Small Rocket**
#Keisuke Kusumi⁽¹⁾, Kentaro Nishimori⁽¹⁾, Naoki Honma⁽²⁾, Kenjiro Nishikawa⁽³⁾, Yusuke Maru⁽⁴⁾ and Shigeo Kawasaki⁽⁴⁾, ⁽¹⁾*Niigata University, Japan*, ⁽²⁾*Iwate University, Japan*, ⁽³⁾*Kagoshima University, Japan*, ⁽⁴⁾*JAXA, Japan*
- POS2-51 Comparison between Measurement and Simulation for an Outdoor-indoor Scenario in WiMAX System**
#Navarat Lertsirisopon, Yukiko Kishiki, Akiko Komatsu and Masahiko Kawamura, *Kozo Keikaku Engineering Inc., Japan*
- POS2-52 The Characteristics of the RFID Antenna by Poses of Human Body for Urination Sensing**
#Hiromasa Nakajima, Masaharu Takahashi, Kazuyuki Saito and Koichi Ito, *Chiba University, Japan*
- POS2-53 RFID Tag Antenna for Managing Surgical Instruments**
#Takafumi Matsumura, Masaharu Takahashi, Kazuyuki Saito, Etsuji Yamamoto and Koichi Ito, *Chiba University, Japan*
- POS2-54 Study of Implantable Antenna for Artificial Knee Joints**
#Soichiro Yanase, Masaharu Takahashi, Kazuyuki Saito and Koichi Ito, *Chiba University, Japan*
- POS2-55 A Study of Cost-effective Conductive Ink for Inkjet-printed RFID Application**
#Pomanong Pongpaibool, *NECTEC, Thailand*
- POS2-56 Planar Miniature Dual-band RFID / WiFi Antenna for Postal Application**
#Li Yang, Chin-Hong Ng, Wai-Wa Choi and Kam-Weng Tam, *University of Macau, China*
- POS2-57 Implanted Helical Dipole Antenna for UHF Band Applications**
Basari Basari, Dwyana Zakaria, #Fitri Yuli Zulkifli and Eko Tjpto Rahardjo, *Universitas Indonesia, Indonesia*
- POS2-58 Wireless Pads for RFID Reader**
#Takuya Okura and Hiroyuki Arai, *Yokohama National University, Japan*
- POS2-59 Design of Planar Antenna for Small Implantable Devices**
#Kohei Kawasaki, Masaharu Takahashi, Kazuyuki Saito and Koichi Ito, *Chiba University, Japan*

November 2, 2012

4A1:Reflector/Lens Antennas and Feeds

Co-Chairs: Y.Inasawa (*Mitsubishi Electric*), R.Kronberger (*Cologne Univ. of Applied Sciences*) 09:00-10:40

- 4A1-1 Atacama Large Millimeter/Submillimeter Array (ALMA)**
(Invited) #Masato Ishiguro, *National Astronomical Observatory of Japan, Japan*
- 4A1-2 Lens-corrected Coaxial-groove Horn for Illuminating Ultra Wide Area**
Hiroyuki Deguchi, Mikio Tsuji, Akihiro Kobayashi and #Akihiro Omori, *Doshisha University, Japan*
- 4A1-3 A Ku Band Small Reflector Antenna Using Backfire Primary Radiator for Satellite Communication System on Board Vessel**
#Shin-ichi Yamamoto, Shuji Nuimura, Tomohiro Mizuno, Yoshio Inasawa, Hiroyuki Sato and Makio Tsuchiya, *Mitsubishi Electric Corporation, Japan*
- 4A1-4 A Novel Compact Center-fed Reflector Antenna with One-dimensional Beam Scanning Function**
#Michio Takikawa, Yoshio Inasawa and Yoshihiko Konishi, *Mitsubishi Electric Corporation, Japan*

4A2:Phased Array and Related Topics

Co-Chairs: T.Takahashi (*Mitsubishi Electric*), P.Kabacik (*Wroclaw Univ. of Tech.*) 11:00-12:40

