2010 Asia-Pacific Microwave Conference
APMC 2010
December 7-10, 2010  Pacifico Yokohama, Yokohama, Japan
http://www.apmc2010.org/

ADVANCE PROGRAM

“Novel Technology Waves from Historical Port”
### PROGRAM AT A GLANCE

#### 12/6 (MON)
Registration (16:00 – 19:00) “2F, Conference Center”

#### 12/7 (TUE)

<table>
<thead>
<tr>
<th>Time</th>
<th>Room A (301)</th>
<th>Room B (302)</th>
<th>Room C (303)</th>
<th>Room D (304)</th>
<th>Room E (311+312)</th>
<th>Room F (313+314)</th>
<th>Room G (315)</th>
</tr>
</thead>
<tbody>
<tr>
<td>9:00</td>
<td>SC1A</td>
<td>SC1B</td>
<td>WS1C</td>
<td>WS1D</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Modeling and Design Techniques for High-Power Amplifiers and Their Performance</td>
<td>Electromagnetic Metamaterials and their Microwave Applications</td>
<td>Progress and prospects of RF-MEMS</td>
<td>Channel Modeling and Simulator for Mobile Communications</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12:00</td>
<td>LUNCH TIME</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13:30</td>
<td>WS2A</td>
<td>WS2B</td>
<td>WS2C</td>
<td>WS2D</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Recent Trends and Prospects of Wide Bandgap Semiconductor Devices</td>
<td>Recent Progress in Filters and Couplers</td>
<td>Tunable RF-Components and their Applications in Wireless Systems</td>
<td>Short-Range Wireless Communications and Technologies</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Welcome Reception (17:30 – 19:30) “Inter Continental The Grand Yokohama”
Registration (8:00 – 17:30) “2F, Conference Center”

#### 12/8 (WED)

<table>
<thead>
<tr>
<th>Time</th>
<th>Room A (301)</th>
<th>Room B (302)</th>
<th>Room C (303)</th>
<th>Room D (304)</th>
<th>Room E (311+312)</th>
<th>Room F (313+314)</th>
<th>Room G (315)</th>
</tr>
</thead>
<tbody>
<tr>
<td>8:50</td>
<td>WE1A</td>
<td>WE1B</td>
<td>WE1C</td>
<td>WE1D</td>
<td>WE1E</td>
<td>WE1F</td>
<td></td>
</tr>
<tr>
<td>10:30</td>
<td></td>
<td>Wide Band Planar Filters</td>
<td>Microwave Applications</td>
<td>CAD and Numerical Techniques</td>
<td>Low Profile and Small Antennas</td>
<td>Design and Implementation Techniques for Microwave Filters 1</td>
<td></td>
</tr>
<tr>
<td>10:50</td>
<td>COFFEE BREAK</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14:00</td>
<td>WE3A</td>
<td>WE3B</td>
<td>WE3C</td>
<td>WE3D</td>
<td>WE3E</td>
<td>WE3F</td>
<td></td>
</tr>
<tr>
<td></td>
<td>High Power GaN HEMT Applications</td>
<td>Tunable and Metamaterial Filters and Resonators 1</td>
<td>Terahertz and Microwave Applications</td>
<td>Progress in Antenna Applications</td>
<td>System Consideration</td>
<td>Mobile Antennas 1</td>
<td></td>
</tr>
<tr>
<td>15:40</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>16:00</td>
<td>WE4A</td>
<td>WE4B</td>
<td>WE4C</td>
<td>WE4D</td>
<td>WE4E</td>
<td>WE4F</td>
<td></td>
</tr>
<tr>
<td></td>
<td>EuMA Special Session</td>
<td>Design and Implementation Techniques for Microwave Filters 2</td>
<td>Microwave Medical and Biological Applications</td>
<td>Planar Antennas</td>
<td>Microwave Photonics</td>
<td>CMOS Low Noise Amplifier</td>
<td></td>
</tr>
</tbody>
</table>

Microwave Exhibition (10:00 – 17:30) “Exhibition Hall A+B”
Registration (8:00 – 17:30) “2F, Conference Center”

#### 12/9 (THU)

<table>
<thead>
<tr>
<th>Time</th>
<th>Room A (301)</th>
<th>Room B (302)</th>
<th>Room C (303)</th>
<th>Room D (304)</th>
<th>Room E (311+312)</th>
<th>Room F (313+314)</th>
<th>Room G (315)</th>
</tr>
</thead>
<tbody>
<tr>
<td>8:50</td>
<td>TH1A</td>
<td>TH1B</td>
<td>TH1C</td>
<td>TH1D</td>
<td>TH1E</td>
<td>TH1F</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Theory and Implementation of Oscillators</td>
<td>Transmission Lines and Waveguide 1</td>
<td>UWB Antennas 1</td>
<td>Reconfigurable Antennas, Active Antennas</td>
<td>High Efficiency Power Amplifiers</td>
<td>Tunable and Metamaterial Filters and Resonators 2</td>
<td></td>
</tr>
<tr>
<td>10:30</td>
<td>COFFEE BREAK</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12:30</td>
<td>LUNCH TIME</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14:00</td>
<td>TH2A</td>
<td>TH2B</td>
<td>TH2C</td>
<td>TH2D</td>
<td>TH2E</td>
<td>TH2F</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Wireless Transceiver and Receiver IC Design Techniques</td>
<td>Power Dividers</td>
<td>UWB Antennas 2</td>
<td>MIMO Antennas</td>
<td>Si-based Millimeter-wave ICs</td>
<td>Miniaturized and Multi-Band Directional Couplers</td>
<td></td>
</tr>
<tr>
<td>15:40</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>16:00</td>
<td>TH3A</td>
<td>TH3B</td>
<td>TH3C</td>
<td>TH3D</td>
<td>TH3E</td>
<td>TH3F</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Broadcast and Millimeter-wave Circuit Designs</td>
<td>Highly-Integrated Planar Filter/Resonator</td>
<td>Electromagnetic Wave Theory 1</td>
<td>Metamaterial Antennas</td>
<td>Emerging Technologies on Active Circuits</td>
<td>Packaging Techniques and Functional Devices</td>
<td></td>
</tr>
<tr>
<td>18:00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Award Banquet (18:30 – 20:40) “Pan Pacific Yokohama Bay Hotel Tokyu”

Microwave Exhibition (10:00 – 17:30) “Exhibition Hall A+B”
Registration (8:00 – 17:30) “2F, Conference Center”

#### 12/10 (FRI)

<table>
<thead>
<tr>
<th>Time</th>
<th>Room A (301)</th>
<th>Room B (302)</th>
<th>Room C (303)</th>
<th>Room D (304)</th>
<th>Room E (311+312)</th>
<th>Room F (313+314)</th>
<th>Room G (315)</th>
</tr>
</thead>
<tbody>
<tr>
<td>8:50</td>
<td>FR1A</td>
<td>FR1B</td>
<td>FR1C</td>
<td>FR1D</td>
<td>FR1E</td>
<td>FR1F</td>
<td></td>
</tr>
<tr>
<td></td>
<td>High Frequency Low Noise Amplifier</td>
<td>Artificial Materials and Applications</td>
<td>Propagation and Interference</td>
<td>Advances in Reflective and Slot Antennas</td>
<td>MEMS Systems</td>
<td>Transmission Lines and Waveguide 2</td>
<td></td>
</tr>
<tr>
<td>10:30</td>
<td>COFFEE BREAK</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12:30</td>
<td>LUNCH TIME</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14:00</td>
<td>FR2A</td>
<td>FR2B</td>
<td>FR2C</td>
<td>FR2D</td>
<td>FR2E</td>
<td>FR2F</td>
<td></td>
</tr>
<tr>
<td></td>
<td>CMOS Power Amplifiers</td>
<td>Advances in Coupler / Balun Technologies</td>
<td>Radar and Imaging Systems</td>
<td>Millimeter Wave Antennas, Antenna System</td>
<td>Sensing and Measurements 2</td>
<td>Innovative Non-Planar Filter Techniques</td>
<td></td>
</tr>
<tr>
<td>15:40</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>16:00</td>
<td>FR3A</td>
<td>FR3B</td>
<td>FR3C</td>
<td>FR3D</td>
<td>FR3E</td>
<td>FR3F</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Microwave Control Circuits</td>
<td>Multi Band Filters</td>
<td>Microwave and Millimeter-Wave Measurement Techniques</td>
<td>Mobile Antennas 2</td>
<td>Sensing and Measurements 1</td>
<td>MEMS and Tunable Devices</td>
<td></td>
</tr>
<tr>
<td>18:00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Microwave Exhibition (10:00 – 17:30) “Exhibition Hall A+B”
Registration (8:00 – 16:00) “2F, Conference Center”
Map of Pacifico Yokohama
# TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>PROGRAM AT A GLANCE</td>
<td>i</td>
</tr>
<tr>
<td>FLOOR PLAN</td>
<td>ii</td>
</tr>
<tr>
<td>GREETINGS FROM THE STEERING COMMITTEE CHAIR</td>
<td>1</td>
</tr>
<tr>
<td>MESSAGE FROM THE TECHNICAL PROGRAM COMMITTEE CHAIR</td>
<td>1</td>
</tr>
<tr>
<td>GENERAL INFORMATION</td>
<td>2</td>
</tr>
<tr>
<td>CONFERENCE SITE</td>
<td>2</td>
</tr>
<tr>
<td>YOKOHAMA</td>
<td>2</td>
</tr>
<tr>
<td>REGISTRATION</td>
<td>2</td>
</tr>
<tr>
<td>HOTEL ACCOMMODATIONS</td>
<td>3</td>
</tr>
<tr>
<td>OFFICIAL TRAVEL AGENT</td>
<td>3</td>
</tr>
<tr>
<td>YOUTH HOSTEL INFORMATION</td>
<td>4</td>
</tr>
<tr>
<td>TRANSPORTATION</td>
<td>4</td>
</tr>
<tr>
<td>VISA REQUIREMENT FOR FOREIGN ATTENDEES</td>
<td>5</td>
</tr>
<tr>
<td>OTHER INFORMATION</td>
<td>5</td>
</tr>
<tr>
<td>SOCIAL PROGRAM</td>
<td>6</td>
</tr>
<tr>
<td>MEETINGS INFORMATION</td>
<td>6</td>
</tr>
<tr>
<td>APMC 2010 PRIZE</td>
<td>7</td>
</tr>
<tr>
<td>CONFERENCE SESSIONS</td>
<td>7</td>
</tr>
<tr>
<td>TECHNICAL SESSIONS</td>
<td>8</td>
</tr>
<tr>
<td>OPEN FORUM (POSTER) SESSIONS</td>
<td>20</td>
</tr>
<tr>
<td>WORKSHOPS</td>
<td>28</td>
</tr>
<tr>
<td>SHORT COURSES</td>
<td>30</td>
</tr>
<tr>
<td>EXHIBITION</td>
<td>31</td>
</tr>
<tr>
<td>APMC 2010 COMMITTEE OFFICERS</td>
<td>34</td>
</tr>
</tbody>
</table>
GREETINGS FROM THE STEERING COMMITTEE CHAIR

It is my great honor to welcome you to participate in the 2010 Asia-Pacific Microwave Conference (APMC 2010), which is well recognized as the most prestigious microwave conference in the Asia Pacific region, to be held during December 7–10, 2010 at Pacifico Yokohama in Yokohama, Japan.

APMC 2010 is the 22nd APMC, which started in 1986 in India, and the 6th to be held here in Japan. During that time, Microwaves and related technologies made remarkable progress supported by social demands through the world. We organize the conference under the theme of “Novel technology waves from historical port” at Yokohama, the famous historical port opened to the world from the mid 19th century. Waves are always ultimate ubiquitous tool for information and energy transmission, as well as a variety of sensing.

Organized and sponsored by the Institute of Electronics, Information and Communication Engineers, APMC 2010 is devoted to the research, development, and application of RF and microwave theory and techniques, and aims to continue and accelerate the momentum of researching in microwave areas and bring together researchers and engineers from the Asia-Pacific region as well as other parts of the world to discuss and exchange experiences. Six workshops and two short courses offer very exciting topics in the microwave technologies definitely. It is also cooperatively sponsored by IEEE MTT-S, EuMA, IEEE AP-S, URSI, IEEE MTT-S and related companies from all over the world will exhibit the latest products. To add to all of this, an exhibition by the Japanese microwave history and another exhibition by the universities and colleges from Japan and other countries will be held in the same hall.

I would like to express my sincere thanks to the authors for submitting their papers and presenting their results, to the sponsors, invited speakers and all the steering committee members, without whose supports this conference might not be possible.

Finally I wish you will join APMC 2010 and enjoy the novel technology waves emerging in the Microwave oceans.

Kiyomichi Araki
APMC 2010 Steering Committee Chair

MESSAGE FROM THE TECHNICAL PROGRAM COMMITTEE CHAIR

On behalf of the APMC 2010 Technical Program Committee (TPC), it is an honor to welcome you to the APMC 2010 in Yokohama.

The TPC has organized a highly technical and exciting program covering a wide variety of microwave technologies and related fields.

We have received an impressive number (810) of papers from 39 countries, i.e., Taiwan (156), Japan (144), and Republic of Korea (93) among others. This is the highest number of submissions ever in APMC’s history in Japan. Due to the highly professional quality of these papers, it was an extremely difficult task to evaluate them all and then cut them down to a controllable number. A total of 263 reviewers around the world participated in the paper review and selection processes. We finally selected 604 papers (328 for oral presentations, 276 for open forums), which is the maximum allowable number in this location for this period.

The technical programs will start with workshops and short courses at 9:00 a.m., on Tuesday, December 7, which were selected from the most exciting topics in our fields. This year there are 6 workshops and 2 short courses. APMC regular sessions will commence at 8:50 a.m., on Wednesday, December 8, with 6 sessions proceeding simultaneously. A total of 66 oral presentation sessions and 5 open forum sessions are scheduled for paper presentations.

The plenary session is scheduled for 10:50 a.m., on Wednesday, December 8, where Prof. Kazuhiko Honjo from the University of Electro-Communications will present his Keynote Address entitled, “A Technology Perspective on Active Microwave Circuits.” Dr. Shinichi Nomoto of KDDI R&D Laboratories, Inc. will make a presentation entitled, “Further Evolution of Wireless Technology toward World of Ambient Intelligence” as well. This year we have also invited 18 outstanding speakers who are very active in their individual fields.

We are proud to present this program for APMC 2010, which could not have been achieved without the valuable contributions of many enthusiastic TPC members and reviewers. I would like to express my sincerest appreciation to them for developing the conference with an outstanding technical program.

We are looking forward to seeing you in Yokohama, and wish you an enjoyable and productive stay.

Masahiro Muraguchi
APMC 2010 Technical Program Committee Chair
CONFERENCE SITE
The APMC 2010 will be held from December 7 to 10, 2010, at the Conference Center in Pacifi
co Yokohama. Pacifi co Yokohama is one of the largest convention centers in
the world, consisting of the Conference Center, the Exhibition Hall, a hotel and a big national hall, and is located
in the Minato Mirai 21 (MM21) area of Yokohama (see the
map on the back of this booklet). Its beautiful shell–
and–sail–shaped appearance is impressive when viewed
from sea and from land as well.

The conference will be held in the Conference Center:
Entrance Hall on the 2nd floor for Registration; Meeting
Rooms on the 3rd floor for Technical Sessions, Workshops
and Short Courses; and Meeting Rooms on the 5th floor for
the Opening Ceremony and the Keynote Addresses.

YOKOHAMA
Opened in 1859, Yokohama is celebrating its 150-year
tradition of being the largest trading port of Japan. It is con
veniently located 30 kilometers south of downtown Tokyo.
The conference venue is in the Minato Mirai district, a
collection of hotels, shopping malls, and restaurants. You
may find pop Japanese culture in Akihabara, a town famous
for electronics and animations, and historical Japanese
flavor in Asakusa in downtown Tokyo. In Kamakura and Nikko,
which are just day-time trips from Yokohama, you will be
impressed by Japanese historical shrines, traditional temples
and beautiful natural scenery. Japanese scenic spots are very
comfortable since they were laid out for walking at leisure.

REGISTRATION
Pre-Registration and On-Site Registration
Those who intend to participate in APMC 2010, including
the speakers of contributed papers, session chairs, committee
members, etc., are requested to register for the “Conference”
(from December 8 to 10, 2010) and/or the “Workshops and
Short Courses” (on December 7, 2010).

Pre-Registration is available on the APMC 2010 website
from August 10 to November 22, 2010.

For those who cannot register beforehand, On-Site
Registration is available at the Registration Desk at the
Conference Site from December 6 to 10, 2010.

Registration Fees
The registration fees are separated for the “Conference”
and “Workshops and Short Courses,” but you can take
advantage of a better deal by selecting “SUPERPASS,”
which covers both the “Conference” and “Workshops and
Short Courses.”

Those who registered for the “Conference” will get
admission to the Welcome Reception, the Opening
Ceremony and Keynote Addresses, and the Technical
Sessions (from December 8 to 10, 2010).

Those who registered for the “Workshops and Short
Courses” will get admission to the Workshops and Short Courses
on December 7, 2010.

There are also privileges of membership of the APMC
2010 sponsoring organizations; “IEICE,” “IEEE MTT-S,”
“IEEE AP-S,” “EuMA,” or “URSI.” Please visit the spon
soring organizations’ websites for membership application,
only if you like.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>SUPERPASS (Conference &amp; Workshops and Short Courses)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>regular (member)</td>
<td>47,000 JPY</td>
<td>52,000 JPY</td>
<td>—</td>
</tr>
<tr>
<td>(non-member)</td>
<td>57,000 JPY</td>
<td>63,000 JPY</td>
<td>—</td>
</tr>
<tr>
<td>student/retiree (member)</td>
<td>12,000 JPY</td>
<td>12,000 JPY</td>
<td>—</td>
</tr>
<tr>
<td>(non-member)</td>
<td>17,000 JPY</td>
<td>17,000 JPY</td>
<td>—</td>
</tr>
<tr>
<td>Conference</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>regular (member)</td>
<td>45,000 JPY</td>
<td>50,000 JPY</td>
<td>60,000 JPY</td>
</tr>
<tr>
<td>(non-member)</td>
<td>55,000 JPY</td>
<td>61,000 JPY</td>
<td>67,500 JPY</td>
</tr>
<tr>
<td>student/retiree (member)</td>
<td>10,000 JPY</td>
<td>10,000 JPY</td>
<td>15,000 JPY</td>
</tr>
<tr>
<td>(non-member)</td>
<td>15,000 JPY</td>
<td>15,000 JPY</td>
<td>20,000 JPY</td>
</tr>
<tr>
<td>Workshops and Short Courses</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>regular (member)</td>
<td>5,000 JPY</td>
<td>6,000 JPY</td>
<td>8,000 JPY</td>
</tr>
<tr>
<td>(non-member)</td>
<td>6,000 JPY</td>
<td>7,000 JPY</td>
<td>10,000 JPY</td>
</tr>
<tr>
<td>student/retiree (member)</td>
<td>5,000 JPY</td>
<td>6,000 JPY</td>
<td>8,000 JPY</td>
</tr>
<tr>
<td>(non-member)</td>
<td>6,000 JPY</td>
<td>7,000 JPY</td>
<td>10,000 JPY</td>
</tr>
</tbody>
</table>

* Please note that, from November 23 to December 5, 2010, the Pre-Registration will not be accepted.
Those who could not complete registration by November 22, 2010, should register during the con
ference period.
The Registration Fee differs depending on:

a. the application date for registration,
b. whether the registrant is a student or not,
c. whether the registrant is a member of any of the APMC 2010 Sponsoring Organizations above or not.

Registrant’s Kit

Those who registered for the “Conference” (including “SUPERPASS”) will each receive a set of the Conference Registrant’s Kit, which includes a copy of the Conference Proceedings (CD-ROM or USB Flash Memory Stick), a printed copy of the Abstract Book, a Conference Bag, etc.

The kit will also include a souvenir gift for those who pre-registered early; the number of the gifts is limited and they will be provided on a first-come-first-served basis.

Those who registered for the “Workshops and Short Courses” (including “SUPERPASS”) will receive a copy of the Digest (CD-ROM).

The registration fees (“SUPERPASS,” “Conference,” and “Workshops and Short Courses”) do NOT include the Award Banquet fees.

Accompanying Persons

Those who pre-registered for the “Conference” (or “SUPERPASS”) can have an accompanying person at APMC 2010. Accompanying Persons should be the registrant’s family or relative, such as his/her spouse (husband or wife), sibling (brother or sister), child, etc., who does not intend to attend the conference sessions, but will participate in the conference official events like “Welcome Reception” (free of charge) or “Award Banquet” (3,000 or 4,000 or 5,000 JPY (Japanese Yen) per person; see below) or an excursion trip provided by the travel agent.

Please note that an accompanying person cannot attend the conference sessions (technical sessions, workshops, short courses, etc.) and will not be provided with a copy of the Conference Proceedings.

Those who are interested in participating in the conference sessions should register individually.

Award Banquet

Those who have registered for the “Conference” (or the “SUPERPASS”) can purchase a ticket (or two) to attend the APMC 2010 Award Banquet, which is to be held on the evening of December 9, 2010.

The ticket price depends on the application date for registration (see the table on the right).

It is a sit-down style dinner and there are three options for the menu;

A) a full-course French dinner,
B) a special course for ovo-lacto vegetarians, which will not contain beef, lamb, pork, poultry, fish, shellfish or animal flesh of any kind, but might contain dairy and egg products,
C) a special course for vegans, which will contain no animal products.