- 4A2-1 Design of a Bandwidth Enhanced Dual-band Dual-polarized Array Antenna**
#Youngki Lee, Deukhyeon Ga, Taeho Song, Jisoo Back and Jaehoon Choi, *Hanyang University, South Korea*
- 4A2-2 60 GHz Band 2×4 Dipole Array Antenna Using Multi Stacked Organic Substrates Structure**
#Yuya Suzuki, Satoshi Yoshida, Shoichi Tanifuji, Suguru Kameda, Noriharu Suematsu, Tadashi Takagi and Kazuo Tsubouchi, *Research Institute of Electrical Communication, Tohoku University, Japan*
- 4A2-3 Polarization Agile Slot-ring Array Antenna Using Magic-T Circuit**
#Yu Ushijima, Eisuke Nishiyama and Ichihiko Toyoda, *Saga University, Japan*
- 4A2-4 A Reduction Method of Quantization Error of Excitation Coefficient for Phased Array Antenna**
#Tasuku Kuriyama, Kazunari Kihira, Toru Takahashi and Yoshihiko Konishi, *Mitsubishi Electric Corporation, Japan*
- 4A2-5 Capability Study on Superdirective Array for HF-band Receive Antenna**
#Masakazu Taniguchi, Kazunari Kihira, Toru Takahashi and Yoshihiko Konishi, *Mitsubishi Electric Corporation, Japan*

Technical Program

November 2, 2012

4A3:Microstrip and Printed Antennas

Co-Chairs: T.Fukasako (*Kumamoto Univ.*), S.Sharma (*San Diego State Univ.*) 14:00-15:40

- 4A3-1 Advances in EBG-resonator Antenna Research**
#Giuseppe Schettini⁽¹⁾, Fabrizio Frezza⁽²⁾, Lara Pajewski⁽¹⁾, Emanuele Piuze⁽²⁾ and Cristina Ponti⁽¹⁾, ⁽¹⁾"Roma Tre" University of Rome, Italy, ⁽²⁾"Sapienza" University of Rome, Italy
- 4A3-2 Frequency Reconfigurable Spirograph Planar Monopole Antenna (SPMA)**
Jennifer Rayno and #Satish K. Sharma, *San Diego State University, United States*
- 4A3-3 A Circularly Polarized Multimode Patch Antenna with Full Hemispherical Null Steering for GPS Applications**
#Nathan Labadie⁽¹⁾, Satish Sharma⁽¹⁾ and Gabriel Rebeiz⁽²⁾, ⁽¹⁾San Diego State University, United States, ⁽²⁾University of California, San Diego, United States
- 4A3-4 An Electrically Small Planar Antenna Using Complementary Split-ring Resonators**
#Shih-Yuan Chen and Min-Da Chiou, *National Taiwan University, Taiwan*
- 4A3-5 A Comparison of Feed Methods for Electrically Small and Low-profile Meander Line Antennas**
#Yoshiya Saito and Takeshi Fukusako, *Kumamoto University, Japan*

4B1:Small Antennas

Co-Chairs: M.Taguchi (*Nagasaki Univ.*), C.Phongcharoenpanich (*King Mongkut's Inst. of Tech. Ladkrabang*) 09:00-10:40

- 4B1-1 Pattern Controllable Vehicular Antenna with CRLH Transmission Line for Telematics**
#Junya Muramatsu⁽¹⁾, Takuma Sawaya⁽²⁾, Toshiaki Watanabe⁽¹⁾, Kazuo Sato⁽¹⁾, Akira Hishida⁽²⁾ and Junzo Ooe⁽²⁾, ⁽¹⁾TOYOTA Central R&D Labs., Inc., Japan, ⁽²⁾TOYOTA MOTOR CORPORATION, Japan
- 4B1-2 Performance Improvement of Transmission Antenna Installed on Outside Broadcasting Van for Live Broadcast of Road Race**
#Naoto Kogo, Masahiro Yatagai, Fumihiro Murakami and Tetsuomi Ikeda, *NHK, Japan*
- 4B1-3 Telematics and ITS Integrated Vehicular Antenna with CRLH-TL Parasitic Element**
#Takuma Sawaya⁽¹⁾, Junya Muramatsu⁽²⁾, Akira Hishida⁽¹⁾, Junzo Ooe⁽¹⁾, Toshiaki Watanabe⁽²⁾ and Kazuo Sato⁽²⁾, ⁽¹⁾TOYOTA Motor Corporation, Japan, ⁽²⁾TOYOTA Central R&D Labs., Inc., Japan
- 4B1-4 A Study on a Feeding Method to the Multi-band Antenna with a Coupling Phenomenon**
#Kenji Saegusa, Hiroki Nishiwaki and Tadashi Takano, *Nihon University, Japan*
- 4B1-5 Electric and Magnetic Loop Mode Pattern Switchable Antenna**
#Hyunseong Kang and Sungjoon Lim, *Chung-Ang University, South Korea*

November 2, 2012

4B2:EMI / EMC

Co-Chairs: T.Sasamori (*Akita Prefecture Univ.*), Y.Yoon (*Yosei Univ.*) 11:00-12:40

- 4B2-1 Estimation of the Source Position by Means of SAGE**
#Sin'ya Aizawa⁽¹⁾, Yoshihiko Kuwahara⁽¹⁾, Makoto Tanaka⁽²⁾, Takanori Unou⁽²⁾ and Koji Ichikawa⁽²⁾, ⁽¹⁾Shizuoka University, Japan, ⁽²⁾DENSO CORPORATION, Japan
- 4B2-2 Time Domain Analysis of Crosstalk With a Slot between Microstrip Lines**
#Yuki Kitsunai, Teruo Tobana, Takayuki Sasamori and Yoji Isota, *Akita Prefectural University, Japan*
- 4B2-3 Analysis of Coupling between a Ground Slot and a Microstrip Line**
#Teruo Tobana, Takayuki Sasamori and Yoji Isota, *Akita Prefectural University, Japan*
- 4B2-4 A Beam Switched Log-periodic Antenna for EMI measurement**
#Kenji Hagiwara⁽¹⁾, Hiroyuki Arai⁽¹⁾, Seiichi Izumi⁽²⁾ and Toshiyasu Tanaka⁽³⁾, ⁽¹⁾Yokohama National University, Japan, ⁽²⁾KEC Electronic Industry Development Center, Japan, ⁽³⁾Microwave Factory Co., Ltd., Japan
- 4B2-5 Broadband Simplified SAR Measurement Method Using Solid Material**
#Keita Ochiyama⁽¹⁾, Naobumi Michishita⁽¹⁾, Yoshihide Yamada⁽¹⁾, Hiroyuki Arai⁽²⁾ and Toshiyasu Tanaka⁽³⁾, ⁽¹⁾National Defense Academy, Japan, ⁽²⁾Yokohama National University, Japan, ⁽³⁾Microwave Factory, Japan

4B3:Mobile Antennas

Co-Chairs: T.Fukasawa (*Mitsubishi Electric*), S.G.Zhou (*Natl. Univ. of Singapore*) 14:00-15:40

- 4B3-1 Internal WWAN Handset Antenna Formed by a Monopole Strip Radiator and a Clearance Region Thereof as Monopole Slot Radiator**
#Po-Wei Lin and Kin-Lu Wong, *National Sun Yat-Sen University, Taiwan*
- 4B3-2 Design of a Compact Planar MIMO Antenna for LTE Mobile Application**
#Xing Zhao, Youngki Lee and Jaehoon Choi, *Hanyang University, South Korea*
- 4B3-3 x3 Scale-model Experiments on a Slot-based Directivity Control Built-in Antenna System for Mobile Terminals**
#Ravi R. Hasan, Fumiaki Komori and Tadahiko Maeda, *Ritsumeikan University, Japan*
- 4B3-4 Automatic Impedance Matching of a Tablet Type 4-branch MRC Array Close to the Human Hands**
#Makoto Yamazaki, Kazuhiro Honda and Koichi Ogawa, *Toyama University, Japan*
- 4B3-5 Multi-band Monopole Antenna Design Using Folded and Parasitic Strips for Laptop Applications**
#Chichang Hung, Chaohsu Wu and Tsenchieh Chiu, *National Central University, Taiwan*