Means of Payment

For Pre-Registration, the payment should be done using the on-line Credit Card Settlement System, which will be available right after you complete the Pre-Registration Form.

If you have difficulty in paying the fees by credit card, you can select another way, “Bank Transfer,” by clicking the button in the Pre-Registration Form.

For On-Site Registration, the payment should be done in cash (JPY only), or by credit card. Acceptable card types will be VISA, Master, American Express, and Diners Club.

Registration Desk

The registration and information desk is located in the Entrance Hall (2nd Floor) of Pacifico Yokohama Conference Center. It will be open during the following hours:

December 6, 2010 : 16:00–19:00
December 7, 2010 : 8:00–17:30
December 8, 2010 : 8:00–17:30
December 9, 2010 : 8:00–17:30
December 10, 2010 : 8:00–16:00

HOTEL ACCOMMODATIONS

Rooms at nine hotels in Yokohama, which are accessible from/to Pacifico Yokohama are available through the travel agent below. Reservations can be made through the web site for the hotel accommodations.

OFFICIAL TRAVEL AGENT

JTB Tokyo Metropolitan Corp. Yokohama Convention Center, official travel agent for the conference, has reserved a sufficient number of rooms at several hotels in Yokohama.

Applications and Inquiries concerning hotel accommodations should be addressed to:

APMC 2010 Travel Desk
JTB Tokyo Metropolitan Corp. Yokohama Convention Center
3–29–1 Tsuruya-cho, Kanagawa-ku, Yokohama,
221–0835, Japan.
E-mail: jtb_convention@met.jtb.jp
Business hours: 9:30–17:30 (weekdays only)

Please contact JTB for information on sightseeing tours as well.
YOUTH HOSTEL INFORMATION
Those with very limited budget may want to directly contact the below Youth Hostel, which is about a 20 minutes’ walk to the Conference site, Pacifico Yokohama.

Name: Yokohama Bayside Youth Hostel
Address: 56 Miyazakicho, Nishi-ku, Yokohama-shi, Kanagawa 220–0031 Japan
E-mail: jtb_convention@met.jtb.jp

TRANSPORTATION
The closest airports to Yokohama are Narita Airport and Haneda Airport. Narita Airport, formerly also known as New Tokyo International Airport, is located in the city of Narita in Chiba Prefecture, about 60 km outside of Tokyo. There are heavy traffic jams in Tokyo and Yokohama area. Public transportation (railways and subways) networks are convenient. Purchase your ticket in cash using the machine at the entrance. For most trains no advance reservation is needed. However, for JR Shinkansen limited express (bullet trains), advance reservation is recommended in order to secure a seat.

Yokohama is served by four railway companies (JR East, Tokyu Railway, Keikyu Railway and Sagami Railway), a municipal subway stations and a bus network. The city has two major railway stations: Yokohama Station and Shin-Yokohama Station (“New Yokohama Station”). Train lines of all four railway companies and the subway line pass through Yokohama Station, which is located in the city center. Shin-Yokohama Station, on the other hand, is located outside of the city center, about 10 minutes from Yokohama Station by
the JR Yokohama Line or the municipal subway. The shinkansen stops at Shin-Yokohama Station.

The nearest station to Pacifico Yokohama is Minato Mirai Station on the Minato Mirai Line, two stops from Yokohama Station. The Minato Mirai Line is directly connected to the Tokyo Toyoko Line. It takes about 3 minutes and costs 180 JPY from Yokohama to Minato Mirai. Pacifico Yokohama is also conveniently accessed from Sakuragicho Station on the JR Keihin-Tohoku Line (Negishi Line) and the municipal subway. (See the map on the back of this booklet.)

**How to get to Yokohama from Narita Airport By Japan Railways (JR):**

The fastest option to get to Yokohama is the JR Narita Express (NEX), requiring roughly 90 minutes for the one way journey. All seats are reserved. The one way fare between Narita Airport and Yokohama Station is about 4,200 JPY. There is about one connection per hour.

The JR Sobu Line (Rapid Service) is a slower, but cheaper JR alternative to the Narita Express. It takes roughly two hours from Narita Airport to Yokohama Station and costs 1,890 JPY for the one way journey. There is about one connection per hour.

**By Keisei and Keikyu Railways:**

Take the Keisei Limited Express from Narita Airport to Aoto Station (60 minutes) and transfer to a Keikyu train to Yokohama (60 minutes). A second transfer of trains may be required at Shinagawa Station. The one way fare is 1,450 JPY. There are about three connections per hour.

**By limousine bus:**

Limousine buses to the Yokohama City Air Terminal (YCAT) near Yokohama Station depart Narita Airport every 20 to 30 minutes. The one way journey takes about 90 minutes and costs 3,500 JPY. In addition, there are direct limousine bus connections to several major hotels in Yokohama.

**By taxi:**

Since Narita Airport is located about 60 km outside of Tokyo, a taxi ride into central Tokyo is very expensive and not recommended to common travelers.

**By rental cars:**

Rental cars are available at major railway stations and airports.

**VISA REQUIREMENT FOR FOREIGN ATTENDEES**

In principle, foreigners wishing to enter Japan (with the exception of ship and airline crews) are required to apply at an overseas Japanese diplomatic establishment (embassy or consulate) for a visa to be stamped in or attached to their passport valid for travel to Japan.

Nationals of some countries and regions holding valid passports, however, can apply for landing permission for short-term stays for such purposes as sightseeing and business trips without obtaining a visa.

Please see the following webpage for the “list of countries and regions that have visa exemption arrangements with Japan.”


If you are not sure whether you need a visa to enter Japan or not, please contact the diplomatic mission (embassy or consulate) in your country or in your living area.

http://www.mofa.go.jp/about/emb_cons/over/index.html

In case you need an entry visa to Japan, you will be required to submit two documents, both written in Japanese:

a. an invitation letter by the conference (APMC 2010)
b. a detailed schedule during your stay in Japan

All the speakers, session chairs, committee members of APMC 2010, and their acquaintances or family members can obtain these documents from the APMC 2010 Steering Committee under the condition that they...

a. complete the Pre-Registration with all payments done,
b. have all the travel arrangements finished, such as hotel accommodations and airline tickets.

**OTHER INFORMATION**

**Electricity**

Electricity supply is 100 Volts/50 Hz in eastern Japan including the Yokohama area, and 100 Volts/60 Hz in western Japan.

**Weather**

Yokohama lies in the temperate zone and has four distinct seasons. December is the beginning of winter, when Yokohama is rather cold but rarely has snow. The temperature ranges between 4°C (39°F) and 12°C (54°F), averaging 8°C (46°F). Coats or sweaters are needed.

**No Smoking Policy**

Smoking is prohibited in the Conference Center except at limited smoking corners.

**Currency**

Japanese yen (JPY) is the only currency that is used at stores and restaurants. You can exchange foreign currencies for Japanese yen at foreign exchange banks and other authorized money exchangers by showing your passport. The exchange rate fluctuates daily.

**Traveller’s Checks and Credit Cards**

Since traveller’s checks are not common in Japan, you may use them only at major hotels and leading banks. Major credit cards, such as VISA, Master Card, AMEX, and JCB, can be used at restaurants, hotels, souvenir shops, etc.

**Tipping**

Tipping is not customary in Japan. For example, you do not need to tip waiters/waitresses at restaurants.

**Japanese Traffic**

There are heavy traffic jams in Tokyo and Yokohama area. Public transportation (railways and subways) networks are convenient.
**GENERAL INFORMATION**

**Internet connection**
Internet connection through Wireless LAN and Ethernet cable will be available at the Conference Center. There is no charge for the service.

**Babysitting service**
At the two hotels below, which are close to the Conference Center, babysitting services are available.

Inter Continental The Grand Yokohama  
Phone: +81–45–223–2222
PANPACIFIC Yohohama Bay Hotel Tokyu  
Phone: +81–45–682–2222

**SOCIAL PROGRAM**
APMC 2010 will provide original and colorful events; Welcome reception, Opening Ceremony, and Award Banquet.

**Welcome Reception**
All the participants in the Conference (from December 8 to 10) are invited to the Welcome Reception to be held from 17:30 to 19:30 on Tuesday, December 7, at the Inter Continental The Grand Yokohama.

**Opening Ceremony**
The APMC 2010 Opening Ceremony will be held from 10:50 to 12:30 in Room 501+502 (5th floor) of Pacifico Yokohama Conference Center on Wednesday, December 8. A declaration and brief report by the APMC 2010 Steering Committee Chair and congratulatory addresses by invited representatives of sponsoring organizations including IEEE MTT-S, IEEE AP-S, URSI, EuMA are scheduled at the beginning of the ceremony. Then, we will have the Keynote Addresses given by Prof. Kazuhiko Honjo, The University of Electro-Communications and Dr. Shinichi Nomoto, R&D Fellow, General Manager, Mobile & Wireless Division, KDDI R&D Laboratories, Inc. The respective titles of their talks are “A Technology Perspective on Active Microwave Circuits” and “Further Evolution of Wireless Technology toward World of Ambient Intelligence”.

**Award Banquet**
The APMC 2010 Award Banquet will be held from 18:30 to 20:40 on Thursday, December 9, at Queen’s Grand Ballroom on the 2nd basement floor of the PANPACIFIC Yohohama Bay Hotel Tokyu. With a variety of cuisine, the banquet will introduce winners of Japan Microwave Prize. The Banquet will be a sit-down style dinner. (See “Award Banquet” on page 3.) After the greetings by the Conference Chair, you will experience the ceremony “Kagamiwari,” where a large barrel of sake (Japanese rice-wine) is cracked on the top with wooden hammers to celebrate the success of APMC 2010. The APMC 2010 Microwave Prize will be given to the winners selected by the APMC 2010 Prize Award Committee from all the participants presenting a paper at the conference.

**MEETINGS INFORMATION**

**IEEE MTT-S Region 10 Chapter Chairs Meeting**
The IEEE MTT-S Region 10 Chapter Chairs Meeting will be held from 13:00 to 15:00 on Wednesday, December 8, 2010, at Room 211+212 (Tentative). Region 10 chapter chairs and MTT-S ADCOM members are invited.

**APMC International Steering Committee Meeting**
The APMC International Steering Committee Meeting will be held from 12:00 to 16:00 on Thursday, December 9, 2010, at Room 211+212 (Tentative).
Papers presented at APMC 2010 will be judged by the APMC 2010 Prize Award Committee, and the authors of selected papers will be awarded the APMC 2010 Prize for outstanding contributions to the microwave field. In addition, outstanding student papers submitted to the conference will be awarded the APMC 2010 Student Prize. These Prizes, which consist of the commemorative certificates and rewards, will be presented to all the recipients at the APMC 2010 Award Banquet to be held on Thursday, December 9, 2010.

CONFERECE SESSIONS

The APMC 2010 Conference Sessions consist of “Technical Sessions (Oral),” “Open Forum (Poster) Sessions,” “Workshops,” and “Short Courses.”

Technical Sessions (Oral)

The Technical Sessions will be held in the session rooms on the 3rd floor of the Conference Center from December 8 to 10, 2010, where the speakers of accepted papers will present their papers orally.

Open Forum (Poster) Sessions

The Open Forum (Poster) Sessions will be held in Room G (315) on the 3rd floor of the Conference Center from December 8 to 10, 2010, where the speakers of accepted papers will present theoretical or experimental materials in poster format.

Workshops

The Workshops will be held in the session rooms on the 3rd floor of the Conference Center on December 7, 2010, where the Workshop speakers, who have all been invited by the Workshop Organizers, will present and discuss their latest researches and studies related to microwave technologies.

Short Courses

The Short Courses will be held in the session rooms on the 3rd floor of the Conference Center on December 7, 2010, where two lecturers will give lectures with the titles of “Modeling and Design Techniques for High Power Amplifiers and their Performance” and “Electromagnetic Metamaterials and their Microwave Applications.”
Advances in modern microwave technology are based on a long history of developments in semiconductor devices and circuit technology, which have emerged from the classical theory of the vacuum-tube era. Retaining the needed time, such as Si bipolar transistor hybrid integrated circuits in the 1970s, GaAs MMIC’s in the 1980s, HBT/HEMT MMIC’s in the 1990s, and GaN/III-V MMIC’s in the 2000s. For emerging quantum devices using new materials such as carbon nanotubes (CNT) and graphene in the 2010s, it seems a new materials such as carbon nanotubes (CNT) and graphene in the 2010s, it seems a similar design philosophy is being followed.

This talk will review active microwave device circuit technologies to identify universal technologies that may be helpful in the future.

Kazuhiko Honjo received the B.E. degree from the University of Electro-Communications, Tokyo, Japan, in 1974, and the M.E. and D.E. degrees in electronic engineering from the Tokyo Institute of Technology, Tokyo, Japan, in 1976 and 1983, respectively. From 1976 to 2001, he was with the NEC Corporation, Kawasaki, Japan. In 2001, he joined the University of Electro-Communications, as a Professor with the Information and Communication Engineering Department. He is now a director of the Advance Wireless Communication Research Center of the university. He has been involved in research and development of high-power/broadband/low-distortion microwave amplifiers, MMICs, GaAs based HBT device and processing technology, GaN device modeling and circuit applications, miniature broadband microwave antennas and FDTD electromagnetic wave and device co-analysis. Prof. Honjo is a Fellow of IEEE and is also a Fellow of the Institute of Electrical, Information and Communication Engineers (IEICE), Japan. He served as an elected
### TECHNICAL SESSIONS

<table>
<thead>
<tr>
<th>Room D (304)</th>
<th>Session WE1D</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAD and Numerical Techniques</td>
<td></td>
</tr>
<tr>
<td>Chairs: G. Xiao, Shanghai Jiao Tong Univ., CHINA</td>
<td>J. Shibayama, Hosei Univ., JAPAN</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Room E (311+312)</th>
<th>Session WE1E</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low Profile and Small Antennas</td>
<td></td>
</tr>
<tr>
<td>Chairs: P. Hsu, National Taiwan Univ., TAIWAN</td>
<td>K. Noguchi, Kanazawa Institute of Technology, JAPAN</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Room F (313+314)</th>
<th>Session WE1F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Design and Implementation Techniques for Microwave Filters I</td>
<td></td>
</tr>
<tr>
<td>Chairs: C. Quedn, Université Européenne de Bretagne</td>
<td>K. Sato, NTT DOCOMO INC., JAPAN</td>
</tr>
</tbody>
</table>

---

**AdCom member of IEEE Microwave Theory and Techniques Society (IEEE MTT-S) from 1997 to 2003. He was the recipient of the 1983 Microwave Prize and the 1988 Microwave Prize presented by the IEEE MTT-S. He was also the recipient of the 1980 Young Engineer Award and the 1999 Electronics Award presented by the IEICE.**

**Keynote Addresses (2) : Further Evolution of Wireless Technology toward World of Ambient Intelligence**

**Speaker:** Dr. Shinichi Nomoto, R&D Fellow, General Manager, Mobile & Wireless Division, KDDI R&D Laboratories, Inc., JAPAN

**Abstract:** Where is ICT industry heading for? High-speed mobile services such as WiMAX and LTE will expand over the globe, especially in Asian regions, in the next several years to meet with broadband and ubiquitous communication demands.

In the future, ICT will presumably be better integrated into many “things” in our society and people will utilize ICT even without recognizing ICT itself. This can be called the realization of “World of Ambient Intelligence.”

The speaker who is with KDDI, the Japanese full-range telecom operator, will review these circumstances and present his view on the expectation of the further evolution of wireless technologies. In order to fulfill wide-range of various requirements in the future, hybrid and harmonized cooperation of multiple radio systems, both intra-system and inter-system, would be the key to enhance the capabilities, e.g. higher reliability, lower latency, and huge number of devices. Obviously, SDR (Software-Defined Radio) and CRS (Cognitive Radio System) with flexible microwave devices will play a fundamental role in the arena. Some representative R&D activities are also to be presented.

Shinichi Nomoto received B.E., M.E., and Ph.D degrees, all in electrical engineering, from Waseda University, Tokyo, Japan, in 1980, 1982, and 1993, respectively. He joined Kokusai Denshin Denwa Co., Ltd. (now KDDI Corp.), in 1982. Since 1983, he has been engaged in research and development of radio transmission systems. As a professional assignee at Inmarsat HQ’s from 1992 to 1995, he has contributed to the “Inmarsat-P (ICO)" project, which includes development of a global personal communications system using a number of non-geostationary satellites. His current research interests include antennas and propagation, broadband wireless access systems, cognitive radio, cooperative radio and QoE management in communication networks. He received the Shinohara Memorial Young Researchers’ Award from IEICE in 1988, the Piero Fanti International Prize from INTELSAT/Telespazio in 1988, and the Radio Distinguished Award from RCR (now ARIB) in 1991. In 2004, two of his published papers received the Best Paper Awards from IEICE, one of which was the recipient of the 10th Inose Award (the very best paper of the year) as well. He is an Executive Director of KDDI R&D Laboratories, Inc., a R&D fellow of KDDI, a fellow of IEICE, a senior member of IEEE, and a vice chair of Advanced Wireless Communications Studies Committee (ADWICS), ARIB.
**TECHNICAL SESSIONS**

**Wednesday, December 8**

**14:00 – 15:40**

**Room A (301)**

**Session WE3A**

*High Power GaN HEMT Applications*

*Chairs*: H. Okazaki, NTT DOCOMO, INC., JAPAN  
T. Boles, M/A-COM, USA.

**WE3A-1**


K. Yamazaki, T. Tsuyama, H. Ohtsuka, S. Chaki, M. Nakayama, Y. Hirano, Mitsubishi Electric Corp., JAPAN

**WE3A-2**

A 5.9GHz-8.5GHz 20Watts GaN HEMT  
S. Mizuno1, H. Yamamoto1, T. Yamamoto2, M. Nishihara2, S. Sano1,  
'Sumitomo Electric Industries, Ltd., JAPAN', 'Sumitomo Electric Device Innovations, Inc., JAPAN'

**WE3A-3**

Development of 150W S-band GaN Solid State Power Amplifier for Satellite Use  
K. Nakade, K. Seino, A. Tsuchiko, J. Kanaya, Mitsubishi Electric TOKKI Systems Corp., JAPAN

**WE3A-4**

Cost Effective, High Performance GaN Technology  
T. Boles, D. Carlson, C. Varmazis, J. Barrett, M/A-COM Technology Solutions, USA.

**WE3A-5**

An X-band 50% Bandwidth High-Power GaN HEMT T/R Switch  
M. Hangai, R. Komaru, Y. Tarui, Y. Kamo, M. Hieda, M. Nakayama, Mitsubishi Electric Corp., JAPAN

---

**Room B (302)**

**Session WE3B**

*Tunable and Metamaterial Filters and Resonators 1*

*Chairs*: K. Kawai, NTT DOCOMO INC., JAPAN  
T. Nishino, Mitsubishi Electric Corp., JAPAN

**WE3B-1**

Miniaturized Microwave Tunable Bandpass Filters on High-K LTCC  
X. Mi1,2, Y. Kawan81, O. Toyoda1, T. Suzuki2, S. Ueda2, T. Hirose1, K. Joshi1,  
'Fujitsu Ltd., JAPAN', 'Fujitsu Laboratories Ltd., JAPAN'

**WE3B-2**

Tunable Bandpass Filter with Symmetric Attenuation Characteristics  
K. Kawai, H. Okazaki, S. Narahashi, NTT DOCOMO, INC., JAPAN

**WE3B-3**

Parallel-Coupled Stub-Loaded Resonators Compact Size Tunable Filter  
F. Burdin, E. Pistoia, A. Ferrari, 'Université de Savoie, FRANCE'

**WE3B-4**

High-Q MEMS-based Bandwidth-Reconfigurable E-plane Filters  
L. Pelliccia, R. Sorrentino, 'Univ. of Perugia, ITALY'

**WE3B-5**

A Low-Loss and Compact Size Analog Tunable Filter on Flexible Organic Substrate  
B. Lacroy1, S. Courrèges1, K. Choi1, Y. Wang2, A. T. Hunt2,  
J. Papapolymerou1, 'Georgia Institute of Technology, U.S.A.', 'aSixGnar, Inc., U.S.A.'