Technical Program

November 2, 2012

4C1:Aperture Antennas

Co-Chairs: Y.Konishi (*Mitsubishi Electric*), E.Carrasco (*EPFL*) 09:00-10:40

- 4C1-1 Design Tool for High-performance Rotationally Symmetric Reflector Antennas**
#Erik Jørgensen and Peter Meincke, *TICRA, Denmark*
- 4C1-2 Design of a Satellite Antenna for Malaysia Beams by Ray Tracing Method**
#Nurul Huda Abd Rahman^(1,2), Mohammad Tariqul Islam⁽¹⁾, Norbahiah Misran⁽¹⁾, Yoshihide Yamada⁽³⁾ and Naobumi Michishita⁽³⁾, ^{(1)Universiti Kebangsaan Malaysia, Malaysia}, ^{(2)Universiti Teknologi MARA, Malaysia}, ^{(3)National Defense Academy, Japan}
- 4C1-3 Inverted-L Reflectarray Element With Interdigital Gap Loading Structure**
#Jianfeng Li⁽¹⁾, Qiang Chen⁽¹⁾, Kunio Sawaya⁽¹⁾ and Qiaowei Yuan⁽²⁾, ^{(1)Tohoku University, Japan}, ^{(2)Sendai National College of Technology, Japan}
- 4C1-4 Optimum Thickness Distribution of an Inkjet-printed Resonant Line Antenna**
#Sumin Yun and Sangwook Nam, *INMC, Seoul National University, South Korea*
- 4C1-5 Application of Optimized Sparse Antenna Array in Near Range 3D Microwave Imaging**
Yaolong Qi, Yanping Wang, Xueming Peng, #Weixian Tan and Wen Hong, *Institute of Electronics, China*

4C2:Wire Antennas I

Co-Chairs: T.Ohishi (*Toshiba*), W.Zhang (*Southeast Univ.*) 11:00-12:40

- 4C2-1 Novel Frequency Band-notch Small Square Monopole Antenna with Inverted Omega-shaped Conductor Backed Plane for UWB Systems**
#Shervin Amiri⁽¹⁾, Nasser Ojaroudi⁽²⁾ and Mohammad Ojaroudi⁽³⁾, ^{(1)Department of Iranian Research Organization for Science and Technology, Iran}, ^{(2)Shahid Rajaei Teacher Training University, Iran}, ^{(3)Islamic Azad University, Iran}
- 4C2-2 Comparative Study on Printed Dual-band Antennas for WLAN Terminal**
#Wen-Xun Zhang and Peng Zhang, *Southeast University, China*
- 4C2-3 A Planar Double Inverted-L Antenna Using Short Stub in Slot Line for WLAN Applications**
#Chao-Shun Yang and Christina F. Jou, *National Chiao-Tung University, Taiwan*
- 4C2-4 Bandwidth Extension of Ultra Low Profile Inverted L Antenna by Modification of Conducting Plane**
#Keisuke Kozaki and Mitsuo Taguchi, *Nagasaki University, Japan*
- 4C2-5 Dual Band Ultra Low Profile Inverted L Antenna**
#Seiichi Sato and Mitsuo Taguchi, *Nagasaki University, Japan*

November 2, 2012

4C3:Wire Antennas II

Co-Chairs: Y.Okano (*Tokyo City Univ.*), A.Sharaiha (*Univ. of Rennes 1*) 14:00-15:40

- 4C3-1 An Equivalent Circuit Model for Meander-line Monopole Antenna Attached to Metallic Plate**
#Ryouhei Hosono, Ning Guan, Hiroiku Tayama and Hiroataka Furuya, *Fujikura Ltd., Japan*
- 4C3-2 A Miniature Dielectrically Loaded Spiral Folded Printed Quadrifilar Helix Antenna for GPS Dual-band Applications**
#Ala Sharaiha and Josh Rabemanantsao, *University of Rennes 1, France*
- 4C3-3 An Electrically Small Layered Meander Line Antenna with Multiple Resonances**
#Koji Okita and Takeshi Fukusako, *Kumamoto University, Japan*
- 4C3-4 Miniaturization of a Patch Antenna Using Magneto-dielectric Material**
#Yu Yu Kyi, Lu Guo and Jian Lu, *National University of Singapore, Singapore*
- 4C3-5 Study of a Line Configuration and Coupling Method in a Partially Driven Array Antenna with Transmission Line Coupling**
#Hiroyuki Hosono, Ryo Yamamoto, Kenji Saegusa and Tadashi Takano, *Nihon University, Japan*

4D1:Recent Studies on Earth-space Propagation Paths I

Co-Chairs: Y.Maekawa (*Osaka Electro-Communication Univ.*), M.Esa (*Univ. Teknologi Malaysia*) 09:00-10:40