---

**Room C (303)**

**Session WE3C**

*Terahertz and Microwave Applications*

*Chairs*: H.-Y. Lee, Ajou Univ., REPUBLIC OF KOREA  
J. Tan, Nanjing Forestry Univ., CHINA

**WE3C-1**

Application of Terahertz Spectroscopic Technology in Identification of Pine Wood Nematode Disease  
Y.-F. Liu1, J. Jiang2, J.-I. Tani1, Z.-W. Zhang2, C.-L. Zhang2,  
'Nanjing Forestry Univ., CHINA', 'Capital Normal Univ., CHINA'

**WE3C-2**

Development of a Simple Multiple-Position Identifying System with a Long Range Multiband Leaky Coaxial Cable for Rescue Operations in Tunnels or Passages in Underground Facilities  
M. Nakamura1, T. Takagi1, J. Terasima1, K. Imaiga1, T. Nishikawa2, N. Moriyama1, K. Waizaki1,  
'Nagano Prefecture General Industry Technology Centre, JAPAN', 'Ryooetsu System, Ltd, JAPAN', 'Shinohu Univ., JAPAN'

**WE3C-3**

New Dielectric Heating Under Noninvasive Temperature Measurement Using MR  
A. Ishikawa, Y. Nakawa, Kokushikan Univ., JAPAN

---

**Wednesday, December 8**

**16:00 – 18:00**

**Room A (301)**

**Session WE4A**

*EuMA Special Session*

*Chairs*: T. Ohira, Toyohashi Univ. of Technology, JAPAN  
A. Alphones, Nanyang Technological Univ., SINGAPORE

**WE4A-1 (Invited)**

Innovative Solutions for Compact Waveguide Filters  
Prof. R. Sorrentino1, Simone Bastioli2, 'Univ. of Perugia, ITALY', 'RF Microtech SRL, ITALY'

**WE4A-2 (Invited)**

MEMS Tunable Metamaterial Surfaces and Their Applications  
Prof. A.V. Rämen1, D. Chicherin2, M. Sterner2, S. Dudorov1,  
'Swedish Royal Institute of Technology, SWEDEN', 'Mircowave, Aalto Univ., FINLAND'

**WE4A-3 (Invited)**

Sem-Active Satellite Antenna Front-Ends: a Successful European Innovation  
Dr. A.G. Roederer, IRCTR, Delft Univ. of Technology, NETHERLANDS

---

**Room B (302)**

**Session WE4B**

*Design and Implementation Techniques for Microwave Filters 2*

*Chairs*: I. Awai, Ruyoku Univ., JAPAN  
S. Watanabe, Aoyama Gakuin Univ., JAPAN

**WE4B-1 (Invited)**

Miniaturization of Substrate Integrated Bandpass Filters  
Prof. W. Hong, K. Gong, Southeast Univ., CHINA

**WE4B-2**

An Extended Doubled Bandpass Filter Implemented with Microstrip Resonator and Substrate Integrated Waveguide Cavity  

**WE4B-3**

Compact Balanced Combinde Bandpass Filters with Two Independently Controllable Transmission Zeros in LTCC Technology  
C.-L. Tsai1,2, Y.-S. Lin1, 'National Central Univ., TAIWAN', 'Walins Techonology Corp., TAIWAN'

**WE4B-4**

Multi-Layer Coupled Band-pass Filter for 60GHz LTCC System-on-Package  
K. Hiraga, T. Seki, K. Nishikawa, K. Uehara, NTT Corp., JAPAN

**WE4B-5**

Compact Microwave Bandpass Filters Using Miniaturized Quarter-Wavelength Resonators  
C.-H. Liang, W.-S. Chang, C.-Y. Chang, National Chiao Tung Univ., TAIWAN

---

**Room C (303)**

**Session WE4C**

*Microwave Medical and Biological Applications*

*Chairs*: A.M. Abbosh, The Univ. of Queensland St Lucia, AUSTRALIA  
Y. Nakawa, Kokushikan Univ., JAPAN

**WE4C-1**

Ultra-Wideband Array Antenna System for Breast Imaging  
M. Bialkowski, D. Ireland, Y. Wang, A.M. Abbosh, Univ. of Queensland, AUSTRALIA

**WE4C-2**

Breast Cancer Detection: Comparison of Data-Dependent and Data-Independent Approaches  
F. Yang, A.S. Mohan, Univ. of Technology Sydney (UTS), AUSTRALIA

**WE4C-3**

Early Breast Cancer Detection Using Doppler Frequency Shift  
A.M. Abbosh, The Univ. of Queensland, AUSTRALIA

**WE4C-4**

Analysis of Microwave Reflection from Capillary Blood Vessel  
Y. Nakawa, Kokushikan Univ., JAPAN

**WE4C-5 (Invited)**

Recent Advances in Doppler Radar Sensors for Pervasive Healthcare Monitoring  
Prof. J. Lin1, C Li2, 'Univ. of Florida, U.S.A.', 'Texas Tech Univ., U.S.A.'
TECHNICAL SESSIONS

Room D (304)

Session WE3D

Progress in Antenna Applications
Chairs: K. Ghorbani, RMIT Univ., AUSTRALIA
H. Hirayama, Nagoya Institute of Technology, JAPAN

WE3D-1

UHF RFID Tag for Metal Containers
K.V.S. Rao, S.F. Lam, P.V. Nikitin, Intermet: Technologies, U.S.A.

WE3D-2

Cylindrical Combline Microstrip Array for Producing Omnidirectional Radiation Pattern
A. Pirhadi, H. Bahrami, J. Nastajgolberenji, A. Mallahzadeh, Shahid Beheshti Univ. (SBU), IRAN, Tarbiat Modares Univ. (TMU), IRAN, ’Shahed Univ. (SU), IRAN

WE3D-4

Interaction Between New Printed Antennas and Human Body in Medical Applications
A. Sabbah, Orta Braude College, ISRAEL

WE3D-5

A New High-Directivity Fractal Antenna Based on the Modified Koch Snowflake Geometry

Room E (311+312)

Session WE3E

System Consideration
Chairs: A. Hira, NTT Corp., JAPAN
Y. Nakasha, Fujitsu, Ltd., JAPAN

WE3E-1

10-GHz’s Bi-Directional and 20-GHz’s Uni-Directional Data Transmission Over a 120-GHz-Band Wireless Link Using a Fineline Ortho-Mode Transducer
J. Takeshi, A. Hira, H. Takahashi, N. Kukutsu, NTT Corp., JAPAN

WE3E-2

Performance Analysis of a 10-GHz/ millimeter-Wave Impulse Radio Transmitter
Y. Nakasha1, N. Hara1, K. Araki1, Fujitsu, Ltd., JAPAN, 2Fujitsu laboratories, Ltd., JAPAN, 3Tokyo Institute of Technology, JAPAN

WE3E-3

RFID System Based on Pulse-Position Modulation Using Group Delay Engineered Microwave C-Sections
S. Gupta, B. Nikfal, C. Caloz, École Polytechnique de Montréal, CANADA

WE3E-4

An All Digital OFDM Receiver Using a Novel RF Quadrature Under-Sampling Technique
M. Inomata, T. Hanuta, M. Muraguchi, Tokyo Univ. of Science, JAPAN

WE3E-5

Investigation into Improving Coverage and Capacity of CDMA Wireless Base Stations with CRFE in Rural Environment
J. E. Mazierska, J. Gileppa, James Cook Univ., AUSTRALIA

Room F (313+314)

Session WE3F

Mobile Antennas
Chairs: K.-L. Wong, National Sum Yat-Sen Univ., TAIWAN
R. Yamaguchi, NTT DOCOMO, INC., JAPAN

WE3F-1

Compact laminated Monopole Antenna Using Air-Gap for Multi-Band Mobile Terminals
C. Park1, S. Yoon1, H. Kim1, M. Song1, Y. Yang1, 1SamsungkyunKwan Univ., REPUBLIC of KOREA, 2Samsung Electronics, Co., Ltd., REPUBLIC of KOREA

WE3F-2

Multiband Internal Antenna for Mobile Phones Using a High Dielectric Material
S. Yoon1,2, C. Park1,2, M. Kim1, K. Kim1, Y. Yang1, 1SamsungkyunKwan Univ., REPUBLIC of KOREA, 2Samsung Electronics, Co., Ltd., REPUBLIC of KOREA

WE3F-3

Wideband Mobile Terminal Antenna Design Using Extended Ground
K. Kim, S. Jeon, H. Kim, Hanyang Univ., REPUBLIC of KOREA

WE3F-4

Super Slim Multiband Inverted-F Antenna for GSM / DCS /PCS /WLAN Operation
A.R. Razali, M.E. Bialkowski, The Univ. of Queensland, AUSTRALIA

WE3F-5

Design of a Wideband Internal Monopole Antenna for Wireless USB Dongle Application
D. Kim, U. Kim, J. Choi, Hanyang Univ., REPUBLIC of KOREA

Room D (304)

Session WE4D

Planar Antennas
Chairs: H. Shoki, Toshiba Corp., JAPAN
T. Seki, NTT Corp., JAPAN

WE4D-1 (Invited)

Inkjet-Printed Paper / Polymer-Based “Green” RFID and Wireless Sensor Nodes: The Final Step to Bridge Cognitive Intelligence, Nanotechnology and RF?
Prof. M. Tenteris, A. Traille, H. Lee, A. Rida, V. Lakafosis, R. Vyas, Georgia Institute of Technology, U.S.A.

WE4D-2

Investigation of 1-D Meta-Structured Leaky Wave Antennas Using High Radiation Unit Cell
C. Kim, B. Lee, Kyunghee Univ., REPUBLIC of KOREA

WE4D-3

Anisotropic Meta-Substrate Conical-Beam Leaky-Wave Antenna
A. Shalvarparou1, A.A. Melcon1, C. Caloz1, École Polytechnique de Montréal, CANADA, 1Universidad Politécnica de Cartagena, SPAIN

WE4D-4

Planar 77GHz Antennas on New Thermoplastic Polymer Substrate
M. Schneider, M.D. Richter, Univ. of Bremen, GERMANY

WE4D-5

Carbon Fibre Reinforced Plastic Slotted Waveguide Antenna
D. Gray1, K. Nicholson2, K. Ghorbani1, P. Callus2, RMIT, AUSTRALIA, 1Defence Science and Technology Organisation (DSTO), AUSTRALIA

Room E (311+312)

Session WE4E

Microwave Photonics
Chairs: K. Murata, NTT Corp., JAPAN
A. Alphones, Nanyang Technological Univ., SINGAPORE

WE4E-1 (Invited)

Hybrid Approach for Optical Beamforming for Phased Array
Prof. A. Alphones, P.Q. Thai, Nanyang Technological Univ., SINGAPORE

WE4E-2

Phase Measurement and Calibration Characteristics of Optically Controlled Phased Array Antenna Using Multiple SPPs
D. Takahashi1, W. Chia2, A. Tsuzuki1, S. Yamamoto1, Y. Koyama1, 1Tohoku Univ., JAPAN, 2NICT, JAPAN, 3Mitsubishi Univ., JAPAN

WE4E-3

Guided Waves on a Dielectric Slab Waveguide with a Variable Period Slot Array Using Photoinduced Semiconductor Plasma
K. Nishimura, Rikukawa Univ., JAPAN

WE4E-4

Considerations of Optimum Electrode Structure for Lumped Constant Type LN Optical Modulator in the Microwave Band with Electromagnetic Field Simulator
T. Kamo1, K. Hara1, H. Fujisaka1, Y. Toba1, Hiroshima City Univ., JAPAN, 2SEIKOH Giken Corp., JAPAN

WE4E-5

Remote Microwave Observation Systems Over Optical IP Networks Using a Digitized Radio-Over-Fiber Technique
Y. Shoji, Y. Takayama, H. Ohta, National Institute of Information and Communications Technology, JAPAN

Room F (313+314)

Session WE4F

CMOS Low Noise Amplifier
Chairs: K. Joshin, Fujitsu Laboratories LTD., JAPAN
B. Kim, Poltech Univ., REPUBLIC of KOREA

WE4F-1

CMOS Dual-Band Low-Noise Amplifier for World-Wide WiMedia Ultra-Wideband Wireless Personal Area Network System
Z.-Y. Huang, C.C. Hung, National Chiao Tung Univ., TAIWAN

WE4F-2

A Compact Fully-Integrated 5.2-11.2GHz Low Noise Amplifier Using 0.18-µm CMOS Technology
Y.-Y. Hsu, B.-J. Huang, J.-L. Kuo, H. Wang, National Taiwan Univ., TAIWAN

WE4F-3

A 3-7GHz Low Power Wide-Band Common Gate Low Noise Amplifier
M.-T. Hsu, T.-C. Liu, National Chiao Tung University, TAIWAN

WE4F-4

An Inverter Structure for 2-6GHz Low Power High Gain Low Noise Amplifier
A.J.A. Galal, R.K. Pokhrel, H. Kanaya, K. Yashida, Kyushu Univ., JAPAN

WE4F-5

A Low Power, High Dynamic Range LNA for Filterless RF Receiver Front-Ends in 90-nm CMOS
T.D. Werth, D. Bormann, S. Kaeblert, L. Liao, R. Wunderlich, S. Heinen, RWTH Aachen Univ., GERMANY

WE4F-6

A Receiver Front-End with Variable-Gain Control for WiMAX Applications
T.-L. Chiu, M.-F. Huang, C.-C. Wang, Industrial Technology Research Institute, TAIWAIN
TECHNICAL SESSIONS

Thursday, December 9 8:50 – 10:30

Room A (301)

Session TH1A

Theory and Implementation of Oscillators

Chairs: K. Itoh, Kanazawa Institute of Technology, JAPAN
H. Zirath, Chalmers Univ., SWEDEN

TH1A-1
A Low Power 10GHz Voltage-Controlled Oscillator with Modified Current-Recycled Configuration
M.-T. Hse, W.-H. Lin, National Tainan Univ. of Science and Technology, TAIWAN

TH1A-2
A Ku Band Push-Push Oscillator Array Using Directional Phase Shifter
T. Hama, K. Kawasaki, T. Tanaka, M. Aikawa, Saga Univ., JAPAN

TH1A-3
High-Frequency Half-Integral Subharmonic Locked Ring-VCO-Based Scalable PLL in 90nm CMOS
S.-Y. Lee, S. Amakawa, N. Ishihara, K. Masu, Tokyo Institute of Technology, JAPAN

TH1A-4
Phase Noise Analysis of Sinusoidal Oscillators Based on Forced-Oscillation Model
S. Sakihara1, O. Ishida1, T. Obara2, O. Kinokawa National College of Technology, JAPAN, 1Toyoohasi Univ. of Technology, JAPAN

TH1A-5
A 284-MW 1.85-GHz 20-Phase Oscillator Using Transfer Gate Phase Couplers
H. Lee, T. Takeuchi, M. Yoshimoto, H. Kawaguchi, Kobe Univ., JAPAN

Room B (302)

Session TH1B

Transmission Lines and Waveguide 1

Chairs: H. Uchida, Mitsubishi Electric Corp., JAPAN
T.-G. Ma, National Taiwan Univ., TAIWAN

TH1B-1
A Miniaturized Transmission Line with a Mesh-Structure Signal Metal for CMOS ICs
Y. Uno1, T. Mitomo, H. Hoshino, O. Watanabe, Toshiba Corp., JAPAN

TH1B-2
Novel Synthesized Microstrip Line with Controllable Transmission Zeros for Harmonic Suppressions
C.-H. Lai, Y.-C. Tseng, T.-G. Ma, National Taiwan Univ. of Science and Technology, TAIWAN

TH1B-3
Innovative HF Extraction Procedure of the Characteristic Impedance for Embedded Planar Transmission Line on High Conductive Si Substrate
L. Founeaud1, T. Lucero2, J. Chatbonier1, A. Farcy1, B. Flechet1, 1Université de Savoie, FRANCE, 2CEA-Leti Montes, FRANCE, 3Institut d’economie, FRANCE

TH1B-4
A Fast Frequency-Domain Method for Lossless Multiconductor Transmission Line Equations and Its Application
F. Xiao, Univ. of Electronic Science and Technology of China, CHINA

TH1B-5
An Equivalent Circuit Analysis of Coplanar Waveguide Employing Periodic Ground Structure on GaAs MMIC

Room C (303)

Session TH1C

UWB Antennas 1

Chairs: Q.-X. Chu, South China Univ. of Technology, CHINA
T. Sasamori, Akita Prefectural Univ., JAPAN

TH1C-1
A Reconfigurable Frequency-Notched UWB Antenna with Split-Ring Resonators
M. Al-Hussaini1, J. Costantine1, C.G. Christodoulou1, S.E. Buden1, A. El-Hajj2, K.Y. Kabalan1, 1American Univ. of Beirut, LEBANON, 2Univ. of New Mexico, U.S.A, 3Universidade de Sao Paulo, BRAZIL

TH1C-2
Compact Circular Polarized Antenna for GPS and CNS Applications
Z.-H. Tu, Q.-X. Chu, South China Univ. of Technology, CHINA

TH1C-3
A New Circular UWB Microstrip Antenna, and Its Characterization in Time and Frequency Domains
M. Kumar, A. Bassi, S.K. Koul, Indian Institute of Technology Delhi, INDIA

TH1C-4
A Compact UWB Antenna with Sharp Band-Notched Characteristics and Controllable Notched Bandwidth
Q.-X. Chu, T.-G. Huang, South China Univ. of Technology, CHINA

Thursday, December 9 10:50 – 12:30

Room A (301)

Session TH2A

Frequency Conversion Techniques

Chairs: R. Fujimoto, STARC, JAPAN
I. Macháč, Czech Technical Univ. in Prague, CZECH REPUBLIC

TH2A-1
17-GHz pHEMT Gilbert Single-Quadrature Downconverter With Polyphase Filters for Image Rejection
H.-J. Wei1, C.-C. Meng1, J.-Y. Su2, S.-W. Yu1, G.-W. Huang2, 1National Chiao Tung Univ., TAIWAN, 2National Nano Device Lab., TAIWAN

TH2A-2
Reconfigurable Up-Converter with Image Rejection
X.Y. Zhang1, H.-L. Zhang1, B.-J. Hu1, Q. Xue2, 1South China Univ. of Technology, CHINA, 2City Univ. of Hong Kong, HONG KONG

TH2A-3
A Low-IF Direct Sampling Mixer with Complex Transfer Function for ISDB-T One Segment Applications
Y. Morishita1, N. Saito1, K. Araki2, 1Panasonic Corp., JAPAN, 2Tokyo Institute of Technology, JAPAN

TH2A-4
Nonlinear Analysis of Direct Sampling Mixers Using F-Matrix
K. Aio, K. Araki, Tokyo Institute of Technology Univ., JAPAN

TH2A-5
A Passive 8 to 24GHz Frequency Tripler Based on Microstrip Line Circuits and Schottky Diodes
C. Baer, T. Musch, Ruhr-Universitat Bochum, GERMANY

Room B (302)

Session TH2B

Power Dividers

Chairs: K.K.M. Cheng, The Chinese Univ. of Hong Kong, HONG KONG
I. Sakagami, Univ. of Toyama, JAPAN

TH2B-1
Design Method of Lumped-Element Dual-Band Wilkinson Power Dividers Based on Frequency Transformation
T. Kawai, I. Ohta, A. Enokihara, Saga Univ., JAPAN

TH2B-2
A Planar Three-Way Dual-Band Power Divider Using Two Generalized Open Stub Wilkinson Dividers
W. Xing, I. Sakagami, K. Takahashi, S. Okamura, Univ. of Toyama, JAPAN

TH2B-3
A C-band Thin-Film Three-Way Wilkinson Power Divider / Combiner Using Microstrip Technology on Alumina

TH2B-4
Design of Planar Dual-Band Multi-Way Power Dividers
X. Lin, C. Yu, Y. Liu, S. Li, F. Wu, Y. Wu, Beijing Univ. of Posts and Telecommunications, CHINA

TH2B-5
Optimum Design for 6-way Power Divider with Inductive Post
D.-H. Kim1, S.-S. Oh2, K.-S. Min1, 1Korea Maritime Univ., REPUBLIC OF KOREA

Room C (303)

Session TH2C

UWB Antennas 2

Chairs: T. Fukusako, Kumamoto Univ., JAPAN
E. T. Rahardjo, Universitas Indonesia, INDONESIA

TH2C-1
Compact UWB Chip Antenna Design
S.Y. Park, J.H. Jung, J.M. Song, J.K. Park, Hambat National Univ., REPUBLIC OF KOREA

TH2C-2
A Circularly Polarized L-Shaped and Rectangular Slot Antenna With An L-Shaped Probe For Wideband Characteristics
S. Nakao, R. Joseph, T. Fukusako, Kumamoto Univ., JAPAN

TH2C-3
Planar Wideband Adaptive Antenna Consisting of Radially Arrayed Multiple Taper-Slot Antenna Elements Having Wide Fins
T. Baba, A. Hirose, The Univ. of Tokyo, JAPAN

TH2C-4
Designs of Broadband Multi-Layered Circular Microstrip Antenna for Modern Communication Systems
M.M. Sharma1, S. Yadav1, A. Kumar1, D. Bhattacharjee2, R.P. Yadav1, 1Malaviya National Institute of Technology, INDIA, 2Univ. of Rajasthan, INDIA

TH2C-5
A Miniaturized Ultra Wideband Antenna With Single Tunable Band-Notched Characteristics
A.M.A. Salem, S.I. Shams El-Din, A.M.M.A. Allam, German Univ. in Cairo (GUC), EGYPT
### TECHNICAL SESSIONS

**8:50 – 10:30 Thursday, December 9**

**Room D (304)**

**Session THID**

**Reconfigurable antennas, Active Antennas**

*Chairs*: Q. Chen, Tohoku Univ., JAPAN  
M. Fujimoto, Univ. of Fukui, JAPAN

<table>
<thead>
<tr>
<th><em>THID-1</em></th>
<th>A Wideband / Image-Reflection Distributed Mixer Integrated with a CRLH Leaky Wave Antenna</th>
<th>C.M. Wu, T. Itoh, UCLA, U.S.A.</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>THID-3</em></td>
<td>Millimeter Wave Frequency Reconfigurable Quasi-Yagi Antenna</td>
<td>P.-Y. Qiu1, A.K. Weily2, Y.J. Gao1, C.H. Liang1, Xidian Univ., CHINA; <em>CSIRO ICT Centre, AUSTRALIA</em></td>
</tr>
<tr>
<td><em>THID-4</em></td>
<td>A Reconfigurable Orthogonal Antenna Array (ROAA) For Scanning Beam at 5.8GHz</td>
<td>M.T. Ali1, T.A. Rahman1, M.R. Kamaruddin2, M.N. Md Tan2, M.F. Jamlos1, 1Universiti Teknologi Mara (UiTM), MALAYSIA; 2Universiti Teknologi Malaysia, MALAYSIA</td>
</tr>
</tbody>
</table>