- 4D1-1 Improvement of Communication Capacity of a Satellite with Ku-, Ka-band Millimeter-Wave Frequencies during Rain Attenuation**
#Naresh Tripathi⁽¹⁾, Wataru Chujo⁽¹⁾, Takeshi Manabe⁽²⁾ and Sin-ichi Yamamoto⁽³⁾, ^{(1)Meijo University, Japan}, ^{(2)Osaka Prefecture University, Japan}, ^{(3)NICT, Japan}
- 4D1-2 Bit Error Rate for Satellite Communications in Ka-band under Atmospheric Turbulence Predicted from Radiosonde Data in Japan**
#Tatsuyuki Hanada⁽¹⁾, Kiyotaka Fujisaki⁽²⁾ and Mitsuo Tateiba⁽³⁾, ^{(1)Japan Aerospace Exploration Agency, Japan}, ^{(2)Kyushu University, Japan}, ^{(3)Ariake National College of Technology, Japan}
- 4D1-3 Quantitative Assessment of Site Diversity from Rainfall Spatial Correlation Characteristics**
#Satoshi Maeda and Hajime Fukuchi, *Tokyo Metropolitan University, Japan*
- 4D1-4 Effect of Depolarization on Dual-polarized Satellite Link with 16- and 32-ary Modulation Schemes**
#Kenta Takahashi and Hajime Fukuchi, *Tokyo Metropolitan University, Japan*
- 4D1-5 Effects of Rain on Scintillation Measured on Ku- Band Satellite Signals in Tropical Region**
#Mandeep Singh Jit Singh⁽¹⁾, Nadirah Abdul Rahim⁽²⁾, Rafiqul Islam⁽²⁾ and Hassan Dao⁽²⁾, ^{(1)Universiti Kebangsaan Malaysia, Malaysia}, ^{(2)International Islamic University Malaysia, Malaysia}

Technical Program

November 2, 2012

4D2:Recent Studies on Earth-space Propagation Paths II

Co-Chairs: H.Iwai (*Doshisha Univ.*), M.Jit Singh (*Univ. Kebangsaan Malaysia*) 11:00-12:40

4D2-1 Assessment of Seasonal Asia Monsoon Rain Impact on the Earth-space Propagation in Equatorial Kuala Lumpur

#Hong Yin Lam⁽¹⁾, Lorenzo Luini⁽²⁾, Jafri Din⁽¹⁾, Carlo Capsoni⁽²⁾ and Athanasios D. Panagopoulos⁽³⁾, ⁽¹⁾*Universiti Teknologi Malaysia, Malaysia*, ⁽²⁾*Politecnico di Milano, Italy*, ⁽³⁾*National Technical University of Athens, Greece*

4D2-2 Effects of Integration Time on Rainfall Intensity and Rain Attenuation Cumulative Distribution

#Shuhei Kaneko and Hajime Fukuchi, *Tokyo Metropolitan University, Japan*

4D2-3 Quantitative Evaluation of Adaptive Satellite Power Control Using Japanese Rain Radar Data

#Hajime Fukuchi, Ayumi Yoshii and Yoshino Suzuki, *Tokyo Metropolitan University, Japan*

4D2-4 Characteristics of Rain Attenuation Time Variation in Ka Band Satellite Communications for the kind of Rain Types in Each Season

#Ryuji Nakajo and Yasuyuki Maekawa, *Osaka Electro-Communication University, Japan*

4D3:Propagation in Terrestrial and Space Environments

Co-Chairs: M.Nishi (*Hiroshima City Univ.*), H.Tsuji (*NICT*) 14:00-15:40

4D3-1 Observations of Ionospheric Radio Propagations in the Arctic and the Mid-latitude Regions

#Masahiro Nishi, Ryoichi Matsutani, Koichi Shin and Teruaki Yoshida, *Hiroshima City University, Japan*

4D3-2 Experimental Study of Propagation Characteristic for Maritime Wireless Communication

#Ki Beom Kim, Maifuz Ali, Jee Hoon Lee and Seong-Ook Park, *Korea Advanced Institute of Science and Technology, South Korea*

4D3-3 Developed and Evaluation Satellite/Terrestrial Integrated Coordinate Control Simulator

#Kunio Endoh, Hiroyuki Tsuji, Amane Miura and Yoshiyuki Fujino, *National Institute of Information and Communications Technology, Japan*

4D3-4 Rain Attenuation Characteristics of Ku-band Satellite Signals in relation to the Wind Velocities Observed on the Ground

#Yutaka Inamori, Yoshiaki Shibagaki and Yasuyuki Maekawa, *Osaka Electro-Communication University, Japan*

4D3-5 First Challenge of PTP Time Synchronization Experiment through the Experimental Satellite for Communication, "WINDS"

#Yusuke Kito⁽¹⁾, Satoshi Kubota⁽¹⁾, Fujinobu Takahashi⁽¹⁾, Takashi Takahashi⁽²⁾, Toshio Asai⁽²⁾ and Norihiko Katayama⁽²⁾, ⁽¹⁾*Yokohama National Univ., Japan, Japan*, ⁽²⁾*National Institute of Information and Communications Technology, Japan*

November 2, 2012

4E1:Metamaterial Antennas and Systems with FSS, EBG, MTM, & Advanced Materials

Co-Chairs: S.Kahng (*Univ. of Incheon*), N.Michishita (*Natl. Defence Academy*) 09:00-10:40

4E1-1 A Single Radiation Element with High-gain and a Tilted-beam

Hisamatsu Nakano, #Yosuke Oishi and Junji Yamauchi, *Hosei University, Japan*

4E1-2 Design of Metamaterial Absorber Based on Resonant Magnetic Inclusion

#Hongmin Lee, *Kyonggi University, South Korea*

4E1-3 A Compact Metamaterial UWB Power-divider Fed Wide-band Array Antenna

#Sungtek Kahng, Dajeong Eom, Boram Lee, In-kyu Yang and Kyung-seok Kahng, *University of Incheon, South Korea*

4E1-4 Achievement of Inverse Frequency-dependent Phase Shift by Using Composite Right/Left-handed Phase Shifter

#Naobumi Michishita⁽¹⁾, Yoshihide Yamada⁽¹⁾ and Keizo Cho⁽²⁾, ⁽¹⁾*National Defense Academy, Japan*, ⁽²⁾*Chiba Institute of Technology, Japan*

4E1-5 Magnet-less Non-reciprocal Metamaterial and its Applications in Radiative Structures

#Toshiro Kodera⁽¹⁾, Dimitrios L. Sounas⁽²⁾ and Christophe Caloz⁽²⁾, ⁽¹⁾*Yamaguchi University, Japan*, ⁽²⁾*Ecole Polytechnique of Montreal, Canada*

4E2:EBG and Metamaterials I

Co-Chairs: Y.Cho (*Kyungpook Natl. Univ.*), T.Kodera (*Yamaguchi Univ.*) 11:00-12:40

4E2-1 Metamaterial Ridged Waveguides with Wavelength Control for Array Antenna Applications

#Hideki Kirino^(1,2) and Koichi Ogawa⁽²⁾, ⁽¹⁾*Panasonic Healthcare Co., Ltd., Japan*, ⁽²⁾*University of Toyama, Japan*

4E2-2 Reflection Characteristics of AMC with Lossy Dielectric Substrate

#Yasutaka Murakami, Toshikazu Hori and Mitoshi Fujimoto, *University of Fukui, Japan*

4E2-3 PMC and EBG Characteristics of Cross Type Artificial Magnetic Conductor

#Ryuji Kuse, Toshikazu Hori and Mitoshi Fujimoto, *University of Fukui, Japan*

4E2-4 Improvement of Near-field Optical Storage System with an Artificial Negative Index Film

#Taikei Suyama⁽¹⁾, Yaoju Zhang⁽²⁾, Shi Bai⁽¹⁾ and Yoichi Okuno⁽¹⁾, ⁽¹⁾*Kumamoto University, Japan*, ⁽²⁾*Wenzhou University, China*

Technical Program

November 2, 2012

4E3:EBG and Metamaterials II

Co-Chairs: H.Chiba (*Mitsubishi Electric*), H.Lee (*Kyonggi Univ.*)

14:00-15:40

4E3-1 Resonance Characteristics and Field Enhancement in Cylindrical Electromagnetic Bandgap Structures

#Kiyotoshi Yasumoto⁽¹⁾, Vakhtang Jandieri⁽²⁾ and Yunfei Liu⁽¹⁾, ⁽¹⁾*Nanjing Forestry University, China*, ⁽²⁾*University Kyungpook National University, South Korea*

4E3-2 Floquet-mode Analysis of Pillar-type Photonic Crystal Waveguide Using Spectral-domain Approach

#Yoshimasa Nakatake and Koki Watanabe, *Fukuoka Institute of Technology, Japan*

4E3-3 Eigenmodes Analysis in Drude-type Dispersive EBG Structures in Frequency Domain

#Amin Gul Hanif, Takuji Arima and Toru Uno, *Tokyo University of Agriculture and Technology, Japan*

4E3-4 Spoof Surface Plasmon Induced Transmission Through a Three-dimensional Metamaterial