**Room E (311+312)**

**Session THIE**

**High Efficiency Power Amplifiers**

*Chairs*: K. Kunihiro, NEC Corp., JAPAN  
M. Thian, Queen’s Univ., U.K.

| *THIE-1* | A Concurrent Dual-Band Doherty Power Amplifier | X. Li1, W. Chen1, Z. Zhang1, Z. Feng1, X. Tang1, K. Mouhanna1, Tsinghua Univ., CHINA; 2National Univ. of Singapore, SINGAPORE |
| *THIE-3* | Analysis and Optimization of Asymmetric Sequential Power Amplifier | Y. Park, B. Ham, Hankuk Univ. of Foreign Studies, REPUBLIC OF KOREA |
| *THIE-4* | 2.4GHz High-Efficiency Power-Combining Class-E Amplifier with Transmission-Line Harmonic Traps | M. Thian1, V. Fusco1, P. Gardner1, Queen’s Univ. Belfast, U.K.; 2Univ. of Birmingham, U.K. |
| *THIE-5* | A 50-mW, 386GHz/mm2 Wideband Amplifier in 0.13-µm Si-Based Millimeter-Wave ICs | G. Liu, A. Ulusoy, A. Trasser, H. Schumacher, *Institut für Semicondensertoren, Technische Universität München, GERMANY* |

**Room F (313+314)**

**Session THIF**

**Tunable and Metamaterial Filters and Resonators 2**

*Chairs*: T. Nishino, Mitsubishi Electric Corp., JAPAN  
M. Hangai, Mitsubishi Electric Corp., JAPAN

| *THIF-1* | Compact CPW Dual-Band Bandpass Filters Based on Semi-Lumped Elements and Metamaterial Concepts | M. Durán-Sindreu, J. Bonache, F. Martín, *Universitat Autònoma de Barcelona, SPAIN* |
| *THIF-3* | Novel Miniaturized Triplexer Using Substrate Integrated Technology | A. Corona-Chavez1, T. Itoh1, 1UCLA, U.S.A.; 2INAOE, MEXICO |
| *THIF-4* | The Design and Fabrication of a High Selectivity Bandpass Filter Based on Composite Right/Left-Handed (CRLH) Material | T.-C. Chou, C.-W. Huang, C.-Y. Chen, National Univ. of Taiwan, TAIWAN |
| *THIF-5* | A Loop Resonator Tunable Filter Using Phase Shifters | A. Taslimi, K. Mouhanna, National Univ. of Singapore, SINGAPORE |

### 10:50 – 12:30 Thursday, December 9

**Room D (304)**

**Session TH2D**

**MIMO Antennas**

*Chairs*: K.-L. Wong, National Sun Yat-sen Univ., TAIWAN  
M. Fujimoto, Univ. of Fukui, JAPAN

| *TH2D-1* | Adaptive Control of Radiation Patterns for Monopole Antenna with Frequency-Selective Reflector with Loading Varactor | Y. Hoshino, A. Saitou, K. Honjo, *The Univ. of Electro-Communications, JAPAN* |
| *TH2D-2* | Compact Linear Antenna Arrays for MIMO Applications | L.K. Yeung, *The Chinese Univ. of Hong Kong, HONG KONG* |
| *TH2D-3* | MIMO Antenna with Isolation Enhancement for Wireless USB Dongle Application at WLAN Band | Z. Li, M.S. Han, X. Zhao, J. Choi, Hanyang Univ., REPUBLIC OF KOREA |
| *TH2D-4* | A Polarization Diversity MIMO Antenna design for WiMAX Dongle Application | L.-C. Chang1,2, C.-H. Tseng1,2, Powen Hsu1, C.-C. Liu1, 1Industrial Technology Research Institute, TAIWAN; 2National Taiwan Univ., TAIWAN |
| *TH2D-5* | Compact Dual-Band MIMO Antenna with High Isolation Performance | I. Yeom1, J. Kim2, C. Jung1, 1Seoul National Univ. of Technology, REPUBLIC OF KOREA; 2MobiTech Corp., REPUBLIC OF KOREA |

**Room E (311+312)**

**Session TH2E**

**Si-Based Millimeter-Wave ICs**

*Chairs*: T. Nagatsuma, Osaka Univ., JAPAN  
K. Sano, NTT Corp., JAPAN

| *TH2E-1* | 60-80GHz Frequency Doubler Operating Close to fmax | G. Liu, A.C. Ulusoy, A. Trasser, H. Schumacher, Ulm Univ., GERMANY |
| *TH2E-2* | A 50-mW, 386GHz/mm2 Wideband Amplifier in 0.13-µm CMOS Technology | H.-K. Chen1, T. Wang1, K.-T. Liu1, H.-C. Chen1, S.-S. Lu1, 1National Taiwan Univ., TAIWAN; 2Chang Gung Univ., TAIWAN; 3National Taiwan Univ. of Science and Technology, TAIWAN |
| *TH2E-3* | An Innovative Injection-Locked Frequency Divider with Transformer Transconductance-Boosted Technique | Y.-L. Ye1, H.-Y. Chang1, K. Chen1, S.-H. Wu1, 2National Central Univ., TAIWAN; 3Industrial Technology Research Institute (ITRI), TAIWAN |
| *TH2E-4* | Admittance-Transforming Injection-Locked Frequency Divider and Low-Supply-Voltage Current Mode Logic Divider | Y.-H. Kuo1, J.-H. Tsai2, W.-H. Chou1, T.-W. Huang1, 1National Taiwan Univ., TAIWAN; 2National Taiwan Normal Univ., TAIWAN |
| *TH2E-5* | 116GHz CMOS Injection Locked Oscillator with –9.3dBc/Hz at 1MHz offset Phase Noise | M. Motoyoshi1,2, M. Fujishima1, Hiroshima Univ., JAPAN; 2The Univ. of Tokyo, JAPAN |

**Room F (313+314)**

**Session TH2F**

**Miniaturized and Multi-Band Directional Couplers**

*Chairs*: C.-H. Tseng, National Taiwan Univ., TAIWAN  
T. Kawai, Univ. of Hyogo, JAPAN

| *TH2F-1* | A Miniaturized Wide Band Micromachined Directional Coupler | C.-P. Lin, Y.-H. Li, C.F. Jou, National Chiao Tung Univ., TAIWAN |
| *TH2F-2* | A Novel Microstrip Forward Directional Coupler Using Defected Ground Structure | S.-K. Hsu, J.-C. Yen, T.-L. Wu, National Taiwan Univ., TAIWAN |
| *TH2F-3* | Dual-Band Rat-Race Coupler Design in Multilayer LTCC | T.-M. Shen, C.-R. Chen, T.-Y. Huang, R.-B. Wu, National Taiwan Univ., TAIWAN |
| *TH2F-4* | A Compact Branch-Line Coupler Using π-Equivalent Shunt-Stub-Band Artificial Transmission Lines | C.-H. Wu, C.-H. Tseng, National Taiwan Univ. of Science and Technology, TAIWAN |
| *TH2F-5* | Directional Couplers from 30 to 140GHz in Silicon | B. Laemmlle1, K. Schmalz2, C. Schei3, A. Koelpin1, R. Weigel1, 1Univ. of Erlangen-Nuremberg, GERMANY; 2HP Microelectronics GmbH, GERMANY |
**TECHNICAL SESSIONS**

**Thursday, December 9**

**14:00 – 15:40**

**Session TH3A**

**Wireless Transceiver and Receiver IC Design Techniques**

*Chairs*: K. Nishikawa, NTT Corp., JAPAN
T. T. Lee, Boeing, U.S.A.

**TH3A-1**
A 0.5-5.5GHz Low Even-Order Distortion CMOS Current-Reuse Front-End for Wideband RF Receivers
R.-F. Ye1, K.-S. Chen2, T.-S. Heng2, J.-M. Wei1, National Sun Yat-sen Univ., TAIWAN; National Kaohsiung Normal Univ., TAIWAN.

**TH3A-2**
A 41-mW Single-IF Dual Conversion CMOS Receiver for 5GHz Wireless LAN
D. Oh, M. Cha1, I. Choi, I. Kwon, Ajou Univ., REPUBLIC of KOREA.

**TH3A-3**
A 2.5-2.7 GHz Pseudo-Cascode CMOS Receiver Front-End with Integrated Unequal-Turn-Ratio Transformer Balun
Y.-C. Liu1, K.-S. Chen2, T.-S. Heng2, J.-M. Wei1, National Sun Yat-sen Univ., TAIWAN; National Kaohsiung Normal Univ., TAIWAN.

**TH3A-4**
A Compact K/Ka-Band Transceiver MMIC Using GaAs 3D-MMIC Technology
T. Kaho, Y. Yamaguchi, K. Uehara, NTT Corp., JAPAN.

**Session TH3B**

**Highly-Integrated Planar Filter / Resonator Design**

*Chairs*: E. Rius, Université de Bretagne Occidentale, FRANCE
S. Narahashi, NTT DOCOMO INC., JAPAN

**TH3B-1**
A 77-GHz CMOS On-Chip Bandpass Filter Using Slow-Step-Matched Impedance Resonators
H.-R. Lin1, C.-Y. Hou1, L.-K. Yeh1, H.-R. Chiang1, C.-Y. Chen1, National Cheng Kung Univ., TAIWAN; National Univ. of Tainan, TAIWAN.

**TH3B-2**
A Compact Millimeter-Wave CMOS Bandpass Filter Using Stepped-Millennium Cross Resonator
Y.-M. Chen, S.-F. Chang, C.-L. Wei, National Chiang Cheng Univ., TAIWAN.

**TH3B-3**
High Performance Resonators for MM-Wave ICs
F. Aghamoradi, I. McGregor, K. Elgaid, Univ. Of Glasgow, U.K.

**TH3B-4**
A Compact Second Harmonic-Suppressed Bandpass Filter Using 8-Element Transmission Lines
C.-L. Chang, C.-H. Tseng, National Taiwan Univ. of Science and Technology, TAIWAN.

**TH3B-5**
UHF Band Semi-Lumped Active Notch Filter
D. L. H. Tong1, J.-Y. L. Naour1, J.-L. Robert2, A. Louzir3, Technicolor R&I, FRANCE.

**Session TH3C**

**Electromagnetic Wave Theory 1**

*Chairs*: S. Watanabe, Aoyama Gakuin Univ., JAPAN
K. Okubo, Okayama Prefectural Univ., JAPAN

**TH3C-1**
Creating a Terrahertz Wave Source Through Nonlinear Sum Frequency Generation in a Microwave Pumped Ferroelectric Crystal
J.F. Webb, Swinburne Univ. of Technology, MALAYSIA

**TH3C-2**
Efficiency Analysis and Optimal Design of a Circular Loop Resonant Coil for Wireless Power Transfer
H.-C. Son1, J.-W. Kim1, Y.-J. Park1, K.-H. Kim1, Korea Electrotechnology Research Institute (KERI), REPUBLIC of KOREA; Univ. of Science and Technology (UST), REPUBLIC of KOREA.

**TH3C-3**
Frequency Shift in a Single Dielectric Resonator and in a Chain of Coupled Resonators due to Time Change in Permittivity
N. Sakimoto, A. Nerukh, Kharkov National Univ. of Radio Electronics, UKRAINE.

**TH3C-4**
Poynting Theorem for the Natural Modes of Open Dielectric Resonators with Active Regions
A.I. Nosich1, E.I. Smotrova 1, V.O. Byelobrok1, R. Sauleau1, IRE NASU, UKRAINE; Université de Rennes, FRANCE.

**TH3C-5**
Scattering by Cylindrical Objects Buried in a Dielectric Layer
F. Frezza1, L. Pajewski1, C. Ponti1, G. Schettini2, Sapienza Univ. of Rome, ITALY; Roma Tre Univ. of Rome, ITALY.

**Thursday, December 9**

**16:00 – 18:00**

**Session TH4A**

**Broadband and Millimeter-Wave Circuit Designs**

*Chairs*: T. Tokumitsu, Sumitomo Electric Industries, Ltd., JAPAN
R. Kagiwada, Northrop Grumman, U.S.A.

**TH4A-1 (Invited)**
Broadband Design Techniques and Technology for Future Wireless and Wire-Line Applications
Dr. K.W. Kobayashi, K. Krishnamurthy, R. Vetury, Y. McCleary, R. Hillermeier, J.B. Shealy, RF Micro Devices, U.S.A.

**TH4A-2**
A 60GHz High Gain Transformer-Coupled Differential Power Amplifier in 65nm CMOS
J.-C. Liu1, Q.J. Gu1, T. LaRocca2, N.-Y. Wang1, J.-M. Wu1, M.C.F. Chang1, National Sun Yat-sen Univ., TAIWAN; National Kaohsiung Normal Univ., TAIWAN.

**TH4A-3**
A 60GHz Frequency Down-Converter with Divided LO Output in an 80GHz SiGe HBT Technology
G. Liu, A.-I. Nosich1, E.I. Smotrova 1, V.O. Byelobrok1, R. Sauleau1, IRE NASU, UKRAINE.

**TH4A-4**
A Dual-Gate Subharmonic Injection-Locked Oscillator Using 0.5µm GaAs pHEMT Technology
F.-H. Huang, M.-H. Tsai, H.-Y. Chang, Y.-M. Hsin, National Central Univ., TAIWAN.

**TH4A-5**
A Low DC Power High Conversion Gain Frequency Doubling IC for 22-29GHz UWB Applications
J. Sun1, Q. Liu1, Y.-J. Sah1, T. Shibata2, T. Yoshimasa2, Waseda Univ., JAPAN; Denso Corp., JAPAN.

**Session TH4B**

**APMC Special Session**

*Chairs*: N. Suematsu, Tohoku Univ., JAPAN
K. Ghorbani, RMIT Univ., AUSTRALIA

**TH4B-1 (Invited)**
Digitally Enhanced Linear Power Amplifiers
Prof. B. Kim, D. Kang, J. Moon, D. Kim, Pohang Univ. of Science and Technology, REPUBLIC of KOREA.

**TH4B-2 (Invited)**
Antenna-in-Package Technology: the Key to Success of 60-GHz Radio
Prof. Y.P. Zhang, Nanyang Technological Univ., SINGAPORE.

**TH4B-3 (Invited)**
Millimeter Wave Integrated Circuit Techniques and Technology
Prof. S.K. Koul, Indian Institute of Technology Delhi, INDIA.

**Session TH4C**

**Electromagnetic Wave Theory 2**

*Chairs*: A. I. Nosich, IRE NASU, UKRAINE
T. Shibata, NTT Corp., JAPAN

**TH4C-1 (Invited)**
A History of Applied Planar Electromagnetic Analysis
Dr. J.C. Rautio, Sonnet Software, Inc., JAPAN.

**TH4C-2**
WCIP Acceleration
N. Raveu1, L. Giraud2, H. Baudrand1, Université de Toulouse, FRANCE; INRIA Bordeaux Sud Ouest, FRANCE.

**TH4C-3**
Moment Method Solution Using Expansion Functions Defined in an Infinite Domain for Antenna Problems
M. Dalka, H. Matzner, Holon Institute of Technology (HIT), ISRAEL.

**TH4C-4**
Bistatic Composite EM Scattering from PEC Object above Rough Surface Based on KH-EFIE
X.-M. Li1, C.-M. Tong1, S.-H. Fu1, J.-L. Li1, Missile Institute of Air Force Engineering Univ., CHINA; Southeast Univ., CHINA.

**TH4C-5**
Complex Waves on Three-Dimensional Periodic Arrays of Lossy or Lossless Magnetodielectric Spheres
R.A. Shore, A.D. Yaghjian, Air Force Research Lab., U.S.A.
Friday, December 10 8:50 – 10:30

Room A (301)

Session FRA1

High Frequency Low Noise Amplifier

Chairs: I. Watanabe, NICT, JAPAN
H. Chiou, National Central Univ., TAIWAN

FRA1-1 A High-Gain and Low-Noise MMIC Amplifier Module for a Ku-Band Compact Active Integrated Antenna
S. Kasahara, H. Sato, M. Kawashima, M. Hori, K. Saeki, Y. Suzuki, 1Japan Aerospace Exploration Agency, JAPAN, 2Kyoto Univ., JAPAN, 3Tokyo Univ. of Science, JAPAN, 4NTT DoCoMo, Inc., JAPAN

FRA1-2 A High-Linearity Broadband 55-77GHz Differential Low-Noise Amplifier with 20dB Gain in SiGe Technology
D. Kissingler, K. Auinger, T. Peister, I. Maurer, R. Wogel, 1Univ. of Erlangen-Nuremberg, GERMANY, 2Defimex Technologies AG, GERMANY, 3Danube Integrated Circuit Engineering (DICE), AUSTRIA

FRA1-3 A 24-GHz 3.8–dB NF Low-Noise Amplifier with Built-In Linearizer
Y. -H. Kuo, J.-H. Tsai, W.-H. Chou, T.-W. Huang, 1National Taiwan Univ., TAIWAN, 2National Taiwan Normal Univ., TAIWAN

FRA1-4 A 24-GHz Low Power Low Noise Amplifier Using Current Reuse and Body Forward Bias Techniques in 0.18-μm CMOS Technology
C.-C. Kuo, H. Wang, National Taiwan Univ., TAIWAN

FRA1-5 A High Performance V-Band Low Noise Amplifier Using Thin-Film Microstrip (TFMS) Lines in 0.13μm CMOS Technology
H.-K. Chiu, K.-Z. Lee, S.-J. Wu, National Central Univ., TAIWAN

Room B (302)

Session FRB1

Artificial Materials and Applications

Chairs: A. Sanada, Yamaguchi Univ., JAPAN
T. Itoh, UCLA, U.S.A.

FRB1-1 Ferromagnetic Nanowire (FMNW) Self-Biased H-Plane Resonance Isolator
H. Razavyvand, L.-P. Carignan, D. Ménaud, A. Yelon, C. Calvez, École Polytechnique de Montréal, CANADA

FRB1-2 Characteristics of Left-Handed Ferrite Waveguide K. Okubo, M. Tsutsumi, 1Okayama Prefectural Univ., JAPAN, 2Fukui Univ. of Technology, JAPAN

FRB1-3 Manipulating Polarization of Electromagnetic Waves Through Controllable Metamaterial Absorber
B. Zhu, C. Huang, J. Zhao, T. Jiang, Y. Feng, 1Nanjing Univ., CHINA, 2Southeast Univ., CHINA

FRB1-4 Radiation Characteristics of Waveguide-Type Zeroth-Order Resonator K. Shimizu, H. Kubo, A. Sanada, Yamaguchi Univ., JAPAN

FRB1-5 2D Zeroth Order Resonator with Non-Planar Metamaterial Composed of Metal Rods T. Yamamoto, A. Sanada, H. Kubo, T. Kodera, Yamaguchi Univ., JAPAN

Room C (303)

Session FRC1

Propagation and Interference

Chairs: S. Kameda, Tohoku Univ., JAPAN
F. Suginoisita, NHK, JAPAN

FRC1-1 Influence of Hand Tremor for 60-GHz-Band Broadband Wireless Communication Terminal Based on Advanced Kiosk Model

FRC1-2 Connection Probability Enhancement Using Artificial Reflectors for Millimeter Wave Communications S. Takahashi, H. Sawada, S. Kato, Tohoku Univ., JAPAN


FRC1-4 Considerations and Experiments for Stable Ship Mobile Reception of Terrestrial Digital Television Waves K. Haruzi, T. Kamiya, S. Ishida, T. Koto, Y. Urata, 1Hiroshima City Univ., JAPAN, 2RCC Broadcasting, JAPAN, 3NHK Integrated Technology, JAPAN

FRC1-5 Performance Evaluation of ATSC-DTV Receivers in the Presence of ISDB-T Interference Signal S.W. Choi, H.I. Hong, Electronics and Telecommunications Research Institute, REPUBLIC OF KOREA

Friday, December 10 10:50 – 12:30

Room A (301)

Session FRA2

CMOS Power Amplifiers

Chairs: S. Tanaka, Renesas Electronics Corp., JAPAN
S. Shinjo, Mitsubishi Electric Corp., JAPAN

FRA2-1 Design Considerations for 60GHz CMOS Power Amplifiers
Y. He, D. Zhao, L. Li, P. Reynaert, Katholieke Universiteit Leuven, BELGIUM

FRA2-2 A 57–66GHz Medium Power Amplifier in 65-nm CMOS Technology
C.-Y. Hsieh, J.-J. Kuo, Z.-M. Tsai, K.-Y. Lin, National Taiwan Univ., TAIWAN

FRA2-3 Analysis and Design of Series Combining Transformers for Integrated Doherty Power Amplifiers
E. Kaymaksu, B. François, P. Reynaert, Katholieke Universiteit Leuven, BELGIUM

FRA2-4 65nm and 32nm Single NMOS Amplifier Non-Linear Study for Transducer Gain Optimization and Load-Pull Measurements R. Paulin, F. Blanchet, P. Garcia, STMicroelectronics, FRANCE

FRA2-5 Measurement of Integrated PA-to-LNA Isolation on Si CMOS Chip R. Minami, J. Y. Hong, D. Imanishi, K. Okada, A. Matsuzaawa, Tokyo Institute of Technology, JAPAN

Room B (302)

Session FRB2

Advances in Coupler / Balun Technologies

Chairs: K. Wu, École Polytechnique, CANADA
T. Toyoda, NTT Corp., JAPAN

FRB2-1 A Novel Compact Planar Coupler with Simple Design Procedure X. Liu, C. Yu, Y. Liu, S. Li, F. Wu, M. Su, Beijing Univ. of Posts and Telecommunications, CHINA

FRB2-2 A Novel H-Plane Waveguide Intersection H. Ikeuchi, S. Matsumoto, T. Kawai, M. Kishihara, I. Obata, 1Univ. of Hiroshima, JAPAN, 2Furuno Electric Co., Ltd., JAPAN, 3Okayama Prefectural Univ., JAPAN

FRB2-3 Development of a Defected Ground Structure Wide Bandwidth Balun on Multilayer Organic Substrate H. Ta, A. Stameroff, A.-V. Pham, Univ. of California, Davis U.S.A

FRB2-4 A Compact Coupler Incorporating Non-Planar Planar Resonators for Resonant Coupling Wireless Power / Data Transfer Systems Y. Shirakata, S. Koshikawa, J.X. Ge, H. Mizutani, Keio Univ., JAPAN

FRB2-5 180-Degree Substrate Integrated Waveguide Hybrid and Its Application to Broadband Millimeter-Wave Single Balanced Mixer Design Z.-Y. Zhang, K. Wu, Y.R. Wei, École Polytechnique de Montréal, CANADA

Room C (303)

Session FRD2

Radar and Imaging Systems

Chairs: A. Hirose, Tokyo Univ., JAPAN
T. Kashiwa, Furuno Electric Co., Ltd., JAPAN

FRD2-1 Design of Sparse MIMO Arrays for Short Range Imaging Applications F. Gumbmann, L.-P. Schmidt, Univ. of Erlangen-Nuremberg, GERMANY

FRD2-2 Autofocus Imaging Simulation for Through-Wall Radar by Using FDTD with Unknown Wall Characteristics X. Gu, Y. Zhang, Chinese Academy of Sciences (CAS), CHINA


FRD2-4 Millimeter Wave FMCW Radar System Simulations Including a 3D Ray Tracing Channel Simulator M. Dudek, R. Wahl, D. Kissinger, R. Weigel, G. Fischer, 1Friedrich-Alexander Univ., GERMANY, 2AWE-Communications GmbH, GERMANY

FRD2-5 Multi-frequency Radar Systems for Monitoring Vital Signs L. Chioukh, H. Boutayeb, D. Deslandes, K. Wu, 1École Polytechnique de Montréal, CANADA, 2Université du Québec À Montréal (UQAM), CANADA
Session FR1D
Advances in Reflective and Slot Antennas

Chair: Q. Yuan, Sendai National College of Technology, JAPAN
N. Kuga, Yokohama National Univ., JAPAN

FR1D-1
Plane-Wave Excited Lens / Reflect Antennas Made of Uniaxially Anisotropic Metamaterials
S. W. Qiu1, J. F. Li1, Q. Chen3, Q. Yuan1, K. Sawaya2, Z.-F. Ji1, Tohoku Univ., JAPAN, 2Sendai National College of Technology, JAPAN, 3Southeast Univ., CHINA

FR1D-2
Integrated Wideband Dipole Antenna for Pulse Beam-Formability by Using 0.18µm CMOS Technology
N.N.M. Khanh, M. Sasaki, K. Asada, The Univ. of Tokyo, JAPAN

FR1D-3
Reflectarray Antenna Consisting of Circular Disk Elements: Design and Measurement
H. Hasami1, M. Kamiyab1, A. Mirkamali2, H. Eskandari2, 1K.N. Toosi Univ. of Technology, IRAN, 2Zanjan Univ., IRAN

FR1D-4
A Novel Circular Polarization Switchable Slot-Ring Array Antenna with Orthogonal Feed Circuit
Y. Usihjima, S. Feng, E. Nishiyama, M. Aikawa, Sagawa Univ., JAPAN

FR1D-5
A Compact Simple Structured Filtering Antenna Utilizing Filter Synthesis Technique
C.-K. Lin, S.-J. Chung, National Chiao Tung Univ., TAIWAN

Session FR1E
MIMO Systems

Chair: S. K. Koul, Indian Institute of Technology, INDIA
K. Nishimori, Niigata Univ., JAPAN

FR1E-1
Optimization of Diversity Antenna Directivities Based on Spherical Mode Expansion
M. Arai, M. Iwabuchi, K. Sakaguchi, K. Araki, Tokyo Institute of Technology, JAPAN

FR1E-2
Two-Element Particle Isolator to Reduce Mutual Coupling in Rod-Antenna Arrays
S. Werner1,2, L. Vitezcorreck3, A. Hirose1, 1The Univ. of Tokyo, JAPAN, 2Technische Universitaet Muenchen, GERMANY

FR1E-3
Improving Spectral Efficiency of Multisizer-MIMO Distributed Antenna Systems by Inter-Cluster Interference Cancellation

FR1E-4
LOSS and NLOS Capacity Components in MIMO Rice Fading Channels
V. M. Vergara1, S. E. Barbin2, 1Univ. of New Mexico, U.S.A, 2Univ. of Sao Paulo, BRAZIL

FR1E-5
A 60-GHz LTCC Microstrip Grid Array Antenna
J.-H. Yun1, 1Institute for Inforcomm Research, Nanyang Technological Univ., SINGAPORE

Session FR2D
Millimeter Wave Antennas, Antenna System

Chair: Y. P. Zhang, Nanyang Technological Univ., SINGAPORE
J. Takada, Tokyo Institute of Technology, JAPAN

FR2D-1
A 60-GHz LTCC Microstrip Grid Array Antenna
M. Sun1, Y. P. Zhang2, 1Institute for Information Research, SINGAPORE, 2Nanyang Technological Univ., SINGAPORE

FR2D-2
A 60-GHz Rectangular Slot Antenna with Backed Cavity in LTCC
Y.-F. Lu1, K.-F. Hung1, Y.-C. Lin1, National Taiwan Univ., Taiwan, 2MediaTek Inc., TAIWAN

FR2D-3
Analysis of Synthetic Cylindrical Array Beam-Forming in Presence of the Elements Position-Error for Semi-Anechoic Chamber Evaluation
K. Prisandana, M. Bhoraisih1, J. Takada, M. Ameya, S. Kurokawa, M. Harase1, Tokyo Institute of Technology, JAPAN, National Institute of Advanced Industrial Science and Technology, JAPAN

FR2D-4
Detection of SSR Signals in Multipath Airport Environments by a Multichannel Receiver
C. Reck1, U. Berold1, L.-P. Schmidt1, 1Univ. of Erlangen-Nurnberg, GERMANY, 2Ad GmbH, GERMANY

FR2D-5
An Experimental Study of Novel Scanning System Suitable for UWB Radar Application
F. Sakai, K. Ohta, Sakarara Tech Corp., JAPAN

Session FR2E
Sensing and Measurements 2

Chair: H. Morishita, National Defence Academy, JAPAN
M. Ameya, National Institute of Advanced Industrial Science and Technology, JAPAN

FR2E-1
An Improved Image-based Near-Field-to-Far-Field Transformation
A. Osipov1, H. Kobayashi1, H. Suzuki1, 1German Aerospace Center (DLR), GERMANY, 2Niigata Univ., JAPAN, 3KEYCOM Corp., JAPAN

FR2E-2
ERP / EIRP Measurement of a Mobile Phone in CTL Cell Using Half-wave Dipole and Optical Link
I.-K. Cho1, U. Park1, J.-I. Mun1, S.-M. Kim1, W.-J. Byun1, C.-J. Kim1, 1Institute of Technology, SWEDEN, 2National First Univ. of Science and Technology, TAIWAN

FR2E-3
A 100GHz Grooved Circular Empty Cavity for Low Loss Dielectric Substrate Measurements in W Band
T. Shimizu1, S. Akazaka2, Y. Kawahara1, Y. Kagami2, 1Utsunomiya Univ., JAPAN, 2Kawashima Manufacturing Co., Ltd., JAPAN

FR2E-4
Preliminary Investigations of Mutual Coupling Effect on Near-Field Beam Focusing
H.-S. Lui1, H.-T. Hui1, M. Persson1, 1Chalmers Univ. of Technology, SWEDEN, 2National Univ. of Singapore, SINGAPORE

FR2E-5
Electromagnetic Field Intensity on Cross-Arm Structures Caused by Electrical Arcing
A. Bojovschi, Ferry, K.L. Wong, W.S.T. Rowe, RMIT Univ., AUSTRALIA

Session FR2F
Innovative Non-Planar Filter Techniques

Chair: D. C. Park, Chungnam National Univ., REPUBLIC OF KOREA
Y. Zhang, Ryukoku Univ., JAPAN

FR2F-1
Design of Predistorted SIW Bandpass Filter with 6dB Offset
Z. Zakaria, I.C. Hunter, B.H. Ahmad, Univ. of Leeds, U.K.

FR2F-2
Stopband Improvement of Substrate Integrated Waveguide Filters Using Slotted Ground Structures
M. Salehi, E. Mehrshahi, R. Rezaiesarlak, Shahid Beheshti Univ., IRAN

FR2F-3
A Novel Coaxial-Excited FSS-Loaded Waveguide Filter with Multiple Transmission Zeros
M. Ohira1, Z. Ma1, H. Deguchi2, M. Tsuji2, 1Kanagawa Media Corp., JAPAN, 2Tohoku Univ., JAPAN

FR2F-4
Coaxial Combline Filters Using the Stepped-Impedance Resonators
H.-H. Chen1, R.-C. Hsiung1, Y.-T. Shih1, H.-Y. Chou2, M.-H. Chen2, 1National First Univ. of Science and Technology, TAIWAN, 2JITAI Technology Co. Ltd, TAIWAN, 3Hautian Univ., TAIWAN

FR2F-5
The Suspended Stripline BPF of Cross Coupling Design Using Quasi-Lumped Approach
P.-C. Chen, M.-H. Ho, W. Hong, National Changhua Univ. of Education, TAIWAN
OPEN FORUM (POSTER) SESSIONS

Wednesday, December 8
15:00 – 16:30

Chair: M. Kawashima, NTT Corp., JAPAN

WE3G-01
Design of Low Power High Linearity Front-End Circuit with a Novel LNA Architecture
C.-H. Wu, Y.-P. Lin, Lunghwa Univ. of Science and Technology, TAIWAN

WE3G-02
Application of Genetic Algorithm to Multi-Objective Optimization in LNA Design
A. Proust, M. Roy, A. Bixio, D. George, 1Indian Institute of Technology Kanpur, INDIA, 2Univ. of Manchester, U.K.

WE3G-03
A High Dynamic Range Wide-Band Switched Gain Controlled LNA in 0.18µm CMOS
B. Park, J. Jung, ETRI, REPUBLIC OF KOREA

WE3G-04
A 4mW Current-Reuse WiMAX LNA with Resistance-Feedback Topology in 0.18µm CMOS
C.-H. Wu, H.-T. Chou, Y.-G. Lyu, 1Lunghwa Univ. of Science and Technology, TAIWAN, 2National Central Univ., TAIWAN

WE3G-05
Analysis of Parasitic Effects in Ultra Wideband Low Noise Amplifier based on EM Simulation
N. Seong, Y. Lee, Y. Jung, J. Choi, Hanyang Univ., REPUBLIC OF KOREA

WE3G-06
Ultra Low Phase Noise C-Band Oscillators with Combined Frequency Stabilization
N. Shin1, J.M.L. Romero2, 1SMK Electronica, MEXICO, 2CENAM, MEXICO

WE3G-07
A W-Band Cascaded Double-Stage Distributed Low-Noise Amplifier Using Feedback Transmission Line

WE3G-08
Gm-Boosted Balanced Colpits Compared to Conventional Balanced Colpits and Cross-Coupled VCOs in Infineon HBT Technology
S. Lai, D. Kaykentemir, I. Angeltveit, B. Hanson, R. Kozhuharov, H. Zirath, Chalmers Univ. of Technology, SWEDEN

WE3G-09
Noise Suppression Using IC Resin Package Filled with Globular Ferrite
K. Yamamota1, K. Harawa2, Y. Satoh, 1Toda Kogyo Corp., JAPAN, 2Hishiyama City Univ., JAPAN

WE3G-10
Low Phase Noise Push-Push VCO using Microstrip Square Open Loop Multiple Split Ring Resonator and Rat Race Coupler
J. Choi, C. Seo, Soongsil Univ., REPUBLIC OF KOREA

WE3G-11
Analysis of Dispersion in Intermodulation Distortion in GaN HEMT Devices
S.A. Albahrami, A.E. Parker, V. Gutta, Macquarie Univ., AUSTRALIA

WE3G-12
Design Technique for MM-Wave IC Realization of the Load Network of Switched-Mode Class-E/F2 Power Amplifiers
M. Thian, V. Fusco, Queen’s Univ. Belfast, U.K.

WE3G-13
Highly Linear and Efficient Unsymmetrical Inverted Doherty Power Amplifier Employing Phase Compensation
S.-H. Kim1, M.-W. Lee1, Y.-H. Jeong1, 1Pohang Univ. of Science and Technology, REPUBLIC OF KOREA, 2Samsung Electronics Co. Ltd., REPUBLIC OF KOREA

WE3G-14
Analysis and Implementation of Inverse Class-F Power Amplifier for 3.5GHz Transmitters
Y. Xu, J. Wang, X. Zha, Southeast Univ., CHINA

WE3G-15
Design of a 40Watt Ultra Broadband Linear Power amplifier Using LDMOSFETs
M. Seol1, K. Kim1, M. Kim1, H. Kim1, J. Ieon1, J. Sim2, M. Park2, Y. Yang2, 1Sungkyunkwan Univ., REPUBLIC OF KOREA, 2Peopleworks Inc., REPUBLIC OF KOREA

WE3G-16
A 100Watt Ultra-Broadband Power Amplifier Using Silicon LDMOSFETs
J. Sim1, J. Lim1, M. Park1, S.-W. Seo2, B.-I. Mah2, 1Peopleworks Inc., REPUBLIC OF KOREA, 2LIG-Next Co., Ltd., REPUBLIC OF KOREA

WE3G-17
Modeling and Implementation of High Efficient Class-F1 Power Amplifier
J. H. Kim, G. C. Lee1, J. H. Jung, Electronics and Telecommunications Research Institute (ETRI), REPUBLIC OF KOREA

WE3G-18
Tunable Delay Compensation Circuit in Polarr Loop Transmitter for WiMAX Applications
Y.-W. Chang, C.-N. Kuo, National Chiao Tung Univ., TAIWAN

WE3G-19
Class E Dual Band PA Performances with PAPR Repartition in the Context of Nomadic Multi-Radio Architecture
A. Derf1, A. Babi2, M. Villagig3, G. Baudou3, 1LSS-DR EUMRS05 (CNRS, SUPAEL, Université Paris-Sud 11), FRANCE, 2Université Paris EST, FRANCE

WE3G-20
Efficiency Enhancement of a Tunable RF Power Amplifier by Second Harmonic Manipulation Using Thin-Film BST Ferroelectric Based on EM Simulation
A. W-Band Amplifiers and GaN HEMTs
O. Hammi, King Fahd Univ., REPUBLIC OF KOREA

WE3G-21
A High Efficiency VHF GaN HEMT Class E Power Amplifier for Public and Homeland Security Applications
E. Khansale, N. Puanggerm, S. Chalermwittuakul, King Mongkut’s Univ. of Technology North Bangkok (KMITNB), THAILAND

WE3G-22
Orthogonal Polynomial Based Hammerstein Behavioral Model for Power Amplifiers with Strong Memory Effects
O. Hammi, King Fahd Univ., Petroleum and Minerals (KFUPM), SAUDI ARABIA

WE3G-23
DC and RF Performance of AIN / GaN HEMS HBTs
S. Taking1, D. MacFarlane1, A.Z. Khokhar1, A.M. Dabir2, E. Wang1, 1Univ. of Erlangen-Nuremberg, GERMANY, 2ST-Ericsson, GERMANY

WE3G-24
A Dual-Band SiGe HBT Differential VCO using a Control Voltage for Both Band-Switching and Frequency-Tuning
W. Cao, Y. Tashiro, Y. Itoh, Shonan Institute of Technology, JAPAN

WE3G-25
Design a 5GHz Low Power CMOS LC VCO for IEEE 802.11a Application
M.-T. Hsu, J.-A. Huang, National Yuanlin Univ. of Science and Technology, TAIWAN

WE3G-26
A Ultra Low Power 5.4-GHz Current-Reuse VCO with an Internal LC Series Resonance in 0.18-µm CMOS Technology
L.-S. Shen, H.-T. Ke, C.F. Jou, National Chiao Tung Univ., TAIWAN

WE3G-27
Maximum Instability Curves of a Microwave Series-Feedback Oscillator
R.-F. Kuo, T.-H. Chu, National Taiwan Univ., TAIWAN

WE3G-28
A New Low Power Voltage Controlled Oscillator Based on Bandwidth Enhancement Technique
T.N. Nguyen, J.-W. Lee, Kyung Hee Univ., REPUBLIC OF KOREA

WE3G-29
A Low Phase Noise Oscillator Using Spur Line Resonator for 1-Band Application
B. Shrestha, R.K. Maharjan, S. Cho, K.-C. Yoon, Kwangwoon Univ., REPUBLIC OF KOREA

WE3G-30
Implementation of New SPST Switch Achieving High Quality and Small Size at Same Time
O.C. Shin, Y.S. Kim, I.H. Jeong, Korea Polytechnic Univ., REPUBLIC OF KOREA

WE3G-31
Gain Stability Analysis of a Millimeter Wave Superconducting Heterodyne Receiver for Radio Astronomy
W. Shan, Z. Li, S. Shi, J. Yang, Chinese Academy of Sciences, CHINA

WE3G-32
Filter-Based Low Phase-Noise Microwave Oscillators
Y.-W. Huang, C.-L. Chang, C.-H. Tseng, National Taiwan Univ. of Science and Technology, TAIWAN

WE3G-33
4.8MHz 42.6-45.6GHz CMOS Voltage Controlled Oscillator for IEEE 802.15.3c Wireless Communication System
Z.-Y. Huang1, C.-C. Hung2, 1National Chiao Tung Univ., TAIWAN, 2Industrial Technology Research Institute, TAIWAN

WE3G-34
A Novel 180° Microstrip Phase Shifter Based on Cascaded Right / Left-Handed Transmission Line
N. Younghansir,1 R. Phadipong,2 T. Rerngmanee, P. Boopatha3, 1Kasem Bundit Univ., THAILAND, 2National Electronics and Computer Technology Center (NECTEC), THAILAND

WE3G-35
100Watt HMIC Asymmetric PIN Diode Switch
A. Rozbicki, T. Boles, B. Brogle, R. Giacchino, M/A-COM Technology Solutions, U.S.A.

WE3G-36
Frequency Multiplier Using Diplexer Based on Composite Right / Left-Handed Transmission Line
Y.-W. Jung1, S.-H. Kim1, Y. Kim1, Y.-C. Yoon2, 1Kumoh National Institute of Technology, REPUBLIC OF KOREA, 2Kyungnam Univ., Gangneung, REPUBLIC OF KOREA

WE3G-37
A Novel Oscillator with Very Low Phase Noise Using Double H-shape Metamaterial Resonator
D. Shin1, C. Lee1, C. Park1, Y. Moon1, J. Lee2, C. Seo1, 1Soongsil Univ., REPUBLIC OF KOREA, 2Hongik Univ., REPUBLIC OF KOREA

WE3G-38
A Third-Order Subharmonic Injection Locked Oscillator with Wide Locking Range and Low Phase Noise
H.S. Lee1, H.-S. Moon2, H. Shin3, S.-M. Han4, D.-M. Lee3, S. Pyo1, Y.-S. Kim1, 1Korea Univ., REPUBLIC OF KOREA, 2Samsung Dules, REPUBLIC OF KOREA, 3Soochunhyang Univ., JAPAN, 4Seoul National Univ., JAPAN

WE3G-39
A Consideration on Numerical Calculation of Q-factors in Oscillation Circuit Based on Formulation of S Parameters
S. Takada1, K. Ohue2, F. Kuruki3, T. Ohizumi4, 1Korea National University of Technology, Japan, 2Tokyo Tech Univ. of Technology, JAPAN
OPEN FORUM (POSTER) SESSIONS

10:00 – 11:30 Thursday, December 9

SESSION THIG

Room G (315)

Chair: M. Kawashima, NTT Corp., JAPAN

THIG-01
Ultra-Wideband (UWB) Bandpass Filters with Multiple Notched Bands Using Asymmetric Dual-Line Coupling Structure
K. Song1,2, Q. Xue1,2

1City Univ. of Hong Kong, HONG KONG
2Univ. of Electronic Science and Technology of China, CHINA

THIG-02
Ultra-Wideband Band-Pass Filter with Controllable Arbitrary Notched Bands Using CRLH-TL
S. Jung, S.-I. Yang, Soongsil Univ., REPUBLIC OF KOREA

THIG-03
An Improved Wide-Band Model of CRF Filters Using Two Different Approaches
W. Sahyoun, P. Bench, J.-M. Duchamp, IMEP-LAHC Lab., FRANCE

THIG-04
The Design of Wireless Express Band Pass Filter Using a Close Loop Concept
S.-S. Lee1, J.-N. Lees2, S.-S. Cho3,1

1Electronics and Telecommunications Research Institute, REPUBLIC OF KOREA
2Hantab National Univ., REPUBLIC OF KOREA

THIG-05
Design a Small Ultra-Wideband Bandpass Filter on Al2O3 Ceramic
C.-F. Yang1, S.-M. Wu1, M.-Y. Fai1, J.-H. Tsai1, C.-J. Huang1, C.-Y. Huang2
1National Univ. of Kaohsiung, TAIWAN
2Chinese Air Force Academy, TAIWAN

THIG-06
A Triangular UWB Bandpass Filter with Wide Out-of-Band Rejection
A. Namsang1, P. Akkaraekthalin2,1

1Rajamangala Univ. of Technology Thanyaburi, THAILAND
2King Mongkut’s Univ. of Technology North Bangkok, THAILAND

THIG-07
Quasi Multi-Mode Resonator for Wideband Filter Applications
M. Nosrati1, B. Virdisi2, M. Mizraee3,1

1Islamic Azad Univ., IRAN
2London Metropolitan Univ., U.K.