#Yujiro Kushiyama, Takuji Arima and Toru Uno, *Tokyo University of Agriculture & Technology, Japan*

4E3-5 Bandwidth Enhancement and Size Reduction of Period for Dual-band Loop-slot Frequency Selective Surfaces on Plastic Board

#Katsuyuki Tachikawa⁽¹⁾, Kunio Sakakibara⁽¹⁾, Kiyotaka Kumaki⁽²⁾, Satoshi Hori⁽²⁾, Nobuyoshi Kikuma⁽¹⁾ and Hiroshi Hirayama⁽¹⁾, ⁽¹⁾*Nagoya Institute of Technology, Japan*, ⁽²⁾*Kojima Press Industry Co.,Ltd, Japan*



EuCAP 2013, 8–12 APRIL
 GOTHENBURG, SWEDEN
www.eucap2013.org

7TH EUROPEAN CONFERENCE ON ANTENNAS AND PROPAGATION

THE SWEDISH EXHIBITION & CONGRESS CENTRE

EuCAP 2013 is organized yearly by The European Association on Antennas and Propagation (EurAAP) since 2006.

Chalmers University of Technology welcomes EuCAP 2013 to Gothenburg (Göteborg), the microwave center of Sweden with well-known antenna companies such as Ericsson, Saab, RUAG Space and Bluetest; an ideal and unique meeting place in Europe for academia and industry to exchange the latest research in Antennas and Propagation.

Venue in city center – close to the sea

Gothenburg is a world-class meeting and events city, located on the beautiful west coast of Sweden, easily accessible from around the world, close to the sea with a stunning archipelago and outstanding restaurants. The Swedish Exhibition & Congress Center is located in the city center with all kinds of restaurants, entertainment and shops within walking distance. The in-house Hotel Gothia Towers is the largest in Scandinavia, and several more hotels are just around the corner. During the social events you will be well entertained, among others by the colorful popular Chalmers ballet, and at the banquet you can enjoy a spectacular Swedish ABBA pop music show.

International rendezvous for Antennas and Propagation:

EuCAP is supported by the top-level associations in Antennas and Propagation, thus fostering true collaboration at European and global levels. AMTA Europe will support the organization of the exhibition, sessions and industrial activities.

The conference combines a diversity of formats:

- Plenary sessions with invited keynote papers
- Oral sessions (both convened and contributed)
- Posters (presented in same central area as the exhibition)
- Workshops, short courses
- Exhibition (in large hall in the center of everything)

Sessions gathered according to Application tracks:

These time-continuous tracks will make it possible for busy people to attend only one or two conference days.

Conference/exhibition service:

Eucap2013@realize-events.de +49 89 660799 420



Chalmers student's ballet



Gothenburg city harbour



ISAP2012 is partly supported by the following foundations and associations;
 International Exchange Program of National Institute of Information and Communications Technology (NICT)
 The Telecommunications Advancement Foundation
 KDDI Foundation
 NAGOYA CONVENTION & VISITORS BUREAU
 TELECOM ENGINEERING CENTER (TELEC)
 The Murata Science Foundation
 Support Center for Advanced Telecommunications Technology Research(SCAT)
 Research Foundation for the Electrotechnology of Chubu.(REFEC)
 Denki Kogyo Co., Ltd.

EuCAP 2013 CHAIRS

Conference Chair: Per-Simon Kildal	Past Chair: Milos Mazanek	Convened Session Chairs: Thomas Kürner Marta Martinez Vazquez	Awards & Grants Chairs: Stefano Maci Anja Skrivervik	Application Track Chairs: Dirk Heberling Björn Johansson Cyril Mangenot	IEEE Liaison: W. Ross Stone
EurAAP Chair: Juan R. Mosig	Next Edition Chair: Peter de Maagt	Short Courses Chair: Eva Rajo-Iglesias	Invited Papers Chairs: Guy Vandenbosch Cyril Luxey	Local AMTA Chair: Jan Zackrisson	URSI Liaison: Gerhard Kristensson
Vice Chairs: Per Ingvarson Gunnar Elgered	Financial Chair: Bruno Casali			Publication & Dissemination Chair: Jan Carlsson	
Mats Andersson Jan Carlsson Mikael Persson	Exhibition & Sponsorship Chair: Carlo Rizzo Mats Andersson			AMTA Liaison: Carlo Rizzo	





ISAP2012



2012 INTERNATIONAL SYMPOSIUM ON ANTENNAS AND PROPAGATION