THIG-08
Wideband Balanced BPF Design for MB-OFDM Applications
C.-J. Chen1, S.-W. Wang1, C.-H. Lee2, C.-L. Hsu2, H.-H. Chen1
1National Chung-Hua Univ. of Education, TAIWAN
2National Yulin Univ. of Science and Technology, TAIWAN

THIG-09
A Wide-Band Bandpass Filter Using a Novel Embedded Short-Circuited Stub Resonator
D. Sngwong, N. Sriporn, Chiang Mai Univ., THAILAND

THIG-10
Miniaturized Dual Mode Microwave Filter
W.P. Weng, Universiti Teknologi Petronas, MALAYSIA

THIG-11
A Diplexer Using Modified Stepped-Impedance Resonators
R.-Y. Yang1, C.-Y. Hung2, C.-M. Hsiung2, C.-C. Lin1

1National Ping-Tung Univ. of Science and Technology, TAIWAN
2Tung-Fang Design Univ., TAIWAN

THIG-12
Design and Fabrication of a Microstrip Triple-Passband Filter
R.-Y. Yang1, C.-Y. Hung1, J.-S. Lin2, H.-W. Wei3

1National Ping-Tung Univ. of Science and Technology, TAIWAN
2Tung-Fang Design Univ., TAIWAN
3Kao-Shu Univ., TAIWAN

THIG-13
Novel Microstrip Diplexer Based on a Dual-Band Bandpass Filter for WLAN System
C. Zhu, L. Yao, J. Zhou, Southeast Univ., CHINA
OPEN FORUM (POSTER) SESSIONS

15:00 – 16:30 Thursday, December 9

TH3G-01 Interferences of GPS Reception in PDA Phone
Y.H. Kao1, H.C. Yang1, 1Chang Hua Univ., TAIWAN, 2National Chiao Tung Univ., TAIWAN

TH3G-02 Considerations on a Long-Distance-Delay-Wave-Distortion Equalizing Method in Terrestrial Digital Broadcasting
K. Kiyama1, K. Hasei1, Y. Kawan1, Y. Momi1, 1NHK Integrated Technology, JAPAN, 2Hiroshima City Univ., JAPAN, 3NHK Engineering Administration Department, JAPAN, 2NHK Engineering Service, JAPAN

TH3G-03 A New RF Quadrature Undersampling Technique for an Ideal Software-defined Radio System
N. Matsumura, T. Toeda, M. Muraguchi, Tokyo Univ. of Science, JAPAN

TH3G-04 Experimental Evaluation of Channel Prediction Based on Linear Prediction of Frequency-Domain Parameters
S. Ozawa, S. Tan, A. Hirose, The Univ. of Tokyo, JAPAN

TH3G-05 Feasibility Study for LTE Wireless Broadband Network in Rural Victoria
S. Perradovic, F. Zalio, D. Vasic, I. Marks, G. Gay, NEC Australia, AUSTRALIA

TH3G-06 A Coherent IR-UWB CMOS Transceiver for 3-5GHz Application
B.-J. Park1, M.-C. Ha1, J.-Y. Kim1, Y.-J. Park2, Y.-S. Eo1, 1Kwangwoon Univ., REPUBLIC of KOREA, 2Korea Electrotechnology Research Institute, REPUBLIC of KOREA

TH3G-07 The Generation of Shared Cryptographic Keys Through Full Duplex Channel Impulse Response Estimation at 60GHz
M.A. Forman, D. Young, Sandia National Lab., U.S.A.

TH3G-08 Compensation of Path Imbalance in LINC Transmitters Using EVM and ACPR Look Up Tables
J. Lim, W. Kang, H. Ku, Konkuk Univ., REPUBLIC of KOREA

TH3G-09 Investigation into Antenna Performance on Read Range Improvement of Chipless RFID Tag Reader
R. Koswatta, N.C. Karmakar, Monash Univ., AUSTRALIA

TH3G-10 Moving Average Filtering Technique for Signal Processing in Digital Section of UWB Chipless RFID Reader
R. Koswatta, N.C. Karmakar, Monash Univ., AUSTRALIA

TH3G-11 A Notch Filter Alignment Circuit for Wireless Communication FDD Systems
D. Bormann, A.R. Frischen, M. Schreys, S. Kaehlert, R. Wunderlich, S. Heinen, RWTH Aachen Univ., GERMANY

TH3G-12 Dual-Band Receiver Using Passive Six-Port Down-Conversion Technique Suitable for Multi-Standards and SDR Applications
T. Bugo, B. Klippenstein, M. Saizew, M. Woods, M. Helaoui, Univ. of Calgary, CANADA

TH3G-13 Optimization of Linear Sensor Node Array for Wireless Sensor Networks Using Particle Swarm Optimization
N.N.A. Malik, M. Esa, S.K.S. Yusof, S.A. Hamzah, Universiti Teknologi Malaysia, MALAYSIA

TH3G-14 Microwave Components for the Lower Hybrid Transmission Line of ITER
S. Meschino1, S. Cuccuzzi2, F. Mirizzi1, L. Pajewski2, G. Schettini1, 1Roma Tre Univ., ITALY, 2EURATOM-ENEA Association, ITALY

TH3G-15 Pulse Reduction Method for Circularly Polarized Synthetic Aperture Radar
Y. Wissan, B. Saijadi, L. Bayuaji, J.T.S. Sumantyo, H. Koze, Chiba Univ., JAPAN

TH3G-16 Coupling Coefficient of Spiral Resonators Used for Wireless Power Transfer
I. Awa1, Y. Zhang1, T. Komori1, T. Ishizaki1, 1Yukoku Univ., JAPAN, 2Panasonic Corp., JAPAN

TH3G-17 Carbon Materials for EM Wave Absorption in V Band Applications
P.-H. Kuo1, K.-T. Lin1, T. Wang1, S.-S. Lu1, Y.-J. Yang1, S.-H. Chang1, 1National Taiwan Univ., TAIWAN, 2Chang Gung Univ., TAIWAN

TH3G-18 A Fundamental Study of Microwave Liquid Heater
S. Kawasahi1, Y. Daito1, T. Kawai1, I. Ohta1, O. Amano2, Y. Matsu1, 1Univ. of Hyogo, JAPAN, 2TOYOWADOZEIKA, Co., Ltd, JAPAN

TH3G-19 Connection Between Microstrip Circuits in Transmitter and Receiver of VSAT Systems
K. Nishimura, F. Kuroki, Kure National College of Technology, JAPAN

TH3G-20 Mobile Wireless Power Transfer Based on Line-Coupled or Line / Resonator-Coupled Structure
K. Namikoshi, S. Yukano, I. Awa, Yukoku Univ., JAPAN

TH3G-21 Full-Wave Modeling and Analysis of Screen Printed EMI Shield
L.B. Wang1, K.Y. See1, J.W. Zhang1, A.C.W. Lu1, S.T. Ng2, 1Nanyang Technological Univ., SINGAPORE, 2Singapore Institute of Manufacturing Technology, SINGAPORE

TH3G-22 Surface Electric Field Distributions of Lightweight Phantom Composed of Wave Absorber for Simplified SAR Measurement
T. Watanabe, N. Michishita, Y. Yamada, National Defense Academy, JAPAN

TH3G-23 Phantom-Model Experiment of Breast Cancer Detection Using Ultrasound-Pulse Radar with Compact Vivaldi Antennas
D. Zhang, A. Mase, Kyushu Univ., JAPAN

TH3G-24 Feasibility Study on Microwave Stroke Detection Using a Realistic Phantom and the FDTD Method
D. Ireland, M. Bialkowski, Univ. of Queensland, AUSTRALIA

TH3G-25 Basic Research of Reduction Technique for the Microwave Exposure with Conductive Cloth
A. Igarashi, Y. Okano, Tokyo City Univ., JAPAN

TH3G-26 Dynamic Measurement of Temperature Dependent Permittivity of Liquid Material Using Microwaves
T. Kobayashi, Y. Nikawa, Kokushikan Univ., JAPAN

TH3G-27 Multi-Band Power-Divider Module in LTCC Technology
M. Kawashima, T. Klein1, J. Kassner1, R. Kulke1, C. Gunster1, 1MKY GmbH, GERMANY, 2EADS Astrium GmbH, GERMANY

TH3G-28 Pulse Reduction Method for Circularly Polarized Synthetic Aperture Radar
V. Wissan, B. Saijadi, L. Bayuaji, J.T.S. Sumantyo, H. Koze, Chiba Univ., JAPAN

TH3G-29 Microstrip Technology
K.W. Eccleston, Power Divider Folded Substrate-Integrated Waveguide Out-of-Phase
M. Kawashima, Polytechnic Univ., HONG KONG
Electrotechnology Research Insistute, REPUBLIC of KOREA

Debye Series Analysis of Radiation Pressure Force Exerted
FR1G-50
J.-W. Kim1, H.-C. Son 2, D.-H. Kim 1, K.-H. Kim 2, Y.-J. Park 1,2, 1
Using CMT
Analysis of Wireless Energy Transfer to Multiple Devices
FR1G-48
FR1G-47
Electromagnetic Scattering from Layered Rough Surfaces
FR1G-46
Invisibility Cloak
A General Layer Coordinate Transformaition Method for
FR1G-45
W. Jiang, S.-X. Gong, Y. Liu, Y.-P. Li, T. Hong, Xidian Univ., CHINA

FR1G-44
1
H. Sawada 1, K. Fujita 1, S. Kato 1, K. Sato 2, H. Harada 2,
1

FR1G-43
Tohoku Univ., JAPAN

FR1G-42
FR1G-41

FR1G-40

FR1G-39

FR1G-38

FR1G-37

FR1G-36

FR1G-35

FR1G-34

FR1G-33

FR1G-32

FR1G-31

FR1G-30

FR1G-29

FR1G-28

FR1G-27

FR1G-26

FR1G-25

FR1G-24

FR1G-23

FR1G-22

FR1G-21

FR1G-20

FR1G-19

FR1G-18

FR1G-17

FR1G-16

FR1G-15

FR1G-14

FR1G-13

FR1G-12

FR1G-11

FR1G-10

FR1G-9

FR1G-8

FR1G-7

FR1G-6

FR1G-5

FR1G-4

FR1G-3

FR1G-2

FR1G-1

Friday, December 10 15:00 – 16:30
OPEN FORUM (POSTER) SESSIONS

Session FR3G Room G (315)
Chair : M. Kawashima, NTT Corp., JAPAN

FR3G-43
Impulse Response Model for the Cubicle Environments at 60GHz
H. Sawada1, K. Fujita1, S. Kato1, K. Sato2, H. Harada2,

FR3G-44
Method of Reducing Antenna RCS Using Bionics Principle
W. Jiang, S.-X. Gong, Y. Liu, Y.-P. Li, T. Hong, Xidian Univ., CHINA

FR3G-45
A General Layer Coordinate Transformation Method for

FR3G-46
Electromagnetic Scattering from Layered Rough Surfaces with a Buried Cylinder
W. J. Ji1, C.-M. Tong2, 1Air Force Engineering Univ.,
CHINA, South East Univ., CHINA

FR3G-47
A Note on the Singularity Extraction Technique in Solving Scattering Problems for Bodies of Revolution
P. Wang, G. Xiao, Shanghai Jiao Tong Univ., CHINA

FR3G-48
Analysis of Wireless Energy Transfer to Multiple Devices Using CMT
J.-W. Kim1, H.-C. Sun1, D.-H. Kim1, K.-H. Kim1, Y.-J. Park1, 1.Univ.
of Science and Technology, REPUBLIC of KOREA, 1.Korea Electrotechnology Research Institute, REPUBLIC of KOREA

FR3G-49
Debye Series Analysis of Radiation Pressure Force Exerted on a Sphere Induced by Laser-Sheet Beam
R. Li, X. Han, Z. Wu, F. Lu, Xidian Univ., CHINA

FR3G-50
Improved Meshless Method Using Direct Shape Function for Computational Electromagnetics
H. Ranzmoo, M. Movahhedi, A. Hakimi, Shahid Bahonar Univ. of Kerman, IRAN

FR3G-52
Acceleration of Finite Difference Time Domain Method Using Cell Broadband Engine Processor
S. Watanabe, O. Hashimoto, Aoyama Gakuin Univ., JAPAN

FR3G-53
Generalized Heat Transition Matrix for Multi-Domain Electro-Thermal Analysis
Y. Zhou, G. Xiao, J. Mao, Shanghai Jiao Tong Univ., CHINA

FR3G-54
Development of the Nearly PML for Four-Stages Split-Step Unconditionally-Stable FDTD Method
Y.-D. Kong, Q.-X. Chu, South China Univ. of Technology, CHINA

FR3G-55
Numerical Determination of Nuclear Magnetic Resonance Frequency of the Single-Qubit Operation in Kane’s Quantum Computer
H. Miezaki1, H.T. Hu1, H.S. Liu1, 1.National Univ. of Singapore, SINGAPORE, 1.Chalmers Univ. of Technology, SWEDEN

FR3G-56
To Study an Accurate Method for Analysis of Substrate Integrated Waveguide
H. Sadreazami, E. Mehrshahi, E. Abaei, Shahid Beheshti Univ., IRAN

FR3G-57
Sensor Network Installing SAW Sensors for Living and Care Environments
M. Hikata, Y. Kato, J. Hosaka, Kogakuen Univ., JAPAN

FR3G-58
A New Approach for Radiation Pattern Measurement of RFID Tag Antenna Under Chip-Loaded Condition Using Friis Equation
F.-Y. Kuo, C.-Y. Chang, H.-T. Hsu, T.-J. Huang, R.-S. Sung, Yuan Ze Univ., TAIWAN

FR3G-59
The Composite Scattering of Target and Sea Surface in Near Field
X. Wang1, Z. Liang2, Y. Wu1, R. Li1, Z. Wu1, Xidian Univ., CHINA, 1.National Key Lab. of Electromagnetic Environmental Research, CHINA

FR3G-60
Broadband Electromagnetic Field Strength Sensors for 40-300GHz Based on Planar Log Per Antennas and High-Speed Schottky Diodes
M. Salhi, T.K. Ostmann, T. Schrader, Physikalisch-Technische Bundesanstalt (PTB), GERMANY

FR3G-61
A Circularly-Polarized Microstrip Grid Array Antenna for 60GHz Radios
B. Zhang, Y.P. Zhang, Nanyang Technological Univ., SINGAPORE

FR3G-62
Design of a Miniature Dual-Band CPW Monopole Ceramic Antenna
K. H. Chen1, Y.-T. Hu1, C.-M. Cheng2, C.-F. Yang3, Z.-W. Wang4,

FR3G-63
Dual-Band Aperture-Coupled Patch Antenna for RFID Mobile Terminal Applications

FR3G-64
Ultra-Wideband Planar Monopole Antenna
Y. Gao, Z. Zhang, W. Chen, Z. Feng, Tsinghua Univ., CHINA

FR3G-65
Low Cost 24GHz Patch Array Antenna for High Sensitivity EM Sensor
Y.-B. Iuag1, D.-Y. Park1, C.W. Jung1, 1.Electronics and Telecommunications Research Institute (ETRI), REPUBLIC of KOREA, 2.South Korea National Univ. of Technology, REPUBLIC of KOREA

FR3G-66
Novel Design of Planar Multi-Band U-Shaped Monopole Antenna with Compact Operation for WiMAX Application
J.-H. Lu, W.-C. Chou, National Kaohsiung Marine Univ., TAIWAN

FR3G-67
Compact Printed Hepta-Band Monopole Antenna for Mobile Devices
Y.-J. Chi, F.-C. Chen, National Chiao Tung Univ., TAIWAN

FR3G-68
Creating Multiple Band Notches in An Extremely Wideband Printed Monopole Antenna
J. Liu1, K.P. Esselle1, S. Zhong2, 1Macquarie Univ., AUS-TRALIA, 2Shanghai Univ., CHINA

FR3G-69
Application of Lebesque Fractal Structures for Multiband and Circularly Polarized Microstrip Antennas
H. Orai, S. Hedayati, Iran Univ. of Science and Technology, IRAN

FR3G-70
Quad-Band PIFA Design Using Folded and Parasitic Strips

FR3G-71
Printed a Compact Dual-Band Monopole Antenna on Ceramic Substrate

FR3G-72
Compact Tri-Band Antenna with a Parasitic Loop Strip
K. Huang, S.-Y. Wu, C. Hsieh, C.-C. Hung, T. Chiu, National Central Univ., TAIWAN

FR3G-73
Internal Mobile Antenna for LTE / DCN / US-PCS
W.Y. Lee1, Y.S. Jeong 2, S.H. Lee 1, J.R. Oh 1, K.S. Hwang 1,

FR3G-74
A Compact Wide-Band Triple-Band Two-Strip Monopole Antenna for Wireless Handsets
J.-F. Li, Q.-X. Chu, South China Univ. of Technology, CHINA

FR3G-75
A Novel RFID Tag Antenna for Matching Complex Impedances on 915MHz and 2.45GHz Bands
W. Lin, Q.-X. Chu, National Chiao Tung Univ., TAIWAN

FR3G-76
Internal MIMO Antenna to Selectively Control Isolation Characteristic by Isolation Aid in Multiband Including LTE Band
S. Lee, J.W. Lee, Karam Solution, REPUBLIC of KOREA

26
FR3G-32
Compact Textile Patch Antenna for Wearable Fabric Applications
S. Ha1, S. Lee1, J.-H. Yoo1, C. Jung1, Seoul National Univ. of Technology, REPUBLIC of KOREA, Korea Advanced Institute of Science and Technology (KAIST), REPUBLIC of KOREA

FR3G-33
A Compact Coupled-Fed Penta-band Antenna for Mobile Phone Application
C. L. Tang1, J. Y. See1, Y. F. Wu1, Auden Techno Corp., TAIWAN, National Defense Univ., TAIWAN

FR3G-34
Design of a Novel Chipless RFID Tag Using a Simple Bandstop Resonator
T. Kim, U. Kim, J. Kwon, J. Choi, Hanyang Univ., REPUBLIC of KOREA

FR3G-36
Compact UWB Diversity Antenna for Mobile Phone Applications
S. Seo, B. Lee, Kwangwoon Univ., REPUBLIC of KOREA

FR3G-37
Compact Square Quadrifilar Spiral Antenna with Circular Polarization for UHF Mobile RFID Reader
W. J. Soo1, H. L. Lee1, M.-Q. Lee1, S.-B. Min1, J.-W. Yu1, Korea Advanced Institute of Science and Technology (KAIST), REPUBLIC of KOREA, Ulsan National Univ., REPUBLIC of KOREA, Agiltron Corp., REPUBLIC of KOREA

FR3G-38
Simultaneous Switching Noise (SSN) Suppression with a New Embedded Unplanar Compact Electromagnetic Bandgap (EUCBEG) Structure
M. Arghiani, Ferdowsi Univ. of Mashhad, IRAN

FR3G-39
6.8-10GHz Frequency Synthesizer for Software-Defined Radio
H.-C. Chen1, S.-S. Lu1, National Taiwan Univ. of Science and Technology, TAIWAN, National Taiwan Univ., TAIWAN

FR3G-40
A 3.26- to 4.38GHz Divide-by-3 Injection-Locked Frequency Divider
P.-C. Ke, Y.-C. Chiang, National Chung Hsing Univ., TAIWAN

FR3G-41
Non-Linear AC/DC Mixed-Mode RF Simulation to Estimate EVM Temperature Drift of a GaAs pHEMT Wideband IQ Modulator IC
K. Ihara, Olympus Communication Technology of America, U.S.A.

FR3G-42
A Chargepump with Enhanced Current Matching and reduced Clock-Feedthrough in Wireless Sensor Nodes
M. Jung, A. Ferizi, R. Weigel, Univ. of Erlangen-Nuremberg, GERMANY

FR3G-43
A DC to 4GHz Fully Differential Wideband digitally Controlled Variable Gain Amplifier
T. B. Kumar, K. Ma, K. S. Yeo, S. Mou, M. Nagarajan, J. Gu, K. M. Lim, Y. Lu, H. Yu, Nanyang Technological Univ., SIN-GAPORE

FR3G-44
Large Signal Model and CAD Implementation of Impact Ionization for FET Devices
I. Angelov, M. Ferndahl, Chalmers Univ., SWEDEN

FR3G-46
Robust MM-Wave Large-Signal Time-Domain FET Model
S. Asadi, M.C.E. Yagoub, Univ. of Ottawa, CANADA
MIMO devices have been expected to provide a major impact on RF architectures by reducing size and power dissipation, and adding new functions, such as reconfigurability. Because filters and switches are key devices for RF-MEMS utilization, they are selected to be present in this work shop.

The first and second talks are related to filters. The first one will present FBAR technology that has been widely used as filters and duplexers in the mobile phone. It also presents a coupled resonator filter that shows promise as a low phase noise device with tunability for VCO applications.

The second talk will present a methodology for designing and implementing tunable cavity-based RF-MEMS filters. The filters are based on evanescent-mode cavities that can be tuned by MEMS diaphragms appropriately placed over their capacitive posts. Analog tuning ratios of over 2:1 can be realized in this technique while maintaining a quality factor above 400-650.

The third and last talks are related to switches. The third one will present a unique RF-MEMS switch. The original mechanical structure based on a simply supported membrane enhances reliability by active restoring force and controlled positive/negative out of plane moving. Detailed results and advantages will be exposed concerning hot switching and lifetime. The last talk will present a commercialized ohmic contact RF MEMS SPDT switch, which has a low insertion loss of 1.0 dB and a high isolation of 40 dB, up to 10 GHz, and is packaged in 5.2 × 3.0 × 1.8 mm³. The technology developed for the switch will be presented.

WS1C-1 Applications of FBAR and CRF to the Field of Time and Frequency
Rich Ruby, Avago Technologies, U.S.A.

WS1C-2 New Directions in MEMS for RF Front-Ends and Sensors
Dimitrios Peroulis, Purdue Univ., U.S.A.

WS1C-3 A New Mechanical Structure to Enhance Reliability of RF MEMS Switches
Karim Segueni, DelfMEMS, FRANCE

WS1C-4 OMRON's Ohmic Contact RF MEMS Switch
Tomonori Seki, OMRON, JAPAN

Multi-Input Multi-Output (MIMO) is one of the hottest technologies for mobile radio systems. In order to evaluate the performance of MIMO terminal accurately, we must use actual antennas mounted on the mobile terminal in actual multipath-rich propagation environments.

There are two types of OTA (Over-The-Air) schemes to create the environments equivalent to actual multipath-rich propagation environments in a test bed. One is a radio echoic chamber named “reverberation chamber” surrounded by 6-plate metallic walls. The other is a fading emulator which arranges a number of actual radiation antennas representing scattering objects. Both schemes have merits and demerits with regard to their accuracy, feasibility and cost for examples.

In this workshop, we present two types of OTA schemes from various points of view and show the performances of MIMO terminal which were obtained in a test bed by using the OTA schemes and in a real field test.

WS1D-1 MIMO-OTA Measurement Schemes for User Terminal Evaluation: Fading Emulator vs. Reverberation Chamber
Yoshio Karasawa, The Univ. of Electro-Communications, JAPAN

WS1D-2 Spatial Correlation Characteristics to be observed in Spatial Channel Emulator for MIMO-OTA Testing
Tetsuro Imai and Yoshiki Okano, NTT DOCOMO, INC., JAPAN

WS1D-3 Over the Air Testing of Multi-Antenna Terminals
Pekka Kyösti, Elektrobit, FINLAND

WS1D-4 Effectiveness of a Fading Emulator Using a Dual-Band Handset MIMO Antenna by Comparison with a Propagation Test
Atsushi Yamamoto, Panasonic Corp., JAPAN

Recent Trends and Prospects of Wide Bandgap Semiconductor Devices
Organizers: Masaaki Kuzuhara, Fukui Univ., JAPAN
Shoichi Narahashi, NTT DOCOMO, INC., JAPAN
Chair: Shoichi Narahashi, NTT DOCOMO, INC., JAPAN

Today, semiconductor devices play an important role to support highly-organized infrastructures such as internet or mobile communication systems where people can get necessary information whenever and wherever they want.

Wide bandgap semiconductor devices are expected to provide superior performances in RF signal processing fields as well as power switching applications compared with silicon-based semiconductor devices from the standpoint of higher operating frequency, higher breakdown voltage, and higher power density.

In particular, gallium nitride (GaN) devices have been developed for diversifying applications such as mobile base stations, automobile power units and millimeter-wave ICs; however, there still remain technical issues to extract their full potential.

This workshop introduces recent research and development
activities on GaN-based devices, including wireless power transmission application and large-signal device modeling. This workshop also discusses future prospects and challenges of wide bandgap semiconductor devices.

WS2A-1 Application of GaN Devices to Wireless Power Transmission
Yasuo Ohno, Univ. of Tokushima, JAPAN

WS2A-2 On the Compact Equivalent Circuit Modeling of GaN FET
Il'tcho Angelov, Chalmers Univ. of Technology, SWEDEN

WS2A-3 New Circuit Technologies for GaN HEMT Devices
Koji Yamanaka, Mitsubishi Electric Corp., JAPAN

WS2A-4 Advances in GaN HEMT MMIC Amplifiers
Satoshi Masuda, Fujitsu Ltd., JAPAN

Tuesday, December 7 13:30 – 16:30
Room B (302)

Recent Progress in Filters and Couplers
Organizer: Zhewang Ma, Saitama Univ., JAPAN
Chair: Zhewang Ma, Saitama Univ., JAPAN

With the constant evolution in telecommunication field, there are always strong technical and market demands for high performance microwave filters and couplers. This workshop presents recent progress in both the design methods and fabrication techniques of microwave filters and couplers.

The first talk focuses on two-dimensional design techniques of waveguide-type directional couplers, including substrate integrated waveguide (SIW) couplers and PTFE-filled waveguide couplers. The second talk provides discussions on many important aspects in the design and manufacturing of SIW filters, such as the choice of filter topologies and substrates, fabrications on various substrates, and tradeoffs between the efficient design and performance of SIW filters.

In the third talk, after multiple solutions of dual-band filters are described, a general design method of N-band planar filters is presented in order to develop multi-band filters in multi-mode/multi-band communication systems. The final talk introduces first a measurement method of the conductivity of interface between a metal film and a dielectric substrate. Then, examples are provided to show how to use the correctly evaluated interface conductivities to improve the fabrication process of conductor films in low temperature co-fired ceramics (LTCCs) and to better the design and performance of LTCC filters.

WS2B-1 A Recent Trend in Waveguide-Type Directional Couplers — Focusing on Two-Dimensional Design Techniques —
Isao Ohta1 and Mitsuyoshi Kishihara2, Univ. of Hyogo, Okayama Prefectural Univ., JAPAN

WS2B-2 Systematic Overview of Substrate Integrated Waveguide (SIW) Filters: Design and Performance Tradeoffs
Xiao-Ping Chen and Ke Wu, Ecole Polytechnique, CANADA

WS2B-3 N-Band Planar Filter
Cedric Quendo, Univ. of Brest, FRANCE

WS2B-4 Measurement Method of Interface Conductivity and Effect of Interface Conductivity on LTCC Filters
Akira Nakayama and Hiromichi Yoshikawa, KYOCERA Corp., JAPAN

Tuesday, December 7 13:30 – 16:30
Room C (303)

WS2C

Tunable RF-Components and their Applications to Wireless Systems
Organizer: Makoto Taromaru, Fukuoka Univ., JAPAN
Chair: Makoto Taromaru, Fukuoka Univ., JAPAN

Necessity for tunable RF components is growing up as software defined radio (SDR) and reconfigurable radio technologies are being studied and developed toward “ubiquitous network society.” This is because it is difficult for an analogue-to-digital converter to process the received signal in RF, IF, or even in baseband stage before the channel selection filter and the AGC amplifier due to the wide dynamic range of the signal. In other words, a tunable or switchable filter is necessary to suppress unwanted signals in the spectrum received.

This workshop presents some recent advancements of tunable components, especially on capacitors and filters, as well as exploring their technical practicability and pragmatic application for radio transceivers and systems.

WS2C-1 Reconfigurable Font-End Utilizing Digitally Tunable Capacitors
Rodd Novak, Peregrine Semiconductor Corp., U.S.A.

WS2C-2 RF-MEMS Tunable Capacitor for Cellular Phones
Tamio Ikehashi, Toshiba Corp., JAPAN

WS2C-3 Tunable SAW/BAW Filters: Dream or Reality?
Ken-ya Hashimoto, Chiba Univ., JAPAN

WS2C-4 Research and Development on Tunable RF Devices for Reconfigurable
Hirosi Harada, NICT, JAPAN

Tuesday, December 7 13:30 – 16:30
Room D (304)

WS2D

Short-Range Wireless Communications and Technologies
Organizer: Kenjiro Nishikawa, NTT Corp., JAPAN
Chair: Tomohiro Seki, NTT Corp., JAPAN

Short-range / Near-field wireless communication systems and technologies have been rapidly evolving and exhibited many benefits for several applications such as; chip-to-chip interconnect, high-speed wireless data transmission, and wireless delivery of energy. These technologies provide cost-reduction of LSI / memory packaging, compactness, higher wireless transmission speed, and so on.
WORKSHOPS

This workshop highlights recent achievements and discusses the challenges in this technical field.

Topics include, ThruChip Interface (TCI) technology which is an emerging wireless data link between stacked chips in a package, CMOS-based Large-Scale Radiating Integrated (LSRI) circuits and its application to Near-Field Direct Antenna Modulation (NFDAM), Short-range MIMO technology and its application to ultra-high-speed wireless link, and wireless power and information transmission technology for medical applications.

WS2D-1 ThruChip Interface
Noriyuki Miura, Keio Univ., JAPAN

WS2D-2 Large-Scale Radiating Integrated Circuits
Aydin Babakhani, Rice Univ., U.S.A.

WS2D-3 Short Range MIMO Technologies
Kentaro Nishimori, Niigata Univ., JAPAN

WS2D-4 Wireless Power Delivery and Data Transmission for Miniature Medical Implants
Ada Poon, Stanford Univ., U.S.A.

SHORT COURSES

Tuesday, December 7 9:00 – 12:00

Room A (301)

SC1A

Modeling and Design Techniques for High Power Amplifiers and their Performance

Organizers: Kazutomi Mori, Mitsubishi Electric Corp., JAPAN
Koji Yamanaka, Mitsubishi Electric Corp. JAPAN

Chairs: Kazutomi Mori, Mitsubishi Electric Corp., JAPAN
Koji Yamanaka, Mitsubishi Electric Corp. JAPAN

SC1A-1 Linear Power Amplifier Design for Mobile Communication—From the Device to the Circuit—
Bumman Kim, Pohang Univ. of Science and Technology, KOREA

PAs for the next generation wireless communication systems should be efficient as well as linear.

To introduce design technique of the linear PA, the nonlinear characteristics of transistors, i.e., FET and Bipolar are discussed.

Then, the linear PA design procedure is described. The highly efficient switching/saturated PAs become very important technology since advanced architectures can deliver the required linearity while preserving the efficiency.

Those PAs and transmitter architectures are also introduced. To cover the broad area of the PAs, it is assumed that audience has a basic knowledge of the PA design.

Room B (302)

SC1B

Electromagnetic Metamaterials and their Microwave Applications

Organizer: Atsushi Sanada, Yamaguchi Univ., JAPAN
Chair: Atsushi Sanada, Yamaguchi Univ., JAPAN

SC1B-1 Electromagnetic Metamaterials and their Microwave Applications
Christophe Caloz, École Polytechnique de Montréal, CANADA

After ten years of intense research activities, metamaterials have become one of the most vibrant and promising field of radio science and technology. Following the discovery of novel electromagnetic concepts, such as negative refraction, super-resolution imaging and cloaking, an impressive number of novel metamaterial component, antenna and system concepts and applications have been developed over the past few years.

This course will present an up-to-date overview of metamaterial science and technology. It will first introduce the fundamentals of metamaterials, including basic definitions, historical milestones, an intuitive description of the main metamaterial properties, and the genesis of modern metamaterials.

Next, it will present the two classes of “conventional” metamaterials, the resonant-particle and the transmission-line metamaterials, showing their fundamental differences and similarities, and establishing their theoretical foundations, with a particular emphasis on composite right/left-handed (CRLH) transmission line metamaterials, which have lead to the most significant microwave applications of the field. Upon this basis, a suite of applications will be overviewed, including enhanced-bandwidth and multi-band components, tight broadband couplers, agile power combiners, real-time Fourier devices, smart leaky-wave and resonant antennas, active beam-shaping systems, refractors, meta-substrates and non-reciprocal radomes.

Finally, the novel concept of multi-scale metamaterials, believed by the author to prelude the next generation of metamaterials, will be discussed. Such materials are structured at different scales, the micro, nano and atomic scales, and their simultaneous exploitation of several of these scales leads to unprecedented opportunities for unprecedented microwave devices based on material dispersion, anisotropy and quantum engineering.

This next-generation metamaterials will be illustrated by the example of ferromagnetic nanowire metamaterials, whose unique properties of double ferromagnetic resonance, self-biasing, spin-torque and related novel applications will be briefly presented. Concluding remarks will summarize the course and discuss future directions of the field.
Microwave Exhibition 2010 will be held in association with the 2010 Asia-Pacific Microwave Conference (APMC 2010) at the Exhibition Hall A and B in Paciﬁco Yokohama, the venue of the conference, from Wednesday, December 8 to Friday, December 10, 2010. More than 300 microwave-related companies from all over the world will display their latest products and services including systems, sub-systems, components, parts, materials, instruments and CAD softwares. The main language in the Exhibition Hall is Japanese. At the same time, the following attractive programs are also featured:

· Technical seminars on the new technologies and products presented by the exhibitors.
· Tutorial lectures related to foundations for microwave semiconductor devices, active and passive circuits, and mobile & fixed telecommunication systems, provided in Japanese by Japanese authorities.
· The historical exhibition of microwave technologies in Japan, where more than 100 panels as well as products with respect to antennas, semiconductors, ﬁlters and systems will be displayed.
· The university exhibition, where more than twenty universities will demonstrate their unique research activities in the ﬁeld of microwaves.

This exhibition is open to all visitors with no entrance fee. In order to enter, you need to show your participant badge, which is given to you after the free registration at the reception desk in the Exhibition Hall. The Conference participants in APMC 2010 can also enter the exhibition hall freely by showing the registration name tag. All visitors will be provided with a free guidebook.

EXHIBITORS

(Following is the list of exhibiting companies as of August 31, 2010, and those who exhibited in 2009)

ADMETECH INC.
ADVANTEST CORP.
AET, INC.
AGILENT TECHNOLOGIES JAPAN, LTD.
AI ELECTRONICS LTD.
AMT, INC.
AMTECHS CORP.
ANRITSU CORP.
ANSOFT JAPAN K.K.
ARUMOTECH CORP.
ASNICS CO., LTD.
AT COMMUNICATIONS K.K.
ATN JAPAN, LTD.
AWR JAPAN K.K.
CANDOX SYSTEMS, INC.
CASCADE MICROTech JAPAN
CHRONICL INC.
COMCRAFT CORP.
CORNES DODWELL LTD.
DAIKEN CHEMICAL CO., LTD.
DEVICE CO., LTD.
DIGITAL SIGNAL TECHNOLOGY, INC.
E&C ENGINEERING K.K.
ELECTRONIC NAVIGATION RESEARCH
INSTITUTE
EPoCH MICROLELECTRONICS, INC.
E-Song EMC CO., LTD.
ETS-LINDEN JAPAN, INC.
FARAD CORP.
FUTURELYNK TECHNOLOGIES INC.
FUII DENKA INC.
FUJITSU LTD.
FURUKAWA C&B CO., LTD.
FUSOH SHOJI CO., LTD.
G. T. ELECTRONICS CORP.
HIRAI SEMITSU KOGYO CORP.
HISOL, INC.
HITACHI, LTD.
HI-TECHNOLOGY TRADING, INC.
HITITITE K.K.
IDAQS CO., LTD.
INNERTRON CO., LTD.
INTERTEC CORP.
ITOUCHI TECHNO-SOLUTIONS CORP.
JUNKOSHA INC.
KANSAI DENSHI INDUSTRY CO., LTD.
KANTO ELECTRONIC APPLICATION
DEVELOPMENT INC.
KAWASHIMA MANUFACTURING CO., LTD.
KEISOKU ENGINEERING SYSTEM CO., LTD.
KEYCOM CORP.
KODEN ELECTRONICS CO., LTD.
KOZO KEIKAKU ENGINEERING INC.
LPKF JAPAN CO., LTD.
MAJ CO., LTD.
MAYCOM JAPAN CO., LTD.
MEL INC.
MICRO DENSHI CO., LTD.
MICROWAVE ABSORBERS INC.
MICROWAVE FACTORY CO., LTD.
MIDORIYA ELECTRIC CO., LTD.
MINI-CIRCUITS YOKOHAMA, LTD.
MITS ELECTRONICS
MITSUBISHI ELECTRIC CORP.
MITSUBISHI ELECTRIC METECS CO., LTD.
MITSUBISHI ELECTRIC TOKKI SYSTEMS CORP.
MITSUHIRO CO., LTD.
MITSUMAMI CO., LTD.
MIYAZAKI ELECTRIC WIRE & CABLE CO., LTD.
MORITA TECH CO., LTD.
M.-RF CO., LTD.
NAGASE & CO., LTD.
NAKAO CORP.
NATIONAL INSTRUMENTS JAPAN CORP.
NEC ELECTRONICS CORP.
NET COMSEC CO., LTD.
NETWELL CORP.
NEW METALS AND CHEMICALS CO., LTD.
NIHON DEMPA KOGYO CO., LTD.
NIHON DENGYO KOSAKU CO., LTD.
NIHON KOSHUHA CO., LTD.
NIHON RADIALL K.K.
NIPPON AIRCRAFT SUPPLY CO., LTD.
NIPPON PILLAR PACKING CO., LTD.
NPS, INC.
NXP SEMICONDUCTORS JAPAN LTD.
OMRON CORP.
ORIENT MICROWAVE CORP.
OSHIMA PROTOTYPE ENGINEERING CO., LTD.
PTM CORP.
PTT CO., LTD.
PVJ INC.
R&K CO., LTD.
RENESAA ELECTRONICS CORP.
REPRIC CORP.
REPORIS E INC.
RFTESTLAB CO., LTD.
RICHARDSON ELECTRONICS K.K.
RIKEI CORP.
RIKEN DENGU SEIZO CO., LTD.
RIKEN ENVIRONMENTAL SYSTEM CO., LTD.
ROGERS JAPAN INC.
ROHDE & SCHWARZ JAPAN K.K.
SAIKA TECHNOLOGICAL INSTITUTE
SANKEN CORP.
SEIKOH GIKEN CO., LTD.
SEKI TECHNO TECHNOL CORP.
SHINKO PHOTO SERVICE INC.
SHOSHI CO., LTD.
SONNET GIKEN CO., LTD.
SPC ELECTRONICS CORP.
STACK ELECTRONICS CO., LTD.
SUMITOMO ELECTRIC INDUSTRIES, LTD.
SUSS MICROTEC K. K.
SYSTECK RESEARCH INC.
TAKITEK K. K.
TAMA DEVICE CO., LTD.
TAMAGAWA ELECTRONICS CO., LTD.
TECDIA CO., LTD.
TECHNO PROBE CO., LTD.
TOKIN EMIC ENGINEERING CO., LTD.
TOKO TRADING INC.
TOKODENSHI CO., LTD.
TOKYO KEIKI INC.
TOShiba CORP.
TOYAMA DENKI BUILDING CO., LTD.
TOYO CORP.
TOYO MEDIC CO., LTD.
TSS JAPAN CORP.
U.S.HI-TECH INDUSTRIES JAPAN CORP.
VEGA TECHNOLOGY INC.
WAKAI MANUFACTURING CO., LTD.
WAKO COMMUNICATION INDUSTRIAL
CO., LTD.
WAVE TECHNOLOGY INC.
WIN SEMICONDUCTORS CORP.
<table>
<thead>
<tr>
<th>Company Name</th>
<th>Address</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exibition</td>
<td></td>
</tr>
<tr>
<td>Microwave Development Laboratories, Inc.</td>
<td></td>
</tr>
<tr>
<td>Microwave Device Technology</td>
<td></td>
</tr>
<tr>
<td>Microwave Dynamics</td>
<td></td>
</tr>
<tr>
<td>Microwave Engineering Corp.</td>
<td></td>
</tr>
<tr>
<td>Microwave Innovations</td>
<td></td>
</tr>
<tr>
<td>Microwave Resources Corp.</td>
<td></td>
</tr>
<tr>
<td>Microwave Solutions, Inc.</td>
<td></td>
</tr>
<tr>
<td>Microwave Technology, Inc.</td>
<td></td>
</tr>
<tr>
<td>Millimeter Wave Products, Inc.</td>
<td></td>
</tr>
<tr>
<td>Millireng Technologies, Inc.</td>
<td></td>
</tr>
<tr>
<td>MIMIX Broadband Inc.</td>
<td></td>
</tr>
<tr>
<td>Mini-Circuits</td>
<td></td>
</tr>
<tr>
<td>Mini-Circuits Laboratory, Inc.</td>
<td></td>
</tr>
<tr>
<td>Mini-Systems, Inc.</td>
<td></td>
</tr>
<tr>
<td>Miteq, Inc.</td>
<td></td>
</tr>
<tr>
<td>Modico, Inc.</td>
<td></td>
</tr>
<tr>
<td>ModeLithics Inc.</td>
<td></td>
</tr>
<tr>
<td>MPE Device Co., Ltd.</td>
<td></td>
</tr>
<tr>
<td>M-Pulse Microwave Inc.</td>
<td></td>
</tr>
<tr>
<td>Muegge Electronic GMBH</td>
<td></td>
</tr>
<tr>
<td>Nearfield Systems, Inc.</td>
<td></td>
</tr>
<tr>
<td>NEL Frequency Controls, Inc.</td>
<td></td>
</tr>
<tr>
<td>Nextec Microwave &amp; RF Inc.</td>
<td></td>
</tr>
<tr>
<td>Nicromatic</td>
<td></td>
</tr>
<tr>
<td>Nitronex Corp.</td>
<td></td>
</tr>
<tr>
<td>Noisecom</td>
<td></td>
</tr>
<tr>
<td>Norden Millimeter, Inc.</td>
<td></td>
</tr>
<tr>
<td>Northrop Grumman Space Technology</td>
<td></td>
</tr>
<tr>
<td>Microelectronic Products &amp; Services</td>
<td></td>
</tr>
<tr>
<td>Nurad Technologies, Inc./Cobham</td>
<td></td>
</tr>
<tr>
<td>Defense Electronic Systems</td>
<td></td>
</tr>
<tr>
<td>Ohmite</td>
<td></td>
</tr>
<tr>
<td>Oleson Microwave Labs.</td>
<td></td>
</tr>
<tr>
<td>Omniiyg, Inc.</td>
<td></td>
</tr>
<tr>
<td>Orbit/FR Engineering Ltd.</td>
<td></td>
</tr>
<tr>
<td>Oscilloquartz SA</td>
<td></td>
</tr>
<tr>
<td>Passive-Plus, Inc.</td>
<td></td>
</tr>
<tr>
<td>Pasternack Enterprises, Inc.</td>
<td></td>
</tr>
<tr>
<td>Pendulum, Inc.</td>
<td></td>
</tr>
<tr>
<td>Penn Engineering Components</td>
<td></td>
</tr>
<tr>
<td>Peregrine Semiconductor, Inc.</td>
<td></td>
</tr>
<tr>
<td>Phase One Microwave, Inc.</td>
<td></td>
</tr>
<tr>
<td>Photline Technologies</td>
<td></td>
</tr>
<tr>
<td>Pilkor Electronics Co., Ltd.</td>
<td></td>
</tr>
<tr>
<td>Planar Monolithics Industries, Inc.</td>
<td></td>
</tr>
<tr>
<td>Polyphaser Corp.</td>
<td></td>
</tr>
<tr>
<td>Presiido Components, Inc.</td>
<td></td>
</tr>
<tr>
<td>Pulsaar Microwave Corp.</td>
<td></td>
</tr>
<tr>
<td>Qpar Angus Ltd.</td>
<td></td>
</tr>
<tr>
<td>Qwed Sp. Z O.O.</td>
<td></td>
</tr>
<tr>
<td>Radar Technology, Inc.</td>
<td></td>
</tr>
<tr>
<td>Radial Inc.</td>
<td></td>
</tr>
<tr>
<td>Raltron Electronics Corp.</td>
<td></td>
</tr>
<tr>
<td>Reactel, Inc.</td>
<td></td>
</tr>
<tr>
<td>Relcomm Technologies, Inc.</td>
<td></td>
</tr>
<tr>
<td>Remec Defense &amp; Space, Inc./Cobham</td>
<td></td>
</tr>
<tr>
<td>Defense Electronic Systems</td>
<td></td>
</tr>
<tr>
<td>Resin Designs, LLC</td>
<td></td>
</tr>
<tr>
<td>Resotech, Inc.</td>
<td></td>
</tr>
<tr>
<td>RF Coax Inc.</td>
<td></td>
</tr>
<tr>
<td>RFIC Corp.</td>
<td></td>
</tr>
<tr>
<td>R.F. Hitec, Inc.</td>
<td></td>
</tr>
<tr>
<td>RFIC Solutions, Inc.</td>
<td></td>
</tr>
<tr>
<td>RFIC Technology Corp.</td>
<td></td>
</tr>
<tr>
<td>Rf Micro Devices, Inc.</td>
<td></td>
</tr>
<tr>
<td>RH Laboratories, Inc.</td>
<td></td>
</tr>
<tr>
<td>Rosenberger</td>
<td></td>
</tr>
<tr>
<td>Rs Microwave Company, Inc.</td>
<td></td>
</tr>
<tr>
<td>Sage Laboratories Inc.</td>
<td></td>
</tr>
<tr>
<td>Sairem</td>
<td></td>
</tr>
<tr>
<td>Sangshin Elecom Co., Ltd.</td>
<td></td>
</tr>
<tr>
<td>Sas Lansdale/Cobham Defense</td>
<td></td>
</tr>
<tr>
<td>Electronic Systems</td>
<td></td>
</tr>
<tr>
<td>Scientific Microwave Corp.</td>
<td></td>
</tr>
<tr>
<td>Sector Microwave Industries, Inc.</td>
<td></td>
</tr>
<tr>
<td>Semflex, Inc.</td>
<td></td>
</tr>
<tr>
<td>Shenglu Telecommunication Tech. Co.</td>
<td></td>
</tr>
<tr>
<td>Sierra Microwave Technology</td>
<td></td>
</tr>
<tr>
<td>Sirit Inc.</td>
<td></td>
</tr>
<tr>
<td>SkyCross, Inc.</td>
<td></td>
</tr>
<tr>
<td>Skyworks Solutions, Inc.</td>
<td></td>
</tr>
<tr>
<td>Sonnet Software, Inc.</td>
<td></td>
</tr>
<tr>
<td>Sonoma Instrument</td>
<td></td>
</tr>
<tr>
<td>Sonoma Scientific, Inc.</td>
<td></td>
</tr>
<tr>
<td>Sophia Wireless, Inc.</td>
<td></td>
</tr>
<tr>
<td>Southwest Microwave, Inc.</td>
<td></td>
</tr>
<tr>
<td>Spacek Labs, Inc.</td>
<td></td>
</tr>
<tr>
<td>Spectrum Control, Inc.</td>
<td></td>
</tr>
<tr>
<td>Spectrum Microwave, Inc.</td>
<td></td>
</tr>
<tr>
<td>Spirent Communications Performance Analysis, Wireless</td>
<td></td>
</tr>
<tr>
<td>Spirent Communications Positioning Technology</td>
<td></td>
</tr>
<tr>
<td>Stanford Research Systems, Inc.</td>
<td></td>
</tr>
<tr>
<td>Stagenes Industries, Inc.</td>
<td></td>
</tr>
<tr>
<td>State of the Art, Inc.</td>
<td></td>
</tr>
<tr>
<td>STC Microwave Systems, Arizona</td>
<td></td>
</tr>
<tr>
<td>STC Microwave Systems, Oelektron</td>
<td></td>
</tr>
<tr>
<td>Stealth Microwave, Inc.</td>
<td></td>
</tr>
<tr>
<td>Stratedge Corp.</td>
<td></td>
</tr>
<tr>
<td>Summitek Instruments, Inc.</td>
<td></td>
</tr>
<tr>
<td>Sunny Electoronics</td>
<td></td>
</tr>
<tr>
<td>SV Microwave Inc.</td>
<td></td>
</tr>
<tr>
<td>Syfer Technology, Ltd.</td>
<td></td>
</tr>
<tr>
<td>Taconic Co., Ltd.</td>
<td></td>
</tr>
<tr>
<td>Techtrol Cyclonetics, Inc.</td>
<td></td>
</tr>
<tr>
<td>Tecom Industries, Inc.</td>
<td></td>
</tr>
<tr>
<td>Tegam, Inc.</td>
<td></td>
</tr>
<tr>
<td>Teledyne Coax Switches</td>
<td></td>
</tr>
<tr>
<td>Teledyne Microwave</td>
<td></td>
</tr>
<tr>
<td>Teledyne Relays</td>
<td></td>
</tr>
<tr>
<td>Teledyne Storm Products Co.</td>
<td></td>
</tr>
<tr>
<td>Temex</td>
<td></td>
</tr>
<tr>
<td>The Ferrite Co., Inc.</td>
<td></td>
</tr>
<tr>
<td>The Ferrite Components, Inc.</td>
<td></td>
</tr>
<tr>
<td>The McGraw-Hill Co.</td>
<td></td>
</tr>
<tr>
<td>The Phoenix Company of Chicago, Inc.</td>
<td></td>
</tr>
<tr>
<td>Times Microwave Systems</td>
<td></td>
</tr>
<tr>
<td>Tlc Precision Wafer Technology, Inc.</td>
<td></td>
</tr>
<tr>
<td>Trak Microwave Corp.</td>
<td></td>
</tr>
<tr>
<td>Trak Microwave Ltd.</td>
<td></td>
</tr>
<tr>
<td>Transcom, Inc.</td>
<td></td>
</tr>
<tr>
<td>Trans-Tech, Inc.</td>
<td></td>
</tr>
<tr>
<td>T-Ray Science Inc.</td>
<td></td>
</tr>
<tr>
<td>Tqquint (Including Wj Communications)</td>
<td></td>
</tr>
<tr>
<td>Troicom, Inc.</td>
<td></td>
</tr>
<tr>
<td>Troner Inc.</td>
<td></td>
</tr>
<tr>
<td>Tru Corp.</td>
<td></td>
</tr>
<tr>
<td>Tt Electronics Semelab Ltd.</td>
<td></td>
</tr>
<tr>
<td>United Monolithic Semiconductors S.A.S.</td>
<td></td>
</tr>
<tr>
<td>Universal Microwave Technology, Inc.</td>
<td></td>
</tr>
<tr>
<td>Universal Switching Corp.</td>
<td></td>
</tr>
<tr>
<td>Vector Telecom Pty Ltd.</td>
<td></td>
</tr>
<tr>
<td>Vectron International</td>
<td></td>
</tr>
<tr>
<td>Vertex Microwave Products, Inc.</td>
<td></td>
</tr>
<tr>
<td>Vida Products, Inc.</td>
<td></td>
</tr>
<tr>
<td>Virginia Diodes Inc.</td>
<td></td>
</tr>
<tr>
<td>Viva Tech Ltd.</td>
<td></td>
</tr>
<tr>
<td>Vubiq, Inc.</td>
<td></td>
</tr>
<tr>
<td>VµBiq, Inc.</td>
<td></td>
</tr>
<tr>
<td>Wavecontrol Gmbh</td>
<td></td>
</tr>
<tr>
<td>Weinschel Associates</td>
<td></td>
</tr>
<tr>
<td>Werlatone, Inc.</td>
<td></td>
</tr>
<tr>
<td>Wide Band Systems, Inc.</td>
<td></td>
</tr>
<tr>
<td>Winchester Electronics Corp.</td>
<td></td>
</tr>
<tr>
<td>Wiph-D D.O.O.</td>
<td></td>
</tr>
<tr>
<td>W.L. Gore &amp; Associates, Inc.</td>
<td></td>
</tr>
<tr>
<td>Xicom Technology, Inc.</td>
<td></td>
</tr>
<tr>
<td>Xsis Electronics Inc.</td>
<td></td>
</tr>
<tr>
<td>Yantel Corp.</td>
<td></td>
</tr>
<tr>
<td>Zeland Software, Inc.</td>
<td></td>
</tr>
</tbody>
</table>
APMC 2010 COMMITTEE OFFICERS

ORGANIZING COMMITTEE

Chair:
Masayoshi AIKAWA       Saga University

Vice Chairs:
Kiyomichi ARAKI       Tokyo Institute of Technology
Masahiro MURAGUCHI     Tokyo University of Science
Noriharu SUEMATSU     Tohoku University

Members:
Makoto ANDO            Tokyo Institute of Technology
Eisuke FUKUDA          Fujitsu Laboratories Ltd.
Kazu HAGIMOTO         NTT Corp.
Yasuo HIRATA           ATR
Shigekazu HORI         Alpine Electronics, Inc.
Hideharu IEKI          Murata Mfg. Co., Ltd.
Osami ISHIDA           Okinawa National College of Technology
Hiroshi KONDOH         EHF Consulting
Keiichi KUBOTA         NHK
Hiroshi KUMAGAI        NICT
Toshibio MASAKI        Toshiba Corp.
Tatsuro MASAMURA       Japan Radio Co., Ltd.
Yoshihiko MIYANO       Hitachi, Ltd.
Atsushi MORITA         Mitsubishi Electric Corp.
Shigeru NAKAJIMA       Sumitomo Electric Industries, Ltd.
Kazumori NAKAMURA      Furukawa Electric Co., Ltd.
Toshi NOJIMA           Hokkaido University
Isao OHTA              University of Hyogo
Junjiro ONODA          JAXA
Seizo ONOE             NTT DOCOMO, INC.
Takashi SEKINO         Advantest Corp.
Shigeki SUYAMA         NEC Corp.
Tadashi TAKAGI         Tohoku University
Akira TAKAHASHI        Sharp Corp.
Makoto TSUTSUMI        Fukui University of Technology
Masaharu UCHINO        Anritsu Corp.
Yoshihiko UENO         Genesis Research Institute, Inc.
Masaaki UMEMISHIMA     Agilent Technologies Japan, Ltd.
Katsuya WATANABE       Ministry of Internal Affairs and Communications

Secretary:
Takao KUKI            NHK
Kenjiro NISHIKAWA     NTT Corp.

ADVISORS

Ikuo AWAI
Yasutake HIRACHI
Jui-Pang HSU
Masanobu ITOH
Masataka KAWAUCHI
Susumu KITAZUME
Yoshio KOBAYASHI
Nobuaki KUMAGAI
Kazuhiko MIYACHI
Koji MIZUNO
Shizuo MIZUSHINA
Makoto NAGAO
Yoshisuke NAITO
Sogo OKAMURA

Shigebumi SAIITO
Keiji TACHIKAWA
Tsukasa YONEYAMA

AUDITORS
Iwao MATSUMOTO       Tokyo Institute of Technology
Yoichiro TAKAYAMA    The University of Electro-Communications

INTERNATIONAL STEERING COMMITTEE

Chair:
Noriharu SUEMATSU     Tohoku University

Vice Chairs:
Hiroshi OKAZAKI       NTT DOCOMO, INC.
Atsushi SANADA        Yamaguchi University

Members:
Kunio AKADA           Rohde & Schwarz Japan K.K.
Mitsuo HASEGAWA       Japan Radio Co., Ltd.
Kanna IBE             Toshiba Corp.
Kazufumi IGARASHI     JEPICO Corp.
Hiroshi ISHIMURA      Okayama Prefectural University
Yoshiohito ISHITA     University of Hyogo
Nobuyuki ITOH         Panasonic Mobile Communications Co., Ltd.
Tadashi KAWAI         Toshiba Corp.
Hiroyuki KAYANO       Japan Radio Co., Ltd.
Atsushi KEZUKA        Fujitsu Laboratories Ltd.
Toshibide KIKKAWA     Advantest Corp.
Masayuki KIMISHIMA    Utsunomiya University
Yoshinori KOGAMI      NHK
Takao KUKI            Toshiba Corp.
Hiromichi KURODA      NEC Corp.
Ken-ichi MARUHASHI    Mitsubishi Electric Corp.
Moriyasu MIYAZAKI     Mitsubishi Electric Corp.
Kazutomi MORI         NTT DOCOMO, INC.
Shoichi NARAHASHI     Kokushikan University
Yoshio NIKAWA         NTT Corp.
Kenjiro NISHIKAWA     Sumitomo Electric Industries, Ltd.
Shiro OHARA           Renesas Electronics Corp.
Hiroshi OKABE         NHK
Satoshi OKABE         NTT DOCOMO, INC.
Hiroshi OKAZAKI       Okayama Prefectural University
Kensuke OKUBO         Toshiba Corp.
Naoko ONO             Tokyo Institute of Technology
Kei SAKAGUCHI         Yamaguchi University
Atsushi SANADA        Hachinohe Institute of Technology
Kouji SHIBATA         NTT Corp.
Tsugumichi SHIBATA    Kyoto Institute of Technology
Hitoshi SHIMASAKI     NTT DOCOMO, INC.
Yasunori SUZUKI       Tokyo Institute of Technology
Jun-ichi TAKADA       Tokyo Institute of Technology

STEERING COMMITTEE

Chair:
Kiyomichi ARAKI       Tokyo Institute of Technology

Vice Chairs:
Osamu HASHIMOTO      Aoyama Gakuin University
Takashi OHIRO         Toyohashi University of Technology

Members:
Kunio AKADA           Rohde & Schwarz Japan K.K.
Mitsuo HASEGAWA       Japan Radio Co., Ltd.
Kanna IBE             Toshiba Corp.
Kazufumi IGARASHI     JEPICO Corp.
Hiroshi ISHIMURA      Okayama Prefectural University
Yoshiohito ISHITA     University of Hyogo
Nobuyuki ITOH         Panasonic Mobile Communications Co., Ltd.
Tadashi KAWAI         Toshiba Corp.
Hiroyuki KAYANO       Japan Radio Co., Ltd.
Atsushi KEZUKA        Fujitsu Laboratories Ltd.
Toshibide KIKKAWA     Advantest Corp.
Masayuki KIMISHIMA    Utsunomiya University
Yoshinori KOGAMI      NHK
Takao KUKI            Toshiba Corp.
Hiromichi KURODA      NEC Corp.
Ken-ichi MARUHASHI    Mitsubishi Electric Corp.
Moriyasu MIYAZAKI     Mitsubishi Electric Corp.
Kazutomi MORI         NTT DOCOMO, INC.
Shoichi NARAHASHI     Kokushikan University
Yoshio NIKAWA         NTT Corp.
Kenjiro NISHIKAWA     Sumitomo Electric Industries, Ltd.
Shiro OHARA           Renesas Electronics Corp.
Hiroshi OKABE         NHK
Satoshi OKABE         NTT DOCOMO, INC.
Hiroshi OKAZAKI       Okayama Prefectural University
Kensuke OKUBO         Toshiba Corp.
Naoko ONO             Tokyo Institute of Technology
Kei SAKAGUCHI         Yamaguchi University
Atsushi SANADA        Hachinohe Institute of Technology
Kouji SHIBATA         NTT Corp.
Tsugumichi SHIBATA    Kyoto Institute of Technology
Hitoshi SHIMASAKI     NTT DOCOMO, INC.
Yasunori SUZUKI       Tokyo Institute of Technology
Jun-ichi TAKADA       Tokyo Institute of Technology
APMC 2010 COMMITTEE OFFICERS

Ken TAKEI                  Hitachi, Ltd.
Masaharu TAKEI            Sumiden Device Expert Service, Inc.
Yukio TAKIMOTO            Kokushikan University
Satoshi TANAKA            Renesas Electronics Corp.
Eiji TANIGUCHI            Mitsubishi Electric Corp.
Nobuyuki TENNO             Murata Mfg. Co., Ltd.
Osamu TSUJI               Agilent Technologies Japan, Ltd.
Hiromitsu UCHIDA          Mitsubishi Electric Corp.
Shigeru YANAGAWA          Toshiba Corp.
Naofumi YONEDA             Mitsubishi Electric Corp.

Hirosi OKAZAKI             NTT DOCOMO, INC.
Kensuke OKUBO              Okayama Prefectural University
Atsushi SANADA              Yamaguchi University
Tomohiro SEKI              NTT Corp.
Ken TAKEI                  Hitachi, Ltd.
Makoto TAROMARU            Fukuoka University
Ichihiko TOYODA             NTT Corp.
Ryo YAMAGUCHI              NTT DOCOMO, INC.
Koji YAMANAKA              Mitsubishi Electric Corp.

TECHNICAL PROGRAM COMMITTEE

Chair:
Masahiro MURAGUCHI         Tokyo University of Science

Vice Chairs:
Kazukiyo JOSHIN             Fujitsu Laboratories Ltd.
Masashi NAKATSUGAWA        NTT Corp.
Yo YAMAGUCHI                NTT Corp.

Members:
Morishige HIEDA            Mitsubishi Electric Corp.
Masayuki KIMISHIMA          Advantest Corp.
Masaaki KUZUHARA           Fuku University
Keren LI                    NICT
Zhewang MA                 Saitama University
Kazutomi MORI              Mitsubishi Electric Corp.
Koichi MURATA               NTT Corp.
Shoichi NARAHASHI           NTT DOCOMO, INC.
Kenjiro NISHIKAWA          NTT Corp.
Toshihiro NOMOTO            Tohoku Institute of Technology

OVERSEAS TECHNICAL PROGRAM COMMITTEE

Members:
Arokiaswami ALPHONES        Nanyang Technological University
Mazlina ESA                 Universiti Teknologi Malaysia
Kamran GHORBANI              RMIT University
Manas K. HALDAR             Swinburne University of Technology
Wei HONG                    Southeast University
Tzyy-Sheng Jason HORNG      National Sun Yat-Sen University
Tatsuo ITOH                 UCLA
Bumman KIM                  Pohang University of Science and Technology
Shiban Kishen KOUL          Indian Institute of Technology Delhi
Hai-Young LEE               Ajou University
Joshua Le-Wei LI            National University of Singapore
Kin-Lu WONG                 National Sun Yat-sen University
Ruey-Beii WU                National Taiwan University

AWARDS COMMITTEE

Chair:
Masami AKAIKE               Tokyo University of Science

APMC 2010 Secretariat

3F Shimmatsudo S Bldg., 1-409 Shimmatsudo,
Matsudo 270-0034, Japan      E-mail: mweapmc@io.ocn.ne.jp

http://www.apmc2010.org